



**Volume 1 of 2**  
**Project Manual**  
***Enfield Armory Kitchen and Latrine Renovation***  
**1635 King Street**  
**Enfield, CT**  
**Project No.: BI-Q-672C**

CTARNG Tracking No.: EN-1301C

**Prepared By:**  
***Architect: ID3A, LLC***  
***655 Winding Brook Drive***  
***Glastonbury, CT 06033***

**Josh Geballe – Commissioner**

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

**Project Manual Date: July 10, 2018**



**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 NEW REPORTING AND CONTRACTING REQUIREMENTS:**

**05/14/19: UPDATED SECTION 00 72 13.1 SUPPLEMENTARY CONDITIONS:**

The following Articles of the 00 72 13.1 Supplementary Conditions have been revised 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 35 Contractor's Insurance:** Section 35.1 and Section 35.6 (See Section 35.6 as follows):

**Section 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:** 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>	Enfield Armory Kitchen & Latrine Renovation
<b>Project Location:</b>	Enfield, Connecticut
<b>Project Number:</b>	BI-Q-672C
<b>Architect/Engineer:</b>	id3A, LLC 655 Winding Brook Drive Glastonbury, CT, 06033

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

 <p>(Seal and Signature)</p>	<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>Stevanie Demko (Print Consultant Name) <u>0000280</u> License No. <u>12/31/18</u> Expiration Date</p>	 <p>(Seal and Signature)</p>	<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><u>Thomas St. Denis</u> (Print Consultant Name) <u>15272</u> License No. <u>1/31/2019</u> Expiration Date</p>
<p>(Seal and Signature)</p>	<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>	 <p>(Seal and Signature)</p>	<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><u>Gregory H. Van Deusen</u> (Print Consultant Name) <u>17928</u> License No. <u>1/31/2019</u> Expiration Date</p>
 <p>(Seal and Signature)</p>	<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><u>Gregory H. Van Deusen</u> (Print Consultant Name) <u>17928</u> License No. <u>1/31/2019</u> Expiration Date</p>	<p>(Seal and Signature)</p>	<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>



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## DIVISION 00 PROCUREMENT AND CONTRACTING REQUIREMENTS

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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	2	<input type="checkbox"/>
00 11 16	Invitation to Bid	3	<input type="checkbox"/>
00 21 13	<b>NEW:</b> Instructions To Bidders	17	<input type="checkbox"/>
00 25 13	<b>NEW:</b> Pre-Bid Meeting Agenda	3	<input type="checkbox"/>
00 30 00	General Statements for Available Information	3	<input type="checkbox"/>
00 30 10	General Statement for Existing Conditions Information		<input checked="" 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 checked="" 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 checked="" type="checkbox"/>
00 41 00	Bid Proposal Form ( <i>Bidder uploads to BizNet</i> )	9	<input type="checkbox"/>
00 41 10	<b>NEW:</b> 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 checked="" 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	25	<input type="checkbox"/>
00 72 13.1	Supplementary Conditions	2	<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	42	<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		<input checked="" 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	13	<input 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	8	<input type="checkbox"/>
01 35 26	Government Safety Requirements	4	<input type="checkbox"/>
01 42 20	Reference Standards & Definitions	3	<input type="checkbox"/>
01 45 00	Quality Control	5	<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	2	<input type="checkbox"/>
01 73 29	Cutting and Patching	4	<input type="checkbox"/>
01 74 19	Construction Waste Management & Disposal	5	<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	5	<input type="checkbox"/>
01 80 13	Sustainable Design Requirements		<input checked="" type="checkbox"/>
01 91 00	Commissioning	6	<input type="checkbox"/>

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22 05 16	Expansion Fittings and Loops for Plumbing Piping	10
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22 05 18	Escutcheons for Plumbing Piping	3
22 05 23	General-Duty Valves for Plumbing Piping	17
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22 05 53	Identification for Plumbing Piping and Equipment	10
22 07 19	Plumbing Piping Insulation	22
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22 13 19	Sanitary Waste Piping Specialties	18
22 13 19.13	Sanitary Drains	3
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22 42 13.13	Commercial Water Closets	6
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23 05 13	Common Motor Requirements for HVAC Equipment	4
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23 05 17	Sleeves and Sleeve Seals for HVAC Piping	3
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26 05 23	Control-Voltage Electrical Power Cables	12
26 05 26	Grounding and Bonding for Electrical Systems	5
26 05 29	Hangers and Supports for Electrical Systems	6
26 05 33	Raceway and Boxes for Electrical Systems	14
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<b>DIVISION 41</b>	<b>MATERIAL PROCESSING</b>		<b>Not Used</b> <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>50 10 00</b>	Existing Conditions Information			<input checked="" type="checkbox"/>
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<b>50 20 00</b>	Environmental Assessment Information			<input checked="" type="checkbox"/>
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<b>50 30 00</b>	Hazardous Building Materials Inspection and Inventory	<b>31</b>		<input type="checkbox"/>
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<b>50 40 00</b>	Subsurface Geotechnical Report			<input checked="" type="checkbox"/>
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<b>50 50 00</b>	Elevator Agreement			<input checked="" type="checkbox"/>
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<b>50 60 00</b>	FM Global Checklist For Roofing Systems			<input checked="" type="checkbox"/>
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<b>50 70 00</b>	Statement of Special Inspections	<b>2</b>		<input type="checkbox"/>
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<b>50 80 00</b>	Other Information:			<input checked="" type="checkbox"/>
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MEP-4	MEP SCHEDULES
MEP-5	MEP SCHEDULES

**PLUMBING**

PD-101	PLUMBING DEMOLITION PLAN
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P-101 PLUMBING PLAN  
P-201 PLUMBING KITCHEN PART PLAN  
P-301 PLUMBING DETAILS

**HVAC**

HD-101 HVAC DEMOLITION PLAN  
H-101 HVAC DUCTWORK PLAN  
HP-101 HVAC PIPING PLAN  
H-301 HVAC DETAILS  
H-302 HVAC DETAILS

**ELECTRICAL**

ED-101 ELECTRICAL DEMOLITION PLAN  
EL-101 ELECTRICAL LIGHTING PLAN  
EPS-101 ELECTRICAL POWER AND SPECIAL SYSTEMS PLAN  
E-201 ELECTRICAL KITCHEN PART PLAN  
E-301 ELECTRICAL DETAILS

**TECHNOLOGY**

T-101 TECHNOLOGY PLAN

**FOODSERVICE**

FS-001 FOODSERVICE PLAN AND SCHEDULE  
PLAN  
FS-601 FOODSERVICE EQUIPMENT ELEVATIONS

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



Advertisement No.:	19-13	Advertisement Date:	May 10, 2019
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<p><b>INVITATION TO BID</b></p> <p>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, call 860-713-5794.
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<b>Date and Time of Bid Opening:</b>	<table border="1"> <tr> <td style="padding: 5px;"><b>JUNE</b> <i>(Month)</i></td> <td style="padding: 5px;"><b>19</b> <i>(Day)</i></td> <td style="padding: 5px;"><b>2019</b> <i>(Year)</i></td> </tr> </table>	<b>JUNE</b> <i>(Month)</i>	<b>19</b> <i>(Day)</i>	<b>2019</b> <i>(Year)</i>	<b>Time:</b>	<table border="1"> <tr> <td style="padding: 5px;"><b>1:00</b> <i>(ET)</i></td> <td style="padding: 5px;"><b>PM</b></td> </tr> </table>	<b>1:00</b> <i>(ET)</i>	<b>PM</b>
<b>JUNE</b> <i>(Month)</i>	<b>19</b> <i>(Day)</i>	<b>2019</b> <i>(Year)</i>						
<b>1:00</b> <i>(ET)</i>	<b>PM</b>							

<b>This Invitation to Bid is for the following Project:</b>
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<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>Project Title:</b>	Enfield Armory Kitchen and Latrine Renovation		
<b>Project Location:</b>	1635 King Street Enfield, CT		
<b>Project Number:</b>	BI-Q-672C		
<b>Project Description:</b>	Interior renovations to include a new kitchen and latrine facilities		
<b>Work Includes But Is Not Limited To The Following:</b>	Cast-place-concrete, masonry, miscellaneous metals, rough carpentry, arch. woodwork, insulation, roofing and sheet metal, fire stopping, joint sealing, doors, frames and hardware drywall, ceilings and painting, visual display boards, toilet compartments and lockers, plumbing, fire protection and HVAC, electrical and fire alarm systems, foodservice equipment		
<b>Date DAS Began Planning Project:</b>	5/10/2013		
<b>Special Requirements:</b>	N/A		
<b>Cost Estimate Range:</b>	\$ 1,540,102.	<b>To</b>	\$ 1,621,159.
<b>Date Plans &amp; Specs Ready:</b>	May 15, 2019		
<b>Plans and Specs Download:</b>	Plans and Specs are available for electronic download on the DAS State Contracting Portal.		



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<b>Invitation to Bid (continued)</b>
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<b>Contract Time Allowed:</b>	<b>Calendar Days:</b>	300
<b>Liquidated Damages:</b>	\$ 515.00	Per Calendar Day Beyond Substantial Completion.
	\$ 448.00	Per Calendar Day Beyond 90 days After Substantial Completion
<b>Pre-Bid Meeting Date:</b>	May 24, 2019	
	<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>	10:00	<input checked="" type="checkbox"/> <b>AM</b> <input type="checkbox"/> <b>PM</b>
<b>Pre-Bid Meeting Location:</b>	1635 King Street, Enfield, CT – Enfield Armory	
<b>Pre-Bid Meeting Contact:</b>	<b>DAS/CS Project Manager:</b>	Ronald Wilfinger
	<b>Phone No.:</b>	860.713.5648
<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>Subcontractor and/or Supplier Small Business Enterprise (SBE) &amp; Minority Business Enterprise (MBE) Set-Aside Requirements:</b>	See 00 41 00 Bid Proposal Form	
<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.  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 not 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.	



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**Invitation to Bid (continued)**

**Important Notices:**

**UPDATED DOCUMENTS:**

Many **Division 00** and **Division 01** documents have been updated. Read all of the contents of the Project Manual *carefully!*

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 **reject the bid!**

**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 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.

**IMPORTANT NOTE:** *The Commissioner of the CT 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.*



<b>Advertisement No.:</b>	<b>19-13</b>	<b>Advertisement Date:</b>	<b>May 10, 2019</b>
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<b>Invitation to Bid (continued)</b>
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<b>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.</b>
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All <b>Project Questions</b> and Pre-Bid <b>Equals and Substitution Requests</b> must be emailed (not phoned) to the <b>Architect/Engineer</b> with a <b>copy</b> to the <b>Construction Administrator</b> and the <b>DAS/CS Project Manager</b> listed below.
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<b>Architect/Engineer:</b>	ID3A, LLC	<b>Email:</b>	sdemko@id3architecture.com
<b>Construction Administrator:</b>	Ronald Wilfinger	<b>Email:</b>	Ronald.Wilfinger@ct.gov
<b>DAS/CS Project Manager:</b>	Ronald Wilfinger	<b>Email:</b>	Ronald.Wilfinger@ct.gov

All <b>Bid Questions</b> must be emailed to the <b>DAS/CS Associate Fiscal Administrative Officer</b> listed below.
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<b>DAS/CS Associate Fiscal Administrative Officer:</b>	Mellanee Walton	<b>Email:</b>	Mellanee.Walton@ct.gov
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## Instructions to Bidders

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

<b>1.0 General Bid Proposal Information</b>	
<b>1.1 On-Line Bidding:</b>	
<b>1.1.1</b>	The Department of Administrative Services (DAS) Construction Services (CS) has streamlined the Bid process by allowing contractors to submit their <b>Bid Package Documents on line</b> through the <b>State Contracting Portal</b> and <b>BizNet</b> . Rather than submitting paper Bid Package Documents, contractors simply respond to an <b>Invitation to Bid</b> on the <b>State Contracting Portal</b> by retrieving and uploading their documents electronically through their <b>BizNet</b> account. Once completed, the Bid Proposal must be <b>electronically signed prior</b> to the date and time of the <b>Bid Opening</b> . See <b>Page 1</b> of the <b>Invitation to Bid</b> for the <b>Date and Time of the Bid Opening</b> .
<b>1.1.2</b>	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> . For questions, call 860-713-5794.
<b>1.2 Bid Opening:</b>	
All Bids shall be publicly opened in BizNet by the awarding authority as stated in <b>Section 00 11 16 Invitation to Bid</b> .	
<b>1.3 Withdrawal of Bid:</b>	
Any <b>Bid</b> once uploaded into BizNet cannot be deleted. A Bid may only be <b>withdrawn</b> by uploading a written <b>Letter of Withdrawal</b> to BizNet using the " <b>Other Solicitation Document</b> " link <b>prior</b> to the date and time of the Bid Opening.	
<b>1.4 Disqualification from Bidding:</b>	
Any contractor who violates any provision of <b>Connecticut General Statutes (C.G.S.) § 4b-95</b> , as revised, shall be <b>disqualified</b> from bidding on other contracts for a period not to exceed <b>twenty-four (24) months</b> , commencing from the date on which the violation is discovered, for each violation.	
<b>1.5 Waive Minor Irregularities:</b>	
<b>1.5.1</b>	The awarding authority <b>shall</b> be authorized to <b>waive minor irregularities</b> 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.
<b>1.5.2</b>	<b>No</b> 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 <b>C.G.S. § 4b-95</b> , as revised, to be furnished in the bid form provided by the awarding authority.
<b>1.6 Minimum Percentage of Work:</b>	
The awarding authority <b>may</b> require in the <b>Bid Proposal Form</b> that the contractor agree to perform a stated, minimum percentage of work with its <b>own forces</b> , in accordance with <b>C.G.S. § 4b-95(b)</b> .	
<b>1.7 Set-Aside Contracts:</b>	
The awarding authority <b>may also</b> require the contractor to set aside a portion of the contract for subcontractors who are eligible for <b>set-aside contracts</b> .	
<b>1.8 Connecticut Sales And Use Taxes:</b>	
<b>1.8.1</b>	<b>All Bidders shall</b> familiarize themselves with the current statutes and regulations of the <b>Connecticut Department of Revenue Services (DRS)</b> , 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 <b>Sales and Use Tax Exemption for Purchases by Qualifying Governmental Agencies (CERT-134)</b> , available for download from the DRS website ( <a href="http://www.ct.gov/drs">www.ct.gov/drs</a> ) under "Exemption Certificates".
<b>1.8.2</b>	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.
<b>1.8.3</b>	The following items are <b>not</b> 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</b> the <b>Named Subcontractors</b> on the <b>Bid Proposal Form</b>;</li> <li><b>.3</b> Fails to <b>correctly state</b> a <b>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</b> event will bids or changes in bids be made by telephone, telegraph, facsimile or other communication technology except through BizNet. <b>All</b> pages of the <b>Bid Proposal Form</b> <i>must</i> be uploaded to BizNet prior to the date and time of the Bid Opening.
<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 <b>paper Bid Package</b> 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</b> bids submitted by all contractors who have <i>not</i> properly registered and attended the <b>MANDATORY Pre-Bid Meeting</b> shall be rejected as <b>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</b> ( <a href="http://www.ct.gov/doc">www.ct.gov/doc</a> under “ <b>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 <b>Construction Costs greater than \$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 of 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 any Subcontractors 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. 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 a <b>Named Subcontractor's price</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>may cause 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</b> of <b>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 cause 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	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</b> of the <b>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</b> and <b>Update (Bid) Statement</b> for <b>each</b> 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>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) 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 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.

**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) Every contract to which the state or any political subdivision of the state other than a municipality is a party 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, 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 insure 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, 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;
- (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 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 and 46a-68f; 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, the contractor agrees and warrants that he will make good faith efforts to employ minority business enterprises as subcontractors and suppliers of materials on such public works project.

- (c) (1) Any contractor who has one or more contracts with the state or a political subdivision of the state that is valued at less than fifty thousand dollars for each year of the contract shall provide the state or such political subdivision of the state 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 state or such political subdivision not later than thirty days after such change.
- (2) Any contractor who has one or more contracts with the state or a political subdivision of the state that is valued at fifty thousand dollars or more for any year of the contract shall provide the state or such political subdivision of the state 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 agency of the state or such political subdivision, 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) Neither the state nor any political subdivision 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 state or a political subdivision of the state, whichever is earlier. Such contractor shall also certify, in accordance with subparagraph (B) or (C) of subdivision (2) of this subsection, to the state or political subdivision, 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 state or political subdivision 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, (2) a quasi-public agency, as defined in section 1-120, (3) any other state, as defined in section 1-267, (4) the federal government, (5) a foreign government, or (6) an agency of a subdivision, agency, state or government described in subparagraph (1), (2), (3), (4) or (5) 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 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, 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 such provisions shall be binding on a subcontractor, vendor or manufacturer unless exempted by regulations or orders of the commission. 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, 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) Every contract to which the state or any political subdivision of the state other than a municipality is a party 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) (1) Any contractor who has one or more contracts with the state or a political subdivision of the state that is valued at less than fifty thousand dollars for each year of the contract shall provide the state or such political subdivision of the state 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 the state or a political subdivision of the state that is valued at fifty thousand dollars or more for any year of the contract shall provide the state or such political subdivision of the state 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 agency of the state or such political subdivision, 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) Neither the state nor any political subdivision 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 state or a political subdivision of the state, whichever is earlier. Such contractor shall also certify, in accordance with subparagraph (B) or (C) of subdivision (2) of this subsection, to the state or political subdivision, 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 state or political subdivision is current and accurate.
- 4) 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 (A) a political subdivision of the state, including, but not limited to, a municipality, (B) a quasi-public agency, as defined in section 1-120, (C) any other state, as defined in section 1-267, (D) the federal government, (E) a foreign government, or (F) an agency of a subdivision, agency, state or government described in subparagraph (A), (B), (C), (D) or (E) of this subdivision.

(c) 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 such provisions shall be binding on a subcontractor, vendor or manufacturer unless exempted by regulations or orders of the commission. 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, 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 **Owner** 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 checked="" type="checkbox"/> <b>A Site/Facility Visit or Walkthrough is scheduled for the Pre-Bid Meeting</b> |
| <b>1.3.2</b> | <input type="checkbox"/> <b>A Site/Facility Visit or Walkthrough is <u>NOT</u> scheduled for the Pre-Bid Meeting</b> |

**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> ID3A, Stevanie Demko; Abby Ciaglo
<b>2.1.2</b>	<b>CA:</b> DAS/CS – Ronald Wilfinger
<b>2.1.3</b>	<b>DAS Representative:</b> PM - Ronald Wilfinger
<b>2.1.4</b>	<b>Agency Representative:</b> Elizabeth Tracey; Ed Fulton



**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**

## 3.0 Pre-Bid Meeting Minutes:

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

- 3.1.1 The **Owner** is responsible for conducting the Pre-Bid Meeting and will record and distribute meeting minutes to attendees.

### 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 Statement(s)** 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 Information	<input checked="" 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 checked="" 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 30 10 GENERAL STATEMENT FOR EXISTING CONDITIONS INFORMATION Not Used**

**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 13 Selective Demolition

**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 Testing for lead-based paint has been conducted at the facility scheduled for renovation, demolition, reconstruction, alteration, remodeling, or repair. Results of the LBP 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 LBP.
- 2.3 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 Testing for PCBs has been conducted at the facility scheduled for renovation, demolition, reconstruction, alteration, remodeling, or repair. Results of the PCB 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.
- 3.3 The Contractor shall be responsible for verification of all field conditions affecting performance of the Work.

**4. Work Involving Mold:**

- 4.1 Testing for Mold has been conducted at the facility scheduled for renovation, demolition, reconstruction, alteration, remodeling, or repair. Results of the Mold 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.
- 4.2 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 A **Hazardous Materials, Wastes, and Items and Universal Wastes** Inventory for products containing Persistent Bioaccumulative Toxic Chemicals (PBTs) such as Polychlorinated Biphenols (PCBs), Di-2-ethylhexyl Phthalate (DEHP), and Mercury, has been conducted at the facility scheduled for renovation, demolition, reconstruction, alteration, remodeling, or repair. 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.

- 5.2 The Contractor shall be responsible for verification of all field conditions affecting performance of the Work.
- 5.3 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.
- 5.4 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.**

<b>00 30 40</b>	<b>GENERAL STATEMENT FOR SUBSURFACE GEOTECHNICAL REPORT</b>	<b>Not Used</b> <input checked="" type="checkbox"/>
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<b>00 30 60</b>	<b>GENERAL STATEMENT FOR FM GLOBAL CHECKLIST FOR ROOFING SYSTEMS</b>	<b>Not Used</b> <input checked="" type="checkbox"/>
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<b>00 30 70</b>	<b>GENERAL STATEMENT FOR "STATEMENT OF SPECIAL INSPECTIONS"</b>	<b>Not Used</b> <input type="checkbox"/>
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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.

<b>00 30 80</b>	<b>GENERAL STATEMENT FOR OTHER INFORMATION</b>	<b>Not Used</b> <input checked="" type="checkbox"/>
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**End of Section**  
**00 30 00 General Statements for Available Information**



<b>Certificate (of Authority)</b>	
<b>DAS Construction Services Project No.:</b>	
I <input style="width: 300px; height: 20px;" type="text"/>	<input style="width: 400px; height: 20px;" type="text"/>
<i>(Signer's Name)<sup>1</sup></i>	<i>(Signer's Title)</i>
of <input style="width: 300px; height: 20px;" type="text"/>	, an entity lawfully organized and existing under the laws
<i>(Name of Entity)</i>	
of <input style="width: 300px; height: 20px;" type="text"/>	, do hereby certify that the following is a true and correct
<i>(Name of State or Commonwealth)</i>	
copy of a resolution adopted on the <input style="width: 50px; height: 20px;" type="text"/> day of <input style="width: 80px; height: 20px;" type="text"/>	, 20 <input style="width: 50px; height: 20px;" type="text"/>
<i>(Day)<sup>2</sup></i>	<i>(Month)<sup>2</sup></i> <i>(Year)<sup>2</sup></i>
<input style="width: 350px; height: 20px;" type="text"/>	, in accordance with all of its documents of governance and
<i>(Name Of Entity)</i>	
management and the laws of <input style="width: 250px; height: 20px;" type="text"/>	and further certify that such resolution has not
<i>(Name of State or Commonwealth)</i>	
been modified, rescinded or revoked, and is at present in full force and effect.	
<b>RESOLVED:</b> that <input style="width: 250px; height: 20px;" type="text"/>	<input style="width: 250px; height: 20px;" type="text"/>
<i>(Name of Signer of Contract Documents)<sup>3</sup></i>	<i>(Title of Signer of Contract Documents)<sup>3</sup></i>
of <input style="width: 350px; height: 20px;" type="text"/>	is empowered and authorized, on behalf of the entity,
<i>(Name of Entity)</i>	
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 <input style="width: 50px; height: 20px;" type="text"/> day of <input style="width: 80px; height: 20px;" type="text"/>	
<i>(Day)<sup>4</sup></i>	<i>(Month)<sup>4</sup></i> <i>(Year)<sup>4</sup></i>
<input style="width: 400px; height: 20px;" type="text"/>	
<i>(Signature)</i>	
<input style="width: 400px; height: 20px;" type="text"/>	<input style="width: 400px; height: 20px;" type="text"/>
<i>(Print Name)</i>	<i>(Title)</i>

**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.**



**» DAS Contractor Prequalification Certificate**

**Contractor Prequalification Company Information**

**Company:** **Sample Corporation**

**Address:** 165 Capitol Avenue  
 Hartford, CT 06106

**Prequalification Contact:** **John T. Reed**

**Telephone:** (860) 111-2222

**Fax:** (860) 111-3333

**Email:** [jreed@samplecorp.com](mailto:jreed@samplecorp.com)

**Web Addr:** [www.samplecorp.com](http://www.samplecorp.com)

**Contractor Prequalification History**

Active Date	Expiration Date	Single Project	AWC
Oct 8, 2004	Oct 7, 2005	\$20,000,000.00	\$50,000,000.00

**Prequalification Classification(s)**

Classification	Description
GENERAL BUILDING CONSTRUCTION (GROUP C)	The undertaking of general contracts for the construction of buildings (i.e. new construction, renovation, rehabilitation, alteration, addition, etc.). The contract must include a variety of construction practices and supervision of a minimum of three sub-trades. Includes buildings that are truly custom, requiring extensive detailing, or that have large amounts of integrated scientific or complex mechanical/electrical equipment in order for them to function. Examples include hospitals, chemistry buildings, special collections buildings, historic preservation to a landmark structure, and/or any other structure that is truly one of a kind within the State's inventory.  Note: If you are prequalified for General Building Construction under Group C, you are automatically prequalified for Group A and Group B.

**Prequalification Licenses**

License #	Trade	Active	Expire
000009	Asbestos Contractor	Sep 8, 2004	Aug 31, 2005
900235	Major Contractor	Jul 1, 2004	Jun 30, 2005
667 Class A	Demolition Contractor	Apr 1, 2004	Mar 31, 2005

*This certificate prequalifies the named company to bid solely. It is not a statement of the company's capacity to perform a specific project. That responsibility lies with the awarding authority.*

*It is the Department of Administrative Services' (DAS) recommendation that all awarding authorities verify the above information by visiting the DAS website: <http://www.das.state.ct.us> - click on contractor prequalification (under the business section).*

*For information regarding the DAS Contractor Prequalification Program visit the above mentioned website or call (860) 713-5280.*

<a href="#">eProcurement</a>   <a href="#">Business</a>   <a href="#">Event Services</a>   <a href="#">Jobs</a>   <a href="#">Human Resources</a>   <a href="#">Resource Director</a>   <a href="#">News</a> <a href="#">CT.gov Home</a>   <a href="#">About DAS</a>   <a href="#">Contact DAS</a>   <a href="#">Press Room</a>   <a href="#">DAS Home</a>   <a href="#">Quick Links</a>   <a href="#">FAQ</a>   <a href="#">Site Map</a>	
	The Department of Administrative Services. <a href="#">Review our Privacy Policy.</a> All State disclaimers and permissions apply. Need to contact us? Send e-mail to <a href="mailto:das.webmaster@state.ct.us">das.webmaster@state.ct.us</a>
Copyright ©2001, 2002, 2003, 2004 - Last Updated: Saturday, October 09, 2004	
	The software to view and print Adobe Acrobat documents (PDF Files) is available free from the Adobe website. To get a free copy of the software, click the "Get Acrobat" image.

**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, call 860-713-5794 or 860-713-5783.

- 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>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>Project Title:</b>	Enfield Armory Kitchen and Latrine Renovation
<b>Project Location:</b>	1635 King Street Enfield, CT
<b>Project Number:</b>	<b>BI-Q-672C</b>
<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>	Id3A, LLC, 655 Winding Brook Drive, Glastonbury, CT 06033

**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 

300
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 \$ 

515.00
--------

 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 \$ 

448.00
--------

 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: 90%;" type="text"/>	<input style="width: 90%;" 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: 90%;" type="text"/>	<input style="width: 90%;" 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: 90%;" type="text"/>	<input style="width: 90%;" 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: 90%;" type="text"/>	<input style="width: 90%;" 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 Bidder's Prequalification Requirements for Projects Exceeding \$500,000:**

**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".

**2.7 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: _____ Proposed Dollar Value of Subcontract: \$ _____
<input checked="" type="checkbox"/>	<b>HVAC Work: Enter information in blue boxes below:</b> Complete Subcontractor Name: _____ Proposed Dollar Value of Subcontract: \$ _____
<input type="checkbox"/>	<b>Masonry Work: NOT APPLICABLE</b> Complete Subcontractor Name: _____ Proposed Dollar Value of Subcontract: \$ _____
<input checked="" type="checkbox"/>	<b>Plumbing Work: Enter information in blue boxes below:</b> Complete Subcontractor Name: _____ Proposed Dollar Value of Subcontract: \$ _____
<input type="checkbox"/>	<b>Environmental Remediation: NOT APPLICABLE</b> Complete Subcontractor Name: _____ Proposed Dollar Value of Subcontract: \$ _____
<input type="checkbox"/>	<b>Hazardous Materials Abatement: NOT APPLICABLE</b> Complete Subcontractor Name: _____ Proposed Dollar Value of Subcontract: \$ _____

- 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 When a box is checked in **Table 2.7**, the Bidder shall insert the name of the Subcontractor with the **largest** proposed Subcontract Value; this is known as the **“Named Subcontractor”**. The Bidder shall provide all of the information for each **checked Class of Work**.
  - .3 If a **Bidder** intends to use a **Subcontractor** 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 the Subcontractor or SBE/MBE Subcontractor 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 For each **Class of Work** specified in **Table 2.7**, the Bidder shall list the **Subcontractor** with the **largest Proposed Dollar Value of Subcontract** for each Class of Work as the **Named Subcontractor** and the **Proposed Dollar Value** of its Subcontract. If the Bidder intends to use **more than one** Subcontractor to perform a Class of Work, then it shall indicate the Subcontractor Name and Subcontract Value for the **largest** single Named Subcontractor.
  - .5 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.
  - .6 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)**.
  - .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.

<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 <b>CHRO</b> 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 rejection 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.
<b>2.9.1</b>	<b>Special Hazards Insurance:</b> <input type="checkbox"/> None is Required. <input checked="" type="checkbox"/> "X-C-U" Coverage (explosion, collapse, and underground damage) <b>shall be required</b> in accordance with <b>Article 35 Contractors Insurance of Section 00 73 13 General Conditions</b> . <input type="checkbox"/> <b>Asbestos Abatement Insurance</b> is required.
<b>2.9.2</b>	<b>Builders Risk Insurance:</b> <input type="checkbox"/> None is Required. <input checked="" type="checkbox"/> The Bidder <b>shall be required to maintain Builder's Risk Insurance</b> 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 and the policy shall state that the State of Connecticut shall be named as a loss payee not as an additional insured for these coverages.
<b>2.9.3</b>	<b>Commercial General Liability Insurance:</b> <b>NOTE:</b> There is a new requirement regarding <b>commercial general liability (CGL) insurance:</b> All selected firms are required to provide an endorsement to the CGL insurance stating that the State of Connecticut is an additional insured. Please be advised that a blanket endorsement <b>may not</b> be acceptable.
<b>2.9.4</b>	<b>Owners and Contractors Protective Liability Insurance:</b> The Bidder shall maintain <b>Owner's and Contractor's Protective Liability</b> insurance providing a total limit of <b>\$1,000,000</b> 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 <b>\$2,000,000</b> 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.
<b>2.9.5</b>	<b>Umbrella Liability Insurance:</b> This project requires <b>Umbrella Liability Insurance</b> . The Bidder shall provide an endorsement to the Umbrella Liability Insurance stating that the State of Connecticut is an additional insured. Select the correct <b>Umbrella Limit</b> for this <b>Project's Contract Value</b> using the "Umbrella Liability Insurance Table" below.

Umbrella Liability Insurance Table:			
Contract Value			Umbrella Limit
\$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

### 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:

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.

#### 3.6 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.

**3.0 Bid Proposal Acknowledgements (continued):****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; height: 100px; width: 100%; margin: 5px 0;"></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:	<input style="width: 100%;" type="text"/> <i>(Month)</i>	<input style="width: 100%;" type="text"/> <i>(Day)</i>	<input style="width: 100%;" type="text"/> <i>(Year)</i>
Bidder's Signature:	<input style="width: 100%;" type="text"/> <i>(Duly Authorized)</i>	<input style="width: 100%;" type="text"/> <i>(Title)</i>	
	<input style="width: 100%;" type="text"/> <i>(Print Named)</i>	<input style="width: 100%;" type="text"/> <i>(Date)</i>	



## 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.		



TABLE 1 ALL BIDDERS			
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>

TABLE 3 APPARENT LOW BIDDER (continued)			
Construction Costs:		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

<input style="width: 90%; height: 20px;" type="text"/>		<input style="width: 90%; height: 20px;" type="text"/>
<i>(Principal's Signature)</i>		Surety
<input style="width: 90%; height: 20px;" type="text"/>	by	<input style="width: 90%; height: 20px;" type="text"/>
<i>(Print Name)</i>		Its attorney in fact Signature
<input style="width: 90%; height: 20px;" type="text"/>		<input style="width: 90%; height: 20px;" type="text"/>
Company Name		<i>(Print Name)</i>



## 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	<input type="checkbox"/> General Building Construction (Group A):	YES <input type="checkbox"/> NO <input type="checkbox"/>
2.2	<input type="checkbox"/> General Building Construction (Group B):	YES <input type="checkbox"/> NO <input type="checkbox"/>
2.3	<input type="checkbox"/> General Building Construction (Group C):	YES <input type="checkbox"/> NO <input type="checkbox"/>
2.4	<input type="checkbox"/> General Trades (Interior Work Only):	YES <input type="checkbox"/> NO <input type="checkbox"/>
2.5	<input type="checkbox"/> CPS Projects ONLY: Insert Class of Work	YES <input type="checkbox"/> NO <input type="checkbox"/>

**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.

<input type="checkbox"/>	<b>Not Applicable – No Named Subcontractors &amp;/or Not Self-Performing</b>		
	<b>Named Subcontractor Class of Work</b>	<b>Does your Firm intend to self-perform this Named Subcontractor Class of Work?</b>	
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.

<input type="checkbox"/>	<b>Not Applicable – No Class of Work Greater \$500,000 &amp;/or Not Self-Performing</b>		
	<b>Named Subcontractor Class of Work Greater Than \$500,000</b>	<b>Does your Firm have the applicable DAS Prequalification Certificate and Update (Bid) Statement?</b>	
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** **NEW:** 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** **NEW:** 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. Signature

Dated at

Signed this

 day of , 20 

Name of Firm:

Firm Address:

Signature:

Print or Type Name:

Title:

## 25. 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 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.

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 and capacity 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**.

**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.

### **1.2 Evaluation:**

**1.2.1 All Bidders** shall upload to BizNet **Section 00 45 14 General Contractor's Bidder Qualifications Statement** *prior* to the date and time of the Bid Opening.

**1.2.2** If applicable, the **Three (3) Lowest Bidders** shall submit **Section 00 45 17 Named Subcontractor's Bidder Qualification Statement(s)** to DAS Construction Services (DAS/CS) Office of Legal Affairs, Policy, and Procurement within **ten (10)** calendar days **after** receipt of the "Set-Aside Contractor Schedule Request" *from* DAS/CS.

**1.2.3** The Bidder must demonstrate that the Bidder and, if applicable, its Named Subcontractors, meet the **objective criteria** for this specific project.

**1.2.4** The **responses** to the Statement(s) must identify two (2) **projects completed** – 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 **Invitation to Bid** 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 **State's evaluation** shall be based on the **performance record** 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. **Evaluation criteria** shall include: Faithful and efficient performance; fulfilment 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 **Section 00 45 15** 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.

### **1.3 References:**

Furnished **references from architects, engineers or owners** 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 **past five years**. 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.

**1.14 Criminal Convictions and Injuries or Death of Employees:**

Not received a **criminal conviction** related to the injury or death of any employee in the three-year period preceding the bid.

**1.15 Legal or Administrative Proceedings:**

Listed all **legal** (court and/or arbitration) or **administrative proceedings** 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.

**1.16 Contract Performance and Surety:**

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).

**1.17 State Tax Requirements:**

Not been found to be in violation of any **state tax** requirements of the Connecticut Department of Revenue Services in the five (5)-year period preceding the bid.

**1.18 State and Federal Labor Requirements:**

Not been found to be in violation of any State or Federal **labor laws** as required through the Department of Labor including violations of prevailing wage laws in the five (5)-year period preceding the bid.

**1.19 Change Order Pricing and State Ethics:**

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.

**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"/>	Corporation	<input style="width: 100%; height: 25px;" type="text"/>
<input type="checkbox"/>	Partnership	<input style="width: 100%; height: 25px;" type="text"/>
<input type="checkbox"/>	Sole Proprietorship	<input style="width: 100%; height: 25px;" type="text"/>
<input type="checkbox"/>	Limited Liability Company (LLC)	<input style="width: 100%; height: 25px;" type="text"/>
<input type="checkbox"/>	Other: <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>	<input style="width: 100%; height: 20px;" type="text"/>	
<b>13.2 Project Location:</b>	<input style="width: 100%; height: 20px;" type="text"/>	
<b>13.3 Construction Start Date:</b>	<input style="width: 100%; height: 20px;" type="text"/>	
<b>13.4 Construction Finish Date:</b>	<input style="width: 100%; height: 20px;" type="text"/>	
<b>13.5 Describe the Scope of Work your Firm performed:</b>	<input style="width: 100%; height: 20px;" type="text"/>	
<b>13.6 Original Contract Amount:</b>	<input style="width: 100%; height: 20px;" type="text"/>	
<b>13.7 Final Contract Amount:</b>	<input style="width: 100%; height: 20px;" type="text"/>	
<b>13.8 Original Contract Duration (Calendar Days):</b>	<input style="width: 100%; height: 20px;" type="text"/>	
<b>13.9 Final Contract Duration (Calendar Days):</b>	<input style="width: 100%; height: 20px;" type="text"/>	
<b>13.10 *Briefly describe any complaints about your Firm's quality control or construction management.</b>	<input style="width: 100%; height: 40px;" type="text"/>	
	<i>*Attach a separate sheet if more space is required.</i>	
<b>13.11 Owner:</b>	<input style="width: 100%; height: 20px;" type="text"/>	
<b>13.12 Owner's Representative:</b>	<input style="width: 60%; height: 20px;" type="text"/> <i>(Name)</i>	<input style="width: 30%; height: 20px;" type="text"/> <i>(Phone Number)</i>
<b>13.13 Design Firm:</b>	<input style="width: 100%; height: 20px;" type="text"/>	
<b>13.14 Design Firm's Representative:</b>	<input style="width: 60%; height: 20px;" type="text"/> <i>(Name)</i>	<input style="width: 30%; height: 20px;" type="text"/> <i>(Phone Number)</i>
<b>13.15 General Contractor:</b>	<input style="width: 100%; height: 20px;" type="text"/>	
<b>13.16 G.C.'s Representative:</b>	<input style="width: 60%; height: 20px;" type="text"/> <i>(Name)</i>	<input style="width: 30%; height: 20px;" type="text"/> <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. Signature**

Dated at

Signed this  day of  , 20

Name of Firm:

Firm Address:

*(Signature)*

*(Print or Type Name)*

*(Title)*

**19. 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





## 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, and 4b-3, as revised, and  (herein called the “Contractor”).

*(Print Name of Contractor)*

WITNESSETH, that 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."

IN WITNESS WHEREOF, 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.

Attested By:		State Of Connecticut	
WITNESS:	<input type="text"/> <i>(Signature)</i>	By:	<input type="text"/> <i>(Signature)</i>
Print Name:	<input type="text"/>	Print Name:	Josh Geballe
WITNESS:	<input type="text"/> <i>(Signature)</i>	Its:	Commissioner
Print Name:	<input type="text"/>		Department of Administrative Services
		Date Signed:	<input type="text"/>
			<input type="text"/> SEAL
WITNESS:	<input type="text"/> <i>(Signature)</i>	Contractor:	<input type="text"/>
Print Name:	<input type="text"/>	By:	<input type="text"/> <i>(Signature)</i>
WITNESS:	<input type="text"/> <i>(Signature)</i>	Its:	<input type="text"/> , Duly Authorized
Print Name:	<input type="text"/>	Print Name:	<input type="text"/>
		Date Signed:	<input type="text"/>

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.

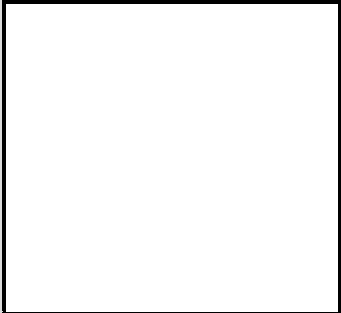

2. The Contractor agrees to begin, prosecute and complete the entire work specified by the Awarding Authority in an orderly manner so that the Subcontractor will be able to begin, prosecute and complete the work described in this subcontract; and, in consideration thereof, upon notice from the Contractor, 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>	
 SEAL	<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"/> <i>(Signature)</i>	<input type="text"/> <i>(Subcontractor Signature)</i>
Date: <input type="text"/>	Date: <input type="text"/>
<b>Contractor</b>	
 SEAL	<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"/> <i>(Signature)</i>	<input type="text"/> <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>  INSURED <p style="text-align: center;">Contractor's Legal Name and Address</p>	<b>CONTACT</b> NAME: PHONE (A.C. No. Ext): <span style="float: right;">FAX (A.C. No.):</span> E-MAIL ADDRESS:  <table style="width: 100%; border: none;"> <tr> <td style="width: 80%; border: none;">INSURER(S) AFFORDING COVERAGE</td> <td style="width: 20%; border: none;">NAIC#</td> </tr> <tr> <td style="border: none;">INSURER A:</td> <td style="border: none;"></td> </tr> <tr> <td style="border: none;">INSURER B:</td> <td style="border: none;"></td> </tr> <tr> <td style="border: none;">INSURER C:</td> <td style="border: none;"></td> </tr> <tr> <td style="border: none;">INSURER D:</td> <td style="border: none;"></td> </tr> <tr> <td style="border: none;">INSURER E:</td> <td style="border: none;"></td> </tr> <tr> <td style="border: none;">INSURER F:</td> <td style="border: none;"></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 - CCMPOV 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: <input type="checkbox"/> 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 <p style="text-align: center;">Agent of Producer</p>
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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  
 Department of Construction Services  
 State of Connecticut  
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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.

## 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.

#### **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.** Should this Contract be for a Construction Services

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 Subcontractor'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 be deducted **seven** and **one-half** percent (7.5%) of the amount of each Application for Payment to be retained by the Owner as Retainage until Final Completion.

**28.2.1** The Commissioner has the sole discretion in the determination of reduction in Retainage. At fifty percent (50%) completion of the Work the Owner shall issue a "Contractor's Performance Evaluation". If the Contractor receives a performance evaluation score of "Good" or better, then the Retainage withheld may be reduced to five percent (5%). All subsequent Applications for Payment shall be subject to five percent (5%) Retainage. Upon Substantial Completion, the Retainage may be reduced at the request of the Contractor and recommendation of the CT DCS 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 CT DCS Project Manager's estimate of the remaining Work or two and one-half percent (2.5%), which ever is greater. All requests for Retainage Reduction shall be done on CT DCS Form 7048 General Contractor Retainage Reduction Request, which can be found at the end of the General Conditions.

**28.2.2** Subsequent to Substantial Completion, in limited circumstances, at the sole discretion of the Commissioner, a reduction of Retainage below Two and one-half 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.

**28.3.2.11** 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 Document 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** 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** Notwithstanding any provision or language in the

Contract to the contrary, the State may terminate the Contract 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 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 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 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 40 13 BID PROPOSAL FORM, subsections 4.4.2 and 4.4.3, 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 Bidding and Contracts Unit, Department of Construction Services, 165 Capitol Avenue, Room G-35, Hartford, CT 06106 unless otherwise directed in

writing. Presented below is a narrative summary of the insurance required.

**35.1.1 Commercial General Liability** 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 Construction 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 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** 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 Excess Liability** (Other than Umbrella Form) insurance in the amount of \$5,000,000 for bids of \$1,000,000 - \$10,000,000 and in the amount of \$10,000,000 for bids of \$10,000,001 - \$20,000,000. Refer to Section 00 92 00 Amendments of the Project Manual for Excess Liability insurance requirements for bids exceeding \$20,000,000.

**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. Longshoremen's and Harbor Workers Act.

**35.1.6 Special Hazards Insurance**, if required, will be stated in SECTION 00 40 13 BID PROPOSAL FORM, subsection 4.4.2 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 Section 00 40 13 Bid Proposal Form, subsection 4.4.3 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 Hold Harmless Provisions:** The Contractor shall at all times indemnify and save harmless the State of Connecticut, the Department of Construction Services, and their respective officers, agents, and employees, on account of any and all claims, damages, losses, litigation, expenses, counsel fees and compensation arising out of injuries (including death) sustained by or alleged to have been sustained by the officers, agents, and employees of said State or Department, or of the Contractor, his Subcontractor, or materialmen and from injuries (including death) sustained by or alleged to have been sustained by the public, any or all persons on or near the Work, or by any other person or property, real or personal (including property of said State or Department) caused in whole or in part by the acts, omissions, or neglect or the Contractor including, but not limited to, any neglect in safeguarding the Work or through the use of unacceptable materials in constructing the Work of the Contractor, any Subcontractor, materialman, or anyone directly employed by them or any of them while engaged in the performance of the Contract, including the entire elapsed time from the date of the Notice to Proceed or the actual Commencement Of The Work whichever occurs first until its completion as certified by the Department of Construction Services.

## **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.

## **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** 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.** 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.

**END**

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## Appendix 1

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7048  
**General Contractor  
Retainage Reduction Request**  
(SAMPLE)

Page 25 of 25

**To:** Allen V. Herring, P.E., CT DCS Chief Engineer  
Room 265, 165 Capitol Avenue, Hartford, CT 06106

**From:** (Insert GC's Name ), General Contractor

**Subject:** Project No. ( ) Reduction of Retainage at ( )% project completion

In accordance with the General Conditions, Article 28 Progress Payments, (insert GC's name) hereby requests a reduction of retainage to an amount of insert written percent Percent (insert numerical percent%). 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.

- DAS Contractor Performance Evaluation Score is a minimum of **Sixty (60%) Percent**.
- Timely submission of an appropriate and complete CPM Schedule and 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 progress of the Work.
- 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 Owner's and/or Architect's or Engineer's comments on the submitted material resulting in an appropriate progress of the Work.
- Proper and adequate supervision and home office support of the Project.
- The Work completed to date has been installed or finished in a manner acceptable to the Owner.
- The progress of the Work is consistent with the approved CPM Schedule.
- All approved credit Change Orders have been invoiced.
- All Change Order requests for pricing are current.
- The General Contractor has and is maintaining a clean worksite in accordance with the Contract Documents.
- All Subcontractor payments are current at the time of reduction request.
- General Contractor is compliant with set-aside provisions of the contract.

**General Contractor Certification:**

\_\_\_\_\_ (Written Name)

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

\_\_\_\_\_ (Date)

**Project Manager Recommendation:**

\_\_\_\_\_ (Written Name)

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

\_\_\_\_\_ (Date)

**Approved:**

Allen V. Herring, P.E.  
CT DCS Chief Engineer

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

\_\_\_\_\_ (Date)



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

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**1.0 SUPPLEMENTARY CONDITIONS:**

**1.1** These Supplementary Conditions modify the State of Connecticut, Department of Administrative Services/ Construction Services, Section 00 72 13 General Conditions of the Contract for Construction for Design-Bid-Build (Rev. 03.26.12), and other provisions of the Contract Documents as indicated below. All provisions which are not so modified remain in full force and effect.

**1.2** The terms used in these Supplementary Conditions which are defined in the Section 00 72 13 General Conditions of the Contract for Construction for Design-Bid-Build (Rev. 03.26.12), have the meanings assigned to them in the General Conditions.

**2.0 ARTICLE 1 DEFINITIONS** in Section 00 72 13 General Conditions:

**2.1. DELETE:** Section **1.71** in its entirety.

**ADD:** Section **1.71** as follows:

**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".

**2.2. ADD:** Section **1.72** as follows:

**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.

**3.0 ARTICLE 3 CORRELATION OF CONTRACT DOCUMENTS** in Section 00 72 13 General Conditions:

**3.1 ADD:** Section **3.6** as follows:

**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.

**4.0 ARTICLE 28 PARTIAL PAYMENTS** in Section 00 72 13 General Conditions:

**4.1 DELETE:** Section **28.2** in its entirety.

**ADD:** Section **28.2** as follows:

**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 **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%).

**5.0 ARTICLE 35 CONTRACTOR'S INSURANCE** in Section 00 72 13 General Conditions:

**5.1 DELETE:** Section 35.1 in its entirety.

**ADD:** Section 35.1 as follows:

**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. Longshoremen's 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.

**5.2 DELETE:** Section **35.6** in its entirety.

**ADD:** Section **35.6** as follows:

**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.



**6.0 ARTICLE 36 FOREIGN MATERIALS** in Section 00 72 13 General Conditions:

**6.1 ADD:** Section **36.3** as follows:

**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).

**7.0 ADD: ARTICLE 40 DISCLOSURE OF RECORDS** in Section 00 72 13 General Conditions as follows:

**7.1. ADD:** Section **40.1** as follows:

**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.

**8.0 ADD: ARTICLE 41 AUDIT AND INSPECTION OF PLANTS, PLACES OF BUSINESS, AND RECORDS** in Section 00 72 13 General Conditions as follows:

**8.1. ADD:** Sections **41.1 through 41.7** as follows:

**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.

9.0 APPENDIX 1 in Section 00 72 13 General Conditions:

- 9.1 DELETE: Appendix 1 in its entirety.  
 ADD: Appendix 1 as follows:

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="GC's 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="Click or tap to enter a date."/>		

In accordance with the General Conditions, Article 28 Progress Payment,  hereby requests a reduction of retainage from  % to  %.

The following list of items required under the General Conditions 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 Sixty (60%) Percent.
<input type="checkbox"/>	Timely submission of an appropriate and complete CPM Schedule and 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 progress of the Work.
<input type="checkbox"/>	Timely and proper submission of all required Contract Document submissions including but not limited to Shop Drawings, material submittals, material samples and the prompt resolution of the Owner's and/or A/E's comments on the submitted material resulting in an appropriate progress of the Work.
<input type="checkbox"/>	Proper and adequate supervision and home office support of 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 credit Change Orders have been invoiced.
<input type="checkbox"/>	All Change Order requests for pricing are current.
<input type="checkbox"/>	The GC has and is maintaining a clean worksite in accordance with the Contract Documents.
<input type="checkbox"/>	All Subcontractor payments are current at the time of reduction request.
<input type="checkbox"/>	GC is compliant with set-aside 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>DAS Chief Architect or Authorized Representative:</b>	<input type="text" value="Written Name"/>	<input type="text" value="Signature"/>	<input type="text" value="Date"/>

**END**

END OF SECTION



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>	BI-C-672C	<b>Project Town:</b>	Enfield, CT
<b>Project: Enfield Armory Kitchen and Latrine Renovation</b>			
1635 King Street			
Enfield, CT			

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)	1 page
Prevailing Wage Rates - English	15 pages
Federal 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: May 6, 2019**





Opportunity \* Guidance \* Support



# **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.



Project: Armory Kitchen, Shower And Latrine Renovation

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**Minimum Rates and Classifications  
for Building Construction**

ID# : B 26022

**Connecticut Department of Labor  
Wage and Workplace Standards Division**

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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 to the welfare and pension fund shall pay this amount to each employee as part of his/her hourly wages.

Project Number:

Project Town: Enfield

State#: BI-Q-672C

FAP#:

Project: Armory Kitchen, Shower And Latrine Renovation

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<b>CLASSIFICATION</b>	<b>Hourly Rate</b>	<b>Benefits</b>
1a) Asbestos Worker/Insulator (Includes application of insulating materials, protective coverings, coatings, & finishes to all types of mechanical systems; application of firestopping material for wall openings & penetrations in walls, floors, ceilings	38.25	27.96
<hr/>		
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**		
<hr/>		
1c) Asbestos Worker/Heat and Frost Insulator	40.21	29.30

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As of: **Monday, May 06, 2019**



Project: Armory Kitchen, Shower And Latrine Renovation

2) Boilermaker	38.34	26.01
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3a) Bricklayer, Cement Mason, Concrete Finisher (including caulking), Stone Masons	34.72	32.55 + a
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3b) Tile Setter	34.90	25.87
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3c) Terrazzo Mechanics and Marble Setters	31.69	22.35
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3d) Tile, Marble & Terrazzo Finishers	26.70	21.75
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3e) Plasterer	33.48	32.06
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*As of:* **Monday, May 06, 2019**

Project: Armory Kitchen, Shower And Latrine Renovation

-----LABORERS-----

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4) Group 1: Laborers (common or general), acetylene burners, concrete specialists, wrecking laborers, fire watchers.	30.05	20.10
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4a) Group 2: Mortar mixers, plaster tender, power buggy operators, powdermen, fireproofers/mixer/nozzleman (Person running mixer and spraying fireproof only).	30.30	20.10
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4b) Group 3: Jackhammer operators/pavement breaker, mason tender (brick), mason tender (cement/concrete), forklift operators and forklift operators (masonry).	30.55	20.10
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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.	30.55	20.10
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4d) Group 5: Air track operator, sand blaster and hydraulic drills.	30.55	20.10
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**As of: Monday, May 06, 2019**

Project: Armory Kitchen, Shower And Latrine Renovation

4e) Group 6: Blasters, nuclear and toxic waste removal. 31.80 20.10

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4f) Group 7: Asbestos/lead removal and encapsulation (except it's removal from mechanical systems which are not to be scrapped). 31.05 20.10

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4g) Group 8: Bottom men on open air caisson, cylindrical work and boring crew. 28.38 20.10

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4h) Group 9: Top men on open air caisson, cylindrical work and boring crew. 27.86 20.10

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4i) Group 10: Traffic Control Signalman 16.00 20.10

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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. 32.60 25.34

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**As of: Monday, May 06, 2019**

Project: Armory Kitchen, Shower And Latrine Renovation

5a) Millwrights 33.14 25.74

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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) 40.00 25.97+3% of gross wage

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7a) Elevator Mechanic (Trade License required: R-1,2,5,6) 53.37 33.705+a+b

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-----LINE CONSTRUCTION-----

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Groundman 26.50 6.5% + 9.00

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Linemen/Cable Splicer 48.19 6.5% + 22.00

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As of: **Monday, May 06, 2019**

Project: Armory Kitchen, Shower And Latrine Renovation

8) Glazier (Trade License required: FG-1,2)	37.18	21.05 + a
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9) Ironworker, Ornamental, Reinforcing, Structural, and Precast Concrete Erection	35.47	35.14 + a
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----OPERATORS----

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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)	39.55	24.30 + a
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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)	39.23	24.30 + a
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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)	38.49	24.30 + a
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As of: **Monday, May 06, 2019**

Project: Armory Kitchen, Shower And Latrine Renovation

Group 4: Trenching Machines; Lighter Derrick; Concrete Finishing Machine; CMI Machine or Similar; Koehring Loader (Skooper).	38.10	24.30 + a
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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" Mandrell)	37.51	24.30 + a
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Group 5 continued: Side Boom; Combination Hoe and Loader; Directional Driller; Pile Testing Machine.	37.51	24.30 + a
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Group 6: Front End Loader (3 up to 7 cubic yards); Bulldozer (rough grade dozer).	37.20	24.30 + a
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Group 7: Asphalt roller, concrete saws and cutters (ride on types), vermeer concrete cutter, Stump Grinder; Scraper; Snooper; Skidder; Milling Machine (24" and under Mandrell).	36.86	24.30 + a
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Group 8: Mechanic, grease truck operator, hydroblaster; barrier mover; power stone spreader; welding; work boat under 26 ft.; transfer machine.	36.46	24.30 + a
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Project: Armory Kitchen, Shower And Latrine Renovation

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).	36.03	24.30 + a
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Group 10: Vibratory hammer; ice machine; diesel and air, hammer, etc.	33.99	24.30 + a
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Group 11: Conveyor, earth roller, power pavement breaker (whiphammer), robot demolition equipment.	33.99	24.30 + a
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Group 12: Wellpoint operator.	33.93	24.30 + a
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Group 13: Compressor battery operator.	33.35	24.30 + a
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Group 14: Elevator operator; tow motor operator (solid tire no rough terrain).	32.21	24.30 + a
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*As of:* **Monday, May 06, 2019**

Project: Armory Kitchen, Shower And Latrine Renovation

Group 15: Generator Operator; Compressor Operator; Pump Operator; Welding Machine Operator; Heater Operator.	31.80	24.30 + a
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Group 16: Maintenance Engineer/Oiler.	31.15	24.30 + a
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Group 17: Portable asphalt plant operator; portable crusher plant operator; portable concrete plant operator.	35.46	24.30 + a
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Group 18: Power safety boat; vacuum truck; zim mixer; sweeper; (Minimum for any job requiring a CDL license).	33.04	24.30 + a
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-----PAINTERS (Including Drywall Finishing)-----

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10a) Brush and Roller	33.62	21.05
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As of: **Monday, May 06, 2019**



Project: Armory Kitchen, Shower And Latrine Renovation

10b) Taping Only/Drywall Finishing	34.37	21.05
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10c) Paperhanger and Red Label	34.12	21.05
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10e) Blast and Spray	36.62	21.05
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11) Plumber (excluding HVAC pipe installation) (Trade License required: P-1,2,6,7,8,9 J-1,2,3,4 SP-1,2)	42.62	31.21
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12) Well Digger, Pile Testing Machine	37.26	24.05 + a
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13) Roofer (composition)	36.70	19.85
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**As of: Monday, May 06, 2019**

Project: Armory Kitchen, Shower And Latrine Renovation

14) Roofer (slate & tile)	37.20	19.85
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15) Sheetmetal Worker (Trade License required for HVAC and Ductwork: SM-1,SM-2,SM-3,SM-4,SM-5,SM-6)	37.50	36.79
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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)	42.62	31.21
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-----TRUCK DRIVERS-----

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17a) 2 Axle	29.13	23.33 + a
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17b) 3 Axle, 2 Axle Ready Mix	29.23	23.33 + a
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As of: **Monday, May 06, 2019**

Project: Armory Kitchen, Shower And Latrine Renovation

17c) 3 Axle Ready Mix	29.28	23.33 + a
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17d) 4 Axle, Heavy Duty Trailer up to 40 tons	29.33	23.33 + a
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17e) 4 Axle Ready Mix	29.38	23.33 + a
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17f) Heavy Duty Trailer (40 Tons and Over)	29.58	23.33 + a
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17g) Specialized Earth Moving Equipment (Other Than Conventional Type on-the-Road Trucks and Semi-Trailers, Including Euclids)	29.38	23.33 + a
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18) Sprinkler Fitter (Trade License required: F-1,2,3,4)	43.92	15.84 + a
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**As of: Monday, May 06, 2019**

Project: Armory Kitchen, Shower And Latrine Renovation

19) Theatrical Stage Journeyman

25.76

7.34

**Project: Armory Kitchen, Shower And Latrine Renovation**

*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 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 site ratio shall not be less than one full-time journeyman instructing and supervising the work of each apprentice in a specific trade.

*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.*

**As of: Monday, May 06, 2019**

Project: Armory Kitchen, Shower And Latrine Renovation

*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.

**~~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.

**As of: Monday, May 06, 2019**



General Decision Number: CT190021 03/08/2019 CT21

Superseded General Decision Number: CT20180029

State: Connecticut

Construction Type: Building

County: Hartford County in Connecticut.

BUILDING CONSTRUCTION PROJECTS (does not include single family homes or apartments up to and including 4 stories).

Note: Under Executive Order (EO) 13658, an hourly minimum wage of \$10.60 for calendar year 2019 applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2015. If this contract is covered by the EO, the contractor must pay all workers in any classification listed on this wage determination at least \$10.60 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in calendar year 2019. If this contract is covered by the EO and a classification considered necessary for performance of work on the contract does not appear on this wage determination, the contractor must pay workers in that classification at least the wage rate determined through the conformance process set forth in 29 CFR 5.5(a)(1)(ii) (or the EO minimum wage rate, if it is higher than the conformed wage rate). The EO minimum wage rate will be adjusted annually. Please note that this EO applies to the above-mentioned types of contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but it does not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(2)-(60). Additional information on contractor requirements and worker protections under the EO is available at [www.dol.gov/whd/govcontracts](http://www.dol.gov/whd/govcontracts).

Modification Number	Publication Date
0	01/04/2019
1	01/18/2019
2	02/15/2019
3	03/08/2019

ASBE0033-002 06/01/2018

	Rates	Fringes
HEAT & FROST INSULATOR (Includes Duct, Pipe and Mechanical Systems).....	\$ 40.21	29.30

\* BRCT0001-001 01/07/2019

	Rates	Fringes
BRICKLAYER.....	\$ 34.72	32.55



BRCT0001-002 01/07/2019

	Rates	Fringes
BRICK POINTER/CAULKER/CLEANER.....	\$ 34.72	33.58

\* BRCT0001-005 01/07/2019

	Rates	Fringes
CEMENT MASON/CONCRETE FINISHER....	\$ 34.72	32.55

CARP0326-024 05/07/2018

	Rates	Fringes
FLOOR LAYER: Carpet Only.....	\$ 32.60	25.34

CARP0326-025 05/07/2018

	Rates	Fringes
FLOOR LAYER: Hardwood Floors Only.....	\$ 32.60	25.34

CARP0326-027 05/07/2018

	Rates	Fringes
CARPENTER (Scaffold Builder).....	\$ 32.60	25.34

CARP0326-028 05/07/2018

	Rates	Fringes
CARPENTER (Includes Acoustical Ceiling Installation, Drywall Hanging, Form Work, and Metal Stud Installation).....	\$ 32.60	25.34

ELEC0035-014 06/01/2018

	Rates	Fringes
ELECTRICIAN (Including Low Voltage Wiring).....	\$ 40.00	3%+25.97

ELEV0091-002 01/01/2019

	Rates	Fringes
ELEVATOR MECHANIC.....	\$ 53.37	33.705+a+b

ENGI0478-004 09/30/2018

	Rates	Fringes
POWER EQUIPMENT OPERATOR (Backhoe/Excavator/Trackhoe).....	\$ 38.49	24.30

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 ENGI0478-005 09/30/2018

	Rates	Fringes
POWER EQUIPMENT OPERATOR (Bulldozer).....	\$ 38.49	24.30

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ENGI0478-012 09/30/2018

	Rates	Fringes
POWER EQUIPMENT OPERATOR (Crane).....	\$ 38.49	24.30

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ENGI0478-016 09/30/2018

	Rates	Fringes
POWER EQUIPMENT OPERATOR (Loader).....	\$ 39.55	24.30

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IRON0015-010 06/30/2018

	Rates	Fringes
IRONWORKER (Reinforcing, Structural, Ornamental).....	\$ 35.47	35.14

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LABO0230-001 04/01/2018

	Rates	Fringes
LABORER Common or General.....	\$ 30.05	19.84
Mason Tender- Cement/Concrete.....	\$ 30.55	19.84

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PAIN0011-014 06/01/2018

	Rates	Fringes
GLAZIER.....	\$ 37.18	21.05

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PAIN0011-021 06/01/2018

	Rates	Fringes
PAINTER (Brush and Roller).....	\$ 33.62	21.05

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PAIN0011-023 06/01/2018

	Rates	Fringes
PAINTER (Drywall Finisher/Taper).....	\$ 34.37	21.05

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PLUM0777-001 06/01/2018

	Rates	Fringes
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PLUMBER.....	\$ 42.62	31.21
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PLUM0777-003 06/01/2018		
	Rates	Fringes
PIPEFITTER.....	\$ 42.62	31.21
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PLUM0777-004 06/01/2018		
	Rates	Fringes
PLUMBER (HVAC Pipe Installation).....	\$ 42.62	31.21
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ROOF0009-001 01/01/2018		
	Rates	Fringes
ROOFER.....	\$ 35.97	19.73
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SFCT0669-002 04/01/2018		
	Rates	Fringes
SPRINKLER FITTER.....	\$ 45.32	22.49
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SHEE0040-001 07/01/2018		
	Rates	Fringes
SHEET METAL WORKER (Including HVAC Unit Installation).....	\$ 37.50	36.79
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SHEE0040-002 07/01/2018		
	Rates	Fringes
SHEET METAL WORKER (Metal Flashing and HVAC Duct Installation Only).....	\$ 37.50	36.79
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SHEE0040-008 07/01/2018		
	Rates	Fringes
SHEET METAL WORKER (Metal Roofs Installation).....	\$ 37.50	36.79
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TEAM0677-001 04/01/2018		
	Rates	Fringes
TRUCK DRIVER (Dump Truck).....	\$ 29.33	23.33
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WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

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Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at [www.dol.gov/whd/govcontracts](http://www.dol.gov/whd/govcontracts).

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 clauses (29CFR 5.5 (a) (1) (ii)).

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The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of "identifiers" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

#### Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than "SU" or "UAVG" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

#### Survey Rate Identifiers

Classifications listed under the "SU" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

#### Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

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#### WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

- \* an existing published wage determination
- \* a survey underlying a wage determination
- \* a Wage and Hour Division letter setting forth a position on a wage determination matter
- \* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the

Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations  
Wage and Hour Division  
U.S. Department of Labor  
200 Constitution Avenue, N.W.  
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator  
U.S. Department of Labor  
200 Constitution Avenue, N.W.  
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board  
U.S. Department of Labor  
200 Constitution Avenue, N.W.  
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

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END OF GENERAL DECISION



## **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 required 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**

(applicable to public building contracts entered into *on or after July 1, 2007*, where the total cost of all work to be performed is at least \$100,000)

- (1) This requirement was created by Public Act No. 06-175, which is codified in Section 31-53b of the Connecticut General Statutes (pertaining to the prevailing wage statutes);
- (2) The course is required for public building construction contracts (projects funded in whole or in part by the state or any political subdivision of the state) entered into on or after July 1, 2007;
- (3) It is required of private employees (not state or municipal employees) and apprentices who perform manual labor for a general contractor or subcontractor on a public building project where the total cost of all work to be performed is at least \$100,000;
- (4) The ten-hour construction course pertains to the ten-hour Outreach Course conducted in accordance with federal OSHA Training Institute standards, and, 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) Within 30 days of receiving a contract award, a general contractor must furnish proof to the Labor Commissioner that all employees and apprentices performing manual labor on the project will have completed such a course;
- (8) Proof of completion may be demonstrated through either: (a) the presentation of a *bona fide* student course completion card issued by the federal OSHA Training Institute; *or* (2) the presentation of documentation provided to an employee by a trainer certified by the Institute pending the actual issuance of the completion card;
- (9) Any card with an issuance date more than 5 years prior to the commencement date of the construction project shall not constitute proof of compliance;

- (10) Each employer shall affix a copy of the construction safety course completion card to the certified payroll submitted to the contracting agency in accordance with Conn. Gen. Stat. § 31-53(f) on which such employee's name first appears;
- (11) Any employee found to be in non-compliance shall be subject to removal from the worksite 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;
- (12) Any such employee who is determined to be in noncompliance may continue to work on a public building construction project for a maximum of fourteen consecutive calendar days while bringing his or her status into compliance;
- (13) The Labor Commissioner may make complaint to the prosecuting authorities regarding any employer or agent of the employer, or officer or agent of the corporation who files a false certified payroll with respect to the status of an employee who is performing manual labor on a public building construction project;
- (14) The statute provides the minimum standards required for the completion of a safety course by manual laborers on public construction contracts; any contractor can exceed these minimum requirements; and
- (15) Regulations clarifying the statute are currently in the regulatory process, and shall be posted on the CTDOL website as soon as they are adopted in final form.
- (16) Any questions regarding this statute 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/wgemenu.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.

In accordance with Connecticut General Statutes, 31-53 Certified Payrolls with a statement of compliance shall be submitted monthly to the contracting agency.												<b>PAYROLL CERTIFICATION FOR PUBLIC WORKS PROJECTS</b>												Connecticut Department of Labor Wage and Workplace Standards Division 200 Folly Brook Blvd. Wethersfield, CT 06109			
<b>WEEKLY PAYROLL</b>												SUBCONTRACTOR NAME & ADDRESS						WORKER'S COMPENSATION INSURANCE CARRIER									
CONTRACTOR NAME AND ADDRESS:																		POLICY #  EFFECTIVE DATE: EXPIRATION DATE:									
PAYROLL NUMBER	Week-Ending Date	PROJECT NAME & ADDRESS																									
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	Total O/T Hours				FICA	FEDERAL WITH-HOLDING	STATE WITH-HOLDING	LIST OTHER									
				HOURS WORKED EACH DAY																							
												\$ Base Rate	1. \$ 2. \$ 3. \$ 4. \$														
												\$ Cash Fringe	5. \$ 6. \$														
												\$ Base Rate	1. \$ 2. \$ 3. \$ 4. \$														
												\$ Cash Fringe	5. \$ 6. \$														
												\$ Base Rate	1. \$ 2. \$ 3. \$ 4. \$														
												\$ Cash Fringe	5. \$ 6. \$														



**\*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**

**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	WITH- HOLDING	WITH- HOLDING	OTHER		
				HOURS WORKED EACH DAY							Total O/T Hours	TOTAL FRINGE BENEFIT PLAN CASH								
											\$ Base Rate	1. \$ 2. \$ 3. \$								
											\$ Cash Fringe	4. \$ 5. \$ 6. \$								
											\$ Base Rate	1. \$ 2. \$ 3. \$								
											\$ Cash Fringe	4. \$ 5. \$ 6. \$								
											\$ Base Rate	1. \$ 2. \$ 3. \$								
											\$ Cash Fringe	4. \$ 5. \$ 6. \$								
											\$ Base Rate	1. \$ 2. \$ 3. \$								
											\$ Cash Fringe	4. \$ 5. \$ 6. \$								

\*IF REQUIRED





**Additional Forms to Be Submitted  
After Bond Commission Funding Approval**

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

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**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.

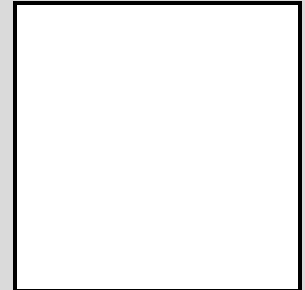
Any alterations which may be made in the terms of the contract, or in the work done or to be done under it, or the giving by the Obligee of any extension of time for the performance of the contract or any other forbearance on the part of either the Obligee or the Principal, one to the other, shall not 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.

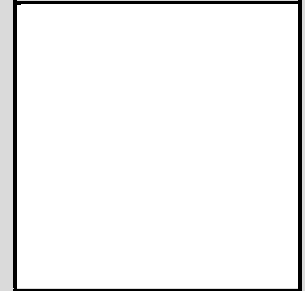
Any alterations which may be made in the terms of the contract, or in the work done or to be done under it, or the giving by the Obligee of any extension of time for the performance of the contract or any other forbearance on the part of either the Obligee or the Principal, one to the other, shall not 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)

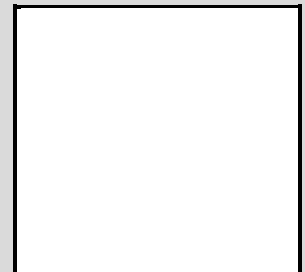
, Its

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**”:
  - o Click on “**Miscellaneous Tax Forms**”;
  - o 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. 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: NOTE: Check applicable Project Delivery Method Below:**

1.  Design-Bid-Build (DBB);
2.  Construction Manager at Risk (CMR)

**B. Project Number: BI-Q-672C**

**C. Project Title: Armory Kitchen, Shower and Latrine Renovation**

**D. Project Location:** The Enfield Armory, located in **Enfield**, Connecticut.

**E. The Project Description:**

Interior renovation to include a new kitchen and latrine facilities in the Enfield Armory including but not limited to:

1. Selective interior demolition
2. New partitions, doors, floors and ceilings, new toilet facilities including plumbing, electrical and HVAC services, kitchen equipment, and lockers
3. Relocation of Supply areas and offices

**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:** Ronald Wilfinger.
  - 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) 713-5648;**
  - c. **Fax: (860) 707-1932;**
  - d. **Email(s): [ronald.wilfinger@ct.gov](mailto:ronald.wilfinger@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 **CTARNG (Connecticut Army National Guard)**.

2. **Agency Representative Name and Title: Elizabeth Tracy.** The Agency Representative's Title is **Design and Project Management Branch Chief.**
    - a. **Agency Representative Location:** The Agency Representative is located at **Hartford Armory, Hartford, Connecticut.**
    - b. **Phone: 860-548-3202;**
    - d. **Email(s): elizabeth.s.tracey2.nfg@mail.mil**
  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 Stevanie Demko.
    - a. **Architect's Location:** The Architect is located at **655 Winding Brook Drive, Glastonbury, Ct 06033.**
    - b. **Phone: 860-657-2500**
    - d. **Email(s): sdemko@id3architecture.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 shopdrawings.
- I. **Construction Administrator (CA):**
1. **Construction Administrator Name:** Ronald Wilfinger.
    - a. **Construction Administrator Location:** The Construction Administrator is located at 450 Columbus Blvd, Suite 1201, Hartford, CT, 06103.
    - b. Phone: (860) 713-5648;
    - c. Fax: (860) 707-1932;
    - d. Email(s): ronald.wilfinger@ct.gov.
  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. **Construction Manager (CMR):**  
**NOT USED**
- K. **Work:** The Work Includes but is not limited to the following:

- 1 **Cast-in-Place Concrete**
  - 2 **Masonry;**
  - 3 **Miscellaneous Metals;**
  - 4 **Rough Carpentry, Architectural Woodwork, Laminate Clad Casework;**
  - 5 **Waterproofing, Insulation, Sprayed-on Fireproofing, Fire-stopping, Roofing, Sheet metal, and Joint Sealants;**
  - 6 **Fire Stopping and Joint Sealants:**
  - 7 **Doors and Frames, Overhead Doors, Hardware, and Glazing;**
  - 8 **Drywall, Floor Coverings, Acoustical Ceilings, and Painting;**
  - 9 **Visual Display Boards, Toilet Compartments, Wall Surface Protection Systems, Signage, Lockers, Fire Extinguishers, and Toilet Accessories;**
  - 10 **Plumbing, Fire Protection, HVAC, and Controls;**
  - 11 **Electrical and Fire Alarm Systems;**
- L. 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.
- M. 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.
- N. The Work will be constructed under the Contractor's Contract as applicable to this Project.
- O. The Work will be performed in accordance with the Connecticut Department of Energy and Environmental Protection's (DEEP) "**General Permit for the Discharge of Stormwater and Dewatering Wastewater from Construction Activities**" (DEEP-WPED-GP-015) and **Stormwater Pollution Control Plan (SPCP)**, including, but not limited to, implementing, maintaining, and updating the SPCP, performing regular inspections, conducting and reporting stormwater monitoring activities, retaining records for the required period of time, and performing all post-construction measures and inspections. See **Section 01 50 00 "Temporary Facilities and Controls"** and **Section 31 20 05 "Sedimentation and Erosion Control"** for additional information.
- 1.4 **WORK UNDER OTHER CONTRACTS**
- A. **NOT USED**
- 1.6 **WORK SEQUENCE (PHASES)**
- A. **NOT USED**
- 1.7 **CONTRACTOR'S USE OF PREMISES**
- A. **General:** During the construction period the Contractor may have full use of the premises for construction operations, including use of the site. Coordination with the CARNG will be required at times during the construction. 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.
  2. 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.
  3. 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 property from **King 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.

4. The Contractor shall be responsible for keeping the premises clean and shall pick up rubbish and debris and promptly remove from site.
  5. Parking for the Contractor's employees will be limited to an area designated by the Construction Administrator, and the Contractor may be required to provide identification stickers for all employees' cars.
  6. Special precautions shall be taken to protect all wetland areas designated to remain. Prevent any and all sediment, debris, or other materials from getting into these areas. Should any sediment, debris, or other materials get into these areas or if any damage occurs to the vegetation therein, the Contractor shall immediately contact the Construction Administrator for direction.
  7. The Contractor shall comply with local working hour restrictions, unless specifically approved otherwise in writing by the Owner.
  8. No signs, other than those approved by the Construction Administrator, will be visible on the premises.
- 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: 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.
1. 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.
- B. Partial Agency Occupancy:** The Owner reserves the right to allow the Agency to occupy and to place and install equipment in completed areas of the building prior to Substantial Completion, provided such occupancy does not interfere with completion of the Work. Such placing of equipment and partial occupancy shall not constitute acceptance of the total Work.
1. Should it become necessary or advisable, as the work nears final completion, for the Agency to occupy a portion of the building prior to final acceptance, the Contractor shall cooperate in completing such areas and making same accessible.
  2. The Construction Administrator will determine whether such occupancy or use is possible and, if so, will make arrangements for holding a job inspection with the DAS/CS Project Manager, Agency Representative, and Contractor.
  3. A comprehensive list of items to be completed or corrected as issued by the Contractor, together with the status of completion and terms of occupancy, will be forwarded to the DAS/CS Project Manager by the Construction Administrator. A letter will be issued by the DAS/CS Project Manager and Contractor to Construction Administrator granting such occupancy and will state the terms and conditions of occupancy.
  4. Prior to partial Agency occupancy, mechanical and electrical systems shall be fully operational. Required inspections and tests shall have been successfully completed. Upon occupancy, the Agency will operate and maintain mechanical and electrical systems serving occupied portions of the building.
  5. The Architect will prepare a "Certificate of Substantial Completion" for each specific portion of the Work to be occupied prior to Agency occupancy. Use the "Certificate of Substantial Completion" form as required by the Owner and forward the Certificate to the DAS/CS Office of State Building Inspector for a Certificate of Occupancy and obtain the same after his review and approval.
  6. The DAS/CS Project Manager will request a signed "Certificate of Compliance" from the Architect and Contractor, and forward the Certificate to the Office of State Building Inspector for a Certificate of Occupancy and obtain the same after his review and approval.

7. A letter from the DAS/CS Project Manager to the Agency Representative with copy to the Contractor granting occupancy will state the terms and conditions of occupancy and that fire insurance coverage has been requested, the effective date of which will indicate to the Contractor that they may cancel fire insurance coverage for that portion of the project.
  8. Upon occupancy, the Agency will assume responsibility for maintenance and custodial service for occupied portions of the building.
  9. **Work after Partial Agency Occupancy:**
    - 9.1 For all work to complete the area occupied, warranty work, the balancing and Commissioning (Cx) of systems, repair of latent defects and adjustments after partial occupancy, the Contractor is responsible for all costs associated with working in occupied buildings.
- C. Agency Occupancy:**
1. The Construction Administrator will determine whether such occupancy is possible and, if so, will make arrangements for holding a job inspection with the DAS/CS Project Manager, Agency Representative, and Contractor.
  2. A comprehensive list of items to be completed or corrected as issued by the Contractor, together with the status of completion and terms of occupancy, will be forwarded to the DAS/CS Project Manager and the Contractor by the Construction Administrator. A letter will be issued by the DAS/CS Project Manager and Contractor to Construction Administrator granting such occupancy and will state the terms and conditions of occupancy.
  3. Prior to Agency occupancy, mechanical and electrical systems shall be fully operational. Required inspections and tests shall have been successfully completed. Upon occupancy, the Agency will operate and maintain mechanical and electrical systems serving occupied portions of the building.
  4. The Architect will prepare a "Certificate of Substantial Completion" for the Work to be occupied prior to Agency occupancy. Use the "Certificate of Substantial Completion" form as required by the Owner.
  5. The DAS/CS Project Manager will request a signed "Certificate of Compliance" from the Architect and Contractor, and forward the Certificate to the Office of State Building Inspector for a Certificate of Occupancy and obtain the same after his review and approval.
  6. A letter from the DAS/CS Project Manager to the Agency Representative with copy to the Contractor granting occupancy will state the terms and conditions of occupancy and that fire insurance coverage has been requested, the effective date of which will indicate to the Contractor that they may cancel fire insurance coverage for the project.
  7. Upon occupancy, the Agency will assume responsibility for maintenance and custodial service for occupied portions of the building.
  8. **Work after Agency Occupancy:**
    - 8.1 For all work to complete the occupied building, warranty work, the balancing and commissioning of systems, repair of latent defects and adjustments after occupancy, the Contractor is responsible for all costs associated with working in occupied buildings.

#### 1.9 PRODUCTS ORDERED IN ADVANCE

- A. General:** The Owner has negotiated purchase orders with suppliers of material and equipment to be incorporated into the Work. The Owner has assigned these purchase orders to the Contractor. Costs for receiving handling and storage, and installation are included in the contract sum.
1. The Contractor's responsibilities are the same as if the contractor negotiated the purchase orders. If necessary, the Contractor shall renegotiate purchase and execute final purchase-order agreements.
  2. A "Schedule of Products Ordered in Advance" is included at the end of this section.

#### 1.10 OWNER-FURNISHED PRODUCTS

- A.** The Owner may furnish various products as indicated in the construction documents. The Work includes providing support systems to receive Owner's equipment, and mechanical and electrical connections.



