



# **Volume 1 of 1 Project Manual**

**Roof and Masonry Replacement  
Bridgeport Superior Court  
1061 Main Street, Bridgeport, CT  
Project No.: BI-JD-364**

**Prepared By:  
OakPark Architects, LLD  
312 Park Road  
West Hartford, CT  
06119**

**Josh Geballe – Commissioner**

**State of Connecticut  
Department of Administrative Services  
Construction Services  
450 Columbus Boulevard  
Hartford, CT 06103**

**Project Manual Date: 11/10/2020**



**FOR YOUR INFORMATION**

**IMPORTANT NOTICE**

**From The State of Connecticut  
Department of Administrative Services - Construction Services  
Office of Legal Affairs, Policy, and Procurement**

**THIS PROJECT MANUAL CONTAINS UPDATED REQUIREMENTS:**

**10/10/19: UPDATED 01 11 00 SUMMARY OF WORK:**

- **Section 1.11 F: Contract Documents will no longer be provided in paper format.** One (1) set of PDF (latest version) Contract Documents on Electronic Data Storage Devices will be provided to the Contractor, at no cost, on or about the time of execution of the Contract from the Architect. Additional sets of PDF (latest version) Contract Documents on Electronic Data Storage Devices from the Architect shall be available at the cost of their reproduction, to the Contractor.

**10/10/19: UPDATED 00 21 13 INSTRUCTIONS TO BIDDERS:**

- **Sections 1.10.3.2, 2.7.1, 2.7.5, Named Subcontractors and Classes of Work:** In accordance with Connecticut General Statutes 4b-93, if the Bidder intends to use **more than one** Subcontractor to perform a Class of Work, then it shall provide **ALL** of the Subcontractor Names and Proposed Dollar Values for **subcontracts in excess of \$100,000**. Failure to correctly state **ALL** of the **Named Subcontractor's prices within a particular Class of Work** on the Bid Proposal Form **shall** be cause for **rejection** of the Bid.
- **Section 2.7.8.1, 2.7.10.3, Named Subcontractor Prequalification:** For Subcontracts greater than \$500,000, the three (3) Apparent Lowest Bidders shall submit within ten (10) Calendar Days after receipt of the "Set-Aside Contractor Schedule Request" current DAS Prequalification Certificate(s) and Update (Bid) Statement(s) for each Named Subcontractor in Table 2.7 of the Bid Proposal Form, to the extent the Class of Work for the Named Subcontractor is a Prequalification Classification. This information shall be considered as part of the Bid Proposal Form and failure to comply with any portion of this requirement **shall** cause rejection of the bid.
- **Section 2.7.10.2, Bidder Performing Work as Named Subcontractor:** In the event that the Bidder names a Subcontractor to perform some, but not all, of the separate section of the specifications for a particular Class of Work, then it will be presumed, in addition, that the Bidder intends to perform the balance of the Class of Work. Post-bid, the Bidder cannot substitute a Subcontractor for one named in the Bid Proposal Form or bring in a Subcontractor for any designated subtrade work presumed to be performed by the General Contractor's own forces, except for "Good Cause" as determined by the awarding authority.

**10/10/19: UPDATED 00 41 00 BID PROPOSAL FORM:**

- **Section 2.7, Named Subcontractors and Classes of Work:** In accordance with Connecticut General Statutes 4b-93, if the Bidder intends to use **more than one** Subcontractor to perform a Class of Work, then it shall provide **ALL** of the Subcontractor Names and Proposed Dollar Values for **subcontracts in excess of \$100,000**. If applicable, Table 2.7 will include an extra page for listing additional named subcontractors.
- **Section 2.9, Insurance Coverages:** Descriptions have been edited to correlate with 00 72 13 General Conditions.

**07/12/19: UPDATED SECTION 00 72 13 GENERAL CONDITIONS:**

The following Articles of the 00 72 13 General Conditions have been revised and/or added:

- **Article 1 Definitions:** Section 1.71 and Section 1.72;
- **Article 3 Correlation of Contract Documents:** Section 3.6;
- **Article 28 Partial Payments:** Section 28.2;
- **Article 33: Owner's Right to Stop Work or Terminate Contract:** Section 33.2 and Section 33.3;
- **Article 35 Contractor's Insurance:** Section 35.1 and Section 35.6;
- **Article 36 Foreign Materials:** Section 36.3;
- **Article 40 Disclosure of Records:** Section 40.1; and
- **Article 41 Audit and Inspection of Plants, Places of Business, and Records:** Section 41.1.

**02/01/19: NEW REPORTING & CONTRACTING REQUIREMENTS FOR SUBCONTRACTOR PAYMENTS:**

**NEW REPORTING REQUIREMENTS FOR CONTRACTOR AND SUBCONTRACTOR PAYMENTS:**

- For compliance with the Connecticut General Statutes Sections 4b-95 and 49-41a, the Department of Administrative Services-Construction Services (DAS/CS) requires every Contractor (and its Subcontractors) who has been awarded a DAS/CS construction contract to log on to the State of Connecticut web-based platform, BizNet, each month and enter payments they have received from the state, from the Contractor, or from a higher tier Subcontractor (as applicable).
- The process is described as follows: The state will pay the Contractor on a monthly basis for work performed (and purchases made) by it and its Subcontractors. The Contractor will input the payment date and amount they receive from the state on a monthly basis. The Contractor's first-level Subcontractor (Tier 1 Subcontractor) will input the payment they receive from the Contractor. The second-level Subcontractor (Tier 2 Subcontractor) will input the payment they receive from the Tier 1 Subcontractor. And so on.
- Detailed instructions can be found in the DAS/CS publication, "**6002 Instructions to Contractors/Subcontractors for Entering Payments in BizNet**", available for download by going to the DAS Homepage ([www.ct.gov/DAS](http://www.ct.gov/DAS)) and selecting Doing Business With The State > State Building Construction > Publications and Forms > DAS Construction Services Library > 6000 Series.

**NEW CONTRACTING REQUIREMENTS FOR CONTRACTOR AND SUBCONTRACTOR PAYMENTS:**

- Contractors awarded a DAS/CS construction contract shall contain a provision in their subcontract agreements requiring their Subcontractors to enter payment receipt from the Contractor in the State of Connecticut web-based platform, BizNet, for work performed or purchases made in relation to state projects.



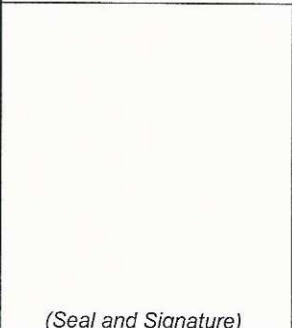
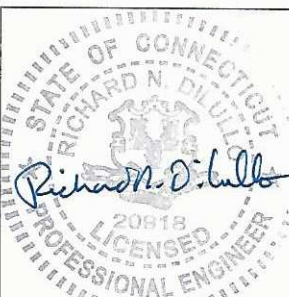
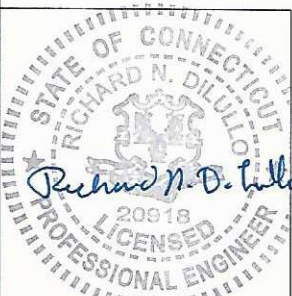
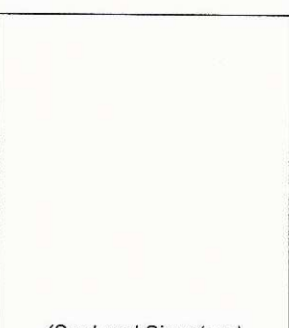
**THE FOLLOWING DOCUMENTS HAVE BEEN REVISED TO REFLECT THE NEW REQUIREMENTS:**

- Section 00 11 16 Invitation to Bid;
- Section 00 21 13 Instructions to Bidders;
- Section 00 41 10 Bid Package Submittal Requirements; and
- Section 01 11 00 Summary of Work.

**END**

<b>Project Title:</b>	Roof and Masonry Replacement Bridgeport Superior Court
<b>Project Location:</b>	1061 Main Street, Bridgeport, CT
<b>Project Number:</b>	BI-JD-364
<b>Architect/Engineer:</b>	OakPark Architects, LLC, 312 Park Road, West Hartford, CT 06119

**SEALS, SIGNATURES, AND DATES OF DESIGN PROFESSIONALS OF RECORD**

 (Seal and Signature)	<p><b>Architect Professional Certification:</b> I hereby certify that these documents were prepared or approved by me and that I am a duly registered Architect.</p> <p>Mark A. Welch          (Print Consultant Name)          ARI.0004137          License No.          7/31/2020          Expiration Date</p>	 (Seal and Signature)	<p><b>Civil Engineer Professional Certification:</b> I hereby certify that these documents were prepared or approved by me and that I am a duly registered Professional Engineer.</p> <p>_____          (Print Consultant Name)          _____          License No.          _____          Expiration Date</p>
 (Seal and Signature)	<p><b>Structural Engineer Professional Certification:</b> I hereby certify that these documents were prepared or approved by me and that I am a duly registered Professional Engineer.</p> <p>_____          (Print Consultant Name)          _____          License No.          _____          Expiration Date</p>	 (Seal and Signature)	<p><b>Electrical Engineer Professional Certification:</b> I hereby certify that these documents were prepared or approved by me and that I am a duly registered Professional Engineer.</p> <p>Richard N. DiLullo          (Print Consultant Name)          PEN. 0020918          License No.          01/31/2021          Expiration Date</p>
 (Seal and Signature)	<p><b>Mechanical Engineer Professional Certification:</b> I hereby certify that these documents were prepared or approved by me and that I am a duly registered Professional Engineer.</p> <p>Richard N. DiLullo          (Print Consultant Name)          PEN. 0020918          License No.          01/31/2021          Expiration Date</p>	 (Seal and Signature)	<p><b>Fire-Protection Engineer Professional Certification:</b> I hereby certify that these documents were prepared or approved by me and that I am a duly registered Professional Engineer.</p> <p>_____          (Print Consultant Name)          _____          License No.          _____          Expiration Date</p>

End of Section  
00 01 07 Seals Page



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## DIVISION 00 PROCUREMENT AND CONTRACTING REQUIREMENTS

Section No.	Title	Page Count	Not Used
00 01 01	Title Page	1	<input type="checkbox"/>
00 01 07	Seals Page	1	<input type="checkbox"/>
00 01 10	Table of Contents	8	<input type="checkbox"/>
00 01 15	List of Drawing Sheets	1	<input type="checkbox"/>
00 11 16	Invitation to Bid	3	<input type="checkbox"/>
00 21 13	Instructions To Bidders	17	<input type="checkbox"/>
00 25 13	Pre-Bid Meeting Agenda	3	<input type="checkbox"/>
00 30 00	General Statements for Available Information	4	<input type="checkbox"/>
00 30 10	General Statement for Existing Conditions Information		<input type="checkbox"/>
00 30 20	General Statement for Environmental Assessment Information		<input checked="" type="checkbox"/>
00 30 30	General Statement for Hazardous Building Materials Inspection and Inventory		<input type="checkbox"/>
00 30 40	General Statement for Subsurface Geotechnical Report		<input checked="" type="checkbox"/>
00 30 50	General Statement for Elevator Agreement		<input checked="" type="checkbox"/>
00 30 60	General Statement for FM Global Checklist for Roofing Systems		<input type="checkbox"/>
00 30 70	General Statement for "Statement of Special Inspections"		<input type="checkbox"/>
00 30 80	General Statement for Other Information		<input checked="" type="checkbox"/>
00 40 14	Certificate (of Authority) ( <i>Bidder uploads to BizNet</i> )	2	<input type="checkbox"/>
00 40 15	CT DAS Contractor Prequalification Forms ( <i>Bidder uploads to BizNet</i> )	4	<input type="checkbox"/>
00 41 00	Bid Proposal Form ( <i>Bidder uploads to BizNet</i> )	10	<input type="checkbox"/>
00 41 10	Bid Package Submittal Requirements	4	<input type="checkbox"/>
00 43 16	Standard Bid Bond ( <i>Bidder uploads to BizNet</i> )	1	<input type="checkbox"/>
00 45 14	General Contractor Bidder's Qualification Statement ( <i>Bidder uploads to BizNet</i> )	7	<input type="checkbox"/>
00 45 15	Objective Criteria Established for Evaluating Qualifications of Bidders	3	<input type="checkbox"/>
00 45 17	Named Subcontractor Bidder's Qualification Statement	7	<input type="checkbox"/>
00 52 03	Contract	3	<input type="checkbox"/>
00 52 73	Subcontract Agreement Form	3	<input type="checkbox"/>
00 62 16	Certificate of Insurance	1	<input type="checkbox"/>
00 62 16.1	Asbestos Attachment to Acord Form	1	<input checked="" type="checkbox"/>
00 72 13	General Conditions of the Contract for Construction – For Design-Bid-Build	33	<input type="checkbox"/>
00 73 27	Set-Aside Contractor Schedule – <i>SAMPLE</i>	1	<input type="checkbox"/>
00 73 38	CHRO Contract Compliance Regulations	7	<input type="checkbox"/>
00 73 44	Prevailing Wage Rates/Contractor's Wage Certification/Payroll Certification	30	<input type="checkbox"/>
00 73 63	CT DOC Security Requirements	3	<input checked="" type="checkbox"/>
00 92 10	Additional Forms To be Submitted After Bond Commission Funding Approval	7	<input type="checkbox"/>
00 92 30	Procedures Regarding Taxation for Nonresident General/Prime Contractor and Subcontractors	2	<input type="checkbox"/>

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01 20 00	Contract Considerations	7	<input type="checkbox"/>
01 23 13	Supplemental Bids		<input checked="" type="checkbox"/>
01 25 00	Substitution Procedures	4	<input type="checkbox"/>
01 26 00	Contract Modification Procedures	3	<input type="checkbox"/>
01 29 76	Progress Payment Procedures	5	<input type="checkbox"/>
01 31 00	Project Management and Coordination	5	<input type="checkbox"/>
01 31 19	Project Meetings	4	<input type="checkbox"/>
01 32 16	Construction Progress Schedules	3	<input type="checkbox"/>
01 32 16.13	CPM Schedules		<input checked="" type="checkbox"/>
01 32 33	Photographic Documentation	2	<input type="checkbox"/>
01 33 00	Submittal Procedures	8	<input type="checkbox"/>
01 35 16	Alteration Project Procedures	5	<input type="checkbox"/>
01 35 26	Government Safety Requirements	12	<input type="checkbox"/>
01 42 20	Reference Standards & Definitions	3	<input type="checkbox"/>
01 45 00	Quality Control	4	<input type="checkbox"/>
01 45 23.13	Testing for Indoor Air Quality, Baseline Indoor Air Quality, and Materials	4	<input type="checkbox"/>
01 50 00	Temporary Facilities & Controls	12	<input type="checkbox"/>
01 57 30	Indoor Environmental Control	2	<input type="checkbox"/>
01 57 40	Construction Indoor Air Quality Management Plan	2	<input type="checkbox"/>
01 60 00	Product Requirements	3	<input type="checkbox"/>
01 71 23	Field Engineering		<input checked="" type="checkbox"/>
01 73 29	Cutting and Patching	3	<input type="checkbox"/>
01 74 19	Construction Waste Management & Disposal	4	<input type="checkbox"/>
01 75 00	Starting & Adjusting	2	<input type="checkbox"/>
01 77 00	Closeout Procedures	5	<input type="checkbox"/>
01 78 23	Operation & Maintenance Data	5	<input type="checkbox"/>
01 78 30	Warranties & Bonds	4	<input type="checkbox"/>
01 80 13	Sustainable Design Requirements		<input checked="" type="checkbox"/>
01 91 00	Commissioning		<input checked="" type="checkbox"/>



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08 41 13	Aluminum-Storefront Doors	4
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08 80 00	Glazing	5
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09 51 00	Acoustic Ceiling Systems	4
09 91 00	Paining and Finishing	11

<b>DIVISION 10</b>	<b>SPECIALTIES</b>	Not Used <input checked="" type="checkbox"/>
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<b>DIVISION 11</b>	<b>EQUIPMENT</b>	Not Used <input checked="" type="checkbox"/>
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<b>DIVISION 12</b>	<b>FURNISHINGS</b>	Not Used <input checked="" type="checkbox"/>
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<b>DIVISION 13</b>	<b>SPECIAL CONSTRUCTION</b>	Not Used <input checked="" type="checkbox"/>
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<b>DIVISION 14</b>	<b>CONVEYING SYSTEMS</b>	Not Used <input checked="" type="checkbox"/>
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<b>DIVISION 17</b>	<b>RESERVED</b>	
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<b>DIVISION 18</b>	<b>RESERVED</b>	
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<b>DIVISION 21</b>	<b>FIRE SUPPRESSION</b>	Not Used <input checked="" type="checkbox"/>
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22 13 16	Sanitary Waste and Vent Piping	6	
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23 05 93	Testing Adjusting and Balancing for HVAC	7	
23 31 13	Metal Ducts	6	
23 33 00	Air Duct Accessories	4	
23 34 00	HVAC Fans	4	
23 37 00	Air Outlets and Inlets	4	

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26 05 10	Conduit	15	
26 05 14	Building Wire Cable	6	
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26 09 36	Digital Lighting Controls	9	
26 27 26	Wiring Devices	5	
26 51 19	LED Interior Lighting	7	
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DIVISION 27		COMMUNICATIONS	Not Used <input checked="" type="checkbox"/>
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<b>DIVISION 42</b>	<b>PROCESS HEATING, COOLING, AND DRYING</b>	<b>Not Used</b> <input checked="" type="checkbox"/>
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<b>DIVISION 43</b>	<b>PROCESS GAS AND LIQUID HANDLING, PURIFICATION, AND STORAGE EQUIPMENT</b>	<b>Not Used</b> <input checked="" type="checkbox"/>
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<b>DIVISION 49</b>	<b>RESERVED</b>	
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<b>50 10 00</b>	<b>Existing Conditions Information</b>		<input type="checkbox"/>
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<b>50 20 00</b>	<b>Environmental Assessment Information</b>		<input checked="" type="checkbox"/>
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<b>50 30 00</b>	<b>Hazardous Building Materials Inspection and Inventory</b>		<input type="checkbox"/>
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<b>50 40 00</b>	<b>Subsurface Geotechnical Report</b>		<input checked="" type="checkbox"/>
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<b>50 50 00</b>	<b>Elevator Agreement</b>		<input checked="" type="checkbox"/>
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<b>50 60 00</b>	<b>FM Global Checklist For Roofing Systems</b>		<input type="checkbox"/>
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<b>50 70 00</b>	<b>Statement of Special Inspections</b>		<input type="checkbox"/>
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<b>50 80 00</b>	<b>Other Information:</b>		<input checked="" type="checkbox"/>
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	<b>50 80 00.1</b>		<input checked="" type="checkbox"/>
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	<b>50 80 00.2</b>		<input checked="" type="checkbox"/>
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	<b>50 80 00.3</b>		<input checked="" type="checkbox"/>
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<b>G-101</b>	PHASING PLAN – 7TH FLOOR
<b>AD-101</b>	FIRST & SEVENTH FLOOR DEMOLITION – REFLECTED CEILING PLAN
<b>AD-102</b>	DEMOLITION ROOF AND BALCONY PLANS
<b>A-100</b>	FIRST & SEVENTH FLOOR FIREPROOFING PLAN
<b>A-101</b>	FIRST & SEVENTH FLOOR NEW – REFLECTED CEILING PLANS
<b>A-101A</b>	SEVENTH FLOOR LIBRARY HIGH CEILING DEMOLITION AND NEW RCP
<b>A-102</b>	ROOF AND BALCONY PLANS
<b>A-201</b>	EXTERIOR ELEVATIONS
<b>A-300</b>	ROOF DETAILS
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<b>M-001</b>	MECHANICAL SCHEDULES AND DETAILS
<b>MD-101</b>	MECHANICAL SEVENTH FLOOR DEMOLITION PLAN
<b>M-100</b>	MECHANICAL ROOF PLAN
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<b>E-004</b>	ELECTRICAL LIGHTING CONTROLS DETAILS
<b>ED-101</b>	SEVENTH FLOOR ELECTRICAL LIGHTING DEMOLITION PLAN
<b>ED-102</b>	SEVENTH FLOOR LIBRARY MEZZANINE ELECTRICAL LIGHTING DEMOLITION PLAN
<b>E-100</b>	ELECTRICAL ROOF PLAN
<b>E-101</b>	SEVENTH FLOOR ELECTRICAL LIGHTING PLAN
<b>E-102</b>	SEVENTH FLOOR LIBRARY MEZZANINE ELECTRICAL LIGHTING PLAN

**End of Section  
00 01 15 List of Drawing Sheets**







Advertisement No.:	20-14	Advertisement Date:	November 20, 2020
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<h2 style="margin: 0;">INVITATION TO BID</h2> <p style="margin: 0;">Connecticut Department of Administrative Services (DAS) Construction Services (CS) Office of Legal Affairs, Policy and Procurement 450 Columbus Blvd, Suite 1302, Hartford, CT 06103-1835</p>
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<b>Find Invitations to Bid on the State Contracting Portal:</b>	Go to the <b>DAS website</b> <a href="http://www.ct.gov/das">www.ct.gov/das</a> Click on “ <b>State Contracting Portal</b> ”; Select “ <b>Administrative Services, Construction Services</b> ”; Select the appropriate <b>Invitation to Bid</b> .
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<b>Instructions for On-Line Bidding:</b>	Follow the instructions in <a href="http://portal.ct.gov/-/media/DAS/Construction-Services/DAS-CS-Library/6000-Series/6001-Construction-On-Line-Bidding-Instructions.pdf">6001 Construction On-line Bidding Instructions</a> . ( <a href="http://portal.ct.gov/-/media/DAS/Construction-Services/DAS-CS-Library/6000-Series/6001-Construction-On-Line-Bidding-Instructions.pdf">http://portal.ct.gov/-/media/DAS/Construction-Services/DAS-CS-Library/6000-Series/6001-Construction-On-Line-Bidding-Instructions.pdf</a> ) For questions, email <a href="mailto:Mellanee.Walton@ct.gov">Mellanee.Walton@ct.gov</a>
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<b>Date and Time of Bid Opening:</b>	<input type="text" value="January"/> <input type="text" value="6"/> <input type="text" value="2021"/> <i>(Month) (Day) (Year)</i>	<b>Time:</b>	<input type="text" value="1:00"/> <input type="text" value="PM"/> <i>(ET)</i>
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**This Invitation to Bid is for the following Project:**

<b>Project Title:</b>	Roof and Masonry Replacement		
<b>Project Location:</b>	Bridgeport Superior Court 1061 Main Street Bridgeport, CT		
<b>Project Number:</b>	BI-JD-364		
<b>Project Description:</b>	See <b>Specifications</b> Section 01 11 00 Summary of Work, Section 1.3		
<b>Construction Costs:</b>	Greater Than \$500,000		
<b>Bidding Limited To:</b>	Contractors Prequalified by DAS for General Building Construction (Group A)		
<b>Threshold Limits:</b> (C.G.S. §29-276b)	This Project DOES NOT exceed Threshold Limits.		
<b>Set Aside Requirements:</b>	SBE Subcontractors &/or Suppliers: 25%; MBE Subcontractors &/or Suppliers: 6.25%		
<b>Date DAS/CS Began Planning Project:</b>	3/11/2019		
<b>Special Requirements:</b>	N/A		
<b>Cost Estimate Range:</b>	\$ 2,519,388.	<b>To \$</b>	2,670,000.
<b>Date Plans &amp; Specs Ready:</b>	November 25, 2020		
<b>Plans &amp; Specs Download:</b>	Plans & Specs are available for electronic download on the DAS State Contracting Portal.		
<b>Contract Time Allowed:</b>	<b>Calendar Days:</b>	360	
<b>Liquidated Damages:</b>	\$ 1,258.00	Per Calendar Day Beyond Substantial Completion.	
	\$ 958.00	Per Calendar Day Beyond 90 days After Substantial Completion	



Advertisement No.:	20-14	Advertisement Date:	November 20, 2020
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<b>Invitation to Bid (continued)</b>
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<b>Pre-Bid Meeting Date:</b>	12/15/2020		
	<input type="checkbox"/>	Bidders are <b>strongly encouraged</b> to attend the Pre-Bid Meeting.	
	<input checked="" type="checkbox"/>	Bidders are <b>required</b> to attend a <b>MANDATORY</b> Pre-Bid Meeting.	
<b>Pre-Bid Meeting Time:</b>	1:00 – 3:00	<input type="checkbox"/> AM	<input checked="" type="checkbox"/> PM
		<b>Because of Covid-19 the Tour will be limited to 5 persons at a time Starting from 1:00 PM and ends at 3:00 PM – Contact Person – Deborah Levesque (860-706-5263)</b>	
<b>Pre-Bid Meeting Location:</b>	1061 Main Street, Bridgeport, CT		
<b>Pre-Bid Meeting Contact:</b>	<b>DAS/CS Project Manager:</b>	Steven Udeh	
	<b>Phone No.:</b>	860.507.5788	
<b>Pre-Bid Meeting Registration:</b>	At the Pre-Bid Meeting, all prospective bidders shall <i>sign</i> his or her name on the <b>official roster</b> and <i>list</i> the name and address of the company he or she represents. For <b>MANDATORY</b> Pre-Bid Meetings, this shall be done no later than the designated <b>start time</b> of the Pre-Bid Meeting. <b>No</b> attendee will be allowed to register <i>after</i> the advertised start time. <b>Bids</b> submitted by contractors who have <i>not properly</i> registered and attended the <b>MANDATORY</b> Pre-Bid Meeting <i>shall be rejected</i> as <b>non-responsive</b> . See <b>Section 00 25 13 Pre-Bid Meeting Agenda</b> for additional details.		
<b>Bid Proposal Submission and Other Bid Submittal Requirements:</b>	See <b>Sections 00 21 13 Instructions to Bidders, 00 41 00 Bid Proposal Form, and 00 41 10 Bid Package Submittal Requirements</b> for Bid Proposal submission requirements, including requirements for Affidavits, Certifications, Addenda, Pre-Bid Equals and Substitution Requests, and other bidding documents.		
<b>Bid Upload and Bid Opening:</b>	Bids can be uploaded and edited electronically in BizNet <b>UNTIL 1:00 p.m.</b> on the <b>Bid Opening Date</b> and thereafter shall be locked down and publicly opened in the State Contracting Portal.		
<b>Bid Results:</b>	Within approximately two (2) days after the Bid Opening Date, the Bid Results will be posted on the State Contracting Portal.		
<b>Guide to the Code of Ethics For Current or Potential State Contractors (for contracts greater than \$500,000):</b>	Anyone seeking a contract with a value of more than \$500,000 shall electronically download the “ <b>Guide to the Code of Ethics For Current or Potential State Contractors</b> ” from the of Office of State Ethics (OSE) website <a href="http://www.ct.gov/ethics">www.ct.gov/ethics</a> , then click on the “ <b>Publications</b> ” link:		
<b>Prevailing Wage Rates:</b>	Prevailing wages are required on this project, in accordance with the schedule provided in the bid documents, pursuant to Connecticut General Statutes (C.G.S.) Section 31-53 (a) through (h), as amended. See Section 00 73 44 Prevailing Wage Rates.  Each contractor who is awarded a contract on or after October 1, 2002 shall be subject to provisions of C.G.S. § 31-55a concerning annual adjustments to prevailing wages.  Wage Rates will be posted each July 1st on the Department of Labor website <a href="http://www.ctdol.state.ct.us">www.ctdol.state.ct.us</a> . Such prevailing wage adjustment shall <b>not</b> be considered a matter for any contract amendment.		
<b>To access Executive Orders:</b>	Go to <a href="http://www.ct.gov">www.ct.gov</a> > Governor Ned Lamont > Executive Orders.		
<b>UPDATED DOCUMENTS:</b>	Many <b>Division 00</b> and <b>Division 01</b> documents have been updated. Read all of the contents of the Project Manual <i>carefully!</i>  All Contractors are cautioned that any modifications or alterations made to either the Project Manual or any of the forms and documents contained herein may be just cause to <b>reject the bid!</b>		



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### Invitation to Bid (continued)

**NEW PROCESS FOR CONSTRUCTION STORMWATER GENERAL PERMIT:**

See Section 01 50 00 Temporary Facilities and Controls.

For all DAS/CS construction projects disturbing **one or more total acres of land area** on a site regardless of project phasing, the **Architect/Engineer** shall be responsible for filing a Department of Energy and Environmental Protection (DEEP) *General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities (DEEP-WPED-GP-015)* registration and Stormwater Pollution Control Plan (SPCP) through the online DEEP ezFile Portal **prior** to bidding.

Once the **Contractor** is under contract with DAS/CS, and **prior** to the commencement of any construction activities, the Contractor (and all other contractors and subcontractors listed on the SPCP) shall assume responsibility for storm water pollution control and conform to the general permit obligations and requirements by **signing** the SPCP "Contractor Certification Statement" and License Transfer Form as directed by the Architect/Engineer.

At completion of the project, the Contractor shall file a Notice of Termination (DEP-PED-NOT-015) with the DEEP in order to terminate the Construction Stormwater General Permit. A project shall **only** be considered complete after all **post-construction** measures are installed, cleaned, and functioning and the site has been stabilized for at least **three (3) months** following the cessation of construction activities.

**NEW PROCESS FOR CONTRACTOR AND SUBCONTRACTOR PAYMENTS REPORTING:**

See Section 00 21 13 Instructions to Bidders (Subsection 3.13) and Section 01 11 00 Summary of Work (Subsection 1.11).

For compliance with **C.G.S. § 4b-95 and 49-41**, DAS/CS requires every Contractor (and its Subcontractors) who has been awarded a DAS/CS construction contract to log on to the State of Connecticut web-based platform, BizNet, **each month** and **enter payments** they have received from the state, from the Contractor, or from a higher tier Subcontractor (as applicable).

The process is described as follows: The state will pay the Contractor on a monthly basis for work performed (and purchases made) by it and its Subcontractors. The Contractor will input the payment date and amount they receive from the state on a monthly basis. The Contractor's first-level Subcontractor (Tier 1 Subcontractor) will input the payment they receive from the Contractor. The second-level Subcontractor (Tier 2 Subcontractor) will input the payment they receive from the Tier 1 Subcontractor. And so on.

Contractors awarded a DAS/CS construction contract shall contain a **provision in their subcontract agreements** requiring their Subcontractors to enter payment receipt from the Contractor in the State of Connecticut web-based platform, BizNet, for work performed or purchases made in relation to state projects.

Detailed instructions can be found in the DAS/CS manual, "**6002 Instructions to Contractors/Subcontractors for Entering Payments in BizNet**", available for download by going to the DAS Homepage ([www.ct.gov/DAS](http://www.ct.gov/DAS)) and selecting Doing Business With The State > State Building Construction > Publications and Forms > DAS Construction Services Library > 6000 Series.

**IMPORTANT NOTE:**

*The Commissioner of the Connecticut Department of Administrative Services reserves the right to do any of the following without liability, including but not limited to: (a) waive technical defects in the bid proposal as he or she deems best for the interest of the State; (b) negotiate with a contractor in accordance with Connecticut General Statutes Section 4b-91; (c) reject any or all bids; (d) cancel the award or execution of any contract prior to the issuance of the "Notice To Proceed"; and (e) advertise for new bids.*

**All Project Questions, Bid Questions, and Pre-Bid Equals and Substitution Requests must be submitted fourteen (14) Calendar Days prior to the Bid Due Date.**

All **Project Questions** and **Pre-Bid Equals and Substitution Requests** must be emailed (not phoned) to the **Architect/Engineer** with a **copy** to the **Construction Administrator** and the **DAS/CS Project Manager** listed below.

<b>Architect/Engineer:</b>	Mark A. Welch	<b>Email:</b>	markw@oakparkarchitect.com
<b>Construction Administrator:</b>	Ed Copeland @ Colliers Project Leaders	<b>Email:</b>	Ed.Copeland@colliers.com
<b>DAS/CS Project Manager:</b>	Steven Udeh	<b>Email:</b>	Steven.Udeh@ct.gov
All <b>Bid Questions</b> must be emailed to the <b>DAS/CS Associate Fiscal Administrative Officer</b> listed below.			
<b>DAS/CS Associate Fiscal Administrative Officer:</b>	Mellanee Walton	<b>Email:</b>	Mellanee.Walton@ct.gov



## Instructions to Bidders

DAS | Construction Services | Office of Legal Affairs, Policy, and Procurement

### 1.0 General Bid Proposal Information

#### 1.1 On-Line Bidding:

**1.1.1** The Department of Administrative Services (DAS) Construction Services (CS) has streamlined the Bid process by allowing contractors to submit their **Bid Package Documents on line** through the **State Contracting Portal** and **BizNet**. Rather than submitting paper Bid Package Documents, contractors simply respond to an **Invitation to Bid** on the **State Contracting Portal** by retrieving and uploading their documents electronically through their **BizNet** account. Once completed, the Bid Proposal must be **electronically signed prior** to the date and time of the **Bid Opening**. See **Page 1** of the **Invitation to Bid** for the **Date and Time of the Bid Opening**.

**1.1.2** All Bidders shall **electronically** upload their **Bid Package Documents** to BizNet following the **instructions** in the DAS/CS publication, [6001 Construction On-line Bidding Instructions](#), available for download here: Go to the DAS Homepage ([www.ct.gov/DAS](http://www.ct.gov/DAS)), Doing Business With The State > State Building Construction > Publications and Forms > DAS Construction Services Library > 6000 Series > **6001 Construction On Line Bidding Instructions**. For questions, call 860-713-5794.

#### 1.2 Bid Opening:

All Bids shall be publicly opened in BizNet by the awarding authority as stated in **Section 00 11 16 Invitation to Bid**.

#### 1.3 Withdrawal of Bid:

Any **Bid** once uploaded into BizNet cannot be deleted. A Bid may only be **withdrawn** by uploading a written **Letter of Withdrawal** to BizNet using the "**Other Solicitation Document**" link **prior** to the date and time of the Bid Opening.

#### 1.4 Disqualification from Bidding:

Any contractor who violates any provision of **Connecticut General Statutes (C.G.S.) § 4b-95**, as revised, shall be **disqualified** from bidding on other contracts for a period not to exceed **twenty-four (24) months**, commencing from the date on which the violation is discovered, for each violation.

#### 1.5 Waive Minor Irregularities:

**1.5.1** The awarding authority **shall** be authorized to **waive minor irregularities** which he or she considers in the best interest of the State, provided the reasons for any such waiver are stated in writing by the awarding authority and made a part of the contract file.

**1.5.2** **No** such bid shall be rejected because of the failure to submit prices for, or information relating to, any item or items for which no specific space is provided in the bid form furnished by the awarding authority, but this sentence shall not be applicable to any failure to furnish prices or information required by **C.G.S. § 4b-95**, as revised, to be furnished in the bid form provided by the awarding authority.

#### 1.6 Minimum Percentage of Work:

The awarding authority **may** require in the **Bid Proposal Form** that the contractor agree to perform a stated, minimum percentage of work with its **own forces**, in accordance with **C.G.S. § 4b-95(b)**.

#### 1.7 Set-Aside Contracts:

The awarding authority **may also** require the contractor to set aside a portion of the contract for subcontractors who are eligible for **set-aside contracts**.

#### 1.8 Connecticut Sales And Use Taxes:

**1.8.1** **All Bidders shall** familiarize themselves with the current statutes and regulations of the **Connecticut Department of Revenue Services (DRS)**, including the Regulations of Connecticut State Agencies (R.C.S.A.) §12-426-18 and all relevant state statutes. The tax on materials or supplies exempted by such statutes and regulations shall not be included as part of a bid. See the **Sales and Use Tax Exemption for Purchases by Qualifying Governmental Agencies (CERT-134)**, available for download from the DRS website ([www.ct.gov/drs](http://www.ct.gov/drs)) under "Exemption Certificates".

**1.8.2** The State of Connecticut construction contract has the following tax exemptions: (1) Purchasing of materials which will be physically incorporated and become a permanent part of the project; and (2) Services that are resold by the contractor. For example, if a Contractor hires a plumber, carpenter or electrician, a resale certificate may be issued to the subcontractor because these services are considered to be integral and inseparable component parts of the building contract.

**1.8.3** The following items are **not** exempt from taxes when used to fulfill a State of Connecticut construction contract: Tools, supplies and equipment used in fulfilling the construction contract.

<b>1.9 Union Labor:</b>	
Attention is called to the fact that there may or could be construction work carried on at the site by union labor. This fact must be kept in mind by all Bidders.	
<b>1.10 Rejection of Bids:</b>	
The awarding authority <i>shall reject</i> every such <b>Bid Proposal</b> , including but not limited to, the following reasons:	
<b>1.10.1</b>	A <b>Bid Proposal Form</b> that does <i>not</i> contain the signature of the bidder or its authorized representative.
<b>1.10.2</b>	A <b>Bid Proposal Form</b> that is <i>not</i> accompanied by the following documents in BizNet: <ul style="list-style-type: none"> <li><b>.1</b> Section 00 43 16 <b>Standard Bid Bond</b>, completed for <i>either</i> the <b>Bid Bond</b> option <i>or</i> <b>Certified Check</b> option;</li> <li><b>.2</b> A <b>Certified Check</b> (if applicable) delivered to the DAS/CS Office of Legal Affairs, Policy, and Procurement <i>prior</i> to the date and time of the Bid Opening;</li> <li><b>.3</b> Section 00 45 14 <b>General Contractor Bidder's Qualification Statement</b></li> <li><b>.4</b> A <b>DAS Contractor Prequalification Certificate</b> for the Bidder for Projects <i>greater</i> than <b>\$500,000</b>;</li> <li><b>.5</b> A <b>DAS Update (Bid) Statement</b> for the Bidder for Projects <i>greater</i> than <b>\$500,000</b>;</li> <li><b>.6</b> A <b>Gift and Campaign Contribution Certification – Office of Policy and Management (OPM) Ethics Form 1</b>;</li> <li><b>.7</b> A <b>Consulting Agreement Affidavit – OPM Ethics Form 5</b>. <b>NOTE: If the Bidder fails to submit or upload the Consulting Agreement Affidavit</b> required under C.G.S. § 4a-81, such bidder shall be <i>disqualified</i> and the award shall be made to the next lowest responsible qualified bidder or new bids or proposals shall be sought;</li> <li><b>.8</b> An <b>Ethics Affidavit (Regarding State Ethics) – OPM Ethics Form 6</b>;</li> <li><b>.9</b> An <b>Iran Certification – OPM Ethics Form 7</b>.</li> </ul>
<b>1.10.3</b>	A <b>Bid Proposal Form</b> that: <ul style="list-style-type: none"> <li><b>.1</b> Fails to <b>acknowledge</b> all <b>Addenda</b> in the space provided in the <b>Bid Proposal Form</b>;</li> <li><b>.2</b> Fails to <b>correctly list <u>ALL</u> of the Named Subcontractors within a particular Class of Work</b> on the <b>Bid Proposal Form for subcontracts in excess of \$100,000</b>;</li> <li><b>.3</b> Fails to <b>correctly state a Named Subcontractor's price</b> on the <b>Bid Proposal Form</b>; and</li> <li><b>.4</b> Fails to list <b>Named Subcontractors</b> who are <b>DAS Prequalified at the time of the bid</b>.</li> </ul>
<b>1.10.4</b>	A <b>Bid Proposal Form</b> that is <i>not</i> submitted on the <b>forms furnished</b> for the specific project. <b>NOTE: In no event will bids or changes in bids be made by telephone, telegraph, facsimile or other communication technology except through BizNet. All pages of the Bid Proposal Form must be uploaded to BizNet prior to the date and time of the Bid Opening.</b>
<b>1.10.5</b>	A <b>Bid Proposal Form</b> that has omitted items, omitted pages, added items not called for, altered the form, contains conditional bids, contains alternative bids, or contains obscure bids.
<b>1.10.6</b>	A <i>paper Bid Package</i> sent to the DAS/CS Office of Legal Affairs, Policy, and Procurement. Such bids will be returned to the bidder unopened.
<b>1.10.7</b>	<b>Any Bidder</b> that does <i>not</i> make all required <b>pre-award submittals</b> <i>within</i> the designated time period. DAS/CS <i>may</i> reject such bids as <b>non-responsive</b> .
<b>1.11 Pre-Bid Meeting:</b>	
<b>1.11.1</b>	See <b>Section 00 11 16 Invitation to Bid</b> and <b>Section 00 25 13 Pre-Bid Meeting Agenda</b> for details.
<b>1.11.2</b>	When a <b>Pre-Bid Meeting</b> is " <b>strongly encouraged</b> ", all attendees shall sign his or her name to the official roster and list the name and address of the company he or she represents.
<b>1.11.3</b>	When a <b>Pre-Bid Meeting</b> is <b>MANDATORY</b> , all attendees will be required to register. <b>Proper registration</b> means that the attendee has signed his or her name to the official roster and listed the name and address of the company he or she represents on the official roster no later than the designated start time of the <b>MANDATORY Pre-Bid Meeting</b> . Bidders are advised to register early as <b>no</b> attendee will be allowed to register <i>after</i> the advertised start time of the <b>MANDATORY Pre-Bid Meeting</b> .  <b>All bids submitted by all contractors who have not properly registered and attended the MANDATORY Pre-Bid Meeting shall be rejected as non-responsive.</b>
<b>1.11.4</b>	<b>All Bidders Attending a Pre-Bid Meeting at a Connecticut Department of Corrections (DOC) Facility: Prior to the Pre-Bid Meeting</b> , download the " <b>Security Background Questionnaire</b> " from the <b>CT DOC website (<a href="http://www.ct.gov/doc">www.ct.gov/doc</a> under "Forms")</b> , complete and submit the form as directed, and obtain approval, otherwise admission to the Pre-Bid Meeting <b>will be denied</b> . It is recommended that the approved form be brought as evidence of approval to attend the Pre-Bid Meeting.

<b>1.12 Pre-Bid Equals and Substitution Requests Procedures:</b>	
<b>1.12.1</b>	All submissions requesting "Equals and/or Substitutions" shall be made by the <b>Bidder</b> in accordance with <b>Section 01 25 00 Substitution Procedures</b> of the <b>Division 01 General Requirements and Article 15, Materials: Standards of Section 00 72 13 General Conditions</b> . Every submission shall contain all the information necessary for DAS/CS to evaluate the submission and the request. Failure to submit sufficient information to make a proper evaluation, including submittal of data for the first manufacturer listed as well as the data for the <b>"Equals and/or Substitutions"</b> proposed, shall result in a <b>rejection</b> of the submission and request. Upon receipt of the submission and request, DAS/CS shall notify the <b>Bidder</b> that the request has been received and as soon as possible shall render a decision on such submission and request.
<b>1.12.2</b>	<b>Pre-Bid-Opening Substitution of Materials and Equipment:</b> The Owner will consider requests for equals or substitutions <i>if received fourteen (14) Calendar Days prior</i> to the <b>Bid Opening Due Date</b> , as stated in the <b>Invitation To Bid</b> . The <b>Equal or Substitute Product Request (Form 7001)</b> must be used to submit requests. Download <b>Form 7001</b> from the DAS Homepage ( <a href="http://www.ct.gov/DAS">www.ct.gov/DAS</a> ) > Doing Business With The State > State Building Construction > Publications and Forms > DAS Construction Services Library > 7000 Series.
<b>1.12.3</b>	<b>Equals and/or Substitutions Requests Submittal:</b> Requests for Equals or Substitutions shall be submitted to the <b>DAS/CS Project Manager, Architect / Engineer, and Construction Administrator</b> .
<b>1.12.4</b>	<b>Substitution Request Deadline:</b> Any substitution request not complying with requirements will be denied. Substitution requests sent <b>after</b> the <b>Deadline</b> will be denied.
<b>1.12.5</b>	<b>Addendum:</b> An Addendum shall be issued to inform all prospective bidder of any accepted substitution in accordance with our addenda procedures.
<b>1.12.6</b>	<b>Time Extensions:</b> No extensions of time will be allowed for the time period required for consideration of any Substitution or Equal.
<b>1.12.7</b>	<b>Post Contract Award Substitution of Materials and Equipment:</b> All requests for "Equals and Substitutions" <b>after</b> the Award of the Contract shall be made <b>only</b> by the <b>Prime Contractor</b> for materials or systems specified that are no longer available. The requests will not be considered if the product was not purchased in a reasonable time after award, in accordance with <b>Article 15, Materials: Standards of Section 00 72 13 General Conditions</b> .
<b>1.13 Joint Ventures:</b>	
<b>1.13.1</b>	<b>Each entity</b> in a Joint Venture shall submit with the Venture's bid a <b>letter</b> on their respective company letterheads stating: <ul style="list-style-type: none"> <li>· Their <b>agreement to bid</b> as a Joint Venture with the other named Joint Venture, and set forth the <b>name and address</b> of the other Joint Venture(s).</li> <li>· The <b>respective percentage of the project work</b> that would be the responsibility of each of the Joint Ventures.</li> </ul>
<b>1.13.2</b>	<b>Prequalification: Each entity</b> in a Joint Venture shall submit its <b>Prequalification Certificate and Update (Bid Statement)</b> . <b>Each entity</b> in a Joint Venture shall be <b>prequalified</b> at the time of the bid and during the entire project construction. <b>Each entity</b> in a Joint Venture shall have the <b>prequalification single project limit</b> , and <b>remaining aggregate capacity balance</b> to meet the value of its respective percentage of the joint proposed bid.
<b>1.13.3</b>	<b>Each entity</b> in a Joint Venture shall submit <b>Section 00 45 14 General Contractor Bidder's Qualification Statement</b> .
<b>1.13.4</b>	<b>Bonding:</b> The Joint Venture shall obtain the required <b>bonding</b> from a surety for the <b>total amount</b> of the contract price.
<b>1.13.5</b>	<b>Insurance: Each entity</b> in a Joint Venture shall have the <b>required insurance coverages and limits</b> to meet the insurance requirements of the contract. The Joint Venture shall provide <b>Builder's Risk insurance</b> .
<b>1.13.6</b>	<b>Bid Submission and Contract Signing:</b> If a Joint Venture submits a bid proposal, it shall be considered to be a proposal by <b>each</b> of the Joint Ventures, jointly and severally, for the performance of the entire contract as a Joint Venture in accordance with the terms and conditions of the contract. <b>Each entity</b> in a Joint Venture is required to <b>sign the contract</b> acknowledging that each Joint Venture shall be jointly and severally liable for the performance of the entire contract.
<b>1.13.7</b>	<b>Certificate of Legal Existence: Each entity</b> in a Joint Venture shall obtain a <b>Certificate of Legal Existence</b> and submit it with the contract documents.
<b>1.14 Procedure for Alleged Violation(s) of Part II Chapter 60 of C.G.S. Bidding and Contracts:</b>	
<b>1.14.1</b>	The Regulations of Connecticut State Agencies establishes a procedure for promptly hearing and ruling on claims alleging a violation or violations of the contract bidding provisions of Part II of Chapter 60 of the Connecticut General Statutes (hereinafter "Chapter 60"). In view of the fact that time is normally of the essence in awarding construction contracts under Chapter 60, the grievance procedures are intended to be quick, informal and conclusive so as to avoid delays which can increase costs and jeopardize the very ability of the State to proceed with needed public works projects.
<b>1.14.2</b>	Download <b>"6510 Procedure for Alleged Violation(s)"</b> and <b>"6505 Petition for Alleged Violation(s)"</b> from the DAS Homepage ( <a href="http://www.ct.gov/DAS">www.ct.gov/DAS</a> ) > Doing Business With The State > State Building Construction > Publications and Forms > DAS Construction Services Library > 6000 Series > Scroll down to locate documents.

<b>1.15 Labor Market Area:</b>	
<b>1.15.1</b>	All Bidders <i>shall</i> have read <b>C.G.S. §§ 31-52 and 31-52a</b> , as revised. These sections relate to the <b>preference of State citizens</b> and the <b>preference of residents of the labor market area</b> in which the work under the contract is to be done and the <b>penalties for violations</b> thereof.
<b>1.15.2</b>	In order to avoid violations by the contractor and to cooperate with and assist the State in the implementation of the statutory mandates, any bidder awarded a contract with the State <b>shall</b> be required to provide the State with the following information: <ul style="list-style-type: none"> <li>.1 The names and addresses of employees utilized by the contractor and by its subcontractors and how long each such employee has resided in Connecticut.</li> <li>.2 How long each employee has resided in the labor market area, as established by the State Labor Commissioner, in which the work under the contract is to be done. Labor market areas are indicated on the end of this section.</li> <li>.3 Within thirty (30) days after the start of work, the contractor <b>shall</b> submit a signed statement setting forth the procedures the contractor and its subcontractors have taken to assure that they have sought out qualified residents of the labor market area. Also, the statement <b>shall</b> include information as to how many persons were considered for employment and how many were actually hired. Such procedures will include, but not be limited to, obtaining names of available persons from area Employment Security Offices.</li> <li>.4 In the same manner as <b>Subsection 1.15.2.3</b> above, the statement <b>shall</b> indicate the steps taken to assure that the contractor and its subcontractors have sought out qualified residents of this State.</li> </ul>
<b>1.15.3</b>	The contractor <b>shall</b> cooperate with and provide information to the DAS/CS Project Manager or their designee assigned to collect and verify the information required. The State may request that all such information be updated during the term of the contract at reasonable times.
<b>1.15.4</b>	All such information gathered and compiled by the State <b>shall</b> be forwarded to the Labor Commissioner.
<b>1.15.5</b>	<b>Pursuant to C.G.S. § 31-52b, as revised:</b> <p style="padding-left: 40px;">“The provisions of C.G.S. § 31-52 and 31-52a <b>shall not</b> apply where the State or any subdivision thereof may suffer the loss of revenue granted or to be granted from any agency or department of the federal government as a result of said sections or regulative procedures pursuant thereto.”</p> <p>However, no exception shall be determined to be applicable unless stated in writing by the Commissioner of the Department of Administrative Services.</p>
<b>1.15.6</b>	<b>Website Link:</b> For guidance on the CT DOL Labor Market Areas (LMA) go to the CT DOL website <a href="http://www.ctdol.state.ct.us/">http://www.ctdol.state.ct.us/</a> , under “Program Services”, click on “Labor Market information”.
<b>1.16 Executive Orders:</b>	
<b>1.16.1</b>	All Executive Orders of which are incorporated into and are made a part of the Contract as if they had been fully set forth in it. The Contract is subject to the provisions of the following: <ul style="list-style-type: none"> <li>.1 <b>Executive Order No. 3:</b> Governor Thomas J. Meskill, promulgated 06/16/71, concerning labor employment practices;</li> <li>.2 <b>Executive Order No. 17:</b> Governor Thomas J. Meskill promulgated 02/15/73, concerning the listing of employment openings;</li> <li>.3 <b>Executive Order No. 16:</b> Governor John G. Rowland promulgated 08/04/99, concerning violence in the workplace;</li> <li>.4 <b>Executive Order No. 14:</b> Governor M. Jodi Rell, promulgated 04/17/06, concerning procurement of cleaning products and services; and</li> <li>.5 <b>Executive Order No. 49:</b> Governor Dannel P. Malloy, promulgated 05/22/15, concerning the requirement for certain state contractors to disclosure campaign contributions to candidates for statewide public office or The General Assembly and to ensure convenient public access to information related to gifts and campaign contribution disclosure affidavits by state contractors.</li> </ul>
<b>1.16.2</b>	All Executive Orders are available for download from the State of Connecticut website. Go to <a href="http://www.ct.gov">www.ct.gov</a> , click on “Governor Ned Lamont” and scroll down to “Executive Orders”.
<b>1.17 Retaliation For Disclosure of Information:</b>	
<b>1.17.1</b>	Each contract between a state or quasi-public agency and a large state contractor shall provide that, if an officer, employee, or appointing authority of a large state contractor takes or threatens to take any personnel action against any employee of the contractor in <b>retaliation</b> for such employee’s <b>disclosure</b> of information to the Auditors of Public Accounts or the Attorney General under the provisions of <b>C.G.S. § 4-61dd (a)</b> , the contractor shall be liable for a civil penalty of not more than five thousand dollars for each offense, up to a maximum of twenty per cent of the value of the contract. Each violation shall be a separate and distinct offense and in the case of a continuing violation each calendar day’s continuance of the violation shall be deemed to be a separate and distinct offense. The executive head of the state or quasi-public agency may request the Attorney General to bring a civil action in the Superior Court for the judicial district of Hartford to seek imposition and recovery of such civil penalty.
<b>1.17.2</b>	Each large state contractor shall post a <b>notice</b> of the provisions of <b>C.G.S. § 4-61dd</b> relating to large state contractors in a conspicuous place that is readily available for viewing by the employees of the contractor.



**1.18 Laws of the State of Connecticut:**

Forum and Choice of Law. The Bidder agrees that in the event it is awarded a Contract, the Bidder and the State deem the Contract to have been made in the City of Hartford, State of Connecticut. Both parties agree that it is fair and reasonable for the validity and construction of the Contract to be, and it shall be, governed by the laws and court decisions of the State of Connecticut, without giving effect to its principles of conflicts of laws. To the extent that any immunities provided by Federal law or the laws of the State of Connecticut do not bar an action against the State, and to the extent that these courts are courts of competent jurisdiction, for the purpose of venue, the complaint shall be made returnable to the Judicial District of Hartford only or shall be brought in the United States District Court for the District of Connecticut only, and shall not be transferred to any other court, provided, however, that nothing here constitutes a waiver or compromise of the sovereign immunity of the State of Connecticut. The Bidder waives any objection which it may now have or will have to the laying of venue of any claims in any forum and further irrevocably submits to such jurisdiction in any suit, action or proceeding.

**1.19 State's Sovereign Immunity:**

Nothing in this Agreement shall be construed as a waiver or limitation upon the **State's sovereign immunity**. To the extent this Section is found to be inconsistent with any other part of this Agreement, this Section shall control. This Section of the Agreement shall survive the completion and/or termination of this Agreement.

**2.0 Bid Proposal Form Instructions:**

**2.1 Bid Proposal Form:**

**2.1.1 All Bidders** shall upload **ALL** pages of **Section 00 41 00 Bid Proposal Form** to BizNet, prior to the date and time of the Bid Opening.

**2.2 Threshold Projects:**

**2.2.1** See **page 1** of the **Bid Proposal Form** to determine if this Project exceeds the **Threshold Limits**.

**2.2.2** If this Project exceeds Threshold Limits, **all Bidders** shall list their Firm's **Major Contractor Registration License Number** in the **Bid Proposal Form**.

**2.2.3** The **Apparent Low Bidder** shall also provide the Subcontractor(s) **Major Contractor Registration License** number(s) to the DAS/CS Office of Legal Affairs, Policy, and Procurement within **ten (10) business days after** receipt of the Letter of Intent from DAS/CS.

**2.2.4 Summary of Registration Requirements for Major Contractors:** Any person engaged in the business of construction, structural repair, structural alteration, dismantling or demolition of a structure or addition that exceeds the threshold limits provided in **C.G.S §29-276b**, or any person who, under the direction of a general contractor, performs or offers to perform any work that impacts upon the structural integrity of a structure or addition, including repair, alteration, dismantling or demolition of a structure or addition that exceeds the threshold limits shall engage in or offer to perform the work of a Major Contractor unless such person has first obtained a license or certificate of registration from the Connecticut Department of Consumer Protection (DCP). Individuals must be licensed under the requirements of **C.G.S §20-341gg "Registration of Major Contractors"**. DCP shall issue a certificate of registration to any person who is prequalified pursuant to section 4a-100 who applies for registration in accordance with this section.

**2.2.5** The Bidder and all Subcontractors that engage in work that impacts upon the structural integrity of a structure or addition must register as a **Major Contractor** with DCP and obtain a **Major Contractor License** issued by DCP **PRIOR** to the date and time of the Bid Opening for this Project.

**2.2.6** For further information go to the DCP Website: [www.ct.gov/dcp](http://www.ct.gov/dcp).

**2.3 Proposed Lump Sum Base Bid, Allowances, and Contingent Work:**

**2.3.1** The proposed **Lump Sum Base Bid** shall be set forth in the space **provided on Section 00 41 00 Bid Proposal Form**.

**2.3.2** The **Proposed Lump Sum Base Bid** shall *include* all **Allowances**, all work indicated on the drawings and/or described in the specifications *except* for **Contingent Work**. See the **Bid Proposal Form, Section 01 20 00 Contract Considerations, and Section 01 23 13 Supplemental Bids** of Division 01 General Requirements for details regarding **Contingent Work**.

**2.3.3** "**Contingent Work**" includes **Unit Prices** (for Earth and Rock Excavation, Environmental Remediation, and/or Hazardous Building Materials Abatement) and **Supplemental Bids**. See **Section 01 20 00 Contract Considerations and Section 01 23 13 Supplemental Bids**, respectively, for applicability.

**2.3.4** The **Proposed Lump Sum Base Bid** shall be shown in *both numerical figures* and "**printed**" words **dollar amount**. In the event of any discrepancy the "**printed**" words **dollar amount** shall govern.

<b>2.4 Addenda and Interpretations:</b>	
2.4.1	The <b>Number of Addenda</b> issued by the State of Connecticut shall be set forth in the space provided on the <b>Bid Proposal Form</b> . It shall be the Bidder's responsibility to make inquiry as to, and to obtain, the Addenda issued, if any.
2.4.2	<b>Addenda</b> , if issued, will be posted on the State Contracting Portal.
2.4.3	<b>Failure to acknowledge</b> all <b>Addenda</b> in the space provided in the Bid Proposal Form <b>shall</b> be cause for <b>rejection</b> of the bid.
2.4.4	Attaching <b>Addenda</b> to the <b>Bid Proposal Form</b> does <b>not</b> constitute an acknowledgement of all Addenda and does not relieve the Bidder from the requirement for the Bidder to acknowledge all Addenda in the space provided on the Bid Proposal Form.
2.4.5	<b>No interpretations</b> of the meaning of the plans, specifications or other contract documents will be made <b>orally</b> at any time. Every <b>request</b> for such interpretation <b>shall</b> be in <b>writing</b> to the awarding authority and to be given consideration <b>shall</b> be received at least <b>fourteen (14)</b> Calendar Days <i>prior</i> to the date fixed for the opening of bids. Any and all such <b>interpretations</b> and any <b>supplemental instructions</b> will be in the form of written <b>Addenda</b> to the specifications which, if issued, will be posted on the State Contracting Portal.
2.4.6	Contractors who have subscribed through BizNet to receive daily e-mail alert notices when new Bids/RFPs are issued will be notified via a daily CT DAS " <b>Connecticut Procurement Portal Daily Notice</b> ".
<b>2.5 Bidder's Qualification Statement and Objective Criteria for Evaluating Bidders:</b>	
2.5.1	<b>All Bidders</b> shall download, complete, and upload <b>Section 00 45 14 General Contractor Bidder's Qualification Statement</b> to BizNet prior to the date and time of the Bid Opening. See BizNet for a template. This information shall be considered as part of the <b>Bid Proposal Form</b> . Failure of a Bidder to answer any question or provide required information <b>may</b> be grounds for the awarding authority to <b>disqualify</b> and <b>reject</b> the bid.
2.5.2	<b>All Bidders</b> shall comply with <b>Section 00 45 15 Objective Criteria Established for Evaluating Qualifications of Bidders</b> . The <b>Objective Criteria Established for Evaluating Qualifications of Bidders</b> are to assure that the State of Connecticut will secure the "lowest responsible and qualified bidder" who has the ability and capacity to successfully complete the Bid Proposal Form and the Work. Failure to comply with any portion of this requirement <b>may</b> cause <b>rejection</b> of the bid. <b>Note:</b> Individual Specification Sections <b>may</b> contain General Contractor and/or Subcontractor Qualification requirements that <i>exceed</i> those in <b>Section 00 45 15 Objective Criteria Established for Evaluating Qualifications of Bidders</b> .
<b>2.6 Bidder's Prequalification Requirements for Projects exceeding \$500,000:</b>	
2.6.1	<b>All Bidders</b> for Projects with estimated Construction Costs <b>greater</b> than <b>\$500,000</b> shall upload a current copy of their " <b>DAS Prequalification Certificate</b> " and " <b>DAS Update (Bid) Statement</b> " for the applicable <b>Class of Work</b> on <b>page 1</b> of <b>Section 00 11 16 Invitation to Bid</b> to Biznet <i>prior</i> to the date and time of the Bid Opening.
2.6.2	Pursuant to <b>C.G.S. § 4b-91(a)(2)</b> and <b>C.G.S. §4a-100</b> , as revised, every contract for the construction, reconstruction, alteration, remodeling, repair or demolition of any public building or any other public work by the state that is <b>estimated</b> to exceed <b>five hundred thousand dollars (\$500,000)</b> shall be awarded <b>only</b> to the lowest responsible and qualified Bidder who is " <b>prequalified</b> " by DAS in the <b>Class of Work for this Project</b> , as specified in <b>Section 00 11 16 Invitation to Bid</b> . No person who's <b>Contract or Subcontract</b> exceeds <b>\$500,000</b> in value may perform work as a Contractor or Subcontractor, unless the person is <b>prequalified</b> , <i>at the time of bid submission</i> , in accordance with <b>C.G.S. § 4a-100</b> , as amended, <b>C.G.S. § 4b-91(a)(2)</b> , and <b>C.G.S. §4b-91(j)</b> . "Prequalified" includes the contractor's or substantial subcontractor's prequalification classifications, aggregate work capacity ratings and single project limits.
2.6.3	The State may waive minor irregularities that otherwise may cause rejection of a Bid only when waiving such minor irregularities is in the best interests of the State and the minor irregularities have been corrected by the Bidder within seven (7) Calendar Days after the Bid Due Date. Failure to properly <u>complete</u> , <u>sign</u> and <u>upload</u> either the " <b>DAS Prequalification Certificate</b> " or " <b>DAS Update (Bid) Statement</b> " to Biznet prior to the date and time of the Bid Opening <b>shall</b> cause <b>rejection</b> of the bid and shall <b>not</b> be considered a minor irregularity under <b>C.G.S. § 4b-95</b> .
2.6.4	See <b>Section 00 40 15 CT DAS Prequalification Forms</b> for instructions on preparing and/or downloading your Firm's " <b>DAS Contractor Prequalification Certificate</b> " and " <b>DAS Update (Bid) Statement</b> ".
2.6.5	<b>Bidder's Certification:</b> Within <b>ten (10) business days after</b> receipt of the Letter of Intent from DAS/CS, the <b>Apparent Low Bidder shall</b> submit a <b>Bidder's Certification</b> certifying that the information in the bid is true, that there has been no substantial change in the Bidder's financial position or corporate structure since its most recent <b>DAS Prequalification Certificate</b> and <b>DAS Update (Bid) Statement</b> and that the bid was made without fraud or collusion with any person. See <b>Section 00 92 10 Additional Forms</b> of this Project Manual for a sample form.

<b>2.7 Named Subcontractor Requirements:</b>	
2.7.1	All Bid Proposals <b>shall</b> be for the complete work as specified and <b>shall</b> include the names of <b>ALL Subcontractors</b> for the <b>four (4) Classes of Work</b> specified in <b>C.G.S. § 4b-93(a)</b> , as revised, and for each other class of work for which the awarding authority has required a separate section pursuant to said subsection, together with the dollar amounts of their subcontracts, <i>if the subcontracts are in excess of \$100,000</i> . The contractor shall be selected on the basis of such bids.
2.7.2	The <b>Named Subcontractor Bid Price</b> shall be the price set forth in the space provided on the <b>Bid Proposal Form</b> .
2.7.3	No bid shall be rejected because of an error in setting forth the Name of a Subcontractor as long as the Subcontractor or Subcontractors designated are clearly identifiable.
2.7.4	No bid shall be rejected because the <b>Named Subcontractor's</b> plans and specifications do not accompany the bid or are not submitted with the bid.
2.7.5	Failure to correctly state <b>ALL of the Named Subcontractor's prices within a particular Class of Work</b> on the Bid Proposal Form <b>shall</b> be cause for <b>rejection</b> of the Bid.
2.7.6	<b>Named Subcontractor Replacement:</b> The awarding authority may require the <b>Bidder</b> to replace a <b>Named Subcontractor</b> whenever the awarding authority determines in their sole discretion that such <b>replacement</b> is in the <b>best interest of the State</b> .
2.7.7	<b>Named Subcontractor Substitution:</b>
.1	The awarding authority <b>shall not</b> permit <b>substitution</b> of a subcontractor for one <b>Named</b> in accordance with the provisions of <b>C.G.S. § 4b-95</b> , as revised, <b>except</b> for <b>"Good Cause"</b> .
.2	The awarding authority <b>shall not</b> permit <b>substitution</b> of a subcontractor for any designated sub-trade work bid to be performed by the Bidder's own forces in accordance with the provisions of <b>C.G.S. § 4b-95</b> <b>except</b> for <b>"Good Cause"</b> .
.3	<b>"Good Cause":</b> The term "good cause" includes but is not limited to, a subcontractor's or, <b>where appropriate, a Bidder's:</b> (1) death or physical disability, if the listed subcontractor is an individual; (2) dissolution, if a corporation or partnership; (3) bankruptcy; (4) inability to furnish any performance and payment bond shown on the bid form; (5) inability to obtain, or loss of, a license necessary for the performance of the particular category of work; (6) failure or inability to comply with a requirement of law applicable to contractors, subcontractors, or construction, alteration, or repair projects; and (7) failure to perform its agreement to execute a subcontract under C.G.S. § 4b-96, as revised.
2.7.8	<b>Named Subcontractor DAS Prequalification Requirement for Subcontracts exceeding \$500,000:</b>
.1	The <b>Three (3) Apparent Lowest Bidders</b> shall receive <i>VIA EMAIL</i> a "Set-Aside Contractor Schedule Request" ("Request") from the DAS/CS Office of Legal Affairs, Policy, and Procurement. For <b>Subcontracts greater than \$500,000</b> , the <b>Three (3) Apparent Lowest Bidders</b> shall submit within <b>ten (10) Calendar Days</b> after receipt of the Request current <b>DAS Prequalification Certificate(s) and Update (Bid) Statement(s)</b> for <b>each Named Subcontractor</b> in <b>Table 2.7</b> of the <b>Bid Proposal Form</b> , to the extent the <b>Class of Work for the Named Subcontractor is a Prequalification Classification</b> . This information shall be considered as part of the <b>Bid Proposal Form</b> and failure to comply with any portion of this requirement <b>shall</b> cause <b>rejection</b> of the bid.
.2	Instructions for downloading " <b>DAS Contractor Prequalification Certificates</b> " and " <b>DAS Update (Bid) Statement</b> " can be found in <b>Section 00 40 15 CT DAS Prequalification Forms</b> .
.3	<b>In accordance C.G.S. §4b-91(j)</b> , no person whose subcontract <i>exceeds</i> five hundred thousand dollars in value may perform work as a subcontractor on a project, which project is estimated to cost more than five hundred thousand dollars and is paid for, in whole or in part, with state funds, <i>unless, at the time of bid submission</i> , the person is prequalified in accordance with <b>C.G.S. §4a-100</b> , as amended. "Prequalified" includes the contractor's or substantial subcontractor's prequalification classifications, aggregate work capacity ratings and single project limits. For <b>Subcontracts</b> estimated to <b>exceed \$500,000</b> , the <b>Named Subcontractor must</b> be " <b>prequalified</b> " by DAS in the <b>Class of Work</b> specified in <b>Table 2.7 of Section 00 41 00 Bid Proposal Form</b> <i>at the time of bid submission</i> , pursuant to <b>C.G.S. §4b-91(j)</b> and <b>C.G.S. § 4a-100</b> , as amended. This requirement also applies to the Bidder, if the Bidder is a Named Subcontractor.
2.7.9	<b>Named Subcontractor Bidder's Qualification Statements (Section 00 45 17)</b>
.1	The <b>Three (3) Apparent Lowest Bidders</b> shall receive <i>VIA EMAIL</i> a "Set-Aside Contractor Schedule Request" ("Request") from the DAS/CS Office of Legal Affairs, Policy, and Procurement. For Projects with <b>estimated Construction Costs greater than \$500,000</b> , the <b>Three (3) Apparent Lowest Bidders</b> shall submit within <b>ten (10) Calendar Days</b> after receipt of the Request completed <b>Section 00 45 17 Named Subcontractor Bidder's Qualification Statement(s)</b> of this Project Manual for <b>each Named Subcontractor</b> in <b>Table 2.7</b> of the <b>Bid Proposal Form</b> . This information shall be considered as part of the <b>Bid Proposal Form</b> and failure to comply with any portion of this requirement <b>may</b> cause <b>rejection</b> of the bid.
.2	<b>Important Note:</b> Individual Technical Specification Sections <b>may</b> contain qualification requirements that <b>exceed</b> those from <b>Section 00 45 17 Named Subcontractor Bidder's Qualification Statement</b> .

<b>2.7 Named Subcontractor Requirements (continued):</b>	
<b>2.7.10 Bidder Performing Work as Named Subcontractor:</b>	
.1	In accordance with <b>C.G.S. § 4b-95(c)</b> , it shall be presumed that the <b>Bidder</b> intends to perform, with its own employees, all work in such <b>four (4) Classes of Work</b> and such other classes, for which <b>no</b> Subcontractor is named in <b>Table 2.7 of the Bid Proposal Form</b> . In accordance with <b>C.G.S. § 4b-92</b> , as revised, the <b>Bidder's</b> qualifications for performing such work shall be subject to review.
.2	In the event that the Bidder names a Subcontractor to perform some, but not all, of the separate section of the specifications for a particular Class of Work, then it will be presumed, in addition, that the Bidder intends to perform the balance of the Class of Work. Post-bid, the Bidder cannot substitute a Subcontractor for one named in the Bid Proposal Form or bring in a Subcontractor for any designated subtrade work presumed to be performed by the General Contractor's own forces, except for "Good Cause" as determined by the awarding authority.
.3	If the Bidder has listed itself as a <b>Named Subcontractor(s)</b> for a <b>Class(es) of Work</b> in <b>Table 2.7 of the Bid Proposal Form</b> and the proposed dollar value of the Subcontract(s) is greater than \$500,000, then <b>to the extent the Class(es) of Work is a Prequalification Classification</b> , the Bidder shall provide a current <b>DAS Prequalification Certificate and Update (Bid) Statement</b> for each of the applicable <b>Class(es) of Work</b> within ten (10) Calendar Days after receipt of the "Set-Aside Contractor Schedule Request" from DAS/CS. <b>Failure to comply with this requirement shall cause rejection of the bid and shall not be considered a minor irregularity under C.G.S. § 4b-95.</b>
<b>2.8 Set-Aside Requirements:</b>	
<b>2.8.1 Bidder's DAS Set-Aside Certificate For Projects With Construction Costs Estimated To Be Less Than \$500,000: All Small Business Enterprise (SBE) / Minority Business Enterprise (MBE) Bidders</b>	shall upload a copy of their Firm's current "DAS Set-Aside Certificate" to BizNet prior to the date and time of the Bid Opening.
<b>2.8.2 Bidder Contract Compliance Monitoring Report For Projects With Construction Costs Estimated To Be Less Than \$500,000:</b>	All Firm's shall upload a completed copy of the CHRO Employment Information Form, " <b>Bidder Contract Compliance Monitoring Report</b> " <i>with</i> their <b>Bid Proposal Form</b> prior to the date and time of the Bid Opening. The report is posted on the <b>CHRO Webpage</b> : <a href="http://www.ct.gov/chro/cwp/view.asp?a=2525&amp;Q=315900&amp;chroPNavCtr=#45679">http://www.ct.gov/chro/cwp/view.asp?a=2525&amp;Q=315900&amp;chroPNavCtr=#45679</a> .
<b>2.8.3 All Bidders shall be required</b>	to award not less than the percentage(s) stated on <b>page 1 of Section 00 41 00 Bid Proposal Form</b> to Subcontractors who are currently certified and eligible to participate under the State of Connecticut Set-Aside Program for <b>SBE and/or MBE</b> contractors, in accordance with C.G.S. § 4a-60g. <b>Failure</b> to meet these requirements <b>shall</b> cause <b>rejection</b> of the bid. The MBE participation <b>does</b> count as part of the SBE participation.
<b>2.8.4 Set-Aside Contractor Schedule Request:</b>	The SBE/MBE participation requirement <i>must be met</i> even if the Bidder is <i>certified</i> and <i>eligible</i> to participate in the <b>Small Business Set-Aside Program</b> . To facilitate compliance with this requirement for set-aside subcontractors, the <b>Three (3) Apparent Lowest Bidders</b> shall receive <b>VIA EMAIL</b> a "Set-Aside Contractor Schedule Request" ("Request") from the DAS/CS Office of Legal Affairs, Policy, and Procurement. As directed in the Request, the <b>Three (3) Apparent Lowest Bidders</b> shall submit within <b>ten (10) Calendar Days</b> after receipt of the Request, a <b>list of certified set-aside contractors</b> to be used on this project along with the <b>dollar amounts</b> to be paid to each. (See Section 00 73 27 Set-Aside Contractor Schedule for a sample Request.) A copy of the <b>current DAS Set-Aside Certificate</b> for <b>each Subcontracted SBE and/or MBE firm(s)</b> listed in the " <b>Set-Aside Contractor Schedule</b> " must be attached to the Request. This information will be considered as part of your Bid Proposal Form and <b>failure</b> to comply with any portion of this requirement within the ten (10) days, including but not limited to <b>failure</b> to list or meet the necessary dollar amount or percentage of the bid price, will be cause to <b>reject</b> your bid.
<b>2.8.5 Percentage of Work Performed by SBE/MBE Contractors and Subcontractors:</b>	The percentage of the work performed by the SBE/MBE Contractors and Subcontractors on this project shall not be less than the percentage noted in <b>Subsection 5.1 Amount of Work Required to Be Done by "Set-Aside" Contractors of Section 00 73 38 Commission on Human Rights (CHRO) Contract Compliance Regulations</b> .
<b>2.8.6 To view and/or download a Set-Aside Certificate:</b>	Go to the DAS Homepage ( <a href="http://www.ct.gov/DAS">www.ct.gov/DAS</a> ) > Small and Minority Businesses > Apply for Small Business Enterprise or Minority Business Enterprise Certification (SBE or MBE) > View/Search SBE/MBE Directory.
<b>2.9 Insurance Coverages:</b>	
<b>2.9.1</b>	The Insurance coverages required for this project shall be those listed in <b>Article 35 Contractors Insurance of Section 00 73 13 General Conditions</b> of this Project Manual. See <b>Section 00 41 00 Bid Proposal Form</b> and <b>Section 00 62 16 Certificate of Insurance</b> of this Project Manual for additional details.
<b>2.9.2</b>	The <b>Apparent Low Bidder shall</b> submit the Firm's <b>Certificate of Liability Insurance Acord® form</b> within <b>ten (10) business days after</b> receipt of the Letter of Intent from DAS/CS.

**3.0 All Other Required Bid Documents, Affidavits, and Certifications:**

**3.1 Affidavits and Certifications:**

**Important Note:** *The State may waive minor irregularities that otherwise may cause rejection of a Bid only when waiving such minor irregularities is in the best interests of the State and the minor irregularities have been corrected by the Bidder within seven (7) Calendar Days after the Bid Due Date. Failure to properly complete, sign and upload **all** of the following Affidavits and Certifications to Biznet prior to the date and time of the Bid Opening **shall** cause **rejection** of the bid and shall **not** be considered a minor irregularity under C.G.S. § 4b-95.*

**3.1.1 Gift and Campaign Contribution Certification – OPM Ethics Form 1: All Bidders**

- .1 All Bidders:** In accordance with Executive Order No. 49, and pursuant to C.G.S. §§ 4-250, 4-252(c) and 9-612(f)(2), as revised, any principal or key personnel of the person, firm or corporation submitting a bid or proposal for a contract that has a value of **\$50,000** or more, shall be required to upload to BizNet a **Gift and Campaign Contribution Certification** prior to the date and time of the Bid Opening.
- .2** Any bidder or proposer that **does not** upload the **Gift and Campaign Contribution Certification** to BizNet prior to the date and time of the Bid Opening as required under this section shall be **disqualified** and DAS shall award the contract to the next highest ranked proposer or the next lowest responsible qualified bidder or seek new bids or proposals. Failure to upload this form to BizNet **prior** to the date and time of the Bid Opening shall not be considered a minor irregularity under CGS 4b-95.
- .3** Once uploaded, an updated **Gift and Campaign Contribution Certification** shall be uploaded within **30 days** of any changes to the submitted information.
- .4** **Annually**, on or within **two (2)** weeks of the **anniversary** date of the execution of this contract, the Contractor shall upload a completed **Annual Certification** with authorizing resolution. For the purposes of this paragraph, the execution date of the contract will be the date the DAS Commissioner signs the contract.

**3.1.2 Consulting Agreement Affidavit – OPM Ethics Form 5: All Bidders**

- .1 All Bidders:** Pursuant to C.G.S. §§ 4a -81a and 4a -81b, as revised, a **Consulting Agreement Affidavit** must be completed and uploaded to BizNet prior to the date and time of the Bid Opening for contracts with a value of **\$50,000** or more.
- .2** In the event that a Bidder or vendor fails or refuses to upload the **Consulting Agreement Affidavit** to BizNet prior to the date and time of the Bid Opening, as required under C.G.S. § 4a-81, such bidder shall be **disqualified** and the award shall be made to the next lowest responsible qualified bidder or new bids or proposals shall be sought. Failure to upload this form to BizNet **prior** to the date and time of the Bid Opening shall not be considered a minor irregularity under CGS 4b-95.
- .3** Once uploaded, an updated **Consulting Agreement Affidavit** **shall** be amended and uploaded not later than (1) **thirty (30) days** after the effective date of any such change or (2) upon the submittal of any new bid or proposal, whichever is earlier. For the purposes of this paragraph, the **execution date** of the contract will be the date the DAS Commissioner signs the contract.
- .4** Other Contributions by Individuals. Principals of Investment Services Firms, State Contractors, Principals Of State Contractors, Prospective State Contractors Or Principals Of Prospective State Contractors. Lists. Subcontracts Study. State Officials or Employees: All acquisitions, agreements and contracts are subject to the provisions of the C.G.S. § 9-612 regarding **Campaign Contribution or Contributions**.

**3.1 Affidavits and Certifications Forms (continued):**

**3.1.3 Ethics Affidavit – OPM Ethics Form 6: All Bidders and Apparent Low Bidder**

- .1 **All Bidders:** Pursuant to C.G.S. §§ 1-101mm and 1-101qq, as revised, when DAS/CS is seeking a contract for a large state construction or procurement contract having a cost of more than **\$500,000**, DAS shall inform all potential consultant and contractor firms of the summary of state ethics laws developed by the Office of State Ethics (OSE) pursuant to C.G.S. § 1-81b. "Large State Contract" means an agreement or a combination or series of agreements between a state agency and a person, firm or corporation, having a total value of more than **\$500,000** in a calendar or fiscal year a project for the construction, alteration or repair of any public building or public work. For a **Guide to the Code of Ethics For Current or Potential State Contractors** go to the Office of State Ethics (OSE) website ([www.ct.gov/ethics](http://www.ct.gov/ethics)), then click on the "**Publications**" link.
- .2 **All Bidders:** Pursuant to C.G.S. § 1-101qq, as revised, DAS is also required to notify all potential consultant and contractor firms or a large state construction or procurement contract that they must upload an **Affirmation of Receipt of State Ethics Laws Summary** to BizNet prior to the date and time of the Bid Opening affirming that their key employees have read and understand the summary and agree to comply with the provisions of state ethics law.
- .3 Failure to upload this affidavit to BizNet prior to the date and time of the Bid Opening **shall** result in **rejection** of the bid and shall not be considered a minor irregularity under CGS 4b-95.
- .4 **Apparent Low Bidder:** Furthermore, the **Apparent Low Bidder** shall provide the **Summary of the State Ethics Laws** to each **Named Subcontractor** and any other **Subcontractor** or **Subconsultant** with a contract valued over **\$500,000** and obtain a **Subcontractor and Subconsultant State Ethics Affidavit** stating that the key personnel of the subcontractor have read, understand, and agree to comply with provisions of the state ethics laws. The **Apparent Low Bidder** shall submit such subcontractor(s) affidavits to the DAS/CS Office of Legal Affairs, Policy, and Procurement within **ten (10) business days** after receipt of the Letter of Intent from DAS/CS.

**3.1.4 Iran Certification – OPM Ethics Form 7: All Bidders**

- .1 **All Bidders:** Pursuant to C.G.S. § 4-252a, when DAS/CS is seeking a contract for a large state construction or procurement contract having a cost of more than **\$500,000**, an **Iran Certification** must be completed and uploaded to BizNet **prior to the date and time of the Bid Opening**.
- .2 Pursuant to C.G.S. § 4-252a, *"This form must always be submitted with the bid or proposal, or if there was no bid process, with the resulting contract, regardless of where the principal place of business is located. Entities whose principal place of business is located outside of the United States are required to complete the entire form, including the certification portion of the form. United States subsidiaries of foreign corporations are exempt from having to complete the certification portion of the form. Those entities whose principal place of business is located inside of the United States must also fill out the form, but do not have to complete the certification portion of the form."*

**3.1.5 Nondiscrimination Certification – Form A, B, C, D, or E: All Bidders**

- .1 **All Bidders:** Pursuant to C.G.S. §§ 4a-60 and 4a-60a, as amended, a contractor must provide an awarding State agency with written representation or documentation that certifies the contractor complies with the State's nondiscrimination agreements and warranties prior to the award of any contract with the State. A **Nondiscrimination Certification** is required for all State contracts, regardless of type, term, cost or value. The **appropriate form** must be uploaded to BizNet prior to the date and time of the Bid Opening.
- .2 Once uploaded, an updated **Nondiscrimination Certification** shall be uploaded within **30 days** of any changes to the submitted information.
- .3 **Annually**, on or within **two (2) weeks** of the **anniversary** date of the execution of this contract, the Contractor shall upload a completed **Annual Certification** with authorizing resolution. For the purposes of this paragraph, the execution date of the contract will be the date the DAS Commissioner signs the contract.

**3.1.6** For instructions on how to electronically download and upload **Affidavits and Non-Discrimination Forms**, go to the DAS Homepage ([www.ct.gov/DAS](http://www.ct.gov/DAS)) > Doing Business with the State > Create a BizNet Account for Doing Business with the State > Documents/Forms > Vendor Guide to Uploading Affidavits and Nondiscrimination Forms Online.

<b>3.2 Security For Faithful Performance:</b>	
<b>3.2.1 Certified Check or Bid Bond: All Bidders</b>	
.1	<b>All Bidders for bids in excess of \$50,000 shall submit either a Certified Check or a Bid Bond</b> , in the form required by the awarding authority. See <b>Section 00 43 16 Standard Bid Bond</b> in BizNet for a template and important instructions regarding submitting the Bid Bond or Certified Check. Complete and upload <b>Section 00 43 16 Standard Bid Bond</b> to Biznet <b>prior</b> to the date and time of the Bid Opening for <b>either</b> the Bid Bond option <b>or</b> the Certified Check option.
.2	<b>Certified Check Option:</b> The <b>Certified Check</b> shall be drawn to the order of “ <b>Treasurer, State of Connecticut</b> ”, in which it is understood shall be cashed and the proceeds thereof used so far as may be necessary to reimburse the State of Connecticut for losses and damages arising by virtue of the Bidder’s failure to file the required Bonds and execute the required contract if this proposal is accepted by the Awarding Authority.
.3	<b>Bid Bond Option:</b> The <b>Bid Bond</b> shall be in the form required by the awarding authority, having as <b>surety</b> thereto such surety company or companies acceptable to the DAS Commissioner and as are authorized to do business in this State, for an amount not less than 10 percent of the bid.
.4	<b>Return of Certified Check:</b> All <b>checks</b> submitted by <b>unsuccessful</b> Bidders shall be returned to them <i>after</i> the contract has been awarded.
.5	Failure to submit the Bid Bond <b>or</b> Certified Check <b>prior</b> to the date and time of the Bid Opening <b>shall</b> cause <b>rejection</b> of the bid and shall not be considered a minor irregularity under CGS 4b-95.
.6	<b>Forfeiture of Certified Check or Bid Bond:</b> <b>Failure</b> of the successful bidder to execute a contract awarded as specified and bid shall result in the <b>forfeiture</b> of the certified check or bid bond.
<b>3.2.2</b>	<b>Performance Bond: Apparent Low Bidder:</b> Within <b>ten (10) business days after</b> receipt of the Letter of Intent from DAS/CS, the <b>Apparent Low Bidder shall</b> substitute for the <b>certified check or bid bond</b> accompanying its bid an executed <b>performance bond</b> , in the amount not less than 100 percent of the contract price, conditioned upon the faithful performance of the contract, and having as surety thereto such surety company or companies satisfactory to the Commissioner and as are authorized to transact business in this State. This bond is to be furnished pursuant to <b>C.G.S. § 49-41</b> , as revised. See <b>Section 00 92 10 Additional Forms</b> of this Project Manual for a template.
<b>3.2.3</b>	<b>Labor and Material Bond: Apparent Low Bidder:</b> Within <b>ten (10) business days after</b> receipt of the Letter of Intent from DAS/CS, the <b>Apparent Low Bidder shall</b> submit a labor and material bond in the amount not less than 100 percent of the contract price which <b>shall</b> be binding upon the award of the contract to such bidder, with surety or sureties satisfactory to the Commissioner and as are authorized to transact business in this State, for the protection of persons supplying labor or materials in the prosecution of the work provided for in the contract for the use of each such person. Any such bond furnished <b>shall</b> have as principal the name of the successful Bidder. This bond is to be furnished pursuant to <b>C.G.S. § 49-41</b> , as revised. See <b>Section 00 92 10 Additional Forms</b> of this Project Manual for a template.
<b>3.2.4</b>	<b>The following section of the General Statutes of Connecticut, as revised, is inserted as information concerning this bond and will be incorporated into the Contract for the Work:</b> <b>C.G.S. § 49-41a. Enforcement of payment by general contractor to subcontractor and by subcontractor to his subcontractors.</b> (a) When any public work is awarded by a contract for which a payment bond is required by section 49-41, the contract for the public work shall contain the following provisions: (1) A requirement that the general contractor, within thirty days after payment to the contractor by the State or a municipality, pay any amounts due any subcontractor, whether for labor performed or materials furnished, when the labor or materials have been included in a requisition submitted by the contractor and paid by the State or a municipality; (2) a requirement that the general contractor shall include in each of its <b>subcontracts</b> a <b>provision</b> requiring each <b>subcontractor</b> to pay any amounts due any of its subcontractors, whether for labor performed or materials furnished, within thirty days after such subcontractor receives a payment from the general contractor which encompasses labor or materials furnished by such subcontractor. (b) If payment is not made by the general contractor or any of its subcontractors in accordance with such requirements, the subcontractor shall set forth his claim against the general contractor and the subcontractor of a subcontractor shall set forth its claim against the subcontractor through notice by registered or certified mail. Ten days after the receipt of that notice, the general contractor shall be liable to its subcontractor, and the subcontractor shall be liable to its subcontractor, for interest on the amount due and owing at the rate of one percent per month. In addition, the general contractor, upon written demand of its subcontractor, or the subcontractor, upon written demand of its subcontractor, shall be required to place funds in the amount of the claim, plus interest of one per cent, in an interest-bearing escrow account in a bank in this State, provided the general contractor or subcontractor may refuse to place the funds in escrow on the grounds that the subcontractor has not substantially performed the work according to the terms of his or its employment. In the event that such general contractor or subcontractor refuses to place such funds in escrow, and the party making a claim against it under this section is found to have substantially performed its work in accordance with the terms of its employment in any arbitration or litigation to determine the validity of such claim, then such general contractor or subcontractor shall pay the attorney’s fees of such party. (c) No payment may be withheld from a subcontractor for work performed because of a dispute between the general contractor and another contractor or subcontractor. (d) This section shall not be construed to prohibit progress payments prior to final payment of the contract and is applicable to all subcontractors for material or labor whether they have contracted directly with the general contractor or with some other subcontractor on the work.
<b>3.2.5</b>	<b>Surety Sheet: Apparent Low Bidder:</b> Within <b>ten (10) business days after</b> receipt of the Letter of Intent from DAS/CS, the <b>Apparent Low Bidder shall</b> submit a Surety Sheet that provides information regarding the Surety Company and Agent. See <b>Section 00 92 10 Additional Forms</b> of this Project Manual for a template.

<b>3.3 Certificate (of Authority):</b>	
3.3.1	All Bidders for bids in excess of \$50,000 shall upload a signed and scanned <b>Section 00 40 14 Certificate (of Authority)</b> to BizNet prior to the date and time of the Bid Opening. See BizNet for a template.
3.3.2	The <b>Apparent Low Bidder</b> shall submit a <b>second Certificate (of Authority)</b> within <b>ten (10) business days after</b> receipt of the Letter of Intent from DAS/CS.
<b>3.4 Security Requirements for CT Department of Correction (CT DOC) Facilities:</b>	
3.4.1	All Bidders for Projects at a CT DOC Facility shall read and comply with <b>Section 00 73 63 CT DOC Security Requirements</b> for Contract Forces on CT DOC Facilities.
3.4.2	<b>NEW:</b> All Bidders for Projects at a CT DOC Facility: Prior to the Pre-Bid Meeting, all Bidders shall download the "Security Background Questionnaire" from the CT DOC website ( <a href="http://www.ct.gov/doc">www.ct.gov/doc</a> ), under "Forms", complete and submit the form as directed, and obtain approval, otherwise admission to the Pre-Bid Meeting <b>will be denied</b> . It is recommended that the approved form be brought as evidence of approval to attend the Pre-Bid Meeting.
<b>3.5 Affirmative Action Plan &amp; Employment Information Form (DAS-45): Apparent Low Bidder</b>	
3.5.1	For Projects greater than \$500,000 and/or Firms with 50 or more employees, the <b>Apparent Low Bidder shall</b> submit the Firm's <b>Affirmative Action Plan</b> and <b>Employment Information Form (DAS-45)</b> to CHRO within <b>fifteen (15) calendar days after</b> receipt of the "Request for the <i>Affirmative Action Plan</i> and <i>Employment Information Form</i> Letter" from DAS/CS. See <b>Section 00 73 38 Commission on Human Rights and Opportunities/ Contract Compliance Regulations</b> .
3.5.2	The Apparent Low Bidder <b>shall</b> submit a copy of the Transmittal Letter to the DAS/CS Office of Legal Affairs, Policy, and Procurement within <b>fifteen (15) calendar days after</b> receipt of the "Request for the <i>Affirmative Action Plan</i> and <i>Employment Information Form</i> Letter" from DAS/CS.
<b>3.6 Prevailing Wage: Apparent Low Bidder</b>	
3.6.1	The <b>Apparent Low Bidder shall</b> submit the " <b>Contractor's Wage Certification Form</b> " to CT Department of Labor (CT DOL) within <b>fifteen (15) calendar days after</b> receipt of the "Request for the <i>Affirmative Action Plan</i> and <i>Employment Information Form</i> Letter" from DAS/CS. See <b>Section 00 73 44 Prevailing Wage Rates/Contractor's Wage Certification/Payroll Certification</b> of this Project Manual.
3.6.2	Each contractor who is awarded a contract on or after October 1, 2002 shall be subject to provisions of <b>C.G.S. § 31-53, as revised</b> . See <b>Section 00 73 44 Prevailing Wage Rates/Contractor's Wage Certification/Payroll Certification</b> of this Project Manual.
3.6.3	<b>Annual Adjustment Of Prevailing Wage Rates:</b> In determining bid price, consideration should be given to <b>C.G.S. § 31-53 and 31-55a, as revised</b> , regarding <b>annual adjustment of prevailing wage rates</b> . Annual adjustments of prevailing wage rates will <b>not</b> be considered a matter for a contract amendment.
<b>3.7 NEW PROCESS: General Permit for the Discharge of Stormwater &amp; Dewatering Wastewaters from Construction Activities: Apparent Low Bidder</b>	
3.7.1	All DAS/CS construction projects disturbing <b>one or more total acres of land area</b> on a site <b>regardless of project phasing</b> must file a Department of Energy and Environmental Protection (DEEP) <a href="#">General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities (DEEP-WPED-GP-015)</a> ("Construction Stormwater General Permit") registration and Stormwater Pollution Control Plan (SPCP) with the DEEP. <b>The DAS/CS Architect/Engineer (A/E) shall be responsible for registering the Construction Stormwater General Permit and SPCP through the online DEEP ezFile Portal prior to bidding.</b>
3.7.2	Once the Apparent Low Bidder is under contract with DAS/CS, and prior to the commencement of any construction activities, the Apparent Low Bidder ("Contractor") shall be required to provide the necessary information from all applicable contractors and/or subcontractors working on the Project to the DAS/CS A/E in order to finalize the SPCP and transfer the Construction Stormwater General Permit obligations to the Contractor.
3.7.3	All Contractors and Subcontractors listed on the SPCP shall be required to sign the SPCP "Contractor Certification Statement" and License Transfer Form <b>prior</b> to commencement of any construction activity.



**3.8 Section 00 52 73 Subcontract Agreement Forms: Apparent Low Bidder**

**3.8.1** The **Apparent Low Bidder** shall submit a completed **Section 00 52 73 Subcontract Agreement Form** of this Project Manual for *each* Named Subcontractor within **ten (10) Business Days** after receipt of the "Letter of Intent" from DAS/CS. This information *shall* be considered as part of the **Bid Proposal Form** and failure to comply with any portion of this requirement *may* cause **rejection** of the bid.

**3.8.2** Each **Named Subcontractor** shall be the matter of a **Subcontract** as required by **C.G.S. § 4b-96**.

**3.9 Non-Resident Contractors and Taxation: Apparent Low Bidder**

**3.9.1** **Nonresident contractors** must comply with the **provisions C.G.S. § 12-430 (7), Procedures for Nonresident Contractors**, and the regulations established pursuant to that section. See **Section 00 92 30 Procedures Regarding Taxation for Nonresident General/Prime Contractor and Subcontractors** of this Project Manual for additional details.

**3.9.2** **Apparent Low Bidder who is a Nonresident Contractor:** Within **ten (10) business days after** receipt of the "**Letter of Intent**" from DAS/CS, a certificate(s) from DRS must be provided which evidences that C.G.S. §12-430 for non-resident contractors has been met. As described in Section 00 92 30 "Procedures Regarding Taxation for Nonresident General/Prime Contractor and Subcontractors", **Verified Nonresident** General/Prime Contractors must submit a copy of their "**Notice of Verified Status**" (Verification Letter) from DRS. **Unverified Nonresident** General/Prime Contractors must submit a copy of **Form AU-965 "Acceptance of Surety Bond"** from DRS.

**3.10 Certificate of Legal Existence: Apparent Low Bidder**

**3.10.1** A **corporation** that is awarded the contract must comply with the laws of this State regarding the procurement of a certificate of authority to transact business in this State from the **Secretary of the State**. A "**Certificate of Legal Existence**" which is not older than **ninety (90) calendar days** from the date of the contract signing must be filed with the DAS/CS Office of Legal Affairs, Policy, and Procurement within **ten (10) business days after** receipt of the "Letter of Intent" from DAS/CS.

**3.11 State Election Enforcement Commission (SEEC) Form 10: Apparent Low Bidder**

**3.11.1** The **Apparent Low Bidder** shall submit a **State Election Enforcement Commission's (SEEC) Form 10** "Notice to Executive Branch State Contractors and Prospective State Contractors of Campaign Contribution and Solicitation Limitations" within **ten (10) business days after** receipt of the "Letter of Intent" from DAS/CS for contracts with a value of \$50,000 or more.

**3.11.2** Pursuant to C.G.S. § 9-612, as revised, a State Contract means an agreement or contract with the state or any state agency or any quasi-public agency having a value in a calendar year of **\$50,000** or more, or a combination or series of such **agreements** or **contracts** having a value of **\$100,000** or more, the **authorized signatory** to this **submission** in response to the State's solicitation expressly **acknowledges receipt** of, and must submit **in writing**, the **SEEC Form 10 notice** advising prospective state contractors of the state campaign contribution and solicitation prohibitions, and will inform its principals of the contents of the **notice**.

**3.11.3** For instructions on how to download "**SEEC Form 10**", go to the SEEC Homepage ([www.ct.gov/seec](http://www.ct.gov/seec)); click on "Forms" at the top of the page; click on "Contractor Reporting Forms"; click on "SEEC Form 10" and follow the directions.

**3.12 OSHA Training Course: Successful Bidder**

**3.12.1** Pursuant to **C.G.S. §. 31-53b (a)**, as revised, each contract entered into for the construction, remodeling, refinishing, refurbishing, rehabilitation, alteration or repair of any public building project by the state or any of its agents, or by any political subdivision of the state or any of its agents, where the total cost of all work to be performed by all contractors and subcontractors in connection with the contract is at least **one hundred thousand dollars (\$100,000)**, shall contain a provision requiring that, not later than **thirty (30) days** after the date such contract is awarded, **each contractor furnish proof to the Labor Commissioner** that all employees performing manual labor on or in such public building, pursuant to such contract, have completed a **course** of at least **ten (10) hours** in duration in **construction safety and health** approved by the federal Occupational Safety and Health Administration or, in the case of telecommunications employees, have completed at least **ten (10) hours** of training in accordance with 29 CFR 1910.268.

**3.13 NEW PROCESS: Contractor and Subcontractor Payments Reporting: Successful Bidder**

**3.13.1** For compliance with **C.G.S. § 4b-95 and 49-41**, DAS/CS requires every Contractor (and its Subcontractors and their Subcontractors) who has been awarded a DAS/CS construction contract to log on to the State of Connecticut web-based platform, BizNet, **each month** and **enter payments** they have received from the state, from the Contractor, or from a higher tier Subcontractor (as applicable).

The process is described as follows: The state will pay the Contractor on a monthly basis for work performed (and purchases made) by it and its Subcontractors. The Contractor will input the payment date and amount they receive from the state on a monthly basis. The Contractor's first-level Subcontractor (Tier 1 Subcontractor) will input the payment they receive from the Contractor. The second-level Subcontractor (Tier 2 Subcontractor) will input the payment they receive from the Tier 1 Subcontractor. And so on.

Contractors awarded a DAS/CS construction contract shall contain a **provision in their subcontract agreements** requiring their Subcontractors to enter payment receipt from the Contractor in the State of Connecticut web-based platform, BizNet, for work performed or purchases made in relation to state projects.

Detailed instructions can be found in the DAS/CS publication, "**6002 Instructions to Contractors/Subcontractors for Entering Payments Online**", available for download by going to the DAS Homepage ([www.ct.gov/DAS](http://www.ct.gov/DAS)) and selecting Doing Business With The State > State Building Construction > Publications and Forms > DAS Construction Services Library > 6000 Series.

**4.0 Nondiscrimination and Affirmative Action**

This contract is subject to Federal and state laws, including Title VII of the 1964 Civil Rights Act, 42 U.S.C. § 2000e-2(a)(1), and the Connecticut Fair Employment Practices Act. C.G.S. § 46a-60 et seq., prohibit various forms of discrimination and illegal harassment in employment.

**4.1 Nondiscrimination and Affirmative Action Provisions:**

**4.1.1 This section is inserted in connection with C.G.S. § 4a-60, as revised.**

**4.1.2** References in this section to "contract" **shall** mean this Contract and references to "contractor" **shall** mean the Contractor/Bidder.

**4.1.3 C.G.S. § 4a-60, as revised:**

(a) **Except as provided in section 10a-151i, every contract to which an awarding agency is a party, every quasi-public agency project contract and every municipal public works contract shall contain the following provisions:**

(1) The contractor agrees and warrants that in the performance of the contract such contractor will not discriminate or permit discrimination against any person or group of persons on the grounds of race, color, religious creed, age, marital status, national origin, ancestry, sex, gender identity or expression, **status as a veteran**, intellectual disability, mental disability or physical disability, including, but not limited to, blindness, unless it is shown by such contractor that such disability prevents performance of the work involved, in any manner prohibited by the laws of the United States or of the state of Connecticut; and the contractor further agrees to take affirmative action to **ensure** that applicants with job-related qualifications are employed and that employees are treated when employed without regard to their race, color, religious creed, age, marital status, national origin, ancestry, sex, gender identity or expression, **status as a veteran**, intellectual disability, mental disability or physical disability, including, but not limited to, blindness, unless it is shown by such contractor that such disability prevents performance of the work involved;

(2) The contractor agrees, in all solicitations or advertisements for employees placed by or on behalf of the contractor, to state that it is an "affirmative action-equal opportunity employer" in accordance with regulations adopted by the **Commission on Human Rights and Opportunities**;

(3) The contractor agrees to provide each labor union or representative of workers with which such contractor has a collective bargaining agreement or other contract or understanding and each vendor with which such contractor has a contract or understanding, a notice to be provided by the **Commission on Human Rights and Opportunities** advising the labor union or workers' representative of the contractor's commitments under this section, and to post copies of the notice in conspicuous places available to employees and applicants for employment;

(4) The contractor agrees to comply with each provision of this section and sections 46a-68e and 46a-68f and with each regulation or relevant order issued by said commission pursuant to sections 46a-56, 46a-68e, **46a-68f** and **46a-86**; and

(5) The contractor agrees to provide the Commission on Human Rights and Opportunities with such information requested by the commission, and permit access to pertinent books, records and accounts, concerning the employment practices and procedures of the contractor as relate to the provisions of this section and section 46a-56.

(b) If the contract is a public works contract, municipal public works contract or contract for a quasi-public agency project, the contractor agrees and warrants that he or she will make good faith efforts to employ minority business enterprises as subcontractors and suppliers of materials on such public works or quasi-public agency project.

(c) Except as provided in section 10a-151i:

(1) Any contractor who has one or more contracts with an awarding agency or who is a party to a municipal public works contract or a contract for a quasi-public agency project, where any such contract is valued at less than fifty thousand dollars for each year of the contract, shall provide the awarding agency, or in the case of a municipal public works or quasi-public agency project contract, the Commission on Human Rights and Opportunities, with a written or electronic representation that complies with the nondiscrimination agreement and warranty under subdivision (1) of subsection (a) of this section, provided if there is any change in such representation, the contractor shall provide the updated representation to the awarding agency or commission not later than thirty days after such change.

(2) Any contractor who has one or more contracts with an awarding agency or who is a party to a municipal public works contract or a contract for a quasi-public agency project, where any such contract is valued at fifty thousand dollars or more for any year of the contract, shall provide the awarding agency, or in the case of a municipal public works or quasi-public agency project contract, the Commission on Human Rights and Opportunities, with any one of the following:

(A) Documentation in the form of a company or corporate policy adopted by resolution of the board of directors, shareholders, managers, members or other governing body of such contractor that complies with the nondiscrimination agreement and warranty under subdivision (1) of subsection (a) of this section;

(B) Documentation in the form of a company or corporate policy adopted by a prior resolution of the board of directors, shareholders, managers, members or other governing body of such contractor if (i) the prior resolution is certified by a duly authorized corporate officer of such contractor to be in effect on the date the documentation is submitted, and (ii) the head of the awarding agency, or a designee, or in the case of a municipal public works or quasi-public agency project contract, the executive director of the Commission on Human Rights and Opportunities or a designee, certifies that the prior resolution complies with the nondiscrimination agreement and warranty under subdivision (1) of subsection (a) of this section; or

(C) Documentation in the form of an affidavit signed under penalty of false statement by a chief executive officer, president, chairperson or other corporate officer duly authorized to adopt company or corporate policy that certifies that the company or corporate policy of the contractor complies with the nondiscrimination agreement and warranty under subdivision (1) of subsection (a) of this section and is in effect on the date the affidavit is signed.

(3) No awarding agency, or in the case of a municipal public works contract, no municipality, or in the case of a quasi-public agency project contract, no entity, shall award a contract to a contractor who has not provided the representation or documentation required under subdivisions (1) and (2) of this subsection, as applicable. After the initial submission of such representation or documentation, the contractor shall not be required to resubmit such representation or documentation unless there is a change in the information contained in such representation or documentation. If there is any change in the information contained in the most recently filed representation or updated documentation, the contractor shall submit an updated representation or documentation, as applicable, either (A) not later than thirty days after the effective date of such change, or (B) upon the execution of a new contract with the awarding agency, municipality or entity, as applicable, whichever is earlier. Such contractor shall also certify, in accordance with subparagraph (B) or (C) of subdivision (2) of this subsection, to the awarding agency or commission, as applicable, not later than fourteen days after the twelve-month anniversary of the most recently filed representation, documentation or updated representation or documentation, that the representation on file with the awarding agency or commission, as applicable, is current and accurate.

(d) For the purposes of this section, "contract" includes any extension or modification of the contract, "contractor" includes any successors or assigns of the contractor, "marital status" means being single, married as recognized by the state of Connecticut, widowed, separated or divorced, and "mental disability" means one or more mental disorders, as defined in the most recent edition of the American Psychiatric Association's "Diagnostic and Statistical Manual of Mental Disorders", or a record of or regarding a person as having one or more such disorders. For the purposes of this section, "contract" does not include a contract where each contractor is (1) a political subdivision of the state, including, but not limited to, a municipality, unless the contract is a municipal public works contract or quasi-public agency project contract, (2) any other state, as defined in section 1-267, (3) the federal government, (4) a foreign government, or (5) an agency of a subdivision, state or government described in subdivision (1), (2), (3) or (4) of this subsection.

(e) For the purposes of this section, "minority business enterprise" means any small contractor or supplier of materials fifty-one per cent or more of the capital stock, if any, or assets of which is owned by a person or persons: (1) Who are active in the daily affairs of the enterprise, (2) who have the power to direct the management and policies of the enterprise, and (3) who are members of a minority, as such term is defined in subsection (a) of section 32-9n; and "good faith" means that degree of diligence which a reasonable person would exercise in the performance of legal duties and obligations. "Good faith efforts" shall include, but not be limited to, those reasonable initial efforts necessary to comply with statutory or regulatory requirements and additional or substituted efforts when it is determined that such initial efforts will not be sufficient to comply with such requirements.

(f) Determination of the contractor's good faith efforts shall include, but shall not be limited to, the following factors: The contractor's employment and subcontracting policies, patterns and practices; affirmative advertising, recruitment and training;

technical assistance activities and such other reasonable activities or efforts as the Commission on Human Rights and Opportunities may prescribe that are designed to ensure the participation of minority business enterprises in public works projects.

(g) The contractor shall develop and maintain adequate documentation, in a manner prescribed by the Commission on Human Rights and Opportunities, of its good faith efforts.

(h) The contractor shall include the provisions of subsections (a) and (b) of this section in every subcontract or purchase order entered into in order to fulfill any obligation of a contract with the state, and in every subcontract entered into in order to fulfill any obligation of a municipal public works contract or contract for a quasi-public agency project, and such provisions shall be binding on a subcontractor, vendor or manufacturer, unless exempted by regulations or orders of the Commission on Human Rights and Opportunities. The contractor shall take such action with respect to any such subcontract or purchase order as the commission may direct as a means of enforcing such provisions, including sanctions for noncompliance in accordance with section 46a-56; provided, if such contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the commission regarding a state contract, the contractor may request the state of Connecticut to enter into any such litigation or negotiation prior thereto to protect the interests of the state and the state may so enter.

## 4.2 Nondiscrimination Provisions Regarding Sexual Orientation:

4.2.1 This section is inserted in connection with C.G.S. § 4a-60a, as revised.

4.2.2 References in this section to "contract" shall mean this Contract and references to "contractor" shall mean the Contractor/Bidder.

4.2.3 C.G.S. § 4a-60a, as revised:

(a) Except as provided in section 10a-151i, every contract to which an awarding agency is a party, every contract for a quasi-public agency project and every municipal public works contract shall contain the following provisions:

(1) The contractor agrees and warrants that in the performance of the contract such contractor will not discriminate or permit discrimination against any person or group of persons on the grounds of sexual orientation, in any manner prohibited by the laws of the United States or of the state of Connecticut, and that employees are treated when employed without regard to their sexual orientation;

(2) The contractor agrees to provide each labor union or representative of workers with which such contractor has a collective bargaining agreement or other contract or understanding and each vendor with which such contractor has a contract or understanding, a notice to be provided by the Commission on Human Rights and Opportunities advising the labor union or workers' representative of the contractor's commitments under this section, and to post copies of the notice in conspicuous places available to employees and applicants for employment;

(3) The contractor agrees to comply with each provision of this section and with each regulation or relevant order issued by said commission pursuant to section 46a-56; and

(4) The contractor agrees to provide the Commission on Human Rights and Opportunities with such information requested by the commission, and permit access to pertinent books, records and accounts, concerning the employment practices and procedures of the contractor which relate to the provisions of this section and section 46a-56.

(b) Except as provided in section 10a-151i:

(1) Any contractor who has one or more contracts with an awarding agency or who is a party to a municipal public works contract or a contract for a quasi-public agency project, where any such contract is valued at less than fifty thousand dollars for each year of the contract, shall provide the awarding agency, or in the case of a municipal public works or quasi-public agency project contract, the Commission on Human Rights and Opportunities, with a written representation that complies with the nondiscrimination agreement and warranty under subdivision (1) of subsection (a) of this section.

(2) Any contractor who has one or more contracts with an awarding agency or who is a party to a municipal public works contract or a contract for a quasi-public agency project, where any such contract is valued at fifty thousand dollars or more for any year of the contract, shall provide such awarding agency, or in the case of a municipal public works or quasi-public agency project contract, the Commission on Human Rights and Opportunities, with any of the following:

(A) Documentation in the form of a company or corporate policy adopted by resolution of the board of directors, shareholders, managers, members or other governing body of such contractor that complies with the nondiscrimination agreement and warranty under subdivision (1) of subsection (a) of this section;

(B) Documentation in the form of a company or corporate policy adopted by a prior resolution of the board of directors, shareholders, managers, members or other governing body of such contractor if (i) the prior resolution is certified by a duly authorized corporate officer of such contractor to be in effect on the date the documentation is submitted, and (ii) the head of the awarding agency, or a designee, or in the case of a municipal public works or quasi-public agency project contract, the executive director of the Commission on Human Rights and Opportunities or a designee, certifies that the prior resolution complies with the nondiscrimination agreement and warranty under subdivision (1) of subsection (a) of this section; or

(C) Documentation in the form of an affidavit signed under penalty of false statement by a chief executive officer, president, chairperson or other corporate officer duly authorized to adopt company or corporate policy that certifies that the company or corporate policy of the contractor complies with the nondiscrimination agreement and warranty under subdivision (1) of subsection (a) of this section and is in effect on the date the affidavit is signed.

(3) No awarding agency, or in the case of a municipal public works contract, no municipality, or in the case of a quasi-public agency project contract, no entity, shall award a contract to a contractor who has not provided the representation or documentation required under subdivisions (1) and (2) of this subsection, as applicable. After the initial submission of such representation or documentation, the contractor shall not be required to resubmit such representation or documentation unless there is a change in the information contained in such representation or documentation. If there is any change in the information contained in the most recently filed representation or updated documentation, the contractor shall submit an updated representation or documentation, as applicable, either (A) not later than thirty days after the effective date of such change, or (B) upon the execution of a new contract with the awarding agency, municipality, or entity, as applicable, whichever is earlier. Such contractor shall also certify, in accordance with subparagraph (B) or (C) of subdivision (2) of this subsection, to the awarding agency or commission, as applicable, not later than fourteen days after the twelve-month anniversary of the most recently filed representation, documentation or updated representation or documentation, that the representation on file with the awarding agency or commission, as applicable, is current and accurate.

(c) For the purposes of this section, "contract" includes any extension or modification of the contract, and "contractor" includes any successors or assigns of the contractor. For the purposes of this section, "contract" does not include a contract where each contractor is (1) a political subdivision of the state, including, but not limited to, a municipality, unless the contract is a municipal public works contract or quasi-public agency project contract, (2) any other state, as defined in section 1-267, (3) the federal government, (4) a foreign government, or (5) an agency of a subdivision, state or government described in subdivision (1), (2), (3) or (4) of this subsection.

(d) The contractor shall include the provisions of subsection (a) of this section in every subcontract or purchase order entered into in order to fulfill any obligation of a contract with the state, and in every subcontract entered into in order to fulfill any obligation of a municipal public works contractor contract for a quasi-public agency project, and such provisions shall be binding on a subcontractor, vendor or manufacturer unless exempted by regulations or orders of the Commission on Human Rights and Opportunities. The contractor shall take such action with respect to any such subcontract or purchase order as the commission may direct as a means of enforcing such provisions, including sanctions for noncompliance in accordance with section 46a-56; provided, if such contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the commission regarding a state contract, the contractor may request the state of Connecticut to enter into any such litigation or negotiation prior thereto to protect the interests of the state and the state may so enter.

**End of Section  
00 21 13 Instructions to Bidders**



## Pre-Bid Meeting Agenda:

**DAS ● Construction Services ● Office of Legal Affairs, Policy, and Procurement**

### 1.0 Pre-Bid Meeting:

**1.1** The Construction Administrator will conduct a Pre-Bid Meeting.  
For the Pre-Bid Meeting Date, Time, and Location see Section 00 11 16 Invitation To Bid for this Specific Bid.

**1.2 Attendance:**

<b>1.2.1</b>	<b>General Contractor:</b>	Attendance at the Pre-Bid Meeting is <b>MANDATORY</b> . At the Pre-Bid Meeting, all prospective bidders shall <i>sign</i> his or her name on the <b>official roster</b> and <i>list</i> the name and address of the company he or she represents. For <b>MANDATORY</b> Pre-Bid Meetings, this shall be done no later than the designated <b>start time</b> of the Pre-Bid Meeting. Prospective bidders are advised to register early as <b>no</b> attendee will be allowed to register <i>after</i> the advertised start time. <b>Bids</b> submitted by contractors who have <i>not properly</i> registered and attended the <b>MANDATORY</b> Pre-Bid Meeting <i>shall be rejected</i> as <b>non-responsive</b> .
<b>1.2.2</b>	<b>Subcontractors:</b>	Attendance at the Pre-Bid Meeting is recommended.
<b>1.2.3</b>	<b>Pre-Bid Meeting Sign-in Sheet:</b>	It is <b>MANDATORY</b> that all attendees sign the <b>Pre-Bid Meeting Sign-in Sheet</b> .

**1.3 Site/Facility Visit or Walkthrough:** Please **do not** make any Site/Facility Visits without notifying the DAS/CS Project Manager prior to your visit.

- |              |  |
|--------------|--|
| <b>1.3.1</b> | <input type="checkbox"/> A Site/Facility Visit or Walkthrough is scheduled for the Pre-Bid Meeting                       |
| <b>1.3.2</b> | <input checked="" type="checkbox"/> A Site/Facility Visit or Walkthrough is <b>NOT</b> scheduled for the Pre-Bid Meeting |

**1.4 Bidder Questions:**

**1.4.1** Submit **written** questions to be discussed at the **Pre-Bid Meeting** a **minimum of two (2) Calendar Days prior** to **Pre-Bid Meeting date**. See the **Invitation to Bid** for instructions on submitting questions.  
**IMPORTANT NOTE:** In accordance with DAS Regulations, **no** participants in any Selection, Proposal, or Bidding process, including User Agency representative(s), shall communicate with any potential Offeror prior to, during, or upon conclusion of the entire Selection, Proposal, or Bidding procedure, with the exception of information necessary to complete the administrative steps of the Selection process.

### 2.0 Pre-Bid Meeting Agenda:

The Pre-Bid Meeting Agenda will include a review of topics, **as applicable to the Project**, which may affect proper preparation and submittal of bids, including, but not limited to, the following:

**2.1 Introduction of Participants:**

<b>2.1.1</b>	<b>Architect/Engineer:</b> OakPark Architects, LLC
<b>2.1.2</b>	<b>CA:</b> Colliers Project Leaders
<b>2.1.3</b>	<b>DAS Representative:</b> Steve Udeh
<b>2.1.4</b>	<b>Agency Representative:</b> Deborah Levesque

**2.0 Pre-Bid Meeting Agenda (continued):**

<b>2.2</b>	<b>Project Summary:</b>
2.2.1	<b>Summary of Work:</b> See General Requirements Section 01 11 00
2.2.2	<b>Temporary Facilities and Controls:</b> See General Requirements Section 01 50 00
2.2.3	<b>Work Sequence:</b> See General Requirements Section 01 11 00
2.2.4	<b>Contractor Use of Premises:</b> See General Requirements Section 01 11 00
2.2.5	<b>Project Schedule</b>
2.2.6	<b>Contract Time</b>
2.2.7	<b>Liquidated Damages:</b> See General Conditions Section 00 73 13, Articles 1 and 8, and 00 41 00 Bid Proposal Form.

<b>2.3</b>	<b>Procurement and Contracting Requirements:</b>
2.3.1	<b>Section 00 11 16 – Invitation to Bid</b>
2.3.2	<b>Section 00 21 13 – Instructions to Bidders</b>
2.3.3	<b>Section 00 41 00 – Bid Proposal Form</b>
2.3.4	<b>Section 00 41 10 – Bid Package Submittal Requirements</b>
2.3.5	<b>Section 00 30 00 – General Statements for Available information</b>
2.3.6	<b>Division 50 – Project-Specific Available Information</b>
2.3.7	<b>Bonding</b>
2.3.8	<b>Insurance</b>
2.3.9	<b>Bid Security</b>
2.3.10	<b>Notice of Award</b>

<b>2.4</b>	<b>Communication During Bidding Period:</b>
2.4.1	<b>Obtaining Bid Documents</b>
2.4.2	<b>Access to DAS Website, BizNet, and State Contracting Portal</b>
2.4.3	<b>Bidder's Requests for Information:</b> See General Requirements Sections 01 26 00
2.4.4	<p><b>Substitution Procedures (Prior to Bid):</b> See General Requirements Section 01 25 00 &amp; General Conditions Section 00 73 13, Article 15.</p> <p>The Owner will consider Pre-Bid Equals or Substitutions Requests, if made <b>fourteen (14)</b> Calendar Days <b>prior</b> to the <b>Bid Due Date</b>. The information on all materials shall be consistent with the information herein.</p>
2.4.5	<p><b>Substitutions following Contract Award:</b> See General Requirements Section 01 25 00 &amp; General Conditions Section 00 73 13, Article 15.</p> <p>Subject to the Architect or Engineer's determination, if the material or equipment is Equal to the one specified or pre-qualified and the DAS/CS Project Manager's approval of such determination, Substitution of Material or Equipment may be allowed after the Letter of Award is issued, as specified in the Conditions Section 00 73 13, Article 15.</p>
2.4.6	<b>Addenda Procedures:</b> See Item No. 2.7 of this form



## 2.0 Pre-Bid Meeting Agenda (continued):

### 2.5 Contract Considerations:

- 2.5.1 **Allowances:** See General Requirements Section 01 20 00
- 2.5.2 **Unit Prices:** See General Requirements Section 01 20 00
- 2.5.3 **Supplemental Bid:** See General Requirements Section 01 23 13 and 00 41 00 Bid Proposal Form.

### 2.6 Separate Contracts:

- 2.6.1 **Work by Owner**
- 2.6.2 **Work of Other Contracts**

### 2.7 Post Pre-Bid Meeting Addendum:

- 2.7.1 **No Interpretations** of the meaning of the plans, specifications or other contract documents will be made orally at any time. Every bidder **request** for such interpretation **shall** be in writing to the awarding authority and to be given consideration **shall** be received at least **fourteen (14)** Calendar Days **prior** to the Bid Due Date. Any and all such **interpretations** and any **supplemental instructions** will be in the form of written **addenda** to the specifications which, *if* issued, will be posted on the State Contracting Portal.
- 2.7.2 **Other Bidder Questions**

### 2.8 Other Agenda Topics and Notes:

- 2.8.1
- 2.8.2

## 3.0 Pre-Bid Meeting Minutes:

### 3.1 Recording and Distribution of Pre-Bid Meeting Minutes:

- 3.1.1 The **Construction Administrator** is responsible for conducting the Pre-Bid Meeting and will record and distribute meeting minutes to attendees and others known by the issuing office to have received a complete set of Procurement and Contracting Documents.

### 3.2 Pre-Bid Meeting Minutes as “Available Information”

- 3.2.1 Minutes of the Pre-Bid Meeting are issued as “Available Information” and **do not** constitute a modification to the Procurement and Contracting Documents. **Modifications to the Procurement and Contracting Documents are issued by written Addendum only.**

### 3.3 Pre-Bid Meeting Sign-in Sheet:

- 3.3.1 Minutes will include the list of meeting attendees.

### 3.4 List of Planholders:

- 3.4.1 Minutes will include the list of planholders.

End of Section  
00 25 13 Pre-Bid Meeting Agenda



**00 30 00 GENERAL STATEMENTS FOR AVAILABLE INFORMATION**

**NOT USED**

- A. **Summary:** This Section is **not** a Bidding Document, but directs Bidders to **Division 50 00 00 Project-Specific Available Information** that provides project-specific information available for review by Bidders.
- B. **Bidder Responsibility:** The Bidder is responsible for information, including but not limited to, any interpretations and opinions of information contained in any plans, reports, evaluations, and logs, or shown on any drawings, or indicated on any drawings. **Division 50 00 00 Project-Specific Available Information** is provided to Bidders for their use in the preparation of a Bid.
- C. **Measurement:** **Division 50 00 00 Project-Specific Available Information** **shall** be utilized for determination of payment for the Work during construction of the project.
- D. **Payment:** **No** separate payment will be made for **any** Work under **Division 50 00 00 Project-Specific Available Information**.
- E. **Related Sections:** Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section. **See Division 50 00 00 Project-Specific Available Information** for information that is available for this Project.
- F. Please read the following **General Statements** that describe the type of project-specific information that is available in **Division 50 00 00 Project-Specific Available Information**:

00 30 00	General Statements For Available Information Table Of Contents	Not Used
00 30 10	General Statement for Existing Conditions Survey	<input type="checkbox"/>
00 30 20	General Statement for Environmental Assessment Information	<input checked="" type="checkbox"/>
00 30 30	General Statement for Hazardous Building Materials Inspection and Inventory	<input type="checkbox"/>
00 30 40	General Statement for Subsurface Geotechnical Report	<input checked="" type="checkbox"/>
00 30 50	General Statement for Elevator Agreement	<input checked="" type="checkbox"/>
00 30 60	General Statement for FM Global Checklist for Roofing Systems	<input type="checkbox"/>
00 30 70	General Statement for "Statement of Special Inspections"	<input type="checkbox"/>
00 30 80	General Statement for Additional Information	<input checked="" type="checkbox"/>

00 30 10 GENERAL STATEMENT FOR EXISTING CONDITIONS SURVEY

Not Used

- A. **“Existing Conditions Information”** for this project is located in **Division 50 00 00 Project-Specific Available Information, Section 50 10 00 Existing Conditions Information** at the end of the Technical Specification Sections.
1. The information is made available for the convenience of all Bidders and is not a part of the Contract.
  2. All Bidders must interpret this information according to their own judgment and acknowledge that they are not relying upon the information shown as accurately describing the conditions which may be found to exist.
  3. Other components of the information, including but not limited to recommendations, may not be relied upon by the Bidders. The Owner shall not be responsible for any interpretation.
  4. All Bidders further acknowledge that they assume all risk contingents upon the nature of the existing conditions which shall be actually be encountered by them.
  5. All Bidders should visit the site and become acquainted with all existing conditions in relationship to this information and may make their own investigations to satisfy themselves as to the existing conditions. Such investigations shall be conducted only under time schedules and arrangements approved in advance by the Owner.
- B. **Existing Drawings:** Includes information on existing conditions including previous construction at Project site.
1. F-11 7<sup>th</sup> Floor Framing Plan (8/21/1969)
  2. F-12 Low Roof & Library Stack area Framing Plan (8/21/1969)
  3. F-13 High Roof Framing Plan (8/21/1969)

00 30 20 GENERAL STATEMENT FOR ENVIRONMENTAL ASSESSMENT INFORMATION

Not Used

00 30 30 GENERAL STATEMENT FOR HAZARDOUS BUILDING MATERIALS INSPECTION AND INVENTORY

Not Used

- A. **Related Documents:**
- **Section 01 20 00 Contract Considerations**
  - **Section 01 35 16 Alteration Project Procedures**
  - **Section 02 41 19 Selective Demolition**
  - **Section 02 82 13 Asbestos Abatement**
  - **Section 02 84 16 Removal and Handling of Regulated Materials**

B. **Description of Work:**

**1. Work Involving Asbestos Containing Material (ACM):**

- 1.1 Testing for asbestos has been conducted at the facility scheduled for renovation, demolition, reconstruction, alteration, remodeling, or repair. Results of the asbestos testing are summarized in **Division 50 00 00 Project-Specific Available Information, Section 50 30 00 Hazardous Building Materials Inspection and Inventory** at the end of the Technical Specification Sections.
- 1.2 Under no circumstance shall this information be the sole means used by the Contractor for determining the extent of asbestos. The Contractor shall be responsible for verification of all field conditions affecting performance of the Work.

**2. Work Involving Lead-Based Paint (LBP):**

- 2.1 If this facility was constructed **prior to 1978** it is likely to have painted surfaces containing lead-based paint (LBP).
- 2.2 The Contractor shall be responsible for verification of all field conditions affecting performance of the Work.

**3. Work Involving Polychlorinated Biphenyls (PCBs) in Building Materials:**

- 3.1 If this facility was constructed **between 1950 and 1978** it is likely to have caulk and/or glazing containing PCBs.
- 3.2 The Contractor shall be responsible for verification of all field conditions affecting performance of the Work.

**4. Work Involving Mold:**

- 4.1 The Contractor shall be responsible for verification of all field conditions affecting performance of the Work.

**5. Work Involving Hazardous Materials, Wastes, and Items and Universal Wastes**  
(Including Products Containing Persistent Bioaccumulative Toxic Chemicals (PBT's)):

- 5.1 The Contractor shall be responsible for verification of all field conditions affecting performance of the Work.
- 5.2 Examples of Hazardous Materials, Wastes, and Items and Universal Wastes include, but are not limited to, fluorescent light fixtures and exit signs, ballasts, high-intensity discharge (HID) lamps, certain types of construction products containing vinyl, mercury containing electrical switches, gauges, and thermostats; PCB Capacitors, refrigerants, pressurized cylinders, smoke/carbon dioxide detectors, used electronics, batteries, transformer/hydraulic fluids/oils, and miscellaneous household hazardous waste.
- 5.3 For the purposes of this subsection, **PCB's in building material such as caulk and glazing or any other type of material not listed above is not applicable to this subsection.**

**00 30 40 GENERAL STATEMENT FOR SUBSURFACE GEOTECHNICAL REPORT Not Used**

**00 30 50 GENERAL STATEMENT FOR ELEVATOR AGREEMENT Not Used**

**00 30 60 GENERAL STATEMENT FOR FM GLOBAL CHECKLIST FOR ROOFING SYSTEMS Not Used**

**A. Related Documents:**

- 1. **Section 01 35 16 Alteration Project Procedures;**
- 2. **Section 07 53 23 Ethylene-Propylene-Diene-Monomer (EPDM) Roofing**

**B. Description of Work:**

- 1. Work Involving FM Global requirements for Existing Roof Removal and Replacement With New Roof:
  - 1.1 The Contractor shall be responsible for adhering to FM Global Checklist Requirements for Roof Removal and Replacement With New Roof. See **Section 01 35 16 Alteration Project Procedures** and **Section 07 53 23 EPDM Roofing** for additional technical specifications and Contractor responsibilities.
  - 1.2 Refer to the **FM Global Data Sheet Website** (<http://www.fmglobal.com/fmglobalregistration/>) and the **FM Global Roof Design / Approval Web Tool - RoofNav** (<https://roofnav.fmglobal.com/RoofNav/Login.aspx>).

- 1.3 A sample of the FM Global Checklist is located in **Division 50 00 00 Project-Specific Available Information, 50 60 00 FM Global Checklist For Roofing Systems** at the end of the Technical Specification Sections.

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**00 30 70 GENERAL STATEMENT FOR "STATEMENT OF SPECIAL INSPECTIONS" Not Used**

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- A. The "Statement of Special Inspections" for this project is located in **Division 50 00 00 Project-Specific Available Information, Section 50 70 00 Statement of Special Inspections** at the end of the Technical Specification Sections.

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**00 30 80 GENERAL STATEMENT FOR ADDITIONAL INFORMATION Not Used**

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**End of Section  
00 30 00 General Statements for Available Information**

**Certificate (of Authority)**

**DAS Construction Services Project No.:** \_\_\_\_\_

I \_\_\_\_\_, \_\_\_\_\_  
(Signer's Name)<sup>1</sup> (Signer's Title)

of \_\_\_\_\_, an entity lawfully organized and existing under the laws  
(Name of Entity)

of \_\_\_\_\_, do hereby certify that the following is a true and correct  
(Name of State or Commonwealth)

copy of a resolution adopted on the \_\_\_\_\_ day of \_\_\_\_\_, 20 \_\_\_\_\_ by the governing body of  
(Day)<sup>2</sup> (Month)<sup>2</sup> (Year)<sup>2</sup>

\_\_\_\_\_, in accordance with all of its documents of governance and  
(Name Of Entity)

management and the laws of \_\_\_\_\_ and further certify that such resolution has not  
(Name of State or Commonwealth)

been modified, rescinded or revoked, and is at present in full force and effect.

**RESOLVED:** that \_\_\_\_\_, \_\_\_\_\_  
(Name of Signer of Contract Documents)<sup>3</sup> (Title of Signer of Contract Documents)<sup>3</sup>

of \_\_\_\_\_ is empowered and authorized, on behalf of the entity,  
(Name of Entity)

to execute and deliver contracts and amendments thereto, and all documents required by the Governor, the Connecticut Department of Administrative Services, the Connecticut State Properties Review Board and the Office of the Attorney General associated with such contracts and amendments.

IN WITNESS WHEREOF, the undersigned has executed this certificate this \_\_\_\_\_ day of \_\_\_\_\_, 20 \_\_\_\_\_.  
(Day)<sup>4</sup> (Month)<sup>4</sup> (Year)<sup>4</sup>

\_\_\_\_\_  
(Signature)

\_\_\_\_\_  
(Print Name)

\_\_\_\_\_  
(Title)

**Reference Notes:**

- 1 The signer of this certificate must be someone *other than* the signer of the contract documents *except for* a sole managing member of an LLC or the sole officer or sole principal of a corporation. *If* the signer is a sole managing member of an LLC, *then* along with this certificate the signer must provide a letter on company letterhead that indicates the signer is a sole member and managing member. If the signer is the sole officer or sole principal of a corporation, then the signer must provide with the certificate a letter on company letterhead setting forth this fact.
- 2 This date must be on or before the **date of signing** of the Bid Proposal (or Contract).
- 3 This person shall sign the Contract and other required documents.
- 4 This date must be on or after the **date of signing** of the Bid Proposal (or Contract).

**For Your Information:**

**Certificate (of Authority)**

**All Bidders:**

**Complete page 1, print, sign, and scan to PDF. Upload the PDF form to BizNet.**

What the **Certificate** is saying is that the organization authorized the signatory to sign the pertinent **documents other than** the Certificate (of Authority) and that, as of the date of **execution** of the CERTIFICATE (i.e., the date set forth in the "In Witness Whereof" blanks) there has been no change in that authorization.

**Instructions For Completing The Certificate (of Authority)**

**The Certificate (of Authority) to Accompany the Bid Proposal Form:**

**1. 1<sup>st</sup> Paragraph:**

- 1.1 First, enter the name and title of the individual signing the Certificate (of Authority).
- 1.2 Second, enter the legal name of the entity (exactly as it is shown on the Secretary of State registry).
- 1.3 Third, enter the name of the state or commonwealth the entity is registered in.
- 1.4 Fourth, enter the date the resolution was adopted by the governing body. This **date** is **on or before** the date the **Bid Proposal** is signed.
- 1.5 Fifth, enter the name of the state or commonwealth the entity is registered in.

**2. 2<sup>nd</sup> Paragraph:**

- 2.1 First, enter the name and title of the individual signing bid documents for the entity.
- 2.2 Second, enter the legal name of the entity (exactly as it is shown on the Secretary of State registry).

**3. Last Paragraph:**

- 3.1 Enter the **Witness Date**<sup>1</sup>. This date will likely be the date of execution of the **Bid Proposal form**.

**<sup>1</sup> This Witness Date Should Not Be Before The Date Of Execution Of The Bid Proposal.**

**The Certificate (of Authority) to Accompany the Contract:**

**1. 1<sup>st</sup> Paragraph:**

- 1.1 First, enter the name and title of the individual signing the Certificate (of Authority).
- 1.2 Second, enter the legal name of the entity (exactly as it is shown on the Secretary of State registry).
- 1.3 Third, enter the name of the state or commonwealth the entity is registered in.
- 1.4 Fourth, enter the date the resolution was adopted by the governing body. This **date** is **on or before** the date the **Contract** is signed.
- 1.5 Fifth, enter the name of the state or commonwealth the entity is registered in.

**2. 2<sup>nd</sup> Paragraph:**

- 2.1 First, enter the name and title of the individual signing contract documents for the entity.
- 2.2 Second, enter the legal name of the entity (exactly as it is shown on the Secretary of State registry).

**3. Last Paragraph:**

- 3.1 Enter the **Witness Date**<sup>1</sup>. This date will likely be the date of execution of the **Contract**.

**<sup>1</sup> This Witness Date Should Not Be Before The Date Of Execution Of The Contract.**

**End of Section 00 40 14 Certificate (of Authority)**



# State of Connecticut Department of Administrative Services (DAS) Contractor Prequalification Forms

**IMPORTANT INFORMATION – PLEASE READ**  
For Projects with estimated Construction Costs greater than \$500,000

**WHEN YOU SUBMIT A BID YOU MUST INCLUDE WITH YOUR OTHER DOCUMENTS THE FOLLOWING:**

**1. A copy of your “DAS Contractor Prequalification Certificate”.**

This document may be found at the [DAS Contractor Prequalification Search](#):

Go to the DAS Homepage ([www.ct.gov/DAS](http://www.ct.gov/DAS)), click on “Doing Business with the State”, click on “Apply for DAS Construction Contractor Prequalification”, click on “How To”, and then click on “Search Prequalified Companies”.

To search for your company, just type in your company name and click on “Go” to pull up your company. When your company information appears you will notice that your company name is shown as a blue link. Just click on this link and it will take you to your Prequalification Certificate.

**2. A “DAS Update (Bid) Statement”.**

This document may be found and completed on-line at the [Bid Statement Online Application](#).

Go to the DAS Homepage ([www.ct.gov/DAS](http://www.ct.gov/DAS)), click on “Doing Business with the State”, click on “Apply for DAS Construction Contractor Prequalification”, click on “Documents/Forms”, click on “Update Bid Statement”, and then click on “Bid Statements”.

Follow instructions in the [“Instructions for Prequalification”](#).

Go to the DAS Homepage ([www.ct.gov/DAS](http://www.ct.gov/DAS)), click on “Doing Business with the State”, click on “Apply for DAS Construction Contractor Prequalification”, click on “How To”, and then click on “View Instructions for Prequalification”.

**Should you have any questions or concerns, please call (860) 713-5280.**



**State of Connecticut**  
**Department of Administrative Services (DAS) Contractor Prequalification**  
**Update Bid Statement**  
 (Statement to be included with the bid)

**Public Act No. 04-141 - AN ACT REVISING PREQUALIFICATION REQUIREMENTS FOR STATE CONSTRUCTION CONTRACTS.**

On and after October 1, 2004, each bid submitted for a contract shall include a copy of a prequalification certificate issued by the Commissioner of Administrative Services. The bid shall also be accompanied by an update statement in such form as the Commissioner of Administrative Services prescribes. The form for such update statement shall provide space for information regarding all projects completed by the bidder since the date the bidder's prequalification certificate was issued or renewed, all projects the bidder currently has under contract, including the percentage of work on such projects not completed, the names and qualifications of the personnel who will have supervisory responsibility for the performance of the contract, any significant changes in the bidder's financial position or corporate structure since the date the certificate was issued or renewed, any change in the contractor's qualification status, and such other relevant information as the Commissioner of Administrative Services prescribes. Any bid submitted without a copy of the prequalification certificate and an update statement shall be invalid.

<b>Name of Project that company</b>	SAMPLE	
<b>Project Number:</b>		
<b>Name of Company:</b>		
<b>FEIN:</b>		
<b>Company Address:</b>		
<b>Prequalification Contact and Telephone Number</b>		
<b>Date of Prequalification with the DAS:</b>	<b>Single Limit:</b>	<b>Aggregate Work Capacity (AWC):</b>
* This amount equals your company's AWC minus the Total \$ Amount of Work Remaining.		<b>* Remaining Aggregate Work Capacity:</b>

**Please list all of your company's (100%) completed projects since date of Prequalification:**  
 (Please add additional page(s) if required)

Name of Project	Owner of Project	Date Project Completed	Total Contract Amount

(Please add additional page(s) if required. Please total the Work Remaining column)

Name of Project	Owner of Project	Total Contract Amount	% Complete	Work Remaining (\$)
<b>Total \$ Amount of Work Remaining</b> →				

Please list the names and titles of the personnel who will have supervisory responsibility for the performance of the contract being bid on:  
(Please add additional page(s) if required)

Individual Name		Individual
	<b>SAMPLE</b>	

Have there been any other business organizations, which might affect your company's ability to successfully complete this contract?

Yes or No

If yes, please explain:

I, certify under penalty of law that all of the information contained in this Update Statement is true and accurate to the best of my knowledge as of the date below.

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

It is the responsibility of the Awarding Authority to determine if any of the information provided above will impact the contractor's performance on this project.

**The DAS' Contractor Prequalification Program can be reached at (860) 713-5280**

Rev.12.22.2004

## Bid Proposal Form

**DAS ● Construction Services ● Office of Legal Affairs, Policy, and Procurement**  
**450 Columbus Boulevard, Suite 1302 ● Hartford, CT 06103**

<b>Date and Time of Bid Opening:</b>	See page 1 of Section 00 11 16 Invitation To Bid.
<b>Instructions for On-Line Bidding:</b>	Follow the instructions in <a href="#">6001 Construction On-line Bidding Instructions</a> , available for download from the DAS/CS Library ( <a href="http://portal.ct.gov/DASCSLibrary">http://portal.ct.gov/DASCSLibrary</a> ) > 6000 Series – Bid Phase Forms. For questions email <a href="mailto:Mellanee.Walton@ct.gov">Mellanee.Walton@ct.gov</a>

- Instructions for Completing This Bid Proposal Form:**
- **Download** and **save** the Bid Proposal Form to your computer. Close the form. Open your *saved* Bid Proposal Form and type required information in blue boxes. (Remember to keep saving to your computer.)
  - On your Word Toolbar, **click “View” then “Edit Document” or “Print Layout”** in order to edit the form.
  - When your Bid Proposal Form is complete, perform a final “save” to your computer! **Print ALL pages and sign** your Bid Proposal Form. **Scan ALL** pages of your Bid Proposal Form to **PDF**. Upload the **PDF** Bid Proposal Form to BizNet.
  - **Duly Authorized Signature:** A duly authorized representative of the Bidder or Bidder’s partnership, firm, corporation or business organization must sign the Bid Proposal Form.
  - **No Facsimile Signature** is permitted. **All information below** is to be filled in by the **Bidder**.
  - *If an Addendum is issued that **changes** the **Bid Proposal Form** then the **Revised Bid Proposal Form** (issued with the Addendum) **must** be uploaded instead.*
  - Upload to BizNet **only** the additional **Bid Package Documents** as described in **Table 1** of **Section 00 41 10 Bid Package Submittal Requirements**.
  - A signed and scanned **Certificate (of Authority), Section 00 40 14, must** be uploaded to Biznet **prior** to the date and time of the Bid Opening.
  - *Any **Bid Proposal Form** that has omitted or added items, altered the form, contains conditional, alternative, or obscure bids, or is submitted *without* the signature of the bidder or its authorized representative, **will be rejected**.*
  - See **Section 00 21 13 Instructions to Bidders** for additional information.

**1.0 General Bid Proposal Information:**

<b>Project Title:</b>	CT
<b>Project Location:</b>	Bridgeport Superior Court 1061 Main Street Bridgeport, CT
<b>Project Number:</b>	<b>BI-JD-364</b>
<b>Construction Costs:</b>	Greater Than \$500,000
<b>Bidding Limited To :</b>	Contractors Prequalified by DAS for General Building Construction (Group A)
<b>Threshold Limits: (C.G.S. §29-276b)</b>	This Project DOES NOT exceed Threshold Limits.
<b>Set Aside Requirements:</b>	SBE Subcontractors &/or Suppliers: 25%; MBE Subcontractors &/or Suppliers: 6.25%
<b>Pre-Bid Meeting:</b>	See <b>Section 00 11 16 Invitation to Bid</b> and <b>Section 00 25 13 Pre-Bid Meeting</b> .
<b>Plans and Specifications prepared by A/E:</b>	OakPark Architects, 312 Park Road, Suite 202, West Hartford, CT 06119

**1.1 Commencement and Acceptance:** (See Section 00 73 13 General Conditions, Article 4 - Commencement and Progress of Work and Article 1 - Definitions)

The Selected Bidder shall commence Work within **fourteen (14) Calendar Days after** receiving a “**Construction Start Date and Notice to Proceed**” by the Commissioner or authorized representative and continue for 

360
90

**Calendar Days** for “**Substantial Completion**” of the project; **and** then continue 

90
----

**Calendar Days** for “**Acceptance**” of the Work.

**1.2 Liquidated Damages:** (See Section 00 73 13 General Conditions, Article 8 – Damages & Article 1 - Definitions)**1.2.1 Liquidated Damages – Substantial Completion:**

The Selected Bidder shall be assessed \$ 

1,258.00
----------

 per **Calendar Day beyond** the date established for Substantial Completion of the Contract according to the **Contract Time** as defined in **Article 1.28 of Section 00 73 13 General Conditions**, and not otherwise excused or waived pursuant to the Contract Documents, as defined in **Article 1.23 of Section 00 73 13 General Conditions**.

**1.2.2 Liquidated Damages – Acceptance:**

The Selected Bidder shall be assessed \$ 

958.00
--------

 per **Calendar Day beyond ninety (90) days after** the date of said Substantial Completion that the Selected Bidder fails to achieve **Acceptance**, as defined in **Article 1.1 of Section 00 73 13 General Conditions** and not otherwise excused or waived as described above.

**1.3 Bid Proposal Statements and Conditions:** This **Bid Proposal Form** shall be submitted according to, and in compliance with, the foregoing and following statements, conditions, and/or information:

**1.3.1** This Bid Proposal Form is submitted in accordance with Chapter 60 Construction And Alterations Of State Buildings, Part II Bidding And Contracts of the Connecticut General Statutes (C.G.S.), as amended, particularly C.G.S. § 4b-91(a)(5)(A) – (C), and pursuant to, and in compliance with, the **Invitation to Bid** (Section 00 11 16), the **Instructions to Bidders** (Section 00 21 13), the **Bid Package Submittal Requirements** (Section 00 41 10), and the **Contract** (Section 00 52 03).

**1.3.2** The Bidder proposes to furnish the labor and/or materials, installed as required for the Project named and numbered on this **Bid Proposal Form**, submitted herein, furnishing all necessary equipment, machinery, tools, labor and other means of construction, and all materials specified in the manner and at the time prescribed strictly in accordance with the provisions of the **Contract** including, but not limited to, the specifications and/or drawings together with all **Addenda** issued by the Awarding Authority and received by the Bidder, prior to the scheduled **Date and Time of the Bid Opening** as stated on **page 1** of the **Invitation To Bid**, and in conformity with requirements of the Awarding Authority and any laws or Departmental regulations of the State of Connecticut or of the United States which may affect the same, for and in consideration of the price(s) stated on this **Bid Proposal Form**, hereof.

**1.3.3** The Bidder acknowledges that the **Proposed Lump Sum Base Bid** submitted on this **Bid Proposal Form** includes all work indicated on the drawings and/or described in the specifications, **except** for the **Contingent Work** described in **Subsection 2.4**.

**1.3.4** The Bidder acknowledges and agrees to furnish all labor and materials required for this **Project**, in accordance with the accompanying **Plans and Specifications** prepared by the **Architect/Engineer** listed on **page 1** of this Bid Proposal Form, for the **Contract Sum** specified in the **Proposed Lump Sum Base Bid** in **Subsection 2.1** of this Bid Proposal Form, subject to **additions** and **deductions** according to the terms of the specifications, and including the number of **Addenda** stated in **Subsection 2.2** of this Bid Proposal Form.

**1.4 Award:**

**1.4.1** All Bid Proposals shall be subject to the provisions of **Section 00 21 13 Instructions to Bidders** and for purpose of award, consideration shall be given only to Bid Proposals submitted by qualified and responsible Bidders.

**1.4.2** The award shall be made on the **lowest Lump Sum Bid** and any or all **Supplemental Bid(s)** as stated in **Subsection 2.4.2** of this **Bid Proposal Form**, taken sequentially, as applicable, provided funds are available.

**1.4.4** In the event of any **discrepancy** between the amount written in words and the amount written in numerical figures, the amount written in words shall be controlling.

**2.0 Bid Proposal Requirements:**

**Bidder Information:**

**Bid Uploaded On:**     
(Month) (Day) (Year)

**Proposal Of:**   
(Complete Bidder's Legal Company Name As Registered With the CT Secretary of State)

**Firm Address:**  ,  ,    
(Avenue / Street) (Town / City) (State) (Zip Code)

**Contact Person:**    
(Name) (Title)

**Contact Information:**     
(Phone Number) (Fax Number) (Email Address)

**Threshold Project: Major Contractor Registration License No.:**

**All Bidders for Projects that exceed Threshold Limits (see page 1 of this Bid Proposal Form):** Insert your Firm's **Major Contractor Registration License Number** in the space provided above. **NOTE:** If this Project does **NOT** exceed Threshold Limits, insert **"Not Applicable"** in the blue box above. Delete this note by **pressing the spacebar**.

**2.1 Proposed Lump Sum Base Bid:**

**2.1.1 All Bidders:** Insert the **Proposed Lump Sum Base Bid** in the spaces provided below, including **both numerical figures** and **"printed words" dollar amount**. The **Proposed Lump Sum Base Bid** shall *include* all **Allowances**, all work indicated on the drawings and/or described in the specifications **except for Contingent Work**.

**2.1.2** The **Proposed Lump Sum Base Bid** shall be shown in **both numerical figures** and **"printed words" dollar amount**. In the event of any discrepancy the **"printed" words dollar amount** shall govern.

**2.1.3** The **Proposed Lump Sum Base Bid** is:

\$   
(Place Numerical Figures in the Box Above)

**Dollars**  
(Insert "Printed Words" Dollar Amount in the Box Above)

**2.2 Number of Addenda:**

**2.2.1 All Bidders:** Insert the **Number of Addenda** issued by the State of Connecticut in the space provided below.

**2.2.2** Failure to acknowledge the **correct number** of all **Addenda** in **the box below** in this **Bid Proposal Form** **shall** cause **rejection** of the bid.

**2.2.3** The Bidder acknowledges that their **Proposed Lump Sum Base Bid Proposal** **includes:**

**Number of Addenda. If none, enter "0".**

**2.3 Allowances:**

See Section 01 20 00 Contract Considerations in Division 01 General Requirements for Allowances for applicability.

**2.4 Contingent Work:**

**2.4.1 Base Bid Quantities and Defined Unit Prices:** See Section 01 20 00 Contract Considerations in Division 01 General Requirements for applicability regarding Base Bid Quantities and Defined Unit Prices for Earth and Rock Excavation, Miscellaneous Items, Alterations Items, Environmental Remediation, and/or Hazardous Building Materials Abatement.

**2.4.2 Supplemental Bids:**

.1 See Section 01 23 13 Supplemental Bids in Division 01 General Requirements for applicability.

.2 All Bidders: If Supplemental Bids are applicable to this Project, insert the Supplemental Bids in the spaces provided below. Any Supplemental Bids listed below, if accepted by the Owner, will be taken cumulatively and in numerical order as scheduled. No Supplemental Bid will be skipped or taken out of numerical order as scheduled.

<b>Supplemental Bid No. 1: NOT APPLICABLE</b>		
ADD: \$	<input style="width: 95%;" type="text"/>	Dollars
	<i>(Insert Numerical Figures)</i>	<i>(Insert "Printed Words" Dollar Amount)</i>
<b>Supplemental Bid No. 2: NOT APPLICABLE</b>		
ADD: \$	<input style="width: 95%;" type="text"/>	Dollars
	<i>(Insert Numerical Figures)</i>	<i>(Insert "Printed Words" Dollar Amount)</i>
<b>Supplemental Bid No. 3: NOT APPLICABLE</b>		
ADD: \$	<input style="width: 95%;" type="text"/>	Dollars
	<i>(Insert Numerical Figures)</i>	<i>(Insert "Printed Words" Dollar Amount)</i>
<b>Supplemental Bid No. 4: NOT APPLICABLE</b>		
ADD: \$	<input style="width: 95%;" type="text"/>	Dollars
	<i>(Insert Numerical Figures)</i>	<i>(Insert "Printed Words" Dollar Amount)</i>

**2.5 Bidder's Qualification Statement and Objective Criteria for Evaluating Bidders:**

**2.5.1 All Bidders:** Download Section 00 45 14 General Contractor Bidder's Qualification Statement from BizNet for a template and instructions. Complete and upload Section 00 45 14 General Contractor Bidder's Qualification Statement to Biznet *prior* to the date and time of the Bid Opening. Information with regards to the General Contractor's Bidder's Qualification Statement is submitted and is made part of this Bid Proposal Form. Failure of a Bidder to answer any question or provide required information *shall* be grounds for the awarding authority to **disqualify** and **reject** the bid, pursuant to Connecticut General Statutes §4b-92.

**2.5.2 All Bidders** shall comply with Section 00 45 15 Objective Criteria Established for Evaluating Qualifications of Bidders. **Note:** Individual Specification Sections may contain General Contractor and/or Subcontractor Qualification requirements that exceed those in Section 00 45 15 Objective Criteria Established for Evaluating Qualifications of Bidders.

**2.6 Prequalification Requirements for Projects Exceeding \$500,000:**

**2.6.1 All Bidders for Projects with estimated Construction Costs greater than \$500,000:** Upload to BizNet a current copy of your Firm's "DAS Contractor Prequalification Certificate" and "Update (Bid) Statement" for the applicable Class of Work on page 1 of this Bid Proposal Form *prior* to the date and time of the Bid Opening. Failure to comply with this requirement *shall* cause rejection of the bid and shall not be considered a minor irregularity under C.G.S. § 4b-95. See Section 00 40 15 CT DAS Prequalification Forms for instructions on preparing and/or downloading your Firm's "DAS Contractor Prequalification Certificate" and "DAS Update (Bid) Statement".

**2.6.2 Named Subcontractor(s) for Subcontracts exceeding \$500,000:** The Named Subcontractor(s) *must* be "prequalified" by DAS in the Class of Work specified in Table 2.7 of this Bid Proposal Form *at the time of bid submission*, pursuant to C.G.S. §4b-91(j) and C.G.S. § 4a-100, as amended, to the extent the Class of Work for the Named Subcontractor is a Prequalification Classification. This requirement also applies to the Bidder, if the Bidder is a Named Subcontractor. Failure to comply with this requirement *shall* cause rejection of the bid and shall not be considered a minor irregularity under C.G.S. § 4b-95.



**2.7 Named Subcontractors and Classes of Work:**

**2.7.1 All Bidders for Projects with one or more Classes of Work checked in Table 2.7 below:** Complete Table 2.7 according to the instructions below. Failure to properly provide all of the **required information** in Table 2.7 may cause rejection of the bid.

Table 2.7: Named Subcontractors and Classes of Work:	
<input checked="" type="checkbox"/>	<b>Electrical Work: Enter information in blue boxes below:</b> Complete Subcontractor Name: <input style="width: 80%; height: 15px;" type="text"/> Proposed Dollar Value of Subcontract: \$ <input style="width: 15%; height: 15px;" type="text"/>
<input type="checkbox"/>	<b>HVAC Work: NOT APPLICABLE</b> Complete Subcontractor Name: <input style="width: 80%; height: 15px;" type="text"/> Proposed Dollar Value of Subcontract: \$ <input style="width: 15%; height: 15px;" type="text"/>
<input type="checkbox"/>	<b>Masonry Work: NOT APPLICABLE</b> Complete Subcontractor Name: <input style="width: 80%; height: 15px;" type="text"/> Proposed Dollar Value of Subcontract: \$ <input style="width: 15%; height: 15px;" type="text"/>
<input type="checkbox"/>	<b>Plumbing Work: NOT APPLICABLE</b> Complete Subcontractor Name: <input style="width: 80%; height: 15px;" type="text"/> Proposed Dollar Value of Subcontract: \$ <input style="width: 15%; height: 15px;" type="text"/>
<input type="checkbox"/>	<b>Environmental Remediation: NOT APPLICABLE</b> Complete Subcontractor Name: <input style="width: 80%; height: 15px;" type="text"/> Proposed Dollar Value of Subcontract: \$ <input style="width: 15%; height: 15px;" type="text"/>
<input type="checkbox"/>	<b>Hazardous Materials Abatement: NOT APPLICABLE</b> Complete Subcontractor Name: <input style="width: 80%; height: 15px;" type="text"/> Proposed Dollar Value of Subcontract: \$ <input style="width: 15%; height: 15px;" type="text"/>

- 2.7.2 Instructions For Table 2.7:**
- .1 Each **Class of Work** set forth in a separate section of the specifications pursuant to this Section shall be a **subtrade** designated in **Table 2.7** of this **Bid Proposal Form** and shall be the matter of a **subcontract**.
  - .2 For each **Class of Work** checked in **Table 2.7**, the Bidder shall insert the name of each **Subcontractor** with their **Proposed Dollar Value of Subcontract**; this is known as the **“Named Subcontractor”**. If the Bidder intends to use **more than one** Subcontractor to perform a Class of Work, then it shall provide **ALL** of the **Subcontractor Names** and Proposed Dollar Values of **each Subcontract in excess of \$100,000**.
  - .3 *If a Bidder* intends to use **one or more Subcontractors** to perform **any portion** of the Named **Classes of Work**, including circumstances where the Subcontractor is a Small Business Enterprise (SBE) or a Minority Business Enterprise (MBE), **then** it must list **ALL** of the Subcontractors or SBE/MBE Subcontractors as the case may be, for such Class of Work. A Bidder may **not** substitute itself for any of the Named Classes of Work. The Bidder **should not list itself** as the **Named Subcontractor** if it intends to use a **Subcontractor** to perform any portion of the Classes of Work listed in **Table 2.7**. The Bidder should name the Subcontractor.
  - .4 If a Bidder customarily performs any of the specified Classes of Work and is Prequalified by DAS for the Class of Work *at the time of the Bid Opening Date* if the work is greater than \$500,000, the Bidder may list **itself** as a Subcontractor together with its **price** in the space provided in **Table 2.7**. Failure to properly provide **all** of the **required information** in **Table 2.7** **shall** cause **rejection** of the bid.
  - .5 If the Bidder does **not** name **itself** or a **Subcontractor** for a specified Class of Work, it shall be presumed that the Bidder intends to perform with its own employees **all work** in such specified classes. The Bidder shall be required to perform with its own employees **all** of the work of the specified class. Subcontracting any portion of such specified class of work subsequently, will be considered a violation of **C.G.S. § 4b-95** and subject the Bidder to disqualification under **C.G.S. § 4b-95(e)**.
  - .6 **In the event that the Bidder names a Subcontractor to perform some, but not all, of the separate section of the specifications for a particular Class of Work, then it will be presumed, in addition, that the Bidder intends to perform the balance of the Class of Work. Post-bid, the Bidder cannot substitute a Subcontractor for one named in the Bid Proposal Form or bring in a Subcontractor for any designated subtrade work presumed to be performed by the General Contractor’s own forces, except for “Good Cause” as determined by the awarding authority.**
  - .7 In the event the Bidder either lists itself or is presumed to perform with its own employees all work in a specified class, no such sub-bid by a Bidder shall be considered unless the Bidder can show to the satisfaction of the awarding authority, based on objective criteria established for such purpose, that it customarily performs such subtrade work and is qualified to do the character of work required by the applicable section of the specifications.

**Table 2.7 (continued):  
 ADDITIONAL Named Subcontractors and Classes of Work:**

<b>ALL BIDDERS: CLICK DROPDOWN ARROW to select a Class of Work for Additional Named Subcontractors:</b>	
Complete Subcontractor Name:	<input style="width: 100%;" type="text"/>
Proposed Dollar Value of Subcontract:                   \$	<input style="width: 100%;" type="text"/>

<b>ALL BIDDERS: CLICK DROPDOWN ARROW to select a Class of Work for Additional Named Subcontractors:</b>	
Complete Subcontractor Name:	<input style="width: 100%;" type="text"/>
Proposed Dollar Value of Subcontract:                   \$	<input style="width: 100%;" type="text"/>

<b>ALL BIDDERS: CLICK DROPDOWN ARROW to select a Class of Work for Additional Named Subcontractors:</b>	
Complete Subcontractor Name:	<input style="width: 100%;" type="text"/>
Proposed Dollar Value of Subcontract:                   \$	<input style="width: 100%;" type="text"/>

<b>ALL BIDDERS: CLICK DROPDOWN ARROW to select a Class of Work for Additional Named Subcontractors:</b>	
Complete Subcontractor Name:	<input style="width: 100%;" type="text"/>
Proposed Dollar Value of Subcontract:                   \$	<input style="width: 100%;" type="text"/>

<b>ALL BIDDERS: CLICK DROPDOWN ARROW to select a Class of Work for Additional Named Subcontractors:</b>	
Complete Subcontractor Name:	<input style="width: 100%;" type="text"/>
Proposed Dollar Value of Subcontract:                   \$	<input style="width: 100%;" type="text"/>

<b>ALL BIDDERS: CLICK DROPDOWN ARROW to select a Class of Work for Additional Named Subcontractors:</b>	
Complete Subcontractor Name:	<input style="width: 100%;" type="text"/>
Proposed Dollar Value of Subcontract:                   \$	<input style="width: 100%;" type="text"/>

<b>ALL BIDDERS: CLICK DROPDOWN ARROW to select a Class of Work for Additional Named Subcontractors:</b>	
Complete Subcontractor Name:	<input style="width: 100%;" type="text"/>
Proposed Dollar Value of Subcontract:                   \$	<input style="width: 100%;" type="text"/>

<b>ALL BIDDERS: CLICK DROPDOWN ARROW to select a Class of Work for Additional Named Subcontractors:</b>	
Complete Subcontractor Name:	<input style="width: 100%;" type="text"/>
Proposed Dollar Value of Subcontract:                   \$	<input style="width: 100%;" type="text"/>

<b>ALL BIDDERS: CLICK DROPDOWN ARROW to select a Class of Work for Additional Named Subcontractors:</b>	
Complete Subcontractor Name:	<input style="width: 100%;" type="text"/>
Proposed Dollar Value of Subcontract:                   \$	<input style="width: 100%;" type="text"/>

<b>ALL BIDDERS: CLICK DROPDOWN ARROW to select a Class of Work for Additional Named Subcontractors:</b>	
Complete Subcontractor Name:	<input style="width: 100%;" type="text"/>
Proposed Dollar Value of Subcontract:                   \$	<input style="width: 100%;" type="text"/>

<b>ALL BIDDERS: CLICK DROPDOWN ARROW to select a Class of Work for Additional Named Subcontractors:</b>	
Complete Subcontractor Name:	<input style="width: 100%;" type="text"/>
Proposed Dollar Value of Subcontract:                   \$	<input style="width: 100%;" type="text"/>

<b>ALL BIDDERS: CLICK DROPDOWN ARROW to select a Class of Work for Additional Named Subcontractors:</b>	
Complete Subcontractor Name:	<input style="width: 100%;" type="text"/>
Proposed Dollar Value of Subcontract:                   \$	<input style="width: 100%;" type="text"/>

<b>ALL BIDDERS: CLICK DROPDOWN ARROW to select a Class of Work for Additional Named Subcontractors:</b>	
Complete Subcontractor Name:	<input style="width: 100%;" type="text"/>
Proposed Dollar Value of Subcontract:                   \$	<input style="width: 100%;" type="text"/>

<b>2.8</b>	<b>Set Aside Requirements:</b> (see Section 00 73 38 "CHRO Contract Compliance Regulations")
<b>2.8.1</b>	<b>For Projects Less Than \$500,000:</b> Submit a current copy of your Firm's " <b>DAS Set-Aside Certificate</b> " <i>with</i> your <b>Bid Proposal Form</b> <i>prior</i> to the date and time of the Bid Opening.
<b>2.8.2</b>	<b>For Projects Less Than \$500,000:</b> Upload a completed copy of the CHRO Employment Information Form, " <b>Bidder Contract Compliance Monitoring Report</b> " <i>with</i> your <b>Bid Proposal Form</b> <i>prior</i> to the date and time of the Bid Opening. The report is on the CHRO Webpage ( <a href="http://www.ct.gov/chro/cwp/view.asp?a=2525&amp;Q=315900&amp;chroPNavCtr= 45679">http://www.ct.gov/chro/cwp/view.asp?a=2525&amp;Q=315900&amp;chroPNavCtr= 45679</a> ).
<b>2.8.3</b>	<b>All Bidders shall be required</b> to award not less than the percentage(s) stated on <b>page 1 of this Bid Proposal Form</b> to Subcontractors who are currently certified and eligible to participate under the State of Connecticut Set-Aside Program for <b>SBE and/or MBE</b> contractors, in accordance with C.G.S. § 4a-60g. <b>Failure</b> to meet these requirements <b>shall</b> cause <b>rejection</b> of the bid.

<b>2.9</b>	<b>Insurance Coverages:</b> The <b>limits of liability</b> for the Insurance required for this project shall be those listed in <b>Article 35 Contractors Insurance of Section 00 73 13 General Conditions</b> . Also see Section 00 62 16 Certificate of Insurance.
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<b>2.9.1</b>	<b>Commercial General Liability Insurance:</b> The Bidder <b>shall</b> maintain Commercial General Liability Insurance. <b>NOTE:</b> All selected firms are required to provide an endorsement to the CGL insurance stating that the State of Connecticut, the Department of Administrative Services, and their respective officers, agents, and employees shall be named as an Additional Insured. Please be advised that a blanket endorsement <b>may not</b> be acceptable. Products/Completed Operations insurance shall be maintained for the duration of the Project and shall be maintained for a minimum of <b>three (3) years</b> after certification by the Owner that all Work has been completed and accepted by the Owner in accordance with the Contract Documents. CGL coverage may include <b>Special Hazards Insurance</b> , as described below.
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<b>2.9.2</b>	<b>Special Hazards Insurance:</b> <input checked="" type="checkbox"/> None is Required. <input type="checkbox"/> The Bidder <b>shall</b> maintain Special Hazards Insurance, including coverage for <b>explosion, collapse or underground damage (X-C-U)</b> . <input type="checkbox"/> The Bidder <b>shall</b> maintain Special Hazards Insurance, including coverage for <b>Asbestos Abatement and Lead Liability</b> .
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<b>2.9.3</b>	<b>Owner's and Contractor's Protective Liability Insurance:</b> The Bidder <b>shall</b> maintain Owner's and Contractor's Protective Liability Insurance. This coverage shall be for and in the name of the State of Connecticut.
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<b>2.9.4</b>	<b>Automobile Liability Insurance:</b> The Bidder <b>shall</b> maintain Automobile Liability Insurance for the operation of all motor vehicles including those owned, non-owned and hired or used in connection with the Contract. Should the Bidder not own any automobiles, the automobile & liability requirement shall be amended to allow the Bidder to maintain only hired and non-owned liability coverage.
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<b>2.9.5</b>	<b>Umbrella Liability Insurance:</b> The Bidder <b>shall</b> maintain Umbrella Liability Insurance. The Bidder shall provide an endorsement to the Umbrella Liability Insurance stating that the State of Connecticut is an additional insured.
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<b>2.9.6</b>	<b>Workers Compensation/Employer Liability Insurance:</b> The Bidder <b>shall</b> maintain Workers Compensation/Employer Liability Insurance.
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<b>2.9.7</b>	<b>Builder's Risk Insurance:</b> <input type="checkbox"/> None is Required. <input checked="" type="checkbox"/> The Bidder <b>shall</b> maintain Builder's Risk Insurance providing coverage for the entire Work at the project site, portions of the Work located away from the site but intended for use at the site, and portions of the Work in transit. Coverage shall be written on an All-Risk, Replacement Cost, and completed Value Form basis in an amount at least equal to the projected completed value of the Work. Prior to the Owner's issuance of a Notice to Proceed, the Contractor shall provide coverage for the entire Work in an amount equal to the total contract amount and any additional modifications. The Owner and its officers, agents and employees shall be listed as loss payee subject to the prior review of the Owner, and not as an additional insured for these coverages. The Builder's Risk Insurance policy shall state it is for the benefit of and payable to the State of Connecticut. The <b>Period of Coverage</b> shall be the number of Calendar Days from Construction Start Date to Substantial Completion as stated in the Bid Proposal Form of the Project Manual, plus ninety (90) Calendar Days to Acceptance of the Work.
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<b>2.9.8</b>	<b>Inland Marine/Transit Insurance (Transportation Insurance):</b> <input checked="" type="checkbox"/> None is Required. <input type="checkbox"/> The Bidder <b>shall</b> maintain Inland Marine/Transit Insurance (Transportation Insurance) provided the coverage is not afforded by a Builder's Risk policy. The Inland Marine/Transit Insurance policy shall endorse the State of Connecticut as a Loss Payee and the policy shall state it is for the benefit of and payable to the State of Connecticut.
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### 3.0 Bid Proposal Acknowledgements:

The Bidder *acknowledges and agrees* to the following:

#### 3.1 To Upload to BizNet Submit the Bid Proposal Form (all pages), All Other Bid Documents, Affidavits, and Certifications:

- 3.1.1 The Bidder acknowledges and agrees to electronically upload to DAS BizNet all pages of the **Bid Proposal Form**, and all other **Bid Documents, Affidavits, and Certifications** as directed in **Section 00 11 16 Invitation to Bid, Section 00 21 13 Instructions to Bidders**, and **Section 00 41 10 Bid Package Submittal Requirements**.
- 3.1.2 The State may waive minor irregularities which it considers in the best interest of the State and, when applicable, are corrected by the Bidder within seven (7) Calendar Days after the Bid Due Date. Failure to properly complete, sign and upload any of the items marked with an asterisk (\*) in **Table 1 of Section 00 41 10 Bid Package Submittal Requirements** *shall* cause rejection of the bid and *shall not* be considered a minor irregularity under **C.G.S. § 4b-95**.
- 3.1.3 If there are any delays in the receipt of other documents then the Bid shall remain valid for the same additional number of days. For example, if the documents are submitted four (4) Calendar Days later; then the bid shall remain valid for ninety-four (94) Calendar Days.
- 3.1.4 Failure to submit the documents before the stated deadline **may** result in rejection of the bid at the sole discretion of the Commissioner of Administrative Services.

#### 3.2 To Hold Bid Price:

The Bidder acknowledges and agrees to hold the **Proposed Lump Sum Base Bid** in **Subsection 2.1** of this Bid Proposal Form for **ninety (90) Calendar Days** and any extensions caused by the Bidder's delays in required submissions. The Bidder and the State may mutually agree to extend this period. The agreement to extend the **ninety (90) Calendar Day** period may occur after the expiration of the original **ninety (90) Calendar Day** period.

#### 3.3 To Use and Accept Allowances:

When applicable to this Project, the Bidder **acknowledges and agrees** to accept and use the **Allowances** as shown in **Section 01 20 00 Contract Considerations** of Division 01 General Requirements as part of the **Proposed Lump Sum Base Bid** listed in **Subsection 2.1** of this Bid Proposal Form.

#### 3.4 To Use and Accept the Following Contingent Work:

- 3.4.1 **Unit Prices:** When applicable to this Project, the Bidder **acknowledges and agrees** to accept and use the **Units, Add Unit Prices, and Deduct Unit Prices** as shown in **Section 01 20 00 Contract Considerations** of Division 01 General Requirements in evaluating either additions to or deductions from the Work.
- 3.4.2 **Supplemental Bid:** When applicable to this Project and if accepted by the Owner, the Bidder **acknowledges and agrees** to provide all labor, material and equipment to complete the Work in accordance with the **Supplemental Bid** described in **Section 01 23 13 Supplemental Bids** of Division 01 General Requirements and provided by the **Bidder** in **Subsection 2.4.2** of this Bid Proposal Form.

#### 3.5 To Use the Named Subcontractors Listed in Table 2.7:

- 3.5.1 The Bidder **agrees** that each of the **Named Subcontractors** stated in **Table 2.7** of this Bid Proposal Form will be used for the **Class of Work** indicated, for the **Proposed Total Subcontract Value dollar amount stated, unless** a **substitution** is permitted by the awarding authority as provided for in and in accordance with C.G.S. § 4b-96, as amended.
- 3.5.2 **For Named Subcontractor(s) with Subcontracts exceeding \$500,000**, the Bidder acknowledges that the **Named Subcontractor(s)** *must* be "prequalified" by DAS in the **Class of Work** specified in **Table 2.7** of this **Bid Proposal Form** *at the time of bid submission*, pursuant to **C.G.S. §4b-91(j)** and **C.G.S. § 4a-100**, as amended, to the extent the Class of Work for the Named Subcontractor is a Prequalification Classification. In addition, the Bidder agrees to submit within *ten (10) Calendar Days* after receipt of the "Set-Aside Contractor Schedule Request" the current DAS Prequalification Certificate(s) and Update (Bid) Statement(s) for each Named Subcontractor in **Table 2.7** of this Bid Proposal Form.

**3.0 Bid Proposal Acknowledgements (continued):****3.6 To Make Good Faith Efforts to Employ MBEs:**

The Bidder acknowledges and agrees to make **good faith efforts** to employ **Minority Business Enterprises (MBEs)** as **Subcontractors** and **Suppliers** of materials under such Contract.

**3.7 To Submit a Certified Check or Bid Bond (if required):**

The Bidder acknowledges and agrees to submit a **Certified Check** or **Standard Bid Bond** *prior* to the due date and time of the Bid Opening (if required). Download **Section 00 43 16 Standard Bid Bond** from BizNet for a template and instructions.

