State of Connecticut
Eastern Connecticut State University
83 Windham Street
Willimantic, CT 06226

Bid number	Mandatory Pre-Bid	Bid Opening Date	Bid Opening Time	Date Issued
BI-RW-337/ECSU2017-4	Date: 1/30/19 Time: 9 AM Place: Facilities Conf. Room	2/14/19	2:00 PM	1/22/19

Agency Contact:
Cindy Hodis
Acquisitions Manager
860-465-5148
Email: hodisc@easternct.edu

AFFIRMATION OF BIDDER: The undersigned bidder affirms and declares:

1. That this proposal is executed and signed by said bidder with full knowledge and acceptance of the provisions of Form ECSU-02 (Standard Bid and Contract Terms and Conditions) of current issue and in effect on the date of bid issue.
2. Your written signature below indicates agreement of terms and conditions on page 2 and 3 of this document.

BIDDER INFORMATION

Complete Company Name (Trade Name, DBA) — Social Security or Federal Employer ID **Number**

Company Address: Street City State Zip Code

Contact Name (typed or printed) Email address Telephone Number Fax Number

Signature of Person Authorized to Sign Bids on Behalf of the above named company — Date Executed

Is your business currently a Department of Administrative Services Certified Small Business Enterprise:
☐ Yes (Attach Certificate to Bid) ☐ No

Is your business a: ☐ Sole Proprietorship ☐ Partnership
☐ Corporation (Type & State of Incorporation) _____
☐ LLC – sole owner ☐ LLC – Partnership ☐ LLC - Corporation

If you are a State Employee, indicate your position/ agency/ and address:

Remittance Address (If different from above):

Total Bid Price: $

RETURN BID TO ECSU IN A SEALED ENVELOPE CLEARLY MARKED IN THE LOWER LEFT CORNER WITH THE BID NUMBER, DUE DATE AND TIME.

(NOTE: FACSIMILE BIDS ARE NOT ACCEPTABLE)

ECSU PURCHASING DEPARTMENT
EASTERN ROAD
GELSI & YOUNG HALL, ROOM 344
WILLIMANTIC, CT 06226

THIS FORM AND REQUIRED PROPOSAL SCHEDULE FORMS MUST BE COMPLETED AND RETURNED WITH BID PROPOSAL

EXECUTIVE ORDERS: This contract is subject to the provisions of Executive Order No Three of Governor Thomas J. Meskill, promulgated June 16, 1971, and, as such, this contract may be cancelled, terminated or suspended by the State Labor Commissioner for violation of noncompliance with said Executive Order No. Three, or any State or federal law concerning nondiscrimination, withstanding that the Labor Commissioner is not a party to this contract. The parties of this contract, as part of the consideration hereof, agree that said Executive Order No. Three is incorporated herein by reference and made a part hereof. The parties agree to abide by said Executive Order and agree that the State Labor Commissioner shall have continuing jurisdiction in respect to contract performance in regard to nondiscrimination, until the contract is completed or terminated prior to completion. The contractor, agrees as part of consideration hereof, that this contract is subject to the Guidelines and Rules issued by the State Labor Commissioner to Implement Executive Order No. Three, and that he will not discriminate in his employment practices or policies, will file all reports as required, and will fully cooperate with the State of Connecticut and the Labor Commissioner. This contract is also subject to the provisions of Executive Order No. Seventeen of Governor Thomas J. Meskill promulgated February 15,1973, and, as such, this contract may be cancelled, terminated or suspended by the contracting agency or the State Labor Commissioner for violation of or noncompliance with said Executive Order No. Seventeen, notwithstanding that the Labor Commissioner may not be a party to this contract. The parties of this contract, as a part of the consideration hereof, agree that Executive Order No. Seventeen is incorporated herein by reference and made a part hereof. The parties agree to abide by said Executive Order and agree that the contracting agency and the State Labor Commissioner shall have joint and several continuing jurisdiction in respect to contract performance in regard to listing all employment openings with the Connecticut State Employment Service.

NON-DISCRIMINATION

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

(a) The following subsections are set forth here as required by section 4a-60 of the Connecticut General Statutes: (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, mental retardation, 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. 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, mental retardation, 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; (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) "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.

(d) 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.

(e) The contractor shall develop and maintain adequate documentation, in a manner prescribed by the commission, of its good faith efforts.

(f) The contractor shall include the provisions of section A above 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.

(g) The following subsections are set forth here as required by section 4a-60a of the Connecticut General Statutes: (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.

(h) The contractor shall include the provisions of section (g) above 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.

For the purposes of this entire Non-Discrimination 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 Conn. Gen. Stat. Section 1-120, (3) any other state, including but not limited to any federally recognized Indian tribal governments, as defined in Conn. Gen. Stat. Section 1-267, (4) the federal government, (5) a foreign government, or (6) an agency of a subdivision, agency, state or government described in the immediately preceding enumerated items (1), (2), (3), (4) or (5).

Insurance

The contractor agrees that while performing services specified in this agreement that he shall carry sufficient insurance (liability and/or other)as applicable according to the nature of the service to be performed so as to “save

harmless" the State of Connecticut from any insurable cause whatsoever. If requested, certificates of such insurance shall be filed with the contracting State Agency prior to the performance of services.

STATE LIABILITY

The State of Connecticut shall assume no liability for payment for services under the terms of this agreement until the contractor is notified that this agreement has been accepted by the using agency and, if applicable, approved by the Office of Policy and Management (OPM), the Department of Administrative Services and by the Attorney General of the State of Connecticut.

PROJECT MANUAL

NOBLE HALL ROOF REPLACEMENT & MASONRY RESTORATION

EASTERN CONNECTICUT STATE UNIVERSITY
WILLIMANTIC, CONNECTICUT 06226-2295

PROJECT #: BI-RW-337 / ECSU 2017-4

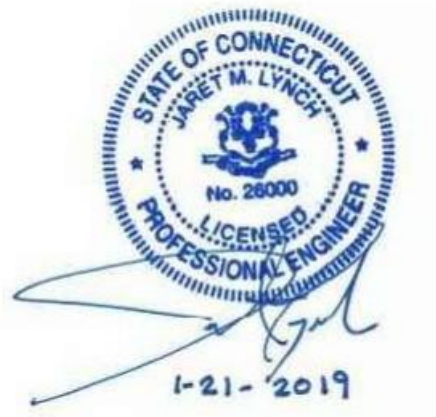
Prepared by:

Wiss, Janney, Elstner Associates, Inc.
2 Trap Falls Rd, Suite 502
Shelton, CT 06484

&

Facilities Management and Planning
Eastern Connecticut State University
Willimantic, Connecticut 06226-2295

Bid Set - January 21, 2019



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TECHNICAL SPECIFICATIONS

LIST OF DRAWINGS	
Drawing Number	Sheet Title
------	Cover Sheet
A100	Site Plan
A101	Ground Floor Plan 1912 Building
A102	Ground Floor Plan 1928 Building
A103	First Floor Plan 1912 Building
A104	First Floor Plan 1928 Building
A105	Second Floor Plan 1912 Building
A106	Second Floor Plan 1928 Building
A107	Roof Plan 1912 Building
A108	Roof Plan 198 Building
A200	Exterior Elevations
A201	Exterior Elevations
A202	Exterior Elevations
A203	Exterior Elevations
A300	Masonry Details
A301	Masonry Details
A400	Roof Details
A401	Roof Details
A402	Roof Details
A403	Roof Details
A500	Photo Details

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02/12/09

4/19/16

PROPOSAL FORM
EASTERN CONNECTICUT STATE UNIVERSITY
FOR PROJECTS ESTIMATED NOT TO EXCEED $2,000,000.00

DATE _____

PROPOSAL OF _____
BIDDER'S NAME

_____
BIDDER'S ADDRESS

To: Eastern Connecticut State University
83 Windham Street
Willimantic, Connecticut 06226

Dear Sir:

1. In accordance with **Section 4b-91** of the Connecticut General Statutes and pursuant to, and in compliance with your Invitation to Bid, the Notice to Bidders, the form of contract including the conditions thereto, the form of required bond, I (we) propose to furnish the labor and/or materials, installed as required for the project named and numbered on the PROJECT DATA SHEET of this Proposal, to the extent of the Proposal 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 specifications and/or drawings, together with all addenda issued by your authority and received prior to the scheduled closing time for the receipt of the bids, 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 the said PROJECT DATA SHEET, hereof.

2. The Lump Sum Base Bid by me (us) on the PROJECT DATA SHEET includes all work indicated on the drawings and/or described in the specifications, except:

   A. Work covered by Supplemental Bids as may be listed on the PROJECT DATA SHEET.

3. This proposal is submitted subject to and in compliance with the foregoing and following conditions and/or information:

   A. AWARD:

      The award shall be made on the lowest sum of the base bid amount and any accepted supplemental base bids(s). The supplemental bids must be accepted in sequential order as they are listed herein. The Owner/Agency reserves the right to reject any or all bids, and to accept a bid in greater compliance with the materials, labor, and methods defined in this specification.

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.

The contractor is required to hold his bid price for sixty (60) days. In the event that the contract award is delayed beyond the (60) days, the Agency must obtain written confirmation from the contractor extending the bid.

B. COMMENCEMENT AND COMPLETION OF WORK: (ARTICLE 6, GENERAL CONDITIONS)

Commencement of work: The Contractor shall commence work within **five (5)** working days after receiving notice to begin work by the Agency.

Construction Start: On or before **May 22, 2019.**

Substantial Completion: Masonry work shall be completed by **August 16, 2019**
Roofing work shall be completed by **October 25, 2019**

Construction Duration: Construction Duration shall be **150** calendar days.

C. LIQUIDATED DAMAGES: (ARTICLE 12, GENERAL CONDITIONS)

Amount per calendar day: **N/A**

The parties agree that in the event of the contractor's failure to adhere to the schedule of the starting/completion dates, the harm to the university would be very difficult or impracticable to accurately estimate and that the amount fixed as liquidated damages is not a penalty, but a reasonable forecast of just compensation for said harm.

D. CONTRACTOR PRE-QUALIFICATION

In accordance with C.G.S §4a-100, all contractors must pre-qualify before they can bid on a contract or perform work pursuant to a contract for the construction, reconstruction, alteration, remodeling, repair or demolition of any public building or any other public work by the state or a municipality, estimated to cost more than $500,000 and which is funded in whole or in part with state funds, except a public highway or bridge project or any other construction project administered by the Department of Transportation.

The prequalification classification for this project is:

GENERAL BUILDING CONSTRUCTION – GROUP "A"

Bidders are advised that both the DEPARTMENT OF ADMINISTRATIVE SERVICES PREQUALIFICATION CERTIFICATE and UPDATE (BID) STATEMENT must accompany the bid proposal for projects estimated to exceed Five Hundred Thousand Dollars ($500,000.00) (C.G.S. §4b-91 as amended). **Failure to supply them with the bid will result in rejection of the bid.**

E. CONTRACTORS INSURANCE REQUIRED: (ARTICLE 47, GENERAL CONDITIONS)

1) The limits of liability for the Insurance required for this project shall be those listed in Article 47 of the General Conditions.

2) BUILDERS RISK INSURANCE: **The General Contractor shall maintain Builder's Risk insurance providing coverage for the entire work at the project site and shall also cover 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 it is for the benefit of and payable to the state of Connecticut work, as their interests may appear.**

F. STATEMENT OF BIDDER'S QUALIFICATIONS: Essential information in regard to contractor's qualifications is submitted and is made part of this proposal.

G. NONDISCRIMINATION AND LABOR RECRUITMENT: I (we) agree that the contract awarded for this project shall be subject to Executive Orders No. Three and Seventeen, promulgated June 16, 1971, and February 15, 1973, respectively and to the Guidelines and Rules of the State Labor Commissioner implementing Executive Order No. Three and further agree to submit reports of Compliance Staffing on Labor Department Form E.O. 3-1, when and as requested.

H. NONVIOLENCE: I (we) agree that the contract awarded for this project shall be subject to Executive Order No. Sixteen, promulgated August 4, 1999.

I. FEDERAL AND STATE WAGE DETERMINATIONS: The U.S. Secretary of Labor's latest decision and the State of Connecticut Wage Schedule are all incorporated in the documents as applicable. 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 scale as provided by the Connecticut Department of Labor as applicable.

J. CERTIFICATION OF BIDDER REGARDING EQUAL EMPLOYMENT OPPORTUNITY AND NONSEGREGATED FACILITIES: The General Contractor and subcontractors are hereby advised that, upon acceptance of their bids, they are obligated to fill out, within seven (7) calendar days, the certification required pursuant to Executive Order No. 11246 and agree to certify to the compliance of non-segregated facilities.

4. For bids in the amount of $50,000.00 or greater, the following must accompany this proposal:

A. A CERTIFIED CHECK or a CASHIER'S CHECK drawn to the order of the EASTERN CONNECTICUT STATE UNIVERSITY in the amount of 10% of the bid or in the amount of:

_____DOLLARS ($)

and drawn on the _____
(STATE BANK & TRUST) (NATIONAL BANKING ASSOC.)

located at _____
(CITY & STATE)

which it is understood shall be cashed and the proceeds thereof used so far as may be necessary to reimburse EASTERN CONNECTICUT STATE UNIVERSITY for losses and damages arising by virtue of my (our) failure to file the required Bonds and execute the required contract in the event that this proposal is accepted by the Awarding Authority.

OR

B. A BID BOND having as surety thereto a Surety Company or Companies authorized to transact business in the State of Connecticut and made out in the penal sum of 10% of the bid, or in the amount of:

_____DOLLARS ($)

5. I (we), the undersigned, hereby declare that I am (we are) the only person(s) interested in the proposal and that it is made without any connection with any other person making any bid for the same work. No person acting for, or employed by, the State of Connecticut is directly or indirectly interested in this proposal, or in any contract which may be made under it, or in expected profits to arise therefrom. This 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 of any other person or corporation. This 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 proposal is based solely on my (our) own investigations and research and not in reliance upon any representations of any employee, officer, or agent of the State.

6. The General Contractor on this project will be required to perform not less than 30% of the work with his own forces.

A. The undersigned proposes to furnish all labor and materials required for _____ _____ in _____, in accordance with the accompanying plans and specifications prepared by _____ _____ for the contract price specified below subject to additions and deductions according to the terms of the specifications.

B. This bid includes addenda numbered: _____ _____

C. The proposed Lump Sum Base Bid price is:

_____DOLLARS ($)

SUPPLEMENTAL BID 1

To provide all labor, material and equipment in accordance with Specifications, Div. 1, Section 01030.

ADD _____ Dollars $_____
(Written)

SUPPLEMENTAL BID 2

To provide all labor, material and equipment in accordance with Specifications, Div. 1, Section 01030.

ADD _____ Dollars $_____
(Written)

SUPPLEMENTAL BID 3

To provide all labor, material and equipment in accordance with Specifications, Div. 1, Section 01030.

ADD _____ Dollars $_____
(Written)

D. The undersigned understands that, because of the approvals required by the State of Connecticut, particularly the funding process, the Agency's identification of the low bidder does not constitute acceptance of the offer and no contract exists until all approvals for the proposal are received and a purchase order is let indicating acceptance of this bid.

E. The undersigned certifies that at least fifty-one percent of the ownership of the bidding company is held by a person or persons who are active in the daily affairs of the business and have the power to direct the management and policies of the business.

F. The undersigned understands that a contractor awarded a contract or portion of contract under the SMALL BUSINESS SET-ASIDE PROGRAM shall not subcontract with any business with which said contractor has interlocking ownership, management or employees.

G. The undersigned further understands that this contract requires 25% Connecticut Registered Small Business Set-Aside subcontractor participation, of which 25% must be woman or minority owned. Participating contractor list may be obtained from the Department of Economic Development (860) 258-4254. List all such subcontractors in the "Additional Subcontractor" section on Page 10.

H. 1. The undersigned further agrees and warrants that he has made good faith efforts to employ minority business enterprises as subcontractors and suppliers of materials under such contract and will provide the Commission on Human Rights and Opportunities with such information as is requested by the Commission concerning his employment practices and procedures as they relate to the provisions of the general statutes governing contract requirements (see Public Act 87-577).

2. The undersigned understands that the award of this contract is contingent upon the Commission on Human Rights and Opportunities approving the apparent lowest qualified Bidder's Affirmative Action Plan. (This section applies to projects over $500,000 – Only)

I. (a) For the purposes of this section, "minority business enterprise" means any small contractor or supplier of materials, of which fifty-one per cent or more of the capital stock, if any, or assets 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 Conn. Gen. Stat. Sec. 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.

For purposes of this Section, "Commission" means the Commission on Human Rights and Opportunities.

b) (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, mental retardation 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. If the contract is for a public works project, 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 project. 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, mental retardation, 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 worker's 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 Conn. Gen. Stat. Sec. 4a-62, 4b-95/96, 32-9e, 46a-56 and 46a-68b to 46a-68k, inclusive, and with each regulation or relevant order issued by said commission pursuant to said sections; (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 related to the provisions of this Section and Section 46a-56.

(c) 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 minority business enterprises in public works projects.

(d) The contractor shall develop and maintain adequate documentation, in a manner prescribed by the commission, of its good faith efforts.

(e) The contractor shall include the provisions of subsection (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 this Section and Conn. Gen. Stat. Sec. 4a-62, 4b-95/96, 32-9e, 46a-56 and 46a-68b to 46a-68k, inclusive; 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. Please note that substitution of a subcontractor for one named is not permitted except for **"GOOD CAUSE"** as defined in Connecticut General Statutes 4b-95(c). Subcontracts must be executed in the format proscribed in Sec. 4b-96, Connecticut General Statutes.

(f) The contractor agrees to comply with the regulations referred to in this section as they exist on the date of this contract and as they may be adopted or amended from time to time during the term of this contract and any amendments thereto.

(g) After April 1, 1989, each contractor with fifty or more employees awarded a

public works contract in excess of fifty thousand dollars, shall develop and file an affirmative action plan with the Commission on Human Rights subject to the conditions under P.A. 88-351. In addition, the successful bidder on contracts of $500,000 or more must submit, for approval, an Affirmative Action Plan to the Commission of Human Rights and Opportunities. Upon notification from Eastern Connecticut State University, the successful bidder has 10 calendar days to submit their plan to Eastern Connecticut State University for preliminary review.

The undersigned understands that the award of this category of contract is contingent upon the Commission on Human Rights and Opportunities approving the apparent lowest qualified bidder's Affirmative Action Plan.

NOTE: All proposals must be live signed by a duly authorized representative of the firm. NO FACSIMILE SIGNATURES PERMITTED.

Signed on this _____ day of _____2019

Project Number _____

(TO BE FILLED IN AND SIGNED BY THE BIDDER)

Firm Name _____

Address _____

City, State _____

Telephone _____

Duly Authorized _____
SIGNATURE

TYPE NAME AND TITLE _____

FOR "SMALL BUSINESS SET-ASIDE CONTRACTORS" ONLY

The undersigned certifies that he is certified as a Small Business Set-Aside Contractor and has included a copy of that certification with this bid.

Signed: _____Date: _____

Dates of Certification: _____

Type of Certification (circle one): Woman Minority Small

NAMED SUBCONTRACTORS
SUBCONTRACTOR LISTING

Pursuant to Section 4b-95 of the State of Connecticut General Statutes, provide the names and bid totals of sub-contractors for the trades listed below: In addition to those required to be listed as defined by CGS 4b-95, list the name and bid amount of any trade that exceeds $25,000.

TRADE	**NAME OF SUBCONTRACTOR**	**AMOUNT**
1. MASONRY		
2. ELECTRICAL		
3. HVAC		
4. COATINGS		
5. ROOFING		
6. CONCRETE		
7.		
8.		
9.		
10.		

OBJECTIVE CRITERIA ESTABLISHED FOR EVALUATING QUALIFICATIONS OF GENERAL BIDDERS

The following items are established pursuant to Sections 4b-92 & 4b-94, 31-53aa, and 31-57b of the Connecticut General Statutes, as amended, and represent the criteria used for bid award.

THE BIDDER MUST:

1. Low bidders must demonstrate that they customarily employ supervisory personnel with expertise in the work for the bid specifications. Experience in the trade(s) for the project will be a factor.

2. Low bidders must demonstrate satisfactory past performance of work of a similar size, scope, and dollar value to that of the subject project on a continuous basis for the past three (3) years.

3. Low bidders must own or will rent/lease equipment necessary to perform the contract work needed for the project.

4. Low bidders must be financially responsible for performing the work as bid. If requested, additional financial information must be provided. ($250,000 or over only)

5. For projects with a bid value of $50,000 or more, furnish three (3) references from architects, owners, or owner's agents indicating satisfactory and timely completion of prior work (no older than 3 years).

6. Low bidders must demonstrate, if requested, that on previous state projects, the bidder complied in good faith with the requirements of listing subcontractors per Sections 4b-93 and 4b-95 of the Connecticut General Statutes.

7. Low bidders must demonstrate that all major required subcontractors, per Section 4b-95 of the Connecticut General Statutes, who are declared in the bid documents, are in compliance with the provisions of Section 20-341gg of the Connecticut General Statutes concerning licensure if work is to be performed on any structure that exceeds the threshold limits in Section 29-276b of the Connecticut General Statutes, as revised.

8. Low bidders must have demonstrated the skill, ability and integrity necessary for faithful performance on state and other projects relative to past honesty and sincerity in relationships with client agencies and other owners. Review of Agency files shall be included in the evaluation of bidders qualifications and anticipated future performance.

9. All serious or willful violations of OSHA regulations in the past three (3) years nor have received a criminal conviction related to the injury or death of any employee in the three (3) year period preceding the bid.

10. All legal or administrative proceedings, currently pending, as well as any which have concluded adversely within the last three years which relate to performance of any public or private construction contracts.

11. Have demonstrated a good track record of past performance on state or other projects relative to the quantity, quality, timeliness, cost, cooperation and harmonious working relationships with subcontractors, suppliers and client agencies. Prompt payment to subcontractors and suppliers is a critical factor to be considered.

12. Identify any situations where the bidder failed to complete a construction contract or situations where bonds were called during the past three years. If so, note when, where, and attach a separate sheet of explanation to this form.

13. Not have been found to be currently in major violation of tax law compliance requirements of the Department of Revenue Services.

14. Not have been found to be currently in major violation of labor laws as required through the Department of Labor including violations of prevailing wage laws in the past three years.

BIDDERS' QUALIFICATION STATEMENT

PROJECT NO. _____

All bidders are required to file this form, properly completed, WITH THEIR PROPOSAL. Failure of a bidder to answer any question or provide required information may be grounds for the awarding authority to disqualify and reject their bid. If a question or request for information does not pertain to your organization in any way, use the symbol "NA" (Not Applicable). Use additional 8 1/2 x 11 sheets with your letterhead as necessary.

1. Indicate exactly the name by which this organization is known:
   Name _____.

2. How many years has this organization been in business under its present business name?
   Years _____.

3. How many years has this organization been in business as a General Contractor?
   Years _____.

4. If this organization has not always been a General Contractor, list the trade(s) that your firm customarily performed prior to the time that you became a General Contractor:
   1. _____,
   2. _____,
   3. _____.

5. Indicate all other names by which this organization has been known and the length of time known by each name:
   1. _____,
   2. _____,
   3. _____.

6. This firm is a : _____ Corporation, _____ Partnership,
   _____ Sole Proprietorship, _____ Joint Venture, _____ Other.

7. Attach resumes of all supervisory personnel, such as Principals, Project Managers, and Superintendents who will be directly involved with projects on which you are now a bidder. Indicate the number of years of construction experience and the number of years which were in a Supervisory capacity.

8. List all sub-trades which your firm customarily performs with own employees.
   1. _____,
   2. _____,
   3. _____,

9. Trade References: Names, addresses, and telephone numbers of several firms with whom your organization has regular business dealings:

   (Attach Separate Sheet)

10. All Construction Projects your organization has in process:

TITLE & LOCATION	CONTRACT AMOUNT	OWNER	DESIGNER	START DATE	FINISH DATE	ANY COMPLAINT AS TO QUALITY OF MANAGEMENT	NAME & PHONE OF OWNER'S REP	NAME & PHONE OF DESIGNER'S REP

Please attach a separate sheet explaining any negative entry in the last three columns.

11. All Construction Projects your organization has completed in the past five years or the twenty projects most recently completed:

TITLE & LOCATION	CONTRACT AMOUNT	OWNER	DESIGNER	START DATE	FINISH DATE	ANY COMPLAINT AS TO QUALITY OF MANAGEMENT	NAME & PHONE OF OWNER'S REP	NAME & PHONE OF DESIGNER'S REP

Please attach a separate sheet explaining any negative entry in the last three columns.

BIDDERS QUALIFICATION STATEMENT

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

_____
_____
_____
_____
_____
_____

13. 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 OSHA violations which are called for elsewhere in this statement.)

1. ___ Attached 2. ___ Not Applicable

14. List all willful or serious violations of any Occupational Safety and Health Act (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.

1.

2.

3.

15. Has your organization 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.

1.

2.

Dated at _____
this _____ day of _____, 2019.

Name of Organization:
_____

Signature _____
Print Name _____
Title _____

NOTARY STATEMENT:

Mr./Ms. _____ being duly sworn deposes and says that

he/she is the _____ of
(Position or Title)
_____, and that the answers to the
(Firm Name)
foregoing questions and all statements therein contained are true and correct.

Subscribed and sworn before me this _____ day of _____, 2019

Notary Public: _____

My Commission expires _____, 2019.
(Seal Required)

NOTICE TO BIDDERS
EASTERN CONNECTICUT STATE UNIVERSITY

1. BIDS AND REJECTION OF BIDS: Bids shall be for the complete work as specified and shall include the names of any subcontractors for the four classes of work specified in subsection (a) of Section 4b-93 of the General Statutes of Connecticut as revised, and for each other class of work for which the awarding authority has required a separate section pursuant to said subsection and the dollar amounts of their subcontracts, and the contractor shall be selected on the basis of such bids. It shall be presumed that the bidder intends to perform with its own employees all work in such four classes and such other classes, for which no subcontractor is named. The bidder's qualifications for performing such work shall be subject to review under Section 4b-92 of the General Statutes of Connecticut, as revised.

Every general bid, which is on a form not completely filled in or which is incomplete, conditional or obscure, or which contains any addition not called for shall be invalid; and the awarding authority shall reject every such bid. The awarding authority shall be authorized to waive minor irregularities which he 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. No such bid shall be rejected because of the failure to submit prices for, or information relating to, any item or items for which no specific space is provided in the bid form furnished by the awarding authority, but this sentence shall not be applicable to any failure to furnish prices or information required by Section 4b-95 of the General Statutes of Connecticut, as revised, to be furnished in the bid form provided by the awarding authority.

Bids shall be publicly opened and read by the awarding authority forthwith. The awarding authority may require in the bid form that the contractor agree to perform a stated, minimum percentage of work with its own forces. The awarding authority may also require the contractor to set aside a portion of the contract for subcontractors who are eligible for set-aside contracts. The awarding authority shall not permit substitution of a subcontractor for one named in accordance with the provisions of said Section 4b-95 or substitution of a subcontractor for any designated subtrade work bid to be performed by the contractor's own forces, except for good cause. The term "good cause" includes but is not limited to a subcontractor's or, where appropriate, a contractor's: (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; (7) failure to perform his agreement to execute a subcontract under Section 4b-96 of the General Statutes of Connecticut, as revised.

The bid price shall be the price set forth in the space provided on the bid form. No bid shall be rejected (1) because of error in setting forth the name of a subcontractor as long as the subcontractor or subcontractors designated are clearly identifiable, or (2) because the plans and specifications do not accompany the bid or are not submitted with the bid. Failure to correctly state a subcontractor's price shall be a cause for rejection of the bid.

Any contractor who violates any provision of said Section 4b-95 may be disqualified from bidding on other contracts that are subject to the provisions of Chapter 60 of the General Statutes of Connecticut, as revised, for a period not to exceed twenty-four months, commencing from the date on which the violation is discovered, for each violation. The

awarding authority shall periodically review the contractor's subcontracts to insure compliance with such provisions and shall, after each such review, prepare a written report setting forth his findings and conclusions.

Bids shall be submitted only on the forms furnished for the specific project. In no event will bids or changes in bids made by telephone, telegraph, or facsimile be considered. Any bid form omitting or adding items, altering the form, containing conditional or alternative bids, not filled in completely or without the original signature of the bidder or its authorized representative, will be rejected.

Any bid received after the scheduled closing time for the receipt of bids will be returned to the bidder unopened.

Any bid, once deposited with the agency, may only be withdrawn by letter of request, signed by the depositing bidder and presented to the Acquisitions Specialist, prior to the time of opening of any bid for the project designated or identified project.

2. BID SECURITY: Each bid must be accompanied by a certified check payable to the order of the University, or the bid may be accompanied by a bid bond, in the form required by the awarding authority, having as surety thereto such surety company or companies acceptable to the agency and as are authorized to do business in this State, for an amount not less than 10 percent of the bid. All checks submitted by unsuccessful bidders shall be returned to them after the contract has been awarded.

3. FORFEITURE OF BID SECURITY: Failure of the successful bidder to execute a contract awarded as specified and bid shall result in the forfeiture of the bid bond or certified check.

4. ADDENDA AND INTERPRETATIONS: No interpretations of the meaning of the plans, specifications or other contract documents will be made orally to any bidder. Every request for such interpretation should be in writing to the awarding authority and, to be given consideration, must be received at least ten (10) days prior to the date fixed for the opening of bids. 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 mailed to all prospective bidders (at the respective addresses furnished for such purposes) not later than five (5) days prior to the date fixed for the opening of bids. Failure of any bidder to receive any such addendum or interpretation shall not release any bidder from any obligations under his bid as submitted, provided notice has been sent to the address furnished by such prospective bidder for the transmittal of notices, addenda and interpretations. It shall be the bidder's responsibility to make inquiry as to, and to obtain, the addenda issued, if any.

5. EXECUTIVE ORDER NO. THREE:

This contract is subject to the provisions of Executive Order No. Three of Governor Thomas J. Meskill promulgated June 16, 1971, and, as such, this contract may be canceled, terminated or suspended by the State Labor Commissioner for violation of or noncompliance with said Executive Order No. Three, or any state or federal law concerning nondiscrimination, notwithstanding that the Labor Commissioner is not a party to this contract. The parties to this contract, as part of the consideration hereof, agree that said Executive Order No. Three is incorporated herein by reference and made a part hereof. The parties agree to abide by said Executive Order and agree that the State Labor Commissioner shall have continuing jurisdiction in respect to contract

performance in regard to nondiscrimination until the contract is completed or terminated prior to completion.

The contractor agrees, as part consideration hereof, that this contract is subject to the Guidelines and Rules issued by the State Labor Commissioner to implement Executive Order No. Three, and that he will not discriminate in his employment practices or policies, will file all reports as required, and will fully cooperate with the State of Connecticut and the State Labor Commissioner.

6. EXECUTIVE ORDER NO. SIXTEEN:

This contract is subject to the provisions of Executive Order No. Sixteen of Governor John G. Rowland promulgated August 4, 1999, and, as such, the contract may be canceled, terminated or suspended by the state for violation of or noncompliance with said Executive Order No. Sixteen. The parties to this contract, as part of the consideration hereof, agree that said Executive Order No. Sixteen is incorporated herein by reference and made a part hereof. The parties agree to abide by such Executive Order.

7. EXECUTIVE ORDER NO. SEVENTEEN:

This contract is subject to the provisions of Executive Order No. Seventeen of Governor Thomas J. Meskill promulgated February 15, 1973, and, as such, this contract may be canceled, terminated or suspended by the contracting agency or the State Labor Commissioner for violation of or noncompliance with said Executive Order No. Seventeen, not withstanding that the Labor Commissioner may not be a party to this contract. The parties to this contract, as part of the consideration hereof, agree that Executive Order No. Seventeen is incorporated herein by reference and made a part hereof. The parties agree to abide by said Executive Order and agree that the contracting agency and the State Labor Commissioner shall have joint and several continuing jurisdiction in respect to contract performance in regard to listing all employment openings with the Connecticut State Employment Service.

8. FOREIGN CORPORATIONS: A corporation not organized under the laws of this State 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 State.

9. SECURITY FOR FAITHFUL PERFORMANCE:

A. Performance Bond. On or before the contract award date the successful bidder, for any bid equal to or exceeding $50,000, shall substitute for the certified check or bid bond accompanying his bid, an executed Performance Bond, in an 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 Agency and as are authorized to transact business in this State.

B. Labor and Material Bond. At this same time the successful bidder, for any bid equal to or exceeding $50,000, shall submit a labor and material bond in an amount not less than 100 percent of the contract price which shall be binding upon the award of the contract to such bidder, with surety or sureties satisfactory to the Agency 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 shall have as principal the name of the successful bidder. This bond is to be furnished pursuant to Section 49-41 of the General Statutes of Connecticut, as revised. The following sections of the General Statutes of Connecticut, as revised, are inserted as information concerning this bond.

Sec. 49-41a. Enforcement of payment by general contractor to subcontractor and by subcontractor to his subcontractors.

(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 subcontracts a provision requiring each subcontractor 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 percent, in any 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.

Section 49-42. Enforcement of right to payment on bond. Suit on bond; when

and how brought.

(a) Any person who performed work or supplied materials for which a requisition was submitted to, or for which an estimate was prepared by, the awarding authority and who does not receive full payment for such work or materials within sixty days of the applicable payment date provided for in Subsection (a) of Section 49-41a, or any person who supplied materials or performed subcontracting work not included on a requisition or estimate who has not received full payment for such materials or work within sixty days after the date such materials were supplied or such work was performed, may enforce his right to payment under the bond by serving a notice of claim on the surety that issued the bond and a copy of such notice to the contractor named as principal in the bond within one hundred eighty days of the applicable payment date provided for in Subsection (a) of Section 49-41a, or, in the case of a person supplying materials or performing subcontracting work not included on a requisition or estimate, within one hundred eighty days after the date such materials were supplied or such work was performed. The notice of claim shall state with substantial accuracy the amount claimed and the name of the party for whom the work was performed or to whom the materials were supplied, and shall provide a detailed description of the bonded project for which the work or materials were provided. If the content of a notice prepared in accordance with Subsection (b) of Section 49-41a complied with the requirements of this section, a copy of such notice, served within one hundred eighty days of the payment date provided for in Subsection (a) of Section 49-41a upon the surety that issued the bond and upon the contractor named as principal in the bond, shall satisfy the notice requirements of this section. Within ninety days after service of the notice of claim, the surety shall make payment under the bond and satisfy the claim, or any portion of the claim which is not subject to a good faith dispute, and shall serve a notice on the claimant denying liability for any unpaid portion of the claim. The notices required under this section shall be served by registered or certified mail, postage prepaid in envelopes addressed to any office at which the surety, principal or claimant conducts his business, or in any manner in which civil process may be served. If the surety denies liability on the claim, or any portion thereof, the claimant may bring action upon the payment bond in the superior court for such sums and prosecute the action to final execution and judgment. An action to recover on a payment bond under this section shall be privileged with respect to assignment for trial. The court shall not consolidate for trial any action brought under this section with any other action brought on the same bond unless the court finds that a substantial portion of the evidence to be adduced, other than the fact that the claims sought to be consolidated arise under the same general contract, is common to such actions and that consolidation will not result in excessive delays to any claimant whose action was instituted at a time significantly prior to the motion to consolidate. In any such proceeding, the court judgment shall award the prevailing party the costs for bringing such proceeding and allow interest at the rate of interest specified in the labor or materials contract under which the claim arises or, if no such interest rate is specified, at the rate of interest as provided in Section 37-3a upon the amount recovered, computed from the date of service of the notice of claim, provided, for any portion of the claim which the court finds was due and payable after the date of service of the notice of claim, such interest shall be computed from the date such portion became due and payable. The court judgment may award reasonable attorney’s fees to either party if upon reviewing the entire record, it appears that either the original claim, the surety's denial of liability, or the defense interposed to the claim is without

substantial basis in fact or law. Any person having direct contractual relationship with a subcontractor but no contractual relationship express or implied with the contractor furnishing the payment bond shall have a right of action upon the payment bond upon giving written notice of claim as provided in this section.

(b) Every suit instituted under this section shall be brought in the name of the person suing, in the superior court for the judicial district where the contract was to be performed, irrespective of the amount in controversy in the suit, but no such suit may be commenced after the expiration of one year after the applicable payment date provided for in Subsection (a) of Section 49-41a, or, in the case of a person supplying materials or performing subcontracting work not included on a requisition or estimate, no such suit may be commenced after the expiration of one year after the date such materials were supplied or such work was performed.

(c) The word "material" as used in Section 49-41 to 49-43, inclusive, includes the rental of equipment used in the prosecution of work provided for in the contract.

10. CONNECTICUT SALES AND USE TAXES: All bidders shall familiarize themselves with the current regulations of the Department of Revenue Service. The tax on materials or supplies exempted by such statutes and regulations shall not be included as part of a bid.

Nonresident contractors must comply with the provisions of Connecticut General Statutes Section 12-430(7), bond requirement for nonresident contractors, and the regulations established pursuant to that section.

11. CONTRACTOR'S QUALIFICATIONS: All bidders shall file with their bids a statement of qualifications on the appropriate form.

12. SUBCONTRACTORS: (a) As required by the project data sheet, each bidder shall furnish with his submitted bid, and in the place on the bid form provided for such purpose, the names of responsible and qualified subcontractors who are actually to perform the work required by the division or portion of the specifications listed, for the base bid. Failure to so list a subcontractor for any division or portion of the specifications will result in rejection of the entire bid.

13. WORKING DAY: A working day is hereby defined as each consecutive day, including and following the date set for commencement of work, except Saturdays, Sundays and state legal holidays and except those days on which, in the opinion of the awarding authority, the Contractor is prevented by inclement weather from proceeding with work on the major items under construction at the then current stage of the work at least six (6) hours with the usual force employed on these major items, provided however, that in the event the State directs or permits work to be performed on a Saturday, Sunday or a state legal holiday, then such day shall be considered a working day.

14. NONDISCRIMINATION AND AFFIRMATIVE ACTION PROVISIONS:

This section is inserted in connection with Subsection (a) of Section 4a-60 of the General Statutes of Connecticut, as revised.

A. For the purposes of this section, "minority business enterprise" means any small contractor or supplier of materials, fifty-one percent 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 member of a minority, as such term is defined in Subsection (a) of Connecticut General Statutes, 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.

For the purpose of this section, "commission" means the Commission on Human Rights and Opportunities.

For the purpose of this section, "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, of which is financed in whole or in part by the state, including, but not limited to, matching expenditures, grants, loans, insurance or guarantees.

B. (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, mental retardation 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. 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, mental retardation, 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 Connecticut General Statutes Sections 46a-68e and 46a-68f and with each regulation or relevant order issued by said commission pursuant to Connecticut General Statutes Sections 46a-56, 46a-68e, and 46a-68f; (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 Connecticut General Statutes Section 46a-56. 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 projects.

C. 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.

D. The contractor shall develop and maintain adequate documentation, in a manner prescribed by the commission, of its good faith efforts.

E. The contractor shall include the provisions of subsection (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 Connecticut General Statutes 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.

F. The contractor agrees to comply with the regulations referred to in this section as they exist on the date of this contract and as they may be adopted or amended from time to time during the term of this contract and any amendments thereto.

15. NONDISCRIMINATION PROVISIONS REGARDING SEXUAL ORIENTATION:

This section is inserted in connection with Subsection (a) of Section 4a-60a of the General Statutes of Connecticut, as revised.

A. (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 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 or understanding and each vendor 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 commitment 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 of the general statutes; (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 of the General Statutes.

B. 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 of the General Statutes; 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.

16. AGREEMENT TO ARBITRATE: Any dispute arising out of the awarding of the contract for this project by the Agency, or performance thereunder, shall be submitted to arbitration under the rules of the American Arbitration Association. Hartford, Connecticut, shall be the locale where the Arbitration is to be held.

17. UNION LABOR: Attention is called to the fact that there may be construction work now being carried on at the site at which this construction is contemplated being done by union labor. This fact must be kept in mind by all bidders.

18. LABOR MARKET AREA:

All bidders shall have read Sections 31-52 and 31-52a of the Connecticut General Statutes, as revised. These sections relate to the preference of State citizens and the preference of residents of the labor market area in which the work under the contract is to be done and the penalties for violations thereof.

In order to avoid violations by the contractor and to cooperate with and assist the State in the implementation of the statutory mandates, any contractor bidder awarded a contract with the State shall be required to provide the State with the following information:

A. The names and addresses of employees utilized by the contractor and by its subcontractors and how long each such employee has resided in Connecticut.