1. The Owner will arrange for and deliver necessary shop drawings, product data, and samples to the Contractor.
2. The Owner will arrange and pay for delivery of Owner-furnished items according to the Contractor's Construction Schedule.
3. Following delivery, the Owner will inspect items delivered for damage.
4. If Owner-furnished items are damaged, defective, or missing, the Owner will arrange for replacement.
5. The Owner will arrange for manufacturer's field services and for the delivery of manufacturer's warranties to the appropriate Contractor.
6. The Contractor shall designate delivery dates of Owner-furnished items in the Contractor's Construction Schedule.
7. The Contractor shall review shop drawings, product data, and samples and return them to the Architect noting discrepancies or problems anticipated in use of the product.
8. The Contractor is responsible for receiving, unloading, and handling Owner-furnished items at the site.
9. The Contractor is responsible for protecting Owner-furnished items from damage, including damage from exposure to the elements. The Contractor shall repair or replace items damaged as a result of his operations.

#### 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.
4. If tests have been done for Contaminated Soils and/or Contaminated Groundwater, 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.
5. If tests have been done for Work Involving Hazardous Materials, Wastes, and Items and Universal Wastes (Including Products Containing Persistent Bioaccumulative Toxic Chemicals" [PBTs] such as PCBs, Di-2-ethylhexyl Phthalate [DEHP], and Mercury), 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 **exposure limits and removal responsibility**.
6. **Subsurface Geotechnical Investigations:**
  - a. If Boring logs have been prepared for the site of this work they are in the Contract Documents.
  - b. If Geotechnical Reports(s) have been prepared for this project they are referenced in **Section 00 30 00 Available Information and provided in Division 50 00 00 Project-Specific Available Information**.
    - 1.) The Contractor must interpret the Geotechnical Report (s) according to his own judgement and acknowledges that he is not relying upon the data as accurately describing the subsurface conditions which may be found to exist.
    - 2.) The Contractor further acknowledges that he assumes all risk contingents upon the nature of

the subsurface conditions, which shall be actually encountered by him in performing the Work of this Contract.

- 3.) The Contractor should visit the site and become acquainted with all existing conditions and may make their own subsurface investigations to satisfy themselves as to the subsurface conditions. Such investigations shall be conducted only under time schedules and arrangements approved in advance by the Owner.
- 4.) No attempt has been made to locate hazardous material associated with existing site utilities, though it is presumed that at least some asbestos may be discovered associated with underground piping during the course of site and site utilities work. If and when such materials appear, the Contractor shall notify the Owner, who shall direct additional work outside of this Contract to assist in cutting up and disposing of same. The Contractor shall assist the hazardous materials contractor(s) with excavating, heavy lifting, and the like at no additional cost to the Owner.

7. No attempt has been made to locate hazardous material associated with existing site utilities, though it is presumed that at least some asbestos may be discovered associated with underground piping during the course of site and site utilities work. If and when such materials appear, the Contractor shall notify the Owner, who shall direct additional work outside of this Contract to assist in cutting up and disposing of same. The Contractor shall assist the hazardous materials contractor(s) with excavating, heavy lifting, and the like at no additional cost to the Owner.

**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. phasing requirements;
- b. proposed vehicle and equipment access routes;
- c. locations of proposed staging/lay-down and storage areas, utility connections;
- d. delivery access of materials, handicap access;
- e. building egress, proposed pedestrian traffic flows in the interior and exterior of the building;
- f. temporary access-ways;
- g. office trailer and dumpster locations;
- h. location of perimeter construction fencing and gates;
- i. other protection measures a. round and in the building(s);
- j. temporary partitions, proposed pedestrian traffic flows around and in each building;
- k. proposed building access points;
- l. proposed protection measures for trees, shrubs and plantings, interior access-ways;
- m. coordination of activities that relate to building occupants and other field applied measure to protect and coordinate the work including any relocation of utilities

**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 **five (5)** sets of the Contract Documents on or about the time of execution of the Contract, free of charge. 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) Floor Plans 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 **forty eight (48) 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."

**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**

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**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)**

**END OF SECTION 01 25 00**



**7001  
Equal or Substitute  
Product Request**

Page 1 of 2

Request Phase: Pre-Bid  Post Bid  (See Article 15 Materials: Standards, General Conditions)

(If Pre-bid only) Current Bid Due Date:  Request No.:  Dated:

To: State of Connecticut  
Department of Administrative Services,  
Construction Services

DAS Project No.:

Project Name / Location:

References: Specification(s):  Section(s):  Paragraph(s):

Drawing(s):  Drawing(s) No(s):  Detail(s) No(s):

Contractually Specified Product:

Contractor Proposed Product:

Proposed Product is: Equal:  Substitute:  Model No.:

**IMPORTANT:**  
**See Attached Data For Both Specified And Proposed Products  
As Required By Article 15 General Conditions.**

Data attached: Drawings:  Product Data:  Reports:  Samples:

Tests:  Other:

Reason(s) for not providing the Specified Product:

Similar Installation:

Project Name:  Architect's Name:

Project Location:  Owner's Name:

Date Installed:





7001  
Equal or Substitute  
Product Request

Page 2 of 2

Will proposed substitution impact other parts of the Work? No  Yes  *If Yes Attach An Explanation.*

Will proposed substitution increase Contract Time? No  Yes  *By Number Of Calendar Days*

Actual Dollar Savings to the State of Connecticut if substitution is accepted: \$

**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.**

Request Submitted By General Contractor / CMR:   
*(Firm's Typed Name)*

By:      
*(Typed Name) (Title) (Signature) (Date)*

Contractor / CMR Send copies to : DAS PM:  CA:

Consultant's Request Received on (Date):

Consultant's Review – This Substitution Request is:

Approved: *(Submittal(s) in accordance with Div. 01 General Requirements, Section 01 33 00 Submittal Procedures.)*

Approved as Noted: *(Submittals in accordance with Div. 01 General Requirements, Section 01 33 00 Submittal Procedures.)*

Rejected: Use Specified Materials.

Rejected: Request Not Received Within Specified Time Period - Use Specified Materials.

Reviewed Issued By:

Name:   
*(Typed Name)*

Title:

Signature:    
*(Signature) (Date)*

CONSULTANT Send copies to: DAS PM  CA  Chief Architect  Chief Engineer

If Approved: As noted by Consultant,  
DAS Chief Architect:    
*(Signature) (Date)*

Copies: Project File Red R2

END

**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:
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.
- OR**
4. Division 01 Section 01 32 16.13 "CPM Schedules" for requirements for CPM 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 requirements 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**

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## 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.

OR

3. Division 01 Section 01 32 16.13 "CPM Schedules" for requirements for CPM 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.

OR

- h. **Schedule (01 32 16.13):** a lump sum payment upon receipt of the base line schedule. A payment of 40% of the total amount of the total cost which is to be calculated at 1/8<sup>th</sup> of one percent of the base bid total project cost. Monthly updates using the remainder of the cost divided evenly over the accepted schedule duration with a forfeit of the monthly payment of the update is not received on time.
- Any forfeited amounts being withheld by the CA for non-performance will be adjusted at the final payment by a credit change order to the owner.
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:

<b>Contractor's Master Subcontract Agreement List</b>				
<b>Subcontractor Name</b>	<b>Minority Or Small Business Designation</b>	<b>Trade</b>	<b>Address</b>	<b>Contract Sum</b>

- 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**

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## 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.

OR

3. Division 01 Section 01 32 16.13 "CPM Schedules" for requirements for CPM 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.
6. Division 01 Section 01 71 23 "Field Engineering" specifies procedures for field engineering services, including establishment of benchmarks and control points.
7. Division 01 Section 01 77 00 "Closeout Procedures" for coordinating contract closeout.
8. Division 01 Section 01 91 00 "Commissioning" defines the commissioning process.

### 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.
  - e. Coordinate field engineering layout as specified in Division 01 Section 01 71 23 "Field Engineering" for work under the instructions of the Construction Administrator.

### 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-Built - 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; all laboratories, animal-handling rooms and data rooms; all classrooms and seminar rooms; all lecture halls and their support spaces; all video studios, broadcast classrooms and their support facilities; 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 Field Engineering and 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. 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.

### 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**



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## 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.

OR

2. Division 01 Section 01 32 16.13 "CPM Schedules" for requirements for CPM 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.
5. Division 03 Section 03 45 00 "Precast Architectural Concrete" for pre-installation/erection conferences.
6. Division 07 Section 07 50 00 "Membrane 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.
19. Coordination with Audio Visual and Telecommunications.

#### 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.**

- I. 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):

$$\frac{\text{Contract Time (Calendar Days)}}{365} \text{ multiplied by } 7 \text{ equals } \text{Weather Days Allowance (Calendar Days)}$$

**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**



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**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 maintenance of the Contractor's computerized progress schedule, reporting progress of the Work, and Contract time adjustments, including the following:
1. Preliminary schedule.
  2. Baseline schedule.
  3. **Two (2) week** look ahead schedules.
  4. Schedule revisions.
  5. Recovery schedules.
  6. Narratives.
  7. Schedule time extensions.
- B. The above listed Project schedules shall be used for evaluating all issues related to time for this Contract. The Project schedules shall be updated in accordance with the requirements of this Section to reflect the actual progress of the Work and the Contractor's current plan for the timely completion of the Work. The Project schedules shall be used by the Owner and Contractor for the following purposes as well as any other purpose where the issue of time is relevant:
1. To communicate to the Owner the Contractor's current plan for carrying out the Work;
  2. To identify work paths that are critical to the timely completion of the Work;
  3. To identify upcoming activities on the Critical Path(s);
  4. To evaluate the best course of action for mitigating the impact of unforeseen events;
  5. As the basis for analyzing the time impact of changes in the Work;
  6. As a reference in determining the cost associated with increases or decreases in the Work;
  7. To identify when submittals will be submitted to the Owner;
  8. To prioritize the Owner's review of submittals;
  9. To document the actual progress of the Work;
  10. To evaluate resource requirements of the Contractor and the Owner;
  11. To integrate the Work with the operational requirements of the Owner's facilities;
  12. To facilitate efforts to complete the Work in a timely manner.
  13. To document the history of the Work.
- B. Refer to the General Conditions and the Agreement for definitions and specific dates of Contract Time.
- C. **Related Sections:** The following Sections contain requirements that relate to this Section:
1. Division 01 Section 01 11 00 "Summary of Work" specifies the scope of work for the various phases, requirements regarding the Contractor's use of premises, occupancy requirements, products ordered in advance, and Owner furnished products.
  2. Division 01 Section 01 25 00 "Substitution Procedures" specifies requirements for handling requests for equals and substitutions.
  3. Division 01 Section 01 26 00 "Contract Modification Procedures" specifies requirements for handling and processing contract modifications.
  4. Division 01 Section 01 29 76 "Progress Payment Procedures" specifies requirements for submitting Schedule of Values and Application for Payments.
  5. Division 01 Section 01 31 00 "Project Management and Coordination" specifies requirements for coordinating construction operations.

6. Division 01 Section 01 31 19 "Project Meetings" specifies requirements for submitting and distributing meeting and conference minutes.
7. Division 01 Section 01 33 00 "Submittal Procedures" specifies requirements for submitting the monthly computerized progress schedule.
8. Division 01 Section 01 45 00 "Quality Control" specifies requirements for submitting inspection and test reports.
9. Division 01 Section 01 50 00 "Temporary Facilities and Controls" specifies requirements for temporary utilities, support facilities, and security protection.
10. Division 01 Section 01 60 00 "Product Requirements" specifies requirements for submitting the list of products.
11. Division 01 Section 01 77 00 "Closeout Procedures" specifies requirements for Contract closeout.

### 1.3 DEFINITIONS

- A. **Critical Path Method (CPM):** A method of planning and scheduling a construction project where activities are arranged based on activity relationships and network calculations determine when activities can be performed and the critical path of the Project.
- B. **Critical Path:** The longest continuous chain of activities through the network at a given data date for the Schedule to a Contract Milestone or Contract Completion. Where the path to a specific Milestone has become negative, the Critical Path shall be the longest continuous chain of activities with the greatest amount of negative float.
- C. **Near Critical Path:** Any continuous series of activities through the network to the Contract Milestone or the Contract Completion Date where the Total Float of the activity at the data date along that path is within **fifteen (15) days** of the Total Float possessed by the activity at the data date along the Critical Path.
- D. **Network Diagram:** A graphic diagram of a network schedule, showing the activities and activity relationships.
- E. **Activity:** A discrete part of a project that can be identified for planning, scheduling, monitoring, and controlling the construction project. Activities included in a construction schedule consume time and resources.
  1. Critical activities are activities on the critical path.
  2. Predecessor activity is an activity that must be completed before a given activity can be started.
- F. **Event:** An event is the starting or ending point of an activity.
- G. **Milestone:** A key or critical point in time for reference or measurement.
- H. **Float:** Is the measure of leeway in activity performance. Accumulative float time belongs to the Owner.
  1. Free float is the amount of time an activity can be delayed without adversely affecting the early start of the following activity.
  2. Total float is the measure of leeway in starting or completing an activity without adversely affecting the planned project completion date.
- I. **Total Float:** The number of days from the late finish date (LF) to the early finish date (EF) of an activity at a given data date for the Schedule. When the LF is later than the EF, the Total Float shall be positive. When the LF and the EF are the same, the Total Float shall be zero. When the LF is earlier than the EF, the Total Float shall be negative. Unless otherwise specified all references to "float" shall mean "Total Float."
- J. **Fragnet:** The sequence of new activities and/or activity revisions, logic or resource changes that are proposed to be added to the existing schedule to demonstrate the influence of impacts to the schedule. The Fragnet shall identify the predecessors to the new activities and demonstrate the impacts to successor activities.

### 1.4 QUALITY ASSURANCE

- A. **Construction Scheduler:**
  1. The Contractor is required to employ or retain the services of an individual skilled in construction scheduling ("Construction Scheduler"). For projects with a Contract value greater than five (5) million dollars, the Construction Scheduler shall have at least five (5) years of verifiable experience as the person primarily responsible for preparing and maintaining detailed project schedules on projects of the same or similar size and nature as this project. The Construction Scheduler is required to attend meetings pertaining to scheduling and progress of the work including all progress meetings.
  2. Within **five (5) days** after the Notice of Award, the Contractor shall provide a statement to the Owner with the following:

- a. Identification, qualifications, and experience of the Contractor's Construction Scheduler and all other members of the Contractor's scheduling staff.
  - b. References of not less than **two (2)** previous projects on which the Contractor's Construction Scheduler has utilized CPM scheduling.
3. The Owner reserves the right to disapprove any Construction Scheduler candidate proposed for the project and/or remove, without rights to work on the project, any member of the Contractor's scheduling staff that is, in the Owner's opinion, not qualified. In case of disapproval, the Contractor shall resubmit the qualifications and references of the proposed alternate Construction Scheduler within **ten (10) days**. The Contractor must have its Construction Scheduler approved prior to the issuance of the Notice to Proceed and the submission of any schedule.
  4. Should the Construction Scheduler leave the employ of the Contractor or be re-assigned or relieved of his/her responsibilities as the Construction Scheduler on the project, the Contractor will be required to submit the qualifications of the proposed replacement Construction Scheduler within **10 days** after the date the former Construction Scheduler is no longer responsible for his/her duties on this Project.
- B. Scheduling Software:**
1. For Contracts greater than **five (5) million** dollars, the Contractor shall use the latest version of **Primavera Project Planner** as the scheduling software system for use on this Project.
  2. The Contractor shall provide one (1) licensed copy of the scheduling software to the Owner's CA for their use, registered in the Owner's name, complete with the entire manufacturer's manual, within **five (5) days** after the Contract award. The software manuals and license shall become the permanent property of the Owner.

#### 1.5 CPM SCHEDULE FORMAT/CONTENT

- A. Format:** All Schedules required by this section shall be computer generated, critical path method (CPM) networks utilizing the precedence diagram method of scheduling.
- B. Electronic Schedule Naming:** The Contractor shall not submit any two (2) schedule files with the same file name. File names shall be in accordance with the following requirements:
1. Proposed/Final Preliminary Schedules shall be named P001, P002, P003, etc.
  2. Proposed/Final Baseline Schedules shall be named B001, B002, B003, etc.
  3. Final Updated Schedules shall be named U001, U002, U003, etc. Any revisions that are required at a particular update on a data date shall be numbered UA01, UB01, UC01, etc.
- C. Activity Identification:** Each activity in the Project schedules shall have an activity Identifier (activity ID). The Contractor is encouraged to utilize the activity ID to contain a structure enabling easy identification of work type, location, subcontractor, etc. The activity ID of an existing activity shall not be modified or assigned to another activity.
- D. Activity Description:** The activity description shall identify the scope of the activity and shall include a verb or work function (i.e. form, pour, execute, etc.), an object (i.e. slab, footing, wall, etc.), and location (i.e., first floor, roof, etc.). There shall not be any two activities with the same activity description. It shall not be necessary to investigate activity code assignments or logic relationships to identify the scope of an activity. For example, the description "Pour Footing" will not be acceptable. The description "Pour Footing West Wall, Section 2" will be acceptable. The terms "Miscellaneous," "Misc." and other vague adjectives shall not be used in an activity description. The Contractor shall standardize the use of terms and their spelling in all activity descriptions. Abbreviation used in activity descriptions shall be consistent with the abbreviations used throughout the Contract Documents and summarized on the Contract Drawings.
- E. Work Activities:** The Contractor shall include activities for work in the following list:
1. Mobilization.
  2. All required submittals and submittal review.
  3. Equipment and materials procurement/fabrication/delivery.
  4. Installing/operating temporary heat and utilities.
  5. Preliminary testing of equipment, instrumentation and controls.
  6. Final testing, including preparation time.
  7. Substantial Completion: Substantial completion activity shall meet all requirements set forth in Division 01 Section 01 77 00 "Closeout Procedures".

8. Punch list work.
  9. Operation and maintenance training.
  10. Demobilization.
  11. Final cleaning.
  12. Issuance of Certificate of Occupancy.
  13. Project Specific Issues (If Warranted).
- F. Maximum Activity Durations:** The Contractor shall prepare schedule utilizing activity durations in terms of days. Do not exceed **twenty-one (21)** day duration on activities except concrete curing, submittal review and equipment fabrication and deliveries. Where duration of continuous work exceeds **twenty-one (21)** days, subdivide activities by location or other sub-element of the work. At the request of the Owner, the Contractor shall substantiate the need for specific activities having longer durations than stated herein. If the Contractor fails to substantiate this need, then the Contractor shall modify activity durations and the corresponding work scope of the activities to the satisfaction of the Owner.
- G. Activity Dates:** Early and late start and finish dates of activities shall be calculated for each activity based upon the schedule data date, actual dates, schedule logic, schedule constraints, calendars and original duration or remaining duration, in accordance with the software to calculate incorrect early and late, start and finish dates, the Contractor shall be responsible to identify all such errors and to determine correct dates consistent with the parameters specified in this Section.
- H. Activity Predecessors and Successors:** Every activity shall have logically assigned predecessors and successors in conformance with the requirements of this Section. Unless otherwise specified, Notice to Proceed shall be the only activity in the Project Schedules without a predecessor. Unless otherwise specified, Acceptance and each Contract Milestone(s) shall be the only activity in the Project Schedules without a successor.
- I. Activity Constraints:** Activity Constraints can affect activity float calculations and shall not be used unless accepted by the Owner. The imposition of a date constraint on any activity shall only be permitted when the Contractor demonstrates the need for such a constraint to the satisfaction of the Owner.
- J. Imposed Project Finish Date:** The imposed project finish date shall be the Contract Completion date, or if the Contractor plans an early completion date, the date it plans to complete the Work.
- K. Negative Float:** Negative float is calculated when the user imposes a finish date or other constraint on the schedule and when an activity can only finish after its late finish date. The Contractor shall remove the imposed finish date and/or constraint causing the negative float when directed to do so by the Owner.
- L. Activity Codes:** The schedules shall contain activity code classifications and code values. The coding structure shall, at a minimum, include code fields for the following: Phase, Area, Location, Type of Work, Submittal/Procurement, Construction, Responsibility, Original/Extra Work, and **Division**. **All activities in the schedule must have non-blank values for the required codes.**
- M. Calendars:** The planning unit for the Work shall be days. The global calendar shall contain all union holidays. The Contractor shall coordinate holidays to be observed with the Owner and incorporate them into the schedule as non-working days. This Calendar shall be a **5-day** work week, Monday through Friday. Every activity shall be assigned a working day calendar based on when the activity is planned to occur and when it is contractually permitted to occur. The Contractor shall define and submit additional working day calendars for acceptance by the Owner that are necessary for completion of work in accordance with the requirements of the Contract Documents. Only Owner defined or Owner accepted working day calendars shall be utilized in the Project Schedules.
- N. Logic:** The Contractor shall be responsible for developing the logic of the Preliminary, Baseline and Recovery Schedules and for updating that logic each month to accurately reflect the progress of the Work to-date and the Contractor's current plan for the timely completion of the Work.
1. The following criteria shall form the basis for assembly of the schedule logic:
    - a. Which activity must be completed before a subsequent activity can be started?
    - b. Which activities can be done concurrently?
    - c. Which activities must be started immediately following a completed activity?
    - d. What major economic facility or manpower restrictions are required for sequencing these activities?
  2. All paths through the Project schedules shall proceed in the direction representing the progression of time. Activity lag duration shall not have a negative value unless the Contractor substantiates to the satisfaction of the Owner that this is the best representation of reality. The use of activity lags shall be

kept to a minimum. The Contractor shall eliminate lags by creating new activities, when the creation of new activities will perform the same function of the lag and when requested to do so by the Owner.

3. Redundant ties to preceding activities in a sequential series of activities will not be permitted. For example, if activity C is the successor in a finish-start relationship to activity B, and activity B is the successor in a finish-start relationship to activity A, then activity A shall not have a redundant finish-start relationship to activity C. A tie representing a different constraint will not be considered redundant. For example, a logic tie showing that the completion of the work scope of a predecessor is required before the successor can start is different from a logic tie representing a resource limitation and will not be considered redundant.
  4. The Contractor is required to use manpower and equipment restraints, separately noted, to optimize and level manpower and equipment requirements. Such resource leveling shall reflect a reasonable plan for accomplishing the Work. The individual activities involved may be sequenced within the limits of the available Total Float. However, when this leveling technique is used in establishing the initial schedule, it shall be reflected in the logic with restraints identified as "restraint for manpower or equipment leveling purposes only." Critical or near Critical Paths resulting from the use of manpower restraints shall be kept to a minimum.
  5. All activities with resource restraints shall be supplemented with resource loading information as noted in Paragraph G.
  6. The Contractor shall correct all incorrect logic relationships in the Schedule Updates to eliminate any out-of-sequenced logic. The Contractor shall make all changes in the logic or other adjustments found to be incorrect by the Owner.
- O. Progress Data:** Actual start and finish dates shall not be automatically updated by default mechanisms that may be included in the CPM scheduling software systems. The primary source of actual starts and finishes and period percentage completes shall be by field verification. The Contractor is to insure that progress is based on a current estimate of remaining duration to complete the Work and not the activity percent complete which calculates the remaining duration based on the original estimated duration.
- P. Submittals:**
1. Each submission that is required by the Contract Documents shall have a corresponding activity, for the preparation and review and approval at the submission. When the Contractor plans on making a submission in parts, each part of the submission shall have corresponding preparation and review and approval activities.
  2. The timing, sequencing and duration of all submitted review and approval activities shall be in accordance with the Contract Documents.
  3. All submissions designated "Revise and Resubmit" shall require that the Contractor insert new submittal preparation and review and approved activities with appropriate logic into the schedule.
  4. When submittal receives a partial approval and the partial approval is sufficient to enable the commencement of a successor activity, then the original submittal activity shall be broken down into multiple activities as necessary to accurately reflect the logic of the Contractor's current plan.
  5. When multiple items are included in a single submittal, the "Review and Approve" activity for the submittal shall be a predecessor to every activity representing the fabrication and delivery of any of the materials.
- Q. Delivery Activities:** The schedules shall include activities for all fabrication and delivery work except for short lead time items. "Short lead time" shall be defined as a period of fourteen (14) days or less from placement of order to delivery of material to the project site. Activities representing the delivery of materials or equipment for more than **one (1)** installation activity will be permitted in accordance with the following conditions.
1. The material delivery activity shall be a predecessor to the first activity representing the installation of the material in each area.
  2. When partial deliveries are received and those deliveries are adequate to enable the commencement of some, but not all, successor activities, then the original delivery activity shall be broken down into multiple activities as necessary to accurately reflect the logic of the Contractor's current plan.
- R. Inspections/Testing:** The Contractor shall include an activity for each inspection and test required by the various officials and agencies, including the Building Inspector, and Fire Marshall. The Contractor shall schedule these activities in accordance with the availability of the corresponding agency/official.
- S. Progress Override/Retained Logic:** The Contractor shall use retained logic to calculate all schedules required by this section. The use of progress override is not allowed without prior approval of the Owner.

**T. Weather Days Allowance:** The Contractor shall include as a separate identifiable activity on the Critical Path, and activity labeled "Weather Days Allowance." Insert this activity immediately prior to the substantial completion milestone.

1. The Contractor shall be fully responsible for determining the number of weather delay days to be included in the CPM Schedule. This determination shall be based on the normal anticipated weather for the project location and the nature of the project work. The CPM Schedule shall be based on the contractor's determined weather delay allowance, immediately prior to the Substantial Completion milestone.
2. The minimal allowed duration of the Weather Days Allowance shall be calculated as follows (decimals rounded to nearest whole number):

$$\frac{\text{Contract Time (Calendar Days)}}{365} \text{ multiplied by } 7 \text{ equals Weather Days Allowance (Calendar Days)}$$

3. The Contractor shall insert an activity in the Critical Path to reflect weather day occurrences when weather days are experienced and accepted by the Owner. Identify this activity as a weather delay.
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.

**U. Regulatory/Third Party Approvals:** The Contractor shall include activities in its schedule for all approvals required by regulatory agencies or other third parties.

**V. Resource Loading:** The Contractor shall resource load the schedules when required by this Specification and/or if requested to do so by the Owner. When required, the schedules shall be resource loaded for both the Contractor and all of its subcontractors as detailed below or as otherwise directed by the Owner. The Contractor may propose additional or alternative resource loading for the Owner review and acceptance. Defining a resource shall consist of identifying the resource name, resource description, unit of measure, and calendar assignment.

1. **Labor Resources:** Labor shall refer to all craft labor including foreman. Labor shall be measured in person-days. The labor resource definitions shall be consistent with the subcontractor work scope.
2. **Construction Equipment Resources:** The planned use of equipment requiring a licensed operator shall be reflected in equipment resource assignments to activities.
3. **Limits on Resources:** The Contractor shall indicate in its Narrative the expected amount of resource and shall define the normal or expected usage along with a maximum limit available to the Contractor. Resource limits may vary for different stages of the work. Resource limits shall be revised to reflect the Contractor's current plan for the timely completion of the work.

**W. Activity Logs:**

1. Activities that are modified or added by change order shall be identified in the activity log. The change order number, as issued by the Owner, and the date the activity was modified or added shall be clearly recorded.
2. Activities affected by logic changes, resource changes, duration changes and calendar changes shall be identified in the activity log. The date the activity was modified, the nature of the change and the reason for the change shall be clearly recorded.

#### 1.6 **PRELIMINARY SCHEDULE AND PRELIMINARY SCHEDULE UPDATES**

- A. For projects with a construction cost estimate over five (5) million dollars, the Contractor shall submit a Preliminary Schedule and Preliminary Schedule Updates. The Notice to Proceed will not be issued and the Contractor will not be allowed to start work at the Project site until the Preliminary Schedule has been submitted and accepted.
- B. The Preliminary Schedule shall contain a detailed plan of operations for the first 90 days of Work after receipt of the Notice to Proceed.
- C. The Construction Administrator and Contractor shall meet after receipt of Preliminary Schedule to review and make necessary adjustments. Contractor shall submit a revised Preliminary Schedule incorporating the adjustments with **five (5) days** after meeting.
- D. All Work contemplated beyond the first **ninety (90) days** shall be shown in sufficient detail such that the Critical Path and all Contract Milestones may be identified.

- E. The Preliminary Schedule shall be updated monthly during first **ninety (90) days** after issuance of the Notice to Proceed. The first update of the Preliminary Schedule shall show the progress on the actual Notice to Proceed date and shall be submitted to the Construction Administrator within **five (5) days** after the issuance of the Notice to Proceed. Subsequent updates shall show the progress through the last day of the month and shall be submitted to the Construction Administrator by the fifth business day of each month.
- F. Preliminary Schedule Update revisions that are required as a result of review comments by the Construction Administrator shall be submitted within **five (5) days** of the Contractor's receipt of the Construction Administrator's comments. The data date of the revised Preliminary Schedule Update shall remain on the first day of the month.
- G. The Contractor shall not be permitted to make any schedule revisions (besides progress) to the Preliminary Schedule Update unless approved by the Construction Administrator. When schedule revisions are required, the Contractor shall submit a Schedule Revision per Article 1.11.

#### 1.7 BASELINE SCHEDULE

- A. For projects with a construction cost estimate over five (5) million dollars, the Contractor shall submit the proposed Baseline Schedule to the Construction Administrator for all the work of the project within **forty-five (45) days** after issuance of the Notice to Proceed. The Accepted Preliminary Schedule shall be incorporated unchanged, as first **ninety (90) days** activity in the Contractor's Baseline Schedule.
- B. The proposed Baseline Schedule shall show sequence and interdependence of all activities required for complete performance of all Work, beginning with date of Notice to Proceed and concluding with date of final completion of the Contract. The Baseline Schedule shall depict the work as bid and as planned as of the Notice to Proceed. The data date shall be the actual date of the Notice to Proceed.
- C. The Construction Administrator and the Contractor shall meet after the Construction Administrator's receipt of the Baseline Schedule to review and make necessary adjustments. Should adjustments be required, the Contractor shall submit a revised Baseline Schedule within five (5) days after the meeting and receipt of the Construction Administrator's comments. Subsequent follow-up meetings and resubmissions may continue until the Construction Administrator accepts the Baseline Schedule.
- D. The Contractor shall require each major Trade Contractor and major supplier to submit in writing a statement certifying that the major Trade Contractor or major supplier has concurred with the Contractor's Baseline Schedule, the major Trade Contractor's or major supplier's related schedule has been incorporated accurately, including the duration of activities and crew allocations. The definition of a "major Trade Contractor" is **one (1)** that provides services valued in excess of **five (5) percent** of the Contract value. The definition of "major supplier" is **one (1)** that provides material(s) or services valued in excess of **one (1) percent** of the Contract value. Failure of the Contractor to provide the required information will delay the approval of the Baseline Schedule.

#### 1.8 SCHEDULE UPDATES

- A. The Contractor shall update and progress the CPM Schedule through the last day of each month (the Data Date is the first day of the month). Updating and progressing the CPM Schedule shall be completed and submitted by the fifth business day each month. Except as otherwise authorized by the Construction Administrator, monthly submissions received after the due date are considered late.
- B. The first update will consist of the approved Baseline Schedule updated as of the first day of the first month which starts after **ninety (90) days** from the Notice to Proceed. Subsequent monthly Schedule Updates will be the previous month's approved Schedule Update or approved Revision Schedule updated to reflect progress over the last month. Schedule revisions, apart from updating the status of the remaining durations and percent completes of the various work activities will not be permitted in the Schedule Update.
- C. The Contractor shall create a copy of the previous month Schedule Update for the purpose of updating and progressing it. The schedule shall be updated to show the work actually accomplished during the preceding month, the actual time consumed for each activity, and the estimated time remaining for any activity that has been started but not completed. The updating of the percent complete and the remaining duration of any activity shall be independent functions; program features that calculate one of these parameters from the other shall be disabled.
- D. The Contractor shall make the necessary adjustments to the Schedule Update in accordance with the Construction Administrator's Schedule Update review comments and shall re-submit the Schedule Update within **five (5) days** after receipt of those comments.
- E. The Contractor shall prepare the monthly Schedule Updates every month starting on the month described above through the actual substantial completion date.



### 1.9 TWO-WEEK LOOK AHEAD SCHEDULES

- A. The Contractor shall be required to produce and submit to the Construction Administrator a Two-Week Look Ahead Schedule, to be updated and submitted the first day of each week. Except as otherwise authorized by the Owner, submissions received after the due date are considered late.
- B. The Two-Week Look Ahead Schedule may be a CPM schedule or a bar chart; it shall be consistent with the previously approved Schedule Update or approved Schedule Revision.

### 1.10 SCHEDULE REVISIONS

- A. If, at any time, the Contractor alters its logic, original durations, or descriptions, adds activities or activity codes, or in any way modifies the accepted Preliminary Schedule, accepted Preliminary Schedule Update, Baseline Schedule or Schedule Update, the Contractor must notify the Construction Administrator of the change(s), in writing and submit a Revision Schedule to the Construction Administrator for review.
- B. The preparation and submission of Revision Schedules will also be required to reflect any Contract Modifications that were approved and Construction Change Directives that were issued during the preceding period and any extra or changed work that the Contractor has started during the preceding period.
- C. With each Revision Schedule, the Contractor shall submit a written narrative explaining the nature of the change(s), the schedule, the reason for the change(s) and the impact on the schedule as a result of the change(s).
- D. All changes (i.e. duration changes, logic changes, new logic, new or modified activities changes in work sequence, etc.) shall be recorded and a note added to the activity log. The record shall include at a minimum, the date and the reason for the change, and description of the change.
- E. The required Revisions Schedules and Narratives are in addition to the regular Schedule Update. They shall be separate submittals and shall be noted as Schedule Revisions.
- F. Proposed Revision Schedules shall be submitted by the fifth day of the month and shall reflect status as of the first day of the month.
- G. The Construction Administrator and Contractor shall meet after the Construction Administrator's receipt of the Revision Schedule and Narrative to review and make necessary adjustments. Should adjustments be required, the Contractor shall submit a revised Revision Schedule to the Construction Administrator within **five (5) days** after the meeting and receipt of the Construction Administrator Comments. Subsequent follow-up meetings and resubmissions may continue until after the Construction Administrator accepts the Revision Schedule.
- H. Only upon acceptance of a revision to the Schedule by the Construction Administrator shall the revision be reflected in the next Schedule Update and Two-Week Look-Ahead Schedule.
- I. The Construction Administrator reserves the right to accept or reject any schedule revisions proposed by the Contractor.

### 1.11 RECOVERY SCHEDULES

- A. If, in opinion of the Owner, a Schedule Update indicates that the Contractor has fallen behind schedule, or that a revision in sequence or operations may be necessary for any other reason, the Contractor shall within **seven (7) days** of receiving a written request to perform "Recovery" from the Construction Administrator, immediately institute all necessary steps to improve his progress and shall submit such revised network diagrams, tabulations, operational plans and any supplementary information, as may be deemed necessary by the Owner, to demonstrate the manner in which an acceptance rate of progress will be regained.
- B. Should the Contractor's "Recovery" efforts not demonstrate an ability to regain an acceptable rate of progress, the Construction Administrator may require the development of a "Recovery Schedule" and the Contractor shall submit the Recovery Schedule within **twenty-one (21) days** of receiving a written request for the Recovery Schedule from the Construction Administrator. The Recovery Schedule is to be supplemented with resource allocations for every task activity and include time-scaled resource histograms. The resource allocations shall be shown to a level of detail that facilitates report generations based on labor crafts and equipment classes for the Contractor and Trade Contractors. The Contractor shall use average composite crews to display the labor loading of onsite construction activities. The Contractor shall optimize and level labor to reflect a reasonable plan for accomplishing the Work of the Contract and to assure that resources are not over allocated in multiple concurrent activities. The time-scaled resource histograms shall show labor crafts and equipment classes to be utilized on the Contract.
- C. In addition to required submittals, the "Recovery Schedule" submission will also include a Narrative as detailed herein, a time-scaled resource histogram and a Monthly Resources Loading Summary Report (tabular) indicating the peak number of resources required for each activity.

- D. The Construction Administrator shall be the sole judge as to whether the Recovery Schedule is sufficiently detailed. Upon acceptance of this Recovery Schedule, it shall form the basis of the new Monthly Schedule Updates going forward.
- E. No additional compensation will be allowed for Recovery Schedules required to overcome delays caused in whole or in part by the Contractor.

#### 1.12 NARRATIVES

- A. The Contractor shall prepare and submit a Narrative to accompany the Baseline Schedule, Preliminary Schedule and each Preliminary Schedule Update and Monthly Schedule Update. The Narratives shall include:
  - 1. Identification of the update period, the data date and the schedule file name.
  - 2. A description of the current Critical and Near Critical Paths activities that are supposed to start or to be worked on over the coming month.
  - 3. Changes to the Critical Path, intermediate and completion Milestones
  - 4. Description of problem areas.
  - 5. Current or anticipated delays:
    - a. Cause of delay.
    - b. Impact of delay on other activities, Milestones, and completion dates.
    - c. Corrective action and schedule adjustments to correct the delay.
  - 6. A discussion of work completed during the period.
  - 7. A comparison of the planned versus schedule progress early on and near Critical Path activities that were to have been worked on over the last month.
  - 8. A description of any interdependencies between the Contractor's Schedule and any work by other contractors, third parties, and/or the Owner and its representatives.
  - 9. A description of the current status of float created by any previous or ongoing compensable or excusable delays, whether or not the Contractor has utilized any of this float over the last period by purposefully slowing down (pacing) and any request to utilize this float over the coming period.
  - 10. An explanation of how adverse weather has been addressed in Schedule and an accounting of the Weather Day Allowance delineating the activities incorporated into the Schedule to account of work days lost due to weather and the resultant decrease in the duration of the Weather Day Allowance.
  - 11. A description of planned labor resources to be utilized to complete critical and near Critical Path work as requested by the Construction Administrator.
  - 12. A description of actual and potential equipment resource limitations.

#### 1.13 NETWORK FILES, GRAPHICAL OUTPUT AND REPORTS

- A. With each Preliminary Schedule, Preliminary Schedule Update, Baseline Schedule, Schedule Update, Revision Schedule and Recovery Schedule required by these specifications, the Contractor shall submit to the Construction Administrator the following schedule reports/graphics/files:
  - 1. **Three (3)** compact disc sets that each include:
    - a. A compressed back up of the entire schedule.
    - b. Gantt charts in Adobe Acrobat PDF file format, formatted to fit ANSI Size D paper (610mm x 914mm) (24" x 36"), and showing the Activity ID, Activity Description, Original Duration, Remaining Duration, Total Float, Early Start and Finish Dates, and Calendar ID. Types of Gantt Charts to be included are:
      - i. The project critical (longest) path.
      - ii. The Project near Critical Path (excluding Critical Path activities).
      - iii. All uncompleted work activities as of the data date.
  - 2. Reports in Adobe Acrobat PDF file format, formatted to fit 216mm x 279mm (8½" x 11") size paper, to include:
    - a. A listing of all activities, by activity code, with early & late starts and Total Float.

- b. A Claim Digger Report that details all changes between the current schedule submittal and the previous month's update submittal.
  - c. Detailed Predecessor/Successor Report which included a listing of all activities that immediately precede and immediately succeed that activity in the schedule logic.
3. **Three (3)** paper copies of each Gantt Charts in color and report on the paper size specified above.
- B. Schedule submittals will only be considered complete when all materials have been submitted.

#### 1.14 FLOAT/CRITICAL PATH

- A. With the exception of the Float described in Paragraphs B and C, Float is not for the exclusive use or benefit of either the Construction Administrator or the Contractor but is an expiring resource available to all parties acting in good faith as needed to meet any Contract Milestone(s).
- B. As float is an expiring resource, if the Work is delayed on the Critical Path due to an excusable delay (either compensable or non-compensable) or by any delay for which responsibility has not yet been agreed upon, the Contractor may not use any float created by such delay on any other path without the express written approval of the Construction Administrator or unless at the time of the float consumption a time extension had been issued for the delay that created the float being consumed. Use of such float on any parallel path without the approval of the Construction Administrator shall be construed as a concurrent inexcusable delay to any delay caused by the Construction Administrator.
- C. It is acknowledged and agreed by the Contractor that Construction Administrator caused delays on the project may be offset by Construction Administrator caused time savings (including, but not limited to: Critical Path submittals returned in less time than allowed for in the Contract, approval of substitution requests which result in a savings of time along the Critical Path for the Contractor, etc.). In such an event, the Contractor shall not be entitled to receive an extension of time or delay damages until the Construction Administrator caused time savings are exceeded and the Contract completion date also exceeded.

#### 1.15 EARLY COMPLETION

- A. Should Contractor submit a Preliminary Schedule, Baseline Schedule, Schedule Update or Schedule Revision showing Project Completion more than **twenty (28) days** prior to Contract Completion Date, the Construction Administrator may issue a Change Order, at no cost to Owner, revising the time of performance of Work and Contract completion date to match Contractor's schedule. Contract Milestone dates, if any, shall be adjusted accordingly. The assessment of liquidated damages shall be measured based on the new Milestone and Contract completion dates.
- B. Should any monthly Schedule Update show the project completion earlier than current Contract completion date, the Contractor shall show early completion time as schedule activity, identified as "Project Float." This float shall be available for use by either party as per the provisions of Article 1.14. The Owner shall not liable for any damages as a result of utilizing this float.

#### 1.16 CONTRACT TIME EXTENSIONS

##### A. Mitigation of Delays:

- 1. The Contractor shall be responsible to develop mitigation measures for all delays regardless of responsibility for the delays and to identify all time and cost impacts to the work associated with those mitigation measures. Unless circumstances otherwise require, the Contractor shall not pursue mitigation action for which it expects the Owner to be liable prior to notifying the Owner and receiving Construction Administrator authorization to proceed with the mitigation action. Any action taken by the Contractor prior to receiving approval from the Construction Administrator shall be at the Contractor's risk.
- 2. When the need for mitigation arises to ensure timely completion, the Contractor shall review all uncompleted activities on the Critical and Near Critical Paths to the Contract Completion Date for errors in scope, duration, and logic and for the feasibility of performing in parallel work currently scheduled sequentially.
- 3. Whenever it is possible for the Contractor to mitigate delay without added cost, the Contractor shall do so. The Contractor shall mitigate all delays as efficiently and economically as possible, with the objective of minimizing both the time and cost impact of the delay regardless of responsibility for the delay. The Owner will not be liable for damages which the Contractor could have avoided by reasonable means such as prudent scheduling of the work and judicious handling of forces, equipment or plant. The Owner will not be liable for damages incurred by the Contractor during any period of time when the Contractor has failed to provide notification of delay in accordance with the Contract requirements when having the notification at the specified time could have influenced the Owner's decision or actions.

**B. Time Impact Analysis:**

1. If the Contractor believes that a proposed change will impact the Project Completion Date or interim Milestones, the Contractor shall submit an analysis with its Change Order Proposal demonstrating the delay to the Critical Path. This analysis shall be in the form of a Time Impact Analysis (TIA).
2. The Time Impact Analysis shall consist of: 1) a Fragnet of the portion of the schedule that will be affected by the incorporation of the change, which shall include the new activities, revised logic and durations associated with the proposal change; 2) a narrative explanation of how the proposed change would impact the schedule; 3) an impact schedule which shall be developed by incorporating the Fragnet and required changes, including any delay mitigation measures, into the most recent accepted schedule update and; 4) electronic copies of the Fragnet and impact schedule.
3. The Contractor shall submit its TIA in sufficient time to allow it to be incorporated into a Revision Schedule prior to the change order work proceeding, allowing the Owner **thirty (30)** days after receipt of the TIA and all the supporting information required with the Change Order Proposal to approve or reject the analysis.
4. Upon agreement on the schedule impact due to the proposed change and the issuance of a time extension, the Contractor shall incorporate the agreed upon Fragnet/schedule revisions in the next monthly update.
5. The Owner reserves the right to have the Contractor proceed with the change order related work without agreeing on the time associated with it and to measure the actual schedule impact via Contemporaneous Period Analysis.
6. In cases where the Contractor has not submitted a TIA with its Change Order Proposal for a particular proposed change, the Contractor agrees that the particular proposed change has no impact on the Contract Completion Date or interim Milestones and no time extension is required.

**C. Contemporaneous Period Analysis:**

1. When an accepted Schedule Update indicates the project has been delayed beyond the current Contract Completion Date and the Contractor believes it is entitled to an extension of time, the Contractor shall prepare and submit to the Owner a Contemporaneous Period Analysis (CPA) demonstrating the delay(s) to the Critical Path at the time of the delay, mitigation measures taken or proposed by the Contractor and request an extension of time.
  2. The Contractor's CPA and time extension request shall be submitted prior to the submission of the next Schedule Update.
  3. The request shall indicate the amount of time requested, the period when the delay was experienced and an explanation as to the cause of the delay.
  4. The CPA shall quantify the delay by comparing the completion dates and Milestone dates on an update by update basis, starting with the update just prior to the delaying event and ending with the update just after the conclusion of the delaying event. Only the accepted schedules/Schedule Updates shall be used in the CPA. The CPA shall determine the cause of the delay by correlating slippage with various unforeseen events.
  5. The CPA will consist of: 1) an update by update accounting of all delay(s) during the period in question; 2) an update by update narrative explanation of how the delay(s) affected the completion date or would have affected the completion date but for other concurrent delay(s); 3) chronologies of the issues affecting the schedule period in question; and 4) a day by day accounting and description of the unanticipated work/work stoppage on the Critical Path and/or path in question; 5) a Gantt chart comparing the as-planned schedule just prior to the start of the delay to the actual as-built for the path(s) in question.
- D.** The Owner may require the Contractor to correct errors in its TIA or CPA at anytime, whether or not the schedules have been accepted and/or time extension issued and agreed upon. Should the errors affect the outcome of the TIA or CPA, the Owner reserves the right to adjust the time extension accordingly. Generally, a schedule will be found to be in error if it does not properly reflect the sequencing, timing and durations of all the work and required events as well as mitigation efforts contemplated or which should have been contemplated at the time of the data date of the schedule.
- E.** Time Extensions will be granted only to the extent that equitable adjustments for the activity or activities affected exceed or exceeded the total or remaining float along the Critical path or activities at the time of the actual delay. Actual delays in activities which do not affect the Critical Path work or which do not move the Contractor's planned completion date beyond the Contract completion date or current completion date as affected by previous delays, will not be the basis for an adjustment to the Contract time. Time Extensions shall not be granted until a delay occurs that is:

1. Beyond control of and without fault of or negligence of the Contractor and the major Trade Contractors or Suppliers at any time.
  2. Extends the actual performance of the work beyond the Contract completion date or other specified Interim Milestones.
- E. Should a non-compensable excusable delay be concurrent with one or more compensable delays, the Contractor and Owner agree that the net result is a non-compensable, excusable delay to the extent the delay is caused by the non-compensable event.
- F. The Contractor shall have no claim for damages of any kind, or extensions or increase to the Contract time(s) or Contract Milestone(s), or adjustments of Contract Price on account of any delay, interruption or suspension of the Work or any portion thereof (herein after collectively referred to as "Delay"), due to whatever cause unless the prerequisites of this Subsection are met. The requirements of this Subsection are in addition to and not in lieu of the requirements of any other applicable subsection.

#### 1.17 REVIEW AND ACCEPTANCE OF PROJECT SCHEDULE SUBMITTALS

- A. The Construction Administrator shall review schedule submittals for conformance with the requirements of the Contract Documents. Schedule review comments by the Construction Administrator may address whether items of Work are omitted, activity durations are reasonable or that the level of labor, materials, and equipment, the means, methods, timing, and sequencing of the Work are practicable. The planning, scheduling or execution of the Work and the accuracy of any Project Schedule shall remain the sole responsibility of the Contractor.
- B. During the review of any of the submissions required by this section, if any of the following conditions are discovered the submittal shall be returned by the Construction Administrator without further review for correction and re-submittal:
1. The submittal is incomplete.
  2. The submittal does not comply with the specified format.
  3. A component of the submittal has not been prepared in accordance with all of the requirements of this section.
  4. The quality of the submittal indicates that the Contractor has failed to perform an internal quality control review prior to submission.
  5. There is an inconsistency between electronic files and printed material.
- C. It is the Contractor's responsibility to ensure that all Project Schedules are in compliance with all of the requirements of the Contract Documents. The Construction Administrator's failure to return a submittal shall not be construed to mean that the submittal is in compliance with the requirements of the Contract Documents. The Construction Administrator, at its discretion, may choose to complete a submittal review even though the submittal fails to meet one of more of the conditions for rejection stated herein.
- D. The acceptance of any Project Schedule by the Construction Administrator does not constitute acceptance or approval of any change to the requirements of the Contract Documents including but not limited to any mandated construction sequences. The Construction Administrator is not responsible for any erroneous assumptions or information in any Project Schedules regardless of origin.
- E. The Contractor shall be responsible for all delays due to its failure to submit complete submittals in accordance with the requirements of the Contract Documents.
- F. The Schedule submitted will not be considered acceptable until all of the Construction Administrator's comments are incorporated into the schedule to the Construction Administrator's satisfaction.
- G. Errors in any Project Schedule accepted by the Construction Administrator, including but not limited to activity durations, relationships between activities, resource allocation or other float suppression techniques that do not accurately reflect the work may be identified at any time and once identified shall be corrected by the Contractor.
- H. Construction Administrator's acceptance of a Schedule Update shall not constitute the approval of a time extension should the Project Completion Date or Contract Milestone(s) be shown as delayed.
- I. Notwithstanding any review, review comments, acceptance, scheduling assistance or direction to change an/or revise any schedule by the Construction Administrator, the schedules shall at all times be the Contractor's schedule for performing the Work and not be considered as any Construction Administrator direction constituting a change unless the Contractor gives appropriate notice and the other Contract provisions for determining merit and entitlement are met.

**1.18 PAYMENT**

- A. When the Contractor submits its schedule of values in accordance with the General Conditions, it shall include an amount for the scheduling work associated with this section, this cost to be paid in accordance with section (01 29 76).
- B. Failure of the Contractor to submit a Baseline Schedule or Revised Baseline Schedule for any portion of the work in accordance with this specification may result in the withholding all Contract payment until the schedule is submitted to, and accepted for compliance with the specification and reasonableness, by the Construction Administrator.
- C. In the event the project extends beyond the original completion date by more than 30 days, and a time extension is granted to the Contractor, the Construction Administrator may require additional CPM updates which will be paid at the per month cost for the Scheduling Update services.

**1.19 DISTRIBUTION**

- A. Distribute copies of the computer generated 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 16.13**

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## 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. **Warrantee 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.
- OR**
5. Division 01 Section 01 32 16.13 "CPM Schedules" for requirements for CPM 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 45 23.13 "Testing for Indoor Air Quality (IAQ), Baseline IAQ, and Materials" specifies requirements for submittal of documentation required to support LEED or Green Globes certification.
10. Division 01 Section 01 77 00 "Closeout Procedures" specifies requirements for submittal of Project Record Documents and warranties at project closeout.
11. Division 01 Section 01 78 30 "Warranties and Bonds".
12. Division 01 Section 01 81 13 "Sustainable Design Requirements" specifies requirements for submittal of documentation required to support LEED or Green Globes certification.
13. Division 01 Section 01 91 00 "Commissioning" specifies requirements for submittal of quality assurance documentation related to commissioning.

### 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** 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 50 00 00 "Project-Specific Available Information" for information that is referenced in Section 00 30 00 "General Statements for Available Information".
  - 6. Refer to other Sections for specific requirements and limitations applicable to performing alteration Work with individual parts of the Work.
  - 7. 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.
- C. **Definitions:**
  - 1. Clean Fill: Either (1) natural soil or (2) rock, brick, ceramics, concrete, and asphalt paving fragments which are virtually inert and pose neither a pollution threat to ground or surface waters nor a fire hazard.
  - 2. Contaminated Soil: Treated or untreated soil and/or sediment affected by a known or suspected release and determined, or reasonably expected to contain substances exceeding Residential Direct Exposure Criteria or GA Pollutant Mobility Criteria, as these terms are defined in the Remediation Standard Regulations (RCSA Section 22a-133k-1).
  - 3. Hazardous Soil: Soil that is classified as a hazardous waste. Soil is classified as hazardous waste if it exhibits a hazardous waste characteristic or if it contains RCRA-listed hazardous constituents above Connecticut's RCRA "Contained-In" Policy dated May 2002.
  - 4. Natural Soil: Soil in which all substances naturally occurring therein are present in concentrations not exceeding the concentrations of such substance occurring naturally in the environment and in which soil no other substance is analytically detectable.
  - 5. Polluted Soil: Soil affected by a release of a substance at a concentration above the analytical detection limit for such substance in accordance with RCSA 22a-133k-1(a)(45) or for naturally occurring substance at a concentration that exceeds concentrations that naturally occur in the environment.
  - 6. Regulated Soil: Includes Polluted Soil, Contaminated Soil, and Hazardous Soil.
  - 7. Groundwater Remediation Wastewater: Wastewater generated in connection with investigating pollution or remediating polluted groundwater or soil. Groundwater remediation wastewater includes without limitation groundwater withdrawn from a groundwater recovery well; groundwater which collects in an excavation or foundation drain or other subsurface facility or structure; groundwater contaminated runoff and stormwater impacted by on-site pollutants from

any construction activity; condensate resulting from construction or maintenance of a soil vapor extraction system; and wastewater generated by developing, testing, sampling, or purging a well.

## 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. NOT USED

## 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 Owner is responsible for abating all **Asbestos Containing Material (ACM)** that is visible and accessible. This is to be accomplished through a separate project prior to the start of the renovation project.
2. In **demolition projects, every attempt** should be made by the Owner 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.] [The Owner will abate ACM (if necessary) within a reasonable time period, i.e. within seven (7) calendar days.]**

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**.

5. No attempt has been made to locate hazardous material associated with existing site utilities, though it is presumed that at least some asbestos may be discovered associated with underground piping during the course of site and site utilities work. If and when such materials appear, the Contractor shall notify the Owner, who shall direct additional work outside of this Agreement to assist in cutting up and disposing of same. The Contractor shall assist the hazardous materials contractor(s) with excavating, heavy lifting, and the like at no additional cost to the Owner.

**C. Project Procedures for Work Involving Lead-Based Paint (LBP):**

1. The **Contractor** is responsible for abating all **Lead-Based Paint (LBP)** 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. The **Contractor** shall conduct all demolition and removal Work, specified in the Technical Specifications Sections of this Project Manual, in conformance with the regulations as specified in this **Section 01 35 16 Alteration Project Procedures** and as specified in **Section 02 83 00 Lead Remediation**.
3. If testing for LBP has been conducted at the facility scheduled for renovation, demolition, reconstruction, alteration, remodeling, or repair, then the results of the LBP 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 LBP. 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 **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.] [The Owner will abate LBP (if necessary) within a reasonable time period, i.e. within ten (10) calendar days.]**

4.1 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**.

5. 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.
6. The Contractor's Work shall be based on a child under the age of six (6) years in residence; the Work shall also be in accordance with Connecticut Regulations Section 19a-111-1 through 11.
7. If this facility was constructed **prior to 1978** it is likely to have painted surfaces containing lead-based paint.
8. In accordance with the United States Environmental Protection Agency's (EPA) Lead-Based Paint Renovation, Repair, and Painting Program (RRP) issued by the EPA on April 22, 2008, as amended, and regulated by 40 CFR 745, contractors performing renovation, repair and painting projects that disturb lead-based paint in homes, child care facilities, and schools built before 1978 must be certified and must follow specific work practices to prevent lead contamination. EPA requires that firms performing renovation, repair, and painting projects that disturb lead-based paint in pre-1978 homes, child care facilities and schools be certified by EPA and that they use certified renovators who are trained by EPA-approved training providers to follow lead-safe work practices. The Contractor must be a Renovation Firm that has completed an EPA Lead-Safe Certification Program and be certified to conduct lead-based paint activities and renovations under the RRP rule. The Contractor shall have at least one “Certified Renovator” assigned to jobs where LBP is disturbed.

**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. The **Contractor** is responsible for abating all **Polychlorinated Biphenyls (PCBs) in Building Materials** prior to the start of any Work involving construction, renovation or demolition (if necessary), unless noted differently below or specified differently elsewhere.
3. The **Contractor** shall conduct all demolition and removal Work, specified in the Technical Specifications Sections of this Project Manual, in conformance with the regulations as specified in **Section 01 35 16 Alteration Project Procedures** and as specified in **Section 02 61 23 Removal and Disposal of PCB Contaminated Soils and Section 02 84 33 Removal and Disposal of PCBs**.
4. 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.
5. 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.] [The Owner will abate PCBs in Building Materials (if necessary) within a reasonable time period, i.e. within ten (10) calendar days.]**
  - 5.1 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**.
6. 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. The **Contractor** is responsible for abating all Mold (any form of fungi, including mold or mildew, and myotoxins, spores, scents or by-products produced or released by fungi) 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. The **Contractor** shall conduct all demolition and removal Work, specified in the Technical Specifications Sections of this Project Manual, in conformance with the regulations as specified in **Section 01 35 16 Alteration Project Procedures** and **Section 02 85 00 Mold and Other Hazardous Materials Remediation Specifications**.
3. If the Owner has tested the facility scheduled for renovation, demolition, reconstruction alteration, remodeling or repair for Mold, 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. Under no circumstance shall this information be the sole means used by the Contractor for determining the extent of Mold. It is the Contractor's responsibility to verify all materials and field conditions prior to renovation, demolition, reconstruction, alteration, remodeling, or repair that may affect the performance of their Work.

4. 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.] [The Owner will abate Mold (if necessary) within a reasonable time period, i.e. within ten (10) calendar days.]**
    - 4.1 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**.
  5. 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):**
2. 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.] [The Owner will abate Hazardous Materials, Wastes, and Items and Universal Wastes (if necessary) within a reasonable time period, i.e. within ten (10) calendar days.]**
  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. Project Procedures for Work Involving Regulated Soils:**

1. The **Contractor** is responsible for the excavation, staging, loading, transportation, and disposal of all Regulated Soils 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. The **Contractor** shall conduct all demolition and removal Work, specified in the Technical Specifications Sections of this Project Manual, in conformance with the regulations and as specified in **Section 01 35 16 Alteration Project Procedures** and **Section 01 20 00 Contract Considerations**, **Section 01 35 29 Environmental Health and Safety**, **Section 01 50 00 Temporary Facilities and Controls**, **Section 02 41 13 Selective Demolition**, **Section 02 41 16 Structure Demolition**, **Section 02 50 00 Demolition and Alterations**, **Section 02 61 13 Handling of Regulated Soil**, **Section 02 80 00 Contaminated Materials Excavation, Staging, Loading, Transportation, and Disposal**, **Section 02 81 00 Transportation and Disposal of Regulated Soil**, **Section 31 10 00 Site Clearing**, **Section 31 20 00 Site Earth Moving**, **Section 31 20 01 Building Excavation and Backfill**, **Section 50 00 00 Project-Specific Additional Information**, and **Drawing EV-1.00 Limits of Regulated Soil**.
  3. If the Owner has tested the facility scheduled for renovation, demolition, reconstruction alteration, remodeling or repair for Regulated Soils, then the results are located in **Division 50 00 00 Project-Specific Available Information**, **Section 50 20 00 Environmental Assessment Information** 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 Regulated Soil. It is the Contractor's responsibility to verify all materials and field conditions prior to renovation, demolition, reconstruction, alteration, remodeling, or repair that may affect the performance of their Work.
  4. If the Contractor should encounter any **Regulated Soil 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 soil tested and remediated (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 soil. **[If necessary, the Contractor will remediate and dispose of the additional Regulated Soil within a reasonable time period after the Owner's issuance of a Change Order for the additional remediation and disposal work.] [The Owner will remediate and dispose of the regulated soil (if necessary) within a reasonable time period, i.e. within ten (10) calendar days.]**
    - 4.1 When the **Owner** requests the **Contractor** undertake the responsibilities **for the remediation and disposal of all Regulated Soils**, 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**.
  5. 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.
- H. Project Procedures for Work Involving Contaminated Groundwater:**
1. The **Contractor** is responsible for the permitting and disposal of Contaminated Groundwater 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. The **Contractor** shall conduct all demolition and removal Work, specified in the Technical Specifications Sections of this Project Manual, in conformance with the regulations and as specified in **Section 01 35 16 Alteration Project Procedures** and **Section 01 35 29 Environmental Health and Safety**, **Section 01 50 00 Temporary Facilities and Controls**, **Section 02 41 13 Selective Demolition**, **Section 02 41 16 Structure Demolition**, **Section 02 50 00 Demolition and Alterations**, **Section 31 23 19 Wastewater Treatment Systems**, and **Section 50 00 00 Project-Specific Additional Information**.
  3. If the Owner has tested the facility scheduled for renovation, demolition, reconstruction alteration, remodeling or repair for Contaminated Groundwater, then the results are located in **Division 50 00 00 Project-Specific Available Information**, **Section 50 20 00 Environmental Assessment Information** 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 Contaminated Groundwater. It is the Contractor's responsibility to verify all materials and field conditions prior to renovation, demolition, reconstruction, alteration, remodeling, or repair that may affect the performance of their Work.
  4. If the Contractor should encounter any Contaminated Groundwater **that was not previously identified, characterized, permitted, 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 groundwater 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 groundwater. **[If necessary, the Contractor shall arrange for the permitting and disposal of the Contaminated Groundwater within a reasonable time period after the Owner's issuance of a Change Order for the additional remediation work.] [The Owner shall arrange for the permitting and disposal of the Contaminated Groundwater if necessary) within a reasonable time period, i.e. within ten (10) calendar days.]**

- I. 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>	
ASSE/SAFE A10.32	(2004) Fall Protection
ASSE/SAFE A10.34	(2001; R 2005) Protection of the Public on or Adjacent to Construction Sites
ASSE/SAFE Z359.1	(2007) 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	(2005) Articulating Boom Cranes
ASME B30.3	(2004) Construction Tower Cranes
ASME B30.5	(2004) Mobile and Locomotive Cranes
ASME B30.8	(2004) Floating Cranes and Floating Derricks
<b>NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)</b> <a href="http://www.nfpa.org/">www.nfpa.org/</a>	
NFPA 10	(2007) Portable Fire Extinguishers
NFPA 51B	(2009) Standard for Fire Prevention During Welding, Cutting, and Other Hot Work
NFPA 241	(2004) Safeguarding Construction, Alteration, and Demolition Operations
NFPA 70	(2008) 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 2:** A minimum of **three (3) years** safety work on similar project. 30-hour OSHA construction safety class or equivalent within last **3** years. Competent person training as needed.

### E. 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**.

### F. 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 **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.
- 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 SSHO, and a project work stoppage. The project work stoppage will remain in effect pending approval of a suitable replacement.

**G. 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.

**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 ] [ 4 ]**, 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] [ Insert ] 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 (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 - 2016
    - 1.1 CT Supplement - 2016
    - 1.2 CT Amendments - n/a.
    - 1.3 International Building Code - 2012
    - 1.4 International Existing Building Code - 2012
    - 1.5 International Mechanical Code - 2012.
    - 1.6 International Plumbing Code - 2012

- 1.7 International Energy Conservation Code - 2012
  - 1.8 National Electric Code (NFPA 70) - 2014
  - 1.9 ICC/ANSI A117.1-Accessible and Usable Buildings and Facilities - 2009.
  2. Connecticut Fire Safety Code - 2016.
    - 2.1 CT Supplement – n/a
    - 2.2 CT Amendments – n/a
    - 2.3 International Fire Safety Code - 2012
    - 2.4 NFPA 101 - 2012
  3. Connecticut Fire Prevention Code - 2012.
    - 3.1 NFPA 1 – n/a.
  4. Occupational Safety and Health Administration (OSHA)
    - 4.1 OSHA 29 CFR Part 1910 Occupational Safety and Health Regulations - [Insert].
    - 4.2 OSHA 29 CFR Part 1926 Occupational Safety and Health Regulations for Construction - [Insert].
- 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**



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**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 fire alarm acceptance testing, 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.
  4. Division 28 Section 28 31 00 "Fire Detection and Alarm" specifies field quality control for the Alarm System.

**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 **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".
- H. **Fire Alarm/Acceptance Testing Procedures:**

1. For **all** buildings (exceeding the threshold limit and not exceeding the threshold limit), the fire alarm testing shall be as the authority having jurisdiction shall dictate. This will be as determined by the Office of the State Fire Marshal (OSFM), and shall include, but not be limited to, the requirements as set below:
  - a. Protective Signaling Systems: All protective signaling systems shall meet with acceptance testing requirements of the applicable standards listed in NFPA 101/2012 and NFPA 13/[Insert].
  - b. Prior Test Notification: At least **five (5)** working days prior to testing, the Fire Alarm Contractor shall notify (in writing) the following people of the proposed date the acceptance tests are to be performed (Also, see Part 2 of Certificate of Compliance).
    - Department of Administrative Services – OSFM Representative
    - General Contractor
    - Engineer of Record
    - Equipment Supplier Representative
    - Sprinkler Contractor
  - c. **Certificates of Compliance:**
    - 1) A Fire Alarm System Inspection and Testing Certification and Description form shall be prepared for each system (See NFPA 72, 2010 Chapter 10).
    - 2) Parts 1 and 3 through 9, shall be completed after the system is installed and the installation of the wiring has been checked. Every alarm device must also be pre-tested to ensure proper operation and correct annunciation at each remote annunciator and control panel. Part 1 of the form (Certification of System Installation) shall be signed by the fire alarm contractor. The signed and completed preliminary copies of the Certification form shall be forwarded to all parties along with the Prior Test Notification.
    - 3) Part 2, of each applicable form, shall be completed after the operational tests have been completed.
    - 4) After the completion of the operational acceptance tests and sign-off of test witness (with stipulations noted), final copies of the Certificates shall be forwarded to the Department of Construction Services Representatives.
  - d. **Tests:**
    - 1) All tests shall be conducted in accordance with the Manufacturer's Testing Recommendations.
    - 2) All testing equipment, apparatus (i.e. sound level decibel meter, 2-way radio communication, test devices, ladders, tools, lighting, etc.) and personnel shall be supplied by the Fire Alarm Contractor and Sprinkler Contractor.
  - e. **System Documentation:** Every system shall include the following documentation, which shall be delivered to the Department of Construction Services Representatives upon final acceptance of the system. An owner's manual or manufacturer's installation instructions covering all system equipment, including the following:
    - 1) A detailed narrative description of the system inputs, evacuation signaling, ancillary functions, annunciation, intended sequence of operations, expansion capability, application considerations, and limitations.
    - 2) Operator's instructions for basic systems operations including alarm acknowledgment, system reset, interpreting system output (LED's CRT display, and printout), operation of manual evacuation signaling and ancillary function controls, changing printer paper, etc.
    - 3) A detailed description of routine maintenance and testing as required and recommended and as would be provided under a maintenance contract, including testing and maintenance instructions for each type of device installed. This information should include:
      - (a) A listing of individual system components that require periodic testing and maintenance.
      - (b) Step by step instructions detailing the requisite testing and maintenance procedures and the intervals at which those procedures should be performed.
      - (c) A schedule that correlates the testing and maintenance procedures required by paragraph (2) above and with the listing required by paragraph (1) above.

- 4) Detailed troubleshooting instructions for each type of trouble condition recognized by the system, including opens, grounds, parity errors, "loop failures," etc. These instructions should include a list of all trouble signals, and step by step instructions describing how to isolate those problems and correct them (or call for service as appropriate).
- 5) A service directory, including a list of names and telephone numbers for those who should be called to service the system.

**f. As-Built Drawings:**

- 1) The Contractor will produce two (2) sets of as-built drawings and specifications for the fire alarm system, indicating the location (and programmed address, if applicable) of all devices and appliances, the wiring sequences, wiring methods, connection of the components, and sequence of operation of the protective signaling system as installed, shall be given to the Department of Construction Services representatives. This shall be in Accordance with NFPA 72/2010 Refer also to Section 01 77 00 "Closeout Procedures".

**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.

**PART 2 - PRODUCTS (Not Applicable)**

**PART 3 - EXECUTION**

**3.1 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**

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**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 **[3] [ three ]** different locations. Contaminant levels are to be measured **in an area agreeded** 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.
  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.
  - 3.** Temporary heating, cooling and ventilation
  - 4.** Temporary telephone service and data.
  - 5.** Temporary sanitary facilities, including drinking water.
  - 6.** Storm and sanitary sewer.
  - 7.** Storm water pollution control.
- 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 roads and paving.
  - 4.** Dewatering facilities and drains.
  - 5.** Temporary enclosures.
  - 6.** Temporary lifts, hoists and elevator use.
  - 7.** Temporary project identification signs.
  - 8.** Temporary exterior lighting.
  - 9.** Collection and disposal of waste and cleaning.
  - 10.** Temporary Environmental Controls.
  - 11.** 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 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:** The Agency will allow the toilets located in **[Insert]** for Contractor use. If others are needed, 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.
- C. **Storm Water Pollution Control:**
1. The **Architect/Engineer** shall electronically register the Connecticut Department of Energy and Environmental Protection's (DEEP) "General Permit for the Discharge of Stormwater and Dewatering Wastewater from Construction Activities" (DEEP-WPED-GP-015) and Stormwater Pollution Control Plan (SPCP) through the **DEEP ezFile Portal**. The SPCP is attached to technical Section 31 20 05 "Sedimentation and Erosion Control".
  2. Once under contract, and prior to construction activities, the Contractor shall assume responsibility for storm water pollution control and conform to the General Permit obligations and requirements. The Contractor shall sign, and cause to be signed by each appropriate Subcontractor, the "Contractor Certification Statement" section of the SPCP and the DEEP "License Transfer Form" (DEEP-APP-006), as directed by the Architect/Engineer. The signed Certification Statement and License Transfer Form shall be attached to the "on-site" SPCP and submitted to the DEEP by the Architect/Engineer.
  3. The Owner shall be responsible for the General Permit registration fee and License Transfer notification fee.
  4. The Contractor shall retain an updated copy of the SPCP at the construction site from the date construction is initiated at the site until the date construction at the site is completed.
  5. The Contractor shall conform to the SPCP or use another plan, prepared at the Contractor's expense, which has been approved by the Owner and the DEEP *prior to construction activities*. The Contractor shall be responsible for implementing, maintaining, and updating the SPCP, including, but not limited to, performing regular inspections, conducting and reporting all stormwater monitoring activities, retaining records for the required period of time, and performing **all** post-construction measures and inspections.
  6. The Contractor shall ensure 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 in order for the project to be considered complete. A site is considered stabilized when there is no active erosion or sedimentation present and no disturbed areas remain exposed for **all phases**. Once the site has been stabilized for at least three (3) months, the Contractor shall have the site inspected by a Qualified Inspector to confirm final stabilization. If stabilized, the Contractor shall submit a Notice of Termination (DEP-PED-NOT-015) to the DEEP in order to terminate the Construction Stormwater General Permit.
  7. The Contractor shall submit a final copy of the SPCP, the Notice of Termination, and all inspection records to the Architect/Engineer and DAS/CS Project Manager at completion of all post-construction measures.
  8. The Contractor shall retain copies of the SPCP and all reports required by the General Permit, and records of all data used to complete the registration for the General Permit, for a period of at least five (5) years from the date that the project is complete. Inspection records must be retained as part of the SPCP for a period of five (5) years after the date of inspection.
  9. For sites involving total soil disturbance of less than one (1) acre, the Contractor shall be responsible for sediment and erosion control and utilize best management practices as identified in the "2002 Connecticut Guidelines for Soil Erosion and Sediment Control" (DEEP Bulletin 34), as amended, and any sediment and erosion control plans prepared for the project.

### 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. Install water service and distribution piping of sizes and pressures adequate for construction until permanent water service is in use.
    - a. **Sterilization:** Sterilize temporary water piping prior to use.
  2. Water for construction purposes may be taken from the existing service. The Contractor shall provide connections, approved backflow prevention device, meter and pipe to the water main or nearest hydrant, subject to the approval of the Owner. Upon completion of work, the Contractor shall remove the temporary connections and backfill if necessary. If new water service is installed before construction is complete, the new system may be used provided it is returned to the Owner in as-new condition. The Contractor shall pay for the water used, as metered.

**OR:**
  2. 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.

**OR:**
  4. **Power Distribution System:** Install wiring overhead and rise vertically where least exposed to damage. Where permitted, wiring circuits not exceeding 125 Volts, ac 20 Ampere rating, and lighting circuits may be nonmetallic sheathed cable where overhead and exposed for surveillance.
  5. **Temporary Lighting:** When overhead floor or roof deck has been installed, provide temporary lighting with local switching. Install and operate temporary lighting that will fulfill security and protection requirements without operating the entire system. Provide temporary lighting that will provide adequate illumination for construction operations and traffic conditions.
- D. Temporary Heating, Cooling and Ventilating:**
1. Provide temporary heat required by construction activities for curing or drying of completed installations or for protection of installed construction from adverse effects of low temperatures or high humidity. Select safe equipment that will not have a harmful effect on completed installations or elements being installed. Coordinate ventilation requirements to produce the ambient condition required and minimize consumption of energy.



- a. **Heating Facilities:** Except where the Owner authorizes use of the permanent system, provide vented, self-contained, LP-gas or fuel oil heaters with individual space thermostatic control.
    - b. Use of gasoline-burning space heaters, open flame, or salamander heating units is prohibited.
  2. Provide temporary heat during construction for interior areas included in the Contract to counteract low temperatures or excessive dampness. Maintain during said period or periods until final completion of the Contract, unless otherwise approved by the Owner in writing. Windows, doors, ventilators and similar openings shall be temporarily closed. Provide heat and ventilation to maintain specified conditions for construction operations and to protect materials and finishes from damage by temperature or humidity. The permanent heating system is not to be used for temporary heating unless approved, in writing, by the Owner. If approved, use of the permanent heating system by the Contractor does not constitute beneficial use by the Owner. The warrantee for said system will not commence until Substantial Completion is granted. Costs shall be paid by the Contractor. See individual Sections for temperature/humidity limits. Temporary heating methods shall comply with OSHA regulations and other applicable codes, statutes, rules and regulations and shall be approved by the Architect/Engineer and Owner.
  3. Permanent air handling equipment, when used for temporary heating, shall be equipped with disposable "construction" filters. The construction filters shall have an average efficiency at least equal to the filters specified under Division 23, but not less than 30 percent when tested in accordance with ASHRAE 52.2 "Method of Testing General Ventilation Air-Cleaning Devices for Removal Efficiency by Particle Size." The filters shall have an average arrestance of not less than 90 percent efficiency on one (1) micron size particles. Before turning over the system for final acceptance, the contractor shall remove and dispose of the construction filters; clean the ductwork; spray clean the heating and cooling coils, and drain pans to "like new" condition; and install the filters specified in Division 23 Section 23 40 00 "HVAC Air Cleaning Devices."
  4. The Contractor may use the existing heating system with temporary extensions, radiators or unit heaters, but such use is subject to the Owner's approval. Coordinate use of existing facilities with Owner. Provide additional, temporary extensions and units to satisfy the criteria given in the preceding paragraph. Owner will pay cost of energy used. Take measures to conserve energy. At the termination of construction, return the facilities to their original condition. Before operation of permanent facilities, verify that installation is approved for operation and that filters are in place.
  5. Refer to Section 01 57 30 "Indoor Environmental Control" for additional requirements regarding means and methods of providing temporary heating, cooling and ventilating. Meet manufacturer's standards for minimum and maximum temperatures and humidity governing installation of materials and systems.
- E. **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.
- F. **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.
- G. 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.
- H. Storm Water Pollution Control:** Provide earthen embankments and similar barriers in and around excavations and sub-grade construction, sufficient to prevent flooding by runoff of storm water from heavy rains.

### 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.
- 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 Roads and Paving:** Construct and maintain temporary roads and paving to support the indicated loading adequately and to withstand exposure to traffic during the construction period. Locate temporary paving for roads, storage areas, and parking where the same permanent facilities will be located. Review proposed modifications to permanent paving with the Construction Administrator and Architect.
1. Provide paving for pedestrian access and parking for field offices.
  2. Paving: Comply with Division 32 Section 32 12 16 "Asphalt Paving" for construction and maintenance of temporary paving.
  3. Coordinate temporary paving development with sub-grade grading, compaction, installation and stabilization of sub-base and installation of base and finish courses of permanent paving.
  4. Install temporary paving to minimize the need to rework the installations and to result in permanent roads and paved areas without damage or deterioration when occupied by the Owner.

5. Extend temporary paving in and around the construction area as necessary to accommodate delivery and storage of materials, equipment usage, administration, and supervision.
- E. **Dewatering Facilities and Drains:** For temporary drainage and dewatering facilities and operations not directly associated with construction activities included under individual Sections, comply with dewatering requirements of applicable Division 31 Sections. Where feasible, utilize the same facilities. Maintain the site, excavations, and construction free of water.
- F. **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.
- G. **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.
  2. Refer to Division 14 Sections for elevators.
- H. **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.
- I. **Temporary Exterior Lighting:** Install exterior yard and sign lights so signs are visible when Work is being performed.
- J. **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.

**K. Temporary Environmental Controls:** Contractor is to provide the following controls.

1. Rodent and Pest Control: Before deep foundation work has been completed, retain a local exterminator or pest control company to recommend practices to minimize attraction and harboring of rodents, roaches, and other pests. Employ this service to perform extermination and control procedures at regular intervals so the Project will be free of pests and their residues at materials.
2. Dust Control (construction and demolition).
3. Noise Control.
4. Erosion and Sediment Control.
5. Pollution Control.
6. Traffic Control.

**L. Stairs:** Until permanent stairs are available, provide temporary stairs where ladders are not adequate. 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. Permanent Fire Protection:** At the earliest feasible date in each area of the Project, complete installation of the permanent fire-protection facility, including connected services, and place into operation and use. Instruct key personnel on use of facilities.
- D. 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 shall be solely responsible for damage, loss or liability due to theft or vandalism.
- E. 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".
- F. 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.
- G. 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.
- H. 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".
- I. 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.

**J. 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. Access to [Insert] located [Insert] will not be used during time periods when the school children are arriving and being dismissed. No access to the Gate will be allowed:

<b>Monday – Friday</b>	<b>7:30</b>	<b>a.m.</b>	<b>–</b>	<b>9:00</b>	<b>a.m.</b>
<b>Monday – Friday</b>	<b>2:30</b>	<b>p.m.</b>	<b>–</b>	<b>3:30</b>	<b>a.m.</b>

This time period is subject to change at the discretion of the Construction Administrator to coincide with the [Insert] Schedule.

**K. Identification Badges for Contractor's Personnel, Visitors & 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.

**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 01 Section 01 45 23.13 "Testing for Indoor Air Quality (IAQ), Baseline IAQ, & Materials" for building flush out requirements.
  - 2. Division 01 Section 01 57 40 "Construction IAQ Management Plan" for a description of the IAQ management plan.

### 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 carpet, acoustical material, textiles, 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 Carpet Tile, Adhesives, and Sealers:** 0.05 mg/m<sup>2</sup> per hour.
  3. **4 Phenyl Cyclohexene (4-PC) Particulate Emissions for Carpet:** One (1) part per billion.
  4. **Total Particulate Emission Rate Levels:** 50 ug/m<sup>3</sup>.
  5. **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>.
  6. **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 carpet, floor tile, acoustical tile, textiles, office furniture, and casework, to air out in clean environment prior to installation.

### 3.3 HEATING, VENTILATING, AND AIR CONDITIONING (HVAC)

- A. Do not run permanent HVAC system during course of construction. Seal ductwork intake and exhaust vents.
- B. 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.
- C. **Flush out building prior to commissioning.** Refer to Section 01 45 23.13 "Testing for IAQ, Baseline IAQ, & Materials" for procedure.
- D. Inspect ductwork for refuse, contaminants, moisture and other foreign contamination prior to commissioning. Notify Commissioning Agent (CxA) of satisfactory inspection prior to beginning of Commissioning.
- E. Clean underfloor plenum at access flooring acting as supply air duct, prior to occupancy.

### 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:
  - 1. Description of a Construction Indoor Air Quality (IAQ) Management Plan.
  - 2. IAQ construction requirements.
- 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 01 Section 01 45 23.13 "Testing for IAQ, Baseline IAQ, & Materials."
  - 3. Division 01 Section 01 57 30 "Indoor Environmental Control."
  - 4. Division 01 Section 23 05 93 "Testing, Adjusting and Balancing for HVAC" for additional requirements for baseline testing for IAQ.
  - 5. Division 01 Section 23 05 93 "Testing, Adjusting and Balancing for HVAC" for cleaning of HVAC system including ductwork, air intakes and returns, and changing of filters.