**3.8 To Accept the Current Prevailing Wage Rate Schedule:**

The U. S. Secretary of Labor's latest decision and the State of Connecticut Department of Labor (DOL) Prevailing Wage Rate Schedule are all incorporated in the documents. The higher rate (Federal or State) for any given occupation shall prevail. At the time of bidding, the Bidder agrees to accept the current Prevailing Wage Rate Schedule, as well as the annual adjustment to the prevailing wage rate that is in effect each July 1st, as provided by DOL. See **Section 00 73 44 Prevailing Wage Rates/Contractor's Wage Certification/Payroll Certification**. Annual adjustments of prevailing wage rates will **not** be considered a matter for a contract amendment with DAS/CS.

**3.9 To Comply With CHRO Requirements:**

If applicable, the Apparent Low Bidder acknowledges and agrees to provide the Commission on Human Rights and Opportunities with such information as is requested by the Commission concerning their **employment practices and procedures** as they relate to the current provisions of the Connecticut General Statutes governing Contract requirements within **fifteen (15) calendar days after** receipt of the "Request for the *Affirmative Action Plan and Employment Information Form Letter*" from the DAS/CS Office of Legal Affairs, Policy, and Procurement.

**3.10 To Ensure Executive Order No. 11246 for Equal Employment Opportunity & Non-Segregated Facilities Has Been Met:**

The Apparent Low Bidder acknowledges and agrees to ensure that Executive Order No. 11246 for Equal Employment Opportunity & Non-Segregated Facilities has been met for their firm and their Subcontractors. The Apparent Low Bidder also agrees to certify (if required) to the compliance of non-segregated facilities.

**3.11 To Obtain and Maintain Required Insurance Coverages:**

The Bidder acknowledges and agrees to obtain and maintain the required Insurance Coverages and submit the Firm's "**Certificate of Liability Insurance Acord® form**" within **ten (10) business days after** receipt of the "Letter of Intent" from the DAS/CS Office of Legal Affairs, Policy, and Procurement, as discussed in **Section 00 62 16 Certificate of Insurance** and **Article 35, "Contractors Insurance"** in **Section 00 73 13 General Conditions**.

**3.12 To Comply With Security Requirements for CT Department of Correction Facilities:**

When applicable to this Project, the Bidder acknowledges and agrees to comply with **Section 00 73 63 CT Department of Correction (CT DOC) Security Requirements** for Contract Forces on CT DOC Facilities.

**3.13 To Ensure C.G.S. § 12-430 for Non-Resident Contractors Has Been Met:**

If applicable, the Apparent Low Bidder acknowledges and agrees to provide either a copy of the "**Notice of Verified Status**" (Verification Letter) from the Connecticut Department of Revenue Services (DRS) (for **Verified Nonresident** General/Prime Contractors) or a copy of **Form AU-965 "Acceptance of Surety Bond"** from DRS (for **Unverified Nonresident** General/Prime Contractors) within **ten (10) business days after** receipt of the "Letter of Intent" from the DAS/CS Office of Legal Affairs, Policy, and Procurement which evidences that **C.G.S. § 12-430** for non-resident contractors has been met, as described in **Section 00 92 30 Procedures Regarding Taxation for Nonresident General/Prime Contractor and Subcontractors**.

**3.14 To Execute Contract:**

If selected as the Prime Contractor, the Bidder acknowledges and agrees to **execute a Contract** in accordance with the terms of this **Bid Proposal Form** and the **Contract** within **ten (10) Calendar Days** (legal State holidays excluded) **after** notification thereof by the awarding authority. See **Section 00 52 03 Contract** for a sample.

**4.0 Confidentiality of Documents:**

- 4.1** The **undersigned** agrees that if not selected as the Prime Contractor for this project, all plans and specifications in their possession for the project shall be destroyed.
- 4.2** The **undersigned** agrees that if selected as the Prime Contractor for this project:
- 4.2.1** The **plans and specifications** shall not be disseminated to anyone except for construction of this project.
- 4.2.2** The **following provision** shall be included in all of its contracts with subcontractors and sub-consultants:
- “Any and all drawings, specifications, maps, reports, records or other documents associated with the contract shall only be utilized to the extent necessary for the performance of the work and duties under this contract. Said drawings, specifications, maps, reports, records and other documents may not be released to any other entity or person except for the sole purpose of the work described in this contract. No other disclosure shall be permitted without the prior written consent of DAS Construction Services. When any such drawings, specifications, maps, reports, records or other documents are no longer needed, they shall be destroyed.”*
- 4.2.3** Upon completion of the construction and the issuance of a certificate of occupancy, the plans and specifications shall be returned to DAS Construction Services, or destroyed, or retained in a secure location and not released to anyone without first obtaining the permission of DAS Construction Services.

**5.0 Bid Proposal Declarations:**

I (we), the undersigned, hereby declare that I am (we are) the only person(s) interested in the Bid Proposal and that it is made without any connection with any other person making any Bid Proposal for the same work. No person acting for, or employed by, the State of Connecticut is directly or indirectly interested in this Bid Proposal, or in any Contract which may be made under it, or in expected profits to arise therefrom. This Bid Proposal is made without directly or indirectly influencing or attempting to influence any other person or corporation to bid or refrain from bidding or to influence the amount of the Bid Proposal of any other person or corporation. This Bid Proposal is made in good faith without collusion or connection with any other person bidding for the same work and this proposal is made with distinct reference and relation to the plans and specifications prepared for this Contract. I (we) further declare that in regard to the conditions affecting the Work to be done and the labor and materials needed, this Bid Proposal is based solely on my (our) own investigation and research and not in reliance upon any representations of any employee, officer or agent of the State.

**6.0 Duly Authorized Signature:**

**Type of Business:** *(Check Applicable Box)*

<input type="checkbox"/> <b>Limited Liability Corporation (LLC)</b>  <input type="checkbox"/> <b>Partnership</b>  <input type="checkbox"/> <b>Sole Proprietor</b>  <input type="checkbox"/> <b>Doing Business As (d/b/a)</b> <i>(If d/b/a box is checked provide complete name below)</i> <input style="width: 100%;" type="text"/> <i>(Doing Business As Name)</i>	<input type="checkbox"/> <b>Corporation</b> <i>(If Checked, Provide Corporate Seal Below)</i>  <div style="border: 1px solid black; width: 100px; height: 100px; margin: 0 auto;"></div> <i>(Provide <u>exact</u> corporate name from corporate seal below)</i> <input style="width: 100%;" type="text"/> <i>(Name On Corporate Seal)</i>
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**Signed:**     
*(Month) (Day) (Year)*

**Bidder's Signature:**    
*(Duly Authorized) (Title)*

*(Print Named) (Date)*

## Bid Package Submittal Requirements:

**DAS | Construction Services | Office of Legal Affairs, Policy, and Procurement**  
**450 Columbus Boulevard, Suite 1302 | Hartford, CT 06103**

<b>1.1</b>	<b>On-Line Bidding:</b>
1.1.1	All Bidders shall <b>electronically</b> upload their <b>Bid Package Documents</b> to BizNet following the <b>instructions</b> in the DAS/CS publication, <a href="#">6001 Construction On-line Bidding Instructions</a> , available for download here: Go to the DAS Homepage ( <a href="http://www.ct.gov/DAS">www.ct.gov/DAS</a> ) > Doing Business With The State > State Building Construction > Publications and Forms > DAS Construction Services Library > 6000 Series > <b>6001 Construction On Line Bidding Instructions</b> .
1.1.2	For questions, call 860-713-5794.

<b>1.2</b>	<b>Bid Package Submittal Requirements:</b>
All Bidders are required to <b>electronically upload Bid Package Documents</b> to BizNet <i>prior</i> to the date and time of the Bid Opening. Additional documents must be either <b>electronically uploaded</b> to BizNet or submitted as <b>paper copies</b> to the <b>appropriate Agency</b> . See Tables 1, 2, and 3 for specific submittal requirements.	
1.2.1	<b>All Bidders:</b> See Table 1. <b>All Documents in Table 1 <u>must be electronically uploaded to BizNet.</u></b>
1.2.2	<b>Three (3) Apparent Lowest Bidders:</b> See Table 2.
1.2.3	<b>Apparent Low Bidder:</b> See Table 3.

<b>1.3</b>	<b>Deadlines for Receipt of Bid Package Documents:</b>
1.3.1	<b>Table 1:</b> Bid Package Documents must be uploaded to BizNet <i>prior</i> to the date and time of the Bid Opening. The State may waive minor irregularities that otherwise may cause rejection of a Bid only when waiving such minor irregularities is in the best interests of the State and the minor irregularities have been corrected by the Bidder within seven (7) Calendar Days after the Bid Due Date. Failure to properly <u>complete, sign and upload</u> to BizNet any of the items <b>marked with an asterisk (*)</b> in <b>Table 1 prior</b> to the date and time of the Bid Opening <b>shall cause rejection</b> of the bid and shall <b>not</b> be considered a minor irregularity under <b>Connecticut General Statutes (C.G.S.) § 4b-95</b> .
1.3.2	<b>Tables 2 and 3:</b> See the tables for additional deadlines. Failure to submit the documents before the stated deadlines <b>may</b> result in rejection of the bid at the sole discretion of the Commissioner of Administrative Services.

<b>1.4</b>	<b>Delays in Receipt of Supportive Documents from the Three Apparent Lowest Bidders:</b>		
1.4.1	If there are any delays in the receipt of the supportive documents specified in Tables 2 and 3, then the Bids shall remain valid for the same additional number of days. <table style="margin-left: 20px; border: none;"> <tr> <td style="width: 20px;">.1</td> <td>For example, since the <b>Three (3) Apparent Lowest Bidders</b> are required to <b>Hold The Bid Price</b> for <b>ninety (90) calendar days</b>, if supportive documents are submitted <b>four (4) calendar days later</b>, then the bid shall remain valid for <b>ninety-four (94) calendar days</b>.</td> </tr> </table>	.1	For example, since the <b>Three (3) Apparent Lowest Bidders</b> are required to <b>Hold The Bid Price</b> for <b>ninety (90) calendar days</b> , if supportive documents are submitted <b>four (4) calendar days later</b> , then the bid shall remain valid for <b>ninety-four (94) calendar days</b> .
.1	For example, since the <b>Three (3) Apparent Lowest Bidders</b> are required to <b>Hold The Bid Price</b> for <b>ninety (90) calendar days</b> , if supportive documents are submitted <b>four (4) calendar days later</b> , then the bid shall remain valid for <b>ninety-four (94) calendar days</b> .		
1.4.2	Failure to submit the documents before the stated deadline <b>may</b> result in rejection of the bid at the sole discretion of the Commissioner of Administrative Services.		

<b>TABLE 1 ALL BIDDERS</b>			
Construction Costs:		The Bid Proposal Form, Other Bid Package Documents, Affidavits, and Certifications <u>shall</u> be electronically uploaded to BizNet by <u>all</u> Bidders prior to the Date and Time of the Bid Opening.	Form Location
Less Than \$500,000	Greater Than \$500,000		
Bid Proposal Form and Other Bid Package Documents			
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	* Section 00 41 00 Bid Proposal Form	BizNet
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	* Section 00 43 16 Standard Bid Bond or Certified Check	BizNet
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	* Section 00 45 14 General Contractor Bidder's Qualification Statement	BizNet
	<input checked="" type="checkbox"/>	* DAS Prequalification Certificate	BizNet
	<input checked="" type="checkbox"/>	* DAS Update (Bid) Statement	BizNet
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Section 00 40 14 Certificate (of authority)	BizNet
<input checked="" type="checkbox"/>		DAS Set-Aside Certificate	BizNet
<input checked="" type="checkbox"/>		Bidder Contract Compliance Monitoring Report	CHRO Website
Affidavits and Certifications			
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	* Gift and Campaign Contribution Certification – OPM Ethics Form 1	BizNet
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	* Consulting Agreement Affidavit – OPM Ethics Form 5	BizNet
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	* Ethics Affidavit (Regarding State Ethics) – OPM Ethics Form 6	BizNet
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	* Iran Certification – OPM Ethics Form 7	BizNet
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Nondiscrimination Certification – Form A, B, C, D, or E	BizNet

**\* NOTE:** The State may waive minor irregularities that otherwise may cause rejection of a Bid only when waiving such minor irregularities is in the best interests of the State and the minor irregularities have been corrected by the Bidder within seven (7) Calendar Days after the Bid Due Date. Failure to properly complete, sign and upload to BizNet any of the items marked with an **asterisk (\*)** in **Table 1** prior to the date and time of the Bid Opening shall cause rejection of the bid and shall not be considered a minor irregularity under C.G.S. § 4b-95.



TABLE 2 THREE (3) APPARENT LOWEST BIDDERS			
Construction Costs:		WHEN APPLICABLE:	Form Location
Less Than \$500,000	Greater Than \$500,000	Submit within <b>ten (10) Calendar Days</b> <i>after</i> receipt of the “ <b>Set-Aside Contractor Schedule Request</b> ” from the DAS/CS Procurement Unit:	
	<input checked="" type="checkbox"/>	<b>Set-Aside Contractor Schedule</b> for each subcontracted SBE and/or MBE firm(s) (See Section 00 73 27 Set-Aside Contractor Schedule for a sample Request.)	<b>Email From DAS/CS Procurement Unit</b>
	<input checked="" type="checkbox"/>	<b>DAS Set-Aside Certificate(s)</b> for each subcontracted SBE and/or MBE firm(s) listed in the Set-Aside Contractor Schedule.	<b>Download from BizNet</b>
	<input checked="" type="checkbox"/>	<b>Section 00 45 17 Named Subcontractor Bidder’s Qualification Statements</b> for each Named Subcontractor listed in the Bid Proposal Form.	<b>Copy from Project Manual</b>
	<input checked="" type="checkbox"/>	<b>DAS Prequalification Certificate(s) and Update (Bid) Statement(s)</b> for each Named Subcontractor listed in the Bid Proposal Form <b>with Subcontracts greater than \$500,000.</b>	<b>Download from BizNet</b>

TABLE 3 APPARENT LOW BIDDER			
Construction Costs:		When Applicable, submit the following documents as noted:	Form Location
Less Than \$500,000	Greater Than \$500,000		
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<b>If Contractor has 50 or more employees and/or the Project is equal to or greater than \$500,000, submit to CHRO:</b> Affirmative Action Plan and Employment Information Form (DAS-45).	<b>CHRO Website &amp; BizNet</b>
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<b>Submit to DAS/CS Procurement Unit:</b> Copy of Transmittal Letter to confirm the Affirmative Action Plan was filed with CHRO.	<b>(copy of transmittal letter)</b>
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<b>Submit to CT Department of Labor:</b> Contractors Wage Certification Form. See Section 00 73 44 Prevailing Wage Rates/Contractor’s Wage Certification/Payroll Certification.	<b>Copy from Project Manual</b>

Submit within <b>fifteen (15) calendar days</b> <i>after</i> receipt of the “ <b>Request for the Affirmative Action Plan and Employment Information Form Letter</b> ” from the DAS/CS Procurement Unit:			
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<b>If Contractor has 50 or more employees and/or the Project is equal to or greater than \$500,000, submit to CHRO:</b> Affirmative Action Plan and Employment Information Form (DAS-45).	<b>CHRO Website &amp; BizNet</b>
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<b>Submit to DAS/CS Procurement Unit:</b> Copy of Transmittal Letter to confirm the Affirmative Action Plan was filed with CHRO.	<b>(copy of transmittal letter)</b>
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<b>Submit to CT Department of Labor:</b> Contractors Wage Certification Form. See Section 00 73 44 Prevailing Wage Rates/Contractor’s Wage Certification/Payroll Certification.	<b>Copy from Project Manual</b>

<b>TABLE 3                      APPARENT LOW BIDDER (continued)</b>			
<b>Construction Costs:</b>		Submit within <b>ten (10) business days</b> <i>after</i> receipt of the “Letter of Intent” from the DAS/CS Procurement Unit:	Form Location
Less Than \$500,000	Greater Than \$500,000		
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<b>Section 00 40 14 Certificate (of authority)</b>	Email From DAS/CS Procurement Unit
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<b>Section 00 52 03 Contract</b>	Email From DAS/CS Procurement Unit
	<input checked="" type="checkbox"/>	<b>Section 00 52 73 Subcontract Agreement Form (Named &amp; Listed)</b>	Email From DAS/CS Procurement Unit
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<b>Certificate of Liability Insurance Acord® form</b> (See Section 00 62 16 Insurance Certificate Form for details)	Email From DAS/CS Procurement Unit
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<b>Certificate of Asbestos Abatement Liability Insurance</b> (for asbestos abatement only; see Section 00 62 16.1 Asbestos Abatement Liability Insurance for details)	Email From DAS/CS Procurement Unit
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<b>Section 00 92 10: Additional Forms</b>	<b>Performance Bond</b>
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<b>Labor &amp; Material Bond</b>
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<b>Surety Sheet</b>
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<b>Bidder’s Certification: Financial Position &amp; Corporate Structure</b>
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<b>Power of Attorney from the Surety Company</b>	<b>Surety Company</b>
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<b>Nonresident (Out of State) Contractors:</b> <u>Verified Nonresident</u> General/Prime Contractors must submit a copy of their “ <b>Notice of Verified Status</b> ” (Verification Letter) from the CT Department of Revenue Services (DRS). <u>Unverified Nonresident</u> General/Prime Contractors must submit a copy of <b>Form AU-965 “Acceptance of Surety Bond”</b> from the DRS. (See Section 00 92 30 Procedures Regarding Taxation for Nonresident General/Prime Contractor and Subcontractors for additional details.)	<b>CT Department of Revenue Services</b>
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<b>NEW: General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities:</b> For projects disturbing <b>one or more total acres of land area</b> , submit a copy of the signed <b>Stormwater Pollution Control Plan “Contractor Certification Statement”</b> and <b>License Transfer Form</b> , as directed by the DAS/CS Architect/Engineer, prior to commencement of any construction activities.	<b>DAS/CS Architect/Engineer</b>
	<input checked="" type="checkbox"/>	<b>Ethics Affidavit (Regarding State Ethics) OPM Ethics Form 6</b> for each Named Subcontractor	<b>BizNet</b>
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<b>Threshold Projects Only: Submit Major Contractor Registration License Number(s)</b> for Subcontractors	<b>CT Department of Consumer Protection</b>
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<b>SEEC Form 10</b>	<b>SEEC Website</b>
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<b>Certificate of Legal Existence from Corporations</b>	<b>Secretary of the State</b>
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<b>NEW: Contractor and Subcontractor Payments Reporting:</b> Every Contractor (and its Subcontractors) shall log on to BizNet <b>each month</b> and <b>enter payments</b> they have received from the state, from the Contractor, or from a higher tier Subcontractor (as applicable).	<b>BizNet</b>

End of Section  
 00 41 10 Bid Package Submittal Requirements

**INSTRUCTIONS FOR CERTIFIED CHECK OR BID BOND (select one):**  
**All Bidders:**  
**Edit this page, print, sign, and scan to PDF. Upload the PDF form to BizNet.**

- CERTIFIED CHECK OPTION:** *Prior* to the Date and Time of the Bid Opening:
  - (1) Check the box for "Certified Check Option";
  - (2) Print, scan to PDF, and upload the PDF form to Biznet; and
  - (3) Deliver the Certified Check, made payable to "Treasurer, State of Connecticut", to the following address:
    - State of Connecticut
    - Department of Administrative Services, Construction Services
    - Office of Legal Affairs, Policy, and Procurement
    - 450 Columbus Boulevard, North Tower, Suite 1302
    - Hartford, CT 06103-1835
- BID BOND OPTION** (see template below): *Prior* to the Date and Time of the Bid Opening:
  - (1) Check the box for "Bid Bond Option";
  - (2) Complete the **Standard Bid Bond** (below), print, sign, scan to PDF, and upload the PDF Bid Bond to Biznet.

**Standard Bid Bond**

**DAS | Construction Services | Office of Legal Affairs, Policy, and Procurement**

KNOW ALL MEN BY THESE PRESENTS, That we, \_\_\_\_\_

\_\_\_\_\_, hereinafter called the Principal,

of \_\_\_\_\_, as Principal,

and \_\_\_\_\_, hereinafter

called the Surety, a corporation organized and existing under the laws of the

State of \_\_\_\_\_, and duly authorized to transact a

surety business in the State of Connecticut, as Surety, are held and firmly bound unto the State of

Connecticut, as Obligee, in the penal sum of ten (10) percent of the amount of the bid set forth in a

proposal hereinafter mentioned, \_\_\_\_\_

\_\_\_\_\_,

lawful money of the United States of America, for the payment of which, well and truly to be made to the Obligee,

the Principal and the Surety bind themselves, their heirs, executors, administrators, successors and assigns,

jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH, That, whereas the Principal has submitted

or is about to submit a proposal to the Obligee related to a contract for Project No.: \_\_\_\_\_

NOW, THEREFORE, if the said contract be awarded to the Principal and the Principal shall, within such time as

may be specified, enter into the said contract in writing with the State of Connecticut and give the required

bonds, with surety acceptable to the Obligee, or if the Principal shall fail to do so, pay to the Obligee the

damages which the Obligee may suffer by reason of such failure not exceeding the penalty of this bond, then

this obligation shall be void, otherwise to remain in full force and effect.

SIGNED, SEALED AND DELIVERED this \_\_\_\_\_ day of \_\_\_\_\_, 20 \_\_\_\_\_

\_\_\_\_\_  
(Principal's Signature)

\_\_\_\_\_  
(Print Name)

\_\_\_\_\_  
Company Name

\_\_\_\_\_  
Surety

\_\_\_\_\_  
Its attorney in fact Signature

\_\_\_\_\_  
(Print Name)



## General Contractor Bidder's Qualification Statement

**DAS • Construction Services • Office of Legal Affairs, Policy, and Procurement**

**Instructions:**

- All Bidders are **required** to **upload this form to BizNet**, properly completed, **prior to the date and time of the Bid Opening**.
- Failure of a Bidder to answer any question or provide required information **shall** be grounds for the awarding authority to disqualify and reject the bid, pursuant to Connecticut General Statutes §4b-92.
- If a question or request for information does not pertain to your organization in any way, use the symbol "NA" (Not Applicable).
- Attach additional information on 8 ½" x 11" sheets with your letterhead as necessary and reference specific section and subsection numbers.
- **NOTE:** The Department reserves the right to request any additional or supplemental information necessary to complete its evaluation of a Bidder's qualification.

**1.0 Project Information:**

1.1 DAS/CS Project Number:

1.2 Project Name:

1.3 Project Location:

**2.0 Projects with Construction Costs Estimated To Be Greater than \$500,000:**

- Select the applicable **Class of Work** as stated in the **00 11 16 Invitation to Bid**.
- Select **YES** if your Firm has the applicable the **DAS Prequalification Certificate and Update (Bid) Statement** or **NO** if it does not.
- If **YES**, upload the applicable **DAS Prequalification Certificate and Update (Bid) Statement** to BizNet **prior** to the date and time of the Bid Opening.

**Not Applicable - Construction Costs Less than \$500,000**

Class of Work:

Does your Firm have the applicable  
DAS Prequalification Certificate and  
Update (Bid) Statement?

2.1  **General Building Construction (Group A):**

YES  NO

2.2  **General Building Construction (Group B):**

YES  NO

2.3  **General Building Construction (Group C):**

YES  NO

2.4  **General Trades (Interior Work Only):**

YES  NO

**3.0 Firm's Present Legal Name:** (the *complete legal name exactly* as it appears with the **Secretary of State registry**. The appropriate **title** must be used throughout the documents, for example: General Partner, Member, Manager, Sole Member, etc.)

**Name:**

**4.0** How many years has your Firm been in business under its **Present Legal Name**?

**Years:**

**5.0** How many years has your Firm been in business as a General Contractor?

**Years:**

**6.0** Indicate **all** other **names** by which your Firm has been known and the **length of time** known by each name:

**6.1**

Years	Months

**6.2**

Years	Months

**6.3**

Years	Months

**7.0** This Firm's **Certification** with the CT Secretary of State:

**Check Box**

**Type of Business Entity:**

**Certification Year**

**Corporation**

**Partnership**

**Sole Proprietorship**

**Limited Liability Company (LLC)**

**Other:**


**8.0** Attach resumes of all **supervisory personnel**, such as **Principals, Project Managers, and Superintendents**, who will be directly involved with the project on which you are now a bidder. Indicate their construction related training, certifications and licenses and the number of years of actual construction experience. Indicate the number of years of this actual construction experience which were in a Supervisory capacity.

**9.0 Named Subcontractor – Bidder Intends to Self-Perform:**

Check **YES** or **NO** for each “Named Subcontractor” **Class of Work** which your firm intends to perform with its own employees for this Contract; see **Section 2.7** of **Section 00 41 00 Bid Proposal Form**.

**NOTE:** For Projects with Construction Costs estimated to be greater than \$500,000, complete **Section 00 45 17 Named Subcontractor Bidder's Qualification Statement** for each **Named Subcontractor Class of Work** checked **YES** and submit within ten (10) calendar days **after** receipt of the “Set-Aside Contractor Schedule Request” from DAS/CS Office of Legal Affairs, Policy, and Procurement.

**Not Applicable – No Named Subcontractors &/or Not Self-Performing**

	Named Subcontractor Class of Work	Does your Firm intend to self-perform this Named Subcontractor Class of Work?	
9.1	Electrical:	YES <input type="checkbox"/>	NO <input type="checkbox"/>
9.2	HVAC:	YES <input type="checkbox"/>	NO <input type="checkbox"/>
9.3	Masonry:	YES <input type="checkbox"/>	NO <input type="checkbox"/>
9.4	Plumbing:	YES <input type="checkbox"/>	NO <input type="checkbox"/>
9.5	Environmental Remediation:	YES <input type="checkbox"/>	NO <input type="checkbox"/>
9.6	Hazardous Materials Abatement:	YES <input type="checkbox"/>	NO <input type="checkbox"/>

**10.0 Named Subcontractor - Class of Work Greater than \$500,000 and Self-Performing:**

- Select the applicable **Named Subcontractor Class of Work** which your firm intends to perform with its own employees for this Contract.
- Select **YES** if your Firm has the applicable the **DAS Prequalification Certificate and Update (Bid) Statement** or **NO** if it does not.
- If **YES**, submit the applicable **DAS Prequalification Certificate and Update (Bid) Statement** within ten (10) calendar days **after** receipt of the “Set-Aside Contractor Schedule Request” from DAS/CS Office of Legal Affairs, Policy, and Procurement.

**Not Applicable – No Class of Work Greater \$500,000 &/or Not Self-Performing**

	Named Subcontractor Class of Work Greater Than \$500,000	Does your Firm have the applicable DAS Prequalification Certificate and Update (Bid) Statement?	
10.1	<input type="checkbox"/> Electrical:	YES <input type="checkbox"/>	NO <input type="checkbox"/>
10.2	<input type="checkbox"/> HVAC:	YES <input type="checkbox"/>	NO <input type="checkbox"/>
10.3	<input type="checkbox"/> Masonry:	YES <input type="checkbox"/>	NO <input type="checkbox"/>
10.4	<input type="checkbox"/> Plumbing:	YES <input type="checkbox"/>	NO <input type="checkbox"/>

**11.0 List all** construction projects your Firm has completed in the **past five (5) years**. Provide **all** of the information listed below. DAS/CS *may* reject a bid as **non-responsive** if the bidder does not make **all** required pre-award submittals within the designated time period. Attach additional sheets as necessary **using the following format**:

**IMPORTANT NOTE:** **Two (2)** of the construction projects completed in the past five (5) years shall be (1) single project contracts that have reached substantial completion, not aggregate projects; (2) of commercial and/or institutional construction work (this includes compliance with general requirements); (3) within the Cost Estimate Range stated in Section 00 11 16 Invitation to Bid for this project; and (4) of the size and complexity of this Project. Failure to identify to **two** such projects **shall** result in rejection of the bid.

<b>11.1 Project Title:</b>		
<b>11.2 Project Location:</b>		
<b>11.3 Construction Start Date:</b>		
<b>11.4 Construction Finish Date:</b>		
<b>11.5 Describe the Scope of Work your Firm performed:</b>		
<b>11.6 Original Contract Amount:</b>		
<b>11.7 Final Contract Amount:</b>		
<b>11.8 Original Contract Duration (Calendar Days):</b>		
<b>11.9 Final Contract Duration (Calendar Days):</b>		
<b>11.10 Owner:</b>		
<b>11.11 Owner's Representative:</b>		
	<i>(Name)</i>	<i>(Phone Number)</i>
<b>11.12 Design Firm:</b>		
<b>11.13 Design Firm's Representative:</b>		
	<i>(Name)</i>	<i>(Phone Number)</i>

**12.0 References:**

Furnish references from **architects, engineers or owners** indicating that your Firm has satisfactorily completed in a timely manner contract work for projects within the cost estimate range, size and complexity of this project. Provide explanations where delays have occurred. This information should cover work done over the past five years.

**13.0 Construction Scheduler:**

**For Projects greater than \$5 Million:** Submit the **name, resume and references** of the **Construction Scheduler** in accordance with the requirements called for in Section **01 32 16.13 Critical Path Method Schedules** of the General Requirements.

Not Applicable – Project Less Than \$5 Million



**14.0** List and explain if your Firm has ever failed to complete a contract or if any officer or partner of your Firm has ever been an officer or partner of another organization that failed to complete a contract. Indicate below the circumstances leading to the project failure and the name of the company which provided the bonding for the failed contract(s):

Not Applicable

**15.0** List and explain if your Firm has ever had a contract terminated, indicating the circumstances leading to the project termination of contract(s):

Not Applicable

**16.0** List and explain all legal or administrative proceedings against your Firm or any officers, principals, partners, members, or employees of the organization currently pending or concluded adversely within the last five years, and any judicial or administrative sanctions that are still in effect against such organization, and any of its officers, principals, partners, members, or employees. (Exclude Occupational Safety and Health Act [OSHA] violations which are called for elsewhere in this statement). Add attachments as necessary.

Not Applicable

**17.0** List and explain any disbarments or suspensions that have been imposed on your Firm in the past five years or that were still in effect during the five year period or that are still in effect. Such list must include disbarments and suspensions of officers, principals, partners, members, and employees of your Firm:

Not Applicable

**18.0** List and explain any other reason(s) that precludes your Firm or any officer, principal, partner, member, or employees thereof from bidding on a contract in Connecticut or any other jurisdiction:

Not Applicable

**19.0** List and explain all willful or serious violations your Firm has had of any OSHA or of any standard, order or regulation promulgated pursuant to such act, during the three year period preceding the bid, provided such violations were cited in accordance with the provisions of any State Occupational Safety and Health Act or Occupational Safety and Health Act of 1970. Indicate whether these were abated within the time fixed by the citation or whether the citation was appealed. If appealed what is the status or disposition. Add attachments as necessary.

Not Applicable

**20.0** List and explain any criminal convictions your Firm has had related to the injury or death of any employee in the three-year period preceding the bid: Add attachments as necessary.

Not Applicable

**21.0** List and explain any changes in your Firm's financial condition or business organization, which might affect your Firm's ability to successfully complete this contract:

Not Applicable

**22.0** List and explain if your Firm has ever failed to submit an Affirmative Action Plan to the Commission on Human Rights and Opportunities (CHRO). Indicate below the circumstances leading to the failure to submit the Affirmative Action Plan to CHRO:

Not Applicable

**23.0** List and explain if your Firm's Affirmative Action Plan has ever been disapproved by CHRO or determined to be noncompliant. Indicate below the circumstances leading to the disapproval or finding of noncompliance of your Affirmative Action Plan by CHRO:

Not Applicable

**24.0** **NEW:** Anti-Discrimination and Anti-Harassment Requirements: List all claims of alleged harassment or discriminatory conduct asserted, filed or claimed against your firm, and to the best of the Firm's knowledge and belief, against its proposed subcontractors and suppliers being utilized for this Project. For each such claim, describe in sufficient detail the nature of the claim and its disposition. This includes claims against the Firm's officers, directors, shareholders, partners and employees.

Not Applicable

**24.1** If any claim resulted in a finding or admission of discriminatory conduct on the part of an officer, director, shareholder, partner or employee, list the actions taken by your Firm or the applicable subcontractor and/or supplier to address and mitigate the individual's conduct, including actions that made it clear such conduct: (i) is not tolerated and will not occur in the future; (ii) will not negatively impact the performance of work on the project job site; and (iii) does not reflect the beliefs and culture of the contractor, subcontractor, or supplier. DAS will expect that your Firm, subcontractor, and/or supplier implement systematic monitoring and evaluation of the workplace to exclude such conduct.

### 25. Signature

Dated at

Signed this

 day of , 20 

Name of Firm:

Firm Address:

Signature:

Print or Type Name:

Title:

### 26. Notary Statement

Mr./Mrs./Ms.  being duly sworn

deposes and says that he/she is the  of

*(Position or Title)*

, and that the answers to the foregoing

*(Firm Name)*

questions and all statements therein contained are true and correct.

Subscribed and sworn before me this  day of , 20

Notary Public

My Commission Expires , 20

00 45 14 General Contractor Bidder's Qualification Statement



## Objective Criteria Established for Evaluating Qualifications of Bidders:

### CT DAS ● Construction Services ● Office of Legal Affairs, Policy, and Procurement

The following items are established pursuant to Sections 4b-92, 4b-94 and 4b-95a of the Connecticut General Statutes (C.G.S.) as amended. **NOTE: Please see the *new* objective criteria in Section 1.22.**

The **Objective Criteria Established for Evaluating Qualifications of Bidders** (Section 00 45 15) are to assure that the State of Connecticut will secure the "lowest responsible and qualified bidder" who has the ability, capacity, **and integrity** to successfully complete the Bid Proposal Form and the Work. Failure to comply with any portion of this requirement **may** cause **rejection** of the bid. **Note:** Individual Specification Sections **may** contain General Contractor and/or Subcontractor Qualification requirements that **exceed** those in **Section 00 45 15 Objective Criteria Established for Evaluating Qualifications of Bidders**.

#### **NEW: Anti-Discrimination and Anti-Harassment Requirements:**

In accordance with DAS Policy, DAS strictly prohibits discrimination, including sexual harassment and harassment based on all of the following legally protected classes: race; color; religious creed; age; sex; pregnancy; sexual orientation; gender identity or expression; marital status; national origin; ancestry; intellectual disability; physical disability (including, but not limited to, blindness); mental disability; or, veteran status. This prohibition applies to all DAS-administered construction projects, and entities and individuals performing work on such projects. All contractors, subcontractors, and suppliers, as well as their officers, directors, shareholders, partners, employees, or other individuals associated with such entities, are expected to participate in these efforts to ensure that no discriminatory or harassing conduct occurs in connection with a DAS project. This is part of the meaning of a responsible contractor as a contractor with the integrity to ensure faithful performance of the work in a non-discriminatory manner.

DAS will consider instances, of which we become aware, of **alleged** discriminatory behavior on the part of a Bidder, subcontractors or suppliers. This will include the conduct of such entities' officers, directors, shareholders, partners, and employees. Such discriminatory conduct can include instances of name-calling, racist jokes or comments, bullying, intimidation and harassment on the basis of the person being a member of the protected class. Instances of **proven** discriminatory conduct on the part of an entity or individual **may** result in DAS not awarding a contract to a contractor, or require the substitution of a subcontractor or supplier.

In situations involving discriminatory conduct on the part of an officer, director, shareholder, partner or employee, DAS will also consider, as part of the responsibility review, the actions taken by the contractor, subcontractor and supplier to address and mitigate the individual's conduct. DAS will expect that the contractor, subcontractor, or supplier implement systematic monitoring and evaluation of the workplace to exclude such conduct. Regardless of where the discriminatory conduct occurs, if the contractor, subcontractor or supplier fails to address it, the contractor, subcontractor or supplier **shall not be** considered responsible or having the integrity necessary for the faithful performance of the work.

### THE BIDDER MUST HAVE OR HAVE COMPLETED THE FOLLOWING:

#### 1.1 DAS Prequalification Requirements:

For Projects with Construction Costs greater than \$500,000, **all Bidders** shall upload to BizNet a valid Department of Administrative Services (DAS) **Prequalification Certificate** and **Update (Bid) Statement** **prior** to the date and time of the Bid Opening.

<b>1.2</b>	<b>Evaluation:</b>
1.2.1	All Bidders shall upload to BizNet <b>Section 00 45 14 General Contractor's Bidder Qualifications Statement</b> <i>prior</i> to the date and time of the Bid Opening.
1.2.2	If applicable, the <b>Three (3) Lowest Bidders</b> shall submit <b>Section 00 45 17 Named Subcontractor's Bidder Qualification Statement(s)</b> to DAS Construction Services (DAS/CS) Office of Legal Affairs, Policy, and Procurement within <b>ten (10)</b> calendar days <i>after</i> receipt of the "Set-Aside Contractor Schedule Request" <i>from</i> DAS/CS.
1.2.3	The Bidder must demonstrate that the Bidder and, if applicable, its Named Subcontractors, meet the <b>objective criteria</b> for this specific project.
1.2.4	The <b>responses</b> to the Statement(s) must identify two (2) <b>projects completed</b> – single project contracts that have reached substantial completion, not aggregate projects – of commercial and/or institutional construction work (this includes compliance with general requirements) during the past five (5) years within the Cost Estimate Range stated in Section 00 11 16 <b>Invitation to Bid</b> for this project, and of the size and complexity of this project. The failure to identify to such projects shall result in rejection of the bid.
1.2.5	If the Bidder identifies two projects that meet the above criteria, the <b>State's evaluation</b> shall be based on the <b>performance record</b> of the prospective Bidder as a general, prime contractor and its named subcontractors during the course of the two (2) comparable projects, and not just the end result. The state will conduct the evaluation based on its interpretation of its objective criteria. <b>Evaluation criteria</b> shall include: Faithful and efficient performance; fulfillment of contract obligations; financial, managerial and technical abilities; and integrity and the absence of any conflicts of interest. Any one or all of the factors noted in this paragraph as well as in the other criteria set forth in this <b>Section 00 45 15</b> may be grounds for the determination by the State, in its sole discretion, of the Bidder's responsibility and qualifications necessary for the faithful performance of the work required of this project.
<b>1.3</b>	<b>References:</b>
	Furnished <b>references from architects, engineers or owners</b> indicating that it has satisfactorily completed in a timely manner contract work for projects and provide explanations where delays have occurred. This information should cover work done over the <b>past five years</b> . Review of DAS/CS projects shall be included in the evaluation of the bidder's qualifications and anticipated future performance.
<b>1.4</b>	<b>Qualified Personnel:</b>
1.4.1	Shown that it customarily employs or has on its payroll <b>supervisory personnel, qualified</b> to perform the work required for this project and to coordinate the work called for in the Bid Specifications.
1.4.2	If the project is for \$5 Million or more, submit the <b>name, resume and references</b> of the <b>Construction Scheduler</b> in accordance with the requirements called for in <b>Section 01 32 16.13 Critical Path Method Schedules</b> of the General Requirements.
<b>1.5</b>	<b>Past Performance:</b>
	Demonstrated a good track record of <b>past performance</b> on State or other projects relative to quantity, quality, timeliness, cost, cooperation and harmonious working relationships with subcontractors, suppliers and client agencies. DAS/CS will review the Bidders past performance ratings prepared by DAS/CS or prepared as part of the DAS Contractor Prequalification Program. This review may focus on the comments relative to: Quality of Supervision, Adherence to Contract Documents, On Time Project Completion, Subcontractor performance, and the handling of Change Orders. Unacceptable ratings for several criteria shall be sufficient cause to deem a bidder not responsible.
<b>1.6</b>	<b>Financial Responsibility:</b>
	Shown that it is <b>financially responsible</b> to perform the work as bid. If requested, additional financial information shall be provided. Prompt and proper payments to its subcontractors and material suppliers is a critical factor to be considered by DAS/CS.
<b>1.7</b>	[Left Blank]

<b>1.8</b>	<b>Equipment Requirements:</b>
	Shown that it owns or possesses, rented, or leased <b>equipment</b> of the type customarily required by contractors in the performance of contract work and that such equipment, if needed, is available for this project.
<b>1.9</b>	<b>Materials and Suppliers:</b>
	Purchased <b>materials</b> over the past three years from suppliers who customarily sell such materials in quantity to contractors.
<b>1.10</b>	<b>Physical Facilities:</b>
	Control of adequate <b>physical facilities</b> from which the work can be performed.
<b>1.11</b>	<b>Compliance with Subcontractor Requirements:</b>
	Demonstrated that on <b>previous state projects</b> the bidder complied in good faith with the requirements of listing subcontractors as outlined in C.G.S. Sections 4b-93 and 4b-95.
<b>1.12</b>	<b>Threshold Building and Major Contractor Requirements:</b>
	Demonstrated that <b>all major subcontractors</b> are in compliance with the provisions of C.G.S. Section 20-341gg, as revised, concerning licensure requirements to perform work on any structure that exceeds the threshold limits contained in C.G.S. Section 29-276b, as revised.
<b>1.13</b>	<b>OSHA Requirements:</b>
	Proven that the Bidder has not been found to be in violation of three or more willful or serious violations of Occupational Safety and Health Administration (OSHA) regulations in the past three years.
<b>1.14</b>	<b>Criminal Convictions and Injuries or Death of Employees:</b>
	Not received a <b>criminal conviction</b> related to the injury or death of any employee in the three-year period preceding the bid.
<b>1.15</b>	<b>Legal or Administrative Proceedings:</b>
	Listed all <b>legal</b> (court and/or arbitration) or <b>administrative proceedings</b> currently pending as well as any legal (court and/or arbitration) or administrative proceeding related to procurement or performance of any public or private construction contracts which has concluded adversely within the last three years.
<b>1.16</b>	<b>Contract Performance and Surety:</b>
	Identified any situations where: (1) the bidder failed to complete a construction contract; or (2) bonds were called during the past three years. If applicable, attach a sheet providing explanation including date(s) and location(s).
<b>1.17</b>	<b>State Tax Requirements:</b>
	Not been found to be in violation of any <b>state tax</b> requirements of the Connecticut Department of Revenue Services in the five (5)-year period preceding the bid.
<b>1.18</b>	<b>State and Federal Labor Requirements:</b>
	Not been found to be in violation of any State or Federal <b>labor laws</b> as required through the Department of Labor including violations of prevailing wage laws in the five (5)-year period preceding the bid.
<b>1.19</b>	<b>Change Order Pricing and State Ethics:</b>
	Been found to be in compliance with all statutory and regulatory requirements. This Item shall include, but not be limited to, any DAS/CS determinations related to improper Change Order pricing relative to C.G.S. Section 1-101nn of The State Ethics Statutes.

**1.20 Internal Revenue Services (IRS) Requirements:**

Not been found in violation of any of the **Internal Revenue Service Tax Requirements** regarding classification of employees and independent contractors in the five (5)-year period preceding the bid.

**1.21 Workers Compensation and Insurance Requirements:**

Not been found to be in any violation of C.G.S. Section 31-288 relating to employee classification for purposes of Workers' Compensation insurance premiums in the five (5)-year period preceding the bid.

**1.22 NEW: Anti-Discrimination and Anti-Harassment Requirements:**

Listed all claims of alleged harassment, including sexual harassment, and discriminatory conduct against a member of a legally protected class, asserted, filed or claimed against the Bidder, and to the best of the Bidder's knowledge and belief, against its proposed subcontractors and suppliers being utilized for this Project. For each such claim, described in sufficient detail the nature of the claim and its disposition. This includes claims against the Bidder's officers, directors, shareholders, partners and employees.

**1.22.1** If any claim resulted in a finding or admission of discriminatory conduct on the part of an officer, director, shareholder, partner or employee:

Listed the actions taken by the Bidder or the applicable subcontractor and/or supplier to address and mitigate the individual's conduct, including actions that made it clear such conduct: (i) is not tolerated and will not occur in the future; (ii) will not negatively impact the performance of work on the project job site; and (iii) does not reflect the beliefs and culture of the Bidder, subcontractor, or supplier. DAS will expect that the Bidder, subcontractor, and/or supplier implement systematic monitoring and evaluation of the workplace to exclude such conduct.

**NOTE:** The foregoing Item Numbers **1.13** and **1.14** are meant to comport with C.G.S. Section 31-57b.

**End of Section**  
**00 45 15 Objective Criteria Established for Evaluating Qualifications of Bidders**



## Named Subcontractor Bidder's Qualification Statement

**DAS • Construction Services • Office of Legal Affairs, Policy, and Procurement**

**Instructions:**

- This Section is **only applicable** to Projects with Construction Costs **Greater than \$500,000.00**. See **Subsection 2.7 Named Subcontractors and Classes of Work** of **00 41 00 Bid Proposal Form** for applicability.
- If a question or request for information does not pertain to your organization in any way, use the symbol "NA" (Not Applicable). Attach additional information on 8 ½" x 11" sheets with your letterhead as necessary and reference specific subsection number.
- Submit this form for **each** of the Named Subcontractors, within **ten (10)** calendar days **after** receipt of the "Set-Aside Contractor Schedule Request" to:

State of Connecticut  
Department of Administrative Services, Construction Services  
Office of Legal Affairs, Policy, and Procurement  
450 Columbus Boulevard, Suite 1302  
Hartford, CT 06103

**1.0 Project Information:**

- 1.1 DAS/CS Project Number:
- 1.2 Project Name:
- 1.3 Project Location:

**2.0 Named Subcontractor Class of Work:**

Check the applicable Class of Work:

- 2.1 Electrical Work:
- 2.2 HVAC Work:
- 2.3 Masonry Work:
- 2.4 Plumbing Work:
- 2.5 Environmental Remediation:
- 2.6 Hazardous Materials Abatement:

**3.0 Subcontractor's Present Legal Name:**

Name:

**4.0** How many years has the **Subcontractor** been in business under its **Present Legal Name**?

Years:

**5.0** How many years has the **Subcontractor** been in business as a Subcontractor for this Class of Work?

Years:

**6.0** If the **Subcontractor** has not always been a Subcontractor for this Class of Work then list the trade(s) that your firm customarily performed prior to the time that you became a Subcontractor in this **Class of Work**:

**6.1**

**6.2**

**6.3**

**7.0** Indicate **all other names** by which this **Subcontractor** has been known and the **length of time** known by each name:

<b>7.1</b>	<input style="width: 95%; height: 40px;" type="text"/>	<input style="width: 40px; height: 25px;" type="text"/>	<input style="width: 40px; height: 25px;" type="text"/>	
		<i>Years</i>	<i>Months</i>	
<b>7.2</b>	<input style="width: 95%; height: 40px;" type="text"/>	<input style="width: 40px; height: 25px;" type="text"/>	<input style="width: 40px; height: 25px;" type="text"/>	
		<i>Years</i>	<i>Months</i>	
<b>7.3</b>	<input style="width: 95%; height: 40px;" type="text"/>	<input style="width: 40px; height: 25px;" type="text"/>	<input style="width: 40px; height: 25px;" type="text"/>	
		<i>Years</i>	<i>Months</i>	

**8.0** The **Subcontractor's Certification** with the CT Secretary of State:

Check Box	Type of Business Entity:	Certification Year
<input type="checkbox"/>	<b>Corporation</b>	<input style="width: 100%; height: 25px;" type="text"/>
<input type="checkbox"/>	<b>Partnership</b>	<input style="width: 100%; height: 25px;" type="text"/>
<input type="checkbox"/>	<b>Sole Proprietorship</b>	<input style="width: 100%; height: 25px;" type="text"/>
<input type="checkbox"/>	<b>Limited Liability Company (LLC)</b>	<input style="width: 100%; height: 25px;" type="text"/>
<input type="checkbox"/>	<b>Other:</b> <input style="width: 350px; height: 25px;" type="text"/>	<input style="width: 100%; height: 25px;" type="text"/>

**9.0** Attach resumes of all supervisory personnel, such as Principals, Project Managers, and Superintendents, who will be directly involved with this project on which you are now a **Named Subcontractor** Bidder for a specific **Class of Work**. Indicate the number of years of construction experience and number of years of which they were in a Supervisory capacity.

**10.0** List all sub-trades which your firm customarily performs with own employees – **this table must be completed for electrical and plumbing trades for all projects.**

	Trade Name	License Holder Name	Connecticut D.C.P. License No.: Format: Prefix - Number - Suffix
10.1			
10.2			
10.3			
10.4			
10.5			

**11.0 Trade References:**  
 Names, addresses and telephone numbers of several firms with whom your organization has regular business dealings (attach separate sheets as necessary).

**12.0 List all** construction projects your firm currently has under contract. Provide **all** of the information listed below. DAS/CS *may* reject a bid as **non-responsive** if the bidder does not make **all** required pre-award submittals within the designated time period. Attach additional sheets as necessary **using the following format:**

<b>12.1 Project Title:</b>		
<b>12.2 Project Location:</b>		
<b>12.3 Construction Start Date:</b>		
<b>12.4 Construction Finish Date:</b>		
<b>12.5 Describe the Scope of Work your Firm performed:</b>		
<b>12.6 Original Contract Amount:</b>		
<b>12.7 Final Contract Amount:</b>		
<b>12.8 Original Contract Duration (Calendar Days):</b>		
<b>12.9 Final Contract Duration (Calendar Days):</b>		
<b>12.10 *Briefly describe any complaints about your Firm's quality control or construction management.</b>		
	<b>*Attach a separate sheet if more space is required.</b>	
<b>12.11 Owner:</b>		
<b>12.12 Owner's Representative:</b>		
	<i>(Name)</i>	<i>(Phone Number)</i>
<b>12.13 Design Firm:</b>		
<b>12.14 Design Firm's Representative:</b>		
	<i>(Name)</i>	<i>(Phone Number)</i>
<b>12.15 General Contractor:</b>		
<b>12.16 G.C.'s Representative:</b>		
	<i>(Name)</i>	<i>(Phone Number)</i>

**13.0 List all** construction projects your firm has completed in the **past five (5) years or list the ten (10) projects** your firm has most recently completed. Provide **all** of the information listed below. DAS/CS *may* reject a bid as **non-responsive** if the bidder does not make **all** required pre-award submittals within the designated time period. Attach additional sheets as necessary **using the following format:**

<b>13.1 Project Title:</b>		
<b>13.2 Project Location:</b>		
<b>13.3 Construction Start Date:</b>		
<b>13.4 Construction Finish Date:</b>		
<b>13.5 Describe the Scope of Work your Firm performed:</b>		
<b>13.6 Original Contract Amount:</b>		
<b>13.7 Final Contract Amount:</b>		
<b>13.8 Original Contract Duration (Calendar Days):</b>		
<b>13.9 Final Contract Duration (Calendar Days):</b>		
<b>13.10 *Briefly describe any complaints about your Firm's quality control or construction management.</b>		
	<i>*Attach a separate sheet if more space is required.</i>	
<b>13.11 Owner:</b>		
<b>13.12 Owner's Representative:</b>		
	<i>(Name)</i>	<i>(Phone Number)</i>
<b>13.13 Design Firm:</b>		
<b>13.14 Design Firm's Representative:</b>		
	<i>(Name)</i>	<i>(Phone Number)</i>
<b>13.15 General Contractor:</b>		
<b>13.16 G.C.'s Representative:</b>		
	<i>(Name)</i>	<i>(Phone Number)</i>

**14.0** Has your Firm ever failed to complete a contract or has any officer or partner of your Firm ever been an officer or partner of another organization that failed to complete a contract? If so, indicate below the circumstances leading to the project failure and the name of the company which provided the bonding for the failed contract(s):

Not Applicable

**15.0** List all legal or administrative proceedings currently pending or concluded adversely within the last five years which relate to procurement or performance of any public or private construction contracts. (Exclude Occupational Safety and Health Act [OSHA] violations which are called for elsewhere in this statement). Add attachment as necessary.

Not Applicable

**16.0** List all willful or serious violations of any OSHA or of any standard, order or regulation promulgated pursuant to such act, during the three year period preceding the bid, provided such violations were cited in accordance with the provisions of any State Occupational Safety and Health Act or Occupational Safety and Health Act of 1970. Indicate whether these were abated within the time fixed by the citation or whether the citation was appealed. If appealed what is the status or disposition. Add attachments as necessary.

Not Applicable

**17.0** Has your Firm had any criminal convictions related to the injury or death of any employee in the three-year period preceding the bid? Please list any such convictions below. Add attachments as necessary.

Not Applicable

**18.0** **NEW:** Anti-Discrimination and Anti-Harassment Requirements: List all claims of alleged harassment or discriminatory conduct asserted, filed or claimed against your firm, and to the best of the Firm's knowledge and belief, against its proposed subcontractors and suppliers being utilized for this Project. For each such claim, describe in sufficient detail the nature of the claim and its disposition. This includes claims against the Firm's officers, directors, shareholders, partners and employees.

Not Applicable

**18.1** If any claim resulted in a finding or admission of discriminatory conduct on the part of an officer, director, shareholder, partner or employee, list the actions taken by your Firm or the applicable subcontractor and/or supplier to address and mitigate the individual's conduct, including actions that made it clear such conduct: (i) is not tolerated and will not occur in the future; (ii) will not negatively impact the performance of work on the project job site; and (iii) does not reflect the beliefs and culture of the contractor, subcontractor, or supplier. DAS will expect that your Firm, subcontractor, and/or supplier implement systematic monitoring and evaluation of the workplace to exclude such conduct.

**19. Signature**

Dated at

Signed this  day of  , 20

Name of Firm:

Firm Address:

*(Signature)*

*(Print or Type Name)*

*(Title)*

**20. Notary Statement**

Mr./Mrs./Ms.  being duly sworn

deposes and says that he/she is the  of

*(Position or Title)*

, and that the answers to the foregoing

*(Firm Name)*

questions and all statements therein contained are true and correct.

Subscribed and sworn before me this  day of  , 20

Notary Public

My Commission Expires  , 20

End of Section  
00 45 17 Named Subcontractor Bidder's Qualification Statement





## Contract

DAS ● Construction Services ● Office of Legal Affairs, Policy, and Procurement

Contract For:

Dated as of  by and between the **State of Connecticut** (herein called the  
*(Month, Day, Year)*

“State”) acting herein by its Commissioner, Department of Administrative Services under the provisions of the Connecticut General Statutes (C.G.S.) Sections 4-8, 4a-1, 4a-2, 4b-1, 4b-3, and 4b-91, as revised, and  (herein called the “Contractor”).

*(Print Name of Contractor)*

The State and the Contractor in consideration of the hereinafter contained mutual promises and covenants, do hereby agree as follows:

### 1. CONTRACT AND CONTRACT DOCUMENTS:

The **Invitation for Bids**, the enumerated **Plans**, the **Specifications** and **Amendments** thereto, the **Addenda**, the **Bid Proposal** as accepted by the Commissioner, Department of Administrative Services, **Order of Award**, which Order is made a part of this **Contract**, the **General Conditions**, the **Supplementary Conditions**, the **General Requirements**, the **Contract** and the **Bonds** shall form part of this **Contract** and the **provisions** thereof shall be as binding upon the parties as if they were fully set forth herein. The tables of contents, titles, headings, running headlines and marginal notes contained herein and in said Documents, are solely to facilitate to various provisions of the Contract Documents and in no way affect, limit, or cast light upon the interpretations of the provisions to which they refer. Whenever the term “**Contract Documents**” is used, it shall mean and include this **Contract**, the **Invitation for Bids**, the enumerated **Plans**, **Specifications** and **Amendments** thereto, the **Addenda**, the **Bid Proposal** as accepted by the Commissioner, Department of Administrative Services, the **General Conditions**, the **General Requirements**, the **Bonds**, the **Instructions to Bidders**, the **Wage Scales**, the **Supplementary Conditions**, and the **Insurance Certificates**.

### 2. SCOPE OF THE WORK:

The Contractor shall furnish all plant, labor, materials, supplies, equipment, and other facilities and things necessary or proper for or incidental to the work contemplated by this Contract as required by and in strict accordance with applicable Plans, Specifications and Amendments thereto, and Addenda (hereinafter enumerated), and as required by and in strict accordance with such changes as are ordered and approved pursuant to this Contract, and will perform all other obligations imposed on him by this Contract.

**3. ENUMERATION OF PLANS, SPECIFICATIONS AND ADDENDA:**

The following is an enumeration of the Plans, Specifications, and Addenda:

<b>Prepared By:</b>	<input type="text"/> <i>(Print Name of Architect/Engineer Firm)</i>
<b>Plans and Specifications:</b>	<input type="text"/>
<b>Addenda:</b>	<input type="text"/>

**4. COMPENSATION TO BE PAID THE CONTRACTOR**

The State will pay and the Contractor will accept in full consideration for the performance of the Contractor's obligation hereunder the sum of:

<input type="text"/>	Dollars and 00/100 (\$	<input type="text"/>	)
----------------------	------------------------	----------------------	---

**5. PROVISIONS REQUIRED BY LAW DEEMED INSERTED**

Each and every provision of law and clause required by law to be inserted in this Contract shall be deemed to be inserted herein and the Contract shall be read and enforced as though it were included herein, and if through mistake or otherwise any such provision is not inserted, or is not correctly inserted, then upon the application of either party, the Contract shall forthwith be physically amended to make such insertion.

For all State contracts as defined in the **C.G.S. §9-612(f)(1)(C)**, having a value in a calendar year of \$50,000 or more or a combination or series of such agreements or contracts having a value of \$100,000 or more, the authorized signatory to this Agreement expressly acknowledges receipt of the State Elections Enforcement Commission's notice advising state contractors of campaign contribution and solicitation prohibitions, and will inform its principals of the contents of the notice. See **SEEC Form 10**.

Contractor hereby irrevocably assigns to the State of Connecticut all rights, title and interest in and to all **Claims\* associated with this Contract** that Contractor now has or may or will have and that arise under the antitrust laws of the United States, **15 USC Section 1, et seq.** and the antitrust laws of the State of Connecticut, **C.G.S. §35-24, et seq.**, including but not limited to any and all Claims for overcharges. This assignment shall become valid and effective immediately upon the accrual of a Claim without any further action or acknowledgment by the parties.

**\*Definition of Claims associated with this Contract:** "All actions, suits, claims, demands, investigations and proceedings of any kind, open, pending or threatened, whether mature, unmaturing, contingent, known or unknown, at law or in equity, in any forum."

The Commissioner, Department of Administrative Services for and on behalf of the State of Connecticut, and the Contractor have executed this contract on the day and year first written.

<b>State Of Connecticut:</b>  By: <input type="text"/> <i>(Signature)</i>  Print Name: <b>Noel Petra</b> Its: <b>Deputy Commissioner</b> <b>Department of Administrative Services</b>  Date Signed: <input type="text"/>  <b>Office of the Attorney General:</b> <b>Approved as to form:</b>  By: <input type="text"/> <i>(Signature)</i>  Print Name: <input type="text"/> Its: <b>Attorney General /</b> <b>Assistant Deputy Attorney General /</b> <b>Associate Attorney General /</b> <b>Assistant Attorney General</b>  Date Signed: <input type="text"/>	<b>Contractor:</b>  Firm Name: <input type="text"/> By: <input type="text"/> <i>(Signature)</i>  Print Name: <input type="text"/> Its: <input type="text"/> , <b>Duly Authorized</b>  Date Signed: <input type="text"/>  <input type="text"/>  <b>SEAL</b>
---	---

End of Section  
00 52 03 Contract



## Subcontract Agreement Form

### DAS | Construction Services | Office of Legal Affairs, Policy, and Procurement

In accordance with the requirements of the Connecticut General Statutes (C.G.S.) §4b-96, the Contractor selected for the Contract shall provide to each of its listed or substitute Named Subcontractors the relevant subcontract, along with a notice setting forth the time limit for execution of such subcontract. The Contractor selected for the Contract shall file with the State of Connecticut Department of Administrative Services (DAS) Construction Services Office of Legal Affairs, Policy, and Procurement an executed copy of each subcontract within ten (10) days (Saturdays, Sundays and legal holidays excluded) of presentation of the subcontract to each subcontractor. Each subcontract shall include at least the provisions set forth in the **Subcontract** form found in C.G.S. §4b-96 and shall follow the order of this **Subcontract Agreement Form**.

#### **C.G.S. §4b-96. Subcontract, form. Procedure on failure of subcontractor to execute subcontract. General bidder's responsibilities.**

Within five days after being notified of the award of a general contract by the awarding authority, or, in the case of an approval of a substitute subcontractor by the awarding authority, within five days after being notified of such approval, the general bidder shall present to each listed or substitute subcontractor (1) a subcontract in the form set forth in this section and (2) a notice of the time limit under this section for executing a subcontract. If a listed subcontractor fails within five days, Saturdays, Sundays and legal holidays excluded, after presentation of a subcontract by the general bidder selected as a general contractor, to perform his agreement to execute a subcontract in the form hereinafter set forth with such general bidder, contingent upon the execution of the general contract, the general contractor shall select another subcontractor, with the approval of the awarding authority. When seeking approval for a substitute subcontractor, the general bidder shall provide the awarding authority with all documents showing (A) the general bidder's proper presentation of a subcontract to the listed subcontractor and (B) communications to or from such subcontractor after such presentation. The awarding authority shall adjust the contract price to reflect the difference between the amount of the price of the new subcontractor and the amount of the price of the listed subcontractor if the new subcontractor's price is lower and may adjust such contract price if the new subcontractor's price is higher. The general bidder shall, with respect to each listed subcontractor or approved substitute subcontractor, file with the awarding authority a copy of each executed subcontract within ten days, Saturdays, Sundays and legal holidays excluded, of presentation of a subcontract to such subcontractor. The subcontract shall be in the following form:

*(See page 2 and page 3)*

**SUBCONTRACT**

THIS AGREEMENT made this day of , 20, by and between a corporation organized and existing under the laws of (a partnership consisting of ) (an individual doing business as ) hereinafter called the "Contractor" located at (insert complete address) \_\_\_\_\_, and a corporation organized and existing under the laws of (a partnership consisting of ) (an individual doing business as ) hereinafter called the "Subcontractor", located at (insert complete address) \_\_\_\_\_.

WITNESSETH that the Contractor and the Subcontractor for the considerations hereafter named, agree as follows:

1. The Subcontractor agrees to furnish all labor and materials required for the completion of all work specified in Section No. of the specifications for (Name of Subtrade) and the plans referred to therein and addenda No. , and for the (Complete title of project and the project number taken from the title page of the specifications) all as prepared by (Name of Architect or Engineer) for the sum of (\$) and the Contractor agrees to pay the Subcontractor said sum for said work. This price includes the following alternates:

Supplemental No. (s) , , , , , .

(a) The Subcontractor agrees to be bound to the Contractor by the terms of the hereinbefore described plans, specifications (including all general conditions stated therein which apply to his trade) and addenda No. , , , and , and , and to assume to the Contractor all the obligations and responsibilities that the Contractor by those documents assumes to the (Awarding Authority) , hereinafter called the "Awarding Authority", except to the extent that provisions contained therein are by their terms or by law applicable only to the Contractor.

(b) The Contractor agrees to be bound to the Subcontractor by the terms of the hereinbefore described documents and to assume to the Subcontractor all the obligations and responsibilities that the Awarding Authority by the terms of the hereinbefore described documents assumes to the Contractor, except to the extent that provisions contained therein are by their terms or by law applicable only to the Awarding Authority.

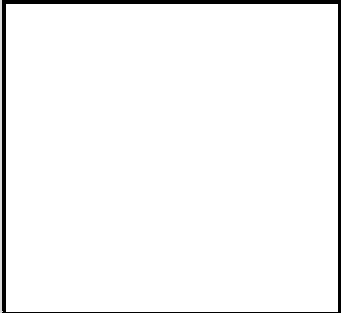

2. The Contractor agrees to begin, prosecute and complete the entire work specified by the Awarding Authority in an orderly manner so that the Subcontractor will be able to begin, prosecute and complete the work described in this subcontract; and, in consideration thereof, upon notice from the Contractor, either oral or in writing, the Subcontractor agrees to begin, prosecute and complete the work described in this Subcontract in an orderly manner in accordance with completion schedules prescribed by the general contractor for each subcontract work item, based on consideration to the date or time specified by the Awarding Authority for the completion of the entire work.

3. The Subcontractor agrees to furnish to the Contractor, within a reasonable time after the execution of this subcontract, evidence of workers' compensation insurance as required by law and evidence of public liability and property damage insurance of the type and in limits required to be furnished to the Awarding Authority by the Contractor.

4. The Contractor agrees that no claim for services rendered or materials furnished by the Contractor to the Subcontractor shall be valid unless written notice thereof is given by the Contractor to the Subcontractor during the first forty (40) days following the calendar month in which the claim originated.

5. This agreement is contingent upon the execution of a general contract between the Contractor and the Awarding Authority for the complete work.

IN WITNESS WHEREOF, the parties hereto have executed this agreement the day and year first above-written.

<b>Subcontractor</b>	
	<input type="text"/>
	<b>Subcontractor</b>
	By: <input type="text"/>
	<i>(Print Name)</i>
	Its: <input type="text"/>
	<b>Duly Authorized</b>
ATTEST: <input type="text"/>	<input type="text"/>
<i>(Signature)</i>	<i>(Subcontractor Signature)</i>
Date: <input type="text"/>	Date: <input type="text"/>
<b>Contractor</b>	
	<input type="text"/>
	<b>Contractor</b>
	By: <input type="text"/>
	<i>(Print Name)</i>
	Its: <input type="text"/>
	<b>Duly Authorized</b>
ATTEST: <input type="text"/>	<input type="text"/>
<i>(Signature)</i>	<i>(Contractor Signature)</i>
Date: <input type="text"/>	Date: <input type="text"/>

**End of Section  
00 52 73 Subcontract Agreement Form**







## CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

**IMPORTANT:** If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

<b>PRODUCER</b>  _____ _____ _____	<b>CONTACT</b> NAME: _____ PHONE (A.C. No. Ext): _____ FAX (A.C. No.): _____ E-MAIL ADDRESS: _____ _____ _____														
<b>INSURED</b> Contractor's Legal Name and Address _____ _____ _____	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 80%; text-align: center;">INSURER(S) AFFORDING COVERAGE</td> <td style="width: 20%; text-align: center;">NAIC#</td> </tr> <tr> <td>INSURER A:</td> <td></td> </tr> <tr> <td>INSURER B:</td> <td></td> </tr> <tr> <td>INSURER C:</td> <td></td> </tr> <tr> <td>INSURER D:</td> <td></td> </tr> <tr> <td>INSURER E:</td> <td></td> </tr> <tr> <td>INSURER F:</td> <td></td> </tr> </table>	INSURER(S) AFFORDING COVERAGE	NAIC#	INSURER A:		INSURER B:		INSURER C:		INSURER D:		INSURER E:		INSURER F:	
INSURER(S) AFFORDING COVERAGE	NAIC#														
INSURER A:															
INSURER B:															
INSURER C:															
INSURER D:															
INSURER E:															
INSURER F:															

**COVERAGES** **CERTIFICATE NUMBER:** \_\_\_\_\_ **REVISION NUMBER:** \_\_\_\_\_

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL. SUIN. INSR. WORD	POLICY NUMBER	POLICY EFF. (MM/DD/YYYY)	POLICY EXP. (MM/DD/YYYY)	LIMITS
	<b>GENERAL LIABILITY</b> <input checked="" type="checkbox"/> COMMERCIAL GENERAL LIABILITY <input type="checkbox"/> CLAIMS-WIDE <input checked="" type="checkbox"/> OCCUR  GEN'L AGGREGATE LIMIT APPLIES PER: <input type="checkbox"/> POLICY <input checked="" type="checkbox"/> PROJECT <input type="checkbox"/> LOC		Policy Number must be provided	Policy Effective Date must be provided	Policy Expiration Date must be provided	EACH OCCURRENCE \$ 1,000,000 DAMAGE TO RENTED PREMISES (Ea. occurrence) \$ 100,000 MED EXP (Any one person) \$ 5,000 PERSONAL & ADY INJURY \$ 1,000,000 GENERAL AGGREGATE \$ 2,000,000 PRODUCTS - COMPYOP AGG \$ 2,000,000
	<b>AUTOMOBILE LIABILITY</b> <input checked="" type="checkbox"/> ANY AUTO <input type="checkbox"/> ALL OWNED AUTOS <input type="checkbox"/> SCHEDULED AUTOS <input type="checkbox"/> HIRED AUTOS <input type="checkbox"/> NON-OWNED AUTOS		Policy Number must be provided	Policy Effective Date must be provided	Policy Expiration Date must be provided	COMBINED SINGLE LIMIT (Ea. accident) \$ 1,000,000 BODILY INJURY (Per person) \$ _____ BODILY INJURY (Per accident) \$ _____ PROPERTY DAMAGE (Per accident) \$ _____
	<input type="checkbox"/> UMBRELLA LIAB <input type="checkbox"/> OCCUR <input type="checkbox"/> EXCESS LIAB <input type="checkbox"/> CLAIMS-MADE DED. \$ _____ RETENTION \$ _____					EACH OCCURRENCE \$ _____ AGGREGATE \$ _____
	<b>WORKERS COMPENSATION AND EMPLOYERS' LIABILITY</b> ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) <input type="checkbox"/> Y/N <input checked="" type="checkbox"/> N/A If yes, describe under DESCRIPTION OF OPERATIONS below		Policy Number must be provided	Policy Effective Date must be provided	Policy Expiration Date must be provided	<input checked="" type="checkbox"/> WC STATUTORY LIMITS <input type="checkbox"/> OTHER E.L. EACH ACCIDENT \$ 100,000 E.L. DISEASE - EA EMPLOYEE \$ 100,000 E.L. DISEASE - POLICY LIMIT \$ 500,000
	Owner's and Contractor's Protective Liability Builder's Risk (include here when applicable)					Bodily Injury or Death (per occ.) Total \$ 1,000,000 Property Damages Total (aggregate) \$ 2,000,000 Completed Value

**DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES:** (Attach ACORD 101, Additional Remarks Schedule, if more space is required)

Indicate Project Number and Title here

The State of Connecticut is an Additional Insured with respect to General Liability and Umbrella/Excess Liability Insurance coverage.

If Builder's Risk and or Inland Marine/Transit Insurance is required then the State is endorsed as a Loss Payee.

<b>CERTIFICATE HOLDER</b> State of Connecticut Department of Administrative Services, Construction Services Office of Legal Affairs, Policy and Procurement 450 Columbus Boulevard, Suite 1302 Hartford, CT 06103-1838	<b>CANCELLATION</b> SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.  AUTHORIZED REPRESENTATIVE Agent of Producer
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ACORD 25 (2010/05)

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**End of Section**  
**00 62 16 Certificate of Insurance**



**General Conditions of the Contract for Construction  
 For Design-Bid-Build  
 Connecticut Department of Administrative Services**

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**ARTICLE 1  
DEFINITIONS**

WHENEVER THE FOLLOWING TERMS, OR PRONOUNS IN PLACE OF THEM, ARE USED THE INTENT AND MEANING SHALL BE AS FOLLOWS:

**1.1 ACCEPTANCE:** The Owner's acknowledgement of the Work from the Contractor upon certification by the Construction Administrator and Architect or Engineer that all Work has been completed.

**1.2 ADDITIONAL OR DELETED WORK:** Work required by the Department that, in the judgment of the Commissioner, involves any addition to, deduction from, or modification of the Work required by the Contract Documents.

**1.3 AGENCY:** The (User) Agency of the State of Connecticut having administrative authority of the facility in which the Work is being performed.

**1.4 APPLICATION FOR PAYMENT, PARTIAL PAYMENT OR REQUISITION:** Contractor's certified request for payment for completed portions of the Work and, if the Contract so provides, for materials or equipment suitably stored pending their incorporation into the Work.

**1.5 ARCHITECT OR ENGINEER:** A sole proprietor, partnership, firm, corporation or other business organization under Contract with the Owner, commissioned to prepare Contract Drawings and Specifications, to advise the Owner and in certain cases, to perform regular inspections during construction and when authorized to perform the duties of the Construction Administrator.

**1.6 AS-BUILT DRAWINGS:** Construction Drawings revised by the Contractor to show all significant Modifications made during the construction process.

**1.7 BASE BID:** Monetary value stated in the Bid Proposal Form as the sum for which the Bidder offers to perform the Work described in the Bidding Documents, exclusive of adjustments for Supplemental Bids.

**1.8 BID BOND:** Form of Bid Security executed by the Bidder as Principal and by a Surety to guarantee that the Bidder will enter into a Contract within a specified time and furnish any required bond as mandated by Connecticut General Statute Section 4b-92.

**1.9 BIDDER:** A sole proprietor, partnership, firm, corporation or other business organization submitting a Bid on the Bid Proposal Form for the Work contemplated.

**1.10 BIDDING DOCUMENTS:** Collectively, the Bidding Requirements and the proposed Contract Documents, including any addenda issued prior to receipt of Bids.

**1.11 BID OR BID PROPOSAL FORM:** A complete and duly signed proposal to perform Work (or a designated portion thereof) for a stipulated sum submitted in accordance with the Bidding Documents.

**1.12 BID SECURITY:** Certified check or Bid Bond submitted with Bid Proposal Form, which provides that the Bidder, if awarded the Contract, will execute such Contract in accordance with the requirements of the Bidding Documents.

**1.13 BUILDER'S RISK INSURANCE:** A specialized form of property insurance which provides coverage for loss or damage to the Work pursuant to the Contract Documents.

**1.14 CASH ALLOWANCE:** An amount established in the Contract Documents for inclusion in the Contract Sum to cover the cost of prescribed items not specified in detail, and as shown in the Allowance Schedule.

**1.15 CERTIFICATE OF ACCEPTANCE:** A document issued by the Owner to the Contractor stating that all Work specified in the Certificate of Acceptance has been completed and accepted by the Owner.

**1.16 CERTIFICATE OF COMPLIANCE:** A document stating that for the portion of the Project completed, either the design portion or the construction portion, has been performed in substantial compliance with all applicable building codes.

**1.17 CERTIFICATE OF OCCUPANCY:** Document issued by the authority having jurisdiction certifying that all or a designated portion of a building is approved for its designated use.

**1.18 CERTIFICATE OF SUBSTANTIAL COMPLETION:** A document prepared by the Architect or Engineer and approved by the Owner on the basis of an inspection stating:

1.18.1 that the Work, or a designated portion thereof, is determined to be Substantially Complete;

1.18.2 the date of Substantial Completion;

1.18.3 the responsibilities of the Owner and the Contractor for security maintenance, heat, utilities, damage to the Work and insurance; and

1.18.4 the time within which the Contractor shall complete the remaining Work.

**1.19 CHANGE ORDER:** Written authorization signed by the Owner, authorizing a modification in the Work, an adjustment in the Contract Sum, or an adjustment in the Contract Time.

**1.20 COMMISSIONER:** The State of Connecticut, Department of Construction Services (CT DCS) Commissioner acting directly or through specifically authorized CT DCS personnel or agent(s) having authority to perform duties defined in Article 25.

**1.21 COMMISSIONING AGENT (CxA):** An independent entity under contract directly with the Owner or Owner's Representative responsible for performing the specified commissioning procedures.

**1.22 CONSTRUCTION ADMINISTRATOR:** A sole proprietor, partnership, firm, corporation or other business organization, under Contract or employed by the Owner commissioned and/or authorized to oversee the fulfillment of all requirements of the Contract Documents. The authorized Construction Administrator may be a Department of Construction Services Assistant Project Manager, Department of Construction Services Project Manager, a Clerk of the Works, an Architect, a Consulting Architect, a Consulting Construction Administrator, a Consulting Engineer etc. or any other designee as authorized and identified by the Owner.

**1.23 CONSTRUCTION CHANGE DIRECTIVE:** A written authorization signed by the Owner, directing a modification in the Work and stating a proposed basis for adjustment, if any, in the Contract Sum, Contract Time or both. Any Construction Change Directive effecting an adjustment to the Contract Sum or Contract Time shall result in a Change Order.

**1.24 CONTRACT DOCUMENTS OR CONTRACT:** The Agreement between Owner and Contractor, Conditions of the Contract (General Conditions, Supplementary Conditions, General Requirements and other Conditions), Drawings, Specifications, and Addenda issued prior to execution of the Contract, other documents listed in the Agreement and Modifications issued after execution of the Contract, all of which shall constitute the Contract.

**1.25 CONTRACTOR OR GENERAL CONTRACTOR:** A sole proprietor, partnership, firm or Corporation, under direct Contract with the Department of Construction Services, responsible for performing the Work under the Contract Documents. Whenever the words "Contractor" or "General Contractor" are used it shall be understood to mean Contractor.

**1.26 CONTRACTOR'S LIABILITY INSURANCE:** Insurance purchased and maintained by the Contractor that insures the Contractor for claims for property damage, bodily injury or death.

**1.27 CONTRACT START DATE OR DATE OF COMMENCEMENT OF THE WORK:** The date, specified by the Owner in the Notice to Proceed, on which the Contractor is required to start the Work.

**1.28 CONTRACT SUM:** The sum stated in the Contract, which is the total amount payable by the Owner to the Contractor for performance of the Work under the Contract Documents.

**1.29 CONTRACT TIME:** The period of time allotted in the Contract Documents for Substantial Completion of the Work, including authorized adjustments thereto. The Contract Time is the sum of all Working Days and Non-Working Days as further defined herein and specified in the Contract Documents.

**1.30 DAY:** Whenever the word Day is used it shall be understood to mean calendar day stated on the Bidding Documents, unless stated otherwise.

**1.31 DEPARTMENT OF CONSTRUCTION SERVICES (CT DCS) PROJECT MANAGER:** The individual employed by the Owner, designated and authorized by the Commissioner, to be responsible for the overall management and oversight of the Project, and to represent the (User) Agency.

**1.32 DIESEL VEHICLE EMISSIONS CONTROL:** The reduction of air pollution emissions from diesel powered vehicles through the use of diesel engine emission control technologies.

**1.33 EQUAL(S):** Any deviation from the Specification which is defined as follows: A replacement for the specified material, device, procedure, equipment, etc., which is recognized and accepted as substantially equal to the first listed manufacturer or first listed procedure specified after review by the Architect/Engineer, and may be rejected or approved at the sole discretion of the Owner. All equals must be substantially equivalent to the first manufacturer or first procedure listed in the Specifications with reference to all of the following areas: the substance and function considering quality, workmanship, economy of operation, durability, and suitability for purposes intended; size, rating, and cost. The equal does not constitute a modification in the scope of Work, the Schedule, or Architect/Engineer's design intent of the specified material, device, procedure, equipment, etc.

**1.34 FINAL INSPECTION:** Review of the Work by the Architect or Engineer and Owner to determine whether Acceptance has been achieved.

**1.35 FINAL PAYMENT:** The last payment made by the Owner to the Contractor, made after notice of the Acceptance. Payment shall include the entire unpaid balance of the Contract Sum as adjusted by modifications.

**1.36 GENERAL CONDITIONS:** The General Conditions of the Contract for Construction, part of Division 00 of the Specifications.

**1.37 GENERAL REQUIREMENTS:** That part of the Contract Documents entitled General Requirements, which is Division 01 of the Specifications.

**1.38 GUARANTEE:** See Warranty.

**1.39 LIQUIDATED DAMAGES:** A sum established in a Contract, usually as a fixed sum per Day, as the predetermined measure of damages to be paid to the Owner due to the Contractor's failure to complete the Work within the Contract Time.

**1.40 LUMP SUM:** An item or category priced as a whole rather than broken down into its elements.

**1.41 MOBILE SOURCE:** A source designed or constructed to move from one location to another during normal operation except portable equipment and includes, but is not limited to, automobiles, buses, trucks, tractors, earth moving equipment, hoists, cranes, aircraft, locomotives operating on rails, vessels for transportation on water, lawnmowers, and other small home appliances.

**1.42 NON-WORKING DAYS:** All Saturdays, Sundays, Legal State Holidays (12), and any other Days identified in the Contract Documents that the Contractor is not permitted to execute the Work. The restriction of Non-Working Days may be suspended upon the approval or direction of the Commissioner.

**1.43 NOTICE TO BIDDER:** A notice contained in the Bidding Document informing prospective Bidders of the opportunity to submit Bids on a Project.

**1.44 NOTICE TO PROCEED:** Written notice, issued by the Commissioner or the Commissioner's authorized representative, to the Contractor authorizing the Contractor to proceed with the Work and establishing the date for commencement of the Contract Time.

**1.45 OWNER OR DEPARTMENT:** The State of Connecticut, Department of Construction Services acting through its Commissioner or specifically authorized Department personnel or agent.

**1.46 OVERHEAD:** Indirect costs including: supervision (any position over the foreman), field and home office expense, insurance, and small tools and consumables.

**1.47 PAYMENT, BOND, LABOR BOND OR MATERIAL BOND:** A bond in which the Contractor and the Contractor's surety guarantee to the Owner that the Contractor will pay for labor and materials furnished for use in the performance of the Contract, as required by Connecticut General Statutes Section 49-41.

**1.48 PERFORMANCE BOND OR SURETY BOND:** A bond in which the Contractor and the Contractor's surety guarantee to the Owner that the Work will be performed in accordance with the Contract Documents, as required by Connecticut General Statutes Section 49-41.

**1.49 PERFORMANCE SPECIFICATION:** A description of the desired results or performance of a product, material, assembly, procedure, or a piece of equipment with criteria for identifying the standard.

**1.50 PLANS OR DRAWINGS:** All Drawings or reproductions of Drawings pertaining to the construction of the Work contemplated and its appurtenances.

**1.51 PROJECT:** The total construction of which the Work performed under the Contract Documents may be the whole or a part.

**1.52 PROJECT MANUAL:** The set of documents assembled for the Work which includes, but is not limited to, Contract Documents, Bidding Requirements, Sample Forms, General Conditions of the Contract for Construction, General Requirements, and the Specifications.

**1.53 PROPRIETARY SPECIFICATION:** A specification that describes a product, procedure, function, material, assembly, or piece of equipment by trade name and/or by naming the manufacturer(s) or manufacturer's procedure, exact model number, item, etc., of those products acceptable to the Owner.

**1.54 RETAINAGE:** A percentage of each Application for Payment and a percentage of the total Contract Sum retained by the Owner.

**1.55 SCHEDULE:** A Critical Path Method (CPM) or Construction Schedule as required by the Contract Documents which shall be a diagram, graph or other pictorial or written Schedule showing all events expected to occur and operations to be performed and indicating the Contract Time, start dates, durations and finish dates as well as Substantial Completion and Acceptance of the Work, rendered in a form permitting determination of the optimum sequence and duration of each operation.

**1.56 SCHEDULE OF VALUES:** A document furnished by the Contractor to the Architect or Engineer and Owner stating the portions of the Contract Sum allocated to the various portions of the Work, which is to be used for reviewing the Contractor's Applications for Payment.

**1.57 SECONDARY SUBCONTRACTOR:** A sole proprietor, partnership, firm or Corporation under direct Contract with the Subcontractor to the General Contractor.

**1.58 SENSITIVE RECEPTOR SITES:** Areas where concentrations of diesel emissions may be harmful to sensitive populations, including, but not limited to, hospitals, school and university buildings being occupied during a student semester, residential structures, daycare facilities, elderly housing, and convalescent facilities.

**1.59 SHOP DRAWINGS:** Drawings provided to Architect or Engineer and Owner by a Contractor that illustrate construction, materials, dimensions, installation, and other pertinent information for the incorporation of an element or item into the construction as detailed Contract Documents.

**1.60 SPECIFICATIONS:** The description, provisions and other requirements pertaining to the method and manner of performing the Work and/or to the quantities and quality of materials to be furnished under the Contract.

**1.61 SUBCONTRACTOR:** A sole proprietor, partnership, corporation or other business organization under direct Contract with the Contractor supplying labor and/or materials for the Work at the site of the Project.

**1.62 SUBMITTALS:** Documents including, but not limited to, samples, manufacturer's data, Shop Drawing, or other such items submitted to the Owner and Architect or Engineer by the Contractor for the purpose of approval or other action, as required by the Contract Documents.

**1.63 SUBSTANTIAL COMPLETION:** The stage in the progress of the Work when the Work or designated portion thereof is sufficiently complete in accordance with the Contract Documents.

**1.64 SUBSTITUTION:** Any deviation from the specified requirements, which is defined as follows: A replacement for the specified material, device, procedure, equipment, etc., which is not recognized or accepted as equal to the first manufacturer or procedure listed in the Specification after review by the Architect/Engineer, and may be rejected or approved by the Owner. The Substitution is not equal to the specified requirement in comparison to the first manufacturer or first procedure listed in the Specifications in one or more of the following areas: the substance and function considering quality, workmanship, economy of operation, durability, and suitability for purposes intended; size, cost, and rating. The Substitution constitutes a modification in the scope of Work, the Schedule, or the Architect/Engineer's design intent of the specified material, device, procedure, equipment, etc.

**1.65 SUPERINTENDENT:** The Contractor's representative at the site who is responsible for continuous field supervision, coordination, in, completion of the Work, and, unless another person is designated in writing by the Contractor to the Owner and the Construction Administrator, for the prevention of accidents.

**1.66 SUPPLEMENTAL BID:** The monetary value stated in the Bid to be added to the amount of the Base Bid if the corresponding Work, as described in the Bidding Documents, is accepted.

**1.67 SUPPLEMENTARY CONDITIONS:** An extension in the Bid to be added to the amount of the Base Bid if the corresponding Work, as described in the Bidding Documents, is accepted.



**1.68 THRESHOLD LIMIT BUILDING:** Any proposed (new) structures or additions as defined by the Connecticut General Statutes Section 29-276b.

**1.69 UNIT PRICE:** The monetary value stated by the Owner or the Contractor, as a price per unit of measurement for materials or services as described in the Contract Documents and/or Bidding Documents.

**1.70 WARRANTY:** A written, legally enforceable assurance of specified quality or performance of a product or Work or of the duration of satisfactory performance.

**1.71 WORK:** The construction and services required by the Contract Documents, and including all labor, materials, equipment and services provided or to be provided by the Contractor to fulfill the Contractor's obligations. The Work may constitute the whole or a part of the Project and "Work Phase".

**1.72 WORK PHASE:** Construction of the Project by sequence or time intervals, which may include but not be limited to separate Construction Start Dates, Substantial Completion Dates, Application for Payments, Change Orders, Liquidated Damages, Retainage, and Subcontractors for each Work Phase.

## **ARTICLE 2** **CONDITIONS OF WORK**

**2.1** The Contractor shall carefully examine and study the conditions under which the Work is to be performed and the site of the Work, and compare the Contract Documents with each other and to information furnished by the Owner including but not limited to the Plans and Specifications, the form of the Contract, General Conditions, Supplementary Conditions, General Requirements, Bonds and all other Contract Documents associated with the Work.

**2.2** The Contractor shall report to the Construction Administrator all errors, inconsistencies or omissions discovered. The Contractor shall not be liable to the Owner for damage resulting from errors, inconsistencies or omissions in the Contract Documents unless the Contractor recognized such errors, inconsistencies or omission and failed to report it to the Construction Administrator. If the Contractor performs any actions or construction activity knowing it involves an error, inconsistency or omission in the Contract Documents without notice to the Construction Administrator, the Contractor shall assume responsibility for such performance and related costs for the correction and shall not be allowed to submit any claim related to error, inconsistencies or omission.

**2.3** The Contractor shall take field measurements and verify field conditions and shall carefully compare such field measurements and conditions and other information known to the Contractor with the Contract Documents before commencing activities. Errors, inconsistencies or omissions discovered shall be reported to the Construction Administrator at once; and it will be assumed that the Contractor has been satisfied as to all requirements of the Contract Documents. Any deterrent conditions at the site of the Work which are obvious and apparent upon examination of the site but are not indicated on the Plans shall be corrected by the Contractor without additional compensation.

**2.4** In performing the Work, the Contractor must employ such methods or means as will not cause any interruption of or interference with the Work of any other Contractor, nor any inordinate disruption with the normal routine of the Owner, institution or Agency operating at the site.

**2.5** No claims for additional compensation will be considered when additional costs result from conditions made known to, discovered by, or which should have been discovered by, the Contractor prior to Contract signing.

**2.6** All Communications from the Contractor concerning proposed changes to the Contract Sum, Contract Time, or Work shall be in writing.

**2.7** The Contractor shall perform the Work in accordance with the Contract Documents and approved Submittals pursuant to Article 5.

## **ARTICLE 3** **CORRELATION OF CONTRACT DOCUMENTS**

**3.1** The Contract Documents are complementary, and what is called for by any one shall be as binding as if called for by all. Where discrepancies or conflict occur in the Contract Documents the following order of precedence shall be utilized:

**3.1.1** Amendments and addenda shall take precedence over previously issued Contract Documents.

**3.1.2** The Supplementary Conditions take precedence over the General Conditions.

**3.1.3** The General Conditions take precedence over the General Requirements.

**3.1.4** The Specifications shall take precedence over the Plans.

**3.1.5** Stated dimensions shall take precedence over scaled dimensions.

**3.1.6** Large-scale detail Drawings shall take precedence over small-scale Drawings.

**3.1.7** The Schedules contained in the Contract Documents shall take precedence over other data on the Plans.

**3.2** Neither party to the Contract shall take advantage of any obvious error or apparent discrepancy in the Contract Documents. The Contractor shall give immediate written notification of any error or discrepancy discovered to the Construction Administrator, who shall take the necessary actions to obtain such corrections and interpretations as may be deemed necessary for the completion of the Work in a satisfactory and acceptable manner. The Contractor shall then promptly proceed under the direction of the Owner and the provisions of Article 13. The Contractor's failure to provide immediate notice shall mean the Contractor will not be entitled to any additional compensation, either monetary or Contract Time adjustment, with respect to any discrepancy.

**3.3** Execution of the Contract by the Contractor is a representation that the Contractor has visited the site, become familiar with local conditions under which the Work is to be performed, and correlated personal observations with requirements of the Contract Documents.

**3.4** Organization of the Specifications into divisions, sections and articles, and arrangement of Drawings, shall not control the Contractor in dividing the Work among Subcontractors or in establishing the extent of Work to be performed by any trade.

**3.5** Unless otherwise stated in the Contract Documents, words which have well-known technical or construction industry meanings are used in the Contract Documents in accordance with such recognized meanings.

**3.6** In accordance with C.G.S. Section 4a-1, wherever the term "Commissioner of Construction Services" is used in the "Bidding Documents" or "Project Manual" the term "Commissioner of Administrative Services" shall be substituted in lieu thereof; and wherever the term "Department of Construction Services" is used in "Bidding Documents" or "Project Manual", the term "Department of Administrative Services" shall be substituted in lieu thereof.

#### **ARTICLE 4**

#### **COMMENCEMENT AND PROGRESS OF WORK**

**4.1** The Work shall start upon the date given in the Notice to Proceed. The Contractor shall complete all the Work necessary for Final Payment, including but not limited to Substantial Completion, Contract close-out, testing and demonstration of all systems as required for Acceptance, punchlist Work, training and submission of Record Documents, manuals, Guarantees and Warranties as stated in the Contract Document.

**4.2** Time is of the essence with respect to the Contract Time. By executing the Contract, the Contractor confirms and agrees that the Contract Time is a reasonable period to perform the Work. The Contractor shall proceed expeditiously with adequate forces and shall achieve Substantial Completion within the Contract Time. The Contractor may, at his discretion, plan to complete the Work and achieve Substantial Completion in less time than the Contract Time.

**4.3** The Contractor's early completion Schedule notwithstanding, the Owner reserves the right to order Modifications to the Work in accordance with Article 13 at any time during the Contract Time.

**4.4** The Contractor shall not be entitled to costs for delay due to Owner ordered Modifications or any other circumstances for the period of time between the Contractor's elected early completion and the end of the Contract Time. Such costs include, but are not limited to, extended home office costs, field office costs, or supervisory and management costs incurred in performance of the Work. Early completion of the Work shall not merit additional compensation.

**4.5** If the Contractor is delayed at any time in the progress of Work by acts of God, such as fire or flood or any action, injunction or stop order issued by any court, judge or officer of the court or any other court action beyond the Owner's control, then the Contract Time may be extended by Change Order for such reasonable time as demonstrated by the Contractor's Schedule and as the Owner may determine that such event has delayed the Work. In any event, the granting of an extension of time shall be solely within the discretion of the Owner.

**4.6** Except as otherwise may be provided herein, extensions of time shall be the Contractor's sole remedy for such delay. No payment or compensation of any kind shall be made to the Contractor for damages because of hindrance in the orderly progress of Work caused by the aforesaid causes.

**4.7** The Contractor acknowledges that the Contract amount includes and anticipates any and all delays, whether avoidable or unavoidable, from said orders, which may issue from any court, judge, court officer, or act of God, and that such delays shall not, under any circumstances, be construed as compensable delays.

**4.8** Any extension of the Contract Time shall be by Change Order pursuant to Article 13.

**4.9** The Contractor shall employ a competent project manager who shall represent the Contractor. Communications given to the project manager shall be binding as if given to the Contractor. The project manager will be employed full time on the Project and be located and assigned to the Project site during and for the duration of the Work.

**4.10** The Contractor shall employ a competent Superintendent and necessary assistants who will be in attendance at the project site during the performance of the Work.

**4.11** Upon execution of the Contract, materials may be purchased. No material escalation costs will be valid or compensable unless the Owner directs, in writing, a delay in the procurement.

**ARTICLE 5**  
**SUBMITTALS, PRODUCT DATA, SHOP DRAWINGS AND SAMPLES**

**5.1** Contractor shall review, approve, and submit to the Construction Administrator all Submittals including but not limited to, product data, Shop Drawings, and samples, with such promptness as to cause no delay in the Work.

**5.2** Correction or approval of such Submittals, Shop Drawings, product data and samples will be made with reasonable promptness by the Architect or Engineer. Approval will be general only and shall not relieve the Contractor from responsibility for errors in dimensions, for construction and field coordination of the Work or for any departure from the Contract Documents, unless such departure has received the Owner's written approval.

**5.3** No Work governed by such Shop Drawings, Schedules or samples shall be fabricated, delivered or installed until approved by the Architect or Engineer.

**5.4** No damages for delays or time extensions will be granted, even if approvals deviate from the approved Schedule.

**ARTICLE 6**  
**SEPARATE CONTRACTS**

**6.1** The Owner reserves the right to perform Work in connection with the Contract with the Owner's own forces, or to let separate contracts relating to the Contract (Project) site or in connection with Work on adjoining sites. In such cases, the Contractor shall afford such parties reasonable opportunity for storage of materials and equipment and coordinate and connect the Work with the work on adjoining sites or other Projects, and shall fully cooperate with such parties in the matter required under Article 7 herein.

**6.2** Contractors working in the same vicinity shall cooperate with one another and, in case of dispute, decision of the Owner shall be final and binding to all Contractors involved, including Contractors under separate Contracts.

**6.3** The Contractor shall assume all liability, financial or otherwise, in connection with this Contract and shall protect and hold harmless the Owner from any and all damages or claims that may arise because of inconvenience or delay which the Contractor may cause other Contractors. If the Contractor experiences a loss because of the presence and operations of other Contractors working adjacent to or within the limits of the same Project, then as between the Owner and the Contractor, the Contractor shall bear such loss.

**6.4** Insofar as possible, the Contractor shall arrange the Work and shall place and dispose of the materials being used so as not to interfere with the operations of other Contractors adjacent to or within the limits of the same Project. The Contractor shall join its Work with that of others in an acceptable manner, and perform the Work in proper accordance with that of the others.

**6.5** In no event shall the Owner be responsible for any claim or damages that are the result of the Contractor's failure to coordinate the Work with any other Contractor or Subcontractor.

**ARTICLE 7  
COOPERATION OF TRADES**

**7.1** The Contractor shall be responsible for and shall control all activities of their Subcontractors. The Subcontractors shall consult and cooperate with one another. Each Subcontractor shall furnish all necessary information to other Subcontractors and shall lay out and install their own Work so as to avoid any delays or interference with the Work of others.

**7.2** Any cost or changes, cutting and/or repairing, made necessary by the failure to observe the above requirements shall be borne by the party or parties responsible for such failure or neglect or their faulty Work installed.

**ARTICLE 8  
DAMAGES**

**8.1** The Liquidated Damages, provided in the Bidding Documents, will be assessed at two distinct times, as follows:

**8.1.1 Liquidated Damages – Substantial Completion:**

If the Contractor fails to achieve Substantial Completion of the Work by the Substantial Completion Date, and such delay is not otherwise excused under this Contract, then the Contractor agrees to pay to the Owner Liquidated Damages for the dollar amount specified in the Bid Proposal Form for this Project, for each Day beyond Substantial Completion that the Contractor fails to achieve Substantial Completion. The parties to this Contract acknowledge and agree that the actual damages that are to be anticipated as a result of the neglect, failure, or refusal of the Contractor to substantially complete the Project by the established Substantial Completion Date are uncertain in amount or extremely difficult to determine. Accordingly, the parties to this Contract do intend and in fact now agree to liquidate damages in advance and stipulate that the amount set forth in this subparagraph is reasonable and an appropriate remedy and is intended to constitute compensatory damages and does not constitute a penalty of any kind. The parties understand and agree that, by including a provision for Liquidated Damages in this Contract, or in pursuing any relief pursuant to such provision:

- .1 the parties do not intend to set a price for the privilege not to perform;
- .2 the availability of Liquidated Damages may not be relied upon as a basis for argument that the Owner has an adequate remedy at law; and
- .3 the remedies available to the Owner under this Agreement are cumulative and not exclusive.

**8.1.2 Liquidated Damages – Acceptance:**

If the Contractor fails to complete all of the Work required for Acceptance of the Work within ninety (90) Days of Substantial Completion then the Contractor agrees to pay to the Owner Liquidated Damages for the dollar amount specified in the Bid Proposal Form for each Day in excess of ninety (90) Days beyond the Substantial Completion Date that the Contractor fails achieve Acceptance. The parties to this Contract acknowledge and agree that the actual damages that are to be anticipated as a result of the failure of the Contractor to complete all of the Work required for Acceptance within ninety (90) Days of the established Substantial Completion Date are uncertain in amount or extremely difficult to determine. Accordingly, the parties to this Contract do intend and in fact now agree to liquidate damages in advance and stipulate that the amount set forth in this subparagraph is reasonable and an appropriate remedy and is intended to constitute compensatory damages and does not constitute a penalty of any kind. The parties understand and agree that, by including a provision for Liquidated Damages in this Contract, or in pursuing any relief pursuant to such provision:

- .1 the parties do not intend to set a price for the privilege not to perform;
- .2 the availability of Liquidated Damages may not be relied upon as a basis for argument that the Owner has an adequate remedy at law; and
- .3 the remedies available to the Owner under this Agreement are cumulative and not exclusive.

**8.2** The Liquidated Damages or any portion thereof may be waived at the sole discretion of the Commissioner.

**8.3** No payment by the Owner, either partial or final, shall be construed to waive the Owner's right to seek Liquidated Damages.

**8.4** In the event a court determines that the Contract herein is null and void for any reason, Contractor agrees that Contractor will not seek or pursue any lawsuit or claim for damages, including, but not limited to, claims for loss of Overhead or anticipated profits, against the Owner and the Owner shall not be liable for any damages which Contractor may incur as a result of such decision. In addition, if the court enjoins the Owner from entering into or proceeding with the Contract herein, the Owner shall not be liable for any damages arising out of or relating to the award of such Contract which Contractor may have incurred as a result of the injunction.

**ARTICLE 9  
MINIMUM WAGE RATES**

**9.1** In accordance with the provisions of the Connecticut General Statutes Section 31-53, the following applies:

"The wages paid on an hourly basis to any person performing the work of any mechanic, laborer, or worker on the work herein contracted to be done and the amount of payment or contribution paid or payable on behalf of each such person to any employee welfare fund, as defined in subsection (h) of this section, shall be at a rate equal to the rate customary or prevailing for the same work in the same trade or occupation in the town in which such public works project is being constructed. Any contractor who is not obligated by agreement to make payment or contribution on behalf of such persons to any such employee welfare fund shall pay to each mechanic, laborer or worker as part of such person's wages the amount of payment or contribution for such person's classification on each payday."

**9.2** Each Contractor who is awarded a Contract on or after October 1, 2002 shall be subject to provisions of the Connecticut General Statutes, Section 31-53 as amended by Public Act 02-69, "An Act Concerning Annual Adjustments to Prevailing Wages." No wage adjustment will be made to the Contract for any wage increase under this Article.

**ARTICLE 10  
POSTING MINIMUM WAGE RATES**

**10.1** The Contractor shall post at conspicuous points on the site of the Contract a Schedule showing all determined wage rates for all trades and all authorized deductions, if any, from wages to be paid.

**10.2** The Contractor shall provide weekly certified payrolls to the Owner for all persons working on the site.

**ARTICLE 11  
CONSTRUCTION SCHEDULES**

**11.1** Unless otherwise specified in the Contract Documents, within twenty-one (21) Days from the Contract Start Date, the Contractor shall submit the following to the Owner for approval:

**11.1.1** A comprehensive Schedule of Submittals required by the Specifications. Said Schedule shall include Submittal dates, required approval dates and date material must be on site.

**11.1.2** The Contractor shall allow a minimum of 14 Days for the Owner and its agents' review of Submittals. No extension of the Contract Time shall be granted for revisions and resubmission. Further, the Contractor shall allow a minimum of eight weeks for testing and Acceptance of the Work by the Owner.

**11.1.3** When the Contract Documents specify a "CPM Schedule" a detailed Critical Path Method Schedule is required using software approved by the Owner and/or Construction Administrator with as many activities as necessary to make the Schedule an effective tool for planning and monitoring the progress of the Work. The Contractor shall show all pertinent activities requiring coordination between trades.

**11.1.4** When the Contract Documents specify a "Construction Schedule" a detailed Construction Schedule is required using software approved by the Owner as a horizontal bar chart with a separate bar for each major portion of the Work or operation to make the Schedule an effective tool for planning and monitoring the progress of the Work.

**11.2** Unless otherwise specified under the Contract Documents, the Contractor shall provide a monthly update of the CPM Schedule or Construction Schedule in the format required by the Owner as well as a disk of the updated Schedule and program. If, in the opinion of the Owner, the Work is falling behind Schedule, the Contractor shall submit a revised Schedule demonstrating a recovery plan to ensure Substantial Completion of the Work within the Contract Time.

**11.3** Overtime, increased manpower, and additional shifts: If ordered by the Owner in writing, the Contractor shall work overtime, and/or add additional manpower and/or shifts:

**11.3.1** If the Contractor is not behind Schedule, the Owner will pay the Contractor the actual additional premium portion of the wages for overtime or additional shift work not included in the Contract price, but the Contractor shall not be entitled to Overhead and Profit.

**11.3.2** If the Contractor, through its sole or partial fault or neglect is behind Schedule, the Owner may order the Contractor, at the Contractor's expense, to increase its manpower or to work any overtime or additional shifts or take other action necessary to expedite the Work to meet the Project Schedule.

**11.3.3** If the Schedule is shown to be more than 21 Days behind in any critical activity, overtime, increase manpower and/or additional shifts shall be implemented immediately regardless of who is at fault. A disagreement over the cause of the impact will not relieve the Contractor from the obligation of complying with this Article. Once liability for the impact is determined, compensation will be determined in accordance with 11.3.1 or 11.3.2.

**11.3.4** The Owner reserves the right to suspend activity under Paragraph 11.3. Suspension shall be in writing and at the sole discretion of the Commissioner.

**11.4** Requisitions for partial payment will not be processed until the Contractor has complied with this requirement.

## **ARTICLE 12** **PREFERENCE IN EMPLOYMENT**

**12.1** Should this Contract be for the construction or repair of any building, then in the employment of labor to perform the Work specified herein, preference shall be given to citizens of the United States, who are, and continuously for at least three (3) months prior to the date hereof, have been residents of the labor market area, as established by the State of Connecticut Labor Commissioner, in which such Work is to be done, and if no such qualified person is available, then to citizens who have continuously resided in the county in which the Work is to be performed for at least three (3) months prior to the date hereof, and then to citizens of the state who have continuously resided in the State at least three months prior to the date hereof.

**12.2** Should this Contract be for a public works project other than for the construction, remodeling or repairing of public buildings covered by Connecticut General Statutes 31-52, then in the employment of mechanics, laborers or workmen to perform the Work specified herein, preference will be given to residents of the state who are, and continuously for at least six (6) months prior to the date hereof have been residents of this State, and if no such person is available then to residents of other states.

**12.3** The provisions of this Article shall not apply where the state or any subdivision thereof may suffer the loss of revenue granted or to be granted from any Agency or Department of the federal government as a result of this Article or regulations related thereto.

## **ARTICLE 13** **COMPENSATION FOR CHANGES IN THE WORK**

**13.1** At any time, without invalidating the Contract and by a written order and without notice to the sureties, the Owner, through the Construction Administrator, may order modifications in the Work consisting of additions, deletions or other revisions. Upon request, the Contractor shall supply the Construction Administrator promptly with a detailed proposal for the same, showing quantities of and Unit Prices for the Work and that of any Subcontractor involved.

**13.2** Modifications to the Work will be authorized by a written Change Order, or if necessary to expedite the Work, a written Construction Change Directive, issued by the Owner as provided for in Article 25. Change Orders and Construction Change Directives shall be processed in accordance with the terms of the Contract Documents. Upon receipt of the written Change Order, the Contractor shall proceed with the Work when and as directed.

**13.3** If a Change Order makes the Work less expensive for the Contractor, the proper deductions shall be made from the Contract Sum, said deductions to be computed in accordance with the provisions listed in this Article 13.

**13.4** The Contractor shall not be entitled to an extension of time if in the opinion of the Owner the Additional Work in conjunction with the Work can be performed without impact on the Contract Time.

**13.5** The Contractor may request, and the Owner may grant additional Contract Time when, in the opinion of the Owner, the Contractor has demonstrated that the Additional Work cannot be performed in conjunction with the Work without impact on the original Substantial Completion and/or Acceptance (if applicable) date.

**13.6** The amount of compensation to be paid to the Contractor for any Additional or Deleted Work that results in a Change Order shall be determined in one of the following manners:

**13.6.1 AMOUNT OF COMPENSATION FOR CHANGE ORDER COSTS: LABOR, EQUIPMENT, BENEFITS AND MATERIAL:**

**13.6.1.1 Unit Price:** As stated in the Contract Documents.

**13.6.1.2 Unit Price:** As subsequently agreed upon by the Contractor and Owner

**13.6.1.3 Lump Sum:** Agreed upon sum by the Owner and the Contractor. The Owner may rely on costs, prices, and documentation provided by the Contractor or Subcontractor in agreeing to a Lump Sum. If the Owner believes that additional information is necessary to substantiate the accuracy of the cost, the Owner reserves the right to request and receive additional information from the Contractor. The Lump Sum must be based upon the following itemized costs:

**13.6.1.3.1 Labor:** (Contractor's or Subcontractor's own forces) No Change Order Proposal shall be negotiated if the request is solely for the increased labor rate over those originally carried by the Contractor in its original bid. Additional foreman hours shall not be included unless additional crews are added and/or a compensable time extension is granted. Project Executive time shall not be included as a direct cost as it is part of the overhead mark-up allowed. Project manager hours shall not be included unless a compensable time extension is granted.

**13.6.1.3.2 Material:** (Actual cost to the Contractor or Subcontractor) Cost shall not be based upon list pricing unless it reflects the actual prices being paid and no discounts or other offsets are being received by the Contractor or Subcontractor. No Change Order Proposal shall be negotiated if the request is solely for the escalation of material prices over those originally carried by the Contractor in its original bid.

**13.6.1.3.3 Benefits:** (The established rates of the following benefit costs inherent to the particular labor involved):

**13.6.1.3.3.1** Workers Compensation.

**13.6.1.3.3.2** Federal Social Security.

**13.6.1.3.3.3** Connecticut Unemployment Compensation.

**13.6.1.3.3.4** Fringe Benefits.

**13.6.1.4 Rented Equipment:** (Used directly on the Work and by the Contractor's or Subcontractor's own forces).

**13.6.1.5 Owned Equipment:** (Used directly on the Work and by the Contractor's or Subcontractor's own forces). Daily rate is not to exceed 3% of the monthly rental rate as identified by a nationally recognized construction cost estimating guide or service.

**13.6.1.6 Small Tools:**

Include items such as shovels, picks, rakes, ladders, and power tools which are expected to be utilized on a project. Trade related equipment, hand tools, and power tools normally supplied with the labor or are normally expected to be owned in the performance of the typical work for a trade are not compensable. These costs shall not be approved as part of the Direct Cost of a Change Order as they are included in the Contractor's overhead mark-up percentage.

**13.6.2 OVERHEAD AND PROFIT PERCENTAGES:** (Maximum allowable percentages applied to labor, equipment, and material)

**13.6.2.1** Contractor's mark-up for Work performed by its own forces:

Change Order Amount	Overhead and Profit
\$0 to \$5,000	20%
\$5,001 to \$15,000	17%
\$15,001 to \$25,000	15%
\$25,000 and greater	12%

**13.6.3 OVERHEAD AND PROFIT PERCENTAGES:** (Maximum allowable percentages applied to labor, equipment, benefits and material)

**13.6.3.1** Contractor's mark-up for Work performed by its Subcontractor's forces and not allowable for any subsidiary in which the Contractor has a majority ownership:

Change Order Amount	Overhead and Profit
\$0 and greater	6%

**13.6.4 OVERHEAD AND PROFIT PERCENTAGES:** (Maximum allowable percentages applied to labor, equipment, benefits and material) Subcontractor's mark-up for Work performed by its own forces:

Change Order Amount	Overhead and Profit
\$0 to \$5,000	20%
\$5,001 to \$15,000	17%
\$15,001 to \$25,000	15%
\$25,000 and greater	12%

**13.6.5 OVERHEAD AND PROFIT PERCENTAGES:** (Maximum allowable percentages applied to labor, equipment, benefits and material)

**13.6.5.1** Subcontractor's mark-up for Work performed by its Secondary Subcontractor's forces. Limited to one level (tier) below the Subcontractor and not allowable for any subsidiary in which the Subcontractor has a majority ownership.

Change Order Amount	Overhead and Profit
\$0 and greater	6%

### 13.7 BOND COSTS

**13.7.1** Actual additional bonding costs associated with the value of the Change Order will be compensable only when supported by written documentation by the bonding company that the Change Order requires an increase to the original Performance, Payment, Labor or Material Bond.

**13.7.2** The Contractor shall notify the bonding company at each \$500,000 increase to the contract value as the cumulative result of change orders. A copy of the Consent of Surety must be provided to the Owner prior to the execution of any change order which exceeds each cumulative \$500,000.

**13.8** Trade discounts, rebates, and amounts received from the sales by the Contractor of surplus materials and equipment shall accrue to the Owner.

**13.9** If the parties cannot agree upon a Lump Sum, then the Commissioner, through the Project Manager, may at the option of the Commissioner take the following action(s):



**13.9.1** Issue a Construction Change Directive for the Additional or Deleted Work. The amount of compensation shall be computed by the actual net costs to the Contractor determined by time and material or Unit Prices based upon the same information required in Subparagraphs 13.6.1.3.3.1 through 13.6.1.5:

**13.9.1.1 Labor:** (Contractor's or Subcontractor's own forces).

**13.9.1.2 Material:** (Used by Contractor's or Sub-contractor's own forces).

**13.9.1.3 Benefits:** (The established rates of the following benefit costs inherent to the particular labor involved):

**13.9.1.3.1 Workers Compensation.**

**13.9.1.3.2 Federal Social Security.**

**13.9.1.3.3 Connecticut Unemployment Compensation.**

**13.9.1.3.4 Fringe Benefits.**

**13.9.1.4 Rented Equipment:** (Used directly on the Work and by the Contractor's or Subcontractor's own forces).

**13.9.1.5 Owned Equipment:** (Used directly on the Work and by the Contractor's or Subcontractor's own forces). Daily rate is not to exceed 3% of the monthly rental rate that can be identified by a nationally recognized construction cost estimating guide or service.

**13.9.2** Issue a Change Order adjusting the Contract Sum in the amount as determined by the Commissioner.

**13.10** For any Change Order or Construction Change Directive the Contractor shall, when requested, promptly furnish in a form satisfactory to the Construction Administrator and the Owner a complete detailed accounting of all costs relating to the Additional Work, including but not limited to certified payrolls and copies of accounts, bills and vouchers to substantiate actual costs. Further, the Owner reserves the right to access and make copies of the Contractor's records at any time upon written request from the Commissioner.

**13.11** Failure of the Contractor to negotiate in good faith issues of time and costs or failure to provide requested documentation within fourteen (14) Days, or a time period accepted by the Commissioner, shall constitute a waiver by the Contractor of any claim. In such cases the Owner may elect to issue a unilateral Change Order in an amount deemed to be fair and equitable by the Commissioner. The provisions hereof shall not affect the power of the Contractor to act in case of emergency, threatened injury to persons, or damage to Work on any adjoining property. In this case the Commissioner, through the Project Manager, shall issue a Change Order for such amount as the Commissioner finds to be reasonable cost of such Work.

## **ARTICLE 14** **DELETED WORK**

**14.1** Without invalidating any of the terms of the Contract, the Commissioner may order deleted from the Contract any items or portions of the Work deemed necessary by the Commissioner.

**14.2** The compensation to be deducted from the Contract Sum for such deletions shall be determined in the manner provided for under the provisions of Article 13 or in the event none of the provisions of Article 13 are applicable then by the value as estimated by the Owner.

## **ARTICLE 15** **MATERIALS: STANDARDS**

**15.1** Unless otherwise specifically provided for in the Specifications, all equipment, materials and articles incorporated in the Work are to be new and of the best grade of their respective kinds for the purposes. Wherever in the Contract Documents a particular brand, make of material, device, or equipment is shown or specified, the first manufacturer listed in the specification section is to be regarded as the standard. When the specification is proprietary and only one manufacturer is listed, the Contractor shall use the named manufacturer and no Substitutions or Equals will be allowed.

**15.2** Any other brand, make of material, device, equipment, procedure, etc. which is a deviation from the specified requirement is prohibited from use, but may be considered by the Owner for approval as an Equal or Substitution. The Contractor is to adhere to the specific requirements of the Contract Documents. Substitutions are discouraged and are only approved by the Commissioner as an exception.

**15.3 Submittals – Equals and Substitution Requests:**

**15.3.1 Substitution of Materials and Equipment before Bid Opening.** The Owner will consider requests for Equals or Substitutions, if made prior to the receipt of the Bid. The information on all materials shall be consistent with the information herein.

**15.3.1.1** Statement of Variances – a statement of variances must list all features of the proposed Substitution which differ from the Drawings, Specifications and/or product(s) specified and must further certify that the Substitution has no other variant features. A request will be denied if submitted without sufficient evidence.

**15.3.1.2** Substitution Denial – any Substitution request not complying with the above requirements will be denied. Substitution request sent after the deadline established in the Notice to Bidder will be denied.

**15.3.1.3** An addendum shall be issued to inform all prospective Bidders of any accepted Substitution in accordance with Owner's addenda procedures.

**15.3.2 Substitution of Materials and Equipment After Bid Opening:** Subject to the Architect or Engineer's determination, if the material or equipment is Equal to the one specified or pre-qualified and the CT DCS Project Manager's approval of such determination, Substitution of Material or Equipment may be allowed after the Letter of Award is issued only:

**15.3.2.1** If the specified or pre-qualified item is delayed by unforeseeable contingencies beyond the control of the Contractor which would cause a delay in the Project completion;

**15.3.2.2** If any specified or pre-qualified item is found to be unusable or unavailable due to a change by the manufacturer or other circumstances; or

**15.3.2.3** If the Contractor desires to provide a more recently developed material, equipment, or manufactured model from the same named manufacturer than the one specified or pre-qualified; or

**15.3.2.4** If the specified material and/or equipment inadvertently lists only a single manufacturer.

**15.4** Contractor shall submit each request for Equal or Substitution to the Architect or Engineer who shall review each request and make the following recommendations to the Owner:

**15.4.1** Acceptance or non-acceptance of the adequacy of the submission and required back-up,

**15.4.2** Determination of the category of the request for Substitution or Equal, and

**15.4.3** Overall recommendation for approval or rejection of the Substitution or Equal. The determination of the category as a Substitution may be grounds for an immediate rejection by the Owner.

**15.5** Approval of the Owner for each Equal or Substitution shall be obtained before the Contractor proceeds with the Work. The decision of the Commissioner, in this regard, shall be final and binding on the Contractor.

**15.6** No extension of time will be allowed for the time period required for consideration of any Substitution or Equal. No extension of time will be allowed and no responsibility will be assumed by the Owner when a Contractor submits a request for Substitution or Equal, whether such request be approved or denied, and the Contractor shall not be entitled to any claim for damages for delay.

**15.7** If the Contractor submits any request for an Equal or a Substitution, he shall bear the burden of proof that such requested Equal or Substitution meets the requirements of the Plans and Specifications.

**15.8** The Contractor shall purchase no materials or supplies for the Work which is subject to any chattel mortgage or which are under a conditional sale or other agreement by which an interest is retained by the seller. The Contractor warrants that the Contractor has good title to all materials and supplies used by him in the Work.

**15.9** All products and systems supplied to the State as a result of a purchase by a Contractor shall be certified that, to the best of the supplier's knowledge, there are no materials that are classified as hazardous materials being used within the assembly. Hazardous materials include, but are not limited to, products such as asbestos, lead, and other materials that have proven to cause a health risk by their presence.

## **ARTICLE 16** **INSPECTION AND TESTS**

**16.1** The purpose of the inspections will be to assure that the Work is performed in accordance with the Contract Documents. These inspections shall include, but not be limited to, all inspections and testing as required by the Owner, and any authorities have jurisdiction.

**16.2** All material and workmanship, if not otherwise designated by the Specifications, shall be subject to inspection, examination and test by the Commissioner at any and all times during manufacture and/or construction and at any and all places where such manufacture and/or construction is carried on. The Contract Documents additionally identify the parties responsible for performing and paying for the required testing and inspections. All required tests performed in a laboratory will be obtained and paid for by the Owner, except when the tests show the Work to be defective. The Contractor shall pay for all the costs associated with re-tests and re-inspections for all tests and inspections which fail. The Owner will issue a deduct Change Order to recover said retesting costs from the Contractor. All other tests, unless otherwise specified, shall be made at the Contractor's expense. Notice of the time of all tests to be made at the site shall be given to all interested parties, including the Owner.

**16.3** Without additional cost to the Owner, the Contractor shall promptly furnish facilities, labor and materials necessary to coordinate and perform operational tests and checkout of the Work. The Contractor shall furnish promptly all reasonable facilities, labor, and materials necessary to make all such testing safe and convenient.

**16.4** If, at any time before final payment and Acceptance of the Work, the Commissioner considers it necessary or advisable to examine of any portion of the Work already completed by removing or tearing out the same, the Contractor shall, upon request, furnish promptly all necessary facilities, labor, and materials. If such Work is found to be defective in any material respect, as determined by the Owner, because of a fault of the Contractor or any of the Contractor's Subcontractors, or if any Work shall have been covered without the approval or consent of the Commissioner (whether or not it is found to be defective), the Contractor shall be liable for testing costs and all costs of correction, including removal and/or demolition of the defective Work, including labor, material, and testing, including labor, material, re-testing or re-inspecting, services of required consultants, additional supervision, the Commissioner's and the Construction Administrator's administrative costs, and other costs for services of other consultants.

**16.5 Cost of Systems Commissioning Retesting:** The cost to retest a pre-functional or functional test, if the Contractor is responsible for the deficiency, shall be the Contractor's. If the Contractor is not responsible, any cost recovery for retesting costs shall be negotiated with the Contractor.

**16.5.1** For a deficiency identified, not related to any pre-functional checklist or start-up fault, the following shall apply: The Commissioning Agent (CxA) and Construction Administrator will direct the retesting of the equipment once at no "charge" to the Contractor for their time. However, the Commissioning Agent's and Construction Administrator's time for additional testing will be charged to the Contractor.

**16.5.2** The time for the Systems Commissioning Agent and Construction Administrator to direct any retesting required because a specific pre-functional checklist or start-up test item, reported to have been successfully completed, but determined during functional testing to be faulty, will be back charged to the Contractor.

**16.5.3** Any required retesting by any Subcontractor shall not be considered a justified reason for a claim of delay or for a time extension by the Contractor.

## **ARTICLE 17** **ROYALTIES AND PATENTS**

**17.1** If the Contractor desires to use any design, device, material or process covered by a patent or copyright, the Contractor shall provide for such use by suitable legal agreement with the holder of said patent or copyright. The Contractor shall furnish a copy of this legal agreement to the Owner.

**17.2** The Contractor shall indemnify and hold harmless the Owner and Construction Administrator for any costs, expenses and damage which it may be obliged to pay by reason of any infringement of a patent or a copyright, at any time during the prosecution or after the Final payment of the Work.

**ARTICLE 18**  
**SURVEYS, PERMITS AND REGULATIONS**

**18.1** Unless otherwise provided for, the Contractor shall furnish surveys necessary for the execution of the Work. The Owner will furnish the Contractor with two base lines and a benchmark.

**18.2** The Contractor shall obtain and pay for permits and licenses necessary for the execution of the Work and the occupancy and use of the completed Work.

**18.3** The Contractor shall give all notices and comply with all laws, ordinances, rules and regulations including building and fire safety codes relating to the performance of the Work.

**18.4** If underground utilities may be involved in part of the Work the Contractor is required to request "Call-Before-You-Dig" to verify the location of underground utilities at least (3) Working Days, as further defined under Paragraph 1.71 herein, prior to the start of any excavation. The Contractor shall also notify the Owner and Agency at least (3) Working Days prior to the start of any excavation. If "Call-Before-You-Dig" fails or refuses to respond to the Contractor's request, then the Contractor shall obtain the services of a qualified underground utility locating firm, at no additional cost to the Owner, to verify locations of underground utilities prior to the start of any excavation. The Contractor shall be held responsible for providing safety, protecting the Work and protecting workmen as necessary to perform the Work. The Contractor shall be responsible for maintaining and protecting all original utility mark-out at no additional cost to the Owner.

**ARTICLE 19**  
**PROTECTION OF THE WORK, PERSONS AND PROPERTY**

**19.1** The Contractor shall continuously and adequately protect the Work against damage from any cause, and shall protect materials and supplies furnished by the Contractor or Subcontractors, whether or not incorporated in the Work, and shall make good any damage unless it be due directly to errors in the Contract Documents or is caused by agents or employees of the Owner.

**19.2** To the extent required by law, by public authority, or made necessary in order to safeguard the health and welfare of the personnel or occupants of any of the state institutions, the Contractor shall adequately protect adjacent property and persons, and provide and maintain all facilities, including but not limited, to passageways, guard fences, lights, and barricades necessary for such protection.

**19.3** The Contractor shall take all necessary precautions for the safety of employees on the Work and shall comply with applicable provisions of federal and state safety laws and building codes to prevent accidents or injury to persons on, about, or adjacent to the premises where the Work is being performed. The Contractor shall also comply with the applicable provisions of the Associated General Contractors' "Manual of Accident Prevention in Construction", the standards of the Connecticut Labor Department and Occupational Safety and Hazard Association (OSHA).

**19.4** The Contractor shall erect and properly maintain at all times, as required by the conditions and progress of the Work, all necessary safeguards for the protection of employees of the State and the public, and shall post danger signs warning against any dangerous condition or hazard created by such things as protruding nails, well holes, elevator hatchways, scaffolding, window openings, excavations, tripping hazards or slipping, stairways and falling materials.

**19.5** The Contractor shall designate a qualified and responsible on-site staff person, whose duty shall be the prevention of accidents. The name and position of the designated person shall be reported to the Owner by the Contractor at the commencement of the Contract.

**19.6** The Contractor shall at all times protect excavations, trenches, buildings, and all items of Work from damage by rain, water from melted snow or ice, surface water run off and subsurface water usual for the vicinity at the time of operations; and provide all pumps and equipment and enclosures to insure such protection.

**19.7** The Contractor shall construct and maintain all necessary temporary drainage and provide all pumping necessary to keep excavation, basements, footings and foundations free of water.

**19.8** The Contractor shall remove all snow and ice as may be required for access to the site and proper protection and prosecution of the Work.

**19.9** The Contractor shall install bracing, shoring, sheathing, sheet piling, caissons and any other underground facilities as required for safety and proper execution of the Work, and shall remove this portion of the Work when no longer necessary.

**19.10** During cold weather the Contractor shall protect all Work from damage. If low temperature makes it impossible to continue operations safely in spite of cold weather precautions, the Contractor may cease Work upon the written approval of the Commissioner.

**ARTICLE 20  
TEMPORARY UTILITIES**

**20.1** Unless expressly provided for otherwise in the Contract Documents, the Contractor shall include in the proposed contract bid price as stated on the Bid Proposal Form, the costs of all temporary utilities required for Project completion and protection of the Work. Said temporary utilities include, but are not limited to, lighting, heating, cooling, electrical power, water, telephone, sanitary facilities, and potable water.

**ARTICLE 21  
CORRECTION OF WORK**

**21.1** The Contractor shall promptly and without expense to the Owner remove from the premises all materials rejected by or unacceptable to the Commissioner as failing to conform to the Contract Documents, whether incorporated in the Work or not.

**21.2** The Contractor shall promptly and without expense to the Owner replace any such materials, which do not conform to the Contract Documents, and shall bear the expense of making good all Work of other Contractors or Subcontractors destroyed or damaged by such removal or replacement.

**21.3** If the Contractor, after receipt of notice from the Owner, shall fail to remove such rejected or unacceptable materials within a reasonable time as fixed in said notice, the Owner may remove and store such materials at the expense of the Contractor.

**21.4** Such action shall not affect the obligation of the Contractor to replace and complete assembly and installation of the Work and to bear the expenses referred to above. Prior to the correction of rejected or unacceptable Work or if the Commissioner deems it inexpedient or undesirable to correct any portion of the Work which was rejected, deemed unacceptable, or not done in accordance with the Contract Documents, the Contract Sum shall be reduced by such amount as, in the judgment of the Commissioner, shall be equitable.

**21.5** No extension of time will be given to the Contractor for correction of rejected or unacceptable Work. All significant punchlist Work shall be completed before Substantial Completion is determined. The remaining minor punchlist Work, as determined by the Commissioner, shall be completed within **ninety (90) Days** of established Substantial Completion date.

**21.6** Final Payment shall not relieve the Contractor of responsibility for the defects in material or workmanship.

**21.7** Unless expressly provided for otherwise in the Contract Documents, the Contractor shall remedy any rejected or unacceptable Work, and any Work found to be not conforming to the Contract Documents which is discovered within 18 Months after the date of Substantial Completion. The Contractor shall pay for any damage to other Work caused by such nonconforming Work or any damage created in correcting the nonconforming Work.

**ARTICLE 22  
GUARANTEES and WARRANTIES**

**22.1** Unless expressly provided for otherwise in the Contract Documents, the Contractor shall provide a Warranty on the Work for an **18-Month** period from the date of Substantial Completion. The Contractor shall warrant that the equipment, materials and workmanship are of good quality and new, unless permitted elsewhere by the Contract Documents, and that the Work shall be free from defects not inherent in the quality required or permitted and that the Work conforms to the Contract Documents.

**22.2** Disclaimers and limitations from manufactures, Subcontractors, suppliers or installers to the Contractor shall not relieve the Contractor of the Warranty on the Work. The Contract Documents detail the related damages, reinstatement of Warranty, replacement cost and Owner's recourse.

**ARTICLE 23  
CUTTING, FITTING, PATCHING, AND DIGGING**

**23.1** The Contractor will perform or will cause the Subcontractors to perform all cutting, fitting, or patching of the portion(s) of the Work that may be required to make the several parts thereof joined and coordinated in a manner satisfactory to the Commissioner and in accordance with the Plans and Specifications.

**23.2** The responsibility for defective or ill-timed Work shall be with the Contractor, but such responsibility shall not in any way relieve the Subcontractor who performed such Work. Except with the consent of the Commissioner, neither the Contractor nor any of its Subcontractors shall cut or alter the Work of any other Contractor or Subcontractor.

**ARTICLE 24**  
**CLEANING UP**

**24.1** The Contractor shall, on a daily basis, keep the premises free from accumulations of waste material or rubbish.

**24.2** Prior to Acceptance of the Work, the Contractor shall remove from and about the site of the Work, all rubbish, all temporary structures, tools, scaffolding, and surplus materials, supplies, and equipment which may have been used in the performance of the Work. If the Commissioner in his sole discretion determines that the Contractor has failed to clean the work site, the Owner may remove the rubbish and charge the cost of such removal to the Contractor. A deduct Change Order will be issued by the Owner to recover such cost.

**ARTICLE 25**  
**ALL WORK SUBJECT TO CONTROL OF THE COMMISSIONER**

**25.1** The Commissioner hereby declares that the CT DCS Project Manager is the Commissioner's only authorized representative to act in matters involving the Owner's, and/or Architect's or Engineer's, ability to revoke, alter, enlarge or relax any requirement of the Contract Documents; to settle disputes between the Contractor and the Construction Administrator; and act on behalf of the Commissioner. In all such matters, the provisions of Articles 13 and 14 herein shall guide the CT DCS Project Manager.

**25.2** In no event may the Contractor act on any instruction of the Agency without written consent of the Owner. In the event the Contractor acts without such consent, he does so at his own risk and at his own expense, not only for the Work performed, but for the removal of such Work as determined necessary by the Commissioner.

**25.3** In the performance of the Work, The Contractor shall abide by all orders, directions, and requirements of the Commissioner at such time and places and by such methods and in such manner and sequence as the Commissioner may require.

**25.4** The Commissioner shall determine the amount, quality, acceptability and fitness of all parts of the Work, shall interpret the plans, Specifications, Contract Documents and extra work orders and shall decide all other questions in connection with the Work.

**25.5** The Contractor shall employ no plant, equipment, materials, methods, or persons to which the Commissioner objects and shall remove no plant materials, equipment, or other facilities from the site of the Work without the permission of the Commissioner. Upon request, the Commissioner shall confirm in writing any oral order, direction, requirement or determination.

**25.6** In accordance with Section 4b-24 of the Connecticut General Statutes, the public auditors of the State of Connecticut and the auditors or accountants of the Commissioner of Construction Services shall have the right to audit and make copies of the books of any Contractor employed by the Commissioner.

**ARTICLE 26**  
**AUTHORITY OF THE CONSTRUCTION ADMINISTRATOR**

**26.1** The Construction Administrator employed by the Commissioner is authorized to inspect all Work for conformance to the Contract Documents. The Construction Administrator is authorized to reject all Work found to be defective, unacceptable and nonconforming to the Contract Documents. Such inspections and rejections may extend to all or any part of the Work, and to the preparation or manufacture of the material to be used.

**26.2** The Construction Administrator is not empowered to revoke, alter, enlarge, or relax any requirements of the Contract Documents, or to issue instructions contrary to the Contract Documents. The Construction Administrator shall in no case act as foreman or perform other duties for the Contractor, nor shall the Construction Administrator interfere with the management of the Work by the Contractor. Any advice, which the Construction Administrator may give the Contractor, shall in no way be construed as binding the Commissioner or Owner in any way, nor releasing the Contractor from the fulfillment of the terms of the Contract.

**26.3** In any dispute arising between the Contractor and the Construction Administrator with reference to inspection and rejection of the Work, the Construction Administrator may suspend Work on the non-compliant portion of the Work until the dispute can be referred to and decided by the Commissioner.

**ARTICLE 27**  
**SCHEDULE OF VALUES, APPLICATION FOR PAYMENT**

**27.1** Immediately after the signing of the Contract, the Contractor shall furnish for the use of the Commissioner, as a basis for estimating partial payments, a certified Schedule of Values, totaling the Contract Sum and broken down into quantities and unit costs, as outlined in the Contract Documents and as directed by the Owner. The Schedule of Values must reflect true costs and be in sufficient detail to be an effective tool for monitoring the progress of the Work. Upon request of the Commissioner; the Contractor shall supply copies of signed Contracts, vendor quotations, etc. as back up to the Schedule of Values.

**27.2** Approval of the Schedule of Values by the Commissioner is required prior to any payment by the Owner.

**27.3** The Schedule of Values shall include a breakdown of the Contractor's general condition costs.

**27.3.1** Non-recurring costs, (i.e. Mobilization costs, utility hook-ups, temporary heat) will be paid at the time of occurrence.

**27.3.2** Reoccurring costs will be paid in proportion to the percent of completion of the Project.

**27.3.3** Further detail can be found in the General Requirements 01.29.76; paragraphs 1.3.B.4 for this project.

**27.4** The Schedule of Values shall include a breakdown of Contract closeout costs including systems certification testing and acceptance, training, Warranties, Guarantees, As-Built Drawings and attic stock.

**27.5** The Contractor shall make periodic applications for payment, which shall be subdivided into categories corresponding with the approved Schedule of Values and shall be in such numbers of copies as may be designated by the Commissioner.

**ARTICLE 28**  
**PARTIAL PAYMENTS**

**28.1** Commissioner will examine the Contractor's Applications For Payments to determine, in the opinion of the Commissioner, the amounts that properly represent the value of the Work completed and the materials suitably stored on the site.

**28.2** In making such Application For Payment for the Work, there shall not be more than **seven and five-tenths percent (7.5%)** deducted from the amount of each Application for Payment to be retained by the Owner as Retainage until Acceptance of the Work.

**28.2.1** The following criteria shall be utilized in the reduction of Retainage withheld: At fifty percent (50%) completion of the Work the Retainage shall be reduced to **five percent (5%)**. All subsequent Applications for Payment shall be subject to **five percent (5%)** Retainage. Upon Substantial Completion, and in the Commissioner's sole discretion and based upon the factors set forth in **Section 28.3**, the Retainage may be reduced upon the request of the Contractor and recommendation of the DAS Project Manager. In the event of a reduction in Retainage to **below five percent (5%)**, the minimum Retainage withheld shall not be less than the DAS Project Manager's estimate of the remaining Work or **two and five-tenths percent (2.5%)**, whichever is greater. All requests for Retainage Reduction shall be done on **CT DAS Form 7048 General Contractor Retainage Reduction Request**, a sample of which can be found at the end of these General Conditions.

**28.2.2** Subsequent to Substantial Completion, in limited circumstances, at the sole discretion of the Commissioner and based upon factors set forth in Section 28.3, a reduction of Retainage below **two and five-tenths percent (2.5%)** may be considered.

**28.2.3** A "Good" Contractor's Performance Evaluation score shall be defined as a minimum total score of sixty percent (60%).

**28.3** The decision of the Commissioner to reduce the Retainage rate will be based upon the **Contractor's Performance Evaluation** score for completed portions of the Work as set out above and other factors that the Commissioner may find appropriate as follows:

**28.3.1** The Contractor's timely submission of an appropriate and complete CPM Schedule or Construction Schedule and Schedule of Values, in compliance with the Contract requirements and the prompt resolution of the Owner's and/or Architect's or Engineer's comments on the submitted material resulting in an appropriate basis for progress of the Work.

**28.3.2** The Contractor's timely and proper submission of all Contract Document required submissions: including, but not limited to, Shop Drawings, material certificates and material samples and the prompt resolution of the Owners and/or Architect's or Engineer's comments on the submitted material, resulting in an appropriate progress of the Work.

**28.3.3** The Contractor's provision of proper and adequate supervision and home office support of the Project.

**28.3.4** The Work completed to date has been installed or finished in a manner acceptable to the Owner.

**28.3.5** The progress of the Work is consistent with the approved CPM Schedule or Construction Schedule.

**28.3.6** All approved credit change orders have been invoiced.

**28.3.7** All Change Order requests for pricing are current.

**28.3.8** The Contractor has and is maintaining a clean worksite in accordance with the Contract Documents.

**28.3.9** All Subcontractor payments are current at the time of reduction request.

**28.3.10** Contractor is compliant with set-aside provisions of the contract.

**28.3.11** Pursuant to C.G.S. Sec. 4a-101, the General Contractor shall compile evaluation information during the performance of the contract on each of its subcontractors who are performing work with a value in excess of five hundred thousand dollars (\$500,000.00). The General Contractor shall complete and submit to the State of Connecticut Department of Construction Services (CT DCS) evaluations of each such subcontractor upon fifty percent (50%) completion of the project and upon Substantial Completion of the project. The General Contractor acknowledges that its failure to complete and submit these evaluations in a timely manner may, by statute; result in a delay in project funding and, consequently, payment to the General Contractor.

**28.4** No payments will be made for improperly stored or protected materials or unacceptable Work.

**28.5** At his or her sole discretion, the Commissioner may allow to be included in the monthly requisitions payment requests for materials and equipment stored off the site.

**28.5.1** In the event the Commissioner allows the Contractor to include in its requisitions payment requests for materials and equipment stored off the site, the Contractor shall also submit any additional bonds and/or insurance certificates relating to off-site stored materials and equipment, and follow such other procedures as may be required by the State to obtain the Commissioner's approval of such requests.

**28.5.2** The Architect or Engineer, or Construction Administrator shall have inspected said materials and equipment and recommended payment therefore. The Contractor shall pay for the cost of the Architect's or Engineer's, or Construction Administrator's time and expense in performing these inspection services.

**ARTICLE 29**  
**DELIVERY OF STATEMENT SHOWING**  
**AMOUNTS DUE FOR WAGES, MATERIALS, AND SUPPLIES**

**29.1** For each Application for Payment under this Contract, the Owner reserves the right to require the Contractor and every Subcontractor to submit a written verified statement, in a form satisfactory to the Owner, showing in detail all amounts then due and unpaid by such Contractor or Subcontractor for daily or weekly wages to all laborers employed by it for the performance of the Work or to other persons for materials, equipment or supplies delivered at the site.

**29.2** The term "laborers" as used herein shall include workmen, workwomen, and mechanics.

**29.3** Failure to comply with this requirement may result in the Owner withholding the Application for Payment pursuant to Article 28.

**ARTICLE 30**  
**SUBSTANTIAL COMPLETION AND ACCEPTANCE**

**30.1 Substantial Completion:**

**30.1.1** When the Contractor considers that the Work or a portion thereof is Substantially Complete, the Contractor shall request an inspection of said Work in writing to the Construction Administrator. The request shall certify that the Contractor has completed its own inspection prior to the request and that the Contractor is compliant with all requirements of Section 01 77 00 of the General Requirements. The request must also include a statement that a principal or senior executive of the Contractor is ready, willing and able to attend a walk through inspection with the Architect or Engineer.



**30.1.2** Upon receipt of the request, the Architect or Engineer, Construction Administrator and Owner, will make an inspection to determine if the Work or designated portion thereof is Substantially Complete. A principal or senior executive of the Contractor shall accompany the Architect or Engineer during each inspection/re-inspection. If the inspection discloses any item, whether or not included on the inspection list, which is not in accordance with the requirements of the Contract Documents, the Contractor shall, before issuance of the Certificate of Substantial Completion, complete or correct such item.

**30.1.3** The Contractor shall then submit a request for another inspection. The determination of Substantial Completion is solely within the discretion of the Owner. Any costs for re-inspection beyond one, shall be at the expense of the Contractor and such costs will be recovered by issuance of a credit Change Order. When the Work or designated portion thereof is determined to be Substantially Complete, the Contractor will be provided a Certificate of Substantial Completion from the Owner. The Certificate of Substantial Completion shall establish the date when the responsibilities of the Contractor for security, maintenance, heat, utilities, damage to the Work, and insurance, are transferred to the Owner and shall fix the time within which the Contractor shall finish all items on the inspection list accompanying the Certificate. If the punch list is not complete in **90 Days**, the Owner reserves the right to complete the outstanding punch list items with their own forces or by awarding separate contracts and to deduct the cost thereof from the amounts remaining due to the Contractor.

**30.1.4** The Certificate of Substantial Completion shall be signed by the Construction Administrator, Owner, and Architect or Engineer. Upon Substantial Completion of the Work or designated portion thereof and upon application by the Contractor and certification by the Construction Administrator and Architect or Engineer, the Owner shall make payment reflecting adjustment in Retainage, if any, for such Work or portion thereof as provided in the Contract Documents.

**30.2 Acceptance:**

**30.2.1** Upon completion of the Work, the Contractor shall forward to the Construction Administrator a written notice that the Work is ready for inspection and Acceptance.

**30.2.2** When the Work has been completed in accordance with terms and conditions of the Contract Documents as determined by the Owner a Certificate of Acceptance shall be issued by the Owner.

**ARTICLE 31  
FINAL PAYMENT**

**31.1** The Owner reserves the right to retain for a period of thirty (30) Days after filing of the Certificate of Acceptance the amount therein stated less all prior payments and advances whatsoever to or for the account of the Contractor.

**31.2** All prior estimates and payments, including those relating to extra or additional Work, shall be subject to correction by the Final Payment.

**31.3** No Application for Payment, Final or Partial, shall act as a release to the Contractor or the Contractor's sureties from any obligations under this Contract.

**31.4** The Architect or Engineer and Construction Administrator will promptly issue the Certificate for Payment, stating that to the best of their knowledge, information and belief, and on the basis of their observations and inspections, the Work has been completed in accordance with terms and conditions of the Contract Documents and that the entire balance found to be due the Contractor and noted in said Final Payment is due and payable.

**31.5** Final Payment shall not be released until a Certificate of Acceptance and a Certificate of Compliance have been issued.

**31.6** Neither Final Payment nor any Retainage shall become due until the Contractor submits to the Owner the following:

**31.6.1** An affidavit that payrolls, bills for materials and equipment, and other indebtedness connected with the Work for which the Owner or the Owner's property might be responsible or encumbered (less amounts withheld by Owner) have been paid or otherwise satisfied.

**31.6.2** A certificate evidencing that insurance required by the Contract Documents to remain in force after Final Payment is currently in effect and will not be canceled or allowed to expire without at least 30 Days prior written notice to the Owner.

**31.6.3** A written statement that the Contractor knows of no substantial reason that the insurance will not be renewable to cover the period required by the Contract Documents.

**31.6.4** Written consent of surety, if any, to Final Payment.

**31.6.5** If required by the Owner, other data establishing payment or satisfaction of obligations, such as receipts, releases and waivers of liens, claims, security interests or encumbrances arising out of the Contract, to the extent and in such form as may be designated by the Owner. If a Subcontractor refuses to furnish a release or waiver required by the Owner, the Contractor may furnish a bond satisfactory to the Owner to indemnify the Owner against such lien. If such lien remains unsatisfied after payments are made, the Contractor shall refund to the Owner all money that the Owner may be compelled to pay in discharging such lien, including all costs and reasonable attorney's fees.

**ARTICLE 32**  
**OWNER'S RIGHT TO WITHHOLD PAYMENTS**

**32.1** The Commissioner may withhold a portion of any Payment due the Contractor that may, in the judgment of the Commissioner, be necessary:

**32.1.1** To assure the payment of just claims then due and unpaid to any persons supplying labor or materials for the Work.

**32.1.2** To protect Owner from loss due to defective, unacceptable or non-conforming Work not remedied by the Contractor.

**32.1.3** To protect the Owner from loss due to injury to persons or damage to the Work or property of other Contractors, Subcontractors, or others caused by the act or neglect of the Contractor or any of its Subcontractors.

**32.2** The Owner shall have the right to apply any amount withheld under this Article as the Owner may deem proper to satisfy protection from claims. The amount withheld shall be considered a payment to the Contractor.

**32.3** The Owner has the right to withhold payment if the Contractor fails to provide accurate submissions of Submittals, up date the status including but not limited to the following: As-Built Drawings, request for information (RFI) log, Schedule, submittal log, Change Order log, certified payrolls and daily reports and all other requirement of the Contract Documents.

**32.4** If a Subcontractor refuses to furnish a release or waiver required by the Owner, the Contractor may furnish a bond satisfactory to the Owner to indemnify the Owner against such lien. If such lien remains unsatisfied after payments are made, the Contractor shall refund to the Owner all money that the Owner may be compelled to pay in discharging such lien, including all costs and reasonable attorney's fees.

**ARTICLE 33**  
**OWNER'S RIGHT TO STOP WORK OR TERMINATE CONTRACT**

**33.1** The Commissioner shall have the authority to suspend the Work wholly or in part, for such period or periods as the Commissioner considers being in the best interests of the State, or in the interests of public necessity, convenience or safety. During such periods the Contractor shall store all materials and equipment, in such a manner to prevent the materials and equipment from being damaged in any way, and the Contractor shall take precautions to protect the Work from damage.

**33.1.1** If the Commissioner, in writing, orders the performance of all or any portion of the Work to be suspended or delayed for an unreasonable period of time (i.e. not originally anticipated, customary, or inherent in the construction industry) and the Contractor believes that additional compensation and/or Contract Time is due as a result of such suspension or delay, the Contractor shall submit to the Commissioner in writing a request for a Contract adjustment within 7 Days of receipt of the notice to resume Work. The request shall set forth the specific reasons and support for said adjustment.

**33.1.2** The Commissioner shall evaluate any such requests received. If the Commissioner agrees that the cost and/or time required for the performance of the Contract has increased as a result of such suspension and that the suspension was caused by conditions beyond the control of and not the fault of the Contractor, its suppliers, or Subcontractors, and was not caused by weather, then the Commissioner will make a reasonable adjustment, excluding profit, of the Contract terms. The Commissioner will notify the Contractor of the determination as to what adjustments of the Contract, if any, that the Commissioner deems warranted.

**33.1.3** No Contract adjustment will be made unless the Contractor has submitted the request for adjustment within the time prescribed.

**33.1.4** No Contract adjustment will be made under this Article to the extent that performance would have been suspended or delayed by any other cause within the Contractor's control or by any factor for which the Contractor is responsible under the Contract; or that such an adjustment is provided for or excluded under other term or condition of this Contract.

**33.2 Termination for Convenience:** Notwithstanding any provision or language in the Contract to the contrary, the State may terminate the Contract for convenience whenever the Commissioner determines at his sole discretion that such termination is in the best interests of the State. Any such termination shall be effected by delivery to the Contractor of a written Notice of Termination for Convenience specifying the extent to which performance of Work under the Contract is terminated, and the date upon which such termination shall be effective.

**33.2.1** In the event of such termination, the Contractor shall be entitled to reasonable compensation as determined by the Commissioner, however, no claim for lost Overhead or Profits shall be allowed.

**33.2.2** All Work and materials obtained by the Contractor for the Work, that have been incorporated into the Work, inspected, tested as required, accepted by the Commissioner, and paid for by the State, shall become the property of the State.

**33.2.3** Materials obtained by the Contractor for the Work that have been inspected, tested as required, and accepted by the Commissioner, and that are not incorporated into the Work, shall, at the option of the Commissioner, be purchased from the Contractor at actual cost as shown by receipted bills. To this cost shall be added all actual costs for delivery at such points of delivery as may be designated by the Commissioner, as shown by actual cost records.

**33.2.4** Termination of the Contract for convenience shall not relieve the Contractor or its surety of their responsibilities for the completed Work, nor shall it relieve the Contractor's surety of its obligations to ensure completion of the Work and to pay legitimate claims arising out of the Work.

**33.3 Termination for Cause:**

**33.3.1** The Commissioner may give notice in writing to the Contractor and its surety of any particular delay, neglect, or default of the Contractor due to one or more of the following:

**33.3.1.1** Failure to begin the Work within the time specified for same in the Contract Documents.

**33.3.1.2** Failure to perform the Work with sufficient workmen, equipment or materials to ensure the prompt completion of the Work within the time specified in the Contract.

**33.3.1.3** Unsuitable performance of the Work or failure to remedy or redo such work as DAS Project Manager shall reject as defective, unsuitable, or noncompliant with Contract requirements.

**33.3.1.4** Failure or refusal to remove material rejected as defective, unsuitable, or noncompliant with Contract requirements.

**33.3.1.5** Discontinuance of the suitable prosecution of the Work for a period of seventy-two (72) hours, excluding Saturdays, Sundays and holidays, without written authorization to do so from the DAS Project Manager.

**33.3.1.6** Failure to recommence discontinued Work within forty-eight (48) hours (excluding Saturdays, Sundays and holidays) after being ordered to do so by the DAS Project Manager.

**33.3.1.7** Insolvency, filing for bankruptcy or any act or occurrence that may render the Contractor financially incapable of completing the Work.

**33.3.1.8** Failure to satisfy any final judgment against it for a period of thirty (30) days.

**33.3.1.9** Making of any assignment for the benefit of creditors.

**33.3.1.10** Violation of any provisions of the Contract Documents.

**33.3.2** If the Contractor or its surety within a period of ten (10) days after the issuance of such notice does not proceed in conformance with the directions set forth therein, or fails to present a remedial plan of operation, satisfactory to the Commissioner, for remedying the acts or failures complained of in the notice, then the Commissioner may, at his discretion, order the surety to complete the Work or, without violating the Contract, take the right to control and prosecute the Work out of the hands of said Contractor and surety, terminating the Contract.

**33.3.3** The Commissioner may appropriate or use any or all stockpiled materials and any and all equipment required by the Contract as may be suitable and necessary for completion of the Work and may enter into an agreement, either by negotiation or public letting, for the completion of said Contract by a party other than the Contractor, according to the terms and provisions thereof, or use such other methods or combinations thereof as in his or her opinion shall be required or desirable for the completion of the Work.

**33.3.4** All costs and charges incurred by the Owner in connection with completing the Work, or as a result of the Contractor's default, shall be deducted from any monies due to or which may become due to the Contractor. In case such expense exceeds the sum that would have been payable under the Contract, then the Contractor and the surety shall be liable for, and shall pay to the State, the amount of the excess. Termination of the Contract shall not relieve the Contractor or its surety of their responsibilities for the completed Work, nor shall it relieve the Contractor's surety of its obligations to ensure completion of the Work and to pay legitimate claims arising out of the Work.

**ARTICLE 34**  
**SUBLETTING OR ASSIGNING OF CONTRACT**

**34.1** The Contract or any portion thereof, or the Work provided for therein, or the right, title, or interest of the Contractor therein may not be sublet, sold, transferred, assigned, or otherwise disposed of to any person, firm, or corporation without the written consent of the Commissioner.

**34.2** No person, firm, or corporation other than the Contractor to whom the Contract was awarded shall be permitted to commence Work at the site of the Contract until such consent has been granted.

**ARTICLE 35**  
**CONTRACTOR'S INSURANCE**

**35.1** The Contractor shall not start Work under the Contract until they have obtained insurance as stated in SECTIONS 00 62 16 CERTIFICATE OF INSURANCE and 00 41 00 BID PROPOSAL FORM of the Project Manual and until the insurance has been approved by the Owner. The Contractor shall not allow any Subcontractor to start Work until the same insurance has been obtained by the Subcontractor and approved by the Owner or the Contractor's insurance provides coverage on behalf of the Subcontractor. The Contractor shall send Certificates of Liability Insurance to the Connecticut Department of Administrative Services/Construction Services, Office of Legal Affairs, Policy and Procurement, 450 Columbus Blvd, Suite 1302, Hartford, CT 06103-1835 unless otherwise directed in writing. For insurance definitions see Article 1 herein. Presented below is a narrative summary of the insurance required.

**35.1.1 Commercial General Liability Insurance:** Insurance including contractual liability, products/completed operations, broad form property damage and independent Contractors. The limits shall be no less than \$1,000,000 each occurrence and \$2,000,000 annual aggregate. Coverage for hazards of explosion, collapse and underground (X-C-U) and for asbestos abatement when applicable to this Contract, must also be included when applicable to the Work to be performed. The State of Connecticut, the Department of Administrative Services, and their respective officers, agents, and employees shall be named as an Additional Insured. This coverage shall be provided on a primary basis.

**35.1.2 Owner's and Contractor's Protective Liability Insurance:** Insurance providing a total limit of \$1,000,000 for all damages arising out of bodily injury or death of persons in any one accident or occurrence and for all damages arising out of injury or destruction of property in any one accident or occurrence and subject to a total (aggregate) limit of \$2,000,000 for all damages arising out of bodily injury to or death of persons in all accidents or occurrences and out of injury to or destruction of property during the policy period. This coverage shall be for and in the name of the State of Connecticut.

**35.1.3 Automobile Liability Insurance:** The operation of all motor vehicles including those owned, non-owned and hired or used in connection with the Contract shall be covered by Automobile Liability Insurance providing for a total limit of \$1,000,000 for all damages arising out of bodily injuries to or death of all persons in any one accident or occurrence and for all damages arising out of injury to or destruction of property in any one accident or occurrence. In cases where an insurance policy shows an aggregate limit as part of the automobile liability coverage, the aggregate limit must be at least \$2,000,000. This coverage shall be provided on a primary basis. Should the Contractor not own any automobiles, the automobile & liability requirement shall be amended to allow the Contractor to maintain only hired and non-owned liability coverage.

**35.1.4 Umbrella Liability Insurance:** Umbrella Liability Insurance, including a drop down provision covering any exhausted underlying aggregate limits in the specified amount shown below of combined single limit each occurrence in excess of the coverages described in subsections 35.1.1 Commercial General Liability Insurance, 35.1.3 Automobile Liability, and 35.1.5 Workers' Compensation and Employer's Liability. The State of Connecticut shall be named as an additional insured. The Umbrella Liability Insurance Limits for the Contractor are based on the Contract Value as specified in the following table.

<b>Umbrella Liability Insurance Table:</b>			
<b>Contract Value</b>			<b>Umbrella Limit</b>
\$1.00	to	\$500,000.00	\$1,000,000.00
\$500,000.01	to	\$1,000,000.00	\$2,000,000.00
\$1,000,000.01	to	\$10,000,000	\$5,000,000.00
\$10,000,000.01	to	\$30,000,000	\$10,000,000.00
\$30,000,000.01	to	\$80,000,000	\$15,000,000.00
\$80,000,000.01	to	\$150,000,000	\$20,000,000.00
\$150,000,000.01	to	\$300,000,000	\$25,000,000.00

**35.1.5 Workers' Compensation and Employer's Liability:** As required by Connecticut Law and **Employers' Liability** with a limit of not less than \$100,000 per occurrence, \$500,000 disease policy limit and \$100,000 disease each employee. When Work is on or contiguous to navigable bodies of waterways and ways adjoining, the Contractor shall include the Federal Act endorsement for the U.S. Longshoremens and Harbor Workers Act.

**35.1.6 Special Hazards Insurance:** If required, will be stated in the BID PROPOSAL FORM of this Project Manual. This includes coverage for explosion, collapse or underground damage and for asbestos abatement when applicable to this Contract and shall be no less than \$1,000,000 each occurrence.

**35.1.7 Builder's Risk Insurance:** If required, will be stated in the BID PROPOSAL FORM of this Project Manual.

**35.1.8 Inland Marine/Transit Insurance:** With respect to property with values in excess of \$100,000 which is rigged, hauled or situated at the site pending installation, the Contractor shall maintain inland marine/transit insurance provided the coverage is not afforded by a Builder's Risk policy.

**35.1.9** When required to be maintained, the Builder's Risk and/or Inland Marine/Transit Insurance policy shall endorse the State of Connecticut as a Loss Payee and the policy shall state it is for the benefit of and payable to the State of Connecticut.

**35.2 Satisfying Limits Under an Umbrella Policy:** If necessary, the Contractor may satisfy the minimum limits required above for either Commercial General Liability, Automobile Liability, and Employer's Liability coverage under an Umbrella or Excess Liability policy. The underlying limits may be set at the minimum amounts required by the Umbrella or Excess Liability policy provided the combined limits meet at least the minimum limit for each required policy. The Umbrella or Excess Liability policy shall have an Annual Aggregate at a limit not less than two (2) times the highest per occurrence minimum limit required above for any of the required coverages. The State of Connecticut shall be specifically endorsed as an Additional Insured on the Umbrella or Excess Liability policy, unless the Umbrella or Excess Liability policy provides continuous coverage to the underlying policies on a complete "Follow-Form" basis.

**35.3** The Contractor shall, at its sole expense, maintain in full force and effect at all times during the life of the Contract or the performance of Work hereunder, insurance coverage as described herein. Certificates shall include a minimum thirty (30)-day endeavor to notify requirement to the Owner prior to any cancellation or non-renewal.

**35.4** The Contractor shall be fully and solely responsible for any costs or expenses as a result of a coverage deductible, coinsurance penalty, or self-insured retention, including any loss not covered because of the operation of such deductible, coinsurance penalty, or self-insured retention.

**35.5** The requirement contained herein as to types and limits of insurance coverage to be maintained by the Contractor are not intended to and shall not in any manner limit or qualify the liabilities and obligations assumed by the Contractor.

**35.6 Indemnification and Hold Harmless Provisions:**

**35.6.1** The Contractor shall indemnify, defend and hold harmless the State and its officers, representatives, agents, servants, employees, successors and assigns from and against any and all (1) Claims arising, directly or indirectly, in connection with the Contract, including the acts of commission or omission (collectively, the "Acts") of the Contractor or Contractor Parties; and (2) liabilities, damages, losses, costs and expenses, including but not limited to, attorneys' and other professionals' fees, arising, directly or indirectly, in connection with Claims, Acts or the Contract. The Contractor shall use counsel reasonably acceptable to the State in carrying out its obligations under this section. The Contractor's obligations under this section to indemnify, defend and hold harmless against Claims includes Claims concerning confidentiality of any part of or all of the Contractor's bid, proposal or any Records, any intellectual property rights, other proprietary rights of any person or entity, copyrighted or uncopyrighted compositions, secret processes, patented or unpatented inventions, articles or appliances furnished or used in the Performance.

**35.6.2** The Contractor shall not be responsible for indemnifying or holding the State harmless from any liability arising due to the negligence of the State or any third party acting under the direct control or supervision of the State.

**35.6.3** The Contractor shall reimburse the State for any and all damages to the real or personal property of the State caused by the Acts of the Contractor or any Contractor Parties. The State shall give the Contractor reasonable notice of any such Claims.

**35.6.4** The Contractor's duties under this section shall remain fully in effect and binding in accordance with the terms and conditions of the Contract, without being lessened or compromised in any way, even where the Contractor is alleged or is found to have merely contributed in part to the Acts giving rise to the Claims and/or where the State is alleged or is found to have contributed to the Acts giving rise to the Claims.

**35.6.5** The Contractor shall carry and maintain at all times during the term of the Contract, and during the time that any provisions survive the term of the Contract, sufficient general liability insurance to satisfy its obligations under this Contract. The Contractor shall name the State as an additional insured on the policy and shall provide a copy of the policy to the Agency prior to the effective date of the Contract. The Contractor shall not begin Performance until the delivery of the policy to the Agency. The Agency shall be entitled to recover under the insurance policy even if a body of competent jurisdiction determines that the Agency or the State is contributorily negligent.

**35.6.6** Such obligations shall not be construed to negate, abridge, or reduce other rights or obligations of indemnity which would otherwise exist as to any party or person described in General Conditions Article 35.

**35.6.7** This section shall survive the Termination of the Contract and shall not be limited by reason of any insurance coverage.

**ARTICLE 36**  
**FOREIGN MATERIALS**

**36.1** Preference shall be given to articles or materials manufactured or produced in the United States, Canada, and Mexico, (the members of the North American Free Trade Agreement (NAFTA)); and the products shall meet all of the referenced standards and Specifications for conditions of performance, quality, and price with duty being equal.

**36.2** Only articles or materials manufactured or produced in the United States, Canada, and Mexico, (the members of the North American Free Trade Agreement (NAFTA)), will be allowed. The foregoing provisions shall not apply to foreign articles or materials required by the Contract Documents.

**36.3 Buy American Act (BAA):** Any "public building" or "public work" project funded by the American Recovery and Reinvestment Act of 2009 ("ARRA") requires that "all of the iron, steel, and manufactured goods used in the project" must be "produced in the United States" in accordance with the requirements of the Buy American Act (BAA).

**ARTICLE 37**  
**HOURS OF WORK**

**37.1** No person shall be employed to work or be permitted to work more than eight (8) hours in any Day or more than forty (40) hours in any week for any Work provided in the Contract, in accordance with Connecticut General Statute Section 31-57.

**37.2** The operation of such limitation of hours of work may be suspended during an emergency, upon the approval of the Commissioner, in accordance with Connecticut General Statute Section 31-57.

**ARTICLE 38**  
**CLAIMS**

**38.1 General:** When filing a formal claim under Section 4-61 (referred to as "Section 4-61" below) of the Connecticut General Statutes (as revised), either as a lawsuit in the Superior Court or as a demand for arbitration, the Contractor must follow the procedures and comply with the requirements set forth in this Article. This Section does not, unless so specified, govern informal claims for additional compensation which the Contractor may bring before the Department. The Contractor should understand, however, that the Department may need, before the Department can resolve such a claim, the same kinds of documentation and other substantiation that it requires under this Article. It is the intent of the Department to compensate the Contractor for actual increased costs caused by or arising from acts or omissions on the part of the Department that violate legal or contractual duties owed to the Contractor by the Department.

**38.2 Notice of Claim:** Whenever the Contractor intends to file a formal claim against the Department under Section 4-61, seeking compensation for additional costs, the Contractor shall notify the Commissioner in writing (in strict compliance with Section 4-61) of the details of said claim. Such written notice shall contain all pertinent information described in Paragraph 38.5 below. Once formal notice of a claim under Section 4-61(b) (as revised) has been given to the Commissioner, the claimant may not change the claim in any way, in either concept or monetary amount, (1) without filing a new notice of claim and demand for arbitration to reflect any such change, and (2) without the minimum period of six months after filing of the new demand commencing again and running before any hearing on the merits of the claim may be held. The only exception to this limitation will be for damages that continue to accrue after submission of the notice, in ways described and anticipated in the notice.

**38.3 Record Keeping:** The Contractor shall keep daily records of all costs incurred in connection with its Work on behalf of the Department. The daily records shall identify each aspect of the Project affected by matters related to any claim for additional compensation that the Contractor has filed, intends to file, or has reason to believe that it may file against the Department; the specific Project locations where Project work has been so affected; the number of people working on the affected aspects of the Project at the pertinent time(s); and the types and number of pieces of equipment on the Project site at the pertinent time(s). Any potential or anticipated effect on the Project's progress or Schedule which may result in a claim by the Contractor shall be noted contemporaneously with the cause of the effect, or as soon thereafter as possible.

**38.4 Claim Compensation:** The payment of any claim, or any portion thereof, that is deemed valid by the Department shall be made in accordance with the following provisions of this Article:

**38.4.1 Compensable Items:** The liability of the Department for claims will be limited to the following specifically identified items of cost, insofar as they have not otherwise been paid for by the Department, and insofar as they were caused solely by the actions or omissions of the Department or its agents (except that with regard to payment for extra work, the Department will pay to the Contractor the Overhead and profit percentages provided for in Article 13.):

**38.4.1.1** Additional Project-site labor expenses.

**38.4.1.2** Additional costs for materials.

**38.4.1.3** Additional, unabsorbed Project-site Overhead (e.g., for mobilization and demobilization).

**38.4.1.4** Additional costs for active equipment.

**38.4.1.5** For each Day of Project delay or suspension caused solely by actions or omissions of the Department either:

**38.4.1.5.1** an additional ten percent (10%) of the total amount of the costs identified in Subparagraphs 38.4.1.1 through 38.4.1.4 above; except that if the delay or suspension period prevented the Contractor from incurring enough Project costs under Subparagraphs 38.4.1.1 through 38.4.1.4 during that period to require a payment by the Department that would be greater than the payment described in Subparagraph 38.4.1.5.2 below, then the payment for affected home office Overhead and profit shall instead be made in the following *per diem* amount:

**38.4.1.5.2** six percent (6%) of the original total Contract amount divided by the original number of Days of Contract Time. Payment under either 38.4.1.5.1 or 38.4.1.5.2 hereof shall be deemed to be complete and mutually satisfactory compensation for any unabsorbed home office overhead and any profit related to the period of delay or suspension.

**38.4.1.6** Additional equipment costs. Only actual equipment costs shall be used in the calculation of any compensation to be made in response to claims for additional Project compensation. Actual equipment costs shall be based upon records kept in the normal course of business and in accordance with generally accepted accounting principles. Under no circumstances shall Blue Book or other guide or rental rates be used for this purpose (unless the Contractor had to rent the equipment from an unrelated party, in which case the actual rental charges paid by the Contractor, so long as they are reasonable, shall be used). Idle equipment, for instance, shall be paid for based only on its actual cost to the Contractor.

**38.4.1.7** Subcontractor costs limited to, and determined in accordance with, Subparagraphs 38.4.1.1 through 38.4.1.5 above and applicable statutory and case law. Such Subcontractor costs may be paid for by the Department only: (a) in the context of an informal claims settlement; or (b) if the Contractor has itself paid or legally assumed, present unconditional liability for those Subcontractor costs.

**38.4.2 Excusable But Not Compensable Items:** The Contractor may be allowed Days but the Department will have no liability for the following non-compensable items:

**38.4.2.1** Abnormal or unusually severe weather

**38.4.2.2** Acts of God

**38.4.2.3** Force Majeure

**38.4.2.4** Concurrent Delay

**38.4.3 Non-Compensable Items:** The Department will have no liability for the following specifically-identified non-compensable items:

**38.4.3.1** Profit, in excess of that provided for herein.

**38.4.3.2** Loss of anticipated profit.

**38.4.3.3** Loss of bidding opportunities.

**38.4.3.4** Reduction of bidding capacity.

**38.4.3.5** Home office overhead in excess of that provided for in Subparagraph 38.4.1.5 hereof.

**38.4.3.6** Attorneys fees, claims preparation expenses, or other costs of claims proceedings or resolution.

**38.4.3.7** Subcontractor failure to perform

**38.4.3.8** Any other consequential or indirect expenses or costs, such as tort damages, or any other form of expense or damages not provided for in these specifications or elsewhere in the Contract.

**38.5 Required Claim Documentation:** All claims shall be submitted in writing to the Commissioner, and shall be sufficient in detail to enable the Department to ascertain the basis and the amount of each claim, and to investigate and evaluate each claim in detail. As a minimum, the Contractor must provide the following information for each and every claim and sub-claim asserted:

**38.5.1** A detailed factual statement of the claim, with all dates, locations and items of Work pertinent to the claim.

**38.5.2** A statement of whether each requested additional amount of compensation or extension of time is based on provisions of the Contract or on an alleged breach of the Contract. Each supporting or breached Contract provision and a statement of the reasons why each such provision supports the claim must be specifically identified or explained.

**38.5.3** Excerpts from manuals or other texts which are standard in the industry, if available, that support the Contractor's claim.

**38.5.4** The details of the circumstances that gave rise to the claim.

**38.5.5** The date(s) on which any and all events resulting in the claim occurred, and the date(s) on which conditions resulting in the claim first became evident to the Contractor.



**38.5.6** Specific identification of any pertinent document, and detailed description of the substance of any material oral communication, relating to the substance of such claim.

**38.5.7** If an extension of time is sought, the specific dates and number of Days for which it is sought, and the basis or bases for the extension sought. A critical path method, bar chart, or other type of graphical schedule that supports the extension must be submitted.

**38.5.8** When submitting any claim over \$50,000, the Contractor shall certify in writing, under oath and in accordance with the formalities required by the contract, as to the following:

**38.5.8.1** That supporting data is accurate and complete to the Contractor's best knowledge and belief;

**38.5.8.2** That the amount of the dispute and the dispute itself accurately reflects what the Contractor in good faith believes to be the Department's liability;

**38.5.8.3** The certification shall be executed by:

**38.5.8.3.1** If the Contractor is an individual, the certification shall be executed by that individual.

**38.5.8.3.2** If the Contractor is not an individual, the certification shall be executed by a senior company official in charge at the Contractor's plant or location involved or an officer or general partner of the Contractor having overall responsibility for the conduct of the Contractor's affairs.

**38.6 Auditing of Claims:** All claims filed against the Department shall be subject to audit by the Department or its agents at any time following the filing of such claim. The Contractor and its Subcontractors and suppliers shall cooperate fully with the Department's auditors. Failure of the Contractor, its Subcontractors, or its suppliers to maintain and retain sufficient records to allow the Department or its agents to fully evaluate the claim shall constitute a waiver of any portion of such claim that cannot be verified by specific, adequate, contemporaneous records, and shall bar recovery on any claim or any portion of a claim for which such verification is not produced. Without limiting the foregoing requirements, and as a minimum, the Contractor shall make available to the Department and its agents the following documents in connection with any claim that the Contractor submits:

**38.6.1** Daily time sheets and foreman's daily reports.

**38.6.2** Union agreements, if any.

**38.6.3** Insurance, welfare, and benefits records.

**38.6.4** Payroll register.

**38.6.5** Earnings records.

**38.6.6** Payroll tax returns.

**38.6.7** Records of property tax payments.

**38.6.8** Material invoices, purchase orders, and all material and supply acquisition contracts.

**38.6.9** Materials cost distribution worksheets.

**38.6.10** Equipment records (list of company equipment, rates, etc.).

**38.6.11** Vendor rental agreements.

**38.6.12** Subcontractor invoices to the Contractor, and the Contractor's certificates of payments to Subcontractors.

**38.6.13** Subcontractor payment certificates.

**38.6.14** Canceled checks (payroll and vendors).

**38.6.15** Job cost reports.

**38.6.16** Job payroll ledger.

**38.6.17** General ledger, general journal (if used), and all subsidiary ledgers and journals, together with all supporting documentation pertinent to entries made in these ledgers and journals.

**38.6.18** Cash disbursements journals.

**38.6.19** Financial statements for all years reflecting the operations on the Project.

**38.6.20** Income tax returns for all years reflecting the operations on the Project.

**38.6.21** Depreciation records on all company equipment, whether such records are maintained by the company involved, its accountant, or others.

**38.6.22** If a source other than depreciation records is used to develop costs for the Contractor's internal purposes in establishing the actual cost of owning and operating equipment, all such other source documents.

**38.6.23** All documents which reflect the Contractor's actual profit and overhead during the years that the Project was being performed, and for each of the five years prior to the commencement of the Project.

**38.6.24** All documents related to the preparation of the Contractor's bid, including the final calculations on which the total proposed Contract bid price as stated in the Bid Proposal Form was based.

**38.6.25** All documents which relate to the claim or to any sub-claim, together with all documents that support the amount of damages as to each claim or sub-claim.

**38.6.26** Worksheets used to prepare the claim, which indicate the cost components of each item of the claim, including but not limited to the pertinent costs of labor, benefits and insurance, materials, equipment, and Subcontractors' damages, as well as all documents which establish the relevant time periods, individuals involved, and the Project hours and the rates for the individuals.