B. 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 attached map.

C. Within thirty (30) days after the start of work, the contractor shall 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 shall 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.

D. In the same manner as Item (C) above, the statement shall indicate the steps taken to assure that the contractor and its subcontractors have sought out qualified residents of this state.

E. The contractor shall cooperate with and provide information to the construction supervisor or inspector of the State 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.

F. All such information gathered and compiled by the State shall be forwarded to the Labor Commissioner.

Pursuant to Section 31-52b of the Connecticut General Statutes, as revised: "The provisions of Sections 31-52 and 31-52a 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 said sections or regulative procedures pursuant thereto." However, no exception shall be determined to be applicable unless stated in writing from the Agency.

CONNECTICUT PREVAILING WAGE RATES

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.

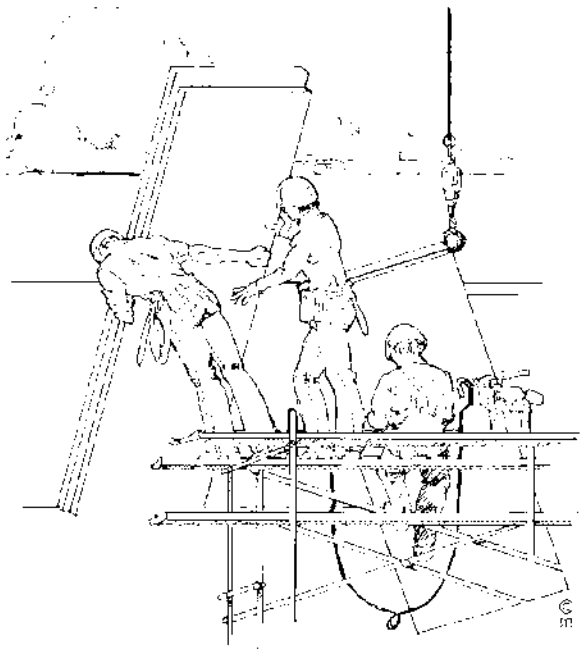
~NOTICE~

TO ALL CONTRACTING AGENCIES

Please be advised that Connecticut General Statutes Section 31-53, requires the contracting agency to certify to the Department of Labor, the total dollar amount of work to be done in connection with such public works project, regardless of whether such project consists of one or more contracts.

Please find the attached "Contracting Agency Certification Form" to be completed and returned to the Department of Labor, Wage and Workplace Standards Division, Public Contract Compliance Unit.

✎ Inquiries can be directed to (860)263-6543.



CONNECTICUT DEPARTMENT OF LABOR
WAGE AND WORKPLACE STANDARDS DIVISION
CONTRACT COMPLIANCE UNIT

CONTRACTING AGENCY CERTIFICATION FORM

I, _____, acting in my official capacity as _____,
authorized representative title

for _____, located at _____,
contracting agency address

do hereby certify that the total dollar amount of work to be done in connection with

_____, located at _____,
project name and number address

shall be $_____, which includes all work, regardless of whether such project

consists of one or more contracts.

CONTRACTOR INFORMATION

Name:_____

Address:_____
Authorized Representative:_____
Approximate Starting Date: _____

Approximate Completion Date:_____

_____ _____
Signature Date

Return To: Connecticut Department of Labor
Wage & Workplace Standards Division
Contract Compliance Unit
200 Folly Brook Blvd.
Wethersfield, CT 06109

Date Issued: _____

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): _____

[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.

PAYROLL CERTIFICATION FOR PUBLIC WORKS PROJECTS

WEEKLY PAYROLL

Connecticut Department of Labor
Wage and Workplace Standards Division
200 Folly Brook Blvd.
Wethersfield, CT 06109

CONTRACTOR NAME AND ADDRESS:	SUBCONTRACTOR NAME & ADDRESS	WORKER'S COMPENSATION INSURANCE CARRIER
		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 S	M	T	W	TH	F	S	Total ST Hours Total O/T Hours	BASE HOURLY RATE TOTAL FRINGE BENEFIT PLAN CASH	TYPE OF FRINGE BENEFITS Per Hour 1 through 6 (see back)	GROSS PAY FOR ALL WORK PERFORMED THIS WEEK	TOTAL DEDUCTIONS FICA	FEDERAL WITH-HOLDING	STATE WITH-HOLDING	LIST OTHER	GROSS PAY FOR THIS PREVAILING RATE JOB	CHECK # AND NET PAY
				HOURS WORKED EACH DAY								$ Base Rate $ Cash Fringe	1. $ 2. $ 3. $ 4. $ 5. $ 6. $							
												$ Base Rate $ Cash Fringe	1. $ 2. $ 3. $ 4. $ 5. $ 6. $							
												$ Base Rate $ Cash Fringe	1. $ 2. $ 3. $ 4. $ 5. $ 6. $							
												$ Base Rate $ Cash Fringe	1. $ 2. $ 3. $ 4. $ 5. $ 6. $							

12/9/2013
WWS-CP1

*IF REQUIRED

*SEE REVERSE SIDE

PAGE NUMBER _____OF

OSHA 10 ~ATTACH CARD TO 1ST CERTIFIED PAYROLL

Weekly Payroll Certification For
Public Works Projects (Continued)

PAYROLL CERTIFICATION FOR PUBLIC WORKS PROJECTS

WEEKLY PAYROLL

Week-Ending Date:
Contractor or Subcontractor Business Name:

PERSON/WORKER, ADDRESS and SECTION	APPR RATE %	MALE/ FEMALE AND RACE*	WORK CLASSIFICATION Trade License Type & Number - OSHA 10 Certification Number	DAY AND DATE S	M	T	W	TH	F	S	Total ST Hours Total O/T Hours	BASE HOURLY RATE TOTAL FRINGE BENEFIT PLAN CASH	TYPE OF FRINGE BENEFITS Per Hour 1 through 6 (see back)	GROSS PAY FOR ALL WORK PERFORMED THIS WEEK	TOTAL DEDUCTIONS FICA	FEDERAL WITH-HOLDING	STATE WITH-HOLDING	OTHER	GROSS PAY FOR THIS PREVAILING RATE JOB	CHECK # AND NET PAY
				HOURS WORKED EACH DAY																
												$ 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. $							
												$ Base Rate	1. $ 2. $ 3. $							
												$ Cash Fringe	4. $ 5. $ 6. $							

*IF REQUIRED

NOTICE: THIS PAGE MUST BE ACCOMPANIED BY A COVER PAGE (FORM # WWS-CP1)

***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)

*****THIS IS A PUBLIC DOCUMENT*****
*****DO NOT INCLUDE SOCIAL SECURITY NUMBERS*****

[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.

PAYROLL CERTIFICATION FOR PUBLIC WORKS PROJECTS

WEEKLY PAYROLL

Connecticut Department of Labor
Wage and Workplace Standards Division
200 Folly Brook Blvd.
Wethersfield, CT 06109

CONTRACTOR NAME AND ADDRESS:
Landon Corporation, 15 Connecticut Avenue, Northford, CT 06472

SUBCONTRACTOR NAME & ADDRESS
XYZ Corporation
2 Main Street
Yantic, CT 06389

WORKER'S COMPENSATION INSURANCE CARRIER
Travelers Insurance Company
POLICY # #BAC8888928
EFFECTIVE DATE: 1/1/09
EXPIRATION DATE: 12/31/09

PAYROLL NUMBER: 1
Week-Ending Date: 9/26/09
PROJECT NAME & ADDRESS: DOT 105-296, Route 82

PERSON/WORKER, ADDRESS and SECTION	APPR RATE %	MALE/ FEMALE AND RACE*	WORK CLASSIFICATION / Trade License Type & Number - OSHA 10 Certification Number	DAY AND DATE: S 20	M 21	T 22	W 23	TH 24	F 25	S 26	Total ST Hours / Total O/T Hours	BASE HOURLY RATE / TOTAL FRINGE BENEFIT PLAN CASH	TYPE OF FRINGE BENEFITS Per Hour 1 through 6 (see back)	GROSS PAY FOR ALL WORK PERFORMED THIS WEEK	TOTAL DEDUCTIONS: FICA	FEDERAL WITHHOLDING	STATE WITHHOLDING	LIST OTHER	GROSS PAY FOR THIS PREVAILING RATE JOB	CHECK # AND NET PAY
Robert Craft 81 Maple Street Willimantic, CT 06226		M/C	Electrical Lineman E-1 1234567 Owner OSHA 123456		8	8	8	8	8		S-TIME 40 O-TIME	$ 30.75 Base Rate $ 8.82 Cash Fringe	1. $ 5.80 2. $ 3. $ 2.01 4. $ 5. $ 6. $	$1,582.80				P-xxxx	$1,582.80	#123 $ xxx.xx
Ronald Jones 212 Elm Street Norwich, CT 06360	65%	M/B	Electrical Apprentice OSHA 234567		8	8	8	8	8		S-TIME 40 O-TIME	$ 19.99 Base Rate $ 16.63 Cash Fringe	1. $ 2. $ 3. $ 4. $ 5. $ 6. $	$1,464.80	xx.xx	xxx.xx	xx.xx	G-xxx	$1,464.80	#124 $xxx.xx
Franklin T. Smith 234 Washington Rd. New London, CT 06320 SECTION B		M/H	Project Manager			8					S-TIME 8 O-TIME	$ Base Rate $ Cash Fringe	1. $ 2. $ 3. $ 4. $ 5. $ 6. $	$1,500.00	xx.xx	xx.xx	xx.xx	M-xx.x		#125 xxx.xx
											S-TIME O-TIME	$ Base Rate $ Cash Fringe	1. $ 2. $ 3. $ 4. $ 5. $ 6. $							

7/13/2009
WWS-CP1

*IF REQUIRED

*SEE REVERSE SIDE

OSHA 10 ~ATTACH CARD TO 1ST CERTIFIED PAYROLL

***FRINGE BENEFITS EXPLANATION (P):**

Bona fide benefits paid to approved plans, funds or programs, except those required by Federal or State Law (unemployment tax, worker's compensation, income taxes, etc.).

Please specify the type of benefits provided:

1) Medical or hospital care Blue Cross 4) Disability _____

2) Pension or retirement _____ 5) Vacation, holiday _____

3) Life Insurance Utopia 6) Other (please specify) _____

CERTIFIED STATEMENT OF COMPLIANCE

For the week ending date of 9/26/09,

I, Robert Craft of XYZ Corporation, (hereafter known as

Employer) in my capacity as Owner (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 employee 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 employee 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 employee of the Employer 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 employee's name first appears.

Robert Craft (Signature) owner (Title) 10/2/09 Submitted on (Date)

Section B: Applies to CONNDOT Projects ONLY
That pursuant to CONNDOT contract requirements for reporting purposes only, all employees listed under Section B who performed work on this project are not covered under the prevailing wage requirements defined in Connecticut General Statutes Section 31-53.

Robert Craft (Signature) owner (Title) 10/2/09 Submitted on (Date)

Note: CTDOL will assume all hours worked were performed under Section A unless clearly delineated as Section B WWS-CP1 as such. Should an employee perform work under both Section A and Section B, the hours worked and wages paid must be segregated for reporting purposes.

*****THIS IS A PUBLIC DOCUMENT*****
*****DO NOT INCLUDE SOCIAL SECURITY NUMBERS*****

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, facia, louvers, partitions, canopies, cornice, column covers, awnings, beam covers, cladding, sun shades, lighting troughs, spires, ornamental roofing, metal ceilings, mansards, copings, ornamental and ventilation hoods, vertical and horizontal siding panels, trim, etc. The sheet metal classification also applies to the vast variety of coated metal material panels and composite metal material panels that have evolved over the years as an alternative to conventional ferrous and non-ferrous metals like steel, iron, tin, copper, brass, bronze, aluminum, etc. Fabrication, handling, assembling, erecting, altering, repairing, etc. of architectural metal roof, standing seam roof, composite metal roof, metal and composite bathroom/toilet partitions, aluminum gutters, metal and composite lockers and shelving, kitchen equipment, and walk-in coolers. To include testing and air –balancing ancillary to installation and construction.

- ***SPRINKLER FITTERS***

Installation, alteration, maintenance and repair of fire protection sprinkler systems. ****License required per Connecticut General Statutes: F-1,2,3,4.***

- ***TILE MARBLE AND TERRAZZO FINISHERS***

Assists and tends the tile setter, marble mason and terrazzo worker in the performance of their duties.

- **TRUCK DRIVERS**

~How to pay truck drivers delivering asphalt is under REVISION~

Truck Drivers are requires to be paid prevailing wage for time spent "working" directly on the site. These drivers remain covered by the prevailing wage for any time spent transporting between the actual construction location and facilities (such as fabrication, plants, mobile factories, batch plant, borrow pits, job headquarters, tool yards, etc.) dedicated exclusively, or nearly so, to performance of the contract or project, which are so located in proximity to the actual construction location that it is reasonable to include them. ****License required, drivers only, per Connecticut General Statutes.***

For example:

• Material men and deliverymen are not covered under prevailing wage as long as they are not directly involved in the construction process. If, they unload the material, they would then be covered by prevailing wage for the classification they are performing work in: laborer, equipment operator, etc.
• Hauling material off site is not covered provided they are not dumping it at a location outlined above.
• Driving a truck on site and moving equipment or materials on site would be considered covered work, as this is part of the construction process.

➢ *Any questions regarding the proper classification should be directed to:*
Public Contract Compliance Unit
Wage and Workplace Standards Division
Connecticut Department of Labor
200 Folly Brook Blvd, Wethersfield, CT 06109
(860) 263-6543.

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.

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. 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.

WAGE RATES

Project: Noble Hall Roof Replacement And Masonry Restoration At Eastern Connecticut State University

Minimum Rates and Classifications for Building Construction

ID# : B 25597

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 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: BI-RW-337/ECSU 2017-4 Project Town: Willimantic

State#: FAP#:

Project: Noble Hall Roof Replacement And Masonry Restoration At Eastern Connecticut State University

CLASSIFICATION	Hourly Rate	Benefits
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
1b) Asbestos/Toxic Waste Removal Laborers: Asbestos removal and encapsulation (except its removal from mechanical systems which are not to be scrapped), toxic waste removers, blasters.**See Laborers Group 7**		
1c) Asbestos Worker/Heat and Frost Insulator	40.21	29.30

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

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------LABORERS------

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

4e) Group 6: Blasters, nuclear and toxic waste removal.	31.80	20.10
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
4g) Group 8: Bottom men on open air caisson, cylindrical work and boring crew.	28.38	20.10
4h) Group 9: Top men on open air caisson, cylindrical work and boring crew.	27.86	20.10
4i) Group 10: Traffic Control Signalman	16.00	20.10
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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5a) Millwrights	33.14	25.74
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
7a) Elevator Mechanic (Trade License required: R-1,2,5,6)	51.71	32.645+a+b
-----LINE CONSTRUCTION----		
Groundman	26.50	6.5% + 9.00
Linemen/Cable Splicer	48.19	6.5% + 22.00

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8) Glazier (Trade License required: FG-1,2)	37.18	21.05 + a
9) Ironworker, Ornamental, Reinforcing, Structural, and Precast Concrete Erection	35.47	35.14 + a
----OPERATORS----		
Group 1: Crane handling or erecting structural steel or stone, hoisting engineer 2 drums or over, front end loader (7 cubic yards or over), work boat 26 ft. and over and Tunnel Boring Machines. (Trade License Required)	39.55	24.30 + a
Group 2: Cranes (100 ton rate capacity and over); Excavator over 2 cubic yards; Piledriver ($3.00 premium when operator controls hammer); Bauer Drill/Caisson. (Trade License Required)	39.23	24.30 + a
Group 3: Excavator; Backhoe/Excavator under 2 cubic yards; Cranes (under 100 ton rated capacity), Grader/Blade; Master Mechanic; Hoisting Engineer (all types of equipment where a drum and cable are used to hoist or drag material regardless of motive power of operation), Rubber Tire Excavator (Drott-1085 or similar);Grader Operator; Bulldozer Fine Grade. (slopes, shaping, laser or GPS, etc.). (Trade License Required)	38.49	24.30 + a

Group 4: Trenching Machines; Lighter Derrick; Concrete Finishing Machine; CMI Machine or Similar; Koehring Loader (Skooper).	38.10	24.30 + a
Group 5: Specialty Railroad Equipment; Asphalt Paver; Asphalt Reclaiming Machine; Line Grinder; Concrete Pumps; Drills with Self Contained Power Units; Boring Machine; Post Hole Digger; Auger; Pounder; Well Digger; Milling Machine (over 24" Mandrell)	37.51	24.30 + a
Group 5 continued: Side Boom; Combination Hoe and Loader; Directional Driller; Pile Testing Machine.	37.51	24.30 + a
Group 6: Front End Loader (3 up to 7 cubic yards); Bulldozer (rough grade dozer).	37.20	24.30 + a
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
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

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

Group 15: Generator Operator; Compressor Operator; Pump Operator; Welding Machine Operator; Heater Operator.	31.80	24.30 + a
Group 16: Maintenance Engineer/Oiler.	31.15	24.30 + a
Group 17: Portable asphalt plant operator; portable crusher plant operator; portable concrete plant operator.	35.46	24.30 + a
Group 18: Power safety boat; vacuum truck; zim mixer; sweeper; (Minimum for any job requiring a CDL license).	33.04	24.30 + a
------PAINTERS (Including Drywall Finishing)------		
10a) Brush and Roller	33.62	21.05

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10b) Taping Only/Drywall Finishing	34.37	21.05
10c) Paperhanger and Red Label	34.12	21.05
10e) Blast and Spray	36.62	21.05
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
12) Well Digger, Pile Testing Machine	37.26	24.05 + a
13) Roofer (composition)	36.70	19.85

14) Roofer (slate & tile)	37.20	19.85
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
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
------TRUCK DRIVERS------		
17a) 2 Axle	29.13	23.33 + a
17b) 3 Axle, 2 Axle Ready Mix	29.23	23.33 + a

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

19) Theatrical Stage Journeyman	25.76	7.34

Project: Noble Hall Roof Replacement And Masonry Restoration At Eastern Connecticut State University

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 journeyperson 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. 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.

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Project: Noble Hall Roof Replacement And Masonry Restoration At Eastern Connecticut State University

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.

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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 4th, 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.

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.

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;

(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 ULTMATELY ARISE CONCERNIG THE CONSTRUCTION OF THE STATUTE OR THE REGULATIONS.

STATE OF CONNECTICUT

CERTIFICATE OF INSURANCE

This is to certify that the Company listed below has issued the policies listed below, that these policies are written in accordance with the Company's standard policies and endorsements, except as indicated below or as noted in the attachments hereto, which policies and endorsements will be made available to the Owner upon request, that they provide coverage and limits of liability shown with respect to the insurance indicated, that they are in force on this date, that all deductible amounts are indicated below, and that this Certificate is furnished in accordance with and for the purpose of satisfying the requirements of the State of Connecticut, and the Agency in connection with the award and performance of a contract or agreement with the State of Connecticut, and the Agency.

1. Name of insured _____

2. Address of insured _____

3. Location and Description of Work _____

   _____

   Project No. _____

Kind and Type of Insurance		Policy No.	Effective Date	Expiration Date	IN DOLLARS Coverage and limits of Liability		
					Bodily Injury Liability	Property Damage Liability	
					Single Limit	Each Accident	Aggregate
A)	Protective Liability for and in the name of the State of CT				1,000,000	100,000	500,000
B)	Contractor's Liability				1,000,000	100,000	500,000
C)	Contractor Protective Liability				1,000,000	100,000	500,000
D)	Contractual Liability See (1) & (2) Reverse Side				1,000,000	100,000	500,000
E)	Worker's Compensation (if self-insured Compensation Comm's Certificate Required.)				STATUTORY		
F)	Special Hazards Insurance Type C – Collapse Structural Injury Type X – Explosion or Blast				1,000,000	100,000	500,000
G)	Type U – Undergraduate Damage				1,000,000	100,000	500,000
H)	Auto Liability – Owned Automobiles Hired Automobiles Non-owned Automobiles				Each Person / Each Acci-dent		
I)	Builders Risk insurance (Fire Extended Coverage)				AS CALLED FOR ON PROJECT DATA SHEET		
J)	Umbrella Policy (as needed)						

1. Unless requested otherwise by the State, it is agreed that the above named insurance company waives governmental immunity as a defense and will not use the defense of governmental immunity in the adjustment of claims or in the defense of any suit brought against the State, and it is further agreed that the company will bill all premiums and audit charges earned under the protective liability policy to the above named contractor.

2. The contractor shall at all times indemnify and save harmless the State of Connecticut, the Agency, 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 Agency, or of the contractor, his subcontractors, or material men, 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 Agency) caused in whole or in part by the acts, omissions, or neglect of 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, material man, 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 ordered to start work or the actual start whichever occurs first until the completion as certified by the Owner.

Such insurance as is herein certified applies to all operations of the insured in connection with the work herein described at the locations stated.

In the event of any restrictive amendment to, any change in or cancellation of any one or more of said policies the

_____

Insurance Company

will give not less than thirty days written notice to the party to whom the certificate is issued of such amendment, change or cancellation.

(Original and two copies to be submitted to the awarding Agency in the State of Connecticut. Copy to be furnished named insurance.)

Dated this _____ day of _____ 2019

Insurance Company _____

Address _____

Authorized Agency _____

Authorized Agent _____

AGREEMENT

BETWEEN
Eastern Connecticut State University
and
Contractor by Name

This Agreement ("Contract") is entered into by and between [**Eastern Connecticut State University**], a constituent unit of the State of Connecticut System of Higher Education, with an address of 83 Windham Street**,** Willimantic, CT 06226 (hereinafter the "Institution"), and [*Name of Company*] (hereinafter the "Contractor") with a principal place of business at _____ to provide [*name the service*].

I. GENERAL

Contractor shall provide *[describe the service to be provided]*

II. TERM OF THE AGREEMENT

This Contract shall become effective only as of the date of signature by the Agency's authorized officials and, the date of approval by the Office of the Attorney General (OAG), if applicable, and shall continue in effect until [insert end date] unless terminated earlier in accordance with the terms of Section 7 below. Work shall commence on [insert start date].

III. COST [*insert RFP/Bid costing details*]

1. **MAXIMUM AMOUNT OF CONTRACT $ [*insert not to exceed amount*]**

2. **Notices:** All notices, demands or requests provided for or permitted to be given pursuant to this Contract must be in writing. All notices, demands and requests shall be deemed to have been properly served if given by personal delivery, or if transmitted by facsimile with confirmed receipt, or if delivered to Federal Express or other reputable express carrier for next business day delivery, charges billed to or prepaid by shipper; or if deposited in the United States mail, registered or certified with return receipt requested, proper postage prepaid, addressed as follows:

MUST BE COMPLETED

If to the Institution*: Eastern Connecticut State University
83 Windham Street
Willimantic, CT 06226
Attn: Renee Theroux-Keech

If to the Contractor*: **[Contractor Name]**
[Contractor Street]

***Any party may change its Notice information in writing in accordance with this Section.**

IV. GENERAL STATE CONTRACT PROVISIONS:

1. **Statutory Authority.** Connecticut General Statutes §§ 10a-6, 10a-1b, 4a-52a, and/or 10a-151b provide the Institution with authority to enter into contracts in the pursuit of its mission.

2. **Claims Against the State.** The Contractor agrees that the sole and exclusive means for the presentation of any claim against the State of Connecticut or the Institution arising from this Contract shall be in accordance with Chapter 53 of the Connecticut General Statutes (Claims Against the State) and the Contractor further agrees not to initiate any legal proceedings in any state or federal court in addition to, or in lieu of, said Chapter 53 proceedings.

3. **Indemnification**. The Contractor agrees to indemnify, defend and hold harmless the State of Connecticut as well as all Departments, officers, agents, and employees of the State from and against any and all claims, losses or suits according to or resulting from any Contractors, Subcontractors, laborers, or any person, firm or corporation who may be directly or indirectly injured or damaged by the negligence or willful misconduct of the Contractor in the performance of the contract.

4. **Sovereign Immunity**. The parties acknowledge and agree that nothing in this contract shall be construed as a modification, compromise or waiver by the State of any rights or defenses of any immunities provided by Federal law or the laws of the State of Connecticut to the State or any of its officers and employees, which they may have had, now have or will have with respect to all matters arising out of this contract. To the extent that this section conflicts with any other section, this section shall govern.

5. **Insurance**. The Contractor agrees that while performing services specified in this contract that it shall carry sufficient insurance (liability and/or other) as applicable according to the nature of the service(s) to be performed so as to "save harmless" the State of Connecticut from any insurable cause whatsoever. If requested, certificates of such insurance shall be provided to the contracting state agency prior to the performance of services.

6. **Forum and Choice of Law.** The parties 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 Contractor 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.

7. **Termination.**

a. Notwithstanding any provisions in this contract, the Institution, through a duly authorized employee, may terminate the Contract whenever the Institution makes a written determination that such termination is in the best interests of the State. The Institution shall notify the Contractor in writing of termination pursuant to this section, which notice shall specify the effective date of termination and the extent to which the Contractor must complete its performance under the contract prior to such date.

b. Notwithstanding any provisions in this contract, the Institution, through a duly authorized employee, may, after making a written determination that the Contractor has breached the contract, terminate the contract in accordance with the following breach provision.

    i. Breach. If either party breaches the contract in any respect, the non-breaching party shall provide written notice of the breach to the breaching party and afford the breaching party an opportunity to cure within ten (10) days from the date that the breaching party receives the notice. In the case of a Contractor breach, any other time period which the Institution sets forth in the notice shall trump the ten (10) days. The right to cure period shall be extended if the non-breaching party is satisfied that the breaching party is making a good faith effort to cure but the nature of the breach is such that it cannot be cured within the right to cure period. The notice may include an effective contract termination date if the breach is not cured by the stated date and, unless otherwise modified by the non-breaching party in writing prior to the termination date, no further action shall be required of any party to effect the termination as of the stated date. If the notice does not set forth an effective contract termination date, then the non-breaching party may terminate the contract by giving the breaching party no less than twenty four (24) hours' prior written notice. If the Institution believes that the Contractor has not performed according to the contract, the Institution may withhold payment in whole or in part pending resolution of the performance issue, provided that the Institution notifies the Contractor in writing prior to the date that the payment would have been due.

c. The Institution shall send the notice of termination via certified mail, return receipt requested, to the Contractor at the most current address which the Contractor has furnished to the Institution for purposes of correspondence, or by hand delivery. Upon receiving the notice from the Institution, the Contractor shall immediately discontinue all services affected in accordance with the notice, undertake all Institution all records. The records are deemed to be the property of the Institution and the Contractor shall deliver them to the Institution no later than thirty (30) days after the termination of the contract or fifteen (15) days after the Contractor receives a written request from the Institution for the records. The Contractor shall deliver those records that exist in electronic, magnetic or other intangible form in a non-proprietary format, such as, but not limited to, ASCII or .TXT.

d. Upon receipt of a written notice of termination from the Institution, the Contractor shall cease operations as the Institution directs in the notice, and take all actions

that are necessary or appropriate, or that the Institution may reasonably direct, for the protection, and preservation of the goods and any other property. Except for any work which the Institution directs the Contractor to perform in the notice prior to the effective date of termination, and except as otherwise provided in the notice, the Contractor shall terminate or conclude all existing subcontracts and purchase orders and shall not enter into any further subcontracts, purchase orders or commitments.

e. The Institution shall, within forty-five (45) days of the effective date of termination; reimburse the Contractor for its performance rendered and accepted by the Institution in accordance with the terms of this contract, in addition to all actual and reasonable costs incurred after termination in completing those portions of the performance which the notice required the Contractor to complete. However, the Contractor is not entitled to receive and the Institution is not obligated to tender to the Contractor any payments for anticipated or lost profits. Upon request by the Institution, the Contractor shall assign to the Institution, or any replacement Contractor which the Institution designates, all subcontracts, purchase orders and other commitments, deliver to the Institution all records and other information pertaining to its performance, and remove from State premises, whether leased or owned, all of Contractor's property, equipment, waste material and rubbish related to its performance, all as the Institution may request.

f. For breach or violation of any of the provisions in the section concerning representations and warranties, the Institution may terminate the contract in accordance with its terms and revoke any consents to assignments given as if the assignments had never been requested or consented to, without liability to the Contractor or Contractor parties or any third party.

g. Upon termination of the contract, all rights and obligations shall be null and void, so that no party shall have any further rights or obligations to any other party, except with respect to the sections which survive termination. All representations, warranties, agreements and rights of the parties under the contract shall survive such termination to the extent not otherwise limited in the contract and without each one of them having to be specifically mentioned in the contract.

h. Termination of the contract pursuant to this section shall not be deemed to be a breach of contract by the Institution.

8. **Entire Agreement and Amendment.** This written contract shall constitute the entire agreement between the parties and no other terms and conditions in any document, acceptance or acknowledgment shall be effective or binding unless expressly agreed to in writing by the Institution. This contract may not be changed other than by a formal written contract amendment signed by the parties hereto and approved by the Connecticut Attorney General.

9. **Nondiscrimination.**

(a) For purposes of this Section, the following terms are defined as follows: (i) "Commission" means the Commission on Human Rights and Opportunities; (ii) "Contract" and "contract" include any extension or modification of the Contract or contract; (iii) "Contractor" and "contractor" include any successors or assigns of the

Contractor or contractor; (iv) "Gender identity or expression" means a person's gender-related identity, appearance or behavior, whether or not that gender-related identity, appearance or behavior is different from that traditionally associated with the person's physiology or assigned sex at birth, which gender-related identity can be shown by providing evidence including, but not limited to, medical history, care or treatment of the gender-related identity, consistent and uniform assertion of the gender-related identity or any other evidence that the gender-related identity is sincerely held, part of a person's core identity or not being asserted for an improper purpose; (v) "good faith" means that degree of diligence which a reasonable person would exercise in the performance of legal duties and obligations; (vi) "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; (vii) "marital status" means being single, married as recognized by the State of Connecticut, widowed, separated or divorced; (viii) "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; (ix) "minority business enterprise" means any small contractor or supplier of materials fifty-one percent 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 Connecticut General Statutes § 32-9n; and (x) "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.

For purposes of this Section, the terms "Contract" and "contract" do 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 Conn. Gen. Stat. § 1-120, (3) any other state, including but not limited to any federally recognized Indian tribal governments, as defined in Conn. Gen. Stat. § 1-267, (4) the federal government, (5) a foreign government, or (6) an agency of a subdivision, agency, state or government described in the immediately preceding enumerated items (1), (2), (3), (4) or (5).

(b) (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 the 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 the Contractor has a collective bargaining Agreement or other contract or understanding and each vendor with which the 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 Conn. Gen. Stat. §§ 46a-68e and 46a-68f and with each regulation or relevant order issued by said Commission pursuant to Conn. Gen. Stat. §§ 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 it relates to the provisions of this Section and Conn. Gen. Stat. § 46a-56. 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 projects.

(c) 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.

(d) The Contractor shall develop and maintain adequate documentation, in a manner prescribed by the Commission, of its good faith efforts.

(e) The Contractor shall include the provisions of subsection (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 Conn. Gen. Stat. § 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.

(f) The Contractor agrees to comply with the regulations referred to in this Section as they exist on the date of this Contract and as they may be adopted or amended from time to time during the term of this Contract and any amendments thereto.

(g) (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 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 Conn. Gen. Stat. § 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 Conn. Gen. Stat. § 46a-56.

(h) The Contractor shall include the provisions of the foregoing paragraph 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 Conn. Gen. Stat. § 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.

10. **Executive Orders.** This Contract is subject to the provisions of Executive Order No. Three of Governor Thomas J. Meskill, promulgated June 16, 1971, concerning labor employment practices, Executive Order No. Seventeen of Governor Thomas J. Meskill, promulgated February 15, 1973, concerning the listing of employment openings and Executive Order No. Sixteen of Governor John G. Rowland promulgated August 4, 1999, concerning violence in the workplace, all 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 may also be subject to Executive Order No. 14 of Governor M. Jodi Rell, promulgated April 17, 2006, concerning procurement of cleaning products and services and to Executive Order No. 49 of Governor Dannel P. Malloy, promulgated May 22, 2015, mandating disclosure of certain gifts to public employees and contributions to certain candidates for office. If Executive Order 14 and/or Executive Order 49 are applicable, they are deemed to be incorporated into and are made a part of the Contract as if they had been fully set forth in it. At the Contractor's request, the Institution or DAS shall provide a copy of these orders to the Contractor.

11. **Force Majeure.** If the performance of obligations under this Contract are rendered impossible or hazardous or is otherwise prevented or impaired due to illness, accident, Act(s) of God, riots, strikes, labor difficulties, epidemics, earthquakes, and/or any other cause or event, similar or dissimilar, beyond the control of the Contractor, then each party's obligations to the other under this Contract shall be excused and neither party shall have any liability to the other under or in connection with this Contract.

12. **Campaign Contribution Restrictions.** For all state contracts as defined in Connecticut General Statutes § 9-612(g)(2), as amended by Public Act 10-1 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 Election Enforcement Commission's notice advising state contractors of state campaign contribution and solicitation prohibitions, and will inform its principals of the contents of the Notice, referenced herein as Exhibit A.

13. **Contract Assignment**. No right or duty, in whole or in part, of the Contractor under this Agreement may be assigned or delegated without the prior written consent of the institution.

14. **Confidential Information**. The Contractor acknowledges that it may have access to Confidential Information (as hereinafter defined). The Contractor agrees that it will use the Confidential Information solely for the purpose of performing its duties as a consultant and agrees that it will not divulge, furnish, publish or use for its own benefit or for the direct or indirect benefit of any other person or entity, whether or not for monetary gain, any Confidential Information.

    For purposes of this Agreement, the term "Confidential Information" shall mean (i) all information related to the business operations, marketing plans, financial position and (ii) other business information and any other information disclosed to the Contractor. Confidential Information shall not include information which (i) is or becomes part of the public domain through no act or omission attributable to the Contractor, (ii) is released after prior written authorization or (iii) the Contractor receives from any third party who is unrelated to it and who is not under any obligation to maintain the confidentiality of such information.

15. **Family Educational Rights and Privacy Act (FERPA)**. In all respects, Contractor shall comply with the provisions of the Family Educational Rights and Privacy Act (FERPA). For purposes of this contract, FERPA includes any amendments or other relevant provisions of federal law, as well as all requirements of Chapter 99 of Title 34 of the Code of Federal Regulations, as amended from time to time. Nothing in this agreement may be construed to allow Contractor to maintain, use, disclose or share student information in a manner not allowed by federal law or regulation or by this contract. Contractor agrees that it shall not provide any student information obtained under this contract to any party ineligible to receive data protected by FERPA. This section shall survive the termination, cancellation or expiration of the contract.

16. **Summary of State Ethics Laws**. Pursuant to the requirements of section 1-101qq of the Connecticut General Statutes, the summary of State ethic laws developed by the State Ethics Commission pursuant to section 1-81b of the Connecticut General Statutes is incorporated by reference into and made a part of the contract as if the summary had been fully set forth in the contract.

17. **Whistleblower**. This contract may be subject to the provisions of Section 4-61dd of the Connecticut General Statutes. In accordance with this statute, if an officer, employee or appointing authority of the Contractor takes or threatens to take any personnel action against any employee of the Contractor in retaliation for such employee's disclosure of

information to any employee of the contracting state or quasi-public agency or the Auditors of Public Accounts or the Attorney General under the provisions of subsection (a) of such statute, 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 percent (20%) of the value of this 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 State may request that the Attorney General bring a civil action in the Superior Court for the Judicial District of Hartford to seek imposition and recovery of such civil penalty. In accordance with subsection (f) of such statute, each large state contractor, as defined in the statute, shall post a notice of the provisions of the statute relating to large state contractors in a conspicuous place which is readily available for viewing by the employees of the contractor.

18. **Disclosure of Records**. This Contract may be subject to the provisions of section 1-218 of the Connecticut General Statutes. In accordance with this statute, each contract in excess of two million five hundred thousand dollars 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 sections 1-205 and 1-206 of the Connecticut General Statutes.

19. **Audit Requirements for State Grants**. For purposes of this clause, the word "Contractor" shall be read to mean "nonstate entity," as that term is defined in Conn. Gen. Stat. § 4-230. The Contractor shall provide for an annual financial audit acceptable to the Institution for any expenditure of State-awarded funds made by the Contractor. Such audit shall include management letters and audit recommendations. The State Auditors of Public Accounts shall have access to all records and accounts for the fiscal year(s) in which the award was made. The Contractor will comply with federal and State single audit standards as applicable.

20. **Audit Requirements for Federal Grants**. For U.S. based, non-profit Contractors expending $500,000 or more of federal awards in one year: The Contractor agrees to comply with the requirements of Office of Management and Budget (OMB) Circular A-133. Contractor further agrees to provide the Institution with copies of all independent auditors' reports which cover the period of performance of this contract. Contractor will provide a copy of its response to auditors' reports and, in instances of non-compliance, a plan for corrective action. All records and reports prepared in accordance with the requirements of OMB Circular A-133 shall be made available for review or audit by appropriate officials of the Federal agency, Institution, or the General Accounting Office (GAO) during normal business hours.

    For U.S. based, non-profit Contractors expending less than $500,000 of Federal awards in one year: Contractor agrees that all records pertaining to this agreement will be made available for review or audit by appropriate officials of the Federal agency, Institution, or the GAO during normal business hours.

21. **Professional Standards**. In rendering services under this contract, the Contractor shall conform to high professional standards of work and business ethic. The Contractor warrants that the services shall be performed: 1) in a professional and workmanlike manner; and 2) in accordance with generally and currently accepted principles and practices. During the term of this contract, the Contractor agrees to provide to Institution in a good and faithful manner, using its best efforts and in a manner that shall promote the interests of Institution, such services as Institution requests, provided in the contract.

22. **Contractor's Standards of Conduct**.

(a) In order to insure the orderly and efficient performance of duties and services at the Institution and to protect the health, safety and welfare of all members of Institution's community the Contractor agrees that the following items are strictly prohibited while performing services under this Agreement:

i. Use or possession of drugs or alcohol;

ii. Possession of firearms or illegal weapons anywhere on campus property including vehicles;

iii. Smoking in buildings;

iv. Harassment (sexual, racial or otherwise) or intimidation of anyone on the premises of the campus;

v. Violation of applicable traffic or public safety regulations or of Institution rules and procedures;

vi. Unauthorized use of Institution vehicles, equipment or property;

vii. Use of University telephones for personal business;

viii. Removal or theft of University property;

ix. Unauthorized duplication or possession of University keys;

x. Transfer of personal identification card or of parking pass to unauthorized personnel;

xi. Conduct or behavior that endangers the health, safety and welfare of any member of the public or of the University community;

xii. Interference with the work of other employees;

xiii. Work attire other than the specified uniform; and

xiv. Loud, vulgar behavior or the use of profanity.

(b) Violation of Standards: Contractor will require its employees to comply with the standards listed in Professional Standards and 22 (a) above. The Institution may, at its discretion, recommend discharge of any employee of the Contractor found to be in violation of the standards listed in 1.1(i) or 1.2(a) above, or in violation of any law or standards adopted by the Institution from time to time, as required, to protect the health, safety and welfare of the Institution's community. Upon request of the

Institution, Contractor shall remove any of its employees that violate said standards from assignments to be performed under this Agreement.

V. ACCEPTANCE OF AGREEMENT

IN WITNESS WHEREOF, the parties have executed this Contract by their duly authorized representatives with full knowledge of and agreement with its terms and conditions.

Eastern Connecticut State University	**[Enter Contractor Business Name]**
By: _____	By: _____
Print Name: _____	Print Name: _____
Title: _____	Title: _____
Date: _____	Date: _____

By the Connecticut Attorney General

This contract template, having been reviewed and approved as to form by the Connecticut Attorney General, is exempt from review pursuant to a Memorandum of Agreement between the Connecticut State Colleges and Universities, Board of Regents for Higher Education and the Connecticut Attorney General dated December 30, 2015. Therefore, no signature is required below.

CONNECTICUT STATE ELECTIONS ENFORCEMENT COMMISSION

EXHIBIT A - SEEC NOTICE

Rev. 1/11

NOTICE TO EXECUTIVE BRANCH STATE CONTRACTORS AND PROSPECTIVE STATE CONTRACTORS OF CAMPAIGN CONTRIBUTION AND SOLICITATION LIMITATIONS

This notice is provided under the authority of Connecticut General Statutes §9-612(g)(2), as amended by P.A. 10-1, and is for the purpose of informing state contractors and prospective state contractors of the following law (italicized words are defined below):

CAMPAIGN CONTRIBUTION AND SOLICITATION LIMITATIONS

No *state contractor, prospective state contractor, principal of a state contractor or principal of a prospective state contractor,* with regard to a *state contract* or *state contract solicitation* with or from a state agency in the executive branch or a quasi-public agency or a holder, or principal of a holder of a valid prequalification certificate, shall make a contribution to (i) an exploratory committee or candidate committee established by a candidate for nomination or election to the office of Governor, Lieutenant Governor, Attorney General, State Comptroller, Secretary of the State or State Treasurer, (ii) a political committee authorized to make contributions or expenditures to or for the benefit of such candidates, or (iii) a party committee (which includes town committees).