### 1.3 REFERENCES

- A. American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. (ASHRAE):
  - 1. ASHRAE Standard 52.1-1992, Gravimetric and Dust Spot Procedures for Testing Air Cleaning Devices in General Ventilation for Removing Particulate Matter.
- 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 National Contractors' National Association (SMACNA):
  - 1. IAQ Guidelines for Occupied Buildings under Construction, 1995.

### 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

### 2.1 SUBSTITUTIONS

- A. Should the Contractor desire to use procedures, materials, equipment, or products that are not specified but meet the intent of the specifications to protect indoor air quality on the site, the Contractor shall propose these substitutions in accordance with Section 01 60 00 "Product Requirements."

### 2.2 MATERIALS

- A. Low emitting products have been specified in appropriate sections.

## 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.
    - a. **[Insert reference to specification section where building air flush-out is specified in detail or insert requirements here.]**
  - 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 carpet, paints, furnishings, 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**

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## 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. **General:** This Section specifies administrative and procedural requirements for field engineering services including, but not limited to, the following:
  - 1. Land survey work.
  - 2. Civil Engineering services.
  - 3. Damage surveys.
  - 4. Geotechnical monitoring.
- 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 field engineering with other construction activities.
  - 2. Division 01 Section 01 33 00 "Submittal Procedures" for submitting Project record surveys.
  - 3. Division 01 Section 01 77 00 "Closeout Procedures" for submitting final property survey with Project Record Documents and recording of Owner-accepted deviations from indicated lines and levels.

### 1.3 SUBMITTALS

- A. **Certificates:** Submit a certificate from the Land Surveyor stating that the control information furnished by the Owner is accurate or identify inaccuracies, if they exist. The Contractor shall not take advantage of errors, which may be included in the control information. Stakes and markings shall be preserved.
- B. **Final Property Survey:** Prepare and submit 10 copies of the final property survey.
- C. **Project Record Documents:** Submit a record of Work performed and record survey data as required under provisions of "Submittals" and "Project Closeout" Sections.

### 1.4 QUALITY ASSURANCE

- A. Provide field engineering services to establish and record grades, lines and elevations.
- B. The Contractor shall retain a Land Surveyor registered by the State of Connecticut to confirm State furnished base lines and benchmarks, lay out the building, underground utility lines and other site work from the information furnished by the Owner and to establish and record the necessary elevations, at no additional cost to the State.

## PART 2 - PRODUCTS (Not Applicable)

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. **Identification:** The Owner will identify two (2) base lines on the Contract Drawings.
- B. Verify layout information shown on the Drawings, in relation to the property survey and existing benchmarks. Notify the Construction Administrator of any discrepancies immediately in writing before proceeding to lay out the Work. Locate and protect existing benchmarks and base line. Preserve permanent reference points during construction.
  - 1. Do not change or relocate benchmarks or base line without prior written approval. Promptly report lost or destroyed reference points or requirements to relocate reference points because of necessary changes in grades or locations.
  - 2. Promptly replace lost or destroyed Project baseline benchmarks. Base replacements on the original survey control points.



- C. Establish and maintain a sufficient quantity of (minimum of 2) permanent benchmarks on the site, referenced to data established by Owner supplied information.
  - 1. Record benchmark locations, with horizontal and vertical data, on Project Record Documents.
- D. **Existing Utilities and Equipment:** The existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Before beginning sitework, investigate and verify the existence and location of underground utilities and other construction.
  - 1. Prior to construction, verify the location and invert elevation at points of connection of sanitary sewer, storm sewer, and water-service piping. Notify the Construction Administrator of any discrepancies prior to proceeding.

### 3.2 PERFORMANCE

- A. Work from lines and levels established by the property survey. Establish benchmarks and control points to set lines and levels at each story of construction and elsewhere as needed to locate each element of the Project. Calculate and measure required dimensions within indicated or recognized tolerances. Do not scale Drawings to determine dimensions.
  - 1. Advise entities engaged in construction activities of benchmarks and control points for their use.
  - 2. As construction proceeds, check every major element for line, level, and plumb.
- B. **Surveyor's Log:** Maintain a surveyor's log of control and other survey work. Make this log available for reference.
  - 1. Record deviations from required lines and levels, and advise the Construction Administrator when deviations that exceed indicated or recognized tolerances are detected. On Project Record Drawings, record deviations that are accepted and not corrected.
  - 2. On completion of foundation walls, major site improvements, underground utilities, and other Work requiring field-engineering services, prepare a certified survey showing dimensions, locations, angles, elevations of construction, as-built locations and site work.
- C. **Site Improvements:** Locate and lay out site improvements, including pavements, stakes for grading, fill and topsoil placement, utility slopes, and invert elevations.
- D. **Building Lines and Levels:** Locate and lay out batter boards for structures, building foundations, column grids and locations, floor levels, and control lines and levels required for mechanical and electrical work.
- E. **Existing Utilities:** Furnish information necessary to adjust, move, or relocate existing structures, utility poles, lines, services, or other appurtenances located in or affected by construction. Coordinate with local authorities having jurisdiction.
- F. **Final Property Survey:** Prepare a final property survey showing significant features (real property) for the Project. Include on the survey a certification, signed by the surveyor, that principal metes, bounds, lines, and levels of the Project are accurately positioned as shown on the survey.

END OF SECTION 01 71 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 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. Division 02 Section **02 42 93 "Building Deconstruction"** for deconstruction of selected portions of the building for alterations.
  5. 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. **Foundation construction.**
  - b. **Bearing and retaining walls.**
  - c. **Structural concrete.**
  - d. **Structural steel.**
  - e. **Lintels.**
  - f. **Structural decking.**
  - g. **Miscellaneous structural metals.**
  - h. **Exterior curtain-wall construction.**
  - i. **Equipment supports.**
  - j. **Piping, ductwork, vessels, and equipment.**
  - k. **Structural systems of special construction in Division 13 Sections.**
- 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. **Communication systems.**
    - i. **Conveying systems.**
    - j. **Electrical wiring systems.**
    - k. **Operating systems of special construction in Division 13 Sections.**
- 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".
  - 10. Division 01 Section 01 81 13 "Sustainable Design Requirements".

### 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. Carpet and padding.
  - 9. Plastics.
  - 10. 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.
  - 3. Soil.
  - 4. Masonry products.

5. Plants.

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) Land clearing debris.
      - v) Concrete.
      - vi) Bricks.
      - vii) Concrete Masonry Units (CMU).
      - viii) Asphalt.
      - ix) 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 **Owner**
- 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 **Owner**

END OF SECTION 01 74 19

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## 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 01, Section 01 91 00 "Commissioning" specifies process requirements for system commissioning.
  - 4. Division 23, Section 23 08 00 "Commissioning of HVAC" specifies requirements HVAC&R system commissioning.

### 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.
  - 1. Comply with the requirements of Division 01 Section 01 91 00 "Commissioning" as they relate to the Work of this Section.
- 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.
  8. Fixture lamping schedule.



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## 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. Fuels.
7. Identification systems.
8. Control sequences.
9. Hazards.
10. Cleaning.
11. Warranties and bonds.
12. 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

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## 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. Division 01 Section 01 81 13 "Sustainable Design Requirements" specifies requirements for submittals related to green building certification.
  6. Division 01 Section 01 91 00 "Commissioning" specifies requirements for submittals related Commissioning.
  7. 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.
- C. **Commissioning (Cx) Coordination:** The Commissioning process requires detailed O&M documentation. The Contractor must submit O&M manuals to the Construction Administrator for review and approval by Commissioning Agent (CxA).

### 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, Commissioning Agent (CxA), 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 Commissioning Agent's (CxA), Architect's, and Agency Representative's comments. Submit final copies to the Owner's Representative within **twenty-one (21)** calendar days of receipt of the Commissioning Agent's (CxA), 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.

**1.8 COMMISSIONING RECORD AND TESTING DATA MANUAL**

The Contractor shall cooperate with Commissioning Agent (CxA) in the preparation of a separate Manual dedicated to documenting the Commissioning process which will include all certifications and testing data and some repeating of O&M data. Description of this Manual is found in Section 01 91 00 Commissioning and shall be prepared by the Commissioning Agent (CxA).

**PART 2 - PRODUCTS (Not Applicable)**

**PART 3 - EXECUTION (Not Applicable)**

**END OF SECTION 01 78 23**



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## 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.	03	N/A	<b>Floor hardener:</b> 5 year, material and workmanship.
2.	05	N/A	<b>Expansion Joint Covers:</b> 5 year material & workmanship.
3.	07	N/A	<b>Single-Ply Membrane Roofing, Base Flashing and Insulation:</b> 25 year unlimited, materials and installation [the manufacturer's no dollar limit (NDL) warranty], and; 2 year General Contractor's warranty for installation.
4.	07	N/A	<b>Built Up Roofing (BUR) and Modified Asphalt Roofing, Base Flashing, and Insulation:</b> 20 year unlimited materials and Installation [the manufacturer's no dollar limit (NDL) warranty], and; 2 Contractor's warranty for installation.
5.	07	N/A	<b>Metal Roofing and Siding:</b> 20 year against rupture, cracks or perforation due to corrosion, and; 20 year for fluorocarbon finish (if used) against peeling, blistering, fading and chalking as limited by industry standards, and; 10 year weathertightness warranty by General Contractor's installer.
6.	07	N/A	<b>Copper Roofing:</b> 10 year against rupture, cracks or perforation due to corrosion and including materials and workmanship.
7.	07	N/A	<b>Vents and Hatches:</b> 5 year product and installation, including weathertightness.
8.	07	N/A	<b>Waterproofing:</b> 5 year material and workmanship.
9.	07	N/A	<b>Water Repellent:</b> The term offered for the Specific product.
10.	07	N/A	<b>Exterior Expansion Joint Covers:</b> 5 year material and workmanship, including weathertightness.
11.	07	N/A	<b>Wood Shingles (roofing, siding):</b> 10 year for material and workmanship.
12.	07	079200	<b>Exterior - Interior Caulking and Sealants:</b> 5 year, material and workmanship.
13.	07	N/A	<b>Metal Flashing and Sheet Metal:</b> 3 year, material and workmanship.
14.	07	N/A	<b>Asphalt Roof Shingles:</b> 25 year, material pro-rated.
15.	07	N/A	<b>Asphalt Roof Shingles Installation:</b> 15 year, workmanship, pro-rated.
16.	08	081416	<b>Solid Wood Core and Mineral Core doors:</b> Lifetime for interior doors. 5 year for exterior doors.
17.	08	083313	<b>Overhead Doors (coiling or sectional):</b> 5 year material and workmanship.
18.	08	N/A	<b>Skylights:</b> 5 Year product and installation, including weathertightness.
19.	08	087100	<b>Closers, Locksets, Exit Bolts:</b> Longest term offered by manufacturer for grade/class of particular item, material and workmanship.

Specification / Warranty Table (Continued)			
Item No.	Section No.	Specification	Product/Warranty
20.	08	N/A	<b>Insulating glass:</b> 10 year against failure of hermetic seal, interpane dusting, or misting including replacement of unit.
21.	08	N/A	<b>Windows:</b> 5 year material and workmanship including weathertightness.
22.	08	088000	<b>Laminated Glass:</b> 10 year against delamination.
23.	08	N/A	<b>Storefront/Curtain Wall:</b> 5 year material and workmanship (insulating glass separate). Air and water infiltration and strength to specified AAMA designation.
24.	09	096813	<b>Carpet:</b> 10 year wear and color fastness, and; 3 year installation.
25.	10	N/A	<b>Operable Partitions:</b> 5 Years, material, and workmanship.
26.	10	102800	<b>Mirrors:</b> 15 years against silver spoilage.
27.	14	N/A	<b>Elevators and Wheelchair Lifts:</b> 18 months for material, workmanship, and installation.
28	22	N/A	<b>Electric Heating Cable:</b> 10 years, material, and installation.
29	22	N/A	<b>Water Softener:</b> 10 years, material, and installation.
30	22	N/A	<b>Instantaneous Heat Exchangers:</b> 1 year, material, and installation.
31	23	N/A	<b>Fuel Storage Tank:</b> 30 years, material, and installation.
32	23	238126	<b>Compressors and Pumps:</b> 5 years, material and installation,
33	26	260923	<b>Dimming Controls:</b> 8 years, material and installation,
34	26	262416	<b>Switchboards and Panels:</b> 5 years, material and installation,
35	26	N/A	<b>Engine Generators:</b> 10 years, material and installation,
36	26	N/A	<b>Uninterruptable Power Supply:</b> 3 years, material and installation,
37	26	265100	<b>Emergency Lighting Batteries:</b> 10 years, material and installation,
38	26	265100	<b>Lighting Ballasts:</b> 5 years, material and installation,
39	32	239200	<b>Plant Material, Turf and Grasses:</b> 24 months, material and installation, and growth.

H. Submit certification that finish materials are fire rated as specified.

J. Form of Warranty: Warranties shall be submitted in following format:

<b>Warranty</b>			
<i>Commissioner: (Insert Commissioner's Name)</i> <b>Department of Administrative Services</b> <b>DAS Commissioner's Office</b> <b>450 Columbus Boulevard, Suite 1501</b> <b>Hartford, CT 06103</b>			
<i>Project Number: (Insert DAS/CS Project Number)</i> <i>Project Title: (Insert DAS/CS Project Title)</i>			
<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 Vendor/Suppliers or Manufacturer Name:</b> _____			
<b>Installer or Subcontractor or Vendor/Suppliers or Manufacturer Signature:</b> _____			
<b>General Contractor's Name</b> _____			
<b>General Contractor's Signature:</b> _____			
or			
<b>General Contractor's Authorized Agent Signature:</b> _____			

- K. Bonds shall be by approved Surety Companies, made out to the Commissioner, Department of Administrative Services on companies' standard form.
- L. 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.
- M. Bonds shall be by approved Surety Companies, made out to the Commissioner, Department of Administrative Services, on company's standard form.
- N. 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**

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## 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 equipment and system commissioning, including the following:
1. Completion of commissioning procedures on specific equipment and systems as indicated under "Related Sections" below.
  2. Verification of operational and functional performance of specific equipment and systems for compliance with the "Design Intent" as described in the "Related Sections" indicated below.
- B. **Related Sections:** The following Sections contain requirements that relate to this Section:
1. Section 01 31 00 "Project Management And Coordination" specifies procedures for coordinating the Commissioning Process.
  2. Division 01 Section 01 33 00 "Submittal Procedures" specifies procedures for submittal of Product Data and Quality Assurance Submittals.
  3. Division 01 Section 01 77 00 "Closeout Procedures" specifies general closeout requirements.
  4. Division 21 Section 21 08 00 "Commissioning of Fire Suppression" specifies closeout and/or commissioning related requirements for specific pieces of equipment or building operating systems.
  5. Division 22 Section 22 08 00 "Commissioning of Plumbing" specifies closeout and/or commissioning related requirements for specific pieces of equipment or building operating systems.
  6. Division 23 Section 23 08 00 "Commissioning of HVAC" specifies closeout and/or commissioning related requirements for specific pieces of equipment or building operating systems.
  7. Division 23 Section 23 08 00 "Commissioning of HVAC" specifies closeout and/or commissioning related requirements for specific pieces of equipment or building operating systems.
  8. Division 25 Section 25 08 00 "Commissioning of Integrated Automation" specifies closeout and/or commissioning related requirements for specific pieces of equipment or building operating systems.
  9. Division 26 Section 26 08 00 "Commissioning of Electrical Systems" specifies closeout and/or commissioning related requirements for specific pieces of equipment or building operating systems.
  10. Division 27 Section 27 08 00 "Commissioning of Communications" specifies closeout and/or commissioning related requirements for specific pieces of equipment or building operating systems.

## 1.3 DEFINITIONS

- A. **Basis of Design (BOD):** A document that records the concepts, calculations, decisions, and product selections used to meet the Owner's Project Requirements and to satisfy applicable regulatory requirements, standards, and guidelines. The document includes both narrative descriptions and lists of individual items that support the design process.
- B. **Commissioning Agent (CxA):** An entity identified by the Owner who leads, plans, schedules, and coordinates the commissioning team to implement the Commissioning Process.
- C. **Commissioning (Cx) Plan:** A plan that includes a list of all equipment to be commissioned, delineation of roles for each of the primary commissioning participants, and details on the scope, timeline, and deliverables throughout the commissioning process."
- C. **Deficiencies and Resolutions List:** List of noted deficiencies discovered as result of commissioning process.
- E. **Final Commissioning Report:** Overall final commissioning document (see 1.6, I(2) below), prepared by the Commissioning Agent, which details the actual commissioning procedures performed, inspection and testing results, and the final version of the deficiencies and resolutions list indicating that all issues discovered through the commissioning process have been verified as resolved.
- F. **Functional Completion:** Functional Completion is when all remaining TAB (Testing, Adjusting, Balancing) and commissioning responsibilities of the Contractor and their subcontractor's (except for seasonal or approved deferred testing and controls training), have been functionally certified as complete by the Owner's Commissioning Agent (CxA) and the Certificate of Functional Completion has been issued.



- G. **Functional Performance Testing Process:** Documented testing of system parameters, under actual or simulated operating conditions. Functional testing is the dynamic testing of systems (rather than just components).
- H. **Pre-Commissioning Checklists:** Installation and start-up items to be completed by the appropriate party prior to operational verification through Functional Testing.
- I. **Physical Inspection Process:** On-site inspection and review of related system components for conformance to the specifications.
- J. **Seasonal Commissioning Tests:** Functional Tests that are deferred until the system(s) will experience conditions closer to their intended design conditions.
- K. **Trending:** Monitoring using the building control system.

#### 1.4 COORDINATION

- A. **Commissioning Team:** The members of the commissioning team consist of the Commissioning Agent (CxA), the DAS/CS Project Manager (PM), the Construction Administrator (CA), the Contractor, the Architect and Design engineers (particularly the mechanical engineer), the Mechanical Subcontractor, the Electrical Subcontractor, the TAB representative, the Controls Subcontractor, any other installing subcontractors or suppliers of equipment. If known, the Agency's building or plant operator/engineer is also a member of the Commissioning team.
- B. **Management:** The CxA is hired by the Owner. The CxA directs and coordinates the commissioning activities and the reports to the CA. All members of the Commissioning Team work together to fulfill their contracted responsibilities and meet the objectives of the Contract Documents. Refer to Section 01 91 00 Part 1.6 and 1.7 for additional management details.
- C. **Scheduling.** The CxA will work with the CA and Contractor according to established protocols to schedule the commissioning activities. The CxA will provide sufficient notice to the CA and Contractor for scheduling commissioning activities. The Contractor will integrate all commissioning activities into their master CPM schedule. All parties will address scheduling problems and make necessary notifications in a timely manner in order to expedite the commissioning process.
  - 1. The CxA will provide the initial schedule of primary commissioning events at the commissioning scoping meeting. The Commissioning Plan—Construction Phase provides a format for this schedule. As construction progresses more detailed schedules are developed by the CxA. The Commissioning Plan also provides a format for detailed schedules.

#### 1.5 DESCRIPTION OF CONSTRUCTION PHASE COMMISSIONING PROCESS

- A. As soon as practicable after the "Contract Start Date" the Commissioning Agent (CxA) will conduct a pre-installation commissioning "kick-off" meeting with the Subcontractors. Parties directly affected by the commissioning work will be required to attend. The CxA will explain the commissioning process in detail, and identify specific commissioning related responsibilities of the various parties.
- B. Commissioning status meetings will be scheduled to occur during construction to monitor progress and to help facilitate the commissioning process. Contractor representatives will be required to attend these meetings.
- C. Once Subcontractors have provided the CxA with written verification indicating completion of installation and startup procedures, the CxA will conduct an on-site physical inspection of the specific systems and equipment.
- D. Upon confirmation of system readiness, the CxA will schedule with the Subcontractors to perform functional compliance with the project specifications and drawings. The CxA will oversee the process and will provide the format and documentation for these tests.
- E. Deficiencies noted during these tests will be documented on the Deficiencies and Resolutions list. When corrected, issues will be resolved at the time of discovery. The responsible Contractor will resolve all other issues at a later date. All deficiencies will be noted by the CxA as either resolved or pending resolution.
- F. The construction commissioning process will be complete when all noted deficiencies have been corrected, proved to be compliance with the project specifications or otherwise resolved to the satisfaction of the Owner and when the CxA has issued the Certificate of Functional Completion

**1.6 COMMISSIONING AGENT'S (CxA's) DUTIES AND RESPONSIBILITIES**

- A.** Meet and communicate with the Owner's representatives, **[Contractor] [Construction Administrator]**, Subcontractors, equipment manufacturers' representatives, Architect, Engineer **[and others]** as needed, to facilitate the commissioning process.
- B.** Review commissioning related specifications, submittals and construction documents. Communicate noted deficiencies and concerns to the Owner, Architect and Engineer.
- C.** Develop detailed and specific Functional Testing procedures for equipment and systems to be commissioned.
- D.** Develop testing, adjusting and balancing (TAB) specifications. Oversee the TAB process.
- E.** Perform site inspections and verify Construction Manager's subcontractor readiness for the Functional Testing process. Document deficiencies for future resolution.
- F.** Witness contractor performed Functional Testing process as appropriate to verify contractor compliance with the functional testing procedures. Document deficiencies for future resolution.
- G.** Provide the Owner, **[Contractor] [Construction Administrator]**, Architect, and Engineer with a Final Commissioning Report to document the commissioning process and to verify that the commissioning process is complete.
- H.** Verify that the Contractor O&M documentation is complete.
- I. Commissioning Record in O&M Manuals.**
  - 1.** The CxA is responsible to compile, organize and index the following commissioning data by equipment into labeled, indexed and tabbed, three-ring binders and deliver it to the Contractor, to be included with the O&M manuals. Three copies of the manuals will be provided. The format of the manuals shall be:
    - 1.1 Tab I-1:** Commissioning Plan;
    - 1.2 Tab I-2:** Final Commissioning Report (see (2) below)
    - 1.3 Tab 01:** System Type 1 (chiller system, packaged unit, boiler system, etc.);
      - 1.3.1 Sub-Tab A:** Design narrative and criteria, sequences, approvals for equipment in System Type 1;
      - 1.3.2 Sub-Tab B:** Startup plan and report, approvals, corrections, blank Precommissioning Checklists;
        - .1 Colored Separator Sheets**—for each equipment type (fans, pumps, chiller, etc.);
      - 1.3.3 Sub-Tab C:** Functional tests (completed), trending and analysis, approvals and corrections, training plan, record and approvals, blank functional test forms and a recommended recommissioning schedule.
    - 1.4 Tab 02:** System Type 2.....repeat as per above requirements for System 1.
  - 2. Final Report Commissioning Report Details.** The final commissioning report shall include an executive summary, list of participants and roles, brief building description, overview of commissioning and testing scope and a general description of testing and verification methods. For each piece of commissioned equipment, the report should contain the disposition of the commissioning authority regarding the adequacy of the equipment, documentation and training meeting the contract documents in the following areas:
    - 2.1** Equipment meeting the equipment specifications;
    - 2.2** Equipment installation,
    - 2.3** Functional performance and efficiency;
    - 2.4** Equipment documentation and design intent; and
    - 2.5** Operator training. All outstanding non-compliance items shall be specifically listed. Recommendations for improvement to equipment or operations, future actions, commissioning process changes, etc. shall also be listed. Each non-compliance issue shall be referenced to the specific functional test, inspection, trend log, etc. where the deficiency is documented. The functional performance and efficiency section for each piece of equipment shall include a brief description of the verification method used (manual testing, BAS trend logs, data loggers, etc.) and include observations and conclusions from the testing.
  - 2.6 Pre-Occupancy Commissioning (Cx) Report:**

A Pre-occupancy Commissioning (Cx) Report shall be prepared by the Commissioning Agent (CxA) that demonstrates that the project has met all of the requirements spelled out in the following Table:

<b>Twelve (12) Mandatory Requirements [16a-38k-3] Summary Table:</b>		
	<b>Regulation</b>	<b>Summary Description</b>
1.	16a-38k-3(a)	Building Commissioning:
2.	16a-38-3(b)	Integrated Design Process:
3.	16a-38k-3(d)	ENERGY STAR Products:
4.	16a-38k-3(c)	Energy Performance:
5.	16a-38k-3(e)	Indoor Air Quality Management Plan:
6.	16a-38k-3(f)	Water Usage:
7.	16a-38k-3(g)	Recycling of Materials:
8.	16a-38k-3(h)	Erosion and Sedimentation Control:
9.	16a-38k-3(i)	No Smoking Policy:
10.	16a-38k-3(j)	Integrated Pest Management Plan:
11.	16a-38k-3(k)	Chlorofluorocarbon (CFC)-Based Refrigerants:
12.	16a-38k-3(l)	Minimum Ventilation Requirement:

**2.7 Post-Occupancy Commissioning (Cx) Report:**

A Post-Occupancy Commissioning (Cx) Report shall be prepared by the Commissioning Agent (CxA) and submitted to the DAS/CS PM for review and approval. The approved Report shall be submitted by the State Agency that is responsible for the ongoing care, operation, and maintenance of the building to the CT OPM Secretary and the DAS Commissioner within one hundred eighty (180) days after one year of occupancy Date of DAS/CS Acceptance of the Work. The Report shall include results of any post-occupancy survey of building occupants, a description of any adjustments made to equipment or building operation and the reasons for which the changes were made, and one year of all energy usage by source and water usage.

3. Other documentation will be retained by the CxA.

**1.7 DUTIES AND RESPONSIBILITIES OF OTHERS FOR COMMISSIONING**

- A. The commissioning process will require the active participation of persons qualified to represent the Owner, Mechanical Engineer, Electrical Engineer, Construction Manager, Equipment Manufacturers' Representatives, Mechanical Subcontractor, HVAC Subcontractor, Controls Subcontractor, TAB Subcontractor, Electrical Subcontractor, and other specific subcontractors, as deemed appropriate. The CxA will witness the final functional performance commissioning process. Participants shall include in their contracts all costs necessary to participate in and complete the commissioning process.
- B. The Contractor will assure the participation and co-operation of the Subcontractors, as required to complete the commissioning process.
- C. The Owner will assure the participation of their chosen representatives as required to complete the commissioning process.
- D. The Architect will assure the participation of necessary representatives from the Design Team as required to complete the commissioning process. Design team members will provide prompt replies to requests for information issued during the commissioning process.
- E. It is the Contractor's specific responsibility to complete their respective start-up and checkout procedures, and to insure the complete readiness of equipment and systems, prior to the start of the functional performance testing phase. The CxA shall request written confirmation of system readiness for performance testing, from the appropriate Contractor or Subcontractor. Once the CxA is provided with confirmation of all related systems completion, the actual date and times for the functional performance testing process will be confirmed. Contractor and Subcontractors shall provide sufficient time, and qualified representatives, to complete this process at no additional cost to the State.
- F. After a second failure of a system to successfully meet the criteria as set forth in the functional performance testing process, the Contractor shall reimburse the Owner for all costs associated with any additional re-testing efforts made necessary due to remaining Contractor related system deficiencies previously reported by the Contractor as corrected. These costs shall also include the costs (where applicable) for the CxA.

- G. Training on related systems and equipment operation and maintenance shall only be scheduled to commence after final performance commissioning is satisfactorily completed, and systems are verified to be 100 percent complete and functional.

## 1.8 SUBMITTALS

- A. Refer to Section 01 33 00 Submittal Procedures.
- B. **Pre-Commissioning Checklist Forms:** Submit [two (2)] signed copies of the checklist forms to the CxA upon completion of all listed items.
- C. **Equipment Manufacturer's Startup Forms:** Submit [two (2)] completed copies of the installation and startup checklists provided by the equipment manufacturers to the CxA.
- D. **Test Reports:** Submit [two (2)] copies of test reports for equipment and systems to the CxA.
- E. **Control Schematics:** Submit [two (2)] copies of the control schematics for equipment, systems, and subsystems to the CxA.
- F. **Inspection Records:** Submit [two (2)] copies of the records of inspections for code compliance, and approved permits and licenses to operate the equipment and systems to the CxA.
- G. **Operating Data:** Submit [two (2)] copies of equipment and system operating data including all necessary instructions to facilitate operation to specified performance standards to the Owner.
- H. **Maintenance Data:** Submit [two (2)] copies of equipment and system maintenance data including all necessary information required to maintain the equipment and systems in continuous operation, such as the testing, balancing and adjusting report and the as-built drawings.

## 1.9 TRAINING OF OWNER PERSONNEL

- A. The Contractor shall be responsible for training coordination and scheduling and ultimately for ensuring that training is completed.
- B. The CxA shall be responsible for overseeing and approving the content and adequacy of the training of Agency's personnel for commissioned equipment.
  - 1. The CxA shall interview the Agency's facility manager and lead engineer to determine the special needs and areas where training will be most valuable. The Construction Administrator, Agency's facility manager, and CxA shall decide how rigorous the training should be for each piece of commissioned equipment. The CxA shall communicate the results to the Contractor of Subcontractors and vendors who have training responsibilities.
  - 2. In addition to these general requirements, the specific training requirements of Owner personnel by Subcontractor and vendors are specified in Divisions 21, 22, 23, 25, 26, and 27.
  - 3. The Contractor shall require each Subcontractor and vendor responsible for training to submit a written training plan to the CxA for review and approval prior to training. The plan will cover the following elements:
    - 3.1 Equipment (included in training);
    - 3.2 Intended audience;
    - 3.3 Location of training;
    - 3.4 Objectives;
    - 3.5 Subjects covered (description, duration of discussion, special methods, etc.);
    - 3.6 Duration of training on each subject;
    - 3.7 Instructor for each subject;
    - 3.8 Methods (classroom lecture, video, site walk-through, actual operational demonstrations, written handouts, etc.);
    - 3.9 Instructor and qualifications.
  - 4. For the primary HVAC equipment, the Controls Contractor shall provide a short discussion of the control of the equipment during the mechanical or electrical training conducted by others.
  - 5. The CxA shall develop an overall training plan and coordinate and schedule, with the CA, Agency Representative, and Contractor, the overall training for the commissioned systems. The CxA shall develop criteria for determining that the training was satisfactorily completed, including attending some of the training, etc. The CxA shall recommend approval of the training to the CA using a standard form for submittal to the Contractor. The CA also shall sign the approval form.
  - 6. At one of the training sessions, the CxA shall present a **one (1)** hour presentation discussing the use of the blank functional test forms for re-commissioning equipment.

7. Video recording of the training sessions shall be provided by Contractor. The Contractor shall provide the CA, with video disks cataloged by Contractor, and added to the O&M manuals.
8. The HVAC design engineer shall at the first training session present the overall system design concept and the design concept of each equipment section. This presentation shall be **two (2)** hours in length and include a review of all systems using the simplified system schematics (one-line drawings) including chilled water systems, condenser water or heat rejection systems, heating systems, fuel oil and gas supply systems, supply air systems, exhaust system and outside air strategies.

#### 1.10 DEFERRED TESTING

- A. **Unforeseen Deferred Tests.** If the Contractor determines that any check or test cannot be completed due to the building structure, required occupancy condition or other deficiency, execution of checklists and Functional Testing may be delayed upon approval of the DAS/CS PM. These tests will be conducted in the same manner as the seasonal tests as soon as possible. Services of necessary parties will be negotiated.
- B. **Seasonal Testing.** During the warranty period, seasonal testing (tests delayed until weather conditions are closer to the system's design intent) as specified in Division 23 shall be completed as part of this contract. The CxA shall coordinate this activity. Tests will be executed, documented and deficiencies corrected by the appropriate Subcontractors, with the Agency facilities staff and the CxA witnessing. Any final adjustments to the O&M manuals and as-built drawings due to the testing will be made.

#### PART 2 - PRODUCTS (Not Applicable)

#### PART 3 - EXECUTION (Not Applicable)

END OF SECTION 01 91 00

## **SECTION 02 41 19 - SELECTIVE DEMOLITION**

### **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. Demolition and removal of selected portions of interior elements.
  - 2. Salvage of existing items to be reused.
- B. Related Requirements:
  - 1. Division 1 "General Requirements" for restrictions on the use of the premises, Owner-occupancy requirements, and phasing requirements.
  - 2. Division 1 for cutting and patching procedures

#### **1.3 DEFINITIONS**

- A. Remove: Detach items from existing construction and legally dispose of them off-site unless indicated to be removed and salvaged or removed and reinstalled.
- B. Remove and Salvage: Carefully detach from existing construction, in a manner to prevent damage, and deliver to Owner ready for reuse.
- C. Remove and Reinstall: Detach items from existing construction, prepare for reuse, and reinstall where indicated.
- D. Existing to Remain: Existing items of construction that are not to be permanently removed and that are not otherwise indicated to be removed, removed and salvaged, or removed and reinstalled.

#### **1.4 MATERIALS OWNERSHIP**

- A. Unless otherwise indicated, demolition waste becomes property of Contractor.

#### **1.5 PREINSTALLATION MEETING**

- A. Predemolition Conference: Conduct conference at Project site.
  - 1. Inspect and discuss condition of construction to be selectively demolished.
  - 2. Review structural load limitations of existing structure.
  - 3. Review and finalize selective demolition schedule and verify availability of materials, demolition personnel, equipment, and facilities needed to make progress and avoid delays.
  - 4. Review requirements of work performed by other trades that rely on substrates exposed by selective demolition operations.

a.

5. Review areas where existing construction is to remain and requires protection.

#### **1.6 INFORMATIONAL SUBMITTALS**

- A. Proposed Protection Measures: Submit report, including drawings, that indicates the measures proposed for protecting individuals and property, for dust control and for noise control. Indicate proposed locations and construction of barriers.
- B. Schedule of Selective Demolition Activities: Indicate the following:
  1. Detailed sequence of selective demolition and removal work, with starting and ending dates for each activity. Ensure Owner's and other tenants' on-site operations are uninterrupted.
  2. Interruption of utility services. Indicate how long utility services will be interrupted.
  3. Coordination for shutoff, capping, and continuation of utility services.
  4. Use of elevator and stairs.
  5. Coordination of Owner's continuing occupancy of portions of existing building and of Owner's partial occupancy of completed Work.
- C. Inventory: Submit a list of items to be removed and salvaged and deliver to Owner prior to start of demolition.

#### **1.7 FIELD CONDITIONS**

- A. Owner will occupy portions of building immediately adjacent to selective demolition area. Conduct selective demolition so Owner's operations will not be disrupted.
- B. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.
- C. Notify Architect of discrepancies between existing conditions and Drawings before proceeding with selective demolition.
- D. Hazardous Materials: It is not expected that hazardous materials will be encountered in the Work.
  1. If suspected hazardous materials are encountered, do not disturb; immediately notify Architect and Owner. Hazardous materials will be removed by Owner under a separate contract.
- E. Storage or sale of removed items or materials on-site is not permitted.
- F. Utility Service: Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.
  1. Maintain fire-protection facilities in service during selective demolition operations.

## **PART 2 - PRODUCTS**

## **PART 3 - EXECUTION**

### **3.1 EXAMINATION**

- A. Verify that utilities have been disconnected and capped before starting selective demolition operations.
- B. Review record documents of existing construction provided by Owner. Owner does not guarantee that existing conditions are same as those indicated in record documents.
- C. Survey existing conditions and correlate with requirements indicated to determine extent of selective demolition required.
- D. When unanticipated mechanical, electrical, or structural elements that conflict with intended function or design are encountered, investigate and measure the nature and extent of conflict. Promptly notify Owner and Architect of unanticipated conditions.
- E. Perform an engineering survey of condition of building to determine whether removing any element might result in structural deficiency or unplanned collapse of any portion of structure or adjacent structures during selective building demolition operations.
  1. Perform surveys as the Work progresses to detect hazards resulting from selective demolition activities.

### **3.2 UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS**

- A. Existing Services/Systems to Remain: Maintain services/systems indicated to remain and protect them against damage.
  1. Comply with requirements for existing services / systems interruptions specified in Division 1.
- B. Existing Services/Systems to Be Removed, Relocated, or Abandoned: Locate, identify, disconnect, and seal or cap off indicated utility services and mechanical/electrical systems serving areas to be selectively demolished.
  1. Owner and building manager will arrange to shut off indicated services/systems when requested by Contractor.
  2. If services/systems are required to be removed, relocated, or abandoned, provide temporary services/systems that bypass area of selective demolition and that maintain continuity of services/systems to other parts of building.
  3. Disconnect, demolish, and remove fire-suppression systems, plumbing, and HVAC systems, equipment, and components indicated to be removed.
    - a. Piping to Be Removed: Remove portion of piping indicated to be removed and cap or plug remaining piping with same or compatible piping material.



- b. Piping to Be Abandoned in Place: Drain piping and cap or plug piping with same or compatible piping material.
  - c. Equipment to Be Removed: Disconnect and cap services and remove equipment.
  - d. Equipment to Be Removed and Reinstalled: Disconnect and cap services and remove, clean, and store equipment; when appropriate, reinstall, reconnect, and make equipment operational.
  - e. Equipment to Be Removed and Salvaged: Disconnect and cap services and remove equipment and deliver to Owner.
  - f. Ducts to Be Removed: Remove portion of ducts indicated to be removed and plug remaining ducts with same or compatible ductwork material.
  - g. Ducts to Be Abandoned in Place: Cap or plug ducts with same or compatible ductwork material.
- C. Refrigerant: Remove refrigerant from mechanical equipment to be selectively demolished according to 40 CFR 82 and regulations of authorities having jurisdiction.

### 3.3 PREPARATION

- A. Site Access and Temporary Controls: Conduct selective demolition and debris-removal operations to ensure minimum interference with aisles, corridors and adjacent occupied spaces.
  - 1. Comply with requirements for access and protection specified in Division 1.
- B. Temporary Facilities: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent spaces and facilities to remain.
  - 1. Provide protection to ensure safe passage of people around selective demolition area and to and from occupied portions of building.
  - 2. Provide temporary weather protection, during interval between selective demolition of existing construction on exterior surfaces and new construction, to prevent water leakage and damage to structure and interior areas.
  - 3. Protect walls, ceilings, floors, and other existing finish work that are to remain or that are exposed during selective demolition operations.
  - 4. Cover and protect furnishings and equipment that have not been removed.
  - 5. Comply with requirements for temporary enclosures, dust control, heating and cooling specified in Division 1.
- C. Temporary Shoring: Provide and maintain shoring, bracing, and structural supports as required to preserve stability and prevent movement, settlement, or collapse of

construction and finishes to remain, and to prevent unexpected or uncontrolled movement or collapse of construction being demolished.

1. Strengthen or add new supports when required during progress of selective demolition.

### **3.4 SELECTIVE DEMOLITION, GENERAL**

A. General: Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations and as follows:

1. Proceed with selective demolition systematically, from higher to lower level. Complete selective demolition operations above each floor or tier before disturbing supporting members on the next lower level.
2. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping, to minimize disturbance of adjacent surfaces. Temporarily cover openings to remain.
3. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
4. Do not use cutting torches.
5. Maintain adequate ventilation.
6. Remove dangerous or unsuitable materials and promptly dispose of off-site.
7. Remove structural framing members and lower to ground by method suitable to avoid free fall and to prevent impact or dust generation.
8. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
9. Dispose of demolished items and materials promptly.

B. Removed and Salvaged Items:

1. Clean salvaged items.
2. Pack or crate items after cleaning. Identify contents of containers.
3. Store items in a secure area until delivery to Owner.
4. Transport items to Owner's storage area designated by Owner.

5. Protect items from damage during transport and storage.
- C. Removed and Reinstalled Items:
1. Clean and repair items to functional condition adequate for intended reuse.
  2. Pack or crate items after cleaning and repairing. Identify contents of containers.
  3. Protect items from damage during transport and storage.
  4. Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make item functional for use indicated.
- D. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by Owner, items may be removed to a suitable, protected storage location during selective demolition and reinstalled in their original locations after selective demolition operations are complete.

### **3.5 SELECTIVE DEMOLITION PROCEDURES FOR SPECIFIC MATERIALS**

- A. Concrete: Demolish in small sections. Using power-driven saw, cut concrete to a depth of at least 3/4 inch (19 mm) at junctures with construction to remain. Dislodge concrete from reinforcement at perimeter of areas being demolished, cut reinforcement, and then remove remainder of concrete. Neatly trim openings to dimensions indicated.
- B. Masonry and Tile: Demolish in small sections. Cut at junctures with construction to remain, using power-driven saw, then remove material between saw cuts.
- C. Resilient Floor Coverings: Remove floor coverings and adhesive according to recommendations in RFCI's "Recommended Work Practices for the Removal of Resilient Floor Coverings." Do not use methods requiring solvent-based adhesive strippers.
- D. Concrete slabs-on-grade: Saw cut perimeter of area to be demolished, then break up and remove.

### **3.6 DISPOSAL OF DEMOLISHED MATERIALS**

- A. General: Except for items or materials indicated to be reused, salvaged, reinstalled, or otherwise indicated to remain Owner's property, remove demolished materials from Project site and legally dispose of them in an EPA-approved landfill.
1. Do not allow demolished materials to accumulate on-site.
  2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
  3. Coordinate and schedule use of freight elevators with Owner and building manager for removal of demolition debris. Protect elevator cabs from damage per Owner's and building manager's instructions.

- B. Disposal: Transport demolished materials off Owner's property and legally dispose of them.

**3.7 CLEANING**

- A. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before selective demolition operations began.

**END OF SECTION 02 41 19**

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## SECTION 03 30 53 - MISCELLANEOUS CAST-IN-PLACE CONCRETE

### 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 SECTION INCLUDES

- A. Cast-in-place concrete, including reinforcement, concrete materials, mixture design, placement procedures, and finishes.

#### 1.3 RELATED SECTIONS

- A. Section 01 40 00 - Quality Requirements: Independent testing agency procedures and administrative requirements.

#### 1.4 ACTION SUBMITTALS

- A. Submit under provisions of Section 01 30 00.
- B. Product Data: For each type of product.
- C. Design Mixtures: For each concrete mixture.

#### 1.5 QUALITY ASSURANCE

- A. Ready-Mix-Concrete Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C94 requirements for production facilities and equipment.

### PART 2 - PRODUCTS

#### 2.1 CONCRETE, GENERAL

- A. Comply with the following sections of ACI 301 unless modified by requirements in the Contract Documents:

1. "General Requirements."
2. "Formwork and Formwork Accessories."
3. "Reinforcement and Reinforcement Supports."
4. "Concrete Mixtures."
5. "Handling, Placing, and Constructing."

B. Comply with ACI 117.

## 2.2 STEEL REINFORCEMENT

- A. Reinforcing Bars: ASTM A615, Grade 60, deformed.
- B. Plain-Steel Welded-Wire Reinforcement: ASTM A1064, plain, fabricated from as-drawn steel wire into flat sheets.

## 2.3 CONCRETE MATERIALS

- A. Cementitious Material: Use the following cementitious materials, of the same type, brand, and source, throughout project:
  1. Portland Cement: ASTM C150, Type I/II American made. Supplement with the following:
    - a. Fly Ash: ASTM C618, Class C.
    - b. Ground Granulated Blast-Furnace Slag: ASTM C989, Grade 100 or 120.
- B. Silica Fume: ASTM C1240, amorphous silica.
- C. Normal-Weight Aggregates: ASTM C33, coarse aggregate or better, graded. Provide aggregates from a single source.
  1. Maximum Coarse-Aggregate Size: Number 57 (1-inch aggregate) or Number 67 (3/4-inch aggregate) as designated in "Concrete Mixtures for Building Elements."
  2. Fine Aggregate: Clean, washed sharp sand, uniformly graded fine to coarse as approved with no more the five (5) percent passing 100 sieve when sand is thoroughly dry. Free of materials with deleterious reactivity to alkali in cement.
- D. Water: ASTM C94.

## 2.4 RELATED MATERIALS

- A. Plastic Vapor Retarder: ASTM E1745, Class B or higher. Include manufacturer's recommended adhesive or pressure-sensitive tape.
- B. Joint-Filler Strips: ASTM D1751, asphalt-saturated cellulosic fiber, or ASTM D1752, cork or self-expanding cork.

## 2.5 CURING MATERIALS

- A. VOC Content: Curing and sealing compounds shall have a VOC content of 200 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
- B. Evaporation Retarder: Waterborne, monomolecular film forming; manufactured for application to fresh concrete.
  - 1. Products:
    - a. Dayton Superior Corporation; Sure Film.
    - b. Euclid Chemical Company (The); Eucobar.
    - c. MBT Protection and Repair, Div. of ChemRex; Confilm.
- C. Absorptive Cover: AASHTO M 182, Class 2, burlap cloth made from jute or kenaf, weighing approximately 9 oz./sq. yd. when dry.
- D. Moisture-Retaining Cover: ASTM C171, polyethylene film or white burlap-polyethylene sheet.
- E. Water: Potable.
- F. Clear, Waterborne, Membrane-Forming Curing Compound: ASTM C309, Type 1, Class B.
- G. Clear, Waterborne, Membrane-Forming Curing and Sealing Compound: ASTM C1315, Type 1, Class A.
  - 1. Products:
    - a. Dayton Superior Corporation; Safe Cure and Seal (J-19).
    - b. Euclid Chemical Company (The); Diamond Clear VOX.
    - c. MBT Protection and Repair, Div. of ChemRex; Kure-N-Seal W.
- H. Water: Potable.



## 2.6 CONCRETE MIXTURES

- A. Comply with ACI 301.
- B. Normal-Weight Concrete:
- C. All interior and exterior concrete, including but not limited to, foundation walls and footings : Proportion normal-weight concrete mixture as follows:
  - 1. Minimum Compressive Strength: 3000 psi at 28 days.
  - 2. Maximum Water-Cementitious Materials Ratio: 0.50.
  - 3. Slump Limit: four (4) inches or eight (8) inches for concrete with verified slump of two (2) to four (4) inches before adding high-range water-reducing admixture, plus or minus one (1) inch.
  - 4. Air Content: six (6) percent, plus or minus 1.5 percent at point of delivery for 1-inch and 3/4-inch nominal maximum aggregate sizes.
- D. Slabs-on-Grade: Proportion normal-weight concrete mixture as follows:
  - 1. Minimum Compressive Strength: 4000 psi at 28 days.
  - 2. Minimum Cementitious Materials Content: 520 lb/cu yd.
  - 3. Maximum Water-Cementitious Materials Ratio: 0.40.
  - 4. Aggregate Size: Nominal maximum aggregate size to be ASTM C33, Number 57 (1-inch).
  - 5. Slump Limit: three (3) inches or eight (8) inches for concrete with verified slump of two (2) to three (3) inches before adding high-range water-reducing admixture, plus or minus one (1) inch.
  - 6. Air Content: Do not allow air content of troweled finished floors to exceed three (3) percent.
  - 7. Slab Moisture Proofing Admixture: Add admixture to ready mix concrete at the batch plant in accordance with manufacturer's recommendations for all interior slabs-on-grade.

## 2.7 CONCRETE MIXING

- A. Ready-Mixed Concrete: Measure, batch, mix, and deliver concrete according to ASTM C94 and ASTM C1116, and furnish batch ticket information.
  - 1. When air temperature is between 85 and 90 degrees F, reduce mixing and delivery time from 1-1/2 hours to 75 minutes; when air temperature is above 90 degrees F, reduce mixing and delivery time to 60 minutes.
  - 2. The addition of water to the concrete mix, after it has left the plant, is strictly prohibited.

- B. Project-Site Mixing: Measure, batch, and mix concrete materials and concrete according to ASTM C94. Mix concrete materials in appropriate drum-type batch machine mixer.
  - 1. For mixer capacity of one (1) cu yd or smaller, continue mixing at least 1-1/2 minutes, but not more than five (5) minutes after ingredients are in mixer, before any part of batch is released.
  - 2. For mixer capacity larger than one (1) cu yd, increase mixing time by 15 seconds for each additional one (1) cu yd.
  - 3. Provide batch ticket for each batch discharged and used in the Work, indicating project identification name and number, date, mix type, mix time, quantity, and amount of water added. Record approximate location of final deposit in structure.

### **PART 3 - EXECUTION**

#### **3.1 FORMWORK INSTALLATION**

- A. Design, construct, erect, brace, and maintain formwork according to ACI 301.

#### **3.2 EMBEDDED ITEM INSTALLATION**

- A. Place and secure anchorage devices and other embedded items required for adjoining work that is attached to or supported by cast-in-place concrete. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.

#### **3.3 VAPOR-RETARDER INSTALLATION**

- A. Install, protect, and repair vapor retarders according to ASTM E1643; place sheets in position with longest dimension parallel with direction of pour.
  - 1. Lap joints six (6) inches and seal with manufacturers recommended adhesive or joint tape.

#### **3.4 STEEL REINFORCEMENT INSTALLATION**

- A. Comply with CRSI's "Manual of Standard Practice" for fabricating, placing, and supporting reinforcement.
  - 1. Do not cut or puncture vapor retarder. Repair damage and reseal vapor retarder before placing concrete.

### 3.5 JOINTS

- A. General: Construct joints true to line with faces perpendicular to surface plane of concrete.
- B. Construction Joints: Install so strength and appearance of concrete are not impaired, at locations indicated or as approved by Architect.
- C. Contraction Joints in Slabs-on-Grade: Form weakened-plane contraction joints, sectioning concrete into areas as indicated. Construct contraction joints for a depth equal to at least one-fourth of concrete thickness, as follows:
  - 1. Grooved Joints: Form contraction joints after initial floating by grooving and finishing each edge of joint to a radius of 1/8-inch. Repeat grooving of contraction joints after applying surface finishes. Eliminate groover marks on concrete surfaces.
  - 2. Sawed Joints: Form contraction joints with power saws equipped with shatterproof abrasive or diamond-rimmed blades. Cut 1/8-inch wide joints into concrete when cutting action does not tear, abrade, or otherwise damage surface and before concrete develops random contraction cracks.
- D. Isolation Joints in Slabs-on-Grade: After removing formwork, install joint-filler strips at slab junctions with vertical surfaces, such as column pedestals, foundation walls, grade beams, and other locations, as indicated.
  - 1. Extend joint-filler strips full width and depth of joint, terminating flush with finished concrete surface unless otherwise indicated.

### 3.6 CONCRETE PLACEMENT

- A. Comply with ACI 301 for placing concrete.
- B. Before test sampling and placing concrete, water may be added at project site, subject to limitations of ACI 301.
- C. Do not add water to concrete during delivery, at project site, or during placement.
- D. Consolidate concrete with mechanical vibrating equipment according to ACI 301.

### 3.7 FINISHING FORMED SURFACES

- A. Rough-Formed Finish: As-cast concrete texture imparted by form-facing material with tie holes and defects repaired and patched. Remove fins and other projections exceeding 1/2-inch.

- B. Smooth-Formed Finish: As-cast concrete texture imparted by form-facing material, arranged in an orderly and symmetrical manner with a minimum of seams. Repair and patch tie holes and defective areas. Remove fins and other projections exceeding 1/8-inch.
  - 1. Apply to concrete surfaces exposed to public view.

### 3.8 FINISHING UNFORMED SURFACES

- A. General: Comply with ACI 302.1R for screeding, restraightening, and finishing operations for concrete surfaces. Do not wet concrete surfaces.
- B. Screed surfaces with a straightedge and strike off. Begin initial floating using bull floats or darbies to form a uniform and open-textured surface plane before excess moisture or bleedwater appears on surface.
  - 1. Do not further disturb surfaces before starting finishing operations.
- C. Scratch Finish: Apply scratch finish to surfaces indicated and surfaces to receive concrete floor topping or mortar setting beds for ceramic or quarry tile, portland cement terrazzo, and other bonded cementitious floor finishes unless otherwise indicated.
- D. Float Finish: Apply float finish to surfaces indicated, to surfaces to receive trowel finish, and to floor and slab surfaces to be covered with fluid-applied or sheet waterproofing, fluid-applied or direct-to-deck-applied membrane roofing, or sand-bed terrazzo.
- E. Trowel Finish: Apply a hard trowel finish to surfaces indicated and to floor and slab surfaces exposed to view or to be covered with resilient flooring, carpet, ceramic or quarry tile set over a cleavage membrane, paint, or another thin film-finish coating system.
- F. Trowel and Fine-Broom Finish: Apply a partial trowel finish, stopping after second troweling, to surfaces indicated and to surfaces where ceramic or quarry tile is to be installed by either thickset or thinset methods. Immediately after second troweling, and when concrete is still plastic, slightly scarify surface with a fine broom.

### 3.9 CONCRETE PROTECTING AND CURING

- A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with ACI 306.1 for cold-weather protection and with ACI 301 for hot-weather protection during curing.

- B. Evaporation Retarder: Apply evaporation retarder to concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb/sq ft x h before and during finishing operations. Apply according to manufacturer's written instructions after placing, screeding, and bull floating or darbying concrete, but before float finishing.
- C. Begin curing after finishing concrete but not before free water has disappeared from concrete surface.
- D. Curing Methods: Cure formed and unformed concrete for at least seven (7) days by one (1) or a combination of the following methods:
  - 1. Moisture Curing: Keep surfaces continuously moist for not less than seven (7) days with the following materials:
    - a. Water.
    - b. Continuous water-fog spray.
    - c. Absorptive cover, water saturated, and kept continuously wet. Cover concrete surfaces and edges with 12-inch lap over adjacent absorptive covers.
  - 2. Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width, with sides and ends lapped at least 12 inches, and sealed by waterproof tape or adhesive. Cure for not less than seven (7) days. Immediately repair any holes or tears during curing period, using cover material and waterproof tape.
  - 3. Curing Compound: Apply uniformly in continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three (3) hours after initial application. Maintain continuity of coating and repair damage during curing period.
  - 4. Curing and Sealing Compound: Apply uniformly to floors and slabs indicated in a continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three (3) hours after initial application. Repeat process 24 hours later and apply a second coat. Maintain continuity of coating and repair damage during curing period.

### **3.10 CONCRETE TOPPING PLACEMENT**

- A. Surface preparation: Apply scratch finish to base slab surface and thoroughly clean surface, removing all loose particles. Saturate slab with water overnight. Allow surface to dry for two hours or as required. There should be no surface dampness prior to application of bonding grout.

- B. Bonding Grout: Prepare grout with bonding admixture, water, Portland cement and sand in accordance with the bonding compound's manufacturer's recommendations. The mix shall not exceed a water/cement ratio of 0.50 or that of the base slab if lower.
- C. Topping Placement: Place concrete topping as soon as the bonding grout is applied. The bonding grout must not dry or set before the topping is placed. Bonding grout must be tacky when the topping mix is placed (grout setting time will be approximately 30-40 minutes).
- D. Surface Finish: Screed the topping concrete to the correct level, float, (at Mechanical Room, see application procedure for shake-on waterproofing), and apply a steel trowel finish. The surface shall be troweled at least twice to a smooth dense finish. Do not trowel the newly placed concrete to the extent that it brings water and an appreciable amount of fine material to the surface. Troweling should be delayed as long as possible.
- E. Curing: Start curing as soon as free water has disappeared from surface after finishing. Continue curing for at least seven (7) days. At areas to receive dry shake-on waterproofing, cure by moist curing or moisture-retaining cover curing only. At other areas, curing may also be by curing and sealing compounds or a combination thereof.

### **3.11 MISCELLANEOUS CONCRETE ITEMS**

- A. Filling In: Fill in holes and openings left in concrete structures, unless otherwise indicated, after work of other trades is in place. Mix, place, and cure concrete, as specified, to blend with in-place construction. Provide other miscellaneous concrete filling indicated or required to complete the Work.
- B. Curbs: Provide monolithic finish to interior curbs by stripping forms while concrete is still green and by steel-troweling surfaces to a hard, dense finish with corners, intersections, and terminations slightly rounded.
- C. Equipment Bases and Foundations: Provide machine and equipment bases and foundations as shown on Drawings. Set anchor bolts for machines and equipment at correct elevations, complying with diagrams or templates from manufacturer furnishing machines and equipment.
- D. Steel Pan Stairs: Provide concrete fill for steel pan stair treads, landings, and associated items. Cast-in inserts and accessories as shown on Drawings. Screed, tamp, and trowel-finish concrete surfaces as scheduled.

**3.12 FIELD QUALITY CONTROL**

- A. Testing Agency: Owner will engage a qualified testing agency to perform tests and inspections.
- B. Tests: Perform according to ACI 301.

**END OF SECTION 03 30 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 cast-in-place concrete, including formwork, reinforcement, concrete materials, mixture design, placement procedures, and finishes, for the following:
  - 1. Footings.
  - 2. Equipment pads and bases.

**1.3 ACTION SUBMITTALS**

- A. General: Submit the following according to Conditions of the Contract and Division 01 Specification Sections.
- B. Product Data: For each type of product indicated, including reinforcement and forming accessories, admixtures, patching compounds, waterstops, joint systems, curing compounds, dry-shake finish materials, epoxy grout, nonshrink grout, and others if requested by the Engineer.
- C. Design Mixtures: For each concrete mixture. Submit alternate design mixtures when characteristics of materials, Project conditions, weather, test results, or other circumstances warrant adjustments.
  - 1. Field water is not to be added.
  - 2. Admixtures are not to be added in the field.
- D. Submit a written description of cold weather and hot weather protection procedures for review and approval a minimum of 15 days prior to start of Work.
- E. Submit a written description of curing procedures for review and approval a minimum of 15 days prior to start of Work. Description to include curing methods and duration of curing.
- F. Shop drawings shall be reviewed and "checked" by the Fabricator prior to being submitted to the Engineer. Unchecked shop drawings shall be rejected and returned to the Contractor.
- G. Contractor to provide a detailed submittal schedule identifying all submittals and the date they are to be received by BVH Integrated Services, Inc. Submittal schedule is to be submitted two weeks prior to the start of the submittal process and updated every two weeks.
- H. Submit locations of all proposed construction joints in foundation walls and retaining walls for review and approval a minimum of 15 days prior to start of Work.
- I. Steel Reinforcement Shop Drawings: Placing drawings that detail fabrication, bending, and placement. Include bar sizes, lengths, material, grade, bar schedules, stirrup spacing, bent bar diagrams, bar arrangement, splices and laps, mechanical connections, tie spacing, hoop spacing, and supports for concrete reinforcement. Include special reinforcement required for openings through concrete structures.
  - 1. Submit detailed shop drawings which clearly show location, splicing, cover, sizes, and spacing of all reinforcing and wire fabric. Schedules and diagrams shall indicate bends, sizes, and lengths of reinforcing members and splice lengths. All reinforcement in concrete footings, walls and grade beams shall be shown in elevation, 1/8" = 1'-0" scale with top of walls, top of shelves, and bottom of footings clearly indicated and sections indicating bar placement, spacing, size and cover. All construction joints, as required on the Contract Drawings or requested by the Contractor, shall be shown with any additional reinforcement required. Show and locate all concrete openings,



including those required for other Divisions. Any drawings submitted without showing construction joints and openings will be rejected and will not be reviewed.

- J. No reinforcing shall be cut, fabricated, shipped to the job site, or placed before shop drawings have been approved by the Engineer of Record. Only shop drawings bearing the appropriate engineer's stamp marked "Furnished as Submitted" or "Furnished as Corrected" or "Approved as Noted" shall be used in the field.
- K. Laboratory test reports for concrete materials and mix design tests.

#### **1.4 INFORMATIONAL SUBMITTALS**

- A. Welding Certificates: Submit certifications signed by an AWS Certified Welding Inspector of pre-qualified welding procedures, qualifications of welding procedures unless pre-qualified, qualification of welding operators, and qualifications of welders.
- B. Material Certificates: For each of the following, signed by manufacturers:
  - 1. Cementitious materials.
  - 2. Admixtures.
  - 3. Form materials and form-release agents.
  - 4. Steel reinforcement and accessories.
  - 5. Curing compounds.
  - 6. Bonding agents.
  - 7. Adhesives.
  - 8. Semirigid joint filler.
  - 9. Joint-filler strips.
  - 10. Repair materials.
  - 11. Anchoring adhesive.
- C. Field quality-control reports.
- D. Minutes of preinstallation conference.

#### **1.5 QUALITY ASSURANCE**

- A. Codes and Standards: Comply with provisions of the following Codes, Specifications, and Standards, except where more stringent requirements are shown or specified.
  - 1. American Concrete Institute (ACI) 301, "Specification for Structural Concrete for Buildings."
  - 2. ACI 318, "Building Code Requirements for Reinforced Concrete."
  - 3. Concrete Reinforcing Steel Institute (CRSI), "Manual of Standard Practice."
  - 4. ACI 117, "Specifications for Tolerances for Concrete Construction and Materials."
- B. Concrete Testing Service: Engage a testing agency acceptable to Engineer to design concrete mixes and to perform material evaluation tests associated with the mix design.
- C. Installer Qualifications: A qualified installer who employs on Project personnel qualified as ACI-certified Flatwork Technician and Finisher and a supervisor who is an ACI-certified Concrete Flatwork Technician.
- D. Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C 94/C 94M requirements for production facilities and equipment.
- E. Testing Agency Qualifications: Owner will engage an independent agency qualified according to ASTM C 1077 and ASTM E 329 for testing indicated.
  - 1. Personnel conducting field tests shall be qualified as ACI Concrete Field Testing Technician, Grade 1, according to ACI CP-1 or an equivalent certification program.

- 2. Personnel performing laboratory tests shall be ACI-certified Concrete Strength Testing Technician and Concrete Laboratory Testing Technician - Grade I. Testing Agency laboratory supervisor shall be an ACI-certified Concrete Laboratory Testing Technician - Grade II.
  
- F. Source Limitations: Obtain each type or class of cementitious material of the same brand from the same manufacturer's plant, obtain aggregate from single source, and obtain admixtures from single source from single manufacturer.
  
- G. Welding Qualifications: Qualify procedures and personnel according to AWS D1.4/D 1.4M, "Structural Welding Code - Reinforcing Steel."

## **1.6 DELIVERY, STORAGE, AND HANDLING**

- A. Steel Reinforcement: Deliver, store, and handle steel reinforcement to prevent bending and damage. Avoid damaging coatings on steel reinforcement.

## **PART 2 - PRODUCTS**

### **2.1 FORM-FACING MATERIALS**

- A. Forms for Exposed-to-View Finished Concrete: Form-facing panels that will provide continuous, true, and smooth concrete surfaces. Furnish in largest practicable sizes to minimize number of joints.
  - 1. Exterior-grade plywood panels, suitable for concrete forms, complying with DOC PS 1, and as follows:
    - a. High-density overlay, Class 1 or better.
  
- B. Forms for Unexposed-to-View Finished Concrete: Plywood, lumber, metal, or another approved material. Provide lumber dressed on at least two edges and one side for tight fit.
  
- C. Chamfer Strips: New 45-degree wood, metal, PVC, plastic or rubber strips, 3/4 by 3/4 inch unless otherwise noted, nailed 6 inches on center, and installed in inside corners of forms.
  
- D. Form-Release Agent: Commercially formulated form-release agent with a maximum of 350 g/L volatile organic compounds (VOCs) that will not bond with, stain, or adversely affect concrete surfaces and will not impair subsequent treatments of concrete surfaces.
  - 1. Formulate form-release agent with rust inhibitor for steel form-facing materials.
  
- E. Form Ties: Factory-fabricated, adjustable length, removable or snap-off metal form ties designed to resist lateral pressure of fresh concrete on forms and to prevent spalling of concrete on removal.
  - 1. Furnish units that will leave no metal closer than 1-1/2 inches to the plane of exposed concrete surface.
  - 2. Furnish ties that, when removed, will leave holes no larger than 1 inch in diameter in concrete surface.

### **2.2 STEEL REINFORCEMENT**

- A. Reinforcing Bars: ASTM A 615/A 615M, Grade 60, deformed.
  
- B. Plain-Steel Welded Wire Reinforcement: ASTM A 185/A 185M, plain, fabricated from as-drawn steel wire into flat sheets.

### 2.3 REINFORCEMENT ACCESSORIES

- A. Joint Dowel Bars: ASTM A 615/A 615M, Grade 60, plain-steel bars, cut true to length with ends square and free of burrs.
- B. Epoxy-Coated Joint Dowel Bars: ASTM A 615/A 615M, Grade 60, plain-steel bars, ASTM A 775/A 775M epoxy coated.
- C. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded wire reinforcement in place. Manufacture bar supports from steel wire, plastic, or precast concrete according to CRSI's "Manual of Standard Practice," of greater compressive strength than concrete and as follows:
  - 1. For concrete surfaces exposed to view where legs of wire bar supports contact forms, use CRSI Class 1 plastic-protected steel wire or CRSI Class 2 stainless-steel bar supports.
  - 2. For slabs-on-grade, use full 4" x 3" x 8" concrete blocks with a compressive strength equal to or greater than the adjacent cast-in-place concrete.

### 2.4 CONCRETE MATERIALS

- A. Cementitious Material: Use the following cementitious materials, of the same type, brand, and source, throughout Project:
  - 1. Portland Cement: ASTM C 150, Type I/II.
- B. Normal-Weight Aggregates: ASTM C 33, Class 3S coarse aggregate or better, graded. Provide aggregates from a single source.
  - 1. Maximum Coarse-Aggregate Size: 3/4 inch nominal, unless otherwise noted.
  - 2. Fine Aggregate: Free of materials with deleterious reactivity to alkali in cement.
- C. Water: ASTM C 94/C 94M and potable.

### 2.5 ADMIXTURES

- A. Air-Entraining Admixture: ASTM C 260.
- B. Chemical Admixtures: Provide admixtures certified by manufacturer to be compatible with other admixtures and that will not contribute water-soluble chloride ions exceeding 0.15 percent by mass of cement material. Do not use calcium chloride or admixtures containing calcium chloride.
  - 1. Water-Reducing Admixture: ASTM C 494/C 494M, Type A.
  - 2. Retarding Admixture: ASTM C 494/C 494M, Type B.
  - 3. Water-Reducing and Retarding Admixture: ASTM C 494/C 494M, Type D.
  - 4. High-Range, Water-Reducing Admixture: ASTM C 494/C 494M, Type F.
  - 5. High-Range, Water-Reducing and Retarding Admixture: ASTM C 494/C 494M, Type G.
- C. Non-Set-Accelerating Corrosion-Inhibiting Admixture: Commercially formulated, non-set-accelerating, anodic inhibitor or mixed cathodic and anodic inhibitor; capable of forming a protective barrier and minimizing chloride reactions with steel reinforcement in concrete.
  - 1. Products: Subject to compliance with requirements, provide the following:
    - a. Grace Construction Products, W. R. Grace & Co.; DCI-S, or approved equal.

### 2.6 CURING MATERIALS

- A. Evaporation Retarder: Waterborne, monomolecular film forming, manufactured for application to fresh concrete.

- B. Absorptive Cover: AASHTO M 182, Class 2, burlap cloth made from jute or kenaf, weighing approximately 9 oz./sq. yd. when dry.
- C. Moisture-Retaining Cover: Comply with ASTM C 171, polyethylene film or white burlap-polyethylene sheet or waterproof paper.
- D. Water: Potable.
- E. Clear, Waterborne, Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B, dissipating. Moisture loss not more than 0.55 kg/sq. m when applied at 200 sq. ft./gal. Subject to compliance with current US EPA regulations for volatile organic compounds (VOC) emissions and floor finish adhesives.

## **2.7 RELATED MATERIALS**

- A. Expansion- and Isolation-Joint-Filler Strips: ASTM D 1751, 1/2 inch asphalt-saturated cellulosic fiber preformed into strips unless otherwise noted.
- B. Bonding Agent: ASTM C 1059/C 1059M, Type II, non-redispersible, acrylic emulsion or styrene butadiene.
- C. Epoxy Bonding Adhesive: ASTM C 881, two-component epoxy resin, capable of humid curing and bonding to damp surfaces, of class suitable for application temperature and of grade to suit requirements, and as follows:
  - 1. Types I and II, non-load bearing and Types IV and V, load bearing, for bonding hardened or freshly mixed concrete to hardened concrete.
- D. Dovetail Anchor Slots: Hot-dip galvanized-steel sheet, not less than 0.034 inch thick, with bent tab anchors. Temporarily fill or cover face opening of slots to prevent intrusion of concrete or debris.
- E. Anchoring Adhesive: ASTM C 881, two-compound material suitable for use on dry or damp surfaces. Epcon G5, Epcon A7 as manufactured by ITW Ramset/Red Head or HIT RE-500-SD as manufactured by HILTI. Holes shall be drilled with a rotary hammer drill and carbide-tipped drill bit.

## **2.8 CONCRETE MIXTURES, GENERAL**

- A. Prepare design mixtures for each type and strength of concrete, proportioned on the basis of laboratory trial mixture or field test data, or both, according to ACI 301.
  - 1. Use a qualified independent testing agency acceptable to Engineer of Record for preparing and reporting proposed mixture designs based on laboratory trial mixtures.
- B. Submit written reports including all statistical data to Engineer of each proposed mix for each class of concrete at least 15 days prior to start of Work. Do not begin concrete production until proposed mix designs have been approved by Engineer.
- C. Limit water-soluble, chloride-ion content in hardened concrete to 0.15 percent by weight of cement.
- D. Admixtures: Use admixtures according to manufacturer's written instructions.
  - 1. Use water-reducing or high-range water-reducing admixture in concrete, as required, for placement and workability.
  - 2. Use water-reducing and retarding admixture when required by high temperatures, low humidity, or other adverse placement conditions.
  - 3. Use corrosion-inhibiting admixture at the dosage of three gallons per cubic yard, in concrete mixtures where indicated.
- E. Use accelerating admixture in concrete slabs, as required, for placement and workability.

- F. Add air-entraining admixture where specified at manufacturer's prescribed rate to result in concrete at point of placement and having total air content with a tolerance of plus or minus 1-1/2 percent of the value indicated.
- G. Use admixtures for water reduction and set accelerating or retarding in strict compliance with manufacturer's directions.

## **2.9 CONCRETE MIXTURES**

- A. Design mixes to provide concrete with the following properties:
  - 1. Concrete for equipment pads, footings, foundations, walls and fence foundations to be normal weight concrete with a 4,000 psi, 28-day minimum compressive strength, minimum cement content of 6 sacks per cubic yard, water-cement ratio 0.45 maximum (water content shall include surface water in aggregates), maximum 3/4-inch aggregate, four plus or minus 1 inch slump; 6 percent air content by volume.
- B. If mixes are to be pumped, allowable slump can be increased to six plus or minus 1 inch. Submit separate mix designs, including all backup data, for each pump mix for approval by Engineer.
- C. Adjustment to Concrete Mixes: Field water is not to be added. Mix design adjustments may be requested by Contractor when characteristics of materials, job conditions, weather, test results, or other circumstances warrant, as accepted by Engineer. Laboratory test data for revised mix design and strength results must be submitted to and accepted by Engineer before using in Work.
- D. Synthetic Fiber: Uniformly disperse in concrete mixture at manufacturer's recommended rate, but not less than 1.5 lb/cu. Yd.
- E. Do not air entrain concrete at trowel finished interior slabs and suspended slabs. Do not allow entrapped air content to exceed 3 percent.

## **2.10 FABRICATING REINFORCEMENT**

- A. Fabricate steel reinforcement according to CRSI's "Manual of Standard Practice."

## **2.11 CONCRETE MIXING**

- A. Ready-Mixed Concrete: Measure, batch, mix, and deliver concrete according to ASTM C 94 and ASTM C 1116/C 1116M, and furnish batch ticket information.
  - 1. When air temperature is between 85 and 90 deg F, reduce mixing and delivery time from 1-1/2 hours to 75 minutes; when air temperature is above 90 deg F, reduce mixing and delivery time to 60 minutes.

## **PART 3 - EXECUTION**

### **3.1 GENERAL**

- A. Coordinate the installation of joint materials, vapor retarder, embedded items, anchor bolts and other related materials with placement of forms and reinforcing steel.
- B. Thoroughly clean forms, metal deck and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt, welding ferrules and/or other debris just before placing concrete.

### **3.2 FORMWORK**

- A. Design, erect, shore, brace, and maintain formwork, according to ACI 301, to support vertical, lateral, static, and dynamic loads, and construction loads that might be applied, until structure can support such loads.

- B. Construct formwork so concrete members and structures are of size, shape, alignment, elevation, and position indicated, within tolerance limits of ACI 117.
- C. Limit concrete surface irregularities, designated by ACI 347 as abrupt or gradual, as follows:
  - 1. Class A, 1/8 inch, tolerances for concrete surfaces exposed to view.
  - 2. Class C, 1/2 inch, tolerances for other concrete surfaces.
- D. Construct forms tight enough to prevent loss of concrete mortar.
- E. Fabricate forms for easy removal without hammering or prying against concrete surfaces. Provide crush or wrecking plates where stripping may damage cast concrete surfaces. Provide top forms for inclined surfaces steeper than 1.5 horizontal to 1 vertical.
  - 1. Install keyways, reglets, recesses, and the like, for easy removal.
  - 2. Do not use rust-stained steel form-facing material.
- F. Set edge forms, bulkheads, and intermediate screed strips for slabs to achieve required elevations and slopes in finished concrete surfaces. Provide and secure units to support screed strips; use strike-off templates or compacting-type screeds.
- G. Provide temporary openings for cleanouts and inspection ports where interior area of formwork is inaccessible before and during concrete placement. Securely brace temporary openings and set tightly to forms to prevent losing concrete mortar. Close openings with panels tightly fitted to forms and securely braced to prevent loss of concrete mortar. Locate temporary openings in forms at inconspicuous locations.
- H. Chamfer exterior corners and edges of exposed concrete, and where indicated on Contract Documents to produce uniform smooth lines and tight edge joints.
- I. Form openings, chases, offsets, sinkages, keyways, reglets, blocking, screeds, and bulkheads required in the Work. Determine sizes and locations from trades providing such items. Accurately place and securely support items built into forms.
- J. Clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt, and other debris just before placing concrete.
- K. Retighten forms and bracing before placing concrete, as required, to prevent mortar leaks and maintain proper alignment.
- L. Coat contact surfaces of forms with form-release agent, according to manufacturer's written instructions, before placing reinforcement.
- M. Do not allow excess form-coating material to accumulate in forms or come into contact with in-place concrete surfaces against which fresh concrete will be placed.

### **3.3 EMBEDDED ITEMS**

- A. Place and secure anchorage devices and other embedded items required for adjoining work that is attached to or supported by cast-in-place concrete. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
  - 1. Install anchor rods, accurately located, to elevations required and complying with tolerances in Section 7.5 of AISC's "Code of Standard Practice for Steel Buildings and Bridges."
  - 2. Install reglets to receive waterproofing and to receive through-wall flashings in outer face of concrete frame at exterior walls, where flashing is shown at lintels, shelf angles, and other conditions.
  - 3. Install dovetail anchor slots in concrete structures to receive masonry construction and as indicated in the Contract Documents.

### **3.4 REMOVING AND REUSING FORMS**

- A. General: Formwork not supporting weight of concrete, such as sides of beams, walls, columns, and similar parts of the Work may be removed after cumulatively curing at not less than 50 deg F for 24 hours after placing concrete. Concrete has to be hard enough to not be damaged by form-removal operations and curing and protection operations need to be maintained.
  - 1. Leave formwork supporting weight of concrete, such as beam soffits, joists, slabs, and other structural elements in place until concrete has achieved at least 80 percent of its 28-day design compressive strength.
  - 2. Formwork to remain in place for a minimum of 14 days.
  - 3. Determine compressive strength of in-place concrete by testing field cured test specimens representative of concrete location or members according to ACI 301.
- B. Clean and repair surfaces of forms to be reused in the Work. Split, frayed, delaminated, or otherwise damaged form-facing material will not be acceptable for exposed surfaces. Apply new form-release agent.
- C. When forms are reused, clean surfaces, remove fins and laitance, and tighten to close joints. Align and secure joints to avoid offsets. Do not use patched forms for exposed concrete surfaces unless approved by Architect and Engineer.

### **3.5 STEEL REINFORCEMENT**

- A. General: Comply with CRSI's "Manual of Standard Practice" for details and methods of reinforcement placement and supports and as specified.
  - 1. Do not cut or puncture vapor retarder. Repair damage and reseal vapor retarder before placing concrete.
- B. Clean reinforcement of loose rust and mill scale, earth, ice, and other foreign materials that would reduce bond to concrete.
- C. Accurately position, support, and secure reinforcement against displacement. Locate and support reinforcement with bar supports to maintain minimum concrete cover as indicated for in ACI 318. Do not tack weld crossing reinforcing bars.
  - 1. Weld reinforcing bars according to AWS D1.4/D 1.4M, where indicated.
- D. Set wire ties with ends directed into concrete, not toward exposed concrete surfaces.
- E. Install welded wire reinforcement in longest practicable lengths on supports spaced to minimize sagging. Lap edges and ends of adjoining sheets at least two full panels. Offset laps of adjoining sheet widths to prevent continuous laps in either direction. Lace overlaps with wire.

### **3.6 JOINTS**

- A. General: Construct joints true to line with faces perpendicular to surface plane of concrete.
- B. Construction Joints: Install so strength and appearance of concrete are not impaired, at locations indicated or as approved by Engineer.
  - 1. Place joints perpendicular to main reinforcement. Continue reinforcement across construction joints unless otherwise indicated.
  - 2. Provide formed keyways at least 1-1/2 inches deep by one-third the wall thickness in width in construction joints in walls, and between walls and footings.
  - 3. Locate horizontal joints in walls and columns as indicated on the Drawings or as approved by the Engineer.

4. Unless otherwise shown on the Drawings, walls shall have vertical construction joints located no more than 60 ft. apart. No vertical construction joint shall be within 4'-0" of any column pier, corner, or footing joint. Exposed foundation walls shall have control joints spaced at 20'-0" (maximum) on center between construction joints, unless otherwise noted.
  5. Use a bonding agent at locations where fresh concrete is placed against hardened or partially hardened concrete surfaces.
- C. Contraction (Control) Joints in Slabs-on-Grade: Provide contraction joints in slabs-on-grade to form panels of equal size. Use saw cuts 1/8 inch wide by one-fourth of slab depth.
1. Contraction joints shall be formed by saw cuts as soon as possible after slab finishing as may be safely done without dislodging aggregate.
  2. If joint pattern is not shown, provide joints not exceeding 15 ft. in each direction and located to conform to bay spacing whenever possible (at column centerlines, half bays, third bays).
- D. Isolation Joints in Slabs-on-Grade: After removing formwork, install joint-filler strips at slab junctions with vertical surfaces, such as column pedestals, foundation walls, grade beams, and other locations, as indicated.
1. Extend joint-filler strips full width and depth of joint, terminating flush with finished concrete surface unless otherwise indicated.
  2. Terminate full-width joint-filler strips not less than 1/2 inch or more than 1 inch below finished concrete surface where joint sealants, specified in Section 079200 "Joint Sealants," are indicated.
  3. Install joint-filler strips in lengths as long as practicable. Where more than one length is required, lace or clip sections together.
- E. Doweled Joints: Install smooth dowel bars and support assemblies at joints where indicated. Lubricate one-half of dowel length to prevent concrete bonding to one side of joint.

### **3.7 CONCRETE PLACEMENT**

- A. General: Comply with ACI 304, "Guide for Measuring, Mixing, Transporting, and Placing Concrete," and as specified.
- B. Before placing concrete, verify that installation of formwork, reinforcement, and embedded items is complete and that required inspections have been performed. Notify other trades to permit installation of their work.
- C. Do not add water to concrete during delivery, at Project site, or during placement.
- D. Deposit concrete continuously or in horizontal layers of such thickness that no new concrete will be placed on concrete that has hardened enough to cause seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as indicated. Deposit concrete to avoid segregation.
- E. Deposit concrete in forms in horizontal layers no deeper than 48 inches and in a manner to avoid inclined construction joints. Where placement consists of several layers, place each layer while preceding layer is still plastic, to avoid cold joints.
1. Deposit concrete in horizontal layers of depth to not exceed formwork design pressures and in a manner to avoid inclined construction joints.
  2. Consolidate placed concrete with mechanical vibrating equipment according to ACI 301.
  3. Do not use vibrators to transport concrete inside forms. Insert and withdraw vibrators vertically at uniformly spaced locations to rapidly penetrate placed layer and at least 6 inches into preceding layer. Do not insert vibrators into lower layers of concrete that have begun to set and lose plasticity. At each insertion, limit duration of vibration to time necessary to consolidate concrete and complete embedment of reinforcement and other embedded items without causing mixture constituents to segregate.
- F. Deposit and consolidate concrete for floors and slabs in a continuous operation, within limits of construction joints, until placement of a panel or section is complete.