**38.6.27** The name, function, and pertinent activity of each Contractor's or Subcontractor's official, or employee, involved in or knowledgeable about events that give rise to, or facts that relate to, the claim.

**38.6.28** The amount(s) of additional compensation sought and a break-down of the amount(s) into the categories specified as payable under Paragraph 38.4 above.

**38.6.29** The name, function, and pertinent activity of each Department official, employee, or agent involved in or knowledgeable about events that give rise to, or facts that relate to, the claim.

### **ARTICLE 39** **DIESEL VEHICLE EMISSIONS CONTROL**

**39.1** The Contractor shall be responsible for compliance with the following provisions:

**39.1.1** All Contractor and Subcontractor diesel powered non-road construction equipment with engine horsepower (HP) ratings of 60 HP and above, that are on the Project or are assigned to the Contract for a period in excess of 30 consecutive Days, shall be retrofitted with emission control devices in order to reduce diesel emissions. In addition, all motor vehicles and/or construction equipment (both on-highway and non-road) shall comply with all pertinent State and Federal regulations relative to exhaust emission controls and safety.

**39.1.2** Retrofit emission control devices shall consist of oxidation catalysts, or similar retrofit equipment control technology that is:

**39.1.2.1** Included on the U.S. Environmental Protection Agency (EPA) "Verified Technology List," as may be amended from time to time <http://www.epa.gov/otaq/retrofit/retroverifiedlist.htm> and

**39.1.2.2** Verified by EPA to provide a minimum emissions reduction of 20% particulate matter (PM<sub>10</sub>), 40% carbon monoxide (CO), and 50% hydrocarbons (HC).

**39.1.3** Construction shall not proceed until all diesel powered non-road construction equipment meeting the criteria in provision 39.1.1 have been retrofitted, unless the Commissioner grants a waiver under provision 39.2.

**39.1.4** The Contractor shall at least monthly, assess which diesel powered non-road construction equipment are subject to these provisions. The Contractor shall notify the CT DCS Project Manager of any violations of these provisions.

**39.1.5** Idling of delivery and/or dump trucks, or other diesel powered equipment shall be limited to three (3) minutes during non-active use in accordance with the Regulations of Connecticut State Agencies Section 22a-74-18(b)(3)(C), which states, in part:

*"[N]o person shall cause or allow a Mobile Source to operate for more than three (3) consecutive minutes when such Mobile Source is not in motion, except as follows:*

- *When a Mobile Source is forced to remain motionless because of traffic conditions or mechanical difficulties over which the operator has no control,*
- *When it is necessary to operate defrosting, heating or cooling equipment to ensure the safety or health of the driver or passengers,*
- *When it is necessary to operate auxiliary equipment that is located in or on the Mobile Source to accomplish the intended use of the Mobile Source, (To bring the Mobile Source to the manufacturer's recommended)*
- *When a Mobile Source is in queue to be inspected by U.S. military personnel prior to gaining access to a U.S. military installation."*

**39.1.6** All Work shall be conducted to ensure that no harmful effects are caused to adjacent Sensitive Receptor Sites. Diesel powered engines shall be located away from fresh air intakes, air conditioners, and windows.

**39.1.7** If any diesel powered non-road construction equipment is found to be in non-compliance with these provisions by the CT DCS Project Manager, the Contractor will be issued a Non-Conformance Notice and given a 24 hour period in which to bring the equipment into compliance or remove it from the Project. The Contractor's failure to comply with these provisions shall be reason to withhold payment as described in Article 33.

**39.1.8** Any costs associated with these provisions shall be included in the general cost of the contract. In addition, there shall be no time granted to the Contractor for compliance with these provisions. The Contractor's compliance with these provisions and any associated regulations shall not be grounds for a Change Order.

**39.2** The Commissioner reserves the right to waive all or portions of these provisions at his/her discretion. The Contractor may request a waiver to all or portions of these provisions with written justification to the Commissioner as to why the Contractor cannot comply with these provisions. A waiver, to be effective, must be granted in writing by the Commissioner.

#### **ARTICLE 40** **DISCLOSURE OF RECORDS**

**40.1** This Contract may be subject to the provisions of C.G.S. Section 1-218. In accordance with this statute, each contract in excess of two million five hundred thousand dollars (\$2,500,000.00) between a public agency and a person for the performance of a governmental function shall (a) provide that the public agency is entitled to receive a copy of records and files related to the performance of the governmental function, and (b) indicate that such records and files are subject to the Freedom of Information Act (FOIA) and may be disclosed by the public agency pursuant to FOIA. No request to inspect or copy such records or files shall be valid unless the request is made to the public agency in accordance with FOIA. Any complaint by a person who is denied the right to inspect or copy such records or files shall be brought to the Freedom of Information Commission in accordance with the provisions of C.G.S. Sections 1-205 and 1-206.

#### **ARTICLE 41** **AUDIT AND INSPECTION OF PLANTS, PLACES OF BUSINESS, AND RECORDS**

**41.1** The State and its agents, including, but not limited to, the Connecticut Auditors of Public Accounts, Attorney General and State's Attorney and their respective agents, may, at reasonable hours, inspect and examine all of the parts of the Contractor's and Contractor Parties' plants and places of business which, in any way, are related to, or involved in, the performance of this Contract.

**41.2** The Contractor shall maintain, and shall require each of the Contractor Parties to maintain, accurate and complete Records. The Contractor shall make all of its and the Contractor Parties' Records available at all reasonable hours for audit and inspection by the State and its agents.

**41.3** The State shall make all requests for any audit or inspection in writing and shall provide the Contractor with at least twenty-four (24) hours' notice prior to the requested audit and inspection date. If the State suspects fraud or other abuse, or in the event of an emergency, the State is not obligated to provide any prior notice.

**41.4** All audits and inspections shall be at the State's expense.


**41.5** The Contractor shall keep and preserve or cause to be kept and preserved all of its and Contractor Parties' Records until three (3) years after the latter of (i) final payment under this Agreement, or (ii) the expiration or earlier termination of this Agreement, as the same may be modified for any reason. The State may request an audit or inspection at any time during this period. If any Claim or audit is started before the expiration of this period, the Contractor shall retain or cause to be retained all Records until all Claims or audit findings have been resolved.

**41.6** The Contractor shall cooperate fully with the State and its agents in connection with an audit or inspection. Following any audit or inspection, the State may conduct and the Contractor shall cooperate with an exit conference.

**41.7** The Contractor shall incorporate this entire Section verbatim into any contract or other agreement that it enters into with any Contractor Party.

**END**

**Appendix 1**



**7048**  
**General Contractor (GC)**  
**Retainage Reduction Request**  
 Page 1 of 1

<b>To:</b>	Department of Administrative Services (DAS) Construction Services Office of Legal Affairs, Policy and Procurement 450 Columbus Blvd, Suite 1302 – North Tower Hartford, CT 06103		
<b>From:</b>	<input type="text" value="General Contractor Name"/>	General Contractor (GC)	
<b>Subject:</b>	DAS Project Number: <input type="text" value="DAS Project Number"/>		
	DAS Project Name: <input type="text" value="DAS Project Name"/>		
	Reduction of Retainage at: <input type="text" value="Written Percent"/> Percent ( <input type="text" value="##"/> % ) Project Completion		
<b>Date:</b>	<input type="text" value="Insert Date"/>		

In accordance with the General Conditions, Article 28 Progress Payments,  
 hereby requests a reduction of retainage from  % to  %.

The following list of items required under the General Conditions is in compliance with the terms of the contract and has been verified by the General Contractor (GC).

<input type="checkbox"/>	DAS Construction Services Contractor Performance Evaluation Score is a minimum of <b>(60%)</b> Percent.
<input type="checkbox"/>	Timely submission of an appropriate and complete CPM Schedule / Schedule of Values, in compliance with the Contract requirements and the prompt resolution of the Owner's and/or A/E's comments on the submitted material resulting in an appropriate basis for payment of the Work.
<input type="checkbox"/>	Timely and proper submission of all required Contract Documents submissions including but not limited to Shop Drawings, material certificates, material samples and the prompt resolution of the Owner's and/or A/E's comments on the submitted material resulting in an appropriate process of the Work.
<input type="checkbox"/>	Proper and adequate supervision on site appropriate to the Project.
<input type="checkbox"/>	The Work completed to date has been installed or finished in a manner acceptable to the Owner.
<input type="checkbox"/>	The progress of the Work is consistent with the approved CPM Schedule.
<input type="checkbox"/>	All approved change orders have been invoiced.
<input type="checkbox"/>	All Change Order requests for payment are current.
<input type="checkbox"/>	The Contractor is maintaining a clean worksite in accordance with the Contract Documents.
<input type="checkbox"/>	Subcontractor payments are current at the time of reduction request.
<input type="checkbox"/>	GC is in compliance with all other provisions of the contract.

<b>General Contractor Certification:</b>	<input type="text" value="Written Name"/>	<input type="text" value="Signature"/>	<input type="text" value="Date"/>
<b>Project Manager Recommendation:</b>	<input type="text" value="Written Name"/>	<input type="text" value="Signature"/>	<input type="text" value="Date"/>
<b>ADPM Approval:</b>	<input type="text" value="Written Name"/>	<input type="text" value="Signature"/>	<input type="text" value="Date"/>
<b>DAS Chief Architect or Authorized Representative:</b>	<input type="text" value="Written Name"/>	<input type="text" value="Signature"/>	<input type="text" value="Date"/>

**END**



# Set-Aside Contractor Schedule [SAMPLE ONLY]

**VIA EMAIL**

**Contractor Name**  
**Contractor Address**  
**City, State, Zip Code**

**BID OPENING DATE**

**Re:** DAS Project Description  
DAS Project Number

**Date:**

**Dear Contractor:**

**Section 00 45 17 Named Subcontractor Bidders Qualification Statement(s)** is / (are) required for this project, only for your Named Subcontractors listed in Table 2.7 of your Section 00 41 00 Bid Proposal Form.

No person whose subcontract exceeds five hundred thousand dollars in value may perform work as a subcontractor on a project, which project is estimated to cost more than five hundred thousand dollars and is paid for, in whole or in part, with state funds, *unless, at the time of bid submission*, the person is prequalified in accordance with the Connecticut General Statutes Section 4a-100, as amended. This includes the contractor's or substantial subcontractor's prequalification classifications, aggregate work capacity ratings and single project limits.

In accordance with **Subsection 2.9 "Set-Aside Requirements" of Section 00 21 13 Instructions to Bidders**, you are required to *list* below the names of each *currently certified set-aside contractor* to be used for this project, along with the dollar *amount* to be paid each set-aside contractor.

The **responsibility** for listing a qualified and certified set-aside contractor rests solely with the **bidder** and not the State. **Listing a set-aside contractor who does not qualify may be considered the same as not listing one at all and the bid may be considered non-responsive and subject to rejection.**

Name	Address	* Amount	Indicate Whether: Subcontractor, Or Supplier, Or Both	** Class of Work
SAMPLE	SAMPLE	SAMPLE	SAMPLE	SAMPLE

**\*Amount:** The total dollar amount to be paid to the set aside contractors must not be less than the percentage(s) stated in the Bid Proposal Form.

**\*\*Class of Work:** Means the name of the trade work to be provided by the Subcontractor or Supplier.

**ATTACHMENTS:**

**For Each of the Named Subcontractors:**

- Attach their Section 00 45 17 Named Subcontractor Bidders Qualification Statement(s)

**For Each of the Named Set-Aside SBE/MBE Contractors:**

- Attach their DAS Set-Aside Certificate of Eligibility (SBE and/or MBE)

**For Each of the Named Subcontractors With Subcontracts Greater Than \$500,000:**

- Attach their DAS Prequalification Certificate and Update (Bid) Statement for the Class of Work

\_\_\_\_\_  
Contractor Authorized Signature & Title

\_\_\_\_\_  
Date

This Form Must Be Received No Later Than \_\_\_\_\_ At:

State of Connecticut  
Department of Administrative Services, Construction Services  
Office of Legal Affairs, Policy, and Procurement  
450 Columbus Boulevard, Suite 1302  
Hartford, CT 06103

**Attn:**



**State Of Connecticut  
Department of Administrative Services  
Construction Services**

February 1, 2019

**To:** All Department of Administrative Services, Construction Services Contractors  
**Subject:** Set-Aside Contract Laws

Dear Sir/Madam:

The administration of Governor Ned Lamont is committed to supporting the subject programs by encouraging all contractors on State projects to improve their efforts in these areas.

State law requires contractors doing business with the State to demonstrate non-discrimination by making "good faith efforts" in both hiring and in sub-contracting practices (Connecticut General Statutes Section [C.G.S. §] 4a-60).

What does "good faith efforts" mean? It means that you, as contractors, must act affirmatively. It is not good enough to say you can't find minorities and women. You must seek them out. That is the law, and the Department of Administrative Services (DAS) / Construction Services (CS) is committed to enforcing the law. At the same time, we are ready to assist you in making "good faith efforts."

DAS is required by C.G.S. § 4a-60g (b) and (c) to set aside projects (amounting to **twenty-five percent (25%)** of its annual contract awards) for small business and **twenty-five percent (25%)** of that amount for minority business enterprises. DAS may require any general contractor to set aside a portion of the contract for subcontractors who are small businesses or minority business enterprises in lieu of setting aside a project or in addition to setting aside a project.

Therefore, unless otherwise specified in the **Bid Proposal Form**, DAS will require contractors to subcontract **twenty-five percent (25%)** of the total contract value to small businesses certified by DAS and further will require contractors to subcontract 25% of that 25% to minority and women small contractors certified as minority business enterprises by DAS. These statutory goals represent the minimum values expected to be achieved by this program.

Together, we can meet the challenge of providing equal opportunity for minority and women-owned businesses and workers in our State. We expect superior results in the areas of affirmative action, equal employment opportunity, and set-aside contracts. The DAS standard in these areas is not just minimal effort. Our goal is to uphold the letter and the spirit of the law.

For more information on Non-Discrimination and Affirmative Action Provisions for State Contracts please visit the Commission on Human Rights and Opportunities (**CHRO**) Website at [www.ct.gov/chro](http://www.ct.gov/chro).

Sincerely yours,

Josh Geballe  
Commissioner

PB:pb



## Non-Discrimination and Affirmative Action Provisions for State Contracts

Section 1	CHRO – Contract Compliance Regulations Notification to Bidders:
1.1	<p>The contract to be awarded is subject to contract compliance requirements mandated by:</p> <ul style="list-style-type: none"><li>1.1.1 The <b>Connecticut General Statutes (C.G.S.) § 4a-60</b> and <b>4a-60a</b>;</li><li>1.1.2 <b>C.G.S. § 46a-71(d)</b> and <b>46a-81i (d)</b> when the awarding agency is the State; and</li><li>1.1.3 The <b>Contract Compliance Regulations</b> codified in the <b>Regulations of Connecticut State Agencies (RSCA) §46a-68j-21 through 43</b>, which establish a procedure for awarding all contracts covered by <b>C.G.S. §4a-60</b> and <b>46a-71(d)</b>.</li></ul>
1.2	<p>According to the <b>Contract Compliance Regulations §46a-68j-30(9)</b>, every agency awarding a contract subject to the contract compliance requirements has an obligation to “aggressively solicit the participation of legitimate minority business enterprises as bidders, contractors, subcontractors and suppliers of materials.”</p> <p>“<b>Minority business enterprise</b>” is defined in <b>C.G.S §4a-60</b>-as a small contractor or supplier of materials fifty-one (51%) percent or more of the capital stock or assets of which is owned by a person or persons:</p> <ul style="list-style-type: none"><li>1.2.1 who are active in the daily affairs of the enterprise;</li><li>1.2.2 who have the power to direct the management and policies of the enterprise; and</li><li>1.2.3 who are members of a minority, as such term is defined in subsection (a) of <b>C.G.S. §32-9n.</b>”</li></ul>
1.3	<p>“<b>Minority</b>” groups are defined in <b>C.G.S. §32-9n</b> as:</p> <ul style="list-style-type: none"><li>1.3.1 Black Americans, including all persons having origins in any of the Black African racial groups not of Hispanic origin;</li><li>1.3.2 Hispanic Americans, including all persons of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture or origin, regardless of race;</li><li>1.3.3 Persons who have origins in the Iberian Peninsula, including Portugal, regardless of race;</li><li>1.3.4 Women;</li><li>1.3.5 Asian Pacific Americans and Pacific Islanders; or</li><li>1.3.6 American Indians and persons having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participation or community identification.</li><li>1.3.7 “<b>Individuals with a disability</b>” is also a minority business enterprise as provided by C.G.S. § 4a-60g (4).</li></ul>
1.4	<p>The above “<b>Minority business enterprise</b>” definitions apply to the contract compliance requirements by virtue of <b>Contract Compliance Regulations §46a-68j-21(11)</b>.</p> <p>The awarding agency will consider the following factors when reviewing the bidder’s qualifications under the contract compliance requirements:</p> <ul style="list-style-type: none"><li>1.4.1 the bidder’s success in implementing an affirmative action plan;</li><li>1.4.2 the bidder’s success in developing an apprenticeship program complying with <b>RSCA §46a-68-1 to 46a-68-17</b>, inclusive;</li><li>1.4.3 the bidder’s promise to develop and implement a successful affirmative action plan;</li><li>1.4.4 the bidder’s submission of employment statistics contained in the “Employment Information Form”, indicating that the composition of its workforce is at or near parity when compared to the racial and sexual composition of the workforce in the relevant labor market area; and</li><li>1.4.5 the bidder’s promise to set aside a portion of the contract for legitimate minority business enterprises. See <b>Contract Compliance Regulations § 46a-68j-30(10) (E)</b>.</li></ul>

**Note:** The Commission on Human Rights and Opportunities (CHRO) “Employment Information Form” shall be submitted to the DAS/CS Office of Legal Affairs, Policy, and Procurement on behalf of the awarding agency, the Department of Administrative Services (DAS).

<b>Section 2</b>	<b>Non-Discrimination and other Contract Compliance Requirements:</b>
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Pursuant to **C.G.S. §4a-60** and **§4a-60a** and **RSCA §46a-68j-21 to §46a-68j-43**, a contractor agrees to the following:

- 2.1** Not to discriminate or permit discrimination against any person or group of persons on the grounds of race, color, religious creed, age, marital status, national origin, ancestry, sex, sexual orientation, mental retardation, or physical disability including, but not limited to, blindness (unless it is shown that such disability prevents performance of the work involved) in the performance of a contract, in any manner prohibited by the federal and Connecticut anti-discrimination and contract compliance laws;
- 2.2** To undertake affirmative action which will insure that applicants with job-related qualifications are employed and that employees are treated, when employed, without regard to whether they belong to any of the groups identified in Paragraph # 1) above;
- 2.3** To include a statement that the contractor is an “affirmative action-equal opportunity employer”, in all solicitations or advertisements for employees placed by or on behalf of the contractor;
- 2.4** To provide each labor union or representative of workers with which such contractor has a collective bargaining agreement and each vendor with which such contractor has a contract, a notice advising them of the contractor’s commitments under **C.G.S. §4a-60** and **§4a-60a**. The notice is available by contacting **CHRO**;
- 2.5** To post copies of the notice referred to in item 4) in conspicuous places available to employees and applicants;
- 2.6** To provide **CHRO** with such information requested by said agency, permit access to pertinent books, records, and accounts, concerning the employment practices and procedures of the contractor as relate to the provisions of **C.G.S. §4a-60, §4a-60a** and **§46a-56** and, cooperate fully with **CHRO**; and,
- 2.7** To include the language of **C.G.S. §4a-60 (a)** and **§4a-60a (a)** in every subcontract or purchase order executed to fulfill any obligation of the contract with DAS.

<b>Section 3</b>	<b>Affirmative Action Requirements for Certain Public Works Contracts for Construction:</b>
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Pursuant to **C.G.S. §46a-68c** and **§46a-68d** and **RSCA §46a-68j-21 to §46a-68j-29**, the following must file an affirmative action plan with the Commission:

- 3.1** A successful bidder on a <sup>1</sup> “**public works contract**” with a value of **\$500,000** or more. The plan must be filed within **thirty (30)** days after a bid has been accepted by an awarding agency but before a contract is awarded. A plan may be filed in advance of, or at the same time as, a bid is submitted.
- 3.2** A contractor with **fifty (50)** or more employees who has been awarded a “**public works contract**” in excess of **\$50,000** in any fiscal year. A plan must be filed within **thirty (30) days** of the date a contract is awarded.

**CHRO** must review a plan within **sixty (60) days** of receipt and must either approve or reject a plan. Should **CHRO** approve an affirmative action plan, **CHRO** will issue a certificate of compliance. This certificate of compliance shall be proof of a successful bidder’s or a contractor’s eligibility to bid or be awarded contracts for a period of **two (2)** years from the date of the certificate. This certificate does not excuse a successful bidder or contractor from being monitored by the **CHRO** for implementation of its affirmative action plan or, from its reporting requirements under **C.G.S. 46a-68e** and **§ 46a-68f**. (Refer to Section 6) Also, **CHRO** may revoke the certificate if a successful bidder or contractor does not implement its affirmative action plan.

Should **CHRO** opt to disapprove an affirmative action plan, **CHRO** must notify the successful bidder or contractor in writing within **ten (10) days** of the disapproval. The notice will state the reason for disapproval and may provide necessary proposals to bring the plan into compliance. The successful bidder or contractor must then submit a new or amended plan, within **thirty (30) days** of the date the notice of disapproval is mailed by **CHRO**.

**Section 3**

(Continued):

In addition, **CHRO** may conditionally approve an affirmative action plan for a successful bidder on a public works contract valued at **\$500,000** or more. **CHRO** must notify the successful bidder in writing within **ten (10) days** of the conditional disapproval and state the reason for conditional approval and, may provide necessary proposals to bring the plan into compliance. The successful bidder must then submit a new or amended plan or, provide written assurances that it will amend its plan to conform to affirmative action requirements, within **thirty (30) days** of the date the notice is mailed by **CHRO**.

**Note:** The awarding agency (DAS) will provide a successful bidder or contractor with a copy of **CHRO**'s Affirmative Action Plan format. All sections of this Affirmative Action Plan format must be completed by the successful bidder or contractor and forwarded to **CHRO**. Also, the awarding agency (DAS) shall withhold **2%** of the total contract price per month from any payment made to a contractor until such time as the contractor has developed an affirmative action plan, which has been approved by **CHRO**.

<sup>1</sup> **“public works contract”** means any agreement between any individual, firm or corporation and the state or any political subdivision of the state other than a municipality for construction, rehabilitation, conversion, extension, demolition or repair of a public building, highway or other changes or improvements in real property, or which is financed in whole or in part by the state, including, but not limited to, matching expenditures, grants, loans, insurance or guarantees.-**C.G.S. §46a-68b**.

**Section 4**

**“Good Faith Efforts” to Include Minority Business Enterprises as Subcontractors”:**

In addition to, or in the absence of, any other subcontractor requirements included in this project, contractors are required to make <sup>2</sup> **“good faith efforts”** to include minority business enterprises in the work of this project as subcontractors (for services and/or material suppliers). For the purpose of identifying minority business enterprises, a minority business enterprise shall be a subcontractor which has a valid certification as such from DAS and/or a subcontractor for which an affidavit has been submitted by the contractor attesting that the subcontractor named as a minority business enterprise meets the minority business enterprise criteria set out in **C.G.S. §4a-60(b)**.

<sup>2</sup> **“Good faith efforts”** means *“that degree of diligence which a reasonable person would exercise in the performance of legal duties and obligations”* and includes, but is not limited to, the following **factors**: the contractor’s employment and subcontracting policies and practices; affirmative advertising, recruitment, training, technical assistance activities and such other reasonable activities or efforts as **CHRO** may recommend to ensure the participation of minority business enterprises in state projects.

<b>Section 5</b>	<b>Set-Aside Program:</b>
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This contract may be subject to the provisions the **Set-Aside Program for Small Contractors** found at **C.G.S. § 4a-60g** and may be awarded only to a contractor certified as a small and/or minority business enterprise by DAS. The notification as to this special provision will be found in the **Bid Proposal Form** for this contract. The listing of eligible "Set-Aside" contractors is found on the [DAS Website for SBE or MBE Certification](#). In the event that the **Set-Aside Program for Small Contractors** applies to this contract, the following special provisions will also apply:

**5.1 Amount of Work Required to Be Done by "Set-Aside" Contractors**

A contractor awarded a contract on a project pursuant to the provisions of **C.G.S. §4a-60g**, as amended, shall be required to perform not less than **thirty (30)** per cent of the work with his/her own forces and shall ensure that not less than **fifty (50)** per cent of the work be performed by contractors or subcontractors who are certified as small contractors or minority business enterprises pursuant to **C.G.S. §4a-60g**.

The primary product/service performed by contractors working on a contract awarded under **C.G.S. §4a-60g** must be the same as the primary product/service described for the contractors on their "Certificate of Eligibility" which is provided to them by DAS.

**5.2 Alternate Bonding Available to "Set Aside" Contractors**

In lieu of a performance, bid, labor and materials or other required bond, a contractor or subcontractor awarded a contract under **C.G.S. §4a-60g** may provide to the awarding authority (DAS) and the awarding authority shall accept a "Letter of Credit". Any such "Letter of Credit" shall be in an amount equal to **ten per cent (10%)** of the contract for any contract that is less than **one hundred thousand (\$100,000) dollars**, and in the amount of **twenty-five per cent (25%)** for any contract that is **one hundred thousand (\$100,000) dollars** or more.

**5.3 Procedures to Follow Regarding Substitution of Named Project "Set-Aside" Subcontractors.**

The awarding authority (DAS) may also require the contractor to set aside a portion of the contract for subcontractors who are eligible for set aside contracts. The awarding authority shall not permit substitution of a subcontractor for one named in accordance with the provisions of **C.G.S. § 4b-95** or substitution of a subcontractor for any designated sub-trade work bid to be performed by the contractor's own forces, except for good cause.

Pursuant to **C.G.S. § 4b-95**, the term "**good cause**" includes but is not limited to a subcontractor's or, where appropriate, a general contractor's:

**5.3.1** Death or physical disability, if the listed subcontractor is an individual;

**5.3.2** Dissolution, if a corporation or partnership;

**5.3.3** Bankruptcy;

**5.3.4** Inability to furnish any performance and payment bond shown on the bid form;

**5.3.5** Inability to obtain, or loss of, a license necessary for the performance of the particular category of work;

**5.3.6** Failure or inability to comply with a requirement of law applicable to contractors and subcontractors, or to subcontracts for construction, alteration, or repair projects;

**5.3.7** Failure to perform his/her agreement to execute a subcontract under **C.G.S. § 4b-96**.

Any general contractor who violates any provision of **C.G.S. § 4b-95** shall be disqualified from bidding on other contracts that are subject to the provisions of **Chapter 60 - Construction and Alterations of State Buildings of the C.G.S**, for a period **not to exceed twenty-four (24) months**, commencing from the date on which the violation is discovered, for each violation.

<b>Section 6</b>	<b>Contract Monitoring and Reporting:</b>
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- 6.1 CHRO** has the authority to monitor state contractors pursuant to **C.G.S. § 46a-68e** and **46a-68f** and **RSCA-§46a-68j-23(3)**. In addition, under the **RSCA §46a-68j-25(e)** and **46a-68j-26 (g)**, **CHRO** has the authority to monitor the implementation of an affirmative action plan regarding:
- 6.1.1** a successful bidder who has been awarded a public works contract valued at **\$500,000 or more** and;
  - 6.1.2** a contractor with **fifty (50)** or more employees who has been awarded a public works contract **in excess of \$50,000 in any fiscal year**.
- 6.2** In order to monitor the implementation of these plans **CHRO** requires that the following contract monitoring reports be compiled and submitted:
- 6.2.1 Monthly Employment Utilization Report (Form CHRO: 257):** A contractor, on behalf of itself and all subcontractors who perform work on the project during a given month, is required to report on the work hour participation of minority male and female workers in each trade category on the project. The report must be submitted to the contract awarding agency (**DAS**) and to the Commission by the 15<sup>th</sup> day following the end of each calendar month during the term of the on-site construction work of the project.  
**Website page:** <http://www.ct.gov/chro>, then click on **Forms**, then click on **Contract Compliance Forms and Reports**.
  - 6.2.2 Quarterly Small Contractor and Minority Business Enterprise Payment Status Report (Form CHRO: 258).** A contractor is required to report on the participation of small contractors or minority business enterprises identified to participate on the project. The report must be submitted to the contract awarding agency (**DAS**) and to the Commission by the 15<sup>th</sup> day following the end of each calendar quarter during the term of the on-site construction work of the project.  
**Website page:** <http://www.ct.gov/chro>, then click on **Forms**, then click on **Contract Compliance Forms and Reports**.
  - 6.2.3** In addition, the Commission expects that a contractor will designate an Equal Opportunity/Contract Compliance Officer for its public works project who will compile the above monthly and quarterly reports, as well as, undertake the following responsibilities for implementation of its project Affirmative Action Plan (AAP):
    - .1** Maintain a project Equal Employment Opportunity (EEO) file to include all records, correspondence and other documentation relate to the project AAP.
    - .2** Communicate to and inform all project subcontractors, regardless of tier, and labor referral organizations (if applicable) about project equal employment and AAP commitments and performance requirements.
    - .3** Participate in project job meetings to inform project subcontractors about project equal employment and AAP performance requirements.
    - .4** Track the use of employment recruitment sources identified in the project AAP regarding all employment opportunities with all subcontractors on the project. Also, maintain documentation of all contacts with these recruitment sources and their responses.

The Commission will forward a copy of the monthly and quarterly report to each contractor on a public works project.

<b>NOTES:</b>	Bidders and state contractors may review the full text of the before referenced Connecticut General Statutes by accessing either the State Law Library's web site ( <a href="http://www.cslib.org/psaindex.htm">http://www.cslib.org/psaindex.htm</a> ) or the State Legislatures' web site ( <a href="http://www.cga.ct.gov">http://www.cga.ct.gov</a> ).
	The full text of the RSCA 46a-68j-21 through 46a-68j-43 may be reviewed by accessing the Commission's web site: <a href="http://www.ct.gov/chro/cwp/view.asp?a=2525&amp;Q=315900&amp;chroPNavCtr=#45679">http://www.ct.gov/chro/cwp/view.asp?a=2525&amp;Q=315900&amp;chroPNavCtr=#45679</a> In the alternative, bidders or state contractors may request a copy of these state statutes and regulations by contacting the Commission at (860) 541-3400 (in Hartford) or 1 (800) 477-5737.

<b>Section 7</b>	<b>CHRO Contract Compliance Forms:</b>
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The following CHRO Contract Compliance Forms are available on the CHRO Website:

- 7.1 **Monthly Employment Utilization Report (Form CHRO-257 *and* CHRO-257a):**
  - <http://www.ct.gov/chro/lib/chro/257s.pdf>
- 7.2 **Cumulative Utilization Report (Form CHRO-257b):**
  - <http://www.ct.gov/chro/lib/chro/257b.pdf>
- 7.3 **Monthly Small Contractor & MBE Payment Status Report (Form CHRO-258a) *and* Quarterly Small Contractor & MBE Payment Status Report (Form CHRO-258):**
  - <http://www.ct.gov/chro/lib/chro/258s.pdf>

**End of Section**  
**00 73 38 CHRO / Contract Compliance Regulations**



**Minimum Rates and Classifications  
 for Building Construction**

**Connecticut Department of Labor  
 Wage and Workplace Standards Division**

By virtue of the authority vested in the Labor Commissioner under provisions of Section 31-53 of the General Statutes of Connecticut, as amended, the following pages are declared to be the prevailing rates and welfare payments and will apply only where the contract is advertised for bid within 20 days of the date on which the rates are established. Any contractor or sub-contractor not obligated by agreement to pay to the welfare and pension fund shall pay this amount to each employee as part of his hourly wage.

<b>Project Number:</b>	<b>BI-JD-364</b>	<b>Project Town:</b>	<b>Bridgeport, CT</b>
<b>Project: Roof and Masonry Replacement</b>			
<b>Bridgeport Superior Court</b>			
<b>1061 Main Street</b>			
<b>Bridgeport, CT</b>			

The following pages contain:

Contractors Wage Certification Form	1 page
Notice to all Mason Contractors reference Section 31-53 of C.G.S. (Prevailing Wages)	3 page
Prevailing Wage Rates - English	7 pages
Informational Bulletin - <b>Occupational Classifications</b>	6 pages
Informational Bulletin – <b>The 10-Hour OSHA Construction Safety and Health Course</b>	2 pages
Footnotes	2 pages
Special Notice re: Wage Rate Adjustments	1 pages
Weekly Payroll Certification Form (WWS-CP1)	1 page
Fringe Benefits Explanation (P)	1 page
Weekly Payroll Certification Form (WWS-CP2)	1 page

**As of: November 13, 2020**







**THIS IS A PUBLIC WORKS PROJECT**

**Covered by the**

**PREVAILING WAGE LAW**

**CT General Statutes Section 31-53**

**If you have QUESTIONS regarding your wages  
CALL (860) 263-6790**

Section 31-55 of the CT State Statutes requires every contractor or subcontractor performing work for the state to post in a prominent place the prevailing wages as determined by the Labor Commissioner.



CONNECTICUT DEPARTMENT OF LABOR  
WAGE AND WORKPLACE STANDARDS DIVISION

**CONTRACTORS WAGE CERTIFICATION FORM**  
**Construction Manager at Risk/General Contractor/Prime Contractor**

I, \_\_\_\_\_ of \_\_\_\_\_  
Officer, Owner, Authorized Rep. Company Name

do hereby certify that the \_\_\_\_\_  
Company Name  
\_\_\_\_\_  
Street  
\_\_\_\_\_  
City

and all of its subcontractors will pay all workers on the  
\_\_\_\_\_  
Project Name and Number  
\_\_\_\_\_  
Street and City

the wages as listed in the schedule of prevailing rates required for such project (a copy of which is attached hereto).

\_\_\_\_\_  
Signed

Subscribed and sworn to before me this \_\_\_\_\_ day of \_\_\_\_\_, \_\_\_\_\_.

\_\_\_\_\_  
Notary Public

Return to:  
Connecticut Department of Labor  
Wage & Workplace Standards Division  
200 Folly Brook Blvd.  
Wethersfield, CT 06109

*Rate Schedule Issued (Date):* \_\_\_\_\_



November 29, 2006

**Notice**  
**To All Mason Contractors and Interested Parties**  
**Regarding Construction Pursuant to Section 31-53 of the**  
**Connecticut General Statutes (Prevailing Wage)**

The Connecticut Labor Department Wage and Workplace Standards Division is empowered to enforce the prevailing wage rates on projects covered by the above referenced statute.

Over the past few years the Division has withheld enforcement of the rate in effect for workers who operate a forklift on a prevailing wage rate project due to a potential jurisdictional dispute.

The rate listed in the schedules and in our Occupational Bulletin (see enclosed) has been as follows:

**Forklift Operator:**

- **Laborers (Group 4) Mason Tenders** - operates forklift solely to assist a mason to a maximum height of nine feet only.
- **Power Equipment Operator (Group 9)** - operates forklift to assist any trade and to assist a mason to a height over nine feet.

The U.S. Labor Department conducted a survey of rates in Connecticut but it has not been published and the rate in effect remains as outlined in the above Occupational Bulletin.

*Since this is a classification matter and not one of jurisdiction, effective January 1, 2007 the Connecticut Labor Department will enforce the rate on each schedule in accordance with our statutory authority.*

Your cooperation in filing appropriate and accurate certified payrolls is appreciated.

**Sec. 31-53b. Construction safety and health course. New miner training program. Proof of completion required for mechanics, laborers and workers on public works projects. Enforcement. Regulations. Exceptions.** (a) Each contract for a public works project entered into on or after July 1, 2009, by the state or any of its agents, or by any political subdivision of the state or any of its agents, described in subsection (g) of section 31-53, shall contain a provision requiring that each contractor furnish proof with the weekly certified payroll form for the first week each employee begins work on such project that any person performing the work of a mechanic, laborer or worker pursuant to the classifications of labor under section 31-53 on such public works project, pursuant to such contract, has completed a course of at least ten hours in duration in construction safety and health approved by the federal Occupational Safety and Health Administration or, has completed a new miner training program approved by the Federal Mine Safety and Health Administration in accordance with 30 CFR 48 or, in the case of telecommunications employees, has completed at least ten hours of training in accordance with 29 CFR 1910.268.

(b) Any person required to complete a course or program under subsection (a) of this section who has not completed the course or program shall be subject to removal from the worksite if the person does not provide documentation of having completed such course or program by the fifteenth day after the date the person is found to be in noncompliance. The Labor Commissioner or said commissioner's designee shall enforce this section.

(c) Not later than January 1, 2009, the Labor Commissioner shall adopt regulations, in accordance with the provisions of chapter 54, to implement the provisions of subsections (a) and (b) of this section. Such regulations shall require that the ten-hour construction safety and health courses required under subsection (a) of this section be conducted in accordance with federal Occupational Safety and Health Administration Training Institute standards, or in accordance with Federal Mine Safety and Health Administration Standards or in accordance with 29 CFR 1910.268, as appropriate. The Labor Commissioner shall accept as sufficient proof of compliance with the provisions of subsection (a) or (b) of this section a student course completion card issued by the federal Occupational Safety and Health Administration Training Institute, or such other proof of compliance said commissioner deems appropriate, dated no earlier than five years before the commencement date of such public works project.

(d) This section shall not apply to employees of public service companies, as defined in section 16-1, or drivers of commercial motor vehicles driving the vehicle on the public works project and delivering or picking up cargo from public works projects provided they perform no labor relating to the project other than the loading and unloading of their cargo.

(P.A. 06-175, S. 1; P.A. 08-83, S. 1.)

History: P.A. 08-83 amended Subsec. (a) by making provisions applicable to public works project contracts entered into on or after July 1, 2009, replacing provision re total cost of work with reference to Sec. 31-53(g), requiring proof in certified payroll form that new mechanic, laborer or worker has completed a 10-hour or more construction safety course and adding provision re new miner training program, amended Subsec. (b) by substituting "person" for "employee" and adding "or program", amended Subsec. (c) by adding "or in accordance with Federal Mine Safety and Health Administration Standards" and setting new deadline of January 1, 2009, deleted former Subsec. (d) re "public building", added new Subsec. (d) re exemptions for public service company employees and delivery drivers who perform no labor other than delivery and made conforming and technical changes, effective January 1, 2009.





**Important Information:**

For use with Building, Heavy/Highway, and Residential

Welders: Rate for craft to which welding is incidental.

\*Note: Hazardous waste removal work receives additional \$1.25 per hour for truck drivers.

\*\*Note: Hazardous waste premium \$3.00 per hour over classified rate.

**ALL Cranes: When crane operator is operating equipment that requires a fully licensed crane operator to operate he receives an extra \$4.00 premium in addition to the hourly wage rate and benefit contributions:**

- 1) Crane handling or erecting structural steel or stone; hoisting engineer (2 drums or over)
- 2) Cranes (100 ton rate capacity and over) Bauer Drill/Caisson
- 3) Cranes (under 100 ton rated capacity)

**Crane with boom including jib, 150 feet - \$1.50 extra.**

**Crane with boom including jib, 200 feet - \$2.50 extra.**

**Crane with boom including jib, 250 feet - \$5.00 extra.**

**Crane with boom including jib, 300 feet - \$7.00 extra.**

**Crane with boom including jib, 400 feet - \$10.00 extra.**

All classifications that indicate a percentage of the fringe benefits must be calculated at the percentage rate times the "base hourly rate".

- Apprentices duly registered under the Commissioner of Labor's regulations on "Work Training Standards for Apprenticeship and Training Programs" Section 31-51-d-1 to 12, are allowed to be paid the appropriate percentage of the prevailing journeymen hourly base and the full fringe benefit rate, providing the work site ratio shall not be less than one full-time journeyman instructing and supervising the work of one apprentice in a specific trade.

**Connecticut General Statute Section 31-55a: Annual Adjustments to wage rates by contractors doing state work**

- The Prevailing wage rates applicable to this project are subject to annual adjustments each July 1st for the duration of the project.
- Each contractor shall pay the annual adjusted prevailing wage rate that is in effect each July 1st, as posted by the Department of Labor.
- It is the contractor's responsibility to obtain the annual adjusted prevailing wage rate increases directly from the Department of Labor's website.
- The annual adjustments will be posted on the Department of Labor's Web page: [www.ctdol.state.ct.us](http://www.ctdol.state.ct.us).
- The Department of Labor will continue to issue the initial prevailing wage rate schedule to the Contracting Agency for the project.
- All subsequent annual adjustments will be posted on our Web Site for contractor access.

**Effective October 1, 2005 - Public Act 05-50: any person performing the work of any mechanic, laborer, or worker shall be paid prevailing wage.**

- All Persons who perform work ON SITE must be paid prevailing wage for the appropriate mechanic, laborer, or worker classification.
- All certified payrolls must list the hours worked and wages paid to All Persons who perform work ON SITE regardless of their ownership i.e.: (Owners, Corporate Officers, LLC Members, Independent Contractors, et. al)
- Reporting and payment of wages is required regardless of any contractual relationship alleged to exist between the contractor and such person.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clause (29 CFR 5.5 (a) (1) (ii)).

***Please direct any questions which you may have pertaining to classification of work and payment of prevailing wages to the Wage and Workplace Standards Division, telephone (860)263-6790.***

Minimum Rates and Classifications for  
Building Construction

ID# 20-17338

Connecticut Department of Labor  
Wage and Workplace Standards

By virtue of the authority vested in the Labor Commissioner under provisions of Section 31-53 of the General Statutes of Connecticut, as amended, the following are declared to be the prevailing rates and welfare payments and will apply only where the contract is advertised for bid within 20 days of the date on which the rates are established. Any contractor or subcontractor not obligated by agreement to pay

Project Number: #BI-JD-264

Project Town: Bridgeport

State#: #BI-JD-264

FAP#: Bridgeport

Project: Roof & Masonry Replacement at Bridgeport Superior Court (Bridgeport)

CLASSIFICATION	Hourly	Benefits
1b) Asbestos/Toxic Waste Removal Laborers: Asbestos removal and encapsulation (except its removal from mechanical systems which are not to be scrapped), toxic waste removers, blasters.**See Laborers Group 7**		
1c) Asbestos Worker/Heat and Frost Insulator	42.07	30.99
2) Boilermaker	38.34	26.01
3a) Bricklayer, Cement Mason, Concrete Finisher (including caulking), Stone Masons	35.71	33.31 + a
3b) Tile Setter	34.9	25.87
3c) Terrazzo Mechanics and Marble Setters	31.69	22.35
3d) Tile, Marble & Terrazzo Finishers	26.7	21.75
3e) Plasterer	33.48	32.06
-----LABORERS-----		
4) Group 1: Laborers (common or general), acetylene burners, concrete specialists, wrecking laborers, fire watchers.	31.0	22.15
4a) Group 2: Mortar mixers, plaster tender, power buggy operators, powdermen, fireproofers/mixer/nozzleman (Person running mixer and spraying fireproof only).	31.25	22.15

Project: Roof & Masonry Replacement at Bridgeport Superior Court (Bridgeport)

4b) Group 3: Jackhammer operators/pavement breaker, mason tender (brick), mason tender (cement/concrete), forklift operators and forklift operators (masonry).	31.5	22.15
4c) **Group 4: Pipelayers (Installation of water, storm drainage or sewage lines outside of the building line with P6, P7 license) (the pipelayer rate shall apply only to one or two employees of the total crew who primary task is to actually perform the mating of pipe sections) P6 and P7 rate is \$26.80.	32.0	22.15
4d) Group 5: Air track operator, sand blaster and hydraulic drills.	31.75	22.15
4e) Group 6: Blasters, nuclear and toxic waste removal.	34.0	22.15
4f) Group 7: Asbestos/lead removal and encapsulation (except it's removal from mechanical systems which are not to be scrapped).	32.0	22.15
4g) Group 8: Bottom men on open air caisson, cylindrical work and boring crew.	29.28	22.15
4h) Group 9: Top men on open air caisson, cylindrical work and boring crew.	28.74	22.15
4i) Group 10: Traffic Control Signalman	18.0	22.15
5) Carpenter, Acoustical Ceiling Installation, Soft Floor/Carpet Laying, Metal Stud Installation, Form Work and Scaffold Building, Drywall Hanging, Modular-Furniture Systems Installers, Lathers, Piledrivers, Resilient Floor Layers.	34.53	25.64
5a) Millwrights	34.94	26.19
6) Electrical Worker (including low voltage wiring) (Trade License required: E1,2 L-5,6 C-5,6 T-1,2 L-1,2 V-1,2,7,8,9)	39.92	28.75+3% of gross wage
7a) Elevator Mechanic (Trade License required: R-1,2,5,6)	55.12	34.765+a+b
-----LINE CONSTRUCTION-----		
Groundman	26.5	6.5% + 9.00
Linemen/Cable Splicer	48.19	6.5% + 22.00
8) Glazier (Trade License required: FG-1,2)	39.18	22.55 + a

Project: Roof & Masonry Replacement at Bridgeport Superior Court (Bridgeport)

9) Ironworker, Ornamental, Reinforcing, Structural, and Precast Concrete Erection 36.67 37.62 + a

----OPERATORS----

Group 1: Crane handling or erecting structural steel or stone, hoisting engineer 2 drums or over, front end loader (7 cubic yards or over), work boat 26 ft. and over and Tunnel Boring Machines. (Trade License Required) 42.45 25.30 + a

Group 2: Cranes (100 ton rate capacity and over); Excavator over 2 cubic yards; Piledriver (\$3.00 premium when operator controls hammer); Bauer Drill/Caisson. (Trade License Required) 42.11 25.30 + a

Group 3: Excavator; Backhoe/Excavator under 2 cubic yards; Cranes (under 100 ton rated capacity), Grader/Blade; Master Mechanic; Hoisting Engineer (all types of equipment where a drum and cable are used to hoist or drag material regardless of motive power of operation), Rubber Tire Excavator (Drott-1085 or similar); Grader Operator; Bulldozer Fine Grade. (slopes, shaping, laser or GPS, etc.). (Trade License Required) 41.32 25.30 + a

Group 4: Trenching Machines; Lighter Derrick; Concrete Finishing Machine; CMI Machine or Similar; Koehring Loader (Skooper). 40.91 25.30 + a

Group 5: Specialty Railroad Equipment; Asphalt Paver; Asphalt Reclaiming Machine; Line Grinder; Concrete Pumps; Drills with Self Contained Power Units; Boring Machine; Post Hole Digger; Auger; Pounder; Well Digger; Milling Machine (over 24 40.28 25.30 + a

Group 5 continued: Side Boom; Combination Hoe and Loader; Directional Driller; Pile Testing Machine. 40.28 25.30 + a

Group 6: Front End Loader (3 up to 7 cubic yards); Bulldozer (rough grade dozer). 39.95 25.30 + a

Group 7: Asphalt roller, concrete saws and cutters (ride on types), vermeer concrete cutter, Stump Grinder; Scraper; Snooper; Skidder; Milling Machine (24 39.59 25.30 + a

Group 8: Mechanic, grease truck operator, hydroblaster; barrier mover; power stone spreader; welding; work boat under 26 ft.; transfer machine. 39.17 25.30 + a

Group 9: Front end loader (under 3 cubic yards), skid steer loader regardless of attachments, (Bobcat or Similar): forklift, power chipper; landscape equipment (including Hydroseeder). 38.71 25.30 + a

Group 10: Vibratory hammer; ice machine; diesel and air, hammer, etc. 36.54 25.30 + a

Group 11: Conveyor, earth roller, power pavement breaker (whiphammer), robot demolition equipment. 36.54 25.30 + a

Project: Roof & Masonry Replacement at Bridgeport Superior Court (Bridgeport)

Group 12: Wellpoint operator.	36.48	25.30 + a
Group 13: Compressor battery operator.	35.86	25.30 + a
Group 14: Elevator operator; tow motor operator (solid tire no rough terrain).	34.66	25.30 + a
Group 15: Generator Operator; Compressor Operator; Pump Operator; Welding Machine Operator; Heater Operator.	34.23	25.30 + a
Group 16: Maintenance Engineer/Oiler.	33.54	25.30 + a
Group 17: Portable asphalt plant operator; portable crusher plant operator; portable concrete plant operator.	38.11	25.30 + a
Group 18: Power safety boat; vacuum truck; zim mixer; sweeper; (Minimum for any job requiring a CDL license).	35.53	25.30 + a
-----PAINTERS (Including Drywall Finishing)-----		
10a) Brush and Roller	35.62	22.55
10b) Taping Only/Drywall Finishing	36.37	22.55
10c) Paperhanger and Red Label	36.12	22.55
10e) Blast and Spray	38.62	22.55
11) Plumber (excluding HVAC pipe installation) (Trade License required: P-1,2,6,7,8,9 J-1,2,3,4 SP-1,2)	44.63	32.95
12) Well Digger, Pile Testing Machine	37.26	24.05 + a
Roofer: Cole Tar Pitch	42.0	19.55 + a
Roofer: Slate, Tile, Composition, Shingles, Singly Ply and Damp/Waterproofing	40.5	19.55 + a
15) Sheetmetal Worker (Trade License required for HVAC and Ductwork: SM-1,SM-2,SM-3,SM-4,SM-5,SM-6)	46.92	42.80
16) Pipefitter (Including HVAC work) (Trade License required: S-1,2,3,4,5,6,7,8 B-1,2,3,4 D-1,2,3,4, G-1, G-2, G-8 & G-9)	44.63	32.95

-----TRUCK DRIVERS-----

17a) 2 Axle	29.86	25.79 + a
17b) 3 Axle, 2 Axle Ready Mix	29.97	25.79 + a
17c) 3 Axle Ready Mix	30.03	25.79 + a
17d) 4 Axle, Heavy Duty Trailer up to 40 tons	30.08	25.79 + a
17e) 4 Axle Ready Mix	30.13	25.79 + a
17f) Heavy Duty Trailer (40 Tons and Over)	30.35	25.79 + a
17g) Specialized Earth Moving Equipment (Other Than Conventional Type on-the-Road Trucks and Semi-Trailers, Including Euclids)	30.13	25.79 + a
18) Sprinkler Fitter (Trade License required: F-1,2,3,4)	45.92	26.08 + a
19) Theatrical Stage Journeyman	25.76	7.34



Project: Roof & Masonry Replacement at Bridgeport Superior Court (Bridgeport)

Welders: Rate for craft to which welding is incidental.

\*Note: Hazardous waste removal work receives additional \$1.25 per hour for truck drivers.

ALL Cranes: When crane operator is operating equipment that requires a fully licensed crane operator to operate he receives an extra \$4.00 premium in addition to the hourly wage rate and benefit contributions:

- 1) Crane handling or erecting structural steel or stone; hoisting engineer (2 drums or over)
- 2) Cranes (100 ton rate capacity and over) Bauer Drill/Caisson

Crane with 150 ft. boom (including jib) - \$1.50 extra

Crane with 200 ft. boom (including jib) - \$2.50 extra

Crane with 250 ft. boom (including jib) - \$5.00 extra

Crane with 300 ft. boom (including jib) - \$7.00 extra

Crane with 400 ft. boom (including jib) - \$10.00 extra

All classifications that indicate a percentage of the fringe benefits must be calculated at the percentage rate times the "base hourly rate".

Apprentices duly registered under the Commissioner of Labor's regulations on "Work Training Standards for Apprenticeship and Training Programs" Section 31-51-d-1 to 12, are allowed to be paid the appropriate percentage of the prevailing journeymen hourly base and the full fringe benefit rate, providing the work

*The Prevailing wage rates applicable to this project are subject to annual adjustments each July 1st for the duration of the project.*

*Each contractor shall pay the annual adjusted prevailing wage rate that is in effect each July 1st, as posted by the Department of Labor.*

*It is the contractor's responsibility to obtain the annual adjusted prevailing wage rate increases directly from the Department of Labor's website.*

*The annual adjustments will be posted on the Department of Labor's Web page: [www.ct.gov/dol](http://www.ct.gov/dol). For those without internet access, please contact the division listed below.*

*The Department of Labor will continue to issue the initial prevailing wage rate schedule to the Contracting Agency for the project.*

*All subsequent annual adjustments will be posted on our Web Site for contractor access.*

*Contracting Agencies are under no obligation pursuant to State labor law to pay any increase due to the annual adjustment provision.*

*Effective October 1, 2005 - Public Act 05-50: any person performing the work of any mechanic, laborer, or worker shall be paid prevailing wage*

All Person who perform work ON SITE must be paid prevailing wage for the appropriate mechanic, laborer, or worker classification.

All certified payrolls must list the hours worked and wages paid to All Persons who perform work ON SITE regardless of their ownership i.e.: (Owners, Corporate Officers, LLC Members, Independent Contractors, et. al)

Reporting and payment of wages is required regardless of any contractual relationship alleged to exist between the contractor and such person.

As of: November 13, 2020

Project: Roof & Masonry Replacement at Bridgeport Superior Court (Bridgeport)

~~Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clause (29 CFR 5.5 (a) (1) (ii)).

Please direct any questions which you may have pertaining to classification of work and payment of prevailing wages to the Wage and Workplace Standards Division, telephone (860)263-6790.



## **Information Bulletin** ***Occupational Classifications***

The Connecticut Department of Labor has the responsibility to properly determine "job classification" on prevailing wage projects covered under C.G.S. Section 31-53(d).

***Note: This information is intended to provide a sample of some occupational classifications for guidance purposes only. It is not an all-inclusive list of each occupation's duties. This list is being provided only to highlight some areas where a contractor may be unclear regarding the proper classification. If unsure, the employer should seek guidelines for CTDOL.***

**Below are additional clarifications of specific job duties performed for certain classifications:**

- **ASBESTOS WORKERS**

Applies all insulating materials, protective coverings, coatings and finishes to all types of mechanical systems.

- **ASBESTOS INSULATOR**

Handle, install apply, fabricate, distribute, prepare, alter, repair, dismantle, heat and frost insulation, including penetration and fire stopping work on all penetration fire stop systems.

- **BOILERMAKERS**

Erects hydro plants, incomplete vessels, steel stacks, storage tanks for water, fuel, etc. Builds incomplete boilers, repairs heat exchanges and steam generators.

- **BRICKLAYERS, CEMENT MASONS, CEMENT FINISHERS, MARBLE MASONS, PLASTERERS, STONE MASONS, PLASTERERS. STONE MASONS, TERRAZZO WORKERS, TILE SETTERS**

Lays building materials such as brick, structural tile and concrete cinder, glass, gypsum, terra cotta block. Cuts, tools and sets marble, sets stone, finishes concrete, applies decorative steel, aluminum and plastic tile, applies cements, sand, pigment and marble chips to floors, stairways, etc.

- **CARPENTERS, MILLWRIGHTS. PILEDRIVERMEN. LATHERS. RESILEINT FLOOR LAYERS, DOCK BUILDERS, DIKERS, DIVER TENDERS**

Constructs, erects, installs and repairs structures and fixtures of wood, plywood and wallboard. Installs, assembles, dismantles, moves industrial machinery. Drives piling into ground to provide foundations for structures such as buildings and bridges, retaining walls for earth embankments, such as cofferdams. Fastens wooden, metal or rockboard lath to walls, ceilings and partitions of buildings, acoustical tile layer, concrete form builder. Applies firestopping materials on fire resistive joint systems only. Installation of curtain/window walls only where attached to wood or metal studs. Installation of insulated material of all types whether blown, nailed or attached in other ways to walls, ceilings and floors of buildings. Assembly and installation of modular furniture/furniture systems. Free-standing furniture is not covered. This includes free standing: student chairs, study top desks, book box desks, computer furniture, dictionary stand, atlas stand, wood shelving, two-position information access station, file cabinets, storage cabinets, tables, etc.

- **LABORER, CLEANING**

- The clean up of any construction debris and the general (heavy/light) cleaning, including sweeping, wash down, mopping, wiping of the construction facility and its furniture, washing, polishing, and dusting.

- **DELIVERY PERSONNEL**

- If delivery of supplies/building materials is to one common point and stockpiled there, prevailing wages are not required. If the delivery personnel are involved in the distribution of the material to multiple locations within the construction site then they would have to be paid prevailing wages for the type of work performed: laborer, equipment operator, electrician, ironworker, plumber, etc.

- An example of this would be where delivery of drywall is made to a building and the delivery personnel distribute the drywall from one "stockpile" location to further sub-locations on each floor. Distribution of material around a construction site is the job of a laborer or tradesman, and not a delivery personnel.

- **ELECTRICIANS**

Install, erect, maintenance, alteration or repair of any wire, cable, conduit, etc., which generates, transforms, transmits or uses electrical energy for light, heat, power or other purposes, including the Installation or maintenance of telecommunication, LAN wiring or computer equipment, and low voltage wiring. **\*License required per Connecticut General Statutes: E-1,2 L-5,6 C-5,6 T-1,2 L-1,2 V-1,2,7,8,9.**

- **ELEVATOR CONSTRUCTORS**

Install, erect, maintenance and repair of all types of elevators, escalators, dumb waiters and moving walks. *\*License required by Connecticut General Statutes: R-1,2,5,6.*

- **FORK LIFT OPERATOR**

Laborers Group 4) Mason Tenders - operates forklift solely to assist a mason to a maximum height of nine (9) feet only.

Power Equipment Operator Group 9 - operates forklift to assist any trade, and to assist a mason to a height over nine (9) feet.

- **GLAZIERS**

Glazing wood and metal sash, doors, partitions, and 2 story aluminum storefronts. Installs glass windows, skylights, store fronts and display cases or surfaces such as building fronts, interior walls, ceilings and table tops and metal store fronts. Installation of aluminum window walls and curtain walls is the "joint" work of glaziers and ironworkers, which require equal composite workforce.

- **IRONWORKERS**

Erection, installation and placement of structural steel, precast concrete, miscellaneous iron, ornamental iron, metal curtain wall, rigging and reinforcing steel. Handling, sorting, and installation of reinforcing steel (rebar). Metal bridge rail (traffic), metal bridge handrail, and decorative security fence installation. Installation of aluminum window walls and curtain walls is the "joint" work of glaziers and ironworkers which require equal composite workforce.

- **INSULATOR**

- Installing fire stopping systems/materials for "Penetration Firestop Systems": transit to cables, electrical conduits, insulated pipes, sprinkler pipe penetrations, ductwork behind radiation, electrical cable trays, fire rated pipe penetrations, natural polypropylene, HVAC ducts, plumbing bare metal, telephone and communication wires, and boiler room ceilings.

- **LABORERS**

Acetylene burners, asphalt rakers, chain saw operators, concrete and power buggy operator, concrete saw operator, fence and guard rail erector (except metal bridge rail (traffic), decorative security fence (non-metal)).

installation.), hand operated concrete vibrator operator, mason tenders, pipelayers (installation of storm drainage or sewage lines on the street only), pneumatic drill operator, pneumatic gas and electric drill operator, powermen and wagon drill operator, air track operator, block paver, curb setters, blasters, concrete spreaders.

- **PAINTERS**

Maintenance, preparation, cleaning, blasting (water and sand, etc.), painting or application of any protective coatings of every description on all bridges and appurtenances of highways, roadways, and railroads. Painting, decorating, hardwood finishing, paper hanging, sign writing, scenic art work and drywall hhg for any and all types of building and residential work.

- **LEAD PAINT REMOVAL**

- Painter's Rate

1. Removal of lead paint from bridges.
2. Removal of lead paint as preparation of any surface to be repainted.
3. Where removal is on a Demolition project prior to reconstruction.

- Laborer's Rate

1. Removal of lead paint from any surface NOT to be repainted.
2. Where removal is on a *TOTAL* Demolition project only.

- **PLUMBERS AND PIPEFITTERS**

Installation, repair, replacement, alteration or maintenance of all plumbing, heating, cooling and piping. ***\*License required per Connecticut General Statutes: P-1,2,6,7,8,9 J-1,2,3,4 SP-1,2 S-1,2,3,4,5,6,7,8 B-1,2,3,4 D-1,2,3,4.***

- **POWER EQUIPMENT OPERATORS**

Operates several types of power construction equipment such as compressors, pumps, hoists, derricks, cranes, shovels, tractors, scrapers or motor graders, etc. Repairs and maintains equipment. ***\*License required, crane operators only, per Connecticut General Statutes.***

- **ROOFERS**

Covers roofs with composition shingles or sheets, wood shingles, slate or asphalt and gravel to waterproof roofs, including preparation of surface. (demolition or removal of any type of roofing and or clean-up of any and all areas where a roof is to be relaid.)

- **SHEETMETAL WORKERS**

Fabricate, assembles, installs and repairs sheetmetal products and equipment in such areas as ventilation, air-conditioning, warm air heating, restaurant equipment, architectural sheet metal work, sheetmetal roofing, and aluminum gutters. Fabrication, handling, assembling, erecting, altering, repairing, etc. of coated metal material panels and composite metal material panels when used on building exteriors and interiors as soffits, fascia, louvers, partitions, canopies, cornice, column covers, awnings, beam covers, cladding, sun shades, lighting troughs, spires, ornamental roofing, metal ceilings, mansards, copings, ornamental and ventilation hoods, vertical and horizontal siding panels, trim, etc. The sheet metal classification also applies to the vast variety of coated metal material panels and composite metal material panels that have evolved over the years as an alternative to conventional ferrous and non-ferrous metals like steel, iron, tin, copper, brass, bronze, aluminum, etc. Fabrication, handling, assembling, erecting, altering, repairing, etc. of architectural metal roof, standing seam roof, composite metal roof, metal and composite bathroom/toilet partitions, aluminum gutters, metal and composite lockers and shelving, kitchen equipment, and walk-in coolers. To include testing and air –balancing ancillary to installation and construction.

- **SPRINKLER FITTERS**

Installation, alteration, maintenance and repair of fire protection sprinkler systems.

***\*License required per Connecticut General Statutes: F-1,2,3,4.***

- **TILE MARBLE AND TERRAZZO FINISHERS**

Assists and tends the tile setter, marble mason and terrazzo worker in the performance of their duties.

- **TRUCK DRIVERS**

~How to pay truck drivers delivering asphalt is under REVISION~

Truck Drivers are requires to be paid prevailing wage for time spent "working" directly on the site. These drivers remain covered by the prevailing wage for any time spent transporting between the actual construction location and facilities (such as fabrication, plants, mobile factories, batch plant, borrow pits, job headquarters, tool yards, etc.) dedicated exclusively, or nearly so, to performance of the contract or project, which are so located in proximity to the actual construction location that it is reasonable to include them. ***\*License required, drivers only, per Connecticut General Statutes.***



***For example:***

- Material men and deliverymen are not covered under prevailing wage as long as they are not directly involved in the construction process. If, they unload the material, they would then be covered by prevailing wage for the classification they are performing work in: laborer, equipment operator, etc.
- Hauling material off site is not covered provided they are not dumping it at a location outlined above.
- Driving a truck on site and moving equipment or materials on site would be considered covered work, as this is part of the construction process.

➤ *Any questions regarding the proper classification should be directed to:*  
*Public Contract Compliance Unit*  
*Wage and Workplace Standards Division*  
*Connecticut Department of Labor*  
*200 Folly Brook Blvd, Wethersfield, CT 06109*  
*(860) 263-6543.*

# **Informational Bulletin**

## **THE 10-HOUR OSHA CONSTRUCTION SAFETY AND HEALTH COURSE, PROGRAM OR TRAINING**

(Applicable to public works contracts as described by Conn. Gen. Stat. § 31-53(g)  
entered into *on or after July 1, 2009*)

- (1) This requirement was created by Public Act No. 08-83, which is codified in Section 31-53b of the Connecticut General Statutes;
- (2) The course, program or training is required for public works contracts as described by Conn. Gen. Stat. § 31-53(g) entered into on or after July 1, 2009;
- (3) It is required of private workers (not state or municipal workers) and apprentices who perform the work of a mechanic, laborer or worker pursuant to the classifications of labor under Conn. Gen. Stat. § 31-53 on a public works project as described by Conn. Gen. Stat. § 31-53(g);
- (4) The ten-hour construction safety and health course, program or training pertains to the ten-hour Outreach Course conducted in accordance with federal OSHA Training Institute standards, a new mining training program approved by the Federal Mine Safety and Health Administration in accordance with 30 C.F. R. 48, or, for telecommunications workers, a ten-hour training course conducted in accordance with federal OSHA standard, 29 CFR 1910.268;
- (5) The internet website for the federal OSHA Training Institute is [http://www.osha.gov/fso/ote/training/edcenters/fact\\_sheet.html](http://www.osha.gov/fso/ote/training/edcenters/fact_sheet.html);
- (6) The statutory language leaves it to the contractor and its employees to determine who pays for the cost of the ten-hour Outreach Course;
- (7) Proof of course, program or training completion shall be demonstrated through the presentation of a “completion document” (card, document, certificate or other written record issued by federal OSHA or by the Federal Mine Safety and Health Administration) as defined by Conn. State Agencies Regs. § 31-53b-1(2).
- (8) Any completion document with an issuance date more than 5 years prior to the commencement date of the public works project shall not constitute proof of compliance with § 31-53b;
- (9) For each person who performs the duties of a mechanic, laborer or worker on a public works project, the contractor shall affix a copy of the completion document

- to the certified payroll required to be submitted to the contracting agency for such project on which such worker's name first appears;
- (10) Any mechanic, laborer or worker on a public works project found to be in non-compliance shall be subject to removal from the project if such employee does not provide satisfactory proof of course completion to the Labor Commissioner by the fifteenth day after the date the employee is determined to be in noncompliance;
  - (11) Any such employee who is determined to be in noncompliance may continue to work on a public works project for a maximum of fourteen consecutive calendar days while bringing his or her status into compliance;
  - (12) The statute provides the minimum standards required for the completion of a construction safety and health course, program or training by employees on public works contracts; any contractor can exceed these minimum requirements.;
  - (13) Regulations pertaining to § 31-53b are located at Conn. State Agencies Regs. §31-53b-1 *et seq.*, and are effective May 5, 2009. The regulations are posted on the CTDOL website;
  - (14) Any questions regarding this statute or the regulations may be directed to the Wage and Workplace Standards Division of the Connecticut Labor Department via the internet website of <http://www.ctdol.state.ct.us/wgwkstnd/wgmenu.htm>; or by telephone at (860)263-6790.

**THE ABOVE INFORMATION IS PROVIDED EXCLUSIVELY AS AN EDUCATIONAL RESOURCE, AND IS NOT INTENDED AS A SUBSTITUTE FOR LEGAL INTERPRETATIONS WHICH MAY ULTIMATELY ARISE CONCERNING THE CONSTRUCTION OF THE STATUTE OR THE REGULATIONS.**

**Connecticut Department of Labor  
Wage and Workplace Standards Division  
FOOTNOTES**

⇒ Please Note: If the “Benefits” listed on the schedule for the following occupations includes a letter(s) (+ a or + a+b for instance), refer to the information below.

Benefits to be paid at the appropriate prevailing wage rate for the listed occupation.

If the “Benefits” section for the occupation lists only a dollar amount, disregard the information below.

**Bricklayers, Cement Masons, Cement Finishers, Concrete Finishers, Stone Masons**  
(Building Construction) and  
(Residential- Hartford, Middlesex, New Haven, New London and Tolland Counties)

- a. Paid Holiday: Employees shall receive 4 hours for Christmas Eve holiday provided the employee works the regularly scheduled day before and after the holiday. Employers may schedule work on Christmas Eve and employees shall receive pay for actual hours worked in addition to holiday pay.

**Elevator Constructors: Mechanics**

- a. Paid Holidays: New Year’s Day, Memorial Day, Independence Day, Labor Day, Veterans’ Day, Thanksgiving Day, Christmas Day, plus the Friday after Thanksgiving.
- b. Vacation: Employer contributes 8% of basic hourly rate for 5 years or more of service or 6% of basic hourly rate for 6 months to 5 years of service as vacation pay credit.

**Glaziers**

- a. Paid Holidays: Labor Day and Christmas Day.

**Power Equipment Operators**  
(Heavy and Highway Construction & Building Construction)

- a. Paid Holidays: New Year’s Day, Good Friday, Memorial day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day, provided the employee works 3 days during the week in which the holiday falls, if scheduled, and if scheduled, the working day before and the working day after the holiday. Holidays falling on Saturday may be observed on Saturday, or if the employer so elects, on the preceding Friday.

**Ironworkers**

- a. Paid Holiday: Labor Day provided employee has been on the payroll for the 5 consecutive work days prior to Labor Day.

**Laborers (Tunnel Construction)**

- a. Paid Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day. No employee shall be eligible for holiday pay when he fails, without cause, to work the regular work day preceding the holiday or the regular work day following the holiday.

**Roofers**

- a. Paid Holidays: July 4<sup>th</sup>, Labor Day, and Christmas Day provided the employee is employed 15 days prior to the holiday.

**Sprinkler Fitters**

- a. Paid Holidays: Memorial Day, July 4th, Labor Day, Thanksgiving Day and Christmas Day, provided the employee has been in the employment of a contractor 20 working days prior to any such paid holiday.

**Truck Drivers**

(Heavy and Highway Construction & Building Construction)

- a. Paid Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, Christmas day, and Good Friday, provided the employee has at least 31 calendar days of service and works the last scheduled day before and the first scheduled day after the holiday, unless excused.

## STATUTE 31-55a

### - SPECIAL NOTICE -

**To: All State and Political Subdivisions, Their Agents, and Contractors**

**Connecticut General Statute 31-55a - Annual adjustments to wage rates by contractors doing state work.**

*Each contractor that is awarded a contract on or after October 1, 2002, for (1) the construction of a state highway or bridge that falls under the provisions of section 31-54 of the general statutes, or (2) the construction, remodeling, refinishing, refurbishing, rehabilitation, alteration or repair of any public works project that falls under the provisions of section 31-53 of the general statutes shall contact the Labor Commissioner on or before July first of each year, for the duration of such contract, to ascertain the prevailing rate of wages on an hourly basis and the amount of payment or contributions paid or payable on behalf of each mechanic, laborer or worker employed upon the work contracted to be done, and shall make any necessary adjustments to such prevailing rate of wages and such payment or contributions paid or payable on behalf of each such employee, effective each July first.*

- The prevailing wage rates applicable to any contract or subcontract awarded on or after October 1, 2002 are subject to annual adjustments each July 1st for the duration of any project which was originally advertised for bids on or after October 1, 2002.
- Each contractor affected by the above requirement shall pay the annual adjusted prevailing wage rate that is in effect each July 1st, as posted by the Department of Labor.
- It is the **contractor's** responsibility to obtain the annual adjusted prevailing wage rate increases directly from the Department of Labor's Web Site. The annual adjustments will be posted on the Department of Labor Web page: [www.ctdol.state.ct.us](http://www.ctdol.state.ct.us). For those without internet access, please contact the division listed below.
- The Department of Labor will continue to issue the initial prevailing wage rate schedule to the Contracting Agency for the project. All subsequent annual adjustments will be posted on our Web Site for contractor access.

**Any questions should be directed to the Contract Compliance Unit, Wage and Workplace Standards Division, Connecticut Department of Labor, 200 Folly Brook Blvd., Wethersfield, CT 06109 at (860)263-6790.**



[New] In accordance with Section 31-53b(a) of the C.G.S. each contractor shall provide a copy of the OSHA 10 Hour Construction Safety and Health Card for each employee, to be attached to the first certified payroll on the project.

**WEEKLY PAYROLL**

**PAYROLL CERTIFICATION FOR PUBLIC WORKS PROJECTS**

Connecticut Department of Labor  
Wage and Workplace Standards Division  
200 Folly Brook Blvd.  
Wethersfield, CT 06109

In accordance with Connecticut General Statutes, 31-53 Certified Payrolls with a statement of compliance shall be submitted monthly to the contracting agency.

CONTRACTOR NAME AND ADDRESS:											SUBCONTRACTOR NAME & ADDRESS				WORKER'S COMPENSATION INSURANCE CARRIER							
PAYROLL NUMBER		Week-Ending Date	PROJECT NAME & ADDRESS								POLICY #  EFFECTIVE DATE: EXPIRATION DATE:											
PERSON/WORKER, ADDRESS and SECTION	APPR RATE %	MALE/FEMALE AND RACE*	WORK CLASSIFICATION	DAY AND DATE							Total ST Hours	BASE HOURLY RATE	TOTAL FRINGE BENEFIT PLAN CASH	TYPE OF FRINGE BENEFITS Per Hour 1 through 6 (see back)	GROSS PAY FOR ALL WORK PERFORMED THIS WEEK	TOTAL DEDUCTIONS				GROSS PAY FOR THIS PREVAILING RATE JOB	CHECK # AND NET PAY	
				S	M	T	W	TH	F	S						Total O/T Hours	FICA	FEDERAL WITH-HOLDING	STATE WITH-HOLDING			LIST OTHER
			Trade License Type & Number - OSHA 10 Certification Number	HOURS WORKED EACH DAY																		
											\$	1. \$										
											Base Rate	2. \$										
												3. \$										
											\$	4. \$										
											Cash Fringe	5. \$										
												6. \$										
											\$	1. \$										
											Base Rate	2. \$										
												3. \$										
											\$	4. \$										
											Cash Fringe	5. \$										
												6. \$										

OSHA 10 ~ ATTACH CARD TO 1ST CERTIFIED PAYROLL





**\*FRINGE BENEFITS EXPLANATION (P):**

Bona fide benefits paid to approved plans, funds or programs, except those required by Federal or State Law (unemployment tax, worker’s compensation, income taxes, etc.).

Please specify the type of benefits provided:

- 1) Medical or hospital care \_\_\_\_\_ 4) Disability \_\_\_\_\_
- 2) Pension or retirement \_\_\_\_\_ 5) Vacation, holiday \_\_\_\_\_
- 3) Life Insurance \_\_\_\_\_ 6) Other (please specify) \_\_\_\_\_

**CERTIFIED STATEMENT OF COMPLIANCE**

For the week ending date of \_\_\_\_\_,

I, \_\_\_\_\_ of \_\_\_\_\_, (hereafter known as Employer) in my capacity as \_\_\_\_\_ (title) do hereby certify and state:

**Section A:**

1. All persons employed on said project have been paid the full weekly wages earned by them during the week in accordance with Connecticut General Statutes, section 31-53, as amended. Further, I hereby certify and state the following:

- a) The records submitted are true and accurate;
- b) The rate of wages paid to each mechanic, laborer or workman and the amount of payment or contributions paid or payable on behalf of each such person to any employee welfare fund, as defined in Connecticut General Statutes, section 31-53 (h), are not less than the prevailing rate of wages and the amount of payment or contributions paid or payable on behalf of each such person to any employee welfare fund, as determined by the Labor Commissioner pursuant to subsection Connecticut General Statutes, section 31-53 (d), and said wages and benefits are not less than those which may also be required by contract;
- c) The Employer has complied with all of the provisions in Connecticut General Statutes, section 31-53 (and Section 31-54 if applicable for state highway construction);
- d) Each such person is covered by a worker’s compensation insurance policy for the duration of his employment which proof of coverage has been provided to the contracting agency;
- e) The Employer does not receive kickbacks, which means any money, fee, commission, credit, gift, gratuity, thing of value, or compensation of any kind which is provided directly or indirectly, to any prime contractor, prime contractor employee, subcontractor, or subcontractor employee for the purpose of improperly obtaining or rewarding favorable treatment in connection with a prime contract or in connection with a prime contractor in connection with a subcontractor relating to a prime contractor; and
- f) The Employer is aware that filing a certified payroll which he knows to be false is a class D felony for which the employer may be fined up to five thousand dollars, imprisoned for up to five years or both.

2. OSHA~The employer shall affix a copy of the construction safety course, program or training completion document to the certified payroll required to be submitted to the contracting agency for this project on which such persons name first appears.

\_\_\_\_\_  
 (Signature) (Title) Submitted on (Date)



**PAYROLL CERTIFICATION FOR PUBLIC WORKS PROJECTS**

Week-Ending Date:

Contractor or Subcontractor Business Name:

**WEEKLY PAYROLL**

PERSON/WORKER, ADDRESS and SECTION	APPR RATE %	MALE/ FEMALE AND RACE*	WORK CLASSIFICATION  Trade License Type & Number - OSHA 10 Certification Number	DAY AND DATE							Total ST Hours	BASE HOURLY RATE	TYPE OF FRINGE BENEFITS Per Hour 1 through 6 (see back)	GROSS PAY FOR ALL WORK PERFORMED THIS WEEK	TOTAL DEDUCTIONS				GROSS PAY FOR THIS PREVAILING RATE JOB	CHECK # AND NET PAY
				S	M	T	W	TH	F	S					FICA	FEDERAL WITH- HOLDING	STATE WITH- HOLDING	OTHER		
				HOURS WORKED EACH DAY							Total O/T Hours	TOTAL FRINGE BENEFIT PLAN CASH	1. \$	2. \$	3. \$	4. \$	5. \$	6. \$		
											\$	Base Rate								
											\$	Cash Fringe								
											\$	Base Rate								
											\$	Cash Fringe								
											\$	Base Rate								
											\$	Cash Fringe								
											\$	Base Rate								
											\$	Cash Fringe								

\*IF REQUIRED



## Additional Forms to Be Submitted After Bond Commission Funding Approval

DAS | Construction Services | Office of Legal Affairs, Policy, and Procurement

<b>Table of Contents</b>	<b>No. of Pages</b>
<b>Performance Bond</b>	<b>2</b>
<b>Labor And Material Bond</b>	<b>2</b>
<b>Surety Sheet</b>	<b>1</b>
<b>Bidder's Certification: Financial Position and Corporate Structure</b>	<b>1</b>

**PERFORMANCE BOND**  
**Know All Men by These Presents**

**THAT** [ ] of the  
Town of [ ], County [ ] and  
State of [ ], as Principal (hereinafter called the Principal),  
and [ ], [ ]

*(Insert place of Business)*

(a surety company authorized to transact business in the State Of Connecticut) as Surety(ies) (hereinafter called the Surety) are held and firmly bound unto the State of Connecticut (hereinafter called the Obligee) in the full penal sum of

[ ]

(\$ [ ] ) Dollars, lawful money of the United States, to be paid to said State of Connecticut, to the which payment well and truly to be made and done, the said Principal binds himself, his heirs, executors, administrators and assigns (or itself, its successors and assigns), and the said Surety (ies) binds itself, its successors and assigns jointly and severally firmly by these presents.

Signed, sealed and delivered this [ ] day of [ ] 20 [ ] .

**THE CONDITION OF THIS OBLIGATION IS SUCH THAT**

**WHEREAS** said Principal will enter into a certain written contract with said Obligee, to be dated-the

[ ] day of [ ] 20 [ ] , which written , as amended, contract shall provide for the following:

- Project Title:** [ ]
- Project Location:** [ ]
- Contract Number:** [ ]
- Project Number:** [ ]

which contract, including any hereafter made extension, modification or alteration thereof, together with all plans and specifications now made or which may hereafter be made in extension, modification or alteration thereof, is hereby referred to, incorporated in, and made a part of this bond as though herein fully set forth.

**NOW, THEREFORE**, if the said Principal shall well and truly keep, perform and execute all the undertaking, covenants, terms, conditions, and agreements of said contract, as it may be extended, modified or altered, and during the *period* of any guaranty required under the contract, according to its provisions on his or its part to be kept and performed or shall indemnify and reimburse the Obligee for any loss that it may suffer through the failure of the Principal to faithfully observe and perform each and every obligation and duty imposed upon the Principal by the said contract, as it may be extended, modified or altered, at the time and in the manner therein specified, then this obligation shall be null and void, otherwise it shall remain and be in full force and effect.

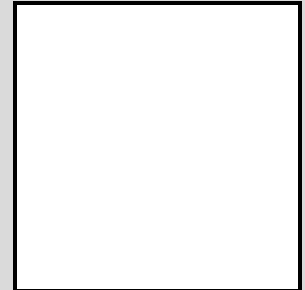
Any alterations which may be made in the terms of the contract, or in the work done or to be done under it, or the giving by the Obligee of any extension of time for the performance of the contract or any other forbearance on the part of either the Obligee or the Principal, one to the other, shall not in any way release the Principal, and/or the Surety(ies) or either of them, their representatives, heirs, executors, administrators, successors or assigns from liability hereunder, and notice to the Surety(ies) of any such alteration, modification, extension or forbearance is hereby specifically and absolutely waived.

In the event that the Surety(ies) assumes the contract or obtains a bid or bids for completion of the contract, the Surety(ies) shall ensure that the contractor chosen to complete the contract is prequalified pursuant to section 4a-100 of the Connecticut General Statutes, in the requisite classification and has the aggregate work capacity rating and single project limit necessary to complete the contract.

**IN TESTIMONY WHEREOF**, the said Principal has hereunto set his / its hand and seal, and the said Surety(ies) has/have caused this instrument to be signed by its/their attorney in fact and its corporate seal to be hereunto affixed, the day and year first written.

**Witness as to Principle**

**SEAL**



(Print Name)

, Its

Duly Authorized

(Print Name)

**Witness as to Surety**

**SEAL**



(Print Name)

by

Its attorney in fact

(Print Name)

**Note:** If more than one surety, add additional lines for additional surety name and address, person signing and title, and two witnesses. Obtain Power of Attorney for each surety.

**End Performance Bond**



**LABOR AND MATERIAL BOND  
Know All Men by These Presents**

**THAT** [ ] of the  
Town of [ ], County [ ] and  
State of [ ], as Principal (hereinafter called the Principal),  
and [ ], [ ]

*(Insert place of Business)*

(a surety company authorized to transact business in the State Of Connecticut) as Surety(ies) (hereinafter called the Surety) are held and firmly bound unto the State of Connecticut (hereinafter called the Obligee) in the full penal sum of

[ ]

(\$ [ ] ) Dollars, lawful money of the United States, to be paid to said State of Connecticut, to the which payment well and truly to be made and done, the said Principal binds himself, his heirs, executors, administrators and assigns (or itself, its successors and assigns), and the said Surety (ies) binds itself, its successors and assigns jointly and severally firmly by these presents.

Signed, sealed and delivered this [ ] day of [ ] 20 [ ] .

**THE CONDITION OF THIS OBLIGATION IS SUCH THAT**

**WHEREAS** said Principal will enter into a certain written contract with said Obligee, to be dated the

[ ] day of [ ] 20 [ ] , which written, as amended, contract shall provide for the following:

**Project Title:** [ ]

**Project Location:** [ ]

**Contract Number:** [ ]

**Project Number:** [ ]

which contract, including any hereafter made extension, modification or alteration thereof, together with all plans and specifications now made or which may hereafter be made in extension, modification or alteration thereof, is hereby referred to, incorporated in, and made a part of this bond as though herein fully set forth.

**NOW, THEREFORE**, if the said Principal shall promptly pay for all materials furnished and labor supplied or performed in the prosecution of the work included in and under the aforesaid contract, as it may be extended, modified or altered, and/or required by the General Statutes of Connecticut, as amended, whether or not the material or labor enters into and becomes a component part of the real asset, then this obligation shall be null and void, otherwise it shall remain and be in full force and effect. This bond is provided pursuant to Section 49-41 et seq. of the General Statutes of Connecticut and shall be governed thereby.

Any party, whether a subcontractor or otherwise, who furnishes materials or supplies or performs labor or services in the prosecution of the work under said contract, as it may be extended, modified or altered, and who is not paid therefor, may bring a suit on this bond in the name of the person suing and prosecute the same to final execution and judgment for such sum or sums as may be justly due.

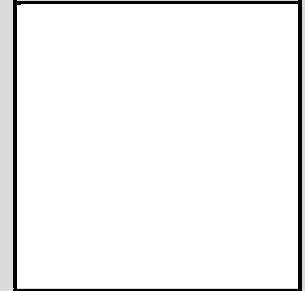
Any alterations which may be made in the terms of the contract, or in the work done or to be done under it, or the giving by the Obligee of any extension of time for the performance of the contract or any other forbearance on the part of either the Obligee or the Principal, one to the other, shall not in any way release the Principal, and/or the Surety(ies) or either of them, their representatives, heirs, executors, administrators, successors or assigns from liability hereunder, and notice to the Surety(ies) of any such alteration, modification, extension or forbearance is hereby specifically and absolutely waived.

In the event that the Surety(ies) assumes the contract or obtains a bid or bids for completion of the contract, the Surety(ies) shall ensure that the contractor chosen to complete the contract is prequalified pursuant to section 4a-100 of the Connecticut General Statutes, in the requisite classification and has the aggregate work capacity rating and single project limit necessary to complete the contract.

**IN TESTIMONY WHEREOF**, the said Principal has hereunto set his / its hand and seal, and the said Surety(ies) has/have caused this instrument to be signed by its/their attorney in fact and its corporate seal to be hereunto affixed, the day and year first written.

**Witness as to Principle**

**SEAL**



(Print Name)

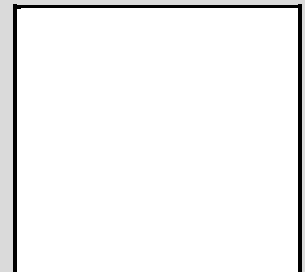
, Its

Duly Authorized

(Print Name)

**Witness as to Surety**

**SEAL**



(Print Name)

by

Its attorney in fact

(Print Name)

**Note:** If more than one surety, add additional lines for additional surety name and address, person signing and title, and two witnesses. Obtain Power of Attorney for each surety.

**End Labor and Material Bond**

## Surety Sheet

State Of Connecticut  
Department of Administrative Services, Construction Services  
Office of Legal Affairs, Policy, and Procurement  
450 Columbus Boulevard, Suite 1302  
Hartford, CT 06103

### 1. Surety Company

Name of Surety Co.:

Address of Home Office:

Telephone Number:

### 2. Agent

Name of Surety Co.:

Address of Agency:

Telephone Number:

Attorney-In-Fact:

Telephone Number:

DAS Project Number:

Contractor's Name:

*End Surety Sheet*

**Bidder's Certification:  
Financial Position and Corporate Structure**

*(Your Name)*

*(Name Of Company)*

Pursuant to C.G.S. § 4b-91(e), as amended, the bidder for this contract (hereinafter "bidder"), certifies under penalty of false statement that the information in the bid is true, that there has been no substantial change in the bidder's financial position or corporate structure since its most recent prequalification certificate was issued or renewed, other than those changes noted in the update statement, and that the bid was made without fraud or collusion with any person.

*(Signature)*

*(Print Name)*

*(Date)*

*(DAS Project Number)*

***End Bidder's Certification: Financial Position and Corporate Structure***

**End of Section 00 92 10  
Additional Forms To Be Submitted After Bond Commission Funding Approval**



## Procedures Regarding Taxation For Nonresident General / Prime Contractor and Subcontractors

**DAS | Construction Services | Office of Legal Affairs, Policy, and Procurement**

According to [Connecticut General Statutes § 12-430\(7\)](#), there are two types of Nonresident Contractors and Subcontractors (*Verified* or *Unverified*) who are required to furnish security for Connecticut taxes arising from jobs performed in Connecticut.

Detailed information can be found by visiting the Connecticut Department of Revenue Services (DRS) website at [www.ct.gov/drs](http://www.ct.gov/drs):

- Under the “**For Businesses**” title, click on “**Withholding Tax**”;
- Click on “**Registering**”;
- Click on “**5. What tax types do I need to register for with DRS**”;
- Read the information for “**Out-of-State**” contractors.
- Click on “[SN 2012\(2\)](#)” for the “Procedure Governing Nonresident Contractors”.

Forms can be downloaded from the DRS website ([www.ct.gov/drs](http://www.ct.gov/drs)) as follows:

- Click on “**Forms**” at the top of the page;
- Under “**Current Year Forms**”:
  - Click on “**Miscellaneous Tax Forms**”;
  - Click on “**Bond Forms**”
- Download the appropriate form.

For questions regarding the nonresident contractor bond law, call **DRS** at **860-541-7538**.

### 1.0 Verified Nonresident Contractors and Subcontractors

Verified Nonresident Contractors are treated just like Resident Contractors. A Verified Nonresident General or Prime Contractor is not required to file a surety bond with DRS. A Verified Nonresident Subcontractor is not required for the General or Prime Contractor to hold back a portion of the amount owed the Subcontractor under the contract.

#### 1.1 Verification Procedure for General/Prime Contractors and Subcontractors:

- |              |  |
|--------------|--|
| <b>1.1.1</b> | <b>Register with DRS</b> via REG-1 for all appropriate taxes.  |
| <b>1.1.2</b> | Submit <b>Form AU-960 “Nonresident Contractor Request for Verified Contractor Status” to DRS</b> . If you have a 3 year filing history with DRS and no delinquencies, then just complete <b>Part I &amp; Part I</b> , otherwise go to <b>Part III</b> .  |
| <b>1.1.3</b> | Submit <b>Form AU-961 “Verification Bond” to DRS</b> .   |
| <b>1.1.4</b> | If Verified by DRS, submit “ <b>Notice of Verified Status</b> ” (Verification Letter issued by DRS) to the Connecticut Department of Administrative Services / Construction Services (DAS/CS) Office of Legal Affairs, Policy, and Procurement as specified in Section 00 41 00 Bid Proposal Form. |

**2.0 Unverified Nonresident Contractors and Subcontractors  
(for Contracts Greater Than \$250,000):**

The requirements for Unverified Nonresident Contractors and Unverified Nonresident Subcontractors (for Contracts greater than \$250,000) are different for General/Prime Contractors and their Subcontractors:

**2.1 Unverified Nonresident General or Prime Contractors:**

- 2.1.1** Submit **Form AU-964 “Surety Bond and Release” to DRS**. The Unverified Nonresident General/Prime Contractor is required to file a good and valid surety bond with DRS using Form AU-964 “Surety Bond and Release” for 5% of the contract price to secure payment of required taxes by both the General/Prime Contractor and its Subcontractors.
- 2.1.2** The General/Prime Contractor must provide proof to DAS/CS that they have posted a good and valid surety bond with DRS by providing a copy of **Form AU-965 “Acceptance of Surety Bond”** that verifies acceptance of the bond by DRS\*.

**2.2 Unverified Nonresident Subcontractors:**

- 2.2.1** The Resident or Verified or Unverified Nonresident General/Prime Contractor is required to hold back 5% of its payments to the Unverified Nonresident Subcontractor. The General/Prime Contractor must keep the hold-backs in a special fund in trust for the state.
- 2.2.2** The Unverified Nonresident Subcontractor can request that the money be released from the General/Prime Contractor by submitting **Form AU-967 “Request for Certificate of Compliance” to DRS**. It must be signed by the General/Prime Contractor and the Nonresident Subcontractor and submitted **to DRS within 90 days of the completion date**.
- 2.2.3** If **Form AU-968 “Certificate of Compliance”** is issued by DRS, DRS will instruct the General/Prime Contractor holding back the 5% to release the withheld amount to the Nonresident Subcontractor. If the “Certificate of Compliance” is denied or not requested within **90 days of the completion date of the contract**, the General/Prime Contractor holding back the 5% will remit the withheld amount on their own Sales & Use tax returns.
- 2.2.4** The 5% holdback does not take the place of any tax returns due from the Unverified Nonresident Contractor.
- 2.2.5** The General/Prime Contractor must give the Unverified Nonresident Subcontractor written notice of the hold-back requirements by the time the Subcontractor begins work under the contract.

\*Document(s) must be submitted to the DAS/CS Office of Legal Affairs, Policy, and Procurement as specified in Section 00 41 00 “Bid Proposal Form”.

End of Section

**00 92 30 Procedures Regarding Taxation  
For Nonresident General/Prime Contractor & Subcontractors**

## PART 1 – GENERAL

### 1.1 DEFINITIONS

#### A. Contractor:

Whenever the term "**Contractor**" is used in these Division 01 General Requirements and the Contract Documents, it may be understood to mean either the **Design-Bid-Build (D-B-B) "General Contractor"** or the **Construction Manager at Risk ("CMR")** as applicable to the specific Project.

#### B. Subcontractor:

Whenever the term "**Subcontractor**" is used, it may be understood to mean either a **Subcontractor** or a **Supplier**, as applicable to the specific Project.

#### C. Contract:

Whenever the term "**Contract**" is used in these Division 01 General Requirements and the Contract Documents, it may be understood to mean either the **D-B-B General Contractor's Contract Sum** as stated in their Contract or the **CMR's Contract Sum** as stated in their CMR Agreement, as applicable to the specific Project.

### 1.2 RELATED DOCUMENTS

- A. The Contract Documents are defined in the D-B-B and CMR Division 00 General Conditions, as applicable to the specific Project.
- B. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

### 1.3 WORK COVERED BY CONTRACT DOCUMENTS

#### A. Project Delivery Method:

- 1.  Design-Bid-Build (DBB);
- 2.  Construction Manager at Risk (CMR)

#### B. Project Number: BI-JD-364

#### C. Project Title: Roof and Masonry Replacement, Bridgeport Superior Court

#### D. Project Location: The Superior Court Building, located in Bridgeport, Connecticut.

#### E. The Project Description:

- 1. Roof Replacement on a 7-story building of approximately **18,000** gross square feet, including (4) balconies at the 2<sup>nd</sup> floor.
- 2. Removal of a brick screen wall around the RTU (to remain).
- 3. Replace (3) access doors at the balconies.
- 4. Add fiber cement siding at existing brick walls to remain near RTU to reduce brick dust.
- 5. Replace fireproofing on 7<sup>th</sup> floor structural steel.
- 6. Replacement of 7<sup>th</sup> floor ceilings, light fixtures, and diffusers to facilitate access to existing structural steel under the roof deck, where friable ACM is being removed.
- 7. Replace fireproofing on structural steel below roof deck at 7<sup>th</sup> floor.
- 8. The building is existing. New roof shall be EPDM. Masonry caps salvaged for reinstallation are limestone. New doors are aluminum and hollow metal. Finishes include exterior fiber cement panels, gypsum board, plaster and lathe patching, paint.
- 9. The Authorities Having Jurisdiction for Threshold Projects, Non-Threshold Projects, and/or Connecticut State University System (CSUS) 2020 Projects, as defined by the Connecticut General Statutes, are the Connecticut Department of Administrative Services (DAS) / Construction Services (CS) Office of State Building Inspector (OSBI) and Office of State Fire Marshal (OSFM).
- 10. Abatement of existing fireproofing including temporary containment and related work by Abatement contractor. GC to coordinate phasing with Abatement contractor to provide replacement of interior work immediately following completion of abatement.

#### F. Owner:



1. **Owner's Name:** The Owner is the State of Connecticut, Department of Administrative Services.
  2. **Authorized Representative for the Owner: DAS/CS Project Manager Name: Steve Udeh**
    - a. **DAS/CS Project Manager's Location:** The DAS/CS Project Manager is located at 450 Columbus Blvd, Suite 1201, Hartford, CT, 06103.
    - b. **Phone: 860-713-5730;**
    - c. **Fax: 860-707-5730;**
    - d. **Email(s): [Steven.Udeh@ct.gov](mailto:Steven.Udeh@ct.gov) .**
  3. **Authority:** The DAS/CS Project Manager is the only authorized representative for the Department of Administrative Services Commissioner to act in matters involving revoking, altering, enlarging or relaxing any requirement of the Contract Documents.
    - a. **Related Section: Article 25, All Work Subject To Control of the Commissioner,** Division 00 General Conditions of the Contract for Construction.
- G. Agency:**
1. **Agency Name:** The Connecticut State (User) Agency is **CT Judicial Branch Facilities Unit.**
  2. **Agency Representative Name and Title: Deborah Levesque.** The Agency Representative's Title is **Manager-Design.**
    - a. **Agency Representative Location:** The Agency Representative is located at **90 Washington Street, Hartford, CT 06106.**
    - b. **Phone: 860-706-5263;**
    - c. **Fax: 860-706-5093;**
    - d. **Email(s): [Deborah.Levesque@jud.ct.gov](mailto:Deborah.Levesque@jud.ct.gov).**
  3. **Authority:** The Agency Representative has the administrative authority for the facility and or site where the work is being performed but does not have the authority to change the Contract Documents or direct the Contractor.
- H. Architect and Engineer (A/E):**
1. **Architect's Name:** The Architect representing the firm for this project is **Lori L. Donadio, AIA at OakPark Architects, LLC**
    - a. **Architect's Location:** The Architect is located at **312 Park Road, West Hartford, CT 06119.**
    - b. **Phone: 860-232-6664 ext 113;**
    - c. **Fax: N/A;**
    - d. **Email(s): [lolid@oakparkarchitects.com](mailto:lolid@oakparkarchitects.com).**
  2. The Architect and Engineer (A/E) or their accredited representative is referred to in the Contract Documents as "Architect" or "Architects" or "Engineer" or "Engineers" or by pronouns which imply them. As information for the Contractor, the Architect's or Engineer's status is defined as follows:
    - a. The Architect and Engineer will not make interpretations or decisions directly to the Contractor. All interpretations or decisions will be conveyed through the Construction Administrator to the DAS/CS Project Manager.
    - b. As the authorized representative of the Department of Administrative Services Commissioner, the Architect and Engineer is responsible for review of shop drawings, materials, and equipment intended for the work, in accordance with the Division 00 "General Conditions" and "Supplementary Conditions".
  3. Wherever the Architect or Engineer is mentioned in the documents in connection with an administrative function, it shall include the Construction Administrator in that function except for shop drawings.
- I. Construction Administrator (CA):**
1. **Construction Administrator Name: Ed Copeland at Colliers Project Leaders.**
    - a. **Construction Administrator Location:** The Construction Administrator is located at **135 New Road, Madison, CT 06443.**
    - b. **Phone: 203-815-7564;**
    - c. **Fax: N/A;**
    - d. **Email(s): [Ed.Copeland@colliers.com](mailto:Ed.Copeland@colliers.com).**

2. **Authority:** As information to the Contractor, the Construction Administrator's status is defined as follows:
  - a. The Construction Administrator (CA) is referred to in the Contract Documents as "Construction Administrator" or by pronouns which imply it. All communications concerning the project will be directed through the Construction Administrator or a designated representative(s).
  - b. The Construction Administrator is the Owner's Agent who will, among other things, monitor and analyze the Contractor's performance, scheduling and construction, process shop drawings, material, and equipment submittals, review and process periodic billings, review, analyze, and recommend cost changes.
  - c. **Related Section: Article 26 "Authority of the Construction Administrator"** of Division 00 "General Conditions of the Contract for Construction".
3. The Construction Administrator will process all requests for information, interpretations and decisions regarding the meaning and intent of the Contract Documents, consulting with appropriate parties prior to rendering the interpretations or decisions for the Project Manager to the Contractor. All such requests and replies shall be in writing.
- J. **Work:** The Work Includes but is not limited to the following:
  - 1 **Demolition, cutting and patching, including demolition of asbestos containing roofing material and fire proofing;**
  - 2 **Masonry restoration;**
  - 3 **Metal fabrications;**
  - 4 **Rough Carpentry;**
  - 5 **Waterproofing, Insulation, Sprayed-on Fireproofing, Firestopping, Roofing, Sheet metal, and Joint Sealants;**
  - 6 **Doors, Hardware, and Glazed Aluminum Storefront;**
  - 7 **Drywall, Acoustical Ceilings, Fiber cement siding, and Painting;**
  - 8 **Access Panels;**
  - 9 **EPDM Roofing Accessories;**
  - 10 **Plumbing (drains), HVAC, and Controls;**
  - 11 **Electrical, Lighting and controls;**
- K. The Contractor will include in their bid, all items required in order to carry out the intent of the Work as described, shown and implied in the Contract Documents.
- L. It shall be the Contractor's responsibility upon discovery to immediately notify the Construction Administrator, in writing, of errors, omissions, discrepancies, and instances of noncompliance with applicable codes and regulations within the documents, and of any work which will not fit or properly function if installed as indicated on the Contract Documents. Any additional costs arising from the Contractor's failure to provide such notification shall be borne by the Contractor.
- M. The Work will be constructed under the Contractor's Contract as applicable to this Project.

1.4 **WORK UNDER OTHER CONTRACTS – N/A**

1.5 **FUTURE WORK -N/A**

1.6 **WORK SEQUENCE (PHASES)**

- A. **Related Documents:** Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.
- B. Site Phasing Plan is shown on Drawing Sheet No. G-101.
- C. The entire Project shall be constructed in ONE Phase(s). Work of these Phase(s) shall be substantially complete, ready for occupancy within 360 Calendar Days of commencement of the Work (the "**Contract Time**").

## 1.7 CONTRACTOR'S USE OF PREMISES

- A. General:** During the construction period the Contractor shall have full use of the newly constructed premises for construction operations, including use of the site. The Contractor's use of the premises is limited only by the Owner's right to perform work or to retain other contractors on portions of the Project.
- B. Use of the Site:** Limit use of the premises to work in areas indicated. Confine operations to areas within contract limits indicated. Do not disturb portions of the site beyond the areas in which the Work is indicated.
- 1. Owner Occupancy:** Allow for Owner occupancy and use by the public of the existing facility.
  - The Contractor shall confine his operations including storage of materials, supplies, equipment, and apparatus to the areas bounded by the contract limits indicated and as directed in the Contract Documents. The contractor to provide barriers to secure work areas and to prevent unauthorized entry into the work site. Install temporary fencing (8 feet chain link) with lockable entrance gates, barricades and signage where indicated on Contract Documents.
  - Existing roads, drives, walks, and parking areas which are not within the contract limit line are to be kept free and clear at all times. All deliveries for the project are to enter the **Cannon Street**. The Contractor shall check all roadways for accessibility and clearances for deliveries of all large material and equipment. The Contractor shall inform the Construction Administrator at least **seventy-two (72)** hours in advance of these deliveries so they can be coordinated with the Agency so appropriate traffic control, etc. can be provided. Do not use these areas for parking or storage of materials. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.
  - Traffic Ways:** If the work of the contract affects public use of any street, road, highway or thoroughfare, the Contractor shall confer with the police authority having jurisdiction to determine if and how many police are needed for public safety in addition to any barriers and signals that may be needed. The Contractor will be responsible for coordination, scheduling and payment of any needed police services.
  - The Contractor shall be responsible for keeping the premises clean and shall pick up rubbish and debris and promptly remove from site.
  - Parking for the Contractor's employees: *No Parking is available to contractors on site.*
  - The Contractor shall take all precautions necessary to protect the building and its occupants during the construction period. Any damage caused by construction operations shall be repaired by Contractor at his own expense. Check with Project Manager for areas within the building that may require special security considerations.
  - The Contractor shall comply with building Owner's working hour restrictions and any applicable local city ordinances, unless specifically approved otherwise in writing by the Owner.
  - No signs, other than those approved by the Construction Administrator, will be visible on the premises. The Contractor will not install and/or permit installation of unauthorized signs.
  - Contractor is to secure project area/site from intrusions during unoccupied (after hours) periods of time..
- C. Use of the Existing Building:** Maintain the existing building in a weather-tight condition throughout the construction period. Repair damage caused by construction operations. Take all precautions necessary to protect the building and its occupants during the construction period. Note: Cooperate with the Agency during construction operations to minimize conflicts and facilitate Agency usage. Perform the Work so as not to interfere with the Agency's operations. Check with Agency special types of conditions. Contractor personnel are not allowed to use the Cafeteria or vending machines within the existing buildings unless authorized in writing by the agency.

## 1.8 OCCUPANCY REQUIREMENTS

- A. Full Agency Occupancy During Construction:** The Owner reserves the right to allow the Agency to occupy the site and existing building during the entire construction period. Cooperate with the Agency during construction operations to minimize conflicts and facilitate Agency usage. Perform the Work so as not to interfere with the Agency's operations.
- Provide adequate building and fire code egress from the buildings during the renovation process and/or as indicated on the Contract Documents. The Contractor will be responsible to maintain and protect egress ways during the construction sequence as required and/or indicated in the Contract documents. The Contractor shall be responsible for preparing egress plans for Owner approval and for DAS/CS Office of State Building Official and Office of State Fire Marshal for approval if required.

2. Court Business hours run Monday-Friday 8:00 am – 5:00 pm. Courtroom activities are underway M-F 10:00 am – 5:00 pm.
  3. Every reasonable means shall be employed by the Contractor to minimize excessive vibration, noise, dust and odors which may result from their work. Contractor shall identify Construction Administrator and Project Manager at a minimum of **forty-eight hours (48)** in advance of any work to be completed that potentially produces strong odors.
  4. Owner reserves the right to stop work if it becomes disruptive to the daily business/operation of the court.
  5. Any disruptive work shall be completed after 5:00 pm Monday-Friday and over weekends including setting up scaffolding and abatement work in Jury Assembly, 7<sup>th</sup> floor elevator lobby, 7<sup>th</sup> Floor public Restrooms, Jury Clerk and Janitor's closet.
  6. Subsequent claims by the Contractor for additional time or costs due to such shut-downs will not be entertained by the State.
- 1.9 PRODUCTS ORDERED IN ADVANCE -N/A
- 1.10 OWNER-FURNISHED PRODUCTS – N/A
- 1.11 MISCELLANEOUS PROVISIONS
- A. Examination of Site:**
1. It is not the intent of the Documents to show all existing conditions. All Contractors and Subcontractors are advised to attend the Pre-Bid Meeting prior to submitting their Bid Proposals. This is the only official opportunity to visit and examine the site with the Owner, Agency, Architect, Engineer and Construction Administrator.
  2. The Contractor should investigate and satisfy himself as to the conditions affecting the work, including but not restricted to those bearing upon transportation, disposal, handling and storage of materials, availability of labor, water, electric power, uncertainties of weather, roads or similar physical conditions of the ground, the character of equipment, and facilities needed preliminary to and during the prosecution of the Work. The Contractor should further satisfy himself as to the character, quality, and quantity of surface and subsurface materials or obstacles to be encountered insofar as this information is reasonably ascertainable from an inspection of the site, as well as from information presented by the Contract Documents. Any failure by the Contractor to acquaint himself with the available information shall not relieve him from the responsibility for estimating properly the difficulty and cost of successfully performing the Work.
  3. If tests have been done for Asbestos Containing Material (ACM), Lead-Based Paint (LBP) Containing Material, Polychlorinated Biphenyls (PCBs) in Building Materials and/or Mold, then the results are referenced in **Section 00 30 00 Available Information and provided in Division 50 00 00 Project-Specific Available Information**. See **Section 01 35 16 "Alteration Project Procedures"** for **removal responsibility** and additional information.
- B. Pre-Bid Meeting:**
1. A Pre-Bid Meeting and tour of the site will be conducted as scheduled in Division 00 Section 00 11 16 "Invitation to Bid". This scheduled meeting is the only official opportunity for the bidders to tour the site with the Owner, Architect, Engineer, Construction Administrator, and Agency.
- C. Project Documents:**
1. The Specifications and Drawings are intended to describe and illustrate the materials and labor necessary for the work of this Project.
  2. Throughout the Technical Specifications, the Connecticut Department of Transportation Standard Specifications for Roads, Bridges, and Incidental Construction Form 816, current edition including any interim and supplemental specifications are referenced. Where so referenced the requirements set forth therein are applicable and made a part hereof. Copies of Form 816 are available from the Connecticut Department of Transportation at a nominal charge.
- D. Site Logistics Plan(s):** Site Logistics Plan(s) for this Project are in the Contract Documents. The Site Logistics Plan(s) describe in detail the proposed use of the Site and Building, both inside and outside the Contract Limit Area.

1. **Related Section:** Section 01 31 00 "Project Management and Coordination", 1.5 Submittals, A, (4).
  2. The **Site Logistics Plan(s)** include, but are not be limited to the following information:
    - a. **proposed vehicle and equipment access routes;**
    - b. **locations of proposed staging/lay-down and storage areas, utility connections;**
    - c. **building egress, proposed pedestrian traffic flows in the interior and exterior of the building;**
    - d. **office trailer and dumpster locations;**
- E. Scope Review:**
1. Prior to signing a Contract with the State, DAS/CS will conduct a full scope review with the apparent Low Bidder to ensure that all of the requirements have been included within the bid. This scope review will highlight all of the specific requirements of the project, a review of the DAS/CS procedures and all of the Technical sections of the contract documents.
  2. This process will ensure that all of the scope of work included in the contract documents has indeed been included.
- F. Specifications, Drawings, and Electronic Data Storage Devices Furnished:**
1. The Contractor shall receive **one (1) set of Portable Document Format (PDF, latest version) Conformed Bid Documents** (incorporating all Addendum changes made to the Contract Documents during the official Bid Period) on Electronic Data Storage Devices on or about the time of execution of the Contract, free of charge from the Architect. If additional copies are wanted, they will be available at the direct additional cost of their reproduction, to the Contractor.
  2. The Contractor shall receive **one (1) set of AutoCAD compatible (latest version) Conformed Set of Floor Plans** (incorporating all Addendum changes made to the Contract Documents during the official Bid Period) on Electronic Data Storage Devices at no cost on or about the time of execution of the Contract from the Architect. Additional sets of AutoCAD compatible (latest version) Floor Plans on Electronic Data Storage Devices from the Architect shall be available at the cost of their reproduction, to the Contractor.
- G. Construction Responsibility:**
1. The Contractor shall be responsible for his construction means, methods, techniques, sequences, and procedures employed in the performance of his work and shall have full responsibility for his failure to carry out any part of his work in accordance with the Contract Documents.
- H. Overtime Requests:**
1. The Contractor shall request approval from the Owner to work overtime. Said request shall be made **seventy-two (72) hours** in advance. All costs for overtime are included in the Contract Sum as stated in Division 00 Section 00 41 00 "Bid Proposal Form."
    - a. Contractor "Normal" scheduled work hours are **6:00 AM to 5:00 PM**, Monday through Friday. ALL OTHER TIMES, including Saturday, Sunday and Holidays are considered outside of "Normal" work hours or overtime hours.
    - b. Anticipate that weekend and/or after work hours **will be necessary** to complete the project as required. After hours work will be Monday – Friday 5:00pm – 11:00pm. Weekend hours will be Saturday and Sunday 7:00am – 4:30pm. Adjustments on after hour's work times can be made with **72 hours in advance** notice to Judicial Project Manager. After hours work includes including setting up scaffolding and abatement work in Jury Assembly, 7<sup>th</sup> floor elevator lobby, 7<sup>th</sup> Floor public Restrooms, Jury Clerk and Janitor's closet.
- I. PMWeb Project Management:**
1. DAS/CS is using PMWeb as the project management collaborative software tool for this project.
  2. The Contractor is required to utilize PMWeb for the duration of this project and shall provide all project information via this program management software. This includes, but is not limited to contracts, applications for payment, change orders, change order proposals, requests for information, etc.
  3. The DAS/CS Project Manager shall arrange for training. This training is for the Contractor's Staff, the DAS/CS Project Manager, the Construction Administrator, the A/E, and their representatives.

4. DAS/CS will be establishing a project specific email “file” address for this project. The Contractor shall send an electronic “file” copy of all project documents to this email address, to include but not limited to all project correspondence, project emails, forms, etc.
  5. The Contractor is required to scan all documents that contain wet (ink) signatures and send a copy of those documents electronically to the DAS/CS Project Manager and the project specific email “file” address. The hard copy of the wet signature documents shall be transmitted as directed by the DAS/CS Project Manager. This includes, but is not limited to all contracts, change orders, applications for payment, closeout documentation, etc.
- J. Subcontractor Performance Evaluations:**
1. Pursuant to C.G.S. Sec. 4a-101, the Contractor shall compile evaluation information during the performance of the contract on each of its subcontractors who are performing work with a value in excess of five hundred thousand dollars (\$500,000.00). The Contractor shall complete and submit to DAS/CS evaluations of each such subcontractor upon fifty percent (50%) completion of the project and upon Substantial Completion of the project. The Contractor acknowledges that its failure to complete and submit these evaluations in a timely manner may, by statute, result in a delay in project funding and, consequently, payment to the Contractor. The Contractor agrees to indemnify and hold the State harmless from any loss, damage, or expense that results from or is caused by the Contractor’s failure to complete and submit the evaluations to DAS/CS in accordance with this provision.
- K. Reporting and Contracting Requirements for Contractor and Subcontractor Payments:**
1. For compliance with **C.G.S. Sec. 4b-95 and 49-41**, DAS/CS requires every Contractor (and its Subcontractors) who has been awarded a DAS/CS construction contract to log on to the State of Connecticut web-based platform, BizNet, **each month** and **enter payments** they have received from the state, from the Contractor, or from a higher tier Subcontractor (as applicable).
  2. The process is described as follows: The state will pay the Contractor on a monthly basis for work performed (and purchases made) by it and its Subcontractors. The Contractor will input the payment date and amount they receive from the state on a monthly basis. The Contractor’s first-level Subcontractor (Tier 1 Subcontractor) will input the payment they receive from the Contractor. The second-level Subcontractor (Tier 2 Subcontractor) will input the payment they receive from the Tier 1 Subcontractor. And so on.
  3. Contractors awarded a DAS/CS construction contract shall contain **a provision in their subcontract agreements** requiring their Subcontractors to enter payment receipt from the Contractor in the State of Connecticut web-based platform, BizNet, for work performed or purchases made in relation to state projects.
  4. Detailed instructions can be found in the DAS/CS publication, “**6002 Instructions to Contractors/Subcontractors for Entering Payments in BizNet**”, available for download by going to the DAS Homepage ([www.ct.gov/DAS](http://www.ct.gov/DAS)) and selecting Doing Business With The State > State Building Construction > Publications and Forms > DAS Construction Services Library > 6000 Series.

**PART 2 - PRODUCTS (Not Applicable)**

**PART 3 - EXECUTION (Not Applicable)**

**END OF SECTION 01 11 00**



## PART 1 - GENERAL

### 1.1 RELATED DOCUMENTS

- A. Contract Documents and general provisions of the Contract, including General and Supplementary Conditions, other Division 01 Specification Sections, and Section 00 41 00 "Bid Proposal Form" apply to this Section.

### 1.2 SUMMARY

- A. This Section includes the following:
1. Allowances.
  2. Unit Prices.
- B. **Related Sections:** The following Sections contain requirements that relate to this Section:
- Section 01 26 00 Contract Modification Procedures
  - Section 01 29 76 Progress Payment Procedures
  - Section 01 35 16 Alteration Project Procedures
  - Section 01 35 26 Government Safety Requirements
  - Section 01 50 00 Temporary Facilities And Controls
  - Section 01 77 00 Closeout Procedures
  - Section 02 41 19 Selective Demolition
  - Section 02 82 13 Asbestos Abatement
  - Section 02 84 16 Removal and Handling of Regulated Material

### 1.3 ALLOWANCES

- A. This Section includes administrative and procedural requirements for Allowances.
- B. **Related Sections:** The following Sections contain requirements that relate to this Section:
1. Division 01 Section 01 26 00 "Contract Modification Procedures" for procedures for submitting and handling Change Orders.
- C. **Cash Allowances:**
- The Contractor's costs for unloading and handling, labor, installation costs, storage, insurance, overhead and profit and other expense related to the Allowance item shall be included in the Contractor's Lump Sum Base Bid Amount and not in the Allowance unless stated otherwise in the Allowance Schedule of this section.
2. **Architect/Engineer Responsibilities:**
    - a. Consult with Contractor for consideration of Products, suppliers and installers.
    - b. Select Products in consultation with the DAS/CS Project Manager and Agency Representatives and transmit decision to Construction Administrator.
    - c. Prepare Change Order.
  3. **Construction Administrator Responsibilities:**
    - a. Consult with Architect/Engineer, Contractor, DAS/CS Project Manager and Agency Representatives for consideration of Products, suppliers and installers.
    - b. Select Products in consultation with Architect/Engineer, DAS/CS Project Manager and Agency Representatives and transmit decision to Contractor.
    - c. Prepare Change Order.
  4. **Contractor Responsibilities:**
    - a. Assist Architect/Engineer and Construction Administrator in selection of Products and Suppliers.
    - b. Obtain proposals from Suppliers and offer recommendations.



- c. On notification of selection by Construction Administrator execute purchase agreement with designated supplier.
- d. Arrange for and process shop drawings, product data, and samples. Arrange for delivery.
- e. If the actual cost of an Allowance item is more or less than the given amount, the Contract Sum will be adjusted by Change Order.

**5. Allowance Schedule:**

- a. Section **04 01 20**: Include the Stipulated sum of \$ **5,000** for **Limestone Cap Repair**.
- b. Section **04 01 20**: Include the Stipulated sum of \$ **10,000** for **Loose Brick Removal**.

**1.4 DEFINED UNIT PRICES - GENERAL**

- A.** This Section includes administrative and procedural requirements for unit prices.
- B. Related Sections:** The following Sections contain requirements that relate to this Section:
  - 1. Division 01 Section 01 26 00 "Contract Modification Procedures" for procedures for submitting and handling Change Orders.
  - 2. Division 01 Section 01 29 76 "Progress Payment Procedures" for procedures for submitting Application for Payments.
- C. Definition - Unit Price:** Amount the Contractor acknowledges in the Bid Proposal Form as a price per unit of measurement for materials or services as described in the Contract Documents.
- D. Procedures:**
  - 1. Unit Prices included in the Contract Documents are to be used for determining compensation to the Contractor or Owner for changes to the scope of the work indicated in the Contract Documents, and included in the Lump Sum Contract Price. Special Unit Prices are for items complete, in place, and shall be inclusive of furnishing and installing of all material, labor, trucking, overhead, profit, equipment, hoisting, excavation, stockpiling, loading, engineering, scaffolding, power hookups, protection, shop drawings, taxes, permits, appliances, delivery, disposal, insurance, supervision, cost of bond, etc. and shall remain in effect until completion of the Contract.
  - 2. **Unit Price:** Is identified by the Owner as a price per unit of measurement for materials or services added to or deducted from the Contract Sum by appropriate modification, if the estimated quantities of Work required by the Contract Documents are increased or decreased.
  - 3. **Increases or Decreases:** Should the amount of the Work required be increased or decreased because of changes in the Work ordered in writing by the DAS/CS Project Manager, the Contractor agrees that the \$ ADD UNIT PRICES and \$ DEDUCT UNIT PRICES shown in the unit price schedules below shall be used for the change in the work. Each Unit Price shall include all equipment, tools, labor, permits, fees, etc., incidental to the completion of the Work involved. All items marked with an asterisk (\*) in the unit price schedules shall include the completion of the excavation, formation and compaction of sub-grade and the disposal of surplus or unsuitable materials in accordance with the Plans and/or Specifications or as directed by the Construction Administrator.
  - 4. The Owner reserves the right to reject the Contractor's measurement of work-in-place that involves use of established unit prices, and to have this work measured, at the Owner's expense, by an independent surveyor acceptable to the Contractor.
  - 5. **Defect Assessment:** Replace the Work, or portions of the Work, not conforming to the specified requirements. If, in the opinion of the Architect/Engineer, it is not practical to remove and replace the work the Architect/Engineer will direct an appropriate remedy or adjust the payment.
  - 6. **Unit Price Schedules:** "Unit Price Schedules" are included in this Section. Plan and/or Specification Sections are cross-referenced in these Schedules and contain requirements for materials described under each unit price, including \$ ADD for an increase in work, \$ DEDUCT for a decrease in work, and BASE BID QUANTITIES that are to be included in the Bidders Lump Sum Base Bid.

**1.5 UNIT PRICE SCHEDULE – EARTH AND ROCK EXCAVATION**

This Section includes administrative and procedural requirements for the following unit prices and provisions that are to be included in and become part of this Contract to be used in evaluating additions to or deductions from the work called for in the Plans and/or Specifications.

- A. 1.6 UNIT PRICE SCHEDULE – MISCELLANEOUS ITEMS**

This Section includes administrative and procedural requirements for the following unit prices and provisions that are to be included in and become part of this Contract to be used in evaluating additions to or deductions from the work called for in the specifications and/or plans.

- A. **Related Documents:** Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.
- B. **Unit Price Schedule – Miscellaneous Items:**

1.6 Unit Price Schedule – Miscellaneous Items						
Section Number &/or Drawing Number	Item Description	Base Bid Quantity	Unit of Measurement		\$ Add Unit Price	\$ Deduct Unit Price
04 01 21; AD-102	Masonry removal – limestone caps to be salvaged	80	LF	\$	150.00	\$ 150.00
04 01 21; AD-102	Masonry removal – limestone caps to be replaced w/salvaged caps	50	LF	\$	225.00	\$ 225.00
04 01 21; AD-102	Masonry cleaning – limestone caps to be cleaned	1,361	LF	\$	3.00	\$ 3.00
04 01 21; AD-102	Masonry wall cleaning/repair	500	SF	\$	18.00	\$ 18.00
				\$		\$
				\$		\$

- C. The **\$Add** and **\$Deduct** Unit Prices shown in the table above are a **price per unit measurement** for materials, services, or work added to or deducted from the Contract Sum by appropriate modification **if the Base Bid Quantities** of the Work listed in the above Schedule and described in the corresponding Section and/or Drawing are **increased or decreased**.
- D. The **Base Bid Quantities** for each type of Work listed in the above Schedule and described in the corresponding Section shall be included in the Contractor's **Lump Sum Base Bid**.
- E. Unit Prices shall be negotiated if there is a change in scope of work.
- F. All items marked with an asterisk (\*) in the unit price schedule above shall include the completion of the excavation, formation and compaction of sub-grade and the disposal of surplus or unsuitable materials in accordance with the Plans and/or Specifications or as directed by the Construction Administrator.

**1.7 UNIT PRICE SCHEDULE – ALTERATIONS**

This Section includes administrative and procedural requirements for the following unit prices and provisions that are to be included in and become part of this Contract to be used in evaluating additions to or deductions from the work called for in the specifications and/or plans.

- A. **Related Documents:** Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.
- B. **Unit Price Schedule – Alterations:**

1.7 Unit Price Schedule - Alterations						
Section Number &/or Drawing Number	Item Description	Base Bid Quantity	Unit of Measurement		\$ Add Unit Price	\$ Deduct Unit Price
09 51 00; A-101 & A-101A	Acoustic ceiling systems lay-in suspension system materials	10,510	SF	\$	15.00	\$ 15.00
09 51 00; A-101 & A-101A	Acoustic ceiling system acoustic unit materials	10,510	SF	\$	15.00	\$ 15.00

- C. The **\$Add** and **\$Deduct** Unit Prices shown in the table above are a **price per unit measurement** for materials, services, or work added to or deducted from the Contract Sum by appropriate modification **if the Base Bid Quantities** of the Work listed in the above Schedule and described in the corresponding Section and/or Drawing are **increased or decreased**.

- D. The **Base Bid Quantities** for each type of Work listed in the above Schedule and described in the corresponding Section shall be included in the Contractor's **Lump Sum Base Bid**.
- E. Unit Prices shall be negotiated if there is a change in scope of work.

**1.8 UNIT PRICE SCHEDULE – ENVIRONMENTAL REMEDIATION – not used**

**1.9 UNIT PRICE SCHEDULE – HAZARDOUS BUILDING MATERIALS ABATEMENT**

This Section includes administrative and procedural requirements for the following unit prices and provisions that are to be included in and become part of this Contract to be used in evaluating additions to or deductions from the work called for in the specifications and/or plans.

- A. **Related Documents:** Drawings and general provisions of the Contract, including General and Supplementary Conditions, other Division 01 Specification Sections, and Technical Specifications apply to this Section.
- B. **Unit Price Schedules – Hazardous Building Materials Abatement:**

<b>1.9.2 ASBESTOS ABATEMENT SCHEDULE</b>		<b>UNIT</b>	<b>\$ ADD/ DEDUCT</b>
AR-001	CLEAN-UP OF ACM DEBRIS BY HEPA VACUUMING	SF	\$0.23
AR-002	REMOVAL OF PIPE INSULATION INCLUDING FITTINGS (FULL CONTAINMENT - < 6" DIA)	LF	\$1.63
AR-003	REMOVAL OF PIPE INSULATION INCLUDING FITTINGS(FULL CONTAINMENT - 6" - 12" DIA)	LF	\$2.68
AR-004	REMOVAL OF PIPE INSULATION INCLUDING FITTINGS(FULL CONTAINMENT - >12" DIA)	LF	\$3.65
AR-005	GLOVE BAG REMOVAL OF PIPE OR FITTING INSULATION (MINI-CONTAINMENT - FIRST 25)	EA	\$26.05
AR-006	GLOVE BAG REMOVAL OF PIPE OR FITTING INSULATION (MINI-CONTAINMENT - QUANTITY BETWEEN 25-50)	EA	\$20.56
AR-007	GLOVE BAG REMOVAL OF PIPE OR FITTING INSULATION (MINI-CONTAINMENT - QUANTITY IN EXCESS OF 50)	EA	\$18.30
AR-008	REMOVAL OF EQUIPMENT INSULATION	SF	\$3.81
AR-009	REMOVAL OF HVAC DUCT INSULATION	SF	\$3.81
AR-010	REMOVAL OF HVAC DUCT SYSTEM FLEXIBLE CONNECTOR	SF	\$2.77
AR-011	REMOVAL OF RESILIENT FLOORING INCLUDING MASTIC	SF	\$1.05
AR-012	REMOVAL OF RESILIENT FLOORING (NO MASTIC)	SF	\$0.67
AR-013	REMOVAL OF SPRAYED ON FIREPROOFING	SF	\$2.61
AR-014	REMOVAL OF PLASTER CEILING SYSTEM (INCLUDING BLACK IRON AND METAL LATH)	SF	\$2.68
AR-015	REMOVAL OF ACOUSTIC OR METAL PAN CEILING SYSTEM (INCLUDING GRID )	SF	\$1.74
AR-016	REMOVAL OF ACOUSTIC CEILING PANELS (CLEAN GRID FOR REUSE)	SF	\$1.45
AR-017	REMOVAL OF ACOUSTIC PLASTER FINISH MATERIAL (SCRAPE)	SF	\$2.45
AR-018	PATCH AND/OR SEAL DAMAGED INSULATION	SF	\$1.05
AR-019	REMOVAL OF CONTAMINATED SOIL (2" DEPTH)	SF	\$1.69
AR-020	REMOVAL OF TRANSITE MATERIAL	SF	\$0.92
AR-021	REMOVAL OF ROOFING OR ROOF FLASHING MATERIAL	SF	\$1.34
AR-022	REMOVAL OF UNDERGROUND PIPE OR PIPE INSULATION (INCLUDING HAND EXCAVATION)	LF	\$10.75
AR-023	REMOVAL OF CARPET OVER RESILIENT FLOORING	SF	\$0.83
AR-024	REMOVAL OF WALL BASE AND MASTIC	LF	\$0.95
AR-025	REMOVAL OF DRYWALL PARTITION (INCLUDING WALL FRAMING)	SF	\$0.90
AR-026	REMOVAL OF CMU WALL	SF	\$1.82
AR-027	PREP WORK AREA	SF	\$1.09
AR-028	SOLID BARRIERS OR ACCESS TUNNELS (2"x4"@16", 1/2" PLYWOOD)	SFSA	\$1.26
AR-029	SELECTIVE DEMOLITION TO ACCESS CONCEALED ACM	SF	\$1.11
AR-030	REMOVAL OF FLOOR LEVELING MATERIAL	SF	\$0.79
AR-031	SMALL CONTAINMENT PREPARATION TO ENCLOSE ASBESTOS ABATEMENT AREAS (>160 SF/260 LF)	CONTAINMENT	\$1,500.00
AR-032	LARGE CONTAINMENT PREPARATION TO ENCLOSE ASBESTOS ABATEMENT AREAS (>160 SF/260 LF)	CONTAINMENT	\$3,500.00
AR-033	CEMENTITIOUS ROOF SHINGLES REMOVAL AND DISPOSAL AS ACM	SF	\$10.00

AR-034	ROOF DRAIN CAULKING REMOVAL AND DISPOSAL AS ACM	LF	\$20.00
AR-035	ROOFING DEBRIS REMOVAL AND DISPOSAL AS ACM	EA	\$25.00
AR-036	MUDDERED PIPE FITTING INSULATION REMOVAL AND DISPOSAL AS ACM	EA	\$50.00
AR-037	FLOOR TILE AND ASSOCIATED MASITC REMOVAL AND DISPOSAL AS ACM	SF	\$7.00
AR-038	PLASTER REMOVAL AND DISPOSAL AS ACM	SF	\$7.00
AR-039	MIRROR GLUE REMOVAL AND DISPOSAL AS ACM	SF	\$10.00
AR-040	WINDOW CAULKING REMOVAL AND DISPOSAL AS ACM	LF	\$16.00
AR-041	EXPANSION JOINT CAULKING REMOVAL AND DISPOSAL AS ACM	LF	\$12.00
AR-042	DOOR CAULKING REMOVAL AND DISPOSAL AS ACM	LF	\$15.00
AR-042	CEMENTITIOUS SOFFIT PANELING REMOVAL AND DISPOSAL AS ACM	SF	\$15.00
AR-043	CAULKING ASSOCIATED WITH FASCIA REMOVAL AND DISPOSAL AS ACM	LF	\$15.00
AR-044	ROOFING MATERIALS (BUILT-UP ROOF LAYERS, FLASHING, TARS) REMOVAL AND DISPOSAL AS ACM	SF	\$200.00
AR-045	FIRE DOOR REMOVAL AND DISPOSAL AS ACM	EA	\$1.45
AR-046	DAMPPROOFING REMOVAL AND DISPOSAL AS ACM	SF	\$25.00
AR-047	VAPOR BARRIER UNDER CONCRETE FLOOR REMOVAL AND DISPOSAL AS ACM	SF	\$35.00

<b>1.9.3 LEAD-BASED PAINT ABATEMENT SCHEDULE</b>		<b>UNIT</b>	<b>\$ ADD/ DEDUCT</b>
SP-001	REMOVE LOOSE PAINT FROM WALLS OR CEILINGS (WET SCRAPING OR BRUSHING)	SF	\$0.89
SP-002	STRIP PAINT FROM FLAT SURFACES	SF	\$2.93
SP-003	STRIP PAINT FROM COLUMNS AND STRUCTURAL FRAMING MEMBERS	SF	\$3.68
SP-004	STRIP PAINT FROM STAIR TREADS, RISERS AND STRINGERS	SF	\$5.08
SP-005	STRIP PAINT FROM TRIM	LF	\$2.82
SP-006	STRIP PAINT FROM DOORS (DOOR OPENING SIZE)	SF	\$4.54
SP-007	STRIP PAINT FROM WINDOW (WINDOW SIZE)	SF	\$7.08
SP-008	STRIP PAINT FROM RADIATOR	SF	\$8.75
SP-009	STRIP PAINT FROM HANDRAIL	LF	\$7.35
SP-010	STRIP PAINT FROM PIPING	SF	\$6.30
SP-011	CLEAN-UP OF MATERIALS CONTAINING LEAD (DIRT, BUILDING DEBRIS, ETC.)	CF	\$3.43
SP-012	HEPA VACUUMING AND WASHING SURFACE (SMOOTH SURFACE)	SF	\$0.63
SP-013	HEPA VACUUMING AND WASHING SURFACE (POROUS SURFACE)	SF	\$1.05
SP-014	REMOVE EXTERIOR SOIL (6" DEPTH)	SF	\$4.50

<b>1.9.4 PCBs IN BUILDING MATERIAL ABATEMENT SCHEDULE</b>		<b>UNIT</b>	<b>\$ ADD/ DEDUCT</b>
HM-001	REMOVE LOOSE PCB CONTAMINATED CAULK (WET SCRAPING OR BRUSHING)	LF	\$6.20
HM-002	REMOVE PCB CONTAMINATED CAULK AND 6 INCHES OF BUILDING MATERIALS	LF	\$28.00
HM-003	REMOVE PCB CONTAMINATED CAULK AND 12 INCHES OF BUILDING MATERIALS	LF	\$37.00
HM-004	REMOVE INTACT PCB CONTAMINATED CAULK WITH NO REMOVAL OF BUILDING MATERIALS	LF	\$8.50
HM-005	STRIP PAINT FROM FLAT SURFACES	SF	\$2.94
HM-006	HEPA VACUUMING AND WASHING SURFACE (SMOOTH SURFACE)	SF	\$0.60
HM-007	HEPA VACUUMING AND WASHING SURFACE (POROUS SURFACE)	SF	\$1.05
HM-008	REMOVE EXTERIOR SOIL (6" DEPTH)	SF	\$4.88
HM-009	EXCAVATE, TRANSPORT, AND DISPOSE OF PCB CONTAMINATED SOIL (1 TON)	TON	\$400

<b>1.9.5 MOLD ABATEMENT SCHEDULE</b>		<b>UNIT</b>	<b>\$ ADD/ DEDUCT</b>
IAQ-001	CLEANING AND HEPA VACUUMING OF CONTAMINATED COMPONENTS OR MATERIALS	SF	\$0.61
IAQ-002	REMOVAL OF CONTAMINATED PIPE INSULATION	LF	\$0.61
IAQ-003	REMOVAL OF CONTAMINATED BUILDING INSULATION	SF	\$0.61
IAQ-004	REMOVAL OF CONTAMINATED HVAC DUCT OR EQUIPMENT INSULATION	SF	\$0.61

IAQ-005	REMOVAL OF CONTAMINATED CARPET	SF	\$0.88
IAQ-006	REMOVAL OF CONTAMINATED DRYWALL PARTITION (INCLUDING WALL FRAMING)	SF	\$1.05
IAQ-007	REMOVAL OF CONTAMINATED PLASTER	SF	\$1.87
IAQ-008	REMOVAL OF CONTAMINATED SUSPENDED CEILING PANELS	SF	\$0.59
IAQ-009	PREP WORK AREA	SF	\$0.99
IAQ-010	SOLID BARRIERS OR ACCESS TUNNELS (2"x4"@16", 1/2" PLYWOOD)	SFSA	\$2.09
IAQ-011	SELECTIVE DEMOLITION TO ACCESS CONTAMINATED COMPONENTS OR MATERIALS	SF	\$1.15

<b>1.9.6 REWORK ITEMS DURING ABATEMENT ACTIVITIES SCHEDULE</b>		<b>UNIT</b>	<b>\$ ADD/ DEDUCT</b>
RW-001	REINSULATE PIPE 1" THICK FIBERGLAS ASJ	SF	\$2.83
RW-002	REINSULATE PIPE 1 1/2" THICK FIBERGLAS ASJ	SF	\$3.62
RW-003	REINSULATE PIPE 2" THICK FIBERGLAS ASJ	SF	\$4.30
RW-004	REINSULATE PIPE FITTING 1" THICK FIBERGLAS ASJ	EA	\$4.37
RW-005	REINSULATE PIPE FITTING 1 1/2" THICK FIBERGLAS ASJ	EA	\$5.34
RW-006	REINSULATE PIPE FITTING 2" THICK FIBERGLAS ASJ	EA	\$6.50
RW-007	REINSULATE MECHANICAL EQUIPMENT 3 PCF, 2" THICK	SF	\$3.50
RW-008	REINSULATE HVAC DUCT SYSTEM (FLEXIBLE DUCT WRAP) 0.75 PCF, 1 1/2" THICK	SF	\$2.25
RW-009	REINSULATE HVAC DUCT SYSTEM (RIGID BOARD) 3 PCF, 1 1/2" THICK	SF	\$6.00
RW-010	REPLACE HVAC DUCT SYSTEM FLEXIBLE CONNECTOR	SF	\$7.83
RW-011	REPLACE TRIM COMPONENT (WOOD CASING, JAMB, APRON, ETC.)	LF	\$1.26
RW-012	REPLACE INTERIOR DOOR (SOLID CORE FLUSH OR 6-PANEL PINE)	EA	\$207.50
RW-013	REPLACE WINDOW (SASH ONLY)	EA	\$207.50
RW-014	REPLACE WINDOW (COMPLETE UNIT INCLUDING FRAME)	EA	\$375.00
RW-015	PAINT FLAT SURFACES (PRIMER + FINISH COAT)	SF	\$0.27
RW-016	PAINT COLUMNS AND STRUCTURAL FRAMING MEMBERS (PRIMER + FINISH COAT)	SF	\$2.89
RW-017	PAINT STAIR TREADS, RISERS AND STRINGERS (PRIMER + FINISH COAT)	SF	\$2.89
RW-018	PAINT HANDRAIL (PRIMER + FINISH COAT)	LF	\$0.27
RW-019	PAINT TRIM COMPONENT (CASING, JAMB, APRON, ETC., PRIMER + FINISH COAT)	LF	\$0.83
RW-020	PAINT DOORS (DOOR OPENING SIZE - INCLUDES BOTH FACES PRIMER + FINISH COAT)	SF	\$1.67
RW-021	PAINT WINDOW (INCLUDES INTERIOR & EXTERIOR PRIMER + FINISH COAT)	SF	\$1.97
RW-022	PAINT RADIATOR (PRIMER + FINISH COAT)	SF	\$2.97
RW-023	PAINT PIPING (PRIMER + FINISH COAT)	LF	\$0.29
RW-024	REPLACE EXTERIOR SOIL (6" LOAM AND SEED)	SF	\$7.19
RW-025	ASPHALT PAVING	SF	\$3.43

<b>1.9.7 MISCELLANEOUS ABATEMENT ITEMS SCHEDULE</b>		<b>UNIT</b>	<b>\$ ADD/ DEDUCT</b>
MI-001	MOBILIZATION (1 PER WORK AREA)	EA	\$262.50
MI-002	WORKER DECON (1 PER WORK AREA)	EA	\$262.50
MI-003	CONTAINMENT BARRIERS TO SEPARATE THE WORK AREA (SOFT BARRIER)	SF	\$1.02
MI-004	CONTAINMENT BARRIERS TO SEPARATE THE WORK AREA (HARD BARRIER)	SF	\$2.55
MI-005	TEMP ELECTRICAL CONNECTION (LICENSED ELECTRICIAN)	EA	\$450.00
MI-006	TEMP ELECTRICAL GENERATOR	DY	\$375.00
MI-007	DISPOSAL OF ACM WASTE (INCLUDES TRANSPORTATION)	CY	\$60.00
MI-008	DISPOSAL OF HAZARDOUS WASTE MATERIAL (INCLUDES TRANSPORTATION)	TON	\$380.00
MI-009	DISPOSAL OF CONSTRUCTION DEBRIS (INCLUDES TRANSPORTATION)	TON	\$30.00
MI-010	ABATEMENT SUPERVISOR (LICENSED)	HR	\$81.00
MI-011	STAND-BY ABATEMENT PERSONNEL (EACH LICENSED WORKER)	HR	\$74.00
MI-012	ENCAPSULATION UTILIZING LIQUID COATING SYSTEM	SF	\$0.69
MI-013	ENCAPSULATION UTILIZING HEAVY BODIED REINFORCED COATING SYSTEM	SF	\$1.03
MI-014	FIXED SCAFFOLDING	SF	\$16.00
MI-015	EXCAVATION TO EXPOSE UNDERGROUND PIPE	CY	\$25.00

MI-016	PROJECT NOTIFICATION AND FEES	EA	\$0.00
MI-017	PROJECT BOND ( 3% OF CONTRACT)	EA	\$0.00

1.9.8 COMPONENT REPLACEMENT DURING ABATEMENT ACTIVITIES SCHEDULE		UNIT	\$ ADD/ DEDUCT
CR-001	REMOVE TRIM COMPONENT (CASING, BASE, APRON, ETC.)	LF	\$0.49
CR-002	REMOVE DOOR (DOOR ONLY)	SF	\$0.27
CR-003	REMOVE DOOR (INCLUDING JAMB, NO TRIM)	SF	\$0.61
CR-004	REMOVE WINDOW (SASH ONLY)	SF	\$0.40
CR-005	REMOVE WINDOW (COMPLETE UNIT INCLUDING FRAME)	SF	\$0.92
CR-006	REMOVE RADIATOR	SF	\$0.77
CR-007	REMOVE MISCELLANEOUS ITEM	CF	\$7.56

- C. The \$ Add and \$ Deduct Unit Prices shown in the tables above are a **price per unit measurement** for materials, services, or work added to or deducted from the Contract Sum by appropriate modification **if the Base Bid Quantities** of the Work listed in the Contract Documents are **increased or decreased**.
- D. The **Base Bid Quantities** for each type of Work listed in the above Schedule(s) and described in the Contract Documents **shall** be included in the Contractor's **Lump Sum Base Bid**.
- E. Unit Prices shall be negotiated if there is a change in scope of work.

**PART 2 - PRODUCTS (Not Applicable)**

**PART 3 - EXECUTION (Not Applicable)**

**END OF SECTION 01 20 00**



**PART 1 - GENERAL**

**1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

**1.2 SUMMARY**

- A. This Section includes administrative and procedural requirements for handling requests for equals and substitutions made after award of the Contract.
- B. Related Sections: The following Sections contain requirements that relate to this Section:
1. Division 01 Section 01 33 00 "Submittal Procedures" specifies requirements for submitting the Contractor's Construction Schedule and the Submittal Schedule.
  2. Division 01 Section 01 42 20 "Reference Standards and Definitions" specifies the applicability of industry standards to products specified.
  3. Division 01 Section 01 60 00 "Product Requirements" specifies requirements governing the Contractor's selection of products and product options.

**1.3 DEFINITIONS**

- A. Definitions in this Article do not change or modify the meaning of other terms used in the Contract Documents.
- B. **Equals or Substitutions General:** Changes in products, materials, equipment, and methods of construction required by the Contract Documents proposed by the Contractor after award of the Contract.

**1.4 SUBMITTALS**

- A. **Equals and Substitution Request Submittals:** The Owner will consider requests for equals or substitutions if made prior to the Receipt of the Competitive Bid. The information on all materials shall be consistent with the information herein. After the contract award, substitutions will be considered for materials or systems specified that are no longer available. It will not be considered if the product was not purchased in a reasonable time after award. The Contractor shall submit all equal and substitutions requests on the **"Equal or Substitute Product Request (Form 7001)"**, an example of which is shown at the end of this Section. The Form is available from the Construction Administrator (CA). See Article 15 in the General Conditions for further refinement and information.
- B. The Contractor is required to prepare and submit three (3) copies of the required data for the first manufacturer listed or procedure listed in the specifications section with reference to all of the following areas: the substance and function considering quality, workmanship, economy of operation, durability and suitability for purposes intended including the size, rating performance, LEED® compliance, and cost. All submissions must include all the required data for the first listed manufacturer or procedure as specified, as well as the required data for the proposed Equal or Substitution. This will enable the Owner and Architect to determine that the proposed Equal or Substitution is or is not substantially equal to the first listed manufacturer or procedure.
1. Identify the product or the fabrication or installation method to be replaced in each request. Include related Specification Section and Drawing numbers.
  2. Provide complete documentation showing compliance with the requirements for equals or substitutions, and the following information, as appropriate:
    - a. Coordination information, including a list of changes or modifications needed to other parts of the Work and to construction performed by the Owner and separate contractors that will be necessary to accommodate the proposed Equal or Substitution.
    - b. A detailed comparison chart of significant qualities of the proposed substitution with those of the Work specified. Significant qualities may include elements, such as performance, weight, size, durability, and visual effect.
    - c. Product Data, including Shop Drawings and descriptions of products and fabrication and installation procedures.
    - d. Samples, where applicable or requested.



- e. A statement indicating the effect on the Contractor's Construction Schedule or CPM Schedule compared to the schedule without approval of the Equal or Substitution. Indicate the effect on overall Contract Time.
  - f. Cost information, broken down, including a proposal of the net change, if any in the Contract Sum.
  - g. The Contractor's certification that the proposed Equal or Substitution conforms to requirements in the Contract Documents in every respect and is appropriate for the applications indicated.
  - h. The Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of the failure of the Equal or Substitution to perform adequately.
3. **Architect's Action:** If necessary, the Architect will request additional information or documentation for evaluation within **seven (7) days** of receipt of the original request for equal or substitution request. The Architect will notify the Construction Administrator who will notify the Owner of recommended acceptance or rejection of the proposed equal or substitution, within **fourteen (14) days** of receipt of the request, or **seven (7) days** of receipt of additional information or documentation, whichever is later. The Construction Administrator will give final acceptance or rejection by the Owner not less than **seven (7) days** after notification.
- a. Any request deemed an "Equal" and accepted by the Construction Administrator, Architect, Owner, and Agency will result in written notification to the Contractor and will not be in the form of a change order for an "Equal".
  - b. Any request deemed a "Substitution" and rejected or approved by Construction Administrator, Architect, and Owner may result in written notification to the Contractor and may be in the form of a change order if the "Substitution" is approved.

## PART 2 - PRODUCTS

### 2.1 EQUAL OR SUBSTITUTIONS

- A. **Conditions:** The Architect will consider the Contractor's request for Equal or Substitution of a product or method of construction when one or more of the following conditions are satisfied, as determined by the Architect. If the following conditions are not satisfied, the Architect will return the requests to the Construction Administrator without action except to record noncompliance with these requirements.
- 1. The proposed request does not require extensive revisions to the Contract Documents.
  - 2. The proposed request is in accordance with the general intent of the Contract Documents.
  - 3. The proposed request is timely, fully documented, and/or properly submitted.
  - 4. The proposed request can be provided within the Contract Time. However, the Architect will not consider the proposed request if it is a result of the Contractor's failure to pursue the Work promptly or coordinate activities properly.
  - 5. The proposed request will offer the Owner a substantial advantage, in cost, time, energy conservation, or other considerations, after deducting additional responsibilities the Owner must assume. However, if the proposed request requires the Owner to incur additional responsibilities, including but not limited to, additional compensation to the Architect for redesign and evaluation services, increased cost of other construction by the Owner or similar considerations, then the Owner will have just cause to reject the request for Equal or Substitution.
  - 6. The proposed request can receive the necessary approvals, in a timely manner, required by governing authorities having jurisdiction.
  - 7. The proposed request can be provided in a manner that is compatible with the Work as certified by the Contractor.
  - 8. The proposed request can be coordinated with the Work as certified by the Contractor.
  - 9. The proposed request can uphold the warranties required by the Contract Documents as certified by the Contractor.
- B. The Contractor's submission and the Architect's review of Submittals, including but not limited to, Samples, Manufacturer's Data, Shop Drawings, or other such items, which are not clearly identified as a request for an Equal or Substitution, will not be considered or accepted as a valid request for an Equal or Substitution, nor does it constitute an approval.

## PART 3 - EXECUTION (Not Applicable)



**7001  
Equal or Substitute  
Product Request**

Page 1 of 2

<b>Request Phase:</b> Pre-Bid <input type="checkbox"/> Post Bid <input type="checkbox"/> (See Article 15 Materials: Standards, General Conditions)	
(If Pre-bid only) Current Bid Due Date: <input type="text"/> Request No.: <input type="text"/> Dated: <input type="text"/>	
To: State of Connecticut Department of Administrative Services, Construction Services	DAS Project No.: <input type="text"/>
Project Name / Location: <input type="text"/>	

<b>References:</b> Specification(s): <input type="text"/> Section(s): <input type="text"/> Paragraph(s): <input type="text"/>
Drawing(s): <input type="text"/> Drawing(s) No(s): <input type="text"/> Detail(s) No(s): <input type="text"/>
<b>Contractually Specified Product:</b> <input type="text"/>
<b>Contractor Proposed Product:</b> <input type="text"/>
<b>Proposed Product is:</b> Equal: <input type="checkbox"/> Substitute: <input type="checkbox"/> Model No.: <input type="text"/>

**IMPORTANT:**  
**See Attached Data For Both Specified And Proposed Products  
As Required By Article 15 General Conditions.**

<b>Data attached:</b> Drawings: <input type="checkbox"/> Product Data: <input type="checkbox"/> Reports: <input type="checkbox"/> Samples: <input type="checkbox"/>
Tests: <input type="checkbox"/> Other: <input type="text"/>

<b>Reason(s) for not providing the Specified Product:</b>
<input type="text"/>

<b>Similar Installation:</b>
Project Name: <input type="text"/> Architect's Name: <input type="text"/>
Project Location: <input type="text"/> Owner's Name: <input type="text"/>
Date Installed: <input type="text"/>



**7001  
 Equal or Substitute  
 Product Request**

Page 2 of 2

Will proposed substitution impact other parts of the Work?	No	<input type="checkbox"/>	Yes	<input type="checkbox"/>	<i>If Yes Attach An Explanation.</i>	
Will proposed substitution increase Contract Time?	No	<input type="checkbox"/>	Yes	<input type="checkbox"/>	<i>By Number Of Calendar Days</i> <input style="width: 50px;" type="text"/>	
Actual Dollar Savings to the State of Connecticut if substitution is accepted:					\$ <input style="width: 150px;" type="text"/>	
<b>The Undersigned Certifies:                  That The Proposed Request For An Equal Or Substitute Product Conforms To All Of The                  Requirements Of Division 01 General Requirements, Section 01 25 00 Substitution Procedures.</b>						
Request Submitted By General Contractor / CMR: <input style="width: 300px;" type="text"/> <div style="text-align: right; font-size: small; margin-top: 5px;"><i>(Firm's Typed Name)</i></div>						
By:	<input style="width: 150px;" type="text"/> <i>(Typed Name)</i>	<input style="width: 100px;" type="text"/> <i>(Title)</i>	<input style="width: 150px;" type="text"/> <i>(Signature)</i>	<input style="width: 80px;" type="text"/> <i>(Date)</i>		
Contractor / CMR Send copies to :    DAS PM: <input type="checkbox"/> CA: <input type="checkbox"/>						
Consultant's Request Received on (Date): <input style="width: 80px;" type="text"/> Consultant's Review – This Substitution Request is:						
<input type="checkbox"/>	Approved: <i>(Submittal(s) in accordance with Div. 01 General Requirements, Section 01 33 00 Submittal Procedures.)</i>					
<input type="checkbox"/>	Approved as Noted: <i>(Submittals in accordance with Div. 01 General Requirements, Section 01 33 00 Submittal Procedures.)</i>					
<input type="checkbox"/>	Rejected: Use Specified Materials.					
<input type="checkbox"/>	Rejected: Request Not Received Within Specified Time Period - Use Specified Materials.					
Reviewed Issued By:						
Name: <input style="width: 300px;" type="text"/> <div style="text-align: right; font-size: small; margin-top: 5px;"><i>(Typed Name)</i></div>						
Title: <input style="width: 250px;" type="text"/>						
Signature: <input style="width: 150px;" type="text"/> <input style="width: 80px;" type="text"/> <div style="display: flex; justify-content: space-around; font-size: small; margin-top: 5px;"><span><i>(Signature)</i></span><span><i>(Date)</i></span></div>						
CONSULTANT Send copies to:    DAS PM <input type="checkbox"/> CA <input type="checkbox"/> Chief Architect <input type="checkbox"/> Chief Engineer <input type="checkbox"/>						
If Approved: As noted by Consultant, DAS Chief Architect: <input style="width: 250px;" type="text"/> <input style="width: 80px;" type="text"/> <div style="display: flex; justify-content: space-around; font-size: small; margin-top: 5px;"><span><i>(Signature)</i></span><span><i>(Date)</i></span></div>						
Copies:    Project File    Red R2						

END

## PART 1 - GENERAL

### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

### 1.2 SUMMARY

- A. This Section specifies administrative and procedural requirements for handling and processing contract modifications.
- B. Related Sections: The following Sections contain requirements that relate to this Section:
  - 1. Division 01 Section 01 20 00 "Contract Considerations" for administrative requirements governing use of Unit Prices.
  - 2. Division 01 Section 01 25 00 "Substitution Procedures" for administrative procedures for handling requests for substitutions made after award of the Contract.
  - 3. Division 01 Section 01 29 76 "Progress Payment Procedures" for administrative procedures governing Applications for Payment.
  - 4. Division 01 Section 01 32 16 "Construction Progress Schedules" for requirements for construction scheduling and reporting progress of work.
  - 5. Division 01 Section 01 33 00 "Submittal Procedures" for requirements for submittal of the Construction Progress Schedule or CPM Schedule.
  - 6. General Conditions "Article 13 - Compensation for Changes in the Work".
- C. All Forms referenced in this Section are available for download from the DAS website ([www.ct.gov/DAS](http://www.ct.gov/DAS))> Doing Business With The State > State Building Construction > Publications and Forms > DAS Construction Services Library > 7000 Series - Construction Phase Forms.

### 1.3 REQUESTS FOR INFORMATION

- A. In the event that the Contractor or subcontractor, at any tier, determines that some portion of the drawings, specifications, or other contract documents requires clarification or interpretation by the Architect, the Contractor shall submit a "Request for Information" in writing to the Architect via the Construction Administrator. "Requests for Information" may only be submitted by the Contractor and shall only be submitted on the "Request for Information" forms as required by the Owner.
  - 1. In the "Request for Information", the Contractor shall clearly and concisely set forth the issue for which clarification or interpretation is sought and why a response is needed from the Architect.
  - 2. In the "Request for Information", the Contractor shall set forth an interpretation or understanding of the requirement along with reasons why such an understanding was reached.
  - 3. The Owner acknowledges that this is a complex project. Based upon the owner's past experience with projects of similar complexity, the Owner anticipates that there will probably be some "Requests for Information" on this project.
  - 4. The Architect will review all "Requests for Information" to determine whether they are valid "Requests for Information". If it is determined that the document is not a valid "Request for Information", it will be returned to the Contractor, unreviewed as to content, for resubmittal on the proper form and in the proper manner.
  - 5. A "Request for Information Response" shall be issued within seven (7) days of receipt of the request from the Contractor unless the Owner determines that a longer time is necessary to provide an adequate response. If a longer time is determined necessary by the Owner, the Owner will, within seven (7) days of receipt of the request, notify the Contractor of the anticipated response time. If the Contractor submits a "Request for Information" on an activity with seven (7) days or less of float on the current project schedule, the Contractor shall not be entitled to any time extension due to the time it takes the Architect to respond to the request provided that the Architect responds within the seven (7) days set forth above.
  - 6. A "Request for Information Response" from Architect will not change any requirement of the Contract Documents. In the event the Contractor believes that the "Request for Information Response" will

cause a change to the requirements of the Contract Documents, the Contractor shall within five (5) days give written notice to the Construction Administrator stating that the Contractor believes the "Request for Information Response" will result in a "Change Order" and the Contractor intends to submit a "Change Order Proposal" request. Failure to give such written notice within five (5) days shall waive the Contractor's right to seek additional time or cost under the requirement these Requirements.

#### 1.4 MINOR CHANGES IN THE WORK

- A. The Architect, through the Construction Administrator, will issue supplemental instructions authorizing minor changes in the Work, not involving adjustment to the Contract Sum or Contract Time, on the "Supplemental Instructions" form as required by the Owner.

#### 1.5 PROPOSAL REQUEST

- A. Architect/Owner-Initiated Requests For Proposals: The Architect or Owner will issue a detailed description of proposed changes in the Work via the Construction Administrator that will require adjustment to the Contract Sum or Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications. Such requests shall be on a "Proposal Request" form as required by the Owner.
1. "Proposal Request" is issued for information only. Do not consider them as an instruction either to stop work in progress or to execute the proposed change.
  2. Within **(14) days** of receipt of a "Proposal Request", submit a "Change Order Proposal" with the required information necessary to execute the change to the Construction Administrator for the Architect's/Owner's review.
    - a. Include a list of quantities of products required and unit costs, with the total amount of purchases to be made. Where requested, furnish survey data to substantiate quantities.
    - b. Indicate applicable delivery charges, equipment rental, and amounts of trade discounts.
    - c. Include a statement indicating the effect the proposed change in the Work will have on the Contract Time.
    - d. The Agency is tax exempt. All Contractor and Subcontractor services provided under your Contract with the State of Connecticut may not be exempt from taxes. The Department of Revenue Services can guide you as to which services are exempt and which are not. Please contact the State of Connecticut, Department of Revenue Services at 1-800-382-9463 or 860-541-3280.
    - e. Dollar values shown on the Schedule of Values shall not be the governing (or deciding) final amounts for change orders involving either additional charges or deletions.

#### 1.6 CHANGE ORDER PROPOSAL

- A. When either a "Request for Information" from the Contractor or a "Proposal Request" from the Architect or Owner results in conditions that may require modifications to the Contract, the Contractor may propose changes by submitting a request for a "Change Order Proposal" to the Architect via the Construction Administrator on forms as required by the Owner. These forms shall also include "Change Order Proposal Workbook(s)" as required by the Owner.
1. Include statements outlining the reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and Contract Time.
  2. Include a list of quantities of products required and unit costs, with the total amount of purchases to be made. Where requested, furnish survey data to substantiate quantities as directed by Article 13 of the General Conditions of the Contract for Construction.
  3. Indicate applicable delivery charges, equipment rental, and amounts of trade discounts.
  4. Comply with requirements in Division 01 Section 01 25 00 "Substitution Procedures" if the proposed change requires an equal or substitution of one product or system for a product or system specified.
  5. The State of Connecticut construction contract has the following tax exemptions:
    - a. Purchasing of materials which will be physically incorporated and become a permanent part of the project.
    - b. Tools, supplies and equipment used in fulfilling the construction contract are not exempt.
    - c. Services that are resold by the Contractor are exempt, i.e. if a Contractor hires a plumber, carpenter or electrician, a resale certificate may be issued to the subcontractor because these services are considered to be integral and inseparable component parts of the building contract

- C. "Change Order Request" Forms: Use "Change Order Proposal" and "Change Order Proposal Worksheets" forms as required by Owner.
- D. A "Change Order Proposal" cannot be submitted without either prior submission of a "Request for Information" from the Contractor or as a response to a "Proposal Request" submitted by the Architect or Owner.
- E. Any "Change Order Request" submitted without a prior submittal of a "Request for Information" or as a response to a "Proposal Request" will be immediately rejected and returned to the Contractor.

**1.7 CONSTRUCTION CHANGE DIRECTIVE**

**A. "Construction Change Directive":**

When the Owner and the Contractor disagree on the terms of a "Change Order Proposal" resulting from either a "Request for Information" or "Proposal Request", then the Architect through the Construction Administrator may issue a "Construction Change Directive" on a "Construction Change Directive" form as authorized by the Owner. The "Construction Change Directive" instructs the Contractor to proceed with a change in the Work, for subsequent inclusion in a "Change Order".

- 1. The "Construction Change Directive" contains a complete description of the change in the Work. It also designates the method to be followed to determine change in the Contract Sum or Contract Time.
  - 2. Contractor must proceed with the Work once a "Construction Change Directive" is issued.
  - 3. The change in the Contract Sum and Contract Time resulting from the issuance of a "Construction Change Directive" will be based on "Time & Material" or "Unit Prices".
  - 4. Issuance of "Construction Change Directive" does not guarantee payment for the Work described in the "Construction Change Directive".
- B. Documentation: The Contractor shall maintain detailed records on a time and material basis of work required by the "Construction Change Directive".
- 1. After completion of the change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.
  - 2. The final value shall be negotiated based on the supporting data to determine the value of the work.

**1.8 CHANGE ORDER PROCEDURES**

- A. Upon the Owner's approval of a Contractor's "Change Order Proposal", the Construction Administrator will issue a "Change Order" for signatures of the Architect, Owner and the Contractor on a "Change Order" form as required by the Owner.

**PART 2 - PRODUCTS (Not Applicable)**

**PART 3 - EXECUTION (Not Applicable)**

**END OF SECTION 01 26 00**



## PART 1 - GENERAL

### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

### 1.2 SUMMARY

- A. This Section specifies procedures for preparation and submittal of the Contractor's Applications for Payment.
- B. Related Sections: The following Sections contain requirements that relate to this Section.
  - 1. Notice to Bidders: Article 10
  - 2. General Conditions: Articles: 27 "Schedule of Values, Application for Payment"; 28 "Partial Payments"; 31 "Final Payment"; and 32 "Owner's Right to Withhold Payments".
  - 3. Division 01 Section 01 32 16 "Construction Progress Schedules" for requirements for construction scheduling and reporting progress of work.
  - 4. Division 01 Section 01 33 00 "Submittal Procedures".
  - 5. Division 01 Section 01 77 00 "Closeout Procedures" for requirements for Final Payment.

### 1.3 SCHEDULE OF VALUES

- A. **Coordination:** Coordinate preparation of the "Schedule of Values" with preparation of the CPM Schedule or Construction Schedule. Use "Schedule of Values" form as required by the Owner
  - 1. Submit the "Schedule of Values" to the Construction Administrator at the earliest possible date but no later than **twenty-one (21)** days after Contract Start Date.
  - 2. **Sub-schedules:** Where Work is separated into phases requiring separately phased payments, provide sub-schedules showing values correlated with each phase of payment.
- B. **Format and Content:** Use the Project Manual Table of Contents as a guide to establish the format for the "Schedule of Values". Provide at least one line item for each Specification Section on electronic media printout.
  - 1. **Identification:** Project identification on the Schedule of Values shall include, but not be limited to, the following:
    - a. **Owner**
    - b. **Project Number**
    - c. **Project Name**
    - d. **Project Location**
    - e. **Contractor's name and address.**
  - 2. Arrange the "Schedule of Values" in tabular format as required by the Owner, containing separate columns including, but not limited to, the following Items:
    - a. **Item Number.**
    - b. **Description of Work with Related Specification Section or Division Number.**
    - c. **Scheduled Values broken down by description number, type material, units of each material.**
      - 1) **Include break down of General Condition requirements, i.e. bonds, insurance premiums, taxes, job mobilization, temporary facilities, field supervision and layout, operation and maintenance manuals, punch list activities, project record documents, demonstration and training, overhead, and profit as separate line items.**
    - d. **Name of subcontractor.**
    - e. **Name of manufacturer or fabricator.**
    - f. **Name of supplier.**
    - g. **Retainage.**
    - h. **Contract sum in sufficient detail.**



3. Percentage of Contract Sum to nearest one-hundredth percent, adjusted to total 100 percent.
4. Provide a breakdown of the Contract Sum in sufficient detail to facilitate continued evaluation of Applications for Payment and progress reports. Coordinate with the Project Manual Table of Contents. Break principal subcontract amounts down into several line items. In addition, the following items listed below must be included.
  - a. **Site Logistics Plan (01 31 00):** a lump sum at 1/20 of one percent of the base bid total project cost at the time of submission of this plan.
  - b. **Coordination Drawings (01 31 00):** a lump sum of this cost for payment at the submittal of this product a minimum cost of 1/10<sup>th</sup> of one percent of the base bid total project cost or \$5,000 whichever is greater.
  - c. **Photographic Documentation (01 32 33):** a monthly cost of \$1,000 per month to be paid each month upon receipt of the photographs or forfeit of that month's payment.
  - d. **Submittal Schedule (01 33 00):** a lump sum payment calculated at 1/20<sup>th</sup> of 1% of the base bid total project cost upon receipt of the schedule
  - e. **Waste Collection & Cleaning (01 50 00):** a monthly cost. A minimum payment of \$1,000 to \$3,000 (based on size & complexity of the project) with forfeit of that monthly payment if not done.
  - f. **As-Built Updates (01 31 00):** a monthly cost, a minimum payment of \$1,000 with forfeit of that monthly payment if not done.
  - g. **Start-up and Adjusting (01 75 00):** a lump sum cost upon completion. (to be determined by the DAS/CS Project Manager (PM) with Architect/Engineer and Construction Administrator (CA) advice)
  - h. **Schedule (01 32 16):** For the Base Schedule a lump sum payment or 40% of the total schedule budget, with the remainder paid on an even payment over the duration of the project.
5. Round amounts to nearest whole dollar; the total shall equal the Contract Sum.
6. **Unit-Cost Allowances:** Show the line-item value of unit-cost allowances, as a product of the unit cost, multiplied by the measured quantity. Estimate quantities from the best indication in the Contract Documents.
7. **General Conditions:** Show line items for indirect costs and margins on actual costs only when such items are listed individually in Applications for Payment. Each item in the Schedule of Values and Applications for Payment shall be complete. Include the total cost and proportionate share of general overhead and profit margin for each item.
  - a. Temporary facilities and other major cost items that are not direct cost of actual work-in-place may be shown either as separate line items in the Schedule of Values or distributed as general overhead expense, at the Contractor's option.

#### 1.4 APPLICATIONS FOR PAYMENT

- A. Each Application for Payment shall be consistent with previous applications and payments as certified by the Architect and Construction Administrator and paid for by the Owner.
  1. The initial "Application for Payment", the "Application for Payment" at time of "Substantial Completion", and the final "Application for Payment", involve additional requirements.
- B. **Payment-Application Terms:** The Owner will process monthly progress payments. The Contractor may submit applications for payment on a monthly basis.
- C. **Payment-Application Forms:** Use the "Application for Payment" form as required by the Owner. Present the required information on electronic media printout or Owner approved form; multiple pages should be used if required.
  1. For each item, provide a column including but not limited to the following items:
    - a. Item Number.
    - b. Description of Work and Related Specification Section or Division.
    - c. Scheduled Value, break down by units of material and units of labor.
    - d. Work Completed from previous application.
    - e. Work Completed this period.
    - f. Materials presently stored.

- g. Total Completed and stored to date of application.
- h. Percentage of Completion.
- i. Balance to Finish.
- j. Retainage.

**D. Application Preparation:** Complete every entry on the Application form. At the time of Final Payment only, include an executed Application form by a person authorized to sign legal documents on behalf of the Contractor. The Construction Administrator will return incomplete Applications without action.

- 1. Entries shall match data on the "Schedule of Values".
- 2. Include amounts of Change Orders issued prior to the last day of the construction period covered by the application.

**E. Transmittal:** Except for final payment, submit to the Construction Administrator by a method ensuring receipt within **forty-eight (48)** hours. **One (1)** complete, signed and notarized original of each Application for Payment, including lien waivers and similar attachments when required, along with **six (6)** copies. For Final Payment, **nine (9)** complete, signed and notarized copies shall be submitted.

- 1. Transmit each copy with a transmittal form listing attachments and recording appropriate information related to the application, in a manner acceptable to the Architect.

**F. Applications for Payment:** Administrative actions and submittals, that must precede or coincide with submittal of the first Application for Payment and all subsequent Application for Payments including, but not limited to, the following items:

- 1. List of subcontractors and suppliers' name, FEIN/Social Security numbers, and Connecticut Tax Registration Numbers.
- 2. List of principal suppliers and fabricators.
- 3. Schedule of Values.
- 4. Contractor's Construction Schedule (preliminary if not final).
- 5. Schedule of principal products.
- 6. Submittal Schedule (preliminary if not final).
- 7. List of Contractor's staff assignments.
- 8. List of Contractor's principal consultants.
- 9. Copies of all applicable permits.
- 10. Copies of authorizations and licenses from governing authorities for performance of the Work.
- 11. Proof that subcontractors have been paid amounts included on the Contractor's Application for Payment within thirty (30) days after the Owner has paid the Contractor for the particular Application for Payment in accordance with Connecticut General Statute § 49-41a (a)(1).
- 12. Releases of Lien from subcontractors with amounts included on the Contractor's Application for Payment when Contractor has been paid by the Owner for the particular Application for Payment but the subcontractors have not been paid.
- 13. Proof that as-built documents are updated as required by Section 01 77 00 "Closeout Procedures.
- 14. Initial as-built survey and damage report, if required.
- 15. Update the "Contractor's Master Subcontract Agreement List" and submit copies all recently executed Subcontract Agreements in accordance with CGS § 4b-96.
  - 15.1. The "Contractor's Master Subcontract Agreement List" shall list all Subcontract Agreements in order of Contract Sum magnitude (from high to low) in the following format:

Contractor's Master Subcontract Agreement List				
Subcontractor Name	Minority Or Small Business Designation	Trade	Address	Contract Sum

- 16. In accordance with CGS § 42-158j (b):

Each payment requisition submitted shall include a statement showing the status of all pending construction change orders, other pending change directives and approved changes to the original contract or subcontract. Such statement shall identify the pending construction change orders and other pending change directives, and shall include the date such change orders and directives were initiated, the costs associated with their performance and a description of any work completed. As used in this section, "pending construction change order" or "other pending change directive" **means an authorized directive for extra work that has been issued to a contractor or a subcontractor and identified by an official Change Order Number or Construction Change Directive Number assigned by the State of Connecticut.**

- G. Application for Payment at Substantial Completion:** Following issuance of the Certificate of Substantial Completion submit an Application for Payment form; use the form as required by the Owner. Present the required information on electronic media printout as applicable that include, but are not limited, to the following:
1. This application shall reflect Certificates of Partial Substantial Completion issued previously for Owner occupancy of designated portions of the Work.
  2. Administrative actions and submittals that shall precede or coincide with this application include, but are not limited to, the following:
    - 2.1 Occupancy permits and similar approvals.
    - 2.2 Warranties (guarantees) and maintenance agreements.
    - 2.3 Test/adjust/balance records.
    - 2.4 Maintenance instructions.
    - 2.5 Meter readings.
    - 2.6 Startup performance reports.
    - 2.7 Changeover information related to Owner's occupancy, use, operation, and maintenance.
    - 2.8 Final cleaning.
    - 2.9 Application for reduction of retainage and consent of surety.
    - 2.10 Advice on shifting insurance coverage.
    - 2.11 Final progress photographs.
    - 2.12 List of incomplete Work, recognized as exceptions to Architect's Certificate of Substantial Completion.
- H. Final Payment Application:** Administrative actions and submittals that must precede or coincide with submittal of the final Application for Payment include, but are not limited, to the following:
1. Completion of Project Closeout requirements.
  2. Completion of list of items remaining to be completed as indicated on the attachment to the Certificate of Substantial Completion.
  3. Ensure that unsettled claims will be settled.
  4. Ensure that incomplete Work is not accepted and will be completed in accordance with a schedule prepared by the Contractor which is acceptable to the Owner.
  5. Transmittal of required Project construction records to the Owner (including as-built documents specified in Section 01 77 00 "Closeout Procedures").
  6. Certified property survey.
  7. Proof that taxes, fees, and similar obligations were paid.
  8. Removal of temporary facilities and services.
  9. Removal of surplus materials, rubbish, and similar elements (Reference Section 01 74 19 "Construction Waste Management & Disposal").
  10. Change of door locks to Owner's access.
  11. The requirements of the General Conditions and Supplementary Conditions for Final Acceptance, Final Completion, Final Inspection, and Final Payment.
  12. Asbestos, lead or other hazardous material manifests.

13. Completion of "Building Contractor Reporting Form" as supplied by Department of Construction Services, for all Contractors, Subcontractors, Vendors, Suppliers, etc. who work on the Contract. The form includes the following information:
- a. Contractor/Subcontractor name.
  - b. FEIN/Social Security Numbers
  - c. Connecticut Tax Registration Numbers
  - d. Type of work
  - e. Name of business and address
  - f. Remittance address.