In addition, no holder or principal of a holder of a valid prequalification certificate, shall make a contribution to (i) an exploratory committee or candidate committee established by a candidate for nomination or election to the office of State senator or State representative, (ii) a political committee authorized to make contributions or expenditures to or for the benefit of such candidates, or (iii) a party committee.

On and after January 1, 2011, no state contractor, prospective state contractor, principal of a state contractor or principal of a prospective state contractor, with regard to a state contract or state contract solicitation with or from a state agency in the executive branch or a quasi-public agency or a holder, or principal of a holder of a valid prequalification certificate, shall **knowingly** *solicit* contributions from the state contractor's or prospective state contractor's employees or from a *subcontractor* or *principals of the subcontractor* on behalf of (i) an exploratory committee or candidate committee established by a candidate for nomination or election to the office of Governor, Lieutenant Governor, Attorney General, State Comptroller, Secretary of the State or State Treasurer, (ii) a political committee authorized to make contributions or expenditures to or for the benefit of such candidates, or (iii) a party committee.

DUTY TO INFORM

State contractors and prospective state contractors are required to inform their principals of the above prohibitions, as applicable, and the possible penalties and other consequences of any violation thereof.

PENALTIES FOR VIOLATIONS

Contributions or solicitations of contributions made in violation of the above prohibitions may result in the following civil and criminal penalties:

Civil penalties - Up to $2,000 or twice the amount of the prohibited contribution, whichever is greater, against a principal or a contractor. Any state contractor or prospective state contractor which fails to make reasonable efforts to comply with the provisions requiring notice to its principals of these prohibitions and the possible consequences of their violations may also be subject to civil penalties of up to $2,000 or twice the amount of the prohibited contributions made by their principals.

Criminal penalties - Any knowing and willful violation of the prohibition is a Class D felony, which may subject the violator to imprisonment of not more than 5 years, or not more than $5,000 in fines, or both.

CONTRACT CONSEQUENCES

In the case of a state contractor, contributions made or solicited in violation of the above prohibitions may result in the contract being voided.

In the case of a prospective state contractor, contributions made or solicited in violation of the above prohibitions shall result in the contract described in the state contract solicitation not being awarded to the prospective state contractor, unless the State Elections Enforcement Commission determines that mitigating circumstances exist concerning such violation.

The State shall not award any other state contract to anyone found in violation of the above prohibitions for a period of one year after the election for which such contribution is made or solicited, unless the State Elections Enforcement Commission determines that mitigating circumstances exist concerning such violation.

Additional information may be found on the website of the State Elections Enforcement Commission, www.ct.gov/seec. Click on the link to “Lobbyist/Contractor Limitations.”

DEFINITIONS

“State contractor” means a person, business entity or nonprofit organization that enters into a state contract.

Such person, business entity or nonprofit organization shall be deemed to be a state contractor until December thirty-first of the year in which such contract terminates. “State contractor” does not include a municipality or any other political subdivision of the state, including any entities or associations duly created by the municipality or political subdivision exclusively amongst themselves to further any purpose authorized by statute or charter, or an employee in the executive or legislative branch of state government or a quasi-public agency, whether in the classified or unclassified service and full or part-time, and only in such person's capacity as a state or quasi-public agency employee.

“Prospective state contractor” means a person, business entity or nonprofit organization that (i) submits a response to a state contract solicitation by the state, a state agency or a quasi-public agency, or a proposal in response to a request for proposals by the state, a state agency or a quasi-public agency, until the contract has been entered into, or (ii) holds a valid prequalification certificate issued by the Commissioner of Administrative Services under section 4a-100. “Prospective state contractor” does not include a municipality or any other political subdivision of the state, including any entities or associations duly created by the municipality or political subdivision exclusively amongst themselves to further any purpose authorized by statute or charter, or an employee in the executive or legislative branch of state government or a quasi-public agency, whether in the classified or unclassified service and full or part-time, and only in such person's capacity as a state or quasi-public agency employee.

“Principal of a state contractor or prospective state contractor” means (i) any individual who is a member of the board of directors of, or has an ownership interest of five per cent or more in, a state contractor or prospective state contractor, which is a business entity, except for an individual who is a member of the board of directors of a nonprofit organization**,** (ii) an individual who is employed by a state contractor or prospective state contractor, which is a business entity, as president, treasurer or executive vice president, (iii) an individual who is the chief executive officer of a state contractor or prospective state contractor, which is not a business entity, or if a state contractor or prospective state contractor has no such officer, then the officer who duly possesses comparable powers and duties, (iv) an officer or an employee of any state contractor or prospective state contractor who has *managerial or discretionary responsibilities with respect to a state contract,* (v) the spouse or a *dependent child* who is eighteen years of age or older of an individual described in this subparagraph, or (vi) a political committee established or controlled by an individual described in this subparagraph or the business entity or nonprofit organization that is the state contractor or prospective state contractor.

“State contract” means an agreement or contract with the state or any state agency or any quasi-public agency, let through a procurement process or otherwise, having a value of fifty thousand dollars or more, or a combination or series of such agreements or contracts having a value of one hundred thousand dollars or more in a calendar year, for (i) the rendition of services, (ii) the furnishing of any goods, material, supplies, equipment or any items of any kind, (iii) the construction, alteration or repair of any public building or public work, (iv) the acquisition, sale or lease of any land or building, (v) a licensing arrangement, or (vi) a grant, loan or loan guarantee. “State contract” does not include any agreement or contract with the state, any state agency or any quasi-public agency that is exclusively federally funded, an education loan, a loan to an individual for other than commercial purposes or any agreement or contract between the state or any state agency and the United States Department of the Navy or the United States Department of Defense.

“State contract solicitation” means a request by a state agency or quasi-public agency, in whatever form issued, including, but not limited to, an invitation to bid, request for proposals, request for information or request for quotes, inviting bids, quotes or other types of submittals, through a competitive procurement process or another process authorized by law waiving competitive procurement.

“Managerial or discretionary responsibilities with respect to a state contract” means having direct, extensive and substantive responsibilities with respect to the negotiation of the state contract and not peripheral, clerical or ministerial responsibilities.

“Dependent child” means a child residing in an individual’s household who may legally be claimed as a dependent on the federal income tax of such individual.

“Solicit” means (A) requesting that a contribution be made, (B) participating in any fund-raising activities for a candidate committee, exploratory committee, political committee or party committee, including, but not limited to, forwarding tickets to potential contributors, receiving contributions for transmission to any such committee or bundling contributions, (C) serving as chairperson, treasurer or deputy treasurer of any such committee, or (D) establishing a political committee for the sole purpose of soliciting or receiving contributions for any committee. Solicit does not include: (i) making a contribution that is otherwise permitted by Chapter 155 of the Connecticut General Statutes; (ii) informing any person of a position taken by a candidate for public office or a public official, (iii) notifying the person of any activities of, or contact information for, any candidate for public office; or (iv) serving as a member in any party committee or as an officer of such committee that is not otherwise prohibited in this section.

“Subcontractor” means any person, business entity or nonprofit organization that contracts to perform part or all of the obligations of a state contractor's state contract. Such person, business entity or nonprofit organization shall be deemed to be a subcontractor until December thirty first of the year in which the subcontract terminates. “Subcontractor” does not include (i) a municipality or any other political subdivision of the state, including any entities or associations duly created by the municipality or political subdivision exclusively amongst themselves to further any purpose authorized by statute or charter, or (ii) an employee in the executive or legislative branch of state government or a quasi-public agency, whether in the classified or unclassified service and full or part-time, and only in such person's capacity as a state or quasi-public agency employee.

“Principal of a subcontractor” means (i) any individual who is a member of the board of directors of, or has an ownership interest of five per cent or more in, a subcontractor, which is a business entity, except for an individual who is a member of the board of directors of a nonprofit organization, (ii) an individual who is employed by a subcontractor, which is a business entity, as president, treasurer or executive vice president, (iii) an individual who is the chief executive officer of a subcontractor, which is not a business entity, or if a subcontractor has no such officer, then the officer who duly possesses comparable powers and duties, (iv) an officer or an employee of any subcontractor who has managerial or discretionary responsibilities with respect to a subcontract with a state contractor, (v) the spouse or a dependent child who is eighteen years of

age or older of an individual described in this subparagraph, or (vi) a political committee established or controlled by an individual described in this subparagraph or the business entity or nonprofit organization that is the subcontractor.

COMMISSION ON HUMAN RIGHTS AND OPPORTUNITIES
CONTRACT COMPLIANCE REGULATIONS

IMPORTANT

All bidders are required to file an acknowledgement of receipt of the "NOTIFICATION TO BIDDERS" form with their proposal.

Before a contract award can be made for this project, the successful low bidder will be required to file the following forms, developed by The Commission on Rights and Opportunities pursuant to Connecticut General Statutes Section 4-114a.

1) Contractors Minority Business Enterprises Utilization Form

2) Affidavit (when applicable)

3) CHRO Certificate of Compliance - Pursuant to section 46a-68c of the Connecticut General Statutes, each contractor with fifty or more employees awarded a public works contract in excess of fifty thousand dollars in any fiscal year, but not subject to the provisions of section 46a-68d, shall develop and file with the commission an affirmative action plan which shall comply with regulations adopted by said commission. Failure to develop an approved an approved affirmative action plan pursuant to this section shall act as a bar to bidding on or the award of future contracts until such requirement has been met. When the commission approves an affirmative action plan pursuant to this section, it shall issue a certificate of compliance to the contractor. This certificate shall be prima facie proof of the contractor's eligibility to bid or be awarded contracts for a period of two years from the date of the certificate.

01000 WORK COVERED BY CONTRACT DOCUMENTS

A. Project Number **BI-RW-337 / ESUC 2017-4_** is entitled **Noble Hall Roof Replacement & Masonry Restoration.** It is to be located in **Willimantic**, Connecticut. It is to be completed and ready for use by the Owner and Agency within the Contract Time specified in Section 00020 Bid Proposal Form.

B. The Project Description:

1. Replacement of approximately 23,500 gross square feet of low slope roofing, including membrane flashing and sheet metal.
2. The existing roof system shall be removed to the existing wood deck or metal deck and replaced with a new fully-adhered EPDM sheet membrane.
3. Restoration of exterior masonry walls including concrete repairs, masonry cleaning, brick replacement, 100% repointing and joint sealant replacement.
4. This Project **does not** exceed the Threshold Limits as defined by the Connecticut General Statutes.

01001 OWNER AND AGENCY

A. Owner: The Owner is the Eastern Connecticut State University.

1. The authorized representative for the Owner is **Renee Theroux-Keech, Director of Facilities Management & Planning**. Facilities Management & Planning office is located at Eastern Connecticut State University, Facilities Building, 83 Windham Street, Willimantic, Connecticut 06226. Phone: **860-465-**4596 Fax: **860-465-5318**; E-mail: **keechr@easternct.edu**.

01002 ARCHITECT AND ENGINEER:

A. The designer of record is **Wiss, Janney, Elstner Associates, Inc.**, and is located at **2 Trap Falls Road, Suite 502 in Shelton, CT.** The Engineer representing the agency for this project is **Paul C. Lanteri**. Phone: **203-944-9424**; Fax: **203-944-6997**; E-mail: **planteri@wje.com**.

1. The Architect and Engineer 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.
   b. As the authorized representative of the Owner, the Architect and Engineer is responsible for review of shop drawings, materials, and equipment intended for the work, in accordance with the "General Conditions", and the "Supplementary Conditions".
3. Wherever the Architect or Engineer is mentioned in the documents in connection with an administrative function, it shall include the Construction Administrator in that function except for shop drawings.

01003 CONSTRUCTION ADMINISTRATOR:

A. The Construction Administrator is **James Fielding**, and is located at **Eastern Connecticut State University, Facilities Building, 83 Windham Street,, Willimantic Connecticut, 06226**,

Phone: **869-465-0239**; Fax: **860-465-5318**; E-mail: **fieldingj@easternct.edu**.

1. The Construction Administrator is referred to in the Contract Documents as "Construction Administrator" or "Construction Manager" or by pronouns which imply it. All communications concerning the project will be directed through the Construction Administrator or a designated representative(s).
2. As information to the Contractor, the Construction Administrator's status is defined as follows:
   a. The Construction Administrator is the Owner's Agent who will, among other thing's, monitor the General Contractor's performance, scheduling and construction, process shop drawings, material, and equipment submittals, review and process periodic billings, review and recommend cost changes.
   b. 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 to the Contractor. All such requests and replies shall be in writing.

01010 SUMMARY OF WORK

A. Summary of Work includes but is not limited to the following:

Base Bid:

1. Cleaning of all exterior masonry.
2. Replacement of deteriorated face brick.
3. Repointing 100% of exterior mortar joints.
4. Cleaning and painting steel angle lintels at window openings and installing membrane and sheet metal flashing at the lintels.
5. Replace exterior finish carpentry at south entrance to 1912 Building.
6. Removal of existing, fully adhered EPDM roofing and insulation and replacement with new, fully adhered EPDM roofing and insulation.
7. Replace joint sealant at existing windows and masonry joints.
8. Paint new and existing exterior finish carpentry at south entrance to 1912 Building.
9. Paint roof hatches and steel ladder at roof

Supplemental Bid No. 1:

1. All masonry and sealant work at the west elevation of the 1928 Building.

Supplemental Bid No. 2:

1. All masonry and sealant work at the west elevation of the 1912 Building.

Supplemental Bid No. 3:

1. Concrete repairs at entrance stair and ramp to the 1928 Building.
2. Apply traffic coating onto concrete at entrance stair and ramp to the 1928 Building.
3. Replace existing elastomeric coating with new elastomeric coating at exposed sections of concrete foundation and retaining walls.
4. Paint existing galvanized steel hand rails and canopy supports at the buildings.
5. Cleaning portico skylights

B. The Contractor will include in his bid, all items required in order to carry out the intent of the work as described, shown and implied in the Contract Documents.

C. 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.

E. Work Sequence - Phase(s):

1. The entire Project shall be constructed in **1** Phase(s). Work of these Phase(s) shall be substantially complete, ready for occupancy within **150** Calendar Days of commencement of the Work.
   a. All masonry work must be complete by August 16, 2019
   b. All roofing work must be complete by October 25, 2019

01011 EXAMINATION OF SITE

A. It is not the intent of the Documents to show all existing conditions. All contractors are advised to visit and examine the site with the Construction Administrator prior to submitting bids.

B. Contractors should investigate and satisfy themselves as to the conditions affecting the work, including but no 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.

D. Mandatory Pre-Bid Conference:

1. A Mandatory Pre-Bid Conference and tour of the site will be conducted as scheduled in the Notice to Bidders. This scheduled conference is the only official opportunity for the bidders to tour the site with the Owner, Architect, Engineer, Construction Administrator, and Agency.

01012 PROJECT DOCUMENTS

A. The Specifications and Drawings are intended to describe and illustrate the materials and labor necessary for the work of this Project.

B. Throughout the Technical Specifications, the Connecticut Department of Transportation Standard Specifications for Roads, Bridges, and Incidental Construction Form 816, current addition 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 814A are available from the Connecticut Department of Transportation at a nominal charge.

01013 DOCUMENTS FURNISHED

A. The General Contractor will be given **4** sets of the Contract Documents on or about the time of execution of Contract, free of charge. If additional copies are wanted, they will be available at the direct additional cost of their reproduction, to the contractor.

B. The Contractor shall receive one (1) set of AutoCAD compatible (latest version) Floor Plans on disks 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 disks from the Architect at the cost of their reproduction, to the contractor.

01014 CONTRACTOR'S USE OF PREMISES

A. The Contractor shall confine his operations, including storage of apparatus, equipment and materials to the contract limit lines as directed by the Construction Administrator.

B. The areas and/or spaces, including their access, shall be maintained free and clear throughout the contract term.

C. Parking for Contractor's employees will be limited to an area (or areas) designated by the Construction Administrator. The Contractor may be required to provide identification stickers for employees' cars.

01015 OCCUPANCY REQUIREMENTS

A. Full Agency Occupancy during Construction: The Agency will occupy the existing building during the entire construction period. Cooperate with the Agency during construction operations to minimize conflicts and facilitate Owner usage. Perform the Work so as not to interfere with the Agency's operations.

01019 CONTRACT CONSIDERATIONS

A. Unit Prices - General:

1. Definition - Unit Price: Amount the General Contractor acknowledges in the Bid Proposal Form as a price per unit of measurement for materials or services as described in the Bidding Documents or in the Contract Documents.

2. Procedures:

   a. Unit Prices included in the Contract Documents are to be used for determining compensation to the Contractor or Owner for changes to the scope of the work indicated in the Contract Documents, and included in the Lump Sum Contract Price. Special Unit Prices are for items complete, in place, and

shall be inclusive of furnishing and installing of all material, labor, trucking, overhead, profit, equipment, hoisting, engineering, scaffolding, power hookups, protection, shop drawings, taxes, permits, appliances, delivery, insurance, supervision, cost of bond, etc. and shall remain in effect until completion of the Contract.

b. Unit Price: Is identified by the Owner as a price per unit of measurement for materials or services added to or deducted from the Contract Sum by appropriate modification, if the estimated quantities of Work required by the Contract Documents are increased or decreased.

c. Increases or Decreases: Should the amount of the Work required be increased or decreased because of changes in the work ordered in writing by the Project Manager, the Undersigned agrees that the following supplemental UNIT PRICES will be decreased 10% for a reduction of work. Each Unit Price shall include all equipment, tools, labor, permits, fees, etc., incidental to the completion of the work involved. All items marked with an asterisk (*****) in the unit price schedules shall include the completion of the excavation, formation and compaction of sub-grade and the disposal of surplus or unsuitable materials in accordance with the Plans and Specifications or as directed by the Construction Administrator.

3. The Owner reserves the right to reject the Contractor's measurement of work-in-place that involves use of established unit prices, and to have this work measured, at the Owner's expense, by an independent surveyor acceptable to the Contractor.

4. Defect Assessment: Replace the Work, or portions of the Work, not conforming to the specified requirements, if, in the opinion of the Architect/Engineer it is not practical to remove and replace the work the Architect/Engineer will direct an appropriate remedy or adjust the payment.

5. Unit Price Schedule: A "Unit Price Schedule" is included at the end of this Section. Specification Sections referenced in the Schedule contain requirements for materials described under each unit price.

B. Unit Price Schedule - Alterations

1. Unit Price - Alterations:

Spec. Section	Alteration Items		Base Bid Quantity	Unit	$ Add	$ Deduct
040121	a.	Replacement of Outer Brick Wythe	970	S.F.	88.00	80.00
040121	b.	Individual Brick Replacement	1200	Each	40.00	36.00
040121	c.	Reset loose bricks	210			
040140	d.	Stone Crack Injection	20	L.F.	65.00	59.00
040140	e.	Stone / Cast Stone Patching	10	Each	120.00	108.00
061000	f.	Existing Wood Roof Blocking	120	L.F.	10.00	9.00
061000	g.	Existing Plywood Roof Sheathing	160	S.F.	5	4.50

Spec. Section	Alteration Items		Supplemental Bid #1 Quantity	Unit	$ Add	$ Deduct
040121	a.	Individual Brick Replacement	130	Each	40.00	36.00
040140	b.	Stone Crack Injection	5	L.F.	65.00	59.00
040140	c.	Stone / Cast Stone Patching	5	Each	120.00	108.00

Spec. Section	Alteration Items	Supplemental Bid#2 Quantity	Unit	$ Add	$ Deduct
040121	a. Replacement of Outer Brick Wythe	10	S.F.	88.00	80.00
040121	b. Individual Brick Replacement	200	Each	40.00	36.00
040140	c. Stone Crack Injection	15	L.F.	65.00	59.00
040140	d. Stone / Cast Stone Patching	5	Each	120.00	108.00

2. Unit prices shall be negotiated if there is a change in scope of work.

01027 APPLICATION FOR PAYMENT

A. Schedule of Values: Submit the "Schedule of Values" to the Construction Administrator at the earliest possible date but no later than (21) twenty Calendar Days after the Contract Start Date. A separate "Schedule of Value" shall be provided for each Phase of identified in Section 01010 Summary of Work, Work Sequence - Phase(s).

1. 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 of the Specification Section on electronic media printout.
2. 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.
3. 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.
   d. Name of subcontractor.
   e. Name of manufacturer or fabricator.
   f. Name of supplier.
   g. Retainage.
   h. Contract sum in sufficient detail.
4. Percentage of Contract Sum to nearest one-hundredth percent, adjusted to total 100 percent.
5. 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.
6. Round amounts to nearest whole dollar; the total shall equal the Contract Sum.
7. 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.
8. 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.

B Applications for Payment - General: 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.
2. Payment-Application Terms: The Owner will process monthly progress payments. The Contractor may submit applications for payment on a monthly basis.
3. Payment-Application Forms: Use the "Application for Payment*"* form as required by the Owner. Present the required information on electronic media printout or approved Owner Form, multiple pages should be used if required.
4. 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
5. Application Preparation: Complete every entry on the form. Include final payment only and execution by a person authorized to sign legal documents on behalf of the Contractor. The Construction Administrator will return incomplete applications without action.
   a. Entries shall match data on the "Schedule of Values".
   b. Include amounts of Change Orders issued prior to the last day of the construction period covered by the application.
6. Transmittal: Submit **3** signed and notarized original copies of each Application for Payment to the Construction Administrator. One copy shall be complete, including waivers of lien and similar attachments, when required.
   a. Transmit each copy with a transmittal form listing attachments and recording appropriate information related to the application, in a manner acceptable to the Architect.
7. 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:
   a. List of subcontractors and suppliers' name, FEIN/Social Security numbers, and Connecticut Tax Registration Numbers.
   b. List of principal suppliers and fabricators.
   c. Schedule of Values.
   d. Contractor's Construction Schedule (preliminary if not final).
   e. Schedule of principal products.
   f. Submittal Schedule (preliminary if not final).

g. List of Contractor's staff assignments.

h. List of Contractor's principal consultants.

i. Copies of all applicable permits.

j. Copies of authorizations and licenses from governing authorities for performance of the Work.

k. Initial as-built survey and damage report, if required.

C. 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.

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:

a. Occupancy permits and similar approvals.

b. Warranties (guarantees) and maintenance agreements.

c. Test/adjust/balance records.

d. Maintenance instructions.

e. Meter readings.

f. Startup performance reports.

g. Changeover information related to Owner's occupancy, use, operation, and maintenance.

h. Final cleaning.

i. Application for reduction of retainage and consent of surety.

j. Advice on shifting insurance coverage.

k. Final progress photographs.

l. List of incomplete Work, recognized as exceptions to Architect's Certificate of Substantial Completion.

D. 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:

Completion, Final Inspection, and Final Payment, in the General Conditions and Supplementary Conditions.

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 without undue delay.

5. Transmittal of required Project construction records to the Owner.

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.

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 Public Works, for all Contractors, Subcontractors, Vendors, Suppliers, etc. who work on the Contract. The form includes the following information:*
14. *Contractor/Subcontractor name.*
15. *FEIN/Social Security Numbers*
16. *Connecticut Tax Registration Numbers*
17. *Type of work*
18. *Name of business and address*
19. *Remittance address.*

01030 SUPPLEMENTAL BIDS

A. Definition: A Supplemental Bid is an amount proposed by bidders and stated on the Bid Proposal Form for certain work defined in the Bidding Documents that may be added to the Base Bid amount if the Owner decides to accept a corresponding change in either the amount of construction to be completed, or in the products, materials, equipment, systems, or installation methods described in the Contract Documents.

1. The cost for each supplemental bid is the net addition to the Contract Sum to incorporate the Supplemental Bid into the Work. Supplemental Bids are only accepted in the numerical order that they are listed on the Bid Proposal Form and never accepted out of numerical sequence. No other adjustments are made to the Contract Sum.

B. Procedures:

1. Coordination: Modify or adjust affected adjacent Work as necessary to completely and fully integrate that Work into the Project.
   a. Include as part of each Supplemental Bid, miscellaneous devices, accessory objects, and similar items incidental to or required for a complete installation whether or not mentioned as part of the Supplemental Bid.
2. Execute accepted Supplemental Bids under the same conditions as other Work of this Contract.
2. Schedule: A "Schedule of Supplemental Bids" is included at the end of this Section. Specification Sections referenced in the Schedule contain requirements for materials necessary to achieve the Work described under each Supplemental Bid.

C. Schedule of Supplemental Bids:

1. Supplemental Bid No. 1: ADD All masonry and sealant work at the west elevation of the 1928 Building. It is not included in the Base Bid.

2. Supplemental Bid No 2: ADD All masonry and sealant work at the west elevation of the 1912 Building. It is not included in the Base Bid.

3. Supplemental Bid No 3: ADD: Concrete repairs at entrance stair and ramp to the 1928 Building; application of traffic coating onto concrete at entrance stair and entrance ramp to the 1928 Building; replacement of existing elastomeric coating with new elastomeric coating at exposed sections of concrete foundation and retaining walls; and painting existing galvanized steel stair/ramp railings and entrance canopies. It is not included in the Base Bid.

01035 MODIFICATION PROCEDURES

A. Summary: This Section specifies administrative and procedural requirements for handling and processing contract modifications.

B. Minor Changes in the Work:

1. 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.

C. Proposal Request:

1. 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.

2. "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.

3. Within Fourteen (14) Calendar 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.

4. 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.

    a. Indicate applicable delivery charges, equipment rental, and amounts of trade discounts.

    b. Include a statement indicating the effect the proposed change in the Work will have on the Contract Time.

    c. 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 566-7033.

    d. 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.

D. Requests for Information:

1. 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 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. 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.

    a. 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.

    b. 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.

    c. The Architect will review all "Requests for Information" to determine whether they are "Requests for Information" within the meaning of this term. If it is determined that the document is not a "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.

    d. A "Requests for Information Response" shall be issued within seven (7) Calendar 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) Calendar 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) Calendar 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) Calendar Days set forth above.

    e. A "Requests for Information Response" from Architect will not change any requirement of the contract documents. In the event the contractor believes that the "Requests for Information Response" will cause a change to the requirements of the contract document, the contractor shall immediately give written notice to the Construction Administrator stating that the contractor believes the "Requests for Information Response" will result in "Change Order" and the Contractor intends to submit a "Change

Order Proposal" request. Failure to give such written notice immediately shall waive the contractor's right to seek additional time or cost under the requirement these Requirements.

E. Change Order Proposal:

1. 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 Worksheets" as required by the Owner.
    a. 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.
    b. 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.
    c. Indicate applicable delivery charges, equipment rental, and amounts of trade discounts.
    d. Comply with requirements in Section 01631 Equals and Substitutions if the proposed change requires an equal or substitution of one product or system for a product or system specified.
2. 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 General 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
3. "Change Order Request" Forms: Use "Change Order Proposal" and "Change Order Proposal Worksheets" forms as required by Owner.
4. "Change Order Proposal" cannot be submitted without the Contractor 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.
5. 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.

F. Construction Change Directive:

1. "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" as authorized by the Owner on the form required 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".
    a. 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. Documentation: The Contractor shall maintain detailed records on a time and material basis of work required by the "Construction Change Directive".
    a. After completion of the change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.
    b. The final value shall be negotiated based on the supporting data to determine the value of the work.

G. Change Order Procedures:

1. 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 "Change Order" form as required by the Owner.

01040 COORDINATION

A. Construction Administrator:

1. The Construction Administrator is identified in Section 01003 Construction Administrator.
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 Administrators 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 Section 01050 "Field Engineering" for work under the instructions of the Construction Administrator.

B 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.

C. 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.

D. 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.*

E. General Coordination Provisions:

1. Inspection of Conditions: 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.
2. The Contractor shall coordinate temporary enclosures with required inspections and tests to minimize the necessity of uncovering completed construction for that purpose.
3. Coordination Drawings:
    a. The HVAC Subcontractor will initiate mylar at 1/4" scale drawings done on AutoCAD showing ducts and piping in plan and section. Sheet metal shop drawings must be approved prior to starting coordination drawings.
    b. The Sprinkler Subcontractor will then superimpose his piping layout on the tracing.

c. The Electrical subcontractor will superimpose all the electrical information on the tracing. Said information to include but not necessary limited to cable trays, equipment, lighting, conduits, bus duct, etc.

e. The sprinkler subcontractor will complete the coordination drawing by drawing his piping (include pitch) on the tracing.

f. The Construction Administrator will review the completed coordination drawing for general compliance and then submit it to the Architect for his review. All subcontractors shall rework the mylar drawings until all systems are properly coordinated.

4. The Construction Administrator will meet with the Contractor on all major items of coordination.

5. See also General Conditions Article 7.

01045 CUTTING AND PATCHING

A. 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.

B The Contractor shall install sleeves, inserts and hangers furnished by the trades needing same.

C. 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.

D. Permission shall be obtained from the Construction Administrator before cutting beams, arches, lintels or other structural members.

E. 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's 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.

g. Structural decking.

i. Miscellaneous structural metals.

j. Exterior curtain-wall construction.

k. Equipment supports.

l. Piping, ductwork, vessels, and equipment.

m. Structural systems of special construction in Division 13 Sections.

F. Do cutting and patching to integrate all elements of the 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.

G. 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.

H. 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.

I. See also General Conditions Article 23.

01050 FIELD ENGINEERING - NOT USED

01095 REFERENCE STANDARDS & DEFINITIONS

A. For products specified by association or trade standards, comply with requirements of the standard, except when more rigid requirements are specified or are required by applicable codes.

B. References to standard specifications and codes refer to the editions current at the bid due date. An exception is, buildings exceeding the threshold limit must be in substantial compliance with the requirements of the effective code at the time of receipt of completed application to the Office of State Building Inspector (OSBI). References include their addenda and errata, if any, and shall be considered a part of these specifications as if they were printed herein in full.

C. The manufacturers' standard warranties or guarantees shall apply when their products are used on this project.

D. Flame Spread Ratings - all materials that are required of obligated to meet specified standards shall be submitted to the owner for their records as part of the shop drawing submittal process for their construction records.

01120 RENOVATION/DEMOLITION PROJECT PROCEDURES

A. Products for Patching and Extending Work:

1. New materials: As specified in product sections; match existing Products and Work .for patching and extending Work.
2. Type and Quality of Existing Products: Determine by inspecting and testing Products where necessary, referring to existing Work as a standard.

B. Inspection- General:

1. Verify that demolition is complete and areas are ready for installation of new Work.
2. Beginning of restoration Work means acceptance of existing conditions.

C. Project Procedures for Work Involving Asbestos Containing Material (ACM):

1. The Construction Administrator is responsible for abating all ACM that is visible and accessible. This is to be accomplished through a separate project prior to the start of the renovation project. In demolition projects, every attempt should by the owner to remove all ACM.
2. If the Contractor should encounter any material suspect or known to contain ACM, he should immediately notify the Construction Administrator of same. It is the State'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. The Owner will abate ACM (if necessary) within a reasonable time period, i.e. with seven (7) Calendar Days.

3 Testing for asbestos has been conducted at the facility scheduled for renovation, demolition, reconstruction, alteration, remodeling, or repair. Results of the asbestos testing are for information purposes only. The testing results are in a separate Volume of this Project Manual. 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. See also General Conditions Article 23.

D. Project Procedures for Work Involving Lead Containing Material:

1. 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.

2. The Contractor's Work shall be based on a child under the age of six (6) in residence; the Work shall also be in accordance with Connecticut Regulations Section 19a-111-1 through 11.
3. This facility was constructed prior to 1978 and is likely to have painted surfaces containing lead-based paint.
4. 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 for information purposes only. The testing results are in a separate Volume of this Project Manual. 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.

E. Preparation:

1. Cut, move, or remove items as are necessary for access to alterations and renovation Work. Replace and restore at completion.
2. 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..
3. Remove debris and abandoned items from area and from concealed spaces.
4. Prepare surface and remove surface finishes to provide for proper installation of new Work and finishes.
5. Close openings in exterior surfaces to protect existing Work and salvage items from weather and extremes of temperature and humidity. Insulate ductwork and piping to prevent condensation in exposed areas.

F. Installation:

1. Coordinate Work of alterations and renovations to expedite completion and if required sequence Work to accommodate Owner occupancy.
2. 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 01045 “Cutting and Patching”.
3. 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 01045 “Cutting and Patching”.
4. In addition to specified replacement of *equipment* and *fixtures*, restore existing *plumbing, heating, ventilation, air conditioning, electrical*, systems to full operational condition.
5. Recover and refinish Work that exposes mechanical and electrical Work exposed accidentally during the Work.
6. Install Products as specified in individual sections.

G. Transitions:

1. 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.
2. 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.

H. Adjustments:

1. 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.
2. Where a change of plane of **1/4** inch in **1 foot** or more occurs, request recommendation from Architect/Engineer for providing a smooth transition.
3. Trim existing doors as necessary to clear new floor finish. Refinish trim as required.
4. Fit Work at penetrations of surfaces as specified in Section 01045 “Cutting and Patching”.

I. Repair of Damaged Surfaces:

1. Patch or replace portions of existing surfaces that are damaged, lifted, discolored, or showing imperfections.
2. Repair substrate prior to patching finish.

J. Finishes:

1. Finish surfaces as specified in individual Product sections.

2. Finish patches to produce uniform finish and texture over entire area. When finish cannot be matched, refinish entire surface to nearest intersections.

K. Cleaning:

1. In addition cleaning specified in Section 01700 "Project Closeout", clean Agency occupied areas of Work

01121 SALVAGEABLE MATERIALS (NOT APPLICABLE)

01200 PROJECT MEETINGS

A. Pre-construction Conference:

1. 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 within fourteen (14) Calendar Days after the written Notice to Proceed and before the Contract 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.
2. 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.
3. Agenda: Discuss items of significance that could affect progress, including the following:
   a. Tentative construction schedule.
   b. Critical work sequencing.
   c. Progress meeting schedule.
   d. Designation of responsible personnel.
   e. Procedures for processing field decisions and Change Orders.
   f. Procedures for processing Applications for Payment.
   g. Distribution of Contract Documents.
   h. Submittal of Shop Drawings, Product Data, and Samples.
   i. Preparation of record documents.
   j. Use of the premises.
   k. Parking availability.
   l. Office, work, and storage areas.
   m. Equipment deliveries and priorities.
   n. Safety procedures.
   o. First aid.
   p. Security.
   q. Housekeeping.
   r. Working hours.
   s. Coordination with Audio-Visual and Telecommunications.

B. Progress Meetings:

1. 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.

2. 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.
3. 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.
    a. Construction Schedule: Review progress since the last Progress Meeting. Determine where each activity is in relation to the required Contractor's "Construction 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.
    b. Review the present and future needs of each entity present
4. 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.
5. A schedule of regular Project Meetings will be established at the Pre-construction Conference.

01300 SUBMITTALS

A. Summary:

1. This Section includes administrative and procedural requirements for submittals required for performance of the Work, including but not limited to the following:
    a. Submittal schedule.
    a. Shop Drawings.
    c. Product Data.
    d. Samples.
    e. Quality assurance submittals.
    f. Proposed "Substitutions Request" form.
    g. Warrantee samples.
    h. Coordination Drawings.
    i. O & M Manuals

B. Administrative Submittals: Refer to other Division 1 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 #'s and Connecticut tax registration #.

C. Definitions:

1. 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 Division 2 through 16.

a. Preparation of Coordination Drawings is specified in Division 1 Section "Coordination" and may include components previously shown in detail on Shop Drawings or Product Data.

2. 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.

3. Mockups are full-size assemblies for review of construction, coordination, testing, or operation; they are not Samples.

D. Submittal Procedures:

1. 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.

2. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that requires sequential activity.

3. 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.

4. The Architect reserves the right to withhold action on a submittal requiring coordination with other submittals until all related submittals are received.

5. The Architect reserves the right to reject incomplete submitted packages.

6. 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 resubmittals.

   a. Allow (2) two weeks 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 (2) two 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.

E. 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 at a minimum 7 copies or as determine 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".

F. 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.

G Submittal Schedule:

1. After development and review by the Owner and Architect acceptance of the Contractor's Construction Schedule prepare a complete schedule of submittals. Submit the schedule to the Construction Administrator within 30 days of Contract Award.
2. Coordinate Submittal Schedule with the list of subcontracts, Schedule of Values, and the list of products as well as the Contractor's Construction Schedule
3. 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.

H. 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.

I. 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.

J. Daily Construction Reports

1. 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:
    a. List of subcontractors at the site.
    b. Approximate count of personnel at the site.
    c. High and low temperatures, general weather conditions.
    d. Accidents and unusual events.
    e. Meetings and significant decisions.
    f. Stoppages, delays, shortages, and losses.
    g. Meter readings and similar recordings.
    h. List of equipment on site and identify if idle or in use.
    i. Orders and requests of governing authorities.
    j. Change Orders received, start and end dates.
    k. Services connected, disconnected.
    l. Equipment or system tests and startups.
    m. Partial Completion's, occupancies.

n. Substantial Completion's authorized.

o. Equals or Substitutions approved or rejected.

K. Shop Drawings:

1. 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.
2. Shop Drawings include fabrication and installation Drawings, setting diagrams, schedules, patterns, templates and similar Drawings. Include the following information:
   a. Dimensions:
   b. Identification of products and materials included by sheet and detail number.
   c. Compliance with specified standards.
   d. Notation of coordination requirements.
   e. Notation of dimensions established by field measurement.
   f. 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.
   g. 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.
   h. Details shall be large scale and/or full size.
3. 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 Workor in the Workof 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.
4. 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 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.
5. 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.
6. Upon final review submit four (4) additional prints, same as submitted, to the Construction Administrator for his use.
7. 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.
8. Only final reviewed shop drawings are to be used on the project site.
9. 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. Final reviewed shop drawings shall not replace or be used as a vehicle to issue or incorporate change orders.

L. Product Data:

1. 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.

2. 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.
3. Do not submit Product Data until compliance with requirements of the Contract Documents has been confirmed.
4. Preliminary Submittal: Submit a preliminary single copy of Product Data where selection of options is required.
5. Submittals: Submit 7 copies of each required submittal; submit 5 copies where required for maintenance manuals. The Architect will retain one 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.
6. 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.

M. Samples:

1. 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.
2. 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.
3. 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.

4. 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.

5. Submittals: Except for Samples illustrating assembly details, workmanship, fabrication techniques, connections, operation, and similar characteristics, submit three (3) sets. The Architect will return one set marked with the action taken.

6. 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.

7. 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.

   a. Field samples are full-size examples erected on-site to illustrate finishes, coatings, or finish materials and to establish the Project standard.

N. Quality Assurance Submittals:

1. 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.

2. 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.

   a. Signature: Certification shall be signed by an officer of the manufacturer or other individual authorized to sign documents on behalf of the company.

3. Inspection and Test Reports: Requirements for submittal of inspection and test reports from independent testing agencies are specified in Division 1 Section "Quality Control."

O. Architect's Action:

1. 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.

   a. Compliance with specified characteristics is the Contractor's responsibility.

2. 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:

   a. 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.

   b. 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.

   c. 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.

i. 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.

d. 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."

3. Unsolicited Submittals: The Architect will discard unsolicited submittals without action.

01310 CONSTRUCTION SCHEDULE

A. Definitions:

1. 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

B. 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.

C. Quality Assurance: 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**" compatible, latest version.
3. Standards: Comply with procedures contained in AGC's "Construction Planning & Scheduling."

D. Content:

1. Show complete sequence of construction by activity, with dates beginning and completion of each element of construction.
2. Identify each item by specification section number.
3. Identify work of separate phases other and other logically grouped activities.
4. Show accumulated percentages of completion of each item, and total percentage of Work completed, as of the first day of each month.
5. 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.
6. Indicate delivery dates for Owner/Agency furnished products and any products identified as under Allowances.
7. Coordinate content with Schedule of Values specified in Section 01027.

E. Submittals and Revisions to Schedules:

1. Indicate progress of each activity to date of submittal, and projected completion date of each activity.
2. Identify activities modified since previous submittal, major changes in scope, other identifiable changes.
3. Provide narrative report to define problem areas, anticipated delays, and impact on Schedule. Report corrective action taken, or proposed, and its effect.