1. Consolidate concrete during placement operations so concrete is thoroughly worked around reinforcement and other embedded items and into corners.
  2. Maintain reinforcement in position on chairs during concrete placement.
  3. Screed slab surfaces with a straightedge and strike off to correct elevations.
  4. Slope surfaces uniformly to drains where required.
  5. Begin initial floating using bull floats or darbies to form a uniform and open-textured surface plane, before excess bleedwater appears on the surface. Do not further disturb slab surfaces before starting finishing operations.
- G. Cold Weather Placement: Cold weather is defined as a period when for more than three consecutive days the average daily temperature is less than 40 deg F and the air temperature is not greater than 50 deg F for more than one-half of any 24-hour period. Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing actions, or low temperatures. Comply with ACI 306.1 and as indicated:
1. When air temperature has fallen to or is expected to fall below 40 deg F, uniformly heat water and aggregates before mixing to obtain a concrete mixture temperature of not less than 50 deg F and not more than 80 deg F at point of placement.
  2. Do not use frozen materials or materials containing ice or snow. Do not place concrete on frozen subgrade or on subgrade containing frozen materials.
  3. Do not use calcium chloride, salt, or other materials containing antifreeze agent or chemical.
  4. Slabs-on-Grade:
    - a. Concrete operations for slabs indicated above are to take place within a heated enclosure where the air temperature is maintained between 50 deg F and 85 deg F for a minimum of 24 hours prior to concrete placement and 72 hours after concrete placement. Ground surface is to be free of frost or frozen materials for slabs-on-grade.
  5. The subcontractor and the Owner's Inspection Agency are each to maintain independent records of the following information during cold weather:
    - a. For each section of concrete placed, record the date, time, outside air temperature, enclosure temperature, temperature of concrete during placement, weather conditions, and methods used to protect the concrete.
    - b. For each section of concrete placed, record the maximum and minimum temperature in each 24-hour period for 72 hours after the concrete is placed. Temperature readings are to be taken at the concrete surface or at three-inch-deep probes into the concrete. Temperature readings are to represent the severe conditions. Corners and edges of concrete are the most vulnerable to freezing and are to be considered the severe condition.
- H. Hot-Weather Placement: Place concrete according to recommendations in ACI 305R and as follows, when hot-weather conditions exist. Hot weather is any combination of high ambient temperature, high concrete temperature, low relative humidity, wind speed, or solar radiation that will impair the quality of freshly mixed or hardened concrete by accelerating the rate of moisture loss and rate of cement hydration.
1. Cool ingredients before mixing to maintain concrete temperature below 90 deg F at time of placement. Chilled mixing water or chopped ice may be used to control temperature, provided water equivalent of ice is calculated to total amount of mixing water. Using liquid nitrogen to cool concrete is Contractor' option.
  2. Cover steel reinforcement with water-soaked burlap so steel temperature will not exceed ambient air temperature immediately before embedding in concrete.
  3. Fog-spray forms, steel reinforcement, and subgrade just before placing concrete. Keep subgrade moisture uniform without standing water, soft spots, or dry areas.
  4. Use water-reducing retarding admixture when required by high temperatures, low humidity, or other adverse placing conditions, as acceptable to the Engineer.

### 3.8 FINISHING FORMED SURFACES

- A. Rough-Formed Finish: Provide a formed finish on formed concrete surfaces not exposed to view or concealed by other construction. Tie holes and defective areas are to be repaired and patched, and fins and other projections exceeding 1/4-inch in height rubbed down or chipped off.
- B. Smooth-Formed Finish: As-cast concrete texture imparted by form-facing material, arranged in an orderly and symmetrical manner with a minimum of seams. Repair and patch tie holes and defects. Remove and smooth fins and other projections completely.
  - 1. Apply to concrete surfaces exposed to view, or to be covered with a coating or covering material applied directly to concrete.
- C. Rubbed Finish: Apply the following to smooth-formed finished as-cast concrete:
  - 1. Smooth-Rubbed Finish: Provide smooth-rubbed finish on schedule concrete surfaces that have received smooth-formed finish treatment. Not later than one day after form removal, moisten concrete surfaces and rub with carborundum brick or another abrasive until producing a uniform color and texture. Do not apply cement grout other than that created by the rubbing process.
- D. Related Unformed Surfaces: At tops of walls, horizontal offsets, and similar unformed surfaces adjacent to formed surfaces, strike off smooth and finish with a texture matching adjacent formed surfaces. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces unless otherwise indicated.

### 3.9 FINISHING EXTERIOR EQUIPMENT PADS

- A. General: Comply with ACI 302.1R recommendations for screeding, restraightening, and finishing operations for concrete surfaces. Do not wet concrete surfaces. Finish slab to elevation indicated on Contract Documents.
- B. Float Finish: Consolidate surface with power-driven floats or by hand floating if area is small or inaccessible to power driven floats. Restraighten, cut down high spots, and fill low spots. Repeat float passes and restraightening until surface is left with a uniform, smooth, granular texture.
  - 1. Apply float finish to surfaces to receive broom finish.
- C. Broom Finish: Apply a broom finish to exterior concrete platforms and elsewhere as indicated, unless otherwise indicated on the Drawings.
  - 1. Immediately after float finishing, slightly roughen trafficked surface by brooming with fiber-bristle broom perpendicular to main traffic route. Coordinate required final finish with Architect before application.

### 3.10 MISCELLANEOUS CONCRETE ITEMS

- A. Filling In: Fill in holes and openings left in concrete structures for passage of work by other trades after work of other trades is in place unless otherwise indicated. Mix, place, and cure concrete, as specified, to blend with in-place construction. Provide other miscellaneous concrete filling indicated or required to complete the Work.
- B. Equipment Bases and Foundations: Provide machine and equipment bases and foundations as shown on Drawings. Set anchor bolts for machines and equipment at correct elevations, complying with diagrams or templates from manufacturer furnishing machines and equipment.

### 3.11 CONCRETE PROTECTING AND CURING

- A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with ACI 306.1 for cold-weather protection and ACI 301 for hot-weather protection during curing.

- B. Start initial curing as soon as free water has disappeared from concrete surface after placing and finishing. Weather permitting, keep continuously moist for not less than seven days.
- C. Evaporation Retarder: Apply evaporation retarder to unformed concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb/sq. ft. x h before and during finishing operations. Apply according to manufacturer's written instructions after placing, screeding, and bull floating or darbying concrete, but before float finishing.
- D. Curing Methods: Cure concrete by curing compound, by moisture curing, by moisture-retaining cover curing, or by combining these methods, as specified.
- E. Provide moisture curing by the following methods:
  - 1. Keep concrete surface continuously wet by covering with water.
  - 2. Use continuous water-fog spray.
  - 3. Cover concrete surface with specified absorptive cover, thoroughly saturate cover with water, and keep continuously wet. Place absorptive cover to provide coverage of concrete surfaces and edges, with a 4-inch lap over adjacent absorptive covers.
- F. Provide moisture-retaining curing as follows:
  - 1. Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width with sides and ends lapped at least 3 inches and sealed by waterproof tape or adhesive. Immediately repair any holes or tears during curing period using cover material and waterproof tape.
- G. Apply curing compound on all concrete not exposed to view, including slabs, unless otherwise noted.
- H. Curing Formed Surfaces: Cure formed concrete surfaces. If forms remain during curing period, moist cure if forms are loosened. If removing forms before end of curing period, continue curing for the remainder of the curing period.
- I. Curing Unformed Surfaces: Begin curing immediately after finishing concrete. Cure unformed surfaces, including floors and slabs, concrete floor toppings, and other surfaces.
- J. Cure concrete according to ACI 308.1, by one or a combination of the following methods:
  - 1. Moisture Curing and Moisture-Retaining Cover Curing:
    - a. Moisture cure or use moisture-retaining covers to cure all concrete surfaces exposed to view (including slabs) and concrete to receive a concrete topping. Do not use moisture-retaining covers to cure concrete exposed to view if concrete surface will be marred.
    - b. Moisture cure or use moisture-retaining covers to cure concrete surfaces to receive penetrating liquid floor treatments.
    - c. Cure concrete surfaces not exposed to view and concrete surfaces to receive floor coverings with either a moisture-retaining cover or a curing compound that the manufacturer certifies will not interfere with bonding of floor covering used on Project.
  - 2. Curing Compound:
    - a. Apply curing compound to concrete surfaces as soon as final finishing operations are complete (within two hours and after surface water sheen has disappeared). Apply uniformly in continuous operation by power spray or roller according to manufacturer's directions. Recoat areas subject to heavy rainfall within three hours after initial application. Maintain continuity of coating and repair damage during curing period.
    - b. Use membrane curing compounds that will not affect surfaces to be covered with finish materials applied directly to concrete.

- K. Contractor to coordinate and verify that all curing methods and materials are compatible with architectural finishes. Submit appropriate data for review.
- L. Cure all grout in accordance with the manufacturer's requirements.

**3.12 JOINT FILLING**

- A. Prepare, clean, and install joint filler according to manufacturer's written instructions.
- B. Remove dirt, debris, saw cuttings, curing compounds, and sealers from joints; leave contact faces of joint clean and dry.

**3.13 CONCRETE SURFACE REPAIRS**

- A. Patching Defective Concrete: Repair and patch defective areas immediately after removing forms when approved by Architect/Engineer. Remove and replace concrete that cannot be repaired and patched to Architect's/Engineer's approval.
- B. Patching Mortar: Mix dry-pack patching mortar, consisting of one part portland cement to two and one-half parts fine aggregate passing a No. 16 sieve, using only enough water for handling and placing.
- C. Repairing Formed Surfaces: Surface defects include color and texture irregularities, cracks, spalls, air bubbles, honeycombs, rock pockets, fins and other projections on the surface, and stains and other discolorations that cannot be removed by cleaning. Remove and replace concrete having defective surfaces if defects cannot be repaired to the satisfaction of the Engineer.
  - 1. Immediately after form removal, cut out honeycombs, rock pockets, holes left by tie rods and bolts, and voids more than 1/4 inch in any dimension to solid concrete. Limit cut depth to 3/4 inch. Make edges of cuts perpendicular to concrete surface. Clean, dampen with water, and brush-coat holes and voids with bonding agent. Fill and compact with patching mortar before bonding agent has dried. Fill form-tie voids with patching mortar or cone plugs secured in place with bonding agent.
  - 2. Repair defects on surfaces exposed to view by blending white portland cement and standard portland cement so that, when dry, patching mortar will match surrounding color. Patch a test area at inconspicuous locations to verify mixture and color match before proceeding with patching. Compact mortar in place and strike off slightly higher than surrounding surface.
  - 3. Repair defects on concealed formed surfaces that affect concrete's durability and structural performance as determined by Architect/Engineer. If defects cannot be repaired to the satisfaction of the Engineer, remove and replace the concrete.
- D. Repairing Unformed Surfaces: Test unformed surfaces, such as floors and slabs, for finish and verify surface tolerances specified for each surface. Correct low and high areas. Test surfaces sloped to drain for trueness of slope and smoothness; use a sloped template.
  - 1. Repair finished surfaces containing defects. Surface defects include spalls, popouts, honeycombs, rock pockets, crazing and cracks in excess of 0.01 inch wide or that penetrate to reinforcement or completely through unreinforced sections regardless of width, and other objectionable conditions.
  - 2. After concrete has cured at least 14 days, correct high areas by grinding.
  - 3. Correct localized low areas during or immediately after completing surface finishing operations by cutting out low areas and replacing with patching mortar. Finish repaired areas to blend into adjacent concrete.
  - 4. Correct other low areas scheduled to receive floor coverings with a repair underlayment when acceptable to the Engineer. Prepare, mix, and apply repair underlayment and primer according to manufacturer's written instructions to produce a smooth, uniform, plane, and level surface. Feather edges to match adjacent floor elevations.
  - 5. Correct other low areas scheduled to remain exposed with a repair topping when acceptable to the Engineer. Cut out low areas to ensure a minimum repair topping depth of 1/4 inch to match adjacent floor elevations. Prepare, mix, and apply repair topping and primer according to manufacturer's written instructions to produce a smooth, uniform, plane, and level surface.
  - 6. Repair defective areas, except random cracks and single holes 1 inch or less in diameter, by cutting out and replacing with fresh concrete. Remove defective areas with clean, square cuts and

expose steel reinforcement with at least a 3/4-inch clearance all around. Dampen concrete surfaces in contact with patching concrete and apply bonding agent. Mix patching concrete of same materials and mixture as original concrete except without coarse aggregate. Place, compact, and finish to blend with adjacent finished concrete. Cure in same manner as adjacent concrete.

7. Repair random cracks and single holes 1 inch or less in diameter with patching mortar when acceptable to the Engineer. Groove top of cracks and cut out holes to sound concrete and clean off dust, dirt, and loose particles. Dampen cleaned concrete surfaces and apply bonding agent. Place patching mortar before bonding agent has dried. Compact patching mortar and finish to match adjacent concrete. Keep patched area continuously moist for at least 72 hours.
- E. Perform structural repairs of concrete, subject to Architect's/Engineer's approval for method and procedure, using epoxy adhesive and patching mortar.
- F. Repair materials and installation not specified above may be used, subject to Architect's/Engineer's approval.

### **3.14 ADHESIVE ANCHORING**

- A. All adhesive anchoring to be performed in accordance with the manufacturer's recommendations.
- B. Drill appropriate sized hole to the required depth with rotary hammer drill and/or carbide drill bit.
- C. Clean hole of all dust, debris and standing water with a nylon brush and compressed air.
- D. Prepare adhesive in accordance with the manufacturer's requirements and follow required procedures for placement during cold weather applications.
- E. Check initial adhesive color with provided color chart.
- F. Inject adhesive into base of hole. Provide dosage control screens for overhead applications.
- G. Install threaded anchor or reinforcing. Adhesive is to coat the entire length of hole and insert.
- H. All adhesive to set prior to disturbing insert.

### **3.15 FIELD QUALITY CONTROL**

- A. Testing and Inspecting: Owner will engage a special inspector and qualified testing and inspecting agency to perform field tests and inspections and prepare test reports.
- B. Concrete Tests: Testing of composite samples of fresh concrete obtained according to ASTM C 172 shall be performed according to the following requirements:
  1. Testing Frequency: Obtain one composite sample for each day's pour of each concrete mixture, plus one set for each additional 50 cu. yd. or fraction thereof.
    - a. When frequency of testing will provide fewer than five compressive-strength tests for each concrete mixture, testing shall be conducted from at least five randomly selected batches or from each batch if fewer than five are used.
  2. The Contractor shall notify the Owner's inspection agency 24 hours prior to placing concrete to inspect secured reinforcing. No concrete shall be placed until reinforcing has been inspected by the Owner's testing and inspection agency.
  3. When concrete is pumped, test cylinders shall be made from concrete taken at discharge end of the pumping train.
  4. Slump: ASTM C 143/C 143M; one test at point of placement for each composite sample, but not less than one test for each day's pour of each concrete mixture. Perform additional tests when concrete consistency appears to change.

5. Air Content: ASTM C 231, pressure method, for normal-weight concrete; one test for each composite sample at point of placement, but not less than one test for each day's pour of each concrete mixture. First truck to be tested of each placement. If first truck does not meet project requirements, test each additional truckload until two passing results are obtained.
  6. Concrete Temperature: ASTM C 1064/C 1064M; one test hourly when air temperature is 40 deg F and below and when 80 deg F and above, and one test for each composite sample.
  7. Unit Weight: ASTM C 567, fresh unit weight of structural lightweight concrete; one test for each composite sample, but not less than one test for each day's pour of each concrete mixture.
  8. Compression Test Specimens: ASTM C 31/C 31M.
    - a. Cast and laboratory cure one set of four standard cylinder specimens for each composite sample, unless otherwise directed.
    - b. Provide one set of field cured cylinders for each concrete type for any days that are less than or expected to be less than 40 deg. F within 24 hours after concrete placement. Field cured cylinders to be cured under the same conditions and temperatures as the cast-in-place concrete.
  9. Compressive-Strength Tests: ASTM C 39/C 39M; test one specimen at 7 days and two specimens at 28 days, and one specimen retained in reserve for later testing if required.
    - a. Test field-cured specimens as indicated for laboratory cured specimens.
  10. When strength of field-cured cylinders is less than 85 percent of companion laboratory-cured cylinders, Contractor shall evaluate operations and provide corrective procedures for protecting and curing in-place concrete.
  11. Strength of each concrete mixture will be considered satisfactory if every average of any three consecutive compressive-strength tests equals or exceeds specified compressive strength and no compressive-strength test value falls below specified compressive strength by more than 500 psi.
  12. Test results shall be reported in writing to Structural Engineer, Architect, concrete manufacturer, and Contractor within 24 hours of testing. Reports of compressive-strength tests shall contain Project identification name and number, date of concrete placement, name of concrete testing and inspecting agency, location of concrete batch in Work, design compressive strength at 28 days, concrete mixture proportions and materials, compressive breaking strength, and type of break for both 7- and 28-day tests.
  13. Nondestructive Testing: Impact hammer, sonoscope, or other nondestructive device may be permitted by Engineer but will not be used as sole basis for approval or rejection of concrete.
  14. Additional Tests: Testing and inspecting agency shall make additional tests of concrete when test results indicate that slump, air entrainment, compressive strengths, or other requirements have not been met, as directed by Engineer. Testing and inspecting agency may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C 42/C 42M or by other methods as directed by Engineer.
  15. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.
  16. Correct deficiencies in the Work that test reports and inspections indicate do not comply with the Contract Documents.
- C. Inspection of Adhesive Anchoring:
1. Testing agency shall randomly review anchoring procedures to verify conformance with manufacturer's installation requirements. Witness approximately 25 percent of total. The percentage of adhesive anchoring witnessed may be modified by the Structural Engineer of Record, depending upon initial results.

**END OF SECTION 03 31 00**

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**SECTION 04 22 00 – CONCRETE MASONRY UNITS**

**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 SECTION INCLUDES**

- A. Concrete masonry units.
- B. Mortar and grout.
- C. Masonry joint reinforcement.
- D. Miscellaneous masonry accessories.

**1.3 RELATED SECTIONS**

- A. Section 05 50 00 - Metal Fabrications: Furnishing steel lintels for unit masonry.

**1.4 DEFINITIONS**

- A. CMU(s): Concrete masonry unit(s).

**1.5 PERFORMANCE REQUIREMENTS**

- A. Provide structural unit masonry that develops indicated net-area compressive strengths at 28 days.
  - 1. Determine net-area compressive strength of masonry from average net-area compressive strengths of masonry units and mortar types (unit-strength method) according to Tables 1 and 2 in ACI 530.1/ASCE 6/TMS 602.

**1.6 PRECONSTRUCTION TESTING**

- A. Preconstruction Testing Service: Owner will engage a qualified independent testing agency to perform preconstruction testing indicated below. Retesting of materials that fail to comply with specified requirements shall be done at Contractor's expense.
  - 1. Concrete Masonry Unit Test: For each type of unit required, according to ASTM C140 for compressive strength.



2. Mortar Test (Property Specification): For each mix required, according to ASTM C109 for compressive strength, ASTM C1506 for water retention, and ASTM C91 for air content.
3. Mortar Test (Property Specification): For each mix required, according to ASTM C780 for compressive strength.
4. Grout Test (Compressive Strength): For each mix required, according to ASTM C1019.

### **1.7 ACTION SUBMITTALS**

- A. Submit under provisions of Section 01 33 00.
- B. Product Data: For each type of product indicated.
- C. Shop Drawings: For the following:
  1. Masonry Units: Show sizes, profiles, coursing, and locations of special shapes.
- D. Samples for Verification: For each type and color of the following:
  1. Decorative CMUs.
  2. Pre-faced CMUs.

### **1.8 INFORMATIONAL SUBMITTALS**

- A. Submit under provisions of Section 01 33 00.
- B. List of Materials Used in Constructing Mockups: List generic product names together with manufacturers, manufacturers' product names, model numbers, lot numbers, batch numbers, source of supply, and other information as required to identify materials used. Include mix proportions for mortar and grout and source of aggregates.
  1. Submittal is for information only. Neither receipt of list nor approval of mockup constitutes approval of deviations from the Contract Documents unless such deviations are specifically brought to the attention of Architect and approved in writing.
- C. Qualification Data: For testing agency.
- D. Material Certificates: For each type and size of the following:
  1. Masonry units.
    - a. Include material test reports substantiating compliance with requirements.
    - b. For masonry units used in structural masonry, include data and calculations establishing average net-area compressive strength of units.
  2. Cementitious materials. Include brand, type, and name of manufacturer.
  3. Preblended, dry mortar mixes. Include description of type and proportions of ingredients.
  4. Grout mixes. Include description of type and proportions of ingredients.

- 5. Joint reinforcement.
  
- E. Mix Designs: For each type of mortar and grout. Include description of type and proportions of ingredients.
  - 1. Include test reports for mortar mixes required to comply with property specification. Test according to ASTM C109 for compressive strength, ASTM C1506 for water retention, and ASTM C91 for air content.
  - 2. Include test reports, according to ASTM C1019, for grout mixes required to comply with compressive strength requirement.
  
- F. Statement of Compressive Strength of Masonry: For each combination of masonry unit type and mortar type, provide statement of average net-area compressive strength of masonry units, mortar type, and resulting net-area compressive strength of masonry determined according to Tables 1 and 2 in ACI 530.1/ASCE 6/TMS 602.
  
- G. Cold-Weather and Hot-Weather Procedures: Detailed description of methods, materials, and equipment to be used to comply with requirements.

#### **1.9 QUALITY ASSURANCE**

- A. Source Limitations for Masonry Units: Obtain exposed masonry units of a uniform texture and color, or a uniform blend within the ranges accepted for these characteristics, from single source from single manufacturer for each product required.
  
- B. Source Limitations for Mortar Materials: Obtain mortar ingredients of a uniform quality, including color for exposed masonry, from single manufacturer for each cementitious component and from single source or producer for each aggregate.
  
- C. Masonry Standard: Comply with ACI 530.1/ASCE 6/TMS 602 unless modified by requirements in the Contract Documents.

#### **1.10 DELIVERY, STORAGE AND HANDLING**

- A. Store masonry units on elevated platforms in a dry location. If units are not stored in an enclosed location, cover tops and sides of stacks with waterproof sheeting, securely tied. If units become wet, do not install until they are dry.
  
- B. Store cementitious materials on elevated platforms, under cover, and in a dry location. Do not use cementitious materials that have become damp.
  
- C. Store aggregates where grading and other required characteristics can be maintained and contamination avoided.
  
- D. Deliver preblended, dry mortar mix in moisture-resistant containers designed for use with dispensing silos. Store preblended, dry mortar mix in delivery containers on elevated platforms, under cover, and in a dry location or in covered weatherproof dispensing silos.
  
- E. Store masonry accessories, including metal items, to prevent corrosion and accumulation of dirt and oil.

**1.11 PROJECT CONDITIONS**

- A. Cold-Weather Requirements: Do not use frozen materials or materials mixed or coated with ice or frost. Do not build on frozen substrates. Remove and replace unit masonry damaged by frost or by freezing conditions. Comply with cold-weather construction requirements contained in ACI 530.1/ASCE 6/TMS 602.
  - 1. Cold-Weather Cleaning: Use liquid cleaning methods only when air temperature is 40 degrees F and higher and will remain so until masonry has dried, but not less than seven (7) days after completing cleaning.
- B. Hot-Weather Requirements: Comply with hot-weather construction requirements contained in ACI 530.1/ASCE 6/TMS 602.

**PART 2 - PRODUCTS**

**2.1 MASONRY UNITS, GENERAL**

- A. Defective Units: Referenced masonry unit standards may allow a certain percentage of units to contain chips, cracks, or other defects exceeding limits stated in the standard. Do not use units where such defects will be exposed in the completed Work.
- B. Fire-Resistance Ratings: Where indicated, provide units that comply with requirements for fire-resistance ratings indicated as determined by testing according to ASTM E119, by equivalent masonry thickness, or by other means, as acceptable to authorities having jurisdiction.

**2.2 CONCRETE MASONRY UNITS**

- A. Shapes: Provide shapes indicated and as follows, with exposed surfaces matching exposed faces of adjacent units unless otherwise indicated.
  - 1. Provide special shapes for lintels, corners, jambs, sashes, movement joints, headers, bonding, and other special conditions.
  - 2. Provide –radius edged units for outside corners unless otherwise indicated.
- B. CMUs: ASTM C90.
  - 1. Unit Compressive Strength: Provide units with minimum average net-area compressive strength of 1900 psi.
  - 2. Density Classification: Light weight unless otherwise indicated.
  - 3. Size (Width): Manufactured to dimensions 3/8-inch less than nominal dimensions.
  - 4. Exposed Faces: Provide color and texture matching the range represented by Architect's sample.
- C. Concrete Masonry Unit Bond Beams: ASTM C90.

1. Prefabricated masonry units made from knock-out bond beam CMUs allowing vertical and horizontal reinforcing bars to be placed as indicated on drawings and filled with coarse grout.

### **2.3 MORTAR AND GROUT MATERIALS**

- A. Portland Cement: ASTM C150, Type I or II, except Type III may be used for cold-weather construction. Provide natural color or white cement as required to produce mortar color indicated.
- B. Hydrated Lime: ASTM C207, Type S.
- C. Portland Cement-Lime Mix: Packaged blend of portland cement and hydrated lime containing no other ingredients.
- D. Aggregate for Mortar: ASTM C144.
  1. For mortar that is exposed to view, use washed aggregate consisting of natural sand or crushed stone.
- E. Aggregate for Grout: ASTM C404.
- F. Cold-Weather Admixture: Non-chloride, noncorrosive, accelerating admixture complying with ASTM C494, Type C, and recommended by manufacturer for use in masonry mortar of composition indicated.
  1. Products: Subject to compliance with requirements, provide one (1) of the following:
    - a. Euclid Chemical Company (The); Accelguard 80.
    - b. Grace Construction Products, W. R. Grace & Co. - Conn.; Morset.
    - c. Sonneborn Products, BASF Aktiengesellschaft; Trimix-NCA.
- G. Water: Potable.

### **2.4 REINFORCEMENT**

- A. Uncoated Steel Reinforcing Bars: ASTM A615 or ASTM A996, Grade 60.
- B. Masonry Joint Reinforcement, General: ASTM A951.
  1. Interior Walls: Hot-dip galvanized, carbon steel.
  2. Wire Size for Side Rods: 0.148-inch diameter.
  3. Wire Size for Cross Rods: 0.148-inch diameter.
  4. Spacing of Cross Rods, Tabs, and Cross Ties: Not more than 16 inches o.c.
  5. Provide in lengths of not less than 10 feet, with prefabricated corner and tee units.
- C. Masonry Joint Reinforcement for Single-Wythe Masonry: Ladder type with single pair of side rods.
  - a. Manufacturer and Product:
    - 1) Hohmann & Barnard:Lox-All Reinforcement Ladder Type #220 Ladder Mesh.
    - 2) Dur-O-Wall: Single Wythe Systems #DA3200 Ladur.

- 3) Wire-Bond: Ladder Type Series 200- 2 Wire System.

## **2.5 MISCELLANEOUS MASONRY ACCESSORIES**

- A. Compressible Filler: Premolded filler strips complying with ASTM D1056, Grade 2A1; compressible up to 35 percent; of width and thickness indicated; formulated from neoprene.
- B. Preformed Control-Joint Gaskets: Made from styrene-butadiene-rubber compound, complying with ASTM D2000, Designation M2AA-805 or PVC, complying with ASTM D 2287, Type PVC-65406 and designed to fit standard sash block and to maintain lateral stability in masonry wall; size and configuration as indicated.
- C. Bond-Breaker Strips: Asphalt-saturated, organic roofing felt complying with ASTM D226, Type I (No. 15 asphalt felt).

## **2.6 MASONRY CLEANERS**

- A. Proprietary Acidic Cleaner: Manufacturer's standard-strength cleaner designed for removing mortar/grout stains, efflorescence, and other new construction stains from new masonry without discoloring or damaging masonry surfaces. Use product expressly approved for intended use by cleaner manufacturer and manufacturer of masonry units being cleaned.
  - 1. Manufacturers: Subject to compliance with requirements, provide products by one (1) of the following:
    - a. Diedrich Technologies, Inc.
    - b. EaCo Chem, Inc.
    - c. ProSoCo, Inc.

## **2.7 MORTAR AND GROUT MIXES**

- A. General: Do not use admixtures, including pigments, air-entraining agents, accelerators, retarders, water-repellent agents, antifreeze compounds, or other admixtures, unless otherwise indicated.
  - 1. Do not use calcium chloride in mortar or grout.
  - 2. Use masonry cement mortar unless otherwise indicated.
  - 3. Add cold-weather admixture (if used) at same rate for all mortar that will be exposed to view, regardless of weather conditions, to ensure that mortar color is consistent.
- B. Preblended, Dry Mortar Mix: Furnish dry mortar ingredients in form of a preblended mix. Measure quantities by weight to ensure accurate proportions, and thoroughly blend ingredients before delivering to project site.
- C. Mortar for Unit Masonry: Comply with ASTM C270, Property Specification. Provide the following types of mortar for applications stated unless another type is indicated or needed to provide required compressive strength of masonry].
  - 1. For masonry below grade or in contact with earth, use Type S.
  - 2. For reinforced masonry, use Type S.
  - 3. For mortar parge coats, use Type S.

4. For exterior, above-grade, load-bearing and non-load-bearing walls and parapet walls; for interior load-bearing walls; for interior non-load-bearing partitions; and for other applications where another type is not indicated, use Type S.
  5. For interior non-load-bearing partitions, Type O may be used instead of Type S.
- D. Grout for Unit Masonry: Comply with ASTM C476.
1. Use grout of type indicated or, if not otherwise indicated, of type (fine or coarse) that will comply with Table 1.15.1 in ACI 530.1/ASCE 6/TMS 602 for dimensions of grout spaces and pour height.
  2. Proportion grout in accordance with ASTM C476, Table 1 or paragraph 4.2.2 for specified 28-day compressive strength indicated, but not less than 2000 psi.
  3. Provide grout with a slump of 8 to 11 inches as measured according to ASTM C143.

### **PART 3 - EXECUTION**

#### **3.1 EXAMINATION**

- A. Examine conditions, with installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
1. For the record, prepare written report, endorsed by installer, listing conditions detrimental to performance of work.
  2. Verify that reinforcing dowels are properly placed.
- B. Before installation, examine rough-in and built-in construction for piping systems to verify actual locations of piping connections.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

#### **3.2 INSTALLATION, GENERAL**

- A. Thickness: Build single-wythe walls to actual widths of masonry units, using units of widths indicated.
- B. Build chases and recesses to accommodate items specified in this and other sections.
- C. Leave openings for equipment to be installed before completing masonry. After installing equipment, complete masonry to match the construction immediately adjacent to opening.
- D. Use full-size units without cutting if possible. If cutting is required to provide a continuous pattern or to fit adjoining construction, cut units with motor-driven saws; provide clean, sharp, unchipped edges. Allow units to dry before laying unless wetting of units is specified. Install cut units with cut surfaces and, where possible, cut edges concealed.
- E. Select and arrange units for exposed unit masonry to produce a uniform blend of colors and textures.
1. Mix units from several pallets or cubes as they are placed.

### 3.3 TOLERANCES

#### A. Dimensions and Locations of Elements:

1. For dimensions in cross section or elevation do not vary by more than plus 1/2-inch or minus 1/4-inch.
2. For location of elements in plan do not vary from that indicated by more than plus or minus 1/2-inch.
3. For location of elements in elevation do not vary from that indicated by more than plus or minus 1/4-inch in a story height or 1/2-inch total.

#### B. Lines and Levels:

1. For bed joints and top surfaces of bearing walls do not vary from level by more than 1/4-inch in 10 feet, or 1/2-inch maximum.
2. For conspicuous horizontal lines, such as lintels, sills, parapets, and reveals, do not vary from level by more than 1/8-inch in 10 feet, 1/4-inch in 20 feet, or 1/2-inch maximum.
3. For vertical lines and surfaces do not vary from plumb by more than 1/4-inch in 10 feet, 3/8-inch in 20 feet, or 1/2-inch maximum.
4. For conspicuous vertical lines, such as external corners, door jambs, reveals, and expansion and control joints, do not vary from plumb by more than 1/8-inch in 10 feet, 1/4-inch in 20 feet, or 1/2-inch maximum.
5. For lines and surfaces do not vary from straight by more than 1/4-inch in 10 feet, 3/8-inch in 20 feet, or 1/2-inch maximum.
6. For vertical alignment of exposed head joints, do not vary from plumb by more than 1/4-inch in 10 feet, or 1/2-inch maximum.
7. For faces of adjacent exposed masonry units, do not vary from flush alignment by more than 1/16-inch except due to warpage of masonry units within tolerances specified for warpage of units.

#### C. Joints:

1. For bed joints, do not vary from thickness indicated by more than plus or minus 1/8-inch, with a maximum thickness limited to 1/2-inch.
2. For exposed bed joints, do not vary from bed-joint thickness of adjacent courses by more than 1/8-inch.
3. For head and collar joints, do not vary from thickness indicated by more than plus 3/8-inch or minus 1/4-inch.
4. For exposed head joints, do not vary from thickness indicated by more than plus or minus 1/8-inch.
5. For exposed bed joints and head joints of stacked bond, do not vary from a straight line by more than 1/16-inch from one (1) masonry unit to the next.

### **3.4 LAYING MASONRY WALLS**

- A. Lay out walls in advance for accurate spacing of surface bond patterns with uniform joint thicknesses and for accurate location of openings, movement-type joints, returns, and offsets. Avoid using less-than-half-size units, particularly at corners, jambs, and, where possible, at other locations.
- B. Bond Pattern for Exposed Masonry: Unless otherwise indicated, lay exposed masonry in running bond do not use units with less than nominal 4-inch horizontal face dimensions at corners or jambs.
- C. Lay concealed masonry with all units in a wythe in running bond or bonded by lapping not less than four (4) inches. Bond and interlock each course of each wythe at corners. Do not use units with less than nominal 4-inch horizontal face dimensions at corners or jambs.
- D. Stopping and Resuming Work: Stop work by racking back units in each course from those in course below; do not tooth. When resuming work, clean masonry surfaces that are to receive mortar, remove loose masonry units and mortar, and wet brick if required before laying fresh masonry.
- E. Built-in Work: As construction progresses, build in items specified in this and other sections. Fill in solidly with masonry around built-in items.
- F. Fill space between steel frames and masonry solidly with mortar unless otherwise indicated.
- G. Where built-in items are to be embedded in cores of hollow masonry units, place a layer of metal lath, wire mesh, or plastic mesh in the joint below and rod mortar or grout into core.
- H. Fill cores in hollow CMUs with grout 24 inches under bearing plates, beams, lintels, posts, and similar items unless otherwise indicated.
- I. Build non-load-bearing interior partitions full height of story to underside of solid floor or roof structure above unless otherwise indicated.
  - 1. Install compressible filler in joint between top of partition and underside of structure above.
  - 2. Fasten partition top anchors to structure above and build into top of partition. Grout cells of CMUs solidly around plastic tubes of anchors and push tubes down into grout to provide 1/2-inch clearance between end of anchor rod and end of tube. Space anchors 48 inches o.c. unless otherwise indicated.
  - 3. At fire-rated partitions, treat joint between top of partition and underside of structure above to comply with Section 07 84 46.

### **3.5 MORTAR BEDDING AND JOINTING**

- A. Lay hollow brick and CMUs as follows:
  - 1. With face shells fully bedded in mortar and with head joints of depth equal to bed joints.
  - 2. With webs fully bedded in mortar in all courses of piers, columns, and pilasters.
  - 3. With webs fully bedded in mortar in grouted masonry, including starting course on footings.



4. With entire units, including areas under cells, fully bedded in mortar at starting course on footings where cells are not grouted.
- B. Lay solid masonry units with completely filled bed and head joints; butter ends with sufficient mortar to fill head joints and shove into place. Do not deeply furrow bed joints or slush head joints.
- C. Tool exposed joints slightly concave when thumbprint hard, using a jointer larger than joint thickness unless otherwise indicated.
- D. Cut joints flush for masonry walls to receive plaster or other direct-applied finishes (other than paint) unless otherwise indicated.

### **3.6 MASONRY JOINT REINFORCEMENT**

- A. General: Install entire length of longitudinal side rods in mortar with a minimum cover of 5/8-inch on exterior side of walls, 1/2-inch elsewhere. Lap reinforcement a minimum of six (6) inches.
  1. Space reinforcement not more than 16 inches o.c.
  2. Space reinforcement not more than eight (8) inches o.c. in foundation walls and parapet walls.
  3. Provide reinforcement not more than eight (8) inches above and below wall openings and extending 12 inches beyond openings in addition to continuous reinforcement.
- B. Interrupt joint reinforcement at control and expansion joints unless otherwise indicated.
- C. Provide continuity at wall intersections by using prefabricated T-shaped units.
- D. Provide continuity at corners by using prefabricated L-shaped units.
- E. Cut and bend reinforcing units as directed by manufacturer for continuity at returns, offsets, column fireproofing, pipe enclosures, and other special conditions.

### **3.7 CONTROL AND EXPANSION JOINTS**

- A. General: Install control and expansion joint materials in unit masonry as masonry progresses. Do not allow materials to span control and expansion joints without provision to allow for in-plane wall or partition movement.
- B. Form control joints in concrete masonry using one (1) of the following methods:
  1. Fit bond-breaker strips into hollow contour in ends of CMUs on one (1) side of control joint. Fill resultant core with grout and rake out joints in exposed faces for application of sealant.
  2. Install preformed control-joint gaskets designed to fit standard sash block.
- C. Form expansion joints in brick as follows:
  1. Form open joint full depth of brick wythe and of width indicated, but not less than 3/8-inch for installation of sealant and backer rod specified in Section 07 92 00.

### **3.8 LINTELS**

- A. Install steel lintels where indicated.
- B. Provide masonry lintels where shown and where openings of more than 12 inches for brick-size units and 24 inches for block-size units are shown without structural steel or other supporting lintels.
- C. Provide minimum bearing of eight (8) inches at each jamb unless otherwise indicated.

### **3.9 FIELD QUALITY CONTROL**

- A. Testing and Inspecting: Owner will engage special inspectors to perform tests and inspections and prepare reports. Allow inspectors access to scaffolding and work areas, as needed to perform tests and inspections. Retesting of materials that fail to comply with specified requirements shall be done at Contractor's expense.
- B. Inspections: Level 1 special inspections according to the "International Building Code."
  - 1. Begin masonry construction only after inspectors have verified proportions of site-prepared mortar.
  - 2. Place grout only after inspectors have verified compliance of grout spaces and of grades, sizes, and locations of reinforcement.
  - 3. Place grout only after inspectors have verified proportions of site-prepared grout.
- C. Testing Prior to Construction: One (1) set of tests.
- D. Testing Frequency: One (1) set of tests for each 5000 sq ft of wall area or portion thereof.
- E. Concrete Masonry Unit Test: For each type of unit provided, according to ASTM C140 for compressive strength.
- F. Mortar Test (Property Specification): For each mix provided, according to ASTM C780. Test mortar for mortar air content and compressive strength.
- G. Grout Test (Compressive Strength): For each mix provided, according to ASTM C1019.

### **3.10 REPAIRING, POINTING, AND CLEANING**

- A. Remove and replace masonry units that are loose, chipped, broken, stained, or otherwise damaged or that do not match adjoining units. Install new units to match adjoining units; install in fresh mortar, pointed to eliminate evidence of replacement.
- B. Pointing: During the tooling of joints, enlarge voids and holes, except weep holes, and completely fill with mortar. Point up joints, including corners, openings, and adjacent construction, to provide a neat, uniform appearance. Prepare joints for sealant application, where indicated.
- C. In-Progress Cleaning: Clean unit masonry as work progresses by dry brushing to remove mortar fins and smears before tooling joints.
- D. Final Cleaning: After mortar is thoroughly set and cured, clean exposed masonry as follows:

1. Remove large mortar particles by hand with wooden paddles and nonmetallic scrape hoes or chisels.
2. Test cleaning methods on sample wall panel; leave one-half of panel uncleaned for comparison purposes. Obtain Architect's approval of sample cleaning before proceeding with cleaning of masonry.
3. Protect adjacent stone and non-masonry surfaces from contact with cleaner by covering them with liquid strippable masking agent or polyethylene film and waterproof masking tape.
4. Wet wall surfaces with water before applying cleaners; remove cleaners promptly by rinsing surfaces thoroughly with clear water.
5. Clean concrete masonry by cleaning method indicated in NCMA TEK 8-2A applicable to type of stain on exposed surfaces.

**3.11 MASONRY WASTE DISPOSAL**

- A. Salvageable Materials: Unless otherwise indicated, excess masonry materials are Contractor's property. Recycle excess masonry materials in accordance with Section 01 74 19.
- B. Excess Masonry Waste: Remove excess clean masonry waste that cannot be used as fill, as described above, and other masonry waste, and legally dispose of off Owner's property.

**END OF SECTION – 04 22 00**

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**SECTION 05 50 00 - METAL FABRICATIONS**

**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. Modifications to existing steel framing and supports for ceiling-hung toilet compartments.
  2. Modifications to existing steel framing and supports for toilet room lavatory countertops.
  3. Steel tube reinforcement for low partitions.
  4. Steel framing and supports for mechanical and electrical equipment.
  5. Steel framing and supports for applications where framing and supports are not specified in other Sections.
- B. Products furnished, but not installed, under this Section include the following:
1. Loose steel lintels
  2. Counter and ADA bench support brackets.
  3. Vanity support brackets.
- C. Related Requirements:
1. Section 04 22 00 "Concrete Masonry Units" for installing loose lintels, anchor bolts, and other items built into unit masonry.

**1.3 COORDINATION**

- A. Coordinate selection of shop primers with topcoats to be applied over them. Comply with paint and coating manufacturers' written recommendations to ensure that shop primers and topcoats are compatible with one another.
- B. Coordinate installation of metal fabrications that are anchored to or that receive other work. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.

**1.4 ACTION SUBMITTALS**

- A. Shop Drawings: Show fabrication and installation details. Include plans, elevations, sections, and details of metal fabrications and their connections. Show anchorage and accessory items. Provide Shop Drawings for the following:
1. Modifications to existing steel framing and supports for ceiling-hung toilet compartments.
  2. Modifications to existing steel framing and supports for countertops.
  3. Steel tube reinforcement for low partitions.
  4. Steel framing and supports for mechanical and electrical equipment.

5. Steel framing and supports for applications where framing and supports are not specified in other Sections.

### **1.5 QUALITY ASSURANCE**

- A. Welding Qualifications: Qualify procedures and personnel according to AWS D1.1/D1.1M, "Structural Welding Code - Steel."

### **1.6 FIELD CONDITIONS**

- A. Field Measurements: Verify actual locations of walls and other construction contiguous with metal fabrications by field measurements before fabrication.

## **PART 2 - PRODUCTS**

### **2.1 METALS**

- A. Metal Surfaces, General: Provide materials with smooth, flat surfaces unless otherwise indicated. For metal fabrications exposed to view in the completed Work, provide materials without seam marks, roller marks, rolled trade names, or blemishes.
- B. Steel Plates, Shapes, and Bars: ASTM A 36/A 36M.
- C. Steel Tubing: ASTM A 500/A 500M, cold-formed steel tubing.
- D. Steel Pipe: ASTM A 53/A 53M, Standard Weight (Schedule 40) unless otherwise indicated.
- E. Slotted Channel Framing: Cold-formed metal box channels (struts) complying with MFMA-4.
1. Size of Channels: 1-5/8 by 1-5/8 inches (41 by 41 mm).
  2. Material: Cold-rolled steel, ASTM A 1008/A 1008M, commercial steel, Type B; 0.0966-inch (2.5-mm) minimum thickness; coated with rust-inhibitive, baked-on, acrylic enamel.

### **2.2 FASTENERS**

- A. Steel Bolts and Nuts: Regular hexagon-head bolts, ASTM A 307, Grade A (ASTM F 568M, Property Class 4.6); with hex nuts, ASTM A 563 (ASTM A 563M); and, where indicated, flat washers.
- B. Anchors, General: Anchors capable of sustaining, without failure, a load equal to six times the load imposed when installed in unit masonry and four times the load imposed when installed in concrete, as determined by testing according to ASTM E 488/E 488M, conducted by a qualified independent testing agency.
- C. Post-Installed Anchors: Torque-controlled expansion anchors or chemical anchors.
1. Material for Interior Locations: Carbon-steel components zinc plated to comply with ASTM B 633 or ASTM F 1941 (ASTM F 1941M), Class Fe/Zn 5, unless otherwise indicated.

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### 2.3 MISCELLANEOUS MATERIALS

- A. Universal Shop Primer: Fast-curing, lead- and chromate-free, universal modified-alkyd primer complying with MPI#79 and compatible with topcoat.
  - 1. Use primer containing pigments that make it easily distinguishable from zinc-rich primer.

### 2.4 FABRICATION, GENERAL

- A. Shop Assembly: Preassemble items in the shop to greatest extent possible. Disassemble units only as necessary for shipping and handling limitations. Use connections that maintain structural value of joined pieces. Clearly mark units for reassembly and coordinated installation.
- B. Cut, drill, and punch metals cleanly and accurately. Remove burrs and ease edges to a radius of approximately 1/32 inch (1 mm) unless otherwise indicated. Remove sharp or rough areas on exposed surfaces.
- C. Form bent-metal corners to smallest radius possible without causing grain separation or otherwise impairing work.
- D. Form exposed work with accurate angles and surfaces and straight edges.
- E. Weld corners and seams continuously to comply with the following:
  - 1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
  - 2. Obtain fusion without undercut or overlap.
  - 3. Remove welding flux immediately.
  - 4. At exposed connections, finish exposed welds and surfaces smooth and blended so no roughness shows after finishing.
- F. Form exposed connections with hairline joints, flush and smooth, using concealed fasteners or welds where possible. Where exposed fasteners are required, use Phillips flat-head (countersunk) fasteners unless otherwise indicated. Locate joints where least conspicuous.
- G. Cut, reinforce, drill, and tap metal fabrications as indicated to receive finish hardware, screws, and similar items.
- H. Provide for anchorage of type indicated; coordinate with supporting structure. Space anchoring devices to secure metal fabrications rigidly in place and to support indicated loads.

### 2.5 MISCELLANEOUS FRAMING AND SUPPORTS

- A. General: Provide steel framing and supports not specified in other Sections as needed to complete the Work.
- B. Fabricate units from steel shapes, plates, and bars of welded construction unless otherwise indicated. Fabricate to sizes, shapes, and profiles indicated and as necessary to receive adjacent construction.
  - 1. Fabricate units from slotted channel framing where indicated.
- C. Fabricate supports for ceiling hung toilet partitions from continuous steel members of sizes recommended by partition manufacturer with attached bearing plates, anchors, and braces. Drill

or punch bottom flanges of members to receive partition hanger rods; locate holes where indicated on toilet partition Shop Drawings.

- D. Prime miscellaneous framing and supports with universal shop primer.

## **2.6 COUNTERTOP AND ADA BENCH SUPPORT BRACKETS**

- A. Material: Fabricate components from extruded aluminum sections complying with ASTM B221, 6063-T5 alloy and temper.
- B. Type: Support brackets fabricated by welding miter cut extruded aluminum sections, grinding and deburring sharp edges and welds, drilling holes for field attachment, and factory finishing.
- C. Manufacturer; Rakks Shelving Systems and Support Brackets by Rangine Corp. or approved equal by Architect.
  - 1. Description: Surface mounted counter brackets with a 2" x 2" x 1/4" L-shaped vertical leg.
    - a. Model: EH-1416.
- D. Factory applied finishes: Exposed aluminum surfaces shall be free of scratches and other serious blemishes and be factory finished with electrostatically applied, custom color selected by Architect, powder paint coating complying with AAMA 605.2.

## **2.7 ADA VANITY SUPPORT BRACKETS**

- A. Material: Fabricate components from extruded aluminum sections complying with ASTM B221, 6063-T5 alloy and temper.
- B. Type: Support brackets fabricated by welding miter cut extruded aluminum sections, grinding and deburring sharp edges and welds, drilling holes for field attachment, and factory finishing.
- C. Manufacturer; Rakks Shelving Systems and Support Brackets by Rangine Corp. or approved equal by Architect.
  - 1. Description: Surface mounted vanity brackets with a 2" x 2" x 1/4" L-shaped vertical leg.
    - a. Rakks Vanity Brackets: Model: EH-1818 - LV.
- D. Factory applied finishes: Exposed aluminum surfaces shall be free of scratches and other serious blemishes and be factory finished with electrostatically applied, custom color selected by Architect, powder paint coating complying with AAMA 605.2.

## **2.8 FINISHES, GENERAL**

- A. Finish metal fabrications after assembly.
- B. Finish exposed surfaces to remove tool and die marks and stretch lines, and to blend into surrounding surface.

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## 2.9 STEEL AND IRON FINISHES

- A. Shop prime iron and steel items unless they are to be embedded in concrete, sprayed-on fireproofing, or masonry, or unless otherwise indicated.
- B. Preparation for Shop Priming: Prepare surfaces to comply with SSPC-SP 3, "Power Tool Cleaning."
- C. Shop Priming: Apply shop primer to comply with SSPC-PA 1, "Paint Application Specification No. 1: Shop, Field, and Maintenance Painting of Steel," for shop painting.
  - 1. Stripe paint corners, crevices, bolts, welds, and sharp edges.

## PART 3 - EXECUTION

### 3.1 INSTALLATION, GENERAL

- A. Cutting, Fitting, and Placement: Perform cutting, drilling, and fitting required for installing metal fabrications. Set metal fabrications accurately in location, alignment, and elevation; with edges and surfaces level, plumb, true, and free of rack; and measured from established lines and levels.
- B. Fit exposed connections accurately together to form hairline joints. Weld connections that are not to be left as exposed joints but cannot be shop welded because of shipping size limitations. Do not weld, cut, or abrade surfaces of exterior units that have been hot-dip galvanized after fabrication and are for bolted or screwed field connections.
- C. Field Welding: Comply with the following requirements:
  - 1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
  - 2. Obtain fusion without undercut or overlap.
  - 3. Remove welding flux immediately.
  - 4. At exposed connections, finish exposed welds and surfaces smooth and blended so no roughness shows after finishing and contour of welded surface matches that of adjacent surface.
- D. Fastening to In-Place Construction: Provide anchorage devices and fasteners where metal fabrications are required to be fastened to in-place construction. Provide threaded fasteners for use with concrete and masonry inserts, toggle bolts, through bolts, lag screws, wood screws, and other connectors.

### 3.2 INSTALLING MISCELLANEOUS FRAMING AND SUPPORTS

- A. General: Install framing and supports to comply with requirements of items being supported, including manufacturers' written instructions and requirements indicated on Shop Drawings.
- B. Anchor supports for ceiling hung toilet partitions securely to, and rigidly brace from, building structure.



**3.3 ADJUSTING AND CLEANING**

- A. Touchup Painting: Immediately after erection, clean field welds, bolted connections, and abraded areas. Paint uncoated and abraded areas with the same material as used for shop painting to comply with SSPC-PA 1 for touching up shop-painted surfaces.
1. Apply by brush or spray to provide a minimum 2.0-mil (0.05-mm) dry film thickness.

**END OF SECTION 05 50 00**

**SECTION 06 10 53 - MISCELLANEOUS ROUGH CARPENTRY**

**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. Wood blocking and nailers.
  - 2. Rooftop equipment bases and support curbs.
  - 3. Plywood backing panels.
  - 4. ADA locker room bench.

**1.3 RELATED SECTIONS**

- A. Section 05 50 00 "Metal Fabrications" for ADA bench support brackets.

**1.4 DEFINITIONS**

- A. Boards or Strips: Lumber of less than 2 inches nominal (38 mm actual) size in least dimension.
- B. Dimension Lumber: Lumber of 2 inches nominal (38 mm actual) or greater size but less than 5 inches nominal (114 mm actual) size in least dimension.

**1.5 ACTION SUBMITTALS**

- A. Product Data: For each type of process and factory-fabricated product. Indicate component materials and dimensions and include construction and application details.
  - 1. Include data for wood-preservative treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements. Indicate type of preservative used and net amount of preservative retained.
  - 2. Include data for fire-retardant treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements. Include physical properties of treated materials based on testing by a qualified independent testing agency.
  - 3. For fire-retardant treatments, include physical properties of treated lumber both before and after exposure to elevated temperatures, based on testing by a qualified independent testing agency according to ASTM D 5664.
  - 4. For products receiving a waterborne treatment, include statement that moisture content of treated materials was reduced to levels specified before shipment to Project site.

**1.6 INFORMATIONAL SUBMITTALS**

- A. Evaluation Reports: For the following, from ICC-ES:
  - 1. Preservative-treated wood.
  - 2. Fire-retardant-treated wood.

**1.7 QUALITY ASSURANCE**

- A. Testing Agency Qualifications: For testing agency providing classification marking for fire-retardant-treated material, an inspection agency acceptable to authorities having jurisdiction that periodically performs inspections to verify that the material bearing the classification marking is representative of the material tested.

**1.8 DELIVERY, STORAGE, AND HANDLING**

- A. Stack lumber flat with spacers beneath and between each bundle to provide air circulation. Protect lumber from weather by covering with waterproof sheeting, securely anchored. Provide for air circulation around stacks and under coverings.

**PART 2 - PRODUCTS**

**2.1 WOOD PRODUCTS, GENERAL**

- A. Lumber: DOC PS 20 and applicable rules of grading agencies indicated. If no grading agency is indicated, provide lumber that complies with the applicable rules of any rules-writing agency certified by the ALSC Board of Review. Provide lumber graded by an agency certified by the ALSC Board of Review to inspect and grade lumber under the rules indicated.
  - 1. Factory mark each piece of lumber with grade stamp of grading agency.
  - 2. Dress lumber, S4S, unless otherwise indicated.
- B. Maximum Moisture Content of Lumber: 15 percent unless otherwise indicated.

**2.2 WOOD-PRESERVATIVE-TREATED MATERIALS**

- A. Preservative Treatment by Pressure Process: AWPA U1; Use Category UC2 for interior construction not in contact with ground.
  - 1. Preservative Chemicals: Acceptable to authorities having jurisdiction and containing no arsenic or chromium.
- B. Kiln-dry lumber after treatment to a maximum moisture content of 19 percent. Do not use material that is warped or does not comply with requirements for untreated material.
- C. Mark lumber with treatment quality mark of an inspection agency approved by the ALSC Board of Review.
- D. Application: Treat items indicated on Drawings, and the following:

1. Wood cants, nailers, curbs, equipment support bases, blocking, stripping, and similar members in connection with roofing, flashing, vapor barriers, and waterproofing.
2. Wood sills, sleepers, blocking, and similar concealed members in contact with masonry or concrete.

### **2.3 FIRE-RETARDANT-TREATED MATERIALS**

- A. General: Where fire-retardant-treated materials are indicated, materials shall comply with requirements in this article, that are acceptable to authorities having jurisdiction, and with fire-test-response characteristics specified as determined by testing identical products per test method indicated by a qualified testing agency.
- B. Fire-Retardant-Treated Lumber and Plywood by Pressure Process: Products with a flame-spread index of 25 or less when tested according to ASTM E 84, and with no evidence of significant progressive combustion when the test is extended an additional 20 minutes, and with the flame front not extending more than 10.5 feet (3.2 m) beyond the centerline of the burners at any time during the test.
  1. Treatment shall not promote corrosion of metal fasteners.
  2. Interior Type A: Treated materials shall have a moisture content of 28 percent or less when tested according to ASTM D 3201 at 92 percent relative humidity. Use where exterior type is not indicated.
- C. Kiln-dry lumber after treatment to a maximum moisture content of 19 percent. Kiln-dry plywood after treatment to a maximum moisture content of 15 percent.
- D. Identify fire-retardant-treated wood with appropriate classification marking of qualified testing agency.
- E. Application: Treat items indicated on Drawings, and the following:
  1. Concealed blocking.
  2. Wood cants, nailers, curbs, equipment support bases, blocking, and similar members in connection with roofing.
  3. Plywood backing panels.

### **2.4 PLYWOOD BACKING PANELS**

- A. Equipment Backing Panels: Plywood, DOC PS 1, fire-retardant treated, in thickness indicated or, if not indicated, not less than 3/4-inch (19-mm) nominal thickness.

### **2.5 ADA LOCKER ROOM BENCH**

- A. Hardwood Lumber for Transparent Finish (Stain or Clear Finish): Clear, kiln-dried, white maple finished lumber (S4S), selected for compatible grain and color.
  1. Provide 1<sup>1</sup>/<sub>2</sub>-inch thick solid wood board. Provide radius edges.

## **2.6 FASTENERS**

- A. General: Provide fasteners of size and type indicated that comply with requirements specified in this article for material and manufacture.
  - 1. Where carpentry is exposed to weather, pressure-preservative treated, or in area of high relative humidity, provide fasteners of Type 304 stainless steel.
- B. Nails, Brads, and Staples: ASTM F 1667.
- C. Screws for Fastening to Metal Framing: ASTM C 1002, length as recommended by screw manufacturer for material being fastened.
- D. Power-Driven Fasteners: Fastener systems with an evaluation report acceptable to authorities having jurisdiction, based on ICC-ES AC70.
- E. Post-Installed Anchors: Fastener systems with an evaluation report acceptable to authorities having jurisdiction, based on ICC-ES AC01, ICC-ES AC58, ICC-ES AC193, or ICC-ES AC308 as appropriate for the substrate.
  - 1. Material: Carbon-steel components, zinc plated to comply with ASTM B 633, Class Fe/Zn 5.
  - 2. Material: Stainless steel with bolts and nuts complying with ASTM F 593 and ASTM F 594, Alloy Group 1 or 2 (ASTM F 738M and ASTM F 836M, Grade A1 or A4).

## **2.7 MISCELLANEOUS MATERIALS**

- A. Adhesives for Gluing to Concrete or Masonry: Formulation complying with ASTM D 3498 that is approved for use indicated by adhesive manufacturer.
  - 1. Adhesives shall have a VOC content of 70 g/L or less.

## **PART 3 - EXECUTION**

### **3.1 INSTALLATION, GENERAL**

- A. Set carpentry to required levels and lines, with members plumb, true to line, cut, and fitted. Fit carpentry accurately to other construction. Locate nailers, blocking, and similar supports to comply with requirements for attaching other construction.
- B. Install plywood backing panels by fastening to studs; coordinate locations with utilities requiring backing panels. Install fire-retardant-treated plywood backing panels with classification marking of testing agency exposed to view.
- C. Provide blocking and framing as indicated and as required to support facing materials, fixtures, specialty items, and trim.
- D. Sort and select lumber so that natural characteristics do not interfere with installation or with fastening other materials to lumber. Do not use materials with defects that interfere with function of member or pieces that are too small to use with minimum number of joints or optimum joint arrangement.

- E. Comply with AWPA M4 for applying field treatment to cut surfaces of preservative-treated lumber.
- F. Securely attach carpentry work to substrate by anchoring and fastening as indicated, complying with the following:
  - 1. Table 2304.9.1, "Fastening Schedule," in ICC's International Building Code.
  - 2. Table R602.3(1), "Fastener Schedule for Structural Members," and Table R602.3(2), "Alternate Attachments," in ICC's International Residential Code for One- and Two-Family Dwellings.
  - 3. ICC-ES evaluation report for fastener.
- G. Select fasteners of size that will not fully penetrate members where opposite side will be exposed to view or will receive finish materials. Make tight connections between members. Install fasteners without splitting wood.

### **3.2 WOOD BLOCKING AND NAILER INSTALLATION**

- A. Install where indicated and where required for attaching other work. Form to shapes indicated and cut as required for true line and level of attached work. Coordinate locations with other work involved.
- B. Attach items to substrates to support applied loading. Recess bolts and nuts flush with surfaces unless otherwise indicated.
- C. Provide permanent grounds of dressed, pressure-preservative-treated, key-beveled lumber not less than 1-1/2 inches (38 mm) wide and of thickness required to bring face of ground to exact thickness of finish material. Remove temporary grounds when no longer required.

**END OF SECTION 06 10 53**

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**SECTION 06 40 23 – INTERIOR ARCHITECTURAL WOODWORK**

**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. Plastic-laminate woodwork for ADA vanity.

**1.03 RELATED SECTIONS:**

- 1. Division 05 Section "Metal Fabrications" for metal structural supports for countertops, lavatory tops.
- 2. Division 06 Sections "Solid Surface Fabrications" for countertops of solid polymer.

**1.04 SUBMITTALS**

- A. Product Data: For each type of product indicated, including cabinet hardware and accessories.
  - 1. All finish hardware, anchors, fastenings and accessories.
- B. Samples for Initial Selection:
  - 1. Plastic laminates, 12 x 12-inches.
- C. Woodwork Quality Standard Compliance Certificates: AWI Quality Certification Program certificates.

**1.05 QUALITY ASSURANCE**

- A. Fabricator Qualifications: Certified participant in AWI's Quality Certification Program. Installation shall be by the fabricator of the cabinetwork.

**1.06 DELIVERY, STORAGE, AND HANDLING**

- A. Do not deliver woodwork until painting and similar operations that could damage woodwork have been completed in installation areas. If woodwork must be stored in other than installation areas, store only in areas where environmental conditions comply with requirements specified in "Project Conditions" Article.

**1.07 COORDINATION**

- A. Coordinate sizes and locations of framing, blocking, furring, reinforcements, and other related units of Work specified in other Sections to ensure that interior architectural woodwork can be supported and installed as indicated.



PART 2 - PRODUCTS

2.01 MATERIALS

- A. General: Provide materials that comply with requirements of AWS's quality standard for each type of woodwork and quality grade specified, unless otherwise indicated.
- B. Wood Products: Comply with the following:
  - 1. Hardboard: AHA A135.4.
  - 2. Particleboard: ANSI A208.1, Grade M-2-Exterior Glue.
    - a. Medium Density Fiberboard, Moisture Resistant: ANSI 208.2; Composite Panel Association (CPA) CPA-IMR-TM-01; and CPS 4-11 for ECC certification.
- C. High-Pressure Decorative Laminate: NEMA LD 3, grades as indicated or, if not indicated, as required by woodwork quality standard.
  - 1. Manufacturers:
    - a. Formica Corporation.
    - b. Nevamar Company, LLC; Decorative Products Div.
    - c. Panolam Industries International Incorporated.
    - d. Wilsonart International; Div. of Premark International, Inc.

2.02 MISCELLANEOUS MATERIALS

- A. Furring, Blocking, Shims, and Hanging Strips: Softwood or hardwood lumber, kiln dried to less than 15 percent moisture content.
- B. Anchors: Select material, type, size, and finish required for each substrate for secure anchorage. Provide nonferrous-metal or hot-dip galvanized anchors and inserts on inside face of exterior walls and elsewhere as required for corrosion resistance. Provide toothed-steel or lead expansion sleeves for drilled-in-place anchors.
- C. VOC Limits for Installation Adhesives and Glues: Use installation adhesives that comply with the following limits for VOC content when calculated according to 40 CFR 59, Subpart D (EPA Method 24):
  - 1. Wood Glues: 30 g/L.
  - 2. Contact Adhesive: 250 g/L.
- D. Adhesive for Bonding Plastic Laminate: Contact cement.
  - 1. Adhesive for Bonding Edges: Hot-melt adhesive or adhesive specified above for faces.

2.03 PLASTIC-LAMINATE PANEL

- A. Quality Standard: Comply with AWS Section 10 requirements for laminate cabinetwork.
  - 1. Grade: Premium.
- B. AWS Type of Cabinet Construction: Style 1 flush overlay on Type A frameless cabinet body, with laminated square edges on doors and drawer fronts.
- C. Panel Material: Medium density overlay, exterior type, or veneer plywood, exterior type.
- D. Laminate Cladding for Exposed and Semi-exposed Surfaces: High-pressure decorative laminate complying with the following requirements:
  - 1. Horizontal Surfaces Other Than Tops: Grade HGS.
  - 2. Postformed Surfaces: Grade HGP.
  - 3. Vertical Surfaces: Grade HGS.

- 4. Edges, including all four edges of adjustable shelves: Grade HGS.
- E. Concealed Backs of Panels with Exposed Plastic Laminate Surfaces: High-pressure decorative laminate, Grade BKL.
- F. Colors, Patterns, and Finishes: Provide materials and products that result in colors and textures of exposed laminate surfaces as scheduled.

2.04 FABRICATION, GENERAL

- A. Interior Woodwork Grade: Unless otherwise indicated, provide Premium-grade interior woodwork complying with referenced quality standard. Provide wood veneers only within the range of the accepted samples, including providing select veneers if required to remain within that range.
- B. Wood Moisture Content: Comply with requirements of referenced quality standard for wood moisture content in relation to ambient relative humidity during fabrication and in installation areas.
- C. Fabricate woodwork to dimensions, profiles, and details indicated on drawings.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Installation Quality Grade: Install woodwork to comply with requirements for the same grade specified in Part 2 for fabrication of type of woodwork involved.
- B. Paneling: Anchor paneling to supporting substrate with concealed panel-hanger clips. Do not use face fastening, unless otherwise indicated.
  - 1. Install flush paneling with no more than 1/16 inch in 96-inch (1.5 mm in 2400-mm) vertical cup or bow and 1/8 inch in 96-inch (3 mm in 2400-mm) horizontal variation from a true plane.

3.02 ADJUSTING AND CLEANING

- A. Repair damaged and defective woodwork, where possible, to eliminate functional and visual defects; where not possible to repair, replace woodwork. Adjust joinery for uniform appearance.

**END OF SECTION 06 40 23**

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## **SECTION 06 61 16 – SOLID SURFACE FABRICATIONS**

### **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. Solid-surface-material countertops, backsplashes and integral sink bowls.
  - 2. Wall-mounted counter top supports for solid-surface-material countertops.
  - 3. Sub-frame material.

#### **1.3 RELATED SECTIONS**

- A. Section 05 50 00 "Metal Fabrications" for countertop supports.
- B. Section 06 10 53 "Miscellaneous Rough Carpentry" for concealed wood blocking.
- C. Division 22 "Plumbing" for water faucets.

#### **1.4 DEFINITION**

- A. Solid surface is defined as nonporous, homogeneous material maintaining the same composition throughout the part with a composition of acrylic polymer, aluminum trihydrate filler and pigment.

#### **1.5 ACTION SUBMITTALS**

- A. Product Data: For countertop materials.
- B. Shop Drawings: For countertops. Show materials, finishes, edge and backsplash profiles, methods of joining, and cutouts for plumbing fixtures.
- C. Samples for Verification: For the following products:
  - 1. Countertop material, 6 inches (150 mm) square.
- D. Maintenance data:
  - 1. Submit manufacturer's care and maintenance data, including repair and cleaning instructions.
    - a. Maintenance kit for finishes shall be submitted.
  - 2. Include in project closeout documents.

## **1.6 QUALITY ASSURANCE**

- A. Qualifications:
  - 1. Shop that employs skilled workers who custom fabricate products similar to those required for this project and whose products have a record of successful in-service performance.
- B. Fabricator/Installer Qualifications: Minimum of five years' experience in fabrication and installation of solid surface materials or certified by distributor.
- C. Applicable standards:
  - 1. Standards of the following, as referenced herein:
    - a. American National Standards Institute (ANSI)
    - b. American Society for Testing and Materials (ASTM)
    - c. National Electrical Manufacturers Association (NEMA)
    - d. NSF International
- D. Fire test response characteristics:
  - 1. Provide with the following Class A (Class I) surface burning characteristics as determined by testing identical products per UL 723 (ASTM E84) or another testing and inspecting agency acceptable to authorities having jurisdiction:
    - a. Flame Spread Index: 25 or less.
    - b. Smoke Developed Index: 450 or less.

## **1.7 PROJECT CONDITIONS**

- A. Field Measurements: Verify dimensions of countertops by field measurements before countertop fabrication is complete.

## **1.8 COORDINATION**

- A. Coordinate locations of utilities that will penetrate countertops.

## **1.9 WARRANTY**

- A. Provide manufacturer's warranty against defects in materials.
  - 1. Warranty shall provide material and labor to repair or replace defective materials.
  - 2. Damage caused by physical or chemical abuse or damage from excessive heat will not be warranted.
- B. Manufacturer's warranty period:
  - 1. Ten years from date of substantial completion.

## **PART 2 - PRODUCTS**

### **2.1 SOLID-SURFACE-MATERIAL COUNTERTOPS**

- A. Solid Surface Material: Homogeneous solid sheets of filled plastic resin complying with ANSI SS1.

1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
  - a. Avonite, Inc.
  - b. E. I. du Pont de Nemours and Company; Corian
  - c. LG Chemical, Ltd.
  - d. Swan Corporation (The).
  - e. Wilsonart International; Div. of Premark International, Inc.
2. Type: Provide Standard Type unless Special Purpose Type is indicated.
3. Integral Sink Bowls: Comply with ISSFA-2 and ANSI Z124.3, Type 5 or Type 6, without a precoated finish.

B. Grade: Premium.

C. Countertops: 1/2-inch- thick, solid surface material with front edge built up with same material.

D. Backsplashes: 3/4-inch- thick, solid surface material.

E. Colors, Patterns, and Finishes: Provide materials and products that result in colors of solid-surfacing material complying with the following requirements:

1. As selected by Architect from manufacturer's full range.

F. Sub-Frame: Medium-Density Fiberboard: ANSI A208.2, Grade MD, made with binder containing no urea formaldehyde.

1. Thickness: 25mm.

## 2.2 FACTORY FABRICATION

A. Grade: Premium.

B. Fabricate tops in one (1) piece, unless otherwise indicated. Comply with solid-surfacing-material manufacturer's written recommendations for adhesives, sealers, fabrication, and finishing.

1. Fabricate tops with shop-applied edges of materials and configuration indicated.
2. Fabricate tops with integral backsplashes.
3. Fabricate backsplash inside and outside corners with mitered edges. Sand and smooth edges so there are no rough or sharp edges.

C. Fabricate countertops for integral sink bowls if sinks are required.

D. Drill holes in countertops for plumbing fittings and soap dispensers in shop.

E. Configuration: Provide countertops and back- and end- splashes with edge profiles as indicated.

F. Fabrication: Fabricate tops in one piece with shop-applied edges unless otherwise indicated. Comply with quartz agglomerate manufacturer's written instructions for adhesives, sealers, fabrication, and finishing.

1. Fabricate with loose back- and end- splashes for field assembly.

2. Install integral sink bowls in countertops in the shop.
- G. Shop Assembly:
1. Fabricate components to greatest extent practical to sizes and shapes indicated, in accordance with approved shop drawings and manufacturer's printed instructions and technical bulletins.
  2. Form joints between components using manufacturer's standard joint adhesive without conspicuous joints.
    - a. Reinforce with strip of solid polymer material, 2" wide.
  3. Rout and finish component edges with clean, sharp returns.
    - a. Rout cutouts, radii and contours to template.
    - b. Smooth edges.
    - c. Repair or reject defective and inaccurate work.

### **2.3 ACCESSORIES**

- A. Joint adhesive:
1. Manufacturer's standard one- or two-part adhesive kit to create inconspicuous, nonporous joints.
- B. Sealant:
1. Manufacturer's standard mildew-resistant, FDA-compliant, NSF 51-compliant (food zone — any type), UL-listed silicone sealant in colors matching components.

## **PART 3 - EXECUTION**

### **3.1 INSTALLATION**

- A. Countertops: Fasten countertops by screwing through substrate or corner blocks of substrate into underside of countertop. Pre-drill holes for screws as recommended by manufacturer. Align adjacent surfaces and, using adhesive in color to match countertop, form seams to comply with manufacturer's written instructions. Carefully dress joints smooth, remove surface scratches, and clean entire surface.
1. Install countertops level to a tolerance of 1/8 inch in 8 feet (3 mm in 2.4 m).
  2. Install backsplashes and endsplashes to comply with manufacturer's written instructions for adhesives, sealers, fabrication and finishes.
  3. Seal edges of cutouts in particleboard subtops by saturating with varnish.
- B. Install pre-fabricated steel support brackets per manufacturer's written instructions.
- C. Calk space between backsplash and wall with sealant specified in Section 07 92 00.

**END OF SECTION 06 61 16**

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**SECTION 07 84 13 - PENETRATION FIRESTOPPING**

**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. Penetrations in fire-resistance-rated walls.
  - 2. Penetrations in horizontal assemblies.
- B. Related Sections:
  - 1. Division 07 Section "Fire-Resistive Joint Systems" for joints in or between fire-resistance-rated construction, at exterior curtain-wall/floor intersections, and in smoke barriers.

**1.3 SUBMITTALS**

- A. Product Data: For each type of product indicated.
- B. Product Schedule: For each penetration firestopping system. Include location and design designation of qualified testing and inspecting agency.
  - 1. Where Project conditions require modification to a qualified testing and inspecting agency's illustration for a particular penetration firestopping condition, submit illustration, with modifications marked, approved by penetration firestopping manufacturer's fire-protection engineer as an engineering judgment or equivalent fire-resistance-rated assembly.
- C. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, for penetration firestopping.

**1.4 QUALITY ASSURANCE**

- A. Installer Qualifications: A firm that has been approved by FM Global according to FM Global 4991, "Approval of Firestop Contractors," or been evaluated by UL and found to comply with its "Qualified Firestop Contractor Program Requirements."
- B. Installer Qualifications: A firm experienced in installing penetration firestopping similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful performance. Qualifications include having the necessary experience, staff, and training to install manufacturer's products per specified requirements. Manufacturer's



willingness to sell its penetration firestopping products to Contractor or to Installer engaged by Contractor does not in itself confer qualification on buyer.

- C. Fire-Test-Response Characteristics: Penetration firestopping shall comply with the following requirements:
  - 1. Penetration firestopping tests are performed by a qualified testing agency acceptable to authorities having jurisdiction.
  - 2. Penetration firestopping is identical to those tested per testing standard referenced in "Penetration Firestopping" Article. Provide rated systems complying with the following requirements:
    - a. Penetration firestopping products bear classification marking of qualified testing and inspecting agency.
    - b. Classification markings on penetration firestopping correspond to designations listed by the following:
      - 1) UL in its "Fire Resistance Directory."

## **1.5 PROJECT CONDITIONS**

- A. Environmental Limitations: Do not install penetration firestopping when ambient or substrate temperatures are outside limits permitted by penetration firestopping manufacturers or when substrates are wet because of rain, frost, condensation, or other causes.
- B. Install and cure penetration firestopping per manufacturer's written instructions using natural means of ventilations or, where this is inadequate, forced-air circulation.

## **1.6 COORDINATION**

- A. Coordinate construction of openings and penetrating items to ensure that penetration firestopping is installed according to specified requirements.
- B. Coordinate sizing of sleeves, openings, core-drilled holes, or cut openings to accommodate penetration firestopping.

## **PART 2 - PRODUCTS**

### **2.1 MANUFACTURERS**

- 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. Grace Construction Products.
  - 2. Hilti, Inc.
  - 3. Johns Manville.
  - 4. 3M Fire Protection Products.
  - 5. Tremco, Inc.; Tremco Fire Protection Systems Group.
  - 6. USG Corporation.

## **2.2 PENETRATION FIRESTOPPING**

- A. Provide penetration firestopping that is produced and installed to resist spread of fire according to requirements indicated, resist passage of smoke and other gases, and maintain original fire-resistance rating of construction penetrated. Penetration firestopping systems shall be compatible with one another, with the substrates forming openings, and with penetrating items if any.
- B. Penetrations in Fire-Resistance-Rated Walls: Provide penetration firestopping with ratings determined per ASTM E 814 or UL 1479, based on testing at a positive pressure differential of 0.01-inch wg (2.49 Pa).
  - 1. Fire-resistance-rated walls include fire-barrier walls and fire partitions.
  - 2. F-Rating: Not less than the fire-resistance rating of constructions penetrated.
- C. Penetrations in Horizontal Assemblies: Provide penetration firestopping with ratings determined per ASTM E 814 or UL 1479, based on testing at a positive pressure differential of 0.01-inch wg (2.49 Pa).
  - 1. Horizontal assemblies include floors.
  - 2. F-Rating: At least 1 hour, but not less than the fire-resistance rating of constructions penetrated.
  - 3. T-Rating: At least 1 hour, but not less than the fire-resistance rating of constructions penetrated except for floor penetrations within the cavity of a wall.
- D. W-Rating: Provide penetration firestopping showing no evidence of water leakage when tested according to UL 1479.
- E. Exposed Penetration Firestopping: Provide products with flame-spread and smoke-developed indexes of less than 25 and 450, respectively, as determined per ASTM E 84.
- F. Accessories: Provide components for each penetration firestopping system that are needed to install fill materials and to maintain ratings required. Use only those components specified by penetration firestopping manufacturer and approved by qualified testing and inspecting agency for firestopping indicated.
  - 1. Permanent forming/damming/backing materials, including the following:
    - a. Slag-wool-fiber or rock-wool-fiber insulation.
    - b. Sealants used in combination with other forming/damming/backing materials to prevent leakage of fill materials in liquid state.
    - c. Fire-rated form board.
    - d. Fillers for sealants.
  - 2. Temporary forming materials.
  - 3. Substrate primers.
  - 4. Collars.
  - 5. Steel sleeves.

## **2.3 FILL MATERIALS**

- A. Cast-in-Place Firestop Devices: Factory-assembled devices for use in cast-in-place concrete floors and consisting of an outer metallic sleeve lined with an intumescent strip, a radial extended flange attached to one end of the sleeve for fastening to concrete formwork, and a neoprene gasket.
- B. Latex Sealants: Single-component latex formulations that do not re-emulsify after cure during exposure to moisture.
- C. Firestop Devices: Factory-assembled collars formed from galvanized steel and lined with intumescent material sized to fit specific diameter of penetrant.
- D. Intumescent Composite Sheets: Rigid panels consisting of aluminum-foil-faced elastomeric sheet bonded to galvanized-steel sheet.
- E. Intumescent Putties: Nonhardening dielectric, water-resistant putties containing no solvents, inorganic fibers, or silicone compounds.
- F. Intumescent Wrap Strips: Single-component intumescent elastomeric sheets with aluminum foil on one side.
- G. Mortars: Prepackaged dry mixes consisting of a blend of inorganic binders, hydraulic cement, fillers, and lightweight aggregate formulated for mixing with water at Project site to form a nonshrinking, homogeneous mortar.
- H. Pillows/Bags: Reusable heat-expanding pillows/bags consisting of glass-fiber cloth cases filled with a combination of mineral-fiber, water-insoluble expansion agents, and fire-retardant additives. Where exposed, cover openings with steel-reinforcing wire mesh to protect pillows/bags from being easily removed.
- I. Silicone Foams: Multicomponent, silicone-based liquid elastomers that, when mixed, expand and cure in place to produce a flexible, nonshrinking foam.
- J. Silicone Sealants: Single-component, silicone-based, neutral-curing elastomeric sealants of grade indicated below:
  - 1. Grade: Pourable (self-leveling) formulation for openings in floors and other horizontal surfaces, and nonsag formulation for openings in vertical and sloped surfaces, unless indicated firestopping limits use of nonsag grade for both opening conditions.

## **PART 3 - EXECUTION**

### **3.1 EXAMINATION**

- A. Examine substrates and conditions, with Installer present, for compliance with requirements for opening configurations, penetrating items, substrates, and other conditions affecting performance of the Work.

- B. Proceed with installation only after unsatisfactory conditions have been corrected.