**PART 2 - PRODUCTS (Not Applicable)**

**PART 3 - EXECUTION (Not Applicable)**

**END OF SECTION 01 29 76**



## PART 1 - GENERAL

### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

### 1.2 SUMMARY

- A. This Section includes administrative and supervisory requirements necessary for coordinating construction operations including, but not necessarily limited to, the following:
1. General project coordination procedures.
  2. Conservation.
  3. Coordination Drawings, including Site Logistics Plans.
  4. Administrative and supervisory personnel.
  5. Cleaning and protection.
- B. **Related Sections:** The following Sections contain requirements that relate to this Section:
1. Division 01 Section 01 29 76 "Progress Payment Procedures" for Schedule of Values items
  2. Division 01 Section 01 31 19 "Project Meetings" for progress meetings, coordination meetings, and pre-installation conferences.
  3. Division 01 Section 01 32 16 "Construction Progress Schedules" for requirements for construction scheduling and reporting progress of work.
  4. Division 01 Section 01 50 00 "Temporary Facilities and Controls".
  5. Division 01 Section 01 60 00 "Product Requirements" for coordinating general installation.
  7. Division 01 Section 01 77 00 "Closeout Procedures" for coordinating contract closeout.

### 1.3 CONSTRUCTION ADMINISTRATOR

A. **Construction Administrator:**

1. The Construction Administrator is identified in Division 01 Section 01 11 00 "Summary of Work".
2. **Construction Mobilization:**
  - a. Cooperate with the Construction Administrator in the allocation of mobilization areas of the site, for field offices and sheds, for agency facility access, traffic, and parking facilities.
  - b. During Construction, coordinate use of site and facilities through the Construction Administrator.
  - c. Comply with Construction Administrator's procedures for intra-project communications; submittals, reports and records, schedules, coordination drawings, and recommendations; and resolution of ambiguities and conflicts.
  - d. Comply with instructions of the Construction Administrator for use of temporary utilities and construction facilities.

### 1.4 COORDINATION

- A. Coordinate construction operations included in various Sections of these Specifications to assure efficient and orderly installation of each part of the Work. Coordinate construction operations included under different Sections that depend on each other for proper installation, connection, and operation.
1. Schedule construction operations in the sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.
  2. Coordinate installation of different components to assure maximum accessibility for required maintenance, service, and repair.
  3. Make provisions to accommodate items scheduled for later installation.
- B. Where necessary, prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and attendance at meetings.

1. Prepare similar memoranda for the Construction Administrator, Owner and separate contractors where coordination of their work is required.
- C. **Administrative Procedures:** Coordinate scheduling and timing of required administrative procedures with other construction activities to avoid conflicts and assure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:
  1. Preparation of schedules.
  2. Installation and removal of temporary facilities.
  3. Delivery and processing of submittals.
  4. Progress meetings.
  5. Project closeout activities.
  6. As-Builts - coordinate monthly meetings to assure up-dates being performed.

## 1.5 SUBMITTALS

- A. **Coordination Drawings:** Prepare coordination drawings to complete detailed coordination of systems and components and to integrate information about fabrication and installation.
  1. Thoroughly prepare coordination drawings, as further stipulated in Part 3 "Execution", reviewing all contract documents and consulting with all entities contributing to or involved with each portion of the work under consideration.
    - a. Show the relationship of all components shown on any separate Shop Drawings.
    - b. Indicate required desired installation sequences.
    - c. Comply with requirements contained in Division 01 Section 01 33 00 "Submittal Procedures".
  2. Prepare coordination drawings for installation of all products and materials fabricated by separate entities.
  3. Prepare coordination drawings where limited space availability necessitates maximum utilization of space for efficient installation of different components, including but not limited to: all site-utility entry points; all ceiling and roof cavities in all areas; all electrical, telecommunications and mechanical rooms; all stage-boundary interface areas; and all such other conditions required to coordinate the work.
  4. **Prepare a Site Logistics Plan(s) showing:** The entire project area and limits; all routes into and out of site; all staging and stockpiling and lay-down areas; all aspects of phasing/staging; all parking, paving and fencing; and all specific provisions to satisfy requirements of Division 01 Sections, including but not limited to Temporary Facilities and Controls. The Site Logistics Plan shall coincide with and complement the general staging plans and site plans outlined in the contract bidding documents. It is intended that the Contractor shall present this refined plan for approval by the Construction Administrator. The fencing shown on this plan is required for all phases. Exact placement and timing of installations and removals will be reviewed and approved by the Construction Administrator prior to implementation. An additional allotment of various fencing is specified in Division 32, which the Contractor shall provide, install, and relocate at various intervals, for installation and removal by the Contractor per the direction of the project's Construction Administrator. This staging and logistics plan will require refinement and change for each phase/stage of the project. The Site Logistics Plan(s) shall be drawn at a scale no smaller than 1"=40' and shall be submitted as stipulated in Division 01 Section 01 29 76 "Progress Payment Procedures", but in no case later than (30) days after Notice to Proceed.
  5. Prepare coordination drawings showing locations of surface recesses and voids, as well as offsets and breaks, requiring filling and/or feathering, both those initially visible and those discovered during the course of work. Review with Owner and Architect to obtain direction for filling and feathering. Revise drawing(s) to record directions for same for field and record purposes.
- B. **Staff Names:** Prior to the contract start date, submit a list of the Contractor's principal staff assignments, including the superintendent, project safety officer, and other personnel in attendance at the Project Site. Identify individuals and their duties and responsibilities. List their addresses and telephone numbers.
  1. Post copies of the list in the Project meeting room, the temporary field office, and at each temporary telephone.
  2. Provide resumes of each staff member proposed for the Project. This shall include the Project Manager, Project Superintendent and Safety Officer.

## PART 2 - PRODUCTS (Not Applicable)

## PART 3 - EXECUTION

### 3.1 GENERAL COORDINATION PROVISIONS

- A. Inspection of Conditions:** The Contractor shall require the Installer of each major component to inspect both the substrate and conditions under which Work is to be performed and coordinate such inspections with the Construction Administrator and authorities having jurisdictions. Contractor's Superintendent to be on site during inspections/testing of all new work/systems. All inspections/testing to be coordinated with Construction Administrator, Owner and/or Project Manager and shall be made at least **forty-eight (48) hours** in advance. If unsatisfactory conditions exist notify the Construction Administrator immediately. Do not proceed until unsatisfactory conditions have been corrected in an acceptable manner.
- B.** The Contractor shall coordinate temporary enclosures with required inspections and tests to minimize the necessity of uncovering completed construction for that purpose.
- C. Coordination Drawings:** Before construction work can begin, the Contractor shall submit to the Architect coordination drawings in the form of (a) reproducible (vellum) transparencies at not less than 1/4-inch scale and (b) CAD files of the coordination drawings on CDROM. Such drawings will be required throughout all areas for trades as described below. These drawings shall show resolutions of trade conflicts in congested areas. The Architect will supply base drawings (with the title blocks removed), including floor plans, reflected ceiling plans, and structural framing plans, in the form of electronic CAD files on CDROM, using the AutoCAD release edition specified with the files, to the Contractor for distribution to the trades for use in developing the coordination drawings. Each trade contractor shall create separate layers within the CAD files to show the work of their trade. Prepare coordination drawings as follows:
1. The HVAC subcontractor shall initiate 1/4-inch scale drawings done on AutoCAD (latest version) showing ducts and piping in plan and section. Sheet metal shop drawings must be approved prior to starting coordination drawings.
  2. The Sprinkler subcontractor shall then add layers to superimpose his piping layout on the coordination drawings.
  3. The Electrical subcontractor shall then add layers to superimpose all the electrical information on the coordination drawings. Said information is to include but not necessarily be limited to cable trays, equipment, lighting, conduits, bus duct, etc. Show space allowances reserved for work under other contracts, such as audio-visual wiring and equipment.
  4. The Plumbing subcontractor shall then add layers to complete the coordination drawing by drawing his piping (including pitch) on the coordination drawings.
  5. Subcontractors for specialties, furnishings, equipment and special construction shall add layers to show their work to assure full coordination of all systems.
  6. The Construction Administrator shall review the completed coordination drawings for general compliance and then submit them to the Architect for his review. All subcontractors shall rework the drawings until all systems are properly coordinated.
  7. The Ceiling subcontractor shall utilize the drawings to prepare acoustic panel ceiling drawings and any other suspended ceiling drawings, and shall indicate areas of conflict with the work of other trades by drafting the location of grids, panels and tiles.
  8. The Contractor shall indicate Architectural/Structural conflicts or obstacles and coordinate to suit the overall construction schedule. The Contractor shall locate all precut and prefabricated holes and openings in structural steel on the CAD coordination drawing files as required for HVAC, plumbing, fire protection and electrical work. The Contractor shall coordinate these holes and openings with the structural steel fabricator during the structural steel shop drawing development phase. Coordination to take place on schedule so as to permit shop fabrication of all structural steel holes and openings. The Owner will not be held responsible for the costs associated with field fabrication of structural openings resulting from the lack of timely and thorough coordination.
  9. The Contractor shall expedite all drawing work and coordinate to suit the construction schedule. The Contractor shall then review these drawings and compare them with the Architectural, Structural, Equipment, and other drawings and determine that all of the work can be installed without undue interference. Prior to the submittal to the Architect, areas of potential conflict shall be brought to the attention of the Contractor who shall convene a coordination meeting of all parties involved, for the purpose of resolving all utility conflicts. The Contractor shall supervise and direct corrective measures and have all trades sign acceptance of the drawings. Submit four (4) hard copies of each drawing to the



Architect and two (2) copies to the Construction Administrator for the record, and only after all conflicts have been accommodated.

10. If the coordination meeting fails to resolve coordination conflicts, the Contractor shall indicate the nature of such conflicts in a detailed RFI, proposing the most economical solution.
  11. The Contractor shall not permit work by trades to proceed in a given bay or area until all trade foremen agree on the exact arrangements for each room or area. If a given trade proceeds prior to trades approval, then if necessary, that trade shall revise their work, if necessary, at no extra cost, in order to permit other trades to proceed.
  12. Submit all coordination drawings on CD-ROM, in addition to hard copy.
- D. The Construction Administrator will meet with the Contractor on all major items of coordination.
- E. **Inspections/testing of new work/systems:** Contractor's Superintendent to be on site during inspections/testing of all new work/systems. All inspections/testing to be coordinated with Construction Administrator, Owner and/or Project Manager and shall be made at least **forty-eight (48) hours** in advance..

### 3.2 CLEANING AND PROTECTION

- A. Clean and protect construction in progress and adjoining materials in place, during handling and installation. Apply protective covering, where required, to assure protection from damage or deterioration.
- B. Clean and provide maintenance on completed construction as construction per manufacturers requirements through the remainder of the construction period. Adjust and lubricate operable components to assure operability without damaging effects.
- C. Limiting Exposures: Supervise construction operations to assure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period. Where applicable, such exposures include, but are not limited to, the following:
1. Excessive static or dynamic loading.
  2. Excessive internal or external pressures.
  3. Excessively high or low temperatures.
  4. Thermal shock.
  5. Excessively high or low humidity.
  6. Air contamination or pollution.
  7. Water or ice.
  8. Solvents.
  9. Chemicals.
  10. Light.
  11. Radiation.
  12. Puncture.
  13. Abrasion.
  14. Heavy traffic.
  15. Soiling, staining, and corrosion.
  16. Bacteria.
  17. Rodent and insect infestation.
  18. Combustion.
  19. Electrical current.
  20. High-speed operation.
  21. Improper lubrication.
  22. Unusual wear or other misuse.
  23. Contact between incompatible materials.
  24. Destructive testing.
  25. Misalignment.

- 26. Excessive weathering.
- 27. Unprotected storage.
- 28. Improper shipping or handling.
- 29. Theft.
- 30. Vandalism.

**PART 2 - PRODUCTS (Not Applicable)**

**PART 3 - EXECUTION (Not Applicable)**

**END OF SECTION 01 31 00**



## PART 1 - GENERAL

### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

### 1.2 SUMMARY

- A. This Section specifies administrative and procedural requirements for project meetings, including, but not limited to, the following:
1. **Start Date meeting (establishes start date)**
  2. **Pre-construction conferences.**
  3. **Pre-installation conferences.**
  4. **Progress meetings.**
  5. **Safety**
  6. **Coordination**
  7. **As-built drawings review**
  8. **And as required**
- B. **Related Sections:** The following Sections contain requirements that relate to this Section:
1. Division 01 Section 01 31 00 "Project Management and Coordination" for procedures for coordinating project meetings with other construction activities.
  2. Division 01 Section 01 32 16 "Construction Progress Schedules" for requirements for construction scheduling and reporting progress of work.
  3. Division 01 Section 01 33 00 "Submittal Procedures" for submitting the Construction Schedule or CPM Schedule.
  4. Division 01 Section 01 35 26 "Government Safety Requirements specifies the requirements for safety plans, reports, and investigation submittals.
  6. Division 07 Section 07 53 23 "EPDM Roofing" for pre-construction conferences.

### 1.3 PRE-CONSTRUCTION CONFERENCE

- A. The Contractor will attend a pre-construction conference before starting construction, as scheduled by the Construction Administrator convenient to the Owner, the Construction Administrator, Architect, and Contractor. This meeting will take place at least **fourteen (14)** days prior to official Start Date. Hold the conference at the Project Site or another convenient location as directed by the Construction Administrator. The Construction Administrator shall conduct the Pre-construction Conference to review the Contractor and Subcontractor responsibilities and personnel assignments.
- B. **Attendees:** Authorized representatives of the Construction Administrator, Owner, Architect, and their consultants; the Contractor and its superintendent; major subcontractors; agency; and other concerned parties shall attend the conference. All participants at the conference shall be familiar with the Project and authorized to conclude matters relating to the Work.
- C. **Agenda:** Discuss items of significance that could affect progress, including the following:
1. **Tentative construction schedule.**
  2. **Critical work sequencing.**
  3. **Progress meeting schedule.**
  4. **Designation of responsible personnel.**
  5. **Procedures for processing field decisions and Change Orders.**
  6. **Procedures for processing Applications for Payment.**
  7. **Distribution of Contract Documents.**
  8. **Submittal of Shop Drawings, Product Data, and Samples.**

9. Preparation of record documents.
10. Use of the premises.
11. Parking availability.
12. Office, work, and storage areas.
13. Equipment deliveries and priorities.
14. Safety procedures.
15. First aid.
16. Security.
17. Housekeeping.
18. Working hours.

#### 1.4 PRE-INSTALLATION/CONSTRUCTION CONFERENCES

- A. The Contractor will schedule a pre-installation conference(s) at the Project Site before each construction activity that requires coordination with other construction. The Contractor shall be responsible to notify in writing the Construction Administrator and the appropriate Subcontractor(s), etc., of the date and time of all Pre-installation/Construction Conferences. Notification shall be at least seven (7) days, prior to the Conference. The Contractor shall be responsible for coordination and attendance of all Subcontractors, etc., involved in or affected by the installation for all Pre-installation/Construction Conferences.
- B. **Attendees:** The Construction Administrator, Contractor, Subcontractors, Owner and Architect, the installer and representatives of manufacturers and fabricators involved in or affected by the installation, and its coordination or integration with other materials and installations that have preceded or will follow, shall attend the meeting. The Contractor shall advise all attendees of the scheduled Pre-installation/Construction Conferences dates.
- C. **Agenda:** Review the progress of other construction activities and preparations for the particular activity under consideration at each Pre-installation/Construction Conference, including but not limited to the following requirements:
  1. Contract Documents.
  2. Options.
  3. Related Change Orders.
  4. Purchases.
  5. Deliveries.
  6. Shop Drawings, Product Data, and quality-control samples.
  7. Review of mockups.
  8. Possible conflicts.
  9. Compatibility problems.
  10. Time schedules.
  11. Weather limitations.
  12. Manufacturer's recommendations.
  13. Warranty requirements.
  14. Compatibility of materials.
  15. Acceptability of substrates.
  16. Temporary facilities.
  17. Space and access limitations.
  18. Governing regulations.
  19. Safety.
  20. Inspecting and testing requirements.

**21. Required performance results.**

**22. Recording requirements.**

**23. Protection.**

- D. The Construction Administrator will record significant discussions and agreements and disagreements of each Pre-installation/Construction Conference, and the approved schedule. The Construction Administrator will promptly distribute the record of the Pre-installation/Construction Conference to all attendees.
- E. The Contractor shall not proceed with the installation/construction if the conference cannot be successfully concluded. The Contractor shall be responsible to initiate whatever actions are necessary to resolve impediments to performance of Work and schedule and reconvene another Pre-installation/Construction Conference at the earliest feasible date. Failure of the contractor to resolve impediments to the performance of the work will not result in an extension of days.

**1.5 PROGRESS MEETINGS**

- A. The Construction Administrator will conduct progress meetings, bi-weekly, at the Project Site or at regular intervals as agreed upon at the Pre-construction Conference. The Construction Administrator will notify the Owner, the Architect, and the Contractor of the scheduled Progress Meeting dates. Coordinate dates of Progress Meetings with preparation of Application for Payment requests.
- B. **Attendees:** In addition to representatives of the Contractor, Construction Administrator, Owner and the Architect, subcontractor, supplier, or other entity concerned with current progress or involved in planning, coordination, or performance of future activities may be requested to attend these meetings on an as needed basis. All participants at the meeting shall be familiar with the Project and authorized to conclude matters relating to the Work. The Contractor shall include the site superintendent as a minimum.
- C. **Agenda:** Progress Meetings shall review and correct or approve minutes of the previous Progress Meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to the status of the Project.
  - 1. **Construction Schedule or CPM Schedule:** Review progress since the last Progress Meeting. Determine where each activity is in relation to the required Contractor's "Construction Schedule" or "CPM Schedule" and whether each activity is on time or ahead or behind Schedule. Determine how Work that is behind Schedule will be expedited; secure commitments from parties involved to do so. Discuss whether Schedule revisions are required to insure that current and subsequent activities will be completed within the Contract Time.
  - 2. Review the present and future needs of each entity present, including the following:
    - a. **Interface requirements.**
    - b. **Time.**
    - c. **Sequences.**
    - d. **Status of submittals.**
    - e. **Deliveries.**
    - f. **Off-site fabrication problems.**
    - g. **Access.**
    - h. **Site utilization.**
    - i. **Temporary facilities and services.**
    - j. **Hours of work.**
    - k. **Hazards and risks.**
    - l. **Housekeeping.**
    - m. **Quality and work standards.**
    - n. **Change Orders.**
    - o. **Documentation of information for payment requests.**
- D. **Reporting:** The Construction Administrator will distribute minutes of the meeting to each party present, promptly and before the next scheduled meeting, and to parties who should have been present.

**1.6 SUBCONTRACTOR/COORDINATION/SAFETY MEETINGS**

- A. The Contractor shall conduct Subcontractor/coordination meetings.
- B. The Contractor shall conduct a separate safety meeting after the safety plan is submitted. The Contractor shall take meeting minutes. These minutes shall be made available upon request. The Contractor shall notify the Construction Administrator of the times and dates of these meetings, who may elect to attend these meetings as an observer when necessary. A minimum of one safety meeting will be held per month.

**PART 2 - PRODUCTS (Not Applicable)**

**PART 3 - EXECUTION (Not Applicable)**

**END OF SECTION 01 31 19**

## PART 1 - GENERAL

### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

### 1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for the preparation, submittal, and updating of the Contractor's construction schedules and reporting progress of the Work.
1. Refer to the General Conditions and the Agreement for definitions and specific dates of Contract Time.
- B. This Section includes the following:
1. Format.
  2. Content.
  3. Revisions to schedules.
  4. Submittals.
  5. Distribution.
- C. **Related Sections:** The following Sections contain requirements that relate to this Section:
1. Division 01 Section 01 29 76 "Progress Payment Procedures" specifies requirements for submitting Schedule of Values and Application for Payments.
  2. Division 01 Section 01 31 19 "Project Meetings" specifies requirements for submitting and distributing meeting and conference minutes.
  3. Division 01 Section 01 33 00 "Submittal Procedures" specifies requirements for submitting the Submittal Schedule.
  4. Division 01 Section 01 45 00 "Quality Control" specifies requirements for submitting inspection and test reports.
  5. Division 01 Section 01 60 00 "Product Requirements" specifies requirements for submitting the list of products.

### 1.3 DEFINITIONS

- A. **Construction Schedule:** A method of planning and scheduling a construction project utilizing a horizontal bar chart with a separate bar for each major portion of the Work or operation to make the schedule an effective tool for planning and monitoring the progress of the work.

### 1.4 QUALITY ASSURANCE

- A. **The Contractor's Consultant:** Retain a consultant to provide planning, evaluating, and reporting by CPM scheduling.
1. **In-House Option:** The Owner may waive the requirement to retain a consultant if the Contractor can demonstrate that:
    - a. The Contractor has the computer equipment required to produce construction schedules.
    - b. The Contractor employs skilled personnel with experience in construction scheduling and reporting techniques.
  2. **Program:** Use **Microsoft Project** latest version.
  3. **Standards:** Comply with procedures contained in AGC's "Construction Planning & Scheduling."

### 1.5 PRELIMINARY SCHEDULE

- A. Preliminary Gantt schedule is to be prepared by the Contractor and submitted to the Construction Administrator within **seven (7)** days of award of contract. This schedule is to cover all items of Work from the start of the project up to the completion of the project. This schedule must be revised when the actual schedule of significant items varies more than one week from the proposed schedule.



## 1.6 CONSTRUCTION SCHEDULE FORMAT

1. **Format:** Utilize a horizontal bar chart (Gantt) with a separate bar for each major portion of the Work or operation, identifying first work day of each week.
2. **Program:** Use **Microsoft Project**, latest version.
3. **Sequence of Listings:** Utilize the Table of Contents of this Project Manual and the chronological order of the start of each item of work.
4. **Scale and Spacing:** Provide space for notations and revisions.
5. **Sheet Size:** To be coordinated with Construction Administrator.
6. **Weather Days Allowance:** The Contractor shall include as a separate identifiable activity on the Critical Path of the Construction Schedule, and activity labeled "Weather Days Allowance." Insert this activity immediately prior to the substantial completion milestone.

**6.1** The Contractor shall be fully responsible for determining the number of weather delay days to be included in the Construction Schedule. This determination shall be based on the normal anticipated weather for the project location and the nature of the project work. The Construction Schedule shall be based on the contractor's determined weather delay allowance. The weather delay activity shall be included in the construction schedule immediately prior to the Substantial Completion milestone.

**6.2** The minimal allowed duration of the Weather Days Allowance shall be calculated as follows (decimals rounded to nearest whole number):

$$\frac{\text{Contract Time (Calendar Days)}}{365} \text{ multiplied by } 7 \text{ equals Weather Days Allowance (Calendar Days)}$$

**6.3** The Contractor shall insert an activity in the Critical Path of the Construction Schedule to reflect weather day occurrences when weather days are experienced and accepted by the Owner. Identify this activity as a weather delay.

**6.4** The Contractor shall reduce duration of Weather Days Allowance activity as weather delays are experienced and inserted into the schedule. Remaining weather days in Weather Day Allowance at completion of project is considered float. Weather delay, when justified, are considered allowable, non compensable.

## 1.7 CONTENT

- A. Show complete sequence of construction by activity, with dates beginning and completion of each element of construction.
- B. Identify each item by specification section numbers.
- C. Identify work of separate phases and other logically grouped activities.
- D. Show accumulated percentages of completion of each item, and total percentage of Work completed, as of the **first** day of each month.
- E. Provide separate schedule of submittal dates for shop drawings, product data, and samples, Owner/Agency furnished products and any products identified as under Allowances, and dates reviewed submittals will be required from Architect/Engineer. Indicate decision dates for selection of finishes.
- F. Indicate delivery dates for Owner/Agency furnished products and any products identified as under Allowances.
- G. Indicate critical path with original baseline indicated.
- H. Coordinate content with Schedule of Values specified in Section 01 29 76 "Progress Payment Procedures."

## 1.8 SUBMITTALS AND REVISIONS TO SCHEDULES

- A. An initial bar graph schedule is to be prepared by the Contractor and submitted to the Construction Administrator. Refer to Article 1.5.
- B. Indicate progress of each activity to date of submittal, and projected completion date of each activity.
- C. Identify activities modified since previous submittal, major changes in scope, and other identifiable changes.
- D. Provide narrative report to define problem areas, anticipated delays, and impact on Schedule. Report corrective action taken, or proposed, and its effect.

- E. Schedules must be revised monthly and when the actual schedule of significant items varies more than **seven (7) days** from the proposed schedule.
- F. Submit revised Construction Schedules for each Application for Payment.
- G. Submit **four (4)** copies of the Construction Schedule to the Construction Administrator.

**1.9 DISTRIBUTION**

- A. Distribute copies of the Construction Schedules to Construction Administrator, Architect, Owner, Subcontractors, suppliers, and other concerned parties.
- B. Instruct recipients to promptly report, in writing, problem anticipated by projections indicated in schedules.

**PART 2 - PRODUCTS (Not Applicable)**

**PART 3 - EXECUTION (Not Applicable)**

**END OF SECTION 01 32 16**



## PART 1 - GENERAL

### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

### 1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for construction photographs.
- B. **Related Sections:** The following Section contains requirements that relate to construction photographs:
  - 1. Division 01 Section 01 33 00 "Submittal Procedures" specifies general requirements for submitting digital construction photographs.

### 1.3 SUBMITTALS

- A. **Photographs:** Provide a digital camera to take **twenty-four (24)** or more photos each time. Deliver **two (2)** sets of photo files on **one (1)** CD-ROM and **one (1)** set of prints (8x10) to the Construction Administrator for the Department.
- B. **Extra Sets:** When requested by the Owner, the photographer shall prepare extra sets of prints or CD-ROM. The photographer shall distribute these directly to the designated parties who will pay the costs for the extra sets directly to the photographer.

### 1.4 QUALITY ASSURANCE

- A. Engage a qualified commercial photographer to take photographs during construction.
- B. **Photographer's Qualifications:** Photographer shall be an individual of established reputation who has been regularly engaged as a professional photographer for not less than three (3) years.

## PART 2 - PRODUCTS

### 2.1 PHOTOGRAPHIC COPIES

- A. On the date the work is begun and every **thirty (30) days** thereafter (until the work is at least 95 percent complete), the Contractor shall have digital photographs of the construction taken by a professional photographer.
- B. **Identification:** Label each CD-ROM with project name and date the photographs were taken. With each submittal provide an applied label, rubber-stamped or index sheet with the following information:
  - 1. **Name of the Project.**
  - 2. **Name and address of the photographer.**
  - 3. **Name of the Architect.**
  - 4. **Name of the Contractor.**
  - 5. **Date the photographs were taken.**
  - 6. **Vantage Point: Description of vantage point, in terms of location, direction (by compass point), and elevation or story of construction.**

## PART 3 – EXECUTION

### 3.1 PRECONSTRUCTION PHOTOGRAPHS

- A. Before starting construction, take digital photos of the site and surrounding properties from different points of view, as selected by the Construction Administrator.
  - 1. Take digital photos in sufficient number to show existing site conditions before starting Work.

2. Take digital photos of adjacent existing buildings either on or adjoining the property in sufficient detail to record accurately the physical conditions at the start of construction.

**3.2 PHOTOGRAPHIC REQUIREMENTS**

- A. Take **twenty-four (24)** or more digital photographs monthly, coinciding with the cutoff date associated with each Application for Payment. The Construction Administrator shall select the vantage points for each shot to best show the status of construction and progress since the last photos were taken.
- B. As the digital photographs are a record of the work progress, they shall be taken each month, whether or not they show work done during the preceding month. Deliver the CD-ROMs and prints within **ten (10) days** of their taking.
- C. Provide and coordinate the use of photographic software to assure that the photos are viewable by all interested parties.

**D. PART 2 - PRODUCTS (Not Applicable)**

**E. PART 3 - EXECUTION (Not Applicable)**

**END OF SECTION 01 32 33**

## PART 1 - GENERAL

### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

### 1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for submittals required for performance of the Work, including but not limited to the following:
  - 1. **Submittal schedule.**
  - 2. **Shop Drawings.**
  - 3. **Product Data.**
  - 4. **Samples.**
  - 5. **Quality assurance submittals.**
  - 6. **Proposed "Substitutions/Equals".**
  - 7. **Warranty samples.**
  - 8. **Coordination Drawings.**
  - 9. **O & M Manuals**
- B. Administrative Submittals: Refer to other Division 01 Sections and other Contract Documents for requirements for administrative submittals. Such submittals include, but are not limited to, the following:
  - 1. **Permits.**
  - 2. **Applications for Payment.**
  - 3. **Performance and payment bonds.**
  - 4. **Contractor's construction schedule.**
  - 5. **Daily construction reports.**
  - 6. **Construction Photographs.**
  - 7. **Insurance certificates.**
  - 8. **List of subcontractors.**
  - 9. **Subcontractors/Suppliers FEIN number's and Connecticut tax registration number.**
- C. **Related Sections:** The following Sections contain requirements that relate to this Section:
  - 1. Division 01 Section 01 25 00 "Substitution Procedures" specifies requirements for submittal of requests for equals and substitutions.
  - 2. Division 01 Section 01 29 76 "Progress Payment Procedures" specifies requirements for submittal of the Schedule of Values.
  - 3. Division 01 Section 01 31 00 "Project Management and Coordination" specifies requirements governing preparation and submittal of required Coordination Drawings.
  - 4. Division 01 Section 01 31 19 "Project Meetings" specifies requirements for submittal and distribution of meeting and conference minutes.
  - 5. Division 01 Section 01 32 16 "Construction Progress Schedules" for requirements for construction scheduling and reporting progress of work.
  - 6. Division 01 Section 01 32 33 "Photographic Documentation" specifies requirements for submittal of periodic construction photographs.
  - 7. Division 01 Section 01 35 26 "Government Safety Requirements" specifies the requirements for safety plans, reports, and investigation submittals.
  - 8. Division 01 Section 01 45 00 "Quality Control" specifies requirements for submittal of inspection and test reports and mockups.
  - 9. Division 01 Section 01 77 00 "Closeout Procedures" specifies requirements for submittal of Project Record Documents and warranties at project closeout.

10. Division 01 Section 01 78 30 "Warranties and Bonds".

### 1.3 DEFINITIONS

- A. Coordination Drawings show the relationship and integration of different construction elements that require careful coordination during fabrication or installation to fit in the space provided or to function as intended and as identified in the Specification Divisions 02 through 49.
  - 1. Preparation of Coordination Drawings is specified in Division 01 Section 01 31 00 "Project Management and Coordination" and may include components previously shown in detail on Shop Drawings or Product Data.
- B. Field samples are full-size physical examples erected on-site to illustrate finishes, coatings, or finish materials. Field samples are used to establish the standard by which the Work will be judged.
- C. Mockups are full-size assemblies for review of construction, coordination, testing, or operation; they are not Samples.

### 1.4 SUBMITTAL PROCEDURES

- A. Coordination: Coordinate preparation and processing of submittals with performance of construction activities. Transmit each submittal sufficiently in advance of performance of related construction activities to avoid delay.
  - 1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
  - 2. Coordinate transmittal of different types of submittals for related elements of the Work so processing will not be delayed by the need to review submittals concurrently for coordination.
    - a. The Architect reserves the right to withhold action on a submittal requiring coordination with other submittals until all related submittals are received.
    - b. The Architect reserves the right to reject incomplete submitted packages.
  - 3. Processing: To avoid the need to delay installation as a result of the time required to process submittals, allow sufficient time for submittal review, including time for re-submittals.
    - a. Allow **fourteen (14) days** for initial review. Allow additional time if the Architect must delay processing to permit coordination with subsequent submittals.
    - b. If an intermediate submittal is necessary, process the same as the initial submittal.
    - c. Allow **fourteen (14) days** for reprocessing each submittal.
    - d. No extension of Contract Time will be authorized because of failure to transmit submittals to the Architect sufficiently in advance of the Work to permit processing.
- B. **Submittal Preparation:** Place a permanent label, title block or **8-1/2 inches x 11 inches** cover page approved by the Architect, on each submittal for identification. Indicate the name of the entity that prepared each submittal on the label or title block.
  - 1. The minimum number of copies required for each submittal shall be **seven (7)** or as determined otherwise at the pre-construction conference or by the Construction Administrator.
  - 2. Provide a space approximately **4 inches by 5 inches** on the label, beside the title block or on the cover page on Shop Drawings to record the Contractor's review and approval markings and the action taken.
  - 3. Include the following information on the label for processing and recording action taken.
    - a. **Project Name and State of Connecticut Project Number.**
    - b. **Date.**
    - c. **Name and address of the Architect, Construction Administrator, and Owner Representative.**
    - d. **Name and address of the Contractor.**
    - e. **Name and address of the subcontractor.**
    - f. **Name and address of the supplier.**
    - g. **Name of the manufacturer.**
    - h. **Number and title of appropriate Specification Section.**
    - i. **Drawing number and detail references, as appropriate.**

- j. **Indicate either initial or resubmittal.**
  - k. **Indicate deviations from Contract Documents.**
  - l. **Indicate if "equal" or "substitution".**
- C. Submittal Transmittal:** Package each submittal appropriately for transmittal and handling. Transmit each submittal from the Contractor to the Architect using a transmittal form. Copy the Construction Administrator on the transmittal. The Architect will return all submittals to the Contractor after action is taken with a complete copy of the submittal package and one complete copy of the submittal package. The Architect will not accept submittals received from sources other than the Contractor.
- 1. On the transmittal, record relevant information and requests for data. On the form, or separate sheet, record deviations from Contract Document requirements, including variations and limitations. Include Contractor's certification that information complies with Contract Document requirements.

## 1.6 SUBMITTAL SCHEDULE

- A.** After development and review by the Owner and Architect acceptance of the Contractor's Construction or CPM schedule prepare a complete schedule of submittals. Submit the schedule to the Construction Administrator within **thirty (30)** days of Contract Award.
- 1. Coordinate Submittal Schedule with the list of subcontracts, Schedule of Values, and the list of products as well as the Contractor's Construction or CPM Schedule.
  - 2. Prepare the schedule in chronological order. Provide the following information:
    - a. Schedule date for the initial submittal.
    - b. Related section number.
    - c. Submittal category (Shop Drawings, Product Data, or Samples).
    - d. Name of Subcontractor.
    - e. Description of the part of Work covered.
    - f. Scheduled date for resubmittal.
    - g. Scheduled date for the Architect's final release of approval.
- B. Submittal Schedule:** Submit a schedule of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, ordering, manufacturing, fabrication, and delivery when establishing dates. Include additional time required for making corrections or modifications to submittals noted by the Architect and additional time for handling and reviewing submittals required by those corrections.
- 1. Coordinate submittal schedule with list of subcontracts, the schedule of values, and Contractor's Construction or CPM Schedule.
  - 2. **Initial Submittal:** Submit concurrently with start-up construction schedule. Include submittals required during the first 60 days of construction. List those submittals required to maintain orderly progress of the Work and those required early because of long lead time for manufacture or fabrication.
  - 3. **Final Submittal:** Submit concurrently with the first complete submittal of Contractor's construction schedule.
    - a. Submit revised submittal schedule to reflect changes in current status and timing for submittals.
- C. Coordination:** Coordinate preparation and processing of submittals with performance of construction activities.
- 1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
  - 2. Submit all submittal items required for each specification section concurrently unless partial submittals for portions of the Work are indicated on approved submittal schedule.
  - 3. Submit action submittals and informational submittals required by the same specification section as separate packages under separate transmittals.
  - 4. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.
    - a. Architect reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.



- D. Processing Time:** Allow time for submittal review, including time for resubmittals, as follows. Time for review shall commence on **Architect's** receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.
1. **Initial Review:** Allow **fifteen (15)** days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. **Architect** will advise Contractor when a submittal being processed must be delayed for coordination with related submittals not yet received. Additional time will be required if processing must be delayed to permit review of related subsequent submittals.
  2. **Intermediate Review:** If intermediate submittal is necessary, process it in same manner as initial submittal.
  3. **Resubmittal Review:** Allow **fifteen (15)** days for review of each resubmittal.
  4. **Mass Submittals:** **Six (6)** or more submittals in **one (1) day** or **twenty (20)** or more submittals in **one (1) week**. If "Mass Submittals" are received, Architect's review time stated above may be extended as necessary to perform proper review. Architect will review "Mass Submittals based upon priority determined by Architect after consultation with Owner and Contractor.
- E. Distribution:** Following response to the initial submittal, print and distribute copies to the Construction Administrator, Architect, Owner, subcontractors, and other parties required to comply with submittal dates indicated. Post copies in the Project meeting room and field office.
1. When revisions are made, distribute to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in construction activities.
- A. Schedule Updating:** Revise the schedule after each meeting or activity where revisions have been recognized or made. Issue the updated schedule concurrently with the report of each meeting.

#### 1.7 DAILY CONSTRUCTION REPORTS

- A.** Prepare a daily construction report recording the following information concerning events at the site, and submit duplicate copies to the Construction Administrator at weekly intervals:
1. **List of subcontractors at the site.**
  2. **Approximate count of personnel at the site.**
  3. **High and low temperatures, general weather conditions.**
  4. **Accidents and unusual events.**
  5. **Meetings and significant decisions.**
  6. **Stoppages, delays, shortages, and losses.**
  7. **Meter readings and similar recordings.**
  8. **List of equipment on site and identify if idle or in use.**
  9. **Orders and requests of governing authorities.**
  10. **Change Orders received, start and end dates.**
  11. **Services connected, disconnected.**
  12. **Equipment or system tests and startups.**
  13. **Partial Completion's, occupancies.**
  14. **Substantial Completion's authorized.**
  15. **Equals or Substitutions approved or rejected.**

#### 1.8 SHOP DRAWINGS

- A.** Submit newly prepared information drawn accurately to scale. Highlight, encircle, or otherwise indicate deviations from the Contract Documents. Do not reproduce Contract Documents or copy standard information as the basis of Shop Drawings. Standard information prepared without specific reference to the Project is not a Shop Drawing.
- B.** Shop Drawings include fabrication and installation Drawings, setting diagrams, schedules, patterns, templates and similar Drawings. Include the following information:
1. Dimensions.
  2. Identification of products and materials included by sheet and detail number.

3. Compliance with specified standards.
  4. Notation of coordination requirements.
  5. Notation of dimensions established by field measurement.
  6. Sheet Size: Except for templates, patterns and similar full-size Drawings, submit Shop Drawings on sheets at least **8-1/2 by 11 inches** but no larger than **36 by 48 inches**.
  7. Submit **one (1)** reproducible media and **seven (7)** prints as directed by the Construction Administrator. The Contractor's submittal shall identify the specification section and/or drawing number applicable to the submittal.
  8. Details shall be large scale and/or full size.
- C. The Contractor shall review the Shop Drawings, stamp with this approval, and submit them with reasonable promptness and in orderly sequence so as to cause no delay in his Work or in the Work of any subcontractor. Shop Drawings shall be properly identified as specified for item, material, workmanship, and project number. At the submission, the Contractor shall inform the Architect, in writing of any deviation in the shop drawings from the requirements of the Contract Documents.
- D. The Architect will review and comment on shop drawings with reasonable promptness so as to cause no delay, but only for conformance with the design concept of the project and with the information given in the Contract Documents. Refer to Article 5 of the General Conditions. Shop Drawings received by the Architect that indicate insufficient study of drawings and specifications, illegible portions or gross errors, will be rejected outright. Such rejections shall not constitute an acceptable reason for granting the Contractor additional time to perform the work.
- E. The Contractor shall make any corrections required by the Architect and shall resubmit the required number of corrected copies of Shop Drawings until fully reviewed.
- F. Upon final review submit **four (4)** additional prints, same as submitted, for use by the Construction Administrator.
- G. The Architect's review and comments on Shop Drawings shall not relieve the Contractor of responsibility for any deviation from the requirements of the Contract Documents.
- H. Only final reviewed Shop Drawings are to be used on the Project site.
- I. The Work installed shall be reviewed in accordance with the Shop Drawings and the drawings and specifications. Final Review of the Shop Drawings by the Architect shall constitute acceptance by the State and the Architect of a variation or departure that is **clearly identified**. If the contractor believes notations made by the A/E increases the value or scope of the CD's, the contractor must provide written notice to the CA within **seven (7)** days of this issue. Final reviewed Shop Drawings shall not replace or be used as a vehicle to issue or incorporate change orders or substitutions. Substitutions shall be submitted in accordance with Division 01 Section 01 25 00 "Substitution Procedures".

#### 1.9 SHOP DRAWINGS FOR FIRE PROTECTION SYSTEMS:

- A. Shop drawings for fire protection systems shall comply with all of the requirements in the section above "Shop Drawings". In addition Sprinkler system shop drawings and hydraulic calculations must be stamped by a professional engineer licensed in the state of Connecticut and must include the DAS/CS project number. **Two (2)** sets of information [as noted in this Section 01 33 00 "Submittal Procedures"] shall be submitted to the State's Insurance Carrier (SIC), and **one (1)** set shall be submitted to the Office of the State Fire Marshal (OSFM):
1. **Office of State Fire Marshal:**  
CT Department of Administrative Services  
Construction Services  
Office of State Fire Marshal  
450 Columbus Boulevard, Suite 1304  
Hartford, Connecticut 06103  
Phone: (860) 713-5750
  2. **State Insurance Carrier (SIC):**  
FM Global Boston Operations  
Plan Review  
1175 Boston-Providence Turnpike  
PO Box 9102  
Norwood, MA 02062  
Tel: (781) 440-8241 or FAX (781) 440-8742

[bostonleadengineer@fmglobal.com](mailto:bostonleadengineer@fmglobal.com)

- B. Before the shop drawings are submitted to SIC or OSFM, the A/E's fire protection consultant must review the sprinkler design for compliance with the code, OSFM, and FM Global requirements.
- C. The State Insurance Carrier requires **two (2)** weeks prior notice of a sprinkler system acceptance test.

#### 1.10 SHOP DRAWINGS FOR ROOFING SYSTEMS:

**A. Construction Phase Requirements:** During product submittals and shop drawing review for Roofing Systems the Consultant shall verify FM Global requirements are satisfied for all relevant components. The DAS/CS PM and Construction Administer for the Project shall submit the Contractor's roofing systems product information and shop drawings to the Consultant and FM Global. Shop drawings for roofing systems shall comply with all of the requirements in the section above "Shop Drawings". **Two (2)** sets of information [as noted in this Section 01 33 00 "Submittal Procedures"] shall be submitted to the State's Insurance Carrier (SIC):

**1. State Insurance Carrier (SIC):**

FM Global Boston Operations  
Plan Review  
1175 Boston-Providence Turnpike  
PO Box 9102  
Norwood, MA 02062  
Tel: (781) 440-8241 or FAX (781) 440-8742  
[bostonleadengineer@fmglobal.com](mailto:bostonleadengineer@fmglobal.com)

- B. The State Insurance Carrier requires **two (2)** weeks prior notice of roofing system shop drawing reviews.
- C. See Section **00 30 60 General Statement For FM Global Checklist For Roofing Systems** and **Section 50 60 00 FM Global Checklist for Roofing Systems**.

#### 1.11 PRODUCT DATA

**A.** Collect Product Data into a single submittal for each element of construction or system. Product Data includes printed information, schedules, such as manufacturer's installation instructions, catalog cuts, standard color charts, roughing-in diagrams and templates, standard wiring diagrams, and performance curves.

- 1. Mark each copy to show applicable choices and options. Where printed Product Data includes information on several products that are not required, mark copies to indicate the applicable information. Include the following information:
  - a. **Manufacturer's printed recommendations.**
  - b. **Compliance with trade association standards.**
  - c. **Compliance with recognized testing agency standards.**
  - d. **Application of testing agency labels and seals.**
  - e. **Notation of dimensions verified by field measurement.**
  - f. **Notation of coordination requirements.**
- 2. Do not submit Product Data until compliance with requirements of the Contract Documents has been confirmed.
- 3. **Preliminary Submittal:** Submit a preliminary single copy of Product Data where selection of options is required.
- 4. **Submittals:** Submit **seven (7)** copies of each required submittal; submit **five (5)** copies where required for maintenance manuals. The Architect will retain **one (1)** and will return the other marked with action taken and corrections or modifications required.
  - a. Unless noncompliance with Contract Document provisions is observed, the submittal may serve as the final submittal.
- 5. **Distribution:** Furnish copies of final submittal to installers, subcontractors, suppliers, manufacturers, fabricators, and others required for performance of construction activities. Show distribution on transmittal forms.
  - a. Do not proceed with installation until a copy of Product Data is in the Installer's possession.
  - b. Do not permit use of unmarked copies of Product Data in connection with construction.

## 1.12 SAMPLES

- A. Submit full-size, fully fabricated Samples cured and finished as specified and physically identical with the material or product proposed. Samples include partial sections of manufactured or fabricated components, cuts or containers of materials, color range sets, and swatches showing color, texture, and pattern.
1. Store, mount or display Samples on site in the manner to facilitate review of qualities indicated. Prepare Samples to match the Architect's sample. Include the following:
    - a. **Specification Section number and reference.**
    - b. **Generic description of the Sample.**
    - c. **Sample source.**
    - d. **Product name or name of the manufacturer.**
    - e. **Compliance with recognized standards.**
    - f. **Availability and delivery time.**
  2. Submit Samples for review of size, kind, color, pattern, and texture. Submit Samples for a final check of these characteristics with other elements and a comparison of these characteristics between the final submittal and the actual component as delivered and installed.
    - a. Where variation in color, pattern, texture, or other characteristic is inherent in the material or product represented, submit at least **three (3)** multiple units that show approximate limits of the variations.
    - b. Refer to other Specification Sections for requirements for Samples that illustrate workmanship, fabrication techniques, details of assembly, connections, operation, and similar construction characteristics.
    - c. Refer to other Sections for Samples to be returned to the Contractor for incorporation in the Work. Such Samples must be undamaged at time of use. On the transmittal, indicate special requests regarding disposition of Sample submittals.
    - d. Samples not incorporated into the Work, or otherwise designated as the Owner's property, are the property of the Contractor and shall be removed from the site prior to Substantial Completion.
  3. **Preliminary Submittals:** Submit a full set of choices where Samples are submitted for selection of color, pattern, texture, or similar characteristics from a range of standard choices, unless otherwise noted in specification section.
    - a. The Architect will review and return preliminary submittals with the Architects notation, indicating selection and other action.
  4. **Submittals:** Except for Samples illustrating assembly details, workmanship, fabrication techniques, connections, operation, and similar characteristics, submit **three (3)** sets. The Architect will return **one (1)** set marked with the action taken.
  5. Maintain sets of Samples, as returned, at the Project Site, for quality comparisons throughout the course of construction.
    - a. Unless noncompliance with Contract Document provisions is observed, the submittal may serve as the final submittal.
    - b. Sample sets may be used to obtain final acceptance of the construction associated with each set.
- B. **Distribution of Samples:** Prepare and distribute additional sets to subcontractors, manufacturers, fabricators, suppliers, installers, and others as required for performance of the Work. Show distribution on transmittal forms.
1. Field samples are full-size examples erected on-site to illustrate finishes, coatings, or finish materials and to establish the Project standard.
    - a. Comply with submittal requirements to the fullest extent possible. Process transmittal forms to provide a record of activity.

## 1.13 QUALITY ASSURANCE SUBMITTALS

- A. Submit quality-control submittals, including design data, certifications, manufacturer's instructions, manufacturer's field reports, and other quality-control submittals as required under other Sections of the Specifications.

- B. **Certifications:** Where other Sections of the Specifications require certification that a product, material, or installation complies with specified requirements, submit a notarized certification from the manufacturer certifying compliance with specified requirements.
  - 1. **Signature:** Certification shall be signed by an officer of the manufacturer or other individual authorized to sign documents on behalf of the company.
- C. **Inspection and Test Reports:** Requirements for submittal of inspection and test reports from independent testing agencies are specified in Division 01 Section 01 45 00 "Quality Control."

**1.14 ARCHITECT'S ACTION**

- A. Except for submittals for the record or information, where action and return is required, the Architect will review each submittal, mark to indicate action taken, and return promptly.
  - 1. Compliance with specified characteristics is the Contractor's responsibility.
- B. **Action Stamp:** The Architect will stamp each submittal with a uniform, action stamp. The Architect will mark the stamp appropriately to indicate the action taken, as follows:
  - 1. **Final Unrestricted Release:** When the Architect marks a submittal "Approved for fabrication," the Work covered by the submittal may proceed provided it complies with requirements of the Contract Documents. Final payment depends on that compliance.
  - 2. **Final-But-Restricted Release:** When the Architect marks a submittal "Incorporate Notations," the Work covered by the submittal may proceed provided it complies with notations or corrections on the submittal and requirements of the Contract Documents. Submit corrected copies for record. Final payment depends on that compliance.
  - 3. **Returned for Resubmittal:** When the Architect marks a submittal "Rejected, or Revise and Resubmit," do not proceed with Work covered by the submittal, including purchasing, fabrication, delivery, or other activity. Revise or prepare a new submittal according to the notations; resubmit without delay. Repeat if necessary to obtain different action mark.
    - a. Do not use, or allow others to use, submittals marked "Rejected, or Revise and Resubmit" at the Project Site or elsewhere where Work is in progress.
  - 4. **Other Action:** Where a submittal is for information or record purposes or special processing or other activity, the Architect will return the submittal marked "Action Not Required."
- C. **Unsolicited Submittals:** The Architect will discard unsolicited submittals without action.

**PART 2 - PRODUCTS (Not Applicable)**

**PART 3 - EXECUTION (Not Applicable)**

**END OF SECTION 01 33 00**

## PART 1 - GENERAL

### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including Division 00 General Conditions of the Contract for Construction for Design-Bid-Build and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

### 1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for performing alteration and renovation Work.
- B. Related Sections: The following Sections contain requirements that relate to this Section:
  - 1. Division 00 Section 00 30 00 "General Statements for Available Information" for information that is available in addition to the Bidding Documents for review by bidders. Such information may include an existing conditions survey, contaminated soil reports, contaminated groundwater reports, hazardous building material reports, geotechnical data, etc.
  - 2. Division 01 Section 01 31 00 "Project Management and Coordination" for procedures for coordinating cutting and patching with other construction activities.
  - 3. Division 01 Section 01 73 29 "Cutting and Patching" for procedures for cutting and patching.
  - 4. Division 01 Section 01 74 19 "Construction Waste Management & Disposal" for the requirements for waste management goals, waste management plan and waste management plan implementation.
  - 5. Division 02 Section 02 41 19 "Selective Demolition" for demolition of selected portions of the building for alterations.
  - 6. Division 50 00 00 "Project-Specific Available Information" for information that is referenced in Section 00 30 00 "General Statements for Available Information".
  - 7. Refer to other Sections for specific requirements and limitations applicable to performing alteration Work with individual parts of the Work.
  - 8. Requirements of this Section apply to mechanical and electrical installations. Refer to Division 21, 22, 23 and 26 Sections for other requirements and limitations applicable to renovation Work by mechanical and electrical installations.

## PART 2 - PRODUCTS

### 2.1 PRODUCTS FOR PATCHING AND EXTENDING WORK

- A. New materials: As specified in product sections; match existing Products and Work for patching and extending Work.
- B. Type and Quality of Existing Products: Determine by inspecting and testing Products where necessary, referring to existing Work as a standard.

### 2.2 SALVAGEABLE MATERIALS

- A. The **Contractor** shall be responsible for removing the following salvageable items and storing said items.
  - 1. **Limestone Caps:** from top of brick screen wall to be **stored in Mechanical Roof located at roof level.**
  - 2. **Ceiling grid, ceiling tiles, light fixtures, HVAC grilles and ceiling mounted equipment as noted on drawings.**
- B. The **Contractor** shall notify the Construction Administrator in writing **seven (7)** days prior to removing all salvageable items from the existing alteration project location and storing items in the appropriate location as directed by Construction Administrator and Owner.

## PART 3 - EXECUTION

### 3.1 INSPECTION

- A. **General:**

1. Observe all existing conditions prior to submitting a bid. Include in the bid, existing conditions and their impact, particularly to cost and health and safety of workers and occupants, and proper function and operation of the facility. Be aware of other work being performed. Failure to visit the site shall in no way provide relief from the necessity of furnishing materials or performing any work that may be required to complete the work in accordance with the Contract Documents without additional cost to the Owner. All site visits shall be scheduled with the Owner.
2. The quantities, locations and the extent of work indicated are best estimates, which are limited by the physical constraints imposed by occupancy of the facility. Consider all aspects of the substrates within the identified plan area. Material information and quantities were obtained from site surveys. Accordingly, variations (plus or minus 10 percent) in quantities within the limits of the work area are considered as having no impact on contract sum and contract performance period. Where additional abatement work is required beyond the above variations, the contract sum and contract performance period shall be adjusted under provisions of Division 01 of the Specifications.
3. Verify that demolition is complete and areas are ready for installation of new Work.
4. Beginning of restoration Work means acceptance of existing conditions.

**B. Project Procedures for Work Involving Asbestos Containing Material (ACM):**

1. The **Contractor** is responsible for abating all **Asbestos Containing Material (ACM)** that is visible and accessible.
2. In **demolition projects**, **every attempt** should be made by the **Contractor** to **remove all ACM**.
3. If testing for asbestos has been conducted at the facility scheduled for renovation, demolition, reconstruction, alteration, remodeling, or repair, then the results of the asbestos testing are summarized in **Division 50 00 00 Project-Specific Available Information, Section 50 30 00 Hazardous Building Materials Inspection and Inventory** at the end of the Technical Specification Sections. Under no circumstance shall this information be the sole means used by the Contractor for determining the extent of asbestos. The Contractor shall be responsible for verification of all field conditions affecting performance of the Work.
4. If the Contractor should encounter any material suspected or known to contain asbestos **not previously identified and assigned as the Contractor's responsibility**, then the Contractor should immediately notify the Construction Administrator **in writing** of same. It is the Owner's responsibility to have the material tested and abated (if necessary). The Owner will respond within **twenty four (24) hours** after receiving the Contractor's written request to the Construction Administrator for testing the suspect material. **If necessary, the Contractor will abate ACM within a reasonable time period after the Owner's issuance of a Change Order for the additional abatement work.**
  - 4.1 When the **Owner** requests the **Contractor** undertake the responsibilities **for the abatement and disposal of the ACM**, then the compensation to the Contractor by Owner for the Work shall be determined by the "**Unit Prices**" stated in **Section 01 20 00 Contract Considerations**.

**C. Project Procedures for Work Involving Lead-Based Paint (LBP):**

1. If the Contractor should encounter any material suspected or known to contain **LBP that was not previously identified and assigned as the Contractor's responsibility**, then the Contractor should immediately notify the Construction Administrator **in writing** of same. It is the State's responsibility to have the material tested and abated (if necessary). The Owner will respond within **four (4) Calendar Days** after receiving the Contractor's written request to the Construction Administrator for testing the suspect material. **If necessary, the Contractor will abate LBP within a reasonable time period after the Owner's issuance of a Change Order for the additional abatement work.**
  - 1.1 When the **Owner** requests the **Contractor** undertake the responsibilities **for the abatement and disposal of the LBP**, then the compensation to the Contractor by Owner for the Work shall be determined by the "**Unit Prices**" stated in **Section 01 20 00 Contract Considerations**.
2. Exposure levels for lead in the construction industry are regulated by 29 CFR 1926.62. Construction activities disturbing surfaces containing lead-based paint (LBP) which are likely to be employed, such as sanding, grinding, welding, cutting and burning, have been known to expose workers to levels of lead in excess of the Permissible Exposure Limit (PEL). Conduct demolition and removal Work specified in the technical sections of this specification in conformance with these regulations. In addition, construction debris/waste may be classified as hazardous waste. Disposal of hazardous waste material shall be in accordance with 40 CFR Parts 260 through 271 and Connecticut Hazardous Waste

Management Regulations Section 22a-209-1; 22a-209-8(c); 22a-449(c)-11; and 22a-449(c)-100 through 110.

3. If this facility was constructed **prior to 1978** it is likely to have painted surfaces containing lead-based paint.

**D. Project Procedures for Work Involving Polychlorinated Biphenyls (PCBs) in Building Materials:**

1. If this facility was constructed **between 1950 and 1978**, it is likely to have caulk and/or glazing containing PCBs.
2. If the Owner has tested the facility scheduled for renovation, demolition, reconstruction alteration, remodeling or repair for PCBs in Building Materials such as caulk and glazing or other types of material, then the results are located in **Division 50 00 00 Project-Specific Available Information, Section 50 30 00 Hazardous Building Materials Inspection and Inventory** at the end of the Technical Specification Sections; otherwise the Owner assumes such materials do not warrant testing. It is the Owner's responsibility to have the material tested, not the Contractor, subcontractors or anyone working on behalf of the Contractor.
3. In the case where the Owner has a survey of locations with results and if the Contractor should encounter new areas of the subject material already identified by the survey, then he should immediately notify the Construction Administrator **in writing** of same. It is the State's responsibility to have the material tested and abated (if necessary). The Owner will respond within **four (4) Calendar Days** after receiving the Contractor's written request to the Construction Administrator for testing the suspect material. **If necessary, the Contractor will abate PCBs in Building Materials within a reasonable time period after the Owner's issuance of a Change Order for the additional abatement work.**
  - 3.1 When the **Owner** requests the **Contractor** undertake the responsibilities **for the abatement and disposal of the PCBs in Building Materials**, then the compensation to the Contractor by Owner for the Work shall be determined by the "**Unit Prices**" stated in **Section 01 20 00 Contract Considerations**.
4. The work shall be performed by persons who are knowledgeable, qualified, and trained in the removal, treatment, handling, and disposal of PCB contaminated wastes and the subsequent cleaning of the affected environment. These Specifications govern all work activities that disturb PCB-containing caulk and glazing and associated building material. All activities shall be performed in accordance with, but not limited to, OSHA Regulation 29 CFR 1926, the United States Environmental Protection Agency's PCB Regulation 40 CFR Part 761, Connecticut General Statutes 22a-463 through -469 inclusive, and the **PCB Site Remedial Plan** where applicable.

**E. Project Procedures for Work Involving Mold:**

1. If the Contractor should encounter any material suspected or known to contain **Mold that was not previously identified and assigned as the Contractor's responsibility**, he should immediately notify the Construction Administrator **in writing** of same. It is the State's responsibility to have the material tested and abated (if necessary). The Owner will respond within **four (4) Calendar Days** after receiving the Contractor's written request to the Construction Administrator for testing the suspect material. **If necessary, the Contractor will abate Mold within a reasonable time period after the Owner's issuance of a Change Order for the additional abatement work.**
  - 1.1 When the **Owner** requests the **Contractor** undertake the responsibilities **for the abatement and disposal of Mold**, then the compensation to the Contractor by Owner for the Work shall be determined by the "**Unit Prices**" stated in **Section 01 20 00 Contract Considerations**.
2. Disposal of all hazardous materials shall be in accordance with but not limited to applicable provisions of 40 CFR Parts 761 Subpart K, 761, and 761.65 and the Connecticut General Hazardous Waste Statute Sec. 22a-454.

**F. Project Procedures for Work Involving Hazardous Materials, Wastes, and Items and Universal Wastes (Including Products Containing Persistent Bioaccumulative Toxic Chemicals" (PBTs) such as Polychlorinated Biphenols (PCBs), Di-2-ethylhexyl Phthalate (DEHP), and Mercury):**

1. The **Contractor** is responsible for abating all **Hazardous Materials, Wastes, and Items and Universal Wastes** including products containing Persistent Bioaccumulative Toxic Chemicals" (PBTs) such as Polychlorinated Biphenols (PCBs), Di-2-ethylhexyl Phthalate (DEHP), and Mercury prior to the start of



any Work involving renovation, demolition, reconstruction, alteration, remodeling, or repair (if necessary), unless noted differently below or specified differently elsewhere.

2. If a **Hazardous Materials, Wastes, and Items and Universal Wastes Inventory** has been conducted at the facility scheduled for renovation, demolition, reconstruction, alteration, remodeling, or repair, then the results of the inventory are summarized in **Division 50 00 00 Project-Specific Available Information, Section 50 30 00 Hazardous Building Materials Inspection and Inventory** at the end of the Technical Specification Sections. Under no circumstance shall this information be the sole means used by the Contractor for determining the extent of Hazardous Materials, Wastes, and Items and Universal Wastes. The Contractor shall be responsible for verification of all field conditions affecting performance of the Work
  3. If the Contractor should encounter any Hazardous Materials, Wastes, and Items and Universal Wastes **that were not previously identified and assigned as the Contractor's responsibility**, then the Contractor should immediately notify the Construction Administrator **in writing** of same. It is the State's responsibility to have the material tested and abated (if necessary). The Owner will respond within **four (4) Calendar Days** after receiving the Contractor's written request to the Construction Administrator for testing the suspect material. **If necessary, the Contractor will abate Hazardous Materials, Wastes, and Items and Universal Wastes within a reasonable time period after the Owner's issuance of a Change Order for the additional abatement work.**
  4. Exposure Levels for PBTs such as PCBs, DEHP, and mercury in the construction industry are regulated by 29 CFR 1910.1200 and 29 CFR 1926.28 et. al. Demolition and removal work may expose workers in excess of the respective Permissible Exposure Limit (PEL). Conduct demolition and removal work specified in the technical sections of these specifications in conformance with these regulations.
  5. Examples of Hazardous Materials, Wastes, and Items and Universal Wastes include, but are not limited to, fluorescent light fixtures and exit signs, ballasts, high-intensity discharge (HID) lamps, certain types of construction products containing vinyl, mercury containing electrical switches, gauges, and thermostats; PCB Capacitors, refrigerants, pressurized cylinders, smoke/carbon dioxide detectors, used electronics, batteries, transformer/hydraulic fluids/oils, and miscellaneous household hazardous waste.
  6. For the purposes of this paragraph, **PCB's in building material such as caulk and glazing or any other type of material not listed above is not applicable to this paragraph.**
  7. Construction debris/waste may be classified as hazardous waste. Disposal of all hazardous materials shall be in accordance with but not limited to applicable provisions of 40 CFR Parts 761 Subpart K, 761, and 761.65 and the Connecticut General Hazardous Waste Statute Sec. 22a-454.
- G. See also **General Conditions Article 23 "Cutting, Fitting, Patching and Digging"**.

### 3.2 PREPARATION

- A. Cut, move, or remove items as are necessary for access to alteration and renovation Work. Replace and restore at completion.
- B. Remove unsuitable material not marked for salvage, such as rotted wood, corroded metals, and deteriorated masonry and concrete. Replace materials as specified for finished Work.
- C. Remove debris and abandoned items from area and from concealed spaces.
- D. Prepare surface and remove surface finishes to provide for proper installation of new Work and finishes.
- E. Close openings in exterior surfaces to protect existing Work **and salvageable items** from weather and extremes of temperature and humidity. Insulate ductwork and piping to prevent condensation in exposed areas.

### 3.3 INSTALLATION

- A. Coordinate alteration and renovation Work to expedite completion, and if required sequence Work to accommodate Owner occupancy.
- B. Remove, cut and patch Work in a manner to minimize damage and to provide restoring products and finishes to original and or specified condition in accordance with **Section 01 73 29 "Cutting and Patching"**.
- C. Refinish visible existing surfaces to remain in renovated rooms and spaces, to specified condition for each material, with neat transition to adjacent finishes in accordance with **Section 01 73 29 "Cutting and Patching"**.
- D. In addition to specified replacement of **equipment and fixtures, restore existing plumbing, heating, ventilation, air conditioning, and electrical systems** to full operational condition.

- E. Recover and refinish Work that exposes mechanical and electrical Work exposed accidentally during the Work.
- F. Install products as specified in individual specification sections.

**3.4 TRANSITIONS**

- A. Where new Work abuts or aligns with existing, perform a smooth and even transition. Patch work to match existing adjacent Work in texture and appearance.
- B. When finished surfaces are cut so that a smooth transition with new Work is not possible, terminate existing surface along a straight line at a natural line of division and make recommendation to Architect/Engineer.

**3.5 ADJUSTMENTS**

- A. Where removal of partitions or walls result in adjacent spaces becoming one, rework floors, walls, and ceilings to a smooth plane without breaks, steps, or bulkheads.
- B. Where a change of plane of 1/4-inch in (12) inches or more occurs, request recommendation from Architect/Engineer for providing a smooth transition.
- C. Trim existing doors as necessary to clear new floor finish. Refinish trim as required.
- D. Fit Work at penetrations of surfaces as specified in **Section 01 73 29 "Cutting and Patching"**.

**3.6 REPAIR OF DAMAGED SURFACES**

- A. Patch or replace portions of existing surfaces that are damaged, lifted, discolored, or showing imperfections.
- B. Repair substrate prior to patching finishes.

**3.7 FINISHES**

- A. Finish surfaces as specified in individual product specification sections.
- B. Finish patches to produce uniform finish and texture over entire area. When finish cannot be matched, refinish entire surface to nearest intersections.

**3.8 CLEANING**

- A. In addition to cleaning specified in **Section 01 50 00 "Temporary Facilities and Controls"**, clean Agency occupied areas of Work.

**END OF SECTION 01 35 16**



**PART 1 GENERAL**

**1.1 RELATED DOCUMENTS**

- A. Construction Documents and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section

**1.2 SUMMARY**

- A. This guide specification covers construction safety requirements and requirements for the protection of people, property, and resources. It is intended for use in construction, renovation, and demolition projects for the State of Connecticut Department of Administrative Services (DAS) / Construction Services (CS).
- B. **Related Sections:** The following Sections contain requirements that relate to this Section:
  1. Division 01 Section 01 33 00 Submittal Procedures specifies the requirements for submittal requirements;
  2. Division 01 Section 01 31 19 "Project Meetings" specifies requirements for submittal and distribution of meeting and conference minutes.

**1.2 REFERENCES**

- A. The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.

<b>AMERICAN SOCIETY OF SAFETY ENGINEERS (ASSE/SAFE)</b> <a href="http://www.asse.org/publications/">www.asse.org/publications/</a>	
ANSI/ASSP A10.32	(2012) Fall Protection
ANSI/ASSP A10.34	(2001; R 2012) Protection of the Public on or Adjacent to Construction Sites
ANSI/ASSP Z359.1	(2016) Safety Requirements for Personal Fall Arrest Systems, Subsystems and Components
<b>AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME) <a href="http://www.asme.org/Codes/">www.asme.org/Codes/</a></b>	
ASME B30.22	(2016) Articulating Boom Cranes
ASME B30.3	(2016) Construction Tower Cranes
ASME B30.5	(2018) Mobile and Locomotive Cranes
ASME B30.8	(2015) Floating Cranes and Floating Derricks
<b>NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)</b> <a href="http://www.nfpa.org/">www.nfpa.org/</a>	
NFPA 10	(2018) Portable Fire Extinguishers
NFPA 51B	(2019) Standard for Fire Prevention During Welding, Cutting, and Other Hot Work
NFPA 241	(2019) Safeguarding Construction, Alteration, and Demolition Operations
NFPA 70	(2017) National Electrical Code
NFPA 70E	Standard for Electrical Safety in the Workplace
<b>CODE OF FEDERAL REGULATIONS (CFR)</b> <a href="http://www.archives.gov/federal-register/cfr/">www.archives.gov/federal-register/cfr/</a>	
10 CFR	Standards for Protection Against Radiation
29 CFR 1910	Occupational Safety and Health Standards
29 CFR 1910.28	Safety Requirements For Scaffolding.
29 CFR 1910.146	Permit-required Confined Spaces
29 CFR 1910.147	Control Of Hazardous Energy (Lockout/Tagout)
29 CFR 1910.178	Powered industrial trucks.
29 CFR 1915	Confined and Enclosed Spaces and Other
29 CFR 1926	Safety and Health Regulations for Construction
29 CFR 1926.500	Fall Protection
29 CFR 1926.550	Cranes and Derricks
<b>US Army Core of Engineers (USACE)</b>	

<a href="http://www.iwr.usace.army.mil">www.iwr.usace.army.mil</a>	
EM 385-1-1	Safety, and Health Requirements Manual (2008),

**1.3 SUBMITTALS**

- A. An "O" followed by "A" indicates that the Owner acceptance; submittals not having an "O" designation are for Contractor Quality Control approval.
- B. **Submittal Procedures:**
  - 1. **Preconstruction Submittals:**
    - a. Accident Prevention Plan (APP); "O, A";
    - b. Activity Hazard Analysis (AHA); "O, A";
    - c. Crane Critical Lift Plan; "O, A";
    - d. Proof of qualification for Crane Operators; O, A.
  - 2. **Test Reports:** Submit reports as their incidence occurs, in accordance with the requirements of the paragraph entitled, "Reports."
    - a. Accident Reports;
    - b. Monthly Exposure Reports;
    - c. Crane Reports;
    - d. Regulatory Citations and Violations;
    - e. Gas Protection.
  - 3. **Certificates:**
    - a. Confined Space Entry Permit;
    - b. Hot work permit;
    - c. License Certificates.
    - d. Certificate of Compliance – Crane

**1.4 DEFINITIONS**

- A. **Competent Person.** A competent person is one who is capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them.
- B. **Competent Person for Fall Protection.** A person who is capable of identifying hazardous or dangerous conditions in the personal fall arrest system or any component thereof, as well as their application and use with related equipment, and has the authority to take prompt corrective measures to eliminate the hazards of falling.
- C. **Confined Space:** A space which by design has limited openings for entry and exit, unfavorable natural ventilation which could contain or produce dangerous air contaminants, and which is not intended for continuous employee occupancy. Confined spaces include, but are not limited to storage tanks, process vessels, pits, silos, vats, degreasers, reaction vessels, boilers, ventilation and exhaust ducts, sewers, tunnels, underground utility vaults, and pipelines.
- D. **High Visibility Accident:** Any mishap which may generate publicity and/or high visibility.
- E. **Medical Treatment;** Medical treatment includes treatment administered by a physician or by registered professional personnel under the standing orders of a physician. Medical treatment does not include first aid treatment even through provided by a physician or registered personnel.
- F. **Operating Envelope:** The area surrounding any crane. Inside this "envelope" is the crane, the operator, riggers and crane walkers, rigging gear between the hook and the load, the load and the crane's supporting structure (ground, rail, etc.).
- G. **Qualified Person for Fall Protection:** A person with a recognized degree or professional certificate and with extensive knowledge, training and experience in the field of fall protection; who is capable of performing design, analysis, and evaluation of fall protection systems and equipment.
- H. **Recordable Injuries or Illnesses:** Any work-related injury or illness that results in:
  - 1. Death, regardless of the time between the injury and death, or the length of the illness;
  - 2. Days away from work (any time lost after day of injury/illness onset);
  - 3. Restricted work;
  - 4. Transfer to another job;

5. Medical treatment beyond first aid;
6. Loss of consciousness; or
7. A significant injury or illness diagnosed by a physician or other licensed health care professional, even if it did not result in (1) through (6) above.

I. **Weight Handling Equipment (WHE) Accident:** A WHE accident occurs when any one or more of the six elements in the operating envelope fails to perform correctly during operation, including operation during maintenance or testing resulting in personnel injury or death; material or equipment damage; dropped load; derailment; two-blocking; overload; and/or collision, including unplanned contact between the load, crane, and/or other objects. A dropped load, derailment, two-blocking, overload and collision are considered an accident even though no material damage or injury occurs. A component failure (e.g., motor burnout, gear tooth failure, bearing failure) is not considered an accident solely due to material or equipment damage unless the component failure results in damage to other components (e.g., dropped boom, dropped load, roll over, etc.).

#### 1.5 REGULATORY REQUIREMENTS

A. In addition to the detailed requirements included in the provisions of this Section see, **Division 01, Section 01 42 20 "Reference Standards and Definitions"** for other state laws, criteria, rules and regulations. Submit matters of interpretation of standards to the appropriate administrative agency for resolution before starting work. Where the requirements of this specification, applicable laws, criteria, regulations, and referenced documents vary, the most stringent requirements govern.

#### 1.6 SITE QUALIFICATIONS, DUTIES, AND MEETINGS

##### A. Personnel Qualifications:

##### B. Site Safety and Health Officer (SSHO):

1. Provide a Site Safety and Health Officer (SSHO) at the work site at all times to perform safety and occupational health management, surveillance, inspections, and safety enforcement for the Contractor. The Contractor Quality Control (QC) person can be the SSHO on this project. Meet the following requirements within the SSHO:

**Level 4:** A minimum of **ten (10)** years safety work of a progressive nature with at least **5** years of experience on similar projects. 30-hour OSHA construction safety class or equivalent within the last **five (5)** years. An average of at least 24 hours of formal safety training each year for the past 5 years with training for competent person status for at least the following **seven (7)** areas of competency: **Excavation; Scaffolding; Fall protection; Hazardous energy; Confined space; Health hazard recognition, evaluation and control of chemical, physical and biological agents; Personal protective equipment and clothing to include selection, use and maintenance.**

##### C. Crane Operators:

Meet the Crane Operators and Crane Operation requirements of the Connecticut Bureau of License and Permits – Cranes, Department of Administrative Services, Office of State Fire Marshal pursuant to C.G.S § 29-221 through 29-230. Provide proof of current license and qualification. For more information visit the DAS website ([www.ct.gov/DAS](http://www.ct.gov/DAS)) > Licensing, Certification, Permitting and Codes > Cranes, or call (860) 713-5580 or (860) 713-5529.

##### D. Personnel Duties:

##### 1. Site Safety and Health Officer (SSHO):

- a. Conduct daily safety and health inspections and maintain a written log which includes area/operation inspected, date of inspection, identified hazards, recommended corrective actions, estimated and actual dates of corrections. Attach safety inspection logs to the Contractors' daily **production/quality control** report.
- b. Conduct mishap investigations and complete required reports. Maintain the **OSHA Form 300 and Daily Production** reports for prime and sub-contractors. For more information visit the OSHA website at [www.osha.gov](http://www.osha.gov) > Employers > Recordkeeping Requirements and Forms.
- c. Maintain applicable safety reference material on the job site. Contractor must provide product MSDS sheets to the on-site building supervisor with copies to Construction manager and Project Manager.
- d. Attend the pre-construction conference, pre-work meetings including preparatory inspection meeting, and periodic in-progress meetings.
- e. Implement and enforce accepted APPS and AHAs.

- f. Maintain a safety and health deficiency tracking system that monitors outstanding deficiencies until resolution. Post a list of unresolved safety and health deficiencies on the safety bulletin board.
- g. Ensure sub-contractor compliance with safety and health requirements.

Failure to perform the above duties will result in dismissal of the superintendent and/or SSSHO, and a project work stoppage. The project work stoppage will remain in effect pending approval of a suitable replacement.

**E. Meetings:**

**1. Preconstruction Conference:**

- a. Contractor representatives who have a responsibility or significant role in accident prevention on the project shall attend the preconstruction conference. This includes the project superintendent, site safety and health officer, quality control supervisor, or any other assigned safety and health professionals who participated in the development of the **Accident Prevention Plan (APP)**; (including the **Activity Hazard Analyses (AHAs)**, and special plans, program and procedures associated with it).
- b. Discuss the details of the submitted APP to include incorporated plans, programs, procedures and a listing of anticipated AHAs that will be developed and implemented during the performance of the contract. This list of proposed AHAs will be reviewed at the conference and an agreement will be reached between the Contractor and the Owner's Representative(s) as to which phases will require an analysis. In addition, establish a schedule for the preparation, submittal, review, and acceptance of AHAs to preclude project delays.
- c. Deficiencies in the submitted APP will be brought to the attention of the Contractor at the preconstruction conference, and the Contractor shall revise the plan to correct deficiencies and re-submit it for acceptance. Do not begin work until there is an accepted APP.

**2. Safety Meetings:**

Safety meetings shall be conducted to review past activities, plan for new or changed operations, review pertinent aspects of appropriate AHA (by trade), establish safe working procedures for anticipated hazards, and provide pertinent safety and health training and motivation.

- a. Meetings shall be conducted at least once a month for all supervisors on the project location and at least once a week for all workers by supervisors or foremen.
- b. Meetings shall be documented, including the date, persons in attendance, subjects discussed, and names of individual(s) who conducted the meeting. Documentation shall be maintained and copies furnished to the Construction Administrator (CA) on request.
- c. The Construction Administrator (CA) shall be informed of all scheduled meetings in advance and be invited to attend.

**1.7 ACCIDENT PREVENTION PLAN (APP):**

**A.** Use a qualified person to prepare the written site-specific APP.

- 1. Prepare the APP in accordance with the format and requirements of **US Army Core of Engineers (USACE), Safety, and Health Requirements Manual, EM 385-1-1**, or as approved by the CA and as supplemented herein. Cover all paragraphs and subparagraph elements in **USACE EM 385-1-1, Appendix A, "Minimum Basic Outline for Accident Prevention Plan"** or as approved by the CA. The USACE Safety, and Health Requirements Manual, EM 385-1-1 is available at the USACE Website [www.iwr.usace.army.mil](http://www.iwr.usace.army.mil).
- 2. Specific requirements for some of the APP elements are described in "B" below. The APP shall be job-specific and address any unusual or unique aspects of the project or activity for which it is written.

**B.** The APP shall interface with the Contractor's overall safety and health program. Include any portions of the Contractor's overall safety and health program referenced in the APP in the applicable APP element and made site-specific. The Owner considers the Prime General Contractor to be the "controlling authority" for all work site safety and health of the subcontractors. Contractors are responsible for informing their subcontractors of the safety provisions under the terms of the contract and the penalties for noncompliance, coordinating the work to prevent one craft from interfering with or creating hazardous working conditions for other crafts, and inspecting subcontractor operations to ensure that accident prevention responsibilities are being carried out. The APP shall be signed by the person and firm (senior person) preparing the APP, the Contractor, the on-site superintendent, the designated site safety and health officer and any designated Certified Safety Professional (CSP) and/or Certified Industrial Hygienist (CIH).

- C. Submit the APP to the DAS/CS Project Manager and Construction Administrator **Fourteen (14) Calendar Days** prior to the date of the preconstruction conference for acceptance. Work cannot proceed without an accepted APP. Once accepted by the DAS/CS Project Manager and Construction Administrator, the APP and attachments will be enforced as part of the contract. Disregarding the provisions of this contract or the accepted APP will be cause for stopping of work, at the discretion of the DAS/CS Project Manager and Construction Administrator, until the matter has been rectified. Once work begins, changes to the accepted APP shall be made with the knowledge and concurrence of the DAS/CS Project Manager and Construction Administrator, project superintendent, Site Safety and Health Officer (SSHO) and quality control manager. Should any hazard become evident, stop work in the area, secure the area, and develop a plan to remove the hazard. Notify the DAS/CS Project Manager and Construction Administrator within **Twenty (24) hours** of discovery. Eliminate/remove the hazard. In the interim, take all necessary action to restore and maintain safe working conditions in order to safeguard onsite personnel, visitors, the public (as defined by **American Society of Safety Engineers, ASSE/SAFE A10.34 - Protection of the Public on or Adjacent to Construction Sites**, see [www.asse.org](http://www.asse.org)) and the environment.

Copies of the accepted plan will be maintained at the Construction Administrator's office at the job site. Continuously reviewed and amended the APP, as necessary, throughout the life of the contract. Incorporate unusual or high-hazard activities not identified in the original APP as they are discovered.

- D. **APP Contents:**  
The contents of the Accident Prevention Plan (APP) shall be in accordance with **Appendix A** of the US Army Corps of Engineers, **EM 385-1-1 Safety and Health Requirements Manual**, Appendix A, Minimum Basic Outline for Accident Prevention Plans or as approved by the CA. For more information visit the USACE Website at [www.usace.army.mil/Library](http://www.usace.army.mil/Library).

- 1.8 **ACTIVITY HAZARD ANALYSIS (AHA):** Activity Hazard Analyses (AHAs) define the activities being performed and identify the sequences of work, the specific hazards anticipated, site conditions, equipment, materials, and the control measures to be implemented to eliminate or reduce each hazard to an acceptable level of risk. The Activity Hazard Analysis (AHA) format shall be in accordance with US Army Corps of Engineers, **EM 385-1-1 Safety and Health Requirements Manual** or as approved by the CA.

- A. Submittals:  
1. Submit initial AHA to CA for review at least **15 Calendar Days** prior to the start of each phase. Format subsequent AHAs as amendments to the APP. The analysis should be used during daily inspections to ensure the implementation and effectiveness of the activity's safety and health controls.  
2. The AHA list will be reviewed monthly at the Contractor supervisory safety meeting and updated as necessary when procedures, scheduling, or hazards change. Develop the activity hazard analyses using the project schedule as the basis for the activities performed. Any activities listed on the project schedule will require an AHA. The AHAs will be developed by the contractor, supplier or subcontractor and provided to the prime contractor for submittal to the CA.

## 1.9 DISPLAY OF SAFETY INFORMATION

Within **1 Calendar Days** after commencement of work, erect a safety bulletin board at the job site. Include and maintain information on safety bulletin board as required by US Army Corps of Engineers, **EM 385-1-1 Safety and Health Requirements Manual**, Section 01.A.06 or as approved by the CA. Additional items required to be posted include:

- A. Confined space entry permit.
- B. Hot work permit.
- C. Crane permit
- D. Street permit(s)
- E. Others (as required)

## 1.10 SITE SAFETY REFERENCE MATERIALS

Maintain safety-related references applicable to the project, including those listed in the article "References." Maintain applicable equipment manufacturer's manuals.

## 1.11 EMERGENCY MEDICAL TREATMENT

Contractors will arrange for their own emergency medical treatment. The Owner has no responsibility to provide emergency medical treatment.



1.12 REPORTS

A. Accident Reports

1. Conduct an accident investigation for recordable injuries and illnesses, and property damage accidents resulting in at least **Two Thousand Dollars (\$2,000 )** in damages, to establish the root cause(s) of the accident, complete "Accident Report Form" approved by the CA. Provide the report to the CA within **5 Calendar Days** of the accident.

B. Accident Notification

Notify the CA as soon as practical, but not later than **four hours**, after any accident meeting the definition of Recordable Injuries or Illnesses or High Visibility Accidents, property damage equal to or greater than \$2,000, or any weight handling equipment accident.

1. Within notification include the following:
  - a. contractor name;
  - b. contract title;
  - c. type of contract;
  - d. name of activity;
  - e. installation or location where accident occurred;
  - f. date and time of accident;
  - g. names of personnel injured;
  - h. extent of property damage, if any; extent of injury, if known, and brief description of accident **to include type of construction equipment used, Personal Protective Equipment (PPE) used, etc.** Preserve the conditions and evidence on the accident site until the U.S. Department of Labor, Occupational Safety and Health Administration (USDOL-OSHA) investigation team arrives on-site and USDOL-OSHA investigation is conducted.

C. Monthly Exposure Reports

Monthly exposure reporting to the CA is required to be attached to the monthly Application for Payment request. This report is a compilation of employee-hours worked each month for all site workers, both prime and subcontractor. Provide on a form approved by the CA.

D. Crane Reports

Submit crane inspection reports on a form approved by the CA and as specified herein with Daily Reports of Inspections.

E. HOT WORK

Hot Work shall only be performed in accordance with the requirements of **NFPA 51B "Fire Prevention During Welding, Cutting and Other Hot Work Standard.**

1. Definitions:

- a. **Hot Work:** Work involving burning, welding, or a similar operation that is capable of initiating fires or explosions. Examples listed by NFPA include arc welding, oxygen- fuel gas welding, open-flame soldering, brazing, thermal spraying, oxygen cutting, and arc cutting.
- b. **Permit Authorizing Individual (PAI).** Means the individual designated by the General Contractor to authorize hot work. The PAI is permitted to be, among others, the General Contractor's project executive, supervisor, foreperson, or designated safety administrator. The PAI CANNOT be the hot work operator, except as permitted in **NFPA 51B**. The PAI is aware of the fire hazards involved and is familiar with the provisions of this standard.

2. **Permit:** Submit and obtain a written permit from the PAI prior to performing "Hot Work" (welding, cutting, etc.) or operating other flame-producing/spark producing devices, from the PAI. CONTRACTORS ARE REQUIRED TO MEET ALL CRITERIA BEFORE A PERMIT IS ISSUED. The General Contractor will provide at least **two (2)** twenty (20) pound 4A:20 BC rated extinguishers for normal "Hot Work". All extinguishers shall be current inspection tagged, approved safety pin and tamper resistant seal.

3. **Fire Watch:** It is also mandatory to have a designated FIRE WATCH for any "Hot Work" done at this activity. The Fire Watch shall be trained in accordance with **NFPA 51B Standard for Fire Prevention During Welding, Cutting, and Other Hot Work** and remain on-site for a minimum of 30 minutes after completion of the task or as specified on the hot work permit. When starting work in the facility, require personnel to familiarize themselves with the location of the nearest fire alarm boxes and place in memory the local fire department emergency phone number(s). ANY FIRE, NO

MATTER HOW SMALL, SHALL BE REPORTED TO THE LOCAL FIRE DEPARTMENT, GENERAL CONTRACTOR'S AUTHORIZED REPRESENTATIVE, AND OWNER'S CA IMMEDIATELY.

**1.13 FACILITY OCCUPANCY CLOSURE**

Streets, walks, and other facilities occupied and used by the state User Agency shall not be closed or obstructed without written permission from the CA.

**1.18 SEVERE STORM PLAN**

In the event of a severe storm warning, the Contractor must:

- A. Secure outside equipment and materials and place materials that could be damaged in protected areas.
- B. Check surrounding area, including roof, for loose material, equipment, debris, and other objects that could be blown away or against existing facilities.
- C. Ensure that temporary erosion controls are adequate.

**PART 2 PRODUCTS**

NOT USED.

**PART 3 EXECUTION**

**3.1 CONSTRUCTION AND/OR OTHER WORK**

Comply with the Connecticut State Building and Fire Safety Codes, OSHA regulations, and other references regulations. The most stringent standard prevails.

**3.1.2 HAZARDOUS MATERIAL EXCLUSIONS**

Notwithstanding any other hazardous material used in this contract, radioactive materials or instruments capable of producing ionizing/non-ionizing radiation (with the exception of radioactive material and devices used in accordance with **USACE EM 385-1-1** such as nuclear density meters for compaction testing and laboratory equipment with radioactive sources) as well as materials which contain asbestos, mercury or polychlorinated biphenyls, di-isocyanates, lead-based paint are prohibited. The CA, upon written request by the Contractor, may consider exceptions to the use of any of the above excluded materials.

**3.1.3 UNFORESEEN HAZARDOUS MATERIAL**

- A. Related Section: Division 01, Section 01 35 16, Alteration Project Procedures.

**3.2 PRE-OUTAGE COORDINATION MEETING**

Contractors are required to apply for utility outages at least **15 Calendar Days** in advance. As a minimum, the request should include the location of the outage, utilities being affected, duration of outage and any necessary sketches. Special requirements for electrical outage requests are contained elsewhere in this specification section. Once approved, and prior to beginning work on the utility system requiring shut down, attend a pre-outage coordination meeting with the CA, User Agency Representative, and Public Utilities representative to review the scope of work and the lock-out/tag-out procedures for worker protection. No work will be performed on energized electrical circuits unless proof is provided that no other means exist.

**3.3 SAFETY LOCKOUT/TAGOUT PROCEDURES**

- A. The General Contractor shall ensure that each employee is familiar with and complies with these procedures and **OSHA 29 CFR 1910.147 Control Of Hazardous Energy (Lockout/Tagout)**.
  - 1. The General Contractor's "Authorized Employee" shall apply lockout/tagout tags and take other actions that, because of experience and knowledge, are known to be necessary to make the particular equipment safe to work on.
  - 2. No person, regardless of position or authority, shall operate any switch, valve, or equipment that has an official lockout/tagout tag attached to it, nor shall such tag be removed except as provided in this section.
  - 3. No person shall work on any equipment that requires a lockout/tagout tag unless he, his immediate supervisor, project leader, or a subordinate has in his possession the stubs of the required lockout/tagout tags. Only qualified personnel shall perform work on electrical circuits.
  - 4. A supervisor who is required to enter an area protected by a lockout/tagout tag will be considered a member of the protected group provided he notifies the holder of the tag stub each time he enters and departs from the protected area.
  - 5. Identification markings on building light and power distribution circuits shall not be relied on for established safe work conditions.

6. Before clearance will be given on any equipment other than electrical (generally referred to as mechanical apparatus), the apparatus, valves, or systems shall be secured in a passive condition with the appropriate vents, pins, and locks. Pressurized or vacuum systems shall be vented to relieve differential pressure completely. Vent valves shall be tagged open during the course of the work. Where dangerous gas or fluid systems are involved, or in areas where the environment may be oxygen deficient, system or areas shall be purged, ventilated, or otherwise made safe prior to entry.

**B. Tag Placement**

Lockout/tagout tags shall be completed in accordance with the regulations printed on the back thereof and attached to any device which, if operated, could cause an unsafe condition to exist. If more than one group is to work on any circuit or equipment, the employee in charge of each group shall have a separate set of lockout/tagout tags completed and properly attached. When it is required that certain equipment be tagged, the State of Connecticut Authority Having Jurisdiction will review the characteristics of the various systems involved that affect the safety of the operations and the work to be done; take the necessary actions, including voltage and pressure checks, grounding, and venting, to make the system and equipment safe to work on; and apply such lockout/tagout tags to those switches, valves, vents, or other mechanical devices needed to preserve the safety provided. This operation is referred to as "Providing Safety Clearance."

**C. Tag Removal**

When any individual or group has completed its part of the work and is clear of the circuits or equipment, the supervisor, project leader, or individual for whom the equipment was tagged shall turn in his signed lockout/tagout tag stub to the Contractor. That group's or individual's lockout/tagout tags on equipment may then be removed on authorization by the Contractor.

**3.4 FALL HAZARD PROTECTION AND PREVENTION PROGRAM**

Establish a fall protection and prevention program, for the protection of all employees exposed to fall hazards. Within the program include company policy, identify responsibilities, education and training requirements, fall hazard identification, prevention and control measures, inspection, storage, care and maintenance of fall protection equipment and rescue and evacuation procedures.

**A. Training**

Institute a fall protection training program. As part of the Fall Hazard Protection and Prevention Program, provide training for each employee who might be exposed to fall hazards. Provide training by a competent person for fall protection in accordance with **USACE EM 385-1-1**, Section 21.A.16.

**B. Fall Protection Equipment and Systems**

Enforce use of the fall protection equipment and systems designated for each specific work activity in the Fall Protection and Prevention Plan and/or AHA at all times when an employee is exposed to a fall hazard. Protect employees from fall hazards as specified in **USACE EM 385-1-1, section 21**. In addition to the required fall protection systems, safety skiff, personal floatation devices, life rings etc., are required when working above or next to water in accordance with **USACE EM 385-1-1, paragraphs 05.H. and 05.I**. Personal fall arrest systems are required when working from an articulating or extendible boom, swing stages, or suspended platform. In addition, personal fall arrest systems are required when operating other equipment such as scissor lifts if the work platform is capable of being positioned outside the wheelbase. The need for tying-off in such equipment is to prevent ejection of the employee from the equipment during raising, lowering, or travel. Fall protection must comply with **OSHA 29 CFR 1926.500, Fall Protection, Subpart M, and ASSE/SAFE A10.32, Fall Protection**.

**1. Personal Fall Arrest Equipment**

Personal fall arrest equipment, systems, subsystems, and components shall meet **ASSE/SAFE Z359.1, Safety Requirements for Personal Fall Arrest Systems, Subsystems and Components**. Only a full-body harness with a shock-absorbing lanyard or self-retracting lanyard is an acceptable personal fall arrest body support device. Body belts may only be used as a positioning device system (for uses such as steel reinforcing assembly and in addition to an approved fall arrest system). Harnesses shall have a fall arrest attachment affixed to the body support (usually a Dorsal D-ring) and specifically designated for attachment to the rest of the system. Only locking snap hooks and carabiners shall be used. Webbing, straps, and ropes shall be made of synthetic fiber. The maximum free fall distance when using fall arrest equipment shall not exceed **1.8 m 6 feet**. The total fall distance and any swinging of the worker (pendulum-like motion) that can occur during a fall shall always be taken

**2. Fall Protection for Roofing Work**

Implement fall protection controls based on the type of roof being constructed and work being performed. Evaluate the roof area to be accessed for its structural integrity including weight-bearing capabilities for the projected loading.

**a. Low Sloped Roofs:**

**(i)** For work within 6 feet (1.8 m) of an edge, on low-slope roofs, Protect personnel from falling by use of personal fall arrest systems, guardrails, or safety nets.

**(ii)** For work greater than (6 feet (1.8 m) from an edge, erect and install warning lines in accordance with **OSHA 29 CFR 1926.500, Fall Protection**.

**b. Steep-Sloped Roofs:** Work on steep-sloped roofs requires a personal fall arrest system, guardrails with toe-boards, or safety nets. This requirement also includes residential or housing type construction.

**3. Existing Anchorage**

Certified (or re-certified) by a qualified person for fall protection existing anchorages, to be used for attachment of personal fall arrest equipment in accordance with **ASSE/SAFE Z359.1, Safety Requirements for Personal Fall Arrest Systems, Subsystems and Components**. Existing horizontal lifeline anchorages must be certified (or re-certified) by a registered professional engineer with experience in designing horizontal lifeline systems.

**4. Horizontal Lifelines**

Design, install, certify and use under the supervision of a qualified person horizontal lifelines for fall protection as part of a complete fall arrest system which maintains a safety factor of 2 (**OSHA 29 CFR 1926.500 Fall Protection**).

**5. Guardrails and Safety Nets**

Design, install and use guardrails and safety nets in accordance with **29 CFR 1926, Safety and Health Regulations for Construction Subpart M**.

**6. Rescue and Evacuation Procedures**

When personal fall arrest systems are used, the contractor must ensure that the mishap victim can self-rescue or can be rescued promptly should a fall occur. Prepare a Rescue and Evacuation Plan and include a detailed discussion of the following: methods of rescue; methods of self-rescue; equipment used; training requirement; specialized training for the rescuers; procedures for requesting rescue and medical assistance; and transportation routes to a medical facility. Include the Rescue and Evacuation Plan within the Activity Hazard Analysis (AHA) for the phase of work, in the Fall Protection and Prevention (FP&P) Plan, and the Accident Prevention Plan (APP).

**3.5 SCAFFOLDING**

**A.** The Contractor shall provide all employees with a safe means of access to the work area on the scaffold in accordance with **OSHA 29 CFR 1910.28 Safety Requirements For Scaffolding** and as contained in this section.

1. Climbing of any scaffold braces or supports not specifically designed for access is prohibited.
2. Access scaffold platforms greater than 20 feet (6 m) maximum in height by use of a scaffold stair system.
3. Do not use vertical ladders commonly provided by scaffold system manufacturers for accessing scaffold platforms greater than 20 feet (6 m) maximum in height.
4. The use of an adequate gate is required.
5. Ensure that employees are qualified to perform scaffold erection and dismantling.
6. Do not use scaffold without the capability of supporting at least four times the maximum intended load or without appropriate fall protection as delineated in the accepted fall protection and prevention plan.
7. Stationary scaffolds must be attached to structural building components to safeguard against tipping forward or backward.

8. Give special care to ensure scaffold systems are not overloaded. Side brackets used to extend scaffold platforms on self-supported scaffold systems for the storage of material are prohibited.
9. The first tie-in shall be at the height equal to 4 times the width of the smallest dimension of the scaffold base. Place work platforms on mud sills. Scaffold or work platform erectors shall have fall protection during the erection and dismantling of scaffolding or work platforms that are more than six feet. Delineate fall protection requirements when working above six feet or above dangerous operations in the Fall Protection and Prevention (FP&P) Plan and Activity Hazard Analysis (AHA) for the phase of work.

**B. Stilts**

The use of stilts for gaining additional height in construction, renovation, repair or maintenance work is **PROHIBITED**.

**3.6 EQUIPMENT**

**A. Material Handling Equipment**

Material Handling Equipment shall be in accordance with **OSHA 29 CFR 1910.178 Powered Industrial Trucks** and as contained in this section.

1. Material handling equipment such as forklifts shall not be modified with work platform attachments for supporting employees unless specifically delineated in the manufacturer's printed operating instructions.
2. The use of hooks on equipment for lifting of material must be in accordance with manufacturer's printed instructions.
3. Operators of forklifts or power industrial trucks shall be licensed in accordance with OSHA.

**B. Weight Handling Equipment**

1. Equip cranes and derricks as specified in **ASME B30.5** or **ASME B30.22** or **ASME B30.8** as applicable.
2. Comply with the crane manufacturer's specifications and limitations for erection and operation of cranes and hoists used in support of the work. Perform erection under the supervision of a designated person (as defined in **ASME B30.5**). Perform all testing in accordance with the manufacturer's recommended procedures.
3. Comply with **ASME B30.5** for mobile and locomotive cranes, **ASME B30.22** for articulating boom cranes, **ASME B30.3** for construction tower cranes, and **ASME B30.8** for floating cranes and floating derricks.
4. Under no circumstance shall a Contractor make a lift at or above 90% of the cranes rated capacity in any configuration.
5. When operating in the vicinity of overhead transmission lines, operators and riggers shall be alert to this special hazard and follow the requirements of **ASME B30.5** or **ASME B30.22** as applicable.
6. Do not crane suspended personnel work platforms (baskets) unless the Contractor proves that using any other access to the work location would provide a greater hazard to the workers or is impossible. Do not lift personnel with a line hoist or friction crane.
7. Inspect, maintain, and recharge portable fire extinguishers as specified in **NFPA 10, Standard for Portable Fire Extinguishers**.
8. All employees must keep clear of loads about to be lifted and of suspended loads.
9. Use cribbing when performing lifts on outriggers.
10. The crane hook/block must be positioned directly over the load. Side loading of the crane is prohibited.
11. A physical barricade must be positioned to prevent personnel from entering the counterweight swing (tail swing) area of the crane.

12. Certification records which include the date of inspection, signature of the person performing the inspection, and the serial number or other identifier of the crane that was inspected shall always be available for review by CA.
13. Written reports listing the load test procedures used along with any repairs or alterations performed on the crane shall be available for review by CA.
14. Certify that all crane operators have been trained in proper use of all safety devices (e.g. anti-two block devices).

**C. USE OF EXPLOSIVES**

Explosives shall not be used or brought to the project site without prior written approval from the CA. Such approval shall not relieve the Contractor of responsibility for injury to persons or for damage to property due to blasting operations. Storage of explosives, when permitted on State property, shall be only where directed and in approved storage facilities. These facilities shall be kept locked at all times except for inspection, delivery, and withdrawal of explosives. Explosive work shall be performed in accordance with the requirements of C.G.S. § 29-343 through 29-355 and as required by the Office of State Fire Marshal, CT Department of Construction Services.

**3.7 EXCAVATIONS**

**A. Perform soil classification by a competent person in accordance with 29 CFR 1926 Safety and Health Regulations for Construction.**

**1. Utility Locations**

All underground utilities in the work area must be positively identified by and coordinated in accordance with **Division 00, General Conditions, Article 18 Surveys, Permits, And Regulations**. All underground utilities in the work area must be positively identified by a private utility locating service and coordinated with the public utility company. Any markings made during the utility investigation must be maintained by the General Contractor throughout the contract.

**2. Utility Location Verification**

The Contractor must physically verify underground utility locations by hand digging using wood or fiberglass handled tools when any adjacent construction work is expected to come within three feet of the underground system. Digging within **Two (2) feet (610 mm)** of a known utility must not be performed by means of mechanical equipment; hand digging shall be used. If construction is parallel to an existing utility expose the utility by hand digging every **100 feet (30.5 m)** if parallel within **Five (5) feet (1.5 m)** of the excavation.

**3. Shoring Systems**

Trench and shoring systems must be identified in the accepted safety plan and AHA. Manufacture tabulated data and specifications or registered engineer tabulated data for shoring or benching systems shall be readily available on-site for review. Job-made shoring or shielding must have the registered professional engineer stamp, specifications, and tabulated data. Extreme care must be used when excavating near direct burial electric underground cables.

**4. Trenching Machinery**

Operate trenching machines with digging chain drives only when the spotters/laborers are in plain view of the operator. Provide operator and spotters/laborers training on the hazards of the digging chain drives with emphasis on the distance that needs to be maintained when the digging chain is operating. Keep documentation of the training on file at the project site.

**3.8 UTILITIES WITHIN CONCRETE SLABS**

**A.** Utilities located within concrete slabs or pier structures, bridges, and the like, are extremely difficult to identify due to the reinforcing steel used in the construction of these structures. Whenever contract work involves concrete chipping, saw cutting, or core drilling, the existing utility location must be coordinated with utility company in addition to a private locating service. Outages to isolate utility systems must be used in circumstances where utilities are unable to be positively identified. The use of historical drawings does not alleviate the contractor from meeting this requirement.

**3.9 ELECTRICAL**

**A. Conduct of Electrical Work**

Underground electrical spaces must be certified safe for entry before entering to conduct work. Cables that will be cut must be positively identified and de-energized prior to performing each cut. Positive

cable identification must be made prior to submitting any outage request for electrical systems. Arrangements are to be coordinated with the CA and utility company for identification. The CA will not accept an outage request until the Contractor satisfactorily documents that the circuits have been clearly identified. Perform all high voltage cable cutting remotely using hydraulic cutting tool. When racking in or live switching of circuit breakers, no additional person other than the switch operator will be allowed in the space during the actual operation. Plan so that work near energized parts is minimized to the fullest extent possible. Use of electrical outages clear of any energized electrical sources is the preferred method. When working in energized substations, only qualified electrical workers will be permitted to enter. When work requires Contractor to work near energized circuits as defined by the **NFPA 70**, high voltage personnel must use personal protective equipment that includes, as a minimum, electrical hard hat, safety shoes, insulating gloves with leather protective sleeves, fire retarding shirts, coveralls, face shields, and safety glasses. In addition, provide electrical arc flash protection for personnel as required by **NFPA 70E**. Insulating blankets, hearing protection, and switching suits may also be required, depending on the specific job and as delineated in the Contractor's AHA.

**B. Portable Extension Cords**

Size portable extension cords in accordance with manufacturer ratings for the tool to be powered and protected from damage. Immediately remove from service all damaged extension cords. Portable extension cords shall meet the requirements of **NFPA 70**.

**3.10 WORK IN CONFINED SPACES**

- A.** Comply with the requirements in **OSHA 29 CFR 1910.146** and **OSHA 29 CFR 1926.21(b) (6)**. Any potential for a hazard in the confined space requires a permit system to be used.
1. Entry Procedures. Prohibit entry into a confined space by personnel for any purpose, including hot work, until the qualified person has conducted appropriate tests to ensure the confined or enclosed space is safe for the work intended and that all potential hazards are controlled or eliminated and documented. All hazards pertaining to the space shall be reviewed with each employee during review of the AHA.
  2. Forced air ventilation is required for all confined space entry operations and the minimum air exchange requirements must be maintained to ensure exposure to any hazardous atmosphere is kept below its' action level.
  3. Sewer wet wells require continuous atmosphere monitoring with audible alarm for toxic gas detection.

**END OF SECTION 01 35 26**

## PART 1 - GENERAL

### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

### 1.2 DEFINITIONS

- A. **General:** Basic contract definitions are included in the General Conditions of the Contract for Construction.
- B. **"Indicated":** The term "indicated" refers to graphic representations, notes, or schedules on the Drawings, or other paragraphs or Schedules in the Specifications, and similar requirements in the Contract Documents. Terms such as "shown," "noted," "scheduled," and "specified" are used to help the reader locate the reference. Location is not limited to this term.
- C. **"Directed":** Terms such as "directed," "requested," "authorized," "selected," "approved," "required," and "permitted" mean directed by the Architect, requested by the Architect, and similar phrases.
- D. **"Approved":** The term "approved," when used in conjunction with the Architect's action on the Contractor's submittals, applications, and requests, is limited to the Architect's duties and responsibilities as stated in the Conditions of the Contract.
- E. **"Regulations":** The term "regulations" includes laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, as well as rules, conventions, and agreements within the construction industry that control performance of the Work.
- F. **"Furnish":** The term "furnish" means supply and deliver to the Project Site, ready for unloading, unpacking, assembly, installation, and similar operations.
- G. **"Install":** The term "install" describes operations at the Project Site including the actual unloading, unpacking, assembly, erecting, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar operations.
- H. **"Provide":** The term "provide" means to furnish and install, complete and ready for the intended use.
- I. **"Installer":** An installer is the Contractor or another entity engaged by the Contractor, either as an employee, subcontractor, or contractor of lower tier, to perform a particular construction activity, including installation, erection, application, or similar operations. Installers are required to be experienced in the operations they are engaged to perform.
  - 1. The term **"experienced,"** when used with the term **"installer,"** means having a minimum of **five (5)** previous projects similar in size and scope to this Project, being familiar with the special requirements indicated, and having complied with requirements of authorities having jurisdiction.
  - 2. **Trades:** Using terms such as "carpentry" does not imply that certain construction activities must be performed by accredited or unionized individuals of a corresponding generic name, such as "carpenter." It also does not imply that requirements specified apply exclusively to tradespersons of the corresponding generic name.
  - 3. **Assigning Specialists:** Certain Sections of the Specifications require that specific construction activities shall be performed by specialists who are recognized experts in those operations. The specialists must be engaged for those activities, and their assignments are requirements over which the Contractor has no option. However, the ultimate responsibility for fulfilling contract requirements remains with the Contractor.
    - a. This requirement shall not be interpreted to conflict with enforcing building codes and similar regulations governing the Work. It is also not intended to interfere with local trade-union jurisdictional settlements and similar conventions.
- J. **"Project Site"** is the space available to the Contractor for performing construction activities, either exclusively or in conjunction, with others performing other Work as part of the Project. The extent of the Project Site is shown on the Drawings and may or may not be identical with the description of the land on which the Project is to be built.
- K. **"Testing Agencies":** A testing agency is an independent entity engaged to perform specific inspections or tests, either at the Project Site or elsewhere, and to report on and, if required, to interpret results of those inspections or tests.



### 1.3 SPECIFICATION FORMAT AND CONTENT EXPLANATION

- A. **Specification Format:** These Specifications are organized into Divisions and Sections based on CSI's "MasterFormat" 49-Division format and numbering system.
- B. **Specification Content:** This Specification uses certain conventions regarding the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations or circumstances. These conventions are explained as follows:
  - 1. **Abbreviated Language:** Language used in Specifications and other Contract Documents is abbreviated. Words and meanings shall be interpreted as appropriate. Words implied, but not stated, shall be interpolated, as the sense requires. Singular words will be interpreted as plural and plural words interpreted as singular where applicable as the context of the Contract Documents indicates.
  - 2. **Streamlined Language:** The Specifications generally use the imperative mood and streamlined language. Requirements expressed in the imperative mood are to be performed by the Contractor. At certain locations in the Text, subjective language is used for clarity to describe responsibilities that must be fulfilled indirectly by the Contractor or by others when so noted.
    - a. The words "**shall be**" are implied where a colon (:) is used within a sentence or phrase.

### 1.4 INDUSTRY STANDARDS

- A. **Applicability of Standards:** Except where the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into the Contract Documents to the extent referenced. Such standards are made a part of the Contract Documents by reference.
- B. **Publication Dates:** Comply with the standards in effect as of the date of the Contract Documents unless a specific date is indicated in the Contract Documents or the governing regulations cited herein.
- C. **Conflicting Requirements:** Where compliance with **two (2)** or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent and highest quality requirement. Request a decision from the Architect before proceeding on requirements that are different but apparently equal, and where it is uncertain which requirement is the most stringent.
  - 1. **Minimum Quantity or Quality Levels:** The quantity or quality level shown or specified shall be the minimum acceptable. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of the requirements. Request a clarification from the Architect regarding uncertainties before proceeding.
- D. **Copies of Standards:** Each entity engaged in construction on the Project is required to be familiar with industry standards applicable to its construction activity. Copies of applicable standards are not bound with the Contract Documents.
  - 1. Where copies of standards are needed to perform a required construction activity, the Contractor shall obtain copies directly from the publication source.
- E. **Abbreviations and Names:** Trade association names and titles of general standards are frequently abbreviated. Where such acronyms or abbreviations are used in the Specifications or other Contract Documents, they mean the recognized name of the trade association, standards-generating organization, authorities having jurisdiction, or other entity applicable to the context of the text provision. Refer to Thompson Gale's "Encyclopedia of Associations," available in most libraries.

### 1.5 GOVERNING REGULATIONS AND AUTHORITIES

- A. **Copies of Regulations:** Obtain copies of the "**latest applicable State Codes**" and the following regulations and retain at the Project Site to be available for reference by parties who have a reasonable need during submittals, planning, and progress of the Work, until Substantial Completion.
  - 1. Connecticut State Building Code - 2018.
    - 1.1 CT Supplement - None.
    - 1.2 CT Amendments - 2018.
    - 1.3 International Building Code - 2015.
    - 1.4 International Existing Building Code - 2015.
    - 1.5 International Mechanical Code - 2015.
    - 1.6 International Plumbing Code - 2015.

- 1.7 International Energy Conservation Code - 2015.
- 1.8 National Electric Code (NFPA 70) - 2017.
- 1.9 ICC/ANSI A117.1-Accessible and Usable Buildings and Facilities - 2009.
- 2. Connecticut Fire Safety Code - 2018.
  - 2.1 CT Supplement - None.
  - 2.2 CT Amendments - 2018.
  - 2.3 International Fire Safety Code - 2018.
  - 2.4 NFPA 101 - 2018.
- 3. Connecticut Fire Prevention Code - 2018.
  - 3.1 NFPA 1 - 2018.
- 4. Occupational Safety and Health Administration (OSHA)
  - 4.1 OSHA 29 CFR Part 1910 Occupational Safety and Health Regulations - 2018.
  - 4.2 OSHA 29 CFR Part 1926 Occupational Safety and Health Regulations for Construction - 2018.
- B. The “**latest applicable State Codes**” are available for download from the DAS website ([www.ct.gov/das](http://www.ct.gov/das)) > Doing Business With The State > State Building Construction > Publications and Forms > Office of State Building Inspector *and* Office of State Fire Marshal. Also visit the [www.ctdol.state.ct.us](http://www.ctdol.state.ct.us) Connecticut Department of Labor website.

**1.6 SUBMITTALS**

- A. **Permits, Licenses, and Certificates:** For the Owner's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents.

**PART 2 – PRODUCTS (Not Applicable)**

**PART 3 – EXECUTION (Not Applicable)**

**END OF SECTION 01 42 20**



## PART 1 - GENERAL

### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

### 1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for quality-control services.
- B. Quality-Control services include inspections, tests, and related actions, including reports performed by Contractor, by independent agencies, and by governing authorities. They do not include contract enforcement activities performed by the Owner.
- C. Inspection and testing services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with Contract Document requirements.
- D. Requirements of this Section relate to customized fabrication and installation procedures, not production of standard products.
  - 1. Specific quality-control requirements for individual construction activities are specified in the Sections that specify those activities. Requirements in those Sections may also cover production of standard products.
  - 2. Specified inspections, tests, and related actions do not limit Contractor's quality-control procedures that facilitate compliance with Contract Document requirements.
  - 3. Requirements for Contractor to provide quality-control services required by Architect, Owner, or authorities having jurisdiction are not limited by provisions of this Section.
- E. Related Sections: The following Sections contain requirements that relate to this Section:
  - 1. Division 01 Section 01 33 00 "Submittal Procedures" specifies requirements for development of a schedule of required tests and inspections.
  - 2. Division 01 Section 01 73 29 "Cutting and Patching" specifies requirements for repair and restoration of construction disturbed by inspection and testing activities.
  - 3. Division 01 Section 01 77 00 "Closeout Procedures", specific requirements for contract closeout procedures.

### 1.3 RESPONSIBILITIES

- A. Contractor Responsibilities: Unless otherwise indicated as the responsibility of another identified entity, the Owner, through the Construction Administrator, shall provide inspections, tests, and other quality-control services specified elsewhere in the Contract Documents and required by authorities having jurisdiction. All tests required by the individual specification sections are required to be scheduled and notification given to the Construction Administrator **24/48** hours in advance of the test/inspection as applicable. Costs for these services are not included in the Contract Sum.
  - 1. Where individual Sections specifically indicate that certain inspections, tests, and other quality-control services are the Contractor's responsibility, the Contractor shall employ and pay a qualified independent testing agency to perform quality-control services. Costs for these services are included in the Contract Sum.
  - 2. Where individual Sections specifically indicate that certain inspections, tests, and other quality-control services are the Owner's responsibility, the Owner will employ and pay a qualified independent testing agency to perform those services.
    - a) Such services include Special Inspections as required by the latest edition of the "Connecticut State Building Code".
    - b) Where the Owner has engaged a testing agency for testing and inspecting part of the Work, and the Contractor is also required to engage an entity for the same or related element, the Contractor shall not employ the entity engaged by the Owner. The Owner will engage the services of a qualified Special Inspector for this project. The Special Inspector, as a representative of the

- Owner, shall document and confirm compliance with the provisions of the Connecticut State Building Code for Special Inspections.
- c) Materials and assemblies for this project will be tested and construction operations inspected as the work progresses. Failure to detect any defective work or material shall not in any way prevent later rejection when such defect is discovered nor shall it obligate the State for final acceptance.
  - d) The Owner's use of testing and inspection services shall in no way relieve the Contractor of the responsibility to furnish materials and finished construction in full compliance with the Contract Documents and the Connecticut State Building Code.
- B. Retesting: The Contractor is responsible for retesting where results of inspections, tests, or other quality-control services prove unsatisfactory and indicate noncompliance with Contract Document requirements, regardless of whether the original test was Contractor's responsibility.
- 1. The cost of retesting construction, revised or replaced by the Contractor, is the Contractor's responsibility where required tests performed on original construction indicated non-compliance with Contract Document requirements.
  - 2. The Owner will issue a credit change order to cover all costs incurred related to all re-tests/re-inspections due to non-compliance to the Contract Documents, including but not limited to the Owner's costs and the Consultant's costs.
- C. Associated Services: Cooperate with agencies performing required inspections, tests, and similar services, and provide reasonable auxiliary services as requested. Notify the Agency sufficiently in advance of operations to permit assignment of personnel. Auxiliary services required include, but are not limited to, the following:
- 1. *Provide access to the Work.*
  - 2. *Furnish incidental labor and facilities necessary to facilitate inspections and tests.*
  - 3. *Take adequate quantities of representative samples of materials that require testing or assist the agency in taking samples.*
  - 4. *Provide facilities for storage and curing of test samples.*
  - 5. *Deliver samples to testing laboratories.*
  - 6. *Provide an approved design mix proposed for use for material mixes that require control by the testing agency.*
  - 7. *Provide security and protection of samples and test equipment at the Project Site.*
- D. Duties of the Testing Agency: The independent testing agency engaged to perform inspections, sampling, and testing of materials and construction specified in individual Sections shall cooperate with the Construction Administrator, Architect and the Contractor in performance of the testing agency's duties. The testing agency shall provide qualified personnel to perform required inspections and tests.
- 1. The testing agency shall notify the Construction Administrator and the Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.
  - 2. The testing agency is not authorized to release, revoke, alter, or enlarge requirements of the Contract Documents or approve or accept any portion of the Work.
  - 3. The testing agency shall not perform any duties of the Contractor.
- E. Owner will pay for the services of an independent testing agency laboratory to perform inspections, tests and other services required by the Specifications except as noted below, listed for which the Owner will issue a deduct change order to cover the cost associated with these tests:
- 1. When the Contractor notifies the Construction Administrator and/or Testing Agency less than 24 hours before the expected time of testing.
  - 2. When the Contractor requires testing for his own convenience.
  - 3. When the Contractor schedules a test and is not ready for the required test.
- F. Submit reports of tests that are part of the submittal requirements which indicate compliance or non-compliance with the specified standard.
- G. See also General Conditions Article 16 "Inspections & Tests".

#### 1.4 SUBMITTALS

- A. Unless the Contractor is responsible for this service, the independent testing agency shall submit a certified written report, in duplicate, of each inspection, test, or similar service to the Construction Administrator. If

the Contractor is responsible for the service, submit a certified written report, in duplicate, of each inspection, test, or similar service through the Contractor.

1. Submit additional copies of each written report directly to the governing authority, when the authority so directs.
2. Report Data: Written reports of each inspection, test, or similar service include, but are not limited to, the following:
  - a. Date of issue.
  - b. Project title and number.
  - c. Name, address, and telephone number of testing agency.
  - d. Dates and locations of samples and tests or inspections.
  - e. Names of individuals making the inspection or test.
  - f. Designation of the Work and test method.
  - g. Identification of product and Specification Section.
  - h. Complete inspection or test data.
  - i. Test results and an interpretation of test results.
  - j. Ambient conditions at the time of sample taking and testing.
  - k. Comments or professional opinion on whether inspected or tested Work complies with Contract Document requirements.
  - l. Name and signature of laboratory inspector.
  - m. Recommendations on re-testing.

#### 1.5 QUALITY ASSURANCE

- A. Qualifications for Service Agencies:** Engage inspection and testing service agencies, including independent testing laboratories, that are pre-qualified as complying with the National Voluntary Laboratory Accreditation Program and that specialize in the types of inspections and tests to be performed.
1. Each independent inspection and testing agency engaged on the Project shall be authorized by authorities having jurisdiction to operate in the state where the Project is located.
- B. Mockups:** Provide full-size, physical assemblies that are constructed on-site. Mockups will be used to verify selections made under sample submittals, to demonstrate aesthetic effects and, where indicated, qualities of materials and execution, and to review construction, coordination, testing, or operation; they are not samples. Approved mockups establish the standard by which the Work will be judged.

### PART 2 - PRODUCTS (Not Applicable)

### PART 3 - EXECUTION

#### 3.1 MOCKUPS

- A.** Build site-assembled mockups using installers who will perform same tasks for project.
- B.** Before installing portions of the Work requiring mockups, build mockups for each form of construction and finish required to comply with the following requirements, using materials indicated for the completed Work:
1. Build mockups in location and of size indicated or, if not indicated, as directed by Architect.
  2. Notify Architect seven (7) days in advance of dates and times when mockups will be constructed.
  3. Demonstrate the proposed range of aesthetic effects and workmanship.
  4. Obtain Architect's approval of mockups before starting work, fabrication, or construction.
  5. Maintain mockups during construction in an undisturbed condition as a standard for judging the completed Work.
  6. Demolish and remove mockups when directed, unless otherwise indicated.

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**3.2 REPAIR AND PROTECTION**

- A. General: Upon completion of inspection, testing, sample taking and similar services, repair damaged construction and restore substrates and finishes. Comply with Contract Document requirements for Division 01 Section 01 73 29 "Cutting and Patching."
- B. Protect constructions exposed by or for quality-control service activities, and protect repaired construction.
- C. Repair and protection is Contractor's responsibility, regardless of the assignment of responsibility for inspection, testing, or similar services.

**END OF SECTION 01 45 00**

**PART 1 - GENERAL**

**1.1 RELATED DOCUMENTS**

- A.** Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 specification sections, apply to this section.

**1.2 SUMMARY**

- A.** This Section includes the following:
1. Requirements of baseline Indoor Air Quality (IAQ) testing for maximum indoor pollutant concentrations for acceptance of the facility.
  2. Requirements for independent materials testing of specific materials anticipated to have major impact on IAQ.
  3. Procedures for testing specific construction materials for IAQ performance to assure compliance with green building rating system credits. Materials have been identified for independent testing based on the following **three (3)** criteria:
    - a. Large volume of material used in occupied spaces.
    - b. The space is occupied during normal working hours.
    - c. Materials are used in an area where there is recirculating air.
- B. Related Sections:** The following Sections contain requirements that relate to this Section:
1. Divisions 01 through 49 sections for green building rating system requirements specific to the Work of each of those sections. These requirements may or may not include reference to LEED or Green Globes.
  2. Division 23 Section 23 05 93 "Testing, Adjusting and Balancing for HVAC" for additional requirements for baseline testing for IAQ.
  3. Division 23 Section 23 05 93 "Testing, Adjusting and Balancing for HVAC" for cleaning of HVAC system including duct work, air intakes and returns, and changing of filters.

**1.3 REFERENCES**

- A. American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE):**
1. ASHRAE 52.2-**1999**, Method of Testing General Ventilation Air-Cleaning Devices for Removal Efficiency by Particle Size.
- B. ASTM International, Inc. (ASTM):**
1. ASTM D5116-**2006**, Standard Guide for Small-Scale Environmental Chamber Determinations of Organic Emissions From Indoor Materials/Products.
- C. Sheet Metal and Air Conditioning Contractors' National Association (SMACNA):**
1. IAQ Guidelines for Occupied Buildings Under Construction, **1995**.
- D. United States Environmental Protection Agency (EPA):**
1. Compendium of Methods for the Determination of Air Pollutants in Indoor Air.

**1.4 SUBMITTALS**

- A. Baseline IAQ Testing:** Submit a report for each test site specified for IAQ baseline testing as prescribed in Section 23 05 93 "Testing, Adjusting and Balancing for HVAC". Report on air concentrations of targeted pollutants as identified in Table 3.1 below.
- B. Product Emissions Test Reports:** Submit a report for each material emissions test performed. Report test results in terms of emission factors that will be used by the Owner to model indoor air concentrations. These reports and the modeling data prepared by the Owner shall be included in the closeout documentation specified in Section 01 77 00 "Closeout Procedures".
- C. Green Building Certification Documentation Submittals:**
1. **Construction Indoor Air Quality (IAQ) Management Plan (During Construction) Credit:**
    - a. Construction IAQ management plan.
    - b. Letter confirming if the permanently installed air handling equipment was used during construction.



- c. Product data for temporary filtration media. Indicate manufacturer, model number, MERV rating, and location of installed media.
- d. Letter confirming that each filtration media was replaced prior to final occupancy.
- e. Product data for filtration media to be used during occupancy. Indicate manufacturer, model number, MERV rating, and location of media.
- f. Construction Documentation: **Six (6)** photographs at **three (3)** different occasions during construction along with a brief description of the SMACNA approach employed, document implementation of the IAQ management measures, such as protection of ducts and on-site stored or installed absorptive materials.

**2. Construction Indoor Air Quality (IAQ) Management Plan (Before Occupancy) Credit:**

- a. Signed letter confirming the approach taken by the project (pre-occupancy flush-out; flush-out with early occupancy flush-out or IAQ testing).
- b. A narrative describing the building air flush-out procedures including the dates when flush-out was begun and completed and statement that filtration media was replaced after flush-out.
- c. Product data for filtration media used during flush-out and during occupancy.
- d. A narrative describing the building's IAQ testing process and results including the dates when testing was started and completed.
- e. Report from testing and inspecting agency indicating results of IAQ testing and documentation showing conformance with IAQ testing procedures and requirements.

**1.5 QUALITY ASSURANCE**

- A. Perform material tests and report results in accordance with ASTM D5116.

**PART 2 - PRODUCTS (Not Applicable)**

**PART 3 - EXECUTION**

**3.1 BASELINE IAQ TESTING**

- A. **HVAC System Verification:** To assure compliance with recognized standards for indoor air quality including ASHRAE 62-2004, the [Contractor's] [Owner's] independent testing and balancing agency shall verify the performance of each HVAC system including space temperature and space humidity uniformity, outside air quantity, filter installation, drain pan operation, and any obvious contamination sources.
- B. **Indoor Air Quality Testing:** Upon verification of HVAC system operation, the Contractor shall hire an independent contractor, subject to approval by the Architect, with a minimum of five (5) years experience in performing the types of testing specified herein, to test levels of indoor air contaminants for compliance with specified requirements.
  - 1. Submit a test plan for the approval of the Architect. The plan shall specify procedures, times, instrumentation, and sampling methods that will be employed.
  - 2. Perform testing in **16** different locations. Contaminant levels are to be measured on **each floor within the scope of work** agreed upon by the Contractor and the Architect. Areas with very high outside air ventilation rates such as laboratories are excluded from these testing requirements. The Architect is the sole judge of areas exempt from testing.
  - 3. Collect air samples on **three (3) consecutive** days during normal business hours (between the hours of 8:00 AM and 5:00 PM) with building operating at normal HVAC rates. Average the results of each three-day test cycle to determine compliance or non-compliance of indoor air quality for each air handling zone tested.
  - 4. Sample and record outside air levels of formaldehyde and TVOC contaminants at outside air intake of each respective air handling unit simultaneously with indoor tests to establish basis of comparison for these contaminant levels. Indoor testing will be done in the breathing zone; between **four (4) and seven (7) feet** from the floor.
  - 5. Acceptance of respective portions of [the building] [buildings] by the Architect is subject to compliance with specified limits of indoor air quality contaminant levels.

- C. **Compliance indoor air quality shall conform to the following standards and limits:**

1. **Carbon Monoxide:** Not to exceed nine (9) ppm.
  2. **Carbon Dioxide:** Not to exceed 800 ppm.
  3. **Airborne Mold and Mildew:** Simultaneous indoor and outdoor readings.
  4. **Maximum Air Concentration Standards:** Indoor room air concentration levels, emission rates, and qualities of the listed contaminants shall not exceed the following limits specified in Table 3.1 below.
- D. Test Reports:** Prepare test reports showing the results and location of each test, a summary of the HVAC operating conditions, a listing of any discrepancies and recommendations for corrective actions, if required.
1. Include certification of test equipment calibration with each test report.
- E.** If any test fails the standard, the Contractor is responsible to ventilate the building with 100 percent outside air until the building passes both air quality tests and duct inspections. Retesting shall be performed at no additional expense to the Owner.

**Table 3.1 MAXIMUM INDOOR AIR CONCENTRATION STANDARDS**

INDOOR CONTAMINANTS	MAXIMUM AIR CONCENTRATION LEVELS*
Formaldehyde	50 parts per billion
Particulates (PM10)	50 micrograms per cubic meter
Total Volatile Organic Compounds (TVOC)	500 micrograms per cubic meter
4-Phenylcyclohexene (4-PCH)**	6.5 micrograms per cubic meter
Carbon Monoxide (CO)	9 parts per million and no greater than 2 parts per million above outdoor levels

\* All levels must be achieved prior to acceptance of the building. The levels do not account for contributions from office furniture, occupants, and occupant activities.

\*\* This test is only required if carpet and fabrics with styrene-butadiene rubber (SBR) latex backing material are installed in the building.

- F. Construction Indoor Air Quality (IAQ) Management Plan (During Construction) Credit:** Comply with SMACNA IAQ Guidelines for Occupied Buildings under Construction.
- G. Construction Indoor Air Quality (IAQ) Management Plan (Before Construction) Credit:**
1. After construction ends, prior to occupancy and with all interior finishes installed, perform a building flush-out by supplying a total air volume of 14000 cu ft of outdoor air per sq ft of floor area while maintaining an internal temperature of at least 60 degrees F and relative humidity no higher than 60 percent.
    - a. 01 57 40 Construction IAQ, Baseline IAQ and Materials**
  2. If building occupancy is to occur before completion of the flush-out, deliver a minimum of 3500 cu ft of outdoor air per sq ft of floor area to the space. Once the space is occupied, ventilate it at a minimum rate of 0.30 cfm/sq ft of outside air or the design minimum outside air rate determined in accordance with Sections 4 through 7 of ASHRAE 62.1 or applicable local code, whichever is more stringent. During each day of the flush-out period, begin ventilation a minimum of three (3) hours prior to occupancy and continue during occupancy. Maintain these conditions until a total of 14000 cu ft/sq ft of outside air has been delivered to the space.
  3. Engage an independent testing and inspecting agency to conduct a baseline IAQ testing program according to EPA Compendium of Methods for the Determination of Air Pollutants in Indoor Air [and the LEED for New Construction Version 2.2 Reference Guide].

### 3.2 INDEPENDENT MATERIALS TESTING

- A. Materials That Must Be Tested:** Test materials listed below that are proposed for use on this project for permanent, in-place Indoor Air Quality performance in accordance with requirements of these specifications. Results shall be furnished to the Architect. Materials meeting the criteria for independent testing are as follows:
1. Field applied paint systems on appropriate substrate. Paint primers and intermediate coats (if used) should be applied with a typical drying time allowed between coats (not to exceed seven (7) days).
  2. Carpet including manufacturer's recommended adhesive. The carpet will be applied to the appropriate concrete flooring per manufacturer's instructions so that the testing is of the "carpet assembly."

3. Acoustical ceiling tile.
  4. Fireproofing material applied to appropriate substrate.
- B. Materials for Testing:** Only test representative samples of actual products selected for use on this project. Tests of products generically and/or technically similar but produced by a manufacturer other than that of the product selected for use on this project is invalid.
- C. Materials Testing Parameters:**
1. Wrap each material to be tested in air tight covering for shipment direct from the factory to the testing laboratory to avoid contamination in transit. Unwrap material or apply material to substrate if material is wet-applied, such as paint or adhesive materials) in the testing lab.
  2. **Emissions Testing:** Perform all testing in accordance with ASTM D5116. Report results in accordance with Section ii of referenced ASTM Standard. Report in terms of emission rates at a minimum of three (3) distinct time intervals (e.g., one (1) hour, 24 hours, 72 hours) that will be modeled by the Architect to predict maximum indoor air concentrations and to assist the Contractor in determining suitability of products or materials. Assumptions that will be used for the Architect's model are given below for information.
  3. Table 3.2 summarizes required product testing.

**Table 3.2 PRODUCT EMISSION TESTING**

PRODUCT ASSEMBLY TO BE TESTED	TVOC (per ASTM) PM (per NIOSH)	
Wall paint on appropriate substrate, including any primer coat	Yes	No
Carpet including adhesive and concrete flooring	Yes	No
Acoustical Ceiling Tile	No	Yes
Fireproofing material on appropriate substrate	No	Yes

- D. Model Assumptions Used for Predicting Indoor Air Concentrations:** The model will assume the standard room enclosure as 10' long x 10' wide x 9' high. Each product tested will be modeled separately to provide information on the particular product. The model will assume a ventilation rate of one (1) air change per hour.
1. **Field Applied Paint Systems:** Test fully cured samples of each complete paint system including primers, intermediate coats (if used), and finish coats. The model assumes application to all four (4) walls and one-half of ceiling of model standard room enclosure.
  2. **Carpet and Adhesive Assembly:** Assumes application to entire 10 x 10 ft floor surface of model standard room enclosure.
  3. **Acoustical Ceiling Tile:** Assumes application to entire 10 x 10 ft ceiling surface of model standard room enclosure.
  4. **Fireproofing:** Assumes application to entire 10 x 10 ft area above the ceiling surface of model standard room enclosure.
- E. Materials Test Reports:** Submit test reports to the Architect. The report shall include the information outlined in Section 11 of ASTM D5116.
- F. Product/Material Evaluation:** All products/materials shown by testing to comply with emissions limits and other criteria specified in this section will be approved for use on this project subject to compliance with all other specified requirements of the Project Manual. Products/materials shown by model to exceed specified emission limits shall be discussed, test results interpreted, and a determination made as to alternative product uses or selections.

**END OF SECTION 01 45 23.13**

## PART 1 - GENERAL

### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including Division 00 General Conditions of the Contract for Construction for Design-Bid-Build and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

### 1.2 SUMMARY

- A. This Section includes requirements for identification badges, parking stickers, construction facilities and temporary controls, including temporary utilities, support facilities, and security and protection.
- B. Temporary utilities include, but are not limited to, the following:
  - 1. **Temporary water service and distribution.**
  - 2. **Temporary electric power and lighting services.**
- C. Support facilities include, but are not limited to, the following:
  - 1. **Field offices – Contractor, Subcontractor, Owner, and Construction Administrator.**
  - 2. **Storage and fabrication sheds.**
  - 3. **Temporary enclosures.**
  - 4. **Temporary lifts, hoists and elevator use.**
  - 5. **Temporary project identification signs.**
  - 6. **Collection and disposal of waste and cleaning.**
  - 7. **Temporary Environmental Controls.**
  - 8. **Stairs.**
- D. Security and protection facilities include, but are not limited to, the following:
  - 1. **Temporary fire protection.**
  - 2. **Permanent fire protection.**
  - 3. **Security for site and Agency.**
  - 4. **Barricades, warning signs, and lights.**
  - 5. **Enclosure fence.**
  - 6. **Security enclosure and lockup.**
  - 7. **Protection.**
  - 8. **Environmental protection.**
  - 9. **Traffic ways.**
  - 10. **Identification badges for Contractor's personnel & parking stickers.**

### 1.3 RELATED SECTIONS

- A. Division 01 Section 01 57 30 "Indoor Environmental Control" for additional provisions governing temporary heating, ventilating and air conditioning.

### 1.4 SUBMITTALS

- A. **Temporary Utilities:** Submit reports of tests, inspections, meter readings, and similar procedures performed on temporary utilities.
- B. **Implementation and Termination Schedule:** Within **twenty-one (21)** days of the date established for commencement of the Work, submit a schedule indicating implementation and termination of each temporary utility.

## 1.5 QUALITY ASSURANCE

- A. Regulations:** Comply with industry standards and applicable laws and regulations of authorities having jurisdiction including, but not limited to, the following:
1. **Building and fire code requirements.**
  2. **Health and safety regulations.**
  3. **Utility company regulations.**
  4. **Police, fire department, and rescue squad rules.**
  5. **Environmental protection regulations.**
  6. **Americans with Disabilities Act.**
- B. Standards:** OSHA. Comply with NFPA 241 "Standard for Safeguarding Construction, Alteration, and Demolition Operations," ANSI A10 Series standards for "Safety Requirements for Construction and Demolition," and NECA 200 "Recommended Practice for Installing and Maintaining Temporary Electric Power at Construction Sites."
1. **Electrical Service:** Comply with NEMA, NECA, and UL standards and regulations for temporary electric service. Install service in compliance with NFPA 70 "National Electric Code."
- C. Inspections:** Arrange for authorities having jurisdiction to inspect and test each temporary utility before use. Obtain required certifications and permits.

## 1.6 PROJECT CONDITIONS

- A. Temporary Utilities:** Prepare a schedule indicating dates for implementation and termination of each temporary utility. At the earliest feasible time, when acceptable to the Owner, the Construction Administrator will direct the change over from use of temporary service to use of permanent service.
- B. Conditions of Use:** Keep temporary services and facilities clean and neat in appearance. Operate in a safe and efficient manner. Relocate temporary services and facilities as the Work progresses. Do not overload facilities or permit them to interfere with progress. Take necessary fire-prevention measures. Do not allow hazardous, dangerous, or unsanitary conditions, or public nuisances to develop or persist on-site.

## PART 2 - PRODUCTS

### 2.1 MATERIALS

- A. General:** Provide new materials. If acceptable to the Architect, the Contractor may use undamaged, previously used materials in serviceable condition. Provide materials suitable for use intended.
- B. Lumber and Plywood:** Comply with requirements in Division 06 Section 06 10 00 "Rough Carpentry."
1. For signs and directory boards, provide 3/4-inch exterior grade, Grade A-B Fir plywood. Mount sign on preservative treated Fir posts.
    - a. Project sign shall be 4' x 8' painted and supported on 4-inch x 4-inch posts, of a design to be provided by the Owner via the Construction Administrator.
  2. **Vision Barriers:** Provide minimum 1/2-inch thick exterior plywood.
  3. For safety barriers, sidewalk bridges, and similar uses, provide minimum 5/8-inch thick exterior plywood.
- C. Paint:** Comply with requirements of Division 09 Section 09 91 00 "Painting."
1. For sign and directory boards applying graphics, provide exterior-grade alkyd gloss enamel over exterior primer unless otherwise indicated.
- D. Tarpaulins:** Provide waterproof, fire-resistant, UL-labeled tarpaulins with flame-spread rating of 15 or less. For temporary enclosures, provide translucent, nylon-reinforced, laminated polyethylene or polyvinyl chloride, fire-retardant tarpaulins.
- E. Water:** Provide potable water approved by local health authorities.

- F. **Enclosure Fencing:** Provide 0.120-inch thick, galvanized 2-inch chain link fabric fencing six (6) feet high galvanized steel pipe posts, 1-1/2 inches knuckle both bottom and top I.D. for line posts and 2-1/2 inches I.D. for corner posts.

## 2.2 EQUIPMENT

- A. **General:** Provide new equipment. If acceptable to the Architect, the Contractor may use undamaged, previously used equipment in serviceable condition. Provide equipment suitable for use intended.
1. The Contractor shall furnish tools, apparatus and appliances, hoists and/or cranes and power for same, scaffolding, runways, ladders, temporary supports and bracing and similar work or material necessary to insure convenience and safety in the execution of the Contract except where this is otherwise specified in any Specification Section. All such items shall meet the approval of the Owner but responsibility for design, strength and safety shall remain with the Contractor. All such items shall comply with Federal OSHA regulations and applicable codes, statutes, rules and regulations, including compliance with the requirements of the current edition of the "Manual of Accident Prevention in Construction" published by the Associated General Contractors (AGC) and the standards of the State Labor Department.
  2. Staging, exterior and interior, required for the execution of this Contract, shall be furnished, erected, relocated if necessary and removed by the Contractor. Staging shall be maintained in a safe condition without charge to and for the use of all trades as needed.
- B. **Water Hoses:** Provide 3/4-inch, heavy-duty, abrasion-resistant, flexible rubber hoses with pressure rating greater than the maximum pressure of the water distribution system. Provide adjustable shutoff nozzles at hose discharge and backflow preventers.
- C. **Electrical Outlets:** Provide properly configured, NEMA-polarized outlets to prevent insertion of 110- to 120-Volt plugs into higher voltage outlets. Provide receptacle outlets equipped with ground-fault circuit interrupters, reset button, and pilot light for connection of power tools and equipment.
- D. **Electrical Power Cords:** Provide grounded extension cords. Use hard-service cords where exposed to abrasion and traffic. Provide waterproof connectors to connect separate lengths of electric cords if single lengths will not reach areas where construction activities are in progress. Do not exceed safe length-voltage ratio.
- E. **Lamps and Light Fixtures:** Provide general service incandescent lamps of wattage required for adequate illumination. Provide guard cages or tempered-glass enclosures where exposed to breakage. Provide exterior fixtures where exposed to moisture.
- F. **Heating Units:** Provide temporary heating units that have been tested and labeled by UL, FM, or another recognized trade association related to the type of fuel being consumed.
- G. **Temporary Field Offices:** Provide prefabricated or mobile units with lockable entrances, operable windows, and serviceable finishes. Provide heated and air-conditioned units on foundations adequate for normal loading.
- H. **Temporary Toilet Units:** Provide self-contained, single-occupant toilet units of the chemical, aerated recirculation, or combustion type. Provide units properly vented and fully enclosed with a glass-fiber-reinforced polyester shell or similar nonabsorbent material.
- I. **Fire Extinguishers:** Provide hand-carried, portable, UL-rated, Class A fire extinguishers for temporary offices and similar spaces. In other locations, provide hand-carried, portable, UL-rated, Class ABC, dry-chemical extinguishers or a combination of extinguishers of NFPA-recommended classes for the exposures.
1. Comply with NFPA 10 and NFPA 241 for classification, extinguishing agent, and size required by location and class of fire exposure.

## PART 3 - EXECUTION

### 3.1 INSTALLATION

- A. Use qualified personnel for installation of temporary facilities. Locate facilities where they will serve the Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required.

- B.** Provide each facility ready for use when needed to avoid delay. Maintain and modify as required. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.

### 3.2 TEMPORARY UTILITY INSTALLATION

- A. General:** Engage the appropriate local utility company to install temporary service or connect to existing service. Where company provides only part of the service, provide the remainder with matching, compatible materials and equipment. Comply with company recommendations.
1. Arrange with company and existing users for a time when service can be interrupted, if necessary, to make connections for temporary services.
  2. Provide adequate capacity at each stage of construction. Prior to temporary utility availability, provide trucked-in services.
  3. Obtain easements to bring temporary utilities to the site where the Owner's easements cannot be used for that purpose.
  4. **Use Charges:** If cost or use charges for temporary facilities are specified by this section to be borne by the Owner the cost or use charges for temporary facilities will be borne not longer than **thirty (30)** days after final acceptance of the project.
- B. Temporary Water Service and Distribution:**
1. Connect to existing facilities, through an approved backflow prevention device; extend branch piping with outlets so that water is available by use of hoses. Owner will pay for water used. The Contractor shall not waste water or use faulty equipment. The Contractor shall provide, at his own expense, all connections, extensions and other apparatus required for use of such services. Upon completion of the Contract, the Contractor shall disconnect temporary extensions and return utility to its original condition.
- C. Temporary Electric Power and Lighting Services:**
1. Power and lighting may be taken from the power company's nearest pole with temporary poles, if needed, to extend the line to project. If permanent power lines have been installed before beginning project, then temporary lines can be brought in from the last pole.
  2. Provide service required for construction with branch wiring and distribution boxes located to provide power and lighting by construction-type extension cords. Meter shall be provided and installed by the Contractor.
  3. The Contractor shall pay all costs of temporary power and light.
- D. Temporary Telephone Service and Data:** Provide temporary telephone service throughout the construction period for all personnel engaged in construction activities. Install telephone on a separate line for each temporary office and first aid station. Contractor shall provide telephone service in his office and separate telephone service in the DAS/CS Office and Construction Administrator's Office, if provided. It is preferred that the Contractor use a cellular phone. Basic service and local calls will be paid for by the Contractor. Toll calls will be paid for by the respective users.
1. **Separate Telephone Lines:** Provide additional telephone lines for the following:
    - a. Where an office has more than **two (2)** occupants, install a telephone for each additional occupant or pair of occupants.
    - b. Provide dedicated telephone lines for a separate fax machine in both the Contractor's office and the DAS/CS / CA office.
  2. At each telephone, post a list of important telephone numbers.
- E. Temporary Sanitary Facilities, Including Drinking Water:** Temporary sanitary facilities include temporary toilets, wash facilities, and drinking-water fixtures. Comply with regulations and health codes for the type, number, location, operation, and maintenance of fixtures and facilities. Install where facilities will best serve the Project's needs.
1. Provide toilet tissue, wash basins with water, soap and paper towels, paper cups, and similar disposable materials for each facility. Provide covered waste containers for used material. The Contractor shall maintain the facilities in a sanitary condition.

2. **Toilets:** The Contractor shall install self-contained chemical toilet units. Shield toilets to ensure privacy. Use of pit-type privies will not be permitted. Provide separate facilities for male and female personnel.
  3. **Water Coolers:** Where power is accessible, provide electric hot/cold water coolers to maintain dispensed cold water temperature at 45 to 55 degrees F. Provide bottled water service and cup supplies and maintain in a clean sanitary condition.
- F. **Storm and Sanitary Sewer:** If sewers are available, provide temporary connections to remove effluent that can be discharged lawfully.
1. Filter out excessive amounts of soil, construction debris, chemicals, oils, and similar contaminants that might clog sewers or pollute waterways before discharge.
  2. Connect temporary sewers to the municipal system, as directed by sewer department officials.
  3. Maintain temporary sewers and drainage facilities in a clean, sanitary condition. Following heavy use, restore normal conditions promptly.

### 3.3 SUPPORT FACILITIES INSTALLATION

- A. **General:** Locate field offices, storage sheds, and other temporary construction and support facilities in designated area as shown on the Contract Documents. The location of the trailers on the Drawings is diagrammatic in nature. Final placement of the trailers is to be approved by the Construction Administrator.
1. Maintain support facilities until Final Completion. Remove prior to Final Completion with permission from the Owner.
- B. **Field Offices:** Provide insulated, weathertight temporary offices of sufficient size to accommodate required office personnel at the Project Site. Keep all offices clean and orderly, sweep weekly and remove rubbish on a daily basis. Furnish and equip offices as follows:
1. The Contractor shall provide an office for their own use and a method to contact them by e-mail and telephone at any point and time.
  2. **Owner and Construction Administrator's Field Offices / Equipment:** The Contractor shall provide a field office for the Owner and Construction Administrator. The field office shall be **one (1) single wide trailer 12' x 60'**. The trailer shall have to be in "new condition" as determined by the Construction Administrator. **The trailer shall have a minimum of two (2) offices, each with a minimum of 150 square feet each, and a main meeting area.** The trailers shall have ample natural light, heating of sufficient capacity to maintain 70 degrees (F) in winter and air conditioning of sufficient capacity to maintain 75 degrees (F) in summer. The operational noise level of the supplied HVAC systems shall be low enough so as not to impede the conducting of meetings. The Contractor shall provide a 5-lb. ABC fire extinguisher and an OSHA- approved first aid kit. The Contractor shall provide the following furniture, and equipment which will remain his property. The furniture may be used but shall be in good condition as judged by the Owner and Construction Administrator.

2.1	The Contractor shall provide a lockable chemical toilet(s) with toilet tissue for the owners' use. The Contractor shall maintain the facility in a sanitary condition. (See Section 01 52 19 Temporary Sanitary Facilities).
2.2	Two (2) Lockable, double-pedestal, office desks, each with an executive chair.
2.3	Two (2) Plan tables.
2.4	Two (2) Plan racks.
2.5	Ten (10) Conference chairs and a conference table (approx. 5 feet x 12 feet).
2.6	Two (2) Side tables (approx. 3 feet x 5 feet).
2.7	Two (2) Wall mounted, cork display boards (4 foot x 6 foot).
2.8	Two (2) Wall mounted, white, wipe-off board, with markers (3 foot x 4 foot).
2.9	Four (4) File cabinets (lockable four drawer letter size).
2.10	Two (2) Bookshelves each with 10 linear feet x 12 inch wide shelving.
2.11	Two (2) Large capacity waste receptacles.
2.12	One (1) Plain paper, All-In-One printer/scanner/fax with dedicated telephone line approved by Owner.



2.13	<b>Two (2) telephones with data lines and voice mail.</b>
2.14	<b>Two (2) data lines (dedicated to computer use) with high-speed Internet connection (minimum of DSL or cable modem service).</b>

**3. Field Office Computer System**

The Contractor provide **one (1)** Field Office Computer System(s) for the Department's exclusive use for each field office specified. The Design Builder has the option to provide **either** a desktop or a laptop computer system in accordance with the minimum requirements listed below.

**3.1 Field Office Desktop Computer System:**

.1	<b>Processor:</b>	8 <sup>th</sup> generation Intel Core i7-8750H (9MB Cache, up to 4.1 GHz, 6 Cores
.2	<b>Memory:</b>	16 GB
.3	<b>Hard Drive:</b>	256GB Solid State Drive+ 1TB external or internal Hard Drive
.4	<b>Optical Drive:</b>	DVD+R/RW, DVD-R/RW and CD-R/RW or 8x external USB DVD+/-RW/CD-RW drive
.5	<b>Ports:</b>	2 USB 3.1 ports, 2 Thunderbolt 2 ports, 1 HDMI port
.6	<b>Network/Wireless:</b>	Ethernet or wireless card to be compatible with the selected internet and office network connections;
.7	<b>Graphics:</b>	NVIDIA GeForce GTX 1050 Ti w/ 4GB GDDR5
.8	<b>Monitor:</b>	2560 X 1600 pixels
.9	<b>Keyboard:</b>	Compatible Wireless
.10	<b>Mouse:</b>	Compatible Wireless Optical Mouse
.11	<b>Miscellaneous:</b>	One compatible port replicator with AC adapter, one additional AC adapter, one DC adapter and one padded carrying case
.12	<b>Printer:</b>	Laser Jet Printer, Wi-Fi capable

**4. Computer Software:**

The Contractor shall provide software for the computer system in accordance with the minimum requirements listed below.

4.1	<b>Operating System Software:</b>	Windows 10 Pro 64-bit English
4.2	<b>Productivity Software:</b>	Microsoft Office Suite including MS Project – latest edition Adobe Acrobat XI PDF Writer – latest edition,
4.3	<b>Security Software:</b>	McAfee Antivirus Plus – latest edition
4.4	All software shall include the most current updates and patches at the time the computer system is provided to the Owner. The Construction Manager shall provide for installation of updates and patches for the operating system, productivity and security software during the term of use of the computer system by the Owner. Updates and patches shall be provided by an automatic update method.	
4.5	The Owner may install and maintain proprietary software on the computer in order to run the Owner's construction management programs.	

**5. Miscellaneous Computer Requirements**

The initial condition of the computer system shall be nearly pristine. All owner installed e-mail accounts, games, spyware, online services, applications, network or other profiles previously set up on the system shall be removed prior to placement in the field office. If the system was provided for a previous DAS/CS contract, all software not specified shall be removed prior to placement in the current field office.

**5.1** The Contractor shall provide an uninterruptible power supply (UPS), minimum **1500** VA, **865** Watts and full time surge suppression for each field office computer system specified in this Section.

- 5.2 The Contractor shall provide all cables, connections and software required to connect the field office computer system to the printer and the scanner.
  - 5.3 When more than one computer system is specified for a field office, the Contractor shall provide either an Ethernet or wireless office network to allow all computer systems in the field office to access the field office internet service, the printer and the scanner.
  - 5.4 The Contractor shall provide appropriate dust covers for all field office desktop computer systems.
  - 5.5 The Contractor shall provide all manuals necessary for operation of the computer system and software with the system and shall include all documentation normally furnished with the equipment and software when purchased.
  - 5.6 The Owner will be utilizing the computer system to run or access Owner provided construction management software applications. These applications are known to run on Intel and AMD compatible equipment when using the Windows **10** operating system. If the Owner experiences problems running these applications due to hardware or software compatibility, the Contractor shall replace the equipment to ensure compatibility to the satisfaction of the Owner within **five (5)** business days.
  - 5.7 The computer system shall be maintained in good working order. If a portion of the system becomes defective, inoperable, damaged, or stolen, that portion shall be repaired or replaced within **five (5)** business days after the Contractor is notified by the Owner. If the computer system and related accessories are not maintained by the Design-Builder as required, the Owner may withhold partial payments until the computer system is operational to the Owner's satisfaction.
6. **Field Office Internet Service:**  
The Contractor shall provide broadband internet service for the field office. Broadband internet service shall be capable of a minimum average upload speed of **1.1Mbps** unless otherwise approved by the Owner.
7. When the Contractor supplies the trailer(s) they shall equip each trailer with a water cooler for hot and cold water.
- C. **Storage and Fabrication Sheds:** Install storage and fabrication sheds sized, furnished, and equipped to accommodate materials and equipment involved, including temporary utility service. Sheds may be open shelters or fully enclosed spaces within the building or elsewhere on-site.
1. Storage sheds for tools, materials and equipment shall be weathertight with heat, lighting and ventilation for products requiring controlled conditions.
  2. Remove temporary materials, equipment services and construction before Substantial Completion.
  3. Clean and repair damage caused by installation or use of temporary facilities. Restore existing facilities used during construction to specified or original condition.
- D. **Temporary Enclosures:** Provide temporary enclosures for protection of construction, in progress and completed, from exposure, foul weather, other construction operations, and similar activities.
1. Where heat is needed and the permanent building enclosure is not complete, provide temporary enclosures where there is no other provision for containment of heat. Coordinate enclosure with ventilating and material drying or curing requirements to avoid dangerous conditions and effects.
  2. Install tarpaulins securely, with incombustible wood framing and other materials. Close openings of 25-sq ft or less with plywood or similar materials.
  3. Close openings through floor or roof decks and horizontal surfaces with load-bearing, wood-framed construction.
  4. Where temporary enclosure exceeds 100-sq ft in area, use UL-labeled, fire-retardant-treated material for framing and main sheathing.
- E. **Temporary Lifts, Hoists and Elevator Use:**
1. Provide facilities for hoisting materials and employees. Truck cranes and similar devices used for hoisting materials are considered "tools and equipment" and not temporary facilities.

- F. Temporary Project Identification Signs:** Prepare project identification and other signs of size indicated. Install signs where indicated to inform the public and persons seeking entrance to the Project. Support on posts or framing of preservative-treated wood or steel. Do not permit installation of unauthorized signs.
1. **Project Sign:** Engage an experienced sign painter to apply graphics. Comply with details to be furnished by the Construction Administrator.
    - a. **Temporary Tripod Frame:** For groundbreaking ceremonies only, provide a temporary tripod for the sign illustrated and described below. Make the tripod of 12 ft long 2" x 4"s (Stud Grade), beveled and bolted at the top. Provide approximately 5-ft between legs at grade. Provide a 6-ft long, 2" x 4" seat for the sign; locate 5-ft above grade and nail in place. Nail sign at four (4) places where edges intersect tripod legs. Drive a 24" long, pointed 2" x 4" stake into the earth next to each leg and nail to legs.
    - b. **Project Sign:** The Contractor shall contact the Construction Administrator for the proper wording for the project sign. Fabricate sign of 3/4" Exterior Grade A-B Fir plywood. Mount sign on preservative treated Fir posts. The Owner shall provide design, color selection and illustration of the Project Sign. Paint both sides and all edges of sign and the posts with two (2) coats of exterior, white, alkyd primer. Paint the border and letters with "bulletin" (sign) paint. Letter sizes, colors and related information are given on the illustration below. A self-adhesive decal of the State seal will be furnished at the Contract signing. Erect the sign within two (2) weeks after execution of the Contract and remove the sign within one (1) week after completion of the project.
    - c. **Project Sign Detail:** Sign letter sizes, fonts, colors and related information are shown in the illustration available for download from the DAS website ([www.ct.gov/das](http://www.ct.gov/das)) > Doing Business With The State > State Building Construction > Publications and Forms > DAS Construction Services Library > 3000 Series - Design Phase Forms.
- G. Temporary Exterior Lighting:** Install exterior yard and sign lights so signs are visible when Work is being performed.
- H. Collection and Disposal of Waste and Cleaning:**
1. Collect waste within the contract limit line from construction areas daily. Provide separate containers for proper waste recycling. Comply with requirements of NFPA 241 for removal of combustible waste material and debris. Enforce requirements strictly. Do not hold materials more than seven (7) days during normal weather or three (3) days when the temperature is expected to rise above 80 degrees F. Handle hazardous, dangerous, or unsanitary waste materials separately from other waste by containerizing properly. Dispose of material lawfully.
  2. Maintain areas under Contractor's control free of waste materials, debris and rubbish. Maintain in a clean and orderly condition.
  3. Remove debris and rubbish from pipe chases, plenums, attics, crawl spaces and other closed or remote spaces before closing the space.
  4. Periodically clean interior areas before start of surface finishing and continue cleaning on an as-needed basis.
  5. Control cleaning operations so that dust and other particulates will not adhere to wet or newly coated surfaces.
- I. Temporary Environmental Controls:** Contractor is to provide the following controls.
1. Dust Control (construction and demolition).
  2. Noise Control.
  3. Pollution Control.
  4. Traffic Control.
- J. Stairs:** Cover finished permanent stairs with a protective covering of plywood or similar material so finishes will be undamaged at the time of acceptance.

**3.4 SECURITY AND PROTECTION FACILITIES INSTALLATION (listed in Paragraph 1.2 D)**

- A.** Except for use of permanent fire protection as soon as available, do not change over from use of temporary security and protection facilities to permanent facilities until Substantial Completion, or longer, as requested by the Owner.

- B. Temporary Fire Protection:** Until fire-protection needs are supplied by permanent facilities, install and maintain temporary fire-protection facilities of the types needed to protect against reasonably predictable and controllable fire losses. Comply with NFPA 10 "Standard for Portable Fire Extinguishers" and NFPA 241 "Standard for Safeguarding Construction, Alterations, and Demolition Operations."
1. Provide and locate fire extinguishers where convenient and effective for their intended purpose, but not less than one extinguisher on each floor at or near each usable stairwell.
  2. Store combustible materials in containers in fire-safe locations.
  3. Maintain unobstructed access to fire extinguishers, fire hydrants, temporary fire-protection facilities, stairways, and other access routes for fighting fires. Prohibit smoking in hazardous fire-exposure areas.
  4. Provide supervision of welding operations, combustion-type temporary heating units, and similar sources of fire ignition.
  5. The Contractor, during construction, shall be responsible for loss or damage by fire to the work of the Contract until completion. Any fire used within the structure for working purposes shall be extinguished when not in use. Bitumen or tar shall be melted on the ground only. No flammable material shall be stored in the structure in excess of amounts allowed by the authorities. No gasoline shall be stored in or close to the building at any time. The Contractor shall assign a responsible employee to be in charge of fire protection measures.
  6. If an EPDM or other single-ply roof is included in the work that requires cleaning of mating surfaces of laps with gasoline, limit amount of gasoline on roof to two (2) gallons which shall be in UL listed containers. Also provide one 30 B:C fire extinguisher within 75 feet of any point on the roof.
- C. Security for Site and Agency:**
1. Provide security program and facilities to protect work, existing facilities and the Owner and Agency's operations from unauthorized entry, vandalism and theft. Coordinate with the Owner's and Agency's security program.
  2. The Contractor is to secure project area/site from intrusions during unoccupied (after hours) periods of time.
  3. The Contractor shall be solely responsible for damage, loss or liability due to theft or vandalism.
- D. Barricades, Warning Signs, and Lights:** Comply with standards and code requirements for erection of structurally adequate barricades. Paint with appropriate colors, graphics, and warning signs to inform personnel and the public of the hazard being protected against. Where appropriate and needed, provide lighting, including flashing red or amber lights.
1. Provide covered walkways as required by governing authorities for public rights-of-way and for public access to existing buildings.
  2. Provide temporary, insulated, weathertight closures at openings to the exterior to provide acceptable working conditions and protection for materials, to allow for temporary heating and to prevent entry of unauthorized persons. Provide doors with self-closing hardware and locks.
  3. Barriers and enclosures shall be in conformance with code requirements. Do not block egress from occupied buildings unless necessary to further the work of the Contract. In this case, secure the Owners approval of an alternate egress plan.
  4. See also General Conditions Article 19, "Protection of the Work, Persons and Property".
- E. Enclosure Fences:** Before excavation begins, install an enclosure fence with lockable entrance gates. Locate where indicated on the Construction Documents, or enclose the entire site or the portion determined sufficient to accommodate construction operations. Install in a manner that will prevent people, dogs, and other animals from easily entering the site, except by the entrance gates.
1. Provide chain link construction fencing with posts set in a compacted mixture of gravel and earth. Use existing fence to the extent possible.
- F. Security Enclosure and Lockup:** Install substantial temporary enclosure of partially completed areas of construction. Provide locking entrances to prevent unauthorized entrance, vandalism, theft, and similar violations of security. Provide keys to the Construction Administrator.

1. **Storage:** Where materials and equipment must be stored, and are of value or attractive for theft, provide a secure lockup. Enforce discipline in connection with the installation and release of material to minimize the opportunity for theft and vandalism.

**G. Protection:**

1. Protect buildings, equipment, furnishings, grounds and plantings from damage. Any damage shall be repaired or otherwise made good at no expense to the Owner.
2. Provide protective coverings and barricades to prevent damage. The Contractor shall be held responsible for, and must make good at his own expense, any water or other type of damage due to improper coverings. Protect the public and building personnel from injury.
3. Provide temporary protection for installed products. Control traffic in immediate area to minimize damage.
4. Provide protective coverings for walls, projections, jambs, sills and soffits of openings. Protect finished floors and stairs from traffic, movement of heavy objects and storage. Prohibit traffic and storage on waterproofed and roofed surfaces and on lawn and landscaped areas.
5. Provide temporary partitions and ceilings to separate work areas from Agency-occupied areas to prevent penetration of dust and moisture into Agency-occupied areas and equipment. Erect framing and sheet materials with closed joints and sealed edges at intersections with existing surfaces.
6. See also General Conditions Article 19, "Protection of the Work, Persons and Property".

- H. Environmental Protection:** Provide protection, operate temporary facilities, and conduct construction in ways and by methods that comply with environmental regulations, and minimize the possibility that air, waterways, and subsoil might be contaminated or polluted or that other undesirable effects might result.

**I. Traffic Ways:**

1. The Contractor may use on-site paved roads and parking areas but shall not encumber same or their access. Public highways shall not be blocked by standing trucks, parked cars, material storage, construction operations or in any other manner.
2. Public roads and existing paved roads, drives and parking areas on Owner's property shall be kept free from scrap or debris due to construction operations and any damage to their surface caused by the Contractor shall be repaired by him at his own expense.
3. If the work of the Contract affects public use of any street, road, highway or thoroughfare, the Contractor shall confer with the police authority having jurisdiction to determine if and how many police are needed for public safety in addition to any barriers and signals that may be needed. The Contractor will be responsible for payment of any needed police services.
4. Cooperate with the Agency during construction operations to minimize conflicts and facilitate Agency usage. Perform the Work so as not to interfere with the Courtroom's operation. Court business hours are Monday-Friday 8:00am – 5:00pm. Courtroom activities are under way Monday-Friday 10:00 a.m. – 5:00 p.m. **Schedule deliveries as follows:**

Deliveries to roof (e.g. by crane):					
Saturday - Sunday	7:00	a.m.	–	4:00	p.m.
Deliveries through staff garage:					
Monday – Friday	6:00	a.m.	–	8:00	a.m.
Overtime hours allowed (with 72 hrs. advance notice)					
Monday – Friday	5:00	p.m.	–	11:00	p.m.
Saturday - Sunday	7:00	a.m.	–	4:00	p.m.

This time period is subject to change at the discretion of the Construction Administrator.

**J. Identification Badges for Contractor's Personnel, Visitors and Parking Stickers:**

1. The Contractor will provide each person working or visiting at the site with an identification badge, bearing the name of the Contractor and a number. As badges are assigned, a record shall be kept by the Contractor and given to the Construction Administrator and Agency Administrator. Update and correct the records of all badges issued on a semi-monthly basis.
2. Badges are to be worn on outer garment where visible at all times while at the construction site, return them to the Contractor's field office at the end of each day and pick them up there each morning.
3. All vehicles parking in the Contractor's parking lot and those used around the site require an ID sticker. They will be issued by the Agency. Each contractor shall apply for parking stickers through the Construction Administrator no more than semi-monthly and shall keep record of all stickers issued.

**K. Personnel Conduct:**

1. The Contractor's employees shall adhere to proper conduct at all times. No smoking, no weapons of any type, alcohol or illegal drugs shall be carried or consumed by employees of the Contractor on Judicial Branch premises.

**3.5 OPERATION, TERMINATION, AND REMOVAL**

**A. Supervision:** Enforce strict discipline in use of temporary facilities. Limit availability of temporary facilities to essential and intended uses to minimize waste and abuse.

**B. Maintenance:** Maintain facilities in good operating condition until removal. Protect from damage by freezing temperatures and similar elements.

1. Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation, and similar facilities on a 24-hour basis where required to achieve indicated results and to avoid possibility of damage.
2. Protection: Prevent water-filled piping from freezing. Maintain markers for underground lines. Protect from damage during excavation operations.

**C. Termination and Removal:** Unless the Architect/CA requests that it be maintained longer, remove each temporary facility when the need has ended, when replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with the temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.

1. Materials and facilities that constitute temporary facilities are the Contractor's property. The Owner reserves the right to take possession of project identification signs.
2. Remove temporary paving not intended for or acceptable for integration into permanent paving. Where the area is intended for landscape development, remove soil and aggregate fill that do not comply with requirements for fill or subsoil in the area. Remove materials contaminated with road oil, asphalt and other petrochemical compounds, and other substances that might impair growth of plant materials or lawns. Repair or replace street paving, curbs, and sidewalks at the temporary entrances, as required by the governing authority.
3. At Substantial Completion, clean and renovate permanent facilities used during the construction period including, but not limited to, the following:
  - a. Replace air filters and clean inside of ductwork and housings.
  - b. Replace significantly worn parts and parts subject to unusual operating conditions.
  - c. Replace lamps burned out or noticeably dimmed by hours of use.

**END OF SECTION 01 50 00**



## PART 1 - GENERAL

### 1.1 RELATED DOCUMENTS

- A. Construction Documents and general provisions of the Contract, including General Conditions of the Contract for Construction and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

### 1.2 SUMMARY

- A. This Section includes the following:
  - 1. Microbial and fungal contamination control.
  - 2. Indoor air quality and pollution control.
  - 3. Heating, ventilating, and air conditioning.
- B. **Related Sections:** The following Sections contain requirements that relate to this Section:
  - 1. Division 02 41 19 – Selective Demolition

### 1.3 REFERENCES

- 1. **ASTM International (ASTM):**
  - a. ASTM D5116-2006, Standard Guide for Small-Scale Environmental Chamber Determination of Organic Emissions From Indoor Materials/Products.

## PART 2 - PRODUCTS (Not Applicable)

## PART 3 - EXECUTION

### 3.1 MICROBIAL AND FUNGAL CONTAMINATION CONTROL

- A. Perform, schedule, and sequence Work as required to limit conditions supporting formations of microbes, molds, and fungi.
  - 1. Control water penetration, dampness, and humidity to prevent products not treated for exterior use from becoming soaked or damp.
  - 2. Enclose building prior to installing interior materials and finishes.
  - 3. Do not install interior products subject to moisture absorption until building is enclosed and wet work generating moisture and humidity is complete.
- B. When visible formations are observed and when formations cannot be completely removed by non-abrasive surface cleaning:
  - 1. Remove and replace materials identified as food sources for microbes, molds, and fungi.
  - 2. Correct conditions supporting microbial, mold, and fungal growth.
- C. Remove interior products and finishes, identified as food sources that have absorbed sufficient moisture to become damp whether or not microbial, mold, or fungal growth is observed. Include:
  - 1. Gypsum board cores.
  - 2. Organic materials composed of cellulose fiber or paper.
  - 3. Materials containing sucrose or other binders identified as supporting microbial growth.
- D. Remove fibrous insulation materials subject to retaining moisture such as duct liner, insulation, and other materials that are made wet or damp and cannot immediately be made dry.
- E. Repair or replace ductwork, pans, and other conditions subject to moisture condensation, water penetration, or other water source not drained and made dry.
  - 1. Remove conditions that have become an environment for microbes, molds, or fungi.
  - 2. Do not permit conditions leading to standing water.



- F. Install wet work and allow time needed to dry and cure prior to installing materials such as acoustical material and other material of type that may attract and retain moisture.

### 3.2 INDOOR AIR QUALITY AND POLLUTION CONTROL

- A. **Product Emission Rate Standards:** Test to ASTM D5116 for maximum indoor air concentration levels.
  - 1. **Formaldehyde:**
    - a. 0.03 parts per million where no other requirements are specified.
    - b. 0.005 parts per million where products are specified as formaldehyde free.
  - 2. **Total VOC Emissions for Adhesives, and Sealers:** 0.05 mg/m<sup>2</sup> per hour.
  - 3. **Total Particulate Emission Rate Levels:** 50 ug/m<sup>3</sup>.
  - 4. **Primary and Secondary Regulated Pollutants:** Conform to USEPA, Code of Federal Regulations, Title 40, Part 50 National Air Ambient Air Quality Standard. Refer to EPA Web Site <http://www.epa.gov/epahome/rules.html#codified>.
  - 5. **Other Pollutants Not Listed:** Not greater than 1/10 of Threshold Limit Value - Time Weighted Average (TLV-TWA) industrial workplace standard.
- B. **Architectural Coatings - Volatile Organic Compound (VOC) Content Limits:** Conform to US Environmental Protection Agency (EPA) Federal Register 48886/Vol. 63, No.176 Friday, September 11, 1998/ Rules and Regulations. Refer to EPA Web Site: <http://www.epa.gov/ttn/atw/eparules.html>.
- C. Do not use products in combination with or in contact with other products that can be identified as combining to form toxic fumes or sustained odors.
- D. Do not use solvents within interior areas that may penetrate and be retained in absorptive materials such as concrete, gypsum board, wood, cellulose products, fibrous material, and textiles.
- E. Protect construction materials from contamination and pollution from contact with construction dust, debris, fumes, solvents, and other environmentally polluting materials.
- F. Allow furnishings and materials such as acoustical tile to air out in clean environment prior to installation.

### 3.3 HEATING, VENTILATING, AND AIR CONDITIONING (HVAC)

- A. Heat, dehumidify, and ventilate building during course of Work as necessary to maintain environmental conditions suitable for drying and curing materials and for prevention of conditions suitable for mold and mildew growth.
  - 1. Ventilate building to remove moisture, dust, fumes, and odors.
  - 2. Temper and dehumidify air as needed to remove excess moisture.
  - 3. Do not use propane heaters and other moisture generating heating systems.

### 3.4 REMEDIAL ACTION

- A. Promptly take action as necessary to inspect and remediate conditions suspected of supporting microbial, fungal or mold conditions and where contaminated by indoor air pollution.
- B. Notify and consult with Architect prior to beginning remedial action where contamination by hazardous chemicals, microbes, and fungi is suspected.

END OF SECTION 01 57 30

## PART 1 - GENERAL

### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 specification sections, apply to this section.

### 1.2 SUMMARY

- A. This Section includes the following:
1. Microbial and fungal contamination control.
  2. Indoor air quality and pollution control.
  3. Heating, ventilating, and air conditioning.
- B. **Related Sections:** The following Sections contain requirements that relate to this Section:
1. Division 02 41 19 – Selective Demolition

### 1.3 REFERENCES

- A. **ASTM International, Inc. (ASTM):**
1. ASTM D5116-2006, Standard Guide for Small-Scale Environmental Chamber Determinations of Organic Emissions From Indoor Materials/Products.

### 1.4 INDOOR AIR QUALITY

- A. Goals: The Owner has set the following indoor air quality goals for jobsite operations on the project, within the limits of the construction schedule, Contract Sum, and available materials, equipment, products and services. Goals include:
1. Protect workers on the site from undue health risks during construction.
  2. Prevent residual problems with indoor air quality in the completed building.

### 1.5 SUBMITTALS

- A. Indoor Air Quality Plan: Within **fourteen (14)** days after receipt of **Notice of Award** and prior to any waste removal from the project, develop and submit for review a healthy indoor air quality plan. The plan shall include:
1. List of IAQ protective measures to be instituted on the site.
  2. Schedule for inspection and maintenance of IAQ measures.

### 1.6 QUALITY ASSURANCE

- A. Perform material tests and report results in accordance with ASTM D5116.