4. An initial bar graph (gantt) schedule is to be prepared by the General Contractor and submitted to the Construction Administrator within seven (7) calendar 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. After review, resubmit required revised data within five (5) calendar days. This schedule must be revised monthly and when the actual schedule of significant items varies more than one (1) week from the proposed schedule.
5. Submit revised Construction Schedules each Application for Payment.
6. Submit four (4) copies of the Construction Schedule to the Construction Administrator.

F. Distribution:

1. Distribute copies of the Construction Schedules to Construction Administrator, Architect, Owner, Subcontractors, suppliers, and other concerned parties.
2. Instruct recipients to promptly report, in writing, problem anticipated by projections indicated in schedules.

01380 CONSTRUCTION PHOTOGRAPHS

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 photographs of the construction taken by a professional photographer.

B. Take 24-35 mm color digital photos each time. Note on each photo frame the date the picture was taken and the project number. Deliver digital photographs to the Construction Administrator in both digital and hard copy form.

C. As 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 digital photos to the Construction Administrator, in both digital and hard copy form, within 10 days of their taking.

01400 QUALITY CONTROL

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 forty-eight (48) hours in advance to 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 adoption 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 assemblers 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 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 Codes.

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 noncompliance with Contract Document requirements.
2. The Owner will issue a credit change order to cover all costs incurred related to all re-tests/re-inspection due to non-compliance to the contract documents, including but not limited to the Owners costs and the Consultants 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:

a) When the Contractor notifies the Construction Administrator and/or Testing Agency less than twenty-four (24) hours before the expected time of testing.

b) When the Contractor requires testing for his own convenience.

c) When the Contractor schedules a test and is not ready for the required test.

F. Reports of test that are part of the submittal requirements which indicate compliance or non-compliance with the specified standard.

G. See also General Conditions Article 16.

H. Fire Alarm/Acceptance Testing Procedures:

1. The Department of Public Works has been given the Authority Having Jurisdiction with regards to construction Projects which do not exceed Threshold Limit Laws. The Contractor shall follow the “Department of Public Works "Acceptance Testing Procedures" as provided by the Owner prior to Acceptance Testing.

I. Submittals:

1. 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.

2. Submit additional copies of each written report directly to the governing authority, when the authority so directs.
3. 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.

J. Quality Assurance:

1. 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.
    a. 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.

K. Repair and Protection:

1. 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 1 Section "Cutting and Patching."
2. Protect constructions exposed by or for quality-control service activities, and protect repaired construction.
3. Repair and protection is Contractor's responsibility, regardless of the assignment of responsibility for inspection, testing, or similar services.

01505 TEMPORARY ELECTRICITY AND LIGHTING

A. Connect to existing service, and provide branch wiring and distribution boxes located to provide power and lighting by construction-grade extension cords. Owner will pay cost of energy used. Take measures to conserve energy. Provide lighting for construction operations. At the termination of construction, return the facilities to their original condition.

01510 TEMPORARY HEATING, COOLING AND VENTILATING AND LIGHTING

A. The General 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.

01515 TEMPORARY TELEPHONE

A. General Contractor shall provide telephone service in his office. It is preferred the Contractor use a cellular phone. Local calls will be paid by the Contractor and toll calls by the respective users.

01520 TEMPORARY WATER

A. 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.

01525 TEMPORARY SANITARY FACILITIES

A. 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.

01530 FIRE PROTECTION

A. 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.

B. 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 2 gallons which shall be in U.L. listed containers. Also provide one 30 B:C fire extinguisher within 75 feet of any point on the roof.

01535 CONSTRUCTION EQUIPMENT

A. 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 A.G.C. and the standards of the State Labor Department.

B. Staging, exterior and interior, required for the execution of this Contract, shall be furnished, erected, relocated if necessary and removed by the General Contractor. Staging shall be maintained in a safe condition without charge to and for the use of all trades as needed.

01540 BARRIERS AND ENCLOSURES

A. Provide barriers to prevent public entry into construction areas and to protect existing facilities from damage by construction operations.

B. Provide a fence around construction site; equip with vehicular and pedestrian gates with locks.

C. Provide covered walkways as required by governing authorities for public rights-of-way and for public access to existing buildings.

D. Provide barriers around trees and plants designated to remain. Protect against vehicular traffic, materials' dumping, chemically injurious materials, puddling or running water.

E. 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.

F. 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 Department's approval of an alternate egress plan.

G. See also General Conditions Article 19.

01545 PROTECTION

A. Protect buildings, equipment, furnishings, grounds and plantings from damage. Any damage shall be repaired or otherwise made good at no expense to the State.

B. 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.

C. Provide temporary protection for installed products. Control traffic in immediate area to minimize damage.

D. 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.

E. Provide temporary partitions and ceilings to separate work areas from Owner-occupied areas to prevent penetration of dust and moisture into Owner-occupied areas and equipment. Erect framing and sheet materials with closed joints and sealed edges at intersections with existing surfaces.

F. See also General Conditions Article 19.

01550 SECURITY

A. Provide security program and facilities to protect work, existing facilities and Owner's operations from unauthorized entry, vandalism and theft. Coordinate with Owner's security program.

B. The Contractor shall be solely responsible for damage, loss or liability due to theft or vandalism.

01555 TRAFFIC WAYS

A. 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.

B. 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.

C. If the work of the Contract affects public use of any street, road, highway or thoroughfare, the G. C. 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 G.C. will be responsible for payment of any needed police services.

01560 TEMPORARY CONTROLS

A. 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, Pest Control.

4. Erosion and Sediment Control.

5. Pollution Control.

6. Traffic Control.

01565 STORM WATER CONTROL (NOT APPLICABLE)

01570 CLEANING

A. Maintain areas under Contractor's control free of waste materials, debris and rubbish. Maintain in a clean and orderly condition.

B. Remove debris and rubbish from pipe chases, plenums, attics, crawl spaces and other closed or remote spaces before closing the space.

C. Periodically clean interior areas before start of surface finishing and continue cleaning on an as-needed basis.

D. Control cleaning operations so that dust and other particulates will not adhere to wet or newly-coated surfaces.

E. Remove waste materials, debris and rubbish from site daily and dispose of legally off-site. No scrap/debris shall remain inside the building or anywhere on site upon final acceptance of the project.

F. See also General Conditions Article 24.

01575 PROJECT SIGNS

A. Project Signs: Engage an experienced sign painter to apply graphics. Comply with details to be furnished by the Construction Administrator.

1. 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 coats of exterior, white, alkyd primer. Paint the border and letters with "bulletin" (sign) paint. Letter sizes, colors and related information is given on the illustration from the Owner. A self-adhesive decal of the State seal will be furnished at the Contract signing. Erect the sign within two weeks after execution of the Contract and remove the sign within one week after completion of the project.

2. The contractor shall contact the Construction Administrator for the proper wording for the project sign.

01580 FIELD OFFICES AND SHEDS

A. Field Offices:

1. The Contractor shall provide an office for his own use which may be a trailer type facility with electric lighting, air conditioning, and heat. It shall have ample natural light, a table, chairs, counter, shelf, plan racks and file cabinets. Provide a 5 lb. ABC fire extinguisher and an OSHA-approved first aid kit. If the contract amount is $2,500,000 or more, the Contractor shall provide a facsimile machine in his office and shall also provide his superintendent with a message beeper.

B. 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 to original condition.

01585 IDENTIFICATION BADGES

A. 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 assigns, 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.

01600 MATERIALS AND EQUIPMENT CONTROLS

A. 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.

1. Promptly inspect shipments to assure that products comply with requirements, that quantities are correct and products are undamaged.
2. Packages, materials and equipment showing evidence of damage will be rejected and replaced at no additional cost to the Owner.

B. Storage and Protection:

1. Store products in accordance with manufacturers' instructions with seals and labels intact and legible. Store sensitive products in weathertight enclosures; maintain within temperature and humidity range required by manufacturer.
2. 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.
3. Store loose granular material on solid surfaces in a well-drained area; prevent mixing with foreign matter.
4. 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.
5. Stone, masonry units and similar materials shall be stored on platforms or dry skids and shall be adequately covered and protected against damage.
6. The Contractor shall prepare, as directed by the Owner, one area or space in the building for storage of State-owned equipment.

01631 EQUALS AND SUBSTITUTIONS

A. Definitions: Definitions in this Article do not change or modify the meaning of other terms used in the Contract Documents.

1 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.

2. Equal: 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 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.
3. 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 and may be rejected or approved by the Owner. The Substitution is not equal to the specified requirement in comparison to the first manufacture 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.

4. The following are not considered to be requests for Equals or Substitutions:
    a. Revisions to the Contract Documents requested by the Owner or Architect.
    b. Specified options of products and construction methods included in the Contract Documents.
    c. The Contractor's determination of and compliance with governing regulations and orders issued by governing authorities having jurisdiction.

B. Submittals:

1. Equals and Substitution Request Submittals: The Owner will consider requests for equals or substitutions if received within time period designated in the General Conditions Article 15. Requests received more than the days specified in Article 15 after the start date of the contract will be rejected.
    a. The Contractor is required to prepare and submit 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 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.
2. Identify the product or the fabrication or installation method to be replaced in each request. Include related Specification Section and Drawing numbers.
3. Provide complete documentation showing compliance with the requirements for equals or substitutions, and the following information, as appropriate on a “Substitution Request” form as required by the Owner:
    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.
4. Architect's Action: If necessary, the Architect will request additional information or documentation for evaluation within one week 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 two (2) weeks of receipt of the request, or one (1) week 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 one (1) week 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 <u>not</u> 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.

C. Equal or Substitutions:

1. 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.
   a. The proposed request does not require extensive revisions to the Contract Documents.
   b. The proposed request is in accordance with the general intent of the Contract Documents.
   c. The proposed request is timely, fully documented, and/or properly submitted.
   d. 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.
   e. 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.
   f. The proposed request can receive the necessary approvals, in a timely manner, required by governing authorities having jurisdiction.
   g. The proposed request can be provided in a manner that is compatible with the Work as certified by the Contractor.
   h. The proposed request can be coordinated with the Work as certified by the Contractor.
   i. The proposed request can uphold the warranties required by the Contract Documents as certified by the Contractor.
2. 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.

01650 STARTING OF SYSTEMS (NOT APPLICABLE)

01700 CONTRACT CLOSEOUT

A. Substantial Completion:

1. Preliminary Procedures: Before requesting inspection for Certification of Substantial Completion, complete the following. List exceptions in the request.
   a. 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.
      i. Include supporting documentation for completion as indicated in these Contract Documents and a statement showing an accounting of changes to the Contract Sum.
      ii. 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.
   b. Advise the Owner of pending insurance changeover requirements.
   c. Submit specific warranties, workmanship bonds, maintenance agreements, final certifications, and similar documents.

d. Obtain and submit releases enabling the Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.

e. Submit record drawings, maintenance manuals, damage or settlement surveys, property surveys, and similar final record information.

f. Deliver tools, spare parts, extra stock, and similar items.

g. Make final changeover of permanent locks and transmit keys to the Owner. Advise the Owner's personnel of changeover in security provisions.

h. Demonstration, 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.

i. Complete final cleanup requirements, including touchup painting.

j. Touch up and otherwise repair and restore marred, exposed finishes.

2. Inspection Procedures: The Contract shall be ready and prepared when they request a Substantial Completion inspection. If the inspection reveals that the work is not complete, there are extensive punchlist items and as the items listed above are not complete, the Construction Administrator, Architect, and Owner will determine the inspection has failed.

3. 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.

a. The Architect will repeat inspection when requested and assured that the Work is substantially complete.

b. Results of the completed inspection will form the basis of requirements for final acceptance.

B. Final Acceptance:

1. Preliminary Procedures: Before requesting final inspection for certification of final acceptance and final payment, complete the following. List exceptions in the request.

a. 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.

b. Submit an updated final statement, accounting for final additional changes to the Contract Sum.

c. 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.

d. 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.

e. Submit consent of surety to Final Payment.

f. Submit evidence of final, continuing insurance coverage complying with insurance requirements.

2. Reinspection 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.

a. Upon completion of reinspection, the Construction Administrator will prepare a certificate of final 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.

C. Record Document Submittals:

1. General: Do not use record documents for construction purposes. Protect Record Documents from deterioration and loss in a secure, fire-resistant location. Provide access to record documents for the Architect's reference during normal working hours. Keep documents current; do not permanently conceal any work until required information has been recorded. Failure to keep documents current is sufficient cause to withhold progress payments.

a. 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

b. 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.

2. **Record Drawings:** The Contractor shall maintain one 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.

   a. Mark record sets with erasable pencil to distinguish between variations in separate categories of the Work.

   b. Mark all new information that is not shown on Contract Drawings.

   c. Note related change-order numbers where applicable.

   d. 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.

   e. 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.

   g. Submit electronic format data of all revised drawings on CD-ROM format and in AutoCAD (latest version) compatible format.

3. **Record Specifications:** The Contractor shall maintain one complete copy of the Project Manual, including Addenda. Include with the Project Manual one copy of other written construction documents, such as Change Orders and modifications issued in printed form during construction.

   a. Mark these documents to show substantial variations in actual Work performed in comparison with the text of the Specifications and modifications.

   b. 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.

   c. Note related record drawing information and Product Data.

   d. Upon completion of the Work, submit record Specifications to the Construction Administrator for the Owner's records.

4. **Record Product Data:** The Contractor shall maintain one copy of each Product Data submittal. Note related Change Orders and markup of record drawings and Specifications.

   a. 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.

   b. Give particular attention to concealed products and portions of the Work that cannot otherwise be readily discerned later by direct observation.

   c. Upon completion of markup, submit complete set of Record Product Data to the Construction Administrator for the Owner's records.

5. **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.

6. **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.

7. **Maintenance Manuals:** Organize operation and maintenance data into suitable sets of manageable size. Bind properly indexed data in individual, heavy-duty, 2-inch (51-mm), 3-ring, vinyl-covered binders, with pocket folders for folded sheet information. Mark appropriate identification on front and spine of each binder according to section 01730. Included but not limited to the following types of information:

   a. Emergency instructions.

   b. Spare parts list.

   c. Copies of warranties.

   d. Wiring diagrams.

   e. Recommended "turn-around" cycles.

   f. Inspection procedures.

   g. Shop Drawings and Product Data.

   h. Fixture lamping schedule.

D. Closeout Procedures:

1. 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:

   a. Maintenance manuals.

   b. Record documents.

   c. Spare parts and materials.

   d. Tools.

   e. Lubricants.

   f. Fuels.

   g. Identification systems.

   h. Control sequences.

   i. Hazards.

   j. Cleaning.

   k. Warranties and bonds.

   l. Maintenance agreements and similar continuing commitments.

2. As part of instruction for operating equipment, demonstrate the following procedures:

   a. Startup.

   b. Shutdown.

   c. Emergency operations.

   d. Noise and vibration adjustments.

   e. Safety procedures.

   f. Economy and efficiency adjustments.

   g. Effective energy utilization.

E. Final Cleaning:

1. General: The General Conditions requires general cleaning during construction. Regular site cleaning is included in Division 1 Section 01570 “Cleaning”".

2. Employ experienced workers or 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. Complete the following cleaning operations before requesting inspection for Certification of Substantial Completion and Certification of Occupancy.

3. **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.
4. **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.
5. **Pest Control:** Engage an experienced, licensed exterminator to make a final inspection and rid the work of rodents, insects, and other pests.
6. **Removal of Protection:** Remove temporary protection and facilities installed for protection of the Work during construction.
7. **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.
    a. 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.
    b. 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.

01730 OPERATION AND MAINTENANCE DATA - NOT APPLICABLE

01740 WARRANTIES AND GUARANTEES

A. 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.

C. 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 months from the date of acceptance of the Work. In addition, the Contractor shall furnish the warranties listed below. Submit four 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.

1. Section 07 18 00: Traffic Coating - 5 years
2. Section 07 53: EPDM Membrane Roofing - 30 years, non-prorated
3. Section 07 61 00: Copper Roofing - 5 years
4. Section 07 62 00: Sheet Metal Trim and Flashing Aluminum Finishes - 20 years
5. Section 07 92 00: Joint Sealants Manufacturer - 10 years
6. Section 09 96 53: Elastomeric Coating Manufacturer - 3 years
7. Section 09 96 53: Elastomeric Coating Installer - 3 years

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

H. Form of Guarantees and Warranties:

Director
Facilities Management & Planning
83 Windham Street
Willimantic, Connecticut 06226
(Project Title and Number)

I (We) hereby guarantee and warranty)

the _____ work on the referenced project for a period of _____ years

from _____, 2019 against failures of workmanship and materials in accordance

with the requirements of Section ____, Page ____, Paragraph ____, of the Specifications.

Signed _____

General Contractor _____
(or authorized agent)

I. Bonds shall be by approved Surety Companies, made out to the Director of Facilities Management & Planning, Eastern Connecticut State University on companies standard form.

J. Guarantees, warranties or bonds supplied by Subcontractors, 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.

G. Submittals:

1. 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.
2. 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.
    a. Refer to Divisions 2 through 16 Sections for specific content requirements and particular requirements for submitting special warranties.
3. Form of Submittal: At Final Completion compile 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.
4. 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 (115-by-280-mm) paper.
    a. 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.
    b. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project title or name, and name of the Contractor.
    c. When warranted construction requires operation and maintenance manuals, provide additional copies of each required warranty, as necessary, for inclusion in each required manual.

END OF DIVISION 1- GENERAL REQUIREMENTS

PART 1 - GENERAL

1.1 DESCRIPTION

A. Repair and/or replace areas of the site damaged during construction operations including, but not limited to landscaping, sidewalks, curbs, pavements, site furnishing, lighting fixtures, existing roofing, windows, etc., immediately after completion of all operations in that area. Repairs must, as a minimum standard, be equal to or exceed the condition which existed prior to the start of work under this Contract and in accordance with the requirements of General Conditions of the Contract and completely coordinated with the work of all other trades.

1.2 QUALITY ASSURANCE

A. Qualifications:

1. Contractor shall employ subcontractors and/or tradesmen with a minimum of two (2) years experience in performing the work required.

1.3 SUBMITTALS

A. The Contractor shall submit to the Owner and Architect/Engineer for approval three (3) copies of a statement detailing the restoration work required.

B. The statement shall as a minimum contain the following:
1. Description of work
2. Location and quantity of work
3. Materials and standard for workmanship
4. Schedule of operations.

C. Approval of this statement by the Owner and/or Architect/Engineer shall not constitute approval of methods or materials. No work shall proceed until the Owner and/or Architect/Engineer has approved the statement.

PART 2 - PRODUCTS

2.1 PAVING AND SURFACING

A. Replacement of all damaged pavement, walks curbs and other surfacing on the site shall match the adjacent material to remain in color, shape, texture and durability.
1. Damaged or cracked concrete sidewalk panels shall be replaced in its entirety. Repairs shall be made to remove and replace the whole panel and not a portion of the panel. Concrete panels are typically 5’x5’ but may vary.

2.2 LANDSCAPING

A. The Contractor shall guarantee the landscaping work against defects in materials and workmanship in accordance with the General Conditions, except that the guarantee period shall be one (1) planting season beyond the date of substantial completion.

2. This guarantee includes furnishing new plants as well as labor and materials for installation of replacements. All replacement plants shall be guaranteed and maintained for a period of one (1) year. Replacement stock must meet specifications and quality of original stock.
3. Contractor will not be held responsible for damages to or loss of plants caused by fire, flood, lightning storms, freezing rain, winds over 60 miles per hour, or vandalism.
4. Inspection of the planting will be made jointly by the Contractor and Architect/Engineer at the completion of planting. All plants not in a healthy, growing condition shall be removed and replaced with plants of like kind, size and quality as originally specified before the close of the next planting season.
5. At the end of the guarantee period, the Contractor shall remove all guying, staking, wrapping, saucers and mulch from the site.

B. Plant materials shall be replaced with the same species and size.

C. All grass areas disturbed and/or damaged during the course of work shall be replaced with sod.

PART 3 - EXECUTION

3.1 PAVING AND SURFACING

A. Means and methods for the installation of replacement pavement, walks, curbs and other surfacing shall be in accordance with manufacturer's instructions, the project specifications and local construction standards for the type of work performed and shall be subject to the approval of the Owner and Architect/Engineer prior to the start of work.

3.2 LANDSCAPING

A. Plantings shall be set in appropriate pits, backfilled, mulched, guyed, staked or otherwise protected and installed in accordance with local construction standards for the type of plantings and subject to the approval of the Owner and Architect/Engineer prior to the start of Work.

END OF SECTION

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Removal of damaged concrete surfaces; preparation of existing concrete and steel reinforcing to be repaired; and repair of horizontal and vertical concrete surfaces using proprietary concrete patching materials.

B. Related Sections:
   1. Section 07 18 00 - Traffic Coating

1.2 REFERENCES

A. Reference Standards: Latest edition as of Specification date.
   1. American Concrete Institute (ACI):
      a. 117: Specification for Tolerances for Concrete Construction and Materials and Commentary.
      b. 305R: Guide to Hot Weather Concreting.
      c. 306R: Guide to Cold Weather Concreting.
      d. 347: Guide to Formwork for Concrete.

1.3 ADMINISTRATIVE REQUIREMENTS

A. Coordinate Work to ensure that adjacent areas are not adversely affected. Coordinate:
   1. With Owner's Representative.
   2. With other trades:
      a. To ensure that work done by other trades is complete and ready for concrete replacement Work.
      b. To avoid or minimize work on, or in immediate vicinity of, concrete replacement Work in progress.
      c. To ensure that subsequent work will not adversely affect completed concrete replacements.

1.4 SUBMITTALS

A. Product Data:
   1. Manufacturer's literature including written instructions for evaluating, preparing, and treating substrate; technical data including tested physical and performance properties; and mixing and application or placement instructions.
   2. Include temperature ranges for storage and application of materials, and special cold-weather application requirements or limitations. Include Safety Data Sheets (SDS) for information only; safety restrictions are sole responsibility of Contractor.

B. Contractor Qualifications: Evidence that Contractor's *existing company* has minimum five years of continuous experience in similar concrete replacement work; list of at least five representative, successfully-completed projects of similar scope and size, including:
   1. Project name.
   2. Owner's name.
   3. Owner's Representative name, address, and telephone number.
   4. Description of work.
   5. Types of concrete replacement.
   6. Project supervisor.
   7. Total cost of concrete replacement work and total cost of project.
   8. Completion date.

1.5 QUALITY ASSURANCE

A. Concrete Contractor Qualifications: Experienced contractor who has completed concrete Work similar in material, design, and extent to that indicated for this Project for at least five years, and whose work has resulted in construction with record of successful in-service performance.
   1. Employ foreman with minimum five years of experience as foreman on similar projects, who is fluent in English, to be on Site at all times during the Work. Do not change foremen during the course of the Project except for reasons beyond the control of Contractor; inform Architect/Engineer in advance of any changes.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, and handle materials according to manufacturer's recommendations and in such manner as to prevent damage to materials or structure.

B. For proprietary materials:
   1. Deliver materials to Site in original bags and containers with seals unbroken, labeled with manufacturer's name, product brand name and type, date of manufacture, lot number, and directions for storing and mixing with other components.
   2. Keep materials dry and do not allow materials to be exposed to moisture during transportation, storage, handling, or installation. Reject and remove from Site new materials which exhibit evidence of moisture during application, or have been exposed to moisture.
   3. Store materials in original, undamaged bags or containers in a clean, dry, protected location on raised platforms with weather-protective coverings, within temperature range required by manufacturer. Manufacturer's standard packaging and covering is not considered adequate weather protection.

C. Limit stored materials on structures to safe loading capacity of structure at time materials are stored, and to avoid permanent deck deflection.

D. Conspicuously mark damaged or opened bags or containers or bags or containers with contaminated materials, and remove from Site as soon as possible.

E. Remove materials that cannot be applied within stated shelf life from Site and replace with new materials.

1.7 PROJECT CONDITIONS

A. Verify existing dimensions and details prior to the start of concrete replacement Work. Notify Architect/Engineer of conditions found to be different than those indicated in the Contract Documents. Architect/Engineer will review situation and inform Contractor of changes.

B. Comply with Owner's limitations and restrictions for Site use and accessibility.

C. Handle and place materials in strict accordance with safety requirements required by material manufacturers; Safety Data Sheets (SDS); and local, state, and federal rules and regulations. Maintain Safety Data Sheets (SDS) with materials in storage area and available for ready reference on Site.

1.8 CHANGES IN WORK

A. During rehabilitation work, existing conditions may be encountered which are not known or are at variance with the Contract Documents. Such conditions may interfere with the Work and may consist of damage or deterioration of the substrate or surrounding materials that could jeopardize the integrity or performance of the Work.
   1. Notify Architect/Engineer of conditions that may interfere with proper execution of the Work or jeopardize performance of the Work, prior to proceeding with the Work.

PART 2 PRODUCTS

2.1 FORM MATERIALS

A. Forms: Plywood, lumber, metal, plastic, or another approved material. Provide lumber dressed on at least two edges and one side for tight fit.
   1. Use panels that will provide continuous, true, and smooth concrete surfaces.
   2. Furnish panels in largest practicable sizes to minimize number of joints.
   3. Do not use rust-stained, steel, form-facing material.

B. Form-Release Agent: Commercially-formulated form-release agent that will not bond with, stain, or adversely affect the concrete surface and will not impair subsequent treatments of the concrete surface.

2.2 CORROSION-INHIBITING COATING MATERIALS

A. Cementitious Coating:
   1. Master Emaco P124, supplied by BASF
   2. Sika Armatec 110 EpoCem, supplied by Sika Corporation.

2.3 PROPRIETARY PATCHING MATERIALS

A. For Trowel-Applied Replacements on Vertical and Overhead Surfaces: Polymer- or silica-fume-modified, cementitious, non-sag mortar that is specifically intended for this application. Use one of the following or approved equal:
   1. MasterEmaco N 400 manufactured by BASF Construction Chemicals, LLC.
   2. SikaTop 123 Plus manufactured by Sika Corporation.

B. For Top Surface Patches on Horizontal Surfaces: Rapid-strength repair mortar with 3/8-inch aggregate added, per manufacturer's recommendations. Use the following or approved equal:
   1. MasterEmaco T 1060 manufactured by BASF Construction Chemicals, LLC.
   2. SikaQuick 1000 manufactured by Sika Corporation.

C. Do not use proprietary patching materials that contain added gypsum.

2.4 CURING MATERIALS

A. Moisture-Retaining Cover: ASTM C171, white burlap-polyethylene sheet.

B. Water: Potable.

PART 3 EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions for compliance with requirements and other conditions affecting installation or performance of concrete replacements.
   1. Ensure that work done by other trades is complete and ready for concrete replacement Work.
   2. Verify that areas and conditions under which concrete replacement Work is to be performed permit proper and timely completion of the Work.
   3. Notify Architect/Engineer in writing of conditions which may adversely affect installation or performance of concrete replacements and recommend corrections.
   4. Do not proceed with concrete replacement Work until adverse conditions have been corrected and reviewed by Architect/Engineer.
   5. Commencing concrete replacement Work constitutes acceptance of Work surfaces and conditions.

3.2 PROTECTION

A. Take precautions to ensure the safety of people, including building users, passers-by, and workmen, and animals, and protection of property, including adjacent building elements, landscaping, and motor vehicles.

B. Prevent construction debris and other materials from coming into contact with pedestrians, motor vehicles, landscaping, buildings, and other surfaces that could be harmed by such contact.

C. Protect paving and sidewalks, and adjacent building areas from mechanical damage due to scaffolding and other equipment.

D. Limit access to Work areas.

E. Erect temporary protective canopies, as necessary, over walkways and at points of pedestrian and vehicular access that must remain in service during Work.

F. Assume responsibility for injury to persons or damage to property due to Work, and remedy at no cost to Owner.

3.3 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 concrete structure can support such loads.

3.4 CONCRETE REMOVAL AND SURFACE PREPARATION

A. Sound concrete surfaces and mark with paint areas of unsound concrete. Architect/Engineer will review markings before concrete removal Work begins.

B. Concrete Removal Areas:
   1. Where possible, make rectangular in shape in plan.
   2. Avoid re-entrant corners.
   3. Extend at least 4 inches beyond edge of unsound concrete.

C. Create square edges of removal areas.
   1. Saw cut at top surface removal areas to depth required by proprietary concrete patching material manufacturer. Do not saw through reinforcing steel, embedded electrical conduits, or other embedments.

D. Remove unsound concrete to sound material and around partially exposed reinforcing bars of at least 3/4 inches.

3.5 REINFORCMENT PREPARATION

A. Leave existing reinforcing in place unless otherwise directed by Architect/Engineer.

B. Clean exposed steel surfaces with a wire brush, finish, with minimal rust or concrete debris. Clean steel surfaces with dry, oil-free compressed-air jet. Exercise care to clean undersides of reinforcing bars.

C. Apply corrosion-inhibiting material on exposed steel surfaces per manufacturer’s instructions.

3.6 PROPRIETARY PATCHING MATERIALS

A. Measure, batch, mix, place, finish, and cure per manufacturer’s recommendations.

3.7 CLEAN-UP

A. Remove and legally dispose of concrete and steel debris, sandblast materials, and excess materials.

END OF SECTION

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PART 1 GENERAL

1.1 SUMMARY

A. Section Includes: Cleaning of all exterior brick, cast stone and stone masonry within the Contract Limits.
   1. Purpose of cleaning is to remove as much atmospheric deposits, soil, staining, grease, oil, and other contaminants as possible without damaging brick and stone.
   2. Cleaning of canopies at the north elevation of the 1928 Building is also included as part od Supplemental Bid #3.

1.2 ADMINISTRATIVE REQUIREMENTS

A. Coordinate Work to ensure that adjacent areas are not adversely affected. Coordinate:
   1. With Owner's Representative.
   2. With other trades:
      a. To ensure that work done by other trades is complete and ready for cleaning Work.
      b. To avoid or minimize work in immediate vicinity of cleaning Work in progress.
      c. To ensure that subsequent work will not adversely affect cleaned surfaces.

B. Notify Architect/Engineer of conflicts between Specifications and cleaning material manufacturer's recommendations. Perform Work according to Specifications unless Architect/Engineer authorizes changes in writing.

1.3 SUBMITTALS

A. Product Data: List of products proposed for use, with Manufacturer's product literature and application instructions.
   1. Include Safety Data Sheets (SDS) for information only; safety restrictions are sole responsibility of Contractor.

B. Protection Plan: Written plan describing protection measures proposed for use on Project.

C. Containment, Collection, and Disposal Plan: Written plan describing methods for containing, collecting, and disposing of runoff during cleaning operations.

D. Cleaning Subcontractor Qualifications: Evidence that Subcontractor's *existing company* has minimum five years of continuous experience in use of specified cleaning system; list of at least five representative, successfully-completed projects of similar scope and size, including:
   1. Project name.
   2. Owner's name.
   3. Owner's Representative name, address, and telephone number.
   4. Description of work.
   5. Cleaning system, including materials and procedures, used.
   6. Project supervisor.
   7. Total cost of cleaning work and total cost of project.
   8. Completion date.

1.4 QUALITY ASSURANCE

A. Cleaning Subcontractor Qualifications: Experienced firm that has successfully completed cleaning work similar in material, design, and extent to that indicated for the Project. Must have successful use of specified cleaning system in local area for minimum of five years.

B. Mockups: Apply cleaning system at three mock up locations to demonstrate procedures and effectiveness.
   1. Mockups to be 25 square feet unless noted otherwise.
   2. Include protection systems and devices proposed for use to counteract adverse effects of cleaning system, in mockup.
   3. Allow period of at least 14 days after mockup preparation for evaluation of effectiveness of cleaning system and for negative reactions.
   4. If Owner's Representative and Architect/Engineer determine mockup does not comply with requirements, modify mockup or construct new mockup until mockup is approved. Modifications may include minor adjustments to application methods, dilutions, and dwell times of products within limits recommended by manufacturers.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials to Site in original containers and packaging with seals unbroken, labeled with manufacturer's name, product brand name and type, date of manufacture, lot number, directions for storing, and complete manufacturer's written instructions.

B. Keep materials dry and do not allow materials to be exposed to moisture during transportation, storage, handling, or installation. Reject and remove from Site new materials which have been exposed to moisture to their detriment.

C. Store and handle materials in accordance with manufacturer's written instructions, safety requirements, and all applicable laws and regulations. Remove from Site, and replace at no cost to Owner, any materials that are damaged or otherwise negatively affected by not being stored or handled in accordance with manufacturer's written instructions.

D. Store materials in original, undamaged containers and packaging in clean, dry, location on raised platforms and protected from weather, within temperature range required by manufacturer. Protect stored materials from direct sunlight and sources of ignition. Manufacturer's standard packaging and covering alone is ***not*** considered adequate weather protection.

E. Locate materials in a secure location approved by Owner's Representative

F. Conspicuously mark damaged or opened containers, containers with contaminated materials, damaged materials, and materials that cannot be used within stated shelf life and remove from Site as soon as possible. Replace discarded materials in a timely manner at no cost to Owner.

G. Limit stored materials on structures so as to preclude damage to materials and structures.

H. Maintain copies of all applicable Safety Data Sheets (SDS) with materials in storage area, such that they are available for ready reference on Site.

1.6 PROJECT CONDITIONS

A. Environmental Limitations:
   1. Perform cleaning Work when air temperature is 40 degrees Fahrenheit or above and is predicted to remain so for at least seven days after completion of cleaning.

2. Do not perform chemical cleaning when air temperature is greater than 90 degrees Fahrenheit.
3. Do not perform cleaning Work when winds are sufficiently strong to spread cleaning materials to unprotected areas.

B. Maintain adequate ventilation during preparation and application of cleaning materials.

1.7 CHANGES IN WORK

A. During rehabilitation work, existing conditions may be encountered which are not known or are at variance with the Contract Documents. Such conditions may interfere with the Work and may consist of damage or deterioration of the substrate or surrounding materials that could jeopardize the performance of the Work.

B. Notify Architect/Engineer of conditions that may interfere with or preclude proper execution of the Work or jeopardize the performance of the Work, prior to proceeding with the Work

PART 2 PRODUCTS

2.1 CLEANING MATERIALS

A. Water for Prewetting, Cleaning, and Rinsing:
1. Clean, potable water.

B. Biocide: D/2 Biological Solution for use on masonry and concrete.

C. Liquid dishwashing detergent with sponge for use at canopy roof.

D. Auxiliary Materials:
1. pH Indicator: Litmus paper or other indicator capable of identifying neutral solutions.

PART 3 EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions with Cleaning Subcontractor and representatives of cleaning materials manufacturers and cleaning equipment suppliers, as applicable, for compliance with requirements and other conditions affecting performance of cleaning Work.
1. Ensure that Work done by other trades is complete and ready for cleaning Work.
2. Verify that areas and conditions under which cleaning Work is to be performed permit proper and timely completion of Work.
3. Notify Architect/Engineer in writing of conditions which may adversely affect cleaning Work and recommend corrections.
4. Do not proceed with cleaning Work until adverse conditions have been reviewed by Architect/Engineer and, if necessary, corrections have been made.
5. Commencing cleaning Work constitutes acceptance of Work surfaces and conditions.

3.2 PROTECTION

A. Cleaning materials may include caustic or acidic chemicals, and may be subject to dispersion by wind and other weather features.

B. Protect the following elements:

1. Surfaces being cleaned from cleaning materials not designated for use on those surfaces.
2. Decorative features, such as bronze plaques, entrances, planters, signs, awnings, canopies, and standards.
3. Paving and sidewalks from staining or damage from cleaning operations.
4. Windows, doors, joints, and other openings from infiltration of water or cleaning materials.
5. Roofing system components

C. Comply with cleaning-material manufacturer's written instructions for protecting building and other surfaces against damage from exposure to its products.

D. Cover adjacent surfaces with materials that are proven to resist cleaners being used unless cleaners will not damage adjacent surfaces.

E. Take precautions to ensure safety of people (including building users, passers-by, and workers) and protection of property (including adjacent building elements, landscaping, and motor vehicles).

F. Erect temporary protective canopies and walls, as necessary, at walkways and at points of pedestrian and vehicular access that must remain in service during Work.

G. Take precautions to protect against air-borne materials and run-off.

H. Protect paving, sidewalk, and adjacent building areas from mechanical damage due to scaffolding and other equipment.

I. Prevent dust, debris, coating overspray/spatter, and other construction materials from coming into contact with pedestrians, motor vehicles, landscaping, buildings, and other surfaces that could be harmed by such contact.

J. Limit access to Work areas.

K. Assume responsibility for injury to persons or damage to property due to Work, and remedy at no cost to Owner.

L. Protect from damage, all elements of completed work and original construction to remain.

3.3 EQUIPMENT

A. Spray Equipment: With pressure gages at compressor and spray nozzle, and volume meter at spray nozzle; ability to adjust pressure and volume at nozzle.
   1. For bio-cide, use low-pressure tank or pump recommended by chemical cleaner manufacturer, equipped with cone-shaped spray nozzle.

3.4 PREPARATION

A. Removal of Plant Growth: Carefully and completely remove vines, moss, shrubs, and plant growth from wall surfaces.
   1. Cut at roots and allow to dry for as long as possible before removal.
   2. Remove loose soil and debris from open joints.

B. Preliminary Cleaning: Before beginning general cleaning, remove extraneous substances that are resistant to cleaning methods being used, including sealant, asphalt, and tar.
   1. Carefully remove heavy accumulations of material from wall surface with wood scraper. Do not scratch or chip wall surface.

3.5 CLEANING, GENERAL

A. Perform cleaning Work in compliance with applicable codes and regulations that govern Work, including city, state, water department, OSHA, and Federal regulations, and with requirements of material manufacturers.

B. Use only cleaning products and methods indicated for wall material and location, and approved by mockups.
   1. Do not use wire brushes or scrapers.

C. Perform cleaning Work in a systematic manner, proceeding from the top of the wall to the bottom in each access area and from one end of the elevation to the other.

D. Perform cleaning Work to achieve uniform coverage of surfaces, including corners, moldings, and interstices, and to produce uniform effect without streaking or damaging wall surface.

E. Keep wall wet below area being cleaned to prevent streaking from runoff.

F. Perform cleaning Work in strict accordance with approved mockup materials and procedures. Propose modifications to materials or methods as necessary to meet or exceed level of cleaning in mockups. Perform mockups of proposed modifications; do not proceed with modifications until approved in writing by Owner's Representative and Architect/Engineer.

G. Prewetting and Rinsing Procedures:
   1. For prewetting and rinsing:
      a. Prewet and rinse surfaces with warm water at minimum flow rate of 4 gallons per minute. Use hot water, if approved, to improve effectiveness of cleaning and rinsing. Do not use higher pressures or lower flow rates unless approved by mock-ups.
         1) Prewet surfaces at maximum pressure of 100 pounds per square inch.
         2) Rinse surfaces at maximum pressure of 400 pounds per square inch.
      b. Use stainless steel nozzle with 45-degree fan spray, held at least 12 inches from surface.
      c. Apply water in a horizontal sweeping motion, overlapping previous strokes vertically to produce uniform coverage.
   2. On hot days, in direct sunlight, or as necessary, prewet multiple times so cleaning solution is applied to wet surface.
   3. Rinse off cleaning solution and soil residue, moving upward from bottom to top of surface at each access location.
      a. Continue rinsing until pH of surface has returned to neutral, 6.5 to 7.5.
      b. Periodically test pH of rinse water running off surface with pH paper.
      c. Repeat application [of neutralizing afterwash if specified]and rinsing as necessary until neutral pH is measured.
      d. Measure pH of surface 48 hours after cleaning has been completed, when wall is dry. If pH is not neutral, rinse surface until neutral pH is achieved.

H. Cleaning with D/2 Biological Solution:
   1. Dry-brush with soft, nylon-bristle brush to remove dense biological growth.
   2. Prewet surface thoroughly.
   3. Liberally apply biocide with soft, nylon-bristle brush, being careful to completely cover surface, including crevices.
   4. Allow to dwell for ten minutes. Keep surface moist by misting as necessary during dwell time.
   5. Immediately prior to rinsing, gently scrub surface brush.
   6. Rinse thoroughly to return pH to neutral.
   7. Test pH of surface to confirm surface has returned to neutral.

8. If brown haze appears following drying, re-rinse with low pressure water.

I. Cleaning with Liquid Dishwashing detergent:
   1. Prewet surface.
   2. Scrub on cleaning solution with sponge.
   3. Rinse thoroughly.
   4. Repeat cleaning sequence as necessary until cleaning standard is achieved.

3.6 FIELD QUALITY CONTROL

A. Architect/Engineer will monitor progress and quality of cleaning Work, possibly including:
   1. Observe completed Work and compare to approved mockups.
   2. Observe wall material with field microscope for damage.
   3. Test pH of runoff and wall surfaces.
   4. Test samples of cleaning products and mixed solutions for conformance with Specifications and approved mockups.