### **3.2 PREPARATION**

- A. Surface Cleaning: Clean out openings immediately before installing penetration firestopping to comply with manufacturer's written instructions and with the following requirements:
  - 1. Remove from surfaces of opening substrates and from penetrating items foreign materials that could interfere with adhesion of penetration firestopping.
  - 2. Clean opening substrates and penetrating items to produce clean, sound surfaces capable of developing optimum bond with penetration firestopping. Remove loose particles remaining from cleaning operation.
- B. Priming: Prime substrates where recommended in writing by manufacturer using that manufacturer's recommended products and methods. Confine primers to areas of bond; do not allow spillage and migration onto exposed surfaces.
- C. Masking Tape: Use masking tape to prevent penetration firestopping from contacting adjoining surfaces that will remain exposed on completion of the Work and that would otherwise be permanently stained or damaged by such contact or by cleaning methods used to remove stains. Remove tape as soon as possible without disturbing firestopping's seal with substrates.

### **3.3 INSTALLATION**

- A. General: Install penetration firestopping to comply with manufacturer's written installation instructions and published drawings for products and applications indicated.
- B. Install forming materials and other accessories of types required to support fill materials during their application and in the position needed to produce cross-sectional shapes and depths required to achieve fire ratings indicated.
  - 1. After installing fill materials and allowing them to fully cure, remove combustible forming materials and other accessories not indicated as permanent components of firestopping.
- C. Install fill materials for firestopping by proven techniques to produce the following results:
  - 1. Fill voids and cavities formed by openings, forming materials, accessories, and penetrating items as required to achieve fire-resistance ratings indicated.
  - 2. Apply materials so they contact and adhere to substrates formed by openings and penetrating items.
  - 3. For fill materials that will remain exposed after completing the Work, finish to produce smooth, uniform surfaces that are flush with adjoining finishes.

### **3.4 CLEANING AND PROTECTION**

- A. Clean off excess fill materials adjacent to openings as the Work progresses by methods and with cleaning materials that are approved in writing by penetration firestopping manufacturers and that do not damage materials in which openings occur.

- B. Provide final protection and maintain conditions during and after installation that ensure that penetration firestopping is without damage or deterioration at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, immediately cut out and remove damaged or deteriorated penetration firestopping and install new materials to produce systems complying with specified requirements.

**END OF SECTION 07 84 13**

## **SECTION 07 84 46 - FIRE-RESISTIVE JOINT SYSTEMS**

### **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. Joints in or between fire-resistance-rated constructions.
- B. Related Sections:
  - 1. Division 07 Section "Penetration Firestopping" for penetrations in fire-resistance-rated walls, horizontal assemblies, and smoke barriers.

#### **1.3 SUBMITTALS**

- A. Product Data: For each type of product indicated.
- B. Product Schedule: For each fire-resistive joint system. Include location and design designation of qualified testing agency.
  - 1. Where Project conditions require modification to a qualified testing agency's illustration for a particular fire-resistive joint system condition, submit illustration, with modifications marked, approved by fire-resistive joint system manufacturer's fire-protection engineer as an engineering judgment or equivalent fire-resistance-rated assembly.
- C. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, for fire-resistive joint systems.

#### **1.4 QUALITY ASSURANCE**

- A. Fire-Test-Response Characteristics: Fire-resistive joint systems shall comply with the following requirements:
  - 1. Fire-resistive joint system tests are performed by a qualified testing agency acceptable to authorities having jurisdiction.
  - 2. Fire-resistive joint systems are identical to those tested per testing standard referenced in "Fire-Resistive Joint Systems" Article. Provide rated systems complying with the following requirements:

- a. Fire-resistive joint system products bear classification marking of qualified testing agency.
- b. Fire-resistive joint systems correspond to those indicated by reference to designations listed by the following:
  - 1) UL in its "Fire Resistance Directory."

### **1.5 PROJECT CONDITIONS**

- A. Environmental Limitations: Do not install fire-resistive joint systems when ambient or substrate temperatures are outside limits permitted by fire-resistive joint system manufacturers or when substrates are wet due to rain, frost, condensation, or other causes.
- B. Install and cure fire-resistive joint systems per manufacturer's written instructions using natural means of ventilation or, where this is inadequate, forced-air circulation.

### **1.6 COORDINATION**

- A. Coordinate construction of joints to ensure that fire-resistive joint systems are installed according to specified requirements.
- B. Coordinate sizing of joints to accommodate fire-resistive joint systems.

## **PART 2 - PRODUCTS**

### **2.1 FIRE-RESISTIVE JOINT SYSTEMS**

- A. Where required, provide fire-resistive joint systems that are produced and installed to resist spread of fire according to requirements indicated, resist passage of smoke and other gases, and maintain original fire-resistance rating of assemblies in or between which fire-resistive joint systems are installed. Fire-resistive joint systems shall accommodate building movements without impairing their ability to resist the passage of fire and hot gases.
- B. Joints in or between Fire-Resistance-Rated Construction: Provide fire-resistive joint systems with ratings determined per ASTM E 1966 or UL 2079:
  - 1. Joints include those installed in or between fire-resistance-rated walls.
  - 2. Fire-Resistance Rating: Equal to or exceeding the fire-resistance rating of construction they will join.
  - 3. 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. Grace Construction Products.
    - b. Hilti, Inc.
    - c. Johns Manville.
    - d. 3M Fire Protection Products.
    - e. Tremco, Inc.; Tremco Fire Protection Systems Group.
    - f. USG Corporation.

- C. Exposed Fire-Resistive Joint Systems: Provide products with flame-spread and smoke-developed indexes of less than 25 and 450, respectively, as determined per ASTM E 84.
- D. Accessories: Provide components of fire-resistive joint systems, including primers and forming materials, that are needed to install fill materials and to maintain ratings required. Use only components specified by fire-resistive joint system manufacturer and approved by the qualified testing agency for systems indicated.

### **PART 3 - EXECUTION**

#### **3.1 EXAMINATION**

- A. Examine substrates and conditions, with Installer present, for compliance with requirements for joint configurations, substrates, and other conditions affecting performance of the Work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

#### **3.2 PREPARATION**

- A. Surface Cleaning: Clean joints immediately before installing fire-resistive joint systems to comply with fire-resistive joint system manufacturer's written instructions and the following requirements:
  - 1. Remove from surfaces of joint substrates foreign materials that could interfere with adhesion of fill materials.
  - 2. Clean joint substrates to produce clean, sound surfaces capable of developing optimum bond with fill materials. Remove loose particles remaining from cleaning operation.
- B. Priming: Prime substrates where recommended in writing by fire-resistive joint system manufacturer using that manufacturer's recommended products and methods. Confine primers to areas of bond; do not allow spillage and migration onto exposed surfaces.
- C. Masking Tape: Use masking tape to prevent fill materials of fire-resistive joint system from contacting adjoining surfaces that will remain exposed on completion of the Work and that would otherwise be permanently stained or damaged by such contact or by cleaning methods used to remove stains. Remove tape as soon as possible without disturbing fire-resistive joint system's seal with substrates.

#### **3.3 INSTALLATION**

- A. General: Install fire-resistive joint systems to comply with manufacturer's written installation instructions and published drawings for products and applications indicated.
- B. Install forming materials and other accessories of types required to support fill materials during their application and in position needed to produce cross-sectional shapes and depths required to achieve fire ratings indicated.
- C. Install fill materials for fire-resistive joint systems by proven techniques to produce the following results:



1. Fill voids and cavities formed by joints and forming materials as required to achieve fire-resistance ratings indicated.
2. Apply fill materials so they contact and adhere to substrates formed by joints.
3. For fill materials that will remain exposed after completing the Work, finish to produce smooth, uniform surfaces that are flush with adjoining finishes.

### **3.4 CLEANING AND PROTECTING**

- A. Clean off excess fill materials adjacent to joints as the Work progresses by methods and with cleaning materials that are approved in writing by fire-resistive joint system manufacturers and that do not damage materials in which joints occur.
- B. Provide final protection and maintain conditions during and after installation that ensure fire-resistive joint systems are without damage or deterioration at time of Substantial Completion. If damage or deterioration occurs despite such protection, cut out and remove damaged or deteriorated fire-resistive joint systems immediately and install new materials to produce fire-resistive joint systems complying with specified requirements.

**END OF SECTION 07 84 46**

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**SECTION 07 92 00 - JOINT SEALANTS**

**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. Silicone joint sealants.
  - 2. Nonstaining silicone joint sealants.
  - 3. Mildew-resistant joint sealants.
  - 4. Latex joint sealants.
- B. Related Requirements:
  - 1. Section 09 29 00 "Gypsum Board" for acoustical joint sealant.

**1.3 ACTION SUBMITTALS**

- A. Product Data: For each joint-sealant product.
- B. Samples for Initial Selection: Manufacturer's color charts consisting of strips of cured sealants showing the full range of colors available for each product exposed to view.
- C. Samples for Verification: For each kind and color of joint sealant required, provide Samples with joint sealants in 1/2-inch- (13-mm-) wide joints formed between two 6-inch- (150-mm-) long strips of material matching the appearance of exposed surfaces adjacent to joint sealants.

**1.4 FIELD CONDITIONS**

- A. Do not proceed with installation of joint sealants under the following conditions:
  - 1. When ambient and substrate temperature conditions are outside limits permitted by joint-sealant manufacturer.
  - 2. When joint substrates are wet.
  - 3. Where joint widths are less than those allowed by joint-sealant manufacturer for applications indicated.
  - 4. Where contaminants capable of interfering with adhesion have not yet been removed from joint substrates.

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## PART 2 - PRODUCTS

### 2.1 JOINT SEALANTS, GENERAL

- A. Compatibility: Provide joint sealants, backings, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by joint-sealant manufacturer, based on testing and field experience.
- B. VOC Content of Interior Sealants: Sealants and sealant primers used inside the weatherproofing system shall comply with the following:
  - 1. Sealants and sealant primers for nonporous substrates shall have a VOC content of 250 g/L or less.
- C. Colors of Exposed Joint Sealants: As selected by Architect from manufacturer's full range.

### 2.2 SILICONE JOINT SEALANTS

- A. Silicone, S, NS, 25, NT: Single-component, nonsag, plus 25 percent and minus 25 percent movement capability, nontraffic-use, neutral-curing silicone joint sealant; ASTM C 920, Type S, Grade NS, Class 25, Use NT.
  - 1. NSF-FDA Approved.
  - 2. 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. Dow Corning Corporation: 732
    - b. DAP: Commercial Kitchen 100% Silicone
    - c. Everkem: Trusil 100

### 2.3 MILDEW-RESISTANT JOINT SEALANTS

- A. Mildew-Resistant Joint Sealants: Formulated for prolonged exposure to humidity with fungicide to prevent mold and mildew growth.
- B. Silicone, Mildew Resistant, Acid Curing, S, NS, 25, NT: Mildew-resistant, single-component, nonsag, plus 25 percent and minus 25 percent movement capability, nontraffic-use, acid-curing silicone joint sealant; ASTM C 920, Type S, Grade NS, Class 25, Use NT.
  - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
    - a. Dow Corning Corporation.
    - b. GE Construction Sealants; Momentive Performance Materials Inc.
    - c. Tremco Incorporated.

### 2.4 LATEX JOINT SEALANTS

- A. Acrylic Latex: Acrylic latex or siliconized acrylic latex, ASTM C 834, Type OP, Grade NF.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  - a. BASF Corporation; Construction Systems.
  - b. Pecora Corporation.
  - c. Tremco Incorporated.

## 2.5 JOINT-SEALANT BACKING

- A. Sealant Backing Material, General: Nonstaining; compatible with joint substrates, sealants, primers, and other joint fillers; and approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.
- B. Cylindrical Sealant Backings: ASTM C 1330, as approved in writing by joint-sealant manufacturer for joint application indicated, and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance.
- C. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint-filler materials or joint surfaces at back of joint. Provide self-adhesive tape where applicable.

## 2.6 MISCELLANEOUS MATERIALS

- A. Primer: Material recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.
- B. Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials, free of oily residues or other substances capable of staining or harming joint substrates and adjacent nonporous surfaces in any way, and formulated to promote optimum adhesion of sealants to joint substrates.
- C. Masking Tape: Nonstaining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine joints indicated to receive joint sealants, with Installer present, for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting performance of the Work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.2 PREPARATION

- A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint-sealant manufacturer's written instructions and the following requirements:

1. Remove all foreign material from joint substrates that could interfere with adhesion of joint sealant, including dust, paints (except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer), old joint sealants, oil, grease, waterproofing, water repellents, water, surface dirt, and frost.
  2. Clean porous joint substrate surfaces by brushing, grinding, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint sealants. Remove loose particles remaining after cleaning operations above by vacuuming or blowing out joints with oil-free compressed air. Porous joint substrates include the following:
    - a. Concrete.
    - b. Masonry.
    - c. Unglazed surfaces of ceramic tile.
  3. Remove laitance and form-release agents from concrete.
  4. Clean nonporous joint substrate surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion of joint sealants. Nonporous joint substrates include the following:
    - a. Metal.
    - b. Glass.
    - c. Porcelain enamel.
    - d. Glazed surfaces of ceramic tile.
- B. Joint Priming: Prime joint substrates where recommended by joint-sealant manufacturer or as indicated by preconstruction joint-sealant-substrate tests or prior experience. Apply primer to comply with joint-sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.
- C. Masking Tape: Use masking tape where required to prevent contact of sealant or primer with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

### 3.3 INSTALLATION OF JOINT SEALANTS

- A. General: Comply with joint-sealant manufacturer's written installation instructions for products and applications indicated, unless more stringent requirements apply.
- B. Sealant Installation Standard: Comply with recommendations in ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.
- C. Install sealant backings of kind indicated to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.
  1. Do not leave gaps between ends of sealant backings.
  2. Do not stretch, twist, puncture, or tear sealant backings.
  3. Remove absorbent sealant backings that have become wet before sealant application, and replace them with dry materials.
- D. Install bond-breaker tape behind sealants where sealant backings are not used between sealants and backs of joints.

- E. Install sealants using proven techniques that comply with the following and at the same time backings are installed:
  - 1. Place sealants so they directly contact and fully wet joint substrates.
  - 2. Completely fill recesses in each joint configuration.
  - 3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.
  
- F. Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants according to requirements specified in subparagraphs below to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.
  - 1. Remove excess sealant from surfaces adjacent to joints.
  - 2. Use tooling agents that are approved in writing by sealant manufacturer and that do not discolor sealants or adjacent surfaces.
  - 3. Provide concave joint profile per Figure 8A in ASTM C 1193 unless otherwise indicated.
    - a. Use masking tape to protect surfaces adjacent to recessed tooled joints.

### **3.4 CLEANING**

- A. Clean off excess sealant or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved in writing by manufacturers of joint sealants and of products in which joints occur.

### **3.5 PROTECTION**

- A. Protect joint sealants during and after curing period from contact with contaminating substances and from damage resulting from construction operations or other causes so sealants are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out, remove, and repair damaged or deteriorated joint sealants immediately so installations with repaired areas are indistinguishable from original work.

### **3.6 JOINT-SEALANT SCHEDULE**

- A. Joint-Sealant Application: Interior joints in vertical surfaces and horizontal nontraffic surfaces.
  - 1. Joint Locations:
    - a. Joints between food service countertop backsplashes and walls.
    - b. Other joints as indicated on Food Service Drawings.
  - 2. Joint Sealant: NSF-FDA Approved Silicone; S, NS, 25, NT.
  - 3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.
  
- B. Joint-Sealant Application: Interior joints in vertical surfaces and horizontal nontraffic surfaces not subject to significant movement.
  - 1. Joint Locations:
    - a. Perimeter joints between interior wall surfaces and frames of interior doors.
    - b. Other joints as indicated on Drawings.
  - 2. Joint Sealant: Acrylic latex.

3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.
- C. Joint-Sealant Application: Mildew-resistant interior joints in vertical surfaces and horizontal nontraffic surfaces.
1. Joint Locations:
    - a. Joints between plumbing fixtures and adjoining walls, floors, and counters.
    - b. Other joints as indicated on Drawings.
  2. Joint Sealant: Silicone, mildew resistant, acid curing, S, NS, 25, NT.
  3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of **colors**.

**END OF SECTION 07 92 00**

**SECTION 08 11 13 - HOLLOW METAL DOORS AND FRAMES**

**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. Hollow metal door frames.

**1.3 RELATED SECTIONS**

- A. Section 08 14 16 – Flush Wood Doors: Wood doors set in metal frames.
- B. Section 08 71 00 - Door Hardware: Door hardware for metal doors.
- C. Sections 09 90 00 – Paints and Coating: Field painting hollow metal door frames.
- D. Division 26 sections for electrical connections including conduit and wiring for door controls and operators.

**1.4 DEFINITIONS**

- A. Minimum Thickness: Minimum thickness of base metal without coatings according to NAAMM-HMMA 803 or SDI A250.8.
- B. Standard Hollow Metal Work: Hollow metal work fabricated according to ANSI/SDI A250.8.

**1.5 COORDINATION**

- A. Coordinate anchorage installation for hollow-metal frames. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors. Deliver such items to Project site in time for installation.

**1.6 PREINSTALLATION MEETINGS**

- A. Preinstallation Conference: Conduct conference at Project site.



**1.7 ACTION SUBMITTALS**

- A. Submit under provisions of Section 01 33 00.
- B. Product Data: For each type of product.
  - 1. Include construction details, material descriptions, fire-resistance ratings and finishes.
- C. Shop Drawings: Include the following:
  - 1. Frame details for each frame type, including dimensioned profiles and metal thicknesses.
  - 2. Locations of reinforcement and preparations for hardware.
  - 3. Details of each different wall opening condition.
  - 4. Details of anchorages, joints, field splices, and connections.
  - 5. Details of accessories.
  - 6. Details of moldings, removable stops, and glazing.
  - 7. Details of conduit and preparations for power, signal, and control systems.
- D. Schedule: Provide a schedule of hollow-metal work prepared by or under the supervision of supplier, using same reference numbers for details and openings as those on Drawings. Coordinate with final Door Hardware Schedule.

**1.8 INFORMATIONAL SUBMITTALS**

- A. Product Test Reports: For each type of hollow-metal frame assembly, for tests performed by a qualified testing agency.
- B. Oversize Construction Certification: For assemblies required to be fire rated and exceeding limitations of labeled assemblies.

**1.9 DELIVERY, STORAGE, AND HANDLING**

- A. Deliver hollow metal work palletized, wrapped, or crated to provide protection during transit and project-site storage. Do not use non-vented plastic.
  - 1. Provide additional protection to prevent damage to finish of factory-finished units.
- B. Deliver welded frames with two (2) removable spreader bars across bottom of frames, tack welded to jambs and mullions.
- C. Store hollow metal work under cover at project site. Place in stacks of five (5) units maximum in a vertical position with heads up, spaced by blocking, on minimum 4-inch high wood blocking. Do not store in a manner that traps excess humidity.

**1.10 PROJECT CONDITIONS**

- A. Field Measurements: Verify actual dimensions of openings by field measurements before fabrication.

## **PART 2 - PRODUCTS**

### **2.1 MANUFACTURERS**

- 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. Amweld International, LLC.
  - 2. Ceco Door; ASSA ABLOY.
  - 3. Curries Company; ASSA ABLOY.
  - 4. Republic Doors and Frames.
  - 5. Steelcraft; an Allegion brand.
  
- B. Source Limitations: Obtain hollow-metal work from single source from single manufacturer.

### **2.2 REGULATORY REQUIREMENTS**

- A. Fire-Rated Assemblies: Complying with NFPA 80 and listed and labeled by a qualified testing agency acceptable to authorities having jurisdiction for fire-protection ratings indicated, based on testing at positive pressure according to NFPA 252 or UL 10C.
  - 1. Smoke- and Draft-Control Assemblies: Provide an assembly with gaskets listed and labeled for smoke and draft control by a qualified testing agency acceptable to authorities having jurisdiction, based on testing according to UL 1784 and installed in compliance with NFPA 105.
  
- B. Fire-Rated, Borrowed-Light Assemblies: Complying with NFPA 80 and listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction for fire-protection ratings indicated, based on testing according to NFPA 257 or UL 9.

### **2.3 INTERIOR HOLLOW-METAL DOORS AND FRAMES**

- A. Construct interior doors frames to comply with the standards indicated for materials, fabrication, hardware locations, hardware reinforcement, tolerances, and clearances, and as specified.
  
- B. Heavy-Duty Door Frames: SDI A250.8, Level 2. At locations indicated in the Door and Frame Schedule.
  - 1. Physical Performance: Level B according to SDI A250.4.
  
  - 2. Frames:
    - a. Materials: Uncoated steel sheet, minimum thickness of 0.053 inch (16-gauge).
    - b. Construction: Full profile welded unless otherwise indicated.
  
  - 3. Exposed Finish: Prime.

## **2.4 FRAME ANCHORS**

- A. Jamb Anchors:
1. Masonry Type: Adjustable strap-and-stirrup or T-shaped anchors to suit frame size, not less than 0.042 inch (18-gauge) thick, with corrugated or perforated straps not less than 2 inches wide by 10 inches long; or wire anchors not less than 0.177 inch (7-gauge) thick.
  2. Stud-Wall Type: Designed to engage stud, welded to back of frames; not less than 0.042 inch (18-gauge) thick.
  3. Compression Type for Drywall Slip-on Frames: Adjustable compression anchors.
  4. Postinstalled Expansion Type for In-Place Concrete or Masonry: Minimum 3/8-inch-diameter bolts with expansion shields or inserts. Provide pipe spacer from frame to wall, with throat reinforcement plate, welded to frame at each anchor location.
- B. Floor Anchors: Formed from same material as frames, minimum thickness of 0.042 inch (18-gauge), and as follows:
1. Monolithic Concrete Slabs: Clip-type anchors, with two holes to receive fasteners.
  2. Separate Topping Concrete Slabs: Adjustable-type anchors with extension clips, allowing not less than 2-inch height adjustment. Terminate bottom of frames at finish floor surface.

## **2.5 MATERIALS**

- A. Cold-Rolled Steel Sheet: ASTM A 1008/A 1008M, Commercial Steel (CS), Type B; suitable for exposed applications.
- B. Hot-Rolled Steel Sheet: ASTM A 1011/A 1011M, Commercial Steel (CS), Type B; free of scale, pitting, or surface defects; pickled and oiled.
- C. Metallic-Coated Steel Sheet: ASTM A 653/A 653M, Commercial Steel (CS), Type B.
- D. Frame Anchors: ASTM A 879/A 879M, Commercial Steel (CS), 04Z (12G) coating designation; mill phosphatized.
1. For anchors built into exterior walls, steel sheet complying with ASTM A 1008/A 1008M or ASTM A 1011/A 1011M, hot-dip galvanized according to ASTM A 153/A 153M, Class B.
- E. Inserts, Bolts, and Fasteners: Hot-dip galvanized according to ASTM A 153/A 153M.
- F. Power-Actuated Fasteners in Concrete: Fastener system of type suitable for application indicated, fabricated from corrosion-resistant materials, with clips or other accessory devices for attaching hollow-metal frames of type indicated.
- G. Grout: ASTM C 476, except with a maximum slump of 4 inches, as measured according to ASTM C 143/C 143M.
- H. Mineral-Fiber Insulation: ASTM C 665, Type I (blankets without membrane facing); consisting of fibers manufactured from slag or rock wool; with maximum flame-spread and smoke-developed indexes of 25 and 50, respectively; passing ASTM E 136 for combustion characteristics.

- I. Bituminous Coating: Cold-applied asphalt mastic, compounded for 15-mil dry film thickness per coat. Provide inert-type noncorrosive compound free of asbestos fibers, sulfur components, and other deleterious impurities.

## **2.6 FABRICATION**

- A. Fabricate hollow-metal work to be rigid and free of defects, warp, or buckle. Accurately form metal to required sizes and profiles, with minimum radius for metal thickness. Where practical, fit and assemble units in manufacturer's plant. To ensure proper assembly at Project site, clearly identify work that cannot be permanently factory assembled before shipment.
- B. Hollow-Metal Frames: Where frames are fabricated in sections due to shipping or handling limitations, provide alignment plates or angles at each joint, fabricated of same thickness metal as frames.
  1. Sidelight and Transom Bar Frames: Provide closed tubular members with no visible face seams or joints, fabricated from same material as door frame. Fasten members at crossings and to jambs by butt welding.
  2. Provide countersunk, flat- or oval-head exposed screws and bolts for exposed fasteners unless otherwise indicated.
  3. Grout Guards: Weld guards to frame at back of hardware mortises in frames to be grouted.
  4. Floor Anchors: Weld anchors to bottoms of jambs with at least four spot welds per anchor; however, for slip-on drywall frames, provide anchor clips or countersunk holes at bottoms of jambs.
  5. Jamb Anchors: Provide number and spacing of anchors as follows:
    - a. Masonry Type: Locate anchors not more than 16 inches from top and bottom of frame. Space anchors not more than 32 inches o.c., to match coursing, and as follows:
      - 1) Two anchors per jamb up to 60 inches high.
      - 2) Three anchors per jamb from 60 to 90 inches high.
      - 3) Four anchors per jamb from 90 to 120 inches high.
      - 4) Four anchors per jamb plus one additional anchor per jamb for each 24 inches or fraction thereof above 120 inches high.
    - b. Stud-Wall Type: Locate anchors not more than 18 inches from top and bottom of frame. Space anchors not more than 32 inches o.c. and as follows:
      - 1) Three anchors per jamb up to 60 inches high.
      - 2) Four anchors per jamb from 60 to 90 inches high.
      - 3) Five anchors per jamb from 90 to 96 inches high.
      - 4) Five anchors per jamb plus one additional anchor per jamb for each 24 inches or fraction thereof above 96 inches high.
    - c. Compression Type: Not less than two anchors in each frame.
    - d. Postinstalled Expansion Type: Locate anchors not more than 6 inches from top and bottom of frame. Space anchors not more than 26 inches o.c.
  6. Head Anchors: Two anchors per head for frames more than 42 inches wide and mounted in metal-stud partitions.

7. Door Silencers: Except on weather-stripped frames, drill stops to receive door silencers as follows. Keep holes clear during construction.
  - a. Single-Door Frames: Drill stop in strike jamb to receive three door silencers.
  - b. Double-Door Frames: Drill stop in head jamb to receive two door silencers.
- C. Fabricate concealed stiffeners and edge channels from either cold- or hot-rolled steel sheet.
- D. Hardware Preparation: Factory prepare hollow-metal work to receive templated mortised hardware; include cutouts, reinforcement, mortising, drilling, and tapping according to SDI A250.6, the Door Hardware Schedule, and templates.
  1. Reinforce frames to receive nontemplated, mortised, and surface-mounted door hardware.
  2. Comply with applicable requirements in SDI A250.6 and BHMA A156.115 for preparation of hollow-metal work for hardware.
  3. Coordinate locations of conduit and wiring boxes for electrical connections with Division 26 sections.
- E. Stops and Moldings: Provide stops and moldings around glazed lites and louvers where indicated. Form corners of stops and moldings with mitered hairline joints.
  1. Single Glazed Lites: Provide fixed stops and moldings welded on secure side of hollow-metal work.
  2. Multiple Glazed Lites: Provide fixed and removable stops and moldings so that each glazed lite is capable of being removed independently.
  3. Provide fixed frame moldings on outside of exterior and on secure side of interior doors and frames.
  4. Provide loose stops and moldings on inside of hollow-metal work.
  5. Coordinate rabbet width between fixed and removable stops with glazing and installation types indicated.

## **2.7 STEEL FINISHES**

- A. Prime Finish: Clean, pretreat, and apply manufacturer's standard primer.
  1. Shop Primer: Manufacturer's standard, fast-curing, lead- and chromate-free primer complying with SDI A250.10; recommended by primer manufacturer for substrate; compatible with substrate and field-applied coatings despite prolonged exposure.

## **2.8 ACCESSORIES**

- A. Mullions and Transom Bars: Join to adjacent members by welding or rigid mechanical anchors.
- B. Grout Guards: Formed from same material as frames, not less than 0.016 inch thick.

### **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 embedded and built-in anchors to verify actual locations before frame installation.
- C. Prepare written report, endorsed by Installer, listing conditions detrimental to performance of the Work.
- D. Proceed with installation only after unsatisfactory conditions have been corrected.

#### **3.2 PREPARATION**

- A. Remove welded-in shipping spreaders installed at factory. Restore exposed finish by grinding, filling, and dressing, as required to make repaired area smooth, flush, and invisible on exposed faces.
- B. Drill and tap doors and frames to receive nontemplated, mortised, and surface-mounted door hardware.

#### **3.3 INSTALLATION**

- A. General: Install hollow-metal work plumb, rigid, properly aligned, and securely fastened in place. Comply with Drawings and manufacturer's written instructions.
- B. Hollow-Metal Frames: Install hollow-metal frames of size and profile indicated. Comply with SDI A250.11 as required by standards specified.
  - 1. Set frames accurately in position; plumbed, aligned, and braced securely until permanent anchors are set. After wall construction is complete, remove temporary braces, leaving surfaces smooth and undamaged.
    - a. At fire-rated openings, install frames according to NFPA 80.
    - b. Where frames are fabricated in sections because of shipping or handling limitations, field splice at approved locations by welding face joint continuously; grind, fill, dress, and make splice smooth, flush, and invisible on exposed faces.
    - c. Install frames with removable stops located on secure side of opening.
    - d. Install door silencers in frames before grouting.
    - e. Remove temporary braces necessary for installation only after frames have been properly set and secured.
    - f. Check plumb, square, and twist of frames as walls are constructed. Shim as necessary to comply with installation tolerances.
    - g. Field apply bituminous coating to backs of frames that will be filled with grout containing antifreezing agents.

2. Floor Anchors: Provide floor anchors for each jamb and mullion that extends to floor, and secure with postinstalled expansion anchors.
    - a. Floor anchors may be set with power-actuated fasteners instead of postinstalled expansion anchors if so indicated and approved on Shop Drawings.
  3. Metal-Stud Partitions: Solidly pack mineral-fiber insulation inside frames.
  4. Masonry Walls: Coordinate installation of frames to allow for solidly filling space between frames and masonry with grout.
  5. Concrete Walls: Solidly fill space between frames and concrete with mineral-fiber insulation.
  6. In-Place Concrete or Masonry Construction: Secure frames in place with postinstalled expansion anchors. Countersink anchors, and fill and make smooth, flush, and invisible on exposed faces.
  7. In-Place Metal or Wood-Stud Partitions: Secure slip-on drywall frames in place according to manufacturer's written instructions.
  8. Installation Tolerances: Adjust hollow-metal door frames for squareness, alignment, twist, and plumb to the following tolerances:
    - a. Squareness: Plus or minus 1/16 inch, measured at door rabbet on a line 90 degrees from jamb perpendicular to frame head.
    - b. Alignment: Plus or minus 1/16 inch, measured at jambs on a horizontal line parallel to plane of wall.
    - c. Twist: Plus or minus 1/16 inch, measured at opposite face corners of jambs on parallel lines, and perpendicular to plane of wall.
    - d. Plumbness: Plus or minus 1/16 inch, measured at jambs at floor.
- C. Glazing: Comply with installation requirements in Section 088000 "Glazing" and with hollow-metal manufacturer's written instructions.
1. Secure stops with countersunk flat- or oval-head machine screws spaced uniformly not more than 9 inches o.c. and not more than 2 inches o.c. from each corner.

### **3.4 ADJUSTING AND CLEANING**

- A. Final Adjustments: Check and readjust operating hardware items immediately before final inspection. Leave work in complete and proper operating condition. Remove and replace defective work, including hollow-metal work that is warped, bowed, or otherwise unacceptable.
- B. Remove grout and other bonding material from hollow-metal work immediately after installation.
- C. Prime-Coat Touchup: Immediately after erection, sand smooth rusted or damaged areas of prime coat and apply touchup of compatible air-drying, rust-inhibitive primer.
- D. Touchup Painting: Cleaning and touchup painting of abraded areas of paint are specified in painting Sections.

**END OF SECTION 08 11 13**

## **SECTION 08-14 16 - FLUSH WOOD DOORS**

### **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 SECTION INCLUDES**

- A. Solid-core doors wood veneer faces.
- B. Factory finishing flush wood doors.
- C. Factory machining for hardware.

#### **1.3 RELATED SECTIONS**

- A. Section 08 11 13 - Hollow Metal Doors and Frames: Wood doors set in metal frames.
- B. Section 08 71 00 - Door Hardware: Door hardware for flush wood doors.
- C. Section 08 80 00 - Glazing: Glass view panels in flush wood doors.

#### **1.4 SUBMITTALS**

- A. Submit under provisions of Section 01 33 00.
- B. Product Data: For each type of door indicated. Include details of core and edge construction, and trim for openings. Include factory-finishing specifications.
- C. Shop Drawings: Indicate location, size, and hand of each door; elevation of each kind of door; construction details not covered in product data; location and extent of hardware blocking; and other pertinent data.
  - 1. Indicate dimensions and locations of mortises and holes for hardware.
  - 2. Indicate dimensions and locations of cutouts.
  - 3. Indicate requirements for veneer matching.
  - 4. Indicate doors to be factory finished and finish requirements.
  - 5. Indicate fire-protection ratings for fire-rated doors.
- D. Samples for Verification:
  - 1. Factory finishes applied to actual door face materials, approximately 8 by 10 inches, for each material and finish. Provide set of three (3) samples showing typical range of color and grain to be expected in the finished work.



- E. Warranty: Sample of special warranty.

### **1.5 QUALITY ASSURANCE**

- A. Source Limitations: Obtain flush wood doors from single manufacturer.
- B. Quality Standard: In addition to requirements specified, comply with WDMA I.S.1-A, "Architectural Wood Flush Doors."
- C. Fire-Rated Wood Doors: Doors complying with NFPA 80 that are listed and labeled by a qualified testing agency, for fire-protection ratings indicated, based on testing at positive pressure according to UL 10C.

### **1.6 DELIVERY, STORAGE AND HANDLING**

- A. Comply with requirements of referenced standard and manufacturer's written instructions.
- B. Package doors individually in plastic bags or cardboard cartons.
- C. Mark each door on top and bottom rail with opening number used on shop drawings.

### **1.7 PROJECT CONDITIONS**

- A. Environmental Limitations: Do not deliver or install doors until spaces are enclosed and weathertight, wet work in spaces is complete and dry, and HVAC system is operating and maintaining ambient temperature and humidity conditions at occupancy levels during the remainder of the construction period.

### **1.8 WARRANTY**

- A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace doors that fail in materials or workmanship within specified warranty period.
  - 1. Failures include, but are not limited to, the following:
    - a. Warping (bow, cup, or twist) more than 1/4-inch in a 42-by-84-inch section.
    - b. Telegraphing of core construction in face veneers exceeding 0.01-inch in a 3-inch span.
  - 2. Warranty Period for Solid-Core Interior Doors: Life of installation.

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## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

- 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. Algoma Hardwoods, Inc.
  2. Graham; an Assa Abloy Group company.
  3. Marshfield Door Systems, Inc.
  4. VT Industries Inc.

### 2.2 DOOR CONSTRUCTION, GENERAL

- A. WDMA I.S.1-A Performance Grade:
1. Heavy Duty unless otherwise indicated.
  2. Extra Heavy Duty: Public toilets, janitor's closets.
  3. Standard Duty: Closets (not including janitor's closets), private toilets.
- B. Structural-Composite-Lumber-Core Doors:**
1. Structural Composite Lumber: WDMA I.S.10.
    - a. Screw Withdrawal, Face: 700 lbf.
    - b. Screw Withdrawal, Edge: 400 lbf.
- C. Fire-Protection-Rated Doors: Provide core specified or mineral core as needed to provide fire-protection rating indicated.
1. Edge Construction: Provide edge construction with intumescent seals concealed by outer stile. Comply with specified requirements for exposed edges.
  2. Pairs: Provide fire-retardant stiles that are listed and labeled for applications indicated without formed-steel edges and astragals. Provide stiles with concealed intumescent seals. Comply with specified requirements for exposed edges.
- D. Mineral-Core Doors:**
1. Core: Noncombustible mineral product complying with requirements of referenced quality standard and testing and inspecting agency for fire-protection rating indicated.
  2. Core Reinforcement Blocking: Provide core reinforcement blocking in all single, or paired 1-1/2, 1, and 3/4 hour fire rated doors where surface mounted closers or fire exit devices are to be attached to the door.
    - a. 5-inch top-rail blocking.
    - b. 5-inch bottom-rail blocking, in doors indicated to have protection plates.
    - c. 5-inch midrail blocking, in doors indicated to have armor plates.
    - d. 4-1/2-by-10-inch lock blocks, in doors indicated to have exit devices.

3. Edge Construction: At hinge stiles, provide laminated-edge construction with improved screw-holding capability and split resistance. Comply with specified requirements for exposed edges.

## **2.3 VENEERED-FACED DOORS FOR TRANSPARENT FINISH**

- A. Interior Solid-Core Doors:
  1. Grade: Premium, with Grade A faces.
  2. Species: To be selected by Architect.
  3. Cut: Plain sliced (flat sliced).
  4. Match between Veneer Leaves: Book match.
  5. Exposed Vertical and Top Edges: Same species as faces.

## **2.4 LIGHT FRAMES**

- A. Wood Beads for Light Openings in Wood Doors: Provide manufacturer's standard wood beads as follows unless otherwise indicated.
  1. Wood Species: Species compatible with door faces.
  2. Profile: Manufacturer's standard shape.
  3. At wood-core doors with 20-minute fire-protection ratings, provide wood beads and metal glazing clips approved for such use.
- B. Wood-Veneered Beads for Light Openings in Fire-Rated Doors: Manufacturer's standard wood-veneered noncombustible beads matching veneer species of door faces and approved for use in doors of fire-protection rating indicated. Include concealed metal glazing clips where required for opening size and fire-protection rating indicated.

## **2.5 FABRICATION**

- A. Factory fit doors to suit frame-opening sizes indicated. Comply with clearance requirements of referenced quality standard for fitting unless otherwise indicated.
  1. Comply with requirements in NFPA 80 for fire-rated doors.
- B. Factory machine doors for hardware that is not surface applied. Locate hardware to comply with DHI-WDHS-3. Comply with final hardware schedules, door frame shop drawings, DHI A115-W series standards, and hardware templates.
  1. Coordinate with hardware mortises in metal frames to verify dimensions and alignment before factory machining.
  2. Metal Astragals: Factory machine astragals and formed-steel edges for hardware for pairs of fire-rated doors.
- C. Openings: Cut and trim openings through doors in factory.
  1. Light Openings: Trim openings with moldings of material and profile indicated.
  2. Glazing: Factory install glazing in doors indicated to be factory finished. Comply with applicable requirements in Section 08 80 00.

## **2.6 FACTORY FINISHING**

- A. General: Comply with referenced quality standard for factory finishing. Complete fabrication, including fitting doors for openings and machining for hardware that is not surface applied, before finishing.
  - 1. Finish faces, all four (4) edges, edges of cutouts, and mortises. Stains and fillers may be omitted on bottom edges, edges of cutouts, and mortises.
- B. Finish doors at factory.
- C. Transparent Finish:
  - 1. Grade: Premium.
  - 2. Finish: WDMA TR-6 catalyzed polyurethane.
  - 3. Staining: Match Architects sample.
  - 4. Sheen: Satin.

## **PART 3 - EXECUTION**

### **3.1 EXAMINATION**

- A. Examine doors and installed door frames before hanging doors.
  - 1. Verify that frames comply with indicated requirements for type, size, location, and swing characteristics and have been installed with level heads and plumb jambs.
  - 2. Reject doors with defects.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

### **3.2 INSTALLATION**

- A. Hardware: For installation, see Section 08 71 00.
- B. Installation Instructions: Install doors to comply with manufacturer's written instructions and the referenced quality standard, and as indicated.
  - 1. Install fire-rated doors in corresponding fire-rated frames according to NFPA 80.
- C. Job-Fitted Doors: Non-Fire Rated Doors; align and fit doors in frames with uniform clearances and bevels as indicated below; do not trim stiles and rails in excess of limits set by manufacturer or permitted for fire-rated doors. Machine doors for hardware. Seal edges of doors, edges of cutouts, and mortises after fitting and machining.
  - 1. Clearances: Provide 1/8-inch at heads, jambs, and between pairs of doors. Provide 1/8-inch from bottom of door to top of decorative floor finish or covering unless otherwise indicated. Where threshold is shown or scheduled, provide 1/4-inch from bottom of door to top of threshold unless otherwise indicated.

- a. Comply with NFPA 80 for fire-rated doors.
  - 2. Bevel non-fire-rated doors 1/8-inch in two (2) inches at lock and hinge edges.
  - 3. Bevel fire-rated doors 1/8-inch in two (2) inches at lock edge; trim stiles and rails only to extent permitted by labeling agency.
- D. Factory-Fitted Doors: Fire Rated Doors; align in frames for uniform clearance at each edge.
- E. Factory-Finished Doors: Restore finish before installation if fitting or machining is required at project site.

### **3.3 ADJUSTING**

- A. Operation: Rehang or replace doors that do not swing or operate freely.
- B. Finished Doors: Replace doors that are damaged or that do not comply with requirements. Doors may be repaired or refinished if work complies with requirements and shows no evidence of repair or refinishing.

**END OF SECTION 08 14 16**

**SECTION 08 31 13 - ACCESS DOORS AND FRAMES**

**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 SECTION INCLUDES**

- A. Access doors and frames for walls and ceilings.

**1.3 RELATED SECTION**

- A. Section 09 29 00 – Gypsum Board: Walls and Ceilings
- B. Division 21 – Fire Suppression: Coordinate access door locations where needed for sprinkler valve access.
- C. Division 22 – Plumbing: Coordinate access door locations where needed for plumbing valve access.
- D. Division 23 – HVAC: Coordinate access door locations for HVAC system access.

**1.4 SUBMITTALS**

- A. Submit under provisions of Section 01 33 00.
- B. Product Data: For each type of access door and frame indicated. Include construction details, fire ratings, materials, individual components and profiles, and finishes.
- C. Shop Drawings: Show fabrication and installation details of access doors and frames for each type of substrate. Include plans, elevations, sections, details, and attachments to other work.
- D. Samples: For each door face material, at least 3 by 5 inches in size, in specified finish.
- E. Access Door and Frame Schedule: Provide complete access door and frame schedule, including types, locations, sizes, latching or locking provisions, and other data pertinent to installation.

**1.5 QUALITY ASSURANCE**

- A. Source Limitations: Obtain each type of access door(s) and frame(s) through one (1) source from a single manufacturer.
- B. Size Variations: Obtain Architect's acceptance of manufacturer's standard-size units, which may vary slightly from sizes indicated.

## **1.6 COORDINATION**

- A. Verification: Determine specific locations and sizes for access doors needed to gain access to concealed plumbing, mechanical, or other concealed work, and indicate in the schedule specified in "Submittals" article.

## **PART 2 - PRODUCTS**

### **2.1 STEEL MATERIALS**

- A. Steel Plates, Shapes, and Bars: ASTM A36.
  - 1. ASTM A123, for galvanizing steel and iron products.
  - 2. ASTM A153, for galvanizing steel and iron hardware.
- B. Steel Sheet: electrolytic zinc-coated, ASTM A591 with cold-rolled steel sheet substrate complying with ASTM A1008, Commercial Steel (CS), exposed.
- C. Metallic-Coated Steel Sheet: ASTM A653, Commercial Steel (CS) with A60 zinc-iron-alloy (galvanized) coating or G60 mill-phosphatized zinc coating; stretcher-leveled standard of flatness; with minimum thickness indicated representing specified thickness according to ASTM A924.
- D. Steel Finishes: Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
  - 1. Surface Preparation for Steel Sheet: Clean surfaces to comply with SSPC-SP 1, "Solvent Cleaning," to remove dirt, oil, grease, or other contaminants that could impair paint bond. Remove mill scale and rust, if present, from uncoated steel, complying with SSPC-SP 5/NACE No. 1, "White Metal Blast Cleaning," or SSPC-SP 8, "Pickling."
  - 2. Factory-Primed Finish: Apply shop primer immediately after cleaning and pretreating.
- E. Drywall Beads: Edge trim formed from 0.0299-inch zinc-coated steel sheet formed to receive joint compound and in size to suit thickness of gypsum board.

### **2.2 ACCESS DOORS AND FRAMES FOR WALLS AND CEILINGS**

- A. Flush Access Doors with Concealed Flanges for Drywall:
  - 1. Basis of Design Product: Subject to compliance with requirements, provide DW-5040 Series by Acudor Products, Inc. or a product of another manufacturer by one (1) of the following:
    - a. Karp Associates, Inc.. Model KDW.
    - b. Milcor, Inc. Model DW.
    - c. Nystrom. Model NW.
  - 2. Assembly Description: Fabricate door to fit flush to frame. Provide frame with gypsum board beads for concealed flange installation.
  - 3. Locations: Wall and ceiling.
  - 4. Door Size: Door size to be selected to access equipment.
  - 5. Steel Sheet for Door: Galvanized steel sheet, nominal 0.035-inch, 20 gage.

- a. Finish: Factory prime.
- 6. Frame Material: 26 gauge galvanized steel drywall taping bead with pre-punched holes.
- 7. Hinges: Manufacturer's standard concealed hinges.
- 8. Hardware: Slotted screwdriver operated cam latch.

### **2.3 FABRICATION**

- A. General: Provide access door and frame assemblies manufactured as integral units ready for installation.
- B. Metal Surfaces: For metal surfaces exposed to view in the completed Work, provide materials with smooth, flat surfaces without blemishes. Do not use materials with exposed pitting, seam marks, roller marks, rolled trade names, or roughness.
- C. Doors and Frames: Grind exposed welds smooth and flush with adjacent surfaces. Furnish attachment devices and fasteners of type required to secure access panels to types of supports indicated.
  - 1. Exposed Flanges: Nominal 1 to 1-1/2 inches wide around perimeter of frame.
  - 2. Provide mounting holes in frames for attachment of units to metal or wood framing.
- D. Latching Mechanisms: Furnish number required to hold doors in flush, smooth plane when closed.

## **PART 3 - EXECUTION**

### **3.1 INSTALLATION**

- A. Comply with manufacturer's written instructions for installing access doors and frames.
- B. Set frames accurately in position and attach securely to supports with plane of face panels aligned with adjacent finish surfaces.
- C. Install doors flush with adjacent finish surfaces or recessed to receive finish material.

### **3.2 ADJUSTING AND CLEANING**

- A. Adjust doors and hardware after installation for proper operation.
- B. Remove and replace doors and frames that are warped, bowed, or otherwise damaged.

**END OF SECTION 08 31 13**



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**SECTION 08 33 13 - COILING COUNTER DOORS**

**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 SECTION INCLUDES**

- A. Automatic closing fire-rated counter doors with integral frame and countertop.

**1.3 RELATED REQUIREMENTS**

- A. Section 05 50 00 - Metal Fabrications: Miscellaneous steel supports.
- B. Division 26. Electrical wiring and conduit, fuses, disconnect switches, connection of operator to power supply, installation of control station and wiring, and connection to alarm system.

**1.4 ACTION SUBMITTALS**

- A. Submit under provisions of Section 01 30 00.
- B. Product Data: For each type and size of coiling counter door and accessory.
  - 1. Include construction details, material descriptions, dimensions of individual components, profiles for slats, and finishes.
  - 2. Include rated capacities, operating characteristics, electrical characteristics, and furnished accessories.
  - 3. Include description of automatic closing device and testing and resetting instructions.
- C. Shop Drawings: For each installation and for special components not dimensioned or detailed in manufacturer's product data.
  - 1. Include plans, elevations, sections, and mounting details.
  - 2. Include details of equipment assemblies, and indicate dimensions, required clearances, and method of field assembly, components, and location and size of each field connection.
  - 3. Include points of attachment and their corresponding static and dynamic loads imposed on structure.
  - 4. Show locations of controls, locking devices, detectors or replaceable fusible links, and other accessories.
  - 5. Include diagrams for power, signal, and control wiring.

- D. Samples for Verification: For each type of exposed finish on the following components, in manufacturer's standard sizes:

1. Curtain slats.

### **1.5 INFORMATIONAL SUBMITTALS**

- A. Submit under provisions of Section 01 30 00.
- B. Qualification Data: For installer.
- C. Oversize Construction Certification: For door assemblies required to be fire-rated and that exceed size limitations of labeled assemblies.

### **1.6 CLOSEOUT SUBMITTALS**

- A. Submit under provisions of Section 01 30 00.
- B. Maintenance Data: For coiling counter doors to include in maintenance manuals.

### **1.7 QUALITY ASSURANCE**

- A. Installer Qualifications: An entity that employs installers and supervisors who are trained and approved by manufacturer for both installation and maintenance of units required for this project.
1. Maintenance Proximity: Not more than two (2) hours' normal travel time from installer's place of business to project site.
- B. Fire-Rated Door Assemblies: Assemblies complying with NFPA 80 that are listed and labeled by a qualified testing agency, for fire-protection ratings indicated, based on testing at as close to neutral pressure as possible according to UL 10B.
1. Smoke Control: Provide doors that are listed and labeled with the letter "S" on the fire-rating label by a qualified testing agency for smoke- and draft-control based on testing according to UL 1784; with maximum air-leakage rate of 3.0 cfm/sq ft of door opening at 0.10-inch wg for both ambient and elevated temperature tests.

## **PART 2 - PRODUCTS**

### **2.1 MANUFACTURERS, GENERAL**

- A. Source Limitations: Obtain coiling counter doors from single source from single manufacturer.
1. Obtain operators and controls from coiling counter door manufacturer.

### **2.2 FIRE-RATED COUNTER DOOR ASSEMBLY**

- A. Fire-Rated Counter Door: Overhead fire-rated coiling door formed with curtain of interlocking metal slats.
1. Basis-of-Design Product: Subject to compliance with requirements, provide Counter Fire and Smoke Shutter Model ERC11 by Cornell Iron Works, Inc or comparable product by one (1) of the following:

- a. Cookson Company.
  - b. Overhead Door Corporation.
- B. Operation Cycles: Door components and operators capable of operating for not less than 20,000. One (1) operation cycle is complete when a door is opened from the closed position to the fully open position and returned to the closed position.
- 1. Include tamperproof cycle counter.
- C. Fire Rating: 1-1/2 hours with smoke control.
- D. Door Curtain Material: Stainless steel.
- E. Door Curtain Slats: Interlocked flat profile slats of 1-1/4-inch by center-to-center height by 3/8-inch deep.
- F. Curtain Jamb Guides: Stainless steel with exposed finish matching curtain slats.
- G. Hood: Stainless steel.
- 1. Shape: Round.
  - 2. Mounting: Face of wall.
- H. Integral Frame and Fascia: Stainless steel.
- 1. Mounting: Face of wall.
- I. Locking Devices: Equip door with masterkey cylinder locking device assembly.
- 1. Locking Device Assembly: Single-jamb side locking bars, operable from inside and outside with cylinders.
- J. Electric Door Operator:
- 1. Usage Classification: Light duty, up to 10 cycles per hour.
  - 2. Operator Location: Concealed in hood.
  - 3. Motor Exposure: Interior.
  - 4. Emergency Manual Operation: Push-up type.
  - 5. Control Station(s): Interior-side mounted.
- K. Curtain Accessories: Equip door with smoke seals, automatic closing device, push/pull handles.
- 1. Smoke Seals & UL Smoke Label:
    - a. Bottom Bar: UL tested brush seal.
    - b. Guides and Head: Replaceable, UL Listed, brush seals sealing against fascia side of curtain
- L. Door Finish:

1. Stainless Steel Finish: No. 4 (polished directional satin).
2. Interior Curtain-Slat Facing: Match finish of exterior curtain-slat face.

### **2.3 MATERIALS, GENERAL**

- 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.

### **2.4 DOOR CURTAIN MATERIALS AND CONSTRUCTION**

- A. Door Curtains: Fabricate coiling counter-door curtain of interlocking metal slats in a continuous length for width of door without splices. Unless otherwise indicated, provide slats of thickness and mechanical properties recommended by door manufacturer for performance, size, and type of door indicated, and as follows:
1. Stainless Steel Door Curtain Slats: ASTM A666, Type 304; sheet thickness of 22-gauge.
  2. Metal Interior Curtain-Slat Facing: Match metal of exterior curtain-slat face.
- B. Curtain Jamb Guides: Manufacturer's standard angles or channels and angles of same material and finish as curtain slats unless otherwise indicated, with sufficient depth and strength to retain curtain, to allow curtain to operate smoothly, and to withstand loading. Slot bolt holes for guide adjustment. Provide removable stops on guides to prevent overtravel of curtain.

### **2.5 HOODS**

- A. General: Form sheet metal hood to entirely enclose coiled curtain and operating mechanism at opening head. Contour to fit end brackets to which hood is attached. Roll and reinforce top and bottom edges for stiffness. Form closed ends for surface-mounted hoods and fascia for any portion of between-jamb mounting that projects beyond wall face. Equip hood with intermediate support brackets as required to prevent sagging.
1. Stainless Steel: 16-gauge thick stainless steel sheet, Type 304, complying with ASTM A666.
  2. Include automatic drop baffle on fire-rated doors to guard against passage of smoke or flame.
- B. Integral Frame and Fascia: Welded sheet metal assembly of the following sheet metal(s):
1. Stainless Steel: 16-gauge thick stainless steel sheet, Type 304, complying with ASTM A666.

### **2.6 LOCKING DEVICES**

- A. Locking Device Assembly: Fabricate with cylinder lock, spring-loaded dead bolt, operating handle, cam plate, and adjustable locking bars to engage through slots in tracks.
1. Lock Cylinders: Cylinders standard with manufacturer.
  2. Keys: Three (3) for each cylinder.

- B. Safety Interlock Switch: Equip power-operated doors with safety interlock switch to disengage power supply when door is locked.

## **2.7 CURTAIN ACCESSORIES**

- A. Smoke Seals: Equip each fire-rated door with replaceable smoke-seal perimeter gaskets or brushes for smoke and draft control as required for door listing and labeling by a qualified testing agency.
- B. Push/Pull Handles: Equip each push-up-operated or emergency-operated door with lifting handles on each side of door, finished to match door.
- C. Automatic-Closing Device: Equip each fire-rated door with an automatic-closing device or holder-release mechanism and governor unit complying with NFPA 80 and an easily tested and reset release mechanism. Release mechanism for motor-operated doors shall allow testing without mechanical release of the door. Automatic-closing device shall be designed for activation by the following:
  - 1. Building fire-detection, smoke-detection, and -alarm systems.

## **2.8 COUNTER DOOR ACCESSORIES**

- A. Integral Countertop: Fabricate sills as integral part of frame assembly of Type 304 stainless steel 14-gauge thickness with No. 4 finish.

## **2.9 COUNTERBALANCING MECHANISM**

- A. General: Counterbalance doors by means of manufacturer's standard mechanism with an adjustable-tension, steel helical torsion spring mounted around a steel shaft and contained in a spring barrel connected to top of curtain with barrel rings. Use grease-sealed bearings or self-lubricating graphite bearings for rotating members.
- B. Counterbalance Barrel: Fabricate spring barrel of manufacturer's standard hot-formed, structural-quality, welded carbon-steel pipe, of sufficient diameter and wall thickness to support rolled-up curtain without distortion of slats and to limit barrel deflection to not more than 0.03-in/ft of span under full load.
- C. Counterbalance Spring: One (1) or more oil-tempered, heat-treated steel helical torsion springs. Size springs to counterbalance weight of curtain, with uniform adjustment accessible from outside barrel. Secure ends of springs to barrel and shaft with cast-steel barrel plugs.
  - 1. Fire-Rated Doors: Equip with auxiliary counterbalance spring and prevent tension release from main counterbalance spring when automatic closing device operates.
- D. Torsion Rod for Counterbalance Shaft: Fabricate of manufacturer's standard cold-rolled steel, sized to hold fixed spring ends and carry torsional load.

- E. Brackets: Manufacturer's standard mounting brackets of either cast iron or cold-rolled steel plate.

## **2.10 ELECTRIC DOOR OPERATORS**

- A. General: Electric door operator assembly of size and capacity recommended and provided by door manufacturer for door and operation-cycles requirement specified, with electric motor and factory-prewired motor controls, starter, gear-reduction unit, solenoid-operated brake, clutch, control

stations, control devices, integral gearing for locking door, and accessories required for proper operation.

1. Basis-of-Design Product: Subject to compliance with requirements, provide Alargard Tube Motor by Cornell Iron Works, Inc or comparable product by one (1) of the following:
    - a. Cookson Company.
    - b. Overhead Door Corporation.
  2. Comply with NFPA 70.
  3. Control equipment complying with NEMA ICS 1, NEMA ICS 2, and NEMA ICS 6, with NFPA 70 Class 2 control circuit, maximum 24-V ac or dc.
- B. Usage Classification: Electric operator and components capable of operating for not less than number of cycles per hour indicated for each door.
- C. Door Operator Location(s): Operator location indicated for each door.
1. Concealed Tubular Mounted: Operator is mounted inside the hood assembly to the right or left door head plate and connected to the drive shaft assembly.
- D. Motors: Reversible-type motor with controller (disconnect switch) for motor exposure indicated.
1. Electrical Characteristics:
    - a. Phase: Single phase.
    - b. Volts: 115 V.
    - c. Hertz: 60.
  2. Motor Size: Minimum size as indicated. If not indicated, large enough to start, accelerate, and operate door in either direction from any position, at a speed not less than eight (8) in/sec and not more than 12 in/sec, without exceeding nameplate ratings or service factor.
  3. Operating Controls, Controllers, Disconnect Switches, Wiring Devices, and Wiring: Manufacturer's standard unless otherwise indicated.
  4. Coordinate wiring requirements and electrical characteristics of motors and other electrical devices with building electrical system and each location where installed.
- E. Limit Switches: Equip each motorized door with adjustable switches interlocked with motor controls and set to automatically stop door at fully opened and fully closed positions.
- F. Control Station: Three-button control station in fixed location with momentary-contact push-button controls labeled "Open" and "Stop" and sustained- or constant-pressure push-button control labeled "Close."
1. Type: Full-guarded, surface-mounted, heavy-duty type, with general-purpose NEMA ICS 6, Type 1 enclosure.
- G. Emergency Manual Operation: Equip each electrically powered door with capability for emergency manual operation. Design manual mechanism so required force for door operation does not exceed 25 lbf.

- H. Emergency Operation Disconnect Device: Equip operator with hand-operated disconnect mechanism for automatically engaging manual operator and releasing brake for emergency manual operation while disconnecting motor without affecting timing of limit switch. Mount mechanism so it is accessible from floor level. Include interlock device to automatically prevent motor from operating when emergency operator is engaged.
- I. Motor Removal: Design operator so motor may be removed without disturbing limit-switch adjustment and without affecting emergency manual operation.

## **2.11 GENERAL FINISH REQUIREMENTS**

- A. Comply with NAAMM/NOMMA's "Metal Finishes Manual for Architectural and Metal Products (AMP 500-06)" for recommendations for applying and designating finishes.
- B. 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.

## **2.12 STEEL AND GALVANIZED STEEL FINISHES**

- A. Baked-Enamel or Powder-Coat Finish: Manufacturer's standard baked-on finish consisting of prime coat and thermosetting topcoat. Comply with coating manufacturer's written instructions for cleaning, pretreatment, application, and minimum dry film thickness.

## **2.13 STAINLESS STEEL FINISHES**

- A. Surface Preparation: Remove tool and die marks and stretch lines, or blend into finish.
- B. Polished Finishes: Grind and polish surfaces to produce uniform finish, free of cross scratches.
  - 1. Run grain of directional finishes with long dimension of each piece.
  - 2. When polishing is completed, passivate and rinse surfaces. Remove embedded foreign matter and leave surfaces chemically clean.
  - 3. Directional Satin Finish: No. 4.

## **PART 3 - EXECUTION**

### **3.1 EXAMINATION**

- A. Examine substrates areas and conditions, with installer present, for compliance with requirements for substrate construction and other conditions affecting performance of the Work.
- B. Examine locations of electrical connections.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

### **3.2 INSTALLATION**

- A. Install coiling counter doors and operating equipment complete with necessary hardware, anchors, inserts, hangers, and equipment supports; according to manufacturer's written instructions and as specified.



- B. Install coiling counter doors, hoods, controls, and operators at the mounting locations indicated for each door.
- C. Fire-Rated Doors: Install according to NFPA 80.
- D. Smoke-Control Doors: Install according to NFPA 80 and NFPA 105.

### **3.3 STARTUP SERVICE**

- A. Engage a factory-authorized service representative to perform startup service.
  - 1. Perform installation and startup checks according to manufacturer's written instructions.
  - 2. Test and adjust controls and safety devices. Replace damaged and malfunctioning controls and equipment.
  - 3. Test door closing when activated by detector or alarm-connected fire-release system. Reset door-closing mechanism after successful test.

### **3.4 ADJUSTING**

- A. Adjust hardware and moving parts to function smoothly so that doors operate easily, free of warp, twist, or distortion.
- B. Lubricate bearings and sliding parts as recommended by manufacturer.
- C. Adjust seals to provide tight fit around entire perimeter.

### **3.5 MAINTENANCE SERVICE**

- A. Initial Maintenance Service: Beginning at Substantial Completion, maintenance service shall include 12 months' full maintenance by skilled employees of coiling-door installer.
  - 1. Perform maintenance, including emergency callback service, during normal working hours.

### **3.6 DEMONSTRATION**

- A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain coiling counter doors.

**END OF SECTION 08 33 13**

## **SECTION 08 71 00 - DOOR HARDWARE**

### **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. Mechanical door hardware for swinging doors.
- B. Related Sections:
  - 1. Section 08 14 16 "Flush Wood Doors" for astragals provides as part of labeled fire-rated assemblies.
  - 2. Section 08 33 13 "Coiling Counter Doors", for door hardware provided as part of overhead door assemblies.
  - 3. Section 10 22 13 "Wire Mesh Partitions" for door hardware for doors in wire mesh partitions, except cylinders.

#### **1.3 ACTION SUBMITTALS**

- A. Product Data: For each type of product indicated. Include construction and installation details, material descriptions, dimensions of individual components and profiles, and finishes.
- B. Other Action Submittals:
  - 1. Door Hardware Schedule: Prepared by or under the supervision of Installer, detailing fabrication and assembly of door hardware, as well as installation procedures and diagrams. Coordinate final door hardware schedule with doors, frames, and related work to ensure proper size, thickness, hand, function, and finish of door hardware.
    - a. Submittal Sequence: Submit door hardware schedule concurrent with submissions of Product Data, Samples, and Shop Drawings. Coordinate submission of door hardware schedule with scheduling requirements of other work to facilitate the fabrication of other work that is critical in Project construction schedule.
    - b. Format: Use same scheduling sequence and format and use same door numbers as in the Contract Documents.
    - c. Content: Include the following information:
      - 1) Identification number, location, hand, fire rating, size, and material of each door and frame.
      - 2) Locations of each door hardware set, cross-referenced to Drawings on floor plans and to door and frame schedule.
      - 3) Complete designations, including name and manufacturer, type, style, function, size, quantity, function, and finish of each door hardware product.
      - 4) Fastenings and other pertinent information.
      - 5) Explanation of abbreviations, symbols, and codes contained in schedule.

6) Mounting locations for door hardware.

2. Keying Schedule: Prepared by or under the supervision of Installer, detailing Owner's final keying instructions for locks. Include schematic keying diagram and index each key set to unique door designations that are coordinated with the Contract Documents.

#### **1.4 CLOSEOUT SUBMITTALS**

- A. Maintenance Data: For each type of door hardware to include in maintenance manuals. Include final hardware schedule.

#### **1.5 QUALITY ASSURANCE**

- A. Architectural Hardware Consultant Qualifications: A person who is experienced in providing consulting services for door hardware installations that are comparable in material, design, and extent to that indicated for this Project and who is currently certified by DHI as follows:

1. For door hardware, an Architectural Hardware Consultant (AHC).

- B. Source Limitations: Obtain each type of door hardware from a single manufacturer.

- C. Fire-Rated Door Assemblies: Where fire-rated door assemblies are indicated, provide door hardware rated for use in assemblies complying with NFPA 80 that are listed and labeled by a qualified testing agency, for fire-protection ratings indicated, based on testing at positive pressure according to NFPA 252 or UL 10C, unless otherwise indicated.

- D. Means of Egress Doors: Latches do not require more than 15 lbf (67 N) to release the latch. Locks do not require use of a key, tool, or special knowledge for operation.

- E. Accessibility Requirements: For door hardware on doors in an accessible route, comply with the U.S. Architectural & Transportation Barriers Compliance Board's ADA-ABA Accessibility Guidelines and ICC/ANSI A117.1.

1. Provide operating devices that do not require tight grasping, pinching, or twisting of the wrist and that operate with a force of not more than 5 lbf (22.2 N).

2. Comply with the following maximum opening-force requirements:

- a. Interior, Non-Fire-Rated Hinged Doors: 5 lbf (22.2 N) applied perpendicular to door.  
b. Fire Doors: Minimum opening force allowable by authorities having jurisdiction.

3. Bevel raised thresholds with a slope of not more than 1:2. Provide thresholds not more than 1/2 inch (13 mm) high.

4. Adjust door closer sweep periods so that, from an open position of 70 degrees, the door will take at least 3 seconds to move to a point 3 inches (75 mm) from the latch, measured to the leading edge of the door.

#### **1.6 DELIVERY, STORAGE, AND HANDLING**

- A. Inventory door hardware on receipt and provide secure lock-up for door hardware delivered to Project site.

- B. Tag each item or package separately with identification coordinated with the final door hardware schedule, and include installation instructions, templates, and necessary fasteners with each item or package.
- C. Deliver keys and permanent cores to Owner by registered mail or overnight package service.

### 1.7 COORDINATION

- A. Installation Templates: Distribute for doors, frames, and other work specified to be factory prepared. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing door hardware to comply with indicated requirements.
- B. New locks must be keyed to the building standard existing key system. Keys will be cut by the building's designated locksmith.
- C. Existing Openings: Where hardware components are scheduled for application to existing construction or where modifications to existing door hardware are required, field verify existing conditions and coordinate installation of door hardware to suit opening conditions and to provide proper door operation.

### 1.8 WARRANTY

- A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of door hardware that fail in materials or workmanship within specified warranty period.
  - 1. Failures include, but are not limited to, the following:
    - a. Structural failures including excessive deflection, cracking, or breakage.
    - b. Faulty operation of doors and door hardware.
    - c. Deterioration of metals, metal finishes, and other materials beyond normal weathering and use.
  - 2. Warranty Period: Three years from date of Substantial Completion, unless otherwise indicated.
    - a. Exit Devices: Two years from date of Substantial Completion.
    - b. Manual Closers: 10 years from date of Substantial Completion.

### 1.9 MAINTENANCE SERVICE

- A. Maintenance Tools and Instructions: Furnish a complete set of specialized tools and maintenance instructions for Owner's continued adjustment, maintenance, and removal and replacement of door hardware.

## PART 2 - PRODUCTS

### 2.1 SCHEDULED DOOR HARDWARE

- A. Provide door hardware for each door as scheduled in Part 3 "Door Hardware Schedule" Article to comply with requirements in this Section.
  - 1. Door Hardware Sets: Provide quantity, item, size, finish or color indicated.

2. Unless noted otherwise, the hardware manufacturer is to match existing.

## 2.2 HINGES

- A. Hinges: BHMA A156.1.
  1. Manufacturers: Acceptable Manufacturers:
    - a. Hagar
    - b. McKinney
    - c. Stanley.

## 2.3 MECHANICAL LOCKS AND LATCHES

- A. Lock Functions: As indicated in door hardware schedule.
  1. Acceptable manufacturers – Heavy duty commercial locks and cylinders (quality standard Corbin Russwin ML2000):
    - a. Corbin Russwin
    - b. Schlage
- B. Lock Throw: Comply with testing requirements for length of bolts required for labeled fire doors, and as follows:
  1. Mortise Locks: Minimum 3/4-inch (19-mm) latchbolt throw.
  2. Deadbolts: Minimum 1-inch (25-mm) bolt throw.
- C. Lock Backset: 2-3/4 inches (70 mm), unless otherwise indicated.
- D. Lock Trim:
  1. Levers: Schlage 07 Athens lever design.
  2. Roses: Wrought.
  3. Operating Device: Lever with roses.
- E. Strikes: Provide manufacturer's standard strike for each lock bolt or latchbolt complying with requirements indicated for applicable lock or latch and with strike box and curved lip extended to protect frame; finished to match lock or latch.
- F. Mortise Locks: BHMA A156.13; Operational Grade 1; stamped steel case with steel or brass parts; Series 1000.
  1. Manufacturers: Provide products by the following:
    - a. Corbin Russwin
    - b. Schlage

## 2.4 MANUAL FLUSH BOLTS

- A. Manual Flush Bolts: BHMA A156.16; minimum 3/4-inch (19-mm) throw; designed for mortising into door edge.
- B. Manufacturers: Provide products by the following:

1. Rockwood Manufacturing Company.

## **2.5 AUTOMATIC AND SELF-LATCHING FLUSH BOLTS**

- A. Automatic and Self-Latching Flush Bolts: BHMA A156.16; minimum 3/4-inch (19-mm) throw; designed for mortising into door edge.
- B. Manufacturers: Subject to compliance with requirements, provide products by the following:
  1. Rockwood Manufacturing Company.

## **2.6 LOCK CYLINDERS**

- A. Lock Cylinders: Tumbler type, constructed from brass or bronze, stainless steel, or nickel silver.
  1. Manufacturer: Same manufacturer as for locking devices.
- B. Standard Lock Cylinders: BHMA A156.5; Grade 1; permanent cores that are face finished to match lockset.
- C. Construction Master Keys: Provide cylinders with feature that permits voiding of construction keys without cylinder removal. Provide 10 construction master keys.
- D. Construction Cores: Provide construction cores that are replaceable by permanent cores. Provide 10 construction master keys.

## **2.7 KEYING**

- A. Keying System: complying with guidelines in BHMA A156.28, Appendix A.
  1. Existing System:
    - a. Master key or grand master key locks to Owner's existing system.
- B. Keys:
  1. Quantity: In addition to one extra key blank for each lock, provide the following:
    - a. Cylinder Change Keys: Three.

## **2.8 SURFACE CLOSERS**

- A. Surface Closers: BHMA A156.4; rack-and-pinion hydraulic type with adjustable sweep and latch speeds controlled by key-operated valves and forged-steel main arm. Comply with manufacturer's written recommendations for size of door closers depending on size of door, exposure to weather, and anticipated frequency of use. Provide factory-sized closers, adjustable to meet field conditions and requirements for opening force.
  1. Manufacturers: Subject to compliance with requirements, provide products by the following to meet quality standard LCN 4000 Series Cush:
    - a. LCN

- b. Corbin Russwin.

## 2.9 MECHANICAL STOPS AND HOLDERS

- A. Wall- and Floor-Mounted Stops: BHMA A156.16:
  - 1. Manufacturers: Subject to compliance with requirements, provide products by the following:
    - a. Rockwood Manufacturing Company; an ASSA ABLOY Group company.

## 2.10 METAL PROTECTIVE TRIM UNITS

- A. Metal Protective Trim Units: BHMA A156.6; fabricated from 0.050-inch- (1.3-mm-) thick stainless steel; with manufacturer's standard machine or self-tapping screw fasteners.
- B. Manufacturers: Provide products by the following:
  - 1. Rockwood Manufacturing Company.
  - 2. Hagar
  - 3. Ives
  - 4. Triangle Brass

## 2.11 FABRICATION

- A. Manufacturer's Nameplate: Do not provide products that have manufacturer's name or trade name displayed in a visible location except in conjunction with required fire-rated labels and as otherwise approved by Architect.
  - 1. Manufacturer's identification is permitted on rim of lock cylinders only.
- B. Base Metals: Produce door hardware units of base metal indicated, fabricated by forming method indicated, using manufacturer's standard metal alloy, composition, temper, and hardness. Furnish metals of a quality equal to or greater than that of specified door hardware units and BHMA A156.18.
- C. Fasteners: Provide door hardware manufactured to comply with published templates prepared for machine, wood, and sheet metal screws. Provide screws that comply with commercially recognized industry standards for application intended, except aluminum fasteners are not permitted. Provide Phillips flat-head screws with finished heads to match surface of door hardware, unless otherwise indicated.
  - 1. Concealed Fasteners: For door hardware units that are exposed when door is closed, except for units already specified with concealed fasteners. Do not use through bolts for installation where bolt head or nut on opposite face is exposed unless it is the only means of securely attaching the door hardware. Where through bolts are used on hollow door and frame construction, provide sleeves for each through bolt.
  - 2. Spacers or Sex Bolts: For through bolting of hollow-metal doors.
  - 3. Fasteners for Wood Doors: Comply with requirements in DHI WDHS.2, "Recommended Fasteners for Wood Doors."

## **2.12 FINISHES**

- A. Provide finishes complying with BHMA A156.18 as indicated in door hardware schedule.
- B. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

## **PART 3 - EXECUTION**

### **3.1 EXAMINATION**

- A. Examine doors and frames, with Installer present, for compliance with requirements for installation tolerances, labeled fire-rated door assembly construction, wall and floor construction, and other conditions affecting performance.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

### **3.2 PREPARATION**

- A. Steel Doors and Frames: For surface applied door hardware, drill and tap doors and frames according to ANSI/SDI A250.6.
- B. Wood Doors: Comply with DHI WDHS.5 "Recommended Hardware Reinforcement Locations for Mineral Core Wood Flush Doors."

### **3.3 INSTALLATION**

- A. Mounting Heights: Mount door hardware units at heights to comply with the following unless otherwise indicated or required to comply with governing regulations.
  - 1. Standard Steel Doors and Frames: ANSI/SDI A250.8.
  - 2. Wood Doors: DHI WDHS.3, "Recommended Locations for Architectural Hardware for Wood Flush Doors."
- B. Install each door hardware item to comply with manufacturer's 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. Do not install surface-mounted items until finishes have been completed on substrates involved.
  - 1. Set units level, plumb, and true to line and location. Adjust and reinforce attachment substrates as necessary for proper installation and operation.
  - 2. Drill and countersink units that are not factory prepared for anchorage fasteners. Space fasteners and anchors according to industry standards.
- C. Hinges: Install types and in quantities indicated in door hardware schedule but not fewer than the number recommended by manufacturer for application indicated or one hinge for every 30 inches (750 mm) of door height, whichever is more stringent, unless other equivalent means of support for door, such as spring hinges or pivots, are provided.
- D. Lock Cylinders: Install construction cores to secure building and areas during construction period.



1. Replace construction cores with permanent cores as directed by Owner.
2. Furnish permanent cores to Owner for installation.

### **3.4 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.
  1. Spring Hinges: Adjust to achieve positive latching when door is allowed to close freely from an open position of 30 degrees.
  2. Door Closers: Adjust sweep period to comply with accessibility requirements and requirements of authorities having jurisdiction.

### **3.5 CLEANING AND PROTECTION**

- A. Clean adjacent surfaces soiled by door hardware installation.
- B. Clean operating items as necessary to restore proper function and finish.
- C. Provide final protection and maintain conditions that ensure that door hardware is without damage or deterioration at time of Substantial Completion.

### **3.6 DOOR HARDWARE SCHEDULE**

- A. See drawings for hardware sets.

**END OF SECTION 08 71 00**

**SECTION 08 80 00 - GLAZING****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. Clear tempered glass.
  - 2. Fire-rated glazing.

**1.03 RELATED SECTIONS:**

- A. Section 08 14 16 – Flush Wood Doors: Glazed lites.

**1.04 QUALITY ASSURANCE**

- A. Standards: Comply with applicable provisions and recommendations of:
  - 1. CPSC "Safety Standard for Architectural Glazing Materials" (16 CFR 1201).
  - 2. FS DD-G-451, prime glass standard.
- B. Manufacturer's Qualifications: Provide glazing systems produced by a single manufacturer with not less than 5 years successful experience in the fabrication of assemblies of the type and quality required.
- C. Installer's Qualifications: Interior glazed systems shall be installed by a firm that has not less than 5-years successful experience in the installation of systems similar to those required.

**1.05 ACTION SUBMITTALS**

- A. Samples: Submit 12 inch square samples of each glass product. Submit 6 inch long samples of glazing sealant and glazing tape, for color review.
- B. Manufacturer's Data: Submit manufacturers' technical data and instructions for installing and maintaining each glazing material.

**1.06 INFORMATIONAL SUBMITTALS**

- A. Qualification Data: For manufacturers of insulating-glass units with sputter-coated, low-e coatings.
- B. Product Certificates: For glass and glazing products, from manufacturer.
- C. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, for glazing sealants.
  - 1. For glazing sealants, provide test reports based on testing current sealant formulations within previous 36-month period.
- D. Preconstruction adhesion and compatibility test report.
- E. Warranties: Sample of special warranties.

**1.07 DELIVERY, STORAGE AND HANDLING**

- A. Protect glazing materials and according to manufacturer's written instructions and as needed to prevent damage to glass, glazing and plastic wall panels materials from condensation, temperature changes, direct exposure to sun, or other causes.

**PART 2 - PRODUCTS****2.01 MANUFACTURERS**

- A. Glazing Manufacturers and Fabricators: Subject to compliance with requirements, firms producing glass products which may be incorporated into the work include the following:
  - 1. Corning Incorporated.
  - 2. Guardian Industries Corp.
  - 3. LOF Glass, Inc.
  - 4. Pilkington North America.
  - 5. PPG Industries, Inc.
  - 6. Skyline Glass.
  - 7. Viracon, Inc.
- B. Fire-Rated Glazing Manufacturers: Subject to compliance with requirements, firms producing fire-rated glazing products which may be incorporated into the work include the following:
  - 1. Technical Glass Products, Inc.
  - 2. Nippon Electric Glass Co., Ltd. (distributed by Technical Glass Products).
  - 3. Safti First.
  - 4. Schott North America, Inc.
  - 5. Vetrotech Saint-Gobain.

**2.02 GLASS, GENERAL**

- A. Primary Glass Standard: Provide primary glass which complies with ASTM C 1036 requirements for type, class and quality.
- B. Heat-Treated Glass Standard: Provide heat-treated glass which complies with ASTM C 1048 requirements. Surface compression of heat strengthened glass shall be in the range of 3500 to 6500 psi.
  - 1. Provide heat treated glass where glass would be vulnerable to thermal breakage and where required for safety of persons.
  - 2. Provide fully tempered or heat strengthened glass where indicated or required by authorities having jurisdiction.
  - 3. Tempered glass shall comply with ANSI Z97.1.
- C. Sizes: Fabricate glass to sizes required, with edge clearances and tolerances complying with recommendations of glass manufacturer. Provide thicknesses to comply with Building Code, and as recommended by glass manufacturer, unless greater thickness is indicated.

**2.03 PRIMARY GLASS**

- A. Clear Float Glass: Type I (transparent glass, flat), Class 1 (clear), Quality q3 (glazing select), ¼ inches (6.4 mm) thick.

**2.04 HEAT-TREATED GLASS**

- A. Tempered Glass: Provide fully tempered glass only where safety glass is mandatory or where design pressures are beyond the capacity of heat strengthened glass. Tempered glass shall be free from inclusions.

1. Provide 1/4-inch (6.4 mm) thick tempered glass where indicated on drawings.
2. Provide 1/2-inch (12.7 mm) thick tempered glass at frameless and sliding glass panel locations.

## 2.05 FIRE-RATED GLAZING MATERIALS

- A. Basis of Design: Pyrostop as manufactured by the Pilkington Group and distributed by Technical Glass Products, or equivalent products of one of the specified manufacturers.
- B. Composition: Composed of multiple sheets of "Optiwhite" high visible light transmission glass laminated with an intumescent interlayer.
- C. Properties:
  1. Thickness: For Interior Use: As required for fire rating specified.
  2. Fire-rating: 90 minutes.
  3. Impact Safety Resistance: ANSI Z97.1 and CPSC 16CFR1201 (Cat. I and II).
  4. STC Rating: Up to 46 dB.
- D. Permanently label each piece of glazing with the appropriate marking for rating.
- E. Fire Rating: Fire rating listed and labeled by UL for fire rating scheduled at opening locations on drawings, when tested in accordance with ASTM E 119 and UL 263.