## PART 2 – PRODUCTS (Not Applicable)

## PART 3 - EXECUTION

### 3.1 CONSTRUCTION IAQ MANAGEMENT PLAN

- A. Meet or exceed the minimum requirements of the SMACNA "IAQ Guidelines for Occupied Buildings Under Construction."
1. Protect the ventilation system components from contamination, OR provide cleaning of the ventilation components exposed to contamination during construction prior to occupancy.
  2. After construction ends, prior to occupancy and with all interior finishes installed, perform a building flush-out by supplying a total air volume of 14000 cu ft of outdoor air per sq ft of floor area while maintaining an internal temperature of at least 60 degrees F and relative humidity no higher than 60 percent.
  3. If building occupancy is to occur before completion of the flush-out, deliver a minimum of 3500 cu ft of outdoor air per sq ft of floor area to the space. Once the space is occupied, ventilate it at a minimum rate

of 0.30 cfm/sq ft of outside air or the design minimum outside air rate determined in accordance with Sections 4 through 7 of ASHRAE 62.1 or applicable local code, whichever is more stringent. During each day of the flush-out period, begin ventilation a minimum of three (3) hours prior to occupancy and continue during occupancy. Maintain these conditions until a total of 14000 cu ft/sq ft of outside air has been delivered to the space.

- B. During installation of paints and other VOC-emitting products, provide supplemental (spot) ventilation for at least 72 hours after work is completed. Preferred HVAC system operation uses supply air fans and ducts only; exhaust provided through windows. Use exhaust fans to pull exhaust air from deep interior locations. Stair towers and other paths to exterior can be useful during this process.
- C. Conduct regular inspection and maintenance of indoor air quality measures including ventilation system protection, and ventilation rate.
- D. Require VOC-safe masks for workers installing VOC-emitting products (interior and exterior) defined as products that emit 150 gpl or more UNLESS local jurisdiction's requirements are stricter, in which case the strictest requirements shall be followed for use of VOC-safe masks.
- E. Use low-toxic cleaning supplies for surfaces, equipment, and worker's personal use. Options include several soybean-based solvents and cleaning options (SoySolv) and citrus-based cleaners.
- F. Use wet sanding for gypsum board assemblies. Exception: Dry sanding allowed subject to Architect's approval of the following measures:
  - 1. Full isolation of space undergoing finishing.
  - 2. Plastic protection sheeting is installed to provide air sealing during sanding.
  - 3. Closure of all air system devices and ductwork.
  - 4. Sequencing of construction precludes the possibility of contamination of other spaces with gypsum dust.
  - 5. Worker protection is provided.
- G. Use safety meetings, signage, and Contractor agreements to communicate the goals of the construction indoor air quality plan.

**END OF SECTION 01 57 40**

## PART 1 - GENERAL

### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

### 1.2 SUMMARY

- A. This Section includes administrative and procedural requirements governing the Contractor's selection of products for use in the Project.
- B. **Related Sections:** The following Sections contain requirements that relate to this Section:
1. Division 01 Section 01 25 00 "Substitution Procedures" specifies administrative procedures for handling requests for substitutions made after award of the Contract.
  2. Division 01 Section 01 33 00 "Submittal Procedures" specifies requirements for submittal of the Contractor's Construction Schedule and the Submittal Schedule.
  3. Division 01 Section 01 42 20 "Reference Standards and Definitions" specifies the applicability of industry standards to products specified.

### 1.3 DEFINITIONS

- A. Definitions used in this Article are not intended to change the meaning of other terms used in the Contract Documents, such as "specialties," "systems," "structure," "finishes," "accessories," and similar terms. Such terms are self-explanatory and have well-recognized meanings in the construction industry.
1. "Products" are items purchased for incorporation in the Work, whether purchased for the Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.
    - a. "Named Products" are items identified by the manufacturer's product name, including make or model number or other designation, shown or listed in the manufacturer's published product literature, which is current as of the date of the Contract Documents.
  2. "Materials" are products substantially shaped, cut, worked, mixed, finished, refined or otherwise fabricated, processed, or installed to form a part of the Work.
  3. "Equipment" is a product with operational parts, whether motorized or manually operated, that requires service connections, such as wiring or piping.

### 1.4 QUALITY ASSURANCE

- A. **Source Limitations:** To the fullest extent possible, provide products of the same kind from a single source.
- B. **Compatibility of Options:** When the Contractor is given the option of selecting between two (2) or more products for use on the Project, the product selected shall be compatible with products previously selected, even if previously selected products were also options.
- C. **Nameplates:** Except for required labels and operating data, do not attach or imprint manufacturer's or producer's nameplates or trademarks on exposed surfaces of products that will be exposed to view in occupied spaces or on the exterior.
1. Labels: Locate required product labels and stamps on concealed surfaces or, where required for observation after installation, on accessible surfaces that are not conspicuous.
  2. Equipment Nameplates: Provide a permanent nameplate on each item of service-connected or power-operated equipment. Locate on an easily accessible surface that is inconspicuous in occupied spaces. The nameplate shall contain the following information and other essential operating data:
    - a. Name of product and manufacturer.
    - b. Model and serial number.
    - c. Capacity.
    - d. Speed.
    - e. Ratings.

## 1.5 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, and handle products according to the manufacturer's recommendations, using means and methods that will prevent damage, deterioration, and loss, including theft.
1. Schedule delivery to minimize long-term storage at the site and to prevent overcrowding of construction spaces.
  2. Coordinate delivery with installation time to assure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.
  3. Deliver products to the site in an undamaged condition in the manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing. Store products in accordance with manufacturers' instructions and maintain within temperature and humidity range required by manufacturer.
  4. Inspect products upon delivery to ensure compliance with the Contract Documents and to ensure that products are undamaged and properly protected.
  5. Store products at the site in a manner that will facilitate inspection and measurement of quantity or counting of units.
  6. Store heavy materials away from the Project structure in a manner that will not endanger the supporting construction.
  7. Store products subject to damage by the elements above ground, under cover in a weathertight enclosure, with ventilation adequate to prevent condensation.
  8. For exterior storage of fabricated products, place on sloped supports above ground. Cover products subject to deterioration with impervious sheet covering; provide ventilation to avoid condensation.
  9. Store loose granular material on solid surfaces in a well-drained area; prevent mixing with foreign matter.
  10. Arrange storage to provide access for inspection. Periodically inspect to insure products are undamaged and are maintained under required conditions. Keep log showing date, time and problems, if any.
  11. Stone, masonry units and similar materials shall be stored on platforms or dry skids and shall be adequately covered and protected against damage.
  12. Materials and equipment shall be delivered, stored and handled to prevent intrusion of foreign matter and damage by weather or breakage. Packaged materials shall be delivered and stored in original, unbroken packages.
  13. Promptly inspect shipments to assure that products comply with requirements, that quantities are correct and products are undamaged.
  14. Packages, materials and equipment showing evidence of damage will be rejected and replaced at no additional cost to the Owner.

## PART 2 - PRODUCTS

### 2.1 PRODUCT SELECTION

- A. **General Product Requirements:** Provide products that comply with the Contract Documents, that are undamaged and, unless otherwise indicated, new at the time of installation.
1. Provide products complete with accessories, trim, finish, safety guards, and other devices and details needed for a complete installation and the intended use and effect.
  2. Standard Products: Where available, provide standard products of types that have been produced and used successfully in similar situations on other projects.
- B. **Product Selection Procedures:** The Contract Documents and governing regulations govern product selection. Procedures governing product selection include the following:
1. Semi-proprietary Specification Requirements: Where Specifications name two (2) or more products or manufacturers, provide one (1) of the products indicated. Comply with the requirements of Division 01 Section 01 25 00 "Substitution Procedures."
  2. Descriptive Specification Requirements: Where Specifications describe a product or assembly, listing exact characteristics required, with or without use of a brand or trade name, provide a product or assembly that provides the characteristics and otherwise complies with Contract requirements.

3. Compliance with Standards, Codes, and Regulations: Where Specifications only require compliance with an imposed code, standard, or regulation, select a product that complies with the standards, codes, or regulations specified.
4. Visual Selection: Where specified product requirements include the phrase "*...as selected from manufacturer's standard colors, patterns, textures...*" or a similar phrase, select a product and manufacturer that complies with other specified requirements. The Architect will select the color, pattern, and texture from the product line selected.

## **PART 3 - EXECUTION**

### **3.1 INSTALLATION OF PRODUCTS**

- A. Comply with manufacturer's instructions and recommendations for installation of products in the applications indicated. Anchor each product securely in place, accurately located and aligned with other Work.
  1. Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.

**END OF SECTION 01 60 00**



## PART 1 - GENERAL

### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

### 1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for cutting and patching.
- B. **Related Sections:** The following Sections contain requirements that relate to this Section:
1. Division 01 Section 01 31 00 "Project Management and Coordination" for procedures for coordinating cutting and patching with other construction activities.
  2. Division 01 Section 01 35 16 "Alteration Project Procedures" for procedures for coordinating cutting and patching with other construction activities.
  3. Division 02 Section 02 41 19 "Selective Structure Demolition" for demolition of selected portions of the building for alterations.
  4. Refer to other Sections for specific requirements and limitations applicable to cutting and patching individual parts of the Work.
    - a. Requirements of this Section apply to mechanical and electrical installations. Refer to Division 22, 23, and 26 Sections for other requirements and limitations applicable to cutting and patching mechanical and electrical installations.

### 1.3 SUBMITTALS

- A. **Cutting and Patching Proposal:** Submit a proposal to the Construction Administrator describing procedures well in advance of the time cutting and patching will be performed and if the Owner's Representative and/or Architect/Engineer requires approval of these procedures before proceeding. Request approval to proceed. Include the following information, as applicable, in the proposal:
1. Describe the extent of cutting and patching required. Show how it will be performed and indicate why it cannot be avoided.
  2. Describe anticipated results in terms of changes to existing construction. Include changes to structural elements and operating components as well as changes in the building's appearance and other significant visual elements.
  3. Describe affects to integrity of weather exposed or moisture resistant element.
  4. Describe affects to efficiency, maintenance, or safety of any operational element.
  5. Describe affects to Work of Owner or separate contractor.
  6. List products to be used and firms or entities that will perform Work.
  7. Indicate dates when cutting and patching will be performed.
  8. **Utilities:** List utilities that cutting and patching procedures will disturb or affect. List utilities that will be relocated and those that will be temporarily out of service. Indicate how long service will be disrupted.
  9. Where cutting and patching involves adding reinforcement to structural elements, submit details and engineering calculations sealed by an Engineer registered in the State of Connecticut showing integration of reinforcement with the original structure.
  10. Approval by the Construction Administrator to proceed with cutting and patching does not waive the Architect/Engineer of Record's rights to later require complete removal and replacement of unsatisfactory Work.

### 1.4 QUALITY ASSURANCE

- A. **Requirements for Structural Work:** Do not cut and patch structural elements in a manner that would change their load-carrying capacity or load-deflection ratio.
1. Obtain approval from the Architect/Engineer of the cutting and patching proposal before cutting and patching the following structural elements:
    - a. **Equipment supports.**



- b. Piping, ductwork, vessels, and equipment.**
- B. Operational Limitations:** Do not cut and patch operating elements or related components in a manner that would result in reducing their capacity to perform as intended. Do not cut and patch operating elements or related components in a manner that would result in increased maintenance or decreased operational life or safety.
  - 1. Obtain Architect/Engineer's approval of the cutting and patching proposal before cutting and patching the following operating elements or safety related systems:
    - a. Primary operational systems and equipment.**
    - b. Air or smoke barriers.**
    - c. Water, moisture, or vapor barriers.**
    - d. Membranes and flashings.**
    - e. Fire protection systems.**
    - f. Noise and vibration control elements and systems.**
    - g. Control systems.**
    - h. Electrical wiring systems.**
- C. Visual Requirements:** Do not cut and patch construction exposed on the exterior or in occupied spaces in a manner that would, in the Architect's opinion, reduce the building's aesthetic qualities. Do not cut and patch construction in a manner that would result in visual evidence of cutting and patching. Remove and replace construction cut and patched in a visually unsatisfactory manner.

## 1.5 WARRANTY

- A. Existing Warranties:** Replace, patch, and repair material and surfaces cut or damaged by methods and with materials in such a manner as not to void any warranties required or existing.

## PART 2 - PRODUCTS

### 2.1 MATERIALS, GENERAL

- A.** Use materials identical to existing materials. For exposed surfaces, use materials that visually match existing adjacent surfaces to the fullest extent possible if identical materials are unavailable or cannot be used. Use materials whose installed performance will equal or surpass that of existing materials.
- B.** The Contractor shall install sleeves, inserts and hangers furnished by the trades needing same.

## PART 3 - EXECUTION

### 3.1 INSPECTION

- A.** Examine surfaces to be cut and patched and conditions under which cutting and patching is to be performed before cutting. If unsafe or unsatisfactory conditions are encountered, notify the Construction Administrator and Architect, before proceeding with corrective action.
- B.** Openings and chases may not be shown on the Drawings. It is the responsibility of the Contractor to examine the Architectural, Electrical, Heating, Cooling, Ventilating and Plumbing Drawings and to provide chases, channels or openings where needed.
  - 1. After installing Work into openings, channels and/or chases, the Contractor shall close same. If finishes are to be restored, the new Work shall match the original and shall be done by the trade customarily responsible for the particular kind of Work.
- C.** The Contractor shall verify dimensions for built-in Work and/or Work adjoining that of other trades before ordering any material or doing any Work. Discrepancies shall be submitted to the Construction Administrator before proceeding with the Work.
- D.** See also General Conditions Article 23 "Cutting, Fitting, Patching & Digging".

### 3.2 PREPARATION

- A. Temporary Support:** Provide temporary support of Work to be cut.

- B. Protection: Protect existing construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of the Work that might be exposed during cutting and patching operations.
- C. Avoid interference with use of adjoining areas or interruption of free passage to adjoining areas.
- D. Avoid cutting existing pipe, conduit, or ductwork serving the building but scheduled to be removed or relocated until provisions have been made to bypass them.

### 3.3 PERFORMANCE

- A. **General:** Employ skilled workmen to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time and complete without delay.
  - 1. Cut existing construction to provide for installation of other components or performance of other construction activities and the subsequent fitting and patching required to restore surfaces to their original condition.
  - 2. DO perform cutting and patching to integrate elements of Work. Provide penetrations of existing surfaces. Provide samples for testing. Seal penetrations through floors, walls, ceilings and roofs, as applicable; restore or preserve fire-rated and smoke-barrier construction. Construction and finishes shall match original Work.
- B. **Cutting:** Cut existing construction using methods least likely to damage elements retained or adjoining construction. Where possible, review proposed procedures with the original Installer; comply with the original Installer's recommendations.
  - 1. In general, where cutting, use hand or small power tools designed for sawing or grinding, not hammering and chopping. Cut holes and slots as small as possible, neatly to size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
  - 2. To avoid marring existing finished surfaces, cut or drill from the exposed or finished side into concealed surfaces.
  - 3. Cut through concrete and masonry using a cutting machine, such as a Carborundum saw or a diamond-core drill.
  - 4. Comply with requirements of applicable Division 32 Sections where cutting and patching requires excavating and backfilling.
  - 5. Where services are required to be removed, relocated, or abandoned, by-pass utility services, such as pipe or conduit, before cutting. Cut-off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal the remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after by-passing and cutting.
- C. **Patching:** Patch with durable seams that are as invisible as possible. Comply with specified tolerances.
  - 1. Where feasible, inspect and test patched areas to demonstrate integrity of the installation.
  - 2. Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will eliminate evidence of patching and refinishing.
  - 3. Where removing walls or partitions extends one finished area into another, patch and repair floor and wall surfaces in the new space. Provide an even surface of uniform color and appearance. Remove existing floor and wall coverings and replace with new materials, if necessary, to achieve uniform color and appearance.
    - a. Where patching occurs in a smooth painted surface, extend final paint coat over entire unbroken surface containing the patch after the area has received primer and second coat.
  - 4. Patch, repair, or re-hang existing ceilings as necessary to provide an even-plane surface of uniform appearance.

### 3.4 CLEANING

- A. Clean areas and spaces where cutting and patching are performed. Completely remove paint, mortar, oils, putty, and similar items. Thoroughly clean piping, conduit, and similar features before applying paint or other finishing materials. Restore damaged pipe covering to its original condition.

END OF SECTION 01 73 29



## PART 1 - GENERAL

### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

### 1.2 SUMMARY

- A. This Section includes requirements for waste management goals, waste management plan and waste management plan implementation.
- B. Related Sections: The following Sections contain requirements that relate to this Section:
  - 1. Division 01 Section 01 11 00 "Summary of Work".
  - 2. Division 01 Section 01 20 00 "Price and Payment Procedures".
  - 3. Division 01 Section 01 25 00 "Substitution Procedures".
  - 4. Division 01 Section 01 31 19 "Project Meetings".
  - 5. Division 01 Section 01 33 00 "Submittal Procedures".
  - 6. Division 01 Section 01 45 00 "Quality Control".
  - 7. Division 01 Section 01 50 00 "Temporary Facilities and Controls".
  - 8. Division 01 Section 01 60 00 "Product Requirements".
  - 9. Division 01 Section 01 77 00 "Closeout Procedures".

### 1.3 DEFINITIONS

- A. **Construction Waste:** Solid wastes such as building materials, packaging and rubble resulting from construction, paving and infrastructure.
- B. **Demolition Waste:** Solid wastes such as concrete, wood, brick, plaster, roofing materials, wallboard, metals, carpeting, insulation, and clean fill resulting from demolition or selective demolition of structures.
- C. **Recyclable Materials:** Products and materials that can be recovered and remanufactured into a new product. Recyclable materials include, but are not limited to, the following:
  - 1. Metals (ferrous and non-ferrous), including banding, metal studs, ductwork, and piping.
  - 2. Asphaltic concrete paving.
  - 3. Portland cement concrete.
  - 4. Gypsum products.
  - 5. Paper and cardboard.
  - 6. Wood products, including structural, finish, crates, and pallets.
  - 7. Brick and masonry.
  - 8. Plastics.
  - 9. Copper wiring.
- D. **Recycling Facility:** A business that specializes in collecting, handling, processing, distributing, or remanufacturing waste materials generated by new construction projects, into products or materials that can be used for this project or by others.
- E. **Salvage and Reuse:** Existing usable product or material that can be saved and reused in some manner on the project site. Materials for reuse must be approved by the Architect. Materials that can be salvaged and reused must comply with applicable technical specifications and include, but are not limited to, the following:
  - 1. Dimensional lumber and other wood products.
  - 2. Structural steel.
  - 4. Masonry products.
- F. **Salvage for Resale:** Existing usable product that can be saved and removed intact (as is) from the project site to another site for resale to others without remanufacturing.

#### 1.4 WASTE MANAGEMENT GOALS

- A. The Owner has established that this Project shall generate the least amount of waste possible and that processes that ensure the generation of as little waste as possible due to error, poor planning, breakage, mishandling, contamination, or other factors shall be employed.
- B. The Contractor shall use all means available to divert the greatest extent practical and economically feasible, construction waste from landfills and incinerators.
- C. Of the inevitable waste that is generated, as many of the waste materials as economically feasible shall be reused, salvaged, or recycled. Waste disposal in landfills shall be minimized.
- D. Recycle and/or salvage a minimum of **50** percent of non-hazardous construction **and demolition** waste by weight of the total solid waste generated by the Project.
- E. With regard to these goals the Contractor shall develop, for the Architect's review, a Waste Management Plan for this Project.
- F. Take a pro-active, responsible role in management of construction waste and require all subcontractors, vendors, and suppliers to participate in the effort. Establish a construction waste management program that includes the following categories:
  - 1. Minimizing packaging waste.
  - 2. Salvage and reuse.
  - 3. Salvage for resale or donation.
  - 4. Recycling.
  - 5. Disposal.

#### 1.5 SUBMITTALS

- A. **Draft Waste Management Plan:** Within 30 days after receipt of Notice of Award of Bid, or prior to any waste removal, whichever occurs sooner, the Contractor shall submit **three (3)** copies of a Draft Waste Management Plan to the Construction Administrator.
- B. **Final Waste Management Plan:** Once the Owner has determined which of the recycling options addressed in the Draft Waste Management Plan are acceptable, the Contractor shall submit within 10 days **three (3)** copies of a Final Waste Management Plan.
- C. **Progress Reports:** Submit **three (3)** copies of monthly progress reports, at the same time as the Application for Payment, documenting the following:
  - 1. Material category.
  - 2. Point of waste generation.
  - 3. Total quantity of waste in tons.
  - 4. Quantity of waste salvaged, in tons.
  - 5. Quantity of waste recycled, in tons.
  - 6. Total quantity of waste recovered (salvaged plus recycled) in tons.
  - 7. Total quantity of waste recovered (salvaged plus recycled) as a percentage of total waste.
- D. **Calculations:** Submit **three (3)** copies of calculations indicating the end-of-project rates for salvage, recycling, and disposal as a percentage of total waste generated by the Project prior to Substantial Completion.
- E. **Record Submittals:**
  - 1. **Donations:** Indicate which salvageable materials were donated, who they were donated to, and whether the recipient is tax exempt. Submit documentation indicating receipt of donations.
  - 2. **Sales:** Indicate which salvageable materials were sold, who they were sold to, and whether the recipient is tax exempt. Submit documentation indicating receipt of materials.
  - 3. **Recycling:** Indicate which materials were recycled and the name of the facility licensed to accept them. Submit documentation such as manifests, weight tickets, receipts, and invoices.
  - 4. **Waste Disposal:** Indicate which materials were accepted as waste by landfills and incinerator facilities licensed to accept them. Submit documentation indicating receipt of materials.

## 1.6 QUALITY ASSURANCE

- A. **Regulatory Requirements:** Comply with regulations of State of Connecticut Department of Environment Protection, Waste Management Bureau Recycling Program.
- B. **Waste Management Conference:** Review and discuss the waste management plan, requirements for documenting quantities of each type of waste and its disposition, procedures for materials separation, procedures for periodic collection and transportation to recycling and disposal facilities. Review waste management requirements for each trade. Verify availability of containers and bins needed to avoid delays.

## 1.7 WASTE MANAGEMENT PLAN

- A. **Draft Waste Management Plan:** Include the following in the Draft Plan:
  - 1. Analysis of the proposed jobsite waste to be generated, including types and quantities.
  - 2. **Landfill Options:** The name of the landfill(s) where trash will be disposed of, the applicable landfill tipping fee(s), and the projected cost of disposing of all Project waste in the landfill(s).
  - 3. **Alternatives to Landfilling:** A list of each material proposed to be salvaged, reused, or recycled during the course of the Project, the proposed local market for each material, and the estimated net cost savings or additional costs resulting from separating and recycling (versus landfilling) each material. "Net" means that the following have been subtracted from the cost of separating and recycling:
    - a. Revenue from the sale of recycled or salvaged materials and
    - b. Landfill tipping fees saved due to diversion of materials from the landfill. The list of these materials is to include, at a minimum, the following materials:
      - i) Cardboard.
      - ii) Clean dimensional wood.
      - iii) Beverage containers.
      - iv) Bricks.
      - v) Metals from banding, stud trim, ductwork, piping, rebar, roofing, other trim, steel, iron, galvanized sheet steel, stainless steel, aluminum, copper, zinc, lead, brass, and bronze.
- B. **Resources for Development of Waste Management Plan:** The following sources may be useful in developing the Draft Waste Management Plan:
  - 1. **Recycling Haulers and Markets:** Local haulers and markets for recyclable materials. For more information, contact the State of Connecticut Department of Environmental Protection, Waste Management Bureau Recycling Program, (860) 424-3365, [www.dep.state.ct.us/wst/recycle/ctrecycle.htm](http://www.dep.state.ct.us/wst/recycle/ctrecycle.htm).
- C. **Final Waste Management Plan:** The Final Waste Management Plan shall contain the following:
  - 1. Analysis of the proposed jobsite waste to be generated, including types and quantities.
  - 2. **Landfill Options:** The name of the landfill(s) where trash will be disposed of, the applicable landfill tipping fee(s), and the projected cost of disposing of all Project waste in the landfill(s).
  - 3. **Alternatives to Landfilling:** A list of the waste materials from the Project that will be separated for reuse, salvage, or recycling.
  - 4. **Meetings:** A description of the regular meetings to be held to address waste management. Refer to Section 01 31 19 "Project Meetings".
  - 5. **Materials Handling Procedures:** A description of the means by which any waste materials identified in item (3) above will be protected from contamination, and a description of the means to be employed in recycling the above materials consistent with requirements for acceptance by designated facilities.
  - 6. **Transportation:** A description of the means of transportation of the recyclable materials (whether materials will be site-separated and self-hauled to designated centers, or whether mixed materials will be collected by a waste hauler and removed from the site) and destination of materials.

## 1.8 WASTE MANAGEMENT PLAN IMPLEMENTATION

- A. **Manager:** The Contractor shall designate an on-site party (or parties) responsible for instructing workers and overseeing and documenting results of the Waste Management Plan for the Project.
- B. **Distribution:** The Contractor shall distribute copies of the Waste Management Plan to the Job Site Foreman, each Subcontractor, the Owner, and the Architect.

- C. **Instruction:** The Contractor shall provide on-site instruction of appropriate separation, handling, and recycling, salvage, reuse, and return methods to be used by all parties at the appropriate stages of the Project.
- D. **Separation Facilities:** The Contractor shall lay out and label a specific area to facilitate separation of materials for potential recycling, salvage, reuse, and return. Recycling and waste bin areas are to be kept neat and clean and clearly marked in order to avoid contamination of materials.
- E. **Hazardous Wastes:** Hazardous wastes shall be separated, stored, and disposed of according to local regulations.
- F. **Application for Progress Payments:** The Contractor shall submit with each Application for Progress Payment a Summary of Waste Generated by the Project. Failure to submit this information shall render the Application for Payment incomplete and shall delay Progress Payment. The Summary shall be submitted on a form acceptable to the Owner and shall contain the following information:
  - 1. The amount (in tons or cubic yards) of material landfilled from the Project, the identity of the landfill, the total amount of tipping fees paid at the landfill, and the total disposal cost. Include manifests, weight tickets, receipt, and invoices.
  - 2. For each material recycled, reused, or salvaged from the Project: the amount (in tons or cubic yards), the date removed from the jobsite, the receiving party, the transportation cost, the amount of any money paid or received for the recycled or salvaged material, and the net total cost or savings of salvage or recycling of each material shall be indicated. Attach manifests, weight tickets, receipts, and invoices.

## PART 2 – PRODUCTS

(Not Applicable)

## PART 3 – EXECUTION

### 3.1 PLAN IMPLEMENTATION

- A. Implement the waste management plan as approved by **Architect and Construction Administrator**.
- B. Provide training of workers, contractors, subcontractors, and suppliers on proper waste management procedures.
  - 1. Distribute waste management plan to all parties involved in the Project within **three (3)** days of submittal return.
  - 2. Distribute plan to parties when they first begin working on the Project site. Review plan procedures and locations established for salvage, recycling, and disposal.

### 3.2 SEPARATION OF RECYCLABLE WASTE MATERIALS

- A. Provide the necessary containers and bins, to facilitate the waste management program, that are clearly and appropriately marked. Prevent contamination of recyclable materials from incompatible products and materials. Separate construction waste at the project site by one of the following methods:
  - 1. **Source Separated Method:** Waste products and materials, that are recyclable, are separated from trash and sorted into appropriately marked separate containers and then transported to the respective recycling facility for further processing. Trash is transported to a landfill or incinerator.
  - 2. **Co-Mingled Method:** All construction waste is placed into a single container and then transported to a recycling facility where the recyclable materials are sorted and processed and the remaining trash is transported to a landfill or incinerator.
  - 3. Other methods proposed by the Contractor and approved by the **Architect and Construction Administrator**.

END OF SECTION 01 74 19

## PART 1 - GENERAL

### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

### 1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for handling requests for building system start up and system demonstration and includes the following:
  - 1. Starting Systems.
  - 2. Demonstration and instructions.
  - 3. Testing, adjusting, and balancing.
- B. **Related Sections:** The following Sections contain requirements that relate to this Section:
  - 1. Division 01 Section 01 45 00 "Quality Control" specifies quality assurance and inspecting services.
  - 2. Division 01 Section 01 77 00 "Closeout Procedures" specifies requirements for contract close out requirements for system operation and maintenance data and extra materials.
  - 3. Division 23 05 93 Testing, Adjusting and Balancing for HVAC.

### 1.3 STARTING SYSTEMS

- A. Coordinate schedule for start-up of various equipment and systems.
- B. Provide written notification to the Construction Administrator **30 days** prior to start-up of each item.
- C. Verify that each piece of equipment or system has been checked for proper lubrication, drive rotation, belt tension, and control sequence for other conditions that may cause damage.
- D. Verify that tests, meter readings, and specified electrical characteristics agree with those required by the equipment or system manufacturer.
- E. Verify that wiring and support components are complete and tested.
- F. Execute the start-up under supervision of manufacturer's representative, in accordance with manufacturer's instructions.
- G. When referenced in individual specification sections, require manufacturer to provide an authorized representative to be present at the site to inspect, check, and approve equipment or system installation prior to start-up, and to supervise placing equipment or system in operation.
- H. Submit a written report in accordance with Division 01 Section 01 45 00 "Quality Control" that the equipment or system has been properly installed and is functioning properly.

### 1.4 DEMONSTRATION AND INSTRUCTIONS

- A. Demonstrate operation and maintenance of Products to Owner and Agency Personnel **fourteen (14)** days prior to substantial completion.
- B. Demonstrate Project equipment and instruct in a classroom environment at location designated by the Construction Administrator and instructed by a qualified manufacturer's representative who is knowledgeable about the Project.
- C. For equipment or systems requiring seasonal operation perform demonstration for season within **six (6)** months.
- D. Utilize operation and maintenance manuals as basis for instruction. Review contents of manual with Owner and Agency Personnel in detail to explain all aspects of operation and maintenance.
- E. Demonstrate start-up, operation, control, adjustment, troubleshooting, servicing, and maintenance, and shutdown of each item at agreed upon scheduled time and at equipment or designated location.
- F. Prepare and insert additional data in operations and maintenance manuals when need for additional data becomes apparent during demonstration.



- G. Starting and adjusting equipment does not constitute acceptance by the owner since commissioning is a requirement of this contract. Additionally, the warrantee does not begin until substantial completion has been granted for that specific item.

**1.5 TESTING, ADJUSTING, AND BALANCING**

- A. The Contractor will employ and pay for the testing services of an independent consultant to verify the testing, adjusting, and balancing.
- B. Reports will be submitted by the independent testing consultant to the Construction Administrator indicating observations and results of tests and indicating compliance or non-compliance with the requirements of the Contract Documents.
- C. The Owner may employ and pay for the services of an independent consultant to verify testing, adjusting, and balancing which was performed by the Contractor.

**PART 2 - PRODUCTS (Not Applicable)**

**PART 3 - EXECUTION (Not Applicable)**

END OF SECTION 01 75 00

## PART 1 - GENERAL

### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

### 1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for contract closeout including, but not limited to, the following:
1. Inspection procedures.
  2. Project record document submittal.
  3. Operation and maintenance manual submittal.
  4. Submittal of warranties.
  5. Final cleaning.
- B. **Related Sections:** The following Sections contain requirements that relate to this Section:
1. Division 01 Section 01 11 00 "Summary of Work".
  2. Division 01 Section 01 29 76 "Progress Payment Procedures".
- C. Closeout requirements for specific construction activities may be included in the appropriate Sections in Divisions 02 through 49.

### 1.3 SUBSTANTIAL COMPLETION

- A. **General:** Basic contract definitions are included in Article 1 of the General Conditions of the Contract for Construction.
- B. **Preliminary Procedures:** Before requesting inspection for Certification of Substantial Completion, complete the following. List exceptions in the request.
1. In the Application for Payment that coincides with, or first follows, the date Substantial Completion is claimed, show 100 percent completion for the portion of the Work claimed as substantially complete.
    - a. Include supporting documentation for completion as indicated in these Contract Documents and a statement showing an accounting of changes to the Contract Sum.
    - b. If 100 percent completion cannot be shown, include a list of incomplete items, the value of incomplete construction, and reasons the Work is not complete.
  2. Advise the Owner of pending insurance changeover requirements.
  3. Submit specific warranties, workmanship bonds, maintenance agreements, final certifications, and similar documents.
  4. Obtain and submit releases enabling the Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, certificates of compliance, operating certificates, and similar releases.
  5. Submit record drawings, maintenance manuals, damage or settlement surveys, property surveys, and similar final record information.
  6. Deliver tools, spare parts, extra stock, and similar items.
  7. Make final changeover of permanent locks and transmit keys to the Owner. Advise the Owner's personnel of changeover in security provisions.
  8. Demonstrate, thru operation and testing, the functions of all systems and/or equipment to the satisfaction of the Owner for compliance to the Contract. Complete testing of systems and instruction of the Owner's operation and maintenance personnel. Discontinue and remove temporary facilities from the site, along with mockups, construction tools, and similar elements.
  9. Complete final cleanup requirements.
  10. Certify that required training of personnel is complete.

- C. **Inspection Procedures:** The Contractor shall be ready and prepared when they request a Substantial Completion inspection. If the inspection reveals that the work is not complete, that there are extensive punchlist items that will take more than **ninety (90)** days to complete and as the items listed in Article 1.3 above are not complete, the Construction Administrator, Architect, and Owner will determine the inspection has failed.
- D. The Contractor is responsible for all costs to re-inspect due to a failed inspection. The Owner will issue a deduct change order to cover all costs for re-inspection.
  - 1. The Architect will repeat inspection when requested and assured that the Work is substantially complete.
  - 2. Results of the completed inspection will form the basis of requirements for final acceptance.

#### 1.4 ACCEPTANCE

- A. **Preliminary Procedures:** Before requesting final inspection for "Certificate of Acceptance" and final payment, complete the following. List exceptions in the request.
  - 1. Submit the final payment request with releases and supporting documentation not previously submitted and accepted. Include insurance certificates for products and completed operations where required.
  - 2. Submit an updated final statement, accounting for final additional changes to the Contract Sum.
  - 3. Submit a certified copy of the Architect's final inspection list of items to be completed or corrected, endorsed and dated by the Architect. The certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance and shall be endorsed and dated by the Architect.
  - 4. Submit final meter readings for utilities, a measured record of stored fuel, and similar data as of the date of Substantial Completion or when the Owner took possession of and assumed responsibility for corresponding elements of the Work.
  - 5. Submit consent of surety to Final Payment.
  - 6. Submit evidence of final, continuing insurance coverage complying with insurance requirements.
  - 7. Touch up and otherwise repair and restore marred, exposed finishes, including touchup painting.
- B. **Re-inspection Procedure:** The Inspection Group will re-inspect the Work upon receipt of notice from the Construction Administrator that the Work, including inspection list items from earlier inspections, has been completed, except for items whose completion is delayed under circumstances acceptable to the Owner.
  - 1. Upon completion of re-inspection, the Construction Administrator will prepare a Certificate of Acceptance. If the Work is incomplete, the Construction Administrator will advise the Contractor of Work that is incomplete or of obligations that have not been fulfilled but are required for final acceptance.

#### 1.5 AS-BUILT DOCUMENT SUBMITTALS

- A. **General:** The Contractor shall not use As-built Drawings for construction purposes. Protect contractor As-built Drawings from deterioration and loss in a secure, fire-resistant location. Provide access to As-built Drawings for the Architect's reference during normal working hours. Keep documents current; do not permanently conceal any work until required information has been recorded. **IMPORTANT NOTE: Failure to keep As-built Documents current is sufficient cause to withhold progress payments.**
  - 1. The Contractor shall also hire the services of a Surveyor registered in the State of Connecticut to conduct a final survey to determine the location of exterior underground utility lines and to record the results, and update existing electronic media.
  - 2. The record of exterior underground utilities shall be made at the time of installation on Mylar film drawing and AutoCAD (latest version) compatible disks. The drawing shall bear the seal of the Land Surveyor and a statement of accuracy.
- B. **As-built Drawings:** The Contractor shall maintain **one (1)** clean, complete undamaged set of blue or black line white-prints of Contract Drawings and Shop Drawings. Mark the set to show the actual installation where the installation varies substantially from the Work as originally shown. Mark which drawing is most capable of showing conditions fully and accurately. Where Shop Drawings are used, record a cross-reference at the corresponding location on the Contract Drawings. Give particular attention to concealed elements that would be difficult to measure and record at a later date. Update As-built Drawings on a monthly basis coincident with the submittal of the Application for Payment.
  - 1. Mark record sets with erasable pencil to distinguish between variations in separate categories of the Work.

2. Mark all new information that is not shown on Contract Drawings.
  3. Note related change-order numbers where applicable.
  4. Organize record drawing sheets into manageable sets. Bind sets with durable-paper cover sheets; print suitable titles, dates, and other identification on the cover of each set.
  5. Upon completion of the work, the Contractor shall submit Record Drawings to the Construction Administrator for the Owner's Records who will pass them on to the Architect or Engineer for transferring the changes to the Record Drawing Mylar Tracings.
  6. Submit electronic format data of all Coordination Drawings as required by the Owner, at no additional cost.
  7. Refer to Section 01 45 00 "Quality Control" Article 1.3 for required as-built drawings and specifications for fire alarm systems.
- C. Record Specifications:** The Contractor shall maintain one (1) complete copy of the Project Manual, including Addenda. Include with the Project Manual one (1) copy of other written construction documents, such as Change Orders and modifications issued in printed form during construction.
1. Mark these documents to show substantial variations in actual Work performed in comparison with the text of the Specifications and modifications.
  2. Give particular attention to equals and substitutions and selection of options and information on concealed construction that cannot otherwise be readily discerned later by direct observation.
  3. Note related record drawing information and Product Data.
  4. Upon completion of the Work, submit Record Specifications to the Construction Administrator for the Owner's records.
- D. Record Product Data:** The Contractor shall maintain one (1) copy of each Product Data submittal. Note related Change Orders and markup of record drawings and Specifications.
1. Mark these documents to show significant variations in actual Work performed in comparison with information submitted. Include variations in products delivered to the site and from the manufacturer's installation instructions and recommendations.
  2. Give particular attention to concealed products and portions of the Work that cannot otherwise be readily discerned later by direct observation.
  3. Upon completion of markup, submit complete set of Record Product Data to the Construction Administrator for the Owner's records.
- E. Record Sample Submitted:** Immediately prior to Substantial Completion, the Contractor shall meet with the Construction Administrator, Architect and the Owner's personnel at the Project Site to determine which Samples are to be transmitted to the Owner for record purposes. Comply with the Owner's instructions regarding delivery to the Owner's Sample storage area.
- F. Miscellaneous Record Submittals:** Refer to other Specification Sections for requirements of miscellaneous record keeping and submittals in connection with actual performance of the Work. Immediately prior to the date or dates of Substantial Completion, complete miscellaneous records and place in good order. Identify miscellaneous records properly and bind or file, ready for continued use and reference. Submit to the Construction Administrator for the Owner's records.
- G. Maintenance Manuals:** Organize operation and maintenance data into suitable sets of manageable size. Bind properly indexed data in individual, heavy-duty, 2-inch, 3-ring, vinyl-covered binders, with pocket folders for folded sheet information. Mark appropriate identification on front and spine of each binder according to Division 01 Section 01 78 23 "Operation & Maintenance Data". Included but not limited to the following types of information:
1. Emergency instructions.
  2. Spare parts list.
  3. Copies of warranties.
  4. Wiring diagrams.
  5. Recommended "turn-around" cycles.
  6. Inspection procedures.
  7. Shop Drawings and Product Data.

## PART 2 - PRODUCTS (Not Applicable)

## PART 3 - EXECUTION

### 3.1 CLOSEOUT PROCEDURES

**A. Operation and Maintenance Instructions:** Arrange for each Installer of equipment that requires regular maintenance to meet with the Owner's personnel to provide instruction in proper operation and maintenance. Provide instruction by manufacturer's representatives if installers are not experienced in operation and maintenance procedures. Include a detailed review of the following items:

1. Maintenance manuals.
2. Record documents.
3. Spare parts and materials.
4. Tools.
5. Lubricants.
6. Identification systems.
7. Control sequences.
8. Hazards.
9. Cleaning.
10. Warranties and bonds.
11. Maintenance agreements and similar continuing commitments.

**B.** As part of instruction for operating equipment, demonstrate the following procedures:

1. Startup.
2. Shutdown.
3. Emergency operations.
4. Noise and vibration adjustments.
5. Safety procedures.
6. Economy and efficiency adjustments.
7. Effective energy utilization.

### 3.2 FINAL CLEANING

**A. General:** The General Conditions require general cleaning during construction. Regular site cleaning is included in Division 01 Section 01 50 00 "Temporary Facilities and Controls."

**B. Cleaning:** Employ professional cleaners for final cleaning. Clean each surface or unit to the condition expected in a normal, commercial building cleaning and maintenance program. Comply with manufacturer's instructions.

1. Complete the following cleaning operations before requesting inspection for Certification of Substantial Completion and Certification of Occupancy.
2. Interior:
  - a. Remove labels that are not permanent labels.
  - b. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other substances that are noticeable vision-obscuring materials. Replace chipped or broken glass and other damaged transparent materials. Remove paint spots; wash and polish glass.
  - c. Clean exposed interior hard-surfaced finishes to a dust-free condition, free of stains, films, and similar foreign substances. Restore reflective surfaces to their original condition. Leave concrete floors broom clean. Vacuum carpeted surfaces.

- d. Wash washable surfaces of mechanical, electrical equipment and fixtures and replace filters, clean strainers on mechanical equipment. Remove excess lubrication and other substances. Clean plumbing fixtures to a sanitary condition. Clean light fixtures and lamps.
  - e. Clean and polish finish hardware.
  - f. Clean and polish tile and other glazed surfaces.
  - g. Clean floors; wax and buff resilient tile. Clean vinyl or rubber base.
  - h. Vacuum and/or dust walls, ceilings, lighting fixtures, ceiling diffusers and other wall and ceiling items.
  - i. Remove defacements, streaks, fingerprints and erection marks.
3. Exterior:
- a. Clean the site, including landscape development areas, of rubbish, litter, and other foreign substances. Sweep paved areas broom clean; remove stains, spills, and other foreign deposits. Rake grounds that are neither paved nor planted, to a smooth, even-textured surface.
  - b. Clean exposed exterior hard-surfaced finishes to a dust-free condition, free of stains, films, and similar foreign substances.
  - c. Clean roofs, gutters and downspouts.
  - d. Remove waste and surplus materials, rubbish and construction equipment and facilities from the site, and deposit it legally elsewhere.
  - e. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other substances that are noticeable vision-obscuring materials. Replace chipped or broken glass and other damaged transparent materials. Remove paint spots; wash and polish glass.
- C. Pest Control:** Engage an experienced, licensed exterminator to make a final inspection and rid the work of rodents, insects, and other pests. Provide results of final inspection in writing.
- D. Removal of Protection:** Remove temporary protection and facilities installed for protection of the Work during construction.
- E. Compliance:** Comply with regulations of authorities having jurisdiction and safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on the Owner's property. Do not discharge volatile, harmful, or dangerous materials into drainage systems. Remove waste materials from the site and dispose of lawfully.
1. Where extra materials of value remain after completion of associated Work, they become the Owner's property. Dispose of these materials as directed by the Construction Administrator.
  2. Leave building clean and ready for occupancy. If the Contractor fails to clean up, the Owner may do so, with the cost charged to the Contractor. The Owner will issue a credit change order to cover the costs.

**END OF SECTION 01 77 00**



## PART 1 - GENERAL

### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including Division 00 General Conditions and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

### 1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for operation and maintenance manuals, including the following:
1. Preparing and submitting operation and maintenance manuals for building operating systems and equipment.
  2. Preparing and submitting instruction manuals covering the care, preservation, and maintenance of architectural products and finishes.
- B. **Related Sections:** The following Sections contain requirements that relate to this Section:
1. Division 01 Section 01 33 00 "Submittal Procedures" specifies preparation of Shop Drawings and Product Data.
  2. Division 01 Section 01 75 00 "Starting and Adjusting" specifies instruction of the Owner and Agency operating personnel in the operation and maintenance of building systems and equipment and the general requirements for starting-up equipment and systems.
  3. Division 01 Section 01 77 00 "Closeout Procedures" specifies general closeout requirements.
  4. Division 01 Section 01 78 30 "Warranties and Bonds" specifies requirements for submittal of warranties and bonds.
  5. Appropriate Sections of Divisions 02 through 49 specify special operation and maintenance data requirements for specific pieces of equipment or building operating systems.

### 1.3 QUALITY ASSURANCE

- A. **Maintenance Manual Preparation:** In preparation of maintenance manuals, use personnel thoroughly trained and experienced in operation and maintenance of equipment or system involved.
1. Where maintenance manuals require written instructions, use personnel skilled in technical writing where necessary for communication of essential data.
  2. Where maintenance manuals require drawings or diagrams, use draftsmen capable of preparing drawings clearly in an understandable format.
- B. **Instructions for the Owner and Agency Personnel:** The Construction Manager must use experienced instructors thoroughly trained and experienced in operation and maintenance of equipment or system involved, to instruct the Owner's operation and maintenance personnel.

### 1.4 SUBMITTALS

- A. **Submittal Schedule:** Comply with the following schedule for submitting operation and maintenance manuals:
1. Before Substantial Completion, when each installation that requires operation and maintenance manuals is nominally complete, submit **four (4)** draft copies of each manual to the Owner's Representative, Agency Representative, and Architect for review. Include a complete index or table of contents of each manual.
    - a. The Owner's Representative will return **one (1)** copy of the draft with comments within **twenty - one (21)** calendar days of receipt.
    - b. Submit **four (4)** copies of data in final form at least **twenty-one (21)** calendar days before final inspection. The Owner's Representative will return **one (1)** copy within **twenty-one (21)** calendar after final inspection, with comments.
  2. After final inspection, make corrections or modifications to comply with the Architect's, and Agency Representative's comments. Submit final copies to the Owner's Representative within **twenty-one (21)** calendar days of receipt of Architect's, and Agency Representative's comments.



- B. Form of Submittal:** Prepare operation and maintenance manuals in the form of an instructional manual for use by the Owner's operating personnel. Organize into suitable sets of manageable size. Where possible, assemble instructions for similar equipment into a single binder.
1. **Binders:** For each manual, provide heavy-duty, commercial-quality, 3-ring, vinyl-covered, loose-leaf binders, in thickness necessary to accommodate contents, sized to receive **8-1/2-by-11- inch** paper. Provide a clear plastic sleeve on the spine to hold labels describing contents. Provide pockets in the covers to receive folded sheets.
    - a. Where **two (2)** or more binders are necessary to accommodate data, correlate data in each binder into related groupings according to the Project Manual table of contents. Cross-reference other binders where necessary to provide essential information for proper operation or maintenance of the piece of equipment or system.
    - b. Identify each binder on front and spine, with the printed title "OPERATION AND MAINTENANCE MANUAL," Project title or name, and subject matter covered. Indicate volume number for multiple volume sets of manuals.
  2. **Dividers:** Provide heavy paper dividers with celluloid-covered tabs for each separate section. Mark each tab to indicate contents. Provide a typed description of the product and major parts of equipment included in the section on each divider.
  3. **Protective Plastic Jackets:** Provide protective, transparent, plastic jackets designed to enclose diagnostic software for computerized electronic equipment.
  4. **Text Material:** Where maintenance manuals require written material, use the manufacturer's standard printed material. If manufacturer's standard printed material is not available, provide specially prepared data, neatly typewritten, on **8-1/2-by-11-inch, 20-lb/sq ft** white bond paper.
  5. **Drawings:** Where maintenance manuals require drawings or diagrams, provide reinforced, punched binder tabs on drawings and bind in with text.
    - a. Where oversize drawings are necessary, fold drawings to the same size as text pages and use as a foldout.
    - b. If drawings are too large to be used practically as a foldout, place the drawing, neatly folded, in front or rear pocket of binder. Insert a typewritten page indicating drawing title, description of contents, and drawing location at the appropriate location in the manual.

#### 1.5 MANUAL CONTENT

- A.** In each manual include information specified in the individual Specification Section and the following information for each major component of building equipment and its controls:
1. **General system or equipment description.**
  2. **Design factors and assumptions.**
  3. **Copies of applicable shop drawings and product data.**
  4. **System or equipment identification, including:**
    - a. **Name of manufacturer.**
    - b. **Model number.**
    - c. **Serial number of each component.**
  5. **Operating instructions.**
  6. **Emergency instructions.**
  7. **Wiring diagrams.**
  8. **Inspection and test procedures.**
  9. **Maintenance procedures and schedules.**
  10. **Precautions against improper use and maintenance.**
  11. **Copies of warranties.**
  12. **Repair instructions including spare parts listing.**
  13. **Sources of required maintenance materials and related services.**
  14. **Manual index.**

- B.** Organize each manual into separate sections for each piece of related equipment. As a minimum, each manual shall contain a title page; a table of contents; copies of product data, supplemented by drawings and written text; and copies of each warranty, bond, and service contract issued.
- 1. Title Page:** Provide a title page in a transparent, plastic envelope as the first sheet of each manual. Provide the following information:
    - a. Subject matter covered by the manual.**
    - b. Name and address of the Project.**
    - c. Date of submittal.**
    - d. Name, address, and telephone number of the Construction Manager.**
    - e. Name and address of the Architect and Owner's Representative.**
    - f. Cross-reference to related systems in other operation and maintenance manuals.**
  - 2. Table of Contents:** After title page, include a typewritten table of contents for each volume, arranged systematically according to the Project Manual format. Include a list of each product included, identified by product name or other appropriate identifying symbol and indexed to the content of the volume.
    - a.** Where a system requires more than one volume to accommodate data, provide a comprehensive table of contents for all volumes in each volume of the set.
  - 3.** Provide a general information section immediately following table of contents, listing each product included in the manual, identified by product name. Under each product, list the name, address, and telephone number of the subcontractor or Installer and the maintenance subcontractor. Clearly delineate the extent of responsibility of each of these entities. Include a local source for replacement parts and equipment.
  - 4. Product Data:** Where the manuals include manufacturer's standard printed data, include only sheets that are pertinent to the part or product installed. Mark each sheet to identify each part or product included in the installation. Where the Project includes more than one (1) item in a tabular format, identify each item, using appropriate references from the Contract Documents. Identify data that is applicable to the installation, and delete references to information that is not applicable.
  - 5. Written Text:** Prepare written text to provide necessary information where manufacturer's standard printed data is not available, and the information is necessary for proper operation and maintenance of equipment or systems. Prepare written text where it is necessary to provide additional information or to supplement data included in the manual. Organize text in a consistent format under separate headings for different procedures. Where necessary, provide a logical sequence of instruction for each operation or maintenance procedure.
  - 6. Drawings:** Provide specially prepared drawings where necessary to supplement manufacturer's printed data to illustrate the relationship of component parts of equipment or systems or to provide control or flow diagrams. Coordinate these drawings with information contained in project record drawings to assure correct illustration of the completed installation.
    - a.** Do not use original Record Documents as part of operation and maintenance manuals.
  - 7. Warranties and/or Bonds:** Provide a copy of each warranty and/or bond in the appropriate manual for the information of the Owner's operating personnel. Provide written data outlining procedures to follow in the event of product failure. List circumstances and conditions that would affect validity of warranty or bond.

#### **1.6 MATERIAL AND FINISHES MAINTENANCE MANUAL**

- A.** Submit **four (4)** copies of each manual, in final form, on material and finishes to the Owner's Representative for distribution. Provide **one (1)** section for architectural products, including applied materials and finishes. Provide a second section for products designed for moisture protection and products exposed to the weather.
- 1.** Refer to individual Specification Sections for additional requirements on care and maintenance of materials and finishes.
- B. Architectural Products:** Provide manufacturer's data and instructions on care and maintenance of architectural products, including applied materials and finishes.
- 1. Manufacturer's Data:** Provide complete information on architectural products, including the following, as applicable:
    - a.** Manufacturer's catalog number.

- b. Size.
  - c. Material composition.
  - d. Color.
  - e. Texture.
  - f. Reordering information for specially manufactured products.
2. **Care and Maintenance Instructions:** Provide information on care and maintenance, including manufacturer's recommendations for types of cleaning agents to be used and methods of cleaning. Provide information on cleaning agents and methods that could prove detrimental to the product. Include manufacturer's recommended schedule for cleaning and maintenance.
- C. **Moisture Protection and Products Exposed to the Weather:** Provide complete manufacturer's data with instructions on inspection, maintenance, and repair of products exposed to the weather or designed for moisture-protection purposes.
1. **Manufacturer's Data:** Provide manufacturer's data giving detailed information, including the following, as applicable:
- a. **Applicable standards.**
  - b. **Chemical composition.**
  - c. **Installation details.**
  - d. **Inspection procedures.**
  - e. **Maintenance information.**
  - f. **Repair procedures.**

#### 1.7 EQUIPMENT AND SYSTEMS MAINTENANCE MANUAL

- A. Submit **four (4)** copies of each manual, in final form, on equipment and systems to the Owner's Representative for distribution. Provide separate manuals for each unit of equipment, each operating system, and each electric and electronic system.
1. Refer to individual Specification Sections for additional requirements on operation and maintenance of the various pieces of equipment and operating systems.
- B. **Equipment and Systems:** Provide the following information for each piece of equipment, each building operating system, and each electric or electronic system.
1. **Description:** Provide a complete description of each unit and related component parts, including the following:
- a. **Equipment or system function.**
  - b. **Operating characteristics.**
  - c. **Limiting conditions.**
  - d. **Performance curves.**
  - e. **Engineering data and tests.**
  - f. **Complete nomenclature and number of replacement parts.**
2. **Manufacturer's Information:** For each manufacturer of a component part or piece of equipment, provide the following:
- a. **Printed operation and maintenance instructions.**
  - b. **Assembly drawings and diagrams required for maintenance.**
  - c. **List of items recommended to be stocked as spare parts.**
3. **Maintenance Procedures:** Provide information detailing essential maintenance procedures, including the following:
4. **Operating Procedures:** Provide information on equipment and system operating procedures, including the following:
- a. **Startup procedures.**
  - b. **Equipment or system break-in.**
  - c. **Routine and normal operating instructions.**

- d. **Regulation and control procedures.**
  - e. **Instructions on stopping.**
  - f. **Shutdown and emergency instructions.**
  - g. **Summer and winter operating instructions.**
  - h. **Required sequences for electric or electronic systems.**
  - i. **Special operating instructions.**
- 5. **Servicing Schedule:** Provide a schedule of routine servicing and lubrication requirements, including a list of required lubricants for equipment with moving parts.
  - 6. **Controls:** Provide a description of the sequence of operation and as-installed control diagrams by the control manufacturer for systems requiring controls.
  - 7. **Identification Drawings:** Provide each Subcontractor's Identification Drawings.
    - a. Provide as-installed, color-coded, piping diagrams, where required for identification.
  - 8. **Valve Tags:** Provide charts of valve-tag numbers, with the location and function of each valve.
  - 9. **Circuit Directories:** For electric and electronic systems, provide complete circuit directories of panel boards, including the following:
    - a. Controls.
    - b. Communication.
- C. Electronic Media:**
- 1. For equipment which requires maintenance by operational personnel, provide a professionally developed **DVD** for the use of maintenance training for the facility. Each **DVD** will be accompanied by a written index which can be utilized to find any specific item of information by time or place on the **DVD**.
  - 2. The Construction Manager is responsible for this production. This **DVD** will be provided to the Owner's Representative at the same time as the delivery of the other maintenance material.
  - 3. The **DVD** must be able to be edited for future changes to the equipment and modifications as they occur.

**PART 2 - PRODUCTS (Not Applicable)**

**PART 3 - EXECUTION (Not Applicable)**

**END OF SECTION 01 78 23**



## PART 1 – GENERAL

### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

### 1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for warranties required by the Contract Documents, including manufacturer's standard warranties on products and special warranties.
  - 1. Refer to the General Conditions for terms of the Contractor's period for correction of the Work.
- B. **Related Sections:** The following Sections contain requirements that relate to this Section:
  - 1. Division 01 Section 01 33 00 "Submittal Procedures" specifies procedures for submitting warranties.
  - 2. Division 01 Section 01 77 00 "Closeout Procedures" specifies contract closeout procedures.
  - 3. Division 01 Section 01 78 23 "Operation and Maintenance Data" specifies required operation and maintenance data.
  - 4. Divisions 02 through 49 Sections for specific requirements for warranties on products and installations specified to be warranted.
  - 5. Certifications and other commitments and agreements for continuing services to Owner are specified elsewhere in the Contract Documents.
- C. **Disclaimers and Limitations:** Manufacturer's disclaimers and limitations on product warranties do not relieve the Contractor of the warranty on the Work that incorporates the products. Manufacturer's disclaimers and limitations on product warranties do not relieve suppliers, manufacturers, and subcontractors required to countersign special warranties with the Contractor.

### 1.3 WARRANTY REQUIREMENTS

- A. **Related Damages and Losses:** When correcting failed or damaged warranted construction, remove and replace construction that has been damaged as a result of such failure or must be removed and replaced to provide access for correction of warranted construction.
- B. **Reinstatement of Warranty:** When Work covered by a warranty has failed and been corrected by replacement or rebuilding, reinstate the warranty by written endorsement. The reinstated warranty shall be equal to the original warranty with an equitable adjustment for depreciation.
- C. **Replacement Cost:** Upon determination that Work covered by a warranty has failed, replace or rebuild the Work to an acceptable condition complying with requirements of the Contract Documents. The Contractor is responsible for the cost of replacing or rebuilding defective Work regardless of whether the Owner has benefited from use of the Work through a portion of its anticipated useful service life.
- D. **Owner's Recourse:** Expressed warranties made to the Owner are in addition to implied warranties and shall not limit the duties, obligations, rights, and remedies otherwise available under the law. Expressed warranty periods shall not be interpreted as limitations on the time in which the Owner can enforce such other duties, obligations, rights, or remedies.
  - 1. **Rejection of Warranties:** The Owner reserves the right to reject warranties and to limit selection to products with warranties not in conflict with requirements of the Contract Documents.
- E. Where the Contract Documents require a special warranty, or similar commitment on the Work or part of the Work, the Owner reserves the right to refuse to accept the Work, until the Contractor presents evidence that entities required to countersign such commitments are willing to do so.
- F. The Contractor shall guarantee all materials and workmanship for a period of **eighteen (18)** months from the date of Substantial Completion of the Work. In addition, the Contractor shall furnish the warranties listed below. Submit four (4) copies of each to the Construction Administrator in the supplier's standard form or in the form given below if there is no standard form available.

- G. **Specification/Warranty Table:** The General Contractor shall provide for all warranties as shown in the Specification/Warranty table:

<b>Specification / Warranty Table</b>		
Item No.	Section No.	Specification Product/Warranty
1.	07 46 00	<b>Fiber Cement Panels</b> 30 year, manufacturing defects.
2.	07 53 23	<b>EPDM Roofing, Base Flashing and Insulation:</b> 30 year unlimited, materials and installation [the manufacturer's no dollar limit (NDL) warranty], and; 2 year General Contractor's warranty for installation.
3.	07 62 00	<b>Metal Flashing and Sheet Metal:</b> 10 year, material and workmanship (per manufacturer)
4.	07 09 00	<b>Exterior - Interior Caulking and Sealants:</b> 5 year, material and workmanship.
5.	08 13 16 41 13	<b>Doors - Hollow Metal &amp; Aluminum Storefront</b> 5 year, material and workmanship 2 Year, Entrance door to remain plumb
6.	08 31 16	<b>Access Panels</b> 5 year, material and workmanship
7.	08 71 00	<b>Closers, Locksets, Exit Bolts:</b> 7 Heavy duty cylindrical locks and latches 5 Exit hardware 25 Manual surface door closer bodies
8.	08 80 00	<b>Glazing</b> 10 year, material and workmanship.
9.	22 14 13	<b>Roof Drains</b> 25 Year, material and workmanship
10.	26 09 36	<b>Digital Lighting controls</b> 2 year, material and workmanship.
11.	26 51 19	<b>LED Interior Lighting</b> 5 year, material and workmanship.
12.	26 52 19	Emergency and Exit Lighting 2 Years, material and workmanship
13.	26 52 19	Emergency and Exit Lighting- Batteries 5 Years, materials and workmanship

- H. Submit certification that finish materials are fire rated as specified.

- I. Form of Warranty: Warranties shall be submitted in following format:

<b>Warranty</b>			
<b>Commissioner: Josh Geballe</b> <b>Department of Administrative Services</b> <b>DAS Commissioner's Office</b> <b>450 Columbus Boulevard, Suite 1501</b> <b>Hartford, CT 06103</b>			
<b>Project Number: BI-JD-364</b> <b>Project Title: Rood and Masonry Restoration, Bridgeport Superior Court</b>			
<b>I (We) hereby warranty</b>			
the _____ work on the referenced project for a period of _____ years			
from _____, 20 _____ against failures of workmanship and materials in accordance			
with the requirements of Section _____, Page _____, Paragraph _____, of the Specifications.			
Installer <input type="checkbox"/>		Subcontractor <input type="checkbox"/>	
Vendor/Suppliers <input type="checkbox"/>		Manufacturer <input type="checkbox"/>	
<b>Installer or Subcontractor or</b> <b>Vendor/Suppliers or Manufacturer Name:</b> _____			
<b>Installer or Subcontractor or</b> <b>Vendor/Suppliers or Manufacturer Signature:</b> _____			
<b>General Contractor's Name</b> _____			
<b>General Contractor's Signature:</b> _____			
or			
<b>General Contractor's</b> <b>Authorized Agent Signature:</b> _____			

- J. Bonds shall be by approved Surety Companies, made out to the Commissioner, Department of Administrative Services on companies' standard form.
- K. Warranties, Guarantees, or bonds supplied by the General Contractor's Subcontractors or Vendors/Suppliers or Manufacturers shall reference the project name, number, and location and be certified by the General Contractor to be for the product and installation on the project and must be countersigned by the General Contractor.
- L. Bonds shall be by approved Surety Companies, made out to the Commissioner, Department of Administrative Services, on company's standard form.
- M. Guarantees, warranties or bonds supplied by Subcontractors, Suppliers or Manufacturers shall reference the project name, number, and location and be certified by the Contractor to be for the product and installation on the project and must be countersigned by the Contractor.

**1.4 SUBMITTALS**

- A. Submit written warranties prior to the date certified for Substantial Completion. If the Architect's Certificate of Substantial Completion designates a commencement date for warranties other than the date of Substantial Completion for the Work, or a designated portion of the Work, submit written warranties upon request of the Architect.
- B. Forms for special warranties are included in this Section. Prepare a written document utilizing the appropriate form, ready for execution by the Contractor, or by the Contractor, subcontractor, supplier, or



manufacturer. Submit a draft to the Owner, through the Construction Administrator, for approval prior to final execution.

1. Refer to Divisions 02 through 49 Sections for specific content requirements and particular requirements for submitting special warranties.
- C. **Form of Submittal:** At Final Completion compile **two (2)** copies of each required warranty properly executed by the Contractor, or by the Contractor, subcontractor, supplier, or manufacturer. Organize the warranty documents into an orderly sequence based on the table of contents of the Project Manual.
- D. Bind warranties and bonds in heavy-duty, commercial-quality, durable 3-ring, vinyl-covered loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive **8-1/2-by-11-inch** paper.
  1. Provide heavy paper dividers with celluloid covered tabs for each separate warranty. Mark the tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product, and the name, address, and telephone number of the Installer.
  2. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project title or name, and name of the Contractor.
  3. When warranted construction requires operation and maintenance manuals, provide additional copies of each required warranty, as necessary, for inclusion in each required manual.

**PART 2 - PRODUCTS (Not Applicable)**

**PART 3 - EXECUTION (Not applicable)**

**END OF SECTION 01 78 30**

## **PART 1 - GENERAL**

### **1.1 DESCRIPTION OF WORK**

- A. Coordinate selective demolition for hazardous materials with work included in other sections. See other sections of the Project Manual and the contract drawings for the extent of ceiling and wall removal.
- B. Work included in this section is to be performed to permit removal of asbestos-containing material (ACM) or perform other hazardous materials removal activities.
- C. Selective demolition work included in this section is to be performed prior to, but as part of asbestos abatement, and includes the removal of non-asbestos-containing materials to access concealed asbestos-containing materials scheduled for removal. Work having a high probability of disturbing asbestos-containing materials shall be conducted after engineering controls are in place and have proven to be effective. This work includes, but is not limited to, removal of the following building components or materials:
  - 1. Plaster or gypsum wallboard partition or ceiling;
  - 2. Concrete Masonry Unit (CMU) walls;
  - 3. Suspended acoustic ceiling;
  - 4. HVAC system components;
  - 5. Electrical and lighting system components;
  - 6. Alarm system components.

### **1.2 SUBMITTALS**

- A. Submit for Consultants' review and information the below listed data not less than 2 weeks prior to start of activity.
  - 1. Proposed selective demolition schedule including removal sequence. Update and resubmit every two weeks showing progress to date.
  - 2. Details of methods and procedures proposed for selective demolition.
  - 3. Safety plan for worker protection and protection of adjacent construction.

### **1.3 REGULATORY REQUIREMENTS**

- A. Conform to applicable Federal, State and Local codes and ordinances for demolition of structures, safety of adjacent structures, dust control, runoff control, traffic control; and handling, transporting and disposal of construction demolition and hazardous waste materials.
- B. Lock out /Tag out electrical power, including all receptacles and light fixtures in accordance with the Owner lock out/tag out program. Coordinate all power and alarm system isolation with the Owner.
- C. Do not close or obstruct access or egress from occupied areas of the building.

### **1.4 SEQUENCING**

- A. Sequence work with asbestos abatement and removal and handling of regulated material included in Sections 02 82 13 and 02 84 16 in a continuous process. Demolition or removal activities which could disturb asbestos-containing materials shall be performed after establishment of engineering controls specified in Section 02 82 13.

**1.5 SALVAGEABLE MATERIALS**

- A. The Owner reserves the right of salvage of any items removed. Carefully remove items scheduled for re-use to avoid damage, and deliver them to the on-site location indicated or directed for storage until re-installation.

**PART 2 - PRODUCTS (Not Used)**

**PART 3 - EXECUTION**

**3.1 PREPARATION**

- A. Provide, erect, and maintain temporary barriers, including work area containment at locations necessary to protect adjacent construction and eliminate unauthorized entry into the work area. Provide appropriate signage to identify building evacuation routes during construction.

**3.2 DEMOLITION REQUIREMENTS**

- A. Perform demolition to the extent specified, indicated or necessary to access concealed ACM and to remove other hazardous materials specified herein. Conduct demolition and removal activities to minimize interference with adjacent construction scheduled to be retained.
- B. Cease operations immediately if adjacent construction appears to be in danger. Notify the Owner. Do not resume operations until directed by the Owner.
- C. Wet down building components removed under this section with water to minimize dust. Provide control of associated water runoff.
- D. Non-asbestos-containing demolition materials may be placed in construction debris waste containers. Asbestos contaminated demolition materials are considered asbestos waste. The on-site asbestos Project Monitor/Building Inspector shall determine if materials are not contaminated.
- E. Should any hazardous material spill occur during selective demolition for the removal of hazardous materials, notify the Owner immediately.

**END OF SECTION 02 41 13**

## **PART 1 - GENERAL**

### **1.1 SCOPE**

- A. The work specified herein shall include the abatement of asbestos-containing materials by persons who are knowledgeable, qualified, and trained in the removal, treatment, handling, and disposal of asbestos-containing material, and the subsequent cleaning of the affected environment. The Contractor shall have a Competent Person in control on the job site at all times and an Asbestos Abatement Site Supervisor during asbestos abatement work. This person must comply with applicable Federal, State and Local regulations that mandate work practices, and be capable of performing the work of this contract.
- B. The Asbestos Contractor shall be licensed by the State of Connecticut in accordance with State of Connecticut Regulations, Sections 20-440-1 through 9 and 20-441. Should any portion of the work be subcontracted, the subcontractor must also be licensed in accordance with these regulations. Site supervisors and workers shall be certified in accordance with Sections 20-437 and 20-438 of the Connecticut General Statutes and Section 20-440-5 of the Regulations of Connecticut State Agencies. The licensing and certification requirements are available from the Environmental Health Services Division, Department of Public Health, 410 Capitol Avenue, P.O. Box 340308, Hartford, CT 06134-0308.
- C. The Owner will retain the services of a licensed Project Monitor/Building Inspector for protection of its interests and those using the building. Abatement monitoring will be conducted as deemed necessary.
- D. Restore all work areas and auxiliary areas utilized during abatement to conditions equal to or better than original. Any damage caused during the performance of abatement activities shall be repaired by the Contractor (e.g., paint peeled off by barrier tape, nail holes, water damage, removal of ceiling tiles or concrete blocks, broken glass, etc.) at no additional expense to the Owner. The Contractor is responsible for protecting all objects in work areas that are permanent fixtures or too large to remove.
- E. The Contractor shall be responsible for the following general requirements:
  - 1. Obtain all approvals and permits, and submit all notifications required.
  - 2. Provide, erect, and maintain all scaffolds, planking, bracing, shoring, material handling equipment, barricades, and warning signs.
  - 3. Unless otherwise specified, all components, equipment, fixtures, piping and debris resulting from demolition shall become the property of the Contractor and shall be removed from the premises.
  - 4. Materials to be reused shall be removed with the utmost care to prevent damage of any kind. All material to be reused shall be stored as directed. The Contractor shall coordinate with the Owner as to the storage location.
  - 5. Materials not scheduled for reuse shall be removed from the site and disposed of in accordance with all applicable Federal, State and Local requirements.
  - 6. Provide OSHA required personal monitoring to ensure adequate respiratory protection for each worker.
- F. Protect and preserve in operating condition, all utilities traversing the building and site. Damage to any utility due to work under this Contract shall be repaired to the satisfaction of the Owner at no cost to the Owner.

## 1.2 DESCRIPTION OF WORK

- A. The Contractor shall supply all labor, materials, equipment, services, insurance (with specific coverage for work on asbestos), and incidentals which are necessary or required to perform the work in accordance with applicable governmental regulations and these specifications.
- B. The results of laboratory analysis indicate asbestos-containing material (ACM) spray-on fireproofing is present throughout the building.
- C. The scope of work includes the removal of ACM spray-on fireproofing throughout the Seventh Floor and in isolated areas of First Floor balconies. Coordinate locations and identity of building components or materials to be removed under this section with other sections of the Project Manual and the contract drawings.

## 1.3 DEFINITIONS

- A. Accessible - A space easily accessed, and which can be entered or seen without demolition.
- B. Agency - The authoritative force, usually at the state level, or their representative.
- C. ASHERA - Asbestos School Hazard Emergency Response Act - U. S. EPA regulation 40 CFR Part 763 under Section 203 of Title II of the Toxic Substances Control Act (TSCA), 15 U.S.C. 2643. This rule mandates inspections, accreditation of persons involved with asbestos, and final air clearances following abatement in public and private schools, and public and commercial buildings.
- D. Alternative Work Practice (AWP) - State of Connecticut Department of Public Health approved deviation from Asbestos Standards (Sections 19a-332a-1 to 19a-332a-16 inclusive). Alternative Work Practice methods may be used if pre-approved by DPH or with the approval of DPH, the Design Consultant and State's Project Monitor when not pre-approved. Pre-approved Alternative Work Practice methods are included in Appendix A of this specification. Approval of alternative work practice procedures shall not relieve the Contractor from any codes, regulations or standards required by this specification.
- E. Asbestos Abatement Site Supervisor – Any individual who is employed or engaged by an asbestos contractor to supervise an asbestos abatement project.
- F. Asbestos-Containing Waste Materials - Mill tailings or any waste that contains commercial asbestos and is generated by a source subject to the provisions of this subpart. This term includes filters from control devices, friable asbestos waste material, and bags or other similar packaging contaminated with commercial asbestos. As applied to demolition and renovations operations, this term also includes regulated asbestos-containing material waste and materials contaminated with asbestos including disposable equipment and clothing.
- G. Asbestos Control Area - An area where asbestos abatement operations are performed which is isolated by physical boundaries, which assist in the prevention of the uncontrolled release of asbestos dust, fibers, or debris. Two examples of an Asbestos Control Area are a "full containment" and a "glove-bag."
- H. Authorized Asbestos Disposal Facility - A location approved by the Connecticut Department of Energy and Environmental Protection for handling and disposing of asbestos waste or by an equivalent regulatory agency if the material is disposed of outside the State of Connecticut.
- I. Category I Non-Friable Asbestos-Containing Material (ACM) - Asbestos-containing packing, gaskets, resilient floor coverings and asphalt roofing products containing more than 1 percent

asbestos as determined using the method specified in Appendix A, subpart F, 40 CFR part 763, section 1, Polarized Light Microscopy.

- J. Category II Non-Friable ACM - Any material, excluding Category I non-friable ACM, containing more than 1 percent asbestos as determined using the method specified in Appendix A, subpart F, 40 CFR part 763, section 1, Polarized Light Microscopy that when dry, cannot be crumbled, pulverized, or reduced to powder by hand pressure.
- K. Class I Asbestos Work - Activities involving the removal of TSI and surfacing ACM and PACM.
- L. Class II Asbestos Work - Activities involving the removal of ACM, which is not thermal system insulation or surfacing material. This includes, but is not limited to the removal of asbestos-containing wallboard, floor tile and sheeting, roofing and siding shingles, and construction mastic.
- M. Class III Asbestos Work - Repair and maintenance operations, where ACM, including thermal system and surfacing material, is likely to be disturbed.
- N. Class IV Asbestos Work - Maintenance and custodial activities during which employees contact ACM and PACM and activities to clean up waste and debris containing ACM and PACM.
- O. Competent Person - In addition to the definition in 29 CFR 1926.32(f), one who is capable of identifying existing asbestos hazards in the work place and selecting the appropriate control strategy for asbestos exposure, who has the authority to take prompt corrective measures to eliminate them, as specified in 29 CFR 1926.32(f): in addition for Class I and Class II work who is specially trained in a training course which meet the criteria of 40 CFR 763 (Appendix C to Subpart E - Asbestos Model Accreditation Plan).
- P. Concealed Space - Space, which is out of sight. Examples of a concealed space include area above hard ceilings; below floors; between double walls; furred-in areas; pipe and duct shafts; and similar spaces which cannot be examined without invasive removal of building components or disturbance of finishes.
- Q. Critical Barrier - A layer of six (6) mil polyethylene sheeting taped securely over windows, doorways, diffusers, grilles and any other openings between the Work Area and uncontaminated areas outside of the Work Area, including the outside of the building.
- R. Demolition - The wrecking or taking out of any load-supporting structural member of a facility together with any related handling operations or the intentional burning of any facility.
- S. DEEP - The Connecticut Department of Energy and Environmental Protection, 79 Elm Street, Hartford, CT 06106.
- T. DPH - The Connecticut Department of Public Health, 410 Capitol Avenue, P.O. Box 340308, Hartford, CT 06134-0308.
- U. Differential Pressure - A difference in the static air pressure between the Work Area and occupied areas, and is developed by the use of HEPA filtered exhaust fans. This differential is generally in the range of 0.02 to 0.04 inches of water column.
- V. Encapsulation - The treatment of asbestos-containing materials to prevent the release of fibers as the encapsulant creates a membrane over the surface (bridging encapsulant) or penetrates the material and binds its components together (penetrating encapsulant).

- W. Engineering Controls - Controls to include, but not be limited to, pressure differential equipment, decontamination enclosures, critical barriers and related procedures.
- X. Equipment Decontamination Enclosure System - The portion of a Decontamination Enclosure System designed for controlled transfer of materials and equipment into or out of the Work Area, typically consisting of a Washroom and a Holding Area.
- Y. Exposed - Open to view.
- Z. Fiber - A particulate form of asbestos five microns or longer, with a length-to-diameter ratio of at least 3 to 1.
- AA. Finished Space - Space used for habitation or occupancy where rough surfaces are plastered, paneled or otherwise treated to provide a pleasing appearance.
- BB. Fixed Critical Barrier - Barrier constructed of 2" x 4" wood or metal framing 16" O.C., with 1/2" plywood on the occupied side and two layers of six (6) mil polyethylene sheeting on the Work Area side to prevent unauthorized access or air flow.
- CC. Fixed Object - A piece of equipment or furniture in the Work Area, which cannot be removed from the Work Area, as, determined by the State.
- DD. Friable Asbestos-Containing Material (ACM) - Material containing more than one percent asbestos which has been applied on ceilings, walls, structural members, piping, duct work, or any other part of a building, which when dry may be crumbled, pulverized or reduced to powder by hand pressure. The term includes non-friable asbestos-containing material after such previously non-friable material becomes damaged to the extent that when dry it may be crumbled, pulverized or reduced to powder by hand pressure.
- EE. Friable Asbestos-Containing Building Material (ACBM) - Any friable ACM that is in or on interior structural members or other parts of a school or public or commercial building.
- FF. Glove-Bag Technique - A method with limited applications for removing small amounts of friable asbestos-containing material from HVAC ducts, short piping runs, valves, joints, elbows, and other non-planar surfaces in a non-contaminated work area. Information on glove-bag installation, equipment and supplies, and work practices is contained in 29 CFR 1926.1101. The glove-bag assembly is a manufactured or fabricated device consisting of a glove-bag (typically constructed of six (6) mil polyethylene or polyvinyl chloride plastic), two inward projecting long sleeves, an internal tool pouch, and an attached, labeled receptacle for asbestos waste. The glove-bag is constructed and installed in such a manner that it surrounds the object or material to be removed and contains all asbestos fibers released during the process. This technique requires AWP application and may only be used if pre-approved by DPH or with the approval of the Design Consultant, State's Project Monitor and DPH when not pre-approved.
- GG. HEPA Filter Equipment - High-efficiency particulate air (HEPA) filtered vacuum and/or exhaust ventilation equipment with a filter system capable of trapping and retaining asbestos fibers. Filters shall be of 99.97 percent efficiency for retaining fibers of 0.3 microns in diameter or larger.
- HH. Inaccessible - A space not accessible, and which cannot be entered or seen without demolition.
- II. Inspection - An activity undertaken in a school building, or a public or commercial building, to determine the presence or location, or to assess the condition of, friable or non-friable ACBM or suspected ACBM, whether by visual or physical examination, or by collecting samples of such materials.

- JJ. Lock-down - The procedure of spraying polyethylene sheeting and building materials with an encapsulant type sealant to seal in non-visible asbestos-containing residue.
- KK. Major Fiber Release Episode - Any uncontrolled or unintentional disturbance of ACBM, resulting in a visible emission, which involves the falling or dislodging of more than 3 square or 3 linear feet of friable ACBM.
- LL. Mini-Containment - A procedure using a single layer of polyethylene sheeting to contain the Work Area. Access to the mini-containment is controlled by an air lock, which also serves as a Holding Area. This procedure requires AWP application and may only be used if pre-approved by DPH or with the approval of the Design Consultant, State's Project Monitor and DPH when not pre-approved.
- MM. Minor Fiber Release Episode - Any uncontrolled or unintentional disturbance of ACBM, resulting in a visible emission, which involves the falling or dislodging of 3 square or linear feet or less of friable ACBM.
- NN. Movable Object - A piece of equipment or furniture in the Work Area, which can be removed from the Work Area, as, determined by the State.
- OO. Negative Initial Exposure Assessment - A demonstration by the employer which complies with the criteria in 29 CFR 1926.1101(f)(2)(iii) that employee exposure during an operation is expected to be consistently below the PEL.
- PP. Non-Friable Asbestos-Containing Material - Material containing more than 1 percent asbestos as determined using the method specified in Appendix A, subpart F, 40 CFR Part 763, section 1, Polarized Light Microscopy that when dry cannot be crumbled, pulverized or reduced to powder by hand pressure.
- QQ. Owner or Operator of a Demolition or Renovation Activity - Any person who owns, leases, operates, controls or supervises the facility being demolished or renovated or any person who owns, leases, operates, controls or supervises the demolition or renovation, or both.
- RR. Permissible Exposure Limits (PELS) - (1) Time-weighted Average Limit (TWA). The employer shall ensure that no employee is exposed to an airborne concentration of asbestos in excess of 0.1 fiber per cubic centimeter (f/cc) of air as an eight (8) hour time-weighted average (TWA). (2) Excursion Limit. The employer shall ensure that no employee is exposed to an airborne concentration of asbestos in excess of 1.0 fiber per cubic centimeter of air (1 f/cc) as averaged over a sampling period of thirty (30) minutes.
- SS. Pre-Clean - The process of cleaning an area before asbestos abatement activities begin to ensure all dust and debris in the area considered asbestos containing are properly contained and disposed of. This increases the likelihood the area will pass aggressive air sampling clearance requirements after asbestos-containing materials have been removed.
- TT. Presumed Asbestos-Containing Material - Thermal system insulation and surfacing material found in buildings constructed no later than 1980. The designation of PACM may be rebutted pursuant to 29 CFR 1926.1101 paragraph (k)(5).
- UU. Project Monitor - The certified and licensed individual contracted or employed by the building owner or contractor to supervise and/or conduct air monitoring and analysis schemes. This individual is responsible for recognition of technical deficiencies in procedures during both planning and on-site phases of an abatement project. Requirements for Project Monitor are defined in the Connecticut Department of Public Health Regulations (Sections 20-440-1 to 20-



440-9 and 20-441). In addition to these requirements, this person shall be listed in the American Industrial Hygiene Association's Asbestos Analysts Registry.

- VV. Regulated Area - Area established by the employer to demarcate areas where Class I, II and III work is conducted, and any adjoining area where debris and waste from such asbestos work accumulate; a work area within which airborne concentrations of asbestos exceed or there is a reasonable possibility they may exceed the PEL.
- WW. Regulated Asbestos-Containing Material (RACM) - (a) Friable asbestos material, (b) Category I non-friable ACM that has become friable, (c) Category I non-friable ACM that will be or has been subjected to sanding, grinding, cutting, or abrading, or (d) Category II non-friable ACM that has a high probability of becoming or has become crumbled, pulverized, or reduced to powder by the forces expected to act on the material in the course of demolition or renovation operations.
- XX. Renovation - Altering a facility or one or more facility components in any way, including the stripping or removal of RACM from a facility component. Operations in which load-supporting members are wrecked or taken out are demolition.
- YY. Repair - Overhauling, rebuilding, reconstructing or reconditioning of structures or substrates where asbestos, tremolite, anthophyllite or actinolite is present.
- ZZ. Response Action - A method including removal, encapsulation, enclosure, repair and operation and maintenance that protect human health and the environment from friable ACM.
- AAA. Small-Scale, Short Duration (SSSD) - Tasks such as but not limited to:
  - 1. Removal of asbestos containing insulation on pipes.
  - 2. Removal of small quantities of asbestos-containing insulation on beams or above ceilings.
  - 3. Replacement of an asbestos-containing gasket on a valve.
  - 4. Installation or removal of a small section of drywall.
  - 5. Installation of electrical conduits through or proximate to asbestos-containing materials.
  - 6. Removal of small quantities of ACM only if required in the performance of another maintenance activity not intended as asbestos abatement.
  - 7. Removal of asbestos containing thermal system insulation not to exceed amounts greater than those which can be contained in a single glove-bag.
  - 8. Minor repairs to damaged thermal system insulation, which do not require removal.
  - 9. Repairs to a piece of asbestos-containing wallboard.
  - 10. Repairs involving encapsulation, enclosure, or removal, to small amounts of friable ACM only if required in the performance of emergency or routine maintenance activity and not intended solely as asbestos abatement. Such work may not exceed amounts greater than those may, which can be contained in a single prefabricated mini-enclosure. Such an enclosure shall conform spatially and geometrically to the localized work area, in order to perform its intended containment function.
- BBB. Spot Repair – Any asbestos abatement performed within a facility involving not more than three (3) linear feet or three (3) square feet of asbestos-containing material.
- CCC. Unfinished Space - Space used for storage, utilities or work area where appearance is not a factor. Examples of an unfinished space include crawlspace; pipe tunnel and similar spaces.
- DDD. Visible Emissions - Any emissions, which are visually detectable without the aid of instruments, coming from RACM or asbestos-containing waste material or from any asbestos milling, manufacturing, or fabricating operation. This does not include condensed, uncombined water vapor.

- EEE. Visible Residue - Any debris or dust on surfaces in areas within the Work Area where asbestos abatement has taken place and which is visible to the unaided eye. All visible residue is assumed to contain asbestos.
- FFF. Waste Generator - Any owner or operator of a source whose act or process produces asbestos-containing waste material.
- GGG. Waste Shipment Record - The shipping document, required to be originated and signed by the waste generator, used to track and substantiate the disposition of asbestos-containing waste material.
- HHH. Wet Cleaning - The process of eliminating asbestos contamination from building surfaces and objects by using cloths, mops, or other cleaning tools, which have been dampened with water, and afterwards thoroughly decontaminated or disposed of, as asbestos-contaminated waste.
- III. Work Area - Specific area or location where the actual work is being performed or such other area of a facility, which the Commissioner determines, may be hazardous to public health because of such asbestos abatement.
- JJJ. Worker Decontamination Enclosure System - The portion of a Decontamination Enclosure System designed for controlled passage of workers and authorized visitors, typically consisting of a Clean Room, a Shower Room and an Equipment Room.

#### 1.4 REFERENCES

- A. The current issue of each document shall govern. Where conflict among requirements or with these specifications exists, the more stringent requirements shall apply.
1. Occupational Safety and Health Administration (OSHA)  
29 CFR 1910.1001 - Asbestos, Tremolite, Anthophyllite, and Actinolite.  
29 CFR 1926.21 - Safety Training and Education.  
29 CFR 1926.32 - Definitions.  
29 CFR 1926.51 - Sanitation.  
29 CFR 1926.55 - Gases, vapors, fumes, dusts, and mists.  
29 CFR 1926.59 - Hazard Communication.  
29 CFR 1926.62 - Lead Exposure in Construction.  
29 CFR 1926.200 - Accident Prevention Signs and Tags.  
29 CFR 1926.417 - Lockout and Tagging of Circuits.  
29 CFR 1926.1101 - Asbestos.
  2. Environmental Protection Agency (EPA)  
40 CFR 61, Subpart M - National Emission Standards for Hazardous Air Pollutants; Asbestos NESHAP Revision; Final Rule.  
40 CFR 763, Subpart E - Asbestos School Hazard Emergency Response Act (ASHERA).  
40 CFR 763, Subpart G - Worker Protection Rule.  
40 CFR 763, Appendix C to Subpart E - Asbestos Model Accreditation Plan (MAP).
  3. State of Connecticut, Department of Public Health (DPH)  
Section 19a-332a-1 through 19a-332a-16 - Standards for Asbestos Abatement.  
Section 19a-332e-1 through 19a-332a-8 - Civil Penalties for Violation of Asbestos Abatement Laws.  
Section 20-440-1 through 20-440-9 - Licensure and Training Requirements for Persons Engaged in Asbestos Abatement and Asbestos Consultation Services.  
Section 20-441 - Refresher Training.
  4. American National Standards Institute (ANSI)  
ANSI Z9.2 - Fundamentals Governing the Design and Operation of Local Exhaust Systems.

- ANSI Z88.2 - Respiratory Protection.
- 5. American Society of Testing and Materials (ASTM)
  - ASTM E 84 - Surface Burning Characteristics of Building Materials.
  - ASTM E 96 - Water Vapor Transmission of Materials.
  - ASTM E 119 - Fire Tests of Building and Construction Materials.
  - ASTM E 736 - Cohesion/Adhesion of Sprayed Fire-Resistive Materials Applied to Structural Members.
  - ASTM E 1368 - Visual Inspection of Asbestos Abatement Projects.
  - ASTM E 1494 - Encapsulants for Spray- or Trowel- Applied Friable Asbestos-Containing Building Materials.
- 6. Underwriters Laboratories, Inc. (UL)
  - UL 586 - High-Efficiency, Particulate, Air Filter Units.

## 1.5 DOCUMENTATION

- A. Submit two copies of the following documentation to the Owner to ensure compliance with the applicable regulations. An up to date copy shall be retained at the job site at all times.
- B. Manufacturer's Catalog Data:
  - 1. Local Exhaust Equipment
  - 2. Vacuum Equipment
  - 3. Respirators
  - 4. Pressure Differential Automatic Recording Instrument
  - 5. Surfactant
  - 6. Chemical Encapsulant
  - 7. Polyethylene Sheeting
  - 8. Vinyl Tarp
  - 9. Airless Sprayers
  - 10. Portable Shower Units
  - 11. GHS for All Materials Delivered to the Site
- C. Statements:
  - 1. State and Federal Notification
  - 2. Worker Medical Certification
  - 3. Worker Training Certification
  - 4. Worker Respirator Fit Testing
  - 5. OSHA Laboratory Certification
  - 6. Contractor's Project Monitor Certification
  - 7. Landfill Approval
  - 8. Safety Plan
  - 9. Respirator Protection Plan
    - a. Initial Exposure Assessment
    - b. Copies of all required notifications, approvals and permits for the removal, disposal and transport asbestos-containing or contaminated materials.
    - c. Documentation from a physician certifying that all employees who may be exposed to airborne asbestos in excess of the background level have been provided with an opportunity to be medically monitored to determine whether they are physically capable of working while wearing the respirator required without suffering adverse health effects. In addition, document that personnel have received medical monitoring required in 29 CFR 1926.1101. They shall also be informed of the specific types of respirators the employee shall be required to wear and the work he/she will be required to perform as well as special work place conditions such as high temperature, high humidity and chemical contaminants which to which he/she may be exposed

- d. Documentation certifying that all employees have received training in the proper handling of materials that contain asbestos; understand the health implications and risks involved, including the illnesses possible from exposure to airborne asbestos fibers; understands the use and limits of respiratory equipment to be used; and understands the results of monitoring of airborne quantities of asbestos as related to health and respiratory equipment as indicated in 29 CFR 1926.1101 on an initial and annual basis.
- e. Documentation of respiratory fit testing for all employees who must enter the Work Area. This fit testing shall be in accordance with qualitative procedures as detailed in 29 CFR 1926.1101.
- f. Qualifications of the person proposed for air sampling to assure workers are using appropriate respiratory protection in accordance with OSHA Standard 1926.1101. The Project Monitor shall be licensed by Connecticut DPH. Include the name and address of the testing laboratory proposed to perform air monitoring on behalf of the Contractor, along with their NIOSH PAT Program I.D. number.
- g. Establish and supervise in accordance with 29 CFR 1926.21, a program for the education and training of workers in the recognition, avoidance and prevention of unsafe conditions and the regulations applicable to the work environment to control or eliminate any hazards or other exposure to illness or injury. Include any site-specific information to address health and safety procedures unique to this project.
- h. Establish a written Respiratory Protection Plan in accordance with 29 CFR 1910.134. This plan shall establish procedures governing the selection and use of respirators and shall include such information as training in the proper use of respirators; medical examination of workers to determine whether or not they may be assigned an activity where respiratory protection is required; training in proper use and limitations of respirators; respirator fit testing; regular inspection and evaluation of the continued effectiveness of the program; and other elements included in the standard.
- i. Establish a written Hazard Communication Plan in accordance with 29 CFR 1910.1200(e) and 29 CFR 1926.59(e). This plan shall establish procedures describing how the facility will comply with the standard; describe how MSDS's will be obtained and made available for each hazardous chemical used in the work area; describe how information and training will be provided to employees; include a list of all toxic chemicals known to be present in the work place, cross-referenced to the MSDS file; explain how workers will be informed of hazards connected with non-routine tasks such as dealing with accidental spills and leaks; explain how workers will be informed of hazards associated with chemicals contained in unlabeled pipes; and, contain information on how other contract employees will be informed about hazards their employees may encounter while working in the facility.
- j. Demonstrate that employee's exposure will be below the PEL's. For Class I asbestos work until the employer conducts exposure monitoring and documents that employees on that job will not be exposed in excess of the PEL's, or otherwise makes a negative exposure assessment, the employer shall presume that employees are exposed in excess of the TWA and excursion limit.

D. Records:

- 1. Sign-in/out Logs
- 2. Personal Air Sampling Results
- 3. Waste Shipment Records
- 4. Pressure Differential Recording Data
- 5. NPE Inspection and Smoke Test Logs
- 6. Rental Equipment Statements

- E. When rental equipment is to be used in removal areas or to transport waste materials, submit a copy of written notification provided to the rental company informing them of the nature of use of the rented equipment

## 1.6 PERSONNEL PROTECTION

A. Respiratory protection shall meet the requirements of OSHA as required in 29 CFR 1910.134 and 29 CFR 1926.1101. Provide appropriate respiratory protection for each worker and ensure usage during potential asbestos exposure. Select respirators from among those jointly approved as being acceptable for protection by the Mine Safety and Health Administration (MSHA) and the National Institute for Occupational Safety and Health (NIOSH) under the provisions of 30 CFR Part 11. Provide an adequate supply of filter elements for respirators in use.

B. Minimum respiratory protection shall be as follows:

Airborne concentration of asbestos,  
or conditions of use.

Required Respirator

Not in excess of 10 f/cc  
(100 x PEL)

Any powered air purifying  
respirator equipped with  
high efficiency filters  
or any supplied-air respirator  
operated in continuous flow  
mode.

Not in excess of 100 f/cc  
(1000 x PEL)

Full face piece supplied  
air respirator operated  
in pressure demand mode.

Greater than 100 f/cc  
(>1000 x PEL) or  
unknown concentration

Full face piece supplied  
air respirator operated in  
pressure demand mode,  
equipped with an auxiliary  
positive pressure self-  
contained breathing  
apparatus.

- a. Respirators assigned for higher airborne fiber concentrations may be used at lower concentrations, or when required respirator use is independent of concentration.
- b. A high-efficiency filter means a filter that is at least 99.97 percent efficient against mono-dispersed particles of 0.3 microns in diameter or larger.

C. Provide and require all workers to wear protective clothing in Work Areas where asbestos fiber concentrations exceed permissible limits established by OSHA. Protective clothing shall include impervious coveralls with elastic wrists and ankles, head covering, gloves and foot coverings. Ensure all contaminated protective clothing remains in the Equipment Room for reuse or disposal of as contaminated waste.

D. Ensure that all workers and authorized persons enter and leave the Asbestos Control Area through the Worker Decontamination Enclosure System.

## **1.7 EQUIPMENT REMOVAL PROCEDURE**

- A. Clean surfaces of contaminated containers and equipment thoroughly by vacuuming with HEPA filtered equipment and wet wiping before moving such items into the Equipment Decontamination Enclosure System for final cleaning and removal to uncontaminated areas. Ensure that personnel do not leave the Asbestos Control Area through the Equipment Decontamination Enclosure System.

## **1.8 SEQUENCE OF WORK**

- A. Proceed in accordance with the sequence of work as mutually agreed upon with the Owner. Work shall be divided into convenient Work Areas, each of which is to be completed as a separate unit. Work areas conducted on scaffold shall be performed in the sequence as shown on the Contract Drawings unless alternative sequencing is approved in writing by the Owner. The following sequence of work shall be used for the asbestos abatement work:
  1. A visual inspection of the Work Area to determine pre-existing damage to facility components.
  2. Release of Work Area to the Contractor.
  3. All temporary utilities required for the project shall be on site and operational prior to the initiation of asbestos work.
  4. Removal of all movable objects from the Work Area undergoing abatement by the Contractor.
  5. Protection of all fixed objects remaining in the work area by the Contractor.
  6. Abatement of all asbestos-containing materials by the Contractor.
  7. Air sampling by the Owner's Project Monitor for re-occupancy.
  8. Rework activities as specified in other sections of this specification.
  9. Cleanup by the Contractor. Work Areas must be returned to their original condition or better.

## **1.9 DELIVERY, STORAGE AND HANDLING**

- A. Deliver all materials in the original packages, containers, or bundles bearing the name of the manufacturer and the brand name and product technical description. Do not use damaged or deteriorating materials. Material that becomes contaminated with asbestos shall be decontaminated or disposed of as asbestos waste.

## **PART 2 - PRODUCTS**

### **2.1 MATERIALS**

- A. Fire retardant reinforced polyethylene sheet in roll size to minimize the frequency of joints shall be delivered to job site with factory label indicating four (4) or six (6) mil thickness.
- B. Flame resistant, waterproof, tear resistant vinyl tarp in roll size to minimize the frequency of joints shall be delivered to job site with factory label indicating twenty (20) mil thickness.
- C. Polyethylene disposable bags shall be six (6) mil with pre-printed label. Disposable bags shall be opaque.
- D. Tape shall be capable of sealing joints in adjacent polyethylene sheets and for attachment of polyethylene sheet to finish or unfinished surfaces. Tape must be capable of adhering under both dry and wet conditions.

- E. Surfactant (wetting agent) shall consist of fifty (50) percent polyoxyethylene ether and fifty (50) percent polyoxyethylene ester, or equivalent, and shall be mixed with water to provide a concentration one (1) ounce surfactant to five (5) gallons of water or as directed by the manufacturer.
- F. Encapsulant shall be lockdown type which has been approved by the Design Consultant. Usage shall be in accordance with manufacturer's printed technical data. Encapsulant must be compatible with new materials being installed. Encapsulant may be clear or white.
- G. Containers must be impermeable and shall be both air and watertight. Containers shall be labeled in accordance with OSHA Standard 29 CFR 1926.1101 and EPA 40 CFR Part 61.152 as appropriate.
- H. Labels and signs shall conform to OSHA Standard 29 CFR 1926.1101.

## **2.2 TOOLS AND EQUIPMENT**

- A. Tools and equipment shall be suitable for asbestos removal.
- B. Protective clothing, respirators, filter cartridges, air filters and sample filter cassettes shall be provided in sufficient quantities for the project.
- C. Electrical equipment, protective devices, emergency generators and power cables shall conform to all applicable codes.
- D. Shower stalls and plumbing shall include sufficient hose length and drain system or an acceptable alternate. Showers shall be equipped with hot and cold or warm running water. One shower stall shall be provided for each eight workers.
- E. Exhaust air filtration units shall be equipped with HEPA filters capable of providing sufficient air exhaust to create a minimum pressure differential of 0.02 inches of water column, and to allow a sufficient flow of air through the area. An automatic warning system shall be incorporated into the equipment to indicate pressure drop or unit failure. No air movement system or air filtering equipment shall discharge unfiltered air outside the Asbestos Control Area.
- F. Pressure differential automatic recording instrument shall be provided to ensure exhaust air filtration devices provide the minimum pressure differential required between the Work Area and occupied areas of the facility.
- G. Spray equipment shall be capable of mixing wetting agent with water and capable of generating sufficient pressure and volume. Hose length shall be sufficient to reach all of the Asbestos Control Area.
- H. Vacuum units, of suitable size and capabilities for the project, shall have HEPA filters capable of trapping and retaining at least 99.97 percent of all monodispersed particles of 0.3 microns in diameter or larger.
- I. Ladders and/or scaffolds shall be of adequate length, strength and sufficient quantity to support the work schedule and shall meet all required codes. Scaffolds shall be constructed to minimize impact to normal operations in occupied areas.
- J. Material handling equipment (Mast Climber) shall meet all required codes and be installed at a location which does not impact building access and is approved by the Owner. Delivery and removal of all equipment, materials, supplies and all regulated waste and construction debris is

to be accomplished by use of the Mast Climber. The use of building elevators for construction activities other than personnel access is prohibited.

- K. Other materials such as lumber, nails and hardware necessary to construct and dismantle the decontamination enclosures and scaffolds that isolate the Work Area shall be of good quality and provided as appropriate for the work.

### **PART 3 - EXECUTION**

#### **3.1 GENERAL REQUIREMENTS FOR ASBESTOS ABATEMENT**

- A. A Competent Person and Asbestos Abatement Site Supervisor shall be on the job at all times to ensure the establishment and maintenance of the NPE and proper work practices are followed through completion of the project.
- B. Containerize asbestos-containing waste material removed daily. Do not allow ACM to remain on the floor overnight, allowing it to dry out. Fill disposal containers (six (6) mil polyethylene bags or fiber drums) as removal proceeds, seal filled containers, and apply caution labels and clean containers before removal to wash area. Bags shall be securely sealed to prevent accidental opening and leakage by taping in gooseneck fashion. Bags may be placed in drums for staging and transportation to the disposal site. Bags shall be decontaminated by wet cleaning and HEPA vacuuming before being placed in clean drums and sealed with locking ring tops. Wet clean each container thoroughly before moving to a holding area or to the waste storage container.
- C. If at any time during asbestos removal, should the Project Monitor suspect contamination of areas outside the Work Area, the Contractor shall stop all abatement work and take steps to decontaminate these areas and eliminate causes of such contamination. Unprotected individuals shall be prohibited from entering contaminated areas until air sampling and visual inspections determine decontamination.

#### **3.2 PREPARATION OF WORK AREA ENCLOSURE SYSTEM**

- A. Prior to beginning work, the Owner, Construction Administrator, Consultant and Contractor shall perform a visual survey of each Work Area and list all pre-existing damage to building components. The Contractor shall submit to the Construction Administrator a list, of pre-existing damaged areas.
- B. Post warning signs meeting the specifications of OSHA 29 CFR 1910.1001 and 29 CFR 1926.1101 at each Regulated Area. In addition, signs shall be posted at all approaches to Regulated Areas so that an employee may read the sign and take the necessary protective steps before entering the area. Additional signs may require posting following construction of work place enclosure barriers.
- C. Utilize engineering controls and personnel protective equipment while installing enclosures and supports when asbestos-containing materials may be disturbed. Provide a minimum of eight (8) air changes per hour in the Work Area.
- D. When feasible, shut down and lock out electrical power, including all receptacles and light fixtures. Protect receptacles and light fixtures remaining in the Work Area with six (6) mil polyethylene and seal with tape. Remove or protect fire alarm system components remaining in the area with six (6) mil polyethylene and seal with tape. Coordinate all power and fire alarm isolation with the Owner.



- E. Provide temporary power and lighting and ensure safe installation, including ground fault protection, of temporary power sources and equipment in compliance with applicable electrical codes and OSHA requirements. The Contractor is responsible for proper connection and installation of electrical wiring. Coordinate electrical connection to existing building service with building operations.
- F. Shut down and isolate heating, cooling, and ventilating air systems to prevent contamination and fiber dispersal to other areas of the building. Heating, cooling, and ventilating air distribution systems which remain active shall be wrapped with two layers of 6-mil reinforced polyethylene sheeting. Coordinate shut down and isolation of heating, cooling, and ventilating air systems with building operations. Seal all vents.
- G. Pre-clean movable objects within the proposed Work Areas using HEPA filtered vacuum equipment and/or wet cleaning methods as appropriate and remove such objects from Work Areas to a temporary location.
- H. Pre-clean fixed objects within the proposed Work Areas, using HEPA filtered vacuum equipment and/or wet cleaning methods as appropriate, and enclose with six (6) mil polyethylene sheeting sealed with tape. Objects which must remain in the Work Area and which require special ventilation or enclosure include electrical equipment, pumps, compressors, control panels, meter equipment.
- I. Clean the proposed Work Areas using HEPA filtered vacuum equipment and/or wet cleaning methods as appropriate. Do not use methods that raise dust, such as dry sweeping or vacuuming with equipment not equipped with HEPA filters.
- J. Seal off all windows, doorways, skylights, ducts, grilles, diffusers, and any other openings between the Work Area and the uncontaminated areas outside of the Work Area with critical barriers. Doorways and corridors, which will not be used for passage during work, must be sealed with critical barriers.
- K. Conspicuously label and maintain emergency and fire exits from the Asbestos Control Area satisfactory to the Owner.

### **3.3 WORKER DECONTAMINATION ENCLOSURE SYSTEM**

- A. Establish contiguous to the Work Area, a Worker Decontamination Enclosure System consisting of Equipment Room, Shower Room and Clean Room in series. Access to the Work Area shall only be through this enclosure.
- B. Access between rooms in the Worker Decontamination Enclosure System shall be through double flap-curtained openings (air locks). Other effective designs are permissible. The Clean Room, Shower Room and Equipment Room located within the Worker Decontamination Enclosure, shall be completely sealed ensuring sole source of airflow into the Asbestos Control Area originates from the outside-uncontaminated areas.
- C. The Clean Room shall be adequately sized to accommodate workers and shall be equipped with a suitable number of hooks, lockers, shelves, etc., for workers to store personal articles and clothing. Changing areas of the Clean Room shall be suitably screened from areas occupied by the public.
- D. The Shower Room shall be of sufficient capacity to accommodate the number of workers. Supply warm water to showers. Provide one shower for each eight workers. No worker or other person shall leave an Asbestos Control Area without showering.

### **3.4 EQUIPMENT DECONTAMINATION ENCLOSURE SYSTEM**

- A. Establish contiguous to the Work Area, an Equipment Decontamination Enclosure System consisting of two (2) totally enclosed chambers divided by a double flap curtained opening when feasible. Other effective designs are permissible. This enclosure must be constructed to ensure that no personnel enter or exit through this unit.

### **3.5 SEPARATION OF WORK AREAS FROM OCCUPIED AREAS**

- A. Occupied areas and/or building space not within the Asbestos Control Area shall be separated from asbestos abatement Work Areas by means of airtight barriers.
- B. Do not impair required building exits from any occupied building area. Where normal exits have been blocked by the asbestos work, provide temporary exit signs directing building occupants to the nearest available exit location.
- C. Create a pressure differential in the range of 0.02 to 0.04 inches of water column between the Work Area and occupied areas by the use of acceptable pressure differential equipment. Provide a sufficient quantity of units to exhaust the volume of air within the Asbestos Control Area a minimum of eight times per hour. Continuously monitor the pressure differential between the Work Area and occupied areas utilizing recording type equipment to ensure exhaust air filtration equipment maintains a minimum pressure differential of 0.02 inches of water column.

### **3.6 REMOVAL OF FRIABLE ASBESTOS MATERIAL**

- A. Where the work area is supported by scaffold first cover the floor with a layer of 20-mil vinyl tarp seams overlapping twelve (12) inches and extending a minimum of six (6) inches up walls. Seams shall be sealed with tape on both the underside and top of the tarp. Once the tarp has been properly installed proceed with installation of floor and wall polyethylene sheeting.
- B. Cover floor and wall surfaces with polyethylene sheeting sealed with tape. Polyethylene shall be applied alternately to floors and walls. Cover floors first, with a layer of six- (6) mil polyethylene sheeting, so that polyethylene extends at least twelve (12) inches up on walls. Seams in floor polyethylene shall overlap twelve (12) inches shall be sealed with tape on both the underside and top. Cover walls with a layer of four- (4) mil polyethylene sheeting to twelve (12) inches beyond the wall floor intersection, thus overlapping the floor material by a minimum of twenty-four (24) inches. Repeat the process for the second layer of polyethylene. There shall be no seams in the plastic sheet at wall-to-floor joints.
- C. Removal of existing suspended ceilings, fluorescent light fixtures, and other ceiling construction or ceiling mounted items to access asbestos-containing materials when disturbance of asbestos could be expected shall be accomplished after engineering controls have been established and shall also be performed in accordance with Section 02 41 19. Fluorescent fixture components require special handling and disposal in accordance with Section 02 84 16.
- D. Where non-ACM thermal systems insulation exists within the Work Area clean and protect from contamination with a layer of 6-mil polyethylene sheeting prior to gross asbestos removal.
- E. Where active HVAC duct systems remain within the Work Areas clean and protect from contamination with two (2) layers of 6-mil polyethylene sheeting prior to gross asbestos removal.
- F. Spray friable materials with amended water, using airless spray equipment capable of providing a "mist" application to reduce the release of fibers during the removal operation. In order to maintain indoor asbestos concentrations at a minimum, remove the wet asbestos in

manageable sections. Materials shall not be allowed to dry out. Material drop shall not exceed 8 feet. For heights up to 15 feet, provide inclined chutes or scaffolding to intercept drop. For heights, exceeding 15 feet provide enclosed dust-proof chutes.

- G. After completion of stripping work, all surfaces from which asbestos has been removed shall be wet brushed, using a nylon brush, wet wiped and sponged or cleaned by an equivalent method to remove all visible material (wire brushes are not permitted). During this work, the surfaces being cleaned shall be kept wet.

### **3.7 CLEAN-UP PROCEDURE**

- A. Remove and containerize all visible accumulations of asbestos-containing and/or asbestos-contaminated debris which may have splattered or collected on the polyethylene wall covering. Carefully remove the cleaned outer layer of polyethylene from the walls, fold inward as material is being removed, and place in disposal containers. Any debris, which may have leaked behind the outer layer, shall be removed by HEPA vacuuming and/or wet cleaning.
- B. Remove contamination from the exteriors of the negative air machines, scaffolding, ladders, extension cords, hoses and other equipment inside the Work Area. Cleaning may be accomplished by brushing, HEPA vacuuming and/or wet cleaning.
- C. The Owner's Project Monitor shall conduct a thorough visual inspection utilizing a high-intensity flashlight, with the containment barriers in place, to detect visible accumulations of dust or bulk asbestos-containing materials remaining in the Work Area. Should dust, debris or residue be detected, the Contractor shall repeat the cleaning, at the Contractor's expense, until the area is in compliance. The visual inspection will detect incomplete work, damage caused by the abatement activity, and inadequate clean-up of the work site.
- D. Once the area has been re-cleaned, any equipment, tools or materials not required for completion of the work, shall be removed from the Work Area. Negative air filtration devices shall remain in place and operating for the remainder of the clean-up operation.
- E. Wet wipe the walls beginning at the point farthest away from the negative air filtration units using cotton rags or lint free paper towels. Rags and towels shall be disposed of after each use. Workers should avoid the use of dirty rags to insure proper cleaning of surfaces. Mop the entire floor with a clean mop head and amended water. Water shall be changed frequently. Waste water shall be filtered using best available technology and dumped down an approved drain.
- F. A visual inspection of the Work Area by the licensed Project Monitor shall be conducted. Evidence of asbestos contamination identified during the inspection will necessitate further cleaning as heretofore specified. The area shall be re-cleaned at the Contractors expense until the Standard of Cleanliness is achieved.
- G. Upon successful completion of the visual inspection, the Contractor shall encapsulate all abated surfaces.
- H. Once the lock-down encapsulant has sufficiently dried, air sampling for re-occupancy clearance shall be undertaken using aggressive sampling techniques.
- I. During breakdown of containment carefully remove the polyethylene barriers. Fold inward as the material is being removed, and place in leak-tight containers. Any debris which may have fallen behind the polyethylene sheeting shall be removed by HEPA vacuuming and/or wet cleaning. Remove all remaining polyethylene, including critical barriers, and Decontamination

Enclosure Systems leaving negative air filtration devices in operation. HEPA vacuum and/or wet wipe any visible residue, which is uncovered during this process.

### **3.8 REOCCUPANCY CLEARANCE AIR SAMPLING**

- A. Re-occupancy clearance air sampling will be conducted by the Project Monitor in accordance with the re-occupancy clearance criteria as set forth in the Regulations of Connecticut State Agencies, Section 19a-332a-12. Areas, which do not comply, shall continue to be cleaned by and at the Contractors expense, until the specified Standard of Cleaning is achieved as evidenced by results of air testing. When the Work Area passes the re-occupancy clearance, controls established by this specification may be removed.
- B. Post-abatement clearance air monitoring requirements are as follows:
1. Air sampling will not begin until at least 12 hours after wet cleaning has been completed and no visible water or condensation remain.
  2. Sampling equipment will be placed at random around the Work Area. If the Work Area contains the number of rooms equivalent to the number of required samples based on floor area, a sampler shall be placed in each room. When the number of rooms is greater than the number of samples, a representative number of rooms will be selected.
  3. The representative samplers placed outside the Work Area but within the building will be located to avoid any air that might escape through the isolation barriers and will be approximately 50 feet from the entrance to the Work Area, and 25 feet from the isolation barriers.
  4. The following aggressive air sampling procedures will be used within the Work Area during all air clearance monitoring:
    - a. Before starting the sampling pumps, direct the exhaust from forced air equipment (such as a 1 horsepower leaf blower) against all walls, ceilings, floors, ledges and other surfaces in the Work Area. This should take at least 5 minutes per 1000 SF of floor area.
    - b. Place a 20-inch fan in the center of the room. (Use one fan per 10,000 cubic feet of room space.) Place the fan on slow speed and point it toward the ceiling.
    - c. Start the sampling pumps and sample for the required time.
    - d. Turn off the pump and then the fan(s) when sampling is complete.
  5. Air volumes taken for clearance sampling shall be sufficient to accurately determine (to a 95 percent probability) fiber concentrations to 0.010 f/cc of air.
  6. Each homogeneous Work Area, which does not meet the clearance criteria, shall be thoroughly re-cleaned using HEPA vacuuming and/or wet cleaning, with the negative pressure ventilation system in operation. New samples shall be collected in the Work Area as described above. The process shall be repeated until the Work Area passes the test, with the cost of repeat sampling being borne entirely by the Contractor.
  7. For an asbestos abatement project with more than one homogeneous Work Area, the release criterion shall be applied independently to each Work Area.
- C. Continuous air sampling during construction will be conducted by the Project Monitor. Re-occupancy clearance testing will be in accordance with State of Connecticut DPH requirements. For window removal, a final visual inspection is to be performed to determine successful completion of all work associated with removal of windows.

### **3.9 CONTRACTOR RESPONSIBILITY**

- A. Conduct air sampling, as necessary, to assure that workers are using appropriate respiratory protection in accordance with OSHA Standard 1926.1101. Perform monitoring to determine accurately the airborne concentrations of asbestos to which employees may be exposed. Determinations of employee exposure shall be made from breathing zone air samples that are representative of the 8-hour TWA and 30-minute short-term exposures of each employee.

Documentation of air sampling results must be recorded at the work site within twenty-four (24) hours of receipt of results, and shall be available for review until the job is complete.

**3.10 DISPOSAL OF ASBESTOS**

- A. Disposal of asbestos-containing and/or asbestos contaminated material shall occur at an authorized site and must be in compliance with the requirements of, and authorized by the Office of Solid Waste Management, Department of Energy and Environmental Protection, State of Connecticut, or other designated agency having jurisdiction over solid waste disposal.
- B. Disposal approval shall be obtained prior to commencement of asbestos removal.
- C. Warning signs must be attached to vehicles used to transport asbestos-containing waste. Warning signs shall be posted during loading and unloading of disposal containers. The signs must be posted so that they are plainly visible.
- D. Waste removal dumpsters and cargo areas of transport vehicles shall be lined with a layer of six (6) mil polyethylene sheeting to prevent contamination from leaking or spilled containers. Floor sheeting shall be installed first, and shall be extended up sidewalls 12-inches. Wall sheeting shall overlap floor sheeting 24-inches and tape into place.
- E. A copy of the completed Waste Shipment Record shall be provided to the Owner.

**3.11 ACTION CRITERIA**

- A. If air samples collected outside of the Work Area during abatement activities indicate airborne fiber concentrations greater than original background levels or greater than 0.010 f/cc, as determined by Phase Contrast Microscopy, whichever is larger, an examination of the Work Area perimeter shall be conducted and the integrity of barriers shall be restored. Cleanup of surfaces outside the Work Area using HEPA vacuum equipment or wet cleaning techniques shall be done prior to resuming abatement activities.

**END OF SECTION 02 82 13**

## **PART 1 - GENERAL**

### **1.1 DESCRIPTION OF WORK**

- A. Coordinate removal and handling of regulated materials with work included in other sections.
- B. The removal of various building components containing materials which may be considered hazardous or will require special handling and disposal. This removal work includes the following materials:
  - 1. Fluorescent and HID lamps
  - 2. PCB and Non-PCB ballasts

### **1.2 DEFINITIONS**

- A. Spill – Means intentional or unintentional spills, leaks and other uncontrolled discharges when the release results in any quantity of PCB's or other hazardous or universal waste, or petroleum product running off or about to run off the external surface of the equipment or other source as well as the contamination resulting from those releases.
- B. Universal Waste – Any of the following hazardous wastes that are managed under the universal waste requirements of 40 CFR 273:
  - 1. Lamps.
- C. Electronic Waste (E-Waste) - Any of the following hazardous wastes that are managed under the universal waste requirements of Section 22a—629 thru Section 22a-640 CGS and Section 22a-638 and Section 22a-630(d)1 RCSA:
  - 1. Electronic Ballasts.

### **1.3 REFERENCES**

- A. The current issue of each document shall govern. Where conflict among requirements or with these specifications exists, the more stringent requirements shall apply.
  - 1. Environmental Protection Agency (EPA)
    - 40 CFR 260 - Hazardous Waste Management Systems: General.
    - 40 CFR 261 - Identification and Listing of Hazardous Waste.
    - 40 CFR 262 - Generators of Hazardous Waste.
    - 40 CFR 263 - Transporters of Hazardous Waste
    - 40 CFR 264 - Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities
    - 40 CFR 265 - Interim Status Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities
    - 40 CFR 268 - Land Disposal Restrictions
  - 2. State of Connecticut, Department of Energy and Environmental Protection (DEEP)
    - Section 22a-449(c)-100 through 22a-449(c) 110 and 22a-449(c)-119 - Connecticut Hazardous Waste Regulations
    - Section 22a-629 through Section 22a-640 CGS Connecticut E-Waste Law
    - Section 22a-638 and Section 22a-630(d)1 RCSA – Standards for the Recycling of Covered Electronic devices and Annual Registration Renewal Fee for Manufacturers

#### **1.4 SUBMITTALS**

- A. Submit for Consultants' review and information the below listed data not less than 5 working days prior to start of activity.
  - 1. Safety plan for worker protection and protection of adjacent construction.
  - 2. Spill cleanup contingency plan.
  - 3. Name, location and evidence of current licensing or legal approval of disposal facility to receive construction/demolition waste, special and hazardous wastes. Submit manifests and record documentation of shipments. The following minimum information shall be included:
    - a. Facility name and address.
    - b. Name, title and telephone number of contact person.
    - c. Copies of waste licenses or permits to confirm that they are permitted to accept the waste materials.
    - d. Lists matching each facility with the materials from the project to be sent to each, and specify whether the facility is a recycling, treatment, storage, or disposal facility.
    - e. Confirmation from facility that they will accept the types and quantities of wastes being generated from the Work.
  - 4. Submit a plan for the removal and disposal of hazardous materials to ensure compliance with applicable regulations. This removal work includes the following materials:
    - a. Fluorescent and HID lamps.
    - b. PCB and non-PCB ballasts.

#### **1.5 REGULATORY REQUIREMENTS**

- A. Conform to applicable Federal, State and Local codes and ordinances for handling, recycling and disposal of hazardous or universal waste materials.
- B. Lock out /Tag out electrical power, including all devices and light fixtures in accordance with the Owner's lock out/tag out program. Isolate and remove system components as indicated or required. Coordinate all power and alarm system isolation with the Owner.

#### **1.6 SEQUENCING**

- A. Sequence removal and handling of regulated materials with work included in other sections. Removal activities which could disturb asbestos-containing materials shall be performed after establishment of engineering controls as specified in Section 02 82 13.

#### **1.7 SALVAGEABLE MATERIALS**

- A. The following items that are not scheduled for reuse have been identified for salvage. Carefully remove these items to avoid damage, and deliver them to the on-site location indicated or directed.
  - 1. None.

### **PART 2 - PRODUCTS (Not Used)**

### **PART 3 - EXECUTION**

#### **3.1 PREPARATION**

- A. Provide, erect, and maintain temporary barriers, including work area containment at locations necessary to protect adjacent construction and eliminate unauthorized entry into the work area. Provide appropriate signage to identify building evacuation routes during construction.

#### **3.2 REMOVAL REQUIREMENTS**

- A. Perform removals to the extent specified, indicated or necessary to access concealed asbestos-containing materials and to remove other hazardous materials specified herein. Conduct demolition and removal activities to minimize interference with adjacent construction scheduled to be retained.
- B. Cease operations immediately if adjacent construction appears to be in danger. Notify the Owner. Do not resume operations until directed by the Owner.
- C. Should any spill occur during the removal of hazardous materials, notify the Owner immediately. Cleanup of spills shall be in accordance with the approved spill cleanup contingency plan.

#### **3.3 MATERIALS CONTAINING LEAD**

- A. Exposure levels for lead in the construction industry are regulated by 29 CFR 1926.62. Construction activities disturbing surfaces containing lead-based paint (LBP) which are likely to be employed, such as sanding, grinding, welding, cutting and burning, have been known to expose workers to levels of lead in excess of the Permissible Exposure Limit (PEL). Conduct demolition and removal work specified in conformance with these regulations. In addition, construction debris/waste may be classified as hazardous waste. Disposal of hazardous waste material shall be in accordance with 40 CFR Parts 260 through 271 and Connecticut Hazardous Waste Management Regulations Section 22a-209-1; 22a-209-8(c); 22a-449(c)-11; and 22a-449(c)-100 through 110. Barnard Hall was constructed prior to 1978 is likely to have painted surfaces containing lead-based paint.
- B. The Contractor shall be responsible for verification of all field conditions affecting performance of the work.
- C. Activities, including but not limited to, sanding, grinding, welding, cutting and burning, shall utilize lead safe work practices and shall be accomplished in compliance with Attachment 02 84 16 A-1.
- D. Metal components containing lead paint which are not scheduled for re-use are to be recycled to the maximum extent feasible.

#### **3.4 RECYCLING OF FLUORESCENT AND HID LAMPS**

- A. All fluorescent and HID lamps shall be recycled to the maximum extent possible. Lamps shall be removed from fixtures intact.
- B. The Contractor shall manage lamps in the following manner:
  - 1. Do not break or crush lamps.
  - 2. Store lamps in packaging or containers that are designed to minimize breakage during storage and shipping.
  - 3. Broken lamps shall be placed in 55-gallon drums and disposed of as hazardous waste.
  - 4. Use bill of lading that contains the following information when shipping to the recycler:



- a. Generator Name and Telephone Number
- b. Recycling Facility Name and Address
- c. EPA Generator ID No.
- d. EPA Manifest Doc. No.
- e. CT Manifest Doc. No.

### **3.5 FLUORESCENT AND HID BALLASTS**

- A. All light fixture ballasts and capacitors shall be removed using appropriate techniques and personal protective equipment.
- B. Prior to removal, the Contractor shall uncover and inspect the label on the ballast. All ballasts designated as "NO PCBS" shall be marked with green paint; all other ballasts and capacitors shall be assumed to contain PCB's and shall be marked with red paint. Similar color coding shall be used for the receiving drums. If ballasts containing diethylhexyl phthalate (DEHP) are identified, dispose of them as hazardous material. Electronic ballasts shall be removed and properly recycled as e-waste.
- C. Removal shall be performed using approved methods and tools that will minimize damage to the light fixture, and ensure a quick, neat removal with the ballast or capacitor intact and undamaged.
- D. All ballasts designated as "No PCB'S" and that does not contain DEHP, shall be segregated and removed for disposal as construction waste.

### **3.6 DISPOSAL**

- A. Contractor is encouraged to salvage material, and equipment for reuse and to recycle solid waste including items such as specified in Section 22a-241b-2 of the RCSA.
- B. Construction and demolition waste remaining after salvage and recycling is to be disposed of at a landfill approved by the Connecticut Department of Energy and Environmental Protection for the disposal of construction and demolition waste.

**END OF SECTION 02 84 16**

## **SECTION 1.0 - INTRODUCTION**

### **1.1 PURPOSE**

This Lead Health & Safety Plan (LHASP) has been established in accordance with the OSHA Lead Standard for the Construction Industry (29 CFR 1926.62) to protect workers at the Bridgeport Courthouse Building from occupational exposure to lead. The presence of lead is presumed in the coatings on various building components throughout the facility, including but not limited to structural steel (beams, columns, connector plates and cross members), metal stair components, doors and frames, piping, HVAC ductwork and electrical conduits. OSHA requires the initial implementation of all aspects of 29 CFR 1926.62 for any work which may potentially disturb coatings containing any detectable amount of lead. All painted surfaces at this job site will be presumed to contain lead.

### **1.2 APPLICABILITY**

This LHASP covers all potential lead work on this project and applies to all workers performing or involved in any presumed lead exposure tasks. The following work activities will be considered presumed lead exposure tasks until and unless the results of initial air monitoring (see Section 2.0) indicate otherwise:

- A.) Manual scraping of painted surfaces
- B.) Power tool cleaning of painted surfaces
- C.) Welding of surfaces from which paint was previously removed
- D.) Burning/cutting of surfaces from which paint was previously removed
- E.) Air blasting of chipping/cracking/flaking/peeling paint on roof decking
- F.) Demolition of painted surfaces (e.g. masonry or concrete)
- G.) Clean-up of paint chips and other potentially lead-containing dust or debris
- H.) Miscellaneous job tasks which may potentially disturb painted surfaces (e.g. drilling, bolt removal, rivet-busting, saw-cutting, etc.)

The above list should not be considered comprehensive. Any other work activity that may potentially disturb painted surfaces must be brought to the attention of the owner and construction manager. As directed, the activity will be evaluated on an individual basis to determine the applicability of this LHASP and the need for air monitoring, worker protection, etc.

### **1.3 SCOPE**

This LHASP is intended to provide a general outline and overview of potential lead work on this project. For detailed and specific information regarding any of the practices or procedures addressed by this LHASP, refer to the OSHA Lead Standard for the Construction Industry (29 CFR 1926.62).

## **SECTION 2.0 – AIR MONITORING**

### **2.1 EXPOSURE MONITORING**

The OSHA Action Level (AL) for lead is 30 micrograms per cubic meter of air ( $\mu\text{g}/\text{m}^3$ ). The OSHA Permissible Exposure Limit (PEL) for lead is  $50 \mu\text{g}/\text{m}^3$ . Both the AL and the PEL are based on an 8-hour Time-Weighted Average (TWA). Workers exposed to airborne concentrations of lead exceeding the AL require training and medical surveillance. Workers exposed to airborne concentrations of lead exceeding the PEL also require respiratory

protection and protective work clothing and must comply with all other requirements of the OSHA Lead Standard for the Construction Industry (29 CFR 1926.62).

Initial air sampling will be conducted in order to evaluate worker exposures to airborne lead dust on this project. A minimum of one (1) air sample will be collected for each of the presumed lead exposure tasks listed in Section 1.2 and for any other work activities subsequently classified as presumed lead exposure tasks. Air samples will be collected over 8-hour periods of time in order to allow for a direct comparison to the AL and PEL. The results of this initial exposure monitoring will then be used to determine compliance requirements for each of the presumed lead exposure tasks as follows:

<u>8-Hour TWA Lead Exposure</u>	<u>Job Task Compliance Requirements</u>	<u>Additional Air Sampling</u>
Less than 30 ug/m <sup>3</sup>	None (job task considered non-lead work)	None
Between 30 ug/m <sup>3</sup> and 50 ug/m <sup>3</sup>	Training and medical surveillance	1 per worker every 6 months
Greater than 50 ug/m <sup>3</sup>	All aspects of 29 CFR 1926.62	1 per worker every 3 months

Air samples will be collected in the worker's breathing zone using portable air sampling pumps operating at flow rates of approximately 2 to 3 liters per minute (Lpm). Air sampling pumps will be calibrated both before and after each sampling period. Air samples will be analyzed by an AIHA-accredited laboratory using the NIOSH 7082 Method or equivalent.

**2.2 AREA SAMPLING**

A regulated area or exclusion zone will be established by posting caution tape and warning signs around each work area where presumed lead exposure tasks are being performed. Only authorized personnel who have received the requisite training and medical surveillance and who are wearing appropriate protective work clothing and personal protective equipment will be permitted inside the regulated area/exclusion zone. The boundary of the regulated area/exclusion zone will be established at least 15 feet away from the immediate work area in all accessible directions.

Area air samples will be collected at the perimeter of each regulated area/exclusion zone as well as other strategic locations outside the work area in order to confirm that airborne concentrations of lead dust do not exceed the AL of 30 ug/m<sup>3</sup>. If the results of area air sampling exceed the AL, then the boundary of the regulated area/exclusion zone will be extended further away from the work area and additional area air samples will be collected. Area air samples will be collected and analyzed using the same procedures used for personal exposure monitoring samples.

**SECTION 3.0 – WORKER PROTECTION**

**3.1 TRAINING**

All workers initially performing presumed lead exposure tasks will be required to receive annual OSHA Lead Awareness Training. Once the results of initial air monitoring are received, any other workers who will be performing job tasks where exposures to airborne lead dust have been determined to exceed the AL of 30 ug/m<sup>3</sup> will also be required to receive this training prior to performing those job tasks.

**3.2 MEDICAL SURVEILLANCE**

All workers initially performing presumed lead exposure tasks will also be required to receive medical surveillance. Medical surveillance includes clearance to wear respiratory protection and blood-testing for blood lead level (BLL) and zinc protoporphyrin (ZPP). Once the results of initial air monitoring are received, any other workers who will be performing job tasks where exposures to airborne lead dust have been determined to exceed the AL of 30 ug/m<sup>3</sup> will also be required to receive this medical surveillance prior to performing those job tasks.

The OSHA Action Level (AL) for lead in blood is 40 micrograms per deciliter (ug/dL). The OSHA Medical Removal Limit (MRL) for lead in blood is 50 ug/dL. Any worker whose initial BLL exceeds the AL of 40 ug/dL will not be permitted to perform any presumed lead exposure tasks. Once the results of initial air monitoring are received, any

workers performing job tasks where exposures to airborne lead dust have been determined to exceed the AL of 30 ug/m<sup>3</sup> will be required to receive additional blood-testing every two months for the first six months and then every six months thereafter, provided their BLL remains below the AL of 40 ug/dL. Any worker whose BLL exceeds the AL of 40 ug/dL must continue to receive blood-testing every two months until two consecutive results indicate a BLL less than the AL of 40 ug/dL. Any worker whose BLL exceeds the MRL of 50 ug/dL must be medically removed from lead work until two consecutive blood-testing results show a BLL below the AL of 40 ug/dL.

**3.3 ENGINEERING AND WORK PRACTICE CONTROLS**

All feasible engineering and work practice controls will be implemented on this project in an effort to reduce worker exposures to airborne lead dust below the PEL. Job-specific engineering and work practice controls applicable to this project include the following:

<u>Job Task</u>	<u>Engineering / Work Practice Controls</u>
Burning / Cutting / Welding	Localized Paint Removal
Power Tool Cleaning	HEPA Vacuum Shrouds
Manual Scraping / Demolition	Wet Misting
Air Blasting	Dust Collection / Ventilation
Clean-Up	HEPA Vacuums / Wet Methods

**3.4 RESPIRATORY PROTECTION**

Respiratory protection will be initially required for all workers performing presumed lead exposure tasks. Workers performing burning, cutting, welding or air blasting will be initially required to wear Powered Air-Purifying Respirators (PAPR). For all other presumed lead exposure tasks, workers will be required to wear either half-face or full-face negative-pressure Air-Purifying Respirators (APR). All workers must receive medical clearance and fit-testing prior to wearing any respiratory protection. Once the results of initial air monitoring are received, appropriate respiratory protection for each job task will be determined based on exposures as follows:

<u>8-Hour TWA Lead Exposure</u>	<u>Respiratory Protection Required</u>
Less than 50 ug/m <sup>3</sup>	None
Between 50 ug/m <sup>3</sup> and 500 ug/m <sup>3</sup>	Half-face/Full-face negative-pressure APR
Between 500 ug/m <sup>3</sup> and 50,000 ug/m <sup>3</sup>	PAPR

Regardless of the results of initial air monitoring, any worker who requests respiratory protection will be provided with a respirator. All respirators will be equipped with High-Efficiency Particulate Air (HEPA) filters, also known as P-100 filters. Workers are responsible for periodic inspection and routine cleaning of their respirators. For additional details and specifics regarding respiratory protection, refer to the OSHA Respiratory Protection Standard (29 CFR 1910.134).

**3.5 PROTECTIVE WORK CLOTHING AND PERSONAL PROTECTIVE EQUIPMENT**

All workers performing presumed lead exposure tasks will initially be required to wear an outer layer of protective work clothing (PWC). PWC will consist of either a disposable Tyvek suit or cloth coveralls. Once the results of initial air monitoring are received, PWC will only be required for job tasks where exposures to airborne lead dust have been determined to exceed the PEL of 50 ug/m<sup>3</sup>. Additional personal protective equipment (PPE) such as hard hats, safety glasses, ear plugs, work boots, fall protection, etc. will be issued to workers in accordance with the contractors' general health and safety plans and programs.

### **3.6 HYGIENE PRACTICES AND PROCEDURES**

No food, beverages, tobacco products or cosmetics will be allowed inside any of the regulated areas/ exclusion zones. Workers performing any presumed lead exposure tasks must remove their outer layer of PWC before leaving the regulated area/exclusion zone in order to prevent potential lead contamination from leaving the work area. At a minimum, a hand-wash station consisting of clean water, soap and clean towels will be provided for workers to wash their hands and faces prior to eating, drinking, smoking or leaving the job site. If the results of initial air monitoring show any exposures to airborne lead dust exceeding the PEL of 50 ug/m<sup>3</sup>, then a decontamination unit consisting of a clean side and a dirty side separated by a shower area will also be provided to allow workers to shower at the end of the work shift before leaving the job site.

## **SECTION 4.0 – ENVIRONMENTAL PROTECTION**

### **4.1 CONTAINMENT AND DUST COLLECTION**

Due to the high probability of airborne dust generation during air blasting of the roof decking, a containment and dust collection system will be utilized in order to minimize the dispersal of airborne lead dust, paint chips and other debris. The containment will consist of 6-mil polyethylene sheeting and 10-mil polyethylene tarps hung from the top of the bar joists (approximately 1 foot below the roof decking) down to the floor. Dust collection and ventilation will be provided through the use of multiple 2,000-cfm negative-air machines equipped with HEPA filtration.

### **4.2 CLEAN-UP AND DECONTAMINATION**

Clean-up of paint chips and other potential lead-containing dust and debris will be accomplished using HEPA vacuums and wet methods. Dry sweeping or shoveling of any such material is prohibited. Equipment used in the performance of any presumed lead exposure tasks will be decontaminated by wet wiping prior to removal from the regulated area/exclusion zone.

### **4.3 WASTE MANAGEMENT**

All potential lead-containing waste will be collected, stored and tested to determine whether or not the waste is hazardous. Such waste includes paint chips, dust and debris, as well as used respirator filters and disposable PWC. Representative composite waste samples will be collected and analyzed for TCLP concentrations of lead. If the results of the TCLP analysis exceed the EPA regulatory limit of 5.0 parts per million (ppm) for leachable lead content, then the waste will be considered hazardous. All hazardous waste must be handled, transported, stored and disposed in accordance with all applicable state and federal regulations, including the DOT and the EPA.

Likewise, all potential lead-containing waste water will be collected, filtered, stored and tested to determine whether or not the waste water is contaminated. Such waste water includes waste water generated during wet removal or clean-up operations, as well as waste water from hand-wash stations and decontamination units (i.e. showers). Samples of the waste water will be collected and analyzed for total concentrations of lead. If the results of this sample analysis exceed the Connecticut DEEP regulatory limit of 0.5 ppm for lead in waste water, then the waste water will either be re-filtered and re-tested or else considered contaminated. Regardless of whether the waste water is contaminated or not, the local sewer/water authority should be contacted prior to disposal of the waste water into any Public Owned Treatment Works (POTW).

**END OF LEAD HEALTH & SAFETY PLAN**

PART 1 - GENERAL

RELATED DOCUMENTS

Drawings and general provisions of Contract, including General and Supplementary General Conditions and Division-1 Specification sections, apply to work of this section.

1.01 DESCRIPTION

- A. The principal items of Work are related to: removal of cooling tower brick enclosure wall and salvaging brick units for return to owner; remove parapet stone caps and reinstall after completion of new roof and flashing; patching of defective cap stone; and performing such incidental or other operations as may be necessitated by the Work or called for by the Drawings and this Section.
  
- B. Unit price quantities to be included in the Base Bid Amount as follows (See 01 20 00 Contract Considerations 1.4 and 1.5):
  - 1. Masonry Removal of limestone caps to be Salvaged: 80 linear feet
  - 2. Masonry Removal of limestone caps to be Reinstalled: 50 linear feet
  - 3. Masonry limestone caps to be cleaned: 1,361 linear feet
  - 4. Masonry wall cleaning/repair: 500 square feet

1.02 RELATED WORK

- A. Related Work Specified Elsewhere:
  - 1. Section 02 41 19: Selective Demolition
  - 2. Section 07 46 00: Fiber Cement Siding
  - 3. Section 07 53 23: EPDM Roofing
  - 4. Section 07 62 00: Sheet Metal Flashing and Trim
  - 5. Section 07 90 00: Joint Protection

1.03 QUALITY ASSURANCE

- A. Contractor must have experience with similar restoration type work on stone, brick, and pre-cast material.
  - 1. Contractor is to be licensed by the manufacturer of the material specified.
  - 2. All stone patches, repairs and replacement pieces are to match in contour, color, finish, and surface treatment to that of existing units.
  - 3. Contractor is to use skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.
  
- B. All personnel engaged in all other type masonry work of this Section must be qualified masonry journeyman who may be assisted by masonry apprentices qualifying for their journeyman status.
  - 1. Common labor may be used for tasks not requiring journeyman skills.
  - 2. The foreman of the crew must have had five years experience in similar work.

- C. Restoration company must have a minimum of five years documented experience in masonry restoration.
- D. Reference Standards:
  - 1. American Society for Testing of Materials (ASTM).
    - a. C 144-76 - Specifications for Aggregate for Masonry Mortar
    - b. C 150-78a - Specifications for Portland Cement
    - c. C 207-79 - Specifications for Hydrated Lime for Masonry Purposes
    - d. C 216-95a - Standard Specification for Facing Brick (Solid Masonry Units Made from Clay or Shale)
  - 2. Brick Institute of America (BIA): Technical Notes on Brick Construction No. 20 (Rev.)
  - 3. Preservation Brief No. 2 - Repointing Mortar Joints in Historic Brick Buildings
  - 4. ANSI A41.2 - Building Code Requirements for Reinforced Masonry.
  - 5. International Masonry Industry All-Weather Council (IMIAC)- Recommended Practices and Guideline Specifications for Cold Weather Masonry Construction.
  - 6. Preservation Brief No. 1 - The Cleaning and Waterproofing Coating of Masonry Buildings
- E. Proper provisions should be made for expansion joints at shelf angles, over columns, dissimilar material and alike to prevent the development of disruptive stress caused by deflection, wind pressure, temperature, settlement and like forces.

#### 1.04 SUBMITTALS

The following submittals are required:

- A. Manufacturer's data on:
  - 1. Cement
  - 2. Lime
  - 3. Cleaning Compounds
- B. Samples required:
  - 1. Two samples of cleaned limestone.
- C. Mortar mix formula.
  - 1. Separate testing lab results on mortar mix are required for each building
- D. Shop Drawings:
  - 1. Shop Drawings showing details of construction, profile and jointing of replacement pieces are required.
  - 2. All pieces are to be numbered.
  - 3. Two sets of scaled drawings are to be submitted for review showing anchor profile and setting method.

#### 1.05 FIELD SAMPLES

- A. Provide samples under provisions of the General Conditions.

1.06 DELIVERY, STORAGE AND HANDLING

- A. Store limestone caps on elevated platforms. Cover, when necessary, to protect them from the elements.
- B. Deliver and store all packaged materials in their original unopened containers with labels intact and legible.
  - 1. Store in weather protective enclosures and protect against contamination or damage from excessive temperature changes or moisture.
  - 2. Store cementitious materials on raised, level platforms which will allow air circulation from underneath.
- C. Metal products shall be stored as to maintain them free from rust or discoloration from the elements, acids, or alkalis.
- D. Prevent segregation and contamination of aggregates by proper arrangement, use of stockpiles, and protective coverings suitably secured in place.
- E. Polyethylene or other impervious films will not be permitted as protective coverings.
  - 1. Should the materials be received from the manufacturer protectively wrapped, (or "shrink wrapped") in an impervious film, this film, if unruptured or undamaged will be permitted. Should the film have or develop ruptures, tears or otherwise be or become damaged, it will be removed, and the material otherwise protected.
  - 2. Woven tarpaulins, or other "non-sweating" covering must be used.
- F. Scaffolding required for the Work is part of this Section and the responsibility of the Contractor performing this Work.
  - 1. Contractor shall provide, at all times, covered access to the building for the public occupants and employees.
- G. Packing and crating of stone salvaged pieces shall be done by the Contractor to prevent damage to the units in transit or in storage.
  - 1. Units shall be protected from the weather.

1.07 PROTECTION

- A. Use all means necessary to protect the materials of this Section before, during and after installation and to protect the Work and materials of other trades, the building, and the public.
  - 1. Protect glass, aluminum, trim, roofing, and other surfaces from damage during these operations. Immediately remove excess mortar, stains, or other elements that would mar the surface appearance.
  - 2. In the event of damage, immediately make all repairs and replacements necessary to the approval of the Architect and at no additional cost to the Owner.
- B. Where opening removals have been made in walls, weather protection must be provided until the replacement brick has been installed.



- C. Do not lay masonry without special precautions when the temperature may drop below 40 degrees F within 24 hours. Follow cold weather procedures as set forth in BIA Technical Notes on Brick Construction No. 1 (Rev).
- D. Do not sandblast masonry.
- E. Provide protection when working over roof areas consisting of minimum 1" rigid insulation and ½" plywood.

1.08 PRE-INSTALLATION CONFERENCE

- A. Convene a pre-installation conference prior to commencing Work on this Section.
- B. Time, date, and location will be set by the Owner.
- C. Attendance of parties directly affecting Work of this Section will be required.
- D. Review installation conditions and procedures, and coordination with related work.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Mortar: Mortar shall conform with the requirements of ASTM C270 for Type "N" except that total lime content shall not be less than one and one-half times (150%) that of cement used.
  - 1. In developing the formula for the mortar mix, the aggregate quantity shall be adjusted to result in the attainment of the average compressive strength requirements for Type "N" mortar.
  - 2. Mortar will match the existing in both physical and visual character.
- B. Cement shall be Portland cement conforming to the requirements of ASTM C 150 for Type 1.
  - 1. The same brand and color of cement shall be used throughout the Work.
- C. Lime shall be hydrated lime conforming to requirements of ASTM C 207 for Type "N".
- D. Aggregate shall conform to the requirements of ASTM C 144. All aggregate used in the Work shall be from the same source in order to produce mortar of uniform color throughout the Work.
- E. Water shall be clean and free of deleterious amounts of acids, alkalis, or organic compounds and fit to drink at the time of use.

2.03 LIMESTONE

- A. Salvaged Limestone caps from demolished screen wall are to be cleaned of all existing mortar, thoroughly washed and properly stored on wooden pallets above grade, for reuse upon completion of roofing.

2.04 CLEANING

- A. For cleaning of masonry surfaces:
  - 1. Hydrochemical Techniques, Inc.  
P. O. Box 2078  
Hartford, CT 06145

- a. Brick, unpolished granite, unpolished marble, sandstone, exposed aggregate architectural concrete:
  - b. HT-626
2. Prosoco, Inc.  
3741 Greenway Circle  
Lawrence, KS 66046
- a. Brick, unpolished granite, unpolished marble, sandstone, exposed aggregate architectural concrete:
  - b. Sure Klean Restoration Cleaner
3. Charger Corporation  
299 Welton Street  
Hamden, CT 06517
- a. Brick, unpolished granite, unpolished marble, sandstone, exposed aggregate architectural concrete: 960 Masonry Cleaner

#### 2.04 MISCELLANEOUS

- A. Cap flashing to be custom fabricated from 26-gauge, type 304 stainless steel to profile shown on Drawings.
- B. Stone anchors and attachments: Provide anchors and attachments of type and size required to support the stonework fabricated from Stainless Steel, AISI Type 304 or 316.
  - 1. All other anchors, hangers, bolts, clips, straps, rods, and pins for securing masonry shall be stainless steel type 302/304.
  - 2. Acceptable manufacturer:
    - a. AA Wire Products Co., Chicago IL
    - b. Hickmann Building Products, Inc.
    - c. Hohmann & Barnard, Inc., Hauppauge, NY
    - d. Dur-O-Wal, Inc., Arlington Heights, IL
- C. Expansion joints shall be adequate to allow for thermal and structural differential movement. Filler material for these shall be non-staining.
- D. Joint sealants: multi-component polysulfide or polyurethane as per federal Specification TT-S-00227e (Com-NBS) Ammendment-3, October 9, 1970, Type II, Non-Sag, Class B and A.S.A. Specification A116.1 (1967).

#### 2.04 EPOXY RESINS

- A. Provide a low viscosity high strength two (2) part epoxy adhesive formulated specifically for injection grouting of both dry and damp cracks.

- B. Provide epoxy adhesive meeting or exceeding the following properties:
1. Shelf Life
    - b. Minimum of two (2) years in original unopened container.
  2. Viscosity
    - c. 175 cps.
  3. Compressive Strength as determined per ASTM D-695.
  4. Tensile Properties (ASTM D-638)
    - a. At fourteen (14) days provide: Tensile strength = 6,200 psi, Elongation at break = 4%
  5. Shear Strength
    - a. At fourteen (14) days provide shear strength of 4,300 psi (ASTM D-732). At seven (7) days 40 F  $\pm$  3 F wet cure conditions, provide 4,000 psi (AASHTO T-237).
  6. Bond Strength
    - a. At fourteen (14) days (moist cure) provide minimum bond strength of at least 2,200 psi (ASTM C-882).

### PART 3 - EXECUTION

#### 3.01 SEQUENCING

- A. Maintaining the weather tightness of the openings created by removals performed under this Section is the responsibility of the Contractor.
- B. Cleaning of entire masonry face prior to commencement of any repair, repointing, or masonry/brick replacement work is required.
- C. Repointing or any other type of masonry repair (above the roof line), shall be completed before any repairs are made to the existing roofing system.
  1. Protection of the existing roof surface with ½" plywood set over a layer of rigid insulation board is required.

#### 3.02 GENERAL

##### A. MORTAR

1. All mortar shall be machine mixed. Empty mortar drums and clean out moist or loose mortar before charging. Mix sand, cement, and lime dry, then add water to bring the mass to the required plasticity and consistency for use.

- a. Mix for not less than 3 minutes after water has been added.
- 2. Accurately measure by volume, all materials before their introduction into the mixer. Mix only as much as can be used within 2-1/2 hours after the water has been added.
  - a. Discard all mortar older than 2-1/2 hours.
  - b. Retempering is permitted within the 2-1/2 hour period.

B. MASONRY CLEANING

- 1. Existing Masonry Work:
  - a. Prior to commencement of any work, the Contractor is to clean the entire masonry surface in the scope of work using the specified cleaning materials following manufacturer's recommendations.
    - i. Check for and remove all loose brick and mortar fragments on all walls called to be clad in fiber cement panels.
    - ii. Brush joints clean, do not leave any loose mortar.
  - b. Provide test samples from stone caps salvaged from demolished walls.
    - i. Use tests to determine strength of any chemicals to be used in the cleaning process.
  - c. Cleaning of limestone, concrete and other high-calcium based surfaces:
    - i. Provide test panels for all cleaning, starting at the lowest possible effective pressure.
    - ii. Pre-wet the surface to be cleaned with clean water under high pressure (200-300 p.s.i.).
    - iii. Apply the cleaning solution liberally using a densely filled masonry soft bristle nylon washing brush, roller or low pressure (30 - 50 psi) spray as required by the manufacturer.
    - iv. Allow the cleaning solution to remain on the surface for 3 to 5 minutes or as per manufacturer's specifications. Re-apply a second coat if required to obtain satisfactory results as determined by Owner.
      - (1) Scrub the surface lightly with soft bristle nylon brush during application.
      - (2) Do not apply limestone cleaners with high pressure spray.
    - v. Rinse the treated area thoroughly using pressured water.

- (1) Spray application using a 40-degree fan at 400 psi (minimum).
  - (2) Rinse the bottom of the treated area to the top covering each section of the surface with a concentration of water.
- vi. After rising, allow masonry to dry for a period of one week before inspecting for cleanliness and discoloration.
- e. Provide protection of existing wood, windows, doors, frames, glass and landscaping as per manufacturer's specifications.

E. STONE AND MASONRY REPAIR

1. At locations requiring masonry and stone repair or patching, prepare the surface by cleaning and cutting back to solid material.
2. General areas of masonry requiring repair or patching will be determined in the field.
3. Final determination regarding masonry repair or patching will be as directed or determined by the Construction Administrator.
  - a. If the actual quantity of masonry repair or patching differs from the quantities given in the Proposal Form, the greater or lesser quantities will be multiplied by the applicable unit price in the Proposal Form and used to adjust the Contract Sum.
  - b. The Owner reserves the right to increase or decrease any or all of the quantities as may be necessary to properly complete the project.
4. Drill holes or chisel grooves to provide a key for the bonding material.
  - a. Clean surfaces of dust and stone chips using a stiff non-metallic masonry brush.
  - b. Protect all adjacent areas with rubber cement. Remove this material after repair has been completed.
  - c. Any mortar joints affected by this repair work should be raked out and repointed after the work of this paragraph.
  - d. At large patches, a mechanical key is required using stainless steel mesh. The mesh is secured to the stone with metal ties that are to be imbedded into the original substrate.
5. Prepare a plastic mortar of a material to match the existing in color and composition.
  - a. Epoxy will not be permitted.
  - b. Submit samples and lab tests to verify composition.

6. Apply the mortar mix in thin layers between 3/8 and 3/4 inches thick to reduce shrinkage and cracking during drying.
  - a. Each layer should set 2 - 4 hours before the following coat is applied.
  - b. The first coat should be the thinnest, followed by a series of scratch coats.
    - i. Wet each coat before applying the next.
    - ii. The final coat should match the color, texture, and surface finish of the original material.

### 3.03 WEATHER PROTECTION

- A. All openings and work shall be covered and protected from water entry at the end of each day's work regardless of which trades may also be involved.
- B. All uncompleted walls including stone and backing shall be protected by waterproof covering at night and at any time when liable to injury from storms or freezing.

### 3.04 SOFT JOINTS

- A. Install soft joints (control joints) between dissimilar materials such as brick to glass block or around penetrations in brick and where noted on the Drawings.
  1. See Specifications Section 07 90 00 for additional information.

### 3.05 EPOXY INJECTION

- A. Application is to be in accordance with epoxy manufacturer's recommendations and specifications.
- B. Use automated injection equipment approved by the epoxy manufacturer, in accordance with the manufacturer's recommendations and requirements. Where crack narrows to less than 5 mils (.005) extend surface seal as required to prevent leakage (min. 2' past end ports).
- C. Set injection ports into cracks at appropriate intervals based on the specific injection equipment used, and as recommended by the manufacturer.
- D. Seal ports and cracks with crack sealer.
- E. When port(s) crack sealer has cured, inject epoxy with steady pressure.
  1. Consult manufacturer's technical literature for appropriate pressures dependent upon equipment and product to be used.
  2. Inject all cracks 5 mils (.005) and larger.
  3. Inject epoxy so as to continue to fill the cracks to where it narrows to 2 mils

(.002).

4. Have available to Engineer and operating personnel the manufacturer's written technical directives for application.
- F. Do not perform the work contained in this Section when the temperature of the surrounding air and/or base material is less than 45 F.
- G. Do not add thinners or solvents of any type.
- H. Do not inject cracks greater than 1/4" without consulting with and obtaining the approval of the Architect unless so indicated on the Drawings.
- I. After injected epoxy has cured for a minimum of twenty-four (24) hours, remove surface sealer and port by means of grinding or other suitable method.
- J. Upon completion of the work, properly clean the site of all debris resulting from the construction work.

### 3.06 CLEANING

- A. Demolished materials and resulting debris are to be removed from the site as soon as receptacles are filled.
- B. Sweep up and remove daily, all sand, cleaning debris, dirt, and rubbish.

END OF SECTION 04 01 21

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PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.02 SUMMARY

- A. Section Includes:
  - 1. Exterior non-load-bearing wall framing.
- B. Related Requirements:
  - 1. Division 09 21 16 "Gypsum Board Assemblies" for interior non-load-bearing metal framing, ceiling-suspension assemblies and gypsum board.

1.03 SUBMITTALS

- A. Product Data: For each type of cold-formed steel framing product and accessory.
- B. Shop Drawings and Calculations:
- C. Manufacturer's installation instructions including special procedures and conditions requiring special attention.
- D. Include layout, spacings, sizes, thicknesses, and types of cold-formed steel framing; fabrication; and fastening and anchorage details, including mechanical fasteners.
- E. Indicate reinforcing channels, opening framing, supplemental framing, strapping, bracing, bridging, splices, accessories, connection details, and attachment to adjoining work.
- F. Include calculations for span capabilities of cold-formed metal framing for deflection and movement criteria specified.

1.04 QUALITY ASSURANCE

- A. Testing Agency Qualifications: Qualified according to ASTM E 329 for testing indicated.
- B. Professional Structural Engineer Qualifications: A professional structural engineer who is legally qualified to practice in the State of Connecticut and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations that are similar to those indicated for this Project in material, design, and extent.



- C. Product Tests: Mill certificates or data from a qualified independent testing agency indicating steel sheet complies with requirements, including base-metal thickness, yield strength, tensile strength, total elongation, chemical requirements, and metallic-coating thickness.
- D. Welding Qualifications: Qualify procedures and personnel according to the following:
  - 1. AWS D1.1/D1.1M, "Structural Welding Code - Steel."
  - 2. AWS D1.3/D1.3M, "Structural Welding Code - Sheet Steel."

#### 1.05 DELIVERY, STORAGE, AND HANDLING

- A. Protect cold-formed steel framing from corrosion, moisture staining, deformation, and other damage during delivery, storage, and handling.

### PART 2 - PRODUCTS

#### 2.01 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide cold-formed metal framing by one of the following:
  - 1. ClarkDietrich Building Systems.
  - 2. Marino\WARE.
  - 3. SCAFCO Steel Stud Company.

#### 2.02 PERFORMANCE REQUIREMENTS

- A. Structural Performance: Provide cold-formed steel framing capable of withstanding design loads within limits and under conditions indicated.
  - 1. Design Loads: In accordance with the Connecticut State Building Code and minimum parameters for calculating design loads for components and cladding indicated on Structural Drawings.
  - 2. Deflection Limits: Design framing systems to withstand design loads without deflections greater than the following:
    - a. Exterior Non-Load-Bearing Framing for Rainscreen Assemblies: Horizontal deflection of 1/360 of the wall height.
    - b. Exterior Non-Load-Bearing Framing for Masonry Veneer Assemblies: Horizontal deflection of 1/600 of the wall height.
  - 3. Design framing systems to provide for movement of framing members located outside the insulated building envelope without damage or overstressing, sheathing failure, connection failure, undue strain on fasteners and anchors, or other detrimental effects when subject to a maximum ambient temperature change of 120 deg F.
  - 4. Design framing system to maintain clearances at openings, to allow for construction tolerances, and to accommodate live load deflection of primary building structure as follows:

a. Upward and downward movement of 3/4 inch.

B. Cold-Formed Steel Framing Design Standards:

1. Wall Studs: AISI S211.
2. Headers: AISI S212.
3. Lateral Design: AISI S213.

C. AISI Specifications and Standards: Unless more stringent requirements are indicated, comply with AISI S100, AISI S200 and AISI S202.

### 2.03 COLD-FORMED STEEL FRAMING, GENERAL

A. Recycled Content of Steel Products: Postconsumer recycled content plus one-half of Pre-consumer recycled content not less than 25 percent.

B. Steel Sheet: ASTM A 1003/A 1003M, Structural Grade, Type H, metallic coated, of grade and coating weight as follows:

1. Grade: As required by structural performance.
2. Coating: G90 for exterior framing, G60 for interior framing.

### 2.04 EXTERIOR NON-LOAD-BEARING WALL FRAMING

A. Framing Members, General: Comply with ASTM C 754 for conditions indicated.

1. Steel Sheet Components: Comply with ASTM C 645 requirements for metal unless otherwise indicated.
2. Protective Coating: ASTM A 653/A 653M, G90, hot-dip galvanized. Punched openings shall not be located within 12 inches from the ends of in-place wall framing.

B. Steel Studs: ASTM C 645, manufacturer's standard C-shaped steel studs, of web depths indicated, punched, with stiffened flanges, and as follows:

1. Minimum Base-Metal Thickness: 16 gauge minimum, not less than required by structural performance.
2. Flange Width: 2 inches minimum.

C. Steel Track: ASTM C 645, manufacturer's standard U-shaped steel track, of web depths indicated, unpunched, with unstiffened flanges, and as follows:

1. Minimum Base-Metal Thickness: 16 gauge minimum, not less than required by structural performance.
2. Flange Width: 1-1/4 inches minimum.

- D. Single Deflection Track: Manufacturer's single, deep-leg, U-shaped steel track; unpunched, with unstiffened flanges, of web depth to contain studs while allowing free vertical movement, with flanges designed to support horizontal and lateral loads and transfer them to the primary structure, and as follows:
1. Minimum Base-Metal Thickness: As required by structural performance.
  2. Flange Width: A minimum of 3 inches, 1 inch plus the design gap for 1-story structures and 1 inch plus twice the design gap for other applications.

#### 2.05 FRAMING ACCESSORIES

- A. Fabricate steel-framing accessories from steel sheet, ASTM A 1003/A 1003M, Structural Grade, Type H, metallic coated, of same grade and coating weight used for framing members.
- B. Provide accessories of manufacturer's standard thickness and configuration, unless otherwise indicated, as follows:
1. Supplementary framing.
  2. Bracing, bridging, and solid blocking.
  3. Web stiffeners.
  4. Anchor clips.
  5. End clips.
  6. Foundation clips.
  7. Gusset plates.
  8. Stud kickers and knee braces.
  9. Hole reinforcing plates.
  10. Backer plates.

#### 2.06 ANCHORS, CLIPS, AND FASTENERS

- A. Steel Shapes and Clips: ASTM A 36/A 36M, zinc coated by hot-dip process according to ASTM A 123/A 123M.
- B. Anchor Bolts: ASTM F 1554, Grade 36, threaded carbon-steel hex-headed bolts, and carbon-steel nuts; and flat, hardened-steel washers; zinc coated by hot-dip process according to ASTM A 153/A 153M, Class C.
- C. Expansion Anchors: Fabricated from corrosion-resistant materials, with allowable load or strength design capacities calculated according to ICC-ES AC193 and ACI 318 greater than or equal to the design load, as determined by testing per ASTM E 488 conducted by a qualified testing agency.
- D. Power-Actuated Anchors: Fastener system of type suitable for application indicated, fabricated from corrosion-resistant materials, with allowable load capacities calculated according to ICC-ES AC70, greater than or equal to the design load, as determined by testing per ASTM E 1190 conducted by a qualified testing agency.
- E. Mechanical Fasteners: ASTM C 1513, corrosion-resistant-coated, self-drilling, self-tapping, steel drill screws.

1. Head Type: Low-profile head beneath sheathing, manufacturer's standard elsewhere.

F. Welding Electrodes: Comply with AWS standards.

#### 2.07 MISCELLANEOUS MATERIALS

- A. Galvanizing Repair Paint: SSPC-Paint 20 or MIL-P-21035B.
- B. Sealer Gaskets: Closed-cell polyurethane foam, 1/4 inch thick, selected from manufacturer's standard widths to match width of bottom track or rim track members.

#### 2.08 FABRICATION

- A. Fabricate cold-formed steel framing and accessories plumb, square, and true to line, and with connections securely fastened, according to referenced AISI's specifications and standards, manufacturer's written instructions, and requirements in this Section.
  1. Fabricate framing assemblies using jigs or templates.
  2. Cut framing members by sawing or shearing; do not torch cut.
  3. Fasten cold-formed steel framing members by welding, screw fastening, clinch fastening, pneumatic pin fastening, or riveting as standard with fabricator. Wire tying of framing members is not permitted.
    - a. Comply with AWS D1.3/D1.3M requirements and procedures for welding, appearance and quality of welds, and methods used in correcting welding work.
    - b. Locate mechanical fasteners and install according to Shop Drawings, with screw penetrating joined members by no fewer than three exposed screw threads.
  4. Fasten other materials to cold-formed steel framing by welding, bolting, pneumatic pin fastening, or screw fastening, according to Shop Drawings.
- B. Reinforce, stiffen, and brace framing assemblies to withstand handling, delivery, and erection stresses. Lift fabricated assemblies to prevent damage or permanent distortion.
- C. Fabrication Tolerances: Fabricate assemblies level, plumb, and true to line to a maximum allowable tolerance variation of 1/8 inch in 10 feet and as follows:
  1. Spacing: Space individual framing members no more than plus or minus 1/8 inch from plan location. Cumulative error shall not exceed minimum fastening requirements of sheathing or other finishing materials.
  2. Squareness: Fabricate each cold-formed steel framing assembly to a maximum out-of-square tolerance of 1/8 inch.

### PART 3 - EXECUTION

#### 3.01 EXAMINATION

- A. Examine supporting substrates and abutting structural framing for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 PREPARATION

- A. Before sprayed fire-resistive materials are applied, attach continuous angles, supplementary framing, or tracks to structural members indicated to receive sprayed fire-resistive materials.
- B. After applying sprayed fire-resistive materials, remove only as much of these materials as needed to complete installation of cold-formed framing without reducing thickness of fire-resistive materials below that are required to obtain fire-resistance rating indicated. Protect remaining fire-resistive materials from damage.
- C. Install sealer gaskets at the underside of wall bottom track.

3.03 INSTALLATION, GENERAL

- A. Install cold-formed steel framing according to AISI S200 and to manufacturer's written instructions unless more stringent requirements are indicated.
- B. Install cold-formed steel framing and accessories plumb, square, and true to line, and with connections securely fastened.
  - 1. Cut framing members by sawing or shearing; do not torch cut.
  - 2. Fasten cold-formed steel framing members by welding, screw fastening, clinch fastening, or riveting. Wire tying of framing members is not permitted.
    - a. Comply with AWS D1.3/D1.3M requirements and procedures for welding, appearance and quality of welds, and methods used in correcting welding work.
    - b. Locate mechanical fasteners and install according to Shop Drawings, and complying with requirements for spacing, edge distances, and screw penetration.
- C. Install framing members in one-piece lengths unless splice connections are indicated for track or tension members.
- D. Install temporary bracing and supports to secure framing and support loads comparable in intensity to those for which structure was designed. Maintain braces and supports in place, undisturbed, until entire integrated supporting structure has been completed and permanent connections to framing are secured.
- E. Do not bridge building expansion joints with cold-formed steel framing. Independently frame both sides of joints.

- F. Install insulation, specified in Division 07 Section "Thermal Insulation," in built-up exterior framing members, such as headers, sills, boxed joists, and multiple studs at openings, that are inaccessible on completion of framing work.
- G. Fasten hole reinforcing plate over web penetrations that exceed size of manufacturer's approved or standard punched openings.
- H. Erection Tolerances: Install cold-formed steel framing level, plumb, and true to line to a maximum allowable tolerance variation as follows:
  - 1. Space individual framing members no more than plus or minus 1/8 inch from plan location. Cumulative error shall not exceed minimum fastening requirements of sheathing or other finishing materials.
  - 2. The following allowable installed tolerances are allowable from locations and dimensions indicated on the Contract Documents and shall not be added to allowable tolerances indicated for other work.
    - a. Allowable variation from true plumb, level and align: 1/8 inch in 20 feet.
    - b. Allowable variation from true wall thickness: 1/8 inch in 20 feet.
    - c. Allowable variation from true plane of adjacent surfaces: 1/8 inch in 10 feet.

### 3.05 FIELD QUALITY CONTROL

- A. Testing: Owner will engage a qualified independent testing and inspecting agency to perform field tests and inspections and prepare test reports for cold formed metal framing.
- B. Field and shop welds will be subject to testing and inspecting.
- C. Testing agency will report test results promptly and in writing to Contractor and Architect.
- D. Remove and replace work where test results indicate that it does not comply with specified requirements.
- E. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.

### 3.06 REPAIRS AND PROTECTION

- A. Galvanizing Repairs: Prepare and repair damaged galvanized coatings on fabricated and installed cold-formed steel framing with galvanized repair paint according to ASTM A 780 and manufacturer's written instructions.
- B. Provide final protection and maintain conditions, in a manner acceptable to manufacturer and Installer, that ensure that cold-formed steel framing is without damage or deterioration at time of Substantial Completion.

END OF SECTION 05 40 00



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PART 1 - GENERAL

RELATED DOCUMENTS

Drawings and general provisions of Contract, including General and Supplementary General Conditions and Division-1 Specification sections, apply to work of this section.

1.01 WORK INCLUDED

- A. Miscellaneous angles, plates, channels, and tubes for supports of various construction.
- B. Miscellaneous hangers, brackets and supports.
- C. Roof access ladders

1.02 RELATED WORK

- A. Section 07 53 23 EPDM Roofing.
- B. Section 09 91 00 Painting
- C. Divisions 22, 23, 26.

1.03 SUBMITTALS

- A. Submit shop drawings under provisions of General Conditions and Supplemental General Conditions.
- B. Prepare shop drawings of stairs, ladders, and railing after taking field measurement of the built condition. Indicate on the shop drawings any deviations from the design drawings. Any deviations will require Architect's review.
- C. Prepare plans and elevation in 1/2" scale.
- D. Prepare details in 3" scale minimum.
- E. Prepare elevations in 1-1/2" scale minimum.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Steel Sections and Plate: Commercial Quality Low Carbon Steel.
- B. Primer (see Painting and finishing for additional specified products and manufacturers):
  - 1. Ferrous metals: Ultra Spec HP Acrylic Metal Primer or equal.
  - 2. Galvanized steel: Ultra Spec HP Acrylic Metal Primer or equal.



- C. Electrolytic Zinc coated steel minimum coating, class C, ASTM A591-83 for Steel Sheet materials.

2.02 FABRICATION

- A. Welding shall conform to the requirements of the AWS. Grind exposed welds smooth.
- B. After Work is fabricated, peen or upset bolt threads to prevent loosening.
- C. Grind rough edges smooth.
- D. Hot dip galvanize all products for exterior use including exterior ladders, structural angles, miscellaneous hangers, and clips, after fabrication. Conform to the requirements of ASTM A386, 2.0 oz. per square foot.
- E. Prepare ferrous items for priming as follows:
  - 1. Remove obvious deposits of grease and oil first.
  - 2. Remove loose mill scale, loose black oxide, all rust, all welding flux and spatter and other contaminants by grinding and wire brushing. Do not roughen or burnish metal.
  - 3. Clean entire surface by flooding with clean mineral spirits and wiping dry with clean cloths.
- F. Prepare galvanized metals for priming as follows:
  - 1. Remove obvious deposits of grease and oil first.
  - 2. Flood with white vinegar, wet entire surface; let stand for five minutes, repeat three times.
  - 3. Remove vinegar residue with clean rags and clear water.
  - 4. Dry surfaces with clean rags.
  - 5. Clean entire surface by flooding with clean mineral spirits and wiping dry with clean cloths. Repeat once.
- G. Apply primer in thickness recommended by manufacturer. Do not over thin. Avoid runs, sags, and holidays. Brush primer into cracks and joints.
  - 1. Allow primer to dry 72 hours before handling or shipping.

PART 3 - EXECUTION

3.01 SCHEDULE

- A. Angle Framing and channels:

1. Miscellaneous brackets, supports, anchors, and frames for mechanical and electrical equipment are specified in Division 23 and 26.
  2. Provide miscellaneous brackets, supports, anchors, and lintels other than for mechanical and electrical equipment- see structural drawing for lintel schedule.
- B. Provide miscellaneous angles and plates for support of construction such as masonry openings and roof penetrations and other construction shown on drawings. Welds shall be continuous. Ground weld joints smooth. Exterior application shall be hot dip galvanized after fabrication.
- C. Provide miscellaneous anchors and supports as required to complete the project.
- D. Provide roof access ladders as shown in drawings. Conform with OSHA standards, solid steel rungs, 300 lbs weight capacity.

3.02 INSTALLATION

- A. Install items firmly attached to supporting construction as detailed on drawings.
- B. If primer becomes damaged, prepare and prime damaged spots as specified above under FABRICATION.

3.03 PROTECTION

- A. Protect all completed work from damage.

END OF SECTION 05 50 00



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PART 1 - GENERAL

RELATED DOCUMENTS

Drawings and general provisions of Contract, including General and Supplementary General Conditions and Division-1 Specification sections, apply to work of this section.

1.01 WORK INCLUDED

- A. Miscellaneous wood framing.
- B. Furring and blocking.
- C. Plywood backer boards.

1.02 RELATED WORK

- A. Section 01 73 29: Cutting and Patching
- B. Section 07 53 23: EPDM Roofing
- C. Section 07 46 00: Fiber Cement Siding
- D. Section 07 62 00: Sheet Metal Flashing and Trim

1.03 QUALITY ASSURANCE

- A. Lumber grading rules and wood species to be in conformance with PS 20.
- B. Grading rules of the following associations apply to materials furnished under this Section:
  - 1. Northeastern Lumber Manufacturer's Association, Inc. (NELMA).
  - 2. West Coast Lumber Inspection Bureau (WCLIB).
  - 3. Western Wood Products Association (WWPA).
  - 4. Northern Hardwood and Pine Manufacturer's Association (NHPMA).
- C. Grade Marks
  - 1. Identify lumber and plywood by official grade mark.
  - 2. Lumber
    - a. Grade stamp to contain symbol of grading agency certified by Board of Review, American Lumber Standards Committee, mill number or name, grade of lumber, species or species grouping or combination designation, rules under which graded where applicable, and condition of seasoning at time of manufacturer.
    - b. S-GRN: Unseasoned.
    - c. S-DRY: Maximum 19% moisture content.
    - d. MC-15: Maximum of 15% moisture content.
- D. Testing:

1. ASTM E84, maximum 25 flame spread rating.

E. Requirements of Regulatory Agencies:

1. Fire hazard classification: Underwriters Laboratories, Inc. for treated lumber.

F. Reference Standards:

1. American Society of Testing and Materials (ASTM)

a. ASTM E84-77a, Surface Burning Characteristics of Building and Materials.

2. AWWA C1- All Timber Products-

AWPA C2- Lumber, Timer, Bridge Ties and Mine Ties

AWPC C4- Poles

AWPA C15- Wood for Commercial-Residential Construction

Preservative Treatment by Pressure Processes; American Wood-Preservers' Association.

3. AWWA P5- Waterborne Preservative; American Wood-Preservers Association.

1.04 SUBMITTALS

A. Certification

1. Fire-retardant treatment: Submit certification by treating plant that the fire retardant treatment materials comply with governing ordinances and that treatment will not bleed through finished surfaces. For any lumber used in a structural application certification is required stating that the lumber will not degrade under normal conditions of heat and humidity.