B. Contactor Responsibilities:
   1. Test pH of runoff and wall surfaces to verify neutral pH.
   2. Provide access to Work for Architect/Engineer, Owner's Representative, and other consultants hired by Owner.
   3. Notify Architect/Engineer at least 48 hours in advance of when lift devices or scaffolding will be relocated. Do not relocate lift devices or scaffolding until Architect/Engineer has observed completed Work.
   4. Upon request, provide samples of cleaning products and mixed solutions to Architect/Engineer.

C. Failure to use cleaning products and mix solutions as specified and approved are grounds for immediate termination of Contract Agreement.

D. Remedy areas that do not satisfy requirements at no additional cost to Owner. Modify cleaning procedures as required and approved by Architect/Engineer.

3.7 SITE CLEANING

A. At the end of each workday:
   1. At the end of each workday, broom-clean Site and Work areas and place all items to be discarded in appropriate containers.
   2. Thoroughly rinse sidewalks to remove chemicals, dirt, pollutants, and other materials washed off building.

B. After completing cleaning Work:
   1. Carefully remove protection materials, including tape, adhesive marks, and residue.
   2. Clean spillage and soiling from adjacent surfaces using cleaning agents and procedures recommended by manufacturer of affected surface. Exercise care to avoid scratching or damage to surfaces.
   3. Return building surfaces, landscaping, and grounds to condition prior to cleaning Work, including painted and glass surfaces, to satisfaction of Architect/Engineer at no additional cost to Owner.
   4. Repair at no cost to Owner all items damaged during the Work.
   5. Remove debris and surplus materials from Site.

C. Waste Management:
   1. Collect surplus cleaning materials that cannot be reused and deliver to recycling or disposal facility.

2. Treat materials that cannot be reused as hazardous waste and dispose of per manufacturer's instructions

END OF SECTION

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Brick masonry replacement at wall repair locations and of deteriorated and damaged units, with necessary bracing at removal openings.
   2. Removal and replacement of face brick to repair, paint and install flashing at existing steel lintels.

B. Products Installed But Not Supplied Under This Section:
   1. Masonry mortar: Section 04 05 01.

C. Related Sections:
   1. Section 04 01 20 - Brick Masonry and Stone Cleaning
   2. Section 04 01 27 - Repointing with Cement/Lime Mortar
      Section 04 05 01 - Masonry Mortar
   3. Section 07 62 00 - Sheet Metal Flashing and Trim
   4. Section 07 92 00 - Joint Sealants

1.2 UNIT PRICES

A. The quantities of replacement of areas of the outer wythe of brick and individual bricks to be included in the Base Bid and Supplemental Bids are indicated on the Unit Price Schedule in Section 01019. If actual quantities vary from those indicated on the Unit Price Schedule work is to be completed or deleted on a Unit Price Basis:
   1. Removal and replacement of outer wythe, including shoring. Payment based on vertical surface area of removal.
      a. Square foot of surface area is measured when three or more adjacent bricks are replaced.
   2. Removal and replacement of individual bricks. Payment based on each brick replaced.
      a. Individual brick replacement is measured when less than three adjacent bricks are replaced.

B. Unit price work does not include removal and replacement of face brick to repair, paint and install flashing at existing steel lintels. See Drawings for locations of these repairs.

C. Definitions:
   1. Existing mortar: Mortar currently in joint, including original setting mortar and pointing mortar, and subsequent repair mortar.
   2. Half-moon: Concave configuration of mortar resulting from removal of mortar by grinding only middle portion of joint.
   3. Rake out mortar joint: Removal of hardened mortar from joint.
   4. Repointing: Process of raking out mortar joint to specified depth and placing fresh mortar; also called tuck-pointing.
   5. Thumbprint hard: Mortar that has reached initial set. Time required to achieve initial set varies based on masonry characteristics, weather conditions, and mortar composition.
   6. Low-pressure water spray: 100 to 400 pounds per square inch; 4 to 6 gallons per minute.
   7. Very-low-pressure water spray: less than 100 pounds per square inch.

D. Reference Standards: Latest edition as of Specification date.
   1. ASTM International:

a. C62: Standard Specification for Building Brick (Solid Masonry Units Made from Clay or Shale).
b. C67: Standard Test Methods for Sampling and Testing Brick and Structural Clay Tile.
c. C216: Standard Specification for Facing Brick (Solid Masonry Units Made from Clay or Shale).
d. C1314: Standard Test Method for Compressive Strength of Masonry Prisms.

2. International Building Code (IBC).
3. The Masonry Society (TMS)/American Concrete Institute (ACI)/Structural Engineering Institute of American Society of Civil Engineers (ASCE):
   a. TMS 602/ACI 530.1/ASCE 6: Specification for Masonry Structures.

1.3 SEQUENCING

A. Order materials at earliest possible date, to avoid delaying completion of Work.

B. Perform restoration Work in the following sequence:
1. Remove plant growth.
2. Install brick masonry repairs, including replacement.
3. Repoint mortar joints per Section 04 01 27.
4. Clean masonry per Section 04 01 20.

C. Patch anchor holes as scaffolding is removed.

1.4 SUBMITTALS

A. Product Data: Manufacturer's product description and technical data:
1. Brick masonry units: Include description of allowable cleaning products.
2. Veneer anchors.
3. Weep product.
4. Cleaning solution: Include written instructions for evaluating and preparing substrate; technical data including solution components and VOC content of components; and application instructions.
5. Include Safety Data Sheets (SDS) for information only

B. Samples: Before erecting mockup, submit samples for each type of specified product:
1. Face brick, in straps of five or more bricks, from at least two potential brick sources selected by Contractor. Five bricks shall show extremes of variation in color and texture.
2. Special brick shapes.
3. Veneer anchors.
4. Weep product.

C. Material Certificates: Statement of material properties indicating compliance with requirements, including statement that no coatings have been applied to units during manufacture. Provide for each type and size of unit.

D. Test Reports:
1. Brick Masonry Units: Test units from same run of brick that will be used on Project, or on similar brick run, in opinion of Architect/Engineer, with tests performed in last year.
   a. Brick size variation data, confirming that actual range of sizes satisfies specified tolerances.
   b. Test reports from independent testing laboratory showing the following test results:
      1) Compressive strength.
      2) 24-hour cold-water absorption.
      3) 5-hour boil absorption.

4) Saturation coefficient.
5) Initial rate of absorption.
6) Efflorescence.
7) Freeze-thaw testing, if required to verify conformance with requirements.

E. Contractor Qualifications: Evidence that Contractor's *existing company* has minimum five years of continuous experience in similar repair work; list of at least five representative, successfully-completed projects of similar scope and size, including:
1. Project name.
2. Owner's name.
3. Owner's Representative name, address, and telephone number.
4. Description of brick masonry repair work.
5. Project supervisor.
6. Total cost of brick masonry repair work and total cost of project.
7. Completion date.

1.5 QUALITY ASSURANCE

A. Contractor Qualifications: Experienced firm that has successful completed repair work similar in material, design, and extent to that indicated for the Project. Must have successful construction with specified materials in local area in use for minimum of five years.
1. Employ foreman with minimum five years of experience as foreman on similar projects, who is fluent in English, to be on Site at all times during the Work. Do not change foremen during the course of the Project except for reasons beyond the control of Contractor; inform Architect/Engineer in advance of any changes.
2. Employ masons with minimum two years of experience in similar repair work. Fully supervise apprentices with experienced masons.

B. Preconstruction Testing: Engage qualified independent testing agency to test compression strength of brick masonry assembly and minimum tension capacity of repair anchors.
1. Brick-masonry-assembly compression tests:
a. Construct prisms for each type of brick unit and mortar.
b. Test per ASTM C1314.
c. Retest of materials that fail to meet specified requirements at no cost to Owner.

C. Mockups: Construct mockups to demonstrate construction procedures, quality of Work, and aesthetic effects.
1. Construct wall repair in at least 2 areas approximately 12 inches high by 24 inches wide for each type of repair specified.
2. Construct mockups on existing walls, at locations designated by Architect/Engineer and in presence of Architect/Engineer, under same weather conditions expected during Work. Provide access to mockup locations.
3. Photograph concealed portions of approved mockup before concealing, and retain photographs at Site.
4. If Architect/Engineer or Owner's Representative determines mockup does not comply with requirements, modify mockup or construct new mockup until mockup is approved.
5. Approved mockups shall be maintained in undisturbed condition throughout Project as basis for acceptance of completed Work and may become part of completed Work if undisturbed at time of Substantial Completion.
6. If Owner's Representative and Architect/Engineer determine mockup does not comply with requirements, modify mockup or construct new mockup until mockup is approved.

7. Do not order materials or proceed with repair Work until mockups have been approved by Architect/Engineer and Owner's Representative.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials to Site in original containers and packaging with seals unbroken, labeled with manufacturer's name, product brand name and type, date of manufacture, lot number, directions for storing, and complete manufacturer's written instructions.

B. Keep materials dry and do not allow materials to be exposed to moisture during transportation, storage, handling, or installation. Reject and remove from Site new materials which have been exposed to moisture to their detriment.

C. Store and handle materials in accordance with manufacturer's written instructions, safety requirements, and all applicable laws and regulations. Remove from Site, and replace at no cost to Owner, any materials that are damaged or otherwise negatively affected by not being stored or handled in accordance with manufacturer's written instructions.

D. Store materials in original, undamaged containers and packaging in clean, dry, location on raised platforms and protected from weather, within temperature range required by manufacturer. Protect stored materials from direct sunlight and sources of ignition. Manufacturer's standard packaging and covering alone is ***not*** considered adequate weather protection.

E. Locate materials in a secure location approved by Owner's Representative

F. Conspicuously mark damaged or opened containers, containers with contaminated materials, damaged materials, and materials that cannot be used within stated shelf life and remove from Site as soon as possible. Replace discarded materials in a timely manner at no cost to Owner.

G. Limit stored materials on structures so as to preclude damage to materials and structures.

H. Maintain copies of all applicable Safety Data Sheets (SDS) with materials in storage area, such that they are available for ready reference on Site.

1.7 PROJECT CONDITIONS

A. Verify existing dimensions and details prior to start of Work. Promptly notify Architect/Engineer of conditions found to be different than those indicated in the Contract Documents. Architect/Engineer will review situation and inform Contractor how to proceed.

B. Comply with Owner's limitations and restrictions for Site use and accessibility.

C. Environmental Limitations: Install repairs only when air temperature is between 40 degrees F and 90 degrees F and is forecast to remain so for at least seven days after completion of Work, unless precautions acceptable to Architect/Engineer are taken.

1.8 CHANGES IN WORK

A. During rehabilitation work, existing conditions may be encountered which are not known or are at variance with the Contract Documents. Such conditions may interfere with the Work and may consist of damage or deterioration of the substrate or surrounding materials that could jeopardize the integrity or performance of the Work.

1. Notify Architect/Engineer of conditions that may interfere with or preclude proper execution of the Work or jeopardize the performance of the Work prior to proceeding with the Work.

PART 2 PRODUCTS

2.1 GENERAL

A. Source Limitations: Obtain each type of material from one source with resources to provide materials of consistent quality in appearance and physical properties.

B. For units that will be exposed in completed Work, use units with uniform texture and color, within accepted ranges for these characteristics.

C. Defective Units: Referenced brick masonry unit standards may allow a certain percentage of units to exceed tolerances and to contain chips, cracks, or other defects exceeding the limits stated in the standards. Do not use units where such defects, including dimensions that vary from specified dimensions by more than the stated tolerances, will be exposed in completed Work or will impair the quality of completed brick masonry.

2.2 BRICK MASONRY UNITS

A. Face Brick: ASTM C216, Grade SW, Type FBS; ASTM C67.
   1. Unit Compressive Strength: Minimum average compressive strength of 5000 pounds per square inch, based on net area.
   2. Maximum Saturation Coefficient: For units with 24-hour cold-water absorption greater than 8 percent:
      a. Not more than average of 0.68 and 0.70 for individual test.
   3. Initial Rate of Absorption: Less than 25 grams per 30 square inches of surface area per minute. Individual units shall not vary by more than five percent.
   4. Efflorescence: Rated “not effloresced.”
   5. Size, actual dimensions: 3/1/2 inches wide by 2 1/4 inches high by 8 inches long.
   6. Brick Type:
      a. 1912 Building: Glen-Gery 56-DD.
      b. 1928 Building: Glen-Gery 53-DD.

2.3 MORTAR

A. Mortar: Type N; Section 04 05 01.

2.4 VENEER ANCHORS

A. Veneer Anchors: Type 304 stainless steel. Use one of the following or approved equal:
   1. #315-D with 316 Screw on Anchor Plate by Heckmann Building Products, Inc.
      a. 315-D: 14 Gauge
      b. 316 Triangular Wire Tie : 3/16” diameter x 3-1/2”
   2. DW-10HS with Vee Byna Tie by Hohmann & Barnard Company.
      a. DW-10 HS:14 gauge
      b. Vee Byna Tie: 3/16” diameter x 3-1/2”

B. Fasteners for Veneer Anchors:
   1. Type: Masonry screw anchors

2. Material: Stainless Steel
3. Diameter: 1/4”in
4. Embedment: 1-3/4”

2.5 AUXILIARY MATERIALS

A. Weeps: Match height, depth, and thickness of head joints. Use one of the following or approved equal.
   1. QV - Quadro-Vents by Hohmann & Barnard, Inc.
   2. No 85 Cell Vents by Heckmann Building Products, Inc.

B. Cleaning Materials:
   1. Cleaning Solutions: Use Enviro Klean Safety Klean by Prosoco, Inc.; Mix one part cleaner with three parts water by volume; or approved non-acid equal.

PART 3 EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions for compliance with requirements and other conditions affecting installation or performance of repair Work.
   1. Ensure that work done by other trades is complete and ready for repair Work.
   2. Verify that areas and conditions under which repair Work is to be performed permit proper and timely completion of Work.
   3. Notify Architect/Engineer in writing of conditions which may adversely affect installation or performance of repair Work and recommend corrections.
   4. Do not proceed with repair Work until adverse conditions have been corrected and reviewed by Architect/Engineer.
   5. Commencing repair Work constitutes acceptance of Work surfaces and conditions.

B. Remove and discard brick units that are chipped, broken, stained, or otherwise damaged beyond specified tolerances, or that do not match submitted sample.
   1. Intact units not meeting approved color range can be used in concealed areas if approved in writing by Architect/Engineer.

3.2 PROTECTION

A. Prevent mortar from staining face of surrounding brick masonry and other surfaces.
   1. Cover sills, ledges, and projections to protect from mortar droppings.
   2. Keep wall area below Work area wet to discourage mortar from adhering.
   3. Immediately remove mortar in contact with exposed brick masonry and other surfaces.

B. Take precautions to ensure safety of people (including building users, passers-by, and workers) and protection of property (including adjacent building elements, landscaping, and motor vehicles).

C. Erect temporary protective canopies and walls, as necessary, at walkways and at points of pedestrian and vehicular access that must remain in service during Work.

D. Take precautions to protect against air-borne materials and run-off.

E. Protect paving, sidewalk, and adjacent building areas from mechanical damage due to scaffolding and other equipment.

F. Prevent dust, debris, coating overspray/spatter, and other construction materials from coming into contact with pedestrians, motor vehicles, landscaping, buildings, and other surfaces that could be harmed by such contact.

G. Limit access to Work areas.

H. Assume responsibility for injury to persons or damage to property due to Work, and remedy at no cost to Owner.

I. Protect from damage, all elements of completed work and original construction to remain.

3.3 BRICK REMOVAL AND REPLACEMENT

A. Remove bricks at locations indicated on Drawings; designated by Architect/Engineer and bricks that are cracked, spalled, displaced, or deteriorated.
   1. Prior to beginning Work, notify Architect/Engineer and Owner's Representative of locations of damaged or deteriorated brick that are not indicated for repair in Contract Documents.

B. Carefully demolish and remove entire units and mortar from joint to joint, without damaging surrounding brick masonry, in manner that permits replacement with full-size units. Remove and replace sound bricks that are damaged during Work at no cost to Owner.

C. Support and protect brick masonry and other construction in and around removal areas.
   1. For removal areas larger than 3 feet by 3 feet, support brick masonry above with temporary bracing.
   2. Maintain flashings, reinforcement, lintels, and adjoining construction in undamaged condition.

D. Notify Architect/Engineer of detrimental conditions including voids, cracks, bulges, displacements, and loose units in masonry backup, rotted wood, corroded metal, and other deteriorated conditions.

E. Cover openings and partially completed Work with strong waterproof material at the end of each day, if precipitation is imminent, or when Work is not in progress. Extend waterproof material at least 2 feet beyond edges of opening and secure in place.

F. Clean brick masonry surrounding removal areas by removing mortar, dust, and loose particles.

G. Brick Installation:
   1. Install brick to match existing bonding and coursing pattern.
   2. If cutting is required, use motor-driven saw designed to cut brick masonry with clean, sharp, unchipped edges.
   3. Wet replacement and surrounding existing bricks to saturated, surface dry condition, with no moisture visible on surface.
   4. Lay replacement brick as plumb and true to line as adjacent surfaces will permit; new brickwork shall be flush with existing.
   5. Lay replacement brick with completely filled bed, head, and collar joints. Do not furrow bed joints. Butter ends with sufficient mortar to fill head joints, and shove into place.
   6. Maintain joint width to match existing joints.
      a. When mortar is thumbprint hard, tool exposed mortar joints in repair areas with round jointer slightly larger than width of joint. Tool joints to match adjacent existing joints.
      b. Rake out mortar used for laying brick before mortar sets. Repoint joints in repair area with repointing of surrounding wall area.
   7. Do not pound corners and jambs to fit stretcher units after they are set in position. Where adjustment must be made after brick has been placed, remove and replace mortar.

8. Install mortar at top and ends of repair by packing layers of mortar into joints with tuck pointer's tool.
9. Install veneer anchors 16 inches on center horizontally and vertically.
    a. Install anchors 8 inches on center around perimeter of repair.
    b. Embed anchors in mid-thickness of joint, with 3/4 inches minimum and 1 3/4 inches maximum cover from exterior face of veneer.
10. Construct weeps 24 inches maximum on center, in head joints in first course immediately above flashing. Keep weeps free of mortar droppings.
11. If brick placement is stopped while in progress, either at the end of the day or for some other reason, stop horizontal runs by raking back mortar in each course one half unit length; do not terminate in vertical tooth pattern.

H. Hot- and Cold-Weather Requirements: When ambient air temperature is below 40 degrees F, exceeds 100 degrees F, or exceeds 90 degrees F with wind velocity greater than 8 miles per hour, suspend Work or comply with requirements of TMS 602/ACI 530.1/ASCE 6 and governing codes.

3.4 FIELD QUALITY CONTROL

A. Notify Architect/Engineer:
1. Of field conditions that deviate from repair details.
2. At least 24 hours in advance of when lift device or scaffolding will be relocated. Do not relocate lift device or scaffolding until Architect/Engineer has observed completed Work at lift device or scaffold location.

B. Allow Architect/Engineer use of lift device or scaffolding to observe progress and quality of Work.

3.5 CLEANING

A. At the end of each workday:
1. At the end of each workday, broom-clean Site and Work areas and place all items to be discarded in appropriate containers.

B. Clean repair areas 24 to 48 hours after completion of Work.
1. Cleaning equipment:
    a. For acidic cleaners, use soft, nylon-bristle brush or roller. For neutral or alkaline cleaners, use soft, natural-bristle brush or roller.
    b. Pressure rinsing equipment that can provide controlled application of heated water.
        1) Allowable pressure: 400 to 600 pounds per square inch, or as approved by mockups.
        2) Water flow rate: 4 to 8 gallons per minute.
        3) Water may be heated to 120 degrees F to assist in cleaning.
        4) Use stainless steel nozzle with 15-to-40-degree fan spray.
        5) Equipment shall have no ferrous parts.
2. Remove large particles of mortar from exposed brick masonry surfaces with wood paddles or scrapers. Do not use metal scrapers or brushes unless approved by Architect/Engineer.
3. Clean surfaces with Enviro Klean Safety Klean.
    a. Saturate brick masonry with water and flush off loose mortar and dirt.
    b. Liberally apply cleaning solution.
    c. Allow to dwell for three to five minutes. Keep surface moist by misting as necessary during dwell time.
    d. Reapply cleaning solution and gently scrub surface with soft brush.
    e. Rinse thoroughly with low-pressure water, from bottom to top of wall. Keep wall below wet and rinsed free of cleaner and residue.

4. Remove rust stains:
    a. Prewet surface.
    b. Liberally apply oxalic or phosphoric acid solution with soft, natural-bristle brush, being careful to completely cover surface of area, including crevices.
    c. Allow to dwell for 15 minutes. Keep surface moist by misting as necessary during dwell time.
    d. Immediately prior to rinsing, gently scrub surface with brush.
    e. Rinse thoroughly to return pH to neutral.
    f. Test pH of surface to confirm surface has returned to neutral.
    g. Repeat cleaning sequence as necessary until cleaning standard is achieved.
    h. Within one hour after first rinse, rinse second time with water at 50 psi pressure or less for at least two minutes to remove cleaner residue.

C. After completing cleaning Work:
1. Clean spillage and soiling from adjacent surfaces using cleaning agents and procedures recommended by manufacturer of affected surface. Exercise care to avoid scratching or damage to surfaces.
2. Sweep and rake adjacent pavement, landscaping, and grounds to remove masonry debris. Where necessary, pressure wash surfaces to remove mortar, dust, dirt, and stains.
3. Return building surfaces to condition prior to cleaning Work, including painted and glass surfaces, to satisfaction of Architect/Engineer at no additional cost to Owner.
4. Repair at no cost to Owner all items damaged during the Work.
5. Remove debris and surplus materials from Site.

3.6 BRICK MASONRY SALVAGE AND WASTE DISPOSAL

A. Unless otherwise indicated, excess brick units are Owner's property. At completion of masonry repair Work, store units in location approved by Owner's Representative.

B. Remove scaffolding, equipment, surplus materials, debris, and refuse from Site and dispose of legally.

END OF SECTION

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PART 1 GENERAL

1.1 SUMMARY

A. Section Includes: Repointing of exterior brick masonry, stone and cast stone joints at all exterior locations unless otherwise noted on Drawings.

B. Products installed but not supplied under this Section
   1. Masonry mortar: Section 04 05 01.

C. Related Sections:
   1. Section 04 01 20 –Brick Masonry and Stone Cleaning
   2. Section 04 01 21 – Brick Masonry Repair and Replacement
   3. Section 04 01 40.91 – Stone Restoration
   4. Section 04 05 01 – Masonry Mortar

1.2 REFERENCES

A. Definitions:
   1. Existing mortar: Mortar currently in joint, including original setting mortar and pointing mortar, and subsequent repair mortar.
   2. Half moon: Concave configuration of mortar resulting from removal of mortar by grinding only middle portion of joint.
   3. Rake out mortar joint: Removal of hardened mortar from joint.
   4. Repointing: Process of raking out mortar joint to specified depth and placing fresh mortar; also called tuckpointing.
   5. Thumbprint hard: Mortar that has reached initial set. Time required to achieve initial set varies based on masonry characteristics, weather conditions, and mortar composition.
   6. Low-pressure water spray: 100 to 400 pounds per square inch; 4 to 6 gallons per minute.
   7. Very-low-pressure water spray: less than 100 pounds per square inch.

1.3 ADMINISTRATIVE REQUIREMENTS

A. Coordinate Work to ensure that adjacent areas are not adversely affected. Coordinate:
   1. With Owner's Representative.
   2. With other restoration and cleaning work.
   3. With other trades:
      a. To ensure that work done by other trades is complete and ready for repointing Work.
      b. To avoid or minimize work in immediate vicinity of repointing Work in progress.
      c. To ensure that subsequent work will not adversely affect repointed surfaces.

B. Scheduling:
   1. Order materials at earliest possible date, to avoid delaying completion of Work.
   2. Order sand for repointing mortar immediately after approval of mockups. Take delivery of and store at Site a sufficient quantity of sand to complete Project.

1.4 SUBMITTALS

A. Repointing Subcontractor Qualifications: Evidence that Subcontractor's *existing company* has minimum ten years of continuous experience with masonry restoration work with cement-lime mortar; list of at least five representative, successfully-completed projects of similar scope and size, including:
   1. Project name.
   2. Owner's name.
   3. Owner's Representative name, address, and telephone number.

4. Description of repointing work.
5. Project supervisor.
6. Total cost of repointing work and total cost of project.
7. Completion date.

1.5 QUALITY ASSURANCE

A. Repointing Subcontractor Qualifications: Experienced firm that has successfully completed repointing Work similar in material, design, and extent to that indicated for the Project. Must have successful construction with specified materials in local area in use for minimum of five years.
   1. Employ foreman with minimum five years of experience as foreman on similar projects, who is fluent in English, to be on Site at all times during the Work. Do not change foremen during the course of the Project except for reasons beyond the control of Subcontractor; inform Architect/Engineer in advance of any changes.
   2. Employ masons with minimum two years of experience in placement of repointing mortar. Fully supervise apprentices with experienced masons.

B. Mockups: Rake out joints in wall area approximately 3 feet high by 12 feet wide and repoint joints in half of area, to demonstrate surface preparation, execution quality, and aesthetic effect.
   1. Prepare mockup for each type of repointing required, under same weather conditions anticipated during Work.
   2. Include cleaning mortar from masonry units adjacent to joints.
   3. Allow mockups to cure 14 days minimum prior to inspection by Owner's Representative and Architect/Engineer.
   4. If Owner's Representative or Architect/Engineer determines mockup does not comply with requirements, modify mockup or construct new mockup until mockup is approved.
   5. Approved mockups will be standard for judging completed Work.
   6. Approved mockups may become part of completed Work if undisturbed at time of Substantial Completion.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials to Site in original containers and packaging with seals unbroken, labeled with manufacturer's name, product brand name and type, date of manufacture, lot number, directions for storing, and complete manufacturer's written instructions.

B. Keep materials dry and do not allow materials to be exposed to moisture during transportation, storage, handling, or installation. Reject and remove from Site new materials which have been exposed to moisture to their detriment.

C. Store and handle materials in accordance with manufacturer's written instructions, safety requirements, and all applicable laws and regulations. Remove from Site, and replace at no cost to Owner, any materials that are damaged or otherwise negatively affected by not being stored or handled in accordance with manufacturer's written instructions.

D. Store materials in original, undamaged containers and packaging in clean, dry, location on raised platforms and protected from weather, within temperature range required by manufacturer. Protect stored materials from direct sunlight and sources of ignition. Manufacturer's standard packaging and covering alone is ***not*** considered adequate weather protection.

E. Locate materials in a secure location approved by Owner's Representative

F. Conspicuously mark damaged or opened containers, containers with contaminated materials, damaged materials, and materials that cannot be used within stated shelf life and remove from Site as soon as possible. Replace discarded materials in a timely manner at no cost to Owner.

G. Limit stored materials on structures so as to preclude damage to materials and structures.

H. Maintain copies of all applicable Safety Data Sheets (SDS) with materials in storage area, such that they are available for ready reference on Site.

1.7 PROJECT CONDITIONS

A. Verify existing dimensions and details prior to start of repointing Work. Notify Architect/Engineer of conditions found to be different than those indicated in the Contract Documents. Architect/Engineer will review situation and inform Contractor and Repointing Subcontractor of how to proceed.

B. Comply with Owner's limitations and restrictions for Site use and accessibility.

C. Environmental Limitations:
   1. Place mortar in joints only when substrate and ambient temperatures are above 40 degrees F and predicted to remain so for at least seven days after completion of Work, unless procedures and precautions approved by Architect/Engineer are used in response to lower temperatures.
   2. Place mortar in joints only when substrate and ambient temperatures are at or below 90 degrees F and predicted to remain so for at least seven days after completion of Work, unless procedures and precautions approved by Architect/Engineer are used in response to higher temperatures.

1.8 CHANGES IN WORK

A. During rehabilitation work, existing conditions may be encountered which are not known or are at variance with the Contract Documents. Such conditions may interfere with, or preclude, the Work and may consist of damage or deterioration of the substrate or surrounding materials that could jeopardize the integrity or performance of the Work.
   1. Notify Architect/Engineer of conditions that may interfere with proper execution of the Work or jeopardize the performance of the Work prior to proceeding with the Work.

PART 2 PRODUCTS

2.1 MATERIALS

A. Mortar: Refer to Section 04 05 01.

B. Cleaning Materials: Enviro Klean Safety Klean by Prosoco, Inc.; Mix one part cleaner with three parts water by volume; or approved equal.

PART 3 EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions for compliance with requirements and other conditions affecting installation or performance of repointing Work.
   1. Ensure that work done by other trades is complete and ready for repointing Work.
   2. Verify that areas and conditions under which repointing Work is to be performed permit proper and timely completion of Work.
   3. Notify Architect/Engineer in writing of conditions which may adversely affect installation or performance of repointing Work and recommend corrections.
   4. Do not proceed with repointing Work until adverse conditions have been corrected and reviewed by Architect/Engineer.
   5. Commencing repointing Work constitutes acceptance of Work surfaces and conditions.

3.2 PROTECTION

A. Prevent mortar from staining face of surrounding masonry and other surfaces.
   1. Cover sills, ledges, and projections to protect from mortar droppings. Do not extend coverings into mortar joints.
   2. Keep wall area wet below rebuilding and repointing Work to discourage mortar from adhering.

B. Cleaning materials may include caustic or acidic chemicals, and may be subject to dispersion by wind and other weather features.

C. Protect the following elements:
   1. Surfaces being cleaned from cleaning materials not designated for use on those surfaces.
   2. Decorative features, such as bronze plaques, entrances, planters, signs, awnings, canopies, and standards.
   3. Paving and sidewalks from staining or damage from cleaning operations.
   4. Windows, doors, joints, and other openings from infiltration of water or cleaning materials.
   5. Roofing system components

D. Comply with cleaning-material manufacturer's written instructions for protecting building and other surfaces against damage from exposure to its products.

E. Cover adjacent surfaces with materials that are proven to resist cleaners being used unless cleaners will not damage adjacent surfaces.

F. Take precautions to ensure safety of people (including building users, passers-by, and workers) and protection of property (including adjacent building elements, landscaping, and motor vehicles).

G. Erect temporary protective canopies and walls, as necessary, at walkways and at points of pedestrian and vehicular access that must remain in service during Work.

H. Take precautions to protect against air-borne materials and run-off.

I. Protect paving, sidewalk, and adjacent building areas from mechanical damage due to scaffolding and other equipment.

J. Prevent dust, debris, coating overspray/spatter, and other construction materials from coming into contact with pedestrians, motor vehicles, landscaping, buildings, and other surfaces that could be harmed by such contact.

K. Limit access to Work areas.

L. Assume responsibility for injury to persons or damage to property due to Work, and remedy at no cost to Owner.

M. Protect from damage, all elements of completed work and original construction to remain.

3.3 REPOINTING MORTAR JOINTS

A. Rake out and repoint all mortar joints unless noted otherwise on the Drawings.
   1. Do not rake out and repoint joints where not required.

B. Remove gutters and downspouts adjacent to and in Work area and store. Reinstall when Work is complete. Provide temporary rain drainage to direct water away from building.

C. Rake out joints as demonstrated in approved mockup:

1. Remove mortar from joints to depth of at least 1 inch or 1 1/2 times the joint width, whichever is greater from face of unit, to expose sound, unweathered mortar. If unsound mortar extends more than 1 inch from face of units, stop Work and notify Architect/Engineer.
2. Remove mortar to provide reveals with square backs and to expose clean masonry surfaces. Do not leave half moons.
3. Cut out center of mortar bed joints using angle grinders with diamond-impregnated metal blades. Remove remaining mortar by hand with chisel and mallet.
    a. Strictly adhere to written quality control program. Quality control program shall include provisions for demonstrating ability of operators to use tools without damaging masonry, supervising performance, and preventing damage due to worker fatigue.
    b. Width of power tool blade should not exceed 1/3 the width of the joints.
    c. Square off rounded backs created by grinders.
4. Do not spall edges of masonry units or widen joints. Replace damaged masonry units as directed by Architect/Engineer.
5. Remove sealant from joints.
6. Brush, vacuum, or flush joints with water to remove dirt and loose debris.

D. Notify Architect/Engineer of unforeseen detrimental conditions including voids in mortar joints, cracks, loose units, rotted wood, rusted metal, and other deteriorated items.

E. Cover wall in ground-out areas that have not yet been fully repointed when Work is not in progress.
1. Extend cover 24 inches minimum beyond ground-out area.
2. Hold cover securely in place.

F. Masonry units adjacent to repair areas that are damaged during Work shall be removed and replaced at Contractor's expense and to acceptance of Architect/Engineer and Owner's Representative.

G. Repoint joints:
1. Blow loose mortar and dust out prepared joints with compressed air, or vacuum joints.
2. Rinse joint surfaces with very-low-pressure water spray to remove residual dust and mortar particles. Time rinsing so joint surfaces are damp but free of standing water at time of repointing. If joint surfaces dry, dampen before repointing.
3. Place mortar in areas with greater removal depths than surrounding areas, until uniform depth is achieved.
    a. Place in layers not greater than 1/4 inch.
    b. Fully compact each layer and allow to become thumbprint hard before applying next layer.
4. After deeper removal areas have been filled, place mortar in joints.
    a. Place in layers not greater than 1/4 inch.
    b. Fully compact each layer and allow to become thumbprint hard before applying next layer.
    c. Where existing masonry has worn or rounded edges, slightly recess finished mortar surface from face of masonry to avoid wider joints.
    d. Take care not to spread mortar onto exposed masonry surfaces or to featheredge mortar.
5. When mortar is thumbprint hard, tool joints to match original appearance of joints. Remove excess mortar from edges of joints by brushing.

H. Cure mortar by maintaining in damp condition for at least 72 hours, including weekends and holidays.
1. Acceptable curing methods include covering with wet burlap and plastic sheeting; periodic hand misting; or periodic mist spraying using system of pipes, mist heads, and timers.
2. Adjust curing method to ensure that repointing mortar is damp throughout its depth without eroding surface mortar.

3.4 FIELD QUALITY CONTROL

A. Owner may retain Architect/Engineer or qualified independent inspection agency to observe the progress and quality of Work and prepare inspection reports.

1. Allow inspector use of lift devices and scaffolding to access Work areas.
2. Notify inspector at least 48 hours in advance of times when lift devices and scaffolding will be relocated.

3.5 CLEANING

A. Immediately after completing repointing Work in a work area, remove mortar from exposed masonry and other surfaces.
   1. Wipe excess mortar from masonry surfaces adjacent to mortar joints with damp sponge or cloth.
      a. Use only sponge or cloth that is damp, not wet or saturated. When tightly squeezed, water should not run from damp sponge or cloth. Surface of masonry shall not have visible accumulation of water immediately following cleaning.
      b. Do not touch or disturb newly-installed repointing mortar during cleaning.
      c. Clean until mortar and mortar haze are removed from adjacent masonry surfaces.
   2. Wash adjacent woodwork and other non-masonry surfaces with detergent and soft brushes or cloths.

B. After mortar has fully cured, thoroughly rinse wall surfaces affected by repointing Work to remove dust and other surface residue resulting from repointing Work. Use very-low-pressure water spray.
   1. Remove excess mortar and foreign matter from exposed masonry surfaces with wood scrapers, stiff-nylon or fiber brushes, and water spray.
      a. Do not use metal scrapers or brushes.
      b. Do not use acidic or alkaline cleaners unless specified herein or approved by Architect/Engineer.

C. If mortar remains on wall surface after mortar has fully cured and initial clean-up has been performed, the following procedure may be used if deemed appropriate by Architect/Engineer:
   1. Remove large particles of mortar with wood paddles and scrapers before wetting wall. Do not damage masonry.
   2. Do not clean wall with chemicals prior to 72 hours after repointing Work is completed.
   3. Clean trial area to determine effectiveness and any necessary modifications to cleaning procedure.
   4. Cleaning Procedure:
      a. Pre-wet areas of wall to be cleaned prior to installation of cleaning solution.
      b. Use specified cleaner in accordance with manufacturer's written recommendations.
         1) Mix one part cleaner with three parts water by volume.
      c. Do not allow cleaning solution to dry on masonry.
      d. Saturate wall with clean water and flush off loose mortar and dirt. Scrub with stiff fiber brush. Thoroughly wash off cleaning solution, dirt, and mortar crumbs with clean, low-pressure water.
      e. Repeat cleaning process as necessary.
      f. Thoroughly rinse wall. When wall is almost dry, check pH of wall with test paper. Continue to rinse wall until pH is between six and eight.

D. Clean mortar splatters from scaffolding at the end of the day.

E. Patch anchor holes as scaffolding is removed.

F. Remove debris from Work from roof, gutters, and downspouts. Rinse off roof and flush gutters and downspouts.

G. At the end of each workday, broom-clean Site and Work areas and place all items to be discarded in appropriate containers.

H. Return building surfaces, landscaping, and grounds to condition prior to cleaning Work, to satisfaction of Architect/Engineer at no additional cost to Owner.

I. At conclusion of repointing Work, remove scaffolding and equipment used in Work.

J. Repair at no cost to Owner all items damaged during the Work.

K. Remove debris and surplus materials from Site.

END OF SECTION

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PART 1 GENERAL

1.1 SUMMARY

A. Section Includes: Restoration of deteriorated and distress stone facade units and cast stone façade units.

B. Products Installed but not Supplied under this Section:
   1. Masonry mortar: Section 04 05 01.
   2. Sealant: Section 07 92 00.

C. Related Sections:
   1. Section 04 01 20 - Brick Masonry and Stone Cleaning
   2. Section 04 01 27 - Repointing with Cement/Lime Mortar
      Section 04 05 01 - Masonry Mortar
   3. Section 07 62 00 - Sheet Metal Flashing and Trim
   4. Section 07 92 00 - Joint Sealants

1.2 UNIT PRICES

A. The quantities of crack grout injection and stone patching to be included in the Base Bid and Supplemental Bids are indicated on the Unit Price Schedule in Section 01019. If actual quantities vary from those indicated on the Unit Price Schedule work is to be completed or deleted on a Unit Price Basis:
   1. Crack grout injection. Payment based on linear feet of cracks injected.
   2. Patching. Payment based on square feet of surface area of installed patches.

1.3 SUBMITTALS

A. Product Data: Manufacturer's literature including material properties; test data substantiating that products comply with requirements; recommendations for storage and handling; installation procedures; and recommendations for field testing. Include VOC content of components.
   1. Include Safety Data Sheets (SDS) for information only.

B. Samples:
   1. Repair Mortar: Three briquettes at least 3 inches long by 3 inches wide, for each type of repair mortar. Include manufacturer and stock number or other information necessary to order additional material for each sample. Samples will be compared with cleaned existing stone panels.

C. Qualifications:
   1. Contractor: Evidence that Contractor's *existing company* has minimum five years of continuous experience in similar stone restoration work; list of at least five representative, successfully-completed projects of similar scope and size, including:
      a. Project name.
      b. Owner's name.
      c. Owner's Representative name, address, and telephone number.
      d. Description of stone restoration work.
      e. Project supervisor.
      f. Total cost of stone restoration work and total cost of project.
      g. Completion date.

D. Record Documentation: Elevation drawings showing as-built repair locations and types of repairs installed.

1.4 QUALITY ASSURANCE

A. Qualifications:
   1. Contractor: Experienced firm that has successful completed stone restoration work similar in material, design, and extent to that indicated for the Project. Must have successful construction with specified materials in local area in use for minimum of five years.
      a. Foreman: Minimum five years of experience as foreman on similar projects, who is fluent in English, to be on Site at all times during the Work. Do not change foremen during the course of the Project except for reasons beyond the control of Contractor; inform Architect/Engineer in advance of any changes.
      b. Stone masons: Minimum five years of experience as stone mason on similar projects.

B. Mockups: Perform mockups of repair Work to demonstrate quality of surface preparation, repair installation, and execution, and completed repair appearance.
   1. Mockups shall include:
      a. Patches: 12 inches square minimum.
   2. Construct mockups on existing walls, at locations designated by Architect/Engineer and in presence of Architect/Engineer, under same weather conditions expected during Work. Provide access to mockup locations.
   3. Demonstrate specified materials and methods, using tools and equipment intended for use by workmen who will perform Work.
   4. Photograph concealed portions of approved mockup before concealing, and retain photographs at Site.
   5. If Architect/Engineer determines mockup does not comply with requirements, modify mockup or construct new mockup until mockup is approved.
      a. Architect/Engineer and Owner's Representative will determine acceptability of color mortar repairs compared to cleaned existing stone
   6. Approved mockups shall be maintained in undisturbed condition throughout Project as basis for acceptance of completed Work and may become part of completed Work if undisturbed at time of Substantial Completion.
   7. At direction of Architect/Engineer, remove unacceptable mockups.
   8. Do not order materials or proceed with repair Work until mockups have been approval by Architect/Engineer and Owner's Representative.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Do not use liquids that have frozen, or cementitious materials that were exposed to moisture.