## 2.06 GLAZING MATERIALS

- A. General: Provide standard color of glazing materials as selected by Architect. Comply with manufacturer's recommendations for applications and conditions at time of installation.
- B. Polyurethane Glazing Gasket: Polyurethane gasket or stick tape, color to be selected by Architect, thickness and size as shown on drawings.
- C. Cleaners, Primers and Sealers: Type recommended by sealant or gasket manufacturer.
- D. Setting Blocks: Neoprene, silicone or EPDM, 70-90 durometer hardness, with proven compatibility with glazing materials used.
- E. Spacers: Neoprene, silicone or EPDM, 40-50 durometer hardness with proven compatibility with glazing materials used.
- F. Compressible Fillers: Closed-cell or waterproof-jacketed rod stock of synthetic rubber or plastic foam, proven to be compatible with sealants used, flexible and resilient, with 5-10 psi compression strength for 25% deflection.
- G. Sealant: Neutral-curing silicone glazing sealant complying with ASTM C 920, Type S, Grade NS, Class 100/50, Use NT.
  1. VOC Content: For sealants used inside of the weatherproofing system, not more than 250 g/L when calculated according to 40 CFR 59, Subpart D.
- H. Glazing Materials for Fire-Rated Glazing
  1. Glazing Tape: Closed cell polyvinyl chloride foam, coiled on release paper over adhesive on two sides, maximum water absorption by volume of 2 percent, designed for compression of 25 percent to effect an air and vapor seal.

2. Silicone Sealant: One-part neutral curing silicone, medium modulus sealant, Type S; Grade NS; Class 25 with additional movement capability of 50 percent in both extension and compression (total 100 percent); Use (Exposure) NT; Uses (Substrates) G, A, and O as applicable. Available Products:
  - a. Dow Corning 795 - Dow Corning Corp.
  - b. Silglaze-II 2800 - General Electric Co.
  - c. Spectrem 2 - Tremco Inc.
3. Setting Blocks: Hardwood or calcium silicate; glass width by 4 inches (102-mm) by 3/16 inch (4.7-mm) thick.
4. Spacers: Neoprene or other resilient blocks of 40 to 50 Shore A durometer hardness, adhesive-backed on one face only, tested for compatibility with specified glazing compound.
5. Cleaners, Primers, and Sealers: Type recommended by manufacturer of glass and gaskets.

### **PART 3 - EXECUTION**

#### **3.01 GENERAL**

- A. Each glazing installation must withstand normal temperature changes, and impact loading without failure of glass, failure of sealants or gaskets, deterioration of glazing materials and other defects in the work.
- B. Protect glass from damage during handling and installation, and subsequent operation of glazed components of the work. Discard units with edge damage or other imperfections.
- C. Glazing channel dimensions are intended to provide for necessary bite on glass, minimum edge clearance, and adequate tape or sealant thicknesses, with reasonable tolerances.
- D. Comply with recommendations by manufacturers of glass and glazing products, except where more stringent requirements are indicated, including those of referenced glazing standards.

#### **3.02 PREPARATION**

- A. Clean glazing channel and other framing members to receive glass, immediately before glazing. Remove coatings which are not firmly bonded to substrate.
- B. Where sealants are used, apply primer or sealant to joint surfaces where recommended by sealant manufacturer.

#### **3.03 PROTECTION AND CLEANING**

- A. Remove and replace glass which is broken, chipped, cracked, abraded or damaged in other ways during construction period, including natural causes, accidents and vandalism.
- B. Wash and polish glass on both faces not more than 4 days prior to date scheduled for inspections intended to establish Date of Substantial Completion in each area of project. Comply with glass manufacturer's recommendations for final cleaning.

**END OF SECTION 08 80 00**

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**SECTION 08 83 00 - MIRRORS****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 the following types of silvered flat glass mirrors:
  - 1. Annealed monolithic glass mirrors.
- B. Related Requirements:
  - 1. Section 10 28 00 "Toilet, Bath, and Laundry Accessories" for metal-framed mirrors.

**1.3 ACTION SUBMITTALS**

- A. Product Data: For each type of product.
  - 1. Mirrors. Include description of materials and process used to produce each type of silvered flat glass mirror specified that indicates sources of glass, glass coating components, edge sealer, and quality-control provisions.
- B. Shop Drawings: Include mirror elevations, edge details, mirror hardware, and attachment details.

**1.4 INFORMATIONAL SUBMITTALS**

- A. Sample Warranty: For special warranty.

**1.5 QUALITY ASSURANCE**

- A. Installer Qualifications: A qualified installer who employs glass installers for this Project who are certified under the National Glass Association's Certified Glass Installer Program.

**1.6 PRECONSTRUCTION TESTING**

- A. Preconstruction Mirror Mastic Compatibility Test: Submit mirror mastic products to mirror manufacturer for testing to determine compatibility of mastic with mirror backing.
  - 1. Testing is not required if data are submitted based on previous testing of mirror mastic products and mirror backing matching those submitted.

**1.7 DELIVERY, STORAGE, AND HANDLING**

- A. Protect mirrors according to mirror manufacturer's written instructions and as needed to prevent damage to mirrors from moisture, condensation, temperature changes, direct exposure to sun, or other causes.

- B. Comply with mirror manufacturer's written instructions for shipping, storing, and handling mirrors as needed to prevent deterioration of silvering, damage to edges, and abrasion of glass surfaces and applied coatings. Store indoors.

## **1.8 FIELD CONDITIONS**

- A. Environmental Limitations: Do not install mirrors until ambient temperature and humidity conditions are maintained at levels indicated for final occupancy.

## **1.9 WARRANTY**

- A. Special Warranty: Manufacturer agrees to replace mirrors that deteriorate within specified warranty period. Deterioration of mirrors is defined as defects developed from normal use that are not attributed to mirror breakage or to maintaining and cleaning mirrors contrary to manufacturer's written instructions. Defects include discoloration, black spots, and clouding of the silver film.

1. Warranty Period: Five years from date of Substantial Completion.

## **PART 2 - PRODUCTS**

### **2.1 MANUFACTURERS**

- A. Source Limitations for Mirrors: Obtain mirrors from single source from single manufacturer.
- B. Source Limitations for Mirror Accessories: Obtain mirror glazing accessories from single source.

### **2.2 SILVERED FLAT GLASS MIRRORS**

- A. Mirrors, General: ASTM C 1503; manufactured using copper-free, low-lead mirror coating process.
- B. Annealed Monolithic Glass Mirrors: Mirror Select Quality, clear.
  1. Nominal Thickness: 6.0 mm.

### **2.3 MISCELLANEOUS MATERIALS**

- A. Setting Blocks: Elastomeric material with a Shore, Type A durometer hardness of 85, plus or minus 5.
- B. Edge Sealer: Coating compatible with glass coating and approved by mirror manufacturer for use in protecting against silver deterioration at mirrored glass edges.
- C. Mirror Mastic: An adhesive setting compound, asbestos-free, produced specifically for setting mirrors and certified by both mirror and mastic manufacturer as compatible with glass coating and substrates on which mirrors will be installed.

## 2.4 MIRROR HARDWARE

- A. Aluminum J-Channels: Aluminum extrusions with a return deep enough to produce a glazing channel to accommodate mirrors of thickness indicated and in lengths required to cover edges of mirrors in a single piece.
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:
    - 1) Andscot Company, Inc.
    - 2) Laurence, C. R. Co., Inc.
    - 3) Stylmark, Inc.
  2. Bottom Trim: J-channels formed with front leg and back leg not less than 3/8 and 7/8 inch (9.5 and 22 mm) in height, respectively, and a thickness of not less than 0.04 inch (1.0 mm).
  3. Top Trim: J-channels formed with front leg and back leg not less than 5/8 and 1 inch (16 and 25 mm) in height, respectively, and a thickness of not less than 0.04 inch (1.0 mm).
  4. Finish: Clear bright anodized.
- B. Concealed Fasteners: Fabricated of same basic metal and alloy as fastened metal.

## 2.5 FABRICATION

- A. Fabricate mirrors in the shop to greatest extent possible.
- B. Fabricate cutouts for notches and holes in mirrors without marring visible surfaces. Locate and size cutouts so they fit closely around penetrations in mirrors.
- C. Mirror Edge Treatment: Flat polished.
1. Seal edges of mirrors with edge sealer after edge treatment to prevent chemical or atmospheric penetration of glass coating.
  2. Require mirror manufacturer to perform edge treatment and sealing in factory immediately after cutting to final sizes.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine substrates, over which mirrors are to be mounted, with Installer present, for compliance with installation tolerances, substrate preparation, and other conditions affecting performance of the Work.
- B. Verify compatibility with and suitability of substrates, including compatibility of existing finishes or primers with mirror mastic.
- C. Proceed with installation only after unsatisfactory conditions have been corrected and surfaces are dry.



**3.2 PREPARATION**

- A. Comply with mastic manufacturer's written installation instructions for preparation of substrates, including coating substrates with mastic manufacturer's special bond coating where applicable.

**3.3 INSTALLATION**

- A. General: Install mirrors to comply with mirror manufacturer's written instructions and with referenced GANA publications. Mount mirrors accurately in place in a manner that avoids distorting reflected images.
  - 1. GANA Publications: "Glazing Manual" and "Mirrors, Handle with Extreme Care: Tips for the Professional on the Care and Handling of Mirrors."
- B. Provide a minimum airspace of 1/8 inch (3 mm) between back of mirrors and mounting surface for air circulation between back of mirrors and face of mounting surface.
- C. Install mirrors with mastic and mirror hardware. Attach mirror hardware securely to mounting surfaces with mechanical fasteners installed with anchors or inserts as applicable. Install fasteners so heads do not impose point loads on backs of mirrors.
  - 1. Aluminum J-Channels: Provide setting blocks 1/8 inch (3 mm) thick by 4 inches (100 mm) long at quarter points. To prevent trapping water, provide, between setting blocks, two slotted weeps not less than 1/4 inch (6.4 mm) wide by 3/8 inch (9.5 mm) long at bottom channel.
  - 2. Install mastic as follows:
    - a. Apply barrier coat to mirror backing where approved in writing by manufacturers of mirrors and backing material.
    - b. Apply mastic to comply with mastic manufacturer's written instructions for coverage and to allow air circulation between back of mirrors and face of mounting surface.
    - c. After mastic is applied, align mirrors and press into place while maintaining a minimum airspace of 1/8 inch (3 mm) between back of mirrors and mounting surface.

**3.4 CLEANING AND PROTECTION**

- A. Protect mirrors from breakage and contaminating substances resulting from construction operations.
- B. Do not permit edges of mirrors to be exposed to standing water.
- C. Maintain environmental conditions that prevent mirrors from being exposed to moisture from condensation or other sources for continuous periods of time.
- D. Clean exposed surface of mirrors not more than four days before date scheduled for inspections that establish date of Substantial Completion. Clean mirrors as recommended in writing by mirror manufacturer.

**END OF SECTION 08 83 00**

**SECTION 09 06 00 – SCHEDULE OF FINISHES**

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. Schedule of Finishes.

**1.03 SCHEDULE OF FINISHES**

- A. See Schedule of Finishes on Contract Drawing - A401 – First Floor Finish Plan.

**END OF SECTION 09 06 00**

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## **SECTION 09 22 16 - NON-STRUCTURAL METAL FRAMING**

### **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. Non-load-bearing steel framing systems for interior partitions.
  - 2. Suspension systems for interior ceilings and soffits.
- B. Related Sections:
  - 1. Division 06 Section "Miscellaneous Rough Carpentry" for wood blocking and nailers.
  - 2. Division 09 Section "Gypsum Board" for gypsum board systems attached to non-load-bearing framing.

#### **1.3 ACTION SUBMITTALS**

- A. Product Data: For each type of product.

#### **1.4 QUALITY ASSURANCE**

- A. Fire-Test-Response Characteristics: For fire-resistance-rated assemblies that incorporate non-load-bearing steel framing, provide materials and construction identical to those tested in assembly indicated according to ASTM E 119 by an independent testing agency.

### **PART 2 - PRODUCTS**

#### **2.1 PERFORMANCE REQUIREMENTS**

- A. Fire-Test-Response Characteristics: For fire-resistance-rated assemblies that incorporate non-load-bearing steel framing, provide materials and construction identical to those tested in assembly indicated, according to ASTM E 119 by an independent testing agency.
- B. STC-Rated Assemblies: For STC-rated assemblies, provide materials and construction identical to those tested in assembly indicated, according to ASTM E 90 and classified according to ASTM E 413 by an independent testing agency.
- C. Horizontal Deflection: For wall assemblies, limited to 1/360 of the wall height based on horizontal loading of 5 lbf/sq. ft. (239 Pa).

## 2.2 FRAMING SYSTEMS

- 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, G40 (Z120), hot-dip galvanized unless otherwise indicated.
  
- B. Studs and Runners: ASTM C 645.
  - 1. Steel Studs and Runners:
    - a. Minimum Base-Metal Thickness: 0.0329 inch (20 gauge).
    - b. Depth: As indicated on Drawings.
  
- C. Slip-Type Head Joints: Where indicated, provide one of the following:
  - 1. Clip System: Clips designed for use in head-of-wall deflection conditions that provide a positive attachment of studs to runners while allowing 1-1/2-inch (38-mm) minimum vertical movement.
  - 2. Deflection Track: Steel sheet top runner 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. Flat Strap and Backing Plate: Steel sheet for blocking and bracing in length and width indicated.
  - 1. Minimum Base-Metal Thickness: 0.0329 inch (20 gauge).
  
- E. Cold-Rolled Channel Bridging: Steel, 0.0538-inch (1.367-mm) minimum base-metal thickness, with minimum 1/2-inch- (13-mm-) wide flanges.
  - 1. Depth: 1-1/2 inches (38 mm).
  - 2. Clip Angle: Not less than 1-1/2 by 1-1/2 inches (38 by 38 mm), 0.068-inch- (1.72-mm-) thick, galvanized steel.
  
- F. Hat-Shaped, Rigid Furring Channels: ASTM C 645.
  - 1. Minimum Base-Metal Thickness: 0.0329 inch (20 gauge).
  - 2. Depth: As indicated on Drawings.
  
- G. Resilient Furring Channels: 1/2-inch- (13-mm-) deep, steel sheet members designed to reduce sound transmission.
  - 1. Manufacturers: Subject to compliance with requirements, provide products by the following:
    - a. Clark Dietrich: RC-1 Pro, 25 gauge thickness.
  - 2. Configuration: Asymmetrical.
  
- H. Cold-Rolled Furring Channels: 0.053-inch (1.34-mm) uncoated-steel thickness, with minimum 1/2-inch- (13-mm-) wide flanges.
  - 1. Depth: As indicated on Drawings.

2. Furring Brackets: Adjustable, corrugated-edge-type steel sheet with minimum uncoated-steel thickness of 0.0329 inch (0.8 mm).
3. Tie Wire: ASTM A 641/A 641M, Class 1 zinc coating, soft temper, 0.062-inch- (1.59-mm-) diameter wire, or double strand of 0.048-inch- (1.21-mm-) diameter wire.

### **2.3 SUSPENSION SYSTEMS**

- A. Tie Wire: ASTM A 641/A 641M, Class 1 zinc coating, soft temper, 0.062-inch- (1.59-mm-) diameter wire, or double strand of 0.048-inch- (1.21-mm-) diameter wire.
- B. Hanger Attachments to Concrete:
  1. 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/E 488M conducted by a qualified testing agency.
  2. 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.
- C. Wire Hangers: ASTM A 641/A 641M, Class 1 zinc coating, soft temper, 0.16 inch (4.12 mm) in diameter.
- D. Carrying Channels: Cold-rolled, commercial-steel sheet with a base-metal thickness of 0.0538 inch (1.367 mm) and minimum 1/2-inch- (13-mm-) wide flanges.
  1. Depth: As indicated on Drawings.
- E. Furring Channels (Furring Members):
  1. Cold-Rolled Channels: 0.0538-inch (1.367-mm) uncoated-steel thickness, with minimum 1/2-inch- (13-mm-) wide flanges, 3/4 inch (19 mm) deep.
  2. Steel Studs and Runners: ASTM C 645.
    - a. Minimum Base-Metal Thickness: 0.0329 inch (0.836 mm).
    - b. Depth: As indicated on Drawings.
  3. Hat-Shaped, Rigid Furring Channels: ASTM C 645, 7/8 inch (22 mm) deep.
    - a. Minimum Base-Metal Thickness: 0.0329 inch (0.836 mm).
- F. Grid Suspension System for Gypsum Board Ceilings: ASTM C 645, direct-hung system composed of main beams and cross-furring members that interlock.
  1. Products: Subject to compliance with requirements, provide one of the following:
    - a. Armstrong World Industries, Inc; Drywall Grid Systems.
    - b. Chicago Metallic Corporation; 640/660 Drywall Ceiling Suspension.
    - c. United State Gypsum Company; Drywall Suspension System

## **2.4 AUXILIARY MATERIALS**

- A. General: Provide auxiliary materials that comply with referenced installation standards.
  - 1. Fasteners for Metal Framing: Of type, material, size, corrosion resistance, holding power, and other properties required to fasten steel members to substrates.
- B. Isolation Strip at Exterior Walls: Provide the following:
  - 1. Foam Gasket: Adhesive-backed, closed-cell vinyl foam strips that allow fastener penetration without foam displacement, 1/8 inch (3.2 mm) thick, in width to suit steel stud size.

## **PART 3 - EXECUTION**

### **3.1 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 of the Work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

### **3.2 PREPARATION**

- A. Coordination with Existing Sprayed Fire-Resistive Materials:
  - 1. Remove existing sprayed fire-resistive materials only to extent necessary for installation of non-load-bearing steel framing. Do not reduce thickness of fire-resistive materials below that are required for fire-resistance ratings indicated. Protect adjacent fire-resistive materials from damage.

### **3.3 INSTALLATION, GENERAL**

- A. Installation Standard: ASTM C 754.
  - 1. Gypsum Plaster Assemblies: Also comply with requirements in ASTM C 841 that apply to framing installation.
  - 2. Portland Cement Plaster Assemblies: Also comply with requirements in ASTM C 1063 that apply to framing installation.
  - 3. Gypsum Veneer Plaster Assemblies: Also comply with requirements in ASTM C 844 that apply to framing installation.
  - 4. Gypsum Board Assemblies: Also comply with requirements in ASTM C 840 that apply to framing installation.
- B. Install framing and accessories plumb, square, and true to line, with connections securely fastened.
- C. Install supplementary framing, and blocking to support fixtures, equipment services, heavy trim, grab bars, toilet accessories, furnishings, or similar construction.
- D. Install bracing at terminations in assemblies.
- E. Do not bridge building control and expansion joints with non-load-bearing steel framing members. Frame both sides of joints independently.

### **3.4 INSTALLING FRAMED ASSEMBLIES**

- A. Install framing system components according to spacings indicated, but not greater than spacings required by referenced installation standards for assembly types.
  - 1. Single-Layer Application: 16 inches (406 mm) o.c. unless otherwise indicated.
  - 2. Multilayer Application: 16 inches (406 mm) o.c. unless otherwise indicated.
  - 3. Tile Backing Panels: 16 inches (406 mm) o.c. unless otherwise indicated.
  
- B. Where studs are installed directly against exterior masonry walls or dissimilar metals at exterior walls, install isolation strip between studs and exterior wall.
  
- C. Install studs so flanges within framing system point in same direction.
  
- D. 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 that penetrate 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 (13-mm) 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.
  - 5. Sound-Rated Partitions: Install framing to comply with sound-rated assembly indicated.
  - 6. Curved Partitions:
    - a. Bend track to uniform curve and locate straight lengths so they are tangent to arcs.
    - b. Begin and end each arc with a stud, and space intermediate studs equally along arcs. On straight lengths of no fewer than two studs at ends of arcs, place studs 6 inches (150 mm) o.c.
  
- E. Direct Furring:
  - 1. Attach to concrete or masonry with stub nails, screws designed for masonry attachment, or powder-driven fasteners spaced 24 inches (610 mm) o.c.
  
- F. Installation Tolerance: Install each framing member so fastening surfaces vary not more than 1/8 inch (3 mm) from the plane formed by faces of adjacent framing.



### **3.5 INSTALLING SUSPENSION SYSTEMS**

- A. Install suspension system components according to spacings indicated, but not greater than spacings required by referenced installation standards for assembly types.
  - 1. Hangers: 48 inches (1219 mm) o.c.
  - 2. Carrying Channels (Main Runners): 48 inches (1219 mm) o.c.
  - 3. Furring Channels (Furring Members): 16 inches (406 mm) o.c.
  
- 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, countersplaying, 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. Do not attach hangers to steel roof deck.
  - 5. Do not attach hangers to rolled-in hanger tabs of composite steel floor deck.
  - 6. Do not connect or suspend steel framing from ducts, pipes, or conduit.
  
- D. Fire-Resistance-Rated Assemblies: Wire tie furring channels to supports.
  
- E. 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.
  
- F. Installation Tolerances: Install suspension systems that are level to within 1/8 inch in 12 feet (3 mm in 3.6 m) measured lengthwise on each member that will receive finishes and transversely between parallel members that will receive finishes.

**END OF SECTION 09 22 16**

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**SECTION 09 29 00 - GYPSUM BOARD**

**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. Interior gypsum board.
  - 2. Tile backing panels.
  - 3. Sound attenuation.
- B. Related Requirements:
  - 1. Section 09 22 16 "Non-Structural Metal Framing" for non-structural steel framing and suspension systems that support gypsum board panels.
  - 2. Section 09 30 13 "Ceramic Tiling" for cementitious backer units installed as substrates for ceramic tile.

**1.3 ACTION SUBMITTALS**

- A. Product Data: For each type of product.

**1.4 DELIVERY, STORAGE AND HANDLING**

- A. Store materials inside under cover and keep them dry and protected against weather, condensation, direct sunlight, construction traffic, and other potential causes of damage. Stack panels flat and supported on risers on a flat platform to prevent sagging.

**1.5 FIELD CONDITIONS**

- A. Environmental Limitations: Comply with ASTM C 840 requirements or gypsum board manufacturer's written instructions, whichever are more stringent.
- B. Do not install paper-faced gypsum panels until installation areas are enclosed and conditioned.
- C. Do not install 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.

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## PART 2 - PRODUCTS

### 2.1 PERFORMANCE REQUIREMENTS

- A. 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.
- B. STC-Rated Assemblies: For STC-rated assemblies, provide materials and construction identical to those tested in assembly indicated according to ASTM E 90 and classified according to ASTM E 413 by an independent testing agency.

### 2.2 GYPSUM BOARD, GENERAL

- A. Size: Provide maximum lengths and widths available that will minimize joints in each area and that correspond with support system indicated.

### 2.3 INTERIOR GYPSUM BOARD

- A. Gypsum Wallboard and Gypsum Ceiling Board: ASTM C 1396/C 1396M.
  - 1. Thickness: as indicated in the Drawings.
  - 2. Long Edges: Tapered.
- B. Gypsum Board, Type X: ASTM C 1396/C 1396M.
  - 1. Thickness: as indicated in the Drawings.
  - 2. Long Edges: Tapered.
- C. Moisture and Mold-Resistant Gypsum Board: ASTM C 1396/C 1396M. With moisture- and mold-resistant core and paper surfaces.
  - 1. Thickness: as indicated in the Drawings, regular and Type X.
  - 2. Long Edges: Tapered.
  - 3. Mold Resistance: ASTM D 3273, score of 10 as rated according to ASTM D 3274.

### 2.4 TILE BACKING PANELS

- A. Cementitious Backer Units: ANSI A118.9 and ASTM C 1288 or ASTM C 1325, with manufacturer's standard edges.
  - 1. Manufacturers: Subject to compliance with requirements, provide products by the following:
  - 2. Basis-of-Design Product: Subject to compliance with requirements, provide USG Durock Brand Cement Board or comparable product by one of the following:
    - a. C-Cure: Board 990.
    - b. CertainTeed Corporation: Fiber Cement Underlayment/Backer Board.
    - c. James Hardie Building Products, Inc.: HardieBacker.
    - d. National Gypsum Company: PermaBase Cement Board.
  - 3. Thickness: As indicated in the Drawings.
  - 4. Mold Resistance: ASTM D 3273, score of 10 as rated according to ASTM D 3274.

## 2.5 TRIM ACCESSORIES

- A. Interior Trim: ASTM C 1047.
  - 1. Material: Galvanized or aluminum-coated steel sheet, rolled zinc, or paper-faced galvanized-steel sheet.
  - 2. Shapes:
    - a. Cornerbead.
    - b. LC-Bead: J-shaped; exposed long flange receives joint compound.
    - c. L-Bead: L-shaped; exposed long flange receives joint compound.
    - d. Expansion (control) joint.

## 2.6 JOINT TREATMENT MATERIALS

- A. General: Comply with ASTM C 475/C 475M.
- B. Joint Tape:
  - 1. Interior Gypsum Board: Paper.
  - 2. Tile Backing Panels: As recommended by panel manufacturer.
- C. Joint Compound for Interior Gypsum Board: 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 setting-type, sandable topping compound.
  - 4. Finish Coat: For third coat, use setting-type, sandable topping compound.
  - 5. Skim Coat: For final coat of Level 5 finish, use high-build interior coating product designed for application by airless sprayer and to be used instead of skim coat to produce Level 5 finish. Basis-of-Design Product: Subject to compliance with requirements, provide quick drying, interior, vinyl acrylic latex drywall surfacer, USG Sheetrock® Brand Tuff-Hide™ Primer-Surfacer or comparable product by one of the following:
    - a. Certainteed: Level V Wall and Ceiling Primer / Surfacer with M2Tech®
    - b. PPG Architectural Products: MaxBuild High Build Drywall Surfacer.
- D. Joint Compound for Tile Backing Panels:
  - 1. Glass-Mat, Water-Resistant Backing Panel: As recommended by backing panel manufacturer.
  - 2. Cementitious Backer Units: As recommended by backer unit manufacturer.
  - 3. Water-Resistant Gypsum Backing Board: Use setting-type taping compound and setting-type, sandable topping compound.

## 2.7 AUXILIARY MATERIALS

- A. General: Provide auxiliary materials that comply with referenced installation standards and manufacturer's written instructions.
- B. Laminating Adhesive: Adhesive or joint compound recommended for directly adhering gypsum panels to continuous substrate.
  - 1. Laminating adhesive shall have a VOC content of **50g/L** or less.
- C. Steel Drill Screws: ASTM C 1002 unless otherwise indicated.
  - 1. For fastening cementitious backer units, use screws of type and size recommended by panel manufacturer.

## 2.8 SOUND ATTENUATION

- A. Sound Attenuation Blankets: ASTM C 665, Type I (blankets without membrane facing) produced by combining thermosetting resins with mineral fibers manufactured from glass, slag wool, or rock wool.
  - 1. Fire-Resistance-Rated Assemblies: Comply with mineral-fiber requirements of assembly.
  - 2. Formaldehyde-Free: Provide sound attenuation blankets containing no formaldehyde.
  - 3. Recycled Content: Provide blankets with recycled content such that postconsumer recycled content plus one-half of preconsumer recycled content constitutes a minimum of 20 percent by weight.
- B. Where sound attenuation insulation is indicated, provide blankets in batt or roll form in thicknesses that most closely fill the entire void of the wall, without crushing.
- C. Sound Attenuation Board: ASTM C 612, Type standard with manufacturer; nominal density of 6 to 7 lb/cu. ft. (96 to 112 kg/cu. m), unfaced, and dimensionally stable, molded rigid glass fiber board; and with maximum flame-spread and smoke-developed indexes of 25 and 50, respectively.
  - 1. Formaldehyde-Free: Provide sound attenuation board containing no formaldehyde.
  - 2. Recycled Content: Provide blankets with recycled content such that postconsumer recycled content plus one-half of preconsumer recycled content constitutes a minimum of 20 percent by weight.
  - 3. Provide black faced insulation where insulation is visible, including when insulation is installed behind another finish material.
- D. Acoustic Sheet Caulking: Lowry's "Electrical Box Pads" resilient, self-adhesive sound sealer.
- E. Acoustical Sealant for Exposed and Concealed Joints: Nonsag, paintable, nonstaining, latex sealant, with a VOC content of 250 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24), complying with ASTM C 834 that effectively reduces airborne sound transmission through perimeter joints and openings in building construction as demonstrated by testing representative assemblies according to ASTM E 90.
  - 1. Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:
    - 1) Acoustical Sealant for Exposed and Concealed Joints:
      - a) Pecora Corp.; AC-20 FTR Acoustical and Insulation Sealant.
      - b) United States Gypsum Co.; SHEETROCK Acoustical Sealant.
      - c) W.W. Henry #313.

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**PART 3 - EXECUTION**

**3.1 EXAMINATION**

- A. Examine areas and substrates including welded hollow-metal frames and support framing, with Installer present, for compliance with requirements and other conditions affecting performance of the Work.
- 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.

**3.2 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 (1.5 mm) 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. (0.7 sq. m) 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- (6.4- to 9.5-mm-) wide joints to install sealant.
- G. Isolate perimeter of gypsum board applied to non-load-bearing partitions at structural abutments. Provide 1/4- to 1/2-inch- (6.4- to 12.7-mm-) 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.
- I. STC-Rated Assemblies: Seal construction at perimeters, behind control joints, and at openings and penetrations with a continuous bead of acoustical sealant. Install acoustical sealant at both

faces of partitions at perimeters and through penetrations. Comply with ASTM C 919 and with manufacturer's written instructions for locating edge trim and closing off sound-flanking paths around or through assemblies, including sealing partitions above acoustical ceilings.

- J. Install sound attenuation blankets before installing gypsum panels unless blankets are readily installed after panels have been installed on one side.

### **3.3 APPLYING INTERIOR GYPSUM BOARD**

- A. Install interior gypsum board in the following locations:

1. Wallboard Type: As indicated on Drawings.
2. Type X: Where required for fire-resistance-rated assembly.
3. Ceiling Type: Ceiling surfaces.
4. Mold-Resistant Type: As indicated on Drawings.

- 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 vertically (parallel 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.
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 one framing member, 16 inches (400 mm) 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.

- D. Laminating to Substrate: Where gypsum panels are indicated as directly adhered to a substrate (other than studs, joists, furring members, or base layer of gypsum board), comply with gypsum board manufacturer's written instructions and temporarily brace or fasten gypsum panels until fastening adhesive has set.

### **3.4 APPLYING TILE BACKING PANELS**

- A. Cementitious Backer Units: ANSI A108.11, at locations indicated to receive tile.

- B. Water-Resistant Backing Board: Install where indicated with 1/4-inch (6.4-mm) gap where panels abut other construction or penetrations.
- C. Where tile backing panels abut other types of panels in same plane, shim surfaces to produce a uniform plane across panel surfaces.

### **3.5 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 and 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. L-Bead: Use at exposed panel edges, and where indicated.

### **3.6 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 for trim products specifically indicated as not intended to receive 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 2: Panels that are substrate for tile.
  - 3. Level 4: At panel surfaces that will be exposed to view, unless otherwise indicated
  - 4. Level 5: Panels that are substrate for painted finishes.
- E. Cementitious Backer Units: Finish according to manufacturer's written instructions.

### **3.7 PROTECTION**

- A. Protect adjacent surfaces from drywall compound and promptly remove from floors and other non-drywall surfaces. Repair surfaces stained, marred, or otherwise damaged during drywall application.
- B. Protect installed products from damage from weather, condensation, direct sunlight, construction, and other causes during remainder of the construction period.
- C. 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 29 00**

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**SECTION 09 30 13 - CERAMIC TILING**

**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. Ceramic mosaic tile.
  - 2. Quarry tile.
  - 3. Glazed wall tile.
  - 4. Waterproof membrane.
  - 5. Crack isolation membrane.
  - 6. Thickset Mortar Bed.
  - 7. Uncoupling Mat.
  - 8. Metal edge strips.

**1.3 RELATED SECTIONS**

- A. Section 07 92 00 "Joint Sealants" for sealing of expansion, contraction, control, and isolation joints in tile surfaces.
- B. Section 09 29 00 "Gypsum Board" for cementitious backer units.

**1.4 DEFINITIONS**

- A. General: Definitions in the ANSI A108 series of tile installation standards and in ANSI A137.1 apply to Work of this Section unless otherwise specified.
- B. ANSI A108 Series: ANSI A108.01, ANSI A108.02, ANSI A108.1A, ANSI A108.1B, ANSI A108.1C, ANSI A108.4, ANSI A108.5, ANSI A108.6, ANSI A108.8, ANSI A108.9, ANSI A108.10, ANSI A108.11, ANSI A108.12, ANSI A108.13, ANSI A108.14, ANSI A108.15, ANSI A108.16, and ANSI A108.17, which are contained in its "Specifications for Installation of Ceramic Tile."
- C. Module Size: Actual tile size plus joint width indicated.
- D. Face Size: Actual tile size, excluding spacer lugs.

**1.5 PREINSTALLATION MEETINGS**

- A. Preinstallation Conference: Conduct conference at Project site.
  - 1. Review requirements in ANSI A108.01 for substrates and for preparation by other trades.

**1.6 ACTION SUBMITTALS**

- A. Product Data: For each type of product.
- B. Samples for Verification:

1. Full-size units of each type and composition of tile and for each color and finish required.
2. Full-size units of each type of trim and accessory for each color and finish required.
3. Stone thresholds in 6-inch (150-mm) lengths.
4. Metal edge strips in 6-inch (150-mm) lengths.

#### **1.7 MAINTENANCE MATERIAL SUBMITTALS**

- A. Furnish extra materials that match and are from same production runs as products installed and that are packaged with protective covering for storage and identified with labels describing contents.
  1. Tile and Trim Units: Furnish quantity of full-size units equal to 3 percent of amount installed for each type, composition, color, pattern, and size indicated.
  2. Grout: Furnish quantity of grout equal to 3 percent of amount installed for each type, composition, and color indicated.

#### **1.8 QUALITY ASSURANCE**

- A. Installer Qualifications:
  1. Installer's supervisor for Project holds the International Masonry Institute's Foreman Certification.
  2. Installer employs Ceramic Tile Education Foundation Certified Installers or installers recognized by the U.S. Department of Labor as Journeyman Tile Layers.

#### **1.9 DELIVERY, STORAGE, AND HANDLING**

- A. Deliver and store packaged materials in original containers with seals unbroken and labels intact until time of use. Comply with requirements in ANSI A137.1 for labeling tile packages.
- B. Store tile and cementitious materials on elevated platforms, under cover, and in a dry location.
- C. Store aggregates where grading and other required characteristics can be maintained and contamination can be avoided.
- D. Store liquid materials in unopened containers and protected from freezing.

#### **1.10 FIELD CONDITIONS**

- A. Environmental Limitations: Do not install tile until construction in spaces is complete and ambient temperature and humidity conditions are maintained at the levels indicated in referenced standards and manufacturer's written instructions.

### **PART 2 - PRODUCTS**

#### **2.1 MANUFACTURERS**

- A. Source Limitations for Tile: Obtain tile of each type and color or finish from single source or producer.
  1. Obtain tile of each type and color or finish from same production run and of consistent quality in appearance and physical properties for each contiguous area.

- B. Source Limitations for Setting and Grouting Materials: Obtain ingredients of a uniform quality for each mortar, adhesive, and grout component from single manufacturer and each aggregate from single source or producer.
  - 1. Obtain setting and grouting materials, except for unmodified Portland cement and aggregate, from single manufacturer.
- C. Source Limitations for Other Products: Obtain each of the following products specified in this Section from a single manufacturer:
  - 1. Stone thresholds.
  - 2. Waterproof membrane.
  - 3. Crack isolation membrane.
  - 4. Metal edge strips.

## **2.2 PRODUCTS, GENERAL**

- A. ANSI Ceramic Tile Standard: Provide tile that complies with ANSI A137.1 for types, compositions, and other characteristics indicated.
- B. ANSI Standards for Tile Installation Materials: Provide materials complying with ANSI A108.02, ANSI standards referenced in other Part 2 articles, ANSI standards referenced by TCNA installation methods specified in tile installation schedules, and other requirements specified.
- C. Factory Blending: For tile exhibiting color variations within ranges, blend tile in factory and package so tile units taken from one package show same range in colors as those taken from other packages and match approved Samples.
- D. Mounting: For factory-mounted tile, provide back- or edge-mounted tile assemblies as standard with manufacturer unless otherwise indicated.

## **2.3 TILE PRODUCTS**

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
  - 1. Daltile, Inc.
  - 2. Crossville Tile
  - 3. American Olean
  - 4. Summitville Tile.
- B. Quarry Tile: See Finish plan
- C. Ceramic Wall Tile: See Finish plan
- D. Ceramic Floor Tile: See Finish plan

## **2.4 THRESHOLDS**

- A. General: Fabricate to sizes and profiles indicated or required to provide transition between adjacent floor finishes.
  - 1. Bevel edges at 1:2 slope, with lower edge of bevel aligned with or up to 1/16 inch (1.5 mm) above adjacent floor surface. Finish bevel to match top surface of threshold. Limit height of threshold to 1/2 inch (12.7 mm) or less above adjacent floor surface.

- B. Marble Thresholds: ASTM C 503/C 503M, with a minimum abrasion resistance of [10] [12] according to ASTM C 1353 or ASTM C 241/C 241M and with honed finish.

1. Description: Uniform, fine- to medium-grained white stone with gray veining.

## 2.5 WATERPROOF MEMBRANE

- A. General: Manufacturer's standard product that complies with ANSI A118.10 and is recommended by the manufacturer for the application indicated. Include reinforcement and accessories recommended by manufacturer.

- B. Fabric-Reinforced, Fluid-Applied Membrane: System consisting of liquid-latex rubber or elastomeric polymer and continuous fabric reinforcement.

1. Manufacturers: Provide the following:

- a. Laticrete International, Inc., 9235 Waterproofing Membrane.

## 2.6 CRACK ISOLATION MEMBRANE

- A. General: Manufacturer's standard product that complies with ANSI A118.12 for standard performance and is recommended by the manufacturer for the application indicated. Include reinforcement and accessories recommended by manufacturer.

- B. Fabric-Reinforced, Fluid-Applied Membrane: System consisting of liquid-latex rubber or elastomeric polymer and fabric reinforcement.

1. Manufacturers: Provide one of the following:

- a. Laticrete International, Inc., Blue 92 or 9235 Waterproofing Membrane.

## 2.7 SETTING MATERIALS

- A. Portland Cement Mortar (Thickset) Installation Materials: ANSI A108.02.

1. Cleavage Membrane: P polyethylene sheeting, ASTM D 4397, 4.0 mils (0.1 mm) thick.
2. Reinforcing Wire Fabric: Galvanized, welded-wire fabric, 2 by 2 inches (50.8 by 50.8 mm) by 0.062-inch (1.57-mm) diameter; comply with ASTM A 185/A 185M and ASTM A 82/A 82M, except for minimum wire size.
3. Latex Additive: Manufacturer's standard acrylic resin or styrene-butadiene-rubber water emulsion, serving as replacement for part or all of gaging water, of type specifically recommended by latex-additive manufacturer for use with field-mixed portland cement and aggregate mortar bed.

- B. Latex-Portland Cement Mortar (Thinset): ANSI A118.4.

1. Manufacturers: Provide the following:

- a. Laticrete International, Inc., 254 Platinum Multipurpose Thinset Mortar

2. Provide prepackaged, dry-mortar mix containing dry, redispersible, vinyl acetate or acrylic additive to which only water must be added at Project site.
3. For wall applications, provide mortar that complies with requirements for nonsagging mortar in addition to the other requirements in ANSI A118.4.

## 2.8 GROUT MATERIALS

- A. Water-Cleanable Epoxy Grout: ANSI A118.3.
  - 1. Manufacturers: Provide the following:
    - a. Laticrete International, Inc.. SpectraLOCK PRO grout.
  - 2. Provide product capable of withstanding continuous and intermittent exposure to temperatures of up to 140 and 212 deg F (60 and 100 deg C), respectively, and certified by manufacturer for intended use.

## 2.9 MISCELLANEOUS MATERIALS

- A. Uncoupling Mat: Polyethylene membrane with square and round cavities and mortar hydration vents, 1/8 inch overall thickness, ASTM C 627, ANSI A118.12.
  - 1. Manufacturers: Provide the following:
    - a. Laticrete Strata-Mat.
- B. Trowelable Underlayments and Patching Compounds: Latex-modified, portland cement-based formulation provided or approved by manufacturer of tile-setting materials for installations indicated.
- C. Metal Edge Strips: Angle or L-shaped, height to match tile and setting-bed thickness, metallic or combination of metal and PVC or neoprene base, designed specifically for flooring applications; stainless-steel, ASTM A 666, 300 Series exposed-edge material.
  - 1. Manufacturers: Subject to compliance with requirements, provide products by the following:
    - a. Schluter Systems L.P., see drawings for named products.
- D. Tile Cleaner: A neutral cleaner capable of removing soil and residue without harming tile and grout surfaces, specifically approved for materials and installations indicated by tile and grout manufacturers.

## 2.10 MIXING MORTARS AND GROUT

- A. Mix mortars and grouts to comply with referenced standards and mortar and grout manufacturers' written instructions.
- B. Add materials, water, and additives in accurate proportions.
- C. Obtain and use type of mixing equipment, mixer speeds, mixing containers, mixing time, and other procedures to produce mortars and grouts of uniform quality with optimum performance characteristics for installations indicated.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine substrates, areas, and conditions where tile will be installed, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.

1. Verify that substrates for setting tile are firm; dry; clean; free of coatings that are incompatible with tile-setting materials, including curing compounds and other substances that contain soap, wax, oil, or silicone; and comply with flatness tolerances required by ANSI A108.01 for installations indicated.
2. Verify that concrete substrates for tile floors installed with mortar beds or thinset mortar comply with surface finish requirements in ANSI A108.01 for installations indicated.
  - a. Verify that protrusions, bumps, and ridges have been removed by sanding or grinding.
3. Verify that installation of grounds, anchors, recessed frames, electrical and mechanical units of work, and similar items located in or behind tile has been completed.
4. Verify that joints and cracks in tile substrates are coordinated with tile joint locations; if not coordinated, adjust joint locations in consultation with Architect.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

### **3.2 PREPARATION**

- A. Fill cracks, holes, and depressions in concrete substrates for tile floors installed with thinset mortar with trowelable leveling and patching compound specifically recommended by tile-setting material manufacturer.
- B. Where indicated, prepare substrates to receive waterproofing by applying a reinforced mortar bed that complies with ANSI A108.1A and is sloped toward drains.
- C. Blending: For tile exhibiting color variations, verify that tile has been factory blended and packaged so tile units taken from one package show same range of colors as those taken from other packages and match approved Samples. If not factory blended, either return to manufacturer or blend tiles at Project site before installing.

### **3.3 CERAMIC TILE INSTALLATION**

- A. Comply with TCNA's "Handbook for Ceramic, Glass, and Stone Tile Installation" for TCNA installation methods specified in tile installation schedules. Comply with parts of the ANSI A108 series "Specifications for Installation of Ceramic Tile" that are referenced in TCNA installation methods, specified in tile installation schedules, and apply to types of setting and grouting materials used.
  1. For the following installations, follow procedures in the ANSI A108 series of tile installation standards for providing 95 percent mortar coverage:
    - a. Tile floors in wet areas.
    - b. Tile floors consisting of tiles 8 by 8 inches (200 by 200 mm) or larger.
    - c. Tile floors consisting of rib-backed tiles.
- B. Extend tile work into recesses and under or behind equipment and fixtures to form complete covering without interruptions unless otherwise indicated. Terminate work neatly at obstructions, edges, and corners without disrupting pattern or joint alignments.
- C. Accurately form intersections and returns. Perform cutting and drilling of tile without marring visible surfaces. Carefully grind cut edges of tile abutting trim, finish, or built-in items for straight aligned joints. Fit tile closely to electrical outlets, piping, fixtures, and other penetrations so plates, collars, or covers overlap tile.
- D. Provide manufacturer's standard trim shapes where necessary to eliminate exposed tile edges.

- E. Where accent tile differs in thickness from field tile, vary setting-bed thickness so that tiles are flush.
- F. Jointing Pattern: Lay tile in grid pattern unless otherwise indicated. Lay out tile work and center tile fields in both directions in each space or on each wall area. Lay out tile work to minimize the use of pieces that are less than half of a tile. Provide uniform joint widths unless otherwise indicated.
  - 1. Where adjoining tiles on floor, base, walls, or trim are specified or indicated to be same size, align joints.
  - 2. Where tiles are specified or indicated to be whole integer multiples of adjoining tiles on floor, base, walls, or trim, align joints unless otherwise indicated.
- G. Joint Widths: Unless otherwise indicated, install tile with the following joint widths:
  - 1. Quarry Tile: 1/4 inch (6.4 mm).
  - 2. Glazed Wall Tile: 1/16 inch (1.6 mm).
  - 3. Porcelain Tile: 1/4 inch (6.4 mm).
- H. Lay out tile wainscots to dimensions indicated or to next full tile beyond dimensions indicated.
- I. Expansion Joints: Provide expansion joints and other sealant-filled joints, including control, contraction, and isolation joints, where indicated. Form joints during installation of setting materials, mortar beds, and tile. Do not saw-cut joints after installing tiles.
  - 1. Where joints occur in concrete substrates, locate joints in tile surfaces directly above them.
- J. Stone Thresholds: Install stone thresholds in same type of setting bed as adjacent floor unless otherwise indicated.
  - 1. Do not extend waterproofing or crack isolation membrane under thresholds set in latex-portland cement mortar. Fill joints between such thresholds and adjoining tile set on waterproofing or crack isolation membrane with elastomeric sealant.
- K. Metal Edge Strips: Install at locations indicated and where exposed edge of tile flooring meets carpet, wood, or other flooring that finishes flush with or below top of tile and no threshold is indicated.

### **3.4 WATERPROOFING INSTALLATION**

- A. Install waterproofing to comply with ANSI A108.13 and manufacturer's written instructions to produce waterproof membrane of uniform thickness that is bonded securely to substrate.
- B. Allow waterproofing to cure and verify by testing that it is watertight before installing tile or setting materials over it.

### **3.5 CRACK ISOLATION MEMBRANE INSTALLATION**

- A. Install crack isolation membrane to comply with ANSI A108.17 and manufacturer's written instructions to produce membrane of uniform thickness that is bonded securely to substrate.
- B. Allow crack isolation membrane to cure before installing tile or setting materials over it.

### **3.6 ADJUSTING AND CLEANING**

- A. Remove and replace tile that is damaged or that does not match adjoining tile. Provide new matching units, installed as specified and in a manner to eliminate evidence of replacement.



- B. Cleaning: On completion of placement and grouting, clean all ceramic tile surfaces so they are free of foreign matter.
  - 1. Remove grout residue from tile as soon as possible.
  - 2. Clean grout smears and haze from tile according to tile and grout manufacturer's written instructions but no sooner than 10 days after installation. Use only cleaners recommended by tile and grout manufacturers and only after determining that cleaners are safe to use by testing on samples of tile and other surfaces to be cleaned. Protect metal surfaces and plumbing fixtures from effects of cleaning. Flush surfaces with clean water before and after cleaning.

### **3.7 PROTECTION**

- A. Protect installed tile work with kraft paper or other heavy covering during construction period to prevent staining, damage, and wear. If recommended by tile manufacturer, apply coat of neutral protective cleaner to completed tile walls and floors.
- B. Prohibit foot and wheel traffic from tiled floors for at least seven days after grouting is completed.
- C. Before final inspection, remove protective coverings and rinse neutral protective cleaner from tile surfaces.

### **3.8 INTERIOR CERAMIC TILE INSTALLATION SCHEDULE**

- 1. Ceramic Tile Installation: TCNA F121 and ANSI A108.1A; cement mortar bed (thickset) on waterproof membrane.
  - a. Ceramic Tile Type: Ceramic and Quarry Tile.
  - b. Bond Coat for Cured-Bed Method: Latex- portland cement mortar.
  - c. Grout: Water-cleanable epoxy grout.
- B. Interior Floor Installations, Concrete Subfloor:
  - 1. Ceramic Tile Installation: TCNA F122; thinset mortar on waterproof membrane.
    - a. Ceramic Tile Type: Ceramic.
    - b. Thinset Mortar: Latex- portland cement mortar.
    - c. Grout: Water-cleanable epoxy grout..
- C. Interior Wall Installations, Metal Studs or Furring:
  - 1. Ceramic Tile Installation: TCNA W244; thinset mortar on cementitious backer units or fiber-cement backer board.
    - a. Ceramic Tile Type: <Insert tile-type designation>.
    - b. Thinset Mortar: Latex- portland cement mortar.
    - c. Grout: Water-cleanable epoxy grout.

**END OF SECTION 09 30 13**

**SECTION 09 51 13 - ACOUSTICAL PANEL CEILINGS**

**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 acoustical panels and exposed suspension systems for ceilings.

**1.3 ACTION SUBMITTALS**

- A. Product Data: For each type of product.
- B. Samples: For each component indicated and for each exposed finish required, prepared on Samples of size indicated below.
  - 1. Acoustical Panel: Set of 6-inch square; Samples of each type, color, pattern, and texture.
  - 2. Exposed Suspension-System Members, Moldings, and Trim: Set of 6-inch long; Samples of each type, finish, and color.

**1.4 INFORMATIONAL SUBMITTALS**

- A. Coordination Drawings: Reflected ceiling plans, drawn to scale, on which the following items are shown and coordinated with each other, using input from installers of the items involved:
  - 1. Suspended ceiling components.
  - 2. Structural members to which suspension systems will be attached.
  - 3. Size and location of initial access modules for acoustical panels.
  - 4. Items penetrating finished ceiling including the following:
    - a. Lighting fixtures.
    - b. Air outlets and inlets.
    - c. Speakers.
  - 5. Perimeter moldings.

**1.5 CLOSEOUT SUBMITTALS**

- A. Maintenance Data: For finishes to include in maintenance manuals.

**1.6 MAINTENANCE MATERIAL SUBMITTALS**

- A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
  - 1. Acoustical Ceiling Panels: Full-size panels equal to 2 percent of quantity installed.
  - 2. Suspension-System Components: Quantity of each exposed component equal to 2 percent of quantity installed.

## 1.7 DELIVERY, STORAGE, AND HANDLING

- A. Deliver acoustical panels, suspension-system components, and accessories to Project site in original, unopened packages and store them in a fully enclosed, conditioned space where they will be protected against damage from moisture, humidity, temperature extremes, direct sunlight, surface contamination, and other causes.
- B. Before installing acoustical panels, permit them to reach room temperature and a stabilized moisture content.
- C. Handle acoustical panels carefully to avoid chipping edges or damaging units in any way.

## 1.8 FIELD CONDITIONS

- A. Environmental Limitations: Do not install acoustical panel ceilings until spaces are enclosed and weatherproof, wet work in spaces is complete and dry, work above ceilings is complete, and ambient temperature and humidity conditions are maintained at the levels indicated for Project when occupied for its intended use.
  - 1. Pressurized Plenums: Operate ventilation system for not less than 48 hours before beginning acoustical panel ceiling installation.

## PART 2 - PRODUCTS

### 2.1 PERFORMANCE REQUIREMENTS

- A. Surface-Burning Characteristics: Comply with ASTM E 84; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
  - 1. Flame-Spread Index: Comply with ASTM E 1264 for Class A materials.
  - 2. Smoke-Developed Index: 50 or less.

- 2.2 **Manufacturers:** Subject to compliance with requirements, provide the products specified. Available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

- 1. Armstrong World Industries, Inc.
- 2. CertainTeed Ceilings, Inc.
- 3. Chicago Metallic Corporation.
- 4. USG Interiors, Inc.

### 2.3 ACOUSTICAL PANELS, GENERAL

- A. Source Limitations: Obtain each type of acoustical ceiling panel and supporting suspension system from single source from single manufacturer.
- B. Acoustical Panel Standard: Provide manufacturer's standard panels of configuration indicated that comply with ASTM E 1264 classifications as designated by types, patterns, acoustical ratings, and light reflectances unless otherwise indicated.
- C. Acoustical Panel Colors and Patterns: Match appearance characteristics indicated for each product type.

- D. Broad Spectrum Antimicrobial Fungicide and Bactericide Treatment: Provide acoustical panels treated with manufacturer's standard antimicrobial formulation that inhibits fungus, mold, mildew, and gram-positive and gram-negative bacteria and showing no mold, mildew, or bacterial growth when tested according to ASTM D 3273 and evaluated according to ASTM D 3274 or ASTM G 21.

**E. Acoustical Panel Type ACT-1:**

1. Basis-of-Design Product: Subject to compliance with requirements, provide one of the following:
  - a. "ULTIMA® 1915" by Armstrong World Industries.
  - b. "Mars Climaplus" by USG Interiors, Inc.; Subsidiary of USG Corporation.
2. Classification: Provide panels complying with ASTM E 1264 for type, form, and pattern as follows:
  - a. Type and Form: Type IV, mineral base with membrane-faced overlay; Form 2, water felted.
  - b. Pattern: E (lightly textured), unperforated.
3. Color: White.
4. LR: Not less than 0.90.
5. NRC: Not less than 0.70 in accordance with ASTM C423.
6. CAC: Not less than 35 in accordance with ASTM E1414.
7. Edge/Joint Detail: Beveled tegular sized to fit flange of exposed suspension system members.
8. Thickness: 3/4 inch
9. Modular Size: 24 by 24 inches
10. Antimicrobial Treatment: Broad spectrum fungicide and bactericide based.

**2.4 ACOUSTICAL PANELS ACT-12**

1. Basis-of-Design Product: Subject to compliance with requirements, provide one of the following:
  - a. Armstrong World Industries, Inc.: KITCHEN ZONE Square Lay-In
  - b. Panel: Item No. 673
  - c. Color: White
  - d. LR: Not less than 0.89.
  - e. CAC: Not less than 33.
  - f. Edge/Joint Detail: Square.
  - g. Thickness: 5/8 inch.
  - h. Modular Size: 24 by 24 inches.

**2.5 METAL SUSPENSION SYSTEMS, GENERAL**

- A. Metal Suspension-System Standard: Provide manufacturer's standard direct-hung metal suspension systems of types, structural classifications, and finishes indicated that comply with applicable requirements in ASTM C 635/C 635M.
- B. Attachment Devices: Size for five times the design load indicated in ASTM C 635/C 635M, Table 1, "Direct Hung," unless otherwise indicated. Comply with seismic design requirements.
  1. Power-Actuated Fasteners in Concrete: Fastener system of type suitable for application indicated, fabricated from corrosion-resistant materials, with clips or other accessory

devices for attaching hangers of type indicated and with capability to sustain, without failure, a load equal to **10** times that imposed by ceiling construction, as determined by testing according to ASTM E 1190, conducted by a qualified testing and inspecting agency.

C. Wire Hangers, Braces, and Ties: Provide wires complying with the following requirements:

1. Zinc-Coated, Carbon-Steel Wire: ASTM A 641/A 641M, Class 1 zinc coating, soft temper.
2. Size: Select wire diameter so its stress at three times hanger design load (ASTM C 635/C 635M, Table 1, "Direct Hung") will be less than yield stress of wire, but provide not less than 0.106-inch- (2.69-mm-) diameter wire.

## **2.6 METAL SUSPENSION SYSTEM for ACT-1**

A. Manufacturer: Provide the following:

1. Armstrong World Industries, Inc.: Prelude XL
2. Wide-Face, Capped, Double-Web, Hot-Dip Galvanized, Steel Suspension System: Main and cross runners roll formed from cold-rolled steel sheet, prepainted, hot-dip galvanized according to ASTM A 653/A 653M, not less than G60 (Z180) coating designation, with prefinished 15/16-inch wide metal caps on flanges.
3. Structural Classification: Intermediate-duty system.
4. End Condition of Cross Runners: Override (stepped) or butt-edge type.
5. Face Design: 15/16 inch Flat, flush.
6. Cap Material: Steel or aluminum cold-rolled sheet.
7. Cap Finish: Painted to match color of acoustical unit.

## **2.7 METAL SUSPENSION SYSTEM for ACT-12**

A. Manufacturer: Provide the following:

1. Armstrong World Industries, Inc.: Prelude Plus XL

B. Wide-Face, Capped, Double-Web, Steel Suspension System: Main and cross runners roll formed from cold-rolled steel sheet; prepainted, electrolytically zinc coated, or hot-dip galvanized according to ASTM A 653/A 653M, not less than G30 (Z90) coating designation; with prefinished 15/16-inch wide metal caps on flanges.

1. Structural Classification: Intermediate-duty system.
2. End Condition of Cross Runners: Override (stepped) or butt-edge type.
3. Face Design: 15/16 inch Flat, flush.
4. Cap Material: Aluminum cold-rolled sheet.
5. Cap Finish: Painted white.

## **2.8 METAL EDGE MOLDINGS AND TRIM**

A. Products: Subject to compliance with requirements, provide one of the following:

1. Armstrong World Industries, Inc.
2. Chicago Metallic Corporation.
3. USG Interiors, Inc.

B. Roll-Formed, Sheet-Metal Edge Moldings and Trim: Type and profile indicated or, if not indicated, manufacturer's standard moldings for edges and penetrations that comply with seismic design requirements; formed from sheet metal of same material, finish, and color as that used for exposed flanges of suspension-system runners.

1. Provide manufacturer's standard edge moldings that fit acoustical panel edge details and suspension systems indicated and that match width and configuration of exposed runners unless otherwise indicated.
2. For lay-in panels with reveal edge, provide stepped angle molding (shadow molding) that forms reveal of same depth and width as that formed between edge of panel and flange at exposed suspension member.
3. For circular penetrations of ceiling, provide edge moldings fabricated to diameter required to fit penetration exactly.

## **2.9 ACOUSTICAL SEALANT**

- A. Products: Subject to compliance with requirements, provide one of the following:
  1. Acoustical Sealant for Exposed and Concealed Joints:
    - a. Pecora Corporation; AC-20 FTR Acoustical and Insulation Sealant.
    - b. USG Corporation; SHEETROCK Acoustical Sealant.
- B. Acoustical Sealant: Manufacturer's standard sealant complying with ASTM C 834 and effective in reducing airborne sound transmission through perimeter joints and openings in building construction as demonstrated by testing representative assemblies according to ASTM E 90.
  1. Exposed and Concealed Joints: Nonsag, paintable, nonstaining latex sealant.

## **PART 3 - EXECUTION**

### **3.1 EXAMINATION**

- A. Examine substrates, areas, and conditions, including structural framing to which acoustical panel ceilings attach or abut, with Installer present, for compliance with requirements specified in this and other Sections that affect ceiling installation and anchorage and with requirements for installation tolerances and other conditions affecting performance of acoustical panel ceilings.
- B. Examine acoustical panels before installation. Reject acoustical panels that are wet, moisture damaged, or mold damaged.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

### **3.2 PREPARATION**

- A. Measure each ceiling area and establish layout of acoustical panels to balance border widths at opposite edges of each ceiling. Avoid using less-than-half-width panels at borders, and comply with layout shown on reflected ceiling plans.

### **3.3 INSTALLATION**

- A. General: Install acoustical panel ceilings to comply with ASTM C 636/C 636M and seismic design requirements indicated, according to manufacturer's written instructions and CISCA's "Ceiling Systems Handbook."
- B. Suspend ceiling hangers from building's structural members and as follows:
  1. Install hangers plumb and free from contact with insulation or other objects within ceiling plenum that are not part of supporting structure or of ceiling suspension system.

2. Splay hangers only where required to miss obstructions; offset resulting horizontal forces by bracing, countersplaying, or other equally effective means.
  3. Where width of ducts and other construction within ceiling plenum produces hanger spacings that interfere with location of hangers at spacings required to support standard suspension-system members, install supplemental suspension members and hangers in form of trapezes or equivalent devices.
  4. Secure wire hangers to ceiling-suspension members and to supports above with a minimum of three tight turns. Connect hangers directly either to structures or to inserts, eye screws, or other devices that are secure and appropriate for substrate and that will not deteriorate or otherwise fail due to age, corrosion, or elevated temperatures.
  5. Do not support ceilings directly from permanent metal forms or floor deck. Fasten hangers to cast-in-place hanger inserts, postinstalled mechanical or adhesive anchors, or power-actuated fasteners that extend through forms into concrete.
  6. When steel framing does not permit installation of hanger wires at spacing required, install carrying channels or other supplemental support for attachment of hanger wires.
  7. Do not attach hangers to steel deck tabs.
  8. Do not attach hangers to steel roof deck. Attach hangers to structural members.
  9. Space hangers not more than 48 inches o.c. along each member supported directly from hangers unless otherwise indicated; provide hangers not more than 8 inches from ends of each member.
  10. Size supplemental suspension members and hangers to support ceiling loads within performance limits established by referenced standards and publications.
- C. Install edge moldings and trim of type indicated at perimeter of acoustical ceiling area and where necessary to conceal edges of acoustical panels.
1. Apply acoustical sealant in a continuous ribbon concealed on back of vertical legs of moldings before they are installed.
  2. Screw attach moldings to substrate at intervals not more than 16 inches o.c. and not more than 3 inches from ends, leveling with ceiling suspension system to a tolerance of 1/8 inch in 12 feet. Miter corners accurately and connect securely.
  3. Do not use exposed fasteners, including pop rivets, on moldings and trim.
- D. Install suspension-system runners so they are square and securely interlocked with one another. Remove and replace dented, bent, or kinked members.
- E. Install acoustical panels with undamaged edges and fit accurately into suspension-system runners and edge moldings. Scribe and cut panels at borders and penetrations to provide a neat, precise fit.
1. For square-edged panels, install panels with edges fully hidden from view by flanges of suspension-system runners and moldings.
  2. For reveal-edged panels on suspension-system runners, install panels with bottom of reveal in firm contact with top surface of runner flanges.
  3. Paint cut edges of panel remaining exposed after installation; match color of exposed panel surfaces using coating recommended in writing for this purpose by acoustical panel manufacturer.

### **3.4 CLEANING**

- A. Clean exposed surfaces of acoustical panel ceilings, including trim, edge moldings, and suspension-system members. Comply with manufacturer's written instructions for cleaning and touchup of minor finish damage. Remove and replace ceiling components that cannot be successfully cleaned and repaired to permanently eliminate evidence of damage.

**END OF SECTION 09 51 13**

## **SECTION 09 65 13 - RESILIENT BASE AND ACCESSORIES**

### **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. Resilient base.
  - 2. Resilient molding accessories.

#### **1.3 ACTION SUBMITTALS**

- A. Product Data: For each type of product.
- B. Samples: For each exposed product and for each color and texture specified, not less than 12 inches (300 mm) long.

#### **1.4 MAINTENANCE MATERIAL SUBMITTALS**

- A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
  - 1. Furnish not less than 10 linear feet for every 500 linear feet or fraction thereof, of each type, color, pattern, and size of resilient product installed.

#### **1.5 DELIVERY, STORAGE, AND HANDLING**

- A. Store resilient products and installation materials in dry spaces protected from the weather, with ambient temperatures maintained within range recommended by manufacturer, but not less than 50 deg F or more than 90 deg F

#### **1.6 FIELD CONDITIONS**

- A. Maintain ambient temperatures within range recommended by manufacturer, but not less than 70 deg F or more than 95 deg F in spaces to receive resilient products during the following time periods:
  - 1. 48 hours before installation.
  - 2. During installation.
  - 3. 48 hours after installation.
- B. After installation and until Substantial Completion, maintain ambient temperatures within range recommended by manufacturer, but not less than 55 deg F or more than 95 deg F.
- C. Install resilient products after other finishing operations, including painting, have been completed.



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## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide the products specified. Available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
1. Johnsonite, Inc.
  2. Roppe, Inc.
  3. Armstrong Flooring.

### 2.2 THERMOPLASTIC-RUBBER BASE

- A. Basis of Design: Provide products equal to Johnsonite, Inc.
- B. Product Standard: ASTM F 1861, Type TP (rubber, thermoplastic).
1. Group: I (solid, homogeneous).
  2. Style: Cove.
- C. Thickness: 0.125 inch.
- D. Height: 6 inches.
- E. Lengths: Cut lengths 48 inches (1219 mm) long or coils in manufacturer's standard length.
- F. Outside Corners: Job formed.
- G. Inside Corners: Job formed.
- H. Colors:
1. See Schedule of Finishes (Specification 09 06 00)

### 2.3 RUBBER MOLDING ACCESSORY

- A. Description: Rubber carpet edge for glue-down applications, nosing for carpet, nosing for resilient flooring, reducer strip for resilient flooring, joiner for tile and carpet, transition strips as indicated.
- B. Profile and Dimensions: As indicated.
- C. Locations: Provide rubber molding accessories in areas indicated.
- D. Colors and Patterns: Match rubber base.

### 2.4 INSTALLATION MATERIALS

- A. Trowelable Leveling and Patching Compounds: Latex-modified, portland cement based or blended hydraulic-cement-based formulation provided or approved by resilient-product manufacturer for applications indicated.
- B. Adhesives: Water-resistant type recommended by resilient-product manufacturer for resilient products and substrate conditions indicated.

## **PART 3 - EXECUTION**

### **3.1 EXAMINATION**

- A. Examine substrates, with Installer present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.
  - 1. Verify that finishes of substrates comply with tolerances and other requirements specified in other Sections and that substrates are free of cracks, ridges, depressions, scale, and foreign deposits that might interfere with adhesion of resilient products.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.
  - 1. Installation of resilient products indicates acceptance of surfaces and conditions.

### **3.2 PREPARATION**

- A. Prepare substrates according to manufacturer's written instructions to ensure adhesion of resilient products.
- B. Fill cracks, holes, and depressions in substrates with trowelable leveling and patching compound; remove bumps and ridges to produce a uniform and smooth substrate.
- C. Do not install resilient products until they are the same temperature as the space where they are to be installed.
  - 1. At least 48 hours in advance of installation, move resilient products and installation materials into spaces where they will be installed.
- D. Immediately before installation, sweep and vacuum clean substrates to be covered by resilient products.

### **3.3 RESILIENT BASE INSTALLATION**

- A. Comply with manufacturer's written instructions for installing resilient base.
- B. Apply resilient base to walls, columns, pilasters, casework and cabinets in toe spaces, and other permanent fixtures in rooms and areas where base is required.
- C. Install resilient base in lengths as long as practical without gaps at seams and with tops of adjacent pieces aligned.
- D. Tightly adhere resilient base to substrate throughout length of each piece, with base in continuous contact with horizontal and vertical substrates.
- E. Do not stretch resilient base during installation.
- F. Job-Formed Corners:
  - 1. Outside Corners: Use straight pieces of maximum lengths possible and form with returns not less than 3 inches (76 mm) in length.
    - a. Form without producing discoloration (whitening) at bends.

2. Inside Corners: Use straight pieces of maximum lengths possible and form with returns not less than 3 inches (76 mm) in length.

### **3.4 RESILIENT ACCESSORY INSTALLATION**

- A. Comply with manufacturer's written instructions for installing resilient accessories.
- B. Resilient Molding Accessories: Butt to adjacent materials and tightly adhere to substrates throughout length of each piece. Install reducer strips at edges of floor covering that would otherwise be exposed.

### **3.5 CLEANING AND PROTECTION**

- A. Comply with manufacturer's written instructions for cleaning and protecting resilient products.
- B. Perform the following operations immediately after completing resilient-product installation:
  1. Remove adhesive and other blemishes from exposed surfaces.
- C. Protect resilient products from mars, marks, indentations, and other damage from construction operations and placement of equipment and fixtures during remainder of construction period.
- D. Cover resilient products subject to wear and foot traffic until Substantial Completion.

**END OF SECTION 09 65 13**

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**SECTION 09 65 19 - RESILIENT TILE FLOORING**

**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. Vinyl composition floor tile.

**1.3 ACTION SUBMITTALS**

- A. Product Data: For each type of product.
- B. Samples: Full-size units of each color and pattern of floor tile required.

**1.4 CLOSEOUT SUBMITTALS**

- A. Maintenance Data: For each type of floor tile to include in maintenance manuals.

**1.5 MAINTENANCE MATERIAL SUBMITTALS**

- A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
  - 1. Floor Tile: Furnish one box for every 50 boxes or fraction thereof, of each type, color, and pattern of floor tile installed.

**1.6 QUALITY ASSURANCE**

- A. Installer Qualifications: A qualified installer who employs workers for this Project who are competent in techniques required by manufacturer for floor tile installation and seaming method indicated.

**1.7 DELIVERY, STORAGE, AND HANDLING**

- A. Store floor tile and installation materials in dry spaces protected from the weather, with ambient temperatures maintained within range recommended by manufacturer, but not less than 50 deg F (10 deg C) or more than 90 deg F (32 deg C). Store floor tiles on flat surfaces.

**1.8 FIELD CONDITIONS**

- A. Maintain ambient temperatures within range recommended by manufacturer, but not less than 70 deg F (21 deg C) or more than 95 deg F (35 deg C), in spaces to receive floor tile during the following time periods:
  - 1. 48 hours before installation.
  - 2. During installation.

3. 48 hours after installation.
- B. After installation and until Substantial Completion, maintain ambient temperatures within range recommended by manufacturer, but not less than 55 deg F (13 deg C) or more than 95 deg F (35 deg C).
- C. Close spaces to traffic during floor tile installation.
- D. Close spaces to traffic for 48 hours after floor tile installation.
- E. Install floor tile after other finishing operations, including painting, have been completed.

## **PART 2 - PRODUCTS**

### **2.1 PERFORMANCE REQUIREMENTS**

- A. Fire-Test-Response Characteristics: For resilient tile flooring, as determined by testing identical products according to ASTM E 648 or NFPA 253 by a qualified testing agency.
  1. Critical Radiant Flux Classification: Class I, not less than 0.45 W/sq. cm.
- B. Manufacturers: Subject to compliance with requirements, provide the products specified. Available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
  1. Armstrong World Industries, Inc.
  2. Mannington Commercial Floors, Inc.
  3. Johnsonite; a Takett Company

### **2.2 VINYL COMPOSITION FLOOR TILE - RF1**

- A. See Schedule of Finishes (Specification 09 06 00)

### **2.3 INSTALLATION MATERIALS**

- A. Trowelable Leveling and Patching Compounds: Latex-modified, portland cement based or blended hydraulic-cement-based formulation provided or approved by floor tile manufacturer for applications indicated.
- B. Adhesives: Water-resistant type recommended by floor tile and adhesive manufacturers to suit floor tile and substrate conditions indicated.
  1. Adhesives shall comply with the following limits for VOC content:
    - a. Vinyl Composition Tile Adhesives: 50 g/L or less.
- C. Floor Polish: Provide protective, liquid floor-polish products recommended by floor tile manufacturer.

### PART 3 - EXECUTION

#### 3.1 EXAMINATION

- A. Examine substrates, with Installer present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.
  - 1. Verify that finishes of substrates comply with tolerances and other requirements specified in other Sections and that substrates are free of cracks, ridges, depressions, scale, and foreign deposits that might interfere with adhesion of floor tile.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

#### 3.2 PREPARATION

- A. Prepare substrates according to floor tile manufacturer's written instructions to ensure adhesion of resilient products.
- B. Concrete Substrates: Prepare according to ASTM F 710.
  - 1. Verify that substrates are dry and free of curing compounds, sealers, and hardeners.
  - 2. Remove substrate coatings and other substances that are incompatible with adhesives and that contain soap, wax, oil, or silicone, using mechanical methods recommended by floor tile manufacturer. Do not use solvents.
  - 3. Alkalinity and Adhesion Testing: Perform tests recommended by floor tile manufacturer. Proceed with installation only after substrate alkalinity falls within range on pH scale recommended by manufacturer in writing, but not less than 5 or more than 9 pH.
  - 4. Moisture Testing: Proceed with installation only after substrates pass testing according to floor tile manufacturer's written recommendations, but not less stringent than the following:
    - a. Perform anhydrous calcium chloride test according to ASTM F 1869. Proceed with installation only after substrates have maximum moisture-vapor-emission rate of 3 lb of water/1000 sq. ft. (1.36 kg of water/92.9 sq. m) in 24 hours.
    - b. Preferred Method: Perform relative humidity test using in situ probes according to ASTM F 2170. Proceed with installation only after substrates have a maximum 75 percent relative humidity level.
- C. Fill cracks, holes, and depressions in substrates with trowelable leveling and patching compound; remove bumps and ridges to produce a uniform and smooth substrate.
- D. Do not install floor tiles until they are the same temperature as the space where they are to be installed.
  - 1. At least 48 hours in advance of installation, move resilient floor tile and installation materials into spaces where they will be installed.
- E. Immediately before installation, sweep and vacuum clean substrates to be covered by resilient floor tile.

#### 3.3 FLOOR TILE INSTALLATION

- A. Comply with manufacturer's written instructions for installing floor tile.

- B. Lay out floor tiles from center marks established with principal walls, discounting minor offsets, so tiles at opposite edges of room are of equal width. Adjust as necessary to avoid using cut widths that equal less than one-half tile at perimeter.
  - 1. Lay tiles square with room axis.
- C. Match floor tiles for color and pattern by selecting tiles from cartons in the same sequence as manufactured and packaged, if so numbered. Discard broken, cracked, chipped, or deformed tiles.
  - 1. Lay tiles with grain running in one direction.
- D. Scribe, cut, and fit floor tiles to butt neatly and tightly to vertical surfaces and permanent fixtures including built-in furniture, cabinets, pipes, outlets, and door frames.
- E. Extend floor tiles into toe spaces, door reveals, closets, and similar openings. Extend floor tiles to center of door openings.
- F. Maintain reference markers, holes, and openings that are in place or marked for future cutting by repeating on floor tiles as marked on substrates. Use chalk or other nonpermanent marking device.
- G. Install floor tiles on covers for telephone and electrical ducts, building expansion-joint covers, and similar items in finished floor areas. Maintain overall continuity of color and pattern between pieces of tile installed on covers and adjoining tiles. Tightly adhere tile edges to substrates that abut covers and to cover perimeters.
- H. Adhere floor tiles to flooring substrates using a full spread of adhesive applied to substrate to produce a completed installation without open cracks, voids, raising and puckering at joints, telegraphing of adhesive spreader marks, and other surface imperfections.

### **3.4 CLEANING AND PROTECTION**

- A. Comply with manufacturer's written instructions for cleaning and protecting floor tile.
- B. Perform the following operations immediately after completing floor tile installation:
  - 1. Remove adhesive and other blemishes from exposed surfaces.
  - 2. Sweep and vacuum surfaces thoroughly.
  - 3. Damp-mop surfaces to remove marks and soil.
- C. Protect floor tile from mars, marks, indentations, and other damage from construction operations and placement of equipment and fixtures during remainder of construction period.
- D. Floor Polish: Remove soil, adhesive, and blemishes from floor tile surfaces before applying liquid floor polish.
  - 1. Apply three coat(s).
- E. Cover floor tile until Substantial Completion.

**END OF SECTION 09 65 19**

## **SECTION 09 67 23 – RESINOUS FLOORING**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

#### **1.2 SUMMARY**

- A. This Section includes resinous, epoxy flooring systems with integral cove base.

#### **1.3 SUBMITTALS**

- A. Product Data: For each type of product indicated. Include manufacturer's technical data, application instructions, and recommendations for each resinous flooring component required.
- B. Samples for Initial Selection: For each type of exposed finish required.
- C. Samples for Verification: For each resinous flooring system required, 12 inches square, applied to a rigid backing by Installer for this Project.
- D. Product Schedule: Use resinous flooring designations specified and room designations indicated on Drawings in product schedule.
- E. Installer Certificates: Signed by manufacturer certifying that installers comply with specified requirements.
- F. Material Certificates: For each resinous flooring component, signed by manufacturer.
- G. Maintenance Data: For resinous flooring to include in maintenance manuals.

#### **1.4 QUALITY ASSURANCE**

- A. Installer Qualifications: Engage an experienced installer (applicator) who is experienced in applying resinous flooring systems similar in material, design, and extent to those indicated for this Project, whose work has resulted in applications with a record of successful in-service performance, and who is acceptable to resinous flooring manufacturer.
  - 1. Engage an installer who employs only persons trained and approved by resinous flooring manufacturer for applying resinous flooring systems indicated.
- B. Source Limitations: Obtain primary resinous flooring materials, including primers, resins, hardening agents, grouting coats, and topcoats, through one source from a single manufacturer. Provide secondary materials, including patching and fill material, joint sealant, and repair materials, of type and from source recommended by manufacturer of primary materials.
- C. Mockups: Apply mockups to verify selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.



1. Apply full-thickness mockups on one full toilet room selected by Architect and Contractor. Use mock-up to confirm and coordinate slope of floor, threshold and intersection with floor drain.
  - a. Include integral cove base.
2. Simulate finished lighting conditions for Architect's review of mockups.
3. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

#### **1.5 DELIVERY, STORAGE, AND HANDLING**

- A. Deliver materials in original packages and containers, with seals unbroken, bearing manufacturer's labels indicating brand name and directions for storage and mixing with other components.
- B. Store materials to prevent deterioration from moisture, heat, cold, direct sunlight, or other detrimental effects.

#### **1.6 PROJECT CONDITIONS**

- A. Environmental Limitations: Comply with resinous flooring manufacturer's written instructions for substrate temperature, ambient temperature, moisture, ventilation, and other conditions affecting resinous flooring application.
- B. Lighting: Provide permanent lighting or, if permanent lighting is not in place, simulate permanent lighting conditions during resinous flooring application.
- C. Close spaces to traffic during resinous flooring application and for not less than 24 hours after application, unless manufacturer recommends a longer period.

### **PART 2 - PRODUCTS**

#### **2.1 RESINOUS FLOORING – EF-1**

- A. Basis-of-Design Product: Subject to compliance with requirements, provide named product below or a comparable product by one of the following manufacturers:
  1. Basis of Design: Dur-A-Flex, Inc.
    - a. Style: Dur-A-Quartz
    - b. Color/Pattern: #Q28-15
    - c. Aggregate: #Q28 colored quartz aggregate
    - d. Base: Integral, 4" minimum.
  2. Atlas Minerals & Chemicals, Inc., Polymer Flooring Division;
  3. Ultradec, Inc.;
  4. Valspar Flooring.
  5. Stonehard Flooring.

#### **2.2 ACCESSORY MATERIALS**

- A. Patching and Fill Material: Resinous product of or approved by resinous flooring manufacturer and recommended by manufacturer for application indicated.

- B. Joint Sealant: Type recommended or produced by resinous flooring manufacturer for type of service and joint condition indicated.
- C. Primer: Manufacturer's standard
- D. Broadcast Coat: Manufacturer's standard.
- E. Topcoat/Grout Coat: Manufacturer's standard

### **PART 3 - EXECUTION**

#### **3.1 PREPARATION**

- A. General: Prepare and clean substrates according to resinous flooring manufacturer's written instructions for substrate indicated. Provide clean, dry, and neutral Ph substrate for resinous flooring application.
- B. Concrete Substrates: Provide sound concrete surfaces free of laitance, glaze, efflorescence, curing compounds, form-release agents, dust, dirt, grease, oil, and other contaminants incompatible with resinous flooring.
  - 1. Roughen concrete substrates as follows:
    - a. Comply with ASTM C 811 requirements, unless manufacturer's written instructions are more stringent.
  - 2. Repair damaged and deteriorated concrete according to resinous flooring manufacturer's written recommendations.
  - 3. Verify that concrete substrates are dry.
    - a. Perform anhydrous calcium chloride test, ASTM F 1869. Proceed with application only after substrates have maximum moisture-vapor-emission rate of 3 lb of water/1000 sq. ft. in 24 hours.
    - b. Perform additional moisture tests recommended by manufacturer. Proceed with application only after substrates pass testing.
  - 4. Verify that concrete substrates have neutral Ph and that resinous flooring will adhere to them. Perform tests recommended by manufacturer. Proceed with application only after substrates pass testing.
- C. Resinous Materials: Mix components and prepare materials according to resinous flooring manufacturer's written instructions.
- D. Use patching and fill material to fill holes and depressions in substrates according to manufacturer's written instructions.
- E. Treat control joints and other nonmoving substrate cracks to prevent cracks from reflecting through resinous flooring according to manufacturer's written recommendations.

#### **3.2 APPLICATION**

- A. General: Apply components of resinous flooring system according to manufacturer's written instructions to produce a uniform, monolithic wearing surface of thickness indicated.