2. Preservative treatment: Submit certification by treating plant of compliance with specified standards, process employed, and preservative retention values.

B. Product Data:

1. Submit product data, for each type of lumber used, in accordance with Contract Conditions identified with quality grade, type of finish and species of wood.

1.05 DELIVERY

A. Deliver, store and handle materials to prevent damage and deterioration.

B. Immediately upon delivery to job site, place materials in area protected from weather.

C. Store materials a minimum of 6 inches above ground on framework or blocking and cover with protective waterproof covering providing for adequate air circulation or ventilation.

D. Do not store seasoned materials in wet or damp portions of building.

- E. Protect fire retardant materials against high humidity and moisture during storage and erection.

## PART 2 - PRODUCTS

### 2.01 MATERIALS

- A. Lumber - for rough carpentry
  - 1. Dimensions
    - a. Specified lumber dimensions are nominal.
    - b. Actual dimensions to conform to PS-20.
  - 2. Surfacing: Surface four sides (S&S) unless specified otherwise.
  - 3. Framing lumber, any commercial soft wood species.
    - a. Light framing.
      - 1. Plates, blockings, bracings, furring, and nailers: utility grade.
  - 4. All framing and blocking lumber for exterior application shall be pressure treated.
    - a. Treatment: ACQ Preserve + Ultrawood water repellent in accordance with AWPA C1 standards and P5.
    - b. Use 0.25 lb/cu ft (4.0 kg/cu m) of ACQ Preserve retention to comply with AWPA C2, C9, C15 as appropriate and 0.31 +/- 0.05 lb/cu ft of Ultrawood water repellent.
    - c. Kiln dry after treatment to 19 percent maximum content for lumber and 18 percent for plywood.
  - 5. Plywood
    - a. Exterior grade: 3/4 inch thick, 3/8 inch thick and 1/2 inch thick.
- B. Miscellaneous Material:
  - 1. Construction Adhesive: Plasticon-400 by B.F. Goodrich.
  - 2. Fasteners and Anchorage: provide size and type as indicated and as recommend by applicable standards. All fasteners and anchorage for application to exterior systems to be galvanized or stainless steel.
- D. Fire Retardant Treatment Products (All materials used in the project including but not limited to all roof and interior blocking shall be fire-retardant treated.)
  - 1. Lumber: AWPA C20. (AWPA Use Category UCFA, UCFB).

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PART 3 - EXECUTION

3.01 INSPECTION

- A. Verify that surfaces to receive rough carpentry materials are prepared to required grades and dimension.

3.02 INSTALLATION

A. General:

1. Carefully select all members; select individual pieces so that knots and obvious defects will not interfere with placing bolts or proper nailing or making proper connections.
2. Cut out and discard all defects which will render a piece unable to serve its intended function; lumber may be rejected by the Architect, whether or not it has been installed, for excessive warp, twist, bow, crook, mildew, fungus, or mold, as well as for improper cutting/fitting.
3. Furnish all rough lumber and all wood blocking, grounds, furring, and nailing strips to be built in by other trades and as required of installation material specified under other sections of the specifications.
4. Set work accurately to required levels and lines, with members plumb and true and accurately cut and fitted. Work not covered in this specification shall be governed by "manual of House Framing" which is incorporated herein by reference.
5. Securely attach carpentry work to substrates by anchoring and fastening as shown and as required by recognized standards. Counter sink nail heads on exposed carpentry work and fill holes.
6. Bolting: Drill holes 1/16 inch larger in diameter than the bolts being used. Drill straight and true from one side only. Bolt threads shall not bear on wood. Use washer under head and nut where both bear on wood; use washers under all nuts.
7. Screws: For lag screws and wood screws, pre-bore holes same diameter as root of thread; enlarge holes to shank diameter for length of shank. Screw, do not drive, all lag screws and wood screws.
8. Wood grounds: Proper size for securing plywood, drywall, base, moldings, and all other miscellaneous trim.
  - a. Attach to substrates securely with anchor bolts and other attachment devices as shown and as required to support applied loading.
  - b. Counter sink bolts and nuts flush with surfaces, unless otherwise shown.
  - c. Provide grounds of dressed, preservative treated, key-beveled lumber not less than 1 1/2" wide and of the thickness required to bring face of ground to exact thickness of finish material involved. Remove temporary grounds when no longer required.

9. Blind nail trim where possible. Use finish nails where exposed. Set exposed nail heads for filling.
10. Furring: 1" x 3" heartwood, spaced 16" on center blocked or shimmed to a true plane.
11. Rough hardware: Furnish all necessary items including all nails, screws, anchor bolts, clips and other rough hardware required to complete all work shown or specified.

D. Blocking:

1. Wedge, align, and anchor blocking with countersunk bolts, washers and nuts or nails.
2. Locate blocking to facilitate installation of finishing materials, fixtures, and specialty items.

E. Pressure Treated Wood Products:

1. Treat completed units of woodwork, after cutting, machining, sanding, gluing and assembly has been completed to the greatest extent possible. Coat surfaces which have been cut after treatment with a heavy brush coat of same preservative.

END OF SECTION 06 10 00





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PART 1 - GENERAL

RELATED DOCUMENTS:

Drawings and general provisions of Contract, including General and Supplementary General Conditions and Division-1 Specification sections, apply to work of this section.

1.01 WORK INCLUDED:

- A. Factory finished Fiber-cement claddings, metal trim and accessories.

1.02 RELATED WORK

- A. Section 06 10 00 – Carpentry.
- B. Section 04 01 20 – Masonry Restoration.

1.03 SUBMITTALS

- A. Submit three copies of specifications, installation data and other pertinent manufacturer's literature.
- B. Submit shop drawings with full elevations at minimum ¼" = 1'-0" scale, and trim details for all conditions at 3" = 1'-0" scale.
- C. Submit three 6 inch x 6 inch pieces of Fiber-cement claddings in texture and thickness and finish shown and specified herein,
  - a. Submit full color chart. 6x6 samples to be in the color selected by architect from manufacturer's full range of colors.
- D. Submit samples of metal trim profiles for all profile options shown in shop drawings.
  - a. Submit full color chart. Samples to be in the color selected by architect from manufacturer's full range of colors.

1.04 PRODUCT HANDLING

- A. Store products in manufacturer's unopened packaging until ready for installation.
- B. Store siding flat on a smooth level surface. Protect edges and corners from chipping. Store sheets under cover and keep dry prior to installing.
- C. Store and dispose of solvent-based materials, and materials used with solvent-based materials, in accordance with requirements of local authorities having jurisdiction.

1.05 WARRANTY

- A. Manufacturer's Warranty: Provide panel manufacturer's Limited Product Warranty, with 30-year limited product warranty against manufacturing defects.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. Acceptable panel and trim manufacturers: James Hardie Building Products, Inc. 1-866-274-3464, [www.jameshardiepros.com/Products/Hardie-Reveal-Panel-System](http://www.jameshardiepros.com/Products/Hardie-Reveal-Panel-System); CertainTeed

Corporation, 1-800-233-8990, [www.certainteed.com](http://www.certainteed.com); Allura USA, 1-844-425-5872; [www.allurausa.com/fiber-cement-siding-products/architectural-panels](http://www.allurausa.com/fiber-cement-siding-products/architectural-panels). Easy Trim Reveals 1-877-973-8746, <https://easytrimreveals.com/fibercement/profiles/panel/>; Tamlyn 1-800-334-1676, [www.tamlyn.com](http://www.tamlyn.com);

2.02 MATERIALS:

- A. Cement Cladding System: Fiber cement panels with extruded aluminum trim.
- B. Products: Hardie-Reveal Panel System as manufactured by James Hardie Building Products, CertainTeed Corporation Weather Boards with smooth texture and Dura Coat finish with Fiber Cement Trim System by Easy Trim Reveals, Allura Vertical Siding Smooth Panel with Factory applied ColorMax Finishing System with Trim System by easy Trim Reveals or XtremeTrim by Tamlyn.
- C. Non-asbestos fiber-cement siding to comply with ASTM Standard Specification C1186 Grade II, Type A.
- D. Siding to meet the following building code compliance National Evaluation Report No. NER 405 (BOCA, ICBO, SBCCI). Non-asbestos fiber-cement siding to be non-combustible when tested in accordance with ASTM text method E136.

2.03 CLADDING PANELS

- A. Cement Cladding Panels: Hardie Reveal Panel as manufactured by James Hardie Building Products, Inc. or products by manufacturers listed above, 7/16 inches thick, 3 feet 11.5 inches (1206 mm) wide by 7 feet 11.5 inches (2426 mm) long. Product shall be engineered for climate conditions.
  - 1. Manufacturer's Climate Zone Product: HZ5 for freezing wet climates with a green tint primer.
- B. Code Compliance Requirement for Siding Materials:
  - 1. Fiber-cement siding, complies with ASTM C 1186 Type A Grade II.
  - 2. Fiber-cement siding, complies with ASTM E 136 as a noncombustible material.
  - 3. Fiber-cement siding, complies with ASTM E 84 Flame Spread Index = 0, Smoke Developed Index = 5.
  - 4. Fiber-cement siding, complies with ASTM E 119 1 hour and 2 hour fire resistive assemblies listed with Warnock Hersey.
  - 5. Fiber-cement siding, tested to ASTM E330 for Transverse Loads.
  - 6. Intertek Warnock Hersey Product Listing.
  - 7. Fiber cement siding and new personnel doors can withstand the following inward and outward wall area lateral design pressures in accordance with FM Global Data Sheet 1-28, Wind Design, based on a basic wind speed of 110 mph, a ground roughness coefficient of D, a building importance factor of 1.15 for the components and cladding, and choose enclosure building classification. Calculations are based on a building height of 118ft., and a building width of 133ft.

Wall Area	Inward (psf)	Outward (psf)
Zone 4	100	100
Zone 5*	100	180

\* Zone 5 is the considered 13 ft distance along any wall from the corners of the facility. A safety factor of 2.0 is already applied to the inward and outward design pressures obtained from Data Sheet 1-28 above

2.03 WEATHER BARRIER

- A. Moisture Air Barrier Sheet (AVB):
1. Product: HardieWrap Weather Barrier as manufactured by James Hardie Building Systems or by Panel System manufacturer.
  2. Composition: Non-woven, non-perforated polyolefin.
  3. Film: MicroTech Coating with micropores to balance water holdout and breathability.
  4. Thickness: 11 mil (0.28 mm).
  5. UV Stability: Up to 180 days.
  6. Water Holdout (AATCC127): 128 inches (3250 mm).
  7. Breathability/Water Vapor Permeance (ASTM E-96A): 15 perms.
  8. Air Resistance (TAPPI T-460): >1800 sec/100 cc.
  9. Tear Strength (ASTM D1117): 15 to 18 lb (6.8 to 8.2 kg).
  10. Basis Weight: 19.4 lbs/1000 sf (9.5 kgs/100 sm).
  11. Sizes: 3 feet by 195 feet (914 mm by 59.4 m), 9 feet by 100 feet (2743 mm by 30.5 m), 9 feet by 150 feet (2743 mm by 45.7 m), 10 feet by 100 feet (3048 mm by 30.5 m), 10 feet by 150 feet (3048 mm by 45.7 m).
- B. Self-adhering Flashing: Designed for peel and stick application.
1. Product: HardieWrap Flashing as manufactured by James Hardie Building Systems or Panel System Manufacturer's recommended flashing.
  2. Composition: Butyl rubber adhesive non-woven polyolefin backing; coated Kraft paper release.
  3. Total Thickness: 25 mil (0.64 mm).
  4. UV Stability: Up to 180 days.
  5. Application Temperature: 30 degree F to 180 degree F (-1 degree C to 82 degree C).
  6. Operating Temperature: -30 degree F to 200 degree F (-34 degree C to 93 degree C).
  7. Packaging: Individually shrink-wrapped.
  8. Roll Weight: 4 inch (102 mm) = 4.6 lb (2 kg)/roll, 6 inches (152 mm) = 6.9 lb (3 kg)/roll, 9 inches (229 mm) = 9.9 lb (4.5 kg)/roll.
  9. Provide Width for Application Required: 4 inches by 100 feet (102 mm by 30.5 m) (2x4 construction), 6 inches by 100 feet (152 mm by 30.5 m) (2x4 construction), 9 inches by 100 feet (229 mm by 30.5) (2x6 construction).
- C. Flexible Flashing:
1. Product: HardieWrap Flex Flashing as manufactured by James Hardie Building Systems or Panel System Manufacturer's recommended flashing.
  2. Composition: Butyl rubber adhesive; creped cross-laminated polyolefin backing; polyethylene film release.
  3. Total Thickness: 60 mil (1.5 mm).
  4. Tensile Strength (ASTM D3759): 18 lb/inch (3.2kg/cm).
  5. UV Stability: Up to 180 days.
  6. Water Vapor Transfer Rate (ASTM E96-94): <.2g/100 square inches/24hrs.
  7. Application Temperature: 30 degree F to 180 degree F (-1 degree C to 82 degree C).
  8. Operating Temperature: -30 degree F to 200 degree F (-34 degree C to 93 degree

- C).
  - 9. Packaging: Each roll is packed in a convenient dispenser box
  - 10. Roll Weight: 6 inches (152 mm) = 22.2 lb (10kg)/roll, 9 inches (229 mm) = 33.3 lb (15 kg)/roll.
  - 11. Provide Width for Application Required: 6 inches by 75 feet (152 mm by 23.9 m) (2x4 construction), 9 inches by 75 feet (229 mm by 23.9) (2x6 construction).
- D. Seam Tape:
- 1. HardieWrap Seam Tape as manufactured by James Hardie Building Systems.
  - 2. Composition: Polypropylene film coated with acrylic adhesive Total Thickness: 3.0 mil (.08 mm) or Panel System Manufacturer's recommended product.
  - 3. Adhesion Peel to HardieWrap (PSTC-1): 22 oz/inch (25 N/100 mm).
  - 4. Tensile Strength (ASTM D3759): 32 lb/in (.58 kg/mm).
  - 5. Elongation: 136 percent.
  - 6. UV Stability: Up to 90 days.
  - 7. Application Temperature: 30 degree F to 180 degree F (-1 degree C to 82 degree C).
  - 8. Operating Temperature: -30 degree F to 200 degree F (-34 degree C to 93 degree C).
  - 9. Packaging: Individually shrink-wrapped.
  - 10. Roll Weight: 1 lb(0.5 kg)/roll.
  - 11. Roll Size: 1-7/8 inches (43 mm) by 165 feet (50 m).

#### 2.04 FURRING (STRAPPING)

- A. Rainscreen Cavity: Install Hardie Reveal Panels on a drained and vented rainscreen cavity, with a minimum 3/8 inch (9.5mm) air cavity. Selection of cavity vent materials shall be incorporated into the design to prevent insect and pest entry. Cavity size to conform with Panel System manufacturer's recommendations.

#### 2.05 ACCESSORIES

- A. Trims to be provided by the same manufacturer as the panel manufacturer or as recommended and approved by panel manufacturer.
- B. Trims: Reveal™ Trims in the following profiles supplied by James Hardie, or by manufacturers listed above. Reveal Trims conform to a 6063 alloy in T-5 temper with a minimum thickness of 0.050 inch. All reveal trims are 12 feet in length.
  - 1. Horizontal trim.
  - 2. Vertical trim.
  - 3. Outside corner trim.
  - 4. Inside corner trim.
  - 5. J channel trim.
  - 6. Drip cap trim.
- C. Finishes of Reveal Trims:
  - 1. Clear anodized metal finish aesthetic; clear anodizing shall conform to ASTM B244 and ASTM B136.

#### 2.06 FASTENERS

- A. Fasteners: For attaching Hardie Reveal Panel direct to sheathing strips provide the following:

1. Wood Framing: 10-12 1-1/2 inch long x 0.47 inch HD low profile Torx (T20W) (TW-S-D12-4.8x38).
2. Fasteners shall be of high quality stainless steel to ensure resistance to corrosion. For field painting, fasteners should be treated to accept paint adhesion.
  - a. Alternatives must be approved by the architect. e.g. decorative screws, nails, bugle head screws, etc.

2.07 FINISHES

- A. Factory Finished, smooth. Color to be selected from manufacturers full range of colors.
- B. Factory Finish for Trim:
  1. Trim for Factory-Applied Finish and No Field-Applied Finish: Clear or metallic anodized.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Do not begin installation until substrates have been properly prepared.
- B. Install flashing around all wall openings and at exposed top edge of panels.
- C. Fasten through trim into structural framing or code complying sheathing. Fasteners must penetrate minimum 3/4 inch or full thickness of sheathing. Additional fasteners may be required to ensure adequate security.
- D. Place fasteners no closer than 3/4 inch and no further than 2 inches from side edge of trim board and no closer than 1 inch from end. Fasten maximum 16 inch on center.
- E. Maintain clearance between trim and adjacent finished roof surface.

3.02 PREPARATION

- A. Clean surfaces thoroughly prior to installation.
- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
- C. Ensure that drainage plane is intact and all penetrations are sealed.

3.03 INSTALLATION

- A. Substrate: Existing masonry wall to which furring strips will be mounted. Ensure substrate is sound, clean, and properly restored before commencing installation.
  1. Install water-resistive barriers and claddings to dry surfaces.
  2. Repair any punctures or tears in the water-resistive barrier prior to the installation of the siding.
  3. Protect siding from other trades.
- B. Furring: Install furring for a minimum 3/8 inch rainscreen cavity, or in accordance with local building code for rainscreen requirements. Ensure strips are securely mounted,

creating a surface that is straight, true, of uniform dimensions and properly aligned

- C. Panel Installation: Install materials in strict accordance with manufacturer's installation instructions.
1. Place fasteners no closer than 3/4 inch (9.5 mm) from panel edges and 2 inches (51 mm) from panel corners.
  2. Use fasteners as specified in the James Hardie Tech Data sheet and in the Hardie Reveal Panel Installation Instruction or per Panel System manufacturer's instructions.
  3. Install panel using 1/2 inch (13 mm) spacers at horizontal joints. Leave bottom edge of panel above all horizontal trims exposed, no caulking shall be placed at this overlap of Horizontal Reveal Trim. Factory primed edge shall always be used.
  4. Install a kickout flashing to deflect water away from the siding at the roof intersection.
  5. Install a self-adhering membrane on the wall before the subfascia and trim boards are nailed in place, and then install the kickout.
  6. Allow minimum vertical clearance between the bottom edge of siding and any other material in strict accordance with the manufacturer's installation instructions and as determined by James Hardie Zone.
  7. Maintain clearance between siding and adjacent finished grade/roof surface.
  8. Specific framing and fastener requirements - refer to the applicable building code compliance reports.

3.04 FINISHING

- A. Field cut edges shall be coated during the installation process using an exterior grade primer/sealer that is compatible with the factory finish and matching in color.

3.05 PROTECTION

- A. Protect installed products until completion of project.
- B. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION 07 46 00

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PART 1 - GENERAL

RELATED DOCUMENTS

Drawings and general provisions of contract, including General and supplementary General Conditions and Division-1 Specification Sections, apply to work of this Section.

1.01 DESCRIPTION

A. Scope

1. Fully Adhered 30 year 90 mil EPDM roofing system.
2. Insulation.
3. Pre-formed extruded aluminum fascias.
4. Accessories and components required for complete installation of elastic sheet roofing system.

B. Products Installed but Not Furnished Under This Section:

1. Wood blocking, anchor bolts, and similar components; refer to SECTION 06 10 00

1.02 RELATED WORK

- A. Section 01 73 29 – Cutting and Patching
- B. Section 05 50 00 – Metal Fabrication
- C. Section 06 10 00 - Carpentry
- D. Section 07 62 00 - Sheet Metal Flashing and Trim
- E. Divisions 22, 23.

1.03 SYSTEM DESCRIPTION

A. EPDM Roofing System - Includes (but is not necessarily limited to) the following components and accessories:

1. Roof insulation; refer to Roof Insulation in Part 2 below.
2. EPDM sheet roofing membrane (refer to Roofing Membrane in Part 2 below) including (but not limited to) following related membrane components:
  - a. Wall and base membrane flashing, unless otherwise specified on Drawings.
  - b. Membrane flashing at all new roof penetrations, unless otherwise specified on Drawings. Verify number and location of all roof penetrations.
  - c. Adhesives and similar materials required for membrane installation.
3. Pre-formed extruded aluminum fascias; refer to Part 2 below.
4. Wood blocking and anchor bolts around roof perimeter, roof penetrations, and similar locations required for roofing system installation; refer to SECTION 06 10 00.
5. Roof drain flashing clamping ring and dome strainer installation.
6. Manufacturer's roofing system guarantee; refer to Warranty/Guarantee in article 1.09 of this specification section, and Section 01 78 30.

B. Performance Requirements – Meeting Section 1504 of 2015 International Building Code with 2018 Connecticut Supplements.

1. Fire classification shall be Class A in accordance with ASTM 108 or UL 790.
2. FM Rating: Provide roofing membrane and insulation that have been classified by FM Global as components of Class A roofing system.
3. Wind Uplift: Design roofing systems to meet requirements FM Global Windstorm



Classification I-90. The wind uplift rating of the roof should be based on a design wind speed of 110 mph, a ground roughness of "D" and an importance factor of 1.15. The following table outlines the recommended minimum uplift ratings for this location:

Roof Area	Overall Plan Dimension	Height	Zone 1	Zone 2	Zone 3*
High Roofs	135 ft x 80 ft	118 ft	150	225	315
Main Roof	150 ft x 133 ft	105 ft	150	225	300

\* If there is a continuous parapet in excess of 3 ft around the entire roof perimeter, then Zone 2 pressures can be used in Zone 3.

Please select an FM Approved RoofNav assembly for each zone that will meet these ratings.

The new roof assembly can be selected through RoofNav ([www.roofnav.com](http://www.roofnav.com)). As an alternative for selecting four different FM Approved RoofNav assemblies with the appropriate wind uplift ratings for each zone (Zone 1, Zone 2 and Zone 3), an FM Approved RoofNav assembly can be selected for the entire roof with a minimum wind uplift rating appropriate for Zone 3.

The zone dimensions of the roof should be defined as follows:

Roof Area	Zone 1	Zone 2	Zone 3*
High Roofs	All areas not in zone 2 or 3	13 ft	27 ft x 27ft x 13 ft
Main Roof	All areas not in zone 2 or 3	8 ft	16 ft x 16 ft x 8 ft

Any whole or partial insulation board or roof cover/base sheet width that falls within Zone 1, Zone 2 and Zone 3 requires the securement pattern for the higher zone to be applied over the entire board or roof cover/base sheet. See the figure and details below for a description of each zone.



a = 10% of the lesser horizontal dimension, but not less than 3ft. (3 1/8")

Figure 1

Figure 1 Details:

Zone 3 - The dimensions of the "L" shaped Zone 3 (corner areas) on the building are defined as 2a by 2a by a, where "a" is 0.1 times the lesser plan dimension of the roof, but not less than 3 ft.

Zone 2 - Zone 2 (perimeter area) is defined as 0.1 times the lesser plan dimension of the roof, but not less than 3 ft. from the edge of the roof and not within Zone 3.

Zone 1 - The Zone 1 (field area) is defined as the remaining area of the roof not within Zone 3 or 2.

4. Select, provide and submit for approval an FM Global RoofNav Assembly Number prior to start of work. See: [www.roofnav.com](http://www.roofnav.com)
  5. DCS/FM Global shall receive and approve stamped shop drawings from contractor.
- C. Roof Deck Pull Test: When reroofing or recovering over gypsum, cementitious wood fiber, or lightweight insulating concrete decks, verify fastener pull-out performance with field tests. Perform 5 pull-out tests per 50,000 ft<sup>2</sup> (4650 m<sup>2</sup>) using FM Approved fastening or a minimum of 5 tests. Run additional tests if inconsistent results are obtained. On larger roofs, the number of tests above the minimum can be reduced if consistent results are obtained. Fastener spacing is calculated per section 2.2.4.1.3. (When pull-out tests are done, base the fastener density on the more conservative of either the FM Approved spacing for the fastener plate/insulation/roof cover combination, or the spacing needed based on the average pull-out performance). It is not necessary to run pull-out tests of fasteners FM Approved for installation in steel deck, structural concrete, nominal 3/4 in. (19 mm) plywood, or nominal 2 in. (51 mm) lumber decks, unless the condition of the deck is in question. If pull tests do not meet FM Global requirements on gypsum deck, provide a glue down method to meet FM Global requirements.

#### 1.04 SUBMITTALS

- A. Comply with requirements of SECTION 01 30 00 - Submittals and as modified below.
- B. Product Data - Submit manufacturer's specifications and installation instructions for following products demonstrating that products meet, or exceed, specified requirements:
  1. Roofing system, including adhesives, membrane flashings, metal edges and other roofing system components.
  2. Each type of roof insulation, including insulation fasteners. Submit FM Global Form 2688 for each roof system.
  3. Metal Edge data and color chart.
- C. Shop Drawings: Submit manufacturer's shop drawings including following information:
  1. Complete configuration of roof indicating layout of membrane sheets, seams between sheets, and location and type of all roof penetrations.
  2. Complete details for attachment of membrane at roof perimeter, roof penetration flashing, and other required special details.
  3. Complete layout of all tapered insulation indicating compliance with drainage patterns shown on Drawings.
- D. Quality Control Submittals
  1. Certificates
    - a. Manufacturer's Instructions: Submit transmittal form indicating that roofing system installer has received copies of roofing system manufacturer's installation instructions and recommendations.
    - b. Compliance Certificate: Submit certification that roofing systems installed in this Project comply with roofing system manufacturer's specifications and installation instructions.

- c. Insulation Acceptance Letter: Submit letter from roofing system manufacturer indicating roofing system manufacturer's approval of proposed insulation for use with roofing system.
- d. Wind Uplift Certification: Submit letter of certification from roofing manufacturer indicating that adhered roofing system used in this Project has been designed to satisfy specified wind uplift criteria.
- e. Insulation Fastener Certification: Submit roofing system manufacturer certification of insulation fastener suitability for existing roof deck as specified in "Examination - Verification of Conditions" in section 3.01A of this specification section.

## 2. Qualification Data

- a. EPDM Roofing System Manufacturer: Submit information regarding completed roofing project and document committing manufacturer to Site visits specified in Quality Assurance below. Include name, address, and telephone number of owner's representatives in completed projects list.
  - b. EPDM Roofing System Installer: Submit document-indicating approval of roofing system manufacturer, list of completed roofing projects, and documentation of foreman training specified in Quality Assurance below. Include name, address, and telephone number of Owner's representative in completed projects list.
- E. Contract Closeout Submittals: Comply with requirements of SECTION 01 77 00, including submission of maintenance instructions as item in "General Construction Instructions" manual described in that section.

## 1.05 QUALITY ASSURANCE

### A. Qualifications

1. EPDM Sheet Roofing System Manufacturer: Minimum **20** years experience in manufacture of single ply roofing systems, at least 5 completed EPDM sheet roofing systems installed on commercial projects that have not failed in at least **10** years, and committed to providing qualified manufacturer's technical (non-sales) representative to visit Site during roofing system installation to review installation procedures and advise on procedures and precautions in use of roofing system.
2. EPDM Roofing System Installer: *Single firm* specializing in specified types of roofing systems, providing undivided responsibility for performance of all component parts of roofing system (including all terminations and components covered under roofing manufacturer's guarantee but specified in other sections), and complying with following requirements.
  - a. Approved by roofing system manufacturer for installation of EPDM sheet roofing system, membrane and flashings.
  - b. At least 5 years of experience installing commercial-scale elastic sheet roofing systems and at least 1 successful elastic sheet roofing system installed within most recent year.

- c. Roofing Installation Foremen: Successfully completed all training offered by roofing system manufacturer, including schools, seminars, and similar opportunities.
- B. Pre-Installation Conference: At least 30 days prior to the scheduled start of roofing system installation conduct the Pre-Installation Conference; do not begin roofing system installation prior to this conference.
1. Attendance - Include representatives from at least following organizations:
    - a. Prime Construction Contractor and Roofing System Installer
    - b. Roofing System Manufacturer
    - c. Owner
    - d. Project Representative
    - e. Architect
  2. Agenda - Include at least the following items on the conference agenda:
    - a. Review of all systems and materials to be used in roofing system installation.
    - b. Review and coordination of all substrate preparation and related construction, including installation of curbs or similar items by other contractors.
    - c. Review and modification of Roofing System Installer's proposed sequencing of roofing installation.
  3. FM Global Form 2688, Checklist for Roofing System (see 50 60 00), should be completed for each type of roof covering system for each building. This information is necessary to determine if proposed roof covering systems are FM Approved in their entirety. FM Approval is based on the entire assembly as a combination of components. The completed applications should be forwarded for review and comment prior to the fabrication of any materials.

#### 1.06 DELIVERY, STORAGE, AND HANDLING

- A. Packing and Shipping: Deliver materials in manufacturer's original, unopened containers and rolls with labels intact and legible. Deliver materials requiring fire resistance classification with labels attached and packaged as required by labeling service. Deliver materials in sufficient quantity to allow continuity of roofing installation.
- B. Storage and Protection
1. Handle rolled goods so as to prevent damage to edge or ends. Select and operate material handling equipment without damaging existing construction or installed roofing.
  2. Store insulation, roofing and related materials on clean, raised platform with weather-protective covering when stored outdoors. Properly secure insulation to prevent blow-off. Store rolled goods on end. Provide continuous protection of materials against wetting and moisture absorption. Protect materials against damage by construction traffic.
    - a. Comply with fire and safety regulations.
    - b. Store adhesives, flashing material, splice wash, and sealants in secure, well-ventilated, watertight place. Do not leave unused materials on roof overnight or when roofing installation is not in progress.

- c. Store emulsions in temperature above 40° F.
3. Remove wet materials from Site.
4. Protect membrane and flashing materials against coming in contact with coal tar pitch, petroleum, grease, oil, solvents or other waste products. After exposure to pitch of other waste products, remove contaminated membrane and flashing material from Site.

#### 1.07 PROJECT/SITE CONDITIONS

- A. Environmental Conditions: Proceed with roofing installation only when weather conditions comply with manufacturer's recommended limitations, and when conditions permit installation to proceed in accordance with specified requirements and manufacturer's recommendations.
  1. Provide required equipment to dry surfaces to receive new insulation that have surface moisture not acceptable to roofing system manufacturer.

#### 1.08 SEQUENCING AND SCHEDULING

- A. Do not proceed with roofing installation until substrate construction and penetrations have been completed.
- B. Arrange work sequence to avoid use of newly constructed roofing as walking surface or for equipment movement and storage. Where such access is required, provide protection and barriers recommended by roofing system manufacturer to segregate work area and prevent damage to adjacent areas. Provide protection layer consisting of plywood over membrane or insulation board for all new and existing roof areas that receive rooftop traffic during construction.

#### 1.09 WARRANTY/GUARANTEE

- A. Roofing System Manufacturer's System Warranty: ~~30-year~~ Golden Seal Total System Warranty includes coverage against incidental membrane puncher, hail and windstorm damage. It shall cover labor and materials that roofing system will remain in watertight condition and that roof's covering will remain on roof.
  1. Include following conditions in guarantee coverage:
    - a. Cracking due to membrane expansion or contraction
    - b. Deterioration due to exposure to weather
    - c. Decomposition of membrane due to ponding water
    - d. Separation of factory- and field-fabricated seams and joints
    - e. Cracking or deterioration of membrane from water vapor trapped under membrane
    - f. Separation of, or decomposition of, membrane flashing
    - g. Wind damage sustained up to 97 mph normal.
  2. Remedy: In event roofing system fails to perform, roofing systems manufacturer will, at its own expense, make repairs or modifications to roofing system necessary to reinstate water tightness, re-inspect roof, and re-issue guarantee after re-inspection.
  3. Guarantee Re-Issuance: In event repairs are required due to natural disasters, unauthorized alterations, or other causes specifically excluded in guarantee,

roofing system manufacturer will re-inspect roof and re-issue guarantee provided that methods and materials used in repair have received manufacturer's prior approval and repairs are accomplished by approved applicator.

## PART 2 - PRODUCTS

### 2.01 MANUFACTURERS

- A. Details and specifications of 90 mil EPDM adhered sheet roofing systems is based on **Carlisle Sure-Seal 30 year Golden Seal system**. Alternate manufacturers Johns Manville JM EPDM NR90 mil adhered or Firestone Rubber Guard EPDM platinum 90M adhered. No substitutions will be accepted. Coordinate/provide details compatible with alternate manufacturers for compliance with equivalent warranty, FM Global requirements and State Building Codes.
- B. **Single Source** - To maintain single responsibility for performance of membrane system comply with manufacturer's warranty requirements:
1. Obtain membrane, flashings, bonding adhesives, splicing cement, splice wash, and lap sealants from same manufacturer.
  2. Obtain all components of roofing system covered by manufacturer's warranty, including insulation, fasteners, fastening plates and edgings from same supplier.

### 2.02 COMPONENTS

- A. MEMBRANE: Black Sure-Seal .090 inch thick non-reinforced EPDM (Ethylene, Propylene, Diene Monomer) in the largest sheet possible.
1. The membrane shall conform to the minimum physical properties of ASTM D4637. When a 10 foot wide membrane is to be used, the membrane shall be manufactured in a single panel with no factory splices.
- B. INSULATION/UNDERLAYMENT
1. When applicable, insulation shall be installed in multiple layers. The first and second layer of insulation shall be mechanically fastened or adhered to the substrate in accordance with the manufacturer's published specifications.
  2. Base layer and tapered Insulation shall be Carlisle SecurShield Coated Glass Facer Polyiso. Minimum R-value per inch required is 5.0.
- C. ROOF INSULATION: (insulation to be continuous and a minimum of 3" on main roof and 6" thick on high roofs averaged over entire roof surface unless noted otherwise on drawing)
1. Acceptable to roofing system manufacturer, complying with Factory Mutual requirements for FM Approval for Class 1, for use over Insulated Steel Deck Roof Construction, and capable of bridging metal deck flutes without breaking or cracking.
  2. All Insulation: Meet or exceed ASTM C 1289-11, Type II, Class 1, Grade 3:
    - a. Compressive strength: ASTM D1621 25psi minimum
    - b. Dimensional Stability: ASTM D2126 2% linear change (7 days)
    - c. Moisture Vapor Transmission: ASTM E96 12.10 less than 1 perm

- d. Water absorption: ASTM C209 less than 1% volume
3. Provide tapered insulation to form crickets and slopes in order to achieve the required roof slopes as indicated on the roof plan.
  - a. Tapered insulation thickness as required to achieve the slopes indicated on the drawings.
  - b. Tapered insulation material to be compatible with roofing system and approved by roofing manufacturer.
  - c. Fastening method to be approved by roofing manufacturer.
4. Cover Board: 1/2" thick HP Recovery Board.

D. ADHESIVES AND CLEANERS

1. Bonding Adhesive: Sure-Seal 90-8-30A.
2. Splicing Cement: Sure-Seal EP-95 Splicing Cement.
3. Splice Tape and Primer: Sure-Seal SecurTAPE and HP-250 or LV-600 Primer.
4. Cleaning Solvent: Sure-Seal Splice Cleaner or Sure-Seal Weathered Membrane Cleaner.
5. Internal seam sealant: Sure-Seal In-Seam Sealant (used with adhesive splices only)
6. External seam sealant: Sure-Seal Lap Sealant
7. Sealer: Sure-Seal Pourable Sealer
8. Insulation adhesive: Sure-Seal FAST Adhesive

E. FASTENERS AND PLATES- for mechanical attachment of insulation and to provide additional membrane securement:

1. InsulFast Fasteners: A threaded #12 fastener with #3 phillips head used to attach the insulation to the steel deck.
2. Insulation Fastening Plates: A 3 inch diameter FM approved metal plate used for the insulation attachment.
3. Seam Fastening Plates: A 2 inch diameter FM approved metal plate used in conjunction with RUSS or with EPDM membrane for membrane securement.
4. RUSS (Reinforced Universal Securement Strip): A 6 or 9 inch wide.

F. METAL EDGING

1. Roof edge flashing should be an FM Approved flashing assembly with the proper minimum wind rating. Technical data sheets shall be provided for review and comment to FM Global. The selected perimeter flashing system should have a rating based on the Zone 1 pressure rating of 150, meet the minimum ratings for Zones 2 and 3, and be installed per its RoofNav listing. Please also confirm that the wood nailers are secured per FM Global Data Sheet 1-49, Perimeter Flashing.
2. Extruded Aluminium Fascias: SecurEdge 2000 standard fascia and SecureEdge 2000 Extended Fascia meeting ANSI/SPRI ES-1 per 2015 IBC 1504.5, 24 ga galvanized metal water dam and .050" thick aluminum fascia with up to 6.5" exposed fascia extension. Color: To Be Determined from full range of colors.
  - a. Accessories:
    1. Nailers: Preservative-treated wood as specified in Rough Carpentry section; sizes and profiles as indicated.

2. Splice plates: Minimum 0.032" thickness aluminum sheet, minimum 4" width, for concealed installation. Finish shall match fascia .
  3. Prefabricated sections: Factory-assembled, \*\*continuously welded mitered corners, \*\* downspout starter, \*\* overflow scupper, \*\* and spillout scupper \*\* matching fascia in design and finish.
3. Extruded Aluminum Fascias and Coping Finish:
- a. Fluoropolymer coating finish:
    - A. Two-coat, shop-applied, baked-on fluoropolymer coating system based on Atochem North America, Inc., Kynar 500 resin or Ausimont U.S.A., Inc.
    - B. Coating system shall provide minimum 1.0 mil dry film thickness consisting of minimum 0.20 mil primer and minimum 0.80 mil color coat.
    - C. Color shall be as selected by Architect from fascia manufacturer's standard selection.
  - G. Sure-Seal Termination Bar: a 1 inch wide and .098 inch thick extruded aluminum bar pre-punched 6 inches on center; incorporates a sealant ledge to support Lap Sealant and provide increased stability for membrane terminations.
  - H. Walkways: Sure-Seal Walkway Pads from ladder to all equipment (30" x 30" molded black rubber with factory rounded corners) adhered to the EPDM membrane roof with Splicing Cement or Splice Tape.

### PART 3 - EXECUTION

#### 3.01 EXAMINATION

- A. Verification of Conditions (by Installer): Examine conditions under which elastic sheet roofing system is to be installed and notify Prime Contractor in writing of any conditions detrimental to proper and timely installation. Do not proceed with installation until unsatisfactory conditions have been corrected in manner acceptable to Installer.
  1. Verify deck is clean and smooth, free of depressions, waves, or projections, properly sloped to drains, valleys, or eaves. Verify all wood nailing strips and blocking are in place. Verify deck is supported and secured. Verify deck surfaces dry and free of snow or ice.
    - a. Verify flutes of steel deck are clean and dry.
  2. Beginning installation means acceptance of substrate by Installer.
- B. When re-roofing, inspect the existing deck securement and if necessary, fasten the deck from the top surface in accordance with Data Sheet 1-29, Section 2.2.3 prior to installation of the above-deck components. Analyze the existing deck to ensure the span is adequate for the needed wind load and the proposed above-deck components. If additional fastening is required, all fastening should be conducted with FM Approved fasteners. It should be noted that if additional fastening of the roof deck is required by the selected RoofNav Assembly, it should be conducted as outlined per the RoofNav number.

#### 3.02 PREPARATION

- A. Protection



1. Coordinate roofing with flashing and other adjoining work to insure proper sequencing of roof installation.

B. Surface Preparation

1. Clean substrate of projections and substances detrimental to roofing installation. Do not apply roofing materials to damp, frozen, dirty, dusty, or deck surfaces unacceptable to manufacturer.
2. Install cant strips and similar accessories as shown, and as recommended by roofing systems manufacturer even though not shown.
3. Install wood nailers at perimeter of entire roof and around penetrations as indicated and as required to meet FM Loss Prevention Data Sheet 1-49 requirements. Anchor nailers to roof deck at minimum 16" or closer as required to resist min. 300 lbs. per linear foot withdrawal force in any direction. Provide 1/2" vent space between each length of nailer. Stagger fasteners 1/3 nailer width and within 6" of each end of nailer.

3.03 INSTALLATION

- A. Comply with instructions and recommendations of roofing materials manufacturer for specified roofing system to ensure watertight installation in normal weather exposures and no deterioration in excess of manufacturer's published limitations.
1. Confinement of Materials: Do not allow fluid and plastic materials to spill or migrate beyond surfaces of intended application, or to flow into drains or conductors.
- B. Insulation Installation: Comply with recommendations and instructions of elastic sheet roofing system manufacturer and insulation manufacturer for handling and installation of insulation. Cut insulation to fit around all projections.
1. Multiple Layers: Stagger joints of each layer at least 12" in each direction.
  2. Metal Decks: Do not install with insulation edges unsupported along metal deck fluting.
  3. Adhered Roofing System Installation: Secure insulation to deck in strict accordance with manufacturer's recommendations to meet FM Windstorm Classification I-90. Run long joints for insulation in continuous straight lines, perpendicular to roof slope with end joints staggered between rows.
    - a. When mechanically fastening insulation to roof deck, provide fasteners specifically designed and sized for attachment of specified board type insulation to deck type. Fasten insulation over entire area of roofing at spacing as required to meet specified wind uplift requirements for adhered systems.
- C. Installation of Roofing System and all accessories: Install roofing system and all accessories in strict accordance with manufacturer's recommendations and instructions, unless otherwise indicated. Thoroughly clean all debris from surface of insulation prior to installation of roofing system. Install flashings in strict accordance with manufacturer's recommendations. At all outside corners, lap flashings minimum of 5" down each side.

1. Provide all quality control tests and inspections of welded seams as recommended by roofing system manufacturer.

#### 3.04 FIELD QUALITY CONTROL

- A. Flood Testing: Schedule flooding of roofs with Owner. Flood each area of roofing membrane with water to depth not less than 2", including all areas sloped less than 1/4" per foot. Provide temporary dams where required. Leave flooding in place for at least 24 hours and examine substructure for evidence of leakage. Repair leaks and retest as specified until no leakage is observed.
- B. Since an adhered roof assembly is being utilized, the final acceptance of the roof covering installation should be conditional to successful uplift testing in accordance with Data Sheet 1-52, Field Verification of Roof Wind Uplift Resistance. This requirement should be included in the contract to ensure testing is performed, and is witnessed by the owner's representative. An acceptable alternative to negative uplift testing is to use full-time visual construction observation (VCO) during the roof system installation. A qualified Construction Observer (CO) would provide full-time on-site visual observation of the roof construction process in an accurate and objective manner. Observation and recording duties should be completed per Data Sheet 1-52, Section 3.5. A copy of the wind uplift test or VCO report should be provided to this office for FM Global's record once it becomes available

END OF SECTION 07 53 23

PART 1 - GENERAL

RELATED DOCUMENTS

Drawings and general provisions of Contract, including General and Supplementary General Conditions and Division-1 Specification sections, apply to work of this section.

1.01 WORK INCLUDED

- A. "Metal Caps", "Metal Drips", "Metal Counter Flashing", "Bent Metal Flashing" "Cleat", and all other exposed sheet metal – except Metal Edge as specified in Section 07 53 23: **Galvalume Plus**- 24 gauge (0.0216").

1.02 RELATED WORK

- A. Section 04 01 28 – Masonry Restoration
- B. Section 06 10 00 – Carpentry: Wood blocking, nailers, and grounds.
- C. Section 07 53 23 – EPDM Roofing
- D. Section 07 90 00 – Joint Protection
- E. Divisions 22, 23

1.03 SUBMITTALS

- A. Submit product data under provisions of General Conditions and Section 01 33 00.
- B. Describe material profile, jointing pattern, jointing details, fastening methods, and installation details.
- C. Submit manufacturer's installation instructions under provisions of General Conditions and Section 01 33 00.
- D. Submit samples under provisions of General Conditions and Section 01 33 00.
- E. Submit shop drawings of "Metal Caps" and flashing.
  - 1. Details to be half full size scale.

1.04 STORAGE AND HANDLING

- A. Store products under provisions of General Conditions and Section 01 60 00.
- B. Stack performed material to prevent twisting, bending, or abrasion, and to provide ventilation.
- C. Prevent contact with materials during storage which may cause discoloration, staining, or damage.

1.05 WARRANTIES

- A. Ten years for material and workmanship under the provisions of General Conditions and Section 01 78 30.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. **Galvalume Plus**- 24 gauge (0.0216") sheets.

2.02 ACCESSORIES

- A. Fastener: Fasteners to be stainless steel. Screws to be self-taping type.
- B. Sealant: One part polyurethane, Type II, equal to Pecora DynaTrol 1.
- C. Solder: ASTM B32-76; Alloy grade 58, 50% tin, 50% lead.
- D. Flux: FS O-F-506, Type 1.

2.03 FABRICATION

- A. Form sections true to shape, accurate in size, square, and free from distortion or defects.
- B. Form pieces in longest practical lengths.
- C. Hem exposed edges on underside 1/2 inch; miter and seam corners. Corner joins to be soldered- no open joints at corners.
- D. Form material with flat lock seam.
- E. Pre-tin edges.
- F. Solder and seal metal joints. After soldering, remove flux. Wipe and wash solder joints clean.
- G. Fabricate corners from one piece; solder for rigidity, seal with sealant.
- H. Fabricate vertical faces with bottom edge formed outward 1/4 inch and hemmed to form drip.
- I. Fabricate flashings to allow toe to extend a minimum of 2 inches over roofing. Return and brake edges.
- J. Form sheet metal pans with upstand and flanges. Fill pans watertight with plastic cement.

PART 3 - EXECUTION

3.01 INSPECTION

- A. Verify membrane termination and base flashings are in place, sealed, and secure.
- B. Beginning of installation means acceptance of existing conditions.

3.02 PREPARATION

- A. Field measure site conditions prior to fabricating work.
- B. Install starter and edge strips, and cleats before starting installation.
- C. Secure flashings in place using concealed fasteners. Use exposed fasteners only in locations approved by Contract Officer.
- D. Lap and seal all joints.
- E. Apply plastic cement compound between metal flashings and felt flashings.
- F. Fit flashings tight in place. Make corners square, surfaces true and straight in planes, and lines accurate to profiles.
- G. Solder metal joints watertight for full metal surface contact. After soldering, wash metal clean with neutralizing solution and rinse with water.
- H. Seal metal joints watertight.

3.03 INSTALLATION

- A. Conform to drawing details.
- B. Conform to roofing manufacturer's warranty requirements.

END OF SECTION 07 62 00

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.02 SUMMARY

- A. This Section includes the following:
1. Concealed sprayed fire-resistive material (SFRM).
- B. Related Sections include the following:
1. Division 07 84 00 "Penetration Firestopping" for fire-resistance-rated firestopping systems.
  2. Division 07 90 00 "Fire-Resistive Joint Systems" for fire-resistance-rated joint systems.

1.03 DEFINITIONS

- A. SFRM: Sprayed fire-resistive material.
- B. Concealed: Fire-resistive materials applied to surfaces that are concealed from view behind other construction when the Work is completed and have not been defined as exposed.
- C. Exposed: Fire-resistive materials applied to surfaces that are exposed to view when the Work is completed.

1.04 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Shop Drawings: indicating the following:
1. Locations and types of surface preparations required before applying SFRM.
  2. Extent of SFRM for each construction and fire-resistance rating, including the following:
    - a. Applicable fire-resistance design designations of a qualified testing and inspecting agency acceptable to authorities having jurisdiction.
    - b. Minimum thicknesses needed to achieve required fire-resistance ratings of structural components and assemblies.
      - i. Fire resistant ratings indicated by design designations are considered restrained assemblies.
  3. Treatment of SFRM after application.

- C. Product Certificates: For each type of SFRM, signed by product manufacturer.
- D. Qualification Data: For Installer, manufacturer, and testing agency.
- E. Compatibility and Adhesion Test Reports: From SFRM manufacturer indicating the following:
  - 1. Materials have been tested for bond with substrates.
  - 2. Materials have been verified by SFRM manufacturer to be compatible with substrate primers and coatings.
  - 3. Interpretation of test results and written recommendations for primers and substrate preparation needed for adhesion.
- F. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, for proposed SFRM.
- G. Research/Evaluation Reports: For SFRM.
- H. Field quality-control test and special inspection reports.

#### 1.05 QUALITY ASSURANCE

- A. Installer Qualifications: A firm or individual certified, licensed, or otherwise qualified by SFRM manufacturer as experienced and with sufficient trained staff to install manufacturer's products according to specified requirements. A manufacturer's willingness to sell its SFRM to Contractor or to an installer engaged by Contractor does not in itself confer qualification on the buyer.
- B. Source Limitations: Obtain SFRM through one source from a single manufacturer.
- C. Compatibility and Adhesion Testing: The Owner will engage a qualified testing and inspecting agency to test for compliance with requirements for specified performance and test methods.
  - 1. Test for bond per ASTM E 736 and requirements in UL's "Fire Resistance Directory" for coating materials. Provide bond strength indicated in referenced fire-resistance design, but not less than minimum specified in Part 2.
  - 2. Verify that manufacturer, through its own laboratory testing or field experience, has not found primers or coatings to be incompatible with SFRM.
- D. Fire-Test-Response Characteristics: Provide SFRM with the fire-test-response characteristics indicated, as determined by testing identical products per test method indicated below by UL or another testing and inspecting agency acceptable to authorities having jurisdiction. Identify bags containing SFRM with appropriate markings of applicable testing and inspecting agency.
  - 1. Fire-Resistance Ratings: Indicated by design designations from UL's "Fire Resistance Directory", for SFRM serving as direct-applied protection tested per ASTM E 119.
  - 2. Surface-Burning Characteristics: ASTM E 84.

- E. Provide products containing no detectable asbestos as determined according to the method specified in 40 CFR 763, Subpart E, Appendix E, Section 1, "Polarized Light Microscopy."
- F. Mockups: Apply mockups to verify selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.
  - 1. Extent of Mockups: Approximately 100 sq. ft. of surface for each product indicated.
  - 2. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.
- G. Preinstallation Conference: Conduct conference at Project site to comply with requirements in Division 01 Section "Project Management and Coordination." Review methods and procedures related to SFRM including, but not limited to, the following:
  - 1. Review products, exposure conditions, design ratings, restrained and unrestrained conditions, calculations, densities, thicknesses, bond strengths, and other performance requirements.
  - 2. Review and finalize construction schedule and verify sequencing and coordination requirements.
  - 3. Review weather predictions, ambient conditions, and proposed temporary protections for SFRM during and after installation.
  - 4. Review surface conditions and preparations.
  - 5. Review field quality-control testing procedures.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Deliver products to Project site in original, unopened packages with intact and legible manufacturers' labels identifying product and manufacturer, date of manufacture, shelf life if applicable, and fire-resistance ratings applicable to Project.
- B. Use materials with limited shelf life within period indicated. Remove from Project site and discard materials whose shelf life has expired.
- C. Store materials inside, under cover, and aboveground; keep dry until ready for use. Remove from Project site and discard wet or deteriorated materials.

1.07 PROJECT CONDITIONS

- A. Environmental Limitations: Do not apply SFRM when ambient or substrate temperature is 40 deg F or lower unless temporary protection and heat are provided to maintain temperature at or above this level for 24 hours before, during, and for 24 hours after product application.
- B. Ventilation: Ventilate building spaces during and after application of SFRM. Use natural means or, if they are inadequate, forced-air circulation until fire-resistive material dries thoroughly.



1.08 COORDINATION

- A. Sequence and coordinate application of SFRM with other related work specified in other Sections to comply with the following requirements:
1. Provide temporary enclosure as required to confine spraying operations and protect the environment.
  2. Provide temporary enclosures for applications to prevent deterioration of fire-resistive material due to exposure to weather and to unfavorable ambient conditions for humidity, temperature, and ventilation.
  3. Avoid unnecessary exposure of fire-resistive material to abrasion and other damage likely to occur during construction operations subsequent to its application.
  4. Do not begin applying fire-resistive material until clips, hangers, supports, sleeves, and other items penetrating fire protection are in place.
  5. Defer installing ducts, piping, and other items that would interfere with applying fire-resistive material until application of fire protection is completed.
  6. Do not install enclosing or concealing construction until after fire-resistive material has been applied, inspected, and tested and corrections have been made to defective applications.

PART 2 - PRODUCTS

2.01 CONCEALED SFRM

- A. Basis of Design Product: Subject to compliance with requirements, provide Isolatek International Corp.; Blaze-Shield II HS or one of the following:
1. Carbolite Co., Fireproofing Products Div.; Pyrolite 15.
  2. GCP Applied Technologies; Monokote Type MK-10 HB.
- B. Material Composition: Manufacturer's standard product, as follows:
1. Concealed Cementitious SFRM: Factory-mixed, dry formulation of gypsum or portland cement binders, additives, and lightweight mineral or synthetic aggregates mixed with water at Project site to form a slurry or mortar for conveyance and application.
  2. Application, Typical: Interior use.
  3. Application, Concealed Exterior: Designated for exterior use where indicated, by a qualified testing agency acceptable to authorities having jurisdiction.
    - a. Provide manufacturer's recommended field applied primer applied to shop galvanized, exterior structural steel indicated to receive cementitious SFRM.

- C. Physical Properties: Minimum values, unless otherwise indicated, or higher values required to attain designated fire-resistance ratings, measured per standard test methods referenced with each property as follows:
1. Dry Density: 15 lb/cu. ft. minimum for average and individual densities, or greater if required to attain fire-resistance ratings indicated, per ASTM E 605 or AWCI Technical Manual 12-A, Section 5.4.5, "Displacement Method."
  2. Thickness: Minimum average thickness required for fire-resistance design indicated according to the following criteria, but not less than 0.375 inch, per ASTM E 605:
    - a. Where the referenced fire-resistance design lists a thickness of 1 inch or more, the minimum allowable individual thickness of SFRM is the design thickness minus 0.25 inch. Where the referenced fire-resistance design lists a thickness of less than 1 inch but more than 0.375 inch, the minimum allowable individual thickness of SFRM is the greater of 0.375 inch or 75 percent of the design thickness.
    - b. No reduction in average thickness is permitted for those fire-resistance designs whose fire-resistance ratings were established at densities of less than 15 lb/cu. ft.
  3. Bond Strength: Minimum 430 lbf/sq. ft. per ASTM E 736 based on laboratory testing of 0.75-inch minimum thickness of SFRM.
  4. Compressive Strength: Minimum 10 lbf/sq. in. minimum per ASTM E 761. Minimum thickness of SFRM tested shall be 0.75 inch and minimum dry density shall be as specified but not less than 15 lb/cu. ft.
  5. Corrosion Resistance: No evidence of corrosion per ASTM E 937.
  6. Deflection: No cracking, spalling, or delamination per ASTM E 759.
  7. Effect of Impact on Bonding: No cracking, spalling, or delamination per ASTM E 760.
  8. Air Erosion: Maximum weight loss of 0.025 g/sq. ft. in 24 hours per ASTM E 859. For laboratory tests, minimum thickness of SFRM is 0.75 inch, maximum dry density is 15 lb/cu. ft., test specimens are not prepurged by mechanically induced air velocities, and tests are terminated after 24 hours.
  9. Fire-Test-Response Characteristics: Provide SFRM with the following surface-burning characteristics as determined by testing identical products per ASTM E 84 by UL or another testing and inspecting agency acceptable to authorities having jurisdiction:
    - a. Flame-Spread Index: 0.
    - b. Smoke-Developed Index: 0.

10. Fungal Resistance: No observed growth on specimens per ASTM G 21.
11. Sound Absorption: NRC of 0.75 according to ASTM C 423 for Type A mounting according to ASTM E 795.

## 2.02 AUXILIARY FIRE-RESISTIVE MATERIALS

- A. General: Provide auxiliary fire-resistive materials that are compatible with SFRM and substrates and are approved by UL or another testing and inspecting agency acceptable to authorities having jurisdiction for use in fire-resistance designs indicated.
- B. Substrate Primers: For use on each substrate and with each sprayed fire-resistive product, provide primer that complies with one or more of the following requirements:
  1. Primer's bond strength complies with requirements specified in UL's "Fire Resistance Directory" for coating materials based on a series of bond tests per ASTM E 736.
  2. Primer is identical to those used in assemblies tested for fire-test-response characteristics of SFRM per ASTM E 119 by UL or another testing and inspecting agency acceptable to authorities having jurisdiction.
- C. Adhesive for Bonding Fire-Resistive Material: Product approved by manufacturer of SFRM.
- D. Metal Lath: Expanded metal lath fabricated from material of weight, configuration, and finish required to comply with fire-resistance designs indicated and fire-resistive material manufacturer's written recommendations. Include clips, lathing accessories, corner beads, and other anchorage devices required to attach lath to substrates and to receive SFRM.
- E. Reinforcing Fabric: Glass- or carbon-fiber fabric of type, weight, and form required to comply with fire-resistance designs indicated; approved and provided by manufacturer of SFRM.
- F. Reinforcing Mesh: Metallic mesh reinforcement of type, weight, and form required to comply with fire-resistance designs indicated; approved and provided by manufacturer of intumescent mastic coating fire-resistive material. Include pins and attachment.

## PART 3 - EXECUTION

### 3.01 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for substrates and other conditions affecting performance of work. A substrate is in satisfactory condition if it complies with the following:
  1. Substrates comply with requirements in the Section where the substrate and related materials and construction are specified.
  2. Substrates are free of dirt, oil, grease, release agents, rolling compounds, mill scale, loose scale, incompatible primers, incompatible paints, incompatible encapsulants, or other foreign substances capable of impairing bond of fire-resistive materials with substrates under conditions of normal use or fire exposure.

3. Objects penetrating fire-resistive material, including clips, hangers, support sleeves, and similar items, are securely attached to substrates.
  4. Substrates are not obstructed by ducts, piping, equipment, and other suspended construction that will interfere with applying fire-resistive material.
- B. Conduct tests according to fire-resistive material manufacturer's written recommendations to verify that substrates are free of substances capable of interfering with bond.
  - C. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.02 PREPARATION

- A. Cover other work subject to damage from fallout or overspray of fire-resistive materials during application.
- B. Clean substrates of substances that could impair bond of fire-resistive material, including dirt, oil, grease, release agents, rolling compounds, mill scale, loose scale, and incompatible primers, paints, and encapsulants.
- C. Prime substrates where recommended in writing by SFRM manufacturer unless compatible shop primer has been applied and is in satisfactory condition to receive SFRM.
- D. For exposed applications, repair substrates to remove surface imperfections that could affect uniformity of texture and thickness in finished surface of SFRM. Remove minor projections and fill voids that would telegraph through fire-resistive products after application.

### 3.03 APPLICATION, GENERAL

- A. Comply with fire-resistive material manufacturer's written instructions for mixing materials, application procedures, and types of equipment used to mix, convey, and spray on fire-resistive material, as applicable to particular conditions of installation and as required to achieve fire-resistance ratings indicated.
- B. Apply SFRM that is identical to products tested as specified in Part 1 "Quality Assurance" Article and substantiated by test reports, with respect to rate of application, accelerator use, sealers, topcoats, tamping, troweling, water overspray, or other materials and procedures affecting test results.
- C. Install metal lath and reinforcing fabric, as required, to comply with fire-resistance ratings and fire-resistive material manufacturer's written recommendations for conditions of exposure and intended use. Securely attach lath and fabric to substrate in position required for support and reinforcement of fire-resistive material. Use anchorage devices of type recommended in writing by SFRM manufacturer. Attach accessories where indicated or required for secure attachment of lath and fabric to substrate.
- D. Coat substrates with bonding adhesive before applying fire-resistive material where required to achieve fire-resistance rating or as recommended in writing by SFRM manufacturer for material and application indicated.

- E. Extend fire-resistive material in full thickness over entire area of each substrate to be protected. Unless otherwise recommended in writing by SFRM manufacturer, install body of fire-resistive covering in a single course.
- F. Spray apply fire-resistive materials to maximum extent possible. Following the spraying operation in each area, complete the coverage by trowel application or other placement method recommended in writing by SFRM manufacturer.
- G. For applications over encapsulant materials, including lockdown (post-removal) encapsulants, apply SFRM that differs in color from that of encapsulant over which it is applied.
- H. Where sealers are used, apply products that are tinted to differentiate them from SFRM over which they are applied.

#### 3.04 APPLICATION, CONCEALED SFRM

- A. Apply concealed SFRM in thicknesses and densities not less than those required to achieve fire-resistance ratings designated for each condition, but apply in greater thicknesses and densities if specified in Part 2 "Concealed SFRM" Article.
- B. Apply water overspray to concealed sprayed-fiber fire-resistive material as required to obtain designated fire-resistance rating.
- C. Cure concealed SFRM according to product manufacturer's written recommendations.

#### 3.05 FIELD QUALITY CONTROL

- A. Special Inspections: Owner will engage a qualified special inspector to perform the following special inspection and prepare reports:
  - 1. SFRM.
- B. Testing Agency: Owner will engage a qualified testing agency to perform tests and inspections and prepare test reports.
  - 1. Testing and inspecting agency will interpret tests and state in each report whether tested work complies with or deviates from requirements.
- C. Tests and Inspections: Testing and inspecting of completed applications of SFRM shall take place in successive stages, in areas of extent and using methods as follows. Do not proceed with application of SFRM for the next area until test results for previously completed applications of SFRM show compliance with requirements. Tested values must equal or exceed values indicated and required for approved fire-resistance design.
  - 1. Thickness for Floor, Roof, and Wall Assemblies: For each 1000-sq. ft. area, or partial area, on each floor, from the average of 4 measurements from a 144-sq. in. sample area, with sample width of not less than 6 inches per ASTM E 605.
  - 2. Thickness for Structural Frame Members: From a sample of 25 percent of structural members per floor, taking 9 measurements at a single cross section for structural frame beams or girders, 7 measurements of a single cross section for joists and trusses, and 12 measurements of a single cross section for columns per ASTM E 605.

3. Density for Floors, Roofs, Walls, and Structural Frame Members: At frequency and from sample size indicated for determining thickness of each type of construction and structural framing member, per ASTM E 605 or AWCI Technical Manual 12-A, Section 5.4.5, "Displacement Method."
  4. Bond Strength for Floors, Roofs, Walls, and Structural Framing Members: For each 10,000-sq. ft. area, or partial area, on each floor, cohesion and adhesion from one sample of size indicated for determining thickness of each type of construction and structural framing member, per ASTM E 736.
    - a. Field test SFRM that is applied to flanges of wide-flange, structural-steel members on surfaces matching those that will exist for remainder of steel receiving fire-resistive material.
    - b. If surfaces of structural steel receiving SFRM are primed or otherwise painted for coating materials, perform series of bond tests specified in UL's "Fire Resistance Directory." Provide bond strength indicated in referenced UL fire-resistance criteria, but not less than 150 lbf/sq. ft. minimum per ASTM E 736.
  5. If testing finds applications of SFRM are not in compliance with requirements, testing and inspecting agency will perform additional random testing to determine extent of noncompliance.
- D. Remove and replace applications of SFRM that do not pass tests and inspections for cohesion and adhesion, for density, or for both and retest as specified above.
- E. Apply additional SFRM, per manufacturer's written instructions, where test results indicate that thickness does not comply with specified requirements, and retest as specified above.

### 3.06 CLEANING, PROTECTING, AND REPAIR

- A. Cleaning: Immediately after completing spraying operations in each containable area of Project, remove material overspray and fallout from surfaces of other construction and clean exposed surfaces to remove evidence of soiling.
- B. Protect SFRM, according to advice of product manufacturer and Installer, from damage resulting from construction operations or other causes so fire protection will be without damage or deterioration at time of Substantial Completion.
- C. Coordinate application of SFRM with other construction to minimize need to cut or remove fire protection. As installation of other construction proceeds, inspect SFRM and patch any damaged or removed areas.
- D. Repair or replace work that has not successfully protected steel.

END OF SECTION 07 81 00



PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.02 SUMMARY

- A. This Section includes the following:
  - 1. Concealed sprayed fire-resistive material (SFRM).
- B. Related Sections include the following:
  - 1. Division 07 Section "Thermal Insulation" for fire-safing insulation.
  - 2. Division 07 Section "Penetration Firestopping" for fire-resistance-rated firestopping systems.
  - 3. Division 07 Section "Fire-Resistive Joint Systems" for fire-resistance-rated joint systems.

1.03 DEFINITIONS

- A. SFRM: Sprayed fire-resistive material.
- B. Concealed: Fire-resistive materials applied to surfaces that are concealed from view behind other construction when the Work is completed and have not been defined as exposed.
- C. Exposed: Fire-resistive materials applied to surfaces that are exposed to view when the Work is completed.

1.04 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Shop Drawings: Structural framing plans indicating the following:
  - 1. Locations and types of surface preparations required before applying SFRM.
  - 2. Extent of SFRM for each construction and fire-resistance rating, including the following:
    - a. Applicable fire-resistance design designations of a qualified testing and inspecting agency acceptable to authorities having jurisdiction.
      - i. For steel joist assemblies, include applicable fire-resistance design designations, with each steel joist tested with the same maximum tensile stress as each steel joist indicated on Drawings. Design designations with steel joists tested at lower maximum tensile stress than those indicated are not permitted.



- b. Minimum thicknesses needed to achieve required fire-resistance ratings of structural components and assemblies.
  - i. Fire resistant ratings indicated by design designations are considered restrained assemblies.
- 3. Treatment of SFRM after application.
- C. Product Certificates: For each type of SFRM, signed by product manufacturer.
- D. Qualification Data: For Installer, manufacturer, and testing agency.
- E. Compatibility and Adhesion Test Reports: From SFRM manufacturer indicating the following:
  - 1. Materials have been tested for bond with substrates.
  - 2. Materials have been verified by SFRM manufacturer to be compatible with substrate primers and coatings.
  - 3. Interpretation of test results and written recommendations for primers and substrate preparation needed for adhesion.
- F. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, for proposed SFRM.
- G. Research/Evaluation Reports: For SFRM.
- H. Field quality-control test and special inspection reports.

#### 1.05 QUALITY ASSURANCE

- A. Installer Qualifications: A firm or individual certified, licensed, or otherwise qualified by SFRM manufacturer as experienced and with sufficient trained staff to install manufacturer's products according to specified requirements. A manufacturer's willingness to sell its SFRM to Contractor or to an installer engaged by Contractor does not in itself confer qualification on the buyer.
- B. Source Limitations: Obtain SFRM through one source from a single manufacturer.
- C. Compatibility and Adhesion Testing: The Owner will engage a qualified testing and inspecting agency to test for compliance with requirements for specified performance and test methods.
  - 1. Test for bond per ASTM E 736 and requirements in UL's "Fire Resistance Directory" for coating materials. Provide bond strength indicated in referenced fire-resistance design, but not less than minimum specified in Part 2.
  - 2. Verify that manufacturer, through its own laboratory testing or field experience, has not found primers or coatings to be incompatible with SFRM.
- D. Fire-Test-Response Characteristics: Provide SFRM with the fire-test-response characteristics indicated, as determined by testing identical products per test method indicated below by UL or another testing and inspecting agency acceptable to

authorities having jurisdiction. Identify bags containing SFRM with appropriate markings of applicable testing and inspecting agency.

1. Fire-Resistance Ratings: Indicated by design designations from UL's "Fire Resistance Directory", for SFRM serving as direct-applied protection tested per ASTM E 119.
  2. Surface-Burning Characteristics: ASTM E 84.
- E. Provide products containing no detectable asbestos as determined according to the method specified in 40 CFR 763, Subpart E, Appendix E, Section 1, "Polarized Light Microscopy."
- F. Mockups: Apply mockups to verify selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.
1. Extent of Mockups: Approximately 100 sq. ft. of surface for each product indicated.
  2. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.
- G. Preinstallation Conference: Conduct conference at Project site to comply with requirements in Division 01 Section "Project Management and Coordination." Review methods and procedures related to SFRM including, but not limited to, the following:
1. Review products, exposure conditions, design ratings, restrained and unrestrained conditions, calculations, densities, thicknesses, bond strengths, and other performance requirements.
  2. Review and finalize construction schedule and verify sequencing and coordination requirements.
  3. Review weather predictions, ambient conditions, and proposed temporary protections for SFRM during and after installation.
  4. Review surface conditions and preparations.
  5. Review field quality-control testing procedures.

#### 1.06 DELIVERY, STORAGE, AND HANDLING

- A. Deliver products to Project site in original, unopened packages with intact and legible manufacturers' labels identifying product and manufacturer, date of manufacture, shelf life if applicable, and fire-resistance ratings applicable to Project.
- B. Use materials with limited shelf life within period indicated. Remove from Project site and discard materials whose shelf life has expired.
- C. Store materials inside, under cover, and aboveground; keep dry until ready for use. Remove from Project site and discard wet or deteriorated materials.

1.07 PROJECT CONDITIONS

- A. Environmental Limitations: Do not apply SFRM when ambient or substrate temperature is 40 deg F or lower unless temporary protection and heat are provided to maintain temperature at or above this level for 24 hours before, during, and for 24 hours after product application.
- B. Ventilation: Ventilate building spaces during and after application of SFRM. Use natural means or, if they are inadequate, forced-air circulation until fire-resistive material dries thoroughly.

1.08 COORDINATION

- A. Sequence and coordinate application of SFRM with other related work specified in other Sections to comply with the following requirements:
  - 1. Provide temporary enclosure as required to confine spraying operations and protect the environment.
  - 2. Provide temporary enclosures for applications to prevent deterioration of fire-resistive material due to exposure to weather and to unfavorable ambient conditions for humidity, temperature, and ventilation.
  - 3. Avoid unnecessary exposure of fire-resistive material to abrasion and other damage likely to occur during construction operations subsequent to its application.
  - 4. Do not begin applying fire-resistive material until clips, hangers, supports, sleeves, and other items penetrating fire protection are in place.
  - 5. Defer installing ducts, piping, and other items that would interfere with applying fire-resistive material until application of fire protection is completed.
  - 6. Do not install enclosing or concealing construction until after fire-resistive material has been applied, inspected, and tested and corrections have been made to defective applications.

PART 2 - PRODUCTS

2.01 CONCEALED SFRM

- A. Basis of Design Product: Subject to compliance with requirements, provide Isolatek International Corp.; Blaze-Shield II or one of the following:
  - 1. Carbolite Co., Fireproofing Products Div.; Pyrolite 15.
  - 2. GCP Applied Technologies; Monokote Type MK-6.
- B. Material Composition: Manufacturer's standard product, as follows:
  - 1. Concealed Cementitious SFRM: Factory-mixed, dry formulation of gypsum or portland cement binders, additives, and lightweight mineral or synthetic aggregates mixed with water at Project site to form a slurry or mortar for conveyance and application.

2. Application, Typical: Interior use.
  3. Application, Concealed Exterior: Designated for exterior use where indicated, by a qualified testing agency acceptable to authorities having jurisdiction.
    - a. Provide manufacturer's recommended field applied primer applied to shop galvanized, exterior structural steel indicated to receive cementitious SFRM.
- C. Physical Properties: Minimum values, unless otherwise indicated, or higher values required to attain designated fire-resistance ratings, measured per standard test methods referenced with each property as follows:
1. Dry Density: 15 lb/cu. ft. minimum for average and individual densities, or greater if required to attain fire-resistance ratings indicated, per ASTM E 605 or AWCI Technical Manual 12-A, Section 5.4.5, "Displacement Method."
  2. Thickness: Minimum average thickness required for fire-resistance design indicated according to the following criteria, but not less than 0.375 inch, per ASTM E 605:
    - a. Where the referenced fire-resistance design lists a thickness of 1 inch or more, the minimum allowable individual thickness of SFRM is the design thickness minus 0.25 inch. Where the referenced fire-resistance design lists a thickness of less than 1 inch but more than 0.375 inch, the minimum allowable individual thickness of SFRM is the greater of 0.375 inch or 75 percent of the design thickness.
    - b. No reduction in average thickness is permitted for those fire-resistance designs whose fire-resistance ratings were established at densities of less than 15 lb/cu. ft.
  3. Bond Strength: Minimum 150 lbf/sq. ft. per ASTM E 736 based on laboratory testing of 0.75-inch minimum thickness of SFRM. 430 psf for buildings over 75'
  4. Compressive Strength: Minimum 10 lbf/sq. in. minimum per ASTM E 761. Minimum thickness of SFRM tested shall be 0.75 inch and minimum dry density shall be as specified but not less than 15 lb/cu. ft.
  5. Corrosion Resistance: No evidence of corrosion per ASTM E 937.
  6. Deflection: No cracking, spalling, or delamination per ASTM E 759.
  7. Effect of Impact on Bonding: No cracking, spalling, or delamination per ASTM E 760.
  8. Air Erosion: Maximum weight loss of 0.025 g/sq. ft. in 24 hours per ASTM E 859. For laboratory tests, minimum thickness of SFRM is 0.75 inch, maximum dry density is 15

lb/cu. ft., test specimens are not prepurged by mechanically induced air velocities, and tests are terminated after 24 hours.

9. Fire-Test-Response Characteristics: Provide SFRM with the following surface-burning characteristics as determined by testing identical products per ASTM E 84 by UL or another testing and inspecting agency acceptable to authorities having jurisdiction:
  - a. Flame-Spread Index: 0.
  - b. Smoke-Developed Index: 0.
10. Fungal Resistance: No observed growth on specimens per ASTM G 21.
11. Sound Absorption: NRC of 0.75 according to ASTM C 423 for Type A mounting according to ASTM E 795.

## 2.02 AUXILIARY FIRE-RESISTIVE MATERIALS

- A. General: Provide auxiliary fire-resistive materials that are compatible with SFRM and substrates and are approved by UL or another testing and inspecting agency acceptable to authorities having jurisdiction for use in fire-resistance designs indicated.
- B. Substrate Primers: For use on each substrate and with each sprayed fire-resistive product, provide primer that complies with one or more of the following requirements:
  1. Primer's bond strength complies with requirements specified in UL's "Fire Resistance Directory" for coating materials based on a series of bond tests per ASTM E 736.
  2. Primer is identical to those used in assemblies tested for fire-test-response characteristics of SFRM per ASTM E 119 by UL or another testing and inspecting agency acceptable to authorities having jurisdiction.
- C. Adhesive for Bonding Fire-Resistive Material: Product approved by manufacturer of SFRM.
- D. Metal Lath: Expanded metal lath fabricated from material of weight, configuration, and finish required to comply with fire-resistance designs indicated and fire-resistive material manufacturer's written recommendations. Include clips, lathing accessories, corner beads, and other anchorage devices required to attach lath to substrates and to receive SFRM.
- E. Reinforcing Fabric: Glass- or carbon-fiber fabric of type, weight, and form required to comply with fire-resistance designs indicated; approved and provided by manufacturer of SFRM.
- F. Reinforcing Mesh: Metallic mesh reinforcement of type, weight, and form required to comply with fire-resistance designs indicated; approved and provided by manufacturer of intumescent mastic coating fire-resistive material. Include pins and attachment.

### PART 3 - EXECUTION

#### 3.01 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for substrates and other conditions affecting performance of work. A substrate is in satisfactory condition if it complies with the following:
  - 1. Substrates comply with requirements in the Section where the substrate and related materials and construction are specified.
  - 2. Substrates are free of dirt, oil, grease, release agents, rolling compounds, mill scale, loose scale, incompatible primers, incompatible paints, incompatible encapsulants, or other foreign substances capable of impairing bond of fire-resistive materials with substrates under conditions of normal use or fire exposure.
  - 3. Objects penetrating fire-resistive material, including clips, hangers, support sleeves, and similar items, are securely attached to substrates.
  - 4. Substrates are not obstructed by ducts, piping, equipment, and other suspended construction that will interfere with applying fire-resistive material.
- B. Verify that roof construction, installation of roof-top HVAC equipment, and other related work are completed.
- C. Conduct tests according to fire-resistive material manufacturer's written recommendations to verify that substrates are free of substances capable of interfering with bond.
- D. Proceed with installation only after unsatisfactory conditions have been corrected.

#### 3.02 PREPARATION

- A. Cover other work subject to damage from fallout or overspray of fire-resistive materials during application.
- B. Clean substrates of substances that could impair bond of fire-resistive material, including dirt, oil, grease, release agents, rolling compounds, mill scale, loose scale, and incompatible primers, paints, and encapsulants.
- C. Prime substrates where recommended in writing by SFRM manufacturer unless compatible shop primer has been applied and is in satisfactory condition to receive SFRM.
- D. For exposed applications, repair substrates to remove surface imperfections that could affect uniformity of texture and thickness in finished surface of SFRM. Remove minor projections and fill voids that would telegraph through fire-resistive products after application.

#### 3.03 APPLICATION, GENERAL

- A. Comply with fire-resistive material manufacturer's written instructions for mixing materials, application procedures, and types of equipment used to mix, convey, and spray on fire-

resistive material, as applicable to particular conditions of installation and as required to achieve fire-resistance ratings indicated.

- B. Apply SFRM that is identical to products tested as specified in Part 1 "Quality Assurance" Article and substantiated by test reports, with respect to rate of application, accelerator use, sealers, topcoats, tamping, troweling, water overspray, or other materials and procedures affecting test results.
- C. Install metal lath and reinforcing fabric, as required, to comply with fire-resistance ratings and fire-resistive material manufacturer's written recommendations for conditions of exposure and intended use. Securely attach lath and fabric to substrate in position required for support and reinforcement of fire-resistive material. Use anchorage devices of type recommended in writing by SFRM manufacturer. Attach accessories where indicated or required for secure attachment of lath and fabric to substrate.
- D. Coat substrates with bonding adhesive before applying fire-resistive material where required to achieve fire-resistance rating or as recommended in writing by SFRM manufacturer for material and application indicated.
- E. Extend fire-resistive material in full thickness over entire area of each substrate to be protected. Unless otherwise recommended in writing by SFRM manufacturer, install body of fire-resistive covering in a single course.
- F. Spray apply fire-resistive materials to maximum extent possible. Following the spraying operation in each area, complete the coverage by trowel application or other placement method recommended in writing by SFRM manufacturer.
- G. For applications over encapsulant materials, including lockdown (post-removal) encapsulants, apply SFRM that differs in color from that of encapsulant over which it is applied.
- H. Where sealers are used, apply products that are tinted to differentiate them from SFRM over which they are applied.

#### 3.04 APPLICATION, CONCEALED SFRM

- A. Apply concealed SFRM in thicknesses and densities not less than those required to achieve fire-resistance ratings designated for each condition, but apply in greater thicknesses and densities if specified in Part 2 "Concealed SFRM" Article.
- B. Apply water overspray to concealed sprayed-fiber fire-resistive material as required to obtain designated fire-resistance rating.
- C. Cure concealed SFRM according to product manufacturer's written recommendations.

#### 3.05 FIELD QUALITY CONTROL

- A. Special Inspections: Owner will engage a qualified special inspector to perform the following special inspection and prepare reports:
  - 1. SFRM.
- B. Testing Agency: Owner will engage a qualified testing agency to perform tests and inspections and prepare test reports.

1. Testing and inspecting agency will interpret tests and state in each report whether tested work complies with or deviates from requirements.
- C. Tests and Inspections: Testing and inspecting of completed applications of SFRM shall take place in successive stages, in areas of extent and using methods as follows. Do not proceed with application of SFRM for the next area until test results for previously completed applications of SFRM show compliance with requirements. Tested values must equal or exceed values indicated and required for approved fire-resistance design.
1. Thickness for Floor, Roof, and Wall Assemblies: For each 1000-sq. ft. area, or partial area, on each floor, from the average of 4 measurements from a 144-sq. in. sample area, with sample width of not less than 6 inches per ASTM E 605.
  2. Thickness for Structural Frame Members: From a sample of 25 percent of structural members per floor, taking 9 measurements at a single cross section for structural frame beams or girders, 7 measurements of a single cross section for joists and trusses, and 12 measurements of a single cross section for columns per ASTM E 605.
  3. Density for Floors, Roofs, Walls, and Structural Frame Members: At frequency and from sample size indicated for determining thickness of each type of construction and structural framing member, per ASTM E 605 or AWCI Technical Manual 12-A, Section 5.4.5, "Displacement Method."
  4. Bond Strength for Floors, Roofs, Walls, and Structural Framing Members: For each 10,000-sq. ft. area, or partial area, on each floor, cohesion and adhesion from one sample of size indicated for determining thickness of each type of construction and structural framing member, per ASTM E 736.
    - a. Field test SFRM that is applied to flanges of wide-flange, structural-steel members on surfaces matching those that will exist for remainder of steel receiving fire-resistive material.
    - b. If surfaces of structural steel receiving SFRM are primed or otherwise painted for coating materials, perform series of bond tests specified in UL's "Fire Resistance Directory." Provide bond strength indicated in referenced UL fire-resistance criteria, but not less than 150 lbf/sq. ft. minimum per ASTM E 736.
  5. If testing finds applications of SFRM are not in compliance with requirements, testing and inspecting agency will perform additional random testing to determine extent of noncompliance.
- D. Remove and replace applications of SFRM that do not pass tests and inspections for cohesion and adhesion, for density, or for both and retest as specified above.
- E. Apply additional SFRM, per manufacturer's written instructions, where test results indicate that thickness does not comply with specified requirements, and retest as specified above.



3.06 CLEANING, PROTECTING, AND REPAIR

- A. Cleaning: Immediately after completing spraying operations in each containable area of Project, remove material overspray and fallout from surfaces of other construction and clean exposed surfaces to remove evidence of soiling.
- B. Protect SFRM, according to advice of product manufacturer and Installer, from damage resulting from construction operations or other causes so fire protection will be without damage or deterioration at time of Substantial Completion.
- C. Coordinate application of SFRM with other construction to minimize need to cut or remove fire protection. As installation of other construction proceeds, inspect SFRM and patch any damaged or removed areas.
- D. Repair or replace work that has not successfully protected steel.

END OF SECTION 07 81 00

PART 1 - GENERAL

RELATED DOCUMENTS

Drawings and general provisions of Contract, including General and Supplementary General Conditions and Division-1 Specification sections, apply to work of this section.

1.01 DEFINITIONS

- A. Firestopping: Material or combination of materials used to retain integrity of fire-rated construction by maintaining an effective barrier against the spread of flame, smoke, and hot gases through penetrations in fire rated wall and floor assemblies.

1.02 GENERAL DESCRIPTION OF THE WORK OF THIS SECTION

Only tested firestop systems shall be used in specific locations as follows:

- A. Penetrations for the passage of duct, cable, cable tray, conduit, piping, electrical busways and raceways through fire-rated vertical barriers (walls and partitions), horizontal barriers (floor/ceiling assemblies), and vertical service shaft walls and partitions.
- B. Openings between structurally separate sections of wall or floors.
- C. Gaps between the top of walls and ceilings or roof assemblies.
- D. Openings and penetrations in fire-rated partitions or walls containing fire doors.
- E. Openings around structural members which penetrate floors or walls.

1.03 RELATED WORK OF OTHER SECTIONS

- A. Coordinate work of this section with work of other sections as required to properly execute the work and as necessary to maintain satisfactory progress of the work of other sections, including:
  - 1. Section 07 90 00: Joint Protection
  - 2. Section 09 21 16: Gypsum Board Assemblies
  - 3. Divisions 22, 23, 26.

1.04 REFERENCES

- A. Test Requirements: ASTM E-814, "Standard Method of Fire Tests of Through Penetration Fire Stops".
- B. Test Requirements: UL 1479, "Fire Tests of Through-Penetration Firestops".
- C. ASTM E199-07a Standard Test methods for Fire Tests of Building Construction and Materials.
- D. Underwriters Laboratories (UL) of Northbrook, IL runs ASTM E-814 under their designation of UL 1479 and publishes the results in their "FIRE RESISTANCE DIRECTORY" that is updated annually with a midyear supplement.

- a. UL Fire Resistance Directory:
    - i. Through-Penetration Firestop Devices (XHCR)
    - ii. Fire Resistance Ratings (BXUV)
    - iii. Through-Penetration Firestop Systems (XHEZ)
    - iv. Fill, Voids, or Cavity Material (XHHW)
    - v. Forming Materials (XHKU)
  - b. Alternate Systems: Omega Point Laboratories directory" (updated annually).
- E. Test Requirements: UL 2079, "Tests for Resistance of Building Joint Systems" (August 2015).
- F. ASTM E-84, Standard Test Method for Surface Burning Characteristics of Building Materials.
- G. International Firestop Council Guidelines for Evaluating Firestop Systems Engineering Judgments.
- H. International Building Code 2015 with 2018 Connecticut Supplements.
- I. NFPA 101-Life Safety Code
- J. NFPA 70-National Electric Code

#### 1.05 QUALITY ASSURANCE

- A. A manufacturer's direct representative (not distributor or agent) to be on-site during initial installation of firestop systems to train appropriate contractor personnel in proper selection and installation procedures. This will be done per manufacturer's written recommendations published in their literature and drawing details.
- B. Firestop System installation must meet requirements of ASTM E-814, UL 1479 or UL 2079 tested assemblies that provide a fire rating equal to that of construction being penetrated.
- C. Proposed firestop materials and methods shall conform to applicable governing codes having local jurisdiction.
- D. Firestop Systems do not reestablish the structural integrity of load bearing partitions/assemblies, nor support live loads and traffic. Installer shall consult the structural engineer prior to penetrating any load bearing assembly.
- E. For those firestop applications that exist for which no UL tested system is available through any manufacturer, a manufacturer's engineering judgment derived from similar UL system designs or other tests will be submitted to local authorities having jurisdiction for their review and approval prior to installation. Engineer judgment drawings must follow requirements set forth by the International Firestop Council.

#### 1.06 SUBMITTALS

- A. Submit Product Data: Manufacturer's specifications and technical data for each material including the composition and limitations, documentation of UL firestop systems to be used and manufacturer's installation instructions to comply with Section 01 33 00.

- B. Manufacturer's engineering judgment identification number and drawing details when no UL system is available for an application. Engineer judgment must include both project name and contractor's name who will install firestop system as described in construction documents.
- C. Submit material safety data sheets provided with product delivered to job-site.

#### 1.07 INSTALLER QUALIFICATIONS

- A. Engage an experienced Installer who is certified, licensed, or otherwise qualified by the firestopping manufacturer as having been provided the necessary training to install manufacturer's products per specified requirements. A manufacturer's willingness to sell its firestopping products to the Contractor or to an Installer engaged by the Contractor does not in itself confer qualification on the buyer.

#### 1.08 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials undamaged in manufacturer's clearly labeled, unopened containers, identified with brand, type, and UL label where applicable.
- B. Coordinate delivery of materials with scheduled installation to allow minimum storage time at job-site.
- C. Store materials under cover and protect from weather and damage in compliance with manufacturer's requirements, including temperature restrictions.
- D. Comply with recommended procedures, precautions or remedies described in material safety data sheets as applicable.
- E. Do not use damaged or expired materials.

#### 1.09 PROJECT CONDITIONS

- A. Do not use materials that contain flammable solvents.
- B. Schedule installation of firestopping after completion of penetrating item installation but prior to covering or concealing of openings.
- C. Verify existing conditions and substrates before starting work. Correct unsatisfactory conditions before proceeding.
- D. Weather conditions: Do not proceed with installation of firestop materials when temperatures exceed the manufacturer's recommended limitations for installation printed on product label and product data sheet.
- E. During installation, provide masking and drop cloths to prevent firestopping materials from contaminating any adjacent surfaces.

### PART 2 – PRODUCTS

#### 2.01 FIRESTOPPING, GENERAL

- A. Provide firestopping composed of components that are compatible with each other, the substrates forming openings, and the items, if any, penetrating the firestopping under conditions of service and application, as demonstrated by the firestopping manufacturer based on testing and field experience.
- B. Provide components for each firestopping system that are needed to install fill material. Use only components specified by the firestopping manufacturer and approved by the qualified testing agency for the designated fire-resistance-rated system.
- C. Firestopping Materials are either "cast-in-place" (integral with concrete placement) or "post-installed." Provide cast-in-place firestop devices prior to concrete placement.
- D. Firestopping for all trades shall be undertaken by one firm and fall under one warranty.
- E. Penetration Firestopping Materials must be FM Global Approved.

## 2.02 ACCEPTABLE MANUFACTURERS

- A. Subject to compliance with through penetration firestop systems (XHEZ) listed in Volume II of the UL Fire Resistance Directory, provide products of the following manufacturers as identified below:
  - 1. Hilti, Inc., Plano, Texas, (800) 879-8000
  - 2. Tremco Sealants & Coatings, Beachwood, Ohio, (800) 321-7906
  - 3. 3M Fire Protection Products, St. Paul, Minnesota, (800) 328-1687
  - 4. STI Firestop N. America, 210 Evans Way Somerville, New Jersey, (800) 992-1180

Provide products from one of the three acceptable manufacturers. Substitutions requests shall be considered in accordance with contract provisions.

## 2.03 MATERIALS

- A. Use only firestop products that have been UL 1479, ASTM E-814, or UL 2079 tested for specific fire-rated construction conditions conforming to construction assembly type, penetrating item type, annular space requirements, and fire-rating involved for each separate instance.
- B. Cast-in-place firestop devices for use with non-combustible and combustible plastic pipe (closed and open piping systems) penetrating concrete floors, the following products are acceptable:
  - 1. Hilti Cast-In-Place Firestop Device (CP 680-P)
  - 2. 3M™ Fire Barrier Cast-In Devices.
  - 3. STI Firestop Cast-in Firestop Device.
- C. For penetrations by non-combustible items including steel pipe, copper pipe, rigid steel conduit and electrical metallic tubing (EMT), the following materials are acceptable:
  - 1. Hilti Flexible Firestop Sealant (CP 606)
  - 2. Hilti Intumescent Firestop Sealant (FS-ONE MAX)
  - 3. 3M Fire Stop Sealant 2000+
  - 4. 3M Fire Barrier CP25 WB+ Sealant
  - 5. Tremco Tremstop Fyre-Sil Sealant

- D. For fire-rated construction joints and other gaps, the following materials are acceptable:
1. Hilti Silicone Sealat Gun Grade (CFS-S SIL GG)
  2. Hilti Flexible Firestop Sealant (CP 606)
  3. Hilti Firestop Joint Spray (CFS-SP WB)
  4. 3M Firestop Sealant 2000+
  5. Tremco Tremstop Fyre-Sil Sealant
- E. For penetrations by combustible items (penetrants consumed by high heat and flame) including insulated metal pipe, PVC jacketed, flexible cable or cable bundles and plastic pipe (closed piping systems), the following materials are acceptable:
1. Hilti Intumescent Firestop Sealant (FS-ONE MAX)
  2. Hilti Firestop Collar (CP 643)
  3. 3M Fire Barrier CP25 WB+ Sealant
  4. 3M Fire Barrier FS-195 Wrap/Strip
  5. Tremco Tremstop WBM Intumescent Firestop Sealant
- F. For penetrations by combustible plastic pipe (open piping systems), the following materials are acceptable:
1. Hilti CP 643 Firestop Collar
  2. Hilti Intumescent Firestop Sealant (FS-ONE MAX)
  3. 3M Fire Barrier PPD Plastic Pipe Device
- G. For large size/complex penetrations made to accommodate cable trays, multiple steel and copper pipes, electrical busways in raceways, the following materials are acceptable:
1. Hilti Trowelable Firestop Mortar (CP 637)
  2. Hilti Firestop Block (CFS-BL)
  3. Hilti Composite Sheet (CFS-COS)
  4. 3M Fire Barrier rated Foam FIP 1-Step
  5. 3M Fire Barrier Mortar
  6. 3M Fire Barrier CS-195 Composite Sheet
- H. For openings between structurally separate sections of walls and floors, top-of-walls, the following materials are acceptable:
1. Hilti Elastomeric Firestop Sealant (CP 601s)
  2. Hilti Firestop Joint Spray (CFS-SP WB)
  3. Hilti Flexible Firestop Sealant (CP 606)
  4. Hilti Intumescent Firestop Sealant (FS-ONE MAX)
  5. 3M Fire Barrier CP 25 WB+ Sealant
  6. STI Elastomeric Sealant.
- I. Provide a firestop system with an "F" Rating as determined by UL 1479 or ASTM E814 which is equal to the time rating of construction being penetrated.
- J. Provide a firestop system with an Assembly Rating as determined by UL 2079 which is equal to the time rating of construction being penetrated.

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## PART 3 - EXECUTION

### 3.01 PREPARATION

- A. Verification of Conditions: Examine areas and conditions under which work is to be performed and identify conditions detrimental to proper or timely completion.
1. Verify penetrations are properly sized and in suitable condition for application of materials.
  2. Surfaces to which firestop materials will be applied shall be free of dirt, grease, oil, rust, laitance, release agents, water repellents, and any other substances that may affect proper adhesion.
  3. Provide masking and temporary covering to prevent soiling of adjacent surfaces by firestopping materials.
  4. Comply with manufacturer's recommendations for temperature and humidity conditions before, during and after installation of firestopping.
  5. Do not proceed until unsatisfactory conditions have been corrected.

### 3.02 COORDINATION

- A. Coordinate construction of openings, penetrations and construction joints to ensure that the fire stop systems are installed according to specified requirements.
- B. Coordinate sizing of sleeves, openings, core-drilled holes, or cut openings to accommodate through-penetration fire stop systems. Coordinate construction and sizing of joints to ensure that fire-resistive joint systems are installed according to specified requirements.
- C. Coordinate fire stopping with other trades so that obstructions are not placed in the way prior to the installation of the fire stop systems.
- D. Do not cover up through-penetration fire stop and joint system installations that will become concealed behind other construction until each installation has been examined by the building inspector.

### 3.03 INSTALLATION

- A. Regulatory Requirements: Install firestop materials in accordance with published "Through-Penetration Firestop Systems" in UL's Fire Resistance Directory.
- B. Manufacturer's Instructions: Comply with manufacturer's instructions for installation of through-penetration materials.
1. Seal all holes or voids made by penetrations to ensure an air and water resistant seal.
  2. Consult with mechanical engineer, project manager prior to installation of UL firestop systems that might hamper the performance of fire dampers as it pertains to duct work.
  3. Protect materials from damage on surfaces subjected to traffic.

### 3.04 FIELD QUALITY CONTROL

- A. Examine sealed penetration areas to ensure proper installation before concealing or enclosing areas.
- B. Keep areas of work accessible until inspection by applicable code authorities.
- C. Perform under this section patching and repairing of firestopping caused by cutting or penetrating of existing firestop systems already installed by other trades.
- D. See 1.05 A.

3.05 ADJUSTING AND CLEANING

- A. Remove equipment, materials and debris, leaving area in undamaged, clean condition.
- B. Clean all surfaces adjacent to sealed holes and joints to be free of excess firestop materials and soiling as work progresses.

END OF SECTION 07 84 00





PART 1 - GENERAL

RELATED DOCUMENTS

Drawings and general provisions of Contract, including General and Supplementary General Conditions and Division-1 Specification sections, apply to work of this section.

1.01 WORK INCLUDED

- A. Preparing sealant substrate surfaces.
- B. Sealant and backing.

1.02 RELATED SECTIONS

- A. Section 06 10 00 – Carpentry
- B. Section 07 53 23 – EPDM Roofing

1.03 SUBMITTALS

- A. Submit samples and product data under provisions of General Conditions and Section 01 33 00.
- B. Submit product data indicating sealant chemical characteristics, performance criteria, limitations, and color availability.
- C. Submit two samples illustrating colors selected.
- D. Submit manufacturer's installation instructions under provisions of General Conditions and Section 01 33 00.
- E. Submit manufacturer's certificate that products meet or exceed specified requirements.

1.04 QUALITY ASSURANCE

- A. Manufacturer: Company specializing in manufacturing the products specified in this Section with minimum three years documented experience.
- B. Applicator: Company specializing in applying the work of this Section with minimum three years documented experience.
- C. Conform to Sealant Waterproofing and Restoration Institute requirements for materials and installation.

1.05 ENVIRONMENTAL REQUIREMENTS

- A. Do not install solvent curing sealants in enclosed building spaces.
- B. Maintain temperature and humidity recommended by the sealant manufacturer during and after installation.

1.06 SEQUENCING AND SCHEDULING

- A. Coordinate work under provisions of Section General Conditions and Section 01 31 00.
- B. Coordinate the work of this Section with all Sections referencing this Section.

1.07 WARRANTY

- A. Provide a five (5) year warranty on materials and workmanship.

PART 2 - PRODUCTS

2.01 SEALANT MANUFACTURERS

- A. Tremco
- B. Pecora
- C. Dap
- D. Dow
- E. General Electric

2.02 SEALANTS

- A. Sealant for interior use between joints and unlike materials: Silicone, conform to TT-S-002306, ASTM C920, FS TT-S-01543, Type II, Class A, low modular type.
- B. Sealant at fire rated walls, around pipe, conduit, and other wall penetrations: Dow Corning Fire Stop sealant, floor/wall penetration seal design System 129, UL classified.
- C. Sealant for exterior uses and penetrations in exterior walls. One part urethane type II conforming to the requirements of FS TT-S-2300, Tremco Dymonic, or Pecora DynaTrol 1.

2.03 ACCESSORIES

- A. Primer: Non-staining type, recommended by sealant manufacturer to suit application.
- B. Joint Cleaner: Non-corrosive and non-staining type, recommended by sealant manufacturer; compatible with joint forming materials.
- C. Joint Backing: Expanded or extruded closed-cell polyethylene for joint open in back and joints requiring filler to create proper depth and polyethylene bond breaker tape for joints closed in back.
- D. Bond Breaker: Pressure sensitive tape recommended by sealant manufacturer to suit application.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verify that surfaces and joint openings are ready to receive work and field measurements are as shown on Drawings and recommended by the manufacturer.
- B. Beginning of installation means installer accepts existing surfaces.

3.02 PREPARATION

- A. Clean joints in accordance with manufacturer's instructions.
- B. Remove loose materials and foreign matter which might impair adhesion of sealant.
- C. Verify that joint backing and release tapes are compatible with sealant.
- D. Perform preparation.
- E. Protect elements surrounding the work of this Section from damage or disfiguration.

3.03 INSTALLATION

- A. Install sealant in accordance with manufacturer's instructions.
- B. Measure joint dimensions and size materials to achieve required width/depth ratios.
- C. Install joint backing to achieve a neck dimension no greater than 1/3 the joint width.
- D. Install bond breaker where joint backing is not used.
- E. Apply sealant within recommended application temperature ranges. Consult manufacturer when sealant cannot be applied within these temperature ranges.
- F. Install sealant free of air pockets, foreign embedded matter, ridges, and sags.
- G. Tool joints concave.

3.04 CLEANING AND REPAIRING

- A. Clean work under provisions of General Conditions and Supplemental General Conditions.
- B. Clean adjacent soiled surfaces.
- C. Repair or replace defaced or disfigured finishes caused by work of this Section.

3.05 PROTECTION OF FINISHED WORK

- A. Protect finished installation under provisions of General Conditions and Supplemental General conditions.
- B. Protect sealants until cured.

END OF SECTION 07 90 00



PART 1 - GENERAL

RELATED DOCUMENTS

Drawings and general provisions of Contract, including General and Supplementary General Conditions and Division-1 Specification sections, apply to work of this section.

1.01 WORK INCLUDED

- A. Custom fabricated fire rated steel doors.
- B. Fire rated assemblies.

1.02 RELATED WORK

- A. Section 05 50 00 - Metal Fabrications.
- B. Section 08 71 00 - Door Hardware.
- C. Section 09 91 00 - Painting and Coating
- D. Section 08 80 00 - Glazing

1.03 REFERENCES

- A. ASTM A525 - Steel Sheet, Zinc-Coated (Galvanized) by the Hot Dip Process, General Requirements.
- B. DHI - Door Hardware Institute: The Installation of Commercial Steel Doors and Steel Frames, Insulated Steel Doors in Wood Frames and Builder's Hardware.
- C. NAAMM CHM - Custom Hollow Metal Doors (Section 7).
- D. NAAMM CHM - Fire Rated Custom Metal Doors and Frames (Section 8).
- E. NFPA 252 - Fire Tests of Door Assemblies.
- F. UL 10B - Fire Tests of Door Assemblies.

1.04 QUALITY ASSURANCE

- A. Conform to requirements of NAAMM CHM-1-74 as supplemented in this section.
- B. Fire-rated door and frame construction conform to UL 10 B. B label doors to be 1-1/2 hr. rated.
- C. Installed frame and door assembly to conform to NFPA 80 for fire rated class indicated.

1.05 REGULATORY REQUIREMENTS

- A. Conform to 2018 Connecticut State Fire Safety Code and 2015 International Building Code with 2018 Connecticut Supplements for fire rated frames and doors.
- B. Ensure that new personnel doors can withstand the following inward and outward wall area lateral design pressures in accordance with FM Global Data Sheet 1-28, Wind Design, based on a basic wind speed of 110 mph, a ground roughness coefficient of D, a building importance factor of 1.15 for the components and cladding, and choose enclosure building classification. Calculations are based on a building height of 118 ft., and a building width of 133 ft.

Wall Area	Inward (psf)	Outward (psf)
Zone 4	100	100
Zone 5*	100	180

\* Zone 5 is the considered 13 ft distance along any wall from the corners of the facility. A safety factor of 2.0 is already applied to the inward and outward design pressures obtained from Data Sheet 1-28 above.

1.06 SHOP DRAWINGS AND PRODUCT DATA

- A. Submit shop drawings and product data under provisions of General Conditions and Section 01 33 00.
- B. Indicate door elevations, stile and rail reinforcement and closure method, and cut outs for glazing.
- C. Submit manufacturer's installation instructions under provisions of General Conditions and Section 01 33 00.

1.07 DELIVERY, STORAGE, AND PROTECTION

- A. Protect products under provisions of General Conditions and Section 01 60 00.
- B. Protect doors with resilient packaging, sealed with heat shrunk plastic.
- C. Break seal on-site to permit ventilation.

1.08 WARRANTY

- A. Provide five year manufacturer's warranty under provisions of General Conditions.
- B. Warranty for face distortion, warping, defective materials, and exterior weather-stripping.

PART 2 - PRODUCTS

2.01 BASIC MATERIALS

- A. Sheet steel for frames shall be hot rolled prime quality carbon steel.
- B. Sheet steel for doors shall be cold rolled stretcher level sheet steel.
- C. Sheet steel for exterior door shall be galvanized.

2.03 DOORS

- A. Face sheets shall be 16 ga. steel for exterior doors.
- B. Construction: Vertical edges of face panels shall be joined and welded, then ground smooth to conceal seams.

- C. Epoxy bond, resin impregnated honeycomb core to face sheets for interior doors, polyurethane insulation for exterior doors, and mineral fiberboard for label doors.
- D. Glazing Stops: 20 ga. steel, secured with countersunk sheet metal screws at minimum 13" intervals.

2.04     ACCESSORIES

- A. Jamb Anchors: As required for various wall construction.
- B. Silencers: Resilient rubber.
- C. Glazing Bars: Rolled steel channel shape, square corners; prepared for countersink style tamperproof screws at 12" o.c. minimum.

2.05     PROTECTIVE COATINGS

- A. Bituminous Coating: Fibered asphalt emulsion.
- B. Primer: Factory coat of primer to be applied over galvanized steel for field painting.

2.06     FABRICATION

- A. Fabricate doors with hardware reinforcement plates welded in place.
- B. Prepare frame for silencers. Provide three single silencers for single doors on strike side.
- C. Attach fire rated label to each door unit.
- D. Close top edge of exterior door with inverted steel channel closure. Seal joints watertight.

2.07     FINISH

- A. Exterior Units: 1.25 oz/sq ft galvanized.
- B. Primer: Air-dried.
- C. Finish: Field painting specified in Section 09 91 00.
- D. Door shall be leveled and ground smooth. Apply mineral filler to eliminate weld scar and other blemishes.

2.08     PREPARATION FOR FINISH HARDWARE

- A. Prepare doors and frames to receive hardware:
  - 1. Hardware supplier shall furnish hollow metal manufacturer's approved hardware schedule, hardware templates, and samples of physical hardware where necessary to insure correct fitting and installation.
  - 2. Preparation includes sinkages, mortar and dust boxes, and cut-outs for mortise and concealed hardware and rubber silencers.



- B. Provide reinforcements for both concealed and surface applied hardware:
  - 1. Drill and tap mortise reinforcements at factory, using templates.
  - 2. Install reinforcements with concealed connections designed to develop full strength of reinforcements.

### PART 3 - EXECUTION

#### 3.01 INSTALLATION

- 1. Install doors in accordance with DHI.
- 2. Install glazing.
- 3. Apply hardware in accord with hardware manufacturer's templates and instructions.
- 4. Adjust operable parts for correct function.
- 5. Remove hardware, with the exception of primer coated items, tag, box and reinstall after finish paint work is completed.
- 6. Installation of labeled doors shall conform with the State of Connecticut Basic Building Code.
- 7. Doors shall be hung with 1/16" space at head and jambs with 3/16" clearance over thresholds.

#### 3.02 PRIME COAT TOUCH-UP

- A. Immediately after erection, areas where primer coat has been damaged shall be sanded smooth and touched up with same primer as applied at shop.
- B. Remove rust before above specified touch-up is applied. See Section 09 91 00.
- C. Touch-up shall not be obvious.

#### 3.03 PROTECTION

- A. Protect installed hollow metal work against damage from other construction work.

#### 3.04 TOLERANCES

- A. Maximum Diagonal Distortion = 1/16 inch measured with straight edge, corner to corner.
- B. 1/8" over thresholds.

#### 3.05 ADJUSTING AND CLEANING

- A. Adjust for smooth and balanced door movement.

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END OF SECTION 08 13 16

PART 1 - GENERAL

RELATED DOCUMENTS

Drawings and general provisions of Contract, including General and Supplementary General Conditions and Division-1 Specification sections, apply to work of this section.

1.01 WORK INCLUDED

- A. Wall access panels for gypsum wall board, and unit masonry construction.

1.02 RELATED WORK

- A. Section 02 41 19 – Selective Demolition
- B. Section 09 21 16 – Gypsum Board Assemblies
- C. Section 06 10 00 – Carpentry
- D. Section 09 91 00 – Painting and Coating
- E. Divisions 22, 23, 26.

1.03 WARRANTY

- A. Five years against defects in material or workmanship.

1.04 SHOP DRAWINGS AND PRODUCT DATA

- A. Submit shop drawings and product data under provisions of General Conditions and Section 01 33 00.
- B. Indicate frame configuration, anchor spacing, anchor types, and location of cutouts for hardware and reinforcement.
- D. Submit manufacturer's installation instructions under provisions of General Conditions and Section 01 33 00.

1.05 DELIVERY, STORAGE, AND PROTECTION

- A. Protect products under provisions of General Conditions and Section 01 60 00.

PART 2 - PRODUCTS

2.01 MANUFACTURER METAL ACCESS PANELS

- A. Bauco Access Panel Solutions
- B. Acudor
- C. BestAccessDoors
- D. William Brothers Corp. of America

2.02 MATERIALS AND PRODUCTS

- A. Provide a total for 14 access panels in the base bid and a schedule of locations.

2.03 DRYWALL ACCESS DOORS IN GYPSUM BOARD AND PLASTER SOFFITS

- A. Bauco Plus II access panel model # 20-58-2424 with concealed touch latch.
- B. Recessed Frame shall provide an edge similar to drywall bead against which the ceiling or wall surface shall be finished allowing near invisible flush frame finish. Fabricate using 2.8 mm thick extruded aluminum alloy 6063-T6 frame, complete with galvanized internal steel corner reinforcing.

PART 3 - EXECUTION

3.01 INSTALLATION

- 1. Coordinate with requirement of wall opening.
- 2. Verify that the opening is the proper size and the anchoring condition is ready to accept the door.
- 3. Install according to manufacturer's requirements.

3.02 ADJUSTING AND CLEANING

- A. Adjust for smooth and balanced door movement.

END OF SECTION 08 31 16

PART 1 - GENERAL

RELATED DOCUMENTS

Drawings and general provisions of Contract including General and Supplementary General Conditions and Division-1 Specification sections, apply to work of this section.

1.01 WORK INCLUDED

- A. Aluminum storefront doors complete with related components as shown on drawings and specified in this section, replacing removed doors in existing storefront system frames.

1.02 RELATED WORK

- A. Section 07 90 00 – Joint Protection
- B. Section 08 71 00 - Door Hardware
- C. Section 08 81 00 - Glazing

1.03 REFERENCES

- A. ANSI/AAMA - 101.
- B. ANSI/ASTM B221 - Aluminum Alloy Extruded Bar, Rod, Wire, Shape and Tube.
- C. ANSI/ASTM E283 - Rate of Air Leakage through Exterior Windows, Curtain Walls, and Doors.
- D. ANSI/ASTM E330 - Structural Performance of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference.
- E. ASTM B209 - Aluminum and Aluminum Alloy Sheet and Plate.

1.04 SYSTEM DESCRIPTION

- A. Aluminum wide stile (5") door, heavy traffic application.
- B. Glazing: 1" Insulated glass, see Section 08 80 00.

1.05 QUALITY ASSURANCE

- A. All products in this section shall be by a single manufacturer.
- B. Installer experienced to perform work of this section who has specialized in the installation of work similar to that required for this project and who is acceptable to product manufacturer.
- C. Manufacturer experienced in manufacturing products that meets the requirements of this specification and has such experience for a minimum of ten years.
- D. Provide test reports from AAMA accredited laboratories certifying the performance as specified in 1.06.

- E. Test reports shall be accompanied by the curtain wall manufacturer's letter of certification stating that the tested curtain wall meets or exceeds the referenced criteria for the appropriate curtain wall type.

1.06 SUBMITTALS

- A. Submit shop drawings and product data under provisions of general conditions and Section 01 33 00.
- B. Shop drawings shall be prepared in conjunction with field measurements, review construction requirements of other trades and verification of field conditions.
- C. Drawings shall show scale elevations and sections, overall opening and component dimensions; Plans and elevations shall be 1/4" or larger. Details shall be full size or larger. Drawings shall show construction of all parts of the work, including metal and glass thickness, methods of joining, details of all field connections and anchorage, fastening and sealing methods, metal finishes, and all pertinent information. Relationship to other work should be clearly indicated. No work shall be fabricated until shop drawings for that work have been finally approved for fabrication.
- D. Submit color charts, finish samples, test reports, and warranties.
  - 1. Samples of materials as may be requested without cost to owner, i.e., metal, glass, fasteners, anchors, frame sections, mullion section, corner section, etc.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. Deliver and handle door units under provisions of Section 01 60 00.
- B. Store and protect door units under provisions of Section 01 60 00.
- C. Provide wrapping to protect prefinished aluminum surfaces.
- D. Store doors in upright position off ground on dunnage.

1.8 WARRANTY

- A. Provide manufacturer's warranty under provisions of Section 01 78 30.
  - 1. Warranty to cover labor and material for 5 years. The warranty shall cover the satisfactory performance of the door installation. This includes the glass (including insulated units), glazing, anchorage and setting system, sealing, flashing, etc. as it relates to air, water, and structural adequacy and the specifications and approved shop drawings.
  - 2. Any deficiencies due to such elements not meeting the specifications shall be corrected by the responsible contractor at his expense during the warranty period.
- B. Entrance door: Two years. In addition, welded door corner construction shall have a lifetime warranty for the life of the door under normal use.
  - 1. Warranty: guarantee door to remain plumb, true, against warpage, twisting, racking or separation.

PART 2- PRODUCTS

2.01 MANUFACTURERS- CURTAIN WALL AND STOREFRONT SYSTEMS

- A. System shall be EFCO® Corporation, Monett, MO 65708, Series D500 Wide Stile Entrance doors.
- B. Alternate Manufactures: Graham Architectural Products, York, Pennsylvania 17403, or Kawneer Company, Inc., Norcross, GA 30092. Systems must meet or exceed specified system.

2.02 MATERIALS

- A. Aluminum: Extruded aluminum shall be 6063-T6 alloy and temper.
- B. Glass: Insulated glass shall be 5/8".
- C. Panel: Insulated aluminum panel shall be 5/8".
- D. Dissimilar Metals: All dissimilar metals must be properly insulated to prevent galvanic action.
- D. Fasteners: All exposed fasteners shall be aluminum, stainless steel, or zinc plated steel.
- E. Anchors: Perimeter and floor line anchors shall be aluminum or steel. All steel anchors shall be properly insulated from the aluminum.
- F. Thermal Barrier: The thermal barrier shall be extruded PVC used as an applied thermal isolator.
- G. See Section 08 80 00 for glazing.

2.03 FABRICATION

- A. General: All aluminum vertical and horizontal extrusions shall have a minimum wall thickness of .093" to .125".
- B. Finish
  - 1. High performance 70% PVDF fluoropolymer Ultrapon™
  - 2. Color to be selected from manufacturer's standard colors. (to match existing)

2.04 DOOR (BASED ON EFCO D518- SWING DOOR, WIDE STILE)

- A. Vertical stile: 5", top rail: 5", bottom rail: 6".
- B. Major portions of the door member to be 6063 alloy, T5 temper and 0.125 nominal in thickness and glazing molding to be 0.05 thick.
- C. Fasteners: All exposed fasteners shall be aluminum or stainless steel.
- D. Glass stops to be square for 5/8" glass infill.
- E. Glazing gaskets shall be thermoplastic elastomer.

- F. Provide adjustable glass jacks to help center the glass in door opening.
- G. See Section 08 80 00 for glazing.
- H. Accessories: Perimeter anchors: Aluminum. When steel anchors are used, provide insulation between steel material and aluminum materials to prevent galvanic action.
- I. Hardware: See Section 08 71 00 for hardware not supplied by door manufacture.
- J. Finish
  - 1. High performance 70% PVDF fluoropolymer Ultrapon™
  - 2. Color to be selected from manufacturer's standard colors.

### PART 3- EXECUTION

#### 3.01 INSPECTION

- A. Verify openings are ready to receive work of this Section.
- B. Beginning of installation means acceptance of existing conditions.

#### 3.02 INSTALLATION

- A. Adjust doors in existing frame for proper operation after installation.
- B. Furnish and apply sealants to provide a weather tight installation at all joints and intersections and at opening perimeters. Wipe off excess material, leave all exposed surfaces and joints clean and smooth.

#### 3.03 ANCHORAGE

- A. Adequately anchor to maintain positions permanently when subjected to normal thermal movement, specified building movement, and specified wind loads.

#### 3.04 PROTECTION AND CLEANING

- A. The general contractor shall protect the aluminum materials and finish against damage from construction activities and harmful substances. The general contractor shall remove any protective coatings as directed by the architect, and shall clean the aluminum surfaces as recommended for the type of finish applied.

END OF SECTION 08 41 13

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.02 SUMMARY

- A. This Section includes commercial door hardware for the following:
1. Swinging doors – Hollow Metal and Aluminum Storefront.
  2. Other doors to the extent indicated.
- B. Door hardware includes, but is not necessarily limited to, the following:
1. Mechanical door hardware.
  2. Cylinders specified for doors in other sections.
- C. Related Sections:
1. Division 08 Section "Custom Hollow Metal Doors".
  2. Division 08 Section "Aluminum Storefront Doors".
- D. Codes and References: Comply with the version year adopted by the Authority Having Jurisdiction.
1. ANSI A117.1 - Accessible and Usable Buildings and Facilities.
  2. ICC/IBC - International Building Code.
  3. NFPA 70 - National Electrical Code.
  4. NFPA 80 - Fire Doors and Windows.
  5. NFPA 101 - Life Safety Code.
  6. NFPA 105 - Installation of Smoke Door Assemblies.
  7. State Building Codes, Local Amendments.
  8. CT State Fire Safety Code
- E. Standards: All hardware specified herein shall comply with the following industry standards:
1. ANSI/BHMA Certified Product Standards - A156 Series
  2. UL10C – Positive Pressure Fire Tests of Door Assemblies

1.03 SUBMITTALS

- A. Product Data: Manufacturer's product data sheets including installation details, material descriptions, dimensions of individual components and profiles, operational descriptions and finishes.
- B. Door Hardware Schedule: Prepared by or under the supervision of supplier, detailing fabrication and assembly of door hardware, as well as procedures and diagrams.



Coordinate the final Door Hardware Schedule with doors, frames, and related work to ensure proper size, thickness, hand, function, and finish of door hardware.

1. Format: Comply with scheduling sequence and vertical format in DHI's "Sequence and Format for the Hardware Schedule."
  2. Organization: Organize the Door Hardware Schedule into door hardware sets indicating complete designations of every item required for each door or opening. Organize door hardware sets in same order as in the Door Hardware Sets at the end of Part 3. Submittals that do not follow the same format and order as the Door Hardware Sets will be rejected and subject to resubmission.
  3. Content: Include the following information:
    - a. Type, style, function, size, label, hand, and finish of each door hardware item.
    - b. Manufacturer of each item.
    - c. Fastenings and other pertinent information.
    - d. Location of door hardware set, cross-referenced to Drawings, both on floor plans and in door and frame schedule.
    - e. Explanation of abbreviations, symbols, and codes contained in schedule.
    - f. Mounting locations for door hardware.
    - g. Door and frame sizes and materials.
    - h. Warranty information for each product.
  4. Submittal Sequence: Submit the final Door Hardware Schedule at earliest possible date, particularly where approval of the Door Hardware Schedule must precede fabrication of other work that is critical in the Project construction schedule. Include Product Data, Samples, Shop Drawings of other work affected by door hardware, and other information essential to the coordinated review of the Door Hardware Schedule.
- C. Keying Schedule: After a keying meeting with the owner has taken place prepare a separate keying schedule detailing final instructions. Submit the keying schedule in electronic format. Include keying system explanation, door numbers, key set symbols, hardware set numbers and special instructions. Owner must approve submitted keying schedule prior to the ordering of permanent cylinders/cores.
- D. Operating and Maintenance Manuals: Provide manufacturers operating and maintenance manuals for each item comprising the complete door hardware installation in quantity as required in Division 01, Closeout Submittals.

#### 1.04 QUALITY ASSURANCE

- A. Manufacturers Qualifications: Engage qualified manufacturers with a minimum 5 years of documented experience in producing hardware and equipment similar to that indicated for this Project and that have a proven record of successful in-service performance.
- B. Installer Qualifications: A minimum 3 years documented experience installing both standard and electrified door hardware similar in material, design, and extent to that indicated for this Project and whose work has resulted in construction with a record of successful in-service performance.

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- C. Door Hardware Supplier Qualifications: Experienced commercial door hardware distributors with a minimum 5 years documented experience supplying both mechanical and electromechanical hardware installations comparable in material, design, and extent to that indicated for this Project. Supplier recognized as a factory direct distributor by the manufacturers of the primary materials with a warehousing facility in Project's vicinity. Supplier to have on staff a certified Architectural Hardware Consultant (AHC) available during the course of the Work to consult with Contractor, Architect, and Owner concerning both standard and electromechanical door hardware and keying.
- D. Source Limitations: Obtain each type and variety of door hardware specified in this section from a single source unless otherwise indicated.
- E. Each unit to bear third party permanent label demonstrating compliance with the referenced standards.
- F. Keying Conference: Conduct conference to comply with requirements in Division 01 Section "Project Meetings." Keying conference to incorporate the following criteria into the final keying schedule document:
1. Function of building, purpose of each area and degree of security required.
  2. Plans for existing and future key system expansion.
  3. Requirements for key control storage and software.
  4. Installation of permanent keys, cylinder cores and software.
  5. Address and requirements for delivery of keys.
- G. Pre-Submittal Conference: Conduct coordination conference in compliance with requirements in Division 01 Section "Project Meetings" with attendance by representatives of Supplier(s), Installer(s), and Contractor(s) to review proper methods and the procedures for receiving, handling, and installing door hardware.
1. Prior to installation of door hardware, conduct a project specific training meeting to instruct the installing contractors' personnel on the proper installation and adjustment of their respective products. Product training to be attended by installers of door hardware (including electromechanical hardware) for aluminum, hollow metal and wood doors. Training will include the use of installation manuals, hardware schedules, templates and physical product samples as required.
  2. Inspect and discuss electrical roughing-in, power supply connections, and other preparatory work performed by other trades.
  3. Review sequence of operation narratives for each unique access controlled opening.
  4. Review and finalize construction schedule and verify availability of materials.
  5. Review the required inspecting, testing, commissioning, and demonstration procedures
- H. At completion of installation, provide written documentation that components were applied to manufacturer's instructions and recommendations and according to approved schedule.
- 1.05 DELIVERY, STORAGE, AND HANDLING
- A. Inventory door hardware on receipt and provide secure lock-up and shelving for door hardware delivered to Project site. Do not store electronic access control hardware, software or accessories at Project site without prior authorization.
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- B. Tag each item or package separately with identification related to the final Door Hardware Schedule, and include basic installation instructions with each item or package.
- C. Deliver, as applicable, permanent keys, cylinders, cores, access control credentials, software and related accessories directly to Owner via registered mail or overnight package service. Instructions for delivery to the Owner shall be established at the "Keying Conference".

#### 1.06 COORDINATION

- A. Templates: Obtain and distribute to the parties involved templates for doors, frames, and other work specified to be factory prepared for installing standard and electrified hardware. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing hardware to comply with indicated requirements.
- B. Door Hardware: Coordinate the layout and installation of scheduled electrified door hardware and related access control equipment with required connections to source power junction boxes, low voltage power supplies, detection and monitoring hardware, and fire and detection alarm systems.
- C. Door and Frame Preparation: Doors and corresponding frames are to be prepared, reinforced and pre-wired (if applicable) to receive the installation of the specified electrified, monitoring, signaling and access control system hardware without additional in-field modifications.

#### 1.07 WARRANTY

- A. General Warranty: Reference Division 01, General Requirements. Special warranties specified in this Article shall not deprive Owner of other rights Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by Contractor under requirements of the Contract Documents.
- B. Warranty Period: Written warranty, executed by manufacturer(s), agreeing to repair or replace components of standard and electrified door hardware that fails in materials or workmanship within specified warranty period after final acceptance by the Owner. Failures include, but are not limited to, the following:
  - 1. Structural failures including excessive deflection, cracking, or breakage.
  - 2. Faulty operation of the hardware.
  - 3. Deterioration of metals, metal finishes, and other materials beyond normal weathering.
  - 4. Electrical component defects and failures within the systems operation.
- C. Standard Warranty Period: Eighteen months from date of Substantial Completion, unless otherwise indicated.
- D. Special Warranty Periods:
  - 1. Seven years for heavy duty cylindrical (bored) locks and latches.
  - 2. Five years for exit hardware.
  - 3. Twenty five years for manual surface door closer bodies.

1.08 MAINTENANCE SERVICE

- A. Maintenance Tools and Instructions: Furnish a complete set of specialized tools and maintenance instructions as needed for Owner's continued adjustment, maintenance, and removal and replacement of door hardware.

PART 2 - PRODUCTS

2.01 SCHEDULED DOOR HARDWARE

- A. General: Provide door hardware for each door to comply with requirements in Door Hardware Sets and each referenced section that products are to be supplied under.
- B. Designations: Requirements for quantity, item, size, finish or color, grade, function, and other distinctive qualities of each type of door hardware are indicated in the Door Hardware Sets at the end of Part 3. Products are identified by using door hardware designations, as follows:
- C. Named Manufacturer's Products: Product designation and manufacturer are listed for each door hardware type required for the purpose of establishing requirements. Manufacturers' names are abbreviated in the Door Hardware Schedule.
- D. Substitutions: Requests for substitution and product approval for inclusive mechanical and electromechanical door hardware in compliance with the specifications must be submitted in writing and in accordance with the procedures and time frames outlined in Division 01, Substitution Procedures. Approval of requests is at the discretion of the architect, owner, and their designated consultants.

2.02 HANGING DEVICES

- A. Hinges: ANSI/BHMA A156.1 certified butt hinges with number of hinge knuckles as specified in the Door Hardware Sets.
  - 1. Hinge Options: Comply with the following where indicated in the Hardware Sets or on Drawings:
    - a. Non-removable Pins: Provide set screw in hinge barrel that, when tightened into a groove in hinge pin, prevents removal of pin while door is closed; for the all out-swinging lockable doors.
  - 2. Acceptable Manufacturers:
    - a. Bommer Industries (BO).
    - b. Hager Companies (HA).
    - c. McKinney Products (MK).
- B. Continuous Geared Hinges: ANSI/BHMA A156.26 Grade 1-600 certified continuous geared hinge, with minimum 0.120-inch thick extruded 6060 T6 aluminum alloy hinge leaves and a minimum overall width of 4 inches. Hinges are non-handed, reversible and fabricated to template screw locations. Factory trim hinges to suit door height and prepare for electrical cut-outs.
  - 1. Acceptable Manufacturers:
    - a. Bommer Industries (BO).
    - b. McKinney Products (MK).

- c. Pemko Manufacturing (PE).

#### 2.04 DOOR OPERATING TRIM

- A. Door Push Plates and Pulls: ANS/BHMA A156.6 certified door pushes and pulls of type and design specified in the Hardware Sets. Coordinate and provide proper width and height as required where conflicting hardware dictates.
  - 1. Push/Pull Plates: Minimum .050 inch thick, size as indicated in hardware sets, with beveled edges, secured with exposed screws unless otherwise indicated.
  - 2. Door Pull and Push Bar Design: Size, shape, and material as indicated in the hardware sets. Minimum clearance of 2 1/2-inches from face of door unless otherwise indicated.
  - 3. Fasteners: Provide manufacturer's designated fastener type as indicated in Hardware Sets.
    - a. Acceptable Manufacturers:
      - 1) Burns Manufacturing (BU).
      - 2) Rockwood Manufacturing (RO).
      - 3) Trimco (TC).

#### 2.05 CYLINDERS AND KEYING

- A. General: Cylinder manufacturer to have minimum (10) years experience designing secured master key systems and have on record a published security keying system policy.
- B. Source Limitations: Obtain each type of keyed cylinder and keys from the same source manufacturer as locksets and exit devices, unless otherwise indicated.
- C. Cylinders: Original manufacturer cylinders complying with the following:
  - 1. Mortise Type: Threaded cylinders with rings and cams to suit hardware application.
  - 2. Rim Type: Cylinders with back plate, flat-type vertical or horizontal tailpiece, and raised trim ring.
  - 3. Bored-Lock Type: Cylinders with tailpieces to suit locks.
  - 4. Mortise and rim cylinder collars to be solid and recessed to allow the cylinder face to be flush and be free spinning with matching finishes.
  - 5. Keyway: Match Facility Restricted Keyway.
- D. Permanent Cores: Manufacturer's standard; finish face to match lockset; complying with the following:
  - 1. Removable Cores: Core insert, removable by use of a special key, and for use with only the core manufacturer's cylinder and door hardware. Provide removable core (small or large format) as specified in Hardware Sets.
- E. Security Cylinders: ANSI/BHMA A156.5, Grade 1, patented security cylinders and keys able to be used together under the same facility master or grandmaster key system. Cylinders are to be factory keyed.
  - 1. Acceptable Manufacturers:
    - a. Corbin Russwin (RU) - Pyramid PS Series.
    - b. No Substitution – Facility Standard.
- F. Keying System: Each type of lock and cylinders to be factory keyed.

1. Conduct specified "Keying Conference" to define and document keying system instructions and requirements.
  2. Furnish factory cut, nickel-silver large bow permanently inscribed with a visual key control number as directed by Owner.
  3. Existing System: Key locks to Owner's existing system.
- G. Key Quantity: Provide the following minimum number of keys:
1. Change Keys per Cylinder: Four (4)
  2. Master Keys (per Master Key Level/Group): Five (5).
  3. Construction Keys: Ten (10).
  4. Construction Control Keys: Two (2).
  5. Permanent Control Keys: Two (2).
- H. Construction Keying: Provide temporary keyed construction cores.
- I. Key Control Cabinet: Provide a key control system including envelopes, labels, and tags with self-locking key clips, receipt forms, 3-way visible card index, temporary markers, permanent markers, and standard metal cabinet. Key control cabinet shall have expansion capacity of 150% of the number of locks required for the project.
1. Acceptable Manufacturers:
    - a. Lund Equipment (LU).
    - b. MMF Industries (MM).
    - c. Telkee (TK).
- J. Key Bitting List: Provide a key bitting list in both hard copy and soft copy format. Soft copy to be either a CD or USB device with electronic copy of bitting list capable of being imported into Key Wizard Software

## 2.06 MECHANICAL LOCKS AND LATCHING DEVICES

- A. Cylindrical Locksets, Grade 1 (Heavy Duty): ANSI/BHMA A156.2, Series 4000, Grade 1 certified cylindrical (bored) locksets furnished in the functions as specified in the Hardware Sets. Lock chassis fabricated of heavy gauge steel, zinc dichromate plated, with through-bolted application. Furnish with solid cast levers, standard 2 3/4" backset, and 1/2" (3/4" at rated paired openings) throw brass or stainless steel latchbolt. Locks are to be non-handed and fully field reversible.
1. Acceptable Manufacturers:
    - a. Corbin Russwin Hardware (RU) – CL3300 Series.
    - b. No Substitution – Facility Standard.

## 2.07 LOCK AND LATCH STRIKES

- A. Strikes: Provide manufacturer's standard strike with strike box for each latch or lock bolt, with curved lip extended to protect frame, finished to match door hardware set, unless otherwise indicated, and as follows:
1. Flat-Lip Strikes: For locks with three-piece antifriction latchbolts, as recommended by manufacturer.
  2. Extra-Long-Lip Strikes: For locks used on frames with applied wood casing trim.
  3. Aluminum-Frame Strike Box: Provide manufacturer's special strike box fabricated for aluminum framing.

- B. Standards: Comply with the following:
  - 1. Strikes for Bored Locks and Latches: BHMA A156.2.
  - 2. Dustproof Strikes: BHMA A156.16.

## 2.08 CONVENTIONAL EXIT DEVICES

- A. General Requirements: All exit devices specified herein shall meet or exceed the following criteria:
  - 1. At doors not requiring a fire rating, provide devices complying with NFPA 101 and listed and labeled for "Panic Hardware" according to UL305. Provide proper fasteners as required by manufacturer including sex nuts and bolts at openings specified in the Hardware Sets.
  - 2. Where exit devices are required on fire rated doors, provide devices complying with NFPA 80 and with UL labeling indicating "Fire Exit Hardware". Provide devices with the proper fasteners for installation as tested and listed by UL. Consult manufacturer's catalog and template book for specific requirements.
  - 3. Except on fire rated doors, provide exit devices with keyed cylinder dogging.
  - 4. Devices must fit flat against the door face with no gap that permits unauthorized dogging of the push bar. The addition of filler strips is not acceptable except in any case where the door light extends behind the device as in a full glass configuration.
  - 5. Rail Sizing: Provide exit device rails factory sized for proper door width application.
  - 6. Through Bolt Installation: For exit devices and trim as indicated in Door Hardware Sets.
- B. Conventional Push Rail Exit Devices (Heavy Duty): ANSI/BHMA A156.3, Grade 1 certified panic and fire exit hardware devices furnished in the functions specified in the Hardware Sets. Mounting rails to be formed from smooth stainless steel, brass or bronze architectural materials no less than 0.072" thick, with push rails a minimum of 0.062" thickness. Painted or aluminum metal rails are not acceptable. Exit device latch to be investment cast stainless steel, pullman type, with deadlock feature.
  - 1. Acceptable Manufacturers:
    - a. Corbin Russwin Hardware (RU) - ED5000 Series.
    - b. No Substitution – Facility Standard.

## 2.09 DOOR CLOSERS

- A. All door closers specified herein shall meet or exceed the following criteria:
  - 1. General: Door closers to be from one manufacturer, matching in design and style, with the same type door preparations and templates regardless of application or spring size. Closers to be non-handed with full sized covers including installation and adjusting information on inside of cover.
  - 2. Standards: Closers to comply with UL-10C and UBC 7-2 for Positive Pressure Fire Test and be U.L. listed for use of fire rated doors.
  - 3. Cycle Testing: Provide closers which have surpassed 15 million cycles in a test witnessed and verified by UL.
  - 4. Size of Units: Comply with manufacturer's written recommendations for sizing of door closers depending on size of door, exposure to weather, and anticipated frequency of use. Where closers are indicated for doors required to be accessible to the physically handicapped, provide units complying with ANSI ICC/A117.1.
  - 5. Closer Arms: Provide heavy duty, forged steel closer arms unless otherwise indicated in Hardware Sets.

- a. Where closers are indicated to have mechanical dead-stop, provide heavy duty arms and brackets with an integral positive stop.
  - b. Where closers are indicated to have mechanical hold open, provide heavy duty units with an additional built-in mechanical holder assembly designed to hold open against normal wind and traffic conditions. Holder to be manually selectable to on-off position.
  - c. Where closers are indicated to have a cushion-type stop, provide heavy duty arms and brackets with spring stop mechanism to cushion door when opened to maximum degree.
  - d. Closers shall not be installed on exterior or corridor side of doors; where possible install closers on door for optimum aesthetics. Provide drop plates or other accessories as required for proper mounting.
6. Closer Accessories: Provide door closer accessories including custom templates, special mounting brackets, spacers and drop plates, and through-bolt or security type fasteners as specified in the door Hardware Sets.
- B. Door Closers, Surface Mounted (Commercial Duty): ANSI/BHMA 156.4, Grade 1 certified surface mounted, institutional grade door closers with complete spring power adjustment, sizes 1 thru 6; and fully operational adjustable according to door size, frequency of use, and opening force. Closers to be rack and pinion type, one piece cast iron or aluminum alloy body construction, with adjustable backcheck, closing sweep, and latch speed control valves. Provide non-handed units standard.
1. Acceptable Manufacturers:
    - a. Corbin Russwin Hardware (RU) - DC6000 Series.
    - b. No Substitution – Facility Standard.

## 2.10 DOOR STOPS AND HOLDERS

- A. General: Door stops and holders to be of type and design as specified below or in the Hardware Sets.
- B. Door Stops and Bumpers: ANSI/BHMA A156.16, Grade 1 certified door stops and wall bumpers. Provide wall bumpers, either convex or concave types with anchorage as indicated, unless floor or other types of door stops are specified in Hardware Sets. Do not mount floor stops where they will impede traffic. Where floor or wall bumpers are not appropriate, provide overhead type stops and holders.
1. Acceptable Manufacturers:
    - a. Burns Manufacturing (BU).
    - b. Rockwood Manufacturing (RO).
    - c. Trimco (TC).

## 2.11 ARCHITECTURAL SEALS

- A. General: Thresholds, weatherstripping, and gasket seals to be of type and design as specified below or in the Hardware Sets. Provide continuous weatherstrip gasketing on exterior doors. At exterior applications provide non-corrosive fasteners and elsewhere where indicated.
- B. Fire Labeled Gasketing: Assemblies complying with NFPA 80 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire ratings indicated, based on testing according to UL-10C.



1. Provide intumescent seals as indicated to meet UL10C Standard for Positive Pressure Fire Tests of Door Assemblies, and UBC 7-2, Fire Tests of Door Assemblies.
- C. Replaceable Seal Strips: Provide only those units where resilient or flexible seal strips are easily replaceable and readily available from stocks maintained by manufacturer.
- D. Acceptable Manufacturers:
  1. National Guard Products (NG).
  2. Pemko Manufacturing (PE).
  3. Reese Enterprises, Inc. (RS).

## 2.12 FABRICATION

- A. Fasteners: Provide door hardware manufactured to comply with published templates generally prepared for machine, wood, and sheet metal screws. Provide screws according to manufacturers recognized installation standards for application intended.

## 2.13 FINISHES

- A. Standard: Designations used in the Hardware Sets and elsewhere indicate hardware finishes complying with ANSI/BHMA A156.18, including coordination with traditional U.S. finishes indicated by certain manufacturers for their products.
- B. Provide quality of finish, including thickness of plating or coating (if any), composition, hardness, and other qualities complying with manufacturer's standards, but in no case less than specified by referenced standards for the applicable units of hardware.
- C. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

## PART 3 - EXECUTION

### 3.01 EXAMINATION

- A. Examine scheduled openings, with Installer present, for compliance with requirements for installation tolerances, labeled fire door assembly construction, wall and floor construction, and other conditions affecting performance.
- B. Notify architect of any discrepancies or conflicts between the door schedule, door types, drawings and scheduled hardware. Proceed only after such discrepancies or conflicts have been resolved in writing.

### 3.02 PREPARATION

- A. Hollow Metal Doors: Comply with ANSI/DHI A115 series.
- B. Aluminum Doors: Comply with ANSI/DHI A115-W series.

3.03 INSTALLATION

- A. Install each item of mechanical and electromechanical hardware and access control equipment to comply with manufacturer's written instructions and according to specifications.
  - 1. Installers are to be trained and certified by the manufacturer on the proper installation and adjustment of fire, life safety, and security products including: hanging devices; locking devices; closing devices; and seals.
- B. Mounting Heights: Mount door hardware units at heights indicated in following applicable publications, unless specifically indicated or required to comply with governing regulations:
  - 1. Standard Steel and Aluminum Doors and Frames: DHI's "Recommended Locations for Architectural Hardware for Standard Steel Doors and Frames."
  - 2. Where indicated to comply with accessibility requirements, comply with ANSI A117.1 "Accessibility Guidelines for Buildings and Facilities."
  - 3. Door Hardware shall be mounted in accordance with the CT State Fire Saefety Cod and the CT State Building Code.
  - 4. Provide blocking in drywall partitions where wall stops or other wall mounted hardware is located.
- C. Retrofitting: Install door hardware to comply with manufacturer's published templates and written instructions. Where cutting and fitting are required to install door hardware onto or into surfaces that are later to be painted or finished in another way, coordinate removal, storage, and reinstallation of surface protective trim units with finishing work specified in Division 9 Sections. Do not install surface-mounted items until finishes have been completed on substrates involved.
- D. Thresholds: Set thresholds for exterior and acoustical doors in full bed of sealant complying with requirements specified in Division 7 Section "Joint Sealants."
- E. Storage: Provide a secure lock up for hardware delivered to the project but not yet installed. Control the handling and installation of hardware items so that the completion of the work will not be delayed by hardware losses before and after installation.

3.04 FIELD QUALITY CONTROL

- A. Field Inspection: Supplier will perform a final inspection of installed door hardware and state in report whether work complies with or deviates from requirements, including whether door hardware is properly installed, operating and adjusted.

3.05 ADJUSTING

- A. Initial Adjustment: Adjust and check each operating item of door hardware and each door to ensure proper operation or function of every unit. Replace units that cannot be adjusted to operate as intended. Adjust door control devices to compensate for final operation of heating and ventilating equipment and to comply with referenced accessibility requirements.

**3.06**     CLEANING AND PROTECTION

- A. Protect all hardware stored on construction site in a covered and dry place. Protect exposed hardware installed on doors during the construction phase. Install any and all hardware at the latest possible time frame.
- B. Clean adjacent surfaces soiled by door hardware installation.
- C. Clean operating items as necessary to restore proper finish. Provide final protection and maintain conditions that ensure door hardware is without damage or deterioration at time of owner occupancy.

**3.07**     DEMONSTRATION

- A. Instruct Owner's maintenance personnel to adjust, operate, and maintain mechanical and electromechanical door hardware.

**3.08**     DOOR HARDWARE SCHEDULE

- A. The hardware sets represent the design intent and direction of the owner and architect. They are a guideline only and should not be considered a detailed hardware schedule. Discrepancies, conflicting hardware and missing items should be brought to the attention of the architect with corrections made prior to the bidding process. Omitted items not included in a hardware set should be scheduled with the appropriate additional hardware required for proper application and functionality.
- B. Manufacturer's Abbreviations:
  - 1. PE - Pemko
  - 2. RO - Rockwood
  - 3. RU - Corbin Russwin
  - 4. RF - Rixson

**Set: 1.0**

1 Push Bar & Pull	11147 T1HD	US32D	RO
1 Continuous Hinge	CFMSLF-HD1 PT		PE
1 Surface Overhead Stop	10-X36	652	RF
1 Mortise Deadlock (classroom)	DL3117	US26D	RU
1 Interchangeable Core	8027 CKC2	626	RU
1 Thermal Break Threshold	273x3AFG FHSL14 (6 1/8" width)		PE
1 Perimeter Gasket	S88BL		PE
1 Exterior Rain Drip			PE

**Set: 2.0**

1 Continuous Hinge	CFMHD1		PE
1 Rim Exit (exit only)	ED5200 M51	630	RU
1 Interchangeable Core	8027 CKC2	626	RU
1 Surface Closer (stop)	DC6210 A11 M54	689	RU
1 Thermal Break Threshold	273x3AFG FHSL14 (6 1/8" width)		PE
1 Perimeter Gasket	S88BL		PE
1 Exterior Rain Drip			PE

1 "Emergency Exit Only/Alarm Will Sound" sticker

**Notes: Field verify all existing frame preps prior to scheduling or ordering any hardware.**

END OF SECTION 08 71 00



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PART 1 - GENERAL

RELATED DOCUMENTS

Drawings and general provisions of Contract, including General and Supplementary General Conditions and Division-1 Specification sections, apply to work of this section.

1.01 WORK INCLUDED

- A. Provide glass and glazing for Sections referencing this Section for products and installation.

1.02 RELATED WORK

- A. Section 07 90 00 – Joint Protection
- B. Section 08 13 16 - Custom Hollow Metal Doors
- C. Section 08 41 13 – Aluminum Storefront Doors

1.03 REFERENCES

- A. International Building Code 2015 with 2018 Connecticut Supplements, Chapter 24.
- B. American National Standards Institute
  - 1. ANSI Z97.1- 2015, Performance Specifications and Methods of Test for Safety Glazing Materials used in Buildings.
- C. Underwriter's Laboratory Incorporated
  - 1. U.L. Guide HOUR, Glazing for Fire Doors and Windows.

1.04 PERFORMANCE REQUIREMENTS

- A. Glass and glazing materials of this Section shall provide continuity of building enclosure vapor and air barrier:
  - 2. Maintain continuous air and vapor barrier throughout glazed assembly from glass pane to heel bead of glazing sealant.
- B. Size glass to withstand dead loads and positive and negative live loads acting normal to plane of glass as measured in accordance with ANSI/ASTM E330.
- C. Limit glass deflection to 1/200 flexure limit of glass with full recovery of glazing materials, whichever is less.

1.05 SUBMITTALS

- A. Submit under provisions of General Conditions and Section 01 33 00.
- B. Product Data on Glass Types Specified: Provide structural, physical and environmental characteristics, size limitations, special handling or installation requirements.
- C. Product Data on Glazing Compounds: Provide chemical, functional, and environmental characteristics, limitations, special application requirements. Identify available colors.

- D. Samples: Submit two samples 12" x 12" each type of glass, illustrating glass coloration and design.
- E. Samples: Submit two samples of glazing sealant, color as selected.
- F. Samples: Submit two samples of gaskets employed, 12 inches long.
- G. Manufacturer's Installation Instructions: Indicate special precautions required.
- H. Manufacturer's Certificate: Certify that sealed insulated glass units meet or exceed specified requirements.

#### 1.06 QUALITY ASSURANCE

- A. Perform Work in accordance with FGMA Glazing Manual, FGMA Sealant Manual glazing installation methods.
- B. Maintain one copy of each document on site.
- C. Fire rated glazing shall comply with NFPA 80.
- D. Laminated Safety Glass and Tempered Insulating Glass shall comply with CPSC 16CFR, Part 1201.

#### 1.07 ENVIRONMENTAL REQUIREMENTS

- A. Do not install glazing when ambient temperature is less than 50 degrees F.
- B. Maintain minimum ambient temperature before, during and 24 hours after installation of glazing compounds.

#### 1.08 FIELD MEASUREMENTS

- A. Verify that field measurements are as indicated on Drawings.

#### 1.09 COORDINATION

- A. Coordinate Work under provisions of General Conditions and Section 01039.
- B. Coordinate the Work with glazing frames and perimeter air and vapor seal to adjacent Work.

#### 1.10 WARRANTY

- A. Provide ten year manufacturer's warranty under provisions of General Conditions and Section 01 78 30.
- B. Warranty: Include coverage for sealed glass units from seal failure, interpane dusting or misting, and replacement of same.

### PART 2 -PRODUCTS

#### 2.01 ACCEPTABLE MANUFACTURER

- A. Glass
  - 1. Vitro Architectural Glass.
  - 2. Pilkington.
  - 3. Guardian Industries.

## 2.02 MATERIALS

- A. Glass:
  - 1. 5/8" insulating glass units shall be made of two pieces of glass separated by clear argon filled air space hermetically sealed. Inner glass shall be LOW-E clear or Laminated Safety Glass, outer glass shall be clear float glass, Federal Specification DD-G-451, Type 1, Class 1, Quality 93. Provide safety glass for inner and outer lights with glass 24" or less above finish floor, and for all glass 60" or less above finish floor and within a 24" arc of a door edge.
  - 2. 5/8" Insulated spandrel panel to match aluminum door frame finish.
- B. Fire Rated Glazing Material for lites at 1 HR Fire rated doors:
  - 1. "FireLite plus" fire-rated glazing as fabricated and distributed by Technical Glass Products, 8107 Bracken Place SE, Snoqualmie, WA 98065 (800-426-0279) fax (800-451-9857) e-mail [sales@fireglass.com](mailto:sales@fireglass.com) web site <http://www.fireglass.com>. Alternate Manufacturers: SAFTIFIRST - SuperLite II-xl 60 or ESG - Pyrotech Fire Resistant Safety Glass.

## 2.03 STRUCTURAL SEALANT

- A. General: Provide sealants and gaskets with performance characteristics suitable for applications indicated. Ensure compatibility of glazing sealants with surfaces in contact.
- B. General Glazing and Cap Bead Sealant: Provide sealant with maximum Shore A hardness of 50. Provide one of the following: Dow Corning 795, General Electric Silglaze N 2500 or Contractors SCS-1000, Tremco Spectrem 2

## 2.04 ACCESSORIES

- A. Setting Blocks: Neoprene, 70-90 Shore "A" durometer hardness, chemically compatible with sealant used.
- B. Spacers: Neoprene, 40-50 Shore "A" durometer hardness, chemically compatible with sealant used.
- C. Filler Rod: Compressible synthetic rubber or foam, chemically compatible with sealant used.
- D. Primer-Sealers and Cleaners: As recommended by glass and sealant manufacturer.
- E. Glazing Tape: 1/8" Butyl-polyisobutylene sealant with built-in spacer of synthetic rubber. AAMA 804.1.

## 2.05 COMPATIBILITY

- A. All components of glazing system must be compatible.



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### PART 3 - EXECUTION

#### 3.01 INSPECTION

- A. Check that glazing channels are free of burrs, irregularities, and debris.
- B. Check that glass is free of edge damage or face imperfections.
- C. Do not proceed with installation until conditions are satisfactory.

#### 3.02 PREPARATION

- A. Field Measurements
  - 1. Measure size of frame to receive glass.
  - 2. Compute actual glass size, allowing for edge clearances.
- B. Preparation of Surfaces
  - 1. Remove protective coatings from surfaces to be glazed.
  - 2. Clean glass and glazing surfaces, to remove dust, oil and contaminants, and wipe dry.

#### 3.03 INSTALLATION

- A. Apply primer-sealer to joint surfaces as recommended by sealant and glass manufacturer.
- B. Do not cut, seam, nip, or abrade tempered glass.
- C. Glazing in hollow metal doors.
  - 1. Use glazing tape, both sides.
  - 2. Exterior doors: provide exterior cap bead over glazing tape.
- D. Glazing in Aluminum Storefront Doors:
  - 1. Use glazing tape, both sides.
  - 2. Exterior doors: provide exterior cap bead over glazing tape.

#### 3.04 QUALITY CONTROL

- A. Field inspection will be performed under provisions of General Conditions and Supplemental General Conditions.
- B. Inspection will monitor quality of glazing.

#### 3.05 MANUFACTURER'S FIELD SERVICES

- A. Glass and glazing product manufacturers to provide field surveillance of the installation of their products under provisions of General Conditions and Supplemental General Conditions.
- B. Monitor and report installation procedures and unacceptable conditions.

#### 3.06 CLEANING

- A. Clean work under provisions of General Conditions and Supplemental General Conditions.

- B. Remove glazing materials from finish surfaces.
- C. Remove labels after work is complete.
- D. Clean glass.

3.07 PROTECTION OF FINISHED WORK

- A. Protect finished Work under provisions of General Conditions and Supplemental General Conditions.

END OF SECTION 08 80 00



PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.02 SUMMARY

A. This Section includes the following:

1. Non-load-bearing steel framing members for the following applications:
  - a. Interior framing systems (e.g., supports for partition walls, framed soffits, furring, b. etc.).
  - c. Interior suspension systems (e.g., supports for ceilings, suspended soffits, etc.).
2. Interior gypsum board.

B. Related Sections include the following:

1. Division 06 Section "Carpentry" for wood blocking built into gypsum board assemblies.
2. Division 07 Section "Fire-Resistive Joint Systems" for head-of-wall assemblies that incorporate gypsum board.
3. Division 08 "Access Panels and Frames" in gypsum board surfaces.
4. Division 09 Section "Painting" for primers applied to gypsum board surfaces.

1.03 PERFORMANCE REQUIREMENTS

A. Structural Performance: Provide interior and exterior non-load-bearing metal framing capable of withstanding design loads within limits and under conditions indicated.

1. Design Loads: In accordance with the Connecticut State Building Code and minimum parameters for calculating design loads for components and cladding indicated on Structural Drawings.
2. Deflection Limits: Design framing systems to withstand design loads without deflections greater than the following:
  - a. Interior Framing Systems:
    - i. Maximum Deflection: L/240 at 5 psf, stud spacing at 16 inches o.c.
3. Design framing systems to provide for movement of framing members without damage or overstressing, sheathing failure, connection failure, undue strain on fasteners and anchors, or other detrimental effects when subject to a maximum ambient temperature change of 120 deg F.

4. Design framing system to maintain clearances at openings, to allow for construction tolerances, and to accommodate live load deflection of primary building structure as follows:

a. Upward and downward movement of 3/4 inch.

B. Cold-Formed Steel Framing, General: Design according to AISI's "Standard for Cold-Formed Steel Framing - General Provisions."

1. Provide interior framing systems sized to accommodate maximum deflection using limiting heights of metal studs without contribution of gypsum wallboard (non-composite).

#### 1.04 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Shop Drawings: Show layout, spacings, sizes, thicknesses, and types of cold-formed metal

framing; fabrication; and fastening and anchorage details, including mechanical fasteners. Show reinforcing channels, opening framing, supplemental framing, strapping, bracing, bridging, splices, accessories, connection details, and attachment to adjoining work.

1. For non-load-bearing metal framing indicated to comply with design loads, include structural analysis data signed and sealed by the qualified professional engineer licensed in the State of Connecticut responsible for their preparation.

2. Include calculations for span capabilities of cold-formed metal framing for deflection criteria specified.

C. Samples: For the following products:

1. Trim Accessories: Full-size Sample in 12-inch- long length for each trim accessory indicated.

D. Welding certificates.

E. Qualification Data: For professional engineer.

F. Product Test Reports: From a qualified testing agency, unless otherwise stated, indicating that each of the following complies with requirements, based on evaluation of comprehensive tests for current products:

1. Steel sheet.
2. Expansion anchors.
3. Power-actuated anchors.
4. Mechanical fasteners.

G. Research/Evaluation Reports: For cold-formed metal framing.

#### 1.05 QUALITY ASSURANCE

- A. Product Tests: Mill certificates or data from a qualified independent testing agency indicating steel sheet complies with requirements, including base-metal thickness, yield strength, tensile strength, total elongation, chemical requirements, and metallic-coating thickness.
- B. AISI Specifications and Standards: Comply with AISI's "North American Specification for the Design of Cold-Formed Steel Structural Members" and its "Standard for Cold-Formed Steel Framing - General Provisions."
- C. Fire-Resistance-Rated Assemblies: For fire-resistance-rated assemblies, provide materials and construction identical to those tested in assembly indicated according to ASTM E 119 by an independent testing agency.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Protect cold-formed metal framing from corrosion, deformation, and other damage during delivery, storage, and handling.
- B. Store cold-formed metal framing protect with a waterproof covering and ventilate to avoid condensation.
- C. Store materials inside under cover and keep them dry and protected against damage from weather, condensation, direct sunlight, construction traffic, and other causes. Stack gypsum panels flat to prevent sagging.

1.07 PROJECT CONDITIONS

- A. Environmental Limitations: Comply with ASTM C 840 requirements or gypsum board manufacturer's written recommendations, whichever are more stringent.
- B. Do not install interior products until installation areas are enclosed and conditioned.
- C. Do not install panels that are wet, those that are moisture damaged, and those that are mold damaged.
  - 1. Indications that panels are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.
  - 2. Indications that panels are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

PART 2 - PRODUCTS

2.01 COLD-FORMED STEEL FRAMING, GENERAL

- A. Recycled Content of Steel Products: Postconsumer recycled content plus one-half of Pre-consumer recycled content not less than 25 percent.
- B. Manufacturers: Subject to compliance with requirements, provide cold-formed metal framing by one of the following:
  - 1. ClarkDietrich Building Systems.
  - 2. MarinoWare; a division of Ware Industries.
  - 3. SCAFCO Steel Stud Company.

2.02 INTERIOR NON-LOAD-BEARING STEEL FRAMING

- A. Interior Framing Members, General: Comply with ASTM C 645 for conditions indicated.
  - 1. Steel Sheet Components: Comply with ASTM C 645 requirements for metal unless otherwise indicated.
  - 2. Protective Coating: Comply with ASTM C 645; roll-formed from hot-dipped galvanized steel; complying with ASTM A 1003/A 1003M and ASTM A 653/A 653M G40 or having a coating that provides equivalent corrosion resistance. A40 galvanized products are not acceptable.
    - a. Coatings shall demonstrate equivalent corrosion resistance with an evaluation report acceptable to the authority having jurisdiction.
- B. Steel Studs and Runners: ASTM C 645.
  - 1. Non-Structural Studs: Cold-formed galvanized steel C-studs as per ASTM C 645 for conditions indicated below:
    - a. Flange Size: 1-1/4-inch.
    - b. Web Depth: As indicated on Drawings.
      - 1. Minimum Thickness: 0.033 inch.
      - 2. Minimum Design Thickness: 0.0346 inch.
- C. Slip-Type Head Joints: Where indicated, provide the following:
  - 1. Deflection Track: Slotted steel sheet top track manufactured to prevent cracking of finishes applied to interior partition framing resulting from deflection of structure above; in thickness not less than indicated for studs and in width to accommodate depth of studs.
- D. Firestop Tracks: Top runner manufactured to allow partition heads to expand and contract with movement of the structure while maintaining continuity of fire-resistance-rated assembly indicated; in thickness not less than indicated for studs and in width to accommodate depth of studs.
  - 1. Products: Subject to compliance with requirements, provide one of the following:
    - a. ClarkDietrich Building Systems; BlazeFrame.
    - b. Fire Trak Corp.; Fire Trak attached to studs with Fire Trak Posi Clips.
    - c. Metal-Lite, Inc.; The System.
    - d. Sliptrack Systems; SLP-TRK.
- E. Hat-Shaped, Rigid Furring Channels: ASTM C 645.
  - 1. Minimum Design Thickness: 0.018 inch.
  - 2. Depth: 7/8 inch.
- F. Resilient Furring Channels: 1/2-inch- deep, steel sheet members designed to reduce sound transmission.

1. Configuration: Hat shaped.
- G. Z-Shaped Furring: With slotted or nonslotted web, face flange of 1-1/4 inches, wall attachment flange of 7/8 inch, 25 gauge, and depth required to fit insulation thickness indicated.

#### 2.03 SUSPENSION SYSTEM COMPONENTS

- A. Grid Suspension System for Ceilings: ASTM C 645, direct-hung, double-web suspension system composed of main beams and cross-furring members that interlock.
1. Furring Runners: Manufactured from 0.020-inch-thick steel, 1-1/2-inches wide by 1-1/2- inches high.
  2. Furring Tees: Manufactured from 0.020-inch-thick steel, 1-1/2-inches wide by 1-1/2- inches high with staked-on clip couplings, factory punched cross tee slots, and hanger holes.
  3. Products: Subject to compliance with requirements, provide one of the following:
    - a. Armstrong World Industries, Inc.; Drywall Grid Systems.
    - b. CertainTeed Corporation; 1-1/2" Drywall Suspension System.
    - c. Rockfon; Chicago Metallic 660 Drywall Grid System.
    - d. USG Corporation; Drywall Suspension System.
- B. Tie Wire: ASTM A 641/A 641M, Class 1 zinc coating, soft temper, 0.0625-inch- diameter wire, or double strand of 0.0475-inch- diameter wire.
- C. Hanger Attachments to Concrete:
1. Anchors: Fabricated from corrosion-resistant materials with holes or loops for attaching wire hangers and capable of sustaining, without failure, a load equal to 5 times that imposed by construction as determined by testing according to ASTM E 488 by an independent testing agency.
    - a. Type: Postinstalled, expansion anchor.
  2. Powder-Actuated Fasteners: Suitable for application indicated, fabricated from corrosion resistant materials with clips or other devices for attaching hangers of type indicated, and capable of sustaining, without failure, a load equal to 10 times that imposed by construction as determined by testing according to ASTM E 1190 by an independent testing agency.

#### 2.04 GYPSUM PANELS, GENERAL

- A. Recycled Content of Gypsum Panel Products:
1. Postconsumer recycled content not less than 5 percent.
  2. Postindustrial recycled content not less than 94 percent.
- B. Size: Provide in maximum lengths and widths available that will minimize joints in each area and that correspond with support system indicated.



2.05 INTERIOR GYPSUM BOARD

- A. General: Complying with ASTM C 36 or ASTM C 1396, as applicable to type of gypsum board indicated and whichever is more stringent.
  - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
    - a. CertainTeed.
    - b. Continental Building Products.
    - c. G-P Gypsum.
    - d. National Gypsum Company.
    - e. USG Corporation.
- B. Type X:
  - 1. Thickness: 5/8 inch.
  - 2. Long Edges: Tapered.
- C. Gypsum Ceiling Board: ASTM C 1396/C 1396M.
  - 1. Thickness: 1/2 inch.
  - 2. Long Edges: Tapered.
- D. Moisture- and Mold-Resistant Gypsum Board, ASTM C 1396/C 1396M. With moisture- and mold-resistant core and coated surfaces.
  - 1. Thickness: 5/8 inch, Type X.
  - 2. Long Edges: Tapered.
  - 3. Mold Resistance: ASTM D 3273, score of 10.
  - 4. Products: Subject to compliance with requirements, provide one of the following:
    - a. CertainTeed; M2Tech.
    - b. Continental Building Products; Mold Defense Type X.
    - c. G-P Gypsum; ToughRock Fireguard X Mold-Guard Gypsum Board.
    - d. National Gypsum Company; Gold Bond XP Fire-Shield Gypsum Board.
    - b. USG Corporation; Mold Tough Firecode X Panels.

2.06 TRIM ACCESSORIES

- A. Interior Trim: ASTM C 1047.
  - 1. Material: Galvanized or aluminum-coated steel sheet, rolled zinc, plastic, or paper-faced galvanized steel sheet.
  - 2. Shapes:
    - a. Cornerbead.
    - b. LC-Bead: J-shaped; exposed long flange receives joint compound.

- c. U-Bead: J-shaped; exposed short flange does not receive joint compound.
  - d. Expansion (control) joint.
- B. Aluminum Trim: Extruded accessories of profiles and dimensions indicated.
  - 1. Basis of Design Product: Subject to compliance with requirements, provide products by Flannery, Inc. or one of the following:
    - a. Fry Reglet Corp.
    - b. Gordon, Inc.
  - 2. Aluminum: Alloy and temper with not less than the strength and durability properties of ASTM B 221, Alloy 6063-T5.
  - 3. Finish: Anodized, in color as selected by Architect from manufacturer's full range.

#### 2.07 JOINT TREATMENT MATERIALS

- A. General: Comply with ASTM C 475/C 475M.
- B. Joint Tape:
  - 1. Interior Gypsum Wallboard: Paper.
- C. Joint Compound for Interior Gypsum Wallboard: For each coat use formulation that is compatible with other compounds applied on previous or for successive coats.
  - 1. Prefilling: At open joints and damaged surface areas, use setting-type taping compound.
  - 2. Embedding and First Coat: For embedding tape and first coat on joints, fasteners, and trim flanges use setting-type taping compound.
    - a. Use setting-type compound for installing paper-faced metal trim accessories.
  - 3. Fill Coat: For second coat, use drying-type, all-purpose compound.
  - 4. Finish Coat: For third coat, use drying-type, all-purpose compound.
  - 5. Skim Coat: For final coat of Level 5 finish, use drying-type, all-purpose compound.

#### 2.08 AUXILIARY MATERIALS

- A. General: Provide auxiliary materials that comply with referenced installation standards and manufacturer's written recommendations.
- B. Sound Attenuation Blankets: As specified in Division 07 Section "Thermal Insulation."
  - 1. Fire-Resistance-Rated Assemblies: Comply with mineral-fiber requirements of assembly.
- C. Acoustical Sealant: As specified in Division 07 Section "Joint Sealants."

D. Thermal Insulation: As specified in Division 07 Section "Thermal Insulation."

## 2.09 FASTENERS

- A. General: Provide fasteners of size and type indicated that comply with requirements specified in this Article for material and manufacture.
  - 1. Fasteners for Metal Framing: Of type, material, size, corrosion resistance, holding power, and other properties required to fasten steel members to substrates.
- B. Steel Drill Screws: ASTM C 1002, unless otherwise indicated.
  - 1. Use screws complying with ASTM C 954 for fastening panels to steel members from 0.033 to 0.112 inch thick.

## PART 3 - EXECUTION

### 3.01 EXAMINATION

- A. Examine areas and substrates, with Installer present, and including welded hollow-metal frames, cast-in anchors, and structural framing, for compliance with requirements and other conditions affecting performance.
- B. Examine panels before installation. Reject panels that are wet, moisture damaged, and mold damaged.
- C. Proceed with installation only after unsatisfactory conditions have been corrected. Commencement of work indicates acceptance of areas and substrates.

### 3.02 PREPARATION

- A. Coordination with Sprayed Fire-Resistive Materials:
  - 1. Before sprayed fire-resistive materials are applied, attach offset anchor plates or ceiling runners (tracks) to surfaces indicated to receive sprayed fire-resistive materials. Where
- B. offset anchor plates are required, provide continuous plates fastened to building structure not more than 24 inches o.c.
  - 1. After sprayed fire-resistive materials are applied, remove them only to extent necessary for installation of non-load-bearing steel framing. Do not reduce thickness of fire-resistive materials below that required for fire-resistance ratings indicated. Protect adjacent fire-resistive materials from damage.

### 3.03 INSTALLATION, GENERAL

- A. Installation Standard: ASTM C 754, except comply with framing sizes and spacing indicated.
  - 1. Gypsum Board Assemblies: Also comply with requirements in ASTM C 840 that apply to framing installation.

- B. Install supplementary framing, and blocking to support fixtures, equipment services, heavy trim, grab bars, toilet accessories, furnishings, or similar construction.
- C. Install bracing at terminations in assemblies.
- D. Do not bridge building control and expansion joints with non-load-bearing steel framing members. Frame both sides of joints independently.

#### 3.04 INSTALLING SUSPENSION SYSTEMS

- A. Install suspension system components in sizes and spacings indicated on Drawings, but not less than those required by referenced installation standards for assembly types and other assembly components indicated.
- B. Isolate suspension systems from building structure where they abut or are penetrated by building structure to prevent transfer of loading imposed by structural movement.
- C. Suspend hangers from building structure as follows:
  - 1. Install hangers plumb and free from contact with insulation or other objects within ceiling plenum that are not part of supporting structural or suspension system.
    - a. Splay hangers only where required to miss obstructions and offset resulting horizontal forces by bracing, counter-splaying, or other equally effective means.
  - 2. Where width of ducts and other construction within ceiling plenum produces hanger spacings that interfere with locations of hangers required to support standard suspension system members, install supplemental suspension members and hangers in the form of trapezes or equivalent devices.
    - a. Size supplemental suspension members and hangers to support ceiling loads within performance limits established by referenced installation standards.
  - 3. Wire Hangers: Secure by looping and wire tying, either directly to structures or to inserts, eye screws, or other devices and fasteners that are secure and appropriate for substrate, and in a manner that will not cause hangers to deteriorate or otherwise fail.
  - 4. Flat Hangers: Secure to structure, including intermediate framing members, by attaching to inserts, eye screws, or other devices and fasteners that are secure and appropriate for structure and hanger, and in a manner that will not cause hangers to deteriorate or otherwise fail.
  - 5. Do not attach hangers to steel roof deck.
  - 6. Do not attach hangers to permanent metal forms. Furnish cast-in-place hanger inserts that extend through forms.
  - 7. Do not attach hangers to rolled-in hanger tabs of composite steel floor deck.
  - 8. Do not connect or suspend steel framing from ducts, pipes, or conduit.
- D. Fire-Resistance-Rated Assemblies: Wire tie furring channels to supports.

- E. Seismic Bracing: Sway-brace suspension systems with hangers used for support.
- F. Grid Suspension Systems: Attach perimeter wall track or angle where grid suspension systems meet vertical surfaces. Mechanically join main beam and cross-furring members to each other and butt-cut to fit into wall track.
- G. Installation Tolerances: Install suspension systems that are level to within 1/8 inch in 12 feet measured lengthwise on each member that will receive finishes and transversely between parallel members that will receive finishes.

### 3.05 INTERIOR NON-LOAD-BEARING WALL INSTALLATION

- A. Where studs are installed directly against exterior masonry walls or dissimilar metals at exterior walls install isolation strip between studs and exterior wall.
- B. Install studs so flanges within framing system point in same direction.
  - 1. Space studs for all applications at 16 inches o.c., unless otherwise indicated.
- C. Install tracks (runners) at floors and overhead supports. Extend framing full height to structural supports or substrates above suspended ceilings, except where partitions are indicated to terminate at suspended ceilings. Continue framing around ducts penetrating partitions above ceiling.
  - 1. Slip-Type Head Joints: Where framing extends to overhead structural supports, install to produce joints at tops of framing systems that prevent axial loading of finished assemblies.
  - 2. Door Openings: Screw vertical studs at jambs to jamb anchor clips on door frames; install runner track section (for cripple studs) at head and secure to jamb studs.
    - a. Install two studs at each jamb, unless otherwise indicated.
    - b. Install cripple studs at head adjacent to each jamb stud, with a minimum 1/2-inch clearance from jamb stud to allow for installation of control joint in finished assembly.
    - c. Extend jamb studs through suspended ceilings and attach to underside of overhead structure.
  - 3. Other Framed Openings: Frame openings other than door openings the same as required for door openings, unless otherwise indicated. Install framing below sills of openings to match framing required above door heads.
  - 4. Fire-Resistance-Rated Partitions: Install framing to comply with fire-resistance-rated assembly indicated and support closures and to make partitions continuous from floor to underside of solid structure.
    - a. Firestop Track: Where indicated, install to maintain continuity of fire-resistance-rated assembly indicated.
- D. Direct Furring:
  - 1. Attach to concrete or masonry with stub nails, screws designed for masonry attachment, or powder-driven fasteners spaced 24 inches o.c.

- E. Installation Tolerance: Install each framing member so fastening surfaces vary not more than 1/8 inch from the plane formed by faces of adjacent framing.

### 3.06 APPLYING AND FINISHING PANELS, GENERAL

- A. Comply with ASTM C 840.
- B. Install ceiling panels across framing to minimize the number of abutting end joints and to avoid abutting end joints in central area of each ceiling. Stagger abutting end joints of adjacent panels not less than one framing member.
- C. Install panels with face side out. Butt panels together for a light contact at edges and ends with not more than 1/16 inch of open space between panels. Do not force into place.
- D. Locate edge and end joints over supports, except in ceiling applications where intermediate supports or gypsum board back-blocking is provided behind end joints. Do not place tapered edges against cut edges or ends. Stagger vertical joints on opposite sides of partitions. Do not make joints other than control joints at corners of framed openings.
- E. Form control and expansion joints with space between edges of adjoining gypsum panels.
- F. Cover both faces of support framing with gypsum panels in concealed spaces (above ceilings, etc.), except in chases braced internally.
  - 1. Unless concealed application is indicated or required for sound, fire, air, or smoke ratings, coverage may be accomplished with scraps of not less than 8 sq. ft. in area.
  - 2. Fit gypsum panels around ducts, pipes, and conduits.
  - 3. Where partitions intersect structural members projecting below underside of floor/roof slabs and decks, cut gypsum panels to fit profile formed by structural members; allow 1/4- to 3/8-inch- wide joints to install sealant.
- G. Isolate perimeter of gypsum board applied to non-load-bearing partitions at structural abutments, except floors. Provide 1/4- to 1/2-inch- wide spaces at these locations, and trim edges with edge trim where edges of panels are exposed. Seal joints between edges and abutting structural surfaces with acoustical sealant.
- H. Attachment to Steel Framing: Attach panels so leading edge or end of each panel is attached to open (unsupported) edges of stud flanges first.

### 3.07 APPLYING INTERIOR GYPSUM BOARD

- A. Install interior gypsum board in the following locations:
  - 1. Type X: As indicated on Drawings.
  - 2. Ceiling Type: Suspended gypsum ceilings.
- B. Single-Layer Application:

1. On ceilings, apply gypsum panels before wall/partition board application to greatest extent possible and at right angles to framing, unless otherwise indicated.
2. On partitions/walls, apply gypsum panels either vertically (parallel to framing) or horizontally (perpendicular to framing), unless otherwise indicated or required by fire-resistance-rated assembly, and minimize end joints.
  - a. Stagger abutting end joints not less than one framing member in alternate courses of panels.
  - b. At stairwells and other high walls, install panels horizontally, unless otherwise indicated or required by fire-resistance-rated assembly.
3. Fastening Methods: Apply gypsum panels to supports with steel drill screws.

C. Multilayer Application:

1. On ceilings, apply gypsum board indicated for base layers before applying base layers on walls/partitions; apply face layers in same sequence. Apply base layers at right angles to framing members and offset face-layer joints 1 framing member, 16 inches minimum, from parallel base-layer joints, unless otherwise indicated or required by fire-resistance-rated assembly.
2. On partitions/walls, apply gypsum board indicated for base layers and face layers vertically (parallel to framing) with joints of base layers located over stud or furring member and face-layer joints offset at least one stud or furring member with base-layer joints, unless otherwise indicated or required by fire-resistance-rated assembly. Stagger joints on opposite sides of partitions.
3. Fastening Methods: Fasten base layers and face layers separately to supports with screws.