B. Limit stored materials on structures so as to preclude damage to materials and structures. Do not store large numbers of stone panels on structure unless approved in advance by Architect/Engineer.

C. Deliver materials to Site in original containers and packaging with seals unbroken, labeled with manufacturer's name, product brand name and type, date of manufacture, lot number, directions for storing, and complete manufacturer's written instructions.

D. Keep materials dry and do not allow materials to be exposed to moisture during transportation, storage, handling, or installation. Reject and remove from Site new materials which have been exposed to moisture to their detriment.

E. Store and handle materials in accordance with manufacturer's written instructions, safety requirements, and all applicable laws and regulations. Remove from Site, and replace at no cost to Owner, any materials that are damaged or otherwise negatively affected by not being stored or handled in accordance with manufacturer's written instructions.

F. Store materials in original, undamaged containers and packaging in clean, dry, location on raised platforms and protected from weather, within temperature range required by manufacturer. Protect stored materials from direct sunlight and sources of ignition. Manufacturer's standard packaging and covering alone is ***not*** considered adequate weather protection.

G. Locate materials in a secure location approved by Owner's Representative

H. Conspicuously mark damaged or opened containers, containers with contaminated materials, damaged materials, and materials that cannot be used within stated shelf life and remove from Site as soon as possible. Replace discarded materials in a timely manner at no cost to Owner.

I. Maintain copies of all applicable SDS (Safety Data Sheets) with materials in storage area, such that they are available for ready reference on Site.

1.6 PROJECT CONDITIONS

A. Verify existing dimensions and details prior to start of restoration Work. Notify Architect/Engineer of conditions found to be different than those indicated in the Contract Documents. Architect/Engineer will review situation and inform Contractor how to proceed.

B. Comply with Owner's limitations and restrictions for Site use and accessibility.

C. Environmental Limitations: Apply materials when existing and forecast weather conditions permit materials to be installed according to material manufacturer's written instructions.
   1. Place cementitious materials only when substrate and ambient temperatures are above 55 degrees F and below 90 degrees F and predicted to remain so during curing period, unless precautions approved by Architect/Engineer are taken.
   2. Protect cementitious materials from excessive evaporation of water after placement.

1.7 CHANGES IN WORK

A. During rehabilitation work, existing conditions may be encountered which are not known or are at variance with the Contract Documents. Such conditions may interfere with the Work and may consist of damage or deterioration of the substrate or surrounding materials that could jeopardize the integrity or performance of the Work.
   1. Notify Architect/Engineer of conditions that may interfere with proper execution of the Work or jeopardize the performance of the Work prior to proceeding with the Work.

PART 2 PRODUCTS

2.1 GENERAL

A. Source Limitations: Obtain each type of material, including stone, cement, and sand, from one source with resources to provide material of consistent quality in appearance and physical properties.

2.2 REPAIR MATERIALS

A. Repair Mortar: Intended for patching stone and compatible with Project stone; high bond strength, low shrinkage, and water-vapor permeable.
   1. Material colors and textures to be developed by material manufacturer to match Project stone and approved in writing by Owner's Representative and Architect/Engineer. Provide at least three colors to enable matching each piece of stone.
   2. Use one of the following:
      a. Jahn M70 for stone and M90 for cast stone by Cathedral Stone Products, Inc.
      b. Custom System 45 by Edison Coatings, Inc.

c. Matrix by Conproco Corporation

B. Crack Repair Materials:
   1. Injection Grout: Low-viscosity cementitious grout intended for bonding cracks in stone. Use one of the following:
      a. Jahn M30 Micro Injection Grout by Cathedral Stone Products, Inc.
      b. Pump-X53i micro-injection grout by Edison Coatings, Inc.

C. Water: Clean, potable

D. Anchors and Dowels: ASTM F593, Group 2 (Type 316) stainless steel.
   1. Adhesive Anchors and Dowels: Anchoring system tested and recommended for Project materials and conditions.
      a. Threaded rods, fasteners, and components: ASTM F593, Group 2 (Type 316) stainless steel.
      b. Adhesive Grout: Use one of the following:
         1) HIT-HY 200-R or HIT-HY 70 hybrid adhesive by Hilti, Inc.
         2) AC100+ Gold vinylester by Powers Fasteners.

PART 3 EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions for compliance with requirements and other conditions affecting installation or performance of restoration Work.
   1. Ensure that work done by other trades is complete and ready for restoration Work.
   2. Verify that areas and conditions under which restoration Work is to be performed permit proper and timely completion of Work.
   3. Notify Architect/Engineer in writing of conditions which may adversely affect installation or performance of restoration Work and recommend corrections.
   4. Do not proceed with restoration Work until adverse conditions have been corrected and reviewed by Architect/Engineer.
   5. Commencing restoration Work constitutes acceptance of Work surfaces and conditions.

B. Architect/Engineer will inspect facade and identify repair types and locations. Provide access to facade areas for hands-on inspection of stone panels prior to beginning restoration Work in areas.

3.2 PROTECTION

A. Take precautions to ensure safety of people (including building users, passers-by, and workers) and protection of property (including adjacent building elements, landscaping, and motor vehicles).

B. Erect temporary protective canopies and walls, as necessary, at walkways and at points of pedestrian and vehicular access that must remain in service during Work.

C. Take precautions to protect against air-borne materials and run-off.

D. Protect paving, sidewalk, and adjacent building areas from mechanical damage due to scaffolding and other equipment.

E. Prevent dust, debris, coating overspray/spatter, and other construction materials from coming into contact with pedestrians, motor vehicles, landscaping, buildings, and other surfaces that could be harmed by such contact.

F. Limit access to Work areas.

G. Assume responsibility for injury to persons or damage to property due to Work, and remedy at no cost to Owner.

H. Protect from damage, all elements of completed work and original construction to remain.

3.3 CRACK REPAIRS

A. Grout Injection:
   1. Remove loose material in crack with oil-free compressed air.
   2. Wash surface and interior of crack with clean water applied with clean syringe, to remove dust and loose or deleterious material which could prevent proper flow or adhesion of grout.
   3. Drill holes and install injection ports.
   4. Seal cracks at stone surface with removable, non-staining clay or repair mortar.
   5. Immediately prior to injection, moisten interior of crack by flushing with clean water using clean syringe. Repeat flushing if interior crack surfaces dry out before grout is injected.
   6. Mix grout in accordance with grout manufacturer's recommendations.
   7. Inject grout sequentially into ports with clean syringe, to ensure complete filling of crack. Allow continuous flow into crack crevice.
      a. Verify that crack seal remains intact and repeat process until crack is filled.
      b. Clean grout from stone surface immediately.
   8. Remove crack seal and injection ports after 48 hours.
   9. At direction of Architect/Engineer, rout crack crevice and point crack crevice or groove with repair mortar using clean, fine chisel.
      a. Allow to dry for 24 hours.
      b. Apply final lift in thin layer, flush with stone surface.
      c. Match finish of adjacent surface by raking with trowel at time of initial setting or by polishing with fine carborundum paper after material is sufficiently hard, approximately seven days after placement.

3.4 PATCHING

A. At locations designated for patching, remove unsound stone, prepare surfaces, and install repair mortar.

B. Surface Preparation:
   1. Cut out loose and deteriorated stone.
   2. Remove additional sound stone with hand tools.
      a. 1/16 inch minimum additional removal.
      b. As necessary to achieve minimum removal depth of [**3/4**] inch, but not less than minimum depth recommended by repair mortar manufacturer.
      c. Do not damage adjacent sound stone.
   3. Eliminate feathered edges and provide square edges with minimum specified depth.
   4. If removal area includes existing patch, remove entire patch.
   5. Use manual or pneumatic cutting equipment. Do not use saws.
   6. Notify Architect/Engineer if removal depth is 3 inches or more.
   7. Provide prepared surfaces that are clean, sound, stable, and free of loose particles, dust, soil, debris, grease, oil, and other contaminants. Surfaces shall be clean but rough cut and tooled to assure optimum bonding of repair mortar.
   8. Tap stone surfaces with acrylic hammer to verify that stone is solid and stable.
   9. Install stainless-steel threaded dowels as shown on Drawings.
   10. Wash stone surfaces with clean water while scrubbing with stiff-bristle brush.

C. Placing Repair Mortar:
   1. Mix, place, and cure repair mortar in accordance with mortar manufacturer's recommendations.
   2. Wet stone surfaces and maintain in saturated-surface dry condition.

3. Mix repair mortar in individual batch to match stone panel being patched. Combine one or more colors of repair mortar as needed to produce exact match.
4. Place repair mortar with trowel in lifts, with no waiting period or scratch coat necessary between lifts, to maximum total thickness of 3 inches.
    a. Do not use bonding agent.
    b. Use light pressure during placement.
    c. Work mortar firmly into surface of stone, including corners and under and around mechanical anchors.
    d. For patches thicker than 3 inches, apply repair mortar in two lifts.
        1) Place first lift and allow to set.
        2) Scrape off about 1/16 inch of mortar if cement skin has formed.
        3) Dampen surface and place second lift.
5. Build up repair mortar slightly above adjacent stone surface. Allow mortar to set slightly, typically 15 to 30 minutes depending on weather. Scrape off excess material using straight edge such as plasterer's miter rod. Do not press down or "float" patch.
6. Where patches occur at panel edges or corners, form repair mortar to match profile of adjacent stone.
7. Clean repair mortar from adjacent stone surfaces by rubbing with sponge and clean water, before mortar dries. Wipe several times to prevent staining or halo effect on stone.
8. Finish patch to blend in with adjacent stone.
    a. Fine smooth profile: trowel mortar at time of initial set or polish mortar with fine carborundum paper when mortar is sufficiently hard, about seven days after placement.
    b. Simulation of rough stone finish:
        1) Shaping, forming of details, and tooling: approximately five hours after placement.
        2) Scraping to profile or level with metal tools, and finishing work: within 24 hours up to two to three days after placement.
        3) Feather edging: At least five to seven days after placement.
9. Placement Limitations:
    a. Stone surfaces shall not have frost or be exceedingly hot.
    b. Protect repair mortar from extreme heat, freezing, excessive wind, direct sunlight, and rain. Ambient temperature range shall be 40 to 90 degrees F with low to average humidity.
    c. If it is necessary to place repair mortar with ambient temperature above 90 degrees F, use special precautions recommended by mortar manufacturer.
10. Curing: Maintain patches in moist condition and protect from direct sun and wind.
    a. Periodically mist patches with clean water for at least three days after placement. Mist several times each day. Avoid water runoff onto adjacent stone surfaces.
    b. Mist patches with clean water within 30 to 60 minutes after placement in hot, dry ambient conditions and within several hours in cool, damp ambient conditions.
    c. Mist patches with clean water for at least three minutes at the end of the day of placement.
    d. Securely install burlap or plastic sheets over patches. Maintain clear gap of 3 to 4 inches between sheets and patch surfaces.

3.5 BLENDING AND REDRESSING STONE SURFACES

A. Carefully remove loose, exfoliated, and unsound stone at existing and incipient snips and exfoliations designated for repair, to sound stone.

B. Tool stone within removal area and at edges to feather out and finish to blend with adjacent stone surface.
    1. Use only hand tools or small, hand-held, pneumatic chisels

3.6 FIELD QUALITY CONTROL

A. Inspect installed repairs for soundness and conformance with requirements. Remove and replace repairs that are unsound, defective, or do not meet requirements.

B. Provide access to Work area for Architect/Engineer to observe progress and quality of installed Work. Notify Architect/Engineer at least 48 hours in advance of time when access equipment will be relocated.

3.7 CLEANING

A. After completing stone restoration Work:
   1. Clean affected stone cladding by rubbing with fiber brushes and clean water.
   2. Remove Contractor-provided scaffolding and equipment, and patch anchor holes.

B. At the end of each workday, broom-clean Site and Work areas and place all items to be discarded in appropriate containers.

C. Return building surfaces to condition prior to cleaning Work, to satisfaction of Architect/Engineer at no additional cost to Owner.

D. Repair at no cost to Owner all items damaged during the Work.

E. Clean up debris, refuse, and surplus material; remove from premises; and dispose of legally.

END OF SECTION

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PART 1 GENERAL

1.1 SUMMARY

A. Section Includes: Supply and preparation of mortar for brick masonry, cast stone and stone unit masonry repairs and restoration.

B. Related Sections:
   1. Section 04 01 21 – Brick Masonry Repair and Replacement.
   2. Section 04 01 27 – Repointing with Cement-Lime Mortar.
   3. Section 04 01 40.91 – Stone Restoration.

1.2 REFERENCES

A. Definitions:
   1. Original Mortar: Mortar used in existing construction.
   2. Repointing: Process of raking out mortar joint to specified depth and placing new mortar. Also called tuckpointing.

B. Reference Standards: Latest edition as of Specification date.
   1. ASTM International
      a. C144: Standard Specification for Aggregate for Masonry Mortar.
      b. C150/C150M: Standard Specification for Portland Cement.
      c. C207: Standard Specification for Hydrated Lime for Masonry Purposes.
      d. C270: Standard Specification for Mortar for Unit Masonry.
   2. The Masonry Society (TMS)/American Concrete Institute (ACI)/Structural Engineering Institute of American Society of Civil Engineers (ASCE).
      a. TMS 402/ACI 530/ASCE 5: Building Code Requirements for Masonry Structures.

1.3 SUBMITTALS

A. Product Data: Supplier's literature indicating compliance with specified requirements.
   1. Color admixtures: Product name and type, and name of manufacturer
   2. Dry, preblended mortar mix: Types and proportions of ingredients.
   3. Include Safety Data Sheets (SDS) for information only.

B. Certificates: Indicating compliance with specified requirements.
   1. Portland Cement: Product name and type, and name of manufacturer.
   2. Hydrated Lime: Product name and type, and name of manufacturer

C. Test Reports: For aggregates, indicating type, gradation, impurities, and source.

1.4 QUALITY ASSURANCE

A. Preconstruction Testing:
   1. Retain independent testing agency that meets requirements of ASTM C1093.
   2. Mortar: ASTM C780:
      a. At least two weeks prior to start of masonry Work, prepare batch of mortar with materials to be used for construction and allow testing agency personnel to make one set of nine cubes.
      b. Three cubes will be tested in compression at three, seven, and 28 days.
      c. Test results will be used for comparison with field test results.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials to Site in original containers and packaging with seals unbroken, labeled with manufacturer's name, product brand name and type, date of manufacture, lot number, directions for storing, and complete manufacturer's written instructions.

B. Keep materials dry and do not allow materials to be exposed to moisture during transportation, storage, handling, or installation. Reject and remove from Site new materials which have been exposed to moisture to their detriment.

C. Store and handle materials in accordance with manufacturer's written instructions, safety requirements, and all applicable laws and regulations. Remove from Site, and replace at no cost to Owner, any materials that are damaged or otherwise negatively affected by not being stored or handled in accordance with manufacturer's written instructions.

D. Store materials in original, undamaged containers and packaging in clean, dry, location on raised platforms and protected from weather, within temperature range required by manufacturer. Protect stored materials from direct sunlight and sources of ignition. Manufacturer's standard packaging and covering alone is ***not*** considered adequate weather protection.

E. Locate materials in a secure location approved by Owner's Representative

F. Conspicuously mark damaged or opened containers, containers with contaminated materials, damaged materials, and materials that cannot be used within stated shelf life and remove from Site as soon as possible. Replace discarded materials in a timely manner at no cost to Owner.

G. Limit stored materials on structures so as to preclude damage to materials and structures.

H. Maintain copies of all applicable SDS (Safety Data Sheets) with materials in storage area, such that they are available for ready reference on Site.

PART 2 PRODUCTS

2.1 MATERIALS

A. Cementitious Materials:
   1. Portland Cement: ASTM C150/C150M, Type I. Provide natural color or white cement as required to produce mortar color indicated.
   2. Hydrated Lime: ASTM C207, Type S.
   3. Do not use masonry cement.

B. Colored Cement Product: Packaged blend of portland cement, lime, and mortar pigments, containing no other ingredients; formulated to match existing mortar.
   1. Portland Cement: ASTM C150, Type I or II, except Type III may be used for cold-weather construction.
   2. Hydrated Lime: ASTM C207, Type S.
   3. Pigments shall not exceed ten percent of portland cement by weight; pigments containing carbon black shall not exceed two percent of portland cement by weight.

C. Aggregate:
   1. Mortar: ASTM C144: washed aggregate consisting of natural sand or crushed stone.
   2. Water: Clean and potable; free from deleterious amounts of acids, alkalis, or organic materials.

D. Admixtures: Do not use admixtures without written approval, unless otherwise specified, including:

1. Calcium chloride or admixtures containing calcium chloride.
2. Air-entraining admixtures or material containing air-entraining admixtures.
3. Antifreeze compounds.

2.2 MORTAR MIXES

A. Mortar: ASTM C270; proportioned by volume as follows:
   1. Portland Cement: One part.
   2. Hydrated Lime: One part.
   3. Aggregate: Six parts.
   4. Water: Maximum amount consistent with optimum workability.
   5. Color: Match color of mortar to existing adjacent mortar joints, unless specified otherwise.

B. Option: Dry, Preblended Mortar Mix: Furnish dry mortar ingredients in preblended mix. Measure quantities by weight to ensure accurate proportions and thoroughly blend ingredients before delivering to Site.
   1. Portland Cement: One part.
   2. Hydrated Lime: One part.
   3. Aggregate: Six parts.
   4. Water: Maximum amount consistent with optimum workability.
   5. Color: Match color of mortar to existing adjacent mortar joints, unless specified otherwise.

PART 3 EXECUTION

3.1 SITE MIXING

A. Develop batching and mixing operations so that quality control is assured.

B. Designate one or two individuals to batch and mix mortar. Fully instruct these individuals on batching and mixing procedures. No other persons shall batch or mix mortar without prior notification to Architect/Engineer.

C. Maintain accurate mix proportions. Batch materials by volume with containers of known volume. Do not measure materials by shovel.
   1. Incorporate admixtures into mix in manner recommended by manufacturer and approved by Architect/Engineer. Measure with accuracy of +/-3 percent. Add each admixture separately.

D. Combine and mix materials in appropriate drum-type batch machine mixer to uniform consistency.
   1. Mix mortar for three to five minutes after materials are in mixer.
   2. Provide sufficient number of mixers, including reserve mixers, so that mortar placement operations will proceed uninterrupted.

3.2 REPOINTING MORTAR MIXING

A. Pre-hydrate mortar:
   1. Thoroughly mix ingredients except water.
   2. Continue mixing, adding only enough water to produce damp workable mix which will retain its form when pressed into ball.
   3. Maintain mortar in dampened condition for 1 to 1 1/2 hours.

B. Add sufficient water to bring mortar to proper consistency; that is, somewhat drier than conventional masonry mortars.

3.3 LIMITATIONS

A. Mortar, including repointing mortar:
   1. If mortar begins to stiffen, it may be retempered.
   2. Discard mortar not placed within 2 1/2 hours after initial mixing.

3.4 FIELD QUALITY CONTROL

A. Owner will engage qualified testing agency to sample and test mortar.
   1. Provide access to Work and samples of materials.
   2. Pay for retesting of materials failing to comply with specified requirements.

B. Mortar Testing: ASTM C780:
   1. One set of nine cubes will made at random time each week during Work.
   2. Three cubes from each set will be tested in compression at three, seven, and 28 days.
   3. Field test results should approximate or exceed results from preconstruction testing.

END OF SECTION

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes: Supply and construction of wood framing and miscellaneous wood construction.

B. Related Sections
   1. Section 07 01 50 - Preparation for Re-roofing
   2. Section 07 05 23 - EPDM Membrane Roofing

1.2 UNIT PRICES

A. During roofing removals areas may be encountered where the existing wood blocking is deteriorated and requires replacement. This replacement is to be performed on a unit price basis. Payment based on horizontal surface area replaced.
   1. Replacement on a unit price basis is in addition to new wood blocking indicated on the Drawings.
   2. Refer the Unit Price Schedule in Section 01019 for quantity of wood blocking replacement to be oincluded in the base bid.

B. During roofing removals areas may be encountered where the existing plywood base board is deteriorated and requires replacement. This replacement is to be performed on a unit price basis. Payment based on horizontal surface area replaced.
   1. Refer the Unit Price Schedule in Section 01019 for quantity of plywood sheathing replacement to be included in the base bid.

1.3 REFERENCES

A. Abbreviations:
   1. ALSC: American Lumber Standard Committee.
   2. APA: APA - The Engineered Wood Association.

B. Definitions:
   1. Rough carpentry: Carpentry Work that is not exposed; that is, concealed by other construction.

C. Reference Standards: Latest edition as of Specification date.
   1. American Lumber Standard Committee (ALSC):
      a. PS 20: Voluntary Product Standard, American Softwood Lumber Standard.
   2. American National Standards Institute (ANSI)/American Wood Council (AWC):
      a. National Design Specification for Wood Construction (ANSI/AWC NDS).
   3. American National Standards Institute (ANSI)/ASME - The American Society of Mechanical Engineers (ASME):
      a. ANSI/ASME B18.6.1: Wood Screws (Inch Series).
   4. American Wood Protection Association (AWPA):
      a. M4: Standard for the Care of Preservative-treated Wood Products.
      b. T1: User Category System: Processing and Treatment Standard.
      c. U1: Use Category System: User Specification for Treated Wood.
   5. APA-The Engineered Wood Association (APA):
      a. Engineered Wood Construction Guide (Construction Guide).
      b. PRP-108: Performance Standards and Qualification Policy for Structural-Use Panels.
   6. ASTM International:
      a. A653/A653M: Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by Hot-Dip Process.
      b. F1667: Standard Specification for Driven Fasteners: Nails, Spikes, and Staples.

1.4 SUBMITTALS

A. Product Data:
   1. Dimension Lumber: Species, grading, and intended use of lumber proposed for use on Project; by grading agency accredited by ALSC Board of Review. Clearly note requested substitutions that differ from those specified.
   2. Treated Wood:
      a. Chemical treatment manufacturers' literature, including:
         1) Compliance with requirements.
         2) Written instructions for handling, storing, installing, and finishing treated wood.
         3) Written requirements for corrosion protection of fasteners and connectors to be in contact with treated wood.
         4) Copies of warranties for each type of treatment.
      b. Certification by treating plant that treated wood complies with requirements.
         1) Indicate type of preservative used and net amount of preservative retained.
         2) For treatments requiring drying after treatment, include statement that moisture content of treated materials was reduced to levels specified before shipment to Site.
      c. Include Safety Data Sheets (SDS) for information only; safety restrictions are sole responsibility of Contractor.
   3. Engineered Wood Products: Manufacturer's literature indicating component materials and structural capacities of products.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, and handle materials to prevent damage to materials or structure.

B. Deliver materials to Site in original packages with seals unbroken, labeled with manufacturer's name, product brand name and type, date of manufacture, lot number, and directions for storing and mixing with other components.

C. Keep materials dry and do not allow materials to be exposed to moisture during transportation, storage, handling, and installation. Reject and remove from Site new materials which exhibit evidence of moisture damage.

D. Store materials in original, undamaged containers in clean, dry, protected location on raised platforms with weather-protective coverings, within temperature range required by manufacturer.

E. Stack lumber, plywood, and other panels. Protect from water and weather. Place spacers between each bundle to provide air circulation. Provide for air circulation around stacks and under coverings.

F. Limit stored materials on structures to safe loading capacity of structure at time materials are stored, and to avoid permanent deck deflection.

G. Conspicuously mark damaged materials and damaged or opened containers or containers with contaminated materials, and remove from Site as soon as possible.

1.6 PROJECT CONDITIONS

A. Verify existing dimensions and details prior to start of rough carpentry Work. Notify Architect/Engineer of conditions found to be different than those indicated in the Contract Documents. Architect/Engineer will review situation and inform Contractor and Installer of changes.

B. Comply with Owner's limitations and restrictions for Site use and accessibility.

C. Handle and install materials in strict accordance with safety requirements required by manufacturer; Safety Data Sheets (SDS); and local, state, and federal rules and regulations. Maintain Safety Data Sheets (SDS) with materials in storage area and available for ready reference on Site.

1.7 CHANGES IN WORK

A. During rehabilitation work, existing conditions may be encountered which are not known or are at variance with the Contract Documents. Such conditions may interfere with the Work and may consist of damage or deterioration of the substrate or surrounding materials that could jeopardize the integrity or performance of the Work.
   1. Notify Architect/Engineer of conditions that may interfere with the proper execution of the Work or jeopardize the performance of the Work prior to proceeding with the Work.

PART 2 PRODUCTS

2.1 DIMENSION LUMBER

A. General: ALSC PS 20; provide lumber of nominal sizes shown on Drawings.
   1. Grade: Per applicable rules of lumber grading agency accredited by ALSC Board of Review. Factory mark each piece of lumber with grade stamp of grading agency.
   2. Provide S4S dressed lumber unless otherwise indicated.
   3. Provide dry lumber with 19 percent maximum moisture content at time of dressing for 2 inch nominal thickness or less, unless otherwise indicated.

2.2 PLYWOOD PANELS

A. General: APA PRP-108; provide panels of nominal thicknesses to match existing plywood.
   1. Identification: Per APA performance standards. Factory mark each panel with performance ratings.

B. Plywood: APA Rated Sheathing, Exposure 1.
   1. Span Rating: Not less than 24/0.

2.3 PRESERVATIVE TREATMENT

A. Treat all rough carpentry items unless otherwise indicated.

B. Preservative Treatment Requirements: AWPA U1 and T1.
   1. User Category: UC4A, except UC2 may be used for lumber and panels that are not in contact with ground and are continuously protected from liquid water.
   2. Commodity Specification:
      a. Dimension lumber: A.
      b. Plywood: F.
   3. Preservative Treatment: Water-borne or Oxine Copper (Cu8); acceptable to authorities having jurisdiction.

C. Kiln-dry material after treatment to maximum moisture content of 19 percent for lumber and 15 percent for plywood. Do not use material that is warped or does not comply with requirements for untreated material.

D. Mark each treated item with treatment mark of inspection agency approved by ALSC Board of Review or APA.

E. Field-Applied Preservative: AWPA M4; Copper-Napthenate (CuN), two percent minimum solids solution.

2.4 AUXILIARY MATERIALS

A. Fasteners: ANSI/AWC NDS.
   1. Nails: ASTM F1667; 8d Common, nominal size: 0.131-inch diameter, 2-1/2-inch length.
      a. Minimum edge distance, end distance, and spacing: Maintain minimum distances and spacings specified by ANSI/AWC NDS to prevent splitting of wood.
      b. Penetration into Main Member: 3/4 inch minimum.
      c. Drill lead holes if necessary to prevent splitting of wood.
      d. Material: Hot dipped galvanized.
   2. Wood Screws: ANSI/ASME B18.6.1: No. 8 inches long minimum.
      a. Minimum edge distance, end distance, and spacing: Maintain minimum distances and spacings specified by ANSI/AWC NDS to prevent splitting of wood.
      b. Penetration into Main Member: 1 inch minimum.
      c. Drill lead holes as required to avoid splitting wood.
      d. Material: Stainless steel
   3. Fasteners to secure wood to masonry: Medium duty screw anchor, 1/4 inch diameter with 1-1/4 inch embedment into masonry.
      a. Maufacturers
         1) Powers
         2) ITW Buildex
         3) Hilti
      b. Finish: Manufacturer's standed perma seal coating

PART 3 EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions with framing Subcontractor for compliance with requirements and other conditions affecting installation or performance of rough carpentry Work.
   1. Ensure that work done by other trades is complete and ready for rough carpentry Work.
   2. Verify that areas and conditions under which rough carpentry Work is to be performed permit proper and timely completion of Work.
   3. Notify Architect/Engineer in writing of conditions which may adversely affect installation or performance of rough carpentry Work and recommend corrections.
   4. Do not proceed with rough carpentry Work until adverse conditions have been corrected and reviewed by Architect/Engineer.
   5. Commencing rough carpentry Work constitutes acceptance of Work surfaces and conditions.

3.2 PROTECTION

A. Take precautions to ensure safety of people, including building users, passers-by, and workmen, and animals, and protection of property, including adjacent building elements, landscaping, and motor vehicles.

B. Prevent construction debris, coatings, and other materials from coming into contact with pedestrians, motor vehicles, landscaping, buildings, and other surfaces that could be harmed by such contact.

C. Protect paving and sidewalks, and adjacent building areas from mechanical damage due to scaffolding and other equipment.

D. Limit access to Work areas.

E. Erect temporary protective canopies, as necessary, over walkways and at points of pedestrian and vehicular access that must remain in service during Work.

F. Assume responsibility for injury to persons or damage to property due to Work, and remedy at no cost to Owner.

3.3 INSTALLATION, GENERAL

A. Install wood construction according to Drawings and Specifications, and minimum requirements of the State of Connecticut Building Code. Notify Architect/Engineer of deviations between Drawings and Specifications and minimum code requirements.

B. Set rough carpentry to required levels and lines, with members plumb, true to line, cut, and fitted.
   1. Fit rough carpentry to other construction; scribe and cope as needed for accurate fit.
   2. Locate nailers, blocking, and similar supports to comply with requirements for attaching other construction.

C. Do not use materials with defects that impair quality of rough carpentry or pieces that are too small to use with minimum number of joints or optimum joint arrangement.
   1. Do not splice structural members between supports unless indicated otherwise on Drawings.

D. Apply field-applied preservative to cut surfaces of preservative-treated lumber and panels. Apply minimum two coats per manufacturer's recommendations. Wipe off excess material.

E. Securely connect rough carpentry and attach to substrate.
   1. Make tight connections between members.
   2. Space and install fasteners without splitting wood.
   3. Use common wire nails, unless otherwise indicated. Select fasteners of size that will not fully penetrate members where opposite side will be exposed to view or will receive finish materials.

F. Engineered Wood Products: Install engineered wood products to comply with manufacturer's written instructions.

3.4 WOOD SLEEPER, BLOCKING, AND NAILER INSTALLATION

A. Install where indicated on Drawings 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.
   1. Recess bolts and nuts flush with surfaces unless otherwise indicated.
   2. Build anchor bolts into masonry during installation of masonry work.
   3. Where possible, secure anchor bolts to formwork before concrete placement.

3.5 FIELD QUALITY CONTROL

A. Architect/Engineer may observe in-progress construction for quality and conformance with Construction Documents.

3.6 CLEANING

A. At the end of each workday, clean Site and Work areas and place debris and rubbish in appropriate containers.

B. After completing rough carpentry Work, clean up debris and surplus materials and remove from Site.

3.7 PROTECTION

A. Protect installed rough carpentry from damage due to exposure to harmful weather, physical abuse, and other causes. Temporary cover rough carpentry Work exposed to weather as soon as practical after installation to prevent deterioration from wetting.

END OF SECTION

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PART 1 GENERAL

1.1 SUMMARY

A. Section Includes: Wood for exterior finish repairs.

B. Related Sections
   1. Section 09 10 00: Exterior Wood Painting

1.2 SUBMITALS

A. Product Data: For each type of wood product.

1.3 DELIVERY, STORAGE AND HANDLING

A. Stack lumber, plywood, and other panels flat with spacers between each bundle to provide air circulation.
   1. Protect materials from weather by covering with waterproof sheeting, securely anchored.
   2. Provide for air circulation around stacks and under coverings.

1.4 PROJECT CONDITIONS

A. Weather Limitations: Proceed with installation only when existing and forecast weather conditions permit work to be performed and at least one coat of specified finish can be applied without exposure to rain, snow, or dampness.

B. Do not install finish carpentry materials that are wet, moisture damaged, or mold damaged.
   1. Indications that materials are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.
   2. Indications that materials are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

PART 2 PRODUCTS

2.1 LUMBER: TRIM AND MOLDINGS

A. Species and Grade: Western red cedar; NLGA, WCLIB, or WWPA Clear Heart.

B. Maximum Moisture Content: 19 percent

C. Face Surface: Smooth

D. Match sizes and shapes of existing wood being replaced.

E. Factory Priming: Factory coated on faces and edges, with exterior primer compatible with topcoats specified.

2.2 FASTENERS

A. Fasteners for Exterior Finish Carpentry: Provide nails or screws, in sufficient length to penetrate not less than 1-1/2 inches (38 mm) into wood substrate.

B. Provide hot-dip galvanized steel fasteners.

2.3 FABRICATION

A. Fabricate all wood to match existing members to be replaced.

PART 3 EXECUTION

3.1 EXAMINATION

A. Examine substrates, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.

B. Examine finish carpentry materials before installation. Reject materials that are wet, moisture damaged, and mold damaged.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Clean substrates of projections and substances detrimental to application.

B. Prime lumber and moldings to be painted, including both faces and edges, unless factory primed.
   1. Cut to required lengths and prime ends.

3.3 INSTALLATION - GENERAL

A. Do not use materials that are unsound, warped, improperly treated or finished, inadequately seasoned, or too small to fabricate with proper jointing arrangements.

B. Install exterior finish carpentry level, plumb, true, and aligned with adjacent materials. Use concealed shims where necessary for alignment.
   1. Scribe and cut exterior finish carpentry to fit adjoining work.
   2. Install to tolerance of 1/8 inch in 96 inches (3 mm in 2438 mm) for level and plumb. Install adjoining exterior finish carpentry with 1/32-inch (0.8-mm) maximum offset for flush installation and 1/16-inch (1.5-mm) maximum offset for reveal installation.

3.4 ADJUSTING

A. Replace exterior finish carpentry that is damaged or does not comply with requirements.

3.5 PROTECTION

A. Protect installed products from damage from weather and other causes during construction.

B. Remove and replace finish carpentry materials that are wet, moisture damaged, and mold damaged.
   1. Indications that materials are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.
   2. Indications that materials are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

END OF SECTION

PART 1 GENERAL

1.1 SUMMARY

A. Section includes the removal of existing single ply, EPDM roofing membrane and flashing and board insulation.

B. Related Sections:
   1. Section 06 10 00 - Rough Carpentry
   2. Section 07 53 23 - EPDM Membrane Roofing

1.2 SUBMITTALS

A. Submit written description of the intended method of ensuring that the area affected by removals, including all penetrations and perimeters is complete and weather tight at the end of the work day. This is an "informational submittal" and not subject to the Architect's approval.

1.3 PROJECT CONDITIONS

A. Owner will occupy portions of building immediately below reroofing area. Conduct reroofing so Owner's operations will not be disrupted. Provide Owner with not less than 72 hours notice of activities that may affect Owner's operations.
   1. Coordinate work activities daily with Owner so Owner can place protective dust or water leakage covers over sensitive equipment or furnishings, shut down HVAC and fire-alarm or -detection equipment if needed, and evacuate occupants from below the work area.
   2. Before working over structurally impaired areas of deck, notify Owner to evacuate occupants from below the affected area. Verify that occupants below the work area have been evacuated before proceeding with work over the impaired deck area.

B. Protect building to be reroofed, adjacent buildings, walkways, site improvements, exterior plantings, and landscaping from damage or soiling from reroofing operations.

C. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities.

D. Uniformly distributed construction loads across the roof surface.

E. Weather Limitations: Proceed with reroofing preparation only when existing and forecasted weather conditions permit Work to proceed without water entering existing roofing system or building.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.1 PREPARATION

A. Protection of In-Place Conditions:
   1. Protect existing roofing system that is not to be reroofed.
   2. Limit traffic and material storage to areas of existing roofing that have been protected.
   3. Maintain temporary protection and leave in place until replacement roofing has been completed. Remove temporary protection on completion of reroofing.

B. Seal or isolate windows that may be exposed to airborne substances created in removal of existing materials.

C. Shut off rooftop utilities and service piping before beginning the Work.

D. Test existing roof drains to verify that they are not blocked or restricted.
   1. Immediately notify Architect of any blockages or restrictions.

E. Coordinate with Owner to shut down air-intake equipment in the vicinity of the Work.
   1. Cover air-intake louvers before proceeding with reroofing work that could affect indoor air quality or activate smoke detectors in the ductwork.

F. During removal operations, have sufficient and suitable materials on-site to facilitate rapid installation of temporary protection in the event of unexpected rain.

G. Maintain roof drains in functioning condition to ensure roof drainage at end of each workday.
   1. Prevent debris from entering or blocking roof drains and conductors.
      a. Use roof-drain plugs specifically designed for this purpose.
      b. Remove roof-drain plugs at end of each workday, when no work is taking place, or when rain is forecast.
   2. If roof drains are temporarily blocked or unserviceable due to roofing system removal or partial installation of new roofing system, provide alternative drainage method to remove water and eliminate ponding.
      a. Do not permit water to enter into or under existing roofing system components that are to remain.

3.2 ROOF TEAR-OFF

A. General: Notify Construction Administrator each day of extent of roof tear-off proposed for that day and obtain authorization to proceed.

B. Roof Tear-Off: Remove existing roofing membrane and other membrane roofing system components down to the wood roof sheathing or the steel roof deck.

3.3 DECK PREPARATION

A. Inspect deck after tear-off of roofing system.

B. If broken or loose fasteners that secure deck panels to one another or to structure are observed, or if deck appears or feels inadequately attached, immediately notify Architect.
   1. Do not proceed with installation until directed by Architect.

C. If deck surface is unsuitable for receiving new roofing or if structural integrity of deck is suspect, immediately notify Architect.
   1. Do not proceed with installation until directed by Architect.

D. Replace wood blocking and plywood roof sheathing as directed by Architect.
   1. Replacement will be paid for by adjusting the Contract Sum according to unit prices included in the Contract Documents.

3.4 DISPOSAL

A. Collect demolished materials and place in containers. Promptly dispose of demolished materials. Do not allow demolished materials to accumulate on-site.
   1. Storage or sale of demolished items or materials on-site is not permitted.

B. Transport and legally dispose of demolished materials off Owner's property.

END OF SECTION

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PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes: Surface preparation, supply, and application of a pedestrian traffic coating.

B. Related Sections:
   1. Section 03 01 34: Concrete Restoration

1.2 REFERENCES

A. Reference Standards: Latest edition as of Specification date.
   1. ASTM International:
      a. D4258: Standard Practice for Surface Cleaning Concrete for Coatings.
      b. D4259: Standard Practice for Abrading Concrete.
      c. D4263: Standard Test Method for Indicating Moisture in Concrete by the Plastic Sheet Method.
   2. International Concrete Repair Institute (ICRI):
      a. Guide for Selecting and Specifying Concrete Surface Preparation

1.3 ADMINISTRATIVE REQUIREMENTS

A. Coordinate Work to ensure that adjacent areas are not adversely affected. Coordinate:
   1. With Owner's Representative.
   2. With other trades:
      a. To ensure that work done by other trades is complete and ready for traffic-coating Work.
      b. To avoid or minimize work on, or in immediate vicinity of, traffic-coating Work in progress.
      c. To ensure that subsequent work will not adversely affect quality of completed traffic coating.

1.4 SUBMITTALS

A. Product Data: Traffic-coating manufacturer's literature including written instructions for evaluating, preparing, and treating substrate; technical data including tested physical and performance properties; and application instructions. Include VOC content of components.
   1. Include traffic-coating manufacturer's color chart.

B. Samples: For each type of traffic coating required, stepped samples on rigid backing large enough to illustrate build-up of traffic coatings, of same thickness and material indicated for Work.

C. Applicator Qualifications:
   1. Certification signed by traffic-coating manufacturer, certifying that Applicator complies with manufacturer's requirements to install specified, warranted, traffic coating.
   2. Evidence that Applicator's *existing company* has minimum five years of continuous experience in similar traffic-coating work; list of at least five representative, successfully-completed projects of similar scope and size, including:
      a. Project name.
      b. Owner's name.
      c. Owner's Representative name, address, and telephone number.
      d. Description of work.
      e. Traffic-coating materials used.
      f. Project supervisor.
      g. Total cost of traffic-coating work and total cost of project.
      h. Completion date.

D. Sample Warranties: Copies of traffic-coating manufacturer's warranty and Applicator's warranty, both stating obligations, remedies, limitations, and exclusions. Submitted with bid.

E. Following completion of the Work:
   1. Traffic-coating manufacturer's warranty inspection reports.
   2. Completed warranty from traffic-coating manufacturer.
   3. Completed warranty from Applicator.