1. Coordinate application of components to provide optimum adhesion of resinous flooring system to substrate, and optimum intercoat adhesion.
2. Cure resinous flooring components according to manufacturer's written instructions. Prevent contamination during application and curing processes.
3. At substrate expansion and isolation joints, provide joint in resinous flooring to comply with resinous flooring manufacturer's written recommendations.
  - a. Apply joint sealant to comply with manufacturer's written recommendations.
- B. Apply primer over prepared substrate at manufacturer's recommended spreading rate.
- C. Apply waterproofing membrane, where indicated, in manufacturer's recommended thickness.
  1. Apply waterproofing membrane to integral cove base substrates.
- D. Apply reinforcing membrane to entire substrate surface.
- E. Integral Cove Base: Apply cove base mix to wall surfaces before applying flooring. Apply according to manufacturer's written instructions and details including those for taping, mixing, priming, troweling, sanding, and topcoating of cove base. Round internal and external corners.
- F. Apply troweled or screeded body coat(s) in thickness indicated for flooring system. Hand or power trowel and grout to fill voids. When cured, sand to remove trowel marks and roughness.
- G. Apply grout coat, of type recommended by resinous flooring manufacturer to fill voids in surface of final body coat and to produce wearing surface indicated.
- H. Apply topcoat(s) in number of coats indicated for flooring system and at spreading rates recommended in writing by manufacturer.

### **3.3 FIELD QUALITY CONTROL**

- A. Core Sampling: At the direction of Owner and at locations designated by Owner, take 1 core sample per 1000 sq. ft. of resinous flooring, or portion of, to verify thickness. For each sample that fails to comply with requirements, take two additional samples. Repair damage caused by coring and correct deficiencies.

### **3.4 CLEANING AND PROTECTING**

- A. Protect resinous flooring from damage and wear during the remainder of construction period. Use protective methods and materials, including temporary covering, recommended in writing by resinous flooring manufacturer.

**END OF SECTION 09 67 23**

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**SECTION 09 68 13 - TILE CARPETING**

**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 modular carpet tile.
- B. Related Requirements:
  - 1. Section 024119 "Selective Demolition" for removing existing floor coverings.
  - 2. Section 096513 "Resilient Base and Accessories" for resilient wall base and accessories installed with carpet tile.

**1.3 ACTION SUBMITTALS**

- A. Product Data: For each type of product.
  - 1. Include manufacturer's written data on physical characteristics, durability, and fade resistance.
  - 2. Include manufacturer's written installation recommendations for each type of substrate.
- B. Samples: For each of the following products and for each color and texture required. Label each Sample with manufacturer's name, material description, color, pattern, and designation indicated on Drawings and in schedules.
  - 1. Carpet Tile: Full-size Sample.
  - 2. Exposed Edge, Transition, and Other Accessory Stripping: 12-inch- (300-mm-) long Samples.
- C. Product Schedule: For carpet tile. Use same designations indicated on Drawings.

**1.4 CLOSEOUT SUBMITTALS**

- A. Maintenance Data: For carpet tiles to include in maintenance manuals. Include the following:
  - 1. Methods for maintaining carpet tile, including cleaning and stain-removal products and procedures and manufacturer's recommended maintenance schedule.
  - 2. Precautions for cleaning materials and methods that could be detrimental to carpet tile.

**1.5 MAINTENANCE MATERIAL SUBMITTALS**

- A. Furnish extra materials, from the same product run, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Carpet Tile: Full-size units equal to 5 percent of amount installed for each type indicated, but not less than 10 sq. yd.

**1.6 DELIVERY, STORAGE, AND HANDLING**

- A. Comply with CRI's "CRI Carpet Installation Standard."

**1.7 FIELD CONDITIONS**

- A. Comply with CRI's "CRI Carpet Installation Standard" for temperature, humidity, and ventilation limitations.
- B. Environmental Limitations: Do not deliver or install carpet tiles until spaces are enclosed and weathertight, wet-work in spaces is complete and dry, and ambient temperature and humidity conditions are maintained at levels planned for building occupants during the remainder of the construction period.
- C. Do not install carpet tiles over concrete slabs until slabs have cured and are sufficiently dry to bond with adhesive and concrete slabs have pH range recommended by carpet tile manufacturer.
- D. Where demountable partitions or other items are indicated for installation on top of carpet tiles, install carpet tiles before installing these items.

**1.8 WARRANTY**

- A. Special Warranty for Carpet Tiles: Manufacturer agrees to repair or replace components of carpet tile installation that fail in materials or workmanship within specified warranty period.
  1. Warranty does not include deterioration or failure of carpet tile due to unusual traffic, failure of substrate, vandalism, or abuse.
  2. Failures include, but are not limited to, the following:
    - a. More than 10 percent edge raveling, snags, and runs.
    - b. Dimensional instability.
    - c. Excess static discharge.
    - d. Loss of tuft-bind strength.
    - e. Loss of face fiber.
    - f. Delamination.
  3. Warranty Period: 10 years from date of Substantial Completion.

**PART 2 - PRODUCTS**

- A. Manufacturers: Subject to compliance with requirements, provide the products specified. Available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
  1. Atlas Carpet Mills, Inc.
  2. Mannington Commercial, Inc.
  3. Mohawk Group, Inc.
  4. Milliken Carpet, Inc.
  5. Shaw Contract, Inc.

**2.2 CARPET TILE**

- A. See Schedule of Finishes (Specification 09 06 00)

**2.3 INSTALLATION ACCESSORIES**

- A. Trowelable Leveling and Patching Compounds: Latex-modified, hydraulic-cement-based formulation provided or recommended by carpet tile manufacturer.
- B. Adhesives: Water-resistant, mildew-resistant, nonstaining, pressure-sensitive type to suit products and subfloor conditions indicated, that comply with flammability requirements for installed carpet tile, and are recommended by carpet tile manufacturer for releasable installation.

**PART 3 - EXECUTION**

**3.1 EXAMINATION**

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for maximum moisture content, alkalinity range, installation tolerances, and other conditions affecting carpet tile performance.
- B. Examine carpet tile for type, color, pattern, and potential defects.
- C. Concrete Slabs: Verify that surfaces are free of cracks, ridges, depressions, scale, and foreign deposits.
- D. Proceed with installation only after unsatisfactory conditions have been corrected.

**3.2 PREPARATION**

- A. General: Comply with CRI's "CRI Carpet Installation Standards" and with carpet tile manufacturer's written installation instructions for preparing substrates indicated to receive carpet tile.
- B. Use trowelable leveling and patching compounds, according to manufacturer's written instructions, to fill cracks, holes, depressions, and protrusions in substrates. Fill or level cracks, holes and depressions 1/8 inch (3 mm) wide or wider, and protrusions more than 1/32 inch unless more stringent requirements are required by manufacturer's written instructions.
- C. Concrete Substrates: Remove coatings, including curing compounds, and other substances that are incompatible with adhesives and that contain soap, wax, oil, or silicone, without using solvents. Use mechanical methods recommended in writing by adhesive and carpet tile manufacturers.
- D. Metal Substrates: Clean grease, oil, soil and rust, and prime if recommended in writing by adhesive manufacturer. Rough sand painted metal surfaces and remove loose paint. Sand aluminum surfaces, to remove metal oxides, immediately before applying adhesive.
- E. Broom and vacuum clean substrates to be covered immediately before installing carpet tile.

**3.3 INSTALLATION**

- A. General: Comply with CRI's "CRI Carpet Installation Standard," Section 18, "Modular Carpet" and with carpet tile manufacturer's written installation instructions.
- B. Installation Method: Glue down; install every tile with full-spread, releasable, pressure-sensitive adhesive.
- C. Maintain dye-lot integrity. Do not mix dye lots in same area.
- D. Maintain pile-direction patterns recommended in writing by carpet tile manufacturer.
- E. Cut and fit carpet tile to butt tightly to vertical surfaces, permanent fixtures, and built-in furniture including cabinets, pipes, outlets, edgings, thresholds, and nosings. Bind or seal cut edges as recommended by carpet tile manufacturer.
- F. Extend carpet tile into toe spaces, door reveals, closets, open-bottomed obstructions, removable flanges, alcoves, and similar openings.
- G. Maintain reference markers, holes, and openings that are in place or marked for future cutting by repeating on carpet tile as marked on subfloor. Use nonpermanent, nonstaining marking device.
- H. Install pattern parallel to walls and borders.

**3.4 CLEANING AND PROTECTION**

- A. Perform the following operations immediately after installing carpet tile:
  - 1. Remove excess adhesive and other surface blemishes using cleaner recommended by carpet tile manufacturer.
  - 2. Remove yarns that protrude from carpet tile surface.
  - 3. Vacuum carpet tile using commercial machine with face-beater element.
- B. Protect installed carpet tile to comply with CRI's "CRI Carpet Installation Standard," Section 20, "Protecting Indoor Installations."
- C. Protect carpet tile against damage from construction operations and placement of equipment and fixtures during the remainder of construction period. Use protection methods indicated or recommended in writing by carpet tile manufacturer.

**END OF SECTION 09 68 13**

**SECTION 09 91 23 - INTERIOR PAINTING**

**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 surface preparation and the application of paint systems on the following interior substrates:
  - 1. Steel.
  - 2. Wood.
  - 3. Gypsum board.
  - 4. Plaster.
- B. Related Requirements:
  - 1. Section 09 29 00 "Gypsum Board" for vinyl acrylic latex wall surfacer/primer used in lieu of skim coating for Level 5 gypsum wall board finish.

**1.3 DEFINITIONS**

- A. Gloss Level 1: Not more than 5 units at 60 degrees and 10 units at 85 degrees, according to ASTM D 523.
- B. Gloss Level 2: Not more than 10 units at 60 degrees and 10 to 35 units at 85 degrees, according to ASTM D 523.
- C. Gloss Level 3: 10 to 25 units at 60 degrees and 10 to 35 units at 85 degrees, according to ASTM D 523.
- D. Gloss Level 4: 20 to 35 units at 60 degrees and not less than 35 units at 85 degrees, according to ASTM D 523.
- E. Gloss Level 5: 35 to 70 units at 60 degrees, according to ASTM D 523.
- F. Gloss Level 6: 70 to 85 units at 60 degrees, according to ASTM D 523.
- G. Gloss Level 7: More than 85 units at 60 degrees, according to ASTM D 523.

**1.4 ACTION SUBMITTALS**

- A. Product Data: For each type of product. Include preparation requirements and application instructions.
- B. Samples for Verification: For each type of paint system and in each color and gloss of topcoat.
  - 1. Submit Samples on rigid backing, 8 inches (200 mm) square.
  - 2. Step coats on Samples to show each coat required for system.
  - 3. Label each coat of each Sample.
  - 4. Label each Sample for location and application area.



**1.5 MAINTENANCE MATERIAL SUBMITTALS**

- A. Furnish extra materials, from the same product run, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
  - 1. Paint: 5 percent, but not less than 1 gal. of each material and color applied.

**1.6 DELIVERY, STORAGE, AND HANDLING**

- A. Store materials not in use in tightly covered containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 45 deg F
  - 1. Maintain containers in clean condition, free of foreign materials and residue.
  - 2. Remove rags and waste from storage areas daily.

**1.7 FIELD CONDITIONS**

- A. Apply paints only when temperature of surfaces to be painted and ambient air temperatures are between 50 and 95 deg F.
- B. Do not apply paints when relative humidity exceeds 85 percent; at temperatures less than 5 deg F above the dew point; or to damp or wet surfaces.

**PART 2 - PRODUCTS**

**2.1 MANUFACTURERS**

- A. Basis-of-Design Products: Specified products are manufactured by Benjamin Moore & Company.
- B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  - 1. Benjamin Moore & Co.
  - 2. California Paints.
  - 3. Glidden Professional.
  - 4. PPG Architectural Finishes, Inc.
  - 5. Pratt & Lambert.
  - 6. Sherwin-Williams Company (The).

**2.2 PAINT, GENERAL**

- A. MPI Standards: Provide products that comply with MPI standards indicated and that are listed in its "MPI Approved Products List."
- B. Material Compatibility:
  - 1. Provide materials for use within each paint system that are compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
  - 2. For each coat in a paint system, provide products recommended in writing by manufacturers of topcoat for use in paint system and on substrate indicated.
- C. VOC Content: Products shall comply with VOC limits of authorities having jurisdiction.

1. Flat Paints and Coatings: 50 g/L.
2. Nonflat Paints and Coatings: 150 g/L.
3. Primers, Sealers, and Undercoaters: 200 g/L.

### **2.3 PRIMERS/SEALERS**

- A. Primer Sealer, Interior, Institutional Low Odor/VOC: MPI #149.
  1. Benjamin Moore Eco Spec WB interior latex primer N372.
- B. Primer, Latex, for Interior Wood: MPI #39.
  1. Benjamin Moore Fresh Start High Hiding All Purpose Primer 046.

### **2.4 METAL PRIMERS**

- A. Primer, Rust-Inhibitive, Water Based: MPI #107.
  1. Benjamin Moore Super Spec HP Acrylic Metal Primer P04.

### **2.5 WATER-BASED PAINTS**

- A. Latex, Interior, Institutional Low Odor/VOC, Flat (Gloss Level 1): MPI #143.
  1. Benjamin Moore Eco Spec WB Interior Latex Flat Finish N373.
- B. Latex, Interior, Institutional Low Odor/VOC, (Gloss Level 3): MPI #145.
  1. Benjamin Moore Eco Spec WB Interior Latex Eggshell Finish N374.
- C. Latex, Interior, Institutional Low Odor/VOC, Semi-Gloss (Gloss Level 5): MPI #147.
  1. Benjamin Moore Ultra Spec 500 Waterborne Interior Glass N540.

## **PART 3 - EXECUTION**

### **3.1 EXAMINATION**

- A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.
- B. Maximum Moisture Content of Substrates: When measured with an electronic moisture meter as follows:
  1. Wood: 15 percent.
  2. Gypsum Board: 12 percent.
  3. Plaster: 12 percent.
- C. Gypsum Board Substrates: Verify that finishing compound is sanded smooth.
- D. Plaster Substrates: Verify that plaster is fully cured.
- E. Verify suitability of substrates, including surface conditions and compatibility with existing finishes and primers.

- F. Proceed with coating application only after unsatisfactory conditions have been corrected.
  - 1. Application of coating indicates acceptance of surfaces and conditions.

### **3.2 PREPARATION**

- A. Comply with manufacturer's written instructions and recommendations in "MPI Manual" applicable to substrates indicated.
- B. Remove hardware, covers, plates, and similar items already in place that are removable and are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and painting.
  - 1. After completing painting operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection if any.
- C. Clean substrates of substances that could impair bond of paints, including dust, dirt, oil, grease, and incompatible paints and encapsulants.
  - 1. Remove incompatible primers and reprime substrate with compatible primers or apply tie coat as required to produce paint systems indicated.
- D. Shop-Primed Steel Substrates: Clean field welds, bolted connections, and abraded areas of shop paint, and paint exposed areas with the same material as used for shop priming to comply with SSPC-PA 1 for touching up shop-primed surfaces.
- E. Wood Substrates:
  - 1. Scrape and clean knots, and apply coat of knot sealer before applying primer.
  - 2. Sand surfaces that will be exposed to view, and dust off.
  - 3. Prime edges, ends, faces, undersides, and backsides of wood.
  - 4. After priming, fill holes and imperfections in the finish surfaces with putty or plastic wood filler. Sand smooth when dried.

### **3.3 APPLICATION**

- A. Apply paints according to manufacturer's written instructions and to recommendations in "MPI Manual."
  - 1. Use applicators and techniques suited for paint and substrate indicated.
  - 2. Paint surfaces behind movable equipment and furniture same as similar exposed surfaces. Before final installation, paint surfaces behind permanently fixed equipment or furniture with prime coat only.
  - 3. Paint front and backsides of access panels, removable or hinged covers, and similar hinged items to match exposed surfaces.
  - 4. Do not paint over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.
  - 5. Primers specified in painting schedules may be omitted on items that are factory primed or factory finished if acceptable to topcoat manufacturers.
- B. If undercoats or other conditions show through topcoat, apply additional coats until cured film has a uniform paint finish, color, and appearance.

- C. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.
- D. Painting Fire Suppression, Plumbing, HVAC, Electrical, Communication, and Electronic Safety and Security Work:
  - 1. Paint the following work where exposed in equipment rooms:
    - a. Equipment, including panelboards.
    - b. Uninsulated metal piping.
    - c. Pipe hangers and supports.
    - d. Metal conduit.
    - e. Tanks that do not have factory-applied final finishes.
    - f. Duct, equipment, and pipe insulation having cotton or canvas insulation covering or other paintable jacket material.
  - 2. Paint the following work where exposed in occupied spaces:
    - a. Equipment, including panelboards.
    - b. Uninsulated metal piping.
    - c. Pipe hangers and supports.
    - d. Metal conduit.
    - e. Duct, equipment, and pipe insulation having cotton or canvas insulation covering or other paintable jacket material.
    - f. Other items as directed by Architect.
  - 3. Paint portions of internal surfaces of metal ducts, without liner, behind air inlets and outlets that are visible from occupied spaces.

### **3.4 FIELD QUALITY CONTROL**

- A. Dry Film Thickness Testing: Owner may engage the services of a qualified testing and inspecting agency to inspect and test paint for dry film thickness.
  - 1. Contractor shall touch up and restore painted surfaces damaged by testing.
  - 2. If test results show that dry film thickness of applied paint does not comply with paint manufacturer's written recommendations, Contractor shall pay for testing and apply additional coats as needed to provide dry film thickness that complies with paint manufacturer's written recommendations.

### **3.5 CLEANING AND PROTECTION**

- A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.
- B. After completing paint application, clean spattered surfaces. Remove spattered paints by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.
- C. Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.

- D. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

### **3.6 INTERIOR PAINTING SCHEDULE**

#### A. Steel Substrates:

- 1. Institutional Low-Odor/VOC Latex System:
  - a. Prime Coat: Primer, rust-inhibitive, water based MPI #107.
  - b. Intermediate Coat: Latex, interior, institutional low odor/VOC, matching topcoat.
  - c. Topcoat: Latex, interior, institutional low odor/VOC, semi-gloss (Gloss Level 5), MPI #147.

#### B. Wood Substrates: Including wood trim, doors, wood-based panel products.

- 1. Institutional Low-Odor/VOC Latex System:
  - a. Prime Coat: Primer, latex, for interior wood, MPI #39.
  - b. Intermediate Coat: Latex, interior, institutional low odor/VOC, matching topcoat.
  - c. Topcoat: Latex, interior, institutional low odor/VOC, semi-gloss (Gloss Level 5), MPI #147.

#### C. Gypsum Board Ceiling Substrates:

- 1. Institutional Low-Odor/VOC Latex System:
  - a. Prime Coat: Primer sealer, interior, institutional low odor/VOC, MPI #149.
  - b. Intermediate Coat: Latex, interior, institutional low odor/VOC, matching topcoat.
  - c. Topcoat: Latex, interior, institutional low odor/VOC, flat (Gloss Level 1), MPI #143.

#### D. Gypsum Board and Plaster Wall Substrates:

- 1. Institutional Low-Odor/VOC Latex System:
  - a. Prime Coat: Primer sealer, interior, institutional low odor/VOC, MPI #149.
  - b. Intermediate Coat: Latex, interior, institutional low odor/VOC, matching topcoat.
  - c. Topcoat: Latex, interior, institutional low odor/VOC, eggshell (Gloss Level 3), MPI #145.

### **3.7 PAINT COLOR SELECTIONS**

Basis-of-Design

Colors: See Schedule of Finishes (Specification 09 06 00) and Approved Submittals

**END OF SECTION 09 91 23**

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## SECTION 101100 - VISUAL DISPLAY UNITS

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. Section Includes:
1. Markerboard assemblies.

#### 1.2 SUBMITTALS

- A. Product Data: For each type of visual display board indicated. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for visual display surfaces.
1. For adhesives, include printed statement of VOC content and chemical components.
- B. Shop Drawings: For visual display surfaces. Include plans, elevations, sections, details, and attachments to other work.
1. Include dimensioned elevations. Show location of joints between individual panels where unit dimensions exceed maximum panel length.
  2. Include sections of typical and custom trim members.
  3. Show anchors, grounds, reinforcement, accessories, layout, and installation details.
- C. Samples for Initial Selection: Manufacturer's color charts showing the full range of colors and textures available for the following:
1. Markerboards: Actual sections of porcelain enamel finish for each type of markerboard required and visual display wall covering.
- D. Samples for Verification: Of the following products, showing color and texture or finish selected. Where finishes involve normal color and texture variations, include Sample sets showing the full range of variations expected. Prepare Samples from the same material to be used for the Work.
1. Visual Display Surfaces: Sample panels not less than 8-1/2 by 11 inches (215 by 280 mm), mounted on the substrate indicated for the final Work. Include one panel for each type, color, and texture required.
- E. Warranties: Sample of special warranties.

#### 1.3 PROJECT CONDITIONS

- A. Field Measurements: Verify field measurements before preparation of Shop Drawings and before fabrication to ensure proper fitting. Coordinate fabrication schedule with construction progress to avoid delaying the Work.
1. Allow for trimming and fitting where taking field measurements before fabrication might delay the Work.

#### 1.4 CLOSEOUT SUBMITTALS

- A. Maintenance data.

## 1.5 WARRANTY

- A. Special Warranty for Porcelain-Enamel Face Sheets: Manufacturer agrees to repair or replace porcelain-enamel face sheets that fail in materials or workmanship within specified warranty period.
1. Warranty Period: 1 year from date of Substantial Completion.

## PART 2 - PRODUCTS

### 2.1 MARKERBOARD ASSEMBLIES

- A. Basis of Design Products: The designs for markerboards are based on "**LCS-II Porcelain Enamel Steel Markerboard**" by Claridge Products and Equipment, Inc. Subject to compliance with requirements, provide either the named products, or comparable products by one of the following:
1. Best-Rite Chalkboard Co.
  2. Carolina Chalkboard Co.
  3. Claridge Products and Equipment, Inc.
- B. Porcelain Enamel Markerboards: Balanced, high-pressure-laminated, porcelain enamel markerboards of 3-ply construction consisting of face sheet, core material, and backing.
1. Face Sheet: ASTM A 424, enameling-grade steel, uncoated thickness indicated; with exposed face and edges coated with primer, 1.7-to-2.5-mil- (0.043-to-0.064-mm-) thick ground coat, and color cover coat; and with concealed face coated with primer and 1.7-to-2.5-mil- (0.043-to-0.064-mm-) thick ground coat.
    - a. Matte-Finish Cover Coat: Low reflective; markers wipes clean with dry cloth or standard eraser. Minimum 2.0-to-2.5-mil- (0.051-to-0.064-mm-) thick cover coat. Cover and ground coats shall be fused to steel at manufacturer's standard firing temperatures but not less than 1250 deg F (677 deg C).
    - b. Basis-of-Design Product: Subject to compliance with requirements, provide the following:
      - 1) Steelcase, Inc.; "e<sup>3</sup> environmental ceramicsteel™".
  2. Core: 3/8-inch- (9.5-mm-) thick, particleboard core material complying with requirements of ANSI A208.1, Grade 1-M-1.
  3. Backing Sheet: 0.015-inch- (0.38-mm-) thick, aluminum-sheet backing.
  4. Laminating Adhesive: Manufacturer's standard, moisture-resistant, thermoplastic-type adhesive.
  5. Metal Trim and Accessories: Manufacturer's standard snap-on-aluminum trim and chalktray.
  6. Configuration: "**Type A**".
  7. Size: As indicated on the Drawings.
  8. Color: No. 92 LCS-II White.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine wall surfaces, with Installer present, for compliance with requirements and other conditions affecting installation of visual display boards.
1. Surfaces to receive markerboards shall be free of dirt, scaling paint, and projections or depressions that would affect smooth, finished surfaces of markerboards.
  2. Examine walls and partitions for proper preparation and backing for visual display surfaces.

3. Do not proceed with installation until unsatisfactory conditions have been corrected.

### **3.2 PREPARATION**

- A. Comply with manufacturer's written instructions for surface preparation.
- B. Clean substrates of substances that could impair the performance of and affect the smooth, finished surfaces of visual display boards, including dirt, mold, and mildew.
- C. Prepare surfaces to achieve a smooth, dry, clean surface free of flaking, unsound coatings, cracks, defects, projections, depressions, and substances that will impair bond between visual display surfaces and wall surfaces.

### **3.3 INSTALLATION**

- A. General: Install visual display surfaces in locations and at mounting heights indicated on Drawings. Keep perimeter lines straight, level, and plumb. Provide grounds, clips, backing materials, adhesives, brackets, anchors, trim, and accessories necessary for complete installation.
- B. Visual Display Boards: Attach concealed clips, hangers, and grounds to wall surfaces and to visual display boards with fasteners at not more than 16 inches (400 mm) o.c. Secure both top and bottom of boards to walls.

### **3.4 CLEANING AND PROTECTION**

- A. Clean visual display surfaces according to manufacturer's written instructions. Attach one cleaning label to visual display surface in each room.
- B. Touch up factory-applied finishes to restore damaged or soiled areas.
- C. Cover and protect visual display surfaces after installation and cleaning.

**END OF SECTION 10 11 00**



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**SECTION 10 14 23 - PANEL SIGNAGE**

**PART 1 - GENERAL**

**1.1 SUMMARY**

- A. Section Includes:
  - 1. Room-identification signs.

**1.2 ACTION SUBMITTALS**

- A. Product Data: For each type of product..
- B. Samples: For each exposed product and for each color and texture specified.
- C. Sign Schedule: Use same designations specified or indicated on Drawings or in a sign schedule.

**1.3 INFORMATIONAL SUBMITTALS**

- A. Sample warranty.

**1.4 CLOSEOUT SUBMITTALS**

- A. Maintenance data.

**1.5 WARRANTY**

- A. Special Warranty: Manufacturer agrees to repair or replace components of signs that fail in materials or workmanship within specified warranty period.
  - 1. Warranty Period: Five years from date of Substantial Completion.

**PART 2 - PRODUCTS**

**2.1 PANEL SIGNS, GENERAL**

**2.2 PERFORMANCE REQUIREMENTS**

- A. Accessibility Standard: Comply with applicable provisions in the U.S. Architectural & Transportation Barriers Compliance Board's ADA-ABA Accessibility Guidelines for Buildings and Facilities and ICC A117.1 for signs.

## 2.3 SIGNS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
1. ASI Sign Systems, Inc.
  2. Best Sign Systems Inc.
  3. Mohawk Sign Systems.
  4. Supersine Company (The); Division of Stamp-Rite, Inc.
  5. Vomar Products, Inc.
- B. Room-Identification Sign: Sign with smooth, uniform surfaces; with message and characters having uniform faces, sharp corners, and precisely formed lines and profiles; and as follows:
1. Laminated-Sheet Sign: Photopolymer face sheet with raised graphics laminated over subsurface graphics to acrylic backing sheet to produce composite sheet.
    - a. Composite-Sheet Thickness: Manufacturer's standard for size of sign, but not less than 0.125 inch (3.18 mm).
    - b. Surface-Applied Graphics: Applied vinyl film or photo image.
    - c. Color(s): As selected by Architect from manufacturer's full range.
  2. Sign-Panel Perimeter: Finish edges smooth.
    - a. Edge Condition: Square cut.
    - b. Corner Condition in Elevation: As indicated.
  3. Mounting: Surface mounted to wall with countersunk flathead through fasteners.
  4. Text and Typeface: typeface as selected by Architect from manufacturer's full range.

## 2.4 PANEL-SIGN MATERIALS

- A. Acrylic Sheet: ASTM D 4802, category as standard with manufacturer for each sign, Type UVF (UV filtering).
- B. PVC Sheet: Manufacturer's standard, UV-light stable, PVC plastic.
- C. Plastic-Laminate Sheet: NEMA LD 3, general-purpose HGS grade, 0.048-inch (1.2-mm) nominal thickness.
- D. Vinyl Film: UV-resistant vinyl film of nominal thickness indicated, with pressure-sensitive, permanent adhesive on back; die cut to form characters or images as indicated and suitable for exterior applications.
- E. Paints and Coatings for Sheet Materials: Inks, dyes, and paints that are recommended by manufacturer for optimum adherence to surface and are UV and water resistant for colors and exposure indicated.

## 2.5 ACCESSORIES

- A. Fasteners and Anchors: Manufacturer's standard as required for secure anchorage of signage, noncorrosive and compatible with each material joined, and complying with the following:
1. Use concealed fasteners and anchors unless indicated to be exposed.
  2. Exposed Metal-Fastener Components, General:

- a. Fabricated from same basic metal and finish of fastened metal unless otherwise indicated.
- 3. Sign Mounting Fasteners:
  - a. Through Fasteners: Exposed metal fasteners matching sign finish, with type of head indicated, installed in predrilled holes.

## **2.6 FABRICATION**

- A. General: Provide manufacturer's standard sign assemblies according to requirements indicated.
  - 1. Preassemble signs and assemblies in the shop to greatest extent possible. Disassemble signs and assemblies only as necessary for shipping and handling limitations. Clearly mark units for reassembly and installation; apply markings in locations concealed from view after final assembly.
- B. Subsurface-Applied Graphics: Apply graphics to back face of clear face-sheet material to produce precisely formed image. Image shall be free of rough edges.
- C. Shop- and Subsurface-Applied Vinyl: Align vinyl film in final position and apply to surface. Firmly press film from the middle outward to obtain good bond without blisters or fishmouths.

## **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 signage work.
- B. Verify that sign-support surfaces are within tolerances to accommodate signs without gaps or irregularities between backs of signs and support surfaces unless otherwise indicated.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

### **3.2 INSTALLATION**

- A. General: Install signs using mounting methods indicated and according to manufacturer's written instructions.
  - 1. Install signs level, plumb, true to line, and at locations and heights indicated, with sign surfaces free of distortion and other defects in appearance.
  - 2. Install signs so they do not protrude or obstruct according to the accessibility standard.
  - 3. Before installation, verify that sign surfaces are clean and free of materials or debris that would impair installation.
- B. Room-Identification Signs and Other Accessible Signage: Install in locations on walls as indicated and according to accessibility standard.
- C. Mounting Methods:

1. Through Fasteners: Drill holes in substrate using predrilled holes in sign as template. Countersink holes in sign if required. Place sign in position and flush to surface. Install through fasteners and tighten.
- D. Signs Mounted on Glass: Provide opaque sheet matching sign material and finish onto opposite side of glass to conceal back of sign.

### **3.3 ADJUSTING AND CLEANING**

- A. Remove and replace damaged or deformed signs and signs that do not comply with specified requirements. Replace signs with damaged or deteriorated finishes or components that cannot be successfully repaired by finish touchup or similar minor repair procedures.
- B. Remove temporary protective coverings and strippable films as signs are installed.
- C. On completion of installation, clean exposed surfaces of signs according to manufacturer's written instructions, and touch up minor nicks and abrasions in finish. Maintain signs in a clean condition during construction and protect from damage until acceptance by Owner.

**END OF SECTION 10 14 23**

## **SECTION 10 21 13 - PLASTIC TOILET COMPARTMENTS**

### **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. Solid-plastic toilet compartments configured as toilet enclosures and urinal screens.
- B. Related Requirements:
  - 1. Section 05 50 00 "Metal Fabrications" for supports that attach ceiling-hung compartments to overhead structural system.
  - 2. Section 061053 "Miscellaneous Rough Carpentry" for blocking of overhead support of post-to-ceiling screens.
  - 3. Section 102800 "Toilet, Bath, and Laundry Accessories" for toilet tissue dispensers, grab bars, purse shelves, and similar accessories mounted on toilet compartments.

#### **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 toilet compartments.
- B. Shop Drawings: For toilet compartments.
  - 1. Include plans, elevations, sections, details, and attachment details.
  - 2. Show locations of cutouts for compartment-mounted toilet accessories.
  - 3. Show locations of centerlines of toilet fixtures.
  - 4. Show locations of floor drains.
  - 5. Show ceiling grid, ceiling-mounted items, and overhead support or bracing locations.
- C. Samples for Verification: For the following products, in manufacturer's standard sizes unless otherwise indicated:
  - 1. Each type of material, color, and finish required for toilet compartments, prepared on 6-inch- (152-mm-) square Samples of same thickness and material indicated for Work.
  - 2. Each type of hardware and accessory.
- D. Product Schedule: For toilet compartments, prepared by or under the supervision of supplier, detailing location and selected colors for toilet compartment material.

#### **1.4 INFORMATIONAL SUBMITTALS**

- A. Product Certificates: For each type of toilet compartment.

**1.5 CLOSEOUT SUBMITTALS**

- A. Maintenance Data: For toilet compartments to include in maintenance manuals.

**1.6 PROJECT CONDITIONS**

- A. Field Measurements: Verify actual locations of toilet fixtures, walls, columns, ceilings, and other construction contiguous with toilet compartments by field measurements before fabrication.

**PART 2 - PRODUCTS**

**2.1 PERFORMANCE REQUIREMENTS**

- A. Surface-Burning Characteristics: Comply with ASTM E 84; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
  - 1. Flame-Spread Index: 200 or less.
  - 2. Smoke-Developed Index: 450 or less.
- B. Regulatory Requirements: Comply with applicable provisions in the U.S. Architectural & Transportation Barriers Compliance Board's ADA-ABA Accessibility Guidelines for Buildings and Facilities and ICC A117.1 for toilet compartments designated as accessible.

**2.2 SOLID-PLASTIC TOILET COMPARTMENTS**

- A. Manufacturers: Available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
  - 1. ASI Global Partitions, Inc.
  - 2. Scranton Products Inc.
  - 3. General Partitions, Inc.
- B. Toilet-Enclosure Style: Ceiling hung.
- C. Urinal-Screen Style: Wall hung.
- D. Door, Panel, and Pilaster Construction: Solid, high-density polyethylene (HDPE) panel material, not less than 1 inch thick, seamless, with eased edges, no-sightline system, and with homogenous color and pattern throughout thickness of material.
  - 1. Integral Hinges: Configure doors and pilasters to receive integral hinges.
  - 2. Heat-Sink Strip: Manufacturer's standard continuous, stainless-steel strip fastened to exposed bottom edges of solid-plastic components to hinder malicious combustion.
  - 3. Color and Pattern: One color and pattern in each room as selected by Architect from manufacturer's full range.
- E. Pilaster Sleeves (Caps): Manufacturer's standard design; stainless steel.
- F. Brackets (Fittings):
  - 1. Full-Height (Continuous) Type: Manufacturer's standard design; stainless steel.
- G. Overhead Cross Bracing for Ceiling-Hung Units: As recommended by manufacturer and fabricated from solid polymer.

### **2.3 HARDWARE AND ACCESSORIES**

- A. Hardware and Accessories: Manufacturer's heavy-duty operating hardware and accessories.
  - 1. Material: Stainless steel.
  - 2. Hinges: Manufacturer's minimum 0.062-inch- (1.59-mm-) thick stainless-steel paired, self-closing type that can be adjusted to hold doors open at any angle up to 90 degrees, allowing emergency access by lifting door. Mount with through-bolts.
  - 3. Latch and Keeper: Manufacturer's heavy-duty surface-mounted cast-stainless-steel latch unit designed to resist damage due to slamming, with combination rubber-faced door strike and keeper, and with provision for emergency access. Provide units that comply with regulatory requirements for accessibility at compartments designated as accessible. Mount with through-bolts.
  - 4. Coat Hook: Manufacturer's heavy-duty combination cast-stainless-steel hook and rubber-tipped bumper, sized to prevent in-swinging door from hitting compartment-mounted accessories. Mount with through-bolts.
  - 5. Door Bumper: Manufacturer's heavy-duty rubber-tipped cast-stainless-steel bumper at out-swinging doors. Mount with through-bolts.
  - 6. Door Pull: Manufacturer's heavy-duty cast-stainless-steel pull at out-swinging doors that complies with regulatory requirements for accessibility. Provide units on both sides of doors at compartments designated as accessible. Mount with through-bolts.
- B. Overhead Bracing: Manufacturer's standard continuous, extruded-aluminum head rail with antigrip profile and in manufacturer's standard finish.
- C. Anchorages and Fasteners: Manufacturer's standard exposed fasteners of stainless steel, finished to match the items they are securing, with theft-resistant-type heads. Provide sex-type bolts for through-bolt applications. For concealed anchors, use stainless-steel, hot-dip galvanized-steel, or other rust-resistant, protective-coated steel compatible with related materials.

### **2.4 MATERIALS**

- A. Stainless-Steel Sheet: ASTM A 666, Type 304, stretcher-leveled standard of flatness.
- B. Stainless-Steel Castings: ASTM A 743/A 743M.

### **2.5 FABRICATION**

- A. Fabrication, General: Fabricate toilet compartment components to sizes indicated. Coordinate requirements and provide cutouts for through-partition toilet accessories where required for attachment of toilet accessories.
- B. Ceiling-Hung Units: Provide manufacturer's standard corrosion-resistant anchoring assemblies with leveling adjustment nuts at pilasters for connection to structural support above finished ceiling. Provide assemblies that support pilasters from structure without transmitting load to finished ceiling. Provide sleeves (caps) at tops of pilasters to conceal anchorage.
- C. Door Size and Swings: Unless otherwise indicated, provide 24-inch- (610-mm-) wide, in-swinging doors for standard toilet compartments and 36-inch- (914-mm-) wide, out-swinging doors with a minimum 32-inch- (813-mm-) wide, clear opening for compartments designated as accessible.



### **PART 3 - EXECUTION**

#### **3.1 EXAMINATION**

- A. Examine areas and conditions, with Installer present, for compliance with requirements for fastening, support, alignment, operating clearances, and other conditions affecting performance of the Work.
  - 1. Confirm location and adequacy of blocking and supports required for installation.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

#### **3.2 INSTALLATION**

- A. General: Comply with manufacturer's written installation instructions. Install units rigid, straight, level, and plumb. Secure units in position with manufacturer's recommended anchoring devices.
  - 1. Maximum Clearances:
    - a. Pilasters and Panels: 1/2 inch (13 mm).
    - b. Panels and Walls: 1 inch (25 mm).
  - 2. Full-Height (Continuous) Brackets: Secure panels to walls and to pilasters with full-height brackets.
    - a. Locate bracket fasteners so holes for wall anchors occur in masonry or tile joints.
    - b. Align brackets at pilasters with brackets at walls.
- B. Ceiling-Hung Units: Secure pilasters to supporting structure and level, plumb, and tighten. Hang doors and adjust so bottoms of doors are level with bottoms of pilasters when doors are in closed position.
- C. Urinal Screens: Attach with anchoring devices to suit supporting structure. Set units level and plumb, rigid, and secured to resist lateral impact.

#### **3.3 ADJUSTING**

- A. Hardware Adjustment: Adjust and lubricate hardware according to hardware manufacturer's written instructions for proper operation. Set hinges on in-swinging doors to hold doors open approximately 30 degrees from closed position when unlatched. Set hinges on out-swinging doors to return doors to fully closed position.

**END OF SECTION 10 21 13**

**SECTION 10 22 13 – WIRE MESH PARTITIONS**

**PART 1 - GENERAL**

**1.01 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.

**1.02 SUMMARY**

- A. This Section includes the following items fabricated from wire mesh:
  - 1. Heavy-duty, interior partitions.
  - 2. Ceilings.

**1.03 SUBMITTALS**

- A. Product Data: For each product indicated.
- B. Shop Drawings: Include plans, elevations, sections, details, and attachments to other work.
- C. Samples: For each exposed finish.
- D. Schedule of locker door sign text, keyed to shop drawings.
- E. Maintenance data.

**1.04 QUALITY ASSURANCE**

- A. Preinstallation Conference: Conduct conference at Project site.

**1.05 DELIVERY, STORAGE, AND HANDLING**

- A. Deliver keys to Owner by registered mail or overnight package service.

**PART 2 - PRODUCTS**

**2.01 MANUFACTURERS**

- 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. Acorn Wire & Iron Works, Inc.
  - 2. Kenco Wire & Iron Products, Inc.
  - 3. Newark Wire Works Inc.
  - 4. Wire Crafters, Inc.

**2.02 MATERIALS**

- A. Steel Wire: ASTM A 510 (ASTM A 510M).
- B. Steel Plates, Channels, Angles, and Bars: ASTM A 36/A 36M.
- C. Cold-Rolled Steel Sheet: ASTM A 1008/A 1008M, Commercial Steel (CS), Type B.
- D. Steel Pipe: ASTM A 53/A 53M, Schedule 40, unless another weight is indicated or required by structural loads.
- E. Square Steel Tubing: Cold-formed structural-steel tubing, ASTM A 500.
- F. Metallic-Coated Steel Sheet: ASTM A 653/A 653M, Commercial Steel (CS), Type B; with G60 (Z180) zinc (galvanized) or A60 (ZF180) zinc-iron-alloy (galvannealed) coating designation.

- G. Panel-to-Panel Fasteners: Manufacturer's standard steel bolts.
- H. Postinstalled Expansion Anchors in Concrete: Fabricated from corrosion-resistant materials; with capability to sustain, without failure, load imposed within factors of safety indicated, as determined by testing per ASTM E 488, conducted by a qualified independent testing agency.
  - 1. For Postinstalled Anchors in Concrete: Capability to sustain, without failure, a load equal to four times the loads imposed.
  - 2. For Postinstalled Anchors in Grouted Masonry Units: Capability to sustain, without failure, a load equal to six times the loads imposed.
- I. Power-Actuated Fasteners in Concrete: Fastener system of type suitable for application indicated and fabricated from corrosion-resistant materials; with clips or other accessory devices for attaching hangers of type indicated, and with capability to sustain, without failure, a load equal to 10 times that imposed by wire mesh construction, as determined by testing per ASTM E 1190, conducted by a qualified testing and inspecting agency.
- J. Shop Primers: Provide primers to comply with applicable requirements in Division 09 painting Sections.
- K. Shop Primer for Ferrous Metal: Fast-curing, lead- and chromate-free, universal modified-alkyd primer complying with performance requirements in FS TT-P-664.

**2.03 HEAVY-DUTY WIRE MESH PARTITIONS**

- A. Mesh: 0.192-inch diameter, intermediate-crimp steel wire woven into 2-inch diamond mesh.
- B. Vertical and Horizontal Panel Framing: 1-1/2-by-3/4-by-0.0966-inch cold-rolled, C-shaped steel channels; with 3/8-inch- diameter bolt holes spaced not more than 18 inches o.c. along center of framing.
- C. Horizontal Panel Stiffeners: 1-1/2-by-3/4-by-1/8-inch cold-rolled steel channels with wire woven through, or two 1-by-1/2-by-1/8-inch cold-rolled steel channels bolted or riveted toe to toe through mesh.
- D. Top Capping Bars: 3-inch-by-4.1-lb hot-rolled steel channels.
- E. Posts for 90-Degree Corners: 1-3/4-by-1-3/4-by-1/8-inch steel angles with 3/8-inch- diameter bolt holes aligning with bolt holes in vertical framing; with floor anchor clips.
- F. Line Posts: 3-inch-by-4.1-lb or 3-1/2-by-1-1/4-by-0.1265-inch steel channels; with 5-by-18-by-1/4-inch (125-by-450-by-6-mm) steel base plates punched for attachment to floor.
- G. Three-Way Intersection Posts: 2-by-2-inch tubular steel, with 3/8-inch diameter bolt holes aligned for bolting to adjacent panels.
- H. Floor Shoes: Steel, cast iron, or cast aluminum, 2-1/2 inches high; sized to suit vertical framing, drilled for attachment to floor, and with set screws for leveling adjustment.
- I. Sliding Doors: Fabricated from same mesh as partitions, with framing fabricated from 1-1/2-by-3/4-by-1/8-inch steel channels or C-channels, banded with 1-1/2-by-1/8-inch flat steel bar cover plates on 4 sides.

1. Hardware: Two 4-wheel roller-bearing carriers, box track, and bottom guide channel for each door.
  2. Cylinder Lock: Mortise type with manufacturer's standard cylinder operated by key outside and recessed knob inside.
- J. Accessories: Provide manufacturer's heavy duty shelves.
- K. Finishes: Powder-coated finish.
1. Color: Manufacturer's standard gray.

#### **2.04 WIRE MESH CEILINGS**

- A. Mesh, Framing, and Stiffeners: Fabricated from same mesh and framing as wire mesh partition panels.
- B. Perimeter Partition Supports: 1-1/2-by-1-1/2-by-1/8-inch steel angle, with 1/4 inch diameter bolt holes aligned for bolting to top of wire mesh partitions and to sides of wire mesh ceiling panels.
- C. Wall Supports: 1-1/2-by-1-1/2-by-1/8-inch steel angle punched for attachment to wall and wire mesh ceiling panels.
- D. Intermediate Supports: Steel I-beam, as recommended by manufacturer.
- E. Intermediate Support Posts: 2-by-2-by-1/8-inch steel pipe or tubing.
- F. Finishes: Match adjacent wire mesh partitions.

#### **2.05 FABRICATION**

- A. General: Fabricate wire mesh items from components of sizes not less than those indicated. Use larger-size components as recommended by wire mesh item manufacturer. Provide bolts, hardware, and accessories as required for complete installation.
1. Fabricate wire mesh items to be readily disassembled.
  2. Welding: Weld corner joints of framing and grind smooth, leaving no evidence of joint.
- B. Heavy-Duty Wire Mesh Partitions: Fabricate wire mesh partitions with cutouts for pipes, ducts, beams, and other items indicated. Finish edges of cutouts to provide a neat, protective edge.
1. Mesh: Securely clinch mesh to framing.
  2. Framing: Fabricate framing with mortise and tenon corner construction.
    - a. Provide horizontal stiffeners as indicated or, if not indicated, as required by panel height and as recommended by wire mesh partition manufacturer. Weld horizontal stiffeners to vertical framing.
    - b. Fabricate three-way intersections using manufacturer's standard connecting clips and fasteners.
    - c. Fabricate partition and door framing with slotted holes for connecting adjacent panels.
  3. Fabricate wire mesh partitions with 3 inches (76 mm) of clear space between finished floor and bottom horizontal framing.
  4. Doors: Align bottom of door with bottom of adjacent panels.
    - a. For doors that do not extend full height of partition, provide transom over door, fabricated from same mesh and framing as partition panels.
  5. Hardware Preparation: Mortise, reinforce, drill, and tap doors and framing as required to install hardware.
- C. Wire Mesh Ceilings: Fabricate wire mesh partitions with cutouts for pipes, ducts, beams, and other items indicated. Finish edges of cutouts to provide a neat, protective edge.

1. Mesh: Securely clinch mesh to framing.
2. Framing: Fabricate framing with mortise and tenon corner construction.
  - a. Provide stiffeners as indicated or, if not indicated, as required by panel span and as recommended by wire mesh ceiling manufacturer. Weld stiffeners to framing.

## 2.06 FINISHES

- A. Shop Priming: Apply shop primer to uncoated surfaces of wire mesh items, unless otherwise indicated. Comply with SSPC-PA 1, "Paint Application Specification No. 1," for shop painting.
- B. Powder-Coated Finish: Manufacturer's standard baked finish.

## PART 3 - EXECUTION

### 3.01 ERECTION

- A. Wire Mesh Partitions:
  1. Anchor wire mesh partitions to floor with 3/8-inch diameter, postinstalled expansion anchors at 12 inches o.c. through anchor clips located at each post and corner.
    - a. Shim anchor clips as required to achieve level and plumb installation.
    - b. Adjust wire mesh partition posts in floor shoes to achieve level and plumb installation.
  2. Anchor wire mesh partitions to walls at 12 inches o.c. through back corner panel framing with fasteners appropriate to substrate.
  3. Secure top capping bars to top framing channels with 1/4-inch diameter "U" bolts spaced not more than 28 inches o.c.
  4. Provide line posts at locations indicated or, if not indicated, as follows:
    - a. On each side of sliding door openings.
    - b. For partitions that are 7 to 9 feet high, spaced at 15 to 20 feet o.c.
    - c. For partitions that are 10 to 12 feet high, located between every other panel.
    - d. For partitions that are more than 12 feet high, located between each panel.
  5. Where standard-width wire mesh partition panels do not fill entire length of run, provide adjustable filler panels to fill openings.
  6. Install doors complete with door hardware.
  7. Bolt accessories to wire mesh partition framing.
- B. Wire Mesh Ceilings:
  1. Anchor wall support angle to walls at 12 inches o.c. with fasteners appropriate to substrate.
  2. Attach wire mesh ceiling panels to wall support angles with bolts at 12 inches o.c.
  3. Attach wire mesh ceiling panels to wire mesh partitions with slotted angles bolted to sides of ceiling panels and to top of partitions at 12 inches (305 mm) o.c.
  4. Attach wire mesh ceiling panels to intermediate supports as recommended by manufacturer.
- C. Adjust doors to operate easily without binding.
- D. Touchup Painting: Immediately after erection, clean field welds, bolted connections, and abraded areas of shop paint; paint exposed areas with same material as used for shop painting to comply with SSPC-PA 1 for touching up shop-painted surfaces.

**END OF SECTION 10 22 13**

**SECTION 10 28 00 – TOILET ROOM ACCESSORIES**

**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. Washroom accessories.
- B. Related Sections:
  - 1. Section 08 83 00 "Mirrors" for frameless mirrors.

**1.3 ACTION SUBMITTALS**

- A. Product Data: For each type of product indicated. Include the following:
  - 1. Construction details and dimensions.
  - 2. Anchoring and mounting requirements, including requirements for cutouts in other work and substrate preparation.
  - 3. Material and finish descriptions.
  - 4. Manufacturer's warranty.
- B. Product Schedule: Indicating types, quantities, sizes, and installation locations by room of each accessory required.
  - 1. Identify locations using room designations indicated.
  - 2. Identify products using designations indicated.

**1.4 CLOSEOUT SUBMITTALS**

- A. Maintenance Data: For toilet and bath accessories to include in maintenance manuals.

**1.5 QUALITY ASSURANCE**

- A. Source Limitations: For products listed together in the same Part 2 articles, obtain products from single source from single manufacturer.

**1.6 COORDINATION**

- A. Coordinate accessory locations with other work to prevent interference with clearances required for access by people with disabilities, and for proper installation, adjustment, operation, cleaning, and servicing of accessories.

**PART 2 - PRODUCTS**

**2.1 MATERIALS**

- A. Stainless Steel: ASTM A 666, Type 304, 0.031-inch (0.8-mm) minimum nominal thickness unless otherwise indicated.

- B. Brass: ASTM B 19, flat products; ASTM B 16/B 16M, rods, shapes, forgings, and flat products with finished edges; or ASTM B 30, castings.
- C. Steel Sheet: ASTM A 1008/A 1008M, Designation CS (cold rolled, commercial steel), 0.036-inch (0.9-mm) minimum nominal thickness.
- D. Galvanized-Steel Sheet: ASTM A 653/A 653M, with G60 (Z180) hot-dip zinc coating.
- E. Galvanized-Steel Mounting Devices: ASTM A 153/A 153M, hot-dip galvanized after fabrication.
- F. Fasteners: Screws, bolts, and other devices of same material as accessory unit and tamper-and-theft resistant where exposed, and of galvanized steel where concealed.

## **2.2 PUBLIC-USE WASHROOM ACCESSORIES**

- A. Manufacturers: Subject to compliance with requirements, provide products by the manufacturers specified for each item or comparable products by the following:
  - 1. A & J Washroom Accessories, Inc.
  - 2. American Specialties, Inc.
  - 3. Bradley Corporation.
- B. Paper Towel Dispenser: T1: Large Single Roll.
  - 1. Product: San Jamar Smart System Touchless Dispenser.
  - 2. Size: 15-1/2" x 11-3/4" x 9" deep.
- C. Toilet Tissue (Roll) Dispenser T2:
  - 1. Standard Canner Model No. R4500, Jumbo Roll Dispenser, 12-1/2" h x 20-1/2" w x 5-5/8" deep. Provide Canner Small Roll Dispenser, at all Handicap toilet locations. Dispensers to be dual 6", or single 9", surface mounted, not recessed.
- D. Countertop Mounted Soap Dispensers: T3A
  - 1. Product: Bobrick B-822.
  - 2. Mounting: Surface mounted 1" diameter hole.
  - 3. Operation: Manual pump.
  - 4. Capacity: 34-fl oz.
  - 5. Material and Finish: Polyethylene container, stainless steel 4" spout.
- E. Wall Mounted Soap Dispensers: T3B
  - 1. Product: Green Seal – EZ No Touch #69024.
  - 2. Mounting: Surface mounted.
  - 3. Operation: Battery operated 6 AA.
  - 4. Capacity: 1000ml bag.
  - 5. Material and Finish: Polyethylene.
- F. Tampon/Sanitary Napkin Dispenser Unit T4:
  - 1. Product: Hospeco Dual No.1 Vendor.
  - 2. Mounting: Surface mounted.
  - 3. Type: Sanitary napkin and tampon.
  - 4. Size 10" x 24" x 7-1/4" deep.
  - 5. Capacity: 15 sanitary napkins and 25 tampons.

G. Lavatory Mirror T5:

1. Product: Bobrick B-290.
2. Description: Welded frame mirror.
3. Size: 18" x 30"
4. Mounting: Flanges with concealed fasteners.

H. Utility Hooks T6:

1. Product: Bobrick B-670.
2. Description: Single post.
3. Size: 2" x 2" flange.
4. Material: Bright polished stainless steel.
5. Mounting: Flanges with concealed fasteners.

I. Shower Curtain T7:

1. Product: Bobrick 204 Series.
2. Size: Sized for shower stall
3. Material: Matte white vinyl with nickel plated grommets.
4. Accessories: Provide curtain hooks. 18-8 stainless steel, type 304 solid formed wire. Hook shall accommodate 1" to 1-1/4" diameter curtain rod.

J. Shower Rod T8:

1. Product: Bobrick B-6047.
2. Material: 18-gauge stainless steel; 1-1/4" diameter.
3. Mounting: Mounting flange with concealed fasteners.

K. Folding Shower Seat T9

1. Product.: Bobrick B-1571 or B5181.
2. Configuration: Reversible L-shaped seat, designed for wheelchair access.
3. Seat: One piece 1/2-inch thick solid phenolic resin core seat with melamine matte finish. Integral slots for drainage.
4. Frame: 1-1/4-inch square tube 16-gauge stainless steel type 304, No. 4 finish (satin), and 1-inch diameter tubing 18-gauge.
5. Frame and Mounting Mechanism: 3/16-inch thick stainless steel type 304, No. 4 finish (satin) base plate and mounting flange.
6. Performance Requirements:
  - a. Shower seat shall support loads up to 360 lbs.
  - b. Comply with ADA Barrier-Free Accessibility Guidelines.

L. Swing-Up Grab Bar T10:

1. Product: Bobrick B-4998.99.
2. Mounting: Flanges with concealed backing plate.
3. Material: Stainless steel, 18 gauge thickness.
  - a. Finish: Smooth, No. 4 finish (satin) on ends and slip-resistant texture in grip area.
4. Outside Diameter: 1-1/4 inches (32 mm).
5. Projection Length: 29 inches projection from wall when extended in down position, 8-3/4 inches projection in up position.

M. Grab Bars:

1. Product: Bobrick Series B6806
  - a. T11 - 30" long.
  - b. T11A - 18" long.



- c. T11B – 36" long.
    - d. T11C – 42" long.
  - 2. Material: 18-8 S, Type 304, 18-gage stainless steel tubing with satin finish with peened gripping surface; 1-1/2-inch outside diameter; heliarc weld ends to concealed mounting flanges.
  - 3. Concealed Mounting Flanges: 18-8 S, Type 304, 1/8-inch thick, satin finish stainless steel plate; 2 x 3-1/8 inch end flanges with two (2) screw holes for attachment to wall.
  - 4. Snap Flange Covers: 18-8 S, Type 304, 22-gage drawn stainless steel with satin finish; 3-1/4 x 5/8 inch deep. Covers snap over mounting flange to conceal mounting screws.
  - 5. Mounting kit appropriate for wall construction grab bar is mounted on.
- N. Trash Container T12:
- 1. Product: To be selected by Architect.
  - 2. Size/Capacity: Sized for under counter mount.
  - 3. Material: Heavy duty plastic.
- O. Lavatory Mirror T13:
- 1. Product: Bobrick B-165.
  - 2. Description: Welded channel frame mirror.
  - 3. Size: 24" x 60"
  - 4. Mounting: Flanges with concealed fasteners.

## **2.3 FABRICATION**

- A. General: Fabricate units with tight seams and joints, and exposed edges rolled. Hang doors and access panels with full-length, continuous hinges. Equip units for concealed anchorage and with corrosion-resistant backing plates.
- B. Keys: Provide universal keys for internal access to accessories for servicing and resupplying. Provide minimum of six keys to Owner's representative.

## **PART 3 - EXECUTION**

### **3.1 INSTALLATION**

- A. Install accessories according to manufacturers' written instructions, using fasteners appropriate to substrate indicated and recommended by unit manufacturer. Install units level, plumb, and firmly anchored in locations and at heights indicated.
- B. Grab Bars: Install to withstand a downward load of at least 250 lbf (1112 N), when tested according to ASTM F 446.

### **3.2 ADJUSTING AND CLEANING**

- A. Adjust accessories for unencumbered, smooth operation. Replace damaged or defective items.
- B. Remove temporary labels and protective coatings.
- C. Clean and polish exposed surfaces according to manufacturer's written recommendations.

**END OF SECTION 10 28 00**

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**FIRE EXTINGUISHERS - SECTION 10 44 16**

**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 SECTION INCLUDES**

- A. Portable, hand-carried fire extinguishers and mounting brackets for fire extinguishers.

**1.3 SUBMITTALS**

- A. Submit under provisions of Section 01 33 00.
- B. Product Data: For each type of product indicated. Include rating and classification, material descriptions, dimensions of individual components and profiles, and finishes for fire extinguisher.
- C. Product Schedule: For fire extinguishers. Coordinate final fire extinguisher schedule with fire protection cabinet schedule to ensure proper fit and function.
- D. Operation and Maintenance Data: For fire extinguishers to include in maintenance manuals.
- E. Warranty: Sample of special warranty.

**1.4 QUALITY ASSURANCE**

- A. NFPA Compliance: Fabricate and label fire extinguishers to comply with NFPA 10, "Portable Fire Extinguishers."
- B. Fire Extinguishers: Listed and labeled for type, rating, and classification by an independent testing agency acceptable to authorities having jurisdiction.

**1.5 COORDINATION**

- A. Coordinate type and capacity of fire extinguishers with fire protection cabinets to ensure fit and function.

**1.6 WARRANTY**

- A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace fire extinguishers that fail in materials or workmanship within specified warranty period.
  - 1. Failures include, but are not limited to, the following:
    - a. Failure of hydrostatic test according to NFPA 10.
    - b. Faulty operation of valves or release levers.
  - 2. Warranty Period: Six (6) years from date of Substantial Completion.

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## PART 2 - PRODUCTS

### 2.1 PORTABLE, HAND-CARRIED FIRE EXTINGUISHERS

- A. Fire Extinguishers: Type, size, and capacity for each fire protection cabinet and mounting bracket indicated.
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. Amerex Corporation.
    - b. Ansul Incorporated; Tyco International Ltd.
    - c. Badger Fire Protection; a Kidde company.
    - d. Fire End & Croker Corporation.
    - e. J. L. Industries, Inc.; a division of Activar Construction Products Group.
    - f. Kidde Residential and Commercial Division; Subsidiary of Kidde plc.
    - g. Larsen's Manufacturing Company.
    - h. Potter Roemer LLC.
  2. Valves: Manufacturer's standard.
  3. Handles and Levers: Manufacturer's standard.
  4. Instruction Labels: Include pictorial marking system complying with NFPA 10, Appendix B and bar coding for documenting fire extinguisher location, inspections, maintenance, and recharging.
- B. Multipurpose Dry-Chemical Type in Steel Container: UL-rated 4-A:60-B:C, 10-lb nominal capacity, with mono-ammonium phosphate-based dry chemical in enameled-steel container.
1. Location: General Area.
- C. Wet-Chemical Type: UL-rated 2-A:1-B:C:K, 2.5-gallon nominal capacity, with potassium acetate-based chemical in stainless steel container; with pressure-indicating gage.
1. Location: Kitchen Area.

### 2.2 MOUNTING BRACKETS

- A. Mounting Brackets: Manufacturer's standard galvanized steel, designed to secure fire extinguisher to wall or structure, of sizes required for types and capacities of fire extinguishers indicated, with plated or red baked-enamel finish.
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. Amerex Corporation.
    - b. Ansul Incorporated; Tyco International Ltd.
    - c. Badger Fire Protection; a Kidde company.
    - d. Fire End & Croker Corporation.
    - e. J. L. Industries, Inc.; a division of Activar Construction Products Group.
    - f. Larsen's Manufacturing Company.
    - g. Potter Roemer LLC.

- B. Identification: Lettering complying with authorities having jurisdiction for letter style, size, spacing, and location. Locate as indicated by Architect.
  - 1. Identify bracket-mounted fire extinguishers with the words "FIRE EXTINGUISHER" in red letter decals applied to mounting surface.
    - a. Orientation: Vertical.

### **PART 3 - EXECUTION**

#### **3.1 EXAMINATION**

- A. Examine fire extinguishers for proper charging and tagging.
  - 1. Remove and replace damaged, defective, or undercharged fire extinguishers.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

#### **3.2 INSTALLATION**

- A. General: Install fire extinguishers in locations indicated and in compliance with requirements of authorities having jurisdiction.
  - 1. Mounting Brackets: 54 inches above finished floor to top of fire extinguisher.
- B. Mounting Brackets: Fasten mounting brackets to surfaces, square and plumb, at locations indicated.

**END OF SECTION 10 44 16**

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**SECTION 10 51 13 – METAL LOCKERS**

**PART 1 - GENERAL**

**1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

**1.2 SUMMARY**

- A. This Section includes the following:

Personal Storage Lockers, Personal Storage Lockers with built-in bench drawers, Personal Storage Lockers with built-in external access drawers and Personal Storage Lockers in Multi-tier Configuration

(Note: all lockers include electrical functionality as required)

(Note: all Personal Storage Lockers, Personal Storage with built-in bench drawers, and Personal Storage Lockers with built-in external access drawers must include environmental ventilation functionality as required)

- B. Related Work, Not Furnished:

1. Finish floor covering material and installation.
2. Attachment to building HVAC system and balancing air flow through locker system. Manufacturer will provide guidance only upon request.

Finish floor covering materials and installation.

**1.3 RELATED SECTIONS**

- A. Division 9 – Section relating to finish floor and base materials.

**1.4 REFERENCES**

- A. American National Standards Institute (ANSI) Standards:  
Applicable standards for fasteners used for assembly.
- B. American Society for Testing and Materials (ASTM) Standards:  
Applicable standards for steel sheet materials used for fabrication  
Applicable standards for the testing of electrostatically applied Powder Coat Paint
- C. American Institute Of Steel Construction (AISC) Standards:  
Applicable standards for steel materials used for fabrication.

## **1.5 DESCRIPTION**

- A. General: Welded Metal Lockers only with end-user reconfigurable interior. Specialized lances to provide the flexibility of on-site, end-user reconfiguration/addition of internal components anytime, anywhere, now or in the future.
- B. Finishes:  
Fabricated Metal Components and Assemblies: All components to be painted with an electro-statically applied Powder Coat paint that can meet or exceed test requirements set out by ASTM standard D3451-06 Standard Guide for Testing Coating Powders and Powder Coatings.
- C. Sizes:

## **1.6 PERSONAL STORAGE LOCKERS WITH BUILT-IN BENCH DRAWERS: NOMINAL HEIGHTS OF 72 INCHES RESPECTIVELY; BUILT-IN BENCH DRAWER NOMINAL HEIGHT IS 18 INCHES AND NOMINAL DEPTH IS 36 INCHES PERFORMANCE REQUIREMENTS**

- A. Design Requirements:  
Limit overall width not to exceed specified nominal width; locker width designed for zero growth.
- B. Seismic Performance: Provide Welded Metal Lockers capable of withstanding the effects of earthquake movement when required by applicable building codes.
- C. ADA Requirements: Personal Storage Lockers with nominal height of 72 inches meet ADA requirements.

## **1.7 SUBMITTALS**

- A. Product Data: Submit manufacturer's product literature and installation instructions for each type of welded metal locker required. Include data substantiating that products to be furnished comply with requirements of the contract documents.
- B. Shop Drawings: Show fabrication, assembly, and installation details, including descriptions of procedures and diagrams. Show complete locker installation layout, including quantities, locations and types of accessory units required. Include notations and descriptions of all installation items and components.  
  
Show installation details at non-standard conditions, if any.  
  
Provide layout, dimensions, and identification of each unit, corresponding to sequence of installation procedures.  
  
Provide installation schedule and procedures to ensure proper installation.
- C. Samples: Provide minimum 3 inches square example of each color and texture on actual substrate for each component to remain exposed after installation.
- D. Warranty: Submit draft copy of proposed warranty for review by the Architect.
- E. Maintenance Data: Provide written documentation of the manufacturer's statement, claiming the maintenance free nature of the product.
- F. Reference List: Provide a list of recently installed welded metal lockers to be visited by owner, architect, and contractor. Intent of list is to aid in verifying the suitability of manufacturer's

products and comparison with materials and product specified in this section. Include contact name, address, and phone numbers.

### **1.8 QUALITY ASSURANCE**

- A. **Manufacturer Qualifications:** Engage an experienced manufacturer who is ISO 9001:2008 certified for the design, production, installation and service of welded metal lockers. Furnish certification attesting ISO 9001:2008 quality system registration.
- B. **Installer Qualifications:** Engage an experienced installer who is the manufacturer's authorized representative for the specified products for installing welded metal lockers.

Minimum Qualifications: 1-year experience installing welded metal lockers of comparable size and complexity to specified project requirements.

### **1.9 DELIVERY, STORAGE AND HANDLING**

- A. Follow manufacturer's instructions and recommendations for delivery, storage and handling requirements.

### **1.10 PROJECT CONDITIONS**

- A. **Field Measurements:** Verify quantities of welded metal locker units before fabrication. Indicate verified measurements on shop drawings. Coordinate fabrication and delivery to ensure no delay in progress of the work.
- B. **Established Dimensions:** Where field measurements cannot be made without delaying the Work, establish dimensions and proceed with fabricating welded metal lockers units without field measurements. Coordinate construction to ensure actual dimensions correspond to established dimensions.

### **1.11 WARRANTY**

- A. Provide a written warranty, executed by Contractor, Installer, and Manufacturer, agreeing to repair or replace units, which fail in materials or workmanship within the established warranty period. This warranty shall be in addition to, and not a limitation of, other rights the Owner may have under General Condition's provisions of the Contract Documents.
- B. **Limited Lifetime Warranty:** Subject to the terms in the written warranty, warrant the original purchaser exclusively that the locker frames manufactured by it will be free from defects in materials and workmanship for the lifetime of the locker.

## **PART 2 - PRODUCTS**

### **2.1 MANUFACTURERS**

General – Basis of Design - FreeStyle™ Personal Storage Lockers, FreeStyle™ Personal Storage with built-in bench drawers, Personal Storage with built-in external access drawers, FreeStyle™ Personal Storage Lockers in Multi-Tier configurations; based upon welded metal lockers manufactured by Spacesaver Corporation, 1450 Janesville Avenue, Fort Atkinson, Wisconsin 53538-2798. Telephone: 800-492-3434.



Accepted Manufacturers:

Penco "Patriot".  
Spacesaver "Freestyle".  
Spectrum

## **2.2 BASIC MATERIALS**

### **A. General:**

Provide materials and quality of workmanship, which meets or exceeds established industry standards for products specified. Use furniture grade sheet metal, solid hardwood benches and fasteners for component fabrication unless indicated otherwise. Material thicknesses/gauges are manufacturer's option unless indicated otherwise.

## **2.3 LOCKER TYPES**

### **A. Personal Storage Lockers. Provide personal storage lockers with built-in bench drawers by Spacesaver Corporation.**

### **B. Note:**

1. All locker types (except Multi-Tier) to be equipped with environmental ventilation functionality for applications where Mechanical Air Extraction is desired to remove unpleasant odors from the locker.
2. All locker types (except Multi-Tier) to be equipped with the functionality of attaching a modular electrical system as required.
3. All locker types to be equipped with the functionality of attaching a continuous sloped top.

## **2.4 MANUFACTURED COMPONENTS**

### **A. Welded Frame:**

1. The welded frame must consist of top, bottom, back, and sides constructed of a minimum of 18-gaugesteel. All frame components shall be joined using resistance welding. Riveting of structural members will not be permitted.
2. Horizontal front flanges will be a minimum of [2] inches Vertical front flanges will be a minimum of 1 inch Horizontal and vertical flanges will overlap and be secured with a minimum two (2) resistance welds per corner.
3. Corner gussets shall be MIG and spot welded in each of the four front corners of the locker for increased stiffness and rigidity.
4. Provide side panel lances evenly spaced on inch centers. Lances to provide the flexibility of on-site, end-user reconfiguration/addition of internal components anytime, anywhere, now or in the future.
5. Bench Housing for built-in bench drawer
  - a. Welded frame construction shall consist of top, bottom, and side components joined by using resistance welding. Riveting of bench housing structural members will not be permitted.
  - b. Corner gussets shall be welded in the two (2) front bottom corners of the bench housing for increased stiffness and rigidity.

- c. Horizontal front flanges will be a minimum of 1 inch.
  - d. Vertical front flanges will be a minimum of 1 inch.
  - e. Horizontal and Vertical front flanges will overlap and shall be secured with minimum of one (1) resistance weld per corner.
  - f. Side panels – Lances symmetric and evenly spaced to provide optimum component locations (standard based on 3 inch on center vertical placement to match mating locker lance design).
  - g. Return flanges on housing to securely fasten housing to welded frame of locker.
  - h. Base of bench housing shall include four (4) 3/8"-16 UNC threaded weld-nuts and corresponding leveling feet.
  - i. Top of bench housing shall include hole pattern for mating bench seat.
  - j. Sides of bench housing shall include mounting holes in the event lockers are ganged together.
6. Lockers with built-in bench drawer and built-in external access drawer shall have intermediate base shelf with interlocking mechanism for securing drawer when locker door is closed.
  7. Provide four (4) 0.875 diameter electrical knock-outs per locker, two (2) located on top of the locker in both right and left rear corners, and two (2) located in the back of locker centered at a distance no greater than 24 inches from the top and bottom. Knock-outs allow end-user flexibility of adding electrical capability to lockers.
  8. Provide a minimum of four (4) duplex receptacle electrical knock-outs per locker; to be used with a UL listed manufactured electrical wiring system as required. This manufactured electrical wiring system is a simple, unique, flexible, and cost effective method of providing electrical capability to the lockers. This electrical system can be added in the future.
    - a. Top of the locker shall have four (4) duplex electrical knock-outs.
    - b. Top of locker shall have electrical duplex receptacle knock-outs located on both right and left side of locker.
    - c. Back panel of locker shall have a minimum of two (2) duplex electrical knock-outs.
    - d. Back of locker shall have electrical duplex receptacle knock-outs located on both right and left side of locker and no farther than 24 inches or from the top of the locker.
  9. Provide ventilation holes in top of locker to allow mechanically extracted air to be pulled up through the locker system as required. Ventilation shall be controlled by eight (8) evenly spaced 0.625 inch diameter holes. Proper ventilation system ensures unpleasant odors are removed from locker system.
  10. Lockers shall be prepared with mounting holes for use with the continuous sloped top system.
  11. Lockers shall be prepared with mounting holes for attaching necessary trim components
  12. Locker shall be prepared with mounting holes for ganging lockers back-to-back or side-by-side
  13. Base of lockers shall include four (4) 3/8"-16 UNC threaded weld-nuts and corresponding leveling feet.

14. Base shelf for lockers with built-in external access drawers and bench drawers shall have holes to accommodate double-door lock rod and door stop bracket. (only on 24inchwide and larger)
15. End Panels: End Panels with no exposed fasteners shall be provided on the end of each locker run; thus providing a clean and aesthetically pleasing appearance.
16. All locker sizes and types to be specified by architect.
  - a. Width:
    - 1) Personal Storage Locker with built-in bench drawer or external access drawer: 24inches
  - b. Height:
    - 1) Personal Storage Locker with built in bench drawer or external access drawer: 72 inches
  - c. Depth:
    - 1) Bench drawers: 36 inches;  
Bench seat depth 13.0inches; Leading edge of bench seat to extend 1.125 inches from front of bench drawer

**B. Ventilation:**

1. Provide ventilation holes in top of locker to allow mechanically extracted air to be pulled up through the locker system as required. Ventilation shall be controlled by eight (8) evenly spaced 0.625 inch diameter holes. Proper ventilation system ensures odors are removed from locker system.
2. Provide an adjustable air baffle for system balancing when mechanical air extraction is used. Upon balancing system, air baffle shall be secured with a fastener to maintain ventilation setting.
3. Provide louvered air vents in bottom of the main locker door/s to allow mechanically extracted air to be pulled up through the locker system.
4. Provide louvered air vents in drawer front when built-in bench drawer or built-in external access drawer models are required.
5. Minimum 0.500 inch gap between back of shelving components and back of locker to provide uninterrupted air flow up the rear of the locker system.
6. Minimum 2.00 inches gap between front of shelving and locker door to provide uninterrupted air flow up the front of the locker system.
7. Multi-Tier ventilation is provided thru door panels
8. Upon request manufacturer shall provide HVAC tech data to serve as a guideline for the General Contractor and HVAC Contactor. It is the General Contractor and/or HVAC contractors' responsibility to establish/balance air flow through locker system according to building HVAC constraints.

**C. Electrical**

1. Shall provide four (4) electrical knock-outs per locker as described in section 2.4-A item 7. This feature provides the end-user the opportunity for hard wire electrical connection points for each locker. End-user or General Contractor is responsible for final electrical installation.
2. Shall provide a minimum of four (4) duplex receptacle electrical knock-outs per locker as described in section 2.4-A item 8.

3. Shall provide UL Listed manufactured electrical wiring system as required. This manufactured electrical wiring system provides connection for a maximum of 78 receptacles per hardwired power in-feed (Note: total number of receptacles is dependent on load requirements). This manufactured electrical wiring system is a modular, unique, flexible, and cost effective method of providing electrical capability to the lockers. This electrical system can be added in the future.
- D. Drawers (for bench drawer and external access drawer):
1. Drawer body wrapper shall have welded frame construction. Riveting of structural members will not be permitted.
  2. Drawers for locker with built-in bench drawers and built-in external access drawers shall have box-formed drawer front.
  3. Provide interlock system for securing drawer when main locker doors are closed and provide access only when main locker door/s is opened.
  4. Built-in bench drawer shall have a nominal [36] inches or [914.4] millimeters depth.
  5. Provide a flush mounted pull handle.
  6. Drawer Slides: Provide [200] lbs or [90.72] kilograms maximum load capacity and pass 50,000 cycle performance testing (Max. load, uniform distribution) (Test data to be provided by manufacturer upon request)
  7. Drawer base minimum [21] inches [533.4] millimeter drawer extension
  8. Bench drawer minimum [26.5] inches [673.1] millimeter drawer extension
  9. Provide louvered air vents in drawer front when built-in bench drawer or built-in external access drawer models are required.
  10. Provide capability of attaching glides for Body Armored Drying Rack, as requested.
- E. Bench Seat:
1. Provide 13.0inchesr deep laminated kiln dried maple bench seat; material thickness 1.25 inches.
  2. Front (leading edge) of bench seat to have .625 inch radius bull nose.
  3. Finish of bench seat shall be sanded smooth and have two (2) coats of catalyzed varnish applied.
- F. Single-Piece Welded Doors (Single and Double Door Models):
1. Shall be formed from two (2) pieces of minimum 18-gauge cold rolled steel box formed and welded together using modern GMAW techniques. Single-piece door with inner and outer door panels shall have a combined steel thickness of no less than 0.096 inches thick. Welded door design with inner panel optimizes structural integrity of locker door system over and above any single frame door design.
  2. Exterior door panel shall be constructed with formed flanges and return flanges to add stiffness.
  3. Internal door panel shall be constructed with formed flanges for added stiffness.
  4. All inner door panel (except Multi-Tier) heights shall be minimum 70% of external door height.
  5. Multi-Tier inner door panels shall be full height.

6. Single-piece welded door frame shall consist of internal door panel nested inside exterior door panel and welded per the following requirements:
  - a. Top / bottom. Exterior and Interior panels to be welded in a minimum of three (3) places with weld spacing not to exceed [6] inches or [152.4] millimeters between adjacent welds and [1] inch or [25.4] millimeters from any corner.
  - b. Sides. Exterior and interior panels to be welded with spacing not to exceed [12] inches or [304.8] millimeters between adjacent welds and [1] inch or [25.4] millimeters from any corner.
7. Inner door panel to have peg board style hole pattern, allowing the attachment of Document Holder and any standard peg board accessory.
8. Inner door panel to have [4] inch or [101.6] millimeter rectangular slot centered towards the top of the locker.
9. External door panel shall have louvers to provide adequate air circulation throughout locker system.
  - a. Louvered air vents shall be located at the bottom of the locker door to enhance circulation of mechanically extracted air from the bottom of the locker out of the top.
  - b. Louvered air vents shall be approximately [3] inches or [76.2] millimeters in width and [0.75] inches or [19.05] millimeters in height and spaced on [1] inch or [25.4] millimeter centers.
10. Single door designs available in [12] [18] and [24] inch or [304.8] [457.2] and [609.6] millimeter locker widths
11. Double door designs shall consist of the following:
  - a. Design available in [24] [30] and [36] inch or [609.6] [762.0] and [914.4] millimeter locker widths
  - b. Primary door located on the right and the secondary door located on the left-hand side of the locker.
  - c. Secondary door locking mechanism shall consist of the following:
    - 1) Return flange for supporting primary door
    - 2) Catch bracket
    - 3) One lower lock rod
12. All doors shall have neoprene silencers on each door for noise reduction
13. Diamond Perforated Pattern:
  - a. Single and Double door designs shall be available in diamond perforated pattern
  - b. Pattern is defined as [0.875] by [0.875] inch or [22.2] by [22.2] millimeter diamond perforations on [1.768] inch or [44.9] millimeter centers
14. Door torsional deflection shall not exceed [0.1875] inch or [4.76] millimeter with a [20] lb or [9.071] kilogram point load. (Test data to be provided by manufacturer upon request)
15. Hinge:
  - a. Provide 16-gauge full length hinge for increased strength and security of locker system.
  - b. Hinges to be welded to door frame with spot welds not to exceed [6] inch or [152.4] millimeter separation.
16. Door assembly to be riveted to door frame on factory pre-established hole pattern.

17. Locking Mechanism.
  - a. Provide three locking options (all locking options have protective stainless steel cover plate for durability and scratch resistance):
    - 1) Padlock hasp only.
    - 2) Keyed lock with master and padlock hasp.
    - 3) Combination lock with master and padlock hasp.
  - b. Keyed and combination locking mechanisms shall have the capability of locking automatically.
  - c. Keyed and Combination locking mechanisms shall have master key override.
  - d. Combination locking mechanism shall have user changeable preset combinations.
  - e. Single door models: Provide three locking options as listed above.
  - f. Double door models: Provide three locking options on the primary door and simple secure lift latch mechanism with 0.3125 inch lock rod for secondary door.

G. Interior/Accessory components (Architect/Owner to specify):

1. All interior components must be constructed of minimum 18-gauge or [1.214] millimeter steel (unless otherwise clarified in specification).
2. For added security, internal component can be secured utilizing blind rivets, threaded fasteners, or bending specially designed tab.
3. All interior components available at time of order and as post-installation upgrades in the future.
4. Shelves (available all locker models)
  - a. Shelf with integral hanger bracket
    - 1) Size specified by locker width
    - 2) Hanger bracket designed with perforations on approximately [3] inch or [76.2] millimeter centers to insure clothing separation for optimum ventilation
    - 3) Performance: Uniform load rating [300] lbs
  - b. Plain
    - 1) Size specified by locker width
    - 2) Performance: Uniform load rating [100] lbs
  - c. Heavy Duty
    - 1) Size specified by locker width
    - 2) Performance: Uniform load rating [300] lbs
  - d. Perforated (use as drying rack)
    - 1) Size specified by locker width
    - 2) Tested performance: Uniform load rating [100] lbs
  - e. Shelf rear return flange stops minimum [0.50] inch short of locker back panel on order to allow air circulation throughout entire locker assembly
  - f. All performance test data shall be provided by manufacturer upon request.
5. Modular Shelf (available in all models except Multi-Tier)
  - a. Provides storage compartment for smaller items
  - b. Approximate compartment size: [9] inches wide and [12] inches high
  - c. Optional extended height of [24] inches available
  - d. Modular shelves to have tabs to interlock with frame side panel lances
  - e. Modular shelves vertical sides to have lances that match with opposing side panel lances.
  - f. Modular shelves shall have two (2) locations on vertical side panel for attaching hooks, and one (1) location on bottom for attaching double hook accessories.
  - g. Shelf rear return flange stops approximately 1 inch short of locker back panel on order to allow air circulation throughout modular shelf.
  - h. Provide modular shelf with slots for connection with file dividers and shelf back stop. File dividers will aid in maintaining a neat and orderly locker system.