### 3.08 INSTALLING TRIM ACCESSORIES

- A. General: For trim with back flanges intended for fasteners, attach to framing with same fasteners used for panels. Otherwise, attach trim according to manufacturer's written instructions.
- B. Control Joints: Install control joints at locations indicated on Drawings, or if not indicated, according to ASTM C 840 and in specific locations approved by Architect for visual effect.
- C. Interior Trim: Install in the following locations:
  1. Cornerbead: Use at outside corners.
  2. LC-Bead: Use at exposed panel edges.
- D. Aluminum Trim: Install in locations indicated on Drawings.

### 3.09 FINISHING GYPSUM BOARD

- A. General: Treat gypsum board joints, interior angles, edge trim, control joints, penetrations, fastener heads, surface defects, and elsewhere as required to prepare

gypsum board surfaces for decoration. Promptly remove residual joint compound from adjacent surfaces.

- B. Prefill open joints and damaged surface areas.
- C. Apply joint tape over gypsum board joints, except those with trim having flanges not intended for tape.
- D. Gypsum Board Finish Levels: Finish panels to levels indicated below and according to ASTM C 840:
  - 1. Level 1: Ceiling plenum areas, concealed areas, and where indicated.
  - 2. Level 4: At panel surfaces that will be exposed to view, unless otherwise indicated.

### 3.10 PROTECTION

- A. Protect installed products from damage from weather, condensation, direct sunlight, construction, and other causes during remainder of the construction period.
- B. Remove and replace panels that are wet, moisture damaged, and mold damaged.
  - 1. Indications that panels are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.
  - 2. Indications that panels are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

END OF SECTION 09 21 16





PART 1 - GENERAL

RELATED DOCUMENTS

Drawings and general provisions of Contract, including General and Supplementary General Conditions and Division-1 Specification sections, apply to work of this section.

1.01 WORK INCLUDED

- A. Acoustic ceiling tile and suspended metal grid ceiling system.
- B. Perimeter trim.

1.02 REFERENCES

- A. ASTM C635 - Metal Suspension System for acoustic tile and lay-in panel ceilings.
- B. ASTM C636 - Installation of metal ceiling suspension systems for acoustical type and lay-in panels.

1.03 SYSTEM DESCRIPTION

- A. Installed System: Conform to UL rating assembly.

1.04 QUALITY ASSURANCE

- A. Manufacturer: Company specializing in manufacture of ceiling suspension system and ceiling panels with three years minimum experience.
- B. Installer: Company with three years minimum documented experience.

1.05 REGULATORY REQUIREMENTS

- A. Conform to code for fire rated assembly and combustibility requirements for materials.
- B. Provide complete seismic restraints for suspended grid system new and existing per code requirements. 2015 International Building Code with 2018 Connecticut Supplements.

1.06 SUBMITTALS

- A. Submit samples and product data under provisions of General Conditions and Section 01 33 00.
- B. Provide product data on metal grid system components, acoustic units, and accessories.
- C. Submit two samples illustrating material and finish of acoustic units.
- D. Submit two samples each, of suspension system main runner, cross runner, edge trim, and accessories.
- E. Submit manufacturer's installation instructions under provisions of General Conditions and Section 01 33 00.

1.07 ENVIRONMENTAL REQUIREMENTS

- A. Maintain uniform temperature of minimum 60 degree Fahrenheit, and humidity of 20 to 40 percent prior to, during, and after installation.

1.08 SEQUENCING/SCHEDULING

- A. Do not install acoustical ceilings until building is enclosed, sufficient heat is provided, dust generating activities have terminated, and overhead work is completed, tested, and approved.
- B. Schedule installation of acoustic units after interior wet work is dry.

1.09 EXTRA STOCK

- A. Provide extra quantity of acoustic units under provisions of Section 01 78 23.
- B. Provide extra stock equal to 10% of entire project.

PART 2 - PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS - LAY-IN SUSPENSION SYSTEM

- A. Armstrong
- B. Donn Corporation
- C. Chicago Metallic Corporation
- D. National Rolling Mills, Inc.

2.02 LAY-IN SUSPENSION SYSTEM MATERIALS

- A. Grid: 2 x 2, ASTM C635, intermediate duty; 15/16 components die cast and interlocking.
- B. Accessories: stabilizer bars, clips, splices and edge moldings as required for suspended grid system. Provide ceiling hold down clips No. 24 MSG spring steel at 2'-0" o.c on all ceilings comprising a return air plenum and or smoke barriers.
- C. Grid Materials: commercial quality cold rolled steel with galvanized coating.
- D. Grid Finish: white.
- E. Support Channels and Hangers: galvanized steel; size and type to suit application, to rigidly secure acoustic system including integral mechanical and electrical components with maximum deflection of 1/360. Suspension system shall be diagonally braced with wire at 4'-0" o.c.

2.03 ACCEPTABLE MANUFACTURERS - ACOUSTIC UNITS

- A. Armstrong

- B. Celotex
- C. U.S.G. Acoustic Products

2.04 ACOUSTIC UNIT MATERIALS

- A. 2' x 2' Acoustic Panels (Fine Fissured) conforming to the following:
  - 1. Thickness: 7/8"
  - 2. Light Reflectance: .85
  - 3. NRC Range: .55
  - 4. CAC Range: 33
  - 5. Fire Hazard Classification: Class A
  - 6. Flame Spread: 25
  - 7. Edge: Tegular
  - 8. Surface Color: White
  - 9. Sag Resistance: Humi Guard Plus

PART 3 - EXECUTION

3.01 INSPECTION

- A. Verify that existing conditions are ready to receive work.
- B. Verify that layout of hangers will not interfere with other work.
- C. Beginning of installation means acceptance of existing conditions.

3.02 INSTALLATION

- A. Install acoustic ceiling system in accordance with manufacturer's instructions and as supplemented in this Section.
- B. Install system capable of supporting imposed loads to a deflection of 1/360 maximum.
- C. Install after major above-ceiling work is complete. Coordinate the location of hangers with other work.
- D. Hang system independent of walls, columns, ducts, pipes and conduit. Where carrying members are spliced, avoid visible displacement of face plane of adjacent members.
- E. Laterally brace entire suspension system as per requirements of seismic requirements.

- F. Where ducts or other equipment prevent the regular spacing of hangers, reinforce the nearest affected hangers and related carrying channels to span the extra distance.
- G. Locate system according to reflected ceiling plans.
- H. Do not support components on main runners or cross runners if weight causes total dead load to exceed deflection capability. Support fixture loads by supplementary hangers located within 6 inches of each corner; or support components independently.
- I. Do not eccentrically load system or produce rotation of runners.
- J. Install edge molding at intersection of ceiling and vertical surfaces, using longest practical lengths. Miter corners. Provide edge moldings at junctions with other interruptions. Field rabbet panel edge. Where round obstructions occur, provide preformed closers to match edge molding.
- K. Fit acoustic units in place, free from damaged edges or other defects detrimental to appearance and function.
- L. Lay directional patterned units in basket weave pattern. Fit border neatly against abutting surfaces.
- M. Install acoustic units level, in uniform plane, and free from twist, warp and dents.
- N. Install hold-down clips to retain panels tight to grid system.

3.03 TOLERANCES

- A. Variation from Flat and Level Surface: 1/8 inch in 10 ft.
- B. Variation from Plumb of Grid Members Caused by Eccentric Loads: two degree maximum.

END OF SECTION 09 51 00

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## PART 1 GENERAL

### 1.01 GENERAL REQUIREMENTS

- A. Work of this Section, as shown or specified, shall be in accordance with the requirements of the Contract Documents.

### 1.02 SECTION INCLUDES:

- A. Work of this Section includes all labor, materials, equipment, and services necessary to complete the painting and finishing as shown on the drawings and/or specified herein, including, but not limited to, the following:
1. Prime painting unprimed surfaces to be painted under this Section.
  2. Painting all items furnished with a prime coat of paint, including touching up or repairing of abraded, damaged or rusted prime coats applied by others.
  3. Painting all ferrous metal (except stainless steel) exposed to view unless noted or scheduled otherwise.
  4. Painting of wood exposed to view, except items which are specified to be or finished or painted under other Sections of these specifications. Back painting of all wood in contact with concrete, masonry or other moisture areas.
  5. Painting pipes, pipe coverings, conduit, ducts, insulation, hangers, supports and other mechanical and electrical items and equipment exposed to view as noted or drawings or scheduled herein.
  6. Painting surfaces above, behind or below grilles, gratings, diffusers, louvers, lighting fixtures, and the like, which are exposed to view through these items.
  7. Incidental painting and touching up as required to produce proper finish for painted surfaces, including touching up of factory finished items.
  8. Painting of any surface not specifically mentioned to be painted herein or on drawings, but for which painting is obviously necessary to complete the job, or work which comes within the intent of these specifications, shall be included as though specified.

### 1.03 RELATED WORK

- A. Metal Fabrications 05 50 00; Custom Hollow Metal Doors 08 13 16;
- B. Shop priming is required on some, but not all of the items scheduled to be field painted. Refer to other Sections of work for complete description.
- C. Mock-ups – As requested by Architect.

### 1.04 MATERIALS and EQUIPMENT NOT TO BE PAINTED

- A. Items of equipment furnished with complete factory finish, except for items specified to be given a finish coat under this Section.

- B. Factory-finished acoustical tile.
- C. Non-ferrous metals, except for items specified and/or indicated to be painted.
- D. Finished hardware, excepting hardware that is factory primed.
- E. Surfaces not to be painted shall be left completely free of droppings and accidentally applied materials resulting from the work of this Section.

#### 1.05 QUALITY ASSURANCE

- A. Job Sample Panel
  - 1. In addition to the samples specified herein to be submitted for approval, apply in the field, at their final location, each type and color of approved paint materials, applied 10 feet wide, floor to ceiling of wall surfaces, before proceeding with the remainder of the work, for approval by the Architect. Paint sample panels to include door and frame assembly.
  - 2. These applications when approved will establish the quality and workmanship for the work of this Section.
  - 3. Repaint individual areas which are not approved, as determined by the Architect, until approval is received. Assume at least two paint sample panels of each color and gloss for approval.
- B. Qualification of Painters: Use only qualified journeyman painters for the mixing and application of paint on exposed surfaces.
- C. Paint Coordination: Provide finish coats which are compatible with the prime paints used. Review other Sections of these specifications in which prime paints are to be provided to ensure compatibility of the total coatings system for the various substrates. Upon request from other subcontractors, furnish information on the characteristics of the finish materials proposed to be used, to ensure that compatible prime coats are used. Provide barrier coats over incompatible primers or remove and re-prime as required. Notify the Architect in writing of any anticipated problems using the coating systems as specified with substrates primed by others.
- D. All paints must conform to the Volatile Organic Compounds (VOC) standards of prevailing codes and ordinances.

#### 1.06 SUBMITTALS

- A. Materials List: Before any paint materials are delivered to the job site, submit to the Architect a complete list of all materials proposed to be furnished and installed under this portion of the work.
  - 1. This shall in no way be construed as permitting substitution of materials for those specified or accepted for this work by the Architect.
- B. Samples
  - 2. Accompanying the materials list, submit to the Architect copies of the full range of colors available in each of the proposed products.

3. Upon direction of the Architect, prepare and deliver to the Architect two (2) identical sets of Samples of each of the selected colors and glosses painted onto 8-1/2" x 11" x 1/4" thick material; whenever possible, the material for Samples shall be the same material as that on which the coating will be applied in the work.

C. **Manufacturer's Recommendations:** In each case where material proposed is not the material specified or specifically described as an acceptable alternate in this Section of these specifications, submit for the Architect's review the current recommended method of application published by the manufacturer of the proposed material.

#### 1.07 PRODUCT HANDLING

A. Deliver all paint materials to the job site in their original unopened containers with all labels intact and legible at time of use.

B. **Protection**

4. Store only the approved materials at the job site, and store only in a suitable and designated area restricted to the storage of paint materials and related equipment.

5. Use all means necessary to ensure the safe storage and use of paint materials and the prompt and safe disposal of waste.

6. Use all means necessary to protect paint materials before, during and after application and to protect the installed work and materials of all other trades.

C. **Replacements:** In the event of damage, immediately make all repairs and replacements necessary.

### PART 2 - PRODUCTS

#### 2.01 PAINT MANUFACTURERS

A. Except as otherwise noted, provide the painting products listed for all required painting made by one of the manufacturers listed in the paint schedule (Section 2.4). These companies are Benjamin Moore, Akzo Nobel Paint (Glidden Professional), and Sherwin Williams (S-W). Comply with number of coats and required minimum mil thicknesses as specified herein.

#### 2.02 MATERIALS

A. Provide undercoat paint produced by the same manufacturer as the finish coats. Use only thinners approved by the paint manufacturer, and use only to recommended limits.

B. **Colors and Glosses:** All colors and glosses shall be as indicated on drawings and scheduled herein. Certain colors may require paint manufacturer to prepare special factory mixes to match scheduled.

C. **Coloring Pigment:** Products of or furnished by the manufacturer of the paint or enamel approved for the work.



- D. Linseed Oil: Raw or boiled, as required, of approved manufacture, per ASTM D 234 and D 260, respectively.
- E. Turpentine: Pure distilled gum spirits of turpentine, per ASTM D 13.
- F. Shellac: Pure gum shellac (white or orange) cut in pure denatured alcohol using not less than four (4) lbs. of gum per gallon of alcohol.
- G. Driers, Putty, Spackling Compound, Patching Plaster, etc.: Best quality, of approved manufacture.
- H. All paint shall be heat resistant up to 200° F

### 2.03 GENERAL STANDARDS

- A. The various surfaces shall be painted or finished as specified below in Articles 2.4 and 2.6. However, the Architect reserves the right to change the finishes within the range of flat, semi-gloss or gloss, without additional cost to the Owner.
- B. All paints, varnishes, enamels, lacquers, stains and similar materials must be delivered in the original containers with the seals unbroken and label intact and with the manufacturer's instructions printed thereon.
- C. All painting materials shall bear identifying labels on the containers with the manufacturer's instructions printed thereon.
- D. Paint shall not be badly settled, caked or thickened in the container, shall be readily dispersed with a paddle to a smooth consistency and shall have excellent application properties.
- E. Paint shall arrive on the job color-mixed except for tinting of under-coats and possible thinning.
- F. All thinning and tinting materials shall be as recommended by the manufacturer for the particular material thinned or tinted.
- G. It shall be the responsibility of the Contractor to see that all mixed colors match the color selection made by the Architect prior to application of the coating.

### 2.04 SCHEDULE OF FINISHES

- A. Interior Ferrous Metal

Where rust has formed apply one coat of Benjamin Moore M82 Rust Converter prior to the primer application.

Satin Finish/Latex

- |             |   |
|-------------|---|
| Primer:     | 1 coat Moore [HP04] Ultra Spec Acrylic Metal Primer                       |
|             | 1 coat Akzo Devflex 4020 PF DTM Prime/Flat Finish or touch-up shop primer |
|             | 1 coat Sherwin-Williams Pro Industrial Pro-Cryl Universal Primer B66-310  |
| First Coat: | 1 coat Moore [HP25] Ultra Spec-HP DTM Acrylic Low Luster                  |
|             | 1 coat Akzo: Glidden Professional Diamond 350 Acrylic Eggshell GP1403     |

1 coat S-W Pro-Classic Waterborne Acrylic Satin, B20  
 Second Coat: 1 coat Benjamin Moore [HP25] Ultra Spec HP Acrylic Low Lustre  
 1 coat Akzo: Glidden Professional Diamond 350 Acrylic Eggshell  
 GP1403  
 1 coat S-W Pro-Classic Waterborne Acrylic Satin, B20  
 a. Total DFT not less than: 3.9 mils

#### Semi-Gloss Finish/Latex

Primer: 1 coat Benjamin Moore [HP04] Ultra Spec HP Acrylic Metal Primer  
 1 coat Akzo Devflex 4020 PF DTM Primer/Flat Finish or touch-up  
 shop primer.  
 1 coat Sherwin-Williams, Pro Industrial Pro-Cryl Universal Primer  
 B66-310  
 First Coat: 1 coat Benjamin Moore [HP29] Ultra Spec HP Acrylic Semi-Gloss  
 1 coat Akzo: Glidden Professional Diamond 350 Acrylic S/G  
 6P1407  
 1 coat S-W Pro-Classic Waterborne Acrylic Semi-Gloss, B31  
 Second Coat: 1 coat Benjamin Moore [HP29] Ultra Spec HP Acrylic Semi-Gloss  
 1 coat Akzo: Glidden Professional Diamond 350 Acrylic S/G  
 6P1407  
 1 coat S-W Pro-Classic Waterborne Acrylic Semi-Gloss, B31  
 a. Total DFT not less than: 4.0 mils

Powder coat RAL 9006 White Aluminum powder Columbia Coatings or equal, 2.5-3.5  
 mil coat applied per manufacturer's instructions by shop with min. 5  
 years experience.

#### B. Interior Gypsum Board and Plaster

##### Flat Finish/Vinyl Acrylic Latex

Primer: 1 coat Moore [534] Ultra Spec 500 Latex Primer  
 1 coat Akzo Glidden Professional Gripper GP 3210  
 1 coat S-W Promar 200 Interior Latex Primer  
 First Coat: 1 coat Moore [536] Ultra Spec 500 Interior Latex Flat  
 1 coat Akzo Glidden Professional Diamond 350 Flat GP 1201  
 1 coat S-W Promar 200 Zero VOC Interior Latex Flat, B30-2600  
 Second Coat: 1 coat Moore [536] Ultra Spec 500 Interior Latex Flat  
 1 coat Akzo Glidden Professional Diamond 350 Flat GP 1201  
 1 coat S-W Promar 200 Zero VOC Interior Latex Flat, B30-2600  
 a. Total DFT not less than: 3.6 mils

##### Eggshell Finish/Vinyl Acrylic Latex

Primer: 1 coat Moore [534] Ultra Spec 500 Latex Primer  
 1 coat Akzo Glidden Professional Gripper GP 3210  
 1 coat S-W Promar 200 Interior Latex Primer,  
 First Coat: 1 coat Moore [538] Ultra Spec 500 Interior Latex Eggshell  
 1 coat Akzo Glidden Professional Diamond 350 Acrylic Eggshell GP  
 1403  
 1 coat S-W Promar 200 Zero VOC Interior Latex Egg-Shell, B20-2600  
 Second Coat: 1 coat Moore [538] Ultra Spec 500 Interior Latex Eggshell  
 1 coat Akzo Glidden Professional Diamond 350 Acrylic Eggshell GP  
 1403  
 1 coat S-W Promar 200 Zero VOC Interior Latex Egg-Shell B20-2600

- a. Total DFT not less than: 3.8 mils

C. Interior Painted Wood

Satin Finish/Latex

- Primer: 1 coat Moore [790] Advance Primer  
 1 coat Akzo Glidden Professional Gripper GP 3210  
 1 coat S-W Premium Wall and Wood Primer B28W111
- First Coat: 1 coat Moore [792] Advance Waterborne Alkyd Satin  
 1 coat Akzo Glidden Professional Diamond 350 Acrylic Eggshell GP 1403  
 1 coat S-W Pro Classic Interior WB, Acrylic/Alkyd Classic B20.
- Second Coat: 1 coat Moore [792] Advance Waterborne Alkyd Satin  
 1 coat Akzo Glidden Professional Diamond 350 Acrylic Eggshell GP 1403  
 1 coat S-W Pro Classic Interior WB, Acrylic/Alkyd Classic B20.
- a. Total DFT not less than: 4.0 mils

Semi-Gloss Finish/Latex

- Primer: 1 coat Moore [790] Advance Primer  
 1 coat Akzo Glidden Professional Gripper GP 3210  
 1 coat S-W Premium Wall and Wood Primer B28W111
- First Coat: 1 coat Moore [793] Advance Waterborne Alkyd Semi-Gloss  
 1 coat Akzo Glidden Professional Diamond 350 Acrylic S/G GP 1407  
 1 coat S-W Pro Classic Interior WB, Acrylic/Alkyd Classic Semi-Gloss B31
- Second Coat: 1 coat Moore [793] Advance Waterborne Alkyd Semi-Gloss  
 1 coat Akzo Glidden Professional Diamond 350 Acrylic S/G GP 1407  
 1 coat S-W Pro Classic Interior WB, Acrylic/Alkyd Classic Semi-Gloss B31
- a. Total DFT not less than: 3.8 mils

- D. EXTERIOR FERROUS METAL: Where rust has formed apply one coat of Benjamin Moore M82 Rust Converter prior to the primer application.

Unless otherwise specified in structural and metal fabrications Specification section:

Semi-Gloss Finish/Latex

- Primer: 1 coat Benjamin Moore [HP04] Ultra Spec HP Acrylic Metal Primer  
 1 coat Akzo Devflex 4020 PF DTM Primer/Flat Finish or touch-up shop primer.  
 1 coat Sherwin-Williams, Pro Industrial Pro-Cryl Universal Primer B66-310
- First Coat: 1 coat Benjamin Moore [HP29] Ultra Spec HP Acrylic Semi-Gloss  
 1 coat Akzo: Glidden Professional Diamond 350 Acrylic S/G 6P1407  
 1 coat S-W Pro-Classic Waterborne Acrylic Semi-Gloss, B31
- Second Coat: 1 coat Benjamin Moore [HP29] Ultra Spec HP Acrylic Semi-Gloss  
 1 coat Akzo: Glidden Professional Diamond 350 Acrylic S/G 6P1407

1 coat S-W Pro-Classic Waterborne Acrylic Semi-Gloss, B31

- a. Total DFT not less than: 4.0 mils

2.05 EXISTING SURFACES TO BE PAINTED

- A. Existing surfaces shall be painted in accordance with schedule given in Article 2.04 herein except that first or prime coat may be eliminated where existing paint is sound. Where existing paint must be removed down to base material, provide first or prime coat as specified.

PART 3 EXECUTION

3.01 INSPECTION

- A. Examine the areas and conditions where painting and finishing are to be applied and correct any conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions are corrected to permit proper installation of the work.

3.02 GENERAL WORKMANSHIP REQUIREMENTS

- A. Only skilled mechanics shall be employed. Application may be by brush or roller. Spray application only upon acceptance from the Architect in writing.
- B. The Contractor shall furnish the Architect a schedule showing when he expects to have completed the respective coats of paint for the various areas and surfaces. This schedule shall be kept current as the job progresses.
- C. The Contractor shall protect his work at all times, and shall protect all adjacent work and materials by suitable covering or other method during progress of his work. Upon completion of the work, he shall remove all paint and varnish spots from floors, glass and other surfaces. He shall remove from the premises all rubbish and accumulated materials of whatever nature not caused by others and shall leave his part of the work in clean, orderly and acceptable condition.
- D. Remove and protect hardware, accessories, device plates, lighting fixtures, and factory finished work, and similar items, or provide ample in place protection. Upon completion of each space, carefully replace all removed items by workmen skilled in the trades involved.
- E. Remove electrical panel box covers and doors before painting walls. Paint separately and re-install after all paint is dry.
- F. All materials shall be applied under adequate illumination, evenly spread and flowed on smoothly to avoid runs, sags, holidays, brush marks, air bubbles and excessive roller stipple.
- G. Coverage and hide shall be complete. When color, stain, dirt or undercoats show through final coat of paint, the surface shall be covered by additional coats until the paint film is of uniform finish, color, appearance and coverage, at no additional cost to the Owner.

- H. All coats shall be dry to manufacturer's recommendations before applying succeeding coats.
- I. Do not apply paint behind frameless mirrors that use mastic for adhering to wall surface.

### 3.03 PREPARATION OF SURFACES

- A. Existing Surfaces: Clean existing surfaces requiring paint or finishing, remove all loose and flaking paint or finish and sand surface smooth as required to receive new paint or finish. No "telegraphing" of lines, ridges, flakes, etc., through new surfacing is permitted. Where this occurs, Contractor shall be required to sand smooth and re-finish until surface meets with Architect's approval.
- B. General
  - 1. The Contractor shall be held wholly responsible for the finished appearance and satisfactory completion of painting work. Properly prepare all surfaces to receive paint, which includes cleaning, sanding, and touching-up of all prime coats applied under other Sections of the work. Broom clean all spaces before painting is started. All surfaces to be painted or finished shall be perfectly dry, clean and smooth.
  - 2. Perform all preparation and cleaning procedures in strict accordance with the paint manufacturer's instructions and as herein specified, for each particular substrate condition.
  - 3. Clean surfaces to be painted before applying paint or surface treatments. Remove oil and grease with clean cloths and cleaning solvents prior to mechanical cleaning. Program the cleaning and painting so that dust and other contaminants from the cleaning process will not fall in wet, newly painted surfaces.
- C. Metal Surfaces
  - 1. Weld Fluxes: Remove weld fluxes, splatters, and alkali contaminants from metal surfaces in an approved manner and leave surface ready to receive painting.
  - 2. Bare Metal: Thoroughly clean off all foreign matter such as grease, rust, scale and dirt before priming coat is applied. Clean surfaces, where solder flux has been used, with benzene. Clean surfaces by flushing with mineral spirits. For aluminum surfaces, wipe down with an oil free solvent prior to application of any pre-treatment.
    - a. Bare metal to receive high performance coating specified herein must be blast cleaned SSPC SP-6 prior to application if field applied primer; coordinate with steel trades furnishing ferrous metals to receive this coating to insure that this cleaning method is followed.
  - 3. Shop Primed Metal: Clean off foreign matter as specified for "Bare Metal." Prime bare, rusted, abraded and marred surfaces with approved primer after proper cleaning of surfaces. Sandpaper all rough surfaces smooth.
  - 4. Galvanized Metal: Prepare surface as per the requirements of ASTM D 6386.
  - 5. Metal Filler: Fill dents, cracks, hollow places, open joints and other irregularities in metal work to be painted with an approved metal filler suitable for the purpose

and meeting the requirements of the related Section of work; after setting, sand to a smooth, hard finish, flush with adjoining surface.

- D. Gypsum Drywall Surfaces: Scrape off all projections and splatters, spackles all holes or depressions, including taped and spackled joints, sand smooth. Conform to standards established in Section 092116, "Gypsum Board Assemblies."
- E. Wood Surfaces: Sand to remove all roughness, loose edges, splinters, or splinters and then brush to remove dust. Wash off grease or dirt with an approved cleaner. Fill all cracks, splits, nail holes, screw holes, and surface defects with putty after the priming coat has been applied. Putty shall be brought up flush with the surface and sanded smooth and touched-up with primer when dry.
- F. Testing for Moisture Content: Contractor shall test all masonry and drywall surfaces for moisture content using a reliable electronic moisture meter. Contractor shall also test latex type fillers for moisture content before application of top coats of paint. Do not apply any paint or sealer to any surface or to latex type filler where the moisture content exceeds seven (7) percent as measured by the electronic moisture meter.
- G. Touch-Up: Prime paint all patched portions in addition to all other specified coats.

### 3.04 MATERIALS PREPARATION

- A. Mix and prepare painting materials in strict accordance with the manufacturer's directions.
- B. Store materials not in actual use in tightly covered containers. Maintain containers used in storage, mixing, and application of paint in a clean condition, free of foreign materials and residue.
- C. Stir all materials before application to produce a mixture of uniform density, and as required during the application of the materials. Do not stir any film which may form on the surface into the material. Remove the film and, if necessary, strain the material before using.
- D. Tint each undercoat a lighter shade to facilitate identification of each coat where multiple coats of the same material are to be applied. Tint undercoats to match the color of the finish coat, but provide sufficient difference in shade of undercoats to distinguish each separate coat.

### 3.05 APPLICATION

- A. General
  - 1. Apply paint by brush or roller in accordance with the manufacturer's directions. Use brushes best suited for the type of material being applied. Use rollers of carpet, velvet back, or high pile sheep's wool as recommended by the paint manufacturer for material and texture required.
  - 2. The number of coats and paint film thickness required is the same regardless of the application method. Do not apply succeeding coats until the previous coat has completely dried. Sand between each enamel or varnish coat application with fine sandpaper, or rub surfaces with pumice stone where required to produce an even, smooth surface in accordance with the coating manufacturer's directions.

3. Apply additional coats when undercoats, stains, or other conditions show through the final coat of paint, until the paint film is of uniform finish, color and appearance. Give special attention to insure that all surfaces, including edges, corners, crevices, welds, and exposed fasteners receive a film thickness equivalent to that of flat surfaces.
  4. Paint surfaces behind movable equipment and furniture the same as similar exposed surfaces. Paint surfaces behind permanently fixed equipment or furniture with prime coat only.
    - a. "Exposed surfaces" is defined as those areas visible when permanent or built-in fixtures, convector covers, covers for finned tube radiation, grilles, etc., are in place in areas scheduled to be painted.
  5. Paint interior surfaces of ducts, where visible through registers or grilles, with a flat, non-specular black paint, before final installation of equipment.
  6. Paint the back sides of access panels, removable or hinged covers to match the exposed surfaces.
  7. Finish doors on tops, bottoms, and side edges the same as the faces, unless otherwise indicated.
  8. Enamel finish applied to wood or metal shall be sanded with fine sandpaper and then cleaned between coats to produce an even surface.
  9. Paste wood filler applied on open grained wood after beginning to flatten, shall be wiped across the grain of the wood, then with a circular motion, to secure a smooth, filled, clean surface with filler remaining in open grain only. After overnight dry, sand surface with the grain until smooth before applying specified coat.
- B. Scheduling Painting
1. Apply the first coat material to surfaces that have been cleaned, pre-treated or otherwise prepared for painting as soon as practicable after preparation and before subsequent surface deterioration.
  2. Allow sufficient time between successive coatings to permit proper drying. Do not re-coat until paint has dried to where it feels firm, does not deform or feel sticky under moderate thumb pressure, and the application of another coat of paint does not cause lifting or loss of adhesion of the undercoat.
- C. Prime Coats: Re-coat primed and sealed walls and ceilings where there is evidence of suction spots or unsealed areas in first coat, to assure a finish coat with no burn-through or other defects due to insufficient sealing.
- D. Pigmented (Opaque) Finishes: Completely cover to provide an opaque, smooth surface of uniform finish, color, appearance and coverage.
- E. Touching-Up of Factory Finishes: Unless otherwise specified or shown, materials with a factory finish shall not be painted at the project site. To touch up, the Contractor shall use the factory finished material manufacturer's recommended paint materials to repair abraded, chipped, or otherwise defective surfaces.

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3.06 PROTECTION

- A. Protect work of other trades, whether to be painted or not, against damage by the painting and finishing work. Leave all such work undamaged. Correct any damages by cleaning, repairing or replacing, and repainting, as acceptable to the Architect.
- B. Provide "Wet Paint" signs as required to protect newly painted finishes. Remove temporary protective wrappings provided by others for protection of their work after completion of painting operations.

3.07 CLEAN UP

- A. During the progress of the work, remove from the site all discarded paint materials, rubbish, cans and rags at the end of each work day.
- B. Upon completion of painting work, clean window glass and other paint spattered surfaces. Remove spattered paint by proper methods of washing and scraping, using care not to scratch or otherwise damage finished surfaces.
- C. At the completion of work of other trades, touch-up and restore all damaged or defaced painted surfaces.

END OF SECTION 09 91 00





PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawing and general provisions of contract, including Bidding Requirements, General and Supplementary Conditions, Division 1 and Division 22 specification sections, apply to work of this section.

1.02 DESCRIPTION

- A. The work of this Division shall include, but not necessarily be limited to the following:
  - 1. Installation of roof drains, storm drain piping, vent piping, and accessories.

1.03 DEFINITIONS

Word "Engineer" shall mean the Mechanical and Electrical Engineers.

"As Necessary" - Work referred to as "as necessary" shall be that work which is required for completed construction, but is not necessarily shown or described in the Contract Documents.

"As Required" - Work referred to as "as required" shall be that work which is required for completed construction and is shown on the drawings or described in the project manual.

Word "install" shall mean set in place complete with all mounting facilities and connections as required ready for normal use of service. Note: Take care to ascertain limits of responsibility for connecting equipment which requires connections by two or more trades.

Words "furnish" or "supply" shall mean purchase, deliver to, and offload at the jobsite, all ready to be installed including where appropriate all necessary interim storage and protection.

Word "provide" shall mean furnish (or supply) and install as required.

Word "finished" refers to all rooms and areas scheduled to be painted in Room Finish Schedule on the drawings. All rooms and areas not covered in Schedule, including areas above ceilings shall be considered not finished, unless otherwise noted.

Words "approved equal" mean any product which in the opinion of the Engineer is equal in quality, arrangement, appearance, and performance to the product specified.

Word "wiring" shall mean cable assembly, raceway, conductors, fittings and any other necessary accessories to make a complete wiring system.

Word "product" shall mean any item of equipment, material, fixture, apparatus, appliance or accessory installed under this Division.

1.04 REFERENCE STANDARDS

- A. Certain products are described by reference to standard specifications published by organization abbreviated as follows:

AGA	American Gas Association
IEEE	Institute of Electrical & Electronic Engineers
ANSI	American National Standards Institute
ASHRAE	American Society of Heating, Refrigerating and Air Conditioning Engineers.
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing Material
AWS	American Welding Society
AWWA	American Water Work Association
FM	Factory Mutual
IBR	Institute of Boiler & Radiation Manufacturers
IRI	Industrial Risk Insurers
NBFU	National Board of Fire Underwriters
NEC	National Electrical Code
NEMA	National Electrical Manufacturers Association
NFPA	National Fire Protection Association
SBI	Steel Boiler Institute
SMACNA	Sheet Metal and Air Conditioning Contractors National Association
UL	Underwriters Laboratories, Inc.

- B. The edition of the standard current at the date of these specifications shall apply.

1.05 DRAWINGS

- A. All drawings are diagrammatic and are intended to provide sufficient information and detail to enable proper execution and completion of the work.

1.06 WORKMANSHIP

- A. Execute all work in a neat and workmanlike manner. The quality of workmanship shall be consistent with that to be expected of experienced journeymen in the area and acceptable to both the Engineer and the authority having jurisdiction.
- B. Furnish the services of an experienced Superintendent, who shall constantly be in charge of the execution of the work.

1.07 ACCESSIBILITY

- A. Install all work with proper facilities for access for inspection, operation, maintenance and repair. Minor changes from the drawings will be permitted in order to accomplish this, but major changes shall not be made without prior written approval from the Engineer.

- B. Where products requiring access are installed behind plaster or gypsum board finishes, furnish access doors for installation by the General Contractor.
- C. Group as many items as practicable together to minimize the number of access doors required. Direct and be responsible for the correct location of all access doors required for the work of the Division.

#### 1.08 QUIET OPERATION

- A. Install all products such that vibration from them under any load is not transmitted to the building. Noise from any product shall be controlled such that its operation under any load condition will be inaudible during normal use of any occupied space.
- B. Notwithstanding any liability on the part of the product supplier, the subcontractor will be held responsible for eliminating in an approved manner any unacceptable vibration or noise condition without extra compensation.

#### 1.09 PAINTING

- A. This subcontractor shall touch up factory coat where marred.
- B. Paint finish on all materials shall be manufacturer's standard unless otherwise specified.

#### 1.10 WATERPROOFING

- A. Where any work penetrates exterior walls, roofs, basement slabs, or slabs on grade, such penetrations shall be made permanently watertight. Provide all sleeves, caulking, and flashing as necessary.

#### 1.11 BASES AND SUPPORTS

- A. Unless otherwise specified, all equipment shall be firmly secured by corrosion-proofed metal stock to the building structure. Unless so approved, equipment shall not be supported by roof deck.
- B. All equipment, bases, supports and structures shall be adequately anchored to prevent shifting of position under operating conditions.

#### 1.12 CLEANING OF WORK

- A. Thoroughly clean all new work of all foreign matter inside and out before placing in operation.
- B. If any part of a system becomes obstructed or impaired by any foreign matter after being placed in operation, disconnect the system, remove the obstruction or impairment and re-connect it as necessary. Repair or replace without extra compensation any work damaged in the course

1.13 SLEEVES, INSERTS AND ANCHOR BOLTS

- A. Locate and maintain properly in position all sleeves, inserts, and anchor bolts as required. In the event of failure to do so, perform any necessary cutting and patching of finished work without extra compensation.
- B. All piping passing through floors, walls or ceilings shall be provided with sleeves having an internal diameter 1" larger than the outside diameter of the piping, tubing or raceway.
- C. Sleeves in floors shall be standard weight steel pipe and extend 1-1/2" above floor except in finished areas when sleeves shall be flush with finish floor. Sleeves shall be caulked with backer rod stock and one part polysulfide caulk. Wall and ceiling sleeves shall be packed with mineral wool. All penetrations thru rated walls and floors shall be sealed with U.L. listed system for the rating of the assembly and be equal to Pecora AC-20 FTR.
- D. Inserts shall be of the individual or of the strip type and of pressed steel construction with accommodation for removable nuts and threaded rods up to 3/4" diameter. Individual inserts shall have an opening at the top to allow reinforcing rods up to 1/2" diameter to be passed through the insert body as made by Fee & Mason Mfg. Co., Fig. 178 or approved equal. Strip inserts shall have attached rods with hooked ends to allow fastening to reinforcing rods as made by Fee & Mason Mfg. Co., Fig. 190 or approved equal.

1.14 TESTING - GENERAL

- A. Perform all required tests in the presence of the Owner, Engineer and representative of the authority having jurisdiction. Provide minimum of (10) working days notice of testing to all parties concerned. Provide all test equipment.
- B. Furnish certification of satisfactory testing, signed by subcontractor's authorized representative, countersigned where appropriate by the authority having jurisdiction.
- C. All testing and certification shall be complete before any claim for substantial completion will be considered.
- D. Equipment and systems which normally operate during certain seasons of the Year shall be tested during the appropriate season. Tests shall be performed on individual equipment, systems and their controls. Whenever the equipment or system under test is related to or depends upon the operation of other equipment, systems and controls for proper operation, functioning and performance, the latter shall be operated simultaneously with the equipment or system being tested.

1.15 OWNERS MANUAL

- A. Provide owner's manual per specification section 01 78 23.

1.16 MANUFACTURERS IDENTIFICATION

- A. Manufacturer's nameplate, name or trademarks shall be permanently affixed to all equipment and material furnished under this specification. The nameplate of a Subcontractor or distributor will not be acceptable.

1.17 TAGS, IDENTIFICATION AND INSTRUCTIONS

- A. Every valve, damper, control, switch, motor starter and piece of apparatus shall be tagged, labeled or stenciled. Tags and labels shall be securely fastened by brass chains, screws, or mastic as appropriate. Equipment, controls, panels, etc., shall be numbered according to the equipment schedule shown on the drawing. Tags shall be listed in directories by-number, location and use. Directories shall be mounted under glass in aluminum self closing frames manufactured by Seton Nameplate Company, #AllG or approved equal. Tags shall be manufactured by Seton Nameplate Company or approved equal and be of the following types.
  - 1. Valve tags shall be style #2961 plastic, color coded in accordance with ANSI 13.1-1981 and the Owner's standards.
  - 2. Manual starters for small motors shall be provided with 1" x 3" engraved Seton-ply nameplates suitable for attaching directly to standard switch plates.
  - 3. All piping shall be identified with Seton "Setmark" pipe markers clearly indicating the service and direction of flow. Markers shall be located every 30 ft. in straight runs of pipe and shall be so arranged that piping systems can be readily identified. Pipe markers shall comply with ANSI A13.1 for lettering size, length of color field, colors and viewing angles of identification devices.
  - 4. Equipment such as air handlers, pumps, etc. shall be neatly stenciled with letters not less than 2" high. In lieu of stenciling, Subcontractor may use Seton self sticking numbers and letters. Any equipment too small to receive such stenciling shall be provided with name tags as above.
- B. "DYMO" type labels will not be accepted for any permanent identification.

1.18 INSTRUCTIONS

- A. Furnish all necessary labor and services for a minimum net period of 2 hours to instruct the Owners staff in the operation of all systems and equipment provided under this Division. Provide additional time for Owner training as described in associated sections. Include where appropriate the services of manufacturers technical personnel to instruct the Owner in the use of special systems. Instruction shall include sufficient demonstration of equipment and systems, and explanation of technical manuals furnished, instruction in the use of any special tools or instruments, etc., so that the Owner will be fully conversant with operating and maintenance procedures.

1.19 PIPE PENETRATING 2 OR 4 HOUR WALLS SHALL BE AS FOLLOWS

- A. Contractor is to provide fire stopping and/or smoke stopping for all penetrations of (new and existing) fire or smoke barrier walls, chases, floors, etc. as required to maintain rating of floor, wall, chase, etc.
- B. Install conduit to preserve fire resistance rating of partitions and other elements.
- C. Install fire proofing material to maintain existing rating of floor, beams, etc. damaged or removed by renovation.
- D. Fire and smoke stopping material: A two-part silicone foam or a one-part putty, UL classified and FM approved with flame spread of 0 and smoke development not to exceed 50 in accord with ASTM E84. Material shall be suitable for penetration seals through fire-rated floors and walls when tested in accord with ASTM E119. Material shall not melt or soften at high temperatures, shall be suitable for direct outdoor and ultraviolet exposures, shall cure to give a tight compression fit, and shall not produce toxic fumes. Material, when heated, shall expand to fill and hold penetration closed where burn out of cable insulation or ATC tubing occurs. Comply with above and/or supplemental general conditions, whichever is more stringent.
- E. All penetrations shall be sealed/fire stopped in strict accordance with UL Fire Directory, latest addition. Submit applicable details for acceptance. Prepare and install exactly as delineated by UL detail(s).
- F. Comply with UL Fire Directory "F" and "T" ratings respectfully.

1.20 STORM DRAIN PIPING CCTV INSPECTION

- 1. The storm drainage system shall be inspected by means of remote CCTV. Inspection shall be from the roof drain to the storm sewer at the building property line.
- 2. It shall be the responsibility of the Contractor to make timely requests of the Owner for supplemental information including existing building drawings, as required in the planning and execution of the work.
- 3. The Contractor shall use a color pan and tilt camera or a side wall scanning (panoramic) camera specifically designed and constructed for sewer inspection. The Contractor shall provide a recording of the televised sewer inspection, locating each storm drain connection entering the main storm sewer.
- 4. Lighting for the pan and tilt camera or side wall scanning camera shall provide a clear picture of the entire periphery of the existing storm drain and sewer.
- 5. The pan and tilt camera shall pause, pan, and visually inspect all service connections, pipe ends, and maintenance or structural defects. If utilizing a camera with side wall scanning capabilities, pausing and panning of each lateral is not necessary during the inspection if the image clearly depicts the inside of the lateral for post processing.

6. If a blockage cannot be removed and hampers the televising of the sewer in one direction, the Contractor must immediately report the obstruction to the Owner and complete the inspection after the blockage is cleared.
7. If the image quality is not adequate for post-inspection coding, the Contractor shall be required to repeat the survey at the Contractor's expense.
8. CCTV inspections will be delivered entirely in electronic format. Copies of video inspections shall be furnished to owner on a flash drive with written narrative of storm drainage pipe conditions.

END OF SECTION 22 0100





PART 1 - GENERAL

1.01 RELATED DOCUMENTS

Drawings and general provisions of Contract, including Bidding Requirements, General and Supplementary Conditions and Division 1 Specification sections, apply to work of this section.

1.02 DESCRIPTION

Thermal insulation for piping and equipment.

1.03 QUALITY ASSURANCE

- A. Standards
  - 1. N.F.P.A. 255.
  - 2. U.L. 723.

1.04 SUBMITTALS

Submit manufacturer's specification sheets on all insulation, insulation fittings, jackets, sealants and adhesives, submit samples as required in division 1.

PART 2 - PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

Insulation shall be as manufactured by Owens Corning, Johns-Manville, CSG Certain-Teed Corp., or Armstrong.

2.02 PIPING INSULATION

- A. Rigid, preformed, glass fiber insulation, 3-1/2 lb. minimum density. White, factory-applied vapor jacket composed of a foil kraft laminate, common name "All Service Jacket" (ASJ). Flame spread rating not exceeding 25. Smoke developed rating not exceeding 50. ASTM C547, Class I otherwise noted. Insulation conductivity shall be 0.27 BTU/in/h-ft<sup>2</sup>-F.
- B. Fittings and valves shall be insulated with premolded glass fiber insulation of the proper size and configuration with a final finish consisting of a premolded fitting cover. Insulation and fitting covers shall be manufactured by the same manufacturer, and shall be equal to those as manufactured by Zeston Corp. Contractor has the option to use in lieu of the premolded fitting cover, mitered sections of the proper thickness pipe covering. Final finish over the fittings concealed in chases and above ceilings shall be vapor barrier jacketing. Piping exposed in tunnels, basements and mechanical spaces and not concealed above ceilings or in chases shall have a final finish consisting of remolded PVC fitting and pipe cover. Where piping is concealed, fittings may be covered by applying tightly

wrapped layers of glass fiber blanket built up to the thickness of the adjacent pipe covering and held in place with wrappings of vapor barrier tape.

- C. Encase exterior piping insulation with stainless steel jacket with weatherproof construction and all seams sealed watertight as manufactured by Zeston.

### PART 3 - EXECUTION

#### 3.01 INSPECTION

- A. Examine areas and conditions under which mechanical insulation is to be installed. Do not proceed with work until unsatisfactory conditions have been corrected in manner acceptable to Installer.

#### 3.02 PLUMBING PIPING SYSTEM INSULATION

- A. Application Requirements: Insulate the following cold plumbing piping systems:  
  
Storm drainage piping and roof drain bodies.
- B. Insulate each piping system specified above with one of the following types and thicknesses of insulation:  
  
Fiberglass: 1" thickness.

#### 3.03 INSTALLATION OF PIPING INSULATION

- A. General: Install insulation products in accordance with manufacturer's written instructions, and in accordance with recognized industry practices to ensure that insulation serves its intended purpose.
- B. Install insulation on pipe systems subsequent to installation of heat tracing, painting, testing, and acceptance of tests.
- C. Install insulation materials with smooth and even surfaces. Insulate each continuous run of piping with full-length units of insulation, with single cut piece to complete run. Do not use cut pieces or scraps abutting each other.
- D. Clean and dry pipe surfaces prior to insulating. Butt insulation joints firmly together to ensure complete and tight fit over surfaces to be covered.
- E. Maintain integrity of vapor-barrier jackets on pipe insulation, and protect to prevent puncture or other damage.
- F. Cover valves, fittings and similar items in each piping system with equivalent thickness and composition of insulation as applied to adjoining pipe run. Install factory molded, precut or job fabricated units (at Installer's option).

- G. Extend piping insulation without interruption through walls, floors and similar piping penetrations, except where otherwise indicated.
- H. Butt pipe insulation against pipe hanger insulation inserts. For hot pipes, apply 3" wide vapor barrier tape or band over the butt joints. For cold piping apply wet coat of vapor barrier lap cement on butt joints and seal joints with 3" wide vapor barrier tape or band.

3.04 PROTECTION AND REPLACEMENT

- A. Replace damaged insulation which cannot be repaired satisfactorily, including units with vapor barrier damage and moisture saturated units.
- B. Protection: Insulation Installer shall advise Contractor of required protection for insulation work during remainder of construction period, to avoid damage and deterioration.

END OF SECTION 220719



PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification sections, apply to work of this section.
- B. Requirements of the following Division 22 Sections apply to this section:  
  
Plumbing General Provisions.

1.02 SUMMARY

- A. This Section includes building sanitary and storm drainage and vent piping systems, including drains and drainage specialties.

1.03 DEFINITIONS

- A. Building Drain: That part of the lowest piping of a drainage system which receives the discharge from soil, waste, and other drainage pipes inside the walls of the building and conveys it to the building sewer.
- B. Building Sewer: That part of the drainage system which extends from the end of the building drain and conveys its discharge to a public sewer, private sewer, individual sewage disposal system, or other point of disposal.
- C. Drainage System: Includes all the piping within the building which conveys sewage, rain water or other liquid wastes to a point of disposal. It does not include the mains of public sewer systems or a private or public sewage treatment or disposal plant.
- D. Vent System: A pipe or pipes installed to provide a flow of air to or from a drainage system, or to provide a circulation of air within such system to protect trap seals from siphonage and back pressure.

1.04 SUBMITTALS

- A. product data to be submitted per division 1 requirements.

1.05 QUALITY ASSURANCE

- A. Regulatory Requirements: comply with the provisions of the following:  
  
Connecticut State Plumbing Code and Supplements.

PART 2 - PRODUCTS

2.01 ABOVE GROUND DRAINAGE AND VENT PIPE AND FITTINGS

- A. Hubless Cast-Iron Soil Pipe: CISPI Standard 301, Service weight, cast-iron soil pipe and fittings, with neoprene gaskets conforming to CISPI Standard 310.

2.04 DRAINAGE PIPING SPECIALTIES

- A. Flashing Flanges: Cast-iron watertight stack or wall sleeve with membrane flashing ring. Provide underdeck clamp and sleeve length as required.
- B. Vent Flashing Sleeves: Cast-iron caulking type roof coupling for cast-iron stacks, cast-iron threaded type roof coupling for steel stacks, and cast-bronze stack flashing sleeve for copper tubing.
- C. Frost-Proof Vent Caps: Construct of galvanized iron, copper, or lead-coated copper, sized to provide 1 inch air space between outside of vent pipe and inside of flashing collar extension.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verify existing grades, inverts, utilities, obstacles, and topographical conditions prior to installations.
- B. Examine rough-in requirements for plumbing fixtures and other equipment having drain and vent connections to verify actual locations of piping connections prior to installation.
- C. Examine walls, floors, roof, and plumbing chases for suitable conditions where piping and specialties are to be installed.
- D. Do not proceed until unsatisfactory conditions have been corrected.

3.02 INSTALLATION

- A. General Locations and Arrangements: Drawings (plans, schematics, and diagrams) indicate the general location and arrangement of the piping systems. Location and arrangement of piping layout take into account many design considerations. So far as practical, install piping as indicated.
- B. Use fittings for all changes in direction and all branch connections.
- C. Install exposed piping at right angles or parallel to building walls. Diagonal runs are not permitted, unless expressly indicated.
- D. Install piping free of sags or bends and with ample space between piping to permit proper insulation applications.
- E. Conceal all pipe installations in walls, pipe chases, utility spaces, above ceilings, below grade or floors, unless indicated to be exposed to view.
- F. Install piping tight to slabs, beams, joists, columns, walls, and other permanent elements of the building. Allow sufficient space above removable ceiling panels to allow for panel removal.

3.03 HANGERS AND SUPPORTS

- A. General: Hanger, supports, and anchors devices shall conform to the table below for maximum spacing of supports:

Install the following pipe attachments:

Adjustable steel clevis hangers for individual horizontal runs less than 20 feet in length.

Install hangers at the following intervals:

<u>PIPE MATERIAL</u>	<u>MAX HORIZ SPACING</u>	<u>MAX VERT SPACING</u>
	<u>IN FEET</u>	<u>IN FEET</u>
Cast-Iron Pipe	5	15
Copper Tubing - 1-1/4 inch and smaller	6	10
Copper Tubing - 1-1/2 inch And larger	10	10

Rigid support sway bracing shall be provided at changes in direction greater than 45 degrees for pipe sizes 4 inch and larger.

Anchorage shall be provided to restrain drainage piping from axial movement.

For pipes greater than 4 inches restraints shall be provided for drain pipes at all changes in direction and at all changes in diameter greater than two pipe sizes. Braces, blocks rodding and other suitable methods as specified by the coupling manufacturer shall be utilized.

3.04 INSTALLATION OF PIPING SPECIALTIES

- A. Flashing Flanges: Install flashing flange and clamping device with each stack and cleanout passing through waterproof membranes.
- B. Vent Flashing Sleeves: Install on stacks passing through roof, secure over stack flashing in accordance with manufacturer's instructions.
- C. Frost-Proof Vent Caps: Install frost-proof vent caps on each vent pipe passing through roof. Maintain 1 inch clearance between vent pipe and roof substrate.

3.05 CONNECTIONS

- A. Piping Runouts to Fixtures: Provide drainage and vent piping runouts to plumbing fixtures and drains, with approved trap, of sizes indicated; but in no case smaller than required by the plumbing code.



- B. Locate piping runouts as close as possible to bottom of floor slab supporting fixtures or drains.

### 3.06 FIELD QUALITY CONTROL

#### Inspections

- A. Do not enclose, cover, or put into operation drainage and vent piping system until it has been inspected and approved by the authority having jurisdiction.
- B. During the progress of the installation, notify the plumbing official having jurisdiction, at least 48 hours prior to the time such inspection must be made. Perform tests specified below in the presence of the plumbing official.
- C. Rough-in Inspection: Arrange for inspection of the piping system before concealed or closed-in after system is roughed-in, and prior to setting fixtures.
- D. Final Inspection: Arrange for a final inspection by the plumbing official to observe the tests specified below and to ensure compliance with the requirements of the plumbing code.
- E. Reinspections: Whenever the piping system fails to pass the test or inspection, make the required corrections, and arrange for reinspected by the plumbing official.
- F. Reports: Prepare inspection reports, signed by the plumbing official. OSBI report forms to be provided.
- G. Piping System Test Test drainage and vent system in accordance with the procedures of the authority having jurisdiction, or in the absence of a published procedure, as follows:
- H. Test for leaks and defects all new drainage and vent piping systems and parts of existing systems, which have been altered, extended or repaired. If testing is performed in segments, submit a separate report for each test, complete with a diagram of the portion of the system tested.
- I. Leave uncovered and unconcealed all new, altered, extended, or replaced drainage and vent piping until it has been tested and approved. Expose all such work for testing, that has been covered or concealed before it has been tested and approved.
- J. Rough Plumbing Test Procedure: Except for outside leaders and perforated or open jointed drain tile, test the piping of plumbing drainage and venting systems upon completion of the rough piping installation. Tightly close all openings in the piping system, and fill with water to the point of overflow, but not less than 10 feet head of water. Water level shall not drop during the period from 15 minutes before the inspection starts, through completion of the inspection. Inspect all joints for leaks.
- K. Repair all leaks and defects using new materials and retest system or portion thereof until satisfactory results are obtained.

- L. Prepare reports for all tests and required corrective action.

3.07 ADJUSTING AND CLEANING

- A. Clean interior of new piping within the piping system. Remove dirt and debris as work progresses.
- B. Clean drain strainers, domes, and traps. Remove dirt and debris.

3.08 PROTECTION

- A. Protect drains during remainder of construction period, to avoid clogging with dirt and debris, and to prevent damage from traffic and construction work.
- B. Place plugs in ends of uncompleted piping at end of day or whenever work stops.

END OF SECTION 221316



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PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification sections, apply to work of this section.
- B. Requirements of the following Division 22 Sections apply to this section:
- C. Plumbing General Provisions.

1.2 SECTION REQUIREMENTS

- A. Summary: This Section includes storm drainage piping inside the building.

1.3 SUBMITTALS

- A. Product data to be submitted per division 1 requirements.

1.4 QUALITY ASSURANCE

- A. Regulatory Requirements: comply with the provisions of the following:
- B. Connecticut State Plumbing Code and Supplements.

PART 2 - PRODUCTS

2.1 PIPES AND FITTINGS

- A. Hubless Cast Iron pipe and fittings shall be manufactured from gray cast iron and shall conform to ASTM A 888 and CISPI Standard 301. All pipe and fittings shall be marked with the collective trademark of the Cast Iron Soil Pipe Institute and listed by NSF International.
- B. Hubless Couplings shall conform to CISPI Standard 310, shall be manufactured in the United States, and be certified by NSF International. Heavy Duty couplings shall conform to ASTM C 1540, shall be manufactured in the United States, and shall be used if indicated. Gaskets shall conform to ASTM C 564. All pipe and fittings to be produced by a single manufacturer and are to be installed in accordance with manufacturer's recommendations and applicable code requirements. Couplings shall be installed in accordance with the manufacturer's band tightening sequence and torque recommendations.
- C. Refer to piping schedule in part 3

2.2 Roof Drains

- A. Description: Cast iron body with flashing collar, extension for insulation, underdeck clamp, sump receiver and cast iron dome.

- B. Roof drain shall have 25 year warranty.
- C. Manufacturers Froet, JR Smith, Watts, Zurn

**PART 3 - EXECUTION**

**3.1 PIPING INSTALLATION**

- A. Comply with requirements in all Division 22 Sections for basic piping installation requirements.
- B. Install cast-iron piping according to CISPI's "Cast Iron Soil Pipe and Fittings Handbook," Chapter IV, "Installation of Cast Iron Soil Pipe and Fittings."
- C. Install wall penetration system at each pipe penetration through foundation wall. Make installation watertight. Comply with requirements in Division 22 Section "Plumbing General Provisions" for wall penetration systems.
  - 1. Sleeves are not required for cast-iron soil piping passing through concrete slabs-on-grade if slab is without membrane waterproofing.
- D. Make changes in direction for storm drainage piping using appropriate branches, bends, and long-sweep bends. Do not change direction of flow more than 90 degrees. Use proper size of standard increasers and reducers if pipes of different sizes are connected. Reducing size of drainage piping in direction of flow is prohibited.
- E. Lay buried building storm drainage piping beginning at low point of each system. Install true to grades and alignment indicated, with unbroken continuity of invert. Place hub ends of piping upstream. Install required gaskets according to manufacturer's written instructions for use of lubricants, cements, and other installation requirements. Maintain swab in piping and pull past each joint as completed.
- F. Install storm drainage piping at the following minimum slopes, unless otherwise indicated:
  - 1. Building Storm Drain: 2 percent downward in direction of flow for piping 3" and smaller; 1 percent downward in direction of flow for piping 4" and larger.
  - 2. Horizontal Storm-Drainage Piping: 2 percent downward in direction of flow.
- G. Support storm drain piping at maximum 6 feet spacing between hangers and per manufacturer's instructions.
- H. Do not enclose, cover, or put piping into operation until it is inspected and approved by authorities having jurisdiction.
- I. Comply with requirements in Division 22 Section "Common Work Results for Plumbing" for basic piping joint construction.

3.2 ROOF DRAIN

- A. Install roof drains at locations of exist roof drains removed. Install per manufacturer's written installation instructions.
  - 1. Install flashing collar or flange of roof drain to prevent leakage between drain and adjoining roofing. Maintain integrity of waterproof membranes where penetrated.
- B. Roof drains shall connect to existing rain leaders within the building. Provide all labor and materials required to connect existing drains to existing leaders.

3.3 INSPECTION

- A. Inspect and test piping systems following procedures of authorities having jurisdiction.

3.4 PIPE SCHEDULE

- A. Aboveground Applications: Hubless, cast-iron soil pipe and fittings.

END OF SECTION 22 14 13



SECTION 23 01 00 – MECHANICAL GENERAL PROVISIONS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawing and general provisions of contract, including Bidding Requirements, General and Supplementary Conditions, Division I and Division 23 specification sections, apply to work of this section.

1.02 DESCRIPTION

- A. The work of this Division shall include, but not necessarily be limited to the following:
  - 1. Installation of exhaust fans, roof curbs adaptors, ductwork, dampers.

1.03 DEFINITIONS

Word "Engineer" shall mean the Mechanical and Electrical Engineers.

"As Necessary" - Work referred to as "as necessary" shall be that work which is required for completed construction, but is not necessarily shown or described in the Contract Documents.

"As Required" - Work referred to as "as required" shall be that work which is required for completed construction and is shown on the drawings or described in the project manual.

Word "install" shall mean set in place complete with all mounting facilities and connections as required ready for normal use of service. Note: Take care to ascertain limits of responsibility for connecting equipment which requires connections by two or more trades.

Words "furnish" or "supply" shall mean purchase, deliver to, and offload at the jobsite, all ready to be installed including where appropriate all necessary interim storage and protection.

Word "provide" shall mean furnish (or supply) and install as required.

Word "finished" refers to all rooms and areas scheduled to be painted in Room Finish Schedule on the drawings. All rooms and areas not covered in Schedule, including areas above ceilings shall be considered not finished, unless otherwise noted.

Words "approved equal" mean any product which in the opinion of the Engineer is equal in quality, arrangement, appearance, and performance to the product specified.

Word "wiring" shall mean cable assembly, raceway, conductors, fittings and any other necessary accessories to make a complete wiring system.



Word "product" shall mean any item of equipment, material, fixture, apparatus, appliance or accessory installed under this Division.

#### 1.04 REFERENCE STANDARDS

- A. Certain products are described by reference to standard specifications published by organization abbreviated as follows:

AGA	American Gas Association
IEEE	Institute of Electrical & Electronic Engineers
ANSI	American National Standards Institute
ASHRAE	American Society of Heating, Refrigerating and Air Conditioning Engineers.
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing Material
AWS	American Welding Society
AWWA	American Water Work Association
FM	Factory Mutual
IBR	Institute of Boiler & Radiation Manufacturers
IRI	Industrial Risk Insurers
NBFU	National Board of Fire Underwriters
NEC	National Electrical Code
NEMA	National Electrical Manufacturers Association
NFPA	National Fire Protection Association
SBI	Steel Boiler Institute
SMACNA	Sheet Metal and Air Conditioning Contractors National Association
UL	Underwriters Laboratories, Inc.

- B. The legally adopted editions of the standard by the State of Connecticut at the date of these specifications shall apply.

#### 1.05 DRAWINGS

- A. All drawings are diagrammatic and are intended to provide sufficient information and detail to enable proper execution and completion of the work.

#### 1.06 WORKMANSHIP

- A. Execute all work in a neat and workmanlike manner. The quality of workmanship shall be consistent with that to be expected of experienced journeymen in the area and acceptable to both the Engineer and the authority having jurisdiction.
- B. Furnish the services of an experienced Superintendent, who shall constantly be in charge of the execution of the work.

1.07 ACCESSIBILITY

- A. Install all work with proper facilities for access for inspection, operation, maintenance and repair. Minor changes from the drawings will be permitted in order to accomplish this, but major changes shall not be made without prior written approval from the Engineer.
- B. Where products requiring access are installed behind plaster or gypsum board finishes, furnish access doors for installation by the General Contractor.
- C. Group as many items as practicable together to minimize the number of access doors required. Direct and be responsible for the correct location of all access doors required for the work of the Division.
- D. Access doors shall be a minimum of 12" long by 12" high, and flush type, ready to install. They shall be constructed of 14 gauge or heavier steel with radial safety corners and furnished with zinc chromate coating. All doors shall have heavy duty concealed hinges of the pinless type to insure no rusting or wearing. All doors shall have sturdy screwdriver locks. In public areas, doors shall have cylinder locks. Where clearances do not allow doors to swing open, they shall have double butt hinge or snap-on clips for quick removal. Doors shall be manufactured as per Architect Specifications. Door shall be compatible with and have appropriate rating to match materials where installed.

1.08 LUBRICATION

- A. Prior to testing and operation, lubricate all equipment with moving parts in accordance with manufacturer's recommendations. Any such equipment discovered to have been operated before lubrication shall be subject to rejection and replacement without extra compensation.
- B. On all equipment requiring lubrication, provide grease gun fittings or sight gravity-feed oilers equipped with shut-off and needle valve adjustment. All fittings and oilers shall be fully accessible for lubrication and shall not require special adapters.
- C. Each lubrication point on all equipment provided under this Division shall be permanently identified with type of lubricant to be used and the intervals between lubrication.

1.09 QUIET OPERATION

- A. Install all products such that vibration from them under any load is not transmitted to the building. Noise from any product shall be controlled such that its operation under any load condition will be inaudible during normal use of any occupied space.

- B. Notwithstanding any liability on the part of the product supplier, the subcontractor will be held responsible for eliminating in an approved manner any unacceptable vibration or noise condition without extra compensation.

#### 1.10 PAINTING

- A. This subcontractor shall touch up factory coat where marred.
- B. Paint finish on all materials shall be manufacturer's standard unless otherwise specified.

#### 1.11 WATERPROOFING

- A. Where any work penetrates exterior walls, roofs, basement slabs, or slabs on grade, such penetrations shall be made permanently watertight. Provide all sleeves, caulking, and flashing as necessary.

#### 1.12 CLEANING OF WORK

- A. Thoroughly clean all work of all foreign matter inside and out before placing in operation.
- B. If any part of a system becomes obstructed or impaired by any foreign matter after being placed in operation, disconnect the system, remove the obstruction or impairment and re-connect it as necessary. Repair or replace without extra compensation any work damaged in the course

#### 1.13 SLEEVES, INSERTS AND ANCHOR BOLTS

- A. Locate and maintain properly in position all sleeves, inserts, and anchor bolts as required. In the event of failure to do so, perform any necessary cutting and patching of finished work without extra compensation.
- B. All piping passing through floors, walls or ceilings shall be provided with sleeves having an internal diameter 1" larger than the outside diameter of the piping, tubing or raceway.
- C. Sleeves in floors shall be standard weight steel pipe and extend 1-1/2" above floor except in finished areas when sleeves shall be flush with finish floor. Sleeves shall be caulked with backer rod stock and one part polysulfide caulk. Wall and ceiling sleeves shall be packed with mineral wool. All penetrations thru rated walls and floors shall be sealed with U.L. listed system for the rating of the assembly and be equal to Pecora AC-20 FTR.
- D. Where ductwork passes through walls, floors, ceilings and partitions, it shall be covered with 1" wool felt to prevent the ductwork from being in direct contact with the building construction. The joints between the floor and ducts in all mechanical rooms located above finished rooms shall be caulked to make them watertight.

- E. Inserts shall be of the individual or of the strip type and of pressed steel construction with accommodation for removable nuts and threaded rods up to 3/4" diameter. Individual inserts shall have an opening at the top to allow reinforcing rods up to 1/2" diameter to be passed through the insert body as made by Fee & Mason Mfg. Co., Fig. 178 or approved equal. Strip inserts shall have attached rods with hooked ends to allow fastening to reinforcing rods as made by Fee & Mason Mfg. Co., Fig. 190 or approved equal.

#### 1.14 ELECTRICAL WORK

- A. The Electrical Subcontractor shall provide power wiring for all electrical switches, motor starters and motors.
- B. Electrical devices and equipment to be installed and wired by Electrical Subcontractor, shall be delivered to him at the proper time by the appropriate Subcontractor complete with detailed instructions for installation and wiring connections.
- C. Where equipment includes a number of interconnected electrical devices mounted in a single enclosure or on a common base, the devices shall be wired as a unit and be complete with terminal boxes and ample leads ready for wiring connections.

#### 1.15 ELECTRICAL MOTORS

- A. All electric motors shall be UL listed and meet NEMA Standards MG 1-25, 26 and 27.
- B. All motors shall be suitable for the application and for the environment in which installed. Nameplate data shall include maker's name, serial number, horsepower, speed, full load current, and ambient temperature characteristics.
- C. Motors 1/2 HP and larger shall have ball or roller bearings with pressure grease lubrication.
- D. Motors 1/2 HP and smaller shall be 115V, single phase 60 Hz capacitor start or split phase start. Motors 3/4 HP and large shall be suitable for 3 phase operation unless otherwise indicated. Three phase voltage will depend upon the utilization voltage available. Refer to drawings for details.
- E. Direct connected motors shall be furnished without an adjustable base. All integral horsepower motors driving equipment by belt or chain shall have adjustable sliding bases. Fractional horsepower motors shall have slotted mounting holes.
- F. All motor leads shall be permanently identified and furnished with connectors. Unmounted motors shall be set in place by the subcontractor who furnishes the motor.

- G. Motors used for air handlers, fans and pumps shall be high efficiency type with nominal efficiency standard on the motor nameplate per NEMA standard MGI-12.54 and conform to the following schedule:

1.16 ELECTRIC MOTOR STARTERS AND DISCONNECT SWITCHES

A. General:

1. All starters shall be manufactured and rated in accordance with NEMA Standards for the motors they control. Individually mounted starters shall be housed in enclosures suitable for the environment in which they are installed. Where indicated, starters shall be suitable for installation in existing motor control centers. Where a motor is required to have a particular starting characteristic, the starter shall be of the type approved by the Engineer and recommended by the motor or equipment manufacturer. Submit shop drawings to Engineer for review listing type, enclosure, voltage, equipment served and accessories.

B. Three Phase Motor Starters:

1. Starters for 3 phase motors shall be furnished by the subcontractor who furnishes the motor, and shall be installed and wired by the Electrical Subcontractor, except that automatic temperature control wiring associated with the starters shall be provided by the Subcontractor responsible for that particular work. Three phase starters shall be combination with starter breaker disconnect unless otherwise indicated and, magnetic type complete with thermal overload protection for each winding, 120 volt operating coil, control transformer and a minimum of one normally open and one normally closed auxiliary contact. Additional auxiliary contacts shall be provided as necessary for interlocking or indicating purposes. Manually operated starters shall have start-stop buttons and automatically operated starters shall have hand-off-auto selector switch mounted in their enclosure cover. Motor running pilot light(s) shall be provided in the starter enclosure cover.

C. Manufacturers:

1. Starters shall be manufactured by one of the following manufacturers.

Allen Bradley  
Arrow Hart  
Cutler Hammer  
General Electric  
Square D  
Westinghouse

2. Unless otherwise approved by the Engineer, all starters furnished by each Subcontractor shall be by the same manufacturer. Whenever possible, Subcontractors shall cooperate with each other in furnishing all starters

by the same manufacturer to facilitate future stocking of spare parts by the Owner.

1.17 TESTING - GENERAL

- A. Perform all required tests in the presence of the Owner, Engineer and representative of the authority having jurisdiction. Provide minimum of (10) working days notice of testing to all parties concerned. Provide all test equipment.
- B. Furnish certification of satisfactory testing, signed by subcontractor's authorized representative, countersigned where appropriate by the authority having jurisdiction.
- C. All testing and certification shall be complete before any claim for substantial completion will be considered.
- D. Equipment and systems which normally operate during certain seasons of the Year shall be tested during the appropriate season. Tests shall be performed on individual equipment, systems and their controls. Whenever the equipment or system under test is related to or depends upon the operation of other equipment, systems and controls for proper operation, functioning and performance, the latter shall be operated simultaneously with the equipment or system being tested.

1.18 OWNERS MANUAL

- A. Provide owner's manual per specification section 01 78 23.

1.19 MANUFACTURERS IDENTIFICATION

- A. Manufacturer's nameplate, name or trademarks shall be permanently affixed to all equipment and material furnished under this specification. The nameplate of a Subcontractor or distributor will not be acceptable.

1.20 TAGS, IDENTIFICATION AND INSTRUCTIONS

- A. Every valve, damper, control, switch, motor starter and piece of apparatus shall be tagged, labeled or stenciled. Tags and labels shall be securely fastened by brass chains, screws, or mastic as appropriate. Equipment, controls, panels, etc., shall be numbered according to the equipment schedule shown on the drawing. Tags shall be listed in directories by-number, location and use. Directories shall be mounted under glass in aluminum self closing frames manufactured by Seton Nameplate Company, #AllG or approved equal. Tags shall be manufactured by Seton Nameplate Company or approved equal and be of the following types.
  - 1. Valve tags shall be style #2961 plastic, color coded in accordance with ANSI 13.1-1981 and the Owner's standards.

2. Manual starters for small motors shall be provided with 1" x 3" engraved Seton-ply nameplates suitable for attaching directly to standard switch plates.
  3. All piping shall be identified with Seton "Setmark" pipe markers clearly indicating the service and direction of flow. Markers shall be located every 30 ft. in straight runs of pipe and shall be so arranged that piping systems can be readily identified. Pipe markers shall comply with ANSI A13.1 for lettering size, length of color field, colors and viewing angles of identification devices.
  4. Equipment such as air handlers, pumps, etc. shall be neatly stenciled with letters not less than 2" high. In lieu of stenciling, Subcontractor may use Seton self sticking numbers and letters. Any equipment too small to receive such stenciling shall be provided with name tags as above.
- B. "DYMO" type labels will not be accepted for any permanent identification.

#### 1.21 INSTRUCTIONS

- A. Furnish all necessary labor and services for a minimum net period of (2) - 8 hour working days to instruct the Owners staff in the operation of all systems and equipment provided under this Division. Provide additional time for Owner training as described in associated sections. Include where appropriate the services of manufacturers technical personnel to instruct the Owner in the use of special systems. Instruction shall include sufficient demonstration of equipment and systems, and explanation of technical manuals furnished, instruction in the use of any special tools or instruments, etc., so that the Owner will be fully conversant with operating and maintenance procedures.

END OF SECTION 23 0100

SECTION 23 05 93 - TESTING, ADJUSTING AND BALANCING FOR HVAC

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification sections, apply to work of this section.
- B. Related Sections:
  - 1. General requirements for testing agencies are specified in the Division-1 Section Quality Control Services.

1.02 SUMMARY

- A. This Section specifies the requirements and procedures for testing, adjusting, and balancing. Requirements include measurement and establishment of the air quantities of the mechanical systems as required to meet design specifications, and recording and reporting the results.
- B. Test, adjust, and balance the following mechanical systems:  
  
Four new exhaust fans;  
Seventh floor exhaust, supply and return grilles  
  
Balancing shall include pre demolition airflow measurements of four exhaust fans and all supply, return and exhaust grilles on the seventh floor.
- C. Balancing Contractor to verify pre demolition airflow measurements, final air balance airflow shall match pre demolition airflows. Balancing contractor shall coordinate with mechanical contractor to provide set-up and adjustment of all new and existing air systems listed.
- D. This Section does not include:
  - 1. Testing pressure vessels for compliance with safety codes;
  - 2. Specifications for materials for patching mechanical systems;
  - 3. Specifications for materials and installation of adjusting and balancing devices. If devices must be added to achieve proper adjusting and balancing, refer to the respective system sections for materials and installation requirements.
  - 4. Requirements and procedures for ductwork systems leakage tests.



1.03 DEFINITIONS

- A. Systems testing, adjusting, and balancing is the process of checking and adjusting all the building environmental systems to produce the design objectives. It includes:
  - the balance of air distribution;
  - electrical measurement;
  - verification of performance of all equipment and automatic controls;
- B. Test: To determine quantitative performance of equipment.
- C. Adjust: To regulate the specified fluid flow rate and air patterns at the terminal equipment (e.g., reduce fan speed, throttling).
- D. Balance: To proportion flows within the distribution system (submains, branches, and terminals) according to specified design quantities.
- E. Procedure: Standardized approach and execution of sequence of work operations to yield reproducible results.
- F. Report forms: Test data sheets arranged for collecting test data in logical order for submission and review. These data should also form the permanent record to be used as the basis for required future testing, adjusting, and balancing.
- G. Terminal: The point where the controlled fluid enters or leaves the distribution system. These are supply outlets on air terminals and exhaust or return inlets on air terminals such as registers, grilles, diffusers.
- H. Main: Duct containing the system's major or entire flow.

1.04 SUBMITTALS

- A. Agency Data:
  - 1. Submit proof that the proposed testing, adjusting, and balancing agency meets the qualifications specified below.
- B. Engineer and Technicians Data:
  - 1. Submit proof that the Test and Balance Engineer assigned to supervise the procedures, and the technicians proposed to perform the procedures meet the qualifications specified below.
- C. Procedures and Agenda: Submit a synopsis of the testing, adjusting, and balancing procedures and agenda proposed to be used for this project.

- D. Maintenance Data: Submit maintenance and operating data that include how to test, adjust, and balance the building systems. Include this information in maintenance data specified in Division 1 and Section 15010.
- E. Sample Forms: Submit sample forms, if other than those standard forms prepared by the AABC are proposed.
- F. Certified Reports: Submit testing, adjusting, and balancing reports bearing the seal and signature of the Test and Balance Engineer. The reports shall be certified proof that the systems have been tested, adjusted, and balanced in accordance with the referenced standards; are an accurate representation of how the systems have been installed; are a true representation of how the systems are operating at the completion of the testing, adjusting, and balancing procedures; and are an accurate record of all final quantities measured, to establish normal operating values of the systems. Follow the procedures and format specified below:
  - 1. Draft reports: Upon completion of testing, adjusting, and balancing procedures, prepare draft reports on the approved forms. Draft reports may be hand written, but must be complete, factual, accurate, and legible. Organize and format draft reports in the same manner specified for the final reports. Submit 2 complete sets of draft reports. Only 1 complete set of draft reports will be returned.
  - 2. Final Report: Upon verification and approval of draft reports, prepare final reports, type written, and organized and formatted as specified below. Submit 2 complete sets of final reports.
  - 3. Report Format: Report forms shall be those standard forms prepared by the referenced standard for each respective item and system to be tested, adjusted, and balanced. Bind report forms complete with schematic systems diagrams and other data in reinforced, vinyl, three-ring binders. Provide binding edge labels with the project identification and a title descriptive of the contents. Divide the contents of the binder into the below listed divisions, separated by divider tabs:

General Information and Summary  
Air Systems
  - 4. Report Contents: Provide the following minimum information, forms and data:
    - a. General Information and Summary: Inside cover sheet to identify testing, adjusting, and balancing agency, Contractor, Owner, Architect, Engineer, and Project. Include addresses, and contact names and telephone numbers. Also include a certification sheet containing the seal and name address, telephone number, and signature of the Certified Test and Balance Engineer. Include in this division a listing of the instrumentations used for the procedures along with the proof of calibration.

- b. The remainder of the report shall contain the appropriate forms containing as a minimum, the information indicated on the standard report forms prepared by the AABC and NEBB, for each respective item and system. Prepare a schematic diagram for each item of equipment and system to accompany each respective report form.
  
- G. Calibration Reports: Submit proof that all required instrumentation has been calibrated to tolerances specified in the referenced standards, within a period of six months prior to starting the project.

#### 1.05 QUALITY ASSURANCE

- A. Agency Qualifications:
  - 1. Employ the services of an independent testing, adjusting, and balancing agency meeting the qualifications specified below, to be the single source of responsibility to test, adjust, and balance the building mechanical systems identified above, to produce the design objectives. Services shall include checking installations for conformity to design, measurement and establishment of the fluid quantities of the mechanical systems as required to meet design specifications, and recording and reporting the results.
  - 2. An independent testing, adjusting, and balancing agency certified by Associated Air Balance Council (AABC) in those testing and balancing disciplines required for this project, and having at least one Professional Engineer registered in the State in which the services are to be performed, certified by AABC as a Test and Balance Engineer.
  
- B. Codes and Standards:
  - 1. AABC: "National Standards For Total System Balance".
  - 2. ASHRAE: ASHRAE Handbook, Systems, Testing, Adjusting, and Balancing.
  
- C. Pre-Balancing Conference: Prior to beginning of the testing, adjusting, and balancing procedures, schedule and conduct a conference with the Engineer and representatives of installers of the mechanical systems. The objective of the conference is final coordination and verification of system operation and readiness for testing, adjusting, and balancing.

#### 1.06 PROJECT CONDITIONS

- A. Systems Operation: Systems shall be fully operational prior to beginning procedures. Due to the nature of the projects, supplemental duct openings may be required to operate the air equipment until the building is fully occupied.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

3.01 PRELIMINARY PROCEDURES FOR AIR SYSTEM BALANCING

- A. Before operating the system, perform these steps:
1. Obtain new design drawings and specifications and become thoroughly acquainted with the design intent.
  2. Obtain copies of approved shop drawings of all air handling equipment, outlets (supply, return, and exhaust), and temperature control diagrams.
  3. Compare design to installed equipment and field installations.
  4. Walk the system from the system air handling equipment to terminal units to determine variations of installation from design.
  5. Check filters for cleanliness.
  6. Check dampers (both volume and fire) for correct and locked position, and temperature control for completeness of installation before starting fans.
  7. Prepare report test sheets for both fans and outlets. Obtain manufacturer's outlet factors and recommended procedures for testing. Prepare a summation of required outlet volumes to permit a crosscheck with required fan volumes.
  8. Determine best locations in main and branch ductwork for most accurate duct traverses.
  9. Place outlet dampers in the full open position.
  10. Lubricate all motors and bearings
  11. Check fan belt tension
  12. Check fan rotation

3.02 MEASUREMENTS

- A. Provide all required instrumentation to obtain proper measurements, calibrated to the tolerances specified in the referenced standards. Instruments shall be properly maintained and protected against damage.
- B. Provide instruments meeting the specifications of the referenced standards.

- C. Use only those instruments which have the maximum field measuring accuracy and are best suited to the function being measured.
- D. Apply instrument as recommended by the manufacturer.
- E. Use instruments with minimum scale and maximum subdivisions and with scale ranges proper for the value being measured.
- F. When averaging values, take a sufficient quantity of readings which will result in a repeatability error of less than 5 percent. When measuring a single point, repeat readings until 2 consecutive identical values are obtained.
- G. Take all reading with the eye at the level of the indicated value to prevent parallax.
- H. Use pulsation dampeners where necessary to eliminate error involved in estimating average of rapidly fluctuation readings.
- I. Take measurements in the system where best suited to the task.

### 3.03 PERFORMING TESTING, ADJUSTING, AND BALANCING

- A. Perform testing and balancing procedures on each system identified, in accordance with the detailed procedures outlined in the referenced standards.
- B. Cut insulation and ductwork for installation of test probes to the minimum extent necessary to allow adequate performance of procedures.
- C. Patch insulation, ductwork, and housings, using materials identical to those removed.
- D. Seal ducts and test for and repair leaks.
- E. Seal insulation to re-establish integrity of the vapor barrier.
- F. Mark equipment settings, including damper control positions, valve indicators, and similar controls and devices, to show final settings. Mark with paint or other suitable, permanent identification materials.
- G. Retest, adjust, and balance systems subsequent to significant system modifications, and resubmit test results.

### 3.04 RECORD AND REPORT DATA

- A. Record all data obtained during testing, adjusting, and balancing in accordance with, and on the forms recommended by the referenced standards, and as approved on the sample report forms.
- B. Prepare report of recommendations for correcting unsatisfactory mechanical performances when system cannot be successfully balanced.

END OF SECTION 23 05 93



SECTION 23 31 13 - METAL DUCTS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification sections, apply to work of this section.
- B. Division-23 Sections apply to work of this section.

1.02 DESCRIPTION OF WORK

- A. Extent of metal ductwork is indicated on drawings and in schedules, and by requirements of this section.

1.03 QUALITY ASSURANCE

- A. Manufacturer's Qualifications: Firms regularly engaged in manufacture of metal ductwork products of types, materials, and sizes required, whose products have been in satisfactory use in similar service for not less than 5 years.
- B. Codes and Standards:
  - 1. 2015 International Mechanical Code with Connecticut Supplement
  - 2. SMACNA Standards: Comply with SMACNA's "HVAC Duct Construction Standards, Metal and Flexible" for fabrication and installation of metal ductwork.
  - 3. ASHRAE Standards: Comply with ASHRAE Handbook, Equipment Volume, Chapter 1 "Duct Construction", for fabrication and installation of metal ductwork.
  - 4. NFPA Compliance: Comply with NFPA 90A "Standard for the Installation of Air Conditioning and Ventilating Systems" and NFPA 90B "Standard for the Installation of Warm Air Heating and Air Conditioning Systems" and NFPA 96 "Ventilation Control and Fire Protection of Commercial Cooking Operations".
- C. Field Reference Manual: Have available for reference at project field office, copy of SMACNA "HVAC Duct Construction Standards, Metal and Flexible".

1.04 SUBMITTALS

- A. General: Submit sheetmetal shop drawings at scale indicated for review before fabrication. Any shop fabricated ductwork delivered to site without engineers review may be rejected.



- B. Product Data: Submit manufacturer's technical product data and installation instructions for metal ductwork materials and products. Submit sheetmetal shop standards.
- C. Shop Drawings: Submit 1/4" scaled layout drawings of metal ductwork and fittings including, but not limited to, duct sizes, locations, elevations, and slopes of horizontal runs, wall and floor penetrations, and connections. Show interface and spatial relationship between ductwork and proximate equipment. Show modifications of indicated requirements, made to conform to local shop practice, and how those modifications ensure that free area, materials, and rigidity are not reduced. Show sections through building and ductwork, including other trade components, in areas requiring close coordination and clarity.

#### 1.05 DELIVERY, STORAGE, AND HANDLING

- A. Protection: Protect shop-fabricated and factory-fabricated ductwork, accessories and purchased products from damage during shipping, storage and handling. Prevent end damage and prevent dirt and moisture from entering ducts and fittings.
- B. Storage: Where possible, store ductwork inside and protect from weather. Where necessary to store outside, store above grade and enclose with waterproof wrapping.

### PART 2 - PRODUCTS

#### 2.01 DUCTWORK MATERIALS

- A. Sheet Metal: Except as otherwise indicated, fabricate ductwork from galvanized sheet steel complying with ASTM A 527, lockforming quality; with G 90 zinc coating in accordance with ASTM A 525; and mill phosphatized for exposed locations.

#### 2.02 MISCELLANEOUS DUCTWORK MATERIALS

- A. General: Provide miscellaneous materials and products of types and sizes indicated and, where not otherwise indicated, provide type and size required to comply with ductwork system requirements including proper connection of ductwork and equipment.
- B. Flexible Ducts: Spiral round spring steel with flameproof vinyl sheathing complying with UL 181. Provide with 1" thick continuous flexible fiberglass sheath with vinyl vapor barrier jacket.

#### 2.03 FABRICATION

- A. Shop fabricate ductwork in 4, 8, 10 or 12-ft lengths, unless otherwise indicated or required to complete runs. Preassemble work in shop to greatest extent possible, so as to minimize field assembly of systems. Disassemble systems only to extent necessary for shipping and handling. Match-mark sections for reassembly and coordinated installation.
- B. Shop fabricate ductwork of gages and reinforcement complying with SMACNA "HVAC Duct Construction Standards". Ductwork shall be constructed to 2" pressure class standards.
- C. Fabricate duct fittings to match adjoining ducts, and to comply with duct requirements as applicable to fittings. Except as otherwise indicated, fabricate elbows with center-line radius equal to 1-1/2 times the associated duct width; and fabricate to include turning vanes in elbows where shorter radius is necessary. Limit angular tapers to 30 deg. for contracting tapers and 20 deg. for expanding tapers.
- D. Fabricate ductwork with accessories installed during fabrication to the greatest extent possible. Refer to Division-23 section "Ductwork Accessories" for accessory requirements. Seal all raw edges.

### PART 3 - EXECUTION

#### 3.01 INSPECTION

- A. General: Examine areas and conditions under which metal ductwork is to be installed. Do not proceed with work until unsatisfactory conditions have been corrected in manner acceptable to Installer.

#### 3.02 INSTALLATION OF METAL DUCTWORK

- A. General: Assemble and install ductwork in accordance with recognized industry practices which will achieve air-tight and noiseless (no objectionable noise) systems, capable of performing each indicated service. Install each run with minimum number of joints. Align ductwork accurately at connections, within 1/8" misalignment tolerance and with internal surfaces smooth. Support ducts rigidly with suitable ties, braces, hangers and anchors of type which will hold ducts true-to-shape and to prevent buckling. Support vertical ducts at every floor.
- B. Field Fabrication: Complete fabrication of work at project as necessary to match shop-fabricated work and accommodate installation requirements.
- C. Coordination: Coordinate duct installations with installation of accessories, dampers, coil frames, equipment, controls and other associated work of ductwork system.
- D. Installation: Install metal ductwork in accordance with SMACNA HVAC Duct Construction Standards.

3.03 INSTALLATION OF FLEXIBLE DUCT

- A. Maximum Length: For any duct run using flexible ductwork do not exceed 8'-0" extended length.
- B. Installation: Install in accordance with Section III of SMACNA'S "HVAC Duct Construction Standards, Metal and Flexible".

3.04 EQUIPMENT CONNECTIONS

- A. General: Connect metal ductwork to equipment as indicated, provide flexible connection for each ductwork connection to equipment mounted on vibration isolators, and/or equipment containing rotating machinery. Provide access doors as indicated.

3.05 ADJUSTING AND CLEANING

- A. Clean ductwork internally, unit by unit as it is installed, of dust and debris. Clean external surfaces of foreign substances which might cause corrosive deterioration of metal or, where ductwork is to be painted, might interfere with painting or cause paint deterioration.
- B. Temporary Closure: At ends of ducts which are not connected to equipment or air distribution devices at time of ductwork installation, provide temporary closure of polyethylene film or other covering which will prevent entrance of dust and debris until time connections are to be completed.
- C. Balancing: Refer to Division-23 section "Testing, Adjusting, and Balancing" for air distribution balancing of metal ductwork; not work of this section. Seal any leaks in ductwork that become apparent in balancing process.

END OF SECTION 23 31 13

SECTION 23 33 00 – AIR DUCT ACCESSORIES

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification sections, apply to work of this section.

1.02 DESCRIPTION OF WORK

- A. Extent of ductwork accessories work is indicated on drawings and in schedules, and by requirements of this section.
- B. Types of ductwork accessories required for project include the following:  
  
Motor Operated Dampers
- C. Refer to other Division-23 sections for testing, adjusting, and balancing of ductwork accessories; not work of this section.

1.03 QUALITY ASSURANCE

- A. Manufacturer's Qualifications: Firms regularly engaged in manufacture of ductwork accessories, of types and sizes required, whose products have been in satisfactory use in similar service for not less than 3 years.
- B. Codes and Standards:
  - 1. SMACNA Compliance: Comply with applicable portions of SMACNA "HVAC Duct Construction Standards, Metal and Flexible".
  - 2. Industry Standards: Comply with ASHRAE recommendations pertaining to construction of ductwork accessories, except as otherwise indicated.
  - 3. NFPA Compliance: Comply with applicable provisions of NFPA 90A "Air Conditioning and Ventilating Systems", pertaining to installation of ductwork accessories.

1.04 SUBMITTALS

- A. Product Data: Submit manufacturer's technical product data for each type of ductwork accessory, including dimensions, capacities, and materials of construction; and installation instructions.
- B. Shop Drawings: Submit manufacturer's assembly-type shop drawings for each type of ductwork accessory showing interfacing requirements with ductwork, method of fastening or support, and methods of assembly of components.

- C. Maintenance Data: Submit manufacturer's maintenance data including parts lists for each type of duct accessory. Include this data, product data, and shop drawings in maintenance manual; in accordance with requirements of Division 1.

PART 2 - PRODUCTS

2.01 MOTOR OPERATED DAMPERS

- A. Rating:
1. Temperature Rating: Withstand -72 to 275 degrees F.
  2. Capacity: Damper shall withstand HVAC system operating conditions:
    - a. Closed Position: Maximum pressure of 13 inches w.g. @ a 12 inches blade length.
    - b. Open Position: Maximum air velocity of 6,000 feet per minute.
  3. Leakage: Maximum 5 cfm/sq.ft. at 4 inches w.g. for size 48 x 48 inches.
  4. Pressure Drop: Maximum 0.03 inch w.g. at 1,000 feet per minute across 24 inch x 24 inch damper.
- B. Construction:
1. Frame: 4 inches x 1 inch x minimum 0.081 inch 6063-T5 extruded aluminum hat-shaped channel, mounting flanges on both sides of frame, reinforced at corners.
  2. Blades:
    - a. Style: Airfoil-shaped, single-piece.
    - b. Action: Opposed.
    - c. Orientation: Horizontal.
    - d. Material: Heavy duty 6063-T5 extruded aluminum.
    - e. Width: Maximum 4 inches (101 mm).
  3. Bearings: Molded synthetic sleeve, turning in hole in frame.
  4. Seals:
    - a. Blade: Extruded vinyl double edge. Mechanically attached to blade edge.
    - b. Jamb: Flexible metal compression type.
  5. Linkage: Concealed in frame.
  6. Axles: Minimum 1/2 inch (13 mm) diameter plated steel, hex-shaped, mechanically attached to blade.
  7. Finish: Mill aluminum.

1.2 ACCESSORIES

- A. Actuator:
1. Electric: 24 V, two-position. Provide 277 volt: 24 volt 40 VA transformer with each actuator.
  2. Fail Position: Close.
  3. Mounting: External side plate.

Manufacturers:

Ruskin  
Greenheck  
Air Balance Inc

PART 3 - EXECUTION

3.01 INSPECTION

- A. Examine areas and conditions under which ductwork accessories will be installed. Do not proceed with work until unsatisfactory conditions have been corrected in manner acceptable to Installer.

3.02 INSTALLATION OF DUCTWORK ACCESSORIES

- A. Install ductwork accessories in accordance with manufacturer's installation instructions, with applicable portions of details of construction as shown in SMACNA standards, and in accordance with recognized industry practices to ensure that products serve intended function.
- B. Install dampers at locations indicated on the drawings and in accordance with manufacturer's installation instructions.
- C. Install dampers square and free from racking with blades orientation as scheduled or required.
- D. Do not compress or stretch damper frame into duct or opening.
- E. Handle damper using sleeve or frame. Do not lift damper using blades, actuator, or jackshaft.
- F. Install bracing for multiple section assemblies to support assembly weight and to hold against system pressure. Install bracing as needed.

3.03 FIELD QUALITY CONTROL

- A. Operate installed ductwork accessories to demonstrate compliance with requirements. Test for air leakage while system is operating. Repair or replace faulty accessories, as required to obtain proper operation and leakproof performance.

3.04 ADJUSTING AND CLEANING

- A. Adjusting: Adjust ductwork accessories for proper settings.
  - 1. Label access doors in accordance with Division-23 section "Mechanical General Provisions."

- B. Cleaning: Clean factory-finished surfaces. Repair any marred or scratched surfaces with manufacturer's touch-up paint.

END OF SECTION 23 33 00

SECTION 23 34 00 – HVAC FANS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification sections, apply to work of this section.
- B. Division-23 "Mechanical General Provisions" sections apply to work of this section.

1.02 DESCRIPTION OF WORK

- A. Extent of power ventilator work required by this section is indicated on drawings and schedules, and by requirements of this section.
- B. Types of power ventilators and centrifugal fans specified in this section include the following:  
  
Power ventilators.
- c. Refer to Division-23 section "Testing, Adjusting, and Balancing" for balancing of ventilators not work of this section.
- D. Refer to Division-26 sections for the following work; not work of this section.
  - 1. Power supply wiring from power source to power connection on ventilators. Include starters, disconnects, and required electrical devices, except where specified as furnished, or factory-installed, by manufacturer.
  - 2. Interlock wiring specified as factory-installed is work of this section.
- E. Provide the following electrical work as work of this section, complying with requirements of Division-26 sections:
  - 1. Control wiring between field-installed controls, indicating devices, and ventilators.

1.03 QUALITY ASSURANCE

- A. Manufacturer's Qualifications: Firms regularly engaged in manufacture of power ventilators, of types and sizes required, whose products have been in satisfactory use in similar service for not less than 3 years.
- B. Codes and Standards:



1. AMCA Compliance: Provide power ventilators which have been tested and rated in accordance with AMCA standards, and bear AMCA Certified Ratings Seal.
2. UL Compliance: Provide power ventilators which are listed by UL and have UL label affixed.
3. UL Compliance: Provide power ventilators which are designed, manufactured, and tested in accordance with UL 705 "Power Ventilators".
4. NEMA Compliance: Provide motors and electrical accessories complying with NEMA standards.

#### 1.04 SUBMITTALS

- A. Product Data: Submit manufacturer's technical data for power and gravity ventilators, including specifications, capacity ratings, dimensions, weights, materials, accessories furnished installation instructions and fan curves.
- B. Shop Drawings: Submit assembly-type shop drawings showing unit dimensions, construction details, methods of assembly of components, and field connection details.
- C. Wiring Diagrams: Submit manufacturer's electrical requirements for power supply wiring to power ventilators. Submit manufacturer's ladder-type wiring diagrams for interlock and control wiring. Clearly differentiate between portions of wiring that are factory-installed and portions to be field-installed.
- D. Maintenance Data: Submit maintenance data and parts list for each type of power and gravity ventilator, accessory, and control. Include this data, product data, shop drawings, and wiring diagrams in maintenance manual; in accordance with requirements of Division 1.

#### 1.05 DELIVERY, STORAGE, AND HANDLING

- A. Deliver fans with factory-installed shipping skids and lifting lugs; pack components in factory-fabricated protective containers.
- B. Handle fans carefully to avoid damage to components, enclosures, and finish. Do not install damaged components; replace and return damaged components to centrifugal fan manufacturer.
- C. Store fans in clean dry place and protect from weather and construction traffic.
- D. Comply with manufacturer's rigging and installation instructions for unloading ventilators, and moving them to final location.

PART 2 - PRODUCTS

2.01 GENERAL:

- A. Except as otherwise indicated, provide standard prefabricated power ventilator units of type and size indicated, modified as necessary to comply with requirements, and as required for complete installation.

2.03 CENTRIFUGAL ROOF VENTILATORS

- A. Provide centrifugal roof type, curb mounted, power ventilators of type, size, and capacity as scheduled, and as specified herein.
- B. Type: Centrifugal fan, direct driven as scheduled. Provide aluminum housings. Provide square base to suit roof curb. Motor shall be an electronically commutated motor rated for continuous duty and furnished with internally mounted potentiometer speed controller.
- C. Housing Design: Hooded type.
- D. Electrical: Provide factory-wired non-fusible type disconnect switch at motor in fan housing. Provide thermal overload protection in fan motor. Provide conduit chase within unit for electrical connection. Disconnect shall be mounted within fan.
- E. Motor: Permanent Magnet Motor with Electronically Commutated Fan Mounted Speed Control. Speed control to be mounted within fan dome enclosure.
- E. Bird Screens: Provide removable bird screens, 1/2" mesh, 16-ga aluminum or brass wire.
- F. Dampers: Provide motorized louvered dampers in curb bases as scheduled.
- G. Roof Curb: 18 gauge galvanized steel adaptor curb to match existing fan curb. Line curb with 3 lbs. density thermal and acoustical insulation, Continuously welded corners.
- G. Manufacturer: Subject to compliance with requirements, provide centrifugal roof ventilators of one of the following:
  - Cook Co., Loren.
  - Greenheck Fan Corp.
  - Penn Barry Ventilator Co., Inc.

PART 3 - EXECUTION

3.01 INSPECTION

- A. General: Examine areas and conditions under which power ventilators are to be installed. Do not proceed with work until unsatisfactory conditions have been corrected.

### 3.02 INSTALLATION OF POWER VENTILATORS

- A. General: Except as otherwise indicated or specified, install ventilators in accordance with manufacturer's installation instructions and recognized industry practices to insure that ventilators serve their intended function.
- B. Coordinate ventilator work with work of walls, and ceilings, as necessary for proper interfacing.
- C. Ductwork: Refer to Division-23 section "Ductwork". Connect ducts to ventilators in accordance with manufacturer's installation instructions.
- D. Provide access door in duct below ventilator to service damper.
- E. Access: Provide access and service space around and over centrifugal fans as indicated, but in no case less than that recommended by manufacturer.
- F. Isolation: Hang centrifugal fans with vibration isolators, fasten in accordance with manufacturer's installation instructions.
- G. Electrical Wiring: Install electrical devices furnished by manufacturer but not specified to be factory-mounted. Furnish copy of manufacturer's wiring diagram submittal to Electrical Installer.
- I. Verify that electrical wiring installation is in accordance with manufacturer's submittal and installation requirements of Division-26 sections. Verify proper rotation direction of fan wheels. Do not proceed with equipment start-up until wiring installation is acceptable to equipment installer.
- J. Remove shipping bolts and temporary supports within ventilators. Adjust dampers for free operation.

### 3.03 FIELD QUALITY CONTROL

- A. Testing: After installation of ventilators has been completed, test each ventilator to demonstrate proper operation of units at performance requirements specified. When possible, field correct malfunctioning units, then retest to demonstrate compliance. Replace units which cannot be satisfactorily corrected.

### 3.04 ADJUSTING AND CLEANING

- A. Cleaning: Clean factory-finished surfaces. Repair any marred or scratched surfaces with manufacturer's touch-up paint.

END OF SECTION 23 34 00

SECTION 23 37 00 - AIR OUTLETS AND INLETS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification sections, apply to work of this section.

1.02 DESCRIPTION OF WORK

- A. Extent of air outlets and inlets work is indicated by drawings and schedules, and by requirements of this section.
- B. Types of air outlets and inlets required for project include the following:  
  
Ceiling air diffusers and registers
- C. Refer to other Division-23 sections for ductwork and duct accessories required in conjunction with air outlets and inlets; not work of this section.
- D. Refer to other Division-23 sections for balancing of air outlets and inlets; not work of this section.

1.03 QUALITY ASSURANCE

- A. Manufacturer's Qualifications: Firms regularly engaged in manufacture of air outlets and inlets of types and capacities required, whose products have been in satisfactory use in similar service for not less than 5 years.

1.04 CODES AND STANDARDS

- A. ARI Compliance: Test and rate air outlets and inlets in accordance with ARI 650 "Standard for Air Outlets and Inlets".
- B. ASHRAE Compliance: Test and rate air outlets and inlets in accordance with ASHRAE 70 "Method of Testing for Rating the Air Flow Performance of Outlets and Inlets".
- C. ADC Compliance: Test and rate air outlets and inlets in certified laboratories under requirements of ADC 1062 "Certification, Rating and Test Manual".
- D. ADC Seal: Provide air outlets and inlets bearing ADC Certified Rating Seal.
- E. NFPA Compliance: Install air outlets and inlets in accordance with NFPA 90A "Standard for the Installation of Air Conditioning and Ventilating Systems".

1.05 SUBMITTALS

- A. Product Data: Submit manufacturer's technical product data for air outlets and inlets including the following:
- B. Schedule of air outlets and inlets indicating drawing designation, room location, number furnished, model number, size, CFM and accessories furnished.
- C. Data sheet for each type of air outlet and inlet, and accessory furnished; indicating construction, finish, and mounting details.
- D. Performance data for each type of air outlet and inlet furnished, including aspiration ability, temperature and velocity traverses, throw and drop, and noise criteria ratings. Indicate selections on data.
- E. Samples: Submit 1 sample of each type of finish furnished.
- F. Shop Drawings: Submit manufacturer's assembly-type shop drawing for each type of air outlet and inlet, indicating materials and methods of assembly of components.
- G. Maintenance Data: Submit maintenance data, including cleaning instructions for finishes, and spare parts lists. Include this data, product data, and shop drawings in maintenance manuals; in accordance with requirements of Division 1.

#### 1.06 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Deliver air outlets and inlets wrapped in factory-fabricated fiber-board type containers. Identify on outside of container type of outlet or inlet and location to be installed. Avoid crushing or bending and prevent dirt and debris from entering and settling in devices.
- B. Store air outlets and inlets in original cartons and protect from weather and construction work traffic. Where possible, store indoors; when necessary to store outdoors, store above grade and enclose with waterproof wrapping.

### PART 2 - PRODUCTS

#### 2.01 CEILING AIR DIFFUSERS

- A. General: Except as otherwise indicated, provide manufacturer's standard ceiling air diffusers where shown; of size, shape, capacity and type indicated; constructed of materials and components as indicated, and as required for complete installation.
- B. Performance: Provide ceiling air diffusers that have, as minimum, temperature and velocity traverses, throw and drop, and noise criteria ratings for each size device as listed in manufacturer's current data.
- C. Ceiling Compatibility: Provide diffusers with border styles that are compatible with adjacent ceiling systems, and that are specifically manufactured to fit

into ceiling module with accurate fit and adequate support. Refer to general construction drawings and specifications for types of ceiling systems which will contain each type of ceiling air diffuser.

- D. Types: Provide ceiling diffusers of type, capacity, and size as shown on drawing.
- E. Diffuser Dampers:  
  
Opposed Blade (O-B): Adjustable opposed blade damper assembly, key operated from face of diffuser.
- F. Diffuser Finishes:  
  
White Enamel (W-E): Semi-gloss white enamel prime finish.
- G. Manufacturer: Subject to compliance with requirements, provide diffusers of one of the following:  
  
Krueger  
Metal-Aire  
Price  
Titus

## 2.2 CEILING RETURNS AND EXHAUST REGISTERS

- A. General: Except as otherwise indicated, provide manufacturers standard ceiling returns where shown, of size, shape, capacity and type indicated. Constructed of materials and components as indicated, and as required for complete installation.
- B. Types: Provide ceiling returns and exhaust registers of type, capacity and size as indicated on drawing.
- C. Ceiling Return and Exhaust Registers Material  
  
Aluminum Construction in restrooms  
Steel Construction in all areas outside of restrooms
- D. Ceiling Return and Exhaust Register Pattern  
  
35 degree blades, 1/2" spacing.
- E. Ceiling Return Finish  
  
White enamel semi-gloss white enamel finish.
- F. Manufacturer: Subject to compliance with requirements, provide ceiling returns from one of the following.  
  
Krueger

Metal-Aire  
Price  
Titus

PART 3 - EXECUTION

3.01 INSPECTION

- A. Examine areas and conditions under which air outlets and inlets are to be installed. Do not proceed with work until unsatisfactory conditions have been corrected.

3.02 INSTALLATION

- A. General: Install air outlets and inlets in accordance with manufacturer's written instructions and in accordance with recognized industry practices to insure that products serve intended functions.
- B. Support ceiling grilles and diffusers independent of ceiling grid. Support with steel ceiling wire.
- C. Coordinate with other work, including ductwork and duct accessories, as necessary to interface installation of air outlets and inlets with other work.

END OF SECTION 23 37 00

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Instructions to bidders, The General Conditions of the Contract for Construction, the Supplementary General Conditions and Division 1, General Requirements, are a part of this Section and shall be binding on the Contractor and/or Subcontractor who performs this work.

1.2 DESCRIPTION OF WORK

- A. The work required under this Division shall include all materials, labor and auxiliaries required to install a complete and properly operating electrical system.
- B. The **Contractor** shall furnish, perform, or provide all labor including planning, purchasing, transporting, storing, installing, testing, cutting and patching, trenching, excavating, backfilling, coordination, field verification, equipment (installation and safety), supplies, and materials necessary for the correct installation of complete electrical systems (as described or implied by these specifications and the applicable drawings) in strict accordance with applicable codes, which may not be repeated in these specifications, but are expected to be common knowledge of qualified Bidders.
- C. The Division 26 Contract Documents refer to work required in addition to (or above) the minimum requirements of the N.E.C. and applicable local codes. All work shall comply with all applicable codes as a minimum and with the additional requirements called for in these Contract Documents.
- D. Only trained, and licensed personnel shall be used by the **Contractor** to perform work. The **Contractor** shall not perform work which violates applicable Codes, even if called for in the Contract Documents. The **Contractor's** Bid shall include work necessary to completely install the electrical systems indicated by the Contract Documents in accordance with applicable Codes.
- E. Refer to other Division 26 Sections for additional work requirements.
- F. Connections of all items using electric power shall be included under this division of the specifications, including necessary wire, conduit, circuit protection, disconnects and accessories. Securing of roughing-in drawings and connection information for equipment involved shall also be included under this division. See other divisions for specifications for electrically operated equipment.

1.3 WORK SEQUENCE

- A. Install work in stages and/or phases to accommodate **Owner's** occupancy requirements. Coordinate electrical schedule and operations with **Owner** and **Architect/Engineer**.

1.4 CODES, FEES, AND STANDARDS



- A. Material shall be new and free of defects with U.L. listing or be listed with an approved, nationally recognized Electrical Testing Agency if and only if U.L. Listing is not available for material.

#### 1.5 PROJECT/SITE CONDITIONS

- A. Install Work in locations shown or described in the Contract Documents, unless prevented by Project conditions.
- B. The **Contractor** shall install all equipment so that all Code required and Manufacturer recommended servicing clearances are maintained. Contractor shall be responsible for the proper arrangement and installation of all equipment within any designated space. Should the **Contractor** determine that a departure from the Contract Documents is necessary, he shall submit to the **A/E**, for approval, detailed drawings of his proposed changes with his written reasons for the changes. No changes shall be implemented by the **Contractor** without the issuance of the required drawings, clarifications, and/or change orders.
- C. The **Contractor** shall verify finish dimensions at the project site in preference to using dimensions noted on Contract Documents.

#### 1.6 INVESTIGATION OF SITE

- A. Check site and existing conditions thoroughly before bidding. Advise **A/E** of discrepancies or questions noted.
- B. Each Bidder shall visit the site and shall thoroughly familiarize himself with existing field conditions and the proposed work as described or implied by the Contract Documents. During the course of his site visit, the electrical bidder shall verify every aspect of the proposed work and the existing field conditions in the areas of construction and demolition which will affect his work. The **Contractor** will receive no compensation or reimbursement for additional expenses he incurs due to failure to make a thorough investigation of the existing facilities. This shall include rerouting around existing obstructions.
- C. Submission of a proposal will be construed as evidence that such examination has been made and later claims for labor, equipment or materials required because of difficulties encountered will not be recognized.
- D. Existing conditions and utilities indicated are taken from existing construction documents, surveys, and field investigations. Unforeseen conditions probably exist and existing conditions shown on drawings may differ from the actual existing installation with the result being that new work may not be field located exactly as shown on the drawings. **Contractor** shall field verify dimensions of all site utilities, conduit routing, boxes, etc., prior to bidding and include any deviations in the contract. Notify **A/E** if deviations are found.
- E. All existing electrical is not shown. The **Contractor** shall become familiar with all existing conditions prior to bidding, and include in his bid the removal of all electrical equipment, wire, conduit, devices, fixtures, etc. that is not being reused, back to it's

originating point.

- F. The **Contractor** shall locate all existing utilities and protect them from damage. The **Contractor** shall pay for repair or replacement of utilities or other property damaged by operations in conjunction with the completion of this work.
- G. Remove existing power, lighting, systems, material and equipment which are made obsolete or which interfere with the construction of the project. Reinstall power, lighting, systems, materials and equipment which are required to remain active for the facility to be fully functional.
- H. All items removed and not re-used shall be immediately turned over to Owner as they are made available by renovation. Remove items from job site and deliver to Owner's storage location(s) as directed by project manager. Discard complete items which Owner elects to refuse.
- I. Investigate site thoroughly and reroute all conduit and wiring in area of construction in order to maintain continuity of existing circuitry. Existing conduits indicated in Contract Documents indicate approximate locations only. **Contractor** shall verify and coordinate existing site conduits and pipes prior to any excavation on site. Bids shall include hand digging at existing utility locations and all required rerouting in areas of existing conduits or pipes.
- J. Work is in connection with existing buildings which must remain in operation while work is being performed. Work shall be in accordance with the schedule required by the Contract. Schedule work for a minimum outage to Owner. Notify Owner 72 hours in advance of any shut-down of existing systems. Perform work during school] operating hours unless otherwise approved by Owner. Protect existing buildings and equipment during construction.
- K. Bid shall include all removal and relocation of all piping, fixtures or other items required for completion of alterations and new construction.

#### 1.7 CONTRACT DOCUMENTS

- A. These specifications and applicable drawings shall be considered supplementary, one to the other and are considered Contract Documents. These specifications are not intended to delineate or limit required work by sections or divisions, and shall be considered as one document from cover to cover, front to back, including all other applicable specification sections and general conditions. All workmanship, methods, and/or material described or implied by one and not described or implied by the other shall be furnished, performed, or otherwise provided just as if it had appeared in both sets of documents.
- B. Refer to Division 01 specifications for requirements when a discrepancy or conflict is found between these specifications and any applicable drawing.
- C. The drawings are diagrammatic and are not intended to include every detail of construction, materials, methods, and equipment. They indicate the result to be achieved by an assemblage of various systems. Coordinate equipment locations with

Architectural and Structural drawings. Layout equipment before installation so that all trades may install equipment in spaces available. Coordinate installation in a neat and workmanlike manner.

- D. Wiring arrangements for equipment shown on the drawings are intended to be diagrammatic and do not show all required conductors and functional connections. All wiring and appurtenances required for the proper operation of all equipment to be connected shall be provided.
- E. Specifications require the **Contractor** to provide shop drawings which shall indicate the fabrication, assembly, installation, and erection of a particular system's components. Drawings that are part of the Contract Documents shall not be considered a substitute for required shop drawings, field installation drawings, Code requirements, or applicable standards.
- F. Locations indicated for outlets, switches, and equipment are approximate and shall be verified by instructions in specifications and notes on the drawings. Where instructions or notes are insufficient to locate the item, notify the **A/E**.
- G. The **Contractor** shall take finish dimensions at the project site in preference to scaling dimensions on the drawings.
- H. Where the requirements of another Division, section, or part of these specifications exceed the requirements of this Division those requirements shall govern.

#### 1.8 MATERIALS AND EQUIPMENT

- A. Material shall be new (except where specifically noted, shown or specified as "Reused") and shall be U.L. listed and bear U.L. label. Where no U.L. label listing is available for a particular product, material shall be listed with an approved, nationally recognized Electrical Testing Agency. Where no labeling or listing service is available for certain types of equipment, test data shall be submitted to prove to the **Engineer** that equipment meets or exceeds available standards.
- B. Where Contract Documents list design selection or manufacturer, type, this model shall set the standard of quality and performance required. Where no brand name is specified, the source and quality shall be subject to **A/E's** review and approval. Where Contract Documents list approved substitutions, these items shall comply with Section 26 01 11 and requirements in this Division of the Specifications for substitutions.
- C. When a product is specified to be in accordance with a trade association or government standard and at the request of **A/E** the **Contractor** shall furnish a certificate that the product complies with the referenced standard and supporting test data to substantiate compliance.
- D. Where multiple items of the same equipment or materials are required, they shall be the product of a single Manufacturer.
- E. Where the Contract Documents require materials and/or equipment installed, pulled, or otherwise worked on, the materials and/or equipment shall be furnished and

installed by the **Contractor** responsible for Division 26 methods and materials unless specifically noted otherwise.

- F. Where the contract documents refer to the terms "furnish," "install," or "provide," the materials and/or equipment shall be supplied and delivered to the project including all labor, unloading, unpacking, assembly, erection, anchoring, protecting supplies and materials necessary for the correct installation of complete system unless specifically noted otherwise.
- G. Before the **Contractor** orders equipment, the physical size of specified equipment shall be checked to fit spaces allotted on the drawings, with NEC working clearances provided. Internal access for proposed equipment substitutions shall be provided.
- H. Electrical equipment shall be protected from the weather, during shipment, storage, and construction per manufacturer's recommendations for storage and protection. Should any apparatus be subjected to possible damage by water, it shall be thoroughly dried and put through a dielectric test, at the expense of the **Contractor**, to ascertain the suitability of the apparatus, or it shall be replaced without additional cost to the **Owner**.
- I. Inspect all electrical equipment and materials prior to installation. Damaged equipment and materials shall not be installed or placed in service. Replace or repair and test damaged equipment in compliance with industry standards at no additional cost to the **Owner**. Equipment required for the test shall be provided by the **Contractor**.
- J. Material and equipment shall be provided complete and shall function up to the specified capacity/function. Should any material and/or equipment as a part or as a whole fail to meet performance requirements, replacements shall be made to bring performance up to specified requirements. Damages to finish by such replacements, alterations, or repairs shall be restored to prior conditions, at no additional cost to the **Owner**.
- K. Materials installed in environmental air plenum s shall be UL Plenum Listed and bear the appropriate UL markings.
- L. Where tamperproof screws are specified or required, Phillips head or Allen head devices shall not be accepted. For each type used, provide **Owner** with three tools. **Owner** will designate the specific hardware design to correspond with existing devices elsewhere in the building, to limit special tool requirements.

#### 1.9 SUPERVISION OF THE WORK

- A. The **Contractor** shall provide experienced, qualified, and responsible supervision for work. A competent foreman shall be in charge of the work in progress at all times. If, in the judgement of the **A/E**, the foreman is not performing his duties satisfactorily, the **Contractor** shall immediately replace him upon receipt of a letter of request from the **A/E**. Once a satisfactory foreman has been assigned to the work, he shall not be withdrawn by the **Contractor** without the written consent of the **A/E**.
- B. Provide field superintendent who has had a minimum of four (4) years previous

successful experience on projects of comparable size and complexity. Superintendent shall be on the site at all times during construction and must have an active Journeymans Electrical License.

- C. Superintendent shall be employed by a State certified electrical contractor.
- D. Maintain at all times the appropriate Journeyman to apprentice ratio as defined by the State Of Connecticut.

#### 1.10 COORDINATION

- A. Provide all required coordination and supervision where work connects to or is affected by work of others, and comply with all requirements affecting this Division. Work required under other divisions, specifications or drawings to be performed by this Division shall be coordinated with the **Contractor** and such work performed at no additional cost to **Owner** including work required for:
  - 1. Mechanical Division of the Specifications
  - 2. Interior architectural drawings
- B. **Contractor** shall obtain set of contract documents from **Owner** or **Contractor** for all areas of work noted above and include all electrical work in bid whether included in Division 26 Contract Documents or not.
- C. Installation studies shall be made to coordinate the electrical work with other trades. Work shall be preplanned. Unresolved conflicts shall be referred to the **A/E** prior to installation of the equipment.
- D. For locations where several elements of electrical or combined mechanical and electrical work must be sequenced and positioned with precision in order to fit into the available space, prepare coordination drawings at 1/4" scale showing the actual physical dimension required for the installation to assure proper integration of equipment with building systems and NEC required clearances. Coordination drawings shall be provided for all areas determined by the A/E.
- E. Secure approved shop drawings from all required disciplines and verify final electrical characteristics before roughing power feeds to any equipment. When electrical data on approved shop drawings differs from that shown or called for in Construction Documents, make adjustments to the wiring, disconnects, and branch circuit protection to match that required for the equipment installed.
- F. Damage from interference caused by inadequate coordination shall be corrected at no additional cost to the **Owner**.
- G. The **Contractor** shall maintain an up-to-date set of Contract Documents and Specifications of all trades on project, including Architectural, Structural, Mechanical, Electrical and, where provided Interior Design.
- H. It is the responsibility of this **Contractor** to coordinate the exact required location of floor outlets, floor ducts, floor stub-ups, etc. with **Owner** and **Architect** (and receive their

approval) prior to rough-in. Locations indicated in Contract Documents are only approximate locations.

- I. The Contract Documents describe specific sizes of switches, breakers, fuses, conduits, conductors, motor starters and other items of wiring equipment. These sizes are based on specific items of power consuming equipment (heaters, lights, motors for fans, compressors, pumps, etc.). The **Contractor** shall coordinate the requirements of each load with each load's respective circuitry shown and with each load's requirements as noted on its nameplate data and manufacturer's published electrical criteria. The **Contractor** shall adjust circuit breaker, fuse, conduit, and conductor sizes to meet the actual requirements of the equipment being provided and installed and change from single point to multiple points of connection (or vice versa) to meet equipment requirements. Changes shall be made at no additional cost to the **Owner**.

#### 1.11 PROVISION FOR OPENINGS

- A. Locate openings required for work. Provide sleeves, guards or other approved methods to allow passage of items installed.

#### 1.12 SURFACE MOUNTED EQUIPMENT

- A. Surface mounted fixtures, outlets, cabinets, conduit, panels, etc. shall have finish or shall be painted as directed by **Engineer**. Paint shall be in accordance with other applicable sections of these specifications.

#### 1.13 CUTTING AND PATCHING

- A. New Construction:
  1. Reference Division 1 - General Requirements.
  2. Cutting of work in place shall be cut, drilled, patched and refinished by trade responsible for initial installation.
  3. The **Contractor** shall be responsible for backfilling and matching new grades with adjacent undisturbed surface.

#### 1.14 INSTALLATION

- A. Erect equipment to minimize interference and delays in execution of the work.
- B. Take care in erection and installation of equipment and materials to avoid marring finishes or surfaces. Any damage shall be repaired or replaced as determined by the A/E at no additional cost to the **Owner**.
- C. Equipment requiring electrical service shall not be energized or placed in service until **A/E** is notified and is present or have waived their right to be present. Where equipment to be placed in service involves service or connection from another **Contractor** or the **Owner**, the **Contractor** shall notify the **Owner** in writing when the equipment will be ready. The **Owner** shall be notified as far in advance as possible of the date the various items of equipment will be complete.

- D. Equipment furnished by other divisions of work requiring electrical service or connection by this Contractor shall not be energized until the equipment has been certified by the provider and/or manufactures representative and is present at time of energizing. Voltage shall be checked prior to energizing to ensure compatibility.
- E. Equipment supports shall be secured and supported from structural members except as field approved by the **A/E**.
- F. Plywood material shall not be used as a backboard for mounting panel boards, disconnects, motor starters, and dry type transformers. Provide "cast in place" type inserts or install expansion type anchor bolts. Electrical equipment shall not be mounted directly to dry wall for support without additional channels as anchors. Channels shall be anchored to the floor and structure above. Panelboards and terminal cabinets shall be provided with structural framing located within drywall partitions.
- G. The **Contractor** shall keep the construction site clean of waste materials and rubbish. Upon completion of the work, the **Contractor** shall remove from the site debris, waste, unused materials, and equipment.
- H. Inserts, pipe sleeves, supports, and anchorage of electrical equipment shall be provided. Where items are to be set or embedded in concrete or masonry, the items shall be furnished and layout made for setting or embedment thereof so as to cause no delay.

#### 1.15 PROGRESS AND RECORD DRAWINGS

- A. Keep two sets of blueline prints including shop drawings on the job, and neatly mark up design drawings each day as components are installed. Different colored pencils shall be used to differentiate each system of electrical work. All items on Progress Drawings shall be shown in actual location installed. Change the equipment schedules to agree with items actually furnished. Cross out all electrical no longer applicable and/or shown redirected. **Contractor** shall include all existing conduit, routing, circuitry, etc. effected/modified/reworked by renovation (if applicable). Panelboard schedules, equipment schedules, systems shop drawing floor plans, and riser diagrams shall also be included as part of a complete as-built set of drawings.
- B. Prior to request for substantial completion inspection, furnish a set of neatly marked prints showing "as-installed" (as-built) condition of all electrical installed under this Division of the specifications. Marked up prints are to reflect all changes in work including change orders, field directives, request for information, addenda, etc. from bid set of Contract Documents. Marked up set of prints are to show:
  - 1. All raceways 1-1/2" and above, exactly as installed.
  - 2. Any combining of circuits or change in homerun outlet box shall be made on as-builts.
  - 3. Any circuit number changes on plan shall be indicated on as-builts.

4. Any panelboard schedule changes shall be indicated on as-builts.
- C. Marked up prints as noted above are to be submitted to A/E for approval. Contractor shall review submitted "as-builts" with Engineer in the field at time of substantial completion. Contractor shall verify every aspect for accuracy. Items installed and/or modified from time of substantial completion and final shall be incorporated accordingly. All A/E review comments shall be incorporated and re-submitted.
- D. Marked up prints as noted above are to be submitted to A/E for approval.
- E. Where the **Contractor** has failed to produce representative "as-built" drawings in accordance with requirements specified herein, the **Contractor** shall reimburse **Engineer** all costs to produce a set of "as-built" drawings to the **Architect/Owner** satisfaction. The A/E shall be reimbursed cost to review re-submittal as-builts subsequent to the second submittal. Cost will be billed to contractor at engineer's standard \$90.00 hourly rate.
- F. Where the contractor has failed to produce representative "as-built" drawings as specified herein, to the satisfaction of the A/E /Owner, shall be cause for disallowing request for payments.

#### 1.16 "OBSERVATION OF WORK" REPORT

- A. Items noted by **A/E** or his **representative** during construction and before final acceptance which do not comply with the Contract Documents will be listed in a "Observation of Work" report which will be sent to the **Contractor** for action. The **Contractor** shall correct all deficiencies in a prompt concise manner. After completion of the outstanding items, provide a written confirmation report for each item. The report shall indicate each item noted, and method of correction. Enter the date on which the item was corrected, and return the signed reports so items can be rechecked. Failure to correct the deficiencies in a prompt concise manner or failure to return the signed reports shall be cause for disallowing request for payments.
- B. Items noted after acceptance during one-year guarantee period shall be checked by the **Contractor** in the same manner as above. The signed reports are to be returned by him when the items have been corrected.

#### 1.19 SYSTEMS WARRANTY

- A. The work shall include a one-year warranty. This warranty shall be by the **Contractor** to the **Owner** for any defective workmanship or material which has been furnished at no cost to the **Owner** for a period of one year from the date of substantial completion of System. Warranty shall not include light bulbs in service after one month from date of substantial completion of the System. Explain the provisions of warranty to the **Owner** at the "Demonstration of Completed System" meeting to be scheduled with the **Owner** upon project completion.
- B. Where items of equipment or materials carry a manufacturer's warranty for any period in excess of twelve (12) months, then the manufacturer's warranty shall apply for that



particular piece of equipment or material.

- C. Where extended Guarantees are called for herein, furnish three copies to be inserted in Operation and Maintenance Manuals.
- D. All preventative maintenance and normal service will be performed by the **Owner's** maintenance personnel after final acceptance of the work which shall not alter the **Contractor's** warranty.

#### 1.20 WASTE MATERIALS DISPOSAL

- A. Contractor shall include in his bid the transport and disposal or recycling of all waste materials generated by this project in accordance with all rules, regulations and guidelines applicable. Contractor shall comply fully with State and Federal Statutes regarding mercury containing devices and lamps. Lamps, ballasts and other materials shall be transported and disposed of in accordance with all DEP and EPA guidelines applicable at time of disposal. Contractor shall provide owner with written certification of approved disposal.

#### 1.21 OBSERVATION OF WORK/SUBSTANTIAL COMPLETION

- A. The **Contractor** shall be fully responsible for contacting all applicable parties (A/E and OAR) to schedule required observation of work reviews throughout the construction/renovation period. A minimum of 72 hours notice shall be given for all required inspections, and minimum of 120 hours for substantial inspection. Time and date shall be agreed on by all applicable parties.
- B. Work shall be complete as required by authorities having jurisdiction and the general conditions of the contract prior to request for substantial completion inspection. Work must be deemed substantially complete by **A/E** to fulfill requirements.
- C. When the Contractor considers that the work, or portion thereof which the owner/architect agrees to accept separately, is substantially complete, the Contractor shall prepare and submit a list to the A/E a comprehensive list of items to be completed or corrected. The Contractor shall proceed promptly to complete and correct items on the list. Failure to include an item on such list does not alter the responsibility of the Contractor to complete work in accordance with the Contract Documents. The A/E will review the list to determine if work appears to be substantially complete, if so determined, base on the list submitted, will perform a substantial completion walk-thru.
- D. The **Contractor** shall have the electrical project superintendent present at all required observation of work reviews as project progresses. The **Contractor** shall provide the **A/E** adequate ladders, staging, etc, for access and review of all work in place, as well as adequate forces fully familiar with all aspects of the work. The **Contractor** shall provide access to all electrical components for review by **A/E** as directed by **A/E** (i.e., junction boxes, panelboards, switchboards, devices, fixtures, etc.).
- E. Prior to start of substantial completion walk-thru the **Contractor** shall provide access to and prepare all electrical equipment and related components complete and readily

for review by **A/E** including but not limited to the following (where applicable):

1. All panelboard covers removed
  2. Terminal cabinet covers open or removed.
  3. Wireway covers open or removed
  4. Access to all grounding/bonding terminations
  5. Access to rated wall and through floor fire stopping
  6. Access to all control systems (i.e. CCTV, Voice, Data, Fire Alarm, Sound/Paging, etc)
  7. Access to mechanical equipment, electrical connection points, and control devices
  8. Access to all raceways crossing structural expansion/deflection joints.
  9. Access to all components of the fire alarm control system including control devices, dampers, Etc.
  10. Removal of access panels
  11. Each and every item deemed necessary by A/E to perform a comprehensive review of the work as installed relative to the contract documents.
- F. Where the **Contractor** has failed to perform work in accordance with requirements of the contract documents and has not identified items to be completed or corrected as stated above, and the **A/E** finds numerous items to be completed or corrected, the substantial completion walk-thru will be concealed. The **Contractor** shall reimburse **A/E** all costs to perform exhausting review(s) of the installation and produce a lengthily list of deficiencies observed, where the **Owner** elects that a report to be generated by **A/E** at that time. The **A/E** shall also be reimbursed cost to perform continues ongoing project site visits, meeting, reports, etc resulting from the **Contractors** failure to perform work in accordance with the requirements of the Contract Documents. Cost will be billed to the contractor at engineer's standard \$90.00 hourly rate for each engineering representative involved.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

Not Used

END OF SECTION 26 01 00



PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Instructions to bidders, The General Conditions of the Contract for Construction, the Supplementary General Conditions and Division 1, General Requirements, are a part of this Section and shall be binding on the Contractor and/or Subcontractor
- B. Basic Electrical Requirements specifically applicable to Division 26 Sections.

1.2 DESCRIPTION OF SYSTEM

- A. Provide and install all equipment, labor, material, accessories, and mounting hardware for a complete and operating system for the following:
  - 1. Rigid Metallic Conduit (RMC).
  - 2. Intermediate Metal Conduit (IMC).
  - 3. Electrical metallic tubing (EMT).
  - 4. Flexible metal cables(MC/HCF)
  - 5. Fittings and conduit bodies.
- B. Raceways and conduits shall begin at an acceptable enclosure and terminate only in another such enclosure except conduit/raceway stub-outs.
- C. A raceway shall be provided for all electrical power and lighting, and electrical systems unless specifically specified otherwise.
- D. Where the contract documents refer to the terms "raceway," or "conduit" the materials shall be as listed above in conjunction with NEC article 100, definition of "raceway". MC and HCF flexible metal cables shall not be considered a substitute for raceway or conduit. The use of above products shall be limited to that specified by "Part-3 Execution".

1.3 REFERENCES

- A. ANSI C80.1/Fed.Spec. WWC-581 - Rigid Steel Conduit, Hot-dipped galvanized with chromate finish.
- B. ANSI C80.3/Fed.Spec. WWC-563 - Electrical Metallic Tubing, Hot-dipped galvanized steel.
- C. ANSI C80.5/Fed.spec. WWC-581/U.L.1242 - Intermediate Metal Conduit, Hot dipped galvanized with chromate finish.
- D. ANSI/NEMA FB 1 - Fittings, Cast Metal Boxes, and Conduit Bodies for Conduit and Cable Assemblies.
- E. ANSI/NFPA 70 - National Electrical Code.
- F. NECA "Standard of Installation."

- G. NEMA RN 1 - Polyvinyl Chloride (PVC) Externally Coated Galvanized Rigid Steel Conduit and Intermediate Metal Conduit.
- H. NEMA TC 2 - Electrical Plastic Tubing (EPT) and Conduit (EPC-40 and EPC-80).
- I. NEMA TC 3 - PVC Fittings for Use with Rigid PVC Conduit and Tubing.
- J. ANSI/Fed. Spec. J-C-30B - Flexible Metal Cables, Galvanized steel jacket.

#### 1.4 DESIGN REQUIREMENTS

- A. Conduit Size: ANSI/NFPA 70. (see drawings and this and other sections of these specifications for additional requirements).

#### 1.5 SUBMITTALS

- A. Submit catalog cut sheet showing brand of conduit to be used and showing that conduit is U.L. listed and labeled, and manufactured in the United States.
- B. Submit catalog cut sheet on all types of conduit bodies, and fittings.
- C. Product data shall be submitted for approval on:
  - 1. Conduits.
  - 2. Conduit straps, hangers and fittings.
  - 3. Cables.
  - 4. Expansion/deflection fittings.
- D. Submit U.L. listed fire and smoke stopping assemblies for each applicable application.
- E. Product data shall prove compliance with Specifications, National Electric Code, National Board of Fire Underwriters, manufacturer's specifications and written installation data.

#### 1.6 PROJECT RECORD DOCUMENTS

- A. Submit record documents to accurately record actual routing of conduits larger than 1.25 inches.

#### 1.7 REGULATORY REQUIREMENTS

- A. Conform to requirements of ANSI/NFPA 70.
- B. Furnish products listed and classified by Underwriters Laboratories, Inc. as suitable for purpose specified and shown.

#### 1.8 DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, protect, and handle Products to site.
- B. Accept conduit on site. Inspect for damage.

- C. Protect conduit from corrosion and entrance of debris by storing above grade. Provide appropriate covering.
- D. Protect PVC conduit from sunlight.

#### 1.9 PROJECT CONDITIONS

- A. Verify that field measurements are as shown on Drawings.
- B. Verify routing and termination locations of conduit prior to rough-in.
- C. Conduit routing is shown on Drawings in approximate locations unless dimensioned. Route as required to complete wiring system.

### PART 2 - PRODUCTS

#### 2.1 GENERAL

- A. All conduits shall bear U.L. label or seal and shall be manufactured in the United States.
- B. Conduit systems and all related fittings, boxes, supports, and hangers must meet all the requirements of national, state, local, and other Federal codes where applicable.

#### 2.2 MINIMUM TRADE SIZE

- A. Rigid conduit - 3/4".
- B. E.M.T. - 3/4" .
- C. E.M.T.:
  - 1. Homeruns - 3/4".
  - 2. Branches - 1/2".

#### 2.3 RIGID METALLIC CONDUIT

- A. Comply with:
  - 1. ANSI C80.1
  - 2. U.L. Spec - No. 6
  - 3. N.E.C. 346
  - 4. Fed. Specification WW-C-581.
- B. Conduit material:
  - 1. hot-dipped galvanized steel.
- C. Fittings:
  - 1. Threaded.

2. Insulated bushings shall be used on all rigid steel conduits terminating in boxes, wire gutters, or cabinets, and shall be impact resistant plastic molded in an irregular shape at the top to provide smooth insulating surface at top and inner edge. Material in these bushings must not melt or support flame and shall be 90 degree rated.
3. Insulated grounding bushing shall be used on all rigid steel conduits terminating in panelboards, distribution boards, switchboards and motor control centers and shall be Hot-dipped galvanized malleable iron or steel.

D. Conduit Bodies:

1. Comply with ANSI/NEMA FB 1.
2. Threaded hubs.
3. Hot-dipped galvanized malleable iron.

2.4 INTERMEDIATE METAL CONDUIT

A. Comply with:

1. U.L Standard 1242.
2. ANSI C80.5
3. N.E.C. 345.
4. Fed. Specification WW-C-581.

B. Conduit material: Zinc coated steel.

C. Fittings:

1. Threaded.
2. Zinc plated malleable iron.
3. Insulated bushings shall be used on all rigid steel conduits terminating in boxes, wire gutters, or cabinets, and shall be impact resistant plastic molded in an irregular shape at the top to provide smooth insulating surface at top and inner edge. Material in these bushings must not melt or support flame and shall be 90 degree rated.
4. Insulated grounding bushing shall be used on all rigid steel conduits terminating in panelboards, distribution boards, switchboards and motor control centers.

a) Hot-dipped galvanized malleable iron or steel.

D. Conduit bodies:

1. Comply with ANSI/NEMA FB 1.
2. Threaded hubs.
3. Hot-dipped galvanized malleable iron.

2.5 ELECTRICAL METAL CONDUIT

- A. Comply with:
1. U.L 797
  2. ANSI C80.3
  3. N.E.C.
  4. ANSI/UL797
  5. Fed. Specification WWC-563
- B. Conduit material: Hot dipped Galvanized steel tubing.
- C. Fittings:
1. ANSI/NEMA FB 1
  2. Set screw
  3. Steel.
  4. Concrete tight.
  5. T&B Series 5031/5030.
  6. Insulated bushings shall be used on all liquid-tight conduits size 1-1/4" or larger terminating in boxes, wire gutters, cabinets, panels, etc. and shall be impact resistant plastic molded in an irregular shape at the top to provide smooth insulating surface at top and inner edge. Material in these bushings must not melt or support flame.
  7. Insulated grounding bushing shall be used on all rigid steel conduits terminating in panelboards, distribution boards, switchboards and motor control centers.
    - a) Hot-dipped galvanized malleable iron or steel.

2.6 FLEXIBLE METAL CLAD CABLE(MC)

- A. Comply with:
1. N.E.C.
  2. ANSI/UL 1
  3. Fed. Specification J-C-30B
- B. Cable material:
1. Jacket material: Galvanized Steel, interlocked.
  2. Core covering: High dielectric strength assembly tape.
  3. Conductor Material:
    - a) Copper, Solid THHN
    - b) Minimum #12 gauge
    - c) Maximum #8 gauge
    - d) 90 degree C, 600 volt.
    - e) Full size insulated grounding conductor, green.



- f) Conductor color coding to match system voltage
- C. Fittings:
- 1. ANSI/NEMA FB 1
  - 2. ANSI/UL 514B
  - 3. Zinc plated Malleable iron, or steel.
  - 4. Threaded rigid and IMC conduit to flexible conduit coupling.
  - 5. Direct flexible conduit bearing set screw type not acceptable.
  - 6. T&B 3100 series
  - 7. Install insulated bushings or equivalent protection (i.e. Anti-short) between core conductors and outer jacket.

### PART 3 - EXECUTION

#### 3.1 LOCATION/INSTALLATION REQUIREMENTS

- A. Interior Dry Locations:
- 1. Concealed:
    - a) Use rigid galvanized steel conduit, intermediate metal conduit, and electrical metallic tubing. Rigid non-metallic conduit (PVC) is not permitted for use above grade unless written permission is granted by A/E and owners authorized representative.
    - b) The use of Metal Clad cables and HFC-90 Armored cables are permitted in limited applications as specified herein, provided acceptable by the local inspecting authority having jurisdiction and applicable codes and standards. Refer to "ADDITIONAL REQUIREMENTS FOR METAL CLAD/HFC ARMORED CABLES", below.
  - 2. Exposed: Use rigid galvanized steel conduit, intermediate metal conduit, and electrical metallic tubing. EMT may only be used where not subject to damage which is interpreted by this specification to be above 90" AFF, with exception to electrical and mechanical equipment rooms where conduit exits from top of panelboards, motor controllers, MCC's, etc.
  - 3. Concealed or exposed flexible conduit:
    - a) Concealed: Use flexible steel conduit or liquid-tight flexible steel conduit in lengths not longer than six (6) feet in length with a ground conductor installed in the conduit.
    - b) Exposed: Use liquid-tight flexible steel conduit shall not exceed three(3)

feet in length (unless written authorization by A/E for specific conditions is granted) with a ground conductor installed in the conduit, for final connections to vibrating equipment only (i.e. motors, air-handler units, etc).

- B. Interior Wet and Damp Locations:
  - 1. Use rigid galvanized steel or intermediate metal conduit.
  - 2. Wet location: All fittings, supports, mounting hardware, etc. shall be hot dipped galvanized steel or stainless steel.
  - 3. Use liquid-tight flexible steel conduit as specified above, for final connections to vibrating equipment.
- C. Concrete Columns or Poured in-place Concrete Wall Locations:
  - 1. Use rigid non-metallic conduit. Penetration shall be by approved metal raceway (i.e. metal conduit as required elsewhere in these specifications).
- D. Fire pump rooms:
  - 1. Use rigid galvanized steel conduit per NFPA/NEC.
  - 2. Use liquid-tight flexible steel conduit as specified above, for final connections to vibrating equipment.

### 3.2 ADDITIONAL REQUIREMENTS FOR RIGID STEEL CONDUIT

- A. Rigid steel conduit shall be cut and threaded with tools approved for the purpose and by qualified personnel.
  - 1. Approved pipe vise.
  - 2. Roller/bade type cutter or band saw.
  - 3. Reamer capable of completely removing al ridges or burrs left by the cutter. Reaming with pliers is not acceptable.
- B. Hangers shall be installed 8 ft. apart.
- C. Conduits stubbed through floor slabs, above grade and not contained inside walls, shall be rigid galvanized metallic conduit.
- D. One hole pipe straps shall be malleable iron. Wet location applications shall include malleable iron back clamp spacers.

### 3.3 ADDITIONAL REQUIREMENTS FOR EMT

- A. Electric metallic tubing (thin wall) may be installed inside buildings above ground floor where not subject to mechanical injury, unless specifically noted otherwise.

- B. All cuts shall be reamed smooth and free of sharp and abrasive areas by use of an approved reamer.
- C. Cut conduit square using approved hacksaw with 32 tooth per inch blade; de-burr cut ends. Roller/blade type pipe cutter is not acceptable.
- D. One hole pipe straps shall be heavy duty type.

3.4 ADDITIONAL REQUIREMENTS FOR METAL CLAD CABLES

- A. Metal Clad Cables may be used only as specified elsewhere in this document, as specified herein, where permitted by NEC, and if approved by the Local Inspecting Authority having Jurisdiction.

3.5 ADDITIONAL REQUIREMENTS FOR ARMOR HCF-90 CABLES

- A. Armor HCF-90 Cables may be used only as specified elsewhere in this document, as specified herein, where permitted by NEC, and if approved by the Local Inspecting Authority having Jurisdiction.
- B. Type HCF-90 hospital grade cable, where permitted, shall be used in Health Care Facilities or part thereof (i.e. multifunction buildings, etc.) and where permitted by NEC Article 517 , for the following :
  - 1. Patient Care areas
  - 2. Limited Care Facilities
  - 3. Ambulatory Health Care
  - 4. Exam rooms within a Medical Office building or suite
  - 5. Clinics
  - 6. Dental office or suite
  - 7. Where redundant grounding path is required by NEC 250-91(b)

3.6 ADDITIONAL REQUIREMENTS FOR METAL CLAD/ARMOR HCF-90 CABLES

- A. Cables, where permitted, shall be used only in interior dry locations of stud wall partitions/framing and for final connections to lighting luminaries from conduit system/junction box above each fixture. MC shall not be used as branch circuit homeruns to panelboards or similar equipment. Branch circuit homeruns and branch electrical distribution wiring system shall utilize conduit system (i.e. GRC, IMC, EMT, etc.) as specified elsewhere in this document.
- B. Cables serving stud wall partitions shall begin from circuit collector boxes/conduit system directed above first device or equipment served. Extending long runs of cable via framing system to avoid installation of raceway system as intended by these specifications is prohibited.
- C. Cables shall not be installed where subject to mechanical injury or exposure to heat.
- D. Multi-conductor home run cable is prohibited.
- E. Cables for use other than power and lighting branch circuits is not permitted without special written permission by A/E.

- F. Connectors and supporting components shall be UL Listed for such use.
- G. Cut cables with UL listed tools intended for such use. Ream smooth and free of sharp and abrasive areas. Install bushing between conductors and outer jacket. The use of slide cutters or dikes to cut cables is not acceptable.
- H. For branch circuit lighting and power circuits only, maximum #8 gauge permitted. Cables shall not be used for feeder circuits, or other type systems (i.e. fire alarm, etc).
- I. Maintain minimum 1/2 inch separation between each cable and support per NEC article 334. The practice of bundling cables is not acceptable.
- J. Support cables directly from building superstructure. Support maximum of 1'-0" from every box, cabinet, etc., secure at intervals not to exceed 5'-0".
- K. Install metal sleeves where cables pass through rated walls, one sleeve per cable with minimum 2 inches between each. Increase spacing as required per applicable UL fire stopping detail/assembly.
- L. Install cables minimum of 1'-0" from communications cables.
- M. The use of standard type A/C cables in lieu of MC cables is not permitted unless cable is HCF-90 as specified herein.
- N. Attachment of cables to ceiling system or support wires, regardless if support wire is a dedicated wire, is prohibited. Support cables directly to building superstructure. Only a vertical cable drop down to a recessed lay-in luminaire can be supported to the fixture support wire with approved fasteners. Vertical cable drop attachment may be by means of Ty-Rap cable tie if approved by the Local Inspecting Authority having jurisdiction and UL plenum rated within plenum air environments.
- O. Attachment of cables to, on, or from mechanical (HVAC) equipment, supports, etc., is not permitted.
- P. Install cables parallel and perpendicular to building structure.
- Q. Install additional supports as necessary to omit cable sagging.
- R. Complete installation shall be in a neat and workmanlike manner to the satisfaction of the A/E.
- S. Zigzagging cables through building elements, as method of support is not acceptable.
- T. Cable with outer metal sheath damaged by construction elements and/or improper installation shall be replaced at no additional cost to owner.
- U. Cables shall be securely fastened with UL listed devices intended for such use. Cables attached to metal stub framing system shall be one hole MC cable straps with screws and/or Caddy 449 series "snap-clip" fasteners or Caddy MX3 Quick support. Caddy Quick MX3 fasteners shall be provided with supplemental screw fasteners to metal stub

framing.

### 3.7 SUPPORTS

- A. Arrange supports to prevent misalignment during wiring installation.
- B. Support conduit using coated steel or malleable iron straps, lay-in adjustable hangers, clevis hangers, and split hangers.
- C. Group related conduits; support using conduit rack. Construct rack using steel channel; (minimum 24", increase distance as required) provide space on each for 25 percent additional conduits.
- D. Fasten conduit supports to building structure and surfaces under provisions of Section 26 01 16.
- E. Do not support conduit with wire, metal banding material, or perforated pipe straps. Remove wire used for temporary supports.
- F. Do not attach conduit, cables, or boxes to ceiling support wires, dedicated wires, or grid channel.
- G. Conduits, cables, or boxes shall not be supported from ceiling grid supports, plumbing pipes, duct systems, heating or air conditioning pipes, or other building systems.
- H. Do not support conduit to other conduits.
- I. All raceways run within building shall be supported from superstructure above by means of threaded rod hangers and kindorf racking, etc. Quantity of conduit rack shall be kept to a minimum. Above ceiling raceways ran from outlet box to outlet box shall run via racking system. Install all conduits and racking at similar elevation.
- J. Hangers shall be of galvanized steel and installed minimum of every 10 ft. the entire length of the system.
- K. Conduit hangers used exterior or in wet locations shall be hot dipped galvanized malleable iron or stainless steel.
- L. Mounting hardware used exterior or in wet locations shall be stainless steel.
- M. Supporting conduit and boxes with wire is not approved. All raceways except those from surface-mounted switches, outlet boxes or panels shall be supported with clamp fasteners with toggle bolt on hollow walls, and with lead expansion shields on masonry.
- N. Free-air cable, where specified and permitted elsewhere, shall be supported directly from the superstructure with UL Listed devices intended for such use. Ty-Rap cable ties in conjunction with UL Listed devices shall be UL plenum rated within plenum air environments.
- O. Provide suitable fittings to accommodate expansion and deflection where conduit crosses seismic, control, deflection, and expansion joints. Provide seismic bracing

and supports in accordance with BOCA (chapter 1610) latest addition.

### 3.8 EXPANSION/DEFLECTION FITTINGS

- A. Provide suitable fittings to accommodate expansion and deflection where conduit crosses, control and expansion joints.
- B. Expansion fittings shall be installed in the following cases:
  - 1. In each conduit run wherever it crosses an expansion/deflection joint in the concrete structure
  - 2. On one side of expansion/deflection joint with its sliding sleeve end flush with joint, and with a length of bonding jumper in expansion equal to at least three times the normal width of joints
  - 3. In each conduit run which mechanically attached to separate structures to relieve strain caused by shift on one structure in relation to the other
  - 4. In conduit runs above ground which is more than one hundred feet in length, and interval between expansion/deflection fittings in such runs shall not be greater than 100 feet.

### 3.9 GROUNDING

- A. All raceways shall have a copper system ground conductor throughout the entire length of circuit installed within conduit in strict accordance with NEC codes.
- B. Grounding conductor shall be included in total conduit fill determining conduit sizes, even though not included or shown on drawings. Increase conduit size shown as required.
- C. Grounding conductors run with exterior/ underground feeders shall be bare only.
- D. Grounding conductors run with feeders shall be bonded to portions of conduit that are metal by approved ground bushings.
- E. See other sections of these specifications for additional requirements.
- F. Grounding conductors (including lightning protection down conductors) run in metal conduit shall be bonded to metal conduit at both ends.

### 3.10 CONDUITS PENETRATING 2 OR 4 HOUR WALLS SHALL BE AS FOLLOWS

- A. Conduits with conductors penetrating the wall shall have blow out patches on each side of the wall.
- B. Multiple conduits run through rated walls side by side shall have blow out patches on each side of the wall.
- C. Data or telephone conductors run exposed and penetrating a rated wall 2 hour fire,

smoke or smoke/fire shall be sleeved with steel conduits 30" each side of the wall and conduit ends packed with approved fire sealant.

### 3.11 FIRE AND SMOKE STOPPING

- A. Contractor is to provide fire stopping and/or smoke stopping for all penetrations of (new and existing) fire or smoke barrier walls, chases, floors, etc. as required to maintain rating of floor, wall, chase, etc.
- B. Install conduit to preserve fire resistance rating of partitions and other elements.
- C. Install fire proofing material to maintain existing rating of floor, beams, etc. damaged or removed by renovation.
- D. Fire and smoke stopping material: A two-part silicone foam or a one-part putty, UL classified and FM approved with flame spread of 0 and smoke development not to exceed 50 in accord with ASTM E84. Material shall be suitable for penetration seals through fire-rated floors and walls when tested in accord with ASTM E119. Material shall not melt or soften at high temperatures, shall be suitable for direct outdoor and ultraviolet exposures, shall cure to give a tight compression fit, and shall not produce toxic fumes. Material, when heated, shall expand to fill and hold penetration closed where burn out of cable insulation or ATC tubing occurs. Comply with above and/or supplemental general conditions, whichever is more stringent.
- E. All penetrations shall be sealed/fire stopped in strict accordance with UL Fire Directory, latest addition. Submit applicable details for acceptance. Prepare and install exactly as delineated by UL detail(s).
- F. Comply with UL Fire Directory "F" and "T" ratings respectfully.

### 3.12 VERTICAL RACEWAYS

- A. Cables in vertical raceways shall be supported as per NEC Article 300-19. Provide and install supporting devices for cables, including any necessary accessible pullbox as required regardless if shown on drawings or not. Provide and install access panels as required. Coordinate location of pull box and access panel with architect prior to installation. This includes empty raceways for future use.

### 3.13 SLEEVES AND INSERTS

- A. Sleeves through outside wall shall be cast iron with intermediate, integral flange.
- B. Sleeves through concrete floors and interior masonry walls shall be schedule 40 black steel pipe or GRC.
- C. Sleeves through interior partitions shall be minimum 22-gauge galvanized steel.

### 3.14 GENERAL

- A. Install conduit in accordance with NECA "Standard of Installation." Contractor shall layout all work prior to rough-in.

- B. Install nonmetallic conduit in accordance with manufacturer's instructions.
- C. Arrange conduit to maintain headroom and present neat appearance.
- D. Route conduit installed above accessible ceilings or exposed to view parallel or perpendicular to walls. Do not run from point to point.
- E. Route conduit in and under slab from point-to-point.
- F. Do not cross conduits in slab.
- G. Maintain adequate clearance between conduit and piping.
- H. Maintain 12 inch (300 mm) clearance between conduit and surfaces with temperatures exceeding 104 degrees F (40 degrees C).
- I. Bring conduit to shoulder of fittings; fasten securely.
- J. Use threaded conduit hubs to fasten conduit and flexible conduit to sheet metal boxes, disconnects switches, panelboards, equipment control panels, etc., in damp and wet locations.
- K. Boxes in damp and wet locations shall be furnished with threaded hubs cast into box.
- L. Install no more than equivalent of three 90-degree bends between boxes. Use conduit bodies to make sharp changes in direction, as around beams. Use factory elbows for bends in metal conduit larger than 2 inch (50 mm) size.
- M. Avoid moisture traps; provide junction box with drain fitting at low points in conduit system.
- N. Provide and install pullboxes, junction boxes, fire barrier at fire rated walls etc., as required by NEC Article 300, whether shown on drawings or not.
- O. Provide continuous fiber polyline 1000 lb. minimum tensile strength pull string in each empty conduit except sleeves and nipples. This includes all raceways which do not have conductors furnished under this Division of the specifications. Pullcord must be fastened to prevent accidental removal. A phenolic or brass nameplate shall be attached to each end indicating the location of both ends of conduit as follows: THIS END = "LOCATION," OTHER END = "LOCATION."
- P. Use suitable caps to protect installed conduit against entrance of dirt and moisture.
- Q. Ground and bond conduit under provisions of Section 26 05 26.
- R. Identify conduit under provisions of Section 26 05 22.
- S. Install all conduits concealed from view unless specifically shown otherwise on drawings.



- T. Rigid steel box connections shall be made with double locknuts and bushings.
- U. All raceways shall be kept clear of plumbing fixtures to facilitate future repair or replacement of said fixtures without disturbing wiring. Except where it is necessary for control purposes, all raceways shall be kept away from items producing heat.
- V. All raceway runs in masonry shall be installed at the same time as the masonry so that no face cutting is required, except to accommodate boxes.
- W. All raceways shall be run from outlet to outlet as shown on the drawings. Deviations from the drawings shall be marked on field set of drawings as previously specified.
- X. Circuit consolidation beyond that shown on the drawings is prohibited. Circuit consolidation shall be limited to three "current carrying phase conductors" per raceway.
- Y. Spare conduit stubs shall be capped and location and use marked with concrete marker set flush with finish grade. Marker shall be 6" round x 6" deep with appropriate symbol embedded into top to indicate use. Also, tag conduits in panels where originating.
- Z. All conduit stubbed above floor shall be strapped to Kindorf channel supported by conduit driven into ground or tied to steel. Spare conduit stubs shall be capped with a U.L. listed and approved cap or plug for the specific intended use and identified with ink markers as to source and labeled "Spare".
- AA. All connections to motors or other vibrating equipment including dry type transformers or at other locations where required shall be made with not less than 12" and not more than 36" of liquid-tight conduit. Use angle connectors wherever necessary to relieve angle strain. Liquid-tight conduit terminations shall be provided with kellems strain relief grips.
- BB. Provide conduit seal-offs wherever conduit crosses obvious temperature changes (i.e. from inside to outside of coolers, freezers, etc.).
- CC. Route conduit through roof openings for piping and ductwork or through suitable roof jack with pitch pocket. Coordinate location with roofing installation specified under other Sections of these specifications.
- DD. All raceways shall be run in neat and workmanlike manner and shall be properly in accordance with latest edition of NEC with approved conduit clamps, hanger rods and structural fasteners.
- EE. All raceway runs, whether terminated in boxes or not, shall be capped during the course of construction and until wires are pulled in, and covers are in place. No conductors shall be pulled into raceways until construction work which might damage the raceways has been completed.
- FF. Electrical raceways shall be supported independently of all other systems and supports, and shall in every case avoid proximity to other systems which might cause confusion with such systems or might provide a chance of electrolytic actions, contact with live

parts or excessive induced heat.

GG. Electrical nonmetallic tubing (ENT) is not permitted.

END OF 26 05 10



PART 1 - GENERAL

1.1 DESCRIPTION OF SYSTEM

- A. Instructions to bidders, The General Conditions of the Contract for Construction, the Supplementary General Conditions and Division 1, General Requirements, are a part of this Section and shall be binding on the Contractor and/or Subcontractor who performs this work.
- B. Provide all equipment, labor, material, accessories, and mounting hardware to properly install all conductors and cables rated 600 volts and less for a complete and operating system for the following:
  - 1. Building wire and cable.
  - 2. Wiring connectors and connections.
  - 3. No aluminum wire is not permitted unless specifically noted otherwise.
- C. All sizes shall be given in American Wire Gauge (AWG) or in thousand circular mils (MCM).

1.2 REFERENCES

- A. ANSI/NFPA 70 - National Electrical Code.

1.3 SUBMITTALS

- A. Product Data: Submit catalog cut sheet showing, type and U.L. listing of each type of conductor, connector and termination.

1.4 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing products specified in this Section with minimum five years experience.

1.5 REGULATORY REQUIREMENTS

- A. Conform to requirements of ANSI/NFPA 70.
- B. Furnish products listed and classified by Underwriters Laboratories, Inc. as suitable for purpose specified and shown.

1.6 PROJECT CONDITIONS

- A. Verify that field measurements are as shown on Drawings.
- B. All conductors are copper unless specifically noted otherwise.
- C. Wire and cable routing shown on Drawings is approximate unless dimensioned. Route wire and cable as required to meet Project Conditions.
- D. Where wire and cable routing is not shown, and destination only is indicated,

determine exact routing and lengths required.

- E. Where wire and cable sizes is not shown, size for load/equipment served in accordance with NEC, including voltage drop.

#### 1.7 COORDINATION

- A. Determine required separation between cable and other work.
- B. Determine cable routing to avoid interference with other work.

### PART 2 - PRODUCTS

#### 2.1 BUILDING WIRE AND CABLE

- A. Description: Single conductor insulated wire.
- B. Conductor: Copper.
- C. Insulation Voltage Rating: 600 volts.
- D. Insulation: ANSI/NFPA 70, Type THHN/THWN and XHHW.

#### 2.2 ALUMINUM CONDUCTORS

- A. Aluminum conductors are not permitted unless specifically noted and/or specified on drawings.
- B. Where aluminum conductors are specified elsewhere, they shall be compact stranded aluminum alloy with XHHW insulation. Alcan Stabiloy AA-8000 Series, 600 volt. U.L. listed and labeled.

### PART 3 - EXECUTION

#### 3.1 GENERAL

- A. Install products in accordance with manufacturers instructions.
- B. Conductors #10 AWG or #12 AWG shall be 600 volt type THWN/THHN unless noted otherwise, rated 90 degrees C. dry.
- C. Use solid conductor for feeders and branch circuits 10 AWG and smaller (except for control circuits).
- D. Use conductor not smaller than 12 AWG for power and lighting circuits.
- E. Use 10 AWG conductors for 20 ampere, 120 volt branch circuits longer than 75 feet (23 m).
- F. Neatly train and lace wiring inside boxes, equipment, and panelboards.

- G. All conductors shall be installed in raceway.
- H. Conductor sizes indicated on circuit homeruns or in schedules shall be installed over the entire length of the circuit unless noted otherwise on the drawings or in these specifications.
- I. Before installing raceways and pulling wire to any mechanical equipment, verify electrical characteristics with final submittal on equipment to assure proper number and AWG of conductors. (As for multiple speed motors, different motor starter arrangements, etc.).

### 3.2 EXAMINATION

- A. Verify that interior of building has been protected from weather.
- B. Verify that mechanical work likely to damage wire has been completed.

### 3.3 PREPARATION

- A. Completely and thoroughly swab raceway before installing wire.

### 3.4 WIRING METHODS

- A. Use only building wire, Type THHN/THWN insulation, in raceway unless noted otherwise.
- B. Wiring in vicinity of heat producing equipment: Use only XHHW insulation, in raceway.
- C. Conductors installed within fluorescent fixture channels shall be Type THHN or XHHW, rated 90 degrees C dry. Conductors for all other light fixtures shall have temperature ratings as required to meet the U.L. listing of the fixture; however, in no case shall the temperature rating be less than 90 degrees Centigrade. Remove incorrect insulation types in new work.

### 3.5 INTERFACE WITH OTHER PRODUCTS

- A. Identify wire and cable under provisions of Section 26 05 22.
- B. Identify each conductor with its circuit number or other designation indicated on Drawings.
- C. Identify neutrals with its associated circuit number(s).
- D. Test wire and cable under provisions of section 26 01 16.

### 3.6 FIELD QUALITY CONTROL

- A. Perform field inspection and testing under provisions of the General Requirements of the Contract Documents and 16090.
- B. Inspect wire for physical damage and proper connection.
- C. Measure tightness of bolted connections and compare torque measurements with manufacturer's recommended values.

- D. Verify continuity of each branch circuit conductor.

### 3.7 VERTICAL RISERS

- A. Provide vertical cable riser supports per Article 300-19 in NFPA 70. Cable supports shall be O-Z/Gedney Type "S" or equal. These shall be located in accessible pullboxes of adequate size. Provide for adequate structural connection of cable supports to pullbox, which will transfer cable weight to building.

### 3.8 PULLING

- A. No wire shall be pulled until the conduit system is complete from pull point to pull point and major equipment terminating conduits have been fixed in position.
- B. Mechanical pulling devices shall not be used on conductors sized #8 and smaller. Pulling means which might damage the raceway shall not be used.
- C. Use only powdered soapstone or other pulling lubricant acceptable to the A/E. Compound or lubricant shall not cause the conductor or insulation to deteriorate.
- D. All conductors to be installed in a common raceway shall be pulled together. The manufacturer's recommended pulling tensions shall not be exceeded.
- E. Bending radius of insulated wire or cable shall not be less than the minimum recommended by the manufacturer.

### 3.9 CONTROL AND SIGNAL CIRCUITS

- A. For control and signal circuits above 50 VAC, conductors shall be #14 AWG minimum size, Type XHHW or THWN-THHN as permitted by NFPA 70, within voltage drop limits, increased to #12 AWG as necessary for proper operation.
- B. For control and signal circuits 50 VAC and below, conductors, at the Contractor's option, may be #16 AWG, 300 volt rated, PVC insulated, except where specifically noted otherwise in the contract documents.
- C. Conductor insulation for Fire Alarm Systems shall be as approved by Code Inspection Authority only. Wire specified /acceptable by the A/E through submittal process shall not supersede this final Approval for conditions of this specific project.
- D. Install circuit conductors in conduit.
- E. Circuit conductors to be stranded.

### 3.10 COLOR CODING

- A. All power feeders and branch circuits No. 6 and smaller shall be wired with color-coded wire with the same color used for a system throughout the building. Power feeders above No. 6 shall either be fully color-coded or shall have black insulation and be similarly color-coded with tape or paint in all junction boxes and panels. Tape or paint shall completely cover the full length of conductor insulation within the box or

panel.

- B. Unless otherwise approved or required by A/E color-code shall be as follows: Neutrals to be white for 120/208V system, natural grey for 277/480V system; ground wire green, bare, isolated ground wire green with yellow strips. 120/208V, Phase A - black; Phase B - red; Phase C - blue. 480/277V, Phase A brown; Phase B - orange; Phase C - yellow. All switchlegs, other voltage system wiring, control and interlock wiring shall be color-coded other than those above.

### 3.11 TAPS/SPLICES/CONNECTORS/TERMINATIONS

- A. Taps and splices are not acceptable unless specifically noted otherwise on drawings or special written approval is granted by engineer.
- B. Clean conductor surfaces before installing lugs and connectors.
- C. Make splices, taps, and terminations to carry full ampacity of conductors with no perceptible temperature rise.
- D. Power and lighting conductors shall be continuous and unspliced where located within conduit. Splices shall occur within troughs, wireways, outlet boxes, or equipment enclosures where sufficient additional room is provided for all splices. No splices shall be made in in-ground pull boxes (without written approval of engineer).
- E. Splices in lighting and power outlet boxes, wireway, and troughs shall be kept to a minimum, pull conductors through to equipment, terminal cabinets, and devices.
- F. No splices shall be made in junction box, and outlet boxes (wire No. 8 and larger) without written approval of Engineer.
- G. No splices shall be made in communications outlet boxes, pull boxes or wireways (i.e., fire alarm, computer, telephone, intercom, sound system, etc.) without written approval of Engineer. Pull cables through to equipment cabinets, terminal cabinets and devices.
- H. Allow adequate conductor lengths in all junction boxes, pull boxes and terminal cabinets. All termination of conductors in which conductor is in tension will be rejected and shall be replaced with conductors of adequate length. This requirement shall include the providing by the Contractor of sleeve type vertical cable supports in vertical raceway installations provided in pullboxes at proper vertical spacings.
- I. A calibrated torque wrench shall be used for all bolt tightening, torque to manufactures recommendations.
- J. Interior Locations:
  - 1. All (non-electronic systems) copper taps and splices in No. 8 or smaller shall be fastened together by means of "spring type" connectors. All taps and splices in wire larger than No. 8 shall be made with compression type connectors and taped to provide insulation equal to wire.



K. Exterior Locations:

1. Make splices, taps and terminations above grade in splice or termination cabinets. Do not splice any cable in ground or below finished grade.
2. All taps and splices shall be made with compression type connectors and covered with Raychem heavywall cable sleeves (type CRSM-CT, WCSM or MCK) with type "S" sealant coating with sleeve kits as per manufacturer's installation instructions or be terminated/connected to terminal strips in above grade terminal boxes suitable for use.
3. Provide and install above grade termination cabinets sized to meet applicable codes and standards, where required for splicing.

3.12 ALUMINUM CONDUCTORS Aluminum conductors are not permitted.

END OF SECTION 26 05 14

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Instructions to bidders, The General Conditions of the Contract for Construction, the Supplementary General Conditions and Division 1, General Requirements, are a part of this Section and shall be binding on the Contractor and/or Subcontractor
- B. Basic Electrical Requirements specifically applicable to Division 26 Sections.

1.2 DESCRIPTION OF WORK

- A. Provide all labor, materials, and equipment necessary to properly install a grounding system conductor in all new branch wiring and feeder installations which shall be in full compliance with all applicable Codes as approved by the Authorities having jurisdiction. The secondary distribution system shall include a grounding conductor in all raceways in addition to the return path of the metallic conduit.
- B. In general, all electrical equipment (metallic conduit, motor frames, panelboards, etc.) shall be bonded together with a green insulated or bare copper system grounding conductor in accordance with specific rules of Article 250 of the N.E.C. and State codes. Bonding conductor through the raceway system shall be continuous from main switch ground bus to panel ground bar of each panelboard, and from panel grounding bar of each panelboard to branch circuit equipment and devices.
- C. All raceways shall have an insulated copper system ground conductor throughout the entire length of circuit installed with-in conduit in strict accordance with NEC. Grounding conductor shall be included in total conduit fill determining conduit sizes, even though not included or shown on drawings. Grounding conductors run with feeders in PVC conduit outside of building(s) shall be bare only.
- D. Section Includes
  - 1. Grounding electrodes and conductors.
  - 2. Equipment grounding conductors.
  - 3. Bonding.

1.3 REFERENCES

- A. ANSI/NFPA 70 - National Electrical Code.

1.4 REGULATORY REQUIREMENTS

- A. Conform to requirements of ANSI/NFPA 70.
- B. Furnish products listed and classified by Underwriters Laboratories, Inc. as suitable for purpose specified and shown.

## PART 2 - PRODUCTS

### 2.1 MECHANICAL CONNECTORS

- A. All grounding connectors shall be in accordance with U.L. 467 and U.L. listed for use with rods, conductors, reinforcing bars, etc., as appropriate.
- B. Connectors and devices used in the grounding systems shall be fabricated of copper or bronze materials, and properly applied for their intended use. Specified items of designated manufacturers indicate required criteria and equal products may be provided if approved. All connectors and devices shall be compatible with the surfaces being bonded and shall not cause galvanic corrosion by dissimilar metals. Materials in items not listed herein shall be of equal quality to the following specified items:
  - 1. Lugs: substantial construction, of cast copper or cast bronze, with "ground" (micro-flat) surfaces equal to Burndy QQA Series, two hole or T&B equal. Light weight and "competitive" devices shall be rejected.
  - 2. Grounding and Bonding Bushings: Malleable iron, Thomas and Betts (T&B), or equal.
  - 3. Piping Clamps: Burndy "GAR-TC series" with two hole compression lug under U-Bolt nut or T&B equal.
  - 4. Grounding Screw and Pigtail: Raco No. 983 or equal.
  - 5. Fastening hardware: Grade 5 silicone bronze with beveled washers. Copperplate is not acceptable.
- C. Mechanical lugs or wire terminals shall be used to bond ground wires together or to junction boxes and panel cabinets and shall be manufactured by Anderson, Buchanan, Thomas and Betts Co., or Burndy.

### 2.2 WIRE

- A. Material: Stranded copper.
- B. Size: Size to meet NFPA 70 requirements as a minimum, increase size if called for on drawings, in these specifications, or as required for voltage drop.
- C. Insulated THHN/THWN (or bare as noted elsewhere).

## PART 3 - EXECUTION

### 3.1 GENERAL

- A. Install products in accordance with manufacturer's instructions.
- B. Install grounding electrodes conductor, bonding conductors, etc. with all required

accessories.

- C. Grounding shall meet (or exceed as required to meet these specifications) all the requirements of the N.E.C., the NFPA, and applicable standards of IEEE.
- D. Where there is a conflict between these specifications and the above applicable codes/standards, or between this section of these specifications and other sections, then the most stringent or excessive requirement shall govern. Where there is an omission of a code/standard requirement in these specifications then the code/standard requirements shall be complied with.
- E. Requirement in these specifications to comply with a specific code/standard article, etc. is not to be construed as deleting of requirements of other applicable codes/standards and their articles, etc.

### 3.2 GROUNDING ELECTRODE CONDUCTOR

- A. Conductor shall be sized to meet (or exceed as required to meet these specifications and/or drawings) the requirements of NEC.

### 3.3 EQUIPMENT GROUNDING CONDUCTOR

- A. Grounding conductors shall be provided with every circuit to meet (or exceed as required to meet these specifications and/or drawings) the requirements of NEC.
- B. At every voltage level, new portions of the electrical power distribution system shall be grounded with a dedicated copper conductor which extends from termination back to power source in supply panelboard.
- C. Provide separate, insulated (bare if with feeder in PVC conduit outside of building(s)) conductor within each feeder and branch circuit raceway. Terminate each end on suitable lug, bus, or bushing.
- D. Except as otherwise indicated, each feeder raceway on the load side of the service entrance shall contain a ground conductor sized as indicated and where not shown shall be sized to meet (or exceed as required to meet these specifications and/or drawings) the requirements of NEC. Conductor shall be connected to the equipment grounding bus in switchboards and panelboards, to the grounding bus in all motor control centers, and as specified, to lighting fixtures, motors and other types of equipment and outlets. The ground shall be in addition to the metallic raceway and shall be properly connected thereto, using a lug device located within each item enclosure at the point of electric power connections to permit convenient inspection.
- E. Provide green insulated ground wire for all grounding type receptacles and for equipment of all voltages. In addition to grounding strap connection to metallic outlet boxes, a supplemental grounding wire and screw equal to Raco No. 983 shall be provided to connect receptacle ground terminal to the box.
- F. All plugstrips and metallic surface raceway shall contain a green insulation ground conductor from supply panel ground bus connected to grounding screw on each receptacle in strip and to strip channel. Conductor shall be continuous.

- G. Where integral grounding conductor is specified elsewhere in bus duct construction, provide equivalent capacity conductor from supply switchboard or panelboard grounding bus to the bus duct grounding conductor. Bond integral conductor to bus duct enclosure at each tap and each termination.
- H. All motors, all heating coil assemblies, and all building equipment requiring flexible connections shall have a green grounding conductor properly connected to the frames and extending continuously inside conduit with circuit conductors to the supply source bus with approved connectors regardless of conduit size or type. This shall include Food Service equipment, Laundry equipment, and all other "Equipment By Owner" to which an electric conduit is provided under this Division.