F. Maintenance Program:
   1. Identify substrates and traffic-coating systems applied.
   2. Include recommendations for periodic inspections, cleaning, care, maintenance, and repair of traffic coating.

1.5 QUALITY ASSURANCE

A. Applicator Qualifications: Experienced firm that has successfully completed traffic-coating work similar in material, design, and extent to that indicated for Project; that is approved, authorized, or licensed by traffic-coating manufacturer to apply traffic coating; and that is eligible to receive traffic-coating manufacturer's warranty. Must have successful installations of specified materials in local area in use for minimum of five years.
   1. Employ foreman trained by traffic-coating manufacturer and with minimum five years of experience as foreman on similar projects, who is fluent in English, to be on Site during Work. Do not change foremen during course of Project except for reasons beyond control of Installer; inform Architect/Engineer in advance of any changes.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials to Site in original containers and packaging with seals unbroken, labeled with manufacturer's name, product brand name and type, date of manufacture, lot number, directions for storing, and complete manufacturer's written instructions.

B. Keep materials dry and do not allow materials to be exposed to moisture during transportation, storage, handling, or installation. Reject and remove from Site new materials which have been exposed to moisture to their detriment.

C. Store and handle materials in accordance with manufacturer's written instructions, safety requirements, and all applicable laws and regulations. Remove from Site, and replace at no cost to Owner, any materials that are damaged or otherwise negatively affected by not being stored or handled in accordance with manufacturer's written instructions.

D. Store materials in original, undamaged containers and packaging in clean, dry, location on raised platforms and protected from weather, within temperature range required by manufacturer. Protect stored materials from direct sunlight and sources of ignition. Manufacturer's standard packaging and covering alone is ***not*** considered adequate weather protection.

E. Locate materials in a secure location approved by Owner's Representative.

F. Conspicuously mark damaged or opened containers, containers with contaminated materials, damaged materials, and materials that cannot be used within stated shelf life and remove from Site as soon as possible. Replace discarded materials in a timely manner at no cost to Owner.

G. Limit stored materials on structures so as to preclude damage to materials and structures.

H. Maintain copies of all applicable Safety Data Sheets (SDS) with materials in storage area, such that they are available for ready reference on Site.

1.7 PROJECT CONDITIONS

A. Verify existing dimensions and details prior to start of traffic-coating Work. Notify Architect/Engineer of conditions found to be different than those indicated in the Contract Documents. Architect/Engineer will review situation and inform Contractor and Applicator how to proceed.

B. Comply with Owner's limitations and restrictions for Site use and accessibility.

C. Environmental Limitations: Apply traffic coating when existing and forecast weather conditions permit traffic coating to be installed according to traffic-coating manufacturer's written instructions and warranty requirements. Do not apply traffic coating under the following conditions, unless otherwise recommended by traffic-coating manufacturer and approved by Architect/Engineer.
   1. Apply only when substrate temperature is above 50 degrees F or more than 5 degrees F above dew point, or within range recommended by traffic-coating manufacturer.
   2. Apply only when ambient temperature is above 40 degrees F or within range recommended by traffic-coating manufacturer.
   3. Do not apply to damp or wet substrate; when relative humidity exceeds 85 percent; in snow, rain, fog, or mist; or when snow, rain, fog, or mist is forecast during application or curing period. Apply only to frost-free substrate.

D. Handle and install materials in strict accordance with safety requirements required by traffic-coating manufacturer; Safety Data Sheets; and local, state, and federal rules and regulations.

E. Maintain adequate ventilation during preparation and application of traffic-coating materials. Notify Owner's Representative at least one week in advance of Work with materials with noxious vapors. Review application schedule and venting precautions with Owner's Representative prior to beginning application.

1.8 CHANGES IN WORK

A. During rehabilitation work, existing conditions may be encountered which are not known or are at variance with the Contract Documents. Such conditions may interfere with the Work and may consist of damage or deterioration of the substrate or surrounding materials that could jeopardize the integrity or performance of the Work.
   1. Notify Architect/Engineer of conditions that may interfere with the proper execution of the Work or jeopardize the performance of the Work prior to proceeding with the Work.

1.9 WARRANTIES

A. Manufacturer's Warranty:
   1. Written warranty, signed by traffic-coating manufacturer, including:
      a. Repair or replace traffic coating that does not comply with requirements; that does not remain watertight; that fails in adhesion, cohesion, or general durability; that experiences abrasion or tearing failure not due to misuse; that experiences surface crazing, fading or chalking; or that deteriorates in a manner not clearly specified by submitted traffic-coating manufacturer's data as an inherent quality of the material for the application indicated. Warranty does not include deterioration or failure of traffic coating due to failure of substrate prepared according to requirements, formation of new substrate cracks exceeding 1/16 inch in width, fire, vandalism, or snowplow abuse.
   2. Warranty Period: Five years after Substantial Completion date.

B. Applicator's Warranty:
   1. Written warranty, signed by Applicator, including:

a. Repair or replace traffic coating that does not comply with requirements; that does not remain watertight; that fails in adhesion, cohesion, or general durability; that experiences abrasion or tearing failure not due to misuse; that experiences surface crazing, fading, or chalking; or that deteriorates in a manner not clearly specified by submitted traffic-coating manufacturer's data as an inherent quality of the material for the application indicated. Warranty does not include deterioration or failure of traffic coating due to failure of substrate prepared according to requirements, formation of new substrate cracks exceeding 1/16 inch in width, fire, vandalism, or snowplow damage.

2. Warranty Period: Five years after Substantial Completion date.

PART 2 - PRODUCTS

2.1 TRAFFIC COATING

A. Source Limitations: Obtain materials through one source from single traffic-coating manufacturer. Provide materials not available from traffic-coating manufacturer from sources approved by traffic-coating manufacturer. Provide new materials.

B. Use one of the following traffic coatings:
1. Pedestrian system:
a. Iso-Flex Balcony & Walkway Coating System MVT by LymTal International, Inc., consisting 20 dry mils of base coat, 15 dry mils of wear course, and 6 to 8 pounds of sand per 100 square feet.
b. Peda-Gard Pedestrian Traffic Coating by Neogard, consisting of 18 dry mils of base coat, 14 dry mils of wearing surface coat, and 10 pounds of aggregate per 100 square feet.
c. MasterSeal Traffic 1500 Light-to-Medium System by BASF Construction Chemicals, LLC, consisting of 20 dry mils of base coat, 20 dry mils of finish coat, and 10 to 15 pounds of aggregate per 100 square feet.

C. Primer: Traffic-coating manufacturer's standard, factory-formulated primer recommended for substrate under conditions of service and application.

D. Aggregate: Clean silica sand, uniform in gradation, and approved by traffic-coating manufacturer.

E. Top Coat Color: Approved in advance in writing by Owner's Representative.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions with Applicator and traffic-coating manufacturer's representative for compliance with requirements and other conditions affecting performance of traffic coating.
1. Ensure that work done by other trades is complete and ready for traffic-coating Work.
2. Verify compatibility with and suitability of substrates.
3. Verify that areas and conditions under which traffic-coating Work is to be performed permit proper and timely completion of Work.
4. Notify Architect/Engineer in writing of conditions which may adversely affect application or performance of traffic coating and recommend corrections.
5. Do not proceed with traffic-coating Work until adverse conditions have been corrected and reviewed by Architect/Engineer.
6. Commencing traffic-coating Work constitutes acceptance of Work surfaces and conditions.

3.2 PROTECTION

A. Comply with traffic coating manufacturer's written instructions for protecting building and other surfaces against damage from exposure to its products.

B. Cover adjacent surfaces with materials that are proven to resist traffic coating.

C. Take precautions to ensure safety of people (including building users, passers-by, and workers) and protection of property (including adjacent building elements, landscaping, and motor vehicles).

D. Erect temporary protective canopies and walls, as necessary, at walkways and at points of pedestrian and vehicular access that must remain in service during Work.

E. Take precautions to protect against air-borne materials and run-off.

F. Protect paving, sidewalk, and adjacent building areas from mechanical damage due to equipment.

G. Prevent dust, debris, coating overspray/spatter, and other construction materials from coming into contact with pedestrians, motor vehicles, landscaping, buildings, and other surfaces that could be harmed by such contact.

H. Limit access to Work areas.

I. Assume responsibility for injury to persons or damage to property due to Work, and remedy at no cost to Owner.

3.3 SURFACE PREPARATION

A. Equipment:
   1. Concrete cleaning equipment.
   2. Abrasive blasting equipment capable of removing contaminants and laitance from concrete surface.
   3. Compressed air equipment capable of removing dust and dirt from concrete surface.

B. Clean and prepare concrete substrate according to traffic-coating manufacturer's written instructions. Provide clean, dust-free, and dry substrate.
   1. Verify that substrate is sound and visibly dry and free of moisture. Test for moisture vapor emission by applying the base coat of traffic coating on one-foot-square test areas and monitoring for pinholes, blisters, and bubbles until the traffic coating has set; the number and locations of test areas shall be determined by Architect/Engineer based on project conditions. If pin-holing, blistering, or bubbling occurs, delay Work until later test areas are free of pinholes, blisters, and bubbles.
   2. Verify that concrete curbs, expansion joints, and transitions from one surface plane to another (inside and outside corners) are cleanly formed and free of broken edges and excess concrete.
   3. Remove concrete fins and projections, concrete splatter, and other irregularities which would prevent monolithic, continuous application of traffic coating.
   4. Properly repair substrate defects such as delaminations, spalls, voids, form tie holes, honeycombing, and cracks, with latex-modified concrete or another material acceptable to traffic-coating manufacturer and Architect/Engineer.
   5. Remove grease, oil, asphalt solids, form-release agents, paints, curing compounds, and other penetrating contaminants or film-forming coatings from concrete.
   6. Shotblast or scarify concrete to provide clean surface, free of laitance, dirt, and other loose or foreign material. Use care to avoid pockmarking concrete surface.
   7. Uniformly clean concrete surfaces by abrasive blast, according to ASTM D4259, to expose top surface of fine aggregate and provide sound surface, free of laitance, dirt, and other loose or foreign material. Use self-contained, recirculating, blast-cleaning apparatus. Remove remaining loose

material and clean surfaces according to ASTM D4258. Produce surface texture equal to CSP 3 or 4 from ICRI Guide for Selecting and Specifying Concrete Surface Preparation.

8. Level areas of surface scaling or rough, uneven areas where surface roughness is unacceptable for traffic-coating application, as determined by Architect/Engineer, with skim coat of epoxy or other material compatible with traffic coating and recommended by traffic-coating manufacturer.
9. Rout cracks and joints designated by traffic-coating manufacturer's representative and verified by Architect/Engineer, remove existing sealant, and install new sealant.
10. Abrasive blast clean curb, column, and wall surfaces that will receive traffic coating.
11. Thoroughly sweep substrate and clean with oil-free compressed air.

C. Mask adjoining surfaces not receiving traffic coating to prevent spillage and overspray affecting other construction.

D. Applicator and traffic-coating manufacturer's representative shall examine substrate to ensure that it is properly prepared and ready to receive traffic coating. Traffic-coating manufacturer's representative shall report in writing to Applicator and Architect/Engineer conditions which will adversely affect traffic-coating system application or performance. Do not proceed with traffic-coating application until these conditions have been corrected and reviewed by Architect/Engineer.

E. Proceed with application only after unsatisfactory conditions have been corrected. Commencing application constitutes acceptance of Work surface preparation and conditions.

3.4 APPLICATION

A. Provide and maintain barricades for vehicular and pedestrian traffic at traffic-coating areas during application and curing period.

B. Allow sealant, concrete replacement materials, and skim coats to fully cure prior to installing traffic coating.

C. Apply traffic coating material according to traffic-coating manufacturer's written recommendations.

1. Start traffic-coating application in presence of traffic-coating manufacturer's representative.
2. Install joint reinforcement, centered on joints and horizontal edges of sheet-metal flashing and pans, in detail coat.
3. Install sealant cant at intersections of horizontal and vertical surfaces.
4. Batch and thoroughly mix components as recommended by the traffic-coating manufacturer.
5. Apply detail coat at intersections of horizontal and vertical surfaces, at drains and other deck penetrations, and at cracks and joints.
6. Apply traffic-coating system.
    a. Wipe detail coat to remove dust and contamination.
    b. Apply each coat in one uniform application, broadcast aggregate if required, and backroll for even coverage. Allow each coat to cure before apply next coat. Sweep or vacuum off excess aggregate.
    c. Apply at least 4 inches up sides of columns, walls, and other vertical surfaces, and up curb faces and across top curb surfaces.
    d. Omit aggregate on vertical surfaces.
    e. If pinholes occur in base coat, apply additional base coat material using flat squeegee or other tool approved by traffic-coating manufacturer, to fill holes before proceeding with subsequent coats.
    f. Prevent contamination or damage during application and curing.
    g. Verify that wet film thickness of each component coat complies with requirements at each entrance.

3.5 CLEANING

A. At the end of each workday, clean Site and Work areas and place and place all items to be discarded in appropriate containers.

B. After completing traffic coating Work:
   1. Clean all materials resulting from Work that are not intended to be part of the finished Work using appropriate cleaning agents and procedures. Exercise care to avoid damaging surfaces.
   2. Repair at no cost to Owner all items damaged during the Work.
   3. Remove and legally dispose of debris and surplus materials from Site.

END OF SECTION

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PART 1 GENERAL

1.1 SUMMARY

A. Section Includes: Surface preparation, supply, and application of silane/siloxane-blend water repellent at cast stone surfaces.
   1. Protection of existing masonry to prevent water repellent from these surfaces.

1.2 ADMINISTRATIVE REQUIREMENTS

A. Coordinate Work to ensure that adjacent areas are not adversely affected. Coordinate:
   1. With Owner's Representative.
   2. With other trades:
      a. To ensure that work done by other trades is complete and ready for water-repellent Work.
      b. To avoid or minimize work on, or in immediate vicinity of, water-repellent Work in progress.
      c. To ensure that subsequent work will not adversely affect quality of installed water repellent.

1.3 SUBMITTALS

A. Product Data: Water-repellent manufacturer's literature including product description and written instructions for storage, handling, substrate preparation, protection of surrounding areas not to receive water-repellent, application, and final cleaning. Include VOC content.
   1. Included Material Safety Data Sheets for information only.

B. Applicator Qualifications:
   1. Certification signed by water-repellent manufacturer, certifying that Applicator complies with manufacturer's requirements to install specified water repellent.
   2. Evidence that Applicator's *existing company* has minimum 10 years of continuous experience in similar water-repellent work; list of at least 5 representative, successfully-completed projects of similar scope and size, including:
      a. Project name.
      b. Owner's name.
      c. Owner's Representative name, address, and telephone number.
      d. Description of work.
      e. Water repellents used.
      f. Project supervisor.
      g. Total cost of water-repellent work and total cost of project.
      h. Completion date.

1.4 QUALITY ASSURANCE

A. Applicator Qualifications: Experienced firm that has successfully completed water-repellent work similar in material, design, and extent to that indicated for Project; and that is approved, authorized, or licensed by water-repellent manufacturer to install water repellent. Must have successful installations of specified materials in local area in use for minimum of 10 years.
   1. Employ foreman trained by water-repellent manufacturer and with minimum 5 years of experience as foreman on similar projects, who is fluent in English, to be on Site at all times during Work. Do not change foremen during course of Project except for reasons beyond control of Installer; inform Architect/Engineer in advance of any changes.

B. Manufacturer Certifications: Water-repellent manufacturer shall certify that product to be used complies with VOC regulations at Site.

C. Mockups: Prior to purchase of material, in presence of Architect/Engineer and water-repellent manufacturer's representative, apply water repellent to at least 25 square feet of each substrate, at locations determined by the Architect/Engineer, to demonstrate surface preparation, application, finished appearance, and standard of workmanship.
   1. After 48 hours or when mockups are thoroughly dry, Architect/Engineer and Owner's Representative will evaluate finished appearance.
   2. Apply water to surfaces treated with the water repellant to observe if water is beading on the treated surface.
   3. If Architect/Engineer determines mockup does not comply with requirements, construct new mockup until mockup is approved.
   4. Approved mockups will be standard for judging completed Work.
   5. Approved mockups may become part of completed Work if undisturbed at time of Substantial Completion.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, and handle materials according to manufacturer's recommendations and in such manner as to prevent damage to materials and structure.

B. Deliver materials to Site in original containers and packaging with seals unbroken, labeled with manufacturer's name, product brand name and type, date of manufacture, lot number, and directions for storing.

C. Store materials in original, undamaged containers in clean, dry, protected, cool, well-ventilated location on raised platforms with weather-protective coverings, within temperature range required by manufacturer and away from sources of ignition. Protect stored materials from direct sunlight. Manufacturer's standard packaging and covering is not considered adequate weather protection.

D. Limit stored materials on structures to safe loading capacity of structure at time materials are stored, and to avoid permanent deck deflections.

E. Keep containers tightly sealed when not in use, as atmospheric moisture will react with and alter water-repellent solution.

F. Remove and replace materials that cannot be applied within stated shelf life, or that are damaged or otherwise unsuitable.

G. Conspicuously mark damaged or opened containers or containers with contaminated materials, and remove from Site as soon as possible.

H. Dispose of unused or unsuitable materials in accordance with manufacturer's recommendations and governing environmental regulations. Do not flush debris or water repellent down existing drains.

1.6 PROJECT CONDITIONS

A. Verify existing dimensions and details prior to start of water-repellent Work. Notify Architect/Engineer of conditions found to be different than those indicated in Contract Documents. Architect/Engineer will review situation and inform Contractor and Applicator of changes.

B. Comply with Owner's limitations and restrictions for Site use and accessibility.

C. Environmental Limitations: Apply water repellent within range of ambient and substrate temperatures recommended by water-repellent manufacturer. Do not apply water repellent under following conditions, unless otherwise recommended by water-repellent manufacturer and approved by Architect/Engineer.
   1. To substrates that are damp or wet, or that have dew, frost, snow, or ice on them.
   2. To substrates below 40 degrees F or less than 5 degrees F above dew point, or above 90 degrees F.
   3. When ambient temperature is below 40 degrees F, or is predicted to fall below 40 degrees F within 8 hours after application, or is above 90 degrees F.
   4. When rain, snow, fog, or mist is predicted within 24 hours.
   5. When wind speeds are at or above 15 miles per hour, or if windy conditions exist that may cause water repellent to be blown onto vegetation or surfaces not intended to be treated.

D. Handle and install materials in strict accordance with safety requirements required by water-repellent manufacturer, Material Safety Data Sheets, and local, state, and federal rules and regulations. Maintain Material Safety Data Sheets with materials in storage area and available for ready reference at Site.

E. Maintain adequate ventilation during preparation and application of water-repellent materials. Notify Owner's Representative at least 1 week in advance of Work with materials with noxious vapors. Review application schedule and venting precautions with Owner's Representative prior to beginning application.

1.7 CHANGES IN WORK

A. During rehabilitation work, existing conditions may be encountered which are not known or are at variance with Contract Documents. Such conditions may interfere with Work and may consist of damage or deterioration of substrate or surrounding materials that could jeopardize integrity or performance of Work.
   1. Notify Architect/Engineer of conditions that may interfere with proper execution of Work or jeopardize performance of Work prior to proceeding with Work.

PART 2 PRODUCTS

2.1 PENETRATING WATER REPELLENT

A. Silane/Siloxane-Blend: Clear blend of silane and siloxane. Use 1 of following:
   1. Enviroseal 7 manufactured by BASF Construction Chemicals, LLC.
   2. KlereSeal 910-W/920-W manufactured by Pecora Corporation.
   3. Okon S-40 manufactured by Rust-Oleum.

PART 3 EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions with Applicator and water-repellent manufacturer's representative for compliance with requirements and other conditions affecting application or performance of water repellent.
   1. Ensure that work done by other trades is complete and ready for water-repellent Work.
   2. Verify that areas and conditions under which water-repellent Work is to be performed permit proper and timely completion of Work.
   3. Notify Architect/Engineer in writing of conditions which may adversely affect application or performance of water repellent and recommend corrections.

4. Do not proceed with water-repellent Work until adverse conditions have been corrected and reviewed by Architect/Engineer.
5. Commencing water-repellent Work constitutes acceptance of Work surfaces and conditions.

3.2 PROTECTION

A. Take precautions to ensure safety of people, including building users, passers-by, and workmen, and animals, and protection of property, including adjacent building elements, landscaping, and motor vehicles.

B. Prevent construction debris and other materials from coming into contact with pedestrians, motor vehicles, landscaping, buildings, and other surfaces that could be harmed by such contact.

C. Protect paving and sidewalk, and adjacent building areas from mechanical damage due to scaffolding and other equipment.

D. Limit access to Work areas.

E. Erect temporary protective canopies, as necessary, over walkways and at points of pedestrian and vehicular access that must remain in service during Work.

F. Comply with water-repellent manufacturer's written instructions for protecting building and other surfaces against damage from exposure to its products.

G. Cover adjacent surfaces with materials that are proven to resist water repellent.

H. Assume responsibility for injury to persons or damage to property due to Work, and remedy at no cost to Owner.

3.3 SURFACE PREPARATION

A. Clean and prepare precast concrete (cast stone) surfaces using procedure demonstrated in mockup and approved by Architect/Engineer and Owner's Representative. Provide clean, dust-free, and dry substrate. Verify that mortar has cured and aged for minimum time period recommended by water-repellent manufacturer.

B. Proceed with application only after unsatisfactory conditions have been corrected. Commencing application constitutes acceptance of Work surfaces and conditions.

3.4 APPLICATION

A. Equipment:
1. Low-pressure (15 to 25 pounds per square inch), airless spray equipment.
2. Low-pressure (15 to 25 pounds per square inch), positive-displacement, garden-type spray equipment, fitted with fan-spray nozzle
3. Brushes and rollers.
4. Brooms and squeegees.

B. Before beginning application:
1. Provide and maintain traffic barricades and control measures, well outside limits of wind-drifting, during application and drying of water repellent to protect vehicular and pedestrian traffic from contact with water repellent. Enclose Work area to contain wind-blown overspray.
2. Provide adequate ventilation during and after application of water repellent.
3. Provide dry-chemical fire extinguishers and clearly post "NO SMOKING" signs in Work area.

C. Apply water repellent at coverage rate demonstrated in mockup, in uniform manner, using low-pressure spray equipment, brushes, and rollers. Do not alter or dilute material. Comply with manufacturer's written instructions for using airless spraying procedure.
   1. Prior to use, thoroughly clean spray equipment, tanks, and hoses, and make free of water, foreign matter, and oily residues. Flush with anhydrous alcohol or small amounts of silane.
   2. Apply to horizontal surfaces with spray bar. Use hand-spray unit at edges.
   3. On vertical surfaces, apply from bottom up, with controlled run-down of about 8 inches, with hand-spray unit, brushes, and rollers.
   4. At cracks, construction joints, and repair patch perimeters not sealed with sealant or epoxy, adjust nozzle of hand-spray unit to produce concentrated stream of water repellent to saturate cracks and joints.
   5. Use brushes and rollers at edges of application area to avoid overspray on adjacent surfaces.
   6. If water-repellent application is not completed at 1 time, clearly mark location where application is terminated.
   7. Allow water repellent to dry for at least 12 hours before exposing to vehicular, construction, or pedestrian traffic.

3.5 FIELD QUALITY CONTROL

A. Water-repellent manufacturer's representative shall inspect and approve preparation of substrate and protection of adjacent surfaces before application of water repellent.

B. Architect/Engineer will observe water-repellent application and verify that minimum coverage rates are maintained. If minimum coverage rates are not maintained, apply another coat of water repellent at no cost to Owner.

3.6 CLEANING

A. Immediately clean spillage and soiling from adjacent construction using cleaning agents and procedures recommended by manufacturer of affected construction.

B. Replace Work or materials damaged beyond repair, in opinion of Architect/Engineer, at no cost to Owner.

END OF SECTION

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PART 1 GENERAL

1.1 SUMMARY

A. Section Includes: Surface preparation, supply, and installation of adhered, EPDM membrane roofing system; including roof-deck boards, insulation, and cover boards.

B. Related Sections:
   1. Section 07 01 50 - Preparation for Reroofing
   2. Section 07 62 00 - Sheet Metal Flashing and Trim

1.2 REFERENCES

A. Reference Standards: Latest edition as of Specification date.
   1. American National Standards Institute (ANSI)/Single Ply Roofing Industry (SPRI):
      a. ANSI/SPRI FX-1: Standard Field Test Procedure for Determining the Withdrawal Resistance of Roofing Fasteners.
   2. American Society of Civil Engineers (ASCE)/Structural Engineering Institute (SEI):
      a. ASCE/SEI 7: Minimum Design Loads for Buildings and Other Structures.
   3. ASTM International:
      a. C1177/C1177M: Standard Specification for Glass Mat Gypsum Substrate for Use as Sheathing.
      b. C1289: Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board.
      c. D4637/D4637M: Standard Specification for EPDM Sheet Used in Single-Ply Roof Membrane.
   4. FM Global:
      a. Class Number 4450: Approval Standard for Class 1 Insulated Steel Deck Roofs.
      b. Class Number 4470: Approval Standard for Single-Ply, Polymer-Modified Bitumen Sheet, Built-Up Roof (BUR) and Liquid Applied Roof Assemblies for use in Class 1 and Noncombustible Roof Deck Construction.
      c. Approval Guide (online resource).

1.3 ADMINISTRATIVE REQUIREMENTS

A. Coordinate Work to ensure that new insulation and roofing materials and building interior are kept continuously dry; that continuous, watertight, new roofing system is provided; and that adjacent areas are not adversely affected. Coordinate:
   1. With Owner's Representative.
   2. With other trades:
      a. To ensure that work done by other trades is complete and ready for roofing Work.
      b. To avoid or minimize work on, or in immediate vicinity of, roofing Work in progress.
      c. To ensure that subsequent work will not adversely affect completed roofing.

B. Pre-installation Meeting:
   1. Conduct meeting at Site.
   2. Review requirements for roofing system, including:
      a. Construction schedule.
      b. Availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
      c. Site use, access, staging, and set-up location limitations.
      d. Forecast weather conditions.
      e. Surface preparation and substrate condition and pretreatment.
      f. Installation procedures.

g. Base flashings, special roofing details, roof drainage, roof penetrations, equipment curbs, and condition of other construction that will affect roofing system.
h. Testing and inspection requirements.
i. Temporary protection and repair of roofing system.
j. Structural loading limitations of roof deck.
k. Governing regulations and requirements for insurance and certificates.

3. Contractor's Site superintendent, roofing-system manufacturer's technical representative, roofing Installer's foreman, Owner's Representative, Architect/Engineer, and testing agency representative shall attend.

1.4 SUBMITTALS

A. Product Data: Roofing-system manufacturer's literature including written instructions for evaluating, preparing, and treating substrate; technical data including tested physical and performance properties; and application instructions.
1. For membrane and base flashing materials, and bonding and cold, fluid-applied adhesives, primer, seaming material, lap sealant, water-cutoff mastic, walkpads and fasteners.
2. Include temperature ranges for storage and application of materials, and special cold-weather application requirements or limitations.
3. Include Safety Data Sheets (SDS) for information only; safety restrictions are sole responsibility of Contractor.

B. Shop Drawings: Submit drawings of insulation fastening patterns to show compliance with FM Global wind uplift requirements.

C. FM Global Submittal: Submit completed form 2688 (sample found at end of this section) and all product data to FM Global.
1. Submit drawings of insulation fastening patterns to show compliance with FM Global wind uplift requirements.

D. Manufacturer Certificate: Signed by roofing-system manufacturer, certifying that roofing system complies with specified requirements.
1. Written approval by roofing-system manufacturer for use and performance of membrane over specified board insulation, including that materials supplied for Project comply with requirements of cited ASTM standards. Approval should also indicate materials are suitable for ASTM E108, Class 1A roof and meet specified wind uplift classification.
2. Submit evidence that roofing system meets requirements.

E. Installer Qualifications:
1. Certification signed by roofing-system manufacturer, certifying that Installer complies with manufacturer's requirements to install specified, warranted, roofing system.
2. Evidence that Installer's *existing company* has minimum five years of continuous experience in similar roofing work; list of at least five representative, successfully-completed projects of similar scope and size, including:
a. Project name.
b. Owner's name.
c. Owner's Representative name, address, and telephone number.
d. Description of work.
e. EPDM materials used.
f. Project supervisor.
g. Total cost of roofing work and total cost of project.
h. Completion date.

F. Sample Warranty: Copy of roofing-system manufacturer's warranty, stating obligations, remedies, limitations, and exclusions. Submitted with bid.

G. Following completion of the Work:
   1. Roofing-system manufacturer's inspection report of completed roofing installation.
   2. Completed warranty from roofing-system manufacturer.
   3. Completed warranty from Installer.
   4. Maintenance program recommended for roofing system.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: Experienced firm that has successfully completed roofing work similar in materials, design, and extent to that indicated for Project; that is approved, authorized, or licensed by roofing-system manufacturer to install roofing system; and that is eligible to receive roofing-system manufacturer's warranty. Must have successful installations of specified materials in local area in use for minimum of five years.
   1. Employ foreman with minimum five years of experience as foreman on similar projects, who is fluent in English, to be on Site at all times during Work. Do not change foremen during the course of the Project except for reasons beyond the control of the Installer; inform Architect/Engineer in advance of any changes.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, and handle materials according to manufacturer's recommendations and in such a manner as to prevent damage to materials or structure.

B. Deliver materials to Site in original containers and packaging with seals unbroken, labeled with manufacturer's name, product brand name and type, date of manufacture, lot number, and directions for storing and mixing with other components.

C. Keep materials dry and do not allow materials to be exposed to moisture during transportation, storage, handling, or installation. Reject and remove from Site new materials which exhibit evidence of moisture during application or which have been exposed to moisture.

D. Store materials in original, undamaged containers in clean, dry, protected location on raised platforms with weather-protective coverings, within temperature range required by manufacturer. Use canvas tarps for protection of moisture-sensitive roofing materials. Protect stored materials from direct sunlight. Manufacturer's standard packaging and covering are not considered adequate weather protection.

E. Store rolled materials on ends only, unless otherwise required by manufacturer's written instructions. Discard rolls that have been flattened, creased, or otherwise damaged.

F. Do not store materials at locations where new roofing materials have been installed.

G. Limit stored materials on structures to safe loading capacity of structure at time materials are stored, and to avoid permanent deck deflection.

H. Conspicuously mark damaged or opened containers, containers with contaminated materials, or wet or damaged materials, and remove from Site as soon as possible.

I. Remove and replace materials that cannot be applied within stated shelf life.

1.7 PROJECT CONDITIONS

A. Verify existing dimensions and details prior to start of roofing Work. Notify Architect/Engineer of conditions found to be different than those indicated in the Contract Documents. Architect/Engineer will review situation and inform Contractor and Installer of changes.

B. Comply with Owner's limitations and restrictions for Site use and accessibility.

C. Protect existing roofing from damage from construction activities. Repair damage to existing roofing from construction activities that result in leakage.

D. Ensure that drains are operational at the end of each workday or if precipitation is forecast.

E. Environmental Limitations: Install roofing when existing and forecast weather conditions permit roofing system to be installed according to roofing-system manufacturer's written instructions and warranty requirements.
   1. Apply roofing when substrate temperature is falling, and when substrate and ambient temperatures are within range recommended by roofing-system manufacturer.
   2. Do not proceed with installation during inclement weather except for temporary work necessary to protect building interior and installed materials. Remove temporary work and Work that becomes moisture damaged.

F. Handle and install materials in strict accordance with safety requirements required by roofing-system manufacturer; Safety Data Sheets (SDS); and local, state, and federal rules and regulations. Maintain Safety Data Sheets (SDS) with materials in storage area and available for ready reference on Site.

G. Maintain adequate ventilation during preparation and application of roofing materials.

1.8 INSURANCE REQUIREMENTS

A. The building is insured by FM Global.

B. Contractor is to submit via email FM Global Form 2688 *Checklist for Roofing System* for each roof assembly to ENGBostonPlanReview@fmglobal.com.
   1. The Form 2688 must include RoofNav numbers for each roof assembly and contain a list of all roofing materilas used on the Project.
   2. Sample of Form 2688 is included at the end of this Section.

C. Following completeion of the roofing installation the Contractor is to retain a testing agency approved by FM Global to conduct wind uplift testing per the requirements of FM Global Data Sheet 1-52, *Field Verification of Roof Wind Uplift Resistance.*
   1. Up-lift testing will be required at all roofs.
   2. Provide for 11 test locations.

1.9 CHANGES IN WORK

A. During rehabilitation work, existing conditions may be encountered which are not known or are at variance with the Contract Documents. Such conditions may interfere with the Work and may consist of damage or deterioration of the substrate or surrounding materials that could jeopardize the integrity or performance of the Work.
   1. Notify Architect/Engineer of conditions that may interfere with the proper execution of the Work or jeopardize the performance of the Work prior to proceeding with the Work.

1.10 WARRANTY

A. Manufacturer's Warranty:
   1. Written warranty, signed by roofing-system manufacturer, including:
      a. Repair or replace components of roofing system that do not comply with requirements; that do not remain watertight; that fail in adhesion, cohesion, or general durability; or that deteriorate in a manner not clearly specified by submitted roofing-system manufacturer's data as an inherent quality of the material for the application indicated.
      b. Removal and replacement of membrane, roof-deck board, insulation, and walkway products. Warranty includes replacing materials as necessary.
      c. Labor and materials to perform warranty Work.

d. Warranty shall cover up to 75 mph wind speeds.
2. Warranty shall be non-prorated.
3. Warranty Period: 30 years from date of completion of roofing system.

B. Roofing Installer's Warranty:
1. Completed warranty, signed by Installer, including:
a. Repair or replace components of roofing system that do not comply with requirements; that do not remain watertight; that fail in adhesion, cohesion, or general durability; or that deteriorate in a manner not clearly specified by submitted roofing-system manufacturer's data as an inherent quality of the material for the application indicated.
b. Removal and replacement of roof-deck board, base sheet, temporary roof/vapor retarder, insulation, and walkway products. Warranty includes replacing materials as necessary.
c. Labor and materials to perform warranty Work.
2. Warranty Period: Two years from date of completion of roofing system.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Roofing-system manufacturer that has FM Global approval for roofing system identical to that specified for Project. Use one of the following or approved equal:
1. Carlisle SynTec Inc.
2. Firestone Building Products Company.
3. Johns Manville Roofing Systems.

2.2 EPDM ROOFING MEMBRANE

A. General:
1. FM Global Listing: Provide roofing membrane, base flashings, and component materials that comply with requirements in FM Global Class Numbers 4450 and 4470 as part of roofing system and that are listed in FM Global Approval Guide for Class 1 or noncombustible construction, as applicable. Identify materials with FM Global markings.
a.
b. Hail Resistance: SH.
2. Roofing-system Design: Provide roofing system that is identical to systems that have been successfully tested by qualified testing agency to resist uplift pressure calculated according to ASCE/SEI 7.

Roof Area	Width (ft.)	Height (ft.)	Field	Perimeter	Corners
1912 Section (wood deck)	69	42	75psf	105psf	165psf
1912 Stair Bulkhead	15	56	180psf	180psf	180psf
1928 Section (wood deck)	60	44	75psf	120psf	165psf
1990 Addition (Elevator Tower)	16	40	165psf	165psf	165psf

3. Acceptable FM Global Roof Nav Assemblies for the project include but are not limitied to:
a. 328603-0-0
b. 375182-0-0
c. 394644-0-0
4. Material Compatibility: Provide roofing materials that are compatible with one another under conditions of service and application required, as demonstrated by roofing-system manufacturer based on testing and field experience.
5. Source Limitations: Obtain components for roofing system from or approved by roofing-system manufacturer.

B. EPDM Roofing Membrane: ASTM D4637/D4637M, Type I; non-reinforced, uniform, flexible sheet made from EPDM; 90 mils nominal thickness; Black exposed face color.

2.3 OTHER ROOFING-SYSTEM MATERIALS

A. Roof-deck Boards: ASTM C1177/C1177M; glass-mat, water-resistant, gypsum substrate, 1/2 inch thick. DensDeck Prime Roof Board manufactured by Georgia-Pacific Gypsum LLC, or approved equal as required to meet FM Global Roof Nav Assembly requirements.

B. Insulation:
   1. General: Provide preformed insulation boards that comply with requirements and referenced standards, selected from insulation manufacturer's standard sizes and of thicknesses indicated on Drawings.
   2. Polyisocyanurate Boards: ASTM C1289, Type II, inorganic, glass-fiber mat facer on both major surfaces; 20-pounds-per-square-inch-minimum compressive strength.
   3. Insulation Accessories:
      a. General: Insulation accessories recommended by insulation manufacturer for intended use and compatible with membrane roofing.
      b. Provide preformed saddles, crickets, tapered edge strips, and other insulation shapes where indicated for sloping to drain. Fabricate to 1/2" per foot slope.

C. Cover Board: ASTM C1177/C1177M; glass-mat, water-resistant, gypsum substrate, 1/2 inch thick. DensDeck Prime Roof Board manufactured by Georgia-Pacific Gypsum LLC, or approved equal as required to meet FM Global requirements.

D. Walkways:
   1. Flexible Walkway: Factory-formed, nonporous, heavy-duty, solid-rubber, slip-resisting, surface-textured walkway pads or rolls, approximately 3/16 inch thick; approved by roofing-system manufacturer.

2.4 AUXILIARY MATERIALS

A. General: Auxiliary materials recommended by roofing-system manufacturer for intended use and compatible with membrane roofing.
   1. Liquid materials shall meet VOC limits of authorities having jurisdiction.

B. Sheet Flashing: 60-mil-thick EPDM, partially cured or cured, according to application.

C. Bonding Adhesive: Manufacturer's standard low VOC bonding adhesive.

D. Seaming Material: Manufacturer's 5-inch-wide joint cover.

E. Lap Sealant: Manufacturer's standard single-component sealant, color to match roofing membrane.

F. Water Cutoff Mastic: Manufacturer's standard butyl mastic sealant.

G. Termination Bars: Roofing-system manufacturer's standard; Type-304-stainless-steel or aluminum bars, approximately 1-inch wide by 1/8-inch thick; with predrilled holes 8 inches on center.

H. Fasteners, General: Factory-coated steel fasteners and metal or plastic plates meeting corrosion-resistance provisions in FM Global Class Number 4470, and acceptable to roofing-system manufacturer.
   1. Designed for fastening roofing-system components to substrate and tested by roofing-system manufacturer for required pullout strength.

I. Fasteners for Base Flashings:

1. Wood and Plywood Substrates: 1-inch-minimum long, capped, galvanized-steel nails with ribbed shank of sufficient length to provide 1-inch-minimum embedment or pass through bottom side of wood or plywood. Use Square-Cap Nails-Steel Head with STORMGUARD double hot-dipped zinc coating manufactured by Maze Nails, or approved equal.
2. Masonry Substrate: Stainless steel with hex washer head.
   a. 410 Stainless Steel Tapcon manufactured by ITW Red Head, Inc.
   b. 304 Stainless Steel Tapper, 1/4-inch diameter with hex washer head, manufactured by Powers Fasteners.
   c. Kwik Con II Torx Hex Head SS manufactured by Hilti.
   d. 1-3/4-inch-minimum length, or as noted on details.
3. Metal substrate: No. 12 x 1 1/2 inch, 410 stainless steel, self-drilling screws with 1-inch, stainless steel washers.

J. Miscellaneous Accessories: Provide pourable sealers, preformed cone and vent sheet flashings, preformed inside and outside corner sheet flashings, T-joint covers, in-seam sealants, termination reglets, cover strips, and other accessories.

2.5 ROOF ACCESSORIES

A. Manufacturers
   1. The BILCO Company; New Haven, CT
   2. Babcock-Davis; Brooklyn Park, MN
   3. Nystrom; Minneapolis, MN

B. Hatch Railing: Aluminum, curb mounted, fixed roof hatch railing that meets or exceeds the requirements of OSHA 29 CFR 1910.29.

C. Ladder Safety Post: Aluminum, telescoping safety ladder post.

2.6 ROOF DRAIN ACCESSORIES

A. Roof Drain Accessories sized to fit existing drains.
   1. Domes: Cast Iron

B. Combination flashing ring and gravel stop: Cast iron

PART 3 EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions, with Installer and roofing-system manufacturer's representative for compliance with requirements and for other conditions affecting performance of roofing system.
   1. Perform testing according to ANSI/SPRI FX-1 to verify that fastener pull-out values meet or exceed those required by FM Global standards.
   2. Ensure that work done by other trades is complete and ready for roofing Work, including:
      a. Roof openings and penetrations are in place and set and braced, and roof drains are securely clamped in place.
      b. Wood cants, blocking, curbs, and nailers are securely anchored to roof deck at penetrations and terminations and nailers match thicknesses of insulation.
      c. Wood or plywood deck is securely fastened with no projecting fasteners and with no adjacent units in excess of 1/16 inch out of plane relative to adjoining deck.
   3. Verify that areas and conditions under which roofing Work is to be performed permit proper and timely completion of Work.
   4. Notify Architect/Engineer in writing of conditions which may adversely affect installation or performance of roof system and recommend corrections.