6. Provide lockable compartment for small valuables (available in all models except Multi-Tier)
  - a. Lockable compartment shall be integral to modular shelf accessory
  - b. Provide a 14-gauge padlock-able compartment door.
  - c. Provide 0.188 inch diameter zinc plated steel hinge rod.
  - d. Door to be mounted with zinc plated steel hinge rod and two shoulder washers for smooth, quiet operation.
  - e. Provide an 18-gauge hasp bracket for securing lockable compartment door.
7. Adjustable Shelf (available in all models except Multi-Tier)
  - a. Integral with modular shelf
  - b. Shelf to have tabs to interlock with frame side panel and modular shelf lances.
  - c. Shelf shall contain slots for file divider accessories as previously defined
8. Vinyl Mat (modular shelf) (available in all models except Multi-Tier)
  - a. Material – Vinyl
  - b. Color – Black
  - c. Type – longitudinal round corrugated ribs
9. Document Holder (available in all models except Multi-Tier)
  - a. Width – [10.5] inches
  - b. Height – [6] inches
  - c. Depth – [1.5] inches
  - d. Design to include matching hole pattern to allow various attachment locations on inner door panel
10. Mirror
  - a. Material – 0.0625 inch thick plastic with mirror surface on one side
  - b. 0.0625 inch thick flexible magnet attached to non-mirrored side
  - c. Size – 3.875 inches height and 5.875 inches width
11. Boot Tray
  - a. Material – Rubber
  - b. Dimensions:
    - 1) Width – [12.90] inches
    - 2) Depth – [19.90] inches
    - 3) Height – [1.25] inches
  - c. Manufactured from Natural rubber compounds, environmentally friendly, durable, water repellant easily cleaned with soap and water, resistant to alkalis and weak acids, mold, mildew, and dust mites.
12. Body Armor Drying Rack
  - a. Shall be available in bench drawer model widths of [18] [24] [30] [36] inch
  - b. Size of tray is controlled by locker width
  - c. Bottom of drying tray shall have louvered pattern to provide air circulation throughout
  - d. Shall have the ability to adjust/glide frontward and backward, while mounted in the bench drawer.
13. Internal Drawers
  - a. Shall be available in all [18] [24] [30] [36] inch wide locker models
  - b. Drawer shall have a depth of approximately [19] inches
  - c. Shall be available in 6 or 9 inch height, respectively.
  - d. Drawer shall have locking option when specified by customer/architect
  - e. Drawer shall have a tested weight capacity rating of 50 lbs

14. File Dividers (modular shelf) (available in all models except Multi-Tier)
  15. EZ Rail™
    - a. Available in two versions – Level and Sloped – attaches to the inside of the locker and can support various storage accessories
      - 1) EZ Rail™ Level version stores industry standard hanging bins, slat wall accessories, and Spacesaver UWR™ weapon storage accessories
      - 2) EZ Rail™ Sloped version stores industry standard hanging bins.
    - b. Shall be available in all [12] [18] [24] [30] [36] inch or [304.8] [457.2] [609.6] [762.0] and [914.4] millimeters wide locker models
  16. UWR™ Universal Base and Support Rail
    - a. Shall be available in all [12] [18] [24] [30] [36] inch or [304.8] [457.2] [609.6] [762.0] and [914.4] millimeters wide locker models
    - b. Shall be capable of using standard Spacesaver stock cups and barrel supports for weapons storage within the locker
  17. Hooks
    - a. Single Hooks – shall have the ability to attach single hooks on the side of the Modular Shelf and on the side panel lances
    - b. Double Hook – shall have the ability to attach a double hook to the underside of the Modular Shelf
    - c. Hook Bracket Hanger Assembly – shall have the ability to attach a three-hook bracket assembly to any lanced location on the side panels of the locker.
  - H. Electrical system
    1. UL listed manufactured electrical wiring system with plug-in-play component design
    2. Receptacles – standard 20 amp duplex receptacles and 20 amp GFCI duplex receptacles
  - I. HVAC
    1. All lockers (except Multi-Tier) shall be equipped with mechanical air extraction capabilities and adjustable air balancing capabilities
    2. When mechanical air extraction is required, manufacturer shall provide locker system HVAC guidelines and recommendations to aid in overall locker and building system integration. It is the General Contractor and HVAC Contractors' responsibility to establish/balance air flow through locker system according to building HVAC constraints.
  - J. Locker Tag Numbers
    1. Shall provide locker numbers on each locker per customer requirement
  - K. ACCESSORIES:
    1. ZeeBase System: Provide manufacturer's standard.
- 2.5 FABRICATION**
- A. General: Coordinate fabrication and delivery to ensure no delay in progress of the work.
- 2.6 FINISHES**
- A. Colors: Selected from manufacturer's standard available colors.
  - B. Paint Finish: Provide factory applied electrostatic powder coat paint. Meet or exceed specifications of the American Society for Testing and Materials (ASTM) Standards:



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**PART 3 - EXECUTION**

**3.1 EXAMINATION**

- A. Examine Lockers scheduled to receive accessories with Installer present for compliance with requirements for installation tolerances and other conditions affecting performance of specified accessory items.
- B. Proceed with accessory installation only after unsatisfactory conditions have been corrected.

**3.2 INSTALLATION**

- A. General: Follow manufacturer's written instructions for installation of each type of accessory item specified.

**3.3 FIELD QUALITY CONTROL**

- A. Verify accessory unit alignment and plumb after installation. Correct if required, following manufacturer's instructions.
- B. Remove components that are chipped, scratched, or otherwise damaged and which do not match adjoining work. Replace with new matching units, installed as specified and in manner to eliminate evidence of replacement.

**3.4 ADJUSTING**

- A. Adjust all accessories to provide smoothly operating, visually acceptable installation.

**3.5 CLEANING**

- A. Immediately upon completion of installation, clean components and surfaces. Remove surplus materials, rubbish and debris, resulting from installation, upon completion of work and leave areas of installation in neat, clean condition.

**3.6 DEMONSTRATION/TRAINING**

- A. Schedule and conduct demonstration of installed accessory items and features with Owner's personnel.
- B. Schedule and conduct maintenance training with Owner's maintenance personnel. Training session should include lecture and demonstration of all maintenance and repair procedures that end-user personnel would normally perform.

**3.7 PROTECTION**

- A. Protect system against damage during remainder of construction period. Advise owner of additional protection needed to ensure that system will be without damage or deterioration at time of substantial completion.

**END OF SECTION 10 51 13**

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## **SECTION 114000 - FOODSERVICE EQUIPMENT**

### **PART 1 - GENERAL**

#### **1.01 RELATED DOCUMENTS**

- A. Drawings and general provisions of contract, including General and Supplementary Conditions and Division 1 Sections, apply to this Section.

#### **1.02 SCOPE**

- A. Attention is directed to the detailed Item Specifications, which provide for minimum acceptable products. Item Specifications paragraphs may indicate materials or components that exceed the manufacturer's standards and are required for this project.
- B. Cooperate and coordinate with others engaged on the project in order that work will progress on schedule.
- C. Work to be performed under this Section is shown on Foodservice Equipment Drawings.
- D. Install materials furnished under this Section, other than materials that are expressly noted for installation under other Sections. Installation work shall be performed by workmen compatible with those existent on the project site. Equipment shall be of the latest design; new and unused, unless indicated otherwise in the Item Specifications, complete with all standard parts for normal operations and including such accessories or materials as may be required to comply with these Specifications.
- E. This Specification is to further describe and supplement the applicable Drawings. What is called for by either the Drawings and/or these Specifications shall be furnished and installed as part of this work. Any questions relative to discrepancies or omissions shall be submitted to the Architect.
- F. Provide neatly punched openings or cutouts required to permit passage of plumbing and electrical services by related trades and to accommodate mounted switches and receptacles in the equipment.
- G. Work in this Section shall include but shall not be limited to the following:
  - 1. Catalog items of equipment.
  - 2. Fabricated equipment other than catalog items.
  - 3. Plumbing trim consisting of mechanical system components required for standard operation of equipment items such as faucets and waste outlets. Vacuum breakers shall be furnished for equipment where water is introduced less than 2 in. above flood level.
  - 4. Electrical equipment forming an integral part of equipment items such as electric motors, heating elements, controls, switches, starters, temperature regulators and internal wiring to a control panel or switch, if mounted on the equipment.

### 1.03 RELATED WORK SPECIFIED ELSEWHERE

- A. Finished floor and walls, structural supports for all ceiling supported equipment, acoustical ceilings and related building.
- B. Connecting piping, waste lines, traps and vent piping, complete with shut-off valves to all the equipment, and the rough-in for sanitary waste, domestic water, floor drains and plumbing fixtures except those provided under this Section, and related mechanical work.
- C. Exhaust ventilating systems complete with blowers, ductwork, hangers, access panels, and insulation between the exhaust collars and the exhaust blowers.
- D. External wiring; the mounting and wiring of motor starters, solenoid valves, switches and receptacles not integral with the equipment; mounting and wiring of walk-in refrigerated room ceiling mount light fixtures; wiring of walk-in refrigerated room interior evaporator coils; connecting conduit, and external connections to equipment to the building electrical distribution system.

### 1.04 SUBMITTALS

- A. Submit Shop Drawings for approval in accordance with the General Conditions.
- B. Stub-in drawings shall indicate the layout of equipment and dimensioned locations of all services to the equipment.
  - 1. Hand drawn scale: 1/2 in. = 1 ft., 0 in.
  - 2. CAD drawn scale: 1/4 in. = 1 ft., 0 in.
  - 3. Stubbed services shall include electrical, hot and cold water, floor drains or floor sinks, solid wastes and exhaust collar connections. Point of connection services shall include steam supply, condensate return, gas connection and indirect waste connections. Service dimensions shall include height measured from finish floor.
  - 4. Electrical and plumbing services shall be indicated and coordinated on the same drawing.
  - 5. Call-outs for each stub point indicated at the point, or clearly keyed to a schedule on the same drawing.
  - 6. Special conditions plan shall include all floor recesses, curbs and special wall construction indicated and dimensioned
- C. Fabrication drawings shall be furnished for non-catalog items, showing plans, elevations and full construction details with gauges, components, fasteners, erection and connections. Drawings shall be to the minimum scale of 3/4 in. = 1 ft., 0 in.
- D. Standard items of equipment, not built-in or part of other assemblies shall be submitted for approval in the form of bound catalog cuts. Each cut shall include a clearly marked item number, a listing of all optional accessories and finishes, and connection data.
- E. Catalog Cuts shall include letters of approval, under a separate binder, indicating compliance with M.G.L. c. 142 and 248 CMR. Only products and materials that have been listed by the

Board as Product-approved shall be used for plumbing and gas fitting work performed in the Commonwealth of Massachusetts.

- F. Mechanical refrigeration system submittal shall include the firm name and address of the installation contractor and name of the qualified installer.
- G. Energy Star - Specified Energy Star rated equipment and appliances shall serve as the standard for all types of equipment and appliances whenever possible. Kitchen Equipment Contractor shall clearly indicate that items are Energy Star rated both on the submittal cover sheet and manufacturer cut sheets.
- H. Failure to comply with approved shop drawings shall be cause for rejection of an improperly built assembly.

#### 1.05 SAMPLES

- A. If the bidder's proposed equipment fabricator is unknown to the Consultant's office, immediately after award of contract, submit the following samples for selection and approval:
  - 1. Section of table showing edge, bullnose, framing, fasteners, gusset, leg, and foot, all assembled.
  - 2. Drawer assembly (will be returned for use on this project).
- B. Work delivered to the job shall match approved samples.

#### 1.06 GUARANTEES AND WARRANTIES

- A. New equipment furnished for this facility shall be guaranteed for a period of not less than one calendar year beginning on the date of final acceptance of the work of this Section. In the case of a manufacturer whose standard warranty exceeds this period the longer period shall apply. Self-contained refrigeration units for reach-in refrigerators, freezers, ice cream chests and ice machines shall carry a five-year replacement warranty for the sealed unit. The guarantee shall protect against defective material, design and workmanship.
- B. In addition to the guarantee called for under the General Conditions, this Contractor shall further agree that in the event of failure of any system or item of equipment or improper functioning of specified work during the guarantee period, he shall have "on call" competent service personnel available to make the necessary repairs or replacements of specified work promptly at no cost to the Owner. In the event that replacement of an entire item is required, the Owner shall have the option of full use of the defective equipment until a replacement has been delivered and completely installed.
- C. Furnish manufacturer's warranties for each item of standard equipment and a warranty on fabricated equipment. Submit guarantees and warranties to the Architect in accordance with conditions found in "Demonstration and Operating Instructions" paragraphs, contained in Part 3, this Section.

#### 1.07 REGULATORY AGENCIES

- A. Work shall be in accordance with the governing health, building and safety, and fire protection codes and regulations.

- B. Standards of the National Sanitation Foundation (NSF) shall serve as guidelines for the work of this Section.
- C. Electric equipment and accessories shall conform to the standards of the National Electric Manufacturers Association (NEMA), Underwriters Laboratories, Inc. (UL) or Electrical Testing Station (ETS).
- D. Steam generating equipment and accessories shall conform to the standards of the American Society of Mechanical Engineers (ASME).
- E. Gas fired equipment and accessories shall conform to the standards of the American Gas Association (AGA) and the American National Standards Institute (ANSI) Z83.11.
- F. Energy Star - Specified Energy Star rated equipment and appliances shall serve as the standard for all types of equipment and appliances whenever possible.

#### **1.08 EQUALITY OF MATERIALS AND EQUIPMENT**

- A. Bidders wishing to obtain approval of an article, device, product, material, fixture, form, or type of construction, other than those specified by name, make or catalog number, shall submit a request to the Architect in writing, not less than ten (10) days before the bid due date. Accompanying these submittals shall be adequate data supporting their claim to equality. Approval by the Architect, if given, will be in the form of an Addendum to the Specifications issued to prospective bidders, indicating that the additional article, device, product, material, fixture, form or type of construction is approved as equal to that specified insofar as the requirements of this project are concerned.

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## PART 2 - PRODUCTS

### 2.01 MATERIALS AND FINISHES

#### A. General

1. Metals shall be free from defects impairing strength, durability or appearance, made of new materials with structural properties to withstand strains and stresses to which normally subject.
2. Stock materials, patterns, products and methods of fabrication shall be approved provided that they conform to the requirements specified under Item Specifications.

#### B. Stainless Steel

1. Stainless steel shall be non-magnetic corrosion resistant chromium-nickel steel, Type 302 or 304 (18-8 Alloy), polished to a Number 4 finish where exposed, unless otherwise noted. Minimum gauges shall be as specified under Item Specifications.

#### C. Galvanized (Galvannealed) Steel

1. Galvannealed steel shall be commercial quality with tight coat of zinc galvanizing metal applied to a soft steel sheet, subsequently passed through a 1200 degree F. oven, resulting in a spangle free paintable surface. Minimum gauges shall be as specified under Item Specifications.

#### D. Plastic Laminate Materials

1. The laminate facing shall be GP-50, .050 in. thick, general purpose, high pressure, decorative plastic laminate that meets or exceeds the requirements of NEMA Publication LD3-1985, and NSF Standard 35. The plastic laminate exposed surfaces shall be provided in accordance with the specified manufacturer, finish and color. Balancing sheet shall be backing grade GP-28 in matching color at semi-exposed and BK-20 unfinished where hidden.
2. Plastic laminate covered surfaces shall be factory fabricated with 3/4 in. thick core having plastic laminate facing on both faces and all edges, laminated with waterproof glue under pressure in accordance with the plastic laminate manufacturer's specifications.
3. The core shall be medium density phenolic resin particleboard conforming to ANSI A208.1, Type 2-M-2, 45 pound per cubic foot density minimum.
4. Provide veneer core plywood or solid hardwood edge banding for doors and vertical dividers or panels where hardware is attached to casework.
5. Hinges shall be articulated, spring loaded type equal to Grass CST65-170-F or Stanley, with quantity adequate to support the door without deformation. Do not provide handles on plastic laminate clad doors.

## 2.02 CONSTRUCTION

### A. General

1. Flat metal work items of equipment, such as tables, sinks, or counter tops, and other non-catalog items described under Item Specifications, shall be manufactured by a food service equipment fabricator who has the plant, personnel and engineering facilities to properly design, detail and manufacture high quality food service equipment.
2. The equipment fabricator shall be subject to the approval of the Architect, Owner and Consultant. Refer to Paragraph 1.05, Samples.
3. Fabricated foodservice equipment shall be manufactured by one manufacturer, of uniform design, material and finish.
4. Equipment shall conform to the applicable requirements of current Federal, State, and Local Codes and Regulations.

### B. Welding

1. The words "weld", "welded" or "welding" as used in this Section of the Specification shall mean that metal joints shall be continuously welded and the exposed parts ground smooth and polished to match adjoining surfaces. Welding electrodes shall match the material being welded.
2. Where spot welding is specified, the welds shall be a maximum spacing of 3 in. on center.
3. Where tack welding is specified, the pieces welded shall have 1/2 in. minimum lengths of welding material at 4 in. on center maximum spacing.

### C. Grinding, Polishing and Finishing

1. Exposed welding joints shall be ground flush with the adjoining material and neatly finished to harmonize therewith. Wherever material has been depressed or sunken by a welding operation, such depressions shall be suitably hammered and peened flush with the adjoining surfaces and, if necessary, again welded and ground to eliminate low spots. Ground surfaces shall be polished or buffed to a degree consistent with good workmanship. Coves shall be ground and polished to match adjoining material.
2. Care shall be exercised in grinding operations to avoid excessive heating of metal and discoloration. Abrasives, wheels, and belts used in grinding stainless steel shall be iron free and shall have not been used on carbon steel. The texture of the final polishing operation shall be uniform and smooth. Grain direction shall be uniform, uni-directional for a total length of material. Cross grains and random polishing are not acceptable.
3. The general finish of equipment shall be consistent throughout the job. Brake ends shall be free of open texture or orange peel appearance, and where brake work mars the uniform finish of the material, the marks shall be removed by grinding and polishing, and finishing. Sheared edges shall be free of burrs, projections or fins to eliminate all danger of laceration. Mitered or bullnosed corners shall be neatly finished with the underedge of the material neatly ground to a uniform condition and in no case will overlapping material be acceptable. The equipment surfaces, where exposed, shall be

finished to a grained Number 4 (satin) finish unless otherwise specified. An exposed surface shall include an inside surface, which is exposed to view when a swinging or sliding door is opened. Underside of shelves need not be satin finish unless otherwise specified.

4. Excessive distortion caused by welding shall be cause for rejection for that item of equipment.

### 2.03 BUY-OUT COMPONENTS

- A. CASTERS: 5 in. diameter polyurethane tired, swivel, plate or stem mount to suit application, 300 pound capacity, brakes only if specified, NSF approved; Component Hardware C-21-3050 (plate/no brake), C21-3051 (plate/brake) C23-3350 (stem/no brake) or C23-3351 (stem/brake), or equal.
- B. COUNTER LEGS: Stainless steel, 6 in. to 7-3/4 in. height adjustment; Component Hardware A72-0811, or A77-5048, or equal.
- C. DOOR AND DRAWER PULLS: Stainless steel, full grip type with beveled edge, NSF approved for stud mounting in device, in horizontal attitude to meet NSF requirements; Component Hardware P63-1012, or equal.
- D. DOOR HINGES: Stainless steel, lift off type, swedged knuckle for minimum clearance, nylon bearings; Component Hardware M75-1002.
- E. DRAWER PANS: Molded plastic or fiberglass, 20 in. by 20 in. by 5 in. deep, NSF approved; Component Hardware S80-2020, or equal.
- F. DRAWER SLIDES: Stainless steel, NSF approved, full extension, 200 pound capacity with stainless steel ball bearing wheels; Component Hardware S-52 series, or equal.
- G. FAUCET SETS, DECK MOUNTED: Chrome plated cast bronze with 1/2 in. IPS eccentric flanged female inlets on 8 in. centers, removable cartridges, lever handles, and aerator tip on swivel nozzle or swivel gooseneck to suit the application; T&S Brass B-0221 or B-0321, or equal by Component Hardware, Chicago, or Fisher.
- H. FAUCET SETS, POTWASHING SINK: Chrome plated cast bronze with removable cartridges, 3/4 in. passages, eccentric flanged female inlets on 8 in. centers with LL street EL inlets with locknuts, four prong handles, 12 in. swing spout; T&S Brass B-290.
- I. FAUCET SETS, SPLASH MOUNTED: Chrome plated cast bronze with 1/2 in. IPS eccentric flanged female inlets on 8 in. centers, removable cartridges, lever handles, and aerator tip on 12 in. swing spout; T&S Brass, B-0231 or equal by Component Hardware, Chicago, or Fisher. Provide each with a mounting kit.
- J. GUSSETS: Stainless steel, stepped side, fully closed, NSF approved, mild steel interior reinforcement, wide flange for welding to framing, set screw anchor for leg; Component Hardware A20-0206C, or equal.
- K. LEG AND BULLET FOOT ASSEMBLIES: Stainless steel tubing, 16 gauge, number 4 finish, adjustable bullet foot with minimum of 3 in. vertical travel, 2,000 pound capacity, top designed for mounting in gusset, length to suit application; Component Hardware A46-6272-C, or equal.



- L. LEG AND FLANGED FOOT ASSEMBLIES: Stainless steel tubing, 16 gauge, number 4 finish, adjustable bullet foot with 3-1/2 in. diameter flange and two holes for securing to floor, minimum of 3 in. vertical travel, 2,000 pound capacity, top designed for mounting in gusset, length to suit application; Component Hardware A46-4272-C, or equal.
- M. NUTS: Zinc plated "Pal Nuts" with integral cap and lockwasher; Component Hardware Q-34-1024 or equal.
- N. SEALANT: Silicone type sealant for sealing equipment to walls or filling crevices between components, TRANSLUCENT, NSF approved; Component Hardware M90-1010, or Dow Corning 732-RTV.
- O. SOUND DEADENING BASINS: Component Hardware Q75-1366
- P. SOUND DEADENING TOPS AND SHELVES: Component Hardware Q85-5225 "Tacky Tape" installed between all channel or angle reinforced tops, drainboards or undershelves.
- Q. WASTE OUTLETS, CRUMB CUP: Stainless steel body, removable crumb cup stopper, gasket, coupling nut and sealing washer, 1-1/2 in. IPS, and optional 4 in. long nickel plated brass tailpiece with gasket; Component Hardware E38-1010, or equal.
- R. WASTE OUTLETS, LEVER OPERATED: Cast stainless steel rotary type with 1-1/2 in. NPS and 2 in. NPS threads, and removable beehive crumb-cup; Component Hardware DSS-8000.
- S. WELD STUDS: Copper flashed steel with 10-24 threads, length to suit; Component Hardware Q-36, or equal.
- T. GFCI RECEPTACLES: Pass & Seymour 2095-W, 115 volt, 20 amp GFCI Duplex Receptacle or equal.

#### 2.04 FABRICATED COMPONENTS

- A. Box Type Cabinet Construction
  - 1. Sheet metal cabinet bases of box type construction shall be fabricated without general interior framing. Structural strength shall be achieved by the gauge of the metal and the formed angle and channel edges and corners. Vertical sections shall be closed. Cabinet base shall be fabricated of 18 gauge minimum of material specified at Item Specifications. Mount on counter legs or base as specified.
  - 2. Intermediate shelf shall be fabricated of 16 gauge stainless steel with rear and sides turned up 1-1/2 in. tight to the cabinet sides. The front edge of shelf shall be turned down 1-1/2 in. and in 1/2 in. at 45 degrees and shelf spot welded in place. Reinforce underside with longitudinal 14 gauge channel on the centerline.
  - 3. Bottom shelf shall be fabricated of 16 gauge stainless steel similar to the intermediate shelf except that the front edge shall be formed into a full width 1-1/2 in. by 4 in. welded in boxed channel. Rear edge shall be fitted with a full width channel. Underside shall be reinforced.

B. Counters and Drainboards

1. Counters, table tops and drainboards shall be 14 gauge stainless steel, of NSF construction, with edges per Item Specifications. Metal tops shall be made of the largest pieces available and shall appear as one piece with all field and shop joints reinforced and welded, ground and polished. Short pieces of metal will not be acceptable. Counter bends shall be not less than 1/8 in. radius. Wherever a fixture has a waste or drain outlet, the surface shall pitch toward the outlet.
2. Counters, table tops and drainboards shall be reinforced with channel or angle frame as specified in the Item Specifications. Framing shall be secured to the underside with sound deadening material sandwiched between the surfaces, weld studs, and nuts.
3. Wherever bolts or screws are welded to the underside of trim or tops, neatly finish the reverse side of the weld uniform with the adjoining surface of the trim or top. Depressions at these points will not be acceptable. Raise dimples and depressions by peening, or heating and shrinking, and grind and polish to present a flat surface.

C. Crossrails

1. Crossrails shall be not less than 1-1/4 in. outside diameter 16 gauge stainless steel tubing welded, ground and polished to a Number 4 finish. Crossrails shall be welded to legs at a height of 10 in. above finished floor, and shall extend from left to right between front legs, unless otherwise specified, and from front to back between all legs.

D. Drawer Assembly

1. Drawer assemblies shall consist of a removable drawer pan set in a removable 16 gauge stainless steel channel shaped drawer support frame with gusset plate reinforced corners.
2. Support frame shall have double pan front cover consisting of boxed 18 gauge stainless steel outer shell with welded corners, flush mounted recessed stainless steel pull, 20 gauge stainless steel back shell tack welded to outer shell with fiberglass sound deadening between. Drawer shall be provided with rubber bumpers to quiet closing. Support drawer frame on full extension drawer slides.
3. Drawer shall be suspended from table in a three-sided, 16 gauge stainless steel enclosure with flanged-in bottom edges, banded lower front, flanged-out front side and top edges. All sharp corners shall be broken and any exposed exterior threads of slide mounting bolts shall be provided with solid metal acorn nuts.
4. Component Hardware S91-0020 with thermoplastic pan is considered as equivalent to the above specified construction.

E. Edges

1. Marine: Bumped up 1/2 in. at 45 degrees and turned down 1-1/2 in. and in 1/2 in. at 45 degrees; corners welded and square.
2. Raised roll: Coved up and rolled 180 degrees on a 1-1/2 in. diameter with 3 in. height; corners welded and rounded or coved.

3. Rolled: Rolled 180 degrees on a 1-1/2 in. diameter; corners welded and bullnosed.
4. Short (6 in.) splash on counters and tables: Coved up 6 in., turned back to wall or equipment 1 in. and down 1/2 in.; ends welded closed. Secure tight to face of wall with clips unless specified otherwise and seal joint.
5. Tall (10 in.) splash on preparation sinks, dishtables, counter, and tables: Coved up 8-1/2 in., turned back to wall or equipment 1-1/2 in. at 45 degrees and down 1/2 in.; ends welded closed. Secure 3 in. off face of wall with brackets unless specified otherwise.
6. Turn down: Turn down 2 in. and in 1/2 in. at 45 degrees; corners welded and square.

F. Framing of Tops, Drainboards, Undershelves

1. Channel: Reinforce with 1 in. by 4 in. by 1 in. 14 gauge galvannnealed steel channels; stainless steel if exposed to view. Channels shall run front-to-back at all legs and longitudinally on the centerline. Cross and longitudinal members shall be welded into a single assembly at intersections and sharp corners shall be broken. Framing shall be secured to underside of tops with pairs of weld studs. Framing shall be installed maintaining NSF required clearance to adjacent vertical surfaces and edges of top. The following specified angle framing is considered superior to channel framing and may be used in its place.
2. Angle: 1-1/2 in. by 1-1/2 in. by 1/8 in. perimeter angle frame with crossmembers not over 30 in. on center. Framing shall be secured to top with weld studs, 18 in. on center maximum with three minimum studs on any single face of a table. Perimeter angle frame that is exposed to normal view, shall be stainless steel. Crossmembers and framing not unexposed to normal view shall be iron. Corners of angle frame shall be mitered, or notched and brake formed to form a closed corner. Corner gusset plates used for mounting of leg gussets shall be 1/8 in. thick and sealed to underside of the top. Iron framework joints shall be ground smooth, and shall be painted with a minimum of two coats of aluminum lacquer after degreasing. Framing shall be installed maintaining NSF required clearance to adjacent vertical surfaces and edges of top. Channel framing shall not be considered equal to specified angle framing.
3. Sound deaden all horizontal framed surfaces with material sandwiched between the framing and the bottom of the surface.

G. Hinged Doors

1. Hinged doors shall be double pan type stainless steel construction with 18 gauge exterior and 20 gauge interior, welded corners, and 1/2 in. fiberglass insulation for sound deadening. Each door shall be provided with a stainless steel recessed handle, and an adjustable tension door catch equal to Component Hardware M22-2430. Doors shall close against the bottom shelf and flush with body of equipment.
2. Louvered hinged doors for ventilation shall be fabricated of the same components and provided with a full perimeter 3 in. wide channel reinforcing frame on the interior face. Remaining face shall be die punched with drip-proof louvers fully utilizing the remaining flat metal or a stainless steel flattened expanded metal grille per Item Specifications.

H. Sinks and Sink Inserts

1. Unless otherwise specified, sinks including sink inserts built into tops of fixtures, shall be made of 14 gauge stainless steel with all vertical and horizontal corners rounded to a radius of approximately 3/4 in. with the intersections meeting in a spherical section. Sinks shall be integrally welded to fixture tops.
2. Sinks with two or more compartments shall have full height, 1 in. thick double wall partitions consisting of two pieces of stainless steel back-to-back so fabricated that each compartment will be a deep bowl with coved corners. Partitions shall be welded in place to the bottom, front and back of the sink with smooth rounded coved corners. Top edges of the partitions shall be continuously welded. The front of the sinks shall consist of a stainless steel smooth, flush apron, same gauge as the sinks. Bottom and rear of partitions shall be closed. Sink dimensions contained in Item Specifications are inside dimensions.
3. Sinks shall be provided with integral 14 gauge stainless steel drainboards when specified. Drainboards and sink basins shall be pitched toward waste outlets and shall be self draining. The underside of all sink basins shall sound deadened. Sink units shall be provided with an integral splash at walls. Provide the necessary holes for the mounting of faucet sets.

I. Sliding Doors

1. Sliding doors shall be double pan type stainless steel construction with 18 gauge exterior and 20 gauge interior, welded corners, and 1/2 in. fiberglass insulation for sound deadening. Each door shall be provided with a stainless steel recessed handle. Provide sliding doors with nylon roller bearing sheaves and overhead track components equal to Component Hardware B58-5523 and 5513 sheaves, B57 track, B62-1093 nylon door guides and B60-1086 door stops.

J. Undershelves

1. Undersheff in an open type table shall be 16 gauge stainless steel unless otherwise noted. Edges shall be turned down 1-1/2 in. and in 1/2 in. at 45 degrees with corners notched out to fit legs to which shelf shall be welded from underside. Line up all edges of shelf with centerline of legs. Reinforce underside with longitudinal 14 gauge channel on the centerline.

K. Wall Brackets

1. Dish tables, sinks and counters with sinks shall be securely anchored 3 in. off the face of the wall unless specified otherwise. Brackets shall be "Z" shaped and fabricated of 3 in. wide, 14 gauge stainless steel. Brackets shall be secured in a vertical attitude to the rear of equipment backsplash with weld studs, and to the wall with appropriate fasteners.
2. Counters that are specified tight-to-wall shall be secured in a hidden manner with steel clips, and the wall/fixture joint shall be sealed.

L. Wall Shelves

1. Wall shelves shall be fabricated of 16 gauge stainless steel, size per Item Specifications, with back and ends raised 1-1/2 in., front edges of ends angled back, all corners broken, and front turned down 1-1/2 in., and in 1/2 in. at 45 degrees. Shelf corners shall be welded, ground and polished. Mount shelf 1 in. off face of wall with suitable fasteners on 14 gauge stainless steel flag brackets, 48 in. on center maximum. Flag brackets shall have a web angle of 30 degrees, measured from horizontal.

**2.05 ELECTRICAL EQUIPMENT AND WIRING**

- A. Under this Section, items of equipment having mounted electrical motors, electrical heating units, lighting fixtures, controllers, control stations, switches, receptacles and the like shall be internally wired as specified herein, terminating at a junction box mounted on the equipment and left ready for connection to the building electrical distribution system by the Electrical Contractor. Extra ceiling mount light fixtures for refrigerated rooms shall be delivered to Electrical Contractor for field installation and wiring. Connections to evaporator coils mounted inside refrigerated rooms shall be wired by the Electrical Contractor.
- B. Provide openings or cutouts required to accommodate the switches and receptacles in the specified work, and the wiring in conduit from terminal blocks in junction boxes.
- C. Electrically operated equipment and fabricator wiring shall conform to the requirements of Underwriter's Laboratories, Inc. Motors over one horsepower shall be equipped with overload protection.
- D. Furnish wiring diagrams for equipment as requested by the Architect or Contractor.

**2.06 ITEM SPECIFICATIONS**

Item 1

Dispenser regular - service tray and silverware

Make - Piper ATCA-SA\*C166 or equal by Caddy Corp.

Capacity - Verify tray size before ordering

Description - Unit shall be fabricated per the manufacturer's standard specifications including a fully welded stainless steel frame, stainless steel body and push handle. Carrier mechanism shall be 16 gauge stainless steel and ride on ball bearing guides, self-leveling balanced cable assembly moves on lubricated plated steel pulleys. Mounted on casters.

Accessories - Provide a perimeter bumper.

Item 2

Dispenser - tableware

Quantity - 2

Make - Piper 719-1\*C166 or equal by Caddy Corp.

Description - Unit shall be fabricated per the manufacturer's standard specifications including a stainless steel tubular frame with integral handle and two shelves, the top shelf will have fifteen round cut-outs for hold silverware cylinders and the bottom shelf will be solid. Mounted on casters.

Accessories - Provide twenty stainless steel silverware cylinders #011-3842.

Item 4

Spare number

Item 3

Stand - drinks

Make - Fabricate per General Construction this Section

Size - 7'-6" x 30" x 36" high plus 6" high backsplash; 24" x 4-3/4" x 1-1/2" deep drainer trough

Construction - 14 gauge stainless steel top, splash and trough over angle frame and mounted on a stainless steel cabinet base of box type construction with bottom and intermediate shelves, and mounted on 6" high adjustable legs. Front and ends of top shall be formed in a turndown; rear in a short splash. Secure to wall and seal. Integral trough shall pitch to an indirect waste outlet, and shall be fitted with a removable anti-splash grate, Component Hardware J80-0030, with edges turned down and hemmed, and provided with a finger hole at one end. Punch a neat hole in the undershelf for the passage of the drainline.

Accessories - Provide a 12'-4" x 10" deep trayslide 33" high to top.

Trayslide shall be fabricated of 14 gauge stainless steel with two full length die formed ribs, 1/2" high, ends turned down and corners welded. Rear shall be turned up under the counter front edge.

Mount on half height wall by general contractor. Height shall be measured at the top of the ribs.

Item 5

Dispenser - juice

Make - Crathco D35-3 \*C166 or equal

Size - 25-5/8" x 15-7/8" x 27-1/4" high

Power - 9 amps - 120/60/1 cord and plug

Description - Unit shall be made per the manufacturer's standard specifications. Pre-mix dispenser with a two-piece stainless steel dripless pouring valves, integral beverage cooling system, 1/3 horsepower refrigeration system using R134A refrigerant gas. Three five-gallon polycarbonate dispensing bowls. Includes three agitators.

Item 6

Urn - coffee

Make - Fetco CBS-52H15 (C52016)\*C166 or equal by Bunn

Power - 6 KW - 120/208/60/1

Description - Unit shall be all standard construction with stainless steel body, fully automatic controls with electronic temperature control, two independent heads capable of brewing 1-1/2 gallon batches into thermal carriers, and a hot water draw-off faucet.

Accessories - Provide unit with half-batch control, and six LD-15 Lexus dispensers.

Item 7

Spare number

Item 8

Cold food counter

Make - Piper 4-BCM\*C166 or equal by Atlas or Caddy Corp.

Size - 60" x 28" x 36" high with top of tray slide mounted 34" above the finished floor.

Power - 6.3 amps - 120/60/1 with NEMA 5-15P cord and plug (refrigeration)

Description - Unit shall be all standard construction per the manufacturer's standard details and fabricated 14 gauge stainless steel top with 1-1/2" turndown on all ends, 20 gauge stainless steel cabinet base, front, ends and louver, 20 gauge fully welded watertight and insulated 9-7/16" deep well with continuously wrapped refrigeration coil. Refrigeration system consist of 1/3 horsepower motor and fan-cooled condensing unit. Unit shall be NSF/ANSI 7 listed with a holding temperature of 41 degrees. Mount unit on locking casters.

Accessories - Provide the following options; five year extended compressor warranty, Y5 5" polyurethane casters with locks, FB-74 false bottom, eight 3113622 adaptor bars, SFTS-74 tray slide, BPGC-74 double-sided breath guard, a pair of BEG end guards, SBS 18" stainless steel bread shelf on one end, HD hinged doors.

Item 9-14  
Spare numbers

Item 15A  
Serving counter  
Make - Fabricate per General Construction this Section  
Size - 12'-4" x 33" x 36" high; plus 12" deep trayslide 33" high to top.

Power -  
23.8 amps - 208/60/1 to disconnect for hot food wells  
20 amps - 120/60/1 to apron mounted GFI outlet  
20 amps - 120/60/1 to body mounted GFI outlet at cold food pan and apron mounted remote switch

Construction - 14 gauge stainless steel top over angle frame with all edges turned down 2" and corners welded. Provide raw openings for the hot food wells and a flanged opening for the refrigerated pan with all edges flanged down 1" and corners filled and welded.

Mount on six 2" square 16 gauge stainless steel tubular legs with Component Hardware A15-0851 adjustable feet. Reinforce between all front and end legs with 2" square stainless steel tubing welded in place 6-1/4" clear above floor. Provide similar reinforcement between rear legs where an undershelf does not exist.

Undershelves shall be fabricated of 16 gauge stainless steel with reinforcing and sound deadening as specified for open base table undershelves. Front face shall be turned down 1-1/2" and in 1/2" at 45°. Rear and ends shall be turned up 1-1/2" and corners welded. Weld to legs at a point 10" above floor. Shelf shall be mounted on the inside face of legs, not cut-out at each leg. Leave 2" clearance between the shelf edge and the counter front and end panels for passing of services by Related Trades.

Apron shall be provided per elevations, fabricated of 18 gauge stainless steel, and shall be used for the mounting of switches, outlets, and controls. Apron shall include a formed reinforced bottom edge and shall be set in 1" from leg face.

Item 15B  
Breath guard  
Make - Versa-Gard VG6S\*C166 or equal  
Size - 12'-0" x 14" x 18-3/16" high  
Description - Protector case shall be all standard construction with five front and three rear brushed finish stainless steel uprights with surface mount flanges supporting a slanted tempered glass front panel, tempered glass top shelf and end panels. All glass shall have beveled and polished exposed edges. Unit shall be built in accordance with NSF/ANSI 2 - 2008.

Item 16  
Cold pan (drop-in)  
Make - Wells RCP-400\*C166 or equal by Piper or Hatco  
Size - 58-1/2" x 25-3/8" with 66-3/4" x 19-7/8" x 8" deep pan  
Power - 7 amps - 120/60/1 - NEMA 5-15P cord and plug  
Description - Mechanically refrigerated cold pan shall be all standard construction with stainless steel pan and mounting frame, 1" insulation on all sides, all contained in galvanized steel wrapper, drain outlet, and self-contained thermostatically controlled refrigeration system mounted on an integral angle frame.

Accessories - Provide optional five year warranty on the compressor, remote switch and false bottom.

Item 17

Hot food table (drop-in)

Make - Wells MOD-400TDM\*C166 or equal by Piper or Hatco

Size - 57-1/2" x 23-5/8" x 9-3/4" high

Power - 23.8 amps - 208/60/1

Description - Modular food warmer shall be all standard construction and shall consist of a stainless steel mounting frame, gasket and locking system, four individually controlled stainless steel 6" deep "wet or dry" hot food wells with 1" thick fiberglass insulation on five sides enclosed in an aluminized steel enclosure, and a mounting panel for installation in the counter apron complete with gasket, individual thermostats with positive off position, high temperature limit thermostats, and pilot lights. Wells shall be provided with drain outlets factory manifolded with 1" diameter line and a gate valve.

Item 18

Tray slide

Make - Fabricate per General Construction this Section

Size - 12'-4" x 10" deep trayslide 33" high to top.

Trayslide shall be fabricated of 14 gauge stainless steel with two full length die formed ribs, 1/2" high, ends turned down and corners welded. Rear shall be turned up under the counter front edge.

Mount on half height wall by general contractor. Height shall be measured at the top of the ribs.

Item 19

Food warming cabinet

Make - Food Warming Equipment MTU-12\*C166 or equal by Cres-Cor or Carter Hoffmann

Size - 29-3/4" x 30-1/4" x 69" high

Power - (13.75 amps) 1.5 KW - 120/60/1 - cord and plug

Certification - Unit shall be Energy Star compliant

Description - Cabinet shall be all standard construction with stainless steel interior and exterior, stainless steel base frame with tubular perimeter and 10 gauge stainless steel reinforcing plates at corners, high density fiberglass insulation on all sides, flush mounted door with high temperature gasket mounted on the cabinet, edge mounted heavy duty hinges and latch, twelve pair of removable universal chrome plated and epoxy coated rod type pan slides capable of supporting 18" x 26" or 12" x 20" pans on 4-1/2" centers, mounted thermometer, recessed controls, thermostatically controlled system with separate heat and humidity controls, air distribution blower and removable stainless steel reservoir, and 10' cord set and cord storage loop. Mount on 5" diameter plate mounted polyurethane tired casters; two swivel, two rigid. Provide with two year warranty. Unit shall be Energy Star compliant.

Accessories - Provide unit with Dutch doors, perimeter vinyl bumper and push/pull handles.

Item 20

Griddle

Make - Garland GTGG36- GT36M or equal by Jade or Vulcan

Size - 36" x 32" x 13" high to work surface on legs; 16-1/3" high overall; 36" x 23" grilling surface

Power - 1 amp - 120/60/1 - NEMA 5-15P

Rating - 3/4" gas inlet at 84,000 BTU/Hour

Description - Griddle shall be all standard construction with 1" thick polished steel griddle plate with continuously welded splash on three sides and grease trough, stainless steel grease drawer, stainless steel sides and rear, and stainless steel front panel with controls, and mounted on stainless steel adjustable legs. Three individual burners shall be provided with thermostatic controls. Provide unit with a gas regulator and adjustable stainless steel legs.

Accessories - Provide with electronic spark ignition, stainless steel stand with locking casters and a 36" long x 3/4" line size Dormont 1675 KIT2S plastic covered hose assembly with full port gas ball valve, two Supr-Swivels, brass disconnect, 90° street elbow and restraining cable. Mount the nipple on the rear of the oven, and the hose assembly with disconnect device connected to the building supply line.



Item 21-24  
Spare numbers

Item 25  
Soiled dish table

Make - Fabricate per General Construction this Section

Size - 8'-1" x 27" plus 51" x 27" return to dishwasher, plus pass-thru plus 42" x 48" high pass thru with 35" sill height; 18" x 18" x 8" deep integral scrapping sink. 10" high splash at walls; 3" high raised open roll on working face.

Construction - 14 gauge stainless steel top, sink basin and splash, channel frame, seven legs with gussets, adjustable feet, and crossrails. Secure to the wall and seal. Turn end down into dishwasher and secure with stainless steel machine screws. Top shall pass through the wall and be an integral part of the pass window. Pass-thru ledge shall extend through the wall and be secured to the frame. Provide a 16 gauge stainless steel telescoping window frame at the opening with front edges turned out 2" and returned 1/2". Rear edges to be turned out 2-1/2" flat to wall. Integral scrapping sink shall be provided with a 2" x 1/4" bar stock rack guide attached to the reinforced splash with stainless steel through bolts. Sink shall be provided with two 16 gauge perforated stainless steel scrapping baskets, 6" deep, on 1/2" high angle legs set back to clear the basin cove, and integral tubular handles flush with counter tops. Punch holes in the backsplash for the pre-rinse faucet.

Item 26  
Spare number

Item 27  
Spray assembly

Make - T&S Brass B-0133BC\*C166 or equal by Fisher or Encore

Description - Pre-rinse sprayer shall be all standard construction with splash mounted mixing body with check valves, tubing riser, B-109 wall bracket, B-0107-J 1.07 GPM watersaver pre-rinse spray, and spring action gooseneck.

Item 28  
Soaking sink

Make - Advance Tabco 9-FSC-20\*C166 or equal by Eagle

Size - 26" x 26" 20" high plus 10" high chute

Description - Unit shall be all standard construction per the manufacturer's specifications, fabricated from 304 stainless steel. Provided with 2" twist handle drain valve assembly, 4" chrome plated tail piece and heavy duty casters.

Item 29  
Shelf, wall mounted

Make - Fabricate per General Construction this Section

Size - 8'-1" x 22" mounted up 18" clear above counter top

Construction - 16 gauge stainless steel with front covered up and rolled 180° on a 1-1/2" diameter, 3" high, ends turned down 1-1/2" partial length and up to seal ends at front edge. Rear shall be turned down 1-1/2".

Mount on four 14 gauge stainless angled wall brackets and pitched 45° from horizontal. Mount with lower edge pitched slightly toward right, and provide a drain hole located to drip on table top.

Item 30  
Spare number

Item 31  
Spare number

Item 32  
Dish table  
Make - Fabricate per General Construction this Section  
Size - 51" x 27" x 34" high plus 10" splash at rear; 3" high raised roll at front and end  
Construction - 14 gauge stainless steel top and splash over channel frame with raised roll front and left end, tall splash at rear, turned down into dishwasher and secured with stainless steel machine screws, and mounted on four legs with gussets, adjustable feet and undershelf. Secure table to the wall and seal.

Item 33  
Pot and pan sink  
Make - Fabricate per General Construction this Section  
Size - 10'-0" x 30" x 34" high plus 10" high splash at wall; 3" high raised open roll on three sides; three 21" x 27" x 12" deep integral sink basins  
Construction - 14 gauge stainless steel drainboards, basins and splash, stainless steel channel reinforced, mounted on eight legs with gussets, adjustable feet, seven lengths of crossrail, and secured to the wall and seal.  
Accessories - Two splash mounted faucet sets, three 2" lever waste outlets.

Item 34-44  
Spare numbers

Item 45  
Steam kettle - jacketed  
Make - Groen AH/1-20\*C166 or equal by Cleveland or Market Forge  
Size - 26" diameter with 40" high rim  
Power - 2 amps - 120/60/1 for controls  
Rating - 3/4" gas inlet at 85,000 BTU/Hour  
Description - Unit shall be all standard construction self-contained, gas fired, stainless steel steam jacketed kettle, with front-mounted controls, thermostat, pressure regulator, low-water cut-off, safety valve, pressure gauge, water sight glass, and pilot light. Kettle shall be AGA approved, NSF listed and ASME code constructed and National Board registered for operating up to 30 PSI maximum working pressure. Unit to be mounted on 9" high adjustable stainless steel legs.  
Accessories - Provide unit with swing spout mixing faucet and bracket, kettle brush kit and basket inserts (TRI-BC).

Item 46  
Frying and braising pan  
Make - Groen BPM-30G\*C166 or equal by Cleveland or Market Forge  
Size - 26-1/4" x 28-1/4" x 10" deep inside pan dimensions  
Power - 5 amps - 120/60/1  
Rating - 1/2" gas inlet at 104,000 BTU/Hour  
Description - Unit shall be all standard stainless steel construction, with tubular support frame, adjustable feet, flanged feet at rear, crank tilt mechanism, torsion bar counterbalanced hinged cover with vent, and a 30 gallon pan. The cooking surface shall be constructed with 5/8" thick stainless steel and bonded clad plate with integral heat transfer fins, and a multi-tube gas burner. Pan shall be polished to a 100 emery grit finish and provided with electronic ignition, 7° off level cooking capable, power on switch and indicator light, heat on indicating light, thermostatically controlled and provided with a high limit cut-off.

Accessories - Provide unit with a faucet mounting bracket with a double pantry water fill faucet and aerator tip.

Item 47

Water meter

Model - Gemini SAMM200 or equal

Description - Water meter shall be all standard construction per the Manufacturers specifications, with weight setting dial, 0 to 200 lbs. weight setting indicator, water temperature indicator, emergency stop, manual temperature control valve, threaded hot and cold water inlets, threaded water outlet, and designed for wall mounting. Unit shall be provided with a 96" long flexible outlet hose with fittings and hose wall bracket, and water inlet shut-off valves. Mount unit to wall with bottom up 53" above the floor.

Item 48

Heavy duty range

Make - Garland GFE24-4L\*C166 or equal by Jade or Vulcan

Size - 23-5/8" x 34-1/2" x 36" high to work surface, 45-3/8" high overall

Power - 0.1 amps - 120/60/1 - cord and plug (electronic spark ignition)

Rating - 3/4" inlet at 136,000 BTU/Hour

Description - Range shall be all standard construction with four 26,000 BTU/hour open burners with flame failure protection and electronic spark pilot ignition, level cast iron removable grates, stainless steel exterior, thermostatically controlled oven with rack and porcelain interior, 9-3/8" high stainless steel back guard, and provided with pressure regulator.

Accessories - Mount unit on 5" diameter heavy duty swivel casters, two with brakes and provide assembly with a 36" long x 3/4" line size Dormont 1675 KIT2S plastic covered hose assembly with full port gas ball valve, two Supr-Swivels, brass disconnect, 90° street elbow and restraining cable. Mount the nipple on the rear of the range, and the hose assembly with disconnect device connected to the building supply line.

Item 49

Baking and roasting oven

Make - Blodgett DFG-200-ES Double\*C166 or equal by Montague or Vulcan

Size - 38-1/4" x 42-7/8" to include fan motor x 70-5/8" high

Power - (2) (8 amps) 1/3 HP - 120/60/1 - cords and plugs

Rating - 3/4" gas inlet at 100,000 BTU/Hour

Certification - Unit shall be Energy Star compliant

Description - Units shall be all standard construction with stainless steel front, sides and top, porcelain enameled steel interior with 29" x 28-1/4" x 20" high inside dimensions, 1" thick mineral fiber sheet insulation on top, back and sides, dual pane thermal glass windows in coupled doors, removable rack supports capable of holding eleven racks and five chrome plated steel wire racks, electronic ignition with fail-safe controls, solid state digital controls with separate temperature and time settings, timer with buzzer, cook and hold and fan pulse modes, manual gas service cut-off switch, removable dual tube burners, pressure regulators, two speed blowers with thermal overload protection and door interlock, and interior lighting with two 50 watt commercial bake oven lamps. Provide standard three year parts and labor warranty on the total oven and additional five year warranty on the door assembly exclusive of glass, parts only.

Accessories - Provide a stainless steel draft diverter. Mount on heavy duty swivel casters. Manifold the two ovens for a single gas connection. Provide assembly with a 36" long x 3/4" line size Dormont 1675 KIT2S plastic covered hose assembly with full port gas ball valve, two Supr-Swivels, brass disconnect, 90° street elbow and restraining cable. Mount the nipple on the rear of the oven, and the hose assembly with disconnect device connected to the building supply line.

Item 50

Exhaust ventilators; Fire suppression system; Stainless steel wall flashing

Make - AquaMatic AM-SND-2 or equal by Gaylord or Halton

Size - Two sections (Right) 8'-8" and (Left) 8'-0" x 60" x 12" high sloping front, mounted up 6'-8" above finished floor; flat bottom

Power - 0.6 KW - 120/60/1 to lights; remote switch provided and installed by Electrical Contractor.

Exhaust (Right) - 2,167 CFM exhaust through a 16" x 12" rear discharge collar at 0.782" static pressure. Blower, control switch, and ductwork provided and installed by Ventilation Contractor.

Exhaust (Left) - 1,720 CFM exhaust through a 13" x 12" rear discharge collar at 0.627" static pressure

Description - Ventilator shall be of all standard construction, built of not less than 18 gauge 304 stainless steel throughout with welded joints and seams in accordance with NFPA-96, with reinforced front bottom edges with integral front baffle, double wall insulated fronts, and NSF Listed. Units shall have grease collection troughs, storage containers, and hanger brackets. Provide with 430 stainless steel Captrate Grease-Stop Solo Filter UL classified S-baffle extractors that shall remove at least 75% of grease particles five microns in size, and 90% of grease particles seven microns in size and larger, with a corresponding pressure drop not to exceed 1.0 inches of water gauge. Provide all materials necessary for the hanging of the ventilator.

Accessories - Provide unit with six UL Listed light fixtures with compact fluorescent bulbs factory prewired and left ready for final connection by the Electrical Contractor. Provide closure trim per detail to a point 3" above finished ceiling to close to adjacent surfaces on three sides, end panels and one filter removal tool.

Item 50 Continued

Fire suppression system

Make - Ansul R-102

Protection for hood 38.

Design - Provide an automatic liquid fire suppressant system sized to meet all local codes, UL 300 and NFPA Codes. System shall provide surface protection for cooking equipment, hood and the exhaust duct work, if required. Tanks shall be mounted on wall per plan, 78" high to bottom and within a 16-1/2" x 23-1/2" x 7-1/2" high stainless steel cabinet and piping shall run hidden wherever possible. All pipes and fittings used to convey the chemical shall be scale free steel, 40 weight. Exposed piping located within the ventilator shall be stainless steel or chrome and limited to vertical drops only. Horizontal piping shall be run over the ventilator's top. Nozzles shall be swivel type with metal caps. Detection shall be fusible links rated per codes, and system shall rely on no outside source of power. The system shall be provided with a control box with indicator to indicate system status. Control head shall also include integral micro switch offering "normally open" and "normally closed" terminals for use by the Electrical Contractor for the shut-down of equipment and the sounding of alarms, etc. Suppressant tanks shall be stainless steel. Provide a properly sized mechanically operated gas shut-off valve (up to 3" diameter) for mounting by the Plumber at a point in the gas supply that will shut off fuel to all gas fired equipment. Provide and install a remote pull station per codes, complete with cables, conduit and pulleys. Coordinate installation of remote pull station with General Contractor to provide a recessed junction box mounted for installing the pull box with cable conduit concealed within walls. Provide system with class-K extinguisher as required.

Workmanship - Exposed stainless steel fittings and piping shall be assembled with special care to avoid marring or damaging the surfaces. Any pieces showing marks shall be removed and replaced with new materials. Chrome sleeves are not acceptable.

Test - Perform a puff test on the completed system and obtain the written approval of the local Fire Inspector.

Accessories - Provide metal caps on the nozzles.

Item 50 Continued

Stainless steel wall flashing

Make - Fabricate per General Construction this Section

Size - 16'-8" extending from bottom of ventilator to floor or top of covered material (approximately 8" above finished floor)

Construction - Wall shall be clad with 20 gauge stainless steel cut in largest sheets to minimize joints and secured to wall with stainless steel fasteners and Component Hardware J60-2270 flat snap-on moldings at joints and J63-1451 cap strips at ends. Care shall be taken to avoid distortions at fasteners. Provide carefully punched holes at all service locations.

Item 51

Spare number

Item 52A

Floor trough

Make - Fabricate per General Construction this Section

Size - 16" x 16" x 4" deep inside dimensions; 19" x 19" overall

Construction - Pan shall be fabricated of 14 gauge stainless steel, all welded construction, pitched to a 4" ID drain fitting with stainless steel removable, perforated basket and perforated dome strainer. Long sides shall be fitted with integral grate support ledges. Provide a model CGF molded fiberglass grate (Chemgrate) with 1" x 4" pattern, 3/4" clear slots and ends finished in accordance with manufacturer's instructions. Grate shall be cut in a manner that closed pockets will not be formed where they rest on the pan ledges.

Item 52B

Floor trough

Make - Fabricate per General Construction this Section

Size - 20" x 36" x 4" deep inside dimensions; 23" x 39" overall

Construction - Pan shall be fabricated of 14 gauge stainless steel, all welded construction, pitched to a 4" ID drain fitting with stainless steel removable, perforated basket and perforated dome strainer. Long sides shall be fitted with integral grate support ledges. Provide a model CGF molded fiberglass grate (Chemgrate) with 1" x 4" pattern, 3/4" clear slots and ends finished in accordance with manufacturer's instructions. Grate shall be cut in a manner that closed pockets will not be formed where they rest on the pan ledges.

Item 52C

Floor trough

Make - Fabricate per General Construction this Section

Size - 16" x 16" x 4" deep inside dimensions; 19" x 19" overall

Construction - Pan shall be fabricated of 14 gauge stainless steel, all welded construction, pitched to a 4" ID drain fitting with stainless steel removable, perforated basket and perforated dome strainer. Long sides shall be fitted with integral grate support ledges. Provide a model CGF molded fiberglass grate (Chemgrate) with 1" x 4" pattern, 3/4" clear slots and ends finished in accordance with manufacturer's instructions. Grate shall be cut in a manner that closed pockets will not be formed where they rest on the pan ledges.

Item 53

Vegetable preparation sink

Make - Fabricate per General Construction this Section

Size - 9'-6" x 30" x 36" high to work surface plus 10" high splash at rear; two 18" x 20" x 10" deep integral sink basins

Construction - 14 gauge stainless steel top, basins and splash, over a angle reinforced frame, mounted on six legs with gussets and adjustable feet, partial undershelf, rear splash with finished back and marine front and ends.

Accessories - Drawer assembly, deck mounted faucet set and two 2" lever waste outlets, two rigid stainless steel brackets for mounting of electric outlets in setback positions complete with work boxes, GFI receptacles, and stainless steel cover plates, flanged feet for securing to the floor.

Item 54  
Spare number

Item 55  
Spare number

Item 56  
Spare number

Item 57  
Ice machine  
Make - Scotsman CU3030MA-1 or equal by Manitowoc or Hoshizaki  
Size - 30" x 30" x 33" high overall  
Power - 15 Amp circuit - 120/60/1 with cord and plug  
Capacity - 217 pounds per day @ 90/70 on a 100 pound bin  
Description - Machine shall be all standard construction, automatic, self-contained air-cooled refrigeration system, with enamelled exterior bin, bin level thermostat, foam insulation and a hinged door.

Item 58  
Hand sinks  
Quantity - 2  
Make - Advance 7-PS-70-CM\*C166 or equal by Krowne  
Description - Units shall be all standard stainless steel construction with mounting bracket. Mount on wall with rim at 36" above floor  
Accessories - Provide with a splash mounted faucet set with wrist handles (Item 58A), 3" flat strainer type (non-basket, non-lever) open type waste, chrome plated tailpiece, "P" trap and clean-out cap.  
Provided end splashes welded to each side.

Item 58A  
Faucets  
Quantity - 2  
Make - T&S Brass B-0330-04 modified or Fisher 1953 modified  
Description - Units shall be all standard construction with mixing body, 8" center inlets, and wrist blade handles. Modified unit shall be provided with 119X gooseneck with B-0199-02-F10 aerator tip in lieu of the standard.

Item 59A  
Food preparation table  
Make - Fabricate per General Construction this Section  
Size - 9'-6" x 30" x 36" high plus overshelf 9'-6" x 20" deep at 54" above floor.  
Construction - 14 gauge stainless steel top over angle frame with rear turned up 2" and hemmed, front and end  
s turned down and mounted on six legs with gussets, adjustable feet, two sections of crossrails and partial undershelf. Overshelf shall be 16 gauge stainless steel, constructed similar to a wall shelf, channel reinforced, and welded to three extended rear table legs with support webs. Extended legs shall pass through tight swedged openings in the top.  
Accessories - Provide a drawer assembly, three rigid stainless steel brackets for mounting of electric outlets in setback positions complete with work boxes, GFI receptacles, and stainless steel cover plates.

Item 59B

Food preparation table

Make - Fabricate per General Construction this Section

Size - 7'-6" x 30" x 36" high

Construction - 14 gauge stainless steel top over angle frame with edges turned down and mounted on six legs with gussets, adjustable feet and full undershelf.

Accessories - Provide a drawer assembly, four rigid stainless steel brackets for mounting of electric outlets in set back positions below the top complete with a work boxes, GFI outlets and stainless steel cover plates, flanged feet for securing to the floor and a full length x 10" overshelf, constructed same as a wall shelf, and mounted on five 1" diameter stainless steel tubular uprights secured to top with hidden fasteners.

Item 60

Kitchen utensil rack

Make - Fabricate per General Construction this Section

Size - 7'-0" x 24" mounted up 6'-6" and 7'-6" above floor

Construction - Rack shall be fabricated of 1/4" x 2" stainless steel bar stock throughout, fully welded construction, consisting of a two bar upper rail with full radiused ends, a single lower rail, reinforcing straps, and suspended from the overhead structure on four hangers. Provide unit with forty Component Hardware J77-4401 stainless steel double pot hooks.

Item 61

Spare number

Item 62

Food preparation table

Quantity - 3

Make - Fabricate per General Construction this Section

Size - 60" x 30" x 36" high

Construction - 14 gauge stainless steel top over angle frame with edges turned down and mounted on four legs with gussets, 5" diameter swivel casters, all with brakes, and full undershelf.

Item 63

Food mixing machine

Make - Hobart HL-200\*C166 or equal by Globe or Univex

Power - (8 amps) 1/2HP - 120/60/1 - cord and plug

Description - Mixer frame and body shall be fabricated of welded heavy gauge steel finished in Hybrid Powder coat finish, and provided with a stainless steel splash guard at the column, stainless steel bowl guard with electrical interlock, single point bowl installation with swing-out bowl support, manual bowl lift and an attachment hub with No. 12 taper. Transmission shall be gear driven constant mesh heat treated and hardened gears on similar shafts be mounted in ball bearings with recirculating oil and grease to all gears and shafts. Mixing action shall be planetary and shall have speeds of 59 (stir), 107, 198, 365, agitator RPM speeds as selected by an external dial. Speeds to be selectable on-the-fly and include a soft start and stir speed while lifting the bowl into place and controlled with a 15 minute timer with automatic time recall

Accessories - Provide mixer with a 20 quart stainless steel bowl, one flat "B" beater and one "D" wire loop whip with stainless steel wires.

Item 64

Mixer stand

Make - Fabricate per General Construction this Section

Size - 30" x 30" x 32" high

Construction - 14 gauge stainless steel top over channel frame, edges formed in turn down, mounted on four legs with gussets, undershelf, and 5" diameter casters, two with brakes.

Item 65

Can opener

Make - Edlund 203\*C166 or equal

Power - 5 amps - 120/60/1 - C&P

Description - Can opener shall be all standard construction with stainless steel body, replaceable knife and gear, two speed motor, and with capability to open square cans.

Item 66

Meat slicing machine

Make - Hobart HS9 or equal by Bizerba or Globe

Power - 5 amps - 1/2 HP - 120/60/1 - cord and plug

Description - Slicer shall be all standard construction, automatic type with anodized cast aluminum housing and base, removable 13" diameter 304L stainless steel knife with removable ring guard cover, totally enclosed, permanently lubricated PSC knife motor, with poly-v belt drive, zero knife exposure, linear automatic carriage drive system with speeds of 28, 38, 48 and 58 strokes per minute, manual assist mode, and provided with thermoplastic coated steel feed grip, glass bead finished gauge plate and knife cover, tilting carriage, water protected push-button switches, top mounted and removable knife sharpener with two borazon stones, adjustable gauge plate from "0" to 1", lift lever system and rubber feet. Unit to be provided with mechanical and electrical interlocks to include home position start, close gauge plate to stop, carriage will not tilt away or remove if gauge plate is not closed, locked gauge plate when carriage is removed, no-volt release, and 30 second automatic shut-off without carriage motion. Slicer shall be NSF 8 compliant.

Accessories - Provide unit with knife removal tool

Item 67-70

Spare numbers

Item 71

Shelving; Mobile

Make - MetroMax Q\*C166 or equal by Eagle or Nexel

Size - 36" x 24", all 74" high on casters; five tier

Description - Shelving unit shall be all standard construction and shall consist of five shelves with removable injection molded polypropylene mats with antimicrobial product protection, supported on epoxy coated steel shelf frames and similar uprights with capped tops, and mounted on 5" diameter polyurethane tired swivel casters with donut bumpers.

Accessories - Provide with polymer posts in lieu of standard.

Item 72

Spare number

Item 73

Spare number

Item 74

Air curtain machine (fly control)

Make - Mars WA-36\*C166 or equal by Berner

Power - 20 amps - 208/1 - cord and plug

Description - Unit shall be all standard construction and designed for mounting over the kitchen back entry door with continuous direct drive, variable speed, double shaft motors with automatic thermal overload protection, rust proof dynamically balanced blower wheels for quiet operation, low profile,



high impact molded polymer housing, air directional vanes with 40 degree front to back sweep, adjustable speed control knob, and mounting plate with keyhole slots.  
Accessories - Provide unit with a plunger type microswitch.

Item 75-99  
Spare numbers

Item 100A  
Water filter  
Make - 3M ICE120-S or equal by Everpure or Optipure  
Size - 4" diameter x 17" verify clearance below to remove cartridge  
Description - Unit shall be all standard construction and consist of a head assembly with integral mounting bracket, quarter-turn cartridge release mechanism, "valve-in-head" automatic shut-off upon removal of cartridge, pressure gauge, and filter cartridge with internal pre-filter membrane designed for ice makers. Cartridge shall be capable of removal to .5 micron or larger particles, remove chlorine and off tastes and odors, inhibit scale build-up, service flow rate of up to 1.5 gallons per minute, and meet requirements of NSF Standards 42 and 53 and be so listed.  
Accessories - Provide three spare filter cartridges

Item 100B  
Water filter  
Make - 3M ICE120-S or equal by Everpure or Optipure  
Size - 4" diameter x 17" verify clearance below to remove cartridge  
Description - Unit shall be all standard construction and consist of a head assembly with integral mounting bracket, quarter-turn cartridge release mechanism, "valve-in-head" automatic shut-off upon removal of cartridge, pressure gauge, and filter cartridge with internal pre-filter membrane designed for ice makers. Cartridge shall be capable of removal to .5 micron or larger particles, remove chlorine and off tastes and odors, inhibit scale build-up, service flow rate of up to 1.5 gallons per minute, and meet requirements of NSF Standards 42 and 53 and be so listed.  
Accessories - Provide three spare filter cartridges

Item 101  
Mop sink  
Make - Advance Tabco 9-OP-44\*C166 or equal by Eagle  
Size - 24" x 24" x 12" deep bowl; 25" x 21" x 16" high overall  
Description - Sink shall be all standard heavy gauge type 304 stainless steel construction with satin finish, tile edge at rear, and central drain with stainless steel strainer.  
Accessories - Provide unit with K-240 faucet and K-244 hose and bracket.

Item 102  
Slicer stand  
Make - Fabricate per General Construction this Section  
Size - 30" x 30" x 32" high  
Construction - 14 gauge stainless steel top over channel frame, edges formed in turn down, mounted on four legs with gussets, undershelf, and 5" diameter casters, two with brakes.

Item 103  
Eye wash station  
Make - Guardian Equipment G1814\*C166 or equal  
Size - 11-1/2" diameter x 6-7/8" high bowl  
Construction - Unit shall be standard construction with stainless steel bowl and lid, cast aluminum, corrosion resistant power coated wall bracket, and flip-top covered spray head assembly with internal flow control and filter.

Accessories - Provide a chrome plated brass tailpiece and trap with 1-1/2" waste connection and a TMV-G3600 thermostatic mixing valve assembly.

Item 104

Dish washing machine - ventless

Make - Hobart AM-15VLT (Hot Water Sanitizing) or equal by Champion or Stero

Power - 45.4 amps - 208/60/3

Description - Dishwasher shall be door type with extended hood of all standard construction with 40 rack per hour capacity, 16 gauge stainless steel drawn tank, 18 gauge stainless steel chamber, and 12 gauge stainless steel frame and stainless steel feet, microcomputer controls with digital status indicators and LED cycle display and temperature readings, 1, 2, 4 and 6 minute timed cycles, thermostatically controlled electric tank heat with low-water cut-off, internal condensing system with 1/2 HP condenser blower motor, corrosion resistant tube and fin condenser coil, and heat energy recovery from condensation chamber, interchangeable upper and lower revolving wash arms, door actuated drain closer, self flushing stainless steel strainer pans with removable scrap basket, snap-in front panel and front access door. Tank doors shall be coupled with a chrome plated lift handle and counter balanced and fitted with a cycle starting switch. Pump shall be stainless steel with stainless steel impeller and shaft, fitted with a stainless steel and carbon ceramic seal, capable of 160 gallon per minute flow and self draining. Motor shall be 2 HP, three phase, squirrel cage, induction-run type with inherent thermal protection, grease packed ball bearings, splashproof design, and ventilated.

Accessories - Provide machine with Sense-A-Temp 70° F rise electric booster heater, single point electrical connection, and four plastic racks; two peg, two flat. Provide drain water tempering kit.

Item 105

Utensil rack, wall mounted

Make - Fabricate per General Construction this Section

Size - 8'-0" x 15" off face of wall with rails mounted 78" and 90" above floor

Construction - Rack shall be two rail type, fabricated of 2" x 1/4" stainless steel bar stock throughout, fully welded, single upper bar extended 15" from wall; single lower bar, 6" from wall. Two end brackets to be secured to wall with suitable fasteners.

Accessories - Provide unit with twenty-four stainless steel wire double pot hooks.

Item 106

Faucet

Make - T&S Brass B-0208 or equal by Fisher or Encore

Description - Unit shall be all standard construction with a B-199-02F-12 aerator tip.

Item 107

Ice and water dispenser

Make - Follett 110CM-NI-L\*C166 or equal

Size - 25" x 29" x 34-3/4" high (dispenser head)

Power - 4 amps - 120/60/1 - cord and plug (dispenser head)

Description - Water dispenser shall be all standard construction with stainless steel and molded polyethylene body and drain pan with stainless steel wire grate, polyurethane insulated bin with lift-off cover and 110 lbs storage capacity.

Accessories: Chilled water (AFH20CHIL110) and lever type actuators

Item 108

Plate dispenser - non-heated Make - Piper 3AT-ST or equal by Caddy Corp. or APW Wyott

Size - 35-1/4" x 16" x 34" high

Dish size - Verify plate size and quantity before ordering.

Description - Unit shall be all standard construction with stainless steel frame, cabinet body, dispenser tube and spring. Field adjustable self leveling mechanisms and removable 16 gauge top plate.

Verify plate size before ordering.

Accessories - Provide WB heavy duty locking casters and PB perimeter bumper.

Item 109

Frozen food cabinet

Make - True STR1F-1A or equal by Continental or Traulsen

Size - 27-1/2" x 35-1/2" x 84-1/8" high overall

Power - 6.8 amps - 120/60/1 - cord and plug

Doors - Hinged on the left

Description - Freezer shall be all standard construction with stainless steel doors, front and sides.

Stainless steel interior side walls and back with stainless steel floor and ceiling. Self-closing door hardware with magnetic gaskets and locks, polyurethane insulation, automatic LED interior lighting, exterior digital thermometer, self-contained capillary tube controlled top mounted refrigeration system capable of maintaining -10° F with time initiated, temperature terminated defrost cycles, condensate evaporator, door edge heaters, built-in pressure relief valve, and six heavy duty chrome plated wire shelves on adjustable supports. Mount on 6" legs.

Accessories - Provide four year compressor warranty.

Item 110

Refrigerator

Quantity - 3

Make - True TS-49\*C166 or equal by Traulsen or Continental

Size - 54-1/8" x 29-1/2" x 78-3/8" high overall, plus casters

Power - 5.8 amps - 120/60/1 - NEMA 5-15P cord and plug

Description - Refrigerator shall be all standard construction with stainless steel doors, interior and exterior, self-closing door hardware with magnetic gaskets and locks, polyurethane insulation, automatic interior lighting, exterior thermometer, self-contained capillary tube controlled bottom mounted refrigeration system with condensate evaporator, 4" diameter swivel casters, and nine vinyl coated shelves on adjustable supports.

Accessories - Provide optional five year compressor warranty and full door bun pan racks behind the left door.

## PART 3 - EXECUTION

### 3.01 SANITATION REQUIREMENTS

- A. Equipment specified herein shall be fabricated to conform to the "Food Service Equipment Standards" of the National Sanitation Foundation prepared by the Committee on Food Service Standards, and published by the National Sanitation Foundation, Ann Arbor, Michigan. Any differences of opinion on sanitation shall be referred to the State Department of Health for a ruling.
- B. Equipment shall be installed in accordance with the manufacturer's instructions and the best practices of the food service industry, with careful attention to eliminating all cracks, crevices and concealed spaces in wet areas that would be difficult to clean or keep free of vermin and soil.

### 3.02 EXAMINATION AND ACCEPTANCE

- A. Determine whether the General Contractor will furnish and provide temporary power and light, openings and storage space to permit scheduled delivery of equipment. Verify water pressure and provide necessary reducing valves.
- B. Examine space in which specified work is to be installed to assure that conditions are satisfactory for the installation of specified work. Report in writing to the Architect, any deficiency in the work of other contractors affecting specified work. Commencement of specified work shall be construed as acceptance of space conditions.
- C. Obtain and verify all measurements and conditions on the job, and assume responsibility in respect to same.
- D. Inspect flooring and raised concrete bases, wall finishes, painting, ceiling installation and all related work for readiness to commence installation of foodservice equipment. Verify the existence of required mechanical and electrical rough-ins.

### 3.03 CLEANING UP

- A. Debris and surplus materials resulting from installation work shall be removed promptly as work progresses, to a location indicated by the General Contractor.
- B. Following completion, and before final acceptance by the Owner, clean finished surfaces in accordance with the manufacturer's instructions, and leave specified work free of imperfections.

### 3.04 DEMONSTRATION AND OPERATING INSTRUCTIONS

- A. Before final acceptance, and by appointment with the Owner and his representatives, completely demonstrate with power, the correct operation of each new item of operating equipment.
- B. Prior to the demonstration, turn on all mechanical and electrical foodservice equipment. Test for leaks, poor connections, and inadequate or faulty performance and correct if necessary. Adjust for proper operation. Thermostatically controlled equipment and equipment with automatic features shall be operated for a sufficient length of time with proper testing equipment to prove controls are functioning as intended. Recalibrate thermostats if necessary.
- C. Provide Architect or Consultant with a loose leaf bound manual of operating data and maintenance instructions containing complete description, wiring diagrams, operating data, maintenance requirements and other information pertaining to the proper operation and upkeep of the various items of electrical or mechanical equipment. Include names, addresses and telephone numbers of authorized service agencies for all items. Arrange all material in alphabetical order by Manufacturer. Book shall be turned over to Owner after review and approval.
- D. Submit guarantees and warranties to the Architect in the above specified manual with all warranty cards completed and becoming effective at the time the equipment was satisfactorily demonstrated.

**3.05 PROTECTION OF WORK**

- A. Protect specified work from damage during transportation to the project site, storage at the site, during installation, and after completion until acceptance by the Owner.
- B. Protect adjacent work under other contracts during installation until completion of specified work. After completion, the contractor for other work shall be responsible for the protection of his work until acceptance by the Owner.
- C. Damaged work as determined by the Architect, shall be repaired or replaced as determined by and to the satisfaction of the Architect.

**END OF SECTION**

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**SECTION 11 81 29 – FACILITY FALL PROTECTION**

**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 free standing modular steel pipe railing fall protection:
  - 1. Galvanized steel pipe railings, uprights and bases.
- B. Control of Corrosion: Prevent galvanic action and other forms of corrosion by insulating metals and other materials from direct contact with incompatible materials.

**1.03 SUBMITTALS**

- A. Shop Drawings: Include plans, elevations, sections, details, and attachments to other work.
  - 1. For installed products indicated to comply with design loads, include structural analysis data signed and sealed by the qualified professional engineer responsible for their preparation.
- B. Welding certificates.

**1.04 QUALITY ASSURANCE**

- A. Railings Structural Requirements: 1.
  - 1. Handrail, wall rail and guardrail assemblies and attachments shall withstand a minimum concentrated load of 200 pounds (90719 g) applied in any direction on the top rail.
  - 2. Infill area of guardrail system capable of withstanding a horizontal concentrated load of 200 pounds (90719 g) applied to one square foot (8165 g/sm) at any point in the system. Load not to act concurrently with loads on top rail of system in determining stress on guardrail.
- B. Welding: Qualify procedures and personnel according to the following:
  - 1. AWS D1.1, "Structural Welding Code--Steel".

**PART 2 - PRODUCTS**

**2.01 FREE STANDING FALL PROTECTION RAIL**

- A. Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
  - 1. Flexguard Freestanding Roof Guardrail System by Flexible Lifeline Systems:
  - 2. Roof Fall Protection Railing by Ideal Shield.
  - 3. KeeGuard Modular System by Kee Safety, Inc.

**2.02 MATERIALS**

- A. Pipe: ASTM A 53/A 53M, Type F or Type S, Grade A, Standard Weight (Schedule 40), unless another grade and weight are required by structural loads.
  - 1. Provide galvanized finish for exterior installations and where indicated.
    - a. Steel Pipe: Steel, 1-1/2 inches (38 mm) schedule 40, galvanized.
    - b. Tube: Galvanized tube, 12 gauge, 1-1/2 inches, 1.90 inches (48 mm) OD.

- B. Fittings, Including Elbows, Crossovers, Wall flanges, Tees, Couplings:
  - 1. Galvanized Malleable Cast Iron: structural pipe fittings, ASTM A447 with ASTM A153 galvanizing.
- C. Finish: Polyester factory applied spray coating.
- D. Fasteners: Type 304 or 305 stainless steel or galvanized.

### **2.03 FABRICATION**

- A. Metal Surfaces, General: Provide materials with smooth surfaces, without seam marks, roller marks, rolled trade names, stains, discolorations, or blemishes.
- B. Assemble railings in the shop to greatest extent possible to minimize field splicing and assembly.
- C. Form work true to line and level with accurate angles and surfaces.
- D. Cut, reinforce, drill, and tap as indicated to receive finish hardware, screws, and similar items.
- E. Connections: Fabricate railings with welded connections, unless otherwise indicated.
- F. Form changes in direction as follows:
  - 1. By inserting prefabricated flush-elbow fittings.
- G. Close exposed ends of railing members with prefabricated end fittings.

### **2.04 STEEL AND IRON FINISHES**

- A. Galvanized Railings:
  - 1. Hot-dip galvanize steel and iron railings, including hardware, after fabrication.
  - 2. Comply with ASTM A 123/A 123M for hot-dip galvanized railings.
- B. Fill vent and drain holes that will be exposed in the finished Work, unless indicated to remain as weep holes, by plugging with zinc solder and filing off smooth.
- C. For galvanized railings, provide hot-dip galvanized fittings, brackets, fasteners, sleeves, and other ferrous components.

## **PART 3 - EXECUTION**

### **3.01 INSTALLATION**

- A. Install in accordance with manufacturer's instructions.
- B. Fit exposed connections accurately together to form tight joints. For all connections with Kee Klamp fittings, each set screw is to be tightened to 29 foot pounds (39 Nm) of torque.
- C. Perform cutting, and fitting required for installation of handrails. Set handrails and accurately in location, alignment, and elevation, measured from established lines and levels.

### **3.02 PROTECTION**

- A. Protect finishes of railings from damage during construction period with temporary protective coverings approved by railing manufacturer. Remove protective coverings at time of Substantial Completion.

**END OF SECTION 11 81 29**