### 3.4 MISCELLANEOUS GROUNDING CONNECTIONS

- A. Provide bonding to meet regulatory requirements.
- B. Required connections to building steel shall be with U.L. approved non-reversible crimp type ground lugs exothermically welded to bus bar that is either exothermically welded to steel or bolted to steel in locations where weld will affect the structural properties of the steel.
- C. Grounding conductors shall: be so installed as to permit shortest and most direct path from equipment to ground; be installed in conduit; be bonded to conduit at both ends when conduit is metal; have connections accessible for inspection; and made with approved solderless connectors brazed (or bolted) to the equipment or to be grounded; in NO case be a current carrying conductor; have a green jacket unless it is bare copper; be run in conduit with power and branch circuit conductors. The main grounding electrodes conductor shall be exothermically welded to ground rods, water pipe, and building steel.
- D. All surfaces to which grounding connections are made shall be thoroughly cleaned to maximum conductive condition immediately before connections are made thereto. Metal rustproofing shall be removed at grounding contact surfaces, for 0 ohms by digital Vm. Exposed bare metal at the termination point shall be painted.
- E. All ground connections that are buried or in otherwise inaccessible locations, shall be welded exothermically. The weld shall provide a connection which shall not corrode or loosen and which shall be equal or larger in size than the conductors joined together. The connection shall have the same current carrying capacity as the largest conductor.
- F. Install ground bushings on all metal conduits entering enclosures where the continuity of grounding is broken between the conduit and enclosure (i.e. metal conduit stub-up into a motor control center enclosure or at ground bus bar). Provide an appropriately sized bond jumper from the ground bushing to the respective equipment ground bus or ground bus bar.
- G. Each feeder metallic conduit shall be bonded at all discontinuities, including at switchboards and all subdistribution and branch circuit panels with conductors in accordance with Table 250-95 of NEC for parallel return with respective interior

grounding conductor.

- H. Grounding provisions shall include double locknuts on all heavywall conduits.
- I. Bond all metal parts of pole light fixtures to ground rod at base.

3.5 FIELD QUALITY CONTROL

- A. Inspect grounding and bonding system conductors and connections for tightness and proper installation.
- B. Use suitable test instrument to measure resistance to ground of system. Perform testing in accordance with test instrument manufacturer's recommendations using the fall-of-potential method.

END OF SECTION 26 05 26



PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Instructions to bidders, The General Conditions of the Contract for Construction, the Supplementary General Conditions and Division 1, General Requirements, are a part of this Section and shall be binding on the Contractor and/or Subcontractor
- B. Basic Electrical Requirements specifically applicable to Division 26, 27 and 28 Sections.

1.2 DESCRIPTION OF SYSTEM

- A. Furnish and install all supports, hangers and inserts required to mount fixtures, conduit, cables, pullboxes and other equipment furnished under this Division.
- B. Section Includes:
  - 1. Conduit and equipment supports.
  - 2. Anchors and fasteners.

1.3 REFERENCES

- A. NECA - National Electrical Contractors Association.
- B. ANSI/NFPA 70 - National Electrical Code.

1.4 REGULATORY REQUIREMENTS

- A. Conform to requirements of ANSI/NFPA 70.
- B. Furnish products listed and classified by Underwriters Laboratories, Inc. as suitable for purpose specified and shown.

1.5 SUBMITTALS

- A. Submit catalog cut sheet showing brand of conduit supporting hardware to be used and (where applicable) showing that conduit supporting hardware is U.L. listed and/or labeled, and manufactured in the United States, and materials.
- B. Submit catalog cut sheet on all types of conduit support fittings, hardware, straps, and hangers.
- C. Product data shall be submitted for approval on:
  - 1. Mounting hardware and inserts.
  - 2. Conduit straps, hangers and fittings.
  - 3. Supporting channel.
- D. Product data shall prove compliance with Specifications, National Electric Code, National Board of Fire Underwriters, manufacturer's specifications and written installation data.



PART 2 - PRODUCTS

2.1 PRODUCT REQUIREMENTS

- A. Materials and Finishes: Provide corrosion resistance.
- B. Provide materials, sizes, and types of anchors, fasteners and supports to carry the loads of equipment and conduit. Consider weight of wire in conduit when selecting products.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install products in accordance with manufacturer's instructions.
- B. Provide anchors, fasteners, and supports in accordance with NECA "Standard of Installation".
- C. Do not fasten supports to pipes, ducts, mechanical equipment, and conduit.
- D. Do not use spring steel clips and clamps and metal banding straps.
- E. Concrete/insert anchors, thread rods, or similar fasteners installed on side or bottom of pre-stressed beams are not acceptable.
- F. Obtain permission from Architect/Engineer before using powder-actuated anchors.
- G. Obtain permission from Architect/Engineer before drilling or cutting structural members.
- H. Fabricate supports from structural steel or steel channel. Rigidly weld members or use hexagon head bolts to present neat appearance with adequate strength and rigidity. Use spring lock washers under all nuts.
- I. Install surface-mounted cabinets and panelboards with minimum of four anchors.
- J. In wet and damp locations use stainless steel channel supports to stand cabinets and panelboards 3/4 inch (25 mm) off wall.
- K. Use sheet metal channel to bridge studs above and below cabinets and panelboards recessed in hollow partitions.
- L. All items shall be supported directly from structural portion of the building. All above ceiling or ceiling mounted items shall be supported directly from building superstructure, except standard lay-in type ceiling lighting fixtures, and small outlet boxes for devices such as exit lights. Lay-in type ceiling fixtures shall be provided with supplemental support wire or chain as specified elsewhere. Outlet boxes shall be attached to ceiling system by means of approved mounting brackets and shall also be provided with supplemental threaded rod hangers from super structure as specified elsewhere. No sagging of the ceiling will be permitted. Adjust supplemental supports

accordingly.

- M. Wire shall not be used as a support. Boxes and conduit shall not be supported or fastened to ceiling suspension wires or to ceiling channels. Support independent of ceiling per NEC-article 300-11(latest addition). Lighting fixtures and devices shall have supplemental supporting as specified herein.
- N. This Contractor shall lay out and install his work in advance of the laying of floors or walls, and shall furnish and install all sleeves that may be required for openings through floors, wall, etc. Where plans call for conduit to be run exposed, this Contractor shall furnish and install all inserts and clamps for the supporting of conduit. If this Contractor does not properly install all sleeves and inserts required, he will be required to do the necessary cutting and patching, later at his own expense, to the satisfaction of the Architect.
- O. All conduits shall be securely fastened in place per NEC; and hangers, supports or fastenings shall be provided at each elbow and at the end of each straight run terminating at a box or cabinet. The use of perforated iron for supporting conduits will not be permitted. The required strength of the supporting equipment and size and type of anchors shall be based on the combined weight of conduit, hanger and cables.
- P. Parallel groups of conduit or conduit runs in a similar direction; they shall be grouped together and supported by means of 1½" x 1½", 12 gauge, pre-galvanized zinc (B-Line or approved substitution), conduit channel trapeze hanger system (racking) consisting of concrete inserts, threaded rods, washers, nuts, locknut washers, etc. Where galvanized "L" angle iron is used, conduits shall be individually fastened to the cross members with malleable iron hangars listed and approved for use on "L" angle iron, bolted with proper size cadmium machine bolts, washers and nuts. Conduits supported to unistrut channel shall be individually fastened with two piece unistrut straps with bolts and nuts listed and approved for such use. Mineralak hangars or one hole type straps fastened to Kindorf racking is not acceptable. Beam clamps shall be malleable iron.
- Q. Hangers for PVC coated conduit shall be PVC coated galvanized conduit.
- R. On concrete or brick construction, insert anchors shall be installed with round head machine screws. In wood construction, round head screws shall be used. An electric or hand drill shall be used for drilling holes for all inserts in brick, concrete or similar construction. In brick, inserts shall be near center of brick, not near edge or in joint. Where steel members occur, same shall be drilled and tapped, and round head machine screws shall be used. All screws, bolts, washers, etc., used for supporting conduit or outlets shall be fabricated from rust-resisting metal, or approved substitution. Fasteners similar to "TAP-CON" self tapping power driven type are acceptable on interior block walls only. Plastic anchors and explosive fasteners are not acceptable.
- S. Threaded rod hangars shall be galvanized continuous thread type, minimum 3/8" diameter. Increase size as required to support assembly. Bending of rod hangars is not permitted.
- T. Support channel (unistrut) shall be 1-1/2" x 1-1/2", 12 gauge, pre-galvanized zinc (B-

- Line or approved substitution). 3/4" x 3/4" unistrut channel is acceptable on wall-mounted applications to support raceways at panelboards or where special written permission is granted by A/E.
- U. Conduit support racks shall be minimum of 24", increase, distance as required for quantity of conduits and spare capacity) provide space on each rack for 25 percent additional conduits. Group conduits on channel racking adjacent to each other at sides, allowing all remaining unused space at center as spare capacity. Spacing between conduits shall not exceed 1" unless written permission is granted by architect/engineer.
  - V. Each rack shall be provided with minimum of two (2) all-thread rod hangars located at the ends of the channel. Increase number of hangars as required to support assembly.
  - W. In general conduit supporting devices such as spring type conduit clips manufactured by Caddy Corporation are not acceptable. Caddy type conduit clips with snap close strap is acceptable for use in dry interior concealed locations, where steel peril type construction is used. Back to back arrangement or attachment to other raceways, piping, etc. is not permitted.
  - X. Concrete/insert anchors, thread rods, or similar fasteners installed on side or bottom of pre-stressed beams are not acceptable.
  - Y. All hangers, clips and accessories for supporting shall be UL listed.
  - Z. Support systems shall meet requirements for seismic loads. Refer to general Conditions of the specifications.
  - AA. All hangers and mounting hardware clamps shall be made of durable material suitable for the application involved. Excessive corrosive conditions, exterior and wet locations (i.e. kitchens, wash-down, etc.) conditions are encountered, hanger assemblies, supporting hardware and materials shall be made of malleable iron, hot dipped galvanizing steel, or stainless steel.
  - BB. Attachment of cables to ceiling system or support wires, regardless if support wire is a dedicated wire, is prohibited. Support cables directly to building superstructure. Only a vertical cable drop down to a recessed lay-in luminaire can be supported to the fixture support wire with approved fasteners. Vertical cable drop attachment may be by means of Ty-Rap cable tie if approved by the Local Inspecting Authority having jurisdiction and UL plenum rated within plenum air environments.
  - CC. Materials installed in environmental air plenum s shall be UL Plenum Listed and bear the appropriate UL markings.
  - DD. Metal Clad Cables shall be securely fastened with UL listed devices intended for such use. Cables attached to metal stub framing system shall be one hole MC cable straps with screws and/or Caddy 449 series "snap-clip" fasteners or Caddy MX3 Quick support. Caddy Quick MX3 fasteners shall be provided with supplemental screw fasteners to metal stub framing.

- EE. Free-air cable, where specified and permitted elsewhere, shall be supported directly from the superstructure with UL Listed devices intended for such use. Ty-Rap cable ties in conjunction with UL Listed support devices shall be UL plenum rated within plenum air environments.

END OF SECTION 26 05 29



PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

- 1. Restraint channel bracings
- 2. Restraint cables.
- 3. Seismic-restraint accessories.
- 4. Mechanical anchor bolts.
- 5. Adhesive anchor bolts.

B. Related Requirements:

- 1. Section 260529 "Hangers and Supports for Electrical Systems" for commonly used electrical supports and installation requirements.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

- 1. Illustrate and indicate style, material, strength, fastening provision, and finish for each type and size of seismic-restraint component used.
  - a. Tabulate types and sizes of seismic restraints, complete with report numbers and rated strength in tension and shear as evaluated by an agency acceptable to authorities having jurisdiction.
  - b. Annotate to indicate application of each product submitted and compliance with requirements.

1.4 INFORMATIONAL SUBMITTALS

- A. Coordination Drawings: Show coordination of seismic bracing for electrical components with other systems and equipment in the vicinity, including other supports and seismic restraints.
- B. Qualification Data: For professional engineer and testing agency.
- C. Welding certificates.

- D. Field quality-control reports.

1.5 QUALITY ASSURANCE

- A. Comply with seismic-restraint requirements in the IBC unless requirements in this Section are more stringent.
- B. Welding Qualifications: Qualify procedures and personnel according to AWS D1.1/D1.1M, "Structural Welding Code - Steel."
- C. Comply with NFPA 70.

PART 2 - PRODUCTS

2.1 RESTRAINT CHANNEL BRACINGS

- A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:
  - 1. B-line, an Eaton business.
  - 2. Hilti, Inc.
  - 3. Mason Industries, Inc.
  - 4. Unistrut; Part of Atkore International.
- B. Description: MFMA-4, shop- or field-fabricated bracing assembly made of slotted steel channels with accessories for attachment to braced component at one end and to building structure at the other end, with other matching components, and with corrosion-resistant coating; rated in tension, compression, and torsion forces.

2.2 RESTRAINT CABLES

- A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:
  - 1. Kinetics Noise Control, Inc.
  - 2. Vibration & Seismic Technologies, LLC.
  - 3. Vibration Mountings & Controls, Inc.
- B. Restraint Cables: ASTM A 603 galvanized-steel cables. End connections made of steel assemblies with thimbles, brackets, swivel, and bolts designed for restraining cable service; with a minimum of two clamping bolts for cable engagement.

2.3 SEISMIC-RESTRAINT ACCESSORIES

- A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:
1. B-line, an Eaton business.
  2. Kinetics Noise Control, Inc.
  3. Mason Industries, Inc.
- B. Hanger-Rod Stiffener: Reinforcing steel angle clamped to hanger rod.
- C. Hinged and Swivel Brace Attachments: Multifunctional steel connectors for attaching hangers to rigid channel bracings and restraint cables.
- D. Bushings for Floor-Mounted Equipment Anchor Bolts: Neoprene bushings designed for rigid equipment mountings and matched to type and size of anchor bolts and studs.
- E. Bushing Assemblies for Wall-Mounted Equipment Anchorage: Assemblies of neoprene elements and steel sleeves designed for rigid equipment mountings and matched to type and size of attachment devices used.
- F. Resilient Isolation Washers and Bushings: One-piece, molded, oil- and water-resistant neoprene, with a flat washer face.

2.4 MECHANICAL ANCHOR BOLTS

- A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:
1. B-line, an Eaton business.
  2. Hilti, Inc.
  3. Mason Industries, Inc.
- B. Mechanical Anchor Bolts: Drilled-in and stud-wedge or female-wedge type in zinc-coated steel for interior applications and stainless steel for exterior applications. Select anchor bolts with strength required for anchor and as tested according to ASTM E 488.

2.5 ADHESIVE ANCHOR BOLTS

- A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:
1. Hilti, Inc.
  2. Kinetics Noise Control, Inc.
  3. Mason Industries, Inc.



- B. Adhesive Anchor Bolts: Drilled-in and capsule anchor system containing PVC or urethane methacrylate-based resin and accelerator, or injected polymer or hybrid mortar adhesive. Provide anchor bolts and hardware with zinc-coated steel for interior applications and stainless steel for exterior applications. Select anchor bolts with strength required for anchor and as tested according to ASTM E 488.

### PART 3 - EXECUTION

#### 3.1 EXAMINATION

- A. Examine areas and equipment to receive vibration isolation and seismic-control devices for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
- B. Examine roughing-in for reinforcement and cast-in-place anchors to verify actual locations before installation.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

#### 3.2 APPLICATIONS

- A. Multiple Raceways or Cables: Secure raceways and cables to trapeze member with clamps approved for application by an agency acceptable to authorities having jurisdiction.
- B. Hanger-Rod Stiffeners: Install hanger-rod stiffeners as required to prevent buckling of hanger rods caused by seismic forces.
- C. Strength of Support and Seismic-Restraint Assemblies: Where not indicated, select sizes of components so strength will be adequate to carry present and future static and seismic loads within specified loading limits.

#### 3.3 SEISMIC-RESTRAINT DEVICE INSTALLATION

- A. Coordinate the location of embedded connection hardware with supported equipment attachment and mounting points and with requirements for concrete reinforcement and formwork specified in Section 033000 "Cast-in-Place Concrete."
- B. Equipment and Hanger Restraints:
  - 1. Install resilient, bolt-isolation washers on equipment anchor bolts where clearance between anchor and adjacent surface exceeds 0.125 inch (3.2 mm).
  - 2. Install seismic-restraint devices using methods approved by an agency acceptable to authorities having jurisdiction providing required submittals for component.

- C. Install cables so they do not bend across edges of adjacent equipment or building structure.
- D. Install bushing assemblies for mounting bolts for wall-mounted equipment, arranged to provide resilient media where equipment or equipment-mounting channels are attached to wall.
- E. Attachment to Structure: If specific attachment is not indicated, anchor bracing to structure at flanges of beams, at upper truss chords of bar joists, or at concrete members.
- F. Drilled-in Anchors:
  - 1. Identify position of reinforcing steel and other embedded items prior to drilling holes for anchors. Do not damage existing reinforcing or embedded items during coring or drilling. Notify the structural engineer if reinforcing steel or other embedded items are encountered during drilling. Locate and avoid prestressed tendons, electrical and telecommunications conduit, and gas lines.
  - 2. Do not drill holes in concrete or masonry until concrete, mortar, or grout has achieved full design strength.
  - 3. Wedge Anchors: Protect threads from damage during anchor installation. Heavy-duty sleeve anchors shall be installed with sleeve fully engaged in the structural element to which anchor is to be fastened.
  - 4. Adhesive Anchors: Clean holes to remove loose material and drilling dust prior to installation of adhesive. Place adhesive in holes proceeding from the bottom of the hole and progressing toward the surface in such a manner as to avoid introduction of air pockets in the adhesive.
  - 5. Set anchors to manufacturer's recommended torque using a torque wrench.
  - 6. Install zinc-coated steel anchors for interior and stainless-steel anchors for exterior applications

### 3.4 ACCOMMODATION OF DIFFERENTIAL SEISMIC MOTION

- A. Install flexible connections in runs of raceways, cables, wireways, cable trays, and busways where they cross seismic joints, where adjacent sections or branches are supported by different structural elements, and where connection is terminated to equipment that is anchored to a different structural element from the one supporting them as they approach equipment.

### 3.5 ADJUSTING

- A. Adjust restraints to permit free movement of equipment within normal mode of operation.

END OF SECTION 26 05 48



PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
  - 1. Color and legend requirements for raceways, conductors, and warning labels
  - 2. Labels.
  - 3. Tapes and stencils.
  - 4. Tags.
  - 5. Cable ties.
  - 6. Paint for identification.
  - 7. Fasteners for labels.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.
  - 1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for electrical identification products.
- B. Identification Schedule: For each piece of electrical equipment and electrical system components to be an index of nomenclature for electrical equipment and system components used in identification labels. Use same designations indicated on Drawings.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Comply with ASME A13.1
- B. Comply with NFPA 70.
- C. Comply with 29 CFR 1910.144 and 29 CFR 1910.145.
- D. Comply with ANSI Z535.4 for safety signs and labels.

- E. Comply with NFPA 70E and Section 260574 "Overcurrent Protective Device Arc-Flash Study" requirements for arc-flash warning labels.
- F. Adhesive-attached labeling materials, including label stocks, laminating adhesives, and inks used by label printers, shall comply with UL 969.
- G. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes.
  - 1. Temperature Change: 120 deg F (67 deg C), ambient; 180 deg F (100 deg C), material surfaces

## 2.2 COLOR AND LEGEND REQUIREMENTS

- A. Raceways and Cables Carrying Circuits at 600 V or Less:
  - 1. Black letters on an orange field.
  - 2. Legend: Indicate voltage and system or service type.
- B. Color-Coding for Phase- and Voltage-Level Identification, 600 V or Less: Use colors listed below for ungrounded service, feeder, and branch-circuit conductors.
  - 1. Color shall be factory applied.
  - 2. Colors for 208/120-V Circuits:
    - a. Phase A: Black.
    - b. Phase B: Red.
    - c. Phase C: Blue.
    - d. Neutral: White.
  - 3. Colors for 480/277-V Circuits:
    - a. Phase A: Brown.
    - b. Phase B: Orange.
    - c. Phase C: Yellow.
  - 4. Color for Neutral: White.
  - 5. Color for Equipment Grounds: Green.
- C. Warning Label Colors:
  - 1. Identify system voltage with black letters on an orange background.
- D. Equipment Identification Labels:
  - 1. Black letters on a white field.

2.3 LABELS

- A. Vinyl Wraparound Labels: Preprinted, flexible labels laminated with a clear, weather- and chemical-resistant coating and matching wraparound clear adhesive tape for securing label ends.
1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:
    - a. Brady Corporation.
    - b. Emedco.
    - c. LEM Products Inc.
    - d. Marking Services, Inc.
    - e. Panduit Corp.
    - f. Seton Identification Products.
- B. Self-Adhesive Wraparound Labels: Preprinted, 3-mil- (0.08-mm-) thick, polyester flexible label with acrylic pressure-sensitive adhesive.
1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:
    - a. Brady Corporation.
    - b. emedco.
    - c. LEM Products Inc.
    - d. Marking Services, Inc.
    - e. Panduit Corp.
    - f. Seton Identification Products.
  2. Self-Lamination: Clear; UV-, weather- and chemical-resistant; self-laminating, protective shield over the legend. Labels sized such that the clear shield overlaps the entire printed legend.
  3. Marker for Labels: Machine-printed, permanent, waterproof, black ink recommended by printer manufacturer.
- C. Self-Adhesive Labels: Polyester, thermal, transfer-printed, 3-mil- (0.08-mm-) thick, multicolor, weather- and UV-resistant, pressure-sensitive adhesive labels, configured for intended use and location.
1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:
    - a. Brady Corporation.
    - b. emedco.
    - c. LEM Products Inc.
    - d. Marking Services, Inc.
    - e. Panduit Corp.

- f. Seton Identification Products.
2. Minimum Nominal Size:
- a. 1-1/2 by 6 inches (37 by 150 mm)for raceway and conductors.
  - b. 3-1/2 by 5 inches (76 by 127 mm)for equipment.
  - c. As required by authorities having jurisdiction.
- 2.4 TAPES AND STENCILS
- A. Marker Tapes: Vinyl or vinyl-cloth, self-adhesive wraparound type, with circuit identification legend machine printed by thermal transfer or equivalent process.
- 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:
    - a. Carlton Industries, LP.
    - b. Champion America.
    - c. Ideal Industries, Inc.
- B. Self-Adhesive Vinyl Tape: Colored, heavy duty, waterproof, fade resistant; not less than 3 mils (0.08 mm) thick by 1 to 2 inches (25 to 50 mm) wide; compounded for outdoor use.
- 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:
    - a. Brady Corporation.
    - b. Carlton Industries, LP.
    - c. emedco.
- C. Tape and Stencil: 4-inch- (100-mm-) wide black stripes on 10-inch (250-mm) centers placed diagonally over orange background and is 12 inches (300 mm) wide. Stop stripes at legends.
- 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:
    - a. LEM Products Inc.
    - b. Marking Services, Inc.
    - c. Seton Identification Products.
- D. Underground-Line Warning Tape:
- 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:

- a. Ideal Industries, Inc.
- b. LEM Products Inc.
- c. Marking Services, Inc.
- d. Seton Identification Products.

2. Tape:

- a. Recommended by manufacturer for the method of installation and suitable to identify and locate underground electrical and communications utility lines.
- b. Printing on tape shall be permanent and shall not be damaged by burial operations.
- c. Tape material and ink shall be chemically inert and not subject to degradation when exposed to acids, alkalis, and other destructive substances commonly found in soils.

3. Color and Printing:

- a. Comply with ANSI Z535.1, ANSI Z535.2, ANSI Z535.3, ANSI Z535.4, and ANSI Z535.5.
- b. Inscriptions for Red-Colored Tapes: "ELECTRIC LINE, HIGH VOLTAGE".
- c. Inscriptions for Orange-Colored Tapes: "TELEPHONE CABLE, CATV CABLE, COMMUNICATIONS CABLE, OPTICAL FIBER CABLE".

- E. Stenciled Legend: In nonfading, waterproof, ink or paint. Minimum letter height shall be 1 inch (25 mm).

2.5 TAGS

- A. Metal Tags: Brass or aluminum, 2 by 2 by 0.05 inch (50 by 50 by 1.3 mm), with stamped legend, punched for use with self-locking cable tie fastener.

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:

- a. Brady Corporation.
- b. Carlton Industries, LP.
- c. Seton Identification Products.

- B. Nonmetallic Preprinted Tags: Polyethylene tags, 0.023 inch (0.58 mm) thick, color-coded for phase and voltage level, with factory printed permanent designations; punched for use with self-locking cable tie fastener.

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:

- a. Brady Corporation.
- b. Carlton Industries, LP.



- c. Panduit Corp.
- d. Seton Identification Products.

## 2.6 CABLE TIES

- A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:
  - 1. Ideal Industries, Inc.
  - 2. Marking Services, Inc.
  - 3. Panduit Corp.
- B. General-Purpose Cable Ties: Fungus inert, self-extinguishing, one piece, self-locking, and Type 6/6 nylon.
  - 1. Minimum Width: 3/16 inch (5 mm).
  - 2. Tensile Strength at 73 Deg F (23 Deg C) according to ASTM D 638: 12,000 psi (82.7 MPa).
  - 3. Temperature Range: Minus 40 to plus 185 deg F (Minus 40 to plus 85 deg C).
  - 4. Color: Black, except where used for color-coding.
- C. UV-Stabilized Cable Ties: Fungus inert, designed for continuous exposure to exterior sunlight, self-extinguishing, one piece, self-locking, and Type 6/6 nylon.
  - 1. Minimum Width: 3/16 inch (5 mm).
  - 2. Tensile Strength at 73 Deg F (23 Deg C) according to ASTM D 638: 12,000 psi (82.7 MPa).
  - 3. Temperature Range: Minus 40 to plus 185 deg F (Minus 40 to plus 85 deg C).
  - 4. Color: Black.
- D. Plenum-Rated Cable Ties: Self-extinguishing, UV stabilized, one piece, and self-locking.
  - 1. Minimum Width: 3/16 inch (5 mm).
  - 2. Tensile Strength at 73 Deg F (23 Deg C) according to ASTM D 638: 7000 psi (48.2 MPa).
  - 3. UL 94 Flame Rating: 94V-0.
  - 4. Temperature Range: Minus 50 to plus 284 deg F (Minus 46 to plus 140 deg C).
  - 5. Color: Black.

## 2.7 MISCELLANEOUS IDENTIFICATION PRODUCTS

- A. Paint: Comply with requirements in painting Sections for paint materials and application requirements. Retain paint system applicable for surface material and location (exterior or interior).
- B. Fasteners for Labels: Self-tapping, stainless-steel screws or stainless-steel machine screws with nuts and flat and lock washers.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Self-Adhesive Identification Products: Before applying electrical identification products, clean substrates of substances that could impair bond, using materials and methods recommended by manufacturer of identification product.

3.2 INSTALLATION

- A. Verify and coordinate identification names, abbreviations, colors, and other features with requirements in other Sections requiring identification applications, Drawings, Shop Drawings, manufacturer's wiring diagrams, and operation and maintenance manual. Use consistent designations throughout Project.
- B. Install identifying devices before installing acoustical ceilings and similar concealment.
- C. Verify identity of each item before installing identification products.
- D. Coordinate identification with Project Drawings, manufacturer's wiring diagrams, and operation and maintenance manual.
- E. Apply identification devices to surfaces that require finish after completing finish work.
- F. System Identification for Raceways and Cables under 600 V: Identification shall completely encircle cable or conduit. Place identification of two-color markings in contact, side by side.
  - 1. Secure tight to surface of conductor, cable, or raceway.
- G. Elevated Components: Increase sizes of labels and letters to those appropriate for viewing from the floor.
- H. Accessible Fittings for Raceways: Identify the covers of each junction and pull box of the following systems with the wiring system legend and system voltage. System legends shall be as follows:
  - 1. "(INSERT VOLTAGE) POWER."
- I. Vinyl Wraparound Labels:
  - 1. Secure tight to surface of raceway or cable at a location with high visibility and accessibility.
  - 2. Attach labels that are not self-adhesive type with clear vinyl tape, with adhesive appropriate to the location and substrate.
- J. Snap-around Labels: Secure tight to surface at a location with high visibility and accessibility.

- K. Self-Adhesive Wraparound Labels: Secure tight to surface at a location with high visibility and accessibility.
- L. Self-Adhesive Labels:
  - 1. On each item, install unique designation label that is consistent with wiring diagrams, schedules, and operation and maintenance manual.
  - 2. Unless otherwise indicated, provide a single line of text with 1/2-inch- (13-mm-) high letters on 1-1/2-inch- (38-mm-) high label; where two lines of text are required, use labels 2 inches (50 mm) high.
- M. Snap-around Color-Coding Bands: Secure tight to surface at a location with high visibility and accessibility.
- N. Heat-Shrink, Preprinted Tubes: Secure tight to surface at a location with high visibility and accessibility.
- O. Marker Tapes: Secure tight to surface at a location with high visibility and accessibility.
- P. Self-Adhesive Vinyl Tape: Secure tight to surface at a location with high visibility and accessibility.
  - 1. Field-Applied, Color-Coding Conductor Tape: Apply in half-lapped turns for a minimum distance of 6 inches (150 mm) where splices or taps are made. Apply last two turns of tape with no tension to prevent possible unwinding.
- Q. Tape and Stencil: Comply with requirements in painting Sections for surface preparation and paint application.
- R. Floor Marking Tape: Apply stripes to finished surfaces following manufacturer's written instructions.
- S. Underground Line Warning Tape:
  - 1. During backfilling of trenches, install continuous underground-line warning tape directly above cable or raceway at 6 to 8 inches (150 to 200 mm) below finished grade. Use multiple tapes where width of multiple lines installed in a common trench exceeds 16 inches (400 mm) overall.
  - 2. Limit use of underground-line warning tape to direct-buried cables.
  - 3. Install underground-line warning tape for direct-buried cables and cables in raceways.
- T. Metal Tags:
  - 1. Place in a location with high visibility and accessibility.
  - 2. Secure using plenum-rated cable ties.
- U. Cable Ties: General purpose, for attaching tags, except as listed below:
  - 1. Outdoors: UV-stabilized nylon.
  - 2. In Spaces Handling Environmental Air: Plenum rated.

3.3 IDENTIFICATION SCHEDULE

- A. Install identification materials and devices at locations for most convenient viewing without interference with operation and maintenance of equipment. Install access doors or panels to provide view of identifying devices.
- B. Identify conductors, cables, and terminals in enclosures and at junctions, terminals, pull points, and locations of high visibility. Identify by system and circuit designation.
- C. Accessible Raceways and Metal-Clad Cables, 600 V or Less, for Service, Feeder, and Branch Circuits, More Than 30 A and 120 V to Ground: Identify with self-adhesive raceway labels.
  - 1. Locate identification at changes in direction, at penetrations of walls and floors, at 50-foot (15-m) maximum intervals in straight runs, and at 25-foot (7.6-m) maximum intervals in congested areas.
- D. Accessible Fittings for Raceways and Cables within Buildings: Identify the covers of each junction and pull box of the following systems with self-adhesive labels containing the wiring system legend and system voltage. System legends shall be as follows:
  - 1. "(INSERT VOLTAGE) POWER."
- E. Power-Circuit Conductor Identification, 600 V or Less: For conductors in vaults, pull and junction boxes, manholes, and handholes, use self-adhesive wraparound labels to identify the phase.
  - 1. Locate identification at changes in direction, at penetrations of walls and floors, at 50-foot (15-m) maximum intervals in straight runs, and at 25-foot (7.6-m) maximum intervals in congested areas.
- F. Control-Circuit Conductor Identification: For conductors and cables in pull and junction boxes, and handholes, use self-adhesive labels with the conductor or cable designation, origin, and destination.
- G. Control-Circuit Conductor Termination Identification: For identification at terminations, provide self-adhesive labels with the conductor designation.
- H. Locations of Underground Lines: Underground-line warning tape for power, lighting, communication, and control wiring and optical-fiber cable.
- I. Workspace Indication: Apply floor marking tape to finished surfaces. Show working clearances in the direction of access to live parts, as applicable. Marking should be confined to unfinished spaces. Workspace shall comply with NFPA 70 and 29 CFR 1926.403 unless otherwise indicated. Do not install at flush-mounted panelboards and similar equipment in finished spaces.
- J. Equipment Identification Labels:
  - 1. Equipment to Be Labeled:
    - a. Enclosures and electrical cabinets.
    - b. Access doors and panels for concealed electrical items.
    - c. Lighting control equipment

- d. Remote-controlled switches, dimmer modules, and control devices.

END OF SECTION 26 05 53

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
  - 1. Wireless motion sensors
  - 2. Wireless daylight sensors
  - 3. Hardwired load control modules with wireless communication inputs
  - 4. Hardwired wallbox motion sensors with wireless communication inputs
  - 5. Wireless control stations / keypads
  - 6. Hardwired wall dimmers and switches with wireless communication inputs
  - 7. Hubs for centralized control, monitoring and system integration (with wireless communication)
  - 8. Device faceplates

1.3 DEFINITIONS

- A. Fade Rate: The time it takes each zone to arrive at the next scene, dependent on the degree of change in lighting level.
- B. Low Voltage: As defined in NFPA 70, the term for circuits and equipment operating at less than 50 V or for remote-control, signaling, and power-limited circuits.
- C. RFI: Radio-frequency interference.
- D. Scene: The lighting effect created by adjusting several zones of lighting to the desired intensity.
- E. Zone: A luminaire or group of luminaires controlled simultaneously as a single entity. Also known as a "channel."
- F. RS-485: A serial network protocol complying with TIA-485-A
- G. UTP: Unshielded Twisted Pair

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product.

1. For lighting controls system components; include elevation, dimensions, features, characteristics, ratings, and labels.
  2. Device plates and plate color and material.
  3. Dimming technology compatibility.
  4. Operational documentation for software and firmware.
- B. Shop Drawings: Detail assemblies of standard components, custom assembled for specific application on Project. Indicate dimensions, weights, arrangement of components, and clearance and access requirements.
1. Include elevation views of front panels of control and indicating devices and control stations.
  2. Include diagrams for power, signal, and control wiring.
  3. Wire Termination Diagrams and Schedules: Coordinate nomenclature and presentation with Drawings and block diagram. Differentiate between manufacturer-installed and field-installed wiring.
  4. Block Diagram: Show interconnections between components specified in this Section and devices furnished with power distribution system components. Indicate data communication paths and identify networks, data buses, data gateways, concentrators, and other devices used. Describe characteristics of network and other data communication lines.

#### 1.5 INFORMATIONAL SUBMITTALS

- A. Field quality-control reports.
- B. Sample Warranty: For special warranty.

#### 1.6 COORDINATION

- A. Field quality-control reports.
- B. Contractor shall place daylight and motion sensors per plans as a guideline to achieve optimal performance. Proper placement shall be coordinated with field conditions in order to avoid interference with prescribed lighting levels.
- C. Contractor shall provide luminaires that are compatible with the lighting control system to be installed.
- D. Contractor shall locate user interface stations as per plans.
- E. Contractor shall notify engineer of record of any conflicts or deviations from the contract documents to obtain direction prior to proceeding with work.

1.7 MANUFACTURER'S ONSITE SERVICE REQUIREMENTS

- A. Pre-Startup Services: Manufacturer's representative shall provide an onsite visit to discuss logistical construction considerations including the wiring and mounting of system devices, schedule and documentation.
- B. Startup Services: Manufacturer's representative shall provide up to eight (8) contiguous hours of system programming.
- C. Post-Startup Services: Manufacturer's representative shall provide an onsite visit to teach system users how to operate and maintain the lighting control system.

1.8 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data: For all system components, to include in emergency, operation, and maintenance manuals.
  - 1. In addition to items specified in Section 017823 "Operation and Maintenance Data," include the following:
    - a. Software manuals.
    - b. Adjustments of scene preset controls, adjustable fade rates, and fade overrides.
    - c. Operation of adjustable zone controls.

1.9 WARRANTY

- A. Special Warranty: Manufacturer agrees to repair or replace components of digital lighting controls system components that fail in materials or workmanship within specified warranty period.
  - 1. Failures include, but are not limited to, the following:
    - a. Damage from transient voltage surges.
  - 2. Warranty Period: Cost to repair or replace any parts for two years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Manufacturers:
  - 1. Lutron VIVE Wireless (Basis of Design)
  - 2. Crestron Zum
  - 3. Acuity nLight



2.2 SYSTEM DESCRIPTION

- A. Lighting control system shall be wireless type in all spaces, with communication to a central hub.
- B. Compatibility:
  - 1. Dimming control components shall be compatible with luminaires
- C. Capacities: Components shall be rated for a minimum of the connected amperage.
- D. Off Control Position: User-selected off position of any control point shall disconnect the load from line supply.
- E. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

2.3 LIGHTING CONTROLLERS / POWPAKS

- A. Description: Factory-fabricated equipment providing switching and dimming consisting of the following:
  - 1. Characteristics:
    - a. Fully compatible and scalable with all connected lighting control devices
    - b. Wi-fi control device communication
    - c. Commissionable as an autonomous control system without the need for additional equipment
    - d. Each device shall auto negotiate its communications channel to avoid noisy commercial environments.
    - e. Controller shall be junction box mounted using ½" knockout
    - f. 120/277 VAC input
    - g. Provide controller for intended function (switched vs dimming, suitable for connected amperage of lighting circuit, compatible with connected dimming technology where applicable)
    - h. Provide one controller per control zone

2.4 WIRELESS HUBS

- A. Integrated processor and web server allows hub to set up and operate the system without any external connections to outside processors, servers, or the internet.
- B. Utilizes Ethernet connection for:
  - 1. Networking hubs together to create a larger system.
  - 2. Remote connectivity capabilities, including maintaining system date/time and receiving periodic firmware updates.
- C. A single hub or network of hubs can operate on either a dedicated lighting control only network or can be integrated with an existing building network as a VLAN.

- D. Communicates directly to compatible devices through radio frequency communications link; does not require communication wiring
- E. Communicates directly to mobile device (smartphone or tablet) or computer using built-in Wi-Fi, 2.4 GHz 802.11b/g; wireless range of 71 feet (23 m) through walls
  - 1. Does not require external Wi-Fi router for connecting to the hub.
- F. Allows for system setup, control, and monitoring from mobile device or computer using web-based software
  - 1. Supports paired devices up to maximum number indicated including compatible wireless sensors, wireless control stations, and wireless load devices.
  - 2. Allows for timeclock scheduling of events, both time of day and astronomic (sunrise and sunset).
  - 3. Daylighting:
    - a. Daylighting can be enabled/disabled. Can be used to override the control currently taking place in the space.
    - b. Daylight set point can be adjusted with the software to increase or decrease the electric light level in the room based on the same amount of natural light.
  - 4. Uses RF signal strength detection to find nearby devices for quick association and programming without having to climb ladders.
    - a. Association and setup does not require a factory technician to perform.
  - 5. System using wireless hub(s) can operate with or without connection to the internet.
  - 6. Wireless hub can be firmware upgraded to provide new software features and system updates.
    - a. Firmware update can be done either locally using a wired Ethernet connection or Wi-Fi connection, or remotely if the wireless hub is connected to the internet.
- H. Rated for use in air-handling spaces as defined in UL 2043

## 2.5 USER INTERFACES (SWITCHES / DIMMERS / KEYPADS)

- A. Provide device quantities and locations as specified herein and as shown on the contract drawings.
- B. Hardwired Interface With Wireless Communications
  - 1. Provide with line voltage wiring as required
  - 2. Color shall be White.
  - 3. Rocker (on/off/dim) or 4-Button (on / scene 1 / scene 2 / off) as required based on switching indicated on drawings
  - 4. Trimmed using decorator style faceplate
  - 5. Mounting: Mount in a 1-gang or larger electrical box
  - 6. Device shall communicate wirelessly to central hub
- C. Wireless User Interfaces
  - 1. Wireless communication, to communicate with other wireless lighting control devices within the space and the central hub
  - 2. Mounting: Mount in a 1-gang or larger electrical box

3. Battery powered (replaceable, 10-year life minimum)
4. Color shall be White.
5. Number of buttons as indicated on the contract drawings
6. Trimmed using gangable decorator trim plates

## 2.6 WIRELESS SENSORS

- A. Ceiling Motion Sensors (Wireless)
  1. Wireless communication, to communicate with other wireless lighting control devices within the space and the central hub
  2. Dual technology sensing (infrared & ultrasonic)
  3. Ceiling mounted
  4. 1000 sqft coverage minimum
  5. Fail-safe to on position when low battery is detected
  6. Replaceable battery (10 year lifespan minimum)
  7. Configurable as occupancy or vacancy type
- B. Wallbox Motion Sensors With Wireless Communications
  1. Wireless communication, to communicate with other wireless lighting control devices within the space and the central hub
  2. Configurable as occupancy or vacancy type
  3. Provide with line voltage wiring as required
  4. Trimmed using decorator style faceplate
  5. Mounting: Mount in a 1-gang or larger electrical box
  6. Replaceable battery (10 year lifespan minimum) for wireless devices
  7. Passive infrared sensing
  8. 900 sqft coverage minimum
- C. Daylight Sensors (Wireless)
  1. Indoor Daylight Sensor (Open Loop)
    - a. Continually monitors daylight entering window or skylight to enable daylight harvesting applications to provide control of room lighting based on presence of daylight.
  2. Wireless communication, to communicate with other wireless lighting control devices within the space and the central hub
    - a. Replaceable batteries (10-year lifespan minimum)
  3. Mounting: Ceiling surface mounted

## 2.7 KEYPAD FACEPLATES

- A. Provide decorator faceplates for all keypad devices
- B. Multiple devices adjacent to door jambs shall be ganged together
- C. Decorator faceplates shall be White

2.8 CONDUCTORS AND CABLES

- A. Wiring to Supply Side of Remote-Control Power Sources: Not smaller than No. 12 AWG. Comply with requirements in Section 260519 "Low-Voltage Electrical Power Conductors and Cables."
- B. UTP Cable: 100-ohm, UTP. Listed and labeled by an NRTL acceptable to authorities having jurisdiction as complying with UL 444 and NFPA 70
- C. Communications Control Cable, Non-Plenum Rated: 22 AWG data pair stranded bare copper, and 18 AWG power pair stranded bare copper, Type CM
- D. Communications Control Cable Plenum Rated: 22 AWG data pair, stranded bare copper and 18 AWG power pair, stranded bare copper, Type CMP, complying with NFPA 262
- E. Communications High-Power Control Cable, Non-Plenum Rated: 22 AWG stranded bare copper data pair, and 12 AWG stranded bare copper power pair, Type CM

2.9 SYSTEM FUNCTIONS AND SEQUENCES

- A. The system shall be capable of the following lighting control functions where indicated on the floor plans:
  - 1. Scene Creation: Store levels of selected fixture circuits in preset groups.
  - 2. All zones off
  - 3. Raise/lower level of individual and all zones
  - 4. Daylight harvesting
  - 5. Motion sensor control (auto-on and manual-on, selectable, with adjustable default "on" light level)

2.10 USER INTERFACE CONTROL FUNCTIONS

- A. The keypad interface shall be capable of the following system control functions:
  - 1. Scene Recall
  - 2. Raise/Lower
  - 3. On / Off

2.11 SYSTEM INSTALLATION

- A. Prior to installation, examine work area to verify measurements, and that commencing installation complies with manufacturer's requirements.
- B. Install controls in accordance with manufacturer's instructions.
- C. Grounding: Provide electrical grounding in accordance with NFPA 70.

2.12 WIRING INSTALLATION

- A. Comply with NECA 1.
- B. Wiring Method: Comply with requirements in Section 260519 "Low-Voltage Electrical Power Conductors and Cables." Minimum conduit size shall be 1/2 inch (13 mm).
- C. Wiring within Enclosures: Bundle, lace, and train conductors to terminal points. Separate power-limited and nonpower-limited conductors according to conductor manufacturer's written instructions.
- D. Size conductors according to lighting control device manufacturer's written instructions unless otherwise indicated.
- E. Splices, Taps, and Terminations: Make connections only on numbered terminal strips in junction, pull, and outlet boxes; terminal cabinets; and equipment enclosures.

2.13 IDENTIFICATION

- A. Comply with requirements for identification specified in Section 260553 "Identification for Electrical Systems."
- B. Label each device with a unique designation.
- C. Label each scene control button with approved scene description.

2.14 FIELD QUALITY CONTROL

- A. Manufacturer's Field Service: Engage a factory-authorized service representative to test and inspect components, assemblies, and equipment installations, including connections.
- B. Perform the following tests and inspections with the assistance of a factory-authorized service representative. Included in the below list are requirements from the 2015 IECC Section C408.3 (Lighting System Functional Testing):
  - 1. Continuity tests of circuits.
  - 2. Operational Test: Set and operate controls to demonstrate their functions and capabilities in a methodical sequence that cues and reproduces actual operating functions.
    - a. Include testing under conditions that simulate actual operational conditions. Record control settings, operations, cues, and functional observations.
  - 3. Check operation of daylight harvesting sensors, including setpoints and threshold light levels
  - 4. Check that daylight sensing calibration adjustment equipment is readily accessible only to authorized personnel
  - 5. Check dimming range

6. Align high-bay occupancy sensors using manufacturer's laser aiming tool.
  7. Check outer limits of detector range
  8. Check that detectors and sensors are located and aimed in accordance with manufacturer recommendations
  9. Check operation of sensor status indicators
  10. Check for proper operation of time settings (e.g. auto-off time delay)
  11. Check auto-on light levels are as detailed on the contract drawings
  12. Check manual-on light levels are as detailed on the contract drawings
  13. Check that lights are not incorrectly turned on by movement in adjacent areas or by HVAC operation
  - 14.
- C. Dimming control components will be considered defective if they do not pass tests and inspections.
- D. Test Labeling: After satisfactory completion of tests and inspections, apply a label to tested components indicating test results, date, and responsible agency and representative.
- E. Reports: Written reports of tests and observations detailed in this specification section. Record defective materials and workmanship and unsatisfactory test results. Record repairs and adjustments.
- F. Keypads shall be factory engraved using laser technology.
- G. Provide documentation to the owner that the installed lighting controls meet documented performance criteria of 2015 IECC Section C405. This shall be provided within 90 days from the date of receipt of the certificate of occupancy.
- 2.15 DEMONSTRATION
- A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain all lighting control system components.
1. Provide a minimum of 8 hours training
  2. Record training and provide DVD of training to owner.

END OF SECTION 260936



PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
  - 1. Toggle switches.
  - 2. Wall plates.

1.3 DEFINITIONS

- A. EMI: Electromagnetic interference.
- B. Pigtail: Short lead used to connect a device to a branch-circuit conductor.
- C. RFI: Radio-frequency interference.
- D. SPD: Surge protective device.
- E. UTP: Unshielded twisted pair.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Shop Drawings: List of legends and description of materials and process used for premarking wall plates.

1.5 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data: For wiring devices to include in all manufacturers' packing-label warnings and instruction manuals that include labeling conditions.



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PART 2 - PRODUCTS

2.1 GENERAL WIRING-DEVICE REQUIREMENTS

- A. Wiring Devices, Components, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- B. Comply with NFPA 70.
- C. Devices that are manufactured for use with modular plug-in connectors may be substituted under the following conditions:
  - 1. Connectors shall comply with UL 2459 and shall be made with stranding building wire.
  - 2. Devices shall comply with the requirements in this Section.
- D. Source Limitations: Obtain each type of wiring device and associated wall plate from single source from single manufacturer.

2.2 TOGGLE SWITCHES

- A. Comply with NEMA WD 1, UL 20, and FS W-S-896.
- B. Switches, 120/277 V, 20 A:
  - 1. Single Pole:
    - a. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
      - 1) Hubbell Incorporated; Wiring Device-Kellems.
      - 2) Leviton Manufacturing Co., Inc.
      - 3) Pass & Seymour/Legrand (Pass & Seymour).
  - 2. Two Pole:
    - a. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
      - 1) Hubbell Incorporated; Wiring Device-Kellems.
      - 2) Leviton Manufacturing Co., Inc.
      - 3) Pass & Seymour/Legrand (Pass & Seymour).
  - 3. Three Way:
    - a. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

- 1) Hubbell Incorporated; Wiring Device-Kellems.
- 2) Leviton Manufacturing Co., Inc.
- 3) Pass & Seymour/Legrand (Pass & Seymour).

4. Four Way:

- a. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

- 1) Hubbell Incorporated; Wiring Device-Kellems.
- 2) Leviton Manufacturing Co., Inc.
- 3) Pass & Seymour/Legrand (Pass & Seymour).

## 2.3 WALL PLATES

- A. Single and combination types shall match corresponding wiring devices.

1. Plate-Securing Screws: Metal with head color to match plate finish.
2. Material for Finished Spaces: Steel with white baked enamel, suitable for field painting.
3. Material for Unfinished Spaces: Galvanized steel
4. Material for Damp Locations: Thermoplastic with spring-loaded lift cover, and listed and labeled for use in wet and damp locations.

- B. Wet-Location, Weatherproof Cover Plates: NEMA 250, complying with Type 3R, weather-resistant with lockable cover.

## 2.4 FINISHES

- A. Device Color:

1. Wiring Devices: As selected by Architect unless otherwise indicated or required by NFPA 70 or device listing.

- B. Wall Plate Color: For plastic covers, match device color.

## PART 3 - EXECUTION

### 3.1 INSTALLATION

- A. Comply with NECA 1, including mounting heights listed in that standard, unless otherwise indicated

- B. Relocate existing switchboxes to 48" AFF if boxes are currently located above that height (for ADA compliance).

- C. Coordination with Other Trades:

1. Protect installed devices and their boxes. Do not place wall finish materials over device boxes and do not cut holes for boxes with routers that are guided by riding against outside of boxes.
2. Keep outlet boxes free of plaster, drywall joint compound, mortar, cement, concrete, dust, paint, and other material that may contaminate the raceway system, conductors, and cables.
3. Install device boxes in brick or block walls so that the cover plate does not cross a joint unless the joint is troweled flush with the face of the wall.
4. Install wiring devices after all wall preparation, including painting, is complete.

D. Conductors:

1. Do not strip insulation from conductors until right before they are spliced or terminated on devices.
2. Strip insulation evenly around the conductor using tools designed for the purpose. Avoid scoring or nicking of solid wire or cutting strands from stranded wire.
3. The length of free conductors at outlets for devices shall meet provisions of NFPA 70, Article 300, without pigtailed.
4. Existing Conductors:
  - a. Cut back and pigtail, or replace all damaged conductors.
  - b. Straighten conductors that remain and remove corrosion and foreign matter.
  - c. Pigtailing existing conductors is permitted, provided the outlet box is large enough.

E. Device Installation:

1. Replace devices that have been in temporary use during construction and that were installed before building finishing operations were complete.
2. Keep each wiring device in its package or otherwise protected until it is time to connect conductors.
3. Do not remove surface protection, such as plastic film and smudge covers, until the last possible moment.
4. Connect devices to branch circuits using pigtails that are not less than 6 inches (152 mm) in length.
5. When there is a choice, use side wiring with binding-head screw terminals. Wrap solid conductor tightly clockwise, two-thirds to three-fourths of the way around terminal screw.
6. Use a torque screwdriver when a torque is recommended or required by manufacturer.
7. When conductors larger than No. 12 AWG are installed on 15- or 20-A circuits, splice No. 12 AWG pigtails for device connections.
8. Tighten unused terminal screws on the device.
9. When mounting into metal boxes, remove the fiber or plastic washers used to hold device-mounting screws in yokes, allowing metal-to-metal contact.

- F. Device Plates: Do not use oversized or extra-deep plates. Repair wall finishes and remount outlet boxes when standard device plates do not fit flush or do not cover rough wall opening.

G. Dimmers:

1. Install dimmers within terms of their listing.
2. Install unshared neutral conductors on line and load side of dimmers according to manufacturers' device listing conditions in the written instructions.
3. Coordinate dimming technology of dimmer switches with technology of controlled fixtures
4. Provide 0-10V dimming wiring where applicable.

H. Arrangement of Devices: Unless otherwise indicated, mount flush, with long dimension vertical. Group adjacent switches under single, multigang wall plates.

I. Adjust locations of floor service outlets and service poles to suit arrangement of partitions and furnishings.

3.2 IDENTIFICATION

A. Comply with Section 260553 "Identification for Electrical Systems."

B. Identify each switch with panelboard identification and circuit number. Use hot, stamped, or engraved machine printing with black-filled lettering on face of plate, and durable wire markers or tags inside outlet boxes.

END OF SECTION 26 27 26



PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 DEFINITIONS

- A. CCT: Correlated color temperature.
- B. CRI: Color Rendering Index.
- C. Fixture: See "Luminaire."
- D. IP: International Protection or Ingress Protection Rating.
- E. LED: Light-emitting diode.
- F. Lumen: Measured output of lamp and luminaire, or both.
- G. Luminaire: Complete lighting unit, including lamp, reflector, and housing.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.
  - 1. Arrange in order of luminaire designation.
  - 2. Include data on features, accessories, and finishes.
  - 3. Include physical description and dimensions of luminaires.
  - 4. Include emergency lighting units, including batteries and chargers.
  - 5. Include life, output (lumens, CCT, and CRI), and energy efficiency data.
  - 6. Photometric data and adjustment factors based on laboratory tests, complying with IES Lighting Measurements Testing and Calculation Guides, of each luminaire type. The adjustment factors shall be for lamps and accessories identical to those indicated for the luminaire as applied in this Project.
    - a. Manufacturers' Certified Data: Photometric data certified by manufacturer's laboratory with a current accreditation under the National Voluntary Laboratory Accreditation Program for Energy Efficient Lighting Products.
- B. Shop Drawings: For nonstandard or custom luminaires.

1. Include photometric calculations for all interior and exterior areas. No "typical" area calculations will be accepted. Calculations shall be based on the exact product submitted.
  2. Include plans, elevations, sections, and mounting and attachment details.
  3. Include details of luminaire assemblies. Indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.
  4. Include diagrams for power, signal, and control wiring.
- C. Product Schedule: For luminaires and lamps. Use same designations indicated on Drawings.

#### 1.4 INFORMATIONAL SUBMITTALS

- A. Detailed description of equipment anchorage devices on which the certification is based and their installation requirements.
- B. Product Certificates: For each type of luminaire.
- C. Product Test Reports: For each luminaire, for tests performed by manufacturer and witnessed by a qualified testing agency.
- D. Sample warranty.

#### 1.5 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data: For luminaires and lighting systems to include in operation and maintenance manuals.
  1. Provide a list of all lamp types used on Project; use ANSI and manufacturers' codes.

#### 1.6 QUALITY ASSURANCE

- A. Luminaire Photometric Data Testing Laboratory Qualifications: Luminaire manufacturer's laboratory that is accredited under the NVLAP for Energy Efficient Lighting Products.
- B. Provide luminaires from a single manufacturer for each luminaire type.
- C. Each luminaire type shall be binned within a three-step MacAdam Ellipse to ensure color consistency among luminaires.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Protect finishes of exposed surfaces by applying a strippable, temporary protective covering before shipping.

1.8 WARRANTY

- A. Warranty: Manufacturer and Installer agree to repair or replace components of luminaires that fail in materials or workmanship within specified warranty period.
- B. Warranty Period: Five year(s) from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PRODUCTS

- A. Refer to lighting fixture schedule on drawings for the three acceptable manufacturers and model numbers for each fixture type. No substitutions will be accepted.

2.2 PERFORMANCE REQUIREMENTS

- A. Seismic Performance: Luminaires shall withstand the effects of earthquake motions determined according to ASCE 7.
- B. Lumen outputs and distribution patterns for fixtures other than the basis of design fixtures (supplied by Apex Lighting) shall be adjusted based on the results of the photometric calculations, in order to achieve light levels and uniformity ratios as specified in the IES (Illumination Engineering Society) guidebook. No additional compensation will be provided to meet the light level and uniformity requirements.

2.3 LUMINAIRE REQUIREMENTS

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- B. Standards:
  - 1. NRTL Compliance: Luminaires for hazardous locations shall be listed and labeled for indicated class and division of hazard by an NRTL.
  - 2. FM Global Compliance: Luminaires for hazardous locations shall be listed and labeled for indicated class and division of hazard by FM Global.
  - 3. UL Listing: Listed for damp location, where noted
  - 4. Recessed luminaires shall comply with NEMA LE 4.
- C. Lamps dimmable from 100 percent to 1 percent of maximum light output.



- D. Internal driver.

## 2.4 MATERIALS

- A. Metal Parts:

- 1. Free of burrs and sharp corners and edges.
- 2. Sheet metal components shall be steel unless otherwise indicated.
- 3. Form and support to prevent warping and sagging.

- B. Doors, Frames, and Other Internal Access: Smooth operating, free of light leakage under operating conditions, and designed to permit relamping without use of tools. Designed to prevent doors, frames, lenses, diffusers, and other components from falling accidentally during relamping and when secured in operating position.

- C. Diffusers and Globes:

- 1. As indicated on lighting fixture schedules.

- D. Housings:

- 1. As indicated on lighting fixture schedules.

- E. Factory-Applied Labels: Comply with UL 1598. Include recommended lamps. Locate labels where they will be readily visible to service personnel, but not seen from normal viewing angles when lamps are in place.

- 1. Label shall include the following lamp characteristics:

- a. "USE ONLY" and include specific lamp type.
- b. Lamp diameter, shape, size, wattage, and coating.
- c. CCT and CRI for all luminaires.

## 2.5 METAL FINISHES

- A. Variations in finishes are unacceptable in the same piece. Variations in finishes of adjoining components are acceptable if they are within the range of approved Samples and if they can be and are assembled or installed to minimize contrast.

## 2.6 LUMINAIRE SUPPORT

- A. Comply with requirements in Section 260529 "Hangers and Supports for Electrical Systems" for channel and angle iron supports and nonmetallic channel and angle supports.
- B. Single-Stem Hangers: 1/2-inch (13-mm) steel tubing with swivel ball fittings and ceiling canopy. Finish same as luminaire.

- C. Wires: ASTM A 641/A 641 M, Class 3, soft temper, zinc-coated steel, 12 gage (2.68 mm).
- D. Rod Hangers: 3/16-inch (5-mm) minimum diameter, cadmium-plated, threaded steel rod.
- E. Hook Hangers: Integrated assembly matched to luminaire, line voltage, and equipment with threaded attachment, cord, and locking-type plug.

### PART 3 - EXECUTION

#### 3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
- B. Examine roughing-in for luminaire to verify actual locations of luminaire and electrical connections before luminaire installation. Proceed with installation only after unsatisfactory conditions have been corrected.

#### 3.2 TEMPORARY LIGHTING

- A. If approved by the Architect, use selected permanent luminaires for temporary lighting. When construction is sufficiently complete, clean luminaires used for temporary lighting and install new lamps.

#### 3.3 INSTALLATION

- A. Comply with NECA 1.
- B. Install luminaires level, plumb, and square with ceilings and walls unless otherwise indicated.
- C. Install lamps and/or drivers in each luminaire.
- D. Supports:
  - 1. Sized and rated for luminaire weight.
  - 2. Able to maintain luminaire position after cleaning and relamping.
  - 3. Provide support for luminaire without causing deflection of ceiling or wall.
  - 4. Luminaire mounting devices shall be capable of supporting a horizontal force of 100 percent of luminaire weight and vertical force of 400 percent of luminaire weight.
- E. Flush-Mounted Luminaire Support:
  - 1. Secured to outlet box.

2. Attached to ceiling structural members at four points equally spaced around circumference of luminaire.
3. Trim ring flush with finished surface.

F. Wall-Mounted Luminaire Support:

1. Attached to structural members in walls.
2. Do not attach luminaires directly to gypsum board.

G. Suspended Luminaire Support:

1. Pendants and Rods: Where longer than 48 inches (1200 mm), brace to limit swinging.
2. Stem-Mounted, Single-Unit Luminaires: Suspend with twin-stem hangers. Support with approved outlet box and accessories that hold stem and provide damping of luminaire oscillations. Support outlet box vertically to building structure using approved devices.
3. Do not use ceiling grid as support for pendant luminaires. Connect support wires or rods to building structure.

H. Ceiling-Grid-Mounted Luminaires:

1. Secure to any required outlet box.
2. Secure luminaire to the luminaire opening using approved fasteners in a minimum of four locations, spaced near corners of luminaire.
3. Use approved devices and support components to connect luminaire to ceiling grid and building structure in a minimum of four locations, spaced near corners of luminaire.

- I. Comply with requirements in Section 260519 "Low-Voltage Electrical Power Conductors and Cables" for wiring connections.

### 3.4 IDENTIFICATION

- A. Identify system components, wiring, cabling, and terminals. Comply with requirements for identification specified in Section 260553 "Identification for Electrical Systems."

### 3.5 FIELD QUALITY CONTROL

- A. Perform the following tests and inspections:

1. Operational Test: After installing luminaires, switches, and accessories, and after electrical circuitry has been energized, test units to confirm proper operation.
2. Test for Emergency Lighting: Interrupt power supply to demonstrate proper operation. Verify transfer from normal power to battery power and retransfer to normal.

- B. Luminaire will be considered defective if it does not pass operation tests and inspections.

C. Prepare test and inspection reports.

END OF SECTION 26 51 19



PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
  - 1. Emergency lighting.
  - 2. Exit Signs
  - 3. Luminaire supports.

1.3 DEFINITIONS

- A. CCT: Correlated color temperature.
- B. CRI: Color Rendering Index.
- C. Emergency Lighting Unit: A lighting unit with internal or external emergency battery powered supply and the means for controlling and charging the battery and unit operation.
- D. Fixture: See "Luminaire" Paragraph.
- E. Lumen: Measured output of lamp and luminaire, or both.
- F. Luminaire: Complete lighting unit, including lamp, reflector, and housing.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of emergency lighting unit, exit sign, and emergency lighting support.
  - 1. Include data on features, accessories, and finishes.
  - 2. Include physical description of the unit and dimensions.
  - 3. Battery and charger for light units.
  - 4. Include life, output of luminaire (lumens, CCT, and CRI), and energy-efficiency data.
  - 5. Include photometric data and adjustment factors based on laboratory tests, complying with IES LM-45, for each luminaire type.
- B. Shop Drawings: For nonstandard or custom luminaires.

1. Include plans, elevations, sections, and mounting and attachment details.
2. Include details of equipment assemblies. Indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.
3. Include diagrams for power, signal, and control wiring.
4. Provide egress lighting photometric calculations for all spaces.

C. Product Schedule:

1. For emergency lighting units and exit signs. Use same designations indicated on Drawings.

1.5 INFORMATIONAL SUBMITTALS

A. Seismic Qualification Data: For luminaires, accessories, and components, from manufacturer.

1. Basis for Certification: Indicate whether withstand certification is based on actual test of assembled components or on calculation.
2. Dimensioned Outline Drawings of Equipment Unit: Identify center of gravity and locate and describe mounting and anchorage provisions.
3. Detailed description of equipment anchorage devices on which the certification is based and their installation requirements.
4. Provide seismic qualification certificate for each piece of equipment.

B. Sample Warranty: For manufacturer's warranty.

1.6 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For luminaires and lighting systems to include in emergency, operation, and maintenance manuals.

1. Provide a list of all lamp types used on Project; use ANSI and manufacturers' codes.

1.7 QUALITY ASSURANCE

A. Luminaire Photometric Data Testing Laboratory Qualifications: Luminaire manufacturer's laboratory that is accredited under the National Volunteer Laboratory Accreditation Program for Energy Efficient Lighting Products.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Protect finishes of exposed surfaces by applying a strippable, temporary protective covering before shipping.

1.9 WARRANTY

- A. Warranty: Manufacturer and Installer agree to repair or replace components of luminaires that fail in materials or workmanship within specified warranty period.
  - 1. Warranty Period: Two year(s) from date of Substantial Completion.
- B. Special Warranty for Emergency Lighting and Exit Sign Batteries: Manufacturer's standard form in which manufacturer of battery-powered emergency lighting unit agrees to repair or replace components of rechargeable batteries that fail in materials or workmanship within specified warranty period.
  - 1. Warranty Period for Emergency Power Unit and Exit Sign Batteries: Five years from date of Substantial Completion. Full warranty shall apply for first year and prorated warranty for the remaining four years.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Seismic Performance: Luminaires shall withstand the effects of earthquake motions determined according to ASCE/SEI 7

2.2 GENERAL REQUIREMENTS FOR EMERGENCY LIGHTING

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- B. NRTL Compliance: Fabricate and label emergency lighting units, exit signs and batteries to comply with UL 924.
- C. Comply with NFPA 70 and NFPA 101.
- D. Comply with NEMA LE 4 for recessed luminaires.
- E. Comply with UL 1598 for fluorescent luminaires.
- F. Internal Type Emergency Power Unit: Self-contained, modular, battery-inverter unit, factory mounted within luminaire body.
  - 1. Emergency Connection: Operate one lamp or driver continuously at its rated lumen output upon loss of normal power. Connect unswitched circuit to battery charging circuit and switched circuit to luminaire driver.
  - 2. Operation: Relay automatically turns lamp or driver on when power-supply circuit voltage drops to 80 percent of nominal voltage or below. Lamp or driver automatically disconnects from battery when voltage approaches deep-



discharge level. When normal voltage is restored, relay disconnects lamps from battery, and battery is automatically recharged and floated on charger.

3. Test Push-Button and Indicator Light: Visible and accessible without opening luminaire or entering ceiling space.
  - a. Push Button: Push-to-test type, in unit housing, simulates loss of normal power and demonstrates unit operability.
  - b. Indicator Light: LED indicates normal power on. Normal glow indicates trickle charge; bright glow indicates charging at end of discharge cycle.
4. Battery: Sealed, maintenance-free.
5. Charger: Fully automatic, solid-state, constant-current type with sealed power transfer relay.

## 2.3 EMERGENCY LIGHTING

- A. General Requirements for Emergency Lighting Units: Self-contained units, or integral to lighting fixtures, as indicated on drawings.
- B. Emergency luminaires:
  1. See drawings for basis of design fixture schedule.

## 2.4 EXIT SIGNS

- A. General Requirements for Exit Signs: Comply with UL 924; for sign colors, visibility, luminance, and lettering size, comply with authorities having jurisdiction.
- B. Internally Lighted Signs:
  1. See drawings for basis of design fixture schedule.

## 2.5 MATERIALS

- A. Metal Parts:
  1. Free of burrs and sharp corners and edges.
  2. Sheet metal components shall be steel unless otherwise indicated.
  3. Form and support to prevent warping and sagging.
- B. Doors, Frames, and Other Internal Access:
  1. Smooth operating, free of light leakage under operating conditions.
  2. Designed to permit relamping without use of tools.
  3. Designed to prevent doors, frames, lenses, diffusers, and other components from falling accidentally during relamping and when secured in operating position.
- C. Conduit: Electrical metallic tubing minimum 3/4 inch (21 mm) in diameter.

2.6 METAL FINISHES

- A. Appearance of Finished Work: Noticeable variations in same piece are not acceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

2.7 LUMINAIRE SUPPORT COMPONENTS

- A. Comply with requirements in Section 260529 "Hangers and Supports for Electrical Systems" for channel and angle iron supports and nonmetallic channel and angle supports.
- B. Support Wires: ASTM A 641/A 641M, Class 3, soft temper, zinc-coated steel, 12 gage (2.68 mm)

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for conditions affecting performance of luminaires.
- B. Examine roughing-in for luminaire to verify actual locations of luminaire and electrical connections before luminaire installation.
- C. Examine walls, floors, roofs, and ceilings for suitable conditions where emergency lighting luminaires will be installed.
- D. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Comply with NECA 1.
- B. Install luminaires level, plumb, and square with ceilings and walls unless otherwise indicated.
- C. Install lamps in each luminaire (where applicable).
- D. Supports:
  - 1. Sized and rated for luminaire & emergency power unit weight.
  - 2. Able to maintain luminaire position when testing emergency power unit.
  - 3. Provide support for luminaire and emergency power unit without causing deflection of ceiling or wall.

4. Luminaire-mounting devices shall be capable of supporting a horizontal force of 100 percent of luminaire and emergency power unit weight and vertical force of 400 percent of luminaire weight.

E. Wall-Mounted Luminaire Support:

1. Attached to structural members in walls
2. Do not attach luminaires directly to gypsum board.

F. Suspended Luminaire Support:

1. Pendants and Rods: Where longer than 48 inches (1200 mm), brace to limit swinging.
2. Stem-Mounted, Single-Unit Luminaires: Suspend with twin-stem hangers. Support with approved outlet box and accessories that hold stem and provide damping of luminaire oscillations. Support outlet box vertically to building structure using approved devices.
3. Do not use ceiling grid as support for pendant luminaires. Connect support wires or rods to building structure.

### 3.3 IDENTIFICATION

- A. Identify system components, wiring, cabling, and terminals. Comply with requirements for identification specified in Section 260553 "Identification for Electrical Systems."

### 3.4 FIELD QUALITY CONTROL

A. Perform the following tests and inspections:

1. Test for Emergency Lighting: Interrupt power supply to demonstrate proper operation for a minimum of 90 minutes. Verify transfer from normal power to battery power and retransfer to normal.

- B. Luminaire will be considered defective if it does not pass operation tests and inspections.

- C. Prepare test and inspection reports.

### 3.5 STARTUP SERVICE

A. Perform startup service:

1. Charge batteries minimum of 24 hours and conduct one-hour discharge test.

### 3.6 ADJUSTING

- A. Adjustments: Within 12 months of date of Substantial Completion, provide on-site visit to do the following:

1. Inspect all luminaires. Replace lamps, batteries, signs, or luminaires that are defective.
  - a. Parts and supplies shall be manufacturer's authorized replacement parts and supplies.
2. Conduct short-duration tests on all emergency lighting.

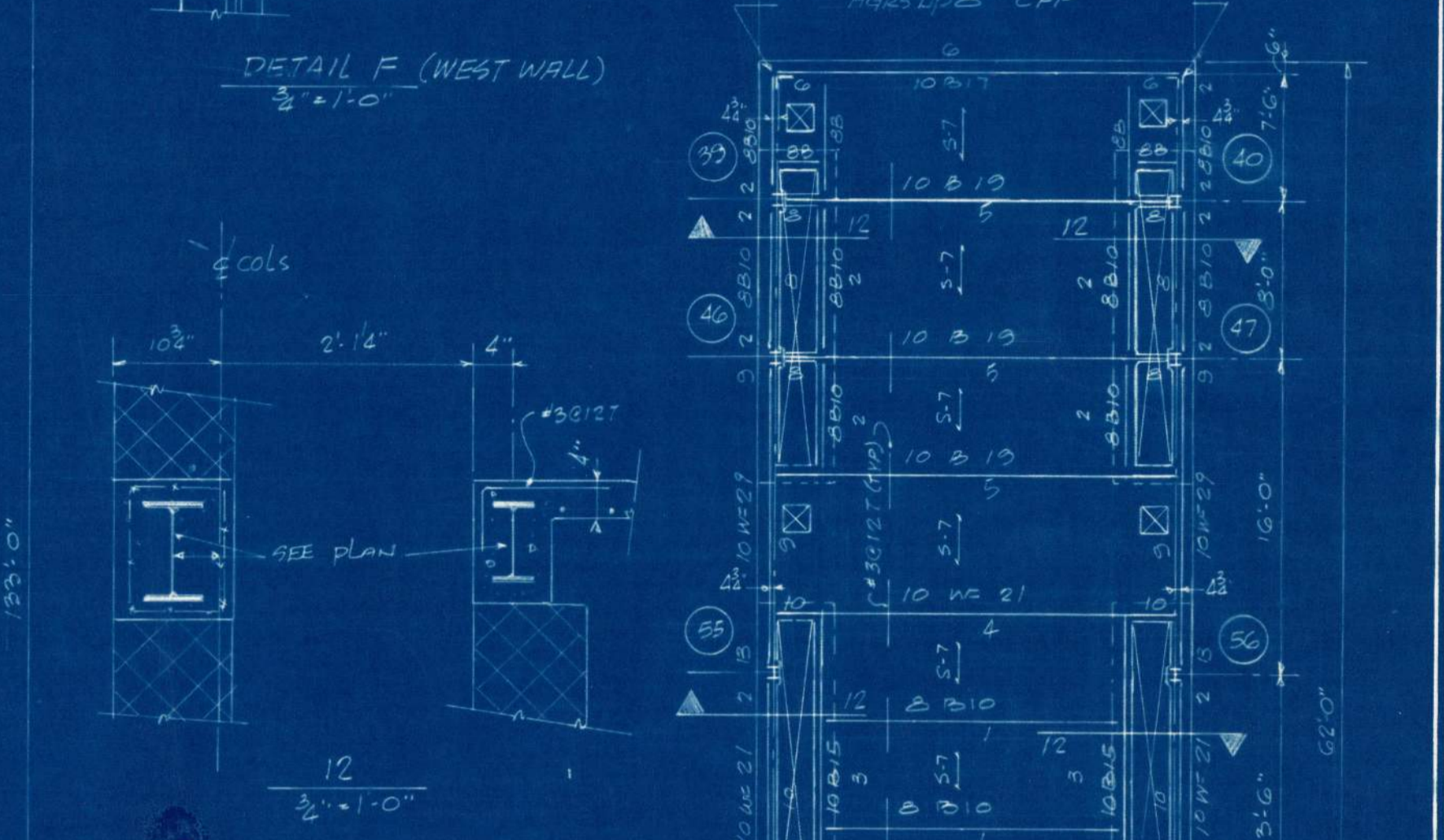
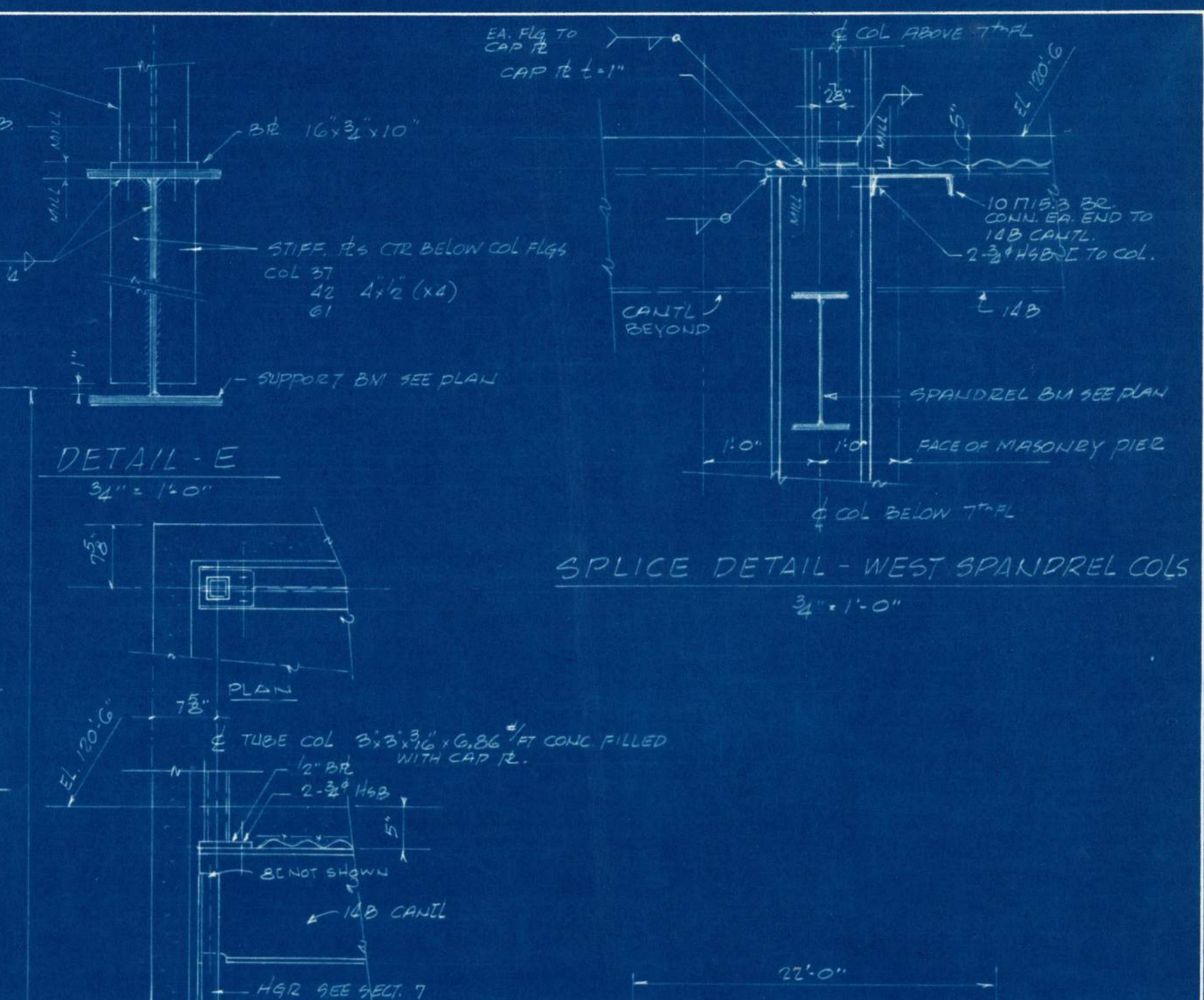
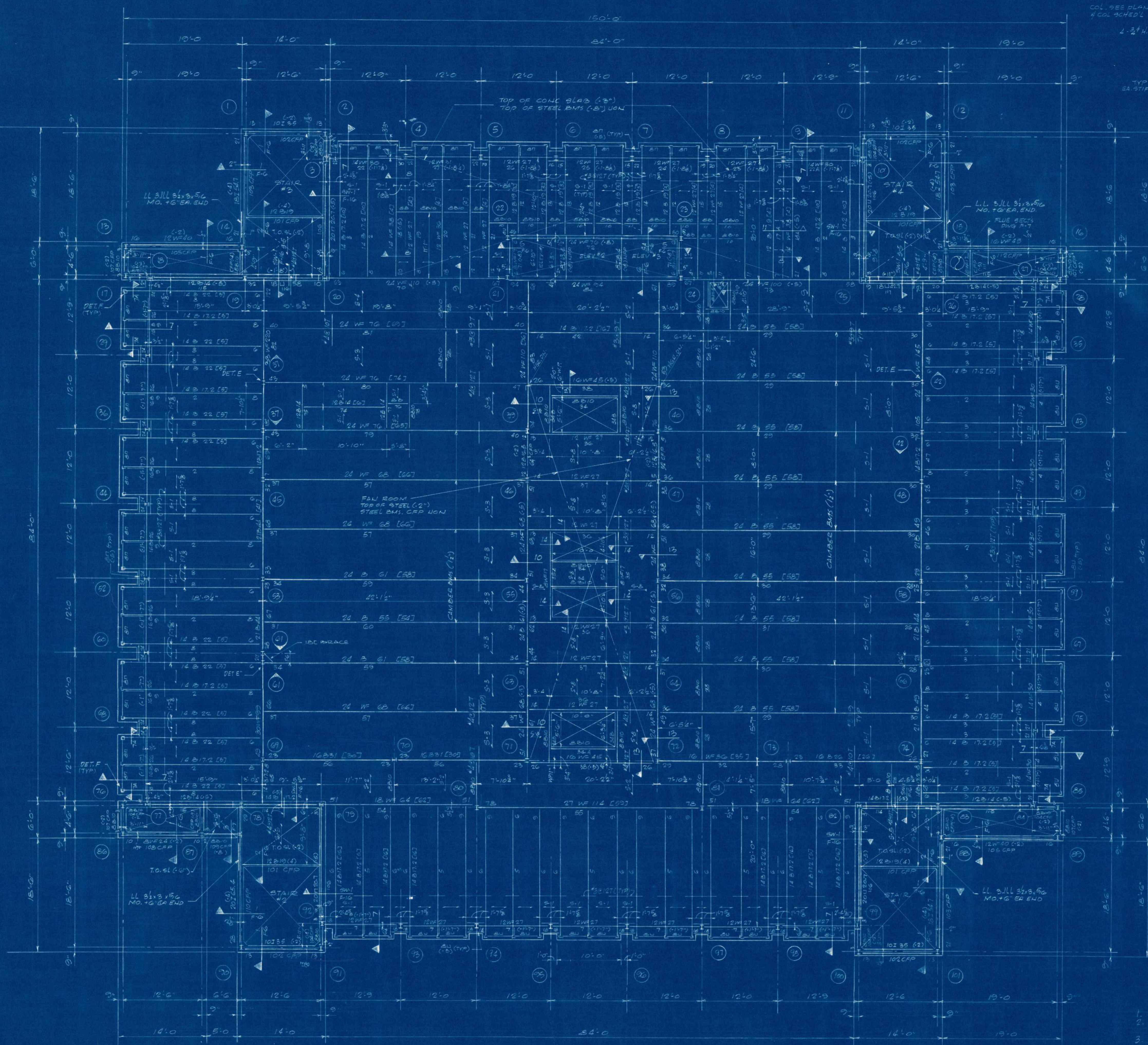
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# **Section 50 10 00**

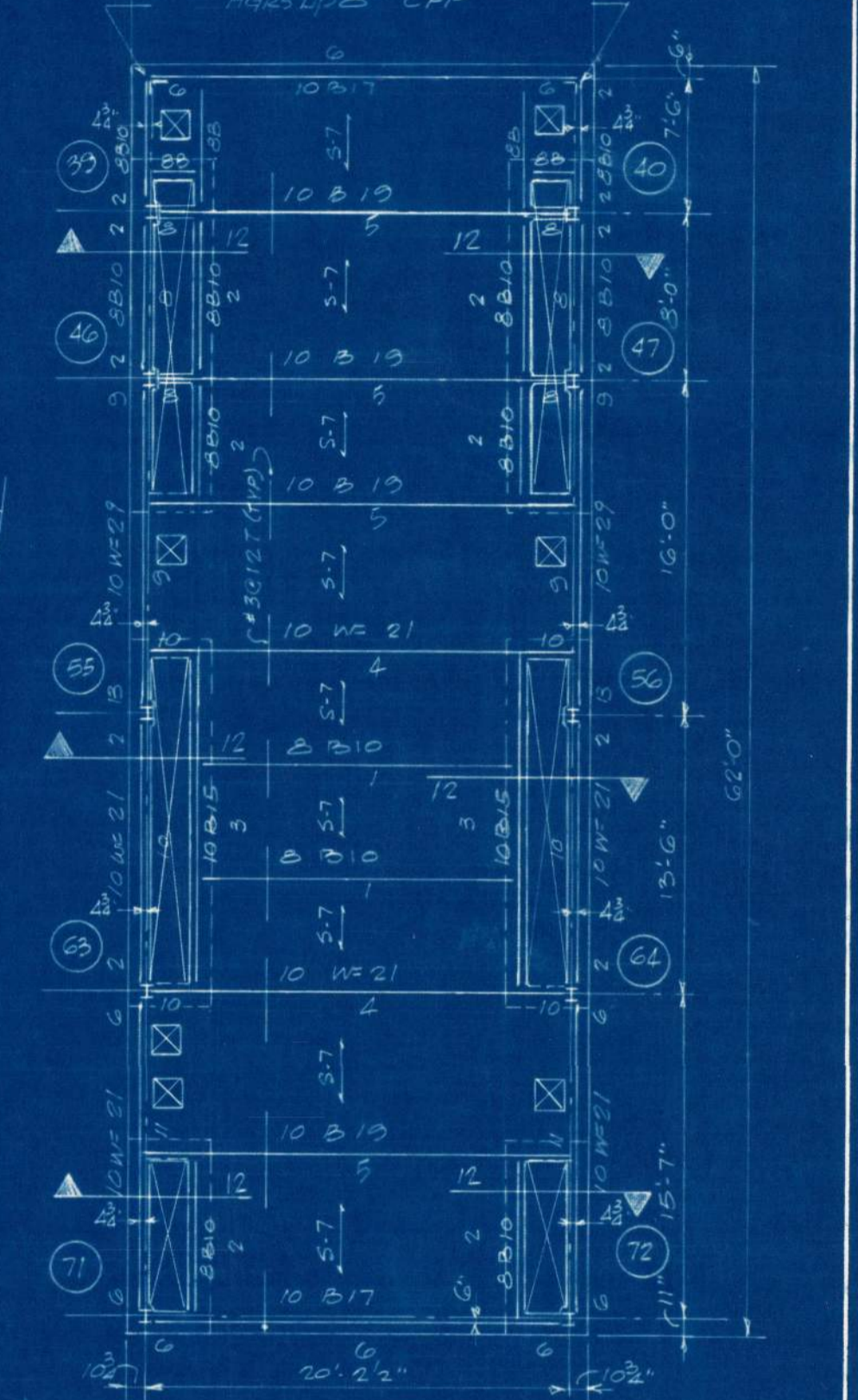
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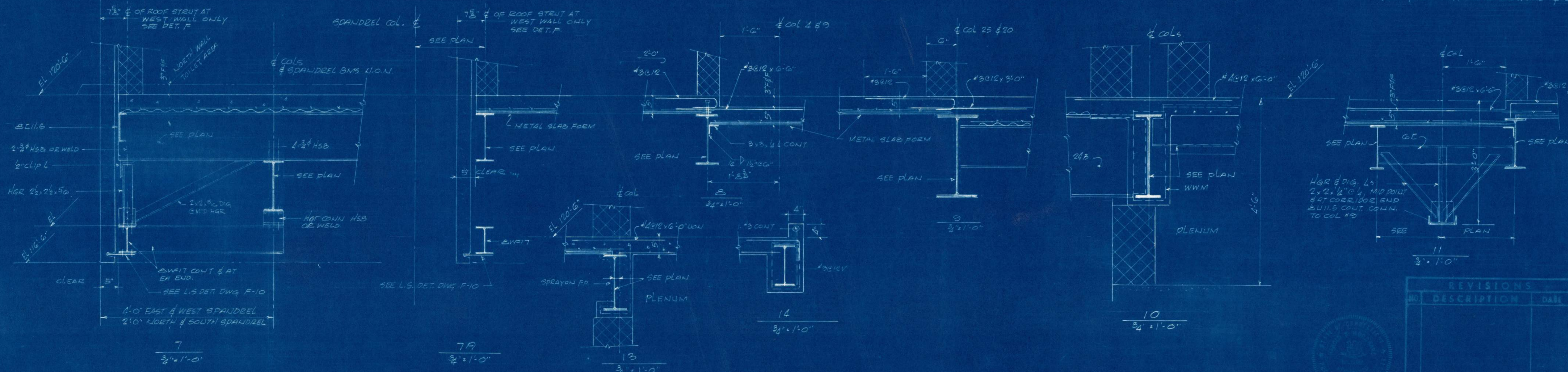
SLABS

MARK	THICKNESS	BOT REINF	REMARKS
S-1	5	A <sub>1</sub> - 10B	W.W.M.
S-2	5	A <sub>2</sub> - 12B	"
S-3	5	A <sub>3</sub> - 12B	"
S-4	5	A <sub>4</sub> - 15B	"
S-5	5	A <sub>5</sub> - 12"	WOOD FORM
S-6	5	A <sub>6</sub> - 12"	WOOD FORM
S-7	4	A <sub>7</sub> - 12"	WOOD FORM
S-8	5	A <sub>8</sub> - 12"	WOOD FORM



7th FLOOR FRAMING PLAN  
1/8" = 1'-0"

1. FIN. FLOOR & TOP OF CONC SLAB EL 120'-0" DATUM UON.
2. CONC. SLAB - 5" ON METAL SLAB FORM UON FOR REINF SEE PLAN & SLAB SCHEDULE THIS DWG.
3. TOP OF STEEL BMS (S) FROM DATUM U.O.N. ON PLAN.
4. FOR COLUMN SCHEDULE SEE DWG. NO. F-14 & F-15.
5. FOR TYPICAL DETAILS & GENERAL NOTES SEE DWG. NO. F-17.



STATE OF CONNECTICUT  
PUBLIC WORKS DEPARTMENT  
C. LAWENY, COMMISSIONER

DRAWING NO. STATE COURT HOUSE COMPLEX  
CHECKED BY: MAIN STREET  
APPROVED BY: BRIDGEPORT CONNECTICUT

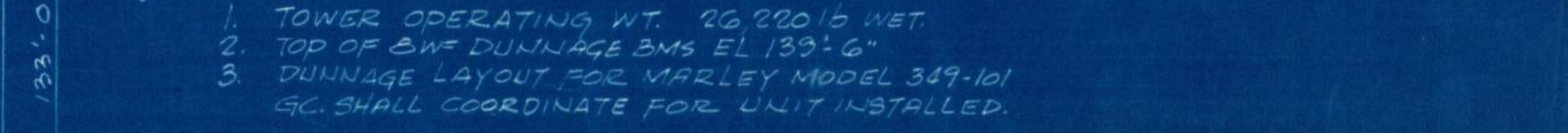
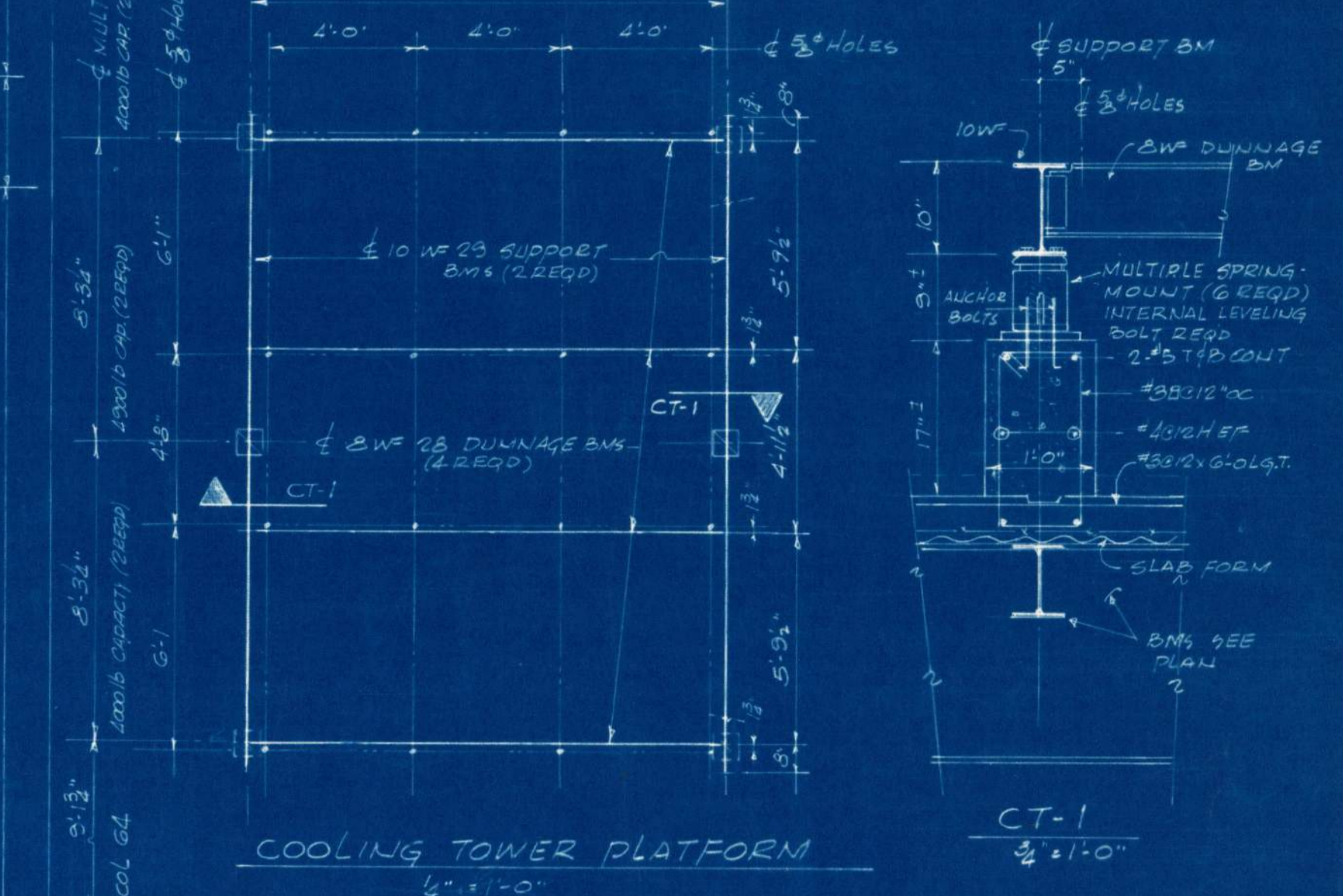
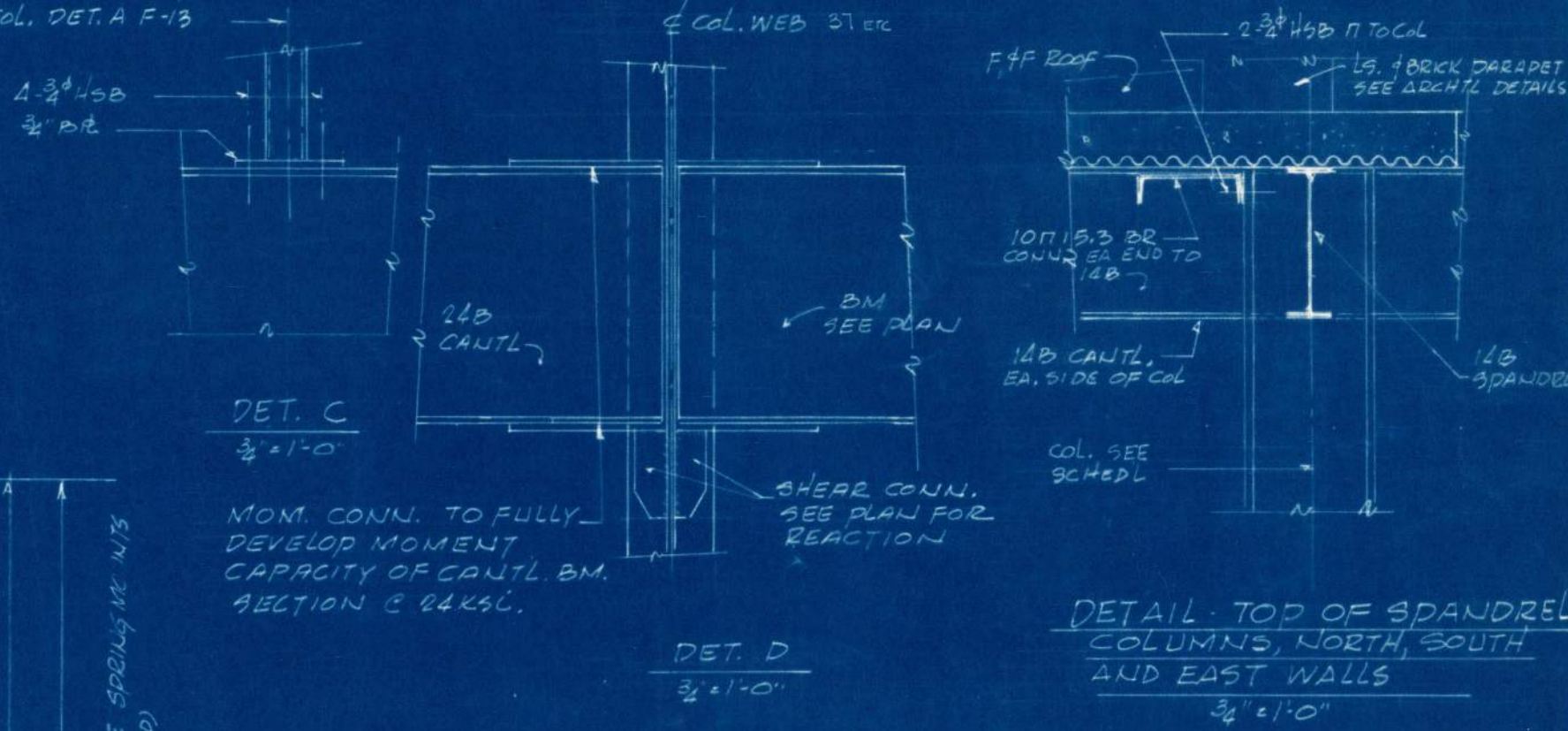
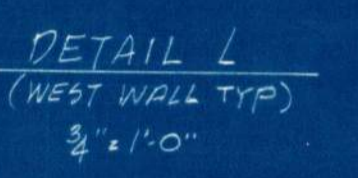
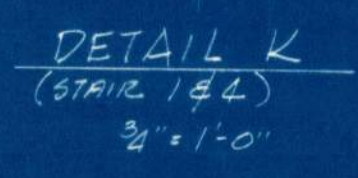
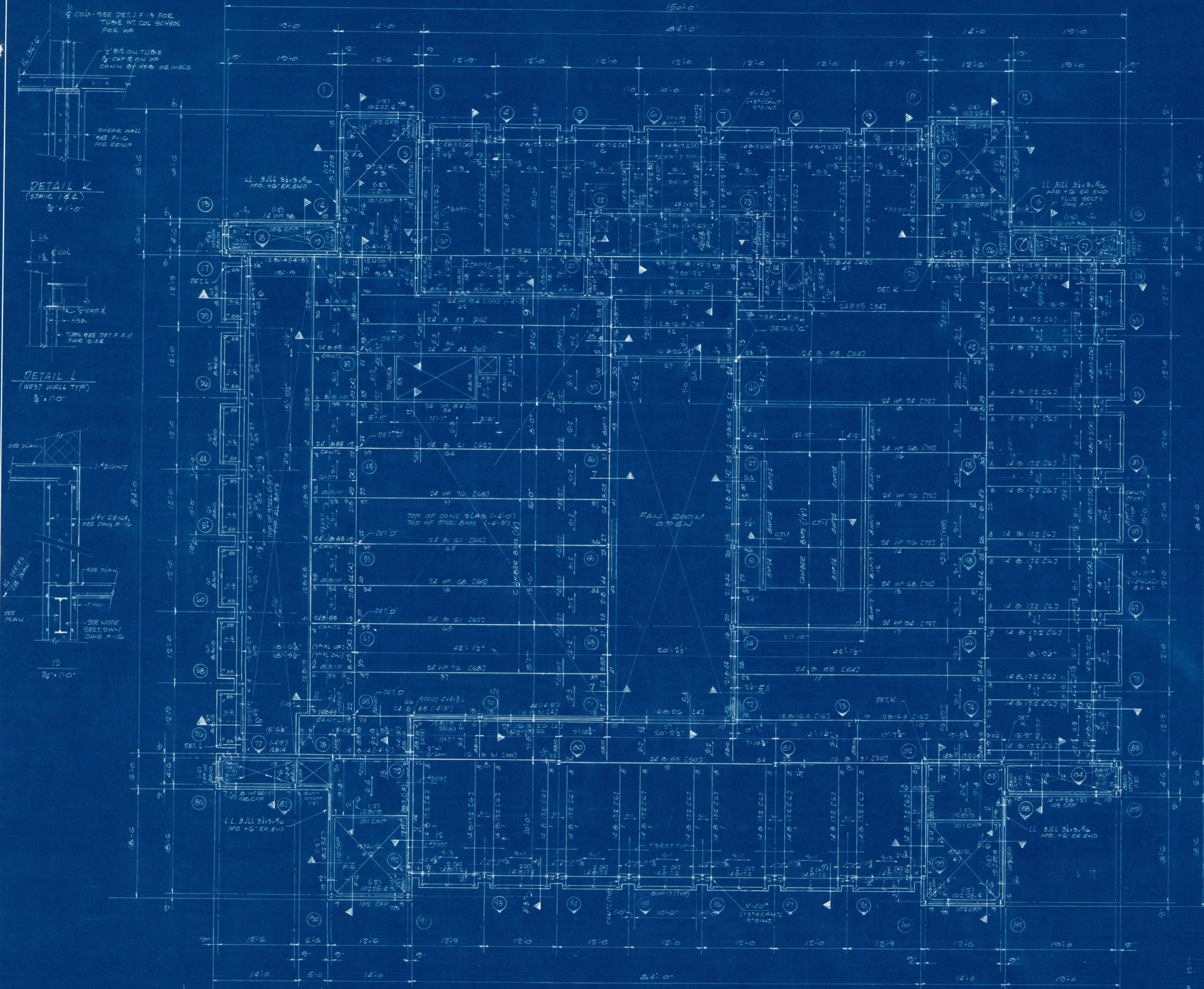
REVISIONS  
NO. DESCRIPTION DATE

PLANS PREPARED BY  
LYONS & MATHER  
ARCHITECTS  
855 MAIN STREET, BRIDGEPORT, CONN.

SCALE AS NOTED DATE AUG 21, 1939



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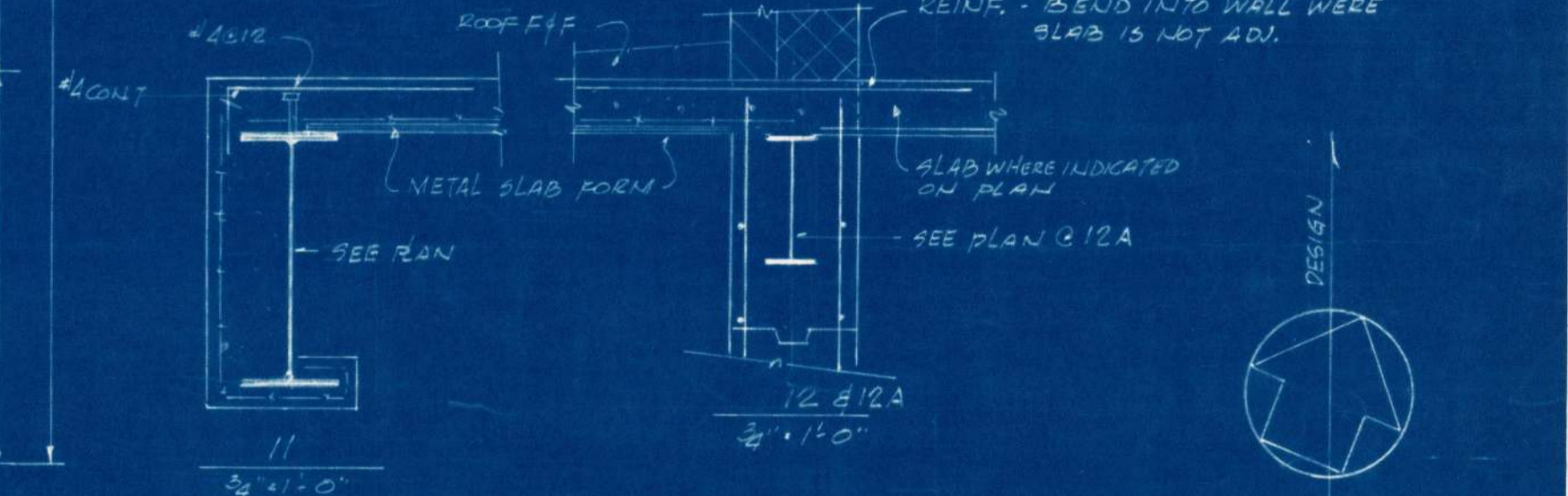
**SLABS**

MARK	THICKNESS	BOT. REINF.	REMARKS
S-1	5"	A <sub>3</sub> # 10 @ 18"	W W M
S-2	5"	A <sub>3</sub> # 10 @ 18"	"
S-3	5"	A <sub>3</sub> # 10 @ 18"	"
S-4	5"	A <sub>3</sub> # 10 @ 18"	WOOD FORM
S-5	5"	A <sub>3</sub> # 10 @ 18"	"
S-6	5"	A <sub>3</sub> # 10 @ 18"	MINIMUM DITCH TO BE DRAWN TO SEE PLAN S
S-7	5"	A <sub>3</sub> # 10 @ 18"	"

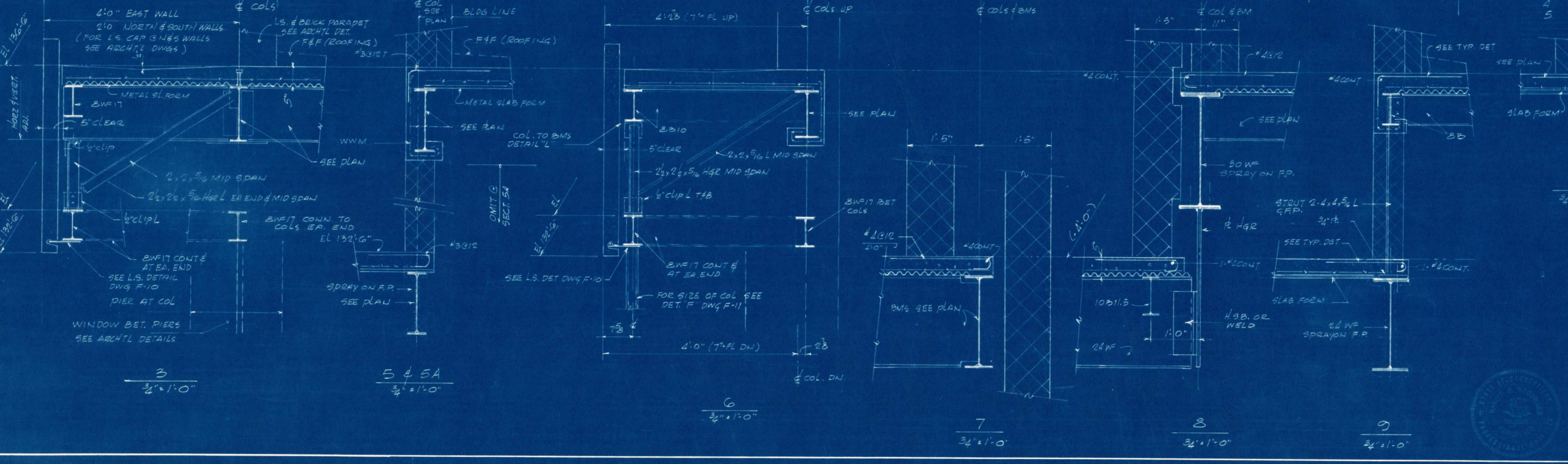
**ELEVATOR MACH. RM LOADS (KIPS)**  
(LOADS DOUBLED FOR IMPACT)

MARK	LOAD	REMARKS
A	11.5	
B	7.0	

NOTE: EXACT ELEV. REACTIONS USED SHALL BE INCLUDED ON APPROVED ELEV. SHOP DRAWINGS.



- TOP OF CONC. ROOF SLAB EL. 132'-6" DATUM
- CONC. SLAB TO BE ON METAL SLAB FORM. U/LIN. FOR REINF. SEE PLAN S & SLAB SCHEDULE THIS DWG.
- TOP OF STEEL BMS (5") FROM DATUM, 1'-0" N. ON PLAN THIS (---)
- FOR COLUMN SCHEDULE SEE DWG. NO. F-18 & 19
- FOR TYPICAL DETAILS & GENERAL NOTES SEE DWG. NO. F-17



STATE OF CONNECTICUT  
PUBLIC WORKS DEPARTMENT  
C. I. SWEENEY, COMMISSIONER

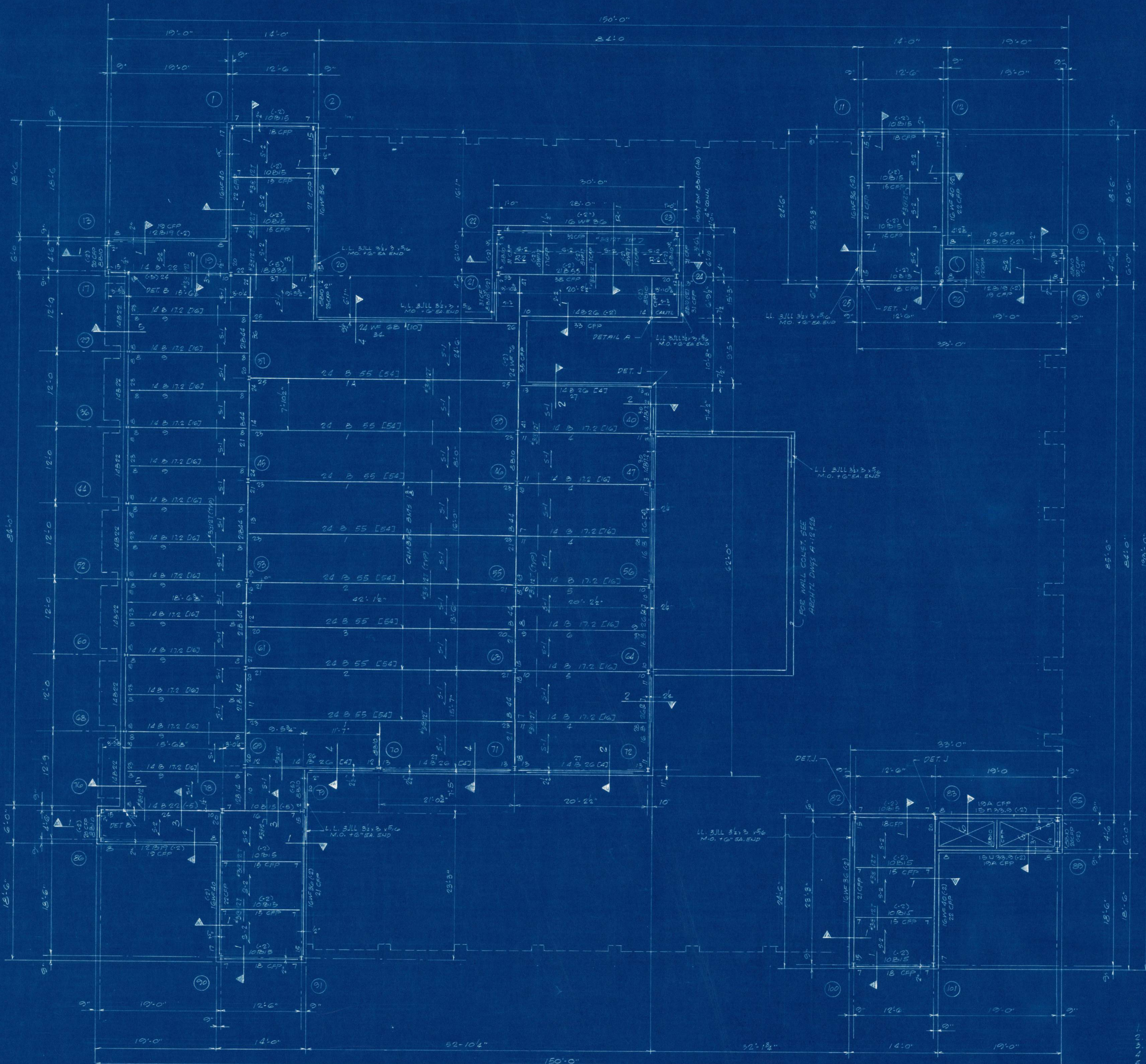
PROJECT NO. 31-10-17  
DRAWING NO. F-12

STATE COURT HOUSE COMPLEX  
MAIN STREET  
BRIDGEPORT, CONNECTICUT

PLANS PREPARED BY  
LYONS & MATHER  
ARCHITECTS  
355 MAIN STREET, BRIDGEPORT, CONN.

SCALE AS NOTED  
DATE AUG 21 1969

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# **Section 50 30 00 Hazardous Building Materials Inspection and Inventory**

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**PRE-RENOVATION  
INVESTIGATIVE SURVEY FOR  
ASBESTOS-CONTAINING MATERIALS  
BRIDGEPORT SUPERIOR COURTHOUSE  
BRIDGEPORT, CONNECTICUT**

Project No. 18-JD-HAZ-03  
DCS No. 03343

*Prepared for*  
State of Connecticut  
Department of Administration Services  
Division of Construction Services  
Hartford, Connecticut

*Prepared by*  
TRC  
Windsor, Connecticut

A handwritten signature in cursive script, reading 'Donald LePage', is positioned above a horizontal line.

Donald LePage  
Project Manager

A handwritten signature in cursive script, reading 'Edmund J. Burke', is positioned above a horizontal line.

Edmund J. Burke, P.E.  
Engineer in Charge

TRC Project No. 318702-0000-0000  
November 20, 2018

**TRC**  
21 Griffin Road North  
Windsor, Connecticut 06095  
Telephone (860) 298-9692  
Facsimile (860) 298-6399



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### EXECUTIVE SUMMARY

On October 24, 2018 TRC of Windsor, Connecticut conducted an inspection for suspect asbestos-containing materials (ACM) at the Bridgeport Superior Courthouse in Bridgeport, Connecticut. The inspection was initiated prior to planned renovation activities in accordance with USEPA Asbestos National Emissions Standard for Hazardous Air Pollutants (NESHAPS) requirements.

The scope of the inspection was limited to the roof areas of the subject building. A Connecticut licensed asbestos inspector from TRC conducted the inspection in accordance with USEPA AHERA protocols and ASTM Standard E2356-04. Bulk samples of suspect materials were collected and analyzed via polarized light microscopy (PLM) and/or PLM gravimetric analysis methods at a CTDPH/NVLAP accredited laboratory. ACM was identified as black tar on roof insulation under cellulose layer, black tar under flashing, pourable conduit sealant and black drain tar in the subject area. ACM to be impacted by renovation activities must be removed prior to disturbance in accordance with OSHA, USEPA, CTDPH, and CTDEEP standards for asbestos abatement/disposal. Detailed results of the asbestos survey can be found in Tables 1-3 and Appendices A through E.

**PROJECT OUTLINE**

Project Address: Bridgeport Superior Courthouse  
1061 Main Street, Bridgeport, CT

DCS Contract No. 13PSX0017

DCS Project Manager: Michael Sanders

DCS Project No.: 18-JD-HAZ-03

DCS Building No: 03343

TRC Project No.: 318702-0000-0000

TRC Project Manager: Don LePage

Asbestos Inspector: Carmen Jacko (LIC #000812)

Date of Inspection: 10/24/18

Asbestos Identified: Yes

**Additional Notes:**

The site investigation was limited to the collection and analysis of suspect asbestos-containing materials from the exterior roof areas of the building.

<b>TABLE 1 BULK SAMPLE SUMMARY OF SUSPECT ASBESTOS CONTAINING MATERIALS BRIDGEPORT SUPERIOR COURTHOUSE BRIDGEPORT, CONNECTICUT</b>			
Sample No.	Sample Location	Homogeneous Material	% and Type Asbestos
1	South balcony second floor	Rubber roof adhesive (black)	ND
2	South balcony second floor	Rubber roof adhesive (black)	ND*
3	South balcony second floor	Brown insulation board	ND
4	South balcony second floor	Brown insulation board	ND
5	South balcony second floor	Rubber flashing adhesive (black)	ND
6	South balcony second floor	Rubber flashing adhesive (black)	ND*
7	South balcony second floor	Grey sealant patching	ND
8	South balcony second floor	Grey sealant patching	ND*
9	South balcony second floor	Grey caulk on capstone	ND
10	South balcony second floor	Grey caulk on capstone	ND*
11	Upper roof	Adhesive on rubber roof (black)	ND
12	Lower roof	Adhesive on rubber roof (black)	ND*
13	Upper roof	Black tar on roof insulation under cellulose layer	30% chrysotile
14	Upper roof	Black tar on roof insulation under cellulose layer	NA/PS
15	Upper roof	Gypsum deck under roof (white)	ND
16	Lower roof	Gypsum deck under roof (white)	ND
17	Upper roof	Black pipe adhesive	ND
18	Upper roof	Black pipe adhesive	ND*
19	Upper roof	Adhesive on flashing (black)	ND
20	Lower roof	Adhesive on flashing (black)	0.26% chrysotile*
21	Upper roof	Tar under flashing (black)	30% chrysotile
22	Lower roof	Tar under flashing (black)	NA/PS
23	Lower Roof	Pourable sealant on conduit (black)	ND
24	Lower Roof	Pourable sealant on conduit (black)	3.4% chrysotile*
25	Lower Roof	Black adhesive on HVAC flashing	ND
26	Lower Roof	Black adhesive on HVAC flashing	ND*

NA/PVA Not analyzed/positive via inseparable association with a confirmed positive ACM

NA/PS Not analyzed/positive stop, homogeneous to sample proven to contain asbestos

ND<1% Non-detected, less than 1%

ND No asbestos detected

+ Although found to be negative by analysis, material is homogeneous to a determined ACM and therefore must be considered positive

1 NOB material; result confirmed by TEM analyses

\* Analyzed by EPA/600/R-93/116 with gravimetric reduction

TABLE 1 (...continued) BULK SAMPLE SUMMARY OF SUSPECT ASBESTOS CONTAINING MATERIALS BRIDGEPORT SUPERIOR COURTHOUSE BRIDGEPORT, CONNECTICUT			
Sample No.	Sample Location	Homogeneous Material	% and Type Asbestos
27	Lower Roof	Pitch box tar	ND
28	Lower Roof	Pitch box tar	ND*
29	Lower Roof	Black tar on drain	10% chrysotile
30	Lower Roof	Black tar on drain	NA/PS

- NA/PVA Not analyzed/positive via inseparable association with a confirmed positive ACM
- NA/PS Not analyzed/positive stop, homogeneous to sample proven to contain asbestos
- ND<1% Non-detected, less than 1%
- ND No asbestos detected
- + Although found to be negative by analysis, material is homogeneous to a determined ACM and therefore must be considered positive
- 1 NOB material; result confirmed by TEM analyses
- \* Analyzed by EPA/600/R-93/116 with gravimetric reduction

<b>TABLE 2 IDENTIFIED ASBESTOS CONTAINING MATERIALS (&gt;1%) BRIDGEPORT SUPERIOR COURTHOUSE BRIDGEPORT, CONNECTICUT</b>					
Material	Sampled- Assumed (mo/yr)	General Location	NESHAP Category	AHERA Category	Estimated Quantity
Black tar on roof insulation under cellulose layer	Sampled 10/18	Upper roof	Category I Non-friable	Miscellaneous	22,400 SF
Tar under flashing (black)	Sampled 10/18	Lower roof, upper roof	Category I Non-friable	Miscellaneous	900 SF
Pourable sealant on conduit (black)	Sampled 10/18	Lower Roof	Category I Non-friable	Miscellaneous	5 SF
Black tar on drain	Sampled 10/18	All roof drains	Category I Non-friable	Miscellaneous	50 SF

*\* Roof tars have been completely exempted from OSHA Asbestos regulations and, as a Category I Non-friable material, do not need to be removed from a structure prior to renovation/demolition under EPA Asbestos NESHAP regulations and, so long as the materials are exterior to a structure and will remain Category I Non-friable materials during renovation/demolition, are not covered under the CTDPH Asbestos Abatement standards. In addition, as Category I Non-friable materials, the roof tars do not need to be disposed of as asbestos waste under the EPA Asbestos NESHAP regulations; however, the CTDEEP special waste regulations would not allow the material to be disposed of as general construction waste within the State of Connecticut. Disposal of the roof tars as general construction waste (so long as the materials are not rendered into a state which would define them as regulated asbestos-containing materials (RACM), i.e., friable) is, however, allowed in other states such as Massachusetts.*

AHERA Categories = thermal system insulation (TSI), surfacing material or miscellaneous  
 NESHAP Categories = friable, category I non-friable or category II non-friable  
 Friable = crumbled, pulverized or reduced to powder by hand pressure when dry  
 Category I Non-friable = packings, gaskets, resilient floor covering and asphalt roofing  
 Category II Non-friable = all non-friable that is not Category I

<b>TABLE 3 CONFIRMED NON-ASBESTOS CONTAINING MATERIALS BRIDGEPORT SUPERIOR COURTHOUSE BRIDGEPORT, CONNECTICUT</b>	
<b>Material</b>	<b>General Location</b>
Rubber roof adhesive (black)	North & South balconies
Brown insulation board	North & South balconies
Rubber flashing adhesive (black)	North & South balconies
Grey sealant patching	North & South balconies
Grey caulk on capstone	North & South balconies
Adhesive on rubber roof (black)	Throughout roof
Gypsum deck under roof (white)	Throughout roof
Black pipe adhesive	All vent pipes
Adhesive on flashing (black)	Upper roof, lower roof
Black adhesive on HVAC flashing	Lower roof
Pitch box tar	Throughout roof

**APPENDIX A**  
**SITE SKETCHES**







SUBJECT BRIDGEPORT COURTHOUSE

SHEET NO. 1 OF 3  
PROJECT NO. 318702.0001  
DATE 10/24/18  
BY CARMEN JACKS  
CHK'D

RUBBER ROOF ADHESIVE (BLACK)	
SOUTH BALCONY	1
	2
BROWN INSULATION BOARD	
SOUTH BALCONY	3
	4
RUBBER FLASHING ADHESIVE (BLACK)	
SOUTH BALCONY	5
	6
GREY SEALANT PATCHING ON PENETRATION	
SOUTH BALCONY	7
	8
GREY CAULK ON CAPSTONE	
SOUTH BALCONY	9
	10
ADHESIVE ON RUBBER ROOF	
UPPER ROOF	11
LOWER ROOF	12
BLACK TAR ON INSULATION	
UPPER ROOF	13
	14
GYPSUM DECK UNDER ROOFING (WHITE)	
UPPER ROOF	15
LOWER ROOF	16
PIPE ADHESIVE (BLACK)	
UPPER ROOF	17
	18



SUBJECT \_\_\_\_\_

SHEET NO. 2 OF 3  
PROJECT NO. 318762.0001  
DATE 10/24/18  
BY CARMEN JACKO  
CHK'D \_\_\_\_\_

ADHESIVE ON FLASHING (BLACK)	
UPPER ROOF	19
LOWER ROOF	20
TAR <sup>WOOD</sup> ON FLASHING (BLACK)	
UPPER ROOF	21
LOWER ROOF	22
POURABLE SEALANT ON CONDUIT	
LOWER ROOF	23
	24
BLACK ADHESIVE ON HVAC FLASHING (BLACK)	
LOWER ROOF	25
	26
PITCH BOX TAR	
LOWER ROOF	27
	28
BLACK TAR ON DRAIN	
LOWER ROOF	29
	30

A

**APPENDIX B**  
**LABORATORY AND INSPECTOR ACCREDITATIONS**

*State of Connecticut, Department of Public Health*  
*Approved Environmental Laboratory*

THIS IS TO CERTIFY THAT THE LABORATORY DESCRIBED BELOW HAS BEEN APPROVED BY THE STATE DEPARTMENT OF PUBLIC HEALTH PURSUANT TO APPLICABLE PROVISIONS OF THE PUBLIC HEALTH CODE AND GENERAL STATUTES OF CONNECTICUT, FOR MAKING THE EXAMINATIONS, DETERMINATIONS OR TESTS SPECIFIED BELOW WHICH HAVE BEEN AUTHORIZED IN WRITING BY THAT DEPARTMENT.

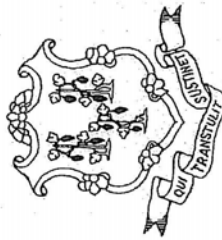
**TRC ENVIRONMENTAL CORPORATION**

LOCATED AT 21 Griffin Road North IN Windsor, CT 06095  
AND REGISTERED IN THE NAME OF Erik Plimpton

THIS CERTIFICATE IS ISSUED IN THE NAME OF Kathleen Williamson WHO HAS BEEN DESIGNATED BY THE REGISTERED OWNER/AUTHORIZED AGENT TO BE IN CHARGE OF THE LABORATORY WORK COVERED BY THIS CERTIFICATE OF APPROVAL AS FOLLOWS:





**BUILDING MATERIALS  
ASBESTOS FIBERS - PCM  
BULK IDENTIFICATION - PLM**

SEE COMPUTER PRINT-OUT FOR SPECIFIC TESTS APPROVED  
EFFECTIVE RENEWAL DATE JANUARY 1, 2018  
THIS CERTIFICATE EXPIRES DECEMBER 31, 2019 AND IS REVOCABLE FOR CAUSE BY THE STATE DEPARTMENT OF PUBLIC HEALTH DATED AT HARTFORD, CONNECTICUT, THIS 19<sup>th</sup> DAY OF December, 2017



Registration  
No. PH-0426

**SUZANNE BLANCAFLOR, MS, MPH**  
CHIEF, ENVIRONMENTAL HEALTH SECTION

	<b>STATE OF CONNECTICUT</b> DEPARTMENT OF PUBLIC HEALTH ENVIRONMENTAL HEALTH SECTION	
<b>ENVIRONMENTAL LABORATORY CERTIFICATION PROGRAM</b> CERTIFIED ANALYTES REPORT FOR ALL MATRICES		
<b>TRC-Environmental Corporation</b> 21 GRIFFIN ROAD NORTH WINDSOR, CT 060951590		
CT REGISTRATION NUMBER : <input type="text" value="PH-0426"/>		
REGISTERED OWNER / AUTHORIZED AGENT : Erik Plimpton DIRECTOR : Kathleen Williamson CO DIRECTOR(S) : PHONE : (860) 298-9692		
LABORATORY REGISTRATION EFFECTIVE DATE : <input type="text" value="01/01/2018"/>		
LABORATORY REGISTRATION EXPIRATION DATE : <input type="text" value="12/31/2019"/>		
LABORATORY STATUS : <input type="text" value="APPROVED"/>		
APPROVED BY  SUZANNE BLANCAFLOR, MS, MPH CHIEF, ENVIRONMENTAL HEALTH SECTION		
REVIEWED BY  12/19/2017 11:00:24 AM DERMOT JONES		
ANY QUESTIONS CONCERNING THIS DOCUMENT SHOULD BE ADDRESSED TO THE ENVIRONMENTAL LABORATORY CERTIFICATION PROGRAM AT (860) 509-7389		

Edition: October 2009  
Supersede Previous Editions

**CTRC**  
21 GRIFFIN ROAD NORTH  
WINDSOR, CONNECTICUT 06095  
TELEPHONE (860) 298-9692  
FAX (860) 298-6380

**ASBESTOS BULK SAMPLING  
CHAIN OF CUSTODY**

PROJECT NUMBER: 318702.0001  
PROJECT NAME: BRIDGEPORT COUNTHOUSE  
INSPECTOR: CARMEN JACKS

LAB ID #: 52975  
TURNAROUND TIME:  
 PLM: 8hr 24hr 48hr 3day  
 TML: 24hr 48hr 3day 5day

FIELD SAMPLE NUMBER	DATE	TIME	TYPE		SAMPLE LOCATION	PLM BEA 600/R3/116 (POSITIVE STOP)	PLM BEA 600/R3/116 (w/ gravimetric reduction) (POSITIVE STOP)	ANALYZE BY LAYER	POINT COUNT (E > 15 & < 10%)	TRM NR NOB 1984 (IF PLM SERIES NRG)	MATERIAL
			COM	GRA							
23	10/24/18		X		LOWER ROOF	✓					
24			X		LOWER ROOF		✓				POURABLE SEALANT ON CONCRETE (BLIND)
25			X		LOWER ROOF	✓					BLACK ADA ON HVAC FLASHING
26			X		LOWER ROOF		✓				PITCH BOX TAR
27			X		LOWER ROOF	✓					
28			X		LOWER ROOF		✓				
29			X		LOWER ROOF	✓					
30			X		LOWER ROOF		✓				BLIND TAR ON DOWN

Relinquished by: (Signature) *[Signature]* Date: 10/24/18 Received by: (Signature) *[Signature]* Date: 10/29/18

(Printed) CARMEN JACKS Time: 0500 Relinquished by: (Signature) (Printed) Time: (Printed)

Remarks: SEND TO DLAPAL@TRCSOLUTIONS.COM. Condition of Samples: Acceptable for:  No Comments:

Page 26 of 25

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**CONSTRUCTION, RENOVATION & DEMO BLDG  
MATERIALS**

STATUS REPORTED ON 12/19/2017

---

**ANALYTE NAME**

ASBESTOS

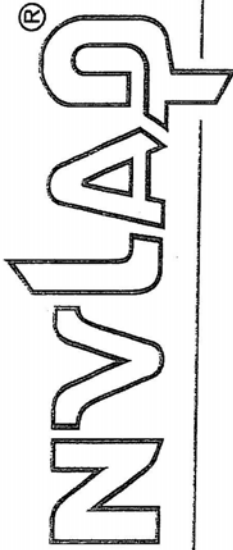
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ASBESTOS FIBERS (PCM)

ASBESTOS IN BULK MATERIALS (PLM)



United States Department of Commerce  
National Institute of Standards and Technology



**Certificate of Accreditation to ISO/IEC 17025:2005**

NVLAP LAB CODE: 101424-0

**TRC Environmental Corporation**  
Windsor, CT

is accredited by the National Voluntary Laboratory Accreditation Program for specific services,  
listed on the Scope of Accreditation, for:

**Asbestos Fiber Analysis**

*This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005.  
This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality  
management system (refer to joint ISO-ILAC-IAF Communiqué dated January 2009).*

2018-07-01 through 2019-06-30  
Effective Dates

A handwritten signature in black ink, appearing to read "Peter S. Lamm".

For the National Voluntary Laboratory Accreditation Program

[Print Lookup Details](#)

Page 1 of 1



State of Connecticut

## Lookup Detail View

### Name

Name

CARMEN J JACKO

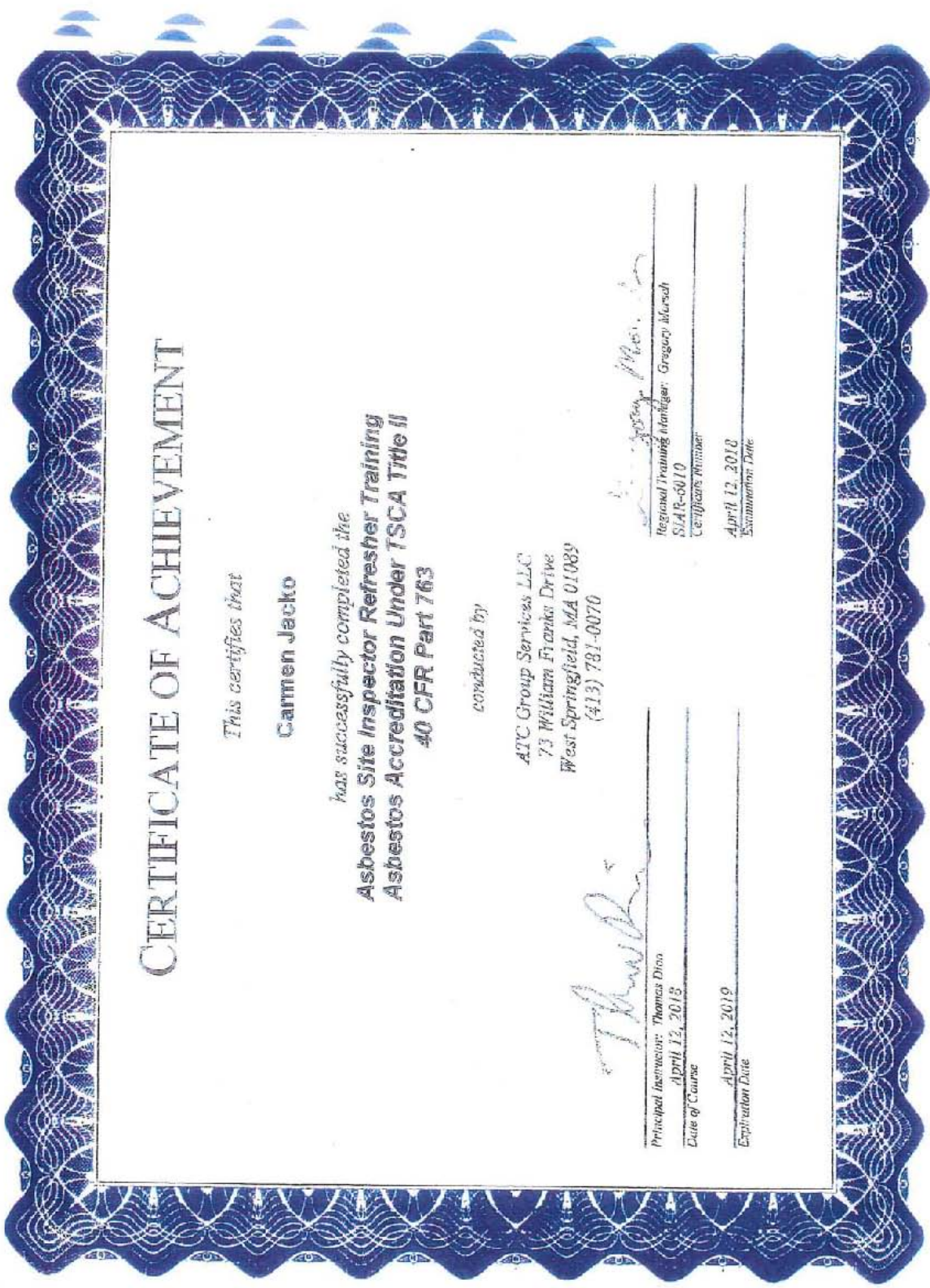
### License Information lookup

License Type	License Number	Expiration Date	Granted Date	License Name	License Status		Licensure Actions or Pending Charges
Asbestos Consultant-Inspector	812	09/30/2018	05/31/2012	CARMEN J JACKO	ACTIVE	CURRENT	None

Generated on: 11/7/2018 10:50:40 AM

<https://www.elicense.ct.gov/Lookup/PrintLicenseDetails.aspx?cred=1066158&contact=13...> 11/7/2018

**APPENDIX C**  
**ASBESTOS BULK SAMPLE CHAIN OF CUSTODY**  
**FORMS**



# CERTIFICATE OF ACHIEVEMENT

*This certifies that*

**Carmen Jacko**

*has successfully completed the*  
**Asbestos Site Inspector Refresher Training  
Asbestos Accreditation Under TSCA Title II  
40 CFR Part 763**

*conducted by*

**ATC Group Services LLC  
73 William Franks Drive  
West Springfield, MA 01089  
(413) 781-0070**

*Thomas Dixon*

**Principal Instructor: Thomas Dixon  
April 12, 2019  
Date of Course**

**April 12, 2019  
Expiration Date**

*Gregory Murch*

**Regional Training Manager: Gregory Murch  
S/A R-6010  
Certificate Number**

**April 12, 2018  
Examination Date**

Edition: October 2009  
Supersede Previous Edition

**ASBESTOS BULK SAMPLING  
CHAIN OF CUSTODY**

21 GRIFFIN ROAD NORTH  
WINDSOR, CONNECTICUT 06095  
TELEPHONE (860) 298-9692  
FAX (860) 298-6380

PROJECT NUMBER: 318702.0001  
PROJECT NAME: BRIDGEPORT CAUTIONHOUSE  
INSPECTOR: CARMEN JACKS

LAB ID #: 52975  
TURNAROUND TIME: 3hr, 24hr, 48hr, 3day, 5day

FIELD SAMPLE NUMBER	DATE	TIME	TYPE		SAMPLE LOCATION	PLATE EPA 608/R93/16 (POSITIVE STOP)	PLATE EPA 608/R93/16 (w/ gravimetric reduction) (POSITIVE STOP)	ANALYZE BY (LAB)	POINT COUNT (IR % < 10%)	TRM NY NOB 1984 (IF PLASMERIES NEG)	MATERIAL
			COMP	GRAB							
12	10/24/18		X		LOWER ROOF	✓					ADHESIVE ON RUBBER ROOF (BLACK)
13			X		UPPER ROOF	✓					BLACK TAR ON ROOF INSULATION
14			X		↓						WATER ON ROOF
15			X		UPPER ROOF	✓					CYPSUM DECK UNDER ROOF (WHITE)
16			X		LOWER ROOF	✓					↓
17			X		UPPER ROOF	✓					BLACK PIPE ADHESIVE
18			X		↓						↓
19			X		UPPER ROOF	✓					ADHESIVE ON FLASHING (BLACK)
20			X		LOWER ROOF	✓					↓
21			X		UPPER ROOF	✓					TAR UNDER FLASHING (BLACK)
22			X		LOWER ROOF	✓					↓

Relinquished by: (Signature) <i>Carmen Jacks</i>	Date: 10/24/18	Received by: (Signature) <i>[Signature]</i>	Date: 10/24/18
(Printed) CARMEN JACKS	Time: 0900	(Printed) <i>[Signature]</i>	Time: 0900
Remarks: SEND TO DIAPAGE @ TDC SOLUTIONS.COM.	Condition of Samples: Acceptable: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		Components: _____

Page 1 of 3

PLM Gravimetric Analysis

Date	Analyst	Lab Log #	Sample ID	Crucible ID	g crucible	g crucible plus sample	g after 480°	decimal Residue	% Asb in residue	% Asb total Sample
10/29/2018	KW	52975	2	104	24.9276	25.0184	24.9584	0.339	0.00	0.00
			6	105	21.0805	21.2824	21.1298	0.244	0.00	0.00
			8	106	23.593	23.7592	23.6398	0.282	0.00	0.00
			10	107	25.7728	26.0661	25.9547	0.620	0.00	0.00
			12	108	19.6154	19.7213	19.6512	0.338	0.00	0.00
			18	109	17.9135	18.392	18.2099	0.619	0.00	0.00
			20	110	19.7159	19.7598	19.7217	0.132	2.00	0.26
			24	112	20.5415	20.6838	20.5904	0.344	10.00	3.44
			26	113	18.9544	19.1408	19.0159	0.330	0.00	0.00
			28	114	20.1668	20.2788	20.2091	0.378	0.00	0.00

52975.DCS Gravimetric.xls

10/30/2018

**APPENDIX D**  
**PLM LABORATORY ANALYSIS DATA**

Industrial Hygiene Laboratory  
21 Griffin Road North  
Windsor, CT 06095  
(860) 298-6308



Page 1 of 2  
52975.CT-DCS.doc

**BULK ASBESTOS ANALYSIS REPORT**

CLIENT: CT Department of Construction Services

Lab Log #: 0052975  
Project #: 318702.0001.0000  
Date Received: 10/29/2018  
Date Analyzed: 10/30/2018

Site: Bridgeport Courthouse, Bridgeport, CT

**POLARIZED LIGHT MICROSCOPY by EPA 600/R-93/116**

Sample No.	Color	Homogenous	Multi-Layered	Layer No.	Other Matrix Materials	Asbestos %	Asbestos Type
1	Black (adhesive)	Yes	No	--	60% cellulose	ND	None
2	Black (adhesive)	Yes	No	--	---	ND	None
3	Brown (insulation board)	Yes	No	--	99% cellulose	ND	None
4	Brown (insulation board)	Yes	No	--	99% cellulose	ND	None
5	Black (adhesive)	Yes	No	--	20% cellulose	ND	None
6	Black (adhesive)	Yes	No	--	---	ND	None
7	Grey/Black (sealant patching)	Yes	No	--	---	ND	None
8	Grey/Black (sealant patching)	Yes	No	--	---	ND	None
9	Grey (caulk)	Yes	No	--	---	ND	None
10	Grey (caulk)	Yes	No	--	---	ND	None
11	Black (adhesive)	Yes	No	--	60% cellulose	ND	None
12	Black (adhesive)	Yes	No	--	---	ND	None
13	Black (tar)	Yes	No	--	---	30%	Chrysotile
14	--	--	--	--	--	NA/PS	--
15	White (gypsum deck)	Yes	No	--	---	ND	None
16	White (gypsum deck)	Yes	No	--	---	ND	None
17	Black (adhesive)	Yes	No	--	---	ND	None

TRC LABORATORY ASBESTOS ANALYTICAL ACCREDITATIONS

NVLAP Lab Code 101424-0 AIHA-LAP, LLC #100122 CT #PH-0426 ME LA-0075, LB-0071 MA #AA000052 NY #10980 WV# LT000411  
RI #AAL-007 TX #300354 VT #AL014538 LA#05011 VA #3333 000283 AZ #A20944 HI #L-09-004 NJ #CT004 CA #2907  
CO# AL-15020 PHIL# 461 PA#68-03387



Industrial Hygiene Laboratory  
21 Griffin Road North  
Windsor, CT 06095  
(860) 298-6308



Page 2 of 2  
52975.CT-DCS.doc

**POLARIZED LIGHT MICROSCOPY by EPA 600/R-93/116**

Sample No.	Color	Homogenous	Multi-Layered	Layer No.	Other Matrix Materials	Asbestos %	Asbestos Type
18♣	Black (adhesive)	Yes	No	--	---	ND	None
19	Black (adhesive)	Yes	No	--	30% cellulose	ND	None
20♣	Black (adhesive)	Yes	No	--	---	0.26%	Chrysotile
21	Black (tar)	Yes	No	--	---	30%	Chrysotile
22	--	--	--	--	--	NA/PS	--
23	Grey/Black (sealant)	Yes	No	--	---	ND	None
24♣	Grey/Black (sealant)	Yes	No	--	---	3.4%	Chrysotile
25	Black (adhesive)	Yes	No	--	30% cellulose	ND	None
26♣	Black (adhesive)	Yes	No	--	---	ND	None
27	Black (pitch box tar)	Yes	No	--	---	ND	None
28♣	Black (pitch box tar)	Yes	No	--	---	ND	None
29	Black (tar)	Yes	No	--	---	10%	Chrysotile
30	--	--	--	--	--	NA/PS	--

♣Samples analyzed by EPA/600/R-93/116 with gravimetric reduction

Reporting limit- asbestos present at 1%

ND - asbestos was not detected

Trace - asbestos was observed at level of less than 1%

NA/PS - Not Analyzed / Positive Stop

SNA- Sample Not Analyzed- See Chain of Custody for details

Note: Polarized-light microscopy is not consistently reliable in detecting asbestos in floor coverings and similar non-friable organically bound materials. In those cases, EPA recommends, and certain states (e.g. NY) require, that negative results be confirmed by quantitative transmission electron microscopy.

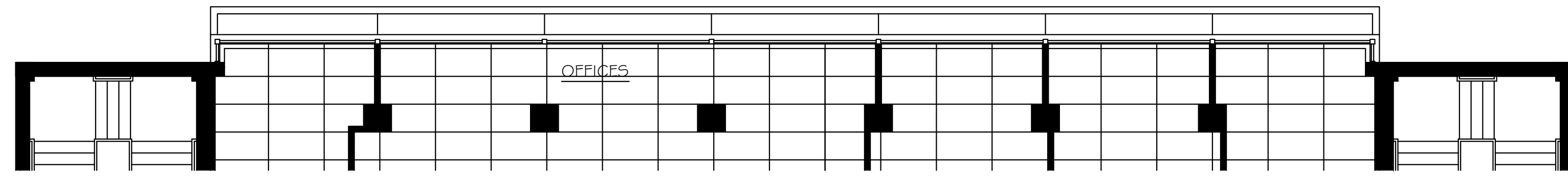
The Laboratory at TRC follows the EPA's Interim Method for the Determination of Asbestos in Bulk Insulation 1982 (EPA 600/M4-82-020) Bulk Analysis Code 18/A01 and the EPA recommended Method for the Determination of Asbestos in Bulk Building Materials July 1993, R.L. Perkins and B.W. Harvey, (EPA/600/R-93/116) Bulk Analysis Code 18/A03, which utilize polarized light microscopy (PLM). Our analysts have completed an accredited course in asbestos identification. TRC's Laboratory is accredited under the National Voluntary Laboratory Accreditation Program (NVLAP), for Bulk Asbestos Fiber Analysis, NVLAP Code 18/A01, effective through June 30, 2019. TRC is accredited by the AIHA Laboratory Accreditation Programs (AIHA-LAP), LLC in the Industrial Hygiene Program (IHLAP) for PLM effective through October 1, 2019. Asbestos content is determined by visual estimate unless otherwise indicated. Quality Control is performed in-house on at least 10% of samples and QC data related to the samples is available upon written request from client.

This report shall not be reproduced, except in full, without the written approval of TRC. This report must not be used by the client to claim product endorsement by NVLAP or any agency of the U.S. Government. This report relates only to the items tested.

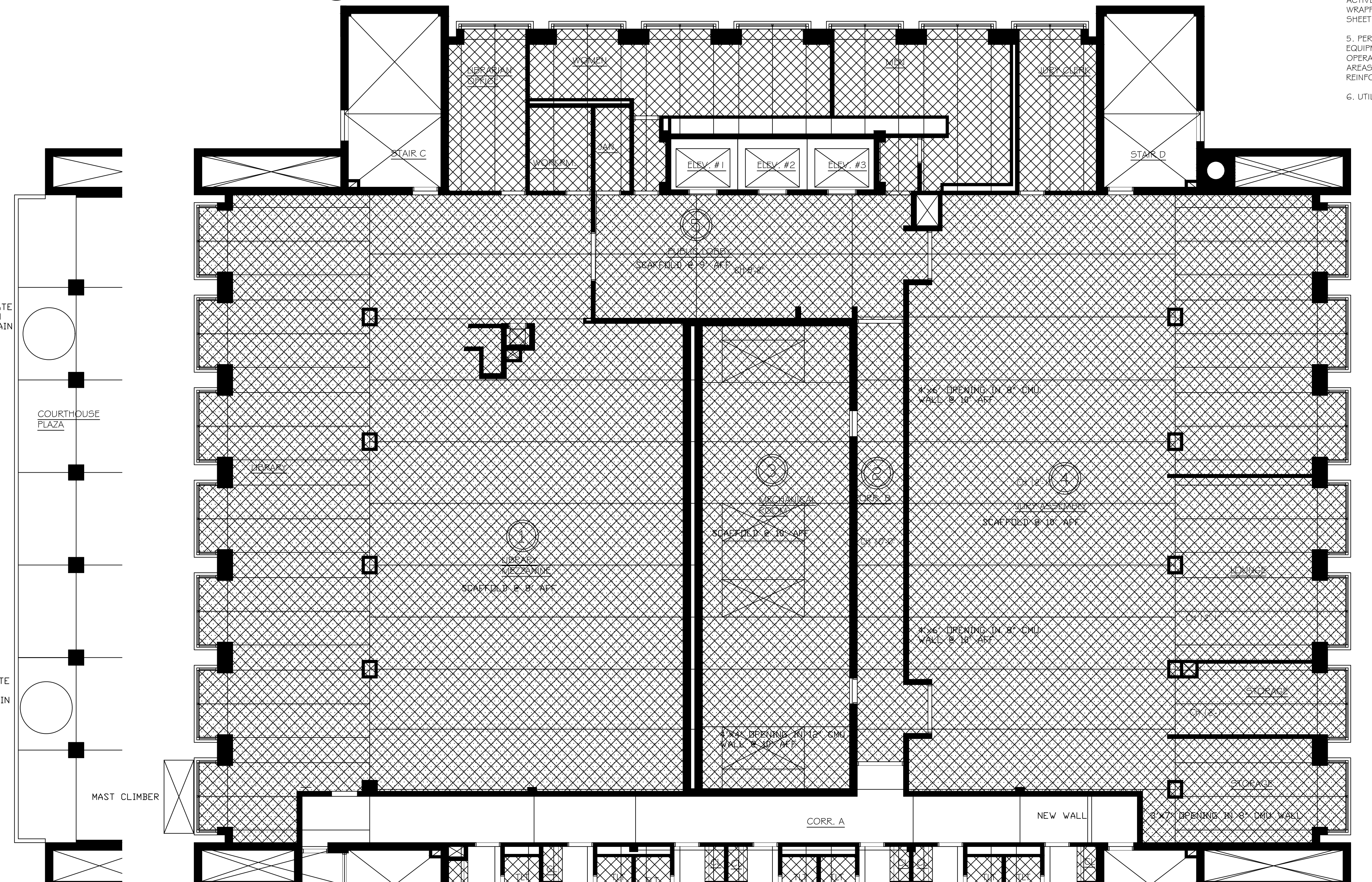
Analyzed by: K. Williamson Reviewed by: Cathryn Lemire Date Issued: 10/30/2018  
 Kathleen Williamson, Laboratory Manager Cathryn Lemire, Approved Signatory

TRC LABORATORY ASBESTOS ANALYTICAL ACCREDITATIONS

NVLAP Lab Code 101424-0 AIHA-LAP, LLC #100122 CT #PH-0426 ME LA-0075, LB-0071 MA #AA000052 NY #10980 WV# LT000411  
 RI #AAL-007 TX #300354 VT #AL014538 LA#05011 VA #3333 000283 AZ #A20944 HI #L-09-004 NJ #CT004 CA #2907  
 CO# AL-15020 PHIL# 461 PA#68-03387



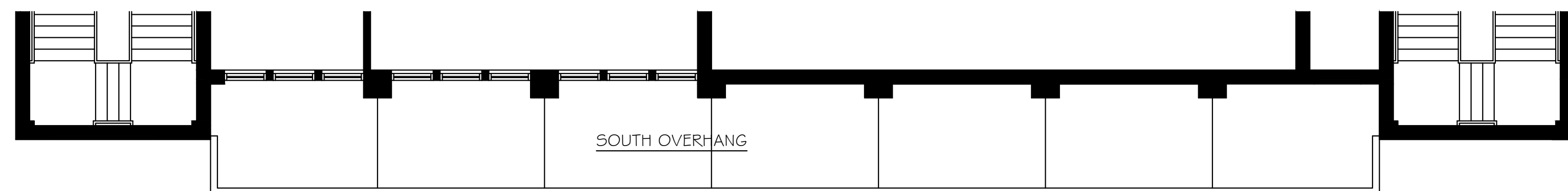
3 FIRST FLOOR PLAN - NORTH SIDE  
A-102 SCALE: 1/8"=1'-0"



2 FIRST FLOOR PLAN - WEST SIDE  
A-102 SCALE: 1/8"=1'-0"

4 FIRST FLOOR PLAN - EAST SIDE  
A-102 SCALE: 1/8"=1'-0"

1 SEVENTH FLOOR PLAN  
A-102 SCALE: 1/8"=1'-0"



5 FIRST FLOOR PLAN - SOUTH SIDE  
A-102 SCALE: 1/8"=1'-0"

HVAC NOTES

- COORDINATE SHUTDOWN OF HVAC SYSTEMS WITH THE OWNERS REPRESENTATIVE AND THE BUILDING MAINTENANCE STAFF.
- SEAL HVAC SUPPLY AND RETURN VENTS IN ABATEMENT AREAS.
- ZONE 1 (LIBRARY) HVAC EQUIPMENT IN MECHANICAL ROOM TO BE SHUT DOWN DURING ABATEMENT WORK.
- ZONE 2 (CORRIDOR AND JURY ASSEMBLY) HVAC EQUIPMENT IN MECHANICAL ROOM TO REMAIN OPERATIONAL DURING ABATEMENT. ACTIVE HVAC SYSTEM COMPONENTS WITHIN ABATEMENT AREAS SHALL BE WRAPPED WITH TWO (2) LAYERS OF 6-MIL FR REINFORCED POLYETHYLENE SHEETING.
- PERIMETER AREAS (JUDGES CHAMBERS AND OFFICES) HVAC EQUIPMENT IS LOCATED ON ANOTHER FLOOR AND WILL REMAIN OPERATIONAL. ACTIVE HVAC SYSTEM COMPONENTS WITHIN ABATEMENT AREAS SHALL BE WRAPPED WITH TWO (2) LAYERS OF 6-MIL FR REINFORCED POLYETHYLENE SHEETING.
- UTILIZE EXHAUST FAN #2 DURING RESTROOM ABATEMENT.

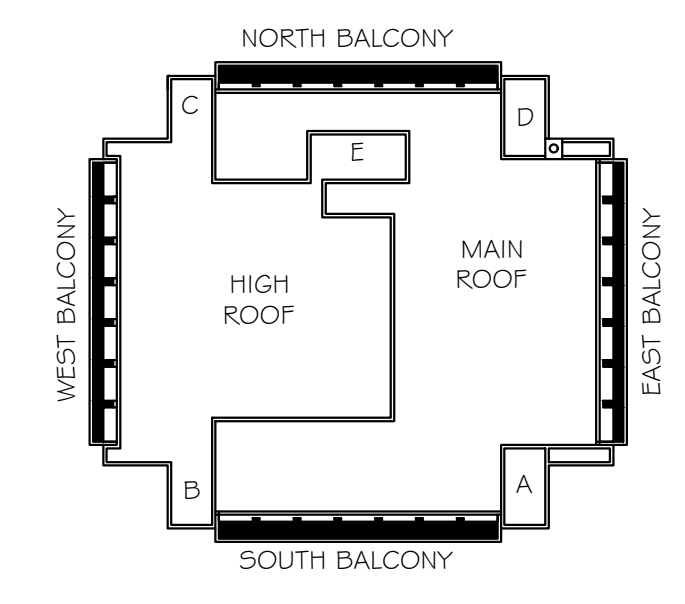
ABATEMENT NOTES

- COORDINATE ALL ASBESTOS REMOVAL ACTIVITIES WITH DEMOLITION AND RENOVATION PHASING AND SEQUENCING. COORDINATE THE LOCATION OF DEMOLITION AND REMOVAL OF EXISTING CONSTRUCTION PRIOR TO ASBESTOS REMOVAL ACTIVITIES.
- REMOVE ALL ACM FIREPROOFING, OVERSPRAY AND CONTAMINATED CEILING COMPONENTS, THE USE OF COMPRESSED AIR OR WATER PRESSURE SYSTEMS TO REMOVE ACM FIREPROOFING IS PROHIBITED.
- ESTABLISH ENGINEERING CONTROLS PRIOR TO EXISTING CEILING COMPONENT REMOVAL OR ANY ACTIVITY WHICH MAY DISTURB ACM.
- PROVIDE A SUITABLE QUANTITY OF EXHAUST FILTRATION DEVICES TO PROVIDE A MINIMUM OF EIGHT (8) AIR CHANGES PER HOUR, MAINTAIN A PRESSURE DIFFERENTIAL IN THE RANGE OF 0.02 AND 0.04 INCHES OF WATER COLUMN BETWEEN THE WORK AREA AND OCCUPIED AREAS.
- ALL EXHAUST AIR FILTRATION DEVICES SHALL BE VENTED EXTERIOR TO THE BUILDING.
- ALL MEP SYSTEMS ABOVE EXISTING CEILINGS SHALL BE CLEANED VIA HEPA VACUUMING AND WET WIPING AND PROTECTED WITH 6-MIL FR REINFORCED POLYETHYLENE SHEETING. ACTIVE HVAC SYSTEM COMPONENTS WITHIN ABATEMENT AREAS SHALL BE WRAPPED WITH TWO (2) LAYERS OF 6-MIL FR REINFORCED POLYETHYLENE SHEETING.
- PERFORM SELECTIVE DEMOLITION TO THE EXTENT INDICATED OR NECESSARY TO FACILITATE ASBESTOS ABATEMENT ACTIVITIES.
- UTILIZE A MAST CLIMBER FOR DELIVERY OF MATERIALS AND EQUIPMENT TO THE SEVENTH FLOOR AND FOR THE LOADOUT OF ALL WASTE FROM THE PROJECT. REMOVING ANY WASTE MATERIALS THROUGH THE BUILDING IS PROHIBITED.
- SCAFFOLD LIBRARY/LIBRARY MEZZANINE, JURY ASSEMBLY, MECHANICAL ROOM, CORRIDOR B, AND PUBLIC LOBBY. APPROXIMATE SCAFFOLD HEIGHTS ARE INDICATED. SCAFFOLD FLOOR SHALL BE COVERED WITH 20-MIL FR WATERPROOF TARP, AND TWO (2) LAYERS OF 6-MIL FR REINFORCED POLYETHYLENE SHEETING. ALL SEAMS OVERLAPPED TWELVE (12) INCHES AND UNDER SIDE AND TOP SEALED WITH TAPE.
- HARD BARRIERS SHALL CONSIST OF 3/4" FR GYPSUM BOARD ON METAL FRAMING 16" OC, JOINTS TAPED AND PERIMETER EDGES CALKED.
- SEE ARCHITECTURAL AND PLUMBING DRAWINGS FOR ADDITIONAL REQUIREMENTS.
- PROVIDE AN OPAQUE SCREEN AROUND EACH PERSONNEL AND EQUIPMENT DECONTAMINATION FACILITY TO OBSCURE IT FROM OCCUPIED AREAS.

LEGEND

- SCAFFOLD AREA. REFER TO SPECIFIC NOTES FOR DETAILS AND ABATEMENT SEQUENCE.
- REMOVE ENTIRE CEILING SYSTEM AND CEILING MOUNTED COMPONENTS AFTER OPERATION OF THE NEGATIVE PRESSURE ENCLOSURE.
- SEQUENCING ORDER FOR SCAFFOLD AREAS.
- SELECTIVE REMOVAL OF WALL CONSTRUCTION.
- STRUCTURAL STEEL SHOWN AS A GENERAL REFERENCE. VERIFY EXISTING CONDITIONS.

KEY PLAN (BALCONIES ARE ON THE 2ND FLOOR)




drawing title <b>FIRST &amp; SEVENTH FLOOR ABATEMENT PLANS</b>		STATE OF CONNECTICUT DEPARTMENT OF ADMINISTRATIVE SERVICES	
professional seal	REVISIONS	drawing prepared by <b>ATC Group Services LLC</b> 290 Robert Street East Hartford CT 06108 www.atcg.com 860.282.9924	date 8/14/2020
mark	date	project <b>ROOF &amp; MASONRY REPLACEMENT BRIDGEPORT SUPERIOR COURT</b> 1061 MAIN STREET BRIDGEPORT, CT	scale AS NOTED
		CAD no.	project no. BI-JD-364
			drawn by EPF approved by EPF drawing no. <b>HM-101</b>



# **Section 50 60 00 FM Global Checklist for Roofing Systems**

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**SAMPLE FM GLOBAL CHECKLIST FOR ROOFING SYSTEMS – page 1**



## CHECKLIST FOR ROOFING SYSTEM

<b>CONTACT INFORMATION:</b>		<b>INDEX NUMBER:</b>	
ROOFING CONTRACTOR (NAME & ADDRESS)	TELEPHONE NO.:	FAX:	
	E-MAIL ADDRESS:	CONTACT:	
CLIENT (NAME & ADDRESS)	TELEPHONE NO.:	FAX:	
	E-MAIL ADDRESS:	CONTACT:	

**OVERVIEW OF WORK:** *(Submit 1 form per roof area)*

Building Name & Number:			
Building Dimensions: Length:	ft/m;	Width:	ft/m;
Roof Slope:		Height	ft/m.
Parapet Height ,max (in./m):		Parapet Height ,min (in./m):	
Type of Work: <input type="checkbox"/> New Construction <input type="checkbox"/> Recover (New roof over existing Roofing System)			
<input type="checkbox"/> Reroof (New cover/remove existing roofing system to deck) <input type="checkbox"/> Other			
FM Approved RoofNav Assembly Numbers:			

**ROOF SURFACING:**

<input type="checkbox"/> None			
<input type="checkbox"/> Coating		<i>(Trade Name/Application Rate)</i>	
<input type="checkbox"/> Granules		<i>(Application Rate)</i>	
<input type="checkbox"/> Gravel/Slag		<i>(Application Rate)</i>	
<input type="checkbox"/> Ballast:	<input type="checkbox"/> Stone Size	<input type="checkbox"/> Pavers	<i>(Beveled or square edge);</i> <input type="checkbox"/> Other:
Ballast Weight (psf): Field:		Perimeter:                      Corners:	

**ROOF COVER/MEMBRANE:**  
*(Please provide ALL applicable details including trade name, type, number of plies, thickness, reinforced, adhesive)*

<input type="checkbox"/> Panel: <input type="checkbox"/> Through Fastened Metal <input type="checkbox"/> Standing Seam metal <input type="checkbox"/> Fiber Reinforced Plastic (FRP) <input type="checkbox"/> Other:	<input type="checkbox"/> Built Up Roofing (BUR) <input type="checkbox"/> Modified Bitumen <input type="checkbox"/> Single Ply: <input type="checkbox"/> Adhered <input type="checkbox"/> Fastened <input type="checkbox"/> Ballasted <input type="checkbox"/> Spray Applied <input type="checkbox"/> Other:
---	---

**BASE SHEET:**  
*(Please include Trade Name, Type, and Width)*

<input type="checkbox"/> None	
Trade Name:	Width: <input type="checkbox"/> 36 In. <input type="checkbox"/> 1 meter (39 In.)
<input type="checkbox"/> Fastened	<input type="checkbox"/> Adhered
<input type="checkbox"/> Secured per RoofNav	OR <input type="checkbox"/> Per FM Global Loss Prevention Data Sheet 1-29
Comments:	
<input type="checkbox"/> Air Retarder	
<input type="checkbox"/> Vapor Retarder	

**INSULATION**

Layer	Trade Name	Thickness (In.)	Fastened	Adhered	Tapered
1. Top			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Next			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Next			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Next			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

<input type="checkbox"/> Glass Fiber/Mineral Wool/Batt	<input type="checkbox"/> Facer Type/Vapor Barrier
<input type="checkbox"/> Thermal Barrier	

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**SAMPLE FM GLOBAL CHECKLIST FOR ROOFING SYSTEMS – page 2**

<b>CHECKLIST FOR ROOFING SYSTEM</b>		
<input type="checkbox"/> Other:		
<input type="checkbox"/> None		
<b>DECK:</b> <i>(Please include manufacturer, type, yield strength, thickness/gage, etc.)</i>		
<input type="checkbox"/> Steel:		
<input type="checkbox"/> LWIC (Form Deck):		<input type="checkbox"/> Cementitious Wood Fiber:
<input type="checkbox"/> Concrete: <input type="checkbox"/> Pre-cast panels or <input type="checkbox"/> Cast in Place		
<input type="checkbox"/> Wood		
<input type="checkbox"/> Fiber Reinforced Cement		<input type="checkbox"/> Fiber Reinforced Plastic
<input type="checkbox"/> Gypsum: <input type="checkbox"/> Plank		<input type="checkbox"/> Poured
<input type="checkbox"/> Other:		
Comments:		
<b>ROOF STRUCTURE (Include Size, Gage, Etc.):</b>		
<input type="checkbox"/> Purlins <input type="checkbox"/> "C" OR <input type="checkbox"/> "Z"		
<input type="checkbox"/> Joists <input type="checkbox"/> Wood OR <input type="checkbox"/> Steel		
<input type="checkbox"/> Beams <input type="checkbox"/> Wood OR <input type="checkbox"/> Steel		
<input type="checkbox"/> Other:		
Spacing: Field:	Perimeter:	Corners:
Comments:		
<b>FASTENERS USED IN ROOF ASSEMBLY:</b>		
Roof Cover Fasteners: Trade Name:		Length: Diameter:
Stress Plate/Batten:		
Spacing: Field: X	Perimeter: X	Corners: X
Insulation Fasteners: Trade Name:		Type:
Size:		Stress Plate:
Spacing: Field:	Perimeter:	Corners:
<b>Deck Or Roof Panels Fasteners:</b>		Type:
Trade Name:		Size Washer:
Length:		Washer:
If Weld: Size:		Weld:
Deck Side Lap Fasteners: Field: X	Perimeter: X	Corners: X
Spacing: Field: X	Perimeter: X	Corners: X
<b>Base Sheet Fasteners</b>		Type:
Trade Name:		Length:
Head Diameter:		
Spacing: (Attached Sketches as necessary)		
Spacing Along Laps: Field:		Perimeter: Corners:
No. Intermediate Rows: Field:		Perimeter: Corners:
Spacing Along Intermediate Rows: Field:		Perimeter: Corners:
<b>PERIMETER FLASHING:</b> <i>(Attach a detailed sketch of metal fascia, gravel stop, nailer, coping, etc.)</i>		
<input type="checkbox"/> FM Approved Flashing		<input type="checkbox"/> Per FM Global Loss Prevention Data Sheet 1-49
<input type="checkbox"/> Other:		Comments:
<b>DRAINAGE:</b>		
For new construction: Has roof drainage been designed by a Qualified Engineer per FM Global Loss Prevention Data Sheet 1-54 and the local building code? <input type="checkbox"/> Yes <input type="checkbox"/> No (Attach details)		
For re-roofing and recovering: will the roof drainage be changed from the original design (for example: drain inserts, drains covered or removed, new expansion joints, blocked or reduced scupper size)? <input type="checkbox"/> Yes <input type="checkbox"/> No		
If yes, were the changes reviewed by a Qualified Engineer? <input type="checkbox"/> Yes <input type="checkbox"/> No (Attach details)		
Is secondary (emergency) roof drainage provided per FM Global Data Sheet 1-54? <input type="checkbox"/> Yes <input type="checkbox"/> No (Attach details)		
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# **Section 50 70 00**

## **Statement of Special Inspections**

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# Statement of Special Inspections

Project: *BI-JD-364 Roof and Masonry Replacement Bridgeport Superior Courthouse*

Location: *1061 Main Street, Bridgeport, CT*

Owner: *State of Connecticut DAS, 450 Columbus Blvd. Hartford, CT 06103*

Design Professional in Responsible Charge: *OakPark Architects, LLC*

This *Statement of Special Inspections* is submitted as a condition for permit issuance in accordance with the Special Inspection and Structural Testing requirements of the Building Code. It includes a schedule of Special Inspection services applicable to this project as well as the name of the Special Inspection Coordinator and the identity of other approved agencies to be retained for conducting these inspections and tests. This *Statement of Special Inspections* encompass the following disciplines:

- Structural       Mechanical/Electrical/Plumbing  
 Architectural       Other: *Spray-Applied Fire Resistant Material*

The Special Inspection Coordinator shall keep records of all inspections and shall furnish inspection reports to the Building Official and the Registered Design Professional in Responsible Charge. Discovered discrepancies shall be brought to the immediate attention of the Contractor for correction. If such discrepancies are not corrected, the discrepancies shall be brought to the attention of the Building Official and the Registered Design Professional in Responsible Charge. The Special Inspection program does not relieve the Contractor of his or her responsibilities.

Interim reports shall be submitted to the Building Official and the Registered Design Professional in Responsible Charge.

A *Final Report of Special Inspections* documenting completion of all required Special Inspections, testing and correction of any discrepancies noted in the inspections shall be submitted prior to issuance of a Certificate of Use and Occupancy.

Job site safety and means and methods of construction are solely the responsibility of the Contractor.

Interim Report Frequency: *Per Month* or  per attached schedule.

Prepared by:

*Mark Welch, AIA*

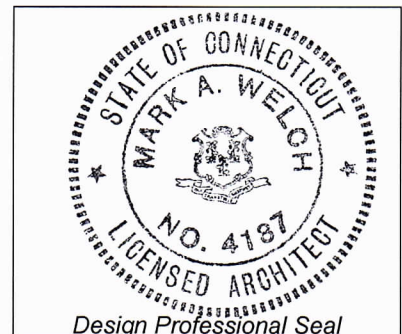
(type or print name)

*Mark A. Welch*

Signature

*8/17/2020*

Date



Owner's Authorization:

Building Official's Acceptance:

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

# Schedule of Inspection and Testing Agencies

This Statement of Special Inspections / Quality Assurance Plan includes the following building systems:

- |  |   |
|--|---|
| <input type="checkbox"/> Soils and Foundations     | <input checked="" type="checkbox"/> Spray Fire Resistant Material |
| <input type="checkbox"/> Cast-in-Place Concrete    | <input type="checkbox"/> Wood Construction                        |
| <input type="checkbox"/> Precast Concrete          | <input type="checkbox"/> Exterior Insulation and Finish System    |
| <input type="checkbox"/> Masonry                   | <input type="checkbox"/> Mechanical & Electrical Systems          |
| <input type="checkbox"/> Structural Steel          | <input type="checkbox"/> Architectural Systems                    |
| <input type="checkbox"/> Cold-Formed Steel Framing | <input type="checkbox"/> Special Cases                            |

Special Inspection Agencies	Firm	Address, Telephone, e-mail
1. <b>Special Inspection Coordinator</b>	<i>To Be Determined</i>	<i>TBD</i>
2. Inspector	<i>TBD</i>	<i>TBD</i>
3. Inspector		
4. Testing Agency	<i>TBD</i>	<i>TBD</i>
5. Testing Agency		
6. Other		

Note: The inspectors and testing agencies shall be engaged by the Owner or the Owner's Agent, and not by the Contractor or Subcontractor whose work is to be inspected or tested. Any conflict of interest must be disclosed to the Building Official, prior to commencing work.

Item	Agency # (Qualif.)	Scope
1. Material Specifications	ICC-SFSI	Review material conformance with contract specifications and approved submittals.
2. Laboratory Tested Fire Resistance Design	ICC-SFSI	Review UL fire resistive design for each rated beam, column, or assembly.
3. Schedule of Thickness	ICC-SFSI	Verify thickness requirements to maintain required fire rating with manufacturer.
4. Surface Preparation	ICC-SFSI	Verify that surfaces have been prepared in accordance with the approved fire-resistance design and the approved manufacturer's written instruction. Inspect at frequency required to ensure that all prepared surfaces have been inspected prior to application of the sprayed fire-resistant material.
5. Application	ICC-SFSI	Inspect application of fireproofing.
6. Curing and Ambient Condition	ICC-SFSI	Verify ambient air temperature after application and ventilation before and after application is suitable for application and curing of fireproofing.
7. Thickness	ICC-SFSI	Test thickness of fireproofing (ASTM E605). Perform a set of thickness measurements for every 1,000 SF of floor and roof assemblies and on not less than 25% of rated beams and columns. The average thickness of the sprayed fire-resistant materials applied to structural elements shall not be less than the thickness required by the approved fire-resistant design. Individual measured thickness, which exceeds the thickness specified in a design by ¼ inch or more, shall be recorded as the thickness specified in the design plus ¼ inch. For design thickness 1 inch or more, the minimum allowable individual thickness minus ¼ inch. For design thickness less than 1 inch, the minimum allowable individual thickness shall be the design thickness minus 25 percent. Thickness shall be determined in accordance with ASTM E605.
8. Density	ICC-SFSI	Review density of sprayed on fireproofing with approved design by fireproofing manufacturer. Test in accordance with ASTM E605. Conduct inspections twice a week while spray applied fireproofing is being installed.

9. Bond Strength	ICC-SFSI	<p><i>Provide random adhesive/cohesive bond strength tests of the cured sprayed fire-resistant material are not less than the specified bond strength, or 430 psf, whichever is greater. Test are to be in accordance with ASTM E736 and as follows:</i></p> <ol style="list-style-type: none"> <li><i>1. Floor, roof, and wall assemblies: Test one sample for not less than every 10,000 square feet of floor area or part thereof at each level.</i></li> <li><i>2. Structural steel framing members: Select samples from beams, girders, joists, and columns at a rate of not less than one per 10,000 square feet of floor or roof area or part thereof at each level.</i></li> </ol>
10. Other:	ICC-SFSI	<p><i>Continuous monitoring of testing lab results to assure conformance of construction documents. Notify architect of record immediately of all discrepancies.</i></p> <p><i>Verify that the assigned inspection agencies are conducting the inspections required.</i></p> <p><i>Perform observations at least once every two weeks during application of spray applied fire-resistant material.</i></p>