5. Do not proceed with roofing Work until adverse conditions have been corrected and reviewed by Architect/Engineer.
6. Commencing roofing Work constitutes acceptance of Work surfaces and conditions.

3.2 PROTECTION

A. Take precautions to ensure safety of people, including building users, passers-by, and workmen, and animals, and protection of property, including adjacent building elements, landscaping, and motor vehicles.

B. Prevent construction debris and other materials from coming into contact with pedestrians, motor vehicles, landscaping, buildings, and other surfaces that could be harmed by such contact.

C. Protect paving and sidewalks, and adjacent building areas from mechanical damage due to scaffolding and other equipment.

D. Limit access to Work areas.

E. Erect temporary protective canopies, as necessary, over walkways and at points of pedestrian and vehicular access that must remain in service during Work.

F. Comply with roofing-system manufacturer's written instructions for protecting building and other surfaces against damage from exposure to its products.

G. Cover adjacent surfaces with materials that are proven to resist roofing materials.

H. Assume responsibility for injury to persons or damage to property due to Work, and remedy at no cost to Owner.

3.3 SURFACE PREPARATION

A. Remove existing roofing system and other materials to expose substrate.
   1. Remove only as much of existing roofing as can be prepared and new temporary roof/vapor retarder or new roofing system installed in one day, unless provisions are implemented to maintain watertightness in interim or larger removal areas are approved by Owner's Representative.
   2. Provide temporary protection as needed if watertightness is compromised.
   3. Do not begin removal of existing roofing system when weather conditions are not conducive to maintaining watertightness or for application of new construction.

B. Clean substrate of dust, debris, moisture, and other substances detrimental to roofing installation, according to roofing-system manufacturer's written instructions. Remove sharp projections.

C. Repair or replace deteriorated sections of substrate.

D. Clean and prepare plywood substrate according to roofing-system manufacturer's written instructions. Provide clean, dust-free, and dry substrate for roofing application.
   1. Remove and replace plywood that is damaged, that cannot easily be cleaned, or that does not meet the requirements of roofing-system manufacturer. Use exterior-grade plywood that conforms to APA standards.
   2. Verify that plywood is fastened with non-projecting screws. If not, supplement existing fastening with new corrosion-resistant screws.

E. Mask adjoining surfaces not receiving roofing system to prevent spillage or migration affecting other construction.

F. Close off roof drains and other penetrations to prevent materials from entering and clogging drains and conductors, and from spilling or migrating onto adjacent surfaces. Remove roof-drain plugs when no work is taking place or when rain is forecast.

G. Installer and roofing-system manufacturer's representative shall examine substrate to ensure that it is properly prepared and ready to receive roofing system. Roofing-system manufacturer's representative shall report in writing to Installer and Architect/Engineer conditions which will adversely affect roofing-system installation or performance. Do not proceed with roofing-system installation until these conditions have been corrected and reviewed by Architect/Engineer.

H. Proceed with installation only after unsatisfactory conditions have been corrected. Commencing installation constitutes acceptance of Work surfaces and conditions.

3.4 ROOFING-SYSTEM INSTALLATION, GENERAL

A. Install EPDM roofing membrane and base flashings according to roofing-system manufacturer's written instructions.

B. Install materials in strict accordance with safety requirements required by roofing-system manufacturer; Safety Data Sheets (SDS); and local, state, and federal rules and regulations.
   1. Follow safety procedures of OSHA and other applicable governing agencies. Assume responsibility for Work area safety at all times.

C. Maintain adequate ventilation during installation of roofing materials. Notify Owner's Representative at least one week in advance of Work with materials with noxious vapors. Review application schedule and venting precautions with Owner's Representative prior to beginning application.

D. Substrate-Joint Penetrations: Prevent roofing asphalt from penetrating substrate joints, entering building, or damaging roofing-system components or adjacent building construction.

E. Coordinate installing roofing-system components so insulation and roofing membrane sheets are not exposed to precipitation, or left exposed at the end of the workday or when rain is forecast.
   1. Provide tie-offs at the end of each day's Work to cover exposed roofing membrane sheets and insulation with course of coated felt set in roofing cement or hot roofing asphalt with joints and edges sealed.
   2. Complete terminations and base flashings and provide temporary seals to prevent water from entering completed sections of roofing system.
   3. Remove and discard temporary seals before beginning Work on adjoining roofing.

F. Prohibit foot traffic and equipment movement over roofing system until adhesive has cured.

G. Cooperate with Architect/Engineer in performing inspections and testing of roofing system.

3.5 INSTALLATION OF ROOF-DECK BOARD, INSULATION, AND COVER BOARD

A. Install roof-deck board with long joints in continuous straight lines, perpendicular to roof slopes with end joints staggered between rows. Tightly butt roof-deck boards together.
   1. Fasten roof-deck board to substrate according to recommendations in FM Global Approval Guide for specified Windstorm Classification.

B. Concrete and Masonry Substrate: Prime surface to receive roofing with asphalt primer at rate of 3/4 gallon per square, and allow primer to dry.

C. Insulation Installation:
   1. Comply with roofing-system manufacturer's written instructions for installing insulation.

2. Coordinate installation so insulation is not exposed to precipitation or left exposed at the end of the workday.
3. Install insulation with long joints in continuous, straight line; with end joints staggered between rows; and abutting edges and ends between boards.
    a. Cut and fit insulation within 1/4 inch of nailers, projections, and penetrations.
    b. Fill gaps exceeding 1/4 inch with insulation.
4. Install one or more layers of insulation to achieve required thickness. Where overall insulation thickness is 2 inches or greater, install two or more layers with joints of each succeeding layer staggered from joints of previous layer at least 6 inches in each direction.
5. Trim surface of insulation where necessary at roof drains so finished surface is flush with top of drain-bowl flange and does not restrict flow of water.
6. Install and secure preformed, 45-degree insulation cant strips at junctures with vertical surfaces or angle changes greater than 45 degrees.
7. Install tapered edge strips at perimeter edges of roof that do not terminate at vertical surfaces.
8. Loosely Laid Insulation: Loosely lay insulation units.

D. Cover Board Installation: Install cover boards over insulation with long joints in continuous, straight lines, with end joints staggered between rows. Stagger cover-board joints from joints in insulation below, at least 6 inches in each direction. Loosely butt together and fasten to roof deck.
    1. Mechanically-Fastened Cover Boards: Secure cover boards to substrate using mechanical fasteners specifically designed and sized for fastening specified cover boards to substrate.
        a. Fasten insulation according to requirements in FM Global Approval Guide for specified Windstorm Classification.
        b. Fasten insulation to resist uplift pressure at corners, perimeter, and field of roof.

3.6 ROOFING MEMBRANE INSTALLATION

A. Unroll roofing membrane and allow to relax before installing.

B. Accurately align roofing membrane and maintain uniform side and end laps of minimum dimensions required by roofing-system manufacturer.
    1. Stagger end laps.
    2. Shingle side laps with slope of roof deck where possible.

C. Bonding Adhesive: Apply bonding adhesive to substrate and underside of roofing membrane at rate required by roofing-system manufacturer and allow to partially dry before installing roofing membrane. Do not apply bonding adhesive to splice area of roofing membrane.

D. Mechanically or adhesively fasten roofing membrane securely at terminations, penetrations, and perimeter of roofing.

E. Mechanically fasten or adhere perimeter of roofing membrane according to requirements in ANSI/SPRI RP-4.

F. Tape Seam Installation: Clean and prime both faces of splice areas, apply splice tape, and firmly roll side and end laps of overlapping roofing membrane sheets according to roofing-system manufacturer’s written instructions, to ensure a watertight seam installation. Install membrane patch at T-joints.

G. Joint Cover Installation: Clean and prime area at field and flashing seams to receive joint covers. Apply joint cover and firmly roll into place in accordance with roofing-system manufacturer’s written instructions. Install membrane patch at T-joints.

H. Repair tears, voids, and lapped seams that are not completely sealed.

I. Spread sealant or mastic bed over deck drain flange at deck drains and securely seal roofing membrane in place with clamping ring.

3.7 BASE FLASHING INSTALLATION

A. Base Flashing: Install base flashing at roof edges, and at penetrations through roof, and adhere to substrates according to roofing-system manufacturer's written instructions.
   1. Apply bonding adhesive to substrate and underside of sheet flashing at required rate and allow to partially dry. Do not apply bonding adhesive to seam area of flashing.
   2. Clean splice areas, apply splicing cement, and firmly roll side and end laps of overlapping sheets to ensure watertight seam installation. Apply lap sealant and seal exposed edges of sheet flashing terminations.
   3. Terminate and seal upper edge of sheet flashings, and mechanically anchor to substrate with termination bars with fasteners spaced 8 inches on center and within 2 inches of end termination in base flashing.

B. Roof Drains:
   1. Clean existing drain and flashing assembly to remove all adhesive, rust, bitumen, soil, etc., prior to the installation off the new roof membrane and flashing system. All cleaning solvents shall be acceptable to the roof manufacturer. Drain assembly shall be cleaned to the satisfaction of the Construction Administrator.
      a. Plug drain to prevent contamination of pipes.
   2. Install roofing membrane. Trim to extend 1/2 inch beyond inside edge of drain-bowl flange.
   3. Install water cutoff sealant on drain-bowl flange, below roofing membrane.
   4. Install clamping ring and drain strainer.
      a. Install clamping ring. Securely fasten clamping ring to provide continuous compression of roofing membrane.
      b. Install strainer dome.
   5. At the end of the Project, test drains for watertightness and ensure that drains flow freely.

3.8 WALKWAY INSTALLATION

A. Install walkways on roof membrane at doors; on three sides of hatches; below equipment and supports; at base and top of roof access ladders; at base of HVAC access ladders; below prefabricated, service-line supports; below duct supports, service lines, and condensate lines; and at other locations indicated.

B. Use only full-size units, except partial units at corners if necessary to provide neat, finished appearance.

C. Provide 2 inches minimum between adjacent units. Extend walkway 6 inches minimum beyond edges of equipment or supports.

D. Flexible Walkway: Adhere pads or rolls to substrate with compatible adhesive, in accordance with recommendations of walkway and roofing-system manufacturers.

3.9 FIELD QUALITY CONTROL

A. Architect/Engineer will inspect roofing system at various stages of construction and at completion prior to installation of aggregate surfacing.

B. Final Roof Inspection: Arrange for roofing-system manufacturer's technical representative to inspect roofing installation on completion and submit report to Architect/Engineer. Notify Architect/Engineer and Owner's Representative 48 hours in advance of date and time of inspection.

C. When remaining construction will not affect or endanger roofing, inspect roofing for deterioration and damage, and describe nature and extent of deterioration and damage in written report, with copies to Architect/Engineer and Owner's Representative.

D. Repair or remove and replace components of membrane roofing system where test results or inspections indicate that they do not comply with specified requirements.

E. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional Work with specified requirements.

3.10 CLEANING

A. At the end of each workday, clean Site and Work areas and place rubbish, empty cans, rags, and other discarded materials in appropriate containers.

B. After completing roofing Work:
   1. Clean spillage and soiling from adjacent surfaces using cleaning agents and procedures recommended by manufacturer of affected surface. Exercise care to avoid scratching or damage to surfaces.
   2. Repair surfaces stained, marred, or otherwise damaged during roofing Work.
   3. Clean up debris and surplus materials and remove from Site.

C. Waste Management:
   1. Collect surplus roofing materials that cannot be reused and deliver to recycling or disposal facility.
   2. Treat materials that cannot be reused as hazardous waste and dispose of in an appropriate manner.

3.11 PROTECTION

A. Protect roofing system from damage and wear during remainder of construction period.

END OF SECTION

CHECKLIST FOR ROOFING SYSTEM

CONTACT INFORMATION: **INDEX NUMBER:**

ROOFING CONTRACTOR (NAME & ADDRESS)	TELEPHONE NO.:	**FAX:**
	E-MAIL ADDRESS:	**CONTACT:**
CLIENT (NAME & ADDRESS)	TELEPHONE NO.:	**FAX:**
	E-MAIL ADDRESS:	**CONTACT:**

OVERVIEW OF WORK: *(Submit 1 form per roof area)*

Building Name & Number:		
Building Dimensions: Length: *ft/m;*	Width: *ft/m.;*	Height *ft/m.*
Roof Slope:		
Parapet Height ,max *(in./m)*:	Parapet Height ,min (*in /m):*	
Type of Work: ☐ New Construction ☐ Recover (New roof over existing Roofing System) ☐ Reroof (New cover/remove existing roofing system to deck) ☐ Other		
FM Approved RoofNav Assembly Numbers:		

ROOF SURFACING:

☐ None	
☐ Coating	*(Trade Name/Application Rate)*
☐ Granules	*(Application Rate)*
☐ Gravel/Slag	*(Application Rate)*
☐ Ballast: ☐ Stone Size ☐ Pavers *(Beveled or square edge)*; ☐ Other:	
Ballast Weight (psf): Field: Perimeter: Corners:	

ROOF COVER/MEMBRANE:
(Please provide ALL applicable details including trade name, type, number of plies, thickness, reinforced, adhesive)

☐ Panel: ☐ Through Fastened Metal ☐ Standing Seam metal ☐ Fiber Reinforced Plastic (FRP) ☐ Other:			
☐ Single Ply:	☐ Adhered	☐ Fastened	☐Ballasted
☐ Built Up Roofing (BUR)			
☐ Modified Bitumen	☐ Lap Width in/mm	☐ Lap Adhesion Type	
☐ Spray Applied			
☐ Other:			

BASE SHEET:
(Please include Trade Name, Type, and Width)

☐ None		
Trade Name:	Width: ☐ 36 In. ☐ 1 meter (39 In.)	
☐ Fastened	☐ Adhered	
☐ Secured per RoofNav **OR**	☐ Per FM Global Loss Prevention Data Sheet 1-29	
Comments:		
☐ Lap Width in/mm	☐ Lap Adhesion Type	
☐ Air Retarder	☐ Vapor Retarder	

INSULATION

Layer	Trade Name	Thickness (In.)	Fastened	Adhered	Tapered
1. Top			☐	☐	☐
2. Next			☐	☐	☐
3. Next			☐	☐	☐
4. Next			☐	☐	☐

☐ Glass Fiber/Mineral Wool/Batt	☐ Facer Type/Vapor Barrier
☐ Thermal Barrier	

CHECKLIST FOR ROOFING SYSTEM

☐ Other:
☐ None

DECK:
(Please include manufacturer, type, yield strength, thickness/gage, etc.)

☐ Steel:	
☐ LWIC (Form Deck):	☐ Cementitious Wood Fiber:
☐ Concrete: ☐ Pre-cast panels or ☐ Cast in Place	
☐ Wood	
☐ Fiber Reinforced Cement	☐ Fiber Reinforced Plastic
☐ Gypsum: ☐ Plank	☐ Poured
☐ Other:	
Comments:	

ROOF STRUCTURE (Include Size, Gage, Etc.):

☐ Purlins ☐ "C" OR ☐ "Z"		
☐ Joists ☐ Wood OR ☐ Steel		
☐ Beams ☐ Wood OR ☐ Steel		
☐ Other:		
Spacing: Field:	Perimeter:	Corners:
Comments:		

FASTENERS USED IN ROOF ASSEMBLY:

Roof Cover Fasteners: Trade Name:		Length:	Diameter:
Stress Plate/Batten:			
Spacing: Field: **X**	Perimeter: **X**	Corners: **X**	
Insulation Fasteners: Trade Name:		Type:	
Size:		Stress Plate:	
Spacing: Field:	Perimeter:	Corners:	
Deck Or Roof Panels Fasteners: Trade Name:		Type:	
Length:		Size Washer:	
If Weld: Size:	Weld:	Washer:	
Deck Side Lap Fasteners: Field: **X**	Perimeter: **X**	Corners: **X**	
Spacing: Field: **X**	Perimeter: **X**	Corners: **X**	
Base Sheet Fasteners Trade Name:		Type:	
Head Diameter:		Length:	
Spacing: (Attached Sketches as necessary) Spacing Along Laps: Field:		Perimeter:	Corners:
No. Intermediate Rows: Field:		Perimeter:	Corners:
Spacing Along Intermediate Rows: Field:		Perimeter:	Corners:

PERIMETER FLASHING:
(Attach a detailed sketch of metal fascia, gravel stop, nailer, coping, etc.)

☐ FM Approved Flashing	Manufacturer/Trade Name:
☐ Other:	Flashing Max Wind Rating:
Nailer Size / Securement Per FM Global Data Sheet 1-49? ☐ Yes ☐ No	
Comments:	

DRAINAGE:

For new construction: Has roof drainage been designed by a Qualified Engineer per FM Global Loss Prevention Data Sheet 1-54 and the local building code? ☐ Yes ☐ No (Attach details)
For re-roofing and recovering: will the roof drainage be changed from the original design (for example: drain inserts, drains covered or removed, new expansion joints, blocked or reduced scupper size? ☐ Yes ☐ No If yes, were the changes reviewed by a Qualified Engineer? ☐ Yes ☐ No (Attach details)
Is secondary (emergency) roof drainage provided per FM Global Data Sheet 1-54? ☐ Yes ☐ No (Attach details)

CHECKLIST FOR ROOFING SYSTEM

FM Global OFFICE REVIEW
(Please leave blank for FM Global Office Review)

WIND:

Design Wind Speed: *(mph)*	Ground Terrain: ☐ B ☐ C ☐ D
Uplift Pressure in field: *(psf)*	Uplift Rating Required:
Adequate Uplift Rating Provided:	Adequate? ☐ Yes ☐ No

FIRE:

Internal Assembly Rating:	☐ Class 1	☐ Class 2	☐ Non-Combustible	
External Fire Rating:	☐ Class A	☐ Class B	☐ Class C	☐ None
Concealed Spaces?	☐ Yes	☐ No	Sprinklers below Roof?	☐ Yes ☐ No
Adequate?	☐ Yes	☐ No		

HAIL:

Hail Zone ☐ VSH ☐ SH ☐ MH	Hail Rating Provided ☐VSH ☐ SH ☐ MH
	FM 4473 Specification Class (if provided): ☐2 ☐3 ☐4
Adequate? ☐ Yes ☐ No	

COLLAPSE:

If standing seam, has collapse been reviewed? ☐ Yes ☐ No

COMMENTS:

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PART 1 GENERAL

1.1 SUMMARY

A. Section includes custom-fabricated, batten-seam sheet metal roofing.

B. Related Sections:
1. Section 07 62 00 - Sheet Metal Flashing and Trim
2. Section 07 92 00 - Joint Sealants

1.2 SUBMITTALS

A. Product Data: For each type of product.
1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for each manufactured product and accessory.

B. Shop Drawings: For sheet metal roofing.
1. Include plans, elevations, sections, and attachment details.
2. Detail fabrication and installation layouts, fixed points, and keyed details.
3. Include details for forming, including seams and dimensions.
4. Include details for joining and securing, including layout and spacing of fasteners, cleats, and other attachments. Include pattern of seams.
5. Include details of termination points and assemblies.
6. Include details of edge conditions, including counter flashings and built-in gutters.
7. Include details of connections to adjoining work.

1.3 QUALITY ASSURANCE

A. Sheet Metal Roofing Fabricator Qualifications: Employs skilled workers who custom fabricate sheet metal roofing similar to that required for this Project and whose products have a record of successful in-service performance.

B. Mockups: Build mockups to verify selections made under Sample submittals to demonstrate aesthetic effects and to set quality standards for fabrication and installation.
1. Build mockup of typical roof, including ice and water barrier, rosin paper slip sheet, attachments, and accessories.
2. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.

1.4 DELIVERY, STORAGE, AND HANDLING

A. Do not store sheet metal roofing materials in contact with other materials that might cause staining, denting, or other surface damage. Store sheet metal roofing materials away from uncured concrete and masonry.

B. Protect strippable protective covering on sheet metal roofing from exposure to sunlight and high humidity, except to extent necessary for period of sheet metal roofing installation.

1.5 WARRANTY

A. Warranty: Installer agrees to repair or replace components of sheet metal roofing that fail in materials or workmanship within specified warranty period.
1. Failures include, but are not limited to, the following:

a. Structural failures including, but not limited to, rupturing, cracking, or puncturing.
b. Wrinkling or buckling.
c. Loose parts.
d. Failure to remain weather tight, including uncontrolled water leakage.
e. Deterioration of metals, metal finishes, and other materials beyond normal weathering, including non-uniformity of color or finish.
f. Galvanic action between sheet metal roofing and dissimilar materials.

2. Warranty Period: Five years from date of Substantial Completion.

PART 2 PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. General Performance: Sheet metal roofing system including, but not limited to, metal roof panels, cleats, anchors and fasteners, sheet metal flashing integral with sheet metal roofing, fascia panels, trim, battens, underlayment, and accessories, shall comply with requirements without failure due to defective manufacture, fabrication, or installation, or due to other defects in construction. Sheet metal roofing shall remain watertight.

B. Copper Roofing Standard: Comply with CDA's "Copper in Architecture Handbook." Conform to dimensions and profiles shown unless more stringent requirements are indicated.

C. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes to prevent buckling, opening of joints, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects.
1. Temperature Change: 120 deg F (67 deg C), ambient; 180 deg F (100 deg C), material surfaces.

2.2 ROOFING SHEET METALS

A. General: Protect mechanical and other finishes on exposed surfaces from damage by applying strippable, temporary protective film before shipping.

B. Copper Sheet: Copper Sheet: ASTM B370; ASTM B601, Temper H00, cold-rolled.
1. Weight (Thickness): 20 oz. /sq. ft. (0.70 mm thick) unless otherwise indicated.
a. Batten Caps: 20 oz. /sq. ft. (0.70 mm) thick.

2.3 UNDERLAYMENT MATERIALS

A. Self-Adhering, High-Temperature Sheet: Minimum 30 mils (0.76 mm) thick, consisting of a slip-resistant polyethylene- or polypropylene-film top surface laminated to a layer of butyl- or SBS-modified asphalt adhesive, with release-paper backing; specifically designed to withstand high metal temperatures beneath metal roofing. Provide primer according to written recommendations of underlayment manufacturer.
1. Products: Subject to compliance with requirements, provide one of the following:
a. Grace Construction Products: Ultra.
b. Henry Company: Blueskin PE200 HT.
c. Carlisle Construction Materials: WIP 300HT
2. Thermal Stability: ASTM D 1970; stable after testing at 240 deg F (116 deg C) or higher.
3. Low-Temperature Flexibility: ASTM D 1970; passes after testing at minus 20 deg F (29 deg C) or lower.

B. Slip Sheet: Rosin-sized building paper, 3 lb. /100 sq. ft. (0.16 kg/sq. m) minimum.

2.4 WOOD BATTENS

A. General: ALSC PS 20; provide lumber of nominal sizes shown on Drawings.
   1. Grade: Per applicable rules of lumber grading agency accredited by ALSC Board of Review. Factory mark each piece of lumber with grade stamp of grading agency.
   2. Provide S4S dressed lumber unless otherwise indicated.
   3. Provide dry lumber with 19 percent maximum moisture content at time of dressing for 2 inch nominal thickness or less, unless otherwise indicated.

2.5 MISCELLANEOUS MATERIALS

A. General: Provide materials and types of fasteners, solder, sealants, and other miscellaneous items as required for complete sheet metal flashing and trim installation and as recommended by manufacturer of primary sheet metal unless otherwise indicated.

B. Fasteners: Wood screws, annular-threaded nails, self-tapping screws, self-locking rivets and bolts, and other suitable fasteners designed to withstand wind uplift loads of 75 psf.
   1. General:
      a. Exposed Fasteners: Heads matching color of sheet metal roofing using plastic caps or factory-applied coating. Provide metal-backed EPDM or PVC sealing washers under heads of exposed fasteners bearing on weather side of roofing.
      b. Fasteners for Flashing and Trim: Blind fasteners or self-drilling screws, gasketed; with hex-washer head.
      c. Blind Fasteners: Stainless-steel rivets suitable for metal being fastened.

C. Solder:
   1. For Copper: ASTM B 32, Grade Sn50, 50 percent tin and 50 percent lead.

D. Sealant Tape: Pressure-sensitive, 100 percent solids, polyisobutylene compound sealant tape with release-paper backing. Provide permanently elastic, nonsag, nontoxic, nonstaining tape 1/2 inch (13 mm) wide and 1/8 inch (3 mm) thick.

E. Elastomeric Sealant: ASTM C 920, elastomeric silicone polymer sealant; of type, grade, class, and use classifications required to seal joints in sheet metal roofing and remain watertight.

F. Butyl Sealant: ASTM C 1311, single-component, solvent-release butyl rubber sealant; polyisobutylene plasticized; heavy bodied for hooked-type expansion joints with limited movement.

G. Bituminous Coating: Cold-applied asphalt emulsion according to ASTM D 1187.

2.6 ACCESSORIES

A. Sheet Metal Accessories: Provide components required for complete sheet metal roofing assembly including trim, copings, fasciae, corner units, clips, flashings, sealants, gaskets, fillers, metal closures, closure strips, and similar items. Match material and finish of sheet metal roofing unless otherwise indicated.
   1. Cleats: Intermittent and continuous attachment devices for mechanically seaming into joints and formed from the following materials and thicknesses unless otherwise indicated:
      a. Copper Roofing: 20-oz. /sq. ft. (0.55-mm) copper sheet.
   2. Backing Plates: Plates at roofing splices, fabricated from material recommended by CDA's "Copper in Architecture Handbook."
   3. Flashing and Trim: Formed from same material and with same finish as sheet metal roofing, minimum 20 ounce.

2.7 FABRICATION

A. General: Custom fabricate sheet metal roofing to comply with details shown and recommendations in CDA's "Copper in Architecture Handbook" that apply to design, dimensions (panel width and seam height), geometry, metal thickness, and other characteristics of installation. Fabricate sheet metal roofing and accessories in shop to greatest extent possible.
   1. Batten-Seam Roofing: Form batten-seam panels with edges turned up as indicated and with 1/2-inch (13-mm) flange turned toward center of pan.

B. Fabrication Tolerances: Fabricate sheet metal roofing that is capable of installation to a tolerance of 1/4 inch in 20 feet (6 mm in 6 m) on slope and location lines indicated on Drawings and within 1/8-inch (3-mm) offset of adjoining faces and of alignment of matching profiles.

C. Form exposed sheet metal work to fit substrates with little oil canning; free of buckling and tool marks; true to line, levels, and slopes; and with exposed edges folded back to form hems.
   1. Lay out sheet metal roofing so transverse seams, if required, are made in direction of flow with higher panels overlapping lower panels.
   2. Offset transverse seams from each other 12 inches minimum (300 mm) minimum.
   3. Fold and cleat eaves and transverse seams in shop.
   4. Form and fabricate sheets, seams, strips, cleats, valleys, ridges, edge treatments, integral flashings, and other components of metal roofing to profiles, patterns, and drainage arrangements indicated on Drawings and as required for leak proof construction.

D. Expansion Provisions: Fabricate sheet metal roofing to allow for expansion in running work sufficient to prevent leakage, damage, and deterioration of the Work.
   1. Form expansion joints of intermeshing hooked flanges, not less than 1 inch (25 mm) deep, filled with butyl sealant concealed within joints.

E. Sealant Joints: Where movable, non-expansion type joints are required; form metal to provide for proper installation of elastomeric sealant according to CDA's "Copper in Architecture Handbook."

F. Sheet Metal Accessories: Custom fabricate flashings and trim to comply with recommendations in CDA's "Copper in Architecture Handbook" that apply to design, dimensions, metal, and other characteristics of item required. Obtain field measurements for accurate fit before shop fabrication.
   1. Form exposed sheet metal accessories without excessive oil canning, buckling, and tool marks; true to line, levels, and slopes; and with exposed edges folded back to form hems.
   2. Seams: Fabricate nonmoving seams with flat-lock seams. Tin edges to be seamed, form seams, and solder.
   3. Sealed Joints: Form non-expansion, but movable, joints in metal to accommodate elastomeric sealant.
   4. Conceal fasteners and expansion provisions where possible. Do not use exposed fasteners on faces of accessories exposed to view.
   5. Fabricate cleats and attachment devices of sizes recommended by CDA's "Copper in Architecture Handbook" for application, but not less than thickness of metal being secured.

G. Built-in Gutters: Fabricate in minimum 8-foot-long sections, to cross section indicated, with riveted and soldered joints, complete with end pieces, outlet tubes, and other special accessories as required.
   1. Accessories: Bronze wire ball downspout strainer.

PART 3 EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances, substrate, and other conditions affecting performance of the Work.
   1. Examine concrete roof deck to assure it is solid and capable of holding fasteners.
   2. Verify that substrate is sound, dry, smooth, clean, sloped for drainage, and completely anchored, and that provision has been made for drainage, flashings, and penetrations through sheet metal roofing.
   3. Verify that air- or water-resistant barriers have been installed over sheathing or backing substrate to prevent air infiltration or water penetration.

B. Review any unsatisfactory conditions with Architect/Engineer before beginning installation of roofing materials.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Lay out panel arrangement and screw battens to concrete deck before installation of sheet metal roofing.
   1. Space fasteners not more than 16 inches o.c.

3.3 UNDERLAYMENT INSTALLATION

A. Self-Adhering Sheet Underlayment: Install self-adhering sheet underlayment, wrinkle free. Prime substrate if recommended by underlayment manufacturer. Comply with temperature restrictions of underlayment manufacturer for installation; use primer for installing underlayment at low temperatures. Apply in shingle fashion to shed water, with end laps of not less than 6 inches (150 mm) staggered 24 inches (600 mm) between courses. Overlap side edges not less than 3-1/2 inches (90 mm). Roll laps and edges with roller. Cover underlayment within 14 days.
   1. Apply self-adhering sheet underlayment over entire roof substrate.

B. Apply slip sheet, wrinkle free, over underlayment before installing sheet metal roofing and related flashing.

3.4 INSTALLATION, GENERAL

A. General: Install sheet metal roofing to comply with details shown and recommendations in CDA's "Copper in Architecture Handbook" that apply to installation characteristics required unless otherwise indicated on Drawings. Install fasteners, solder, protective coatings, separators, sealants, and other miscellaneous items as required for complete roofing system and as recommended by fabricator for sheet metal roofing.
   1. Install sheet metal roofing true to line, levels, and slopes. Provide uniform, neat seams with minimum exposure of solder, welds, and sealant.
   2. Anchor sheet metal roofing and other components of the Work securely in place, with provisions for thermal and structural movement.
   3. Field cutting of sheet metal roofing by torch is not permitted.
   4. Provide metal closures at peaks, rake edges, rake walls, eaves and each side of hip caps.
   5. Flash and seal sheet metal roofing with closure strips at eaves, rakes, and perimeter of all openings. Fasten with self-tapping screws.
   6. Locate and space fastenings in uniform vertical and horizontal alignment. Predrill panels for fasteners.
   7. Install and hip caps as sheet metal roofing work proceeds.

8. Locate roofing splices over, but not attached to, structural supports. Stagger roofing splices and end laps to avoid four-panel lap splice condition. Install backing plates at roofing splices.
9. Lap metal flashing over sheet metal roofing to direct moisture to run over and off roofing.

B. Thermal Movement: Rigidly fasten metal roof panels to structure at only one location for each panel. Allow remainder of panel to move freely for thermal expansion and contraction.
1. Point of Fixity: Fasten each panel along single line of fixing located at eave.
2. Avoid attaching accessories through roof panels in manner that inhibits thermal movement.

C. Fasteners: Use fastener sizes that penetrate substrate not less than 1-1/4 inches (32 mm).

D. Metal Protection: Where dissimilar metals contact each other, or where metal contacts pressure-treated wood or other corrosive substrates, protect against galvanic action or corrosion by painting contact surfaces with bituminous coating, by applying self-adhering sheet underlayment to each contact surface, or by other permanent separation as recommended by sheet metal manufacturer or CDA's "Copper in Architecture Handbook."

E. Conceal fasteners and expansion provisions where possible in exposed work and locate to minimize possibility of leakage. Cover and seal fasteners and anchors as required for a tight installation.

F. Fascia: Align bottom of sheet metal roofing and fasten with blind rivets, bolts, or self-tapping screws. Flash and seal sheet metal roofing with closure strips where fasciae meet soffits, along lower panel edges, and at perimeter of all openings.

3.5 CUSTOM-FABRICATED SHEET METAL ROOFING INSTALLATION

A. Fabricate and install work with lines and corners of exposed units true and accurate. Form exposed faces flat and free of buckles, excessive waves, and avoidable tool marks, considering metal temper and reflectivity. Provide uniform, neat seams with minimum exposure of solder, welds, and sealant. Fold back sheet metal to form hem on concealed side of exposed edges unless otherwise indicated.
1. Install cleats to hold sheet metal panels in position. Attach each cleat with at least two fasteners to prevent rotation.
2. Space cleats not more than 12 inches (300 mm) o.c. Bend tabs over fastener head.
3. Provide expansion-type cleats for roof panels that exceed 30 feet (9.1 m) in length.

B. Soldered Joints: Clean surfaces to be soldered, removing oils and foreign matter. Pre-tin edges of sheets with solder to a width of 1-1/2 inches (38 mm); however, reduce pre-tinning where pre-tinned surface would show in completed Work.
1. Do not use torches for soldering.
2. Heat surfaces to receive solder, and flow solder into joint. Fill joint completely. Completely remove flux and spatter from exposed surfaces.
3. Copper Soldering: Tin edges of uncoated sheets, using solder for copper.

C. Batten-Seam Roofing: Attach batten-seam metal panels to substrate with cleats, starting at eave and working upward toward ridge. Hold cleats in place with battens and fold edges of cleats over to hold panels. After panels are in place and before batten cap is installed, apply continuous bead of sealant to top of upturned flanges of each panel. Install batten cap covering batten and panel edges, and fold batten cap and panel together so batten cap and panel edges are completely engaged in seams.
1. Hook each panel to panel below with soldered transverse seam.
2. Splay upturned edges of panels at a slightly obtuse angle so pan-bottom width is slightly narrower than space between battens, to provide expansion capability.
3. Close batten ends with metal closures. Fold together with panel edges and end of batten cap.

4. Loose-lock panels at eave edges to continuous-edge flashing exposed 24 inches (600 mm) from roof edge. Attach edge flashing to face of roof edge with continuous cleat fastened to roof substrate at 12-inch (305-mm) o.c. spacing. Lock panels to edge flashing.

3.6 ACCESSORY INSTALLATION

A. General: Install accessories with positive anchorage to building and weather tight mounting, and provide for thermal expansion. Coordinate installation with flashings and other components.
   1. Install components required for complete sheet metal roofing assembly including trim, copings, seam covers, flashings, sealants, gaskets, fillers, metal closures, closure strips, and similar items.

B. Flashing and Trim: Comply with performance requirements, manufacturer's written installation instructions, and CDA's "Copper in Architecture Handbook." Provide concealed fasteners where possible, and install units true to line, levels, and slopes. Install work with laps, joints, and seams that are permanently watertight and weather resistant.
   1. Install flashing and trim as required to seal against weather and to provide finished appearance. Locations include, but are not limited to, eaves, rakes, corners, bases, framed openings, ridges, fasciae, and fillers.
   2. Install exposed flashing and trim without excessive oil canning, buckling, and tool marks; true to line, levels, and slopes; and with exposed edges folded back to form hems. Install sheet metal flashing and trim to fit substrates, and to result in waterproof and weather-resistant performance.
   3. Expansion Provisions: Provide for thermal expansion of exposed flashing and trim. Space movement joints at maximum of 10 feet (3 m) with no joints within 24 inches (600 mm) of corner or intersection.
      a. Form expansion joints of intermeshing hooked flanges, not less than 1 inch (25 mm) deep and filled with butyl sealant concealed within joints.

3.7 BUILT-IN GUTTERS

1. Built-in Gutters:
   a. Join sections with riveted and soldered joints.
   b. Slope to downspouts.
   c. Provide end closures and seal watertight with sealant.
   d. Continue ice and water barrier underlayment below roofing in built-in gutter trough.
      1) Lap ends at least 4 inches. Stagger end laps between succeeding courses at least 72 inches.
      2) Install slip sheet over underlayment.

3.8 CLEANING AND PROTECTION

A. Clean exposed metal surfaces of substances that interfere with uniform oxidation and weathering.

B. Clean and neutralize flux materials. Clean off excess solder.

C. Clean off excess sealants.

D. Remove temporary protective coverings and strippable films as sheet metal roofing is installed unless otherwise indicated in manufacturer's written installation instructions. On completion of sheet metal roofing installation, clean finished surfaces as recommended by sheet metal roofing manufacturer. Maintain sheet metal roofing in clean condition during construction.

END OF SECTION

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PART 1 GENERAL

1.1 SUMMARY

A. Section Includes: Supply, fabrication, and installation of roof and wall flashings; counterflashings; roof edges; and downspouts.

B. Related Sections:
1. Section 04 01 21- Brick Masonry Repair and Replacement
2. Section 07 53 23 - EPDM Membrane Roofing
3. Section 07 92 00 - Joint Sealants

1.2 REFERENCES

A. Reference Standards: Latest edition as of Specification date.
1. American Architectural Manufacturers Association (AAMA):
   a. 611: Voluntary Specification for Anodized Architectural Aluminum.
   b. 2604: Voluntary Specification, Performance Requirements and Test Procedures for High Performance Organic Coatings on Aluminum Extrusions and Panels.
2. ASTM International:
   a. A240/A240M: Standard Specification for Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications.
   b. B32: Standard Specification for Solder Metal.
   c. B209: Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate.
   d. B370: Standard Specification for Copper Sheet and Strip for Building Construction.
   e. B601: Classification for Temper Designations for Copper and Copper Alloys-Wrought and Cast.
   f. B749: Standard Specification for Lead and Lead Alloy Strip, Sheet, and Plate Products.
   g. C920: Standard Specification for Elastomeric Joint Sealants.
   h. D4637/D4637M: Standard Specification for EPDM Sheet Used in Single-Ply Roof Membrane.
3. Sheet Metal and Air Conditioning Contractors' National Association (SMACNA).
   a. Architectural Sheet Metal Manual.
4. SSPC: The Society for Protective Coatings:
   a. Paint 12: Cold Applied Asphalt Mastic Paint (Extra Thick Film) (discontinued 2005).

1.3 ADMINISTRATIVE REQUIREMENTS

A. Coordinate Work to ensure that adjacent areas are not adversely affected. Coordinate:
1. With Owner's Representative.
2. With other trades:
   a. To ensure that work done by other trades is complete and ready for sheet-metal Work.
   b. To avoid or minimize work on, or in immediate vicinity of, sheet-metal Work in progress.
   c. To ensure that subsequent work will not adversely affect completed sheet-metal Work.
3. With interfacing and adjoining construction to provide leakproof, secure, and non-corrosive installation. Coordinate:
   a. Installation of roof drainage system with installation of roof perimeter flashing.
   b. Counterflashing installation with base flashing installation.
   c. Installation of roof-penetration flashing with installation of roofing and other items penetrating roof.
   d. Installation of wall flashing with installation of wall-opening components such as windows, doors, and louvers.

1.4 SUBMITTALS

A. Product Data: For each product specified.
   1. Include Safety Data Sheets (SDS) for information only; safety restrictions are sole responsibility of Contractor.

B. Shop Drawings: Show layouts, profiles, shapes, seams, dimensions, and details for fastening, joining, supporting, interface conditions with other materials, and anchoring prefabricated aluminum roof edges.

C. Color Samples: For prefabricated aluminum roof edges and aluminum downspout.

D. Installer Qualifications: Evidence that Installer's *existing company* has minimum five years of continuous experience in similar sheet-metal Work; list of at least five representative, successfully-completed projects of similar scope and size, including:
   1. Project name.
   2. Owner's name.
   3. Owner's Representative name, address, and telephone number.
   4. Description of work.
   5. Sheet-metal members installed.
   6. Project supervisor.
   7. Total cost of sheet-metal work and total cost of project.
   8. Completion date.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: Experienced firm that has successfully completed sheet-metal work similar in material, design, and extent to that indicated for Project. Must have successful installations of specified materials in local area in use for minimum of five years.
   1. Employ foreman with minimum five years of experience as foreman on similar projects, who is fluent in English, to be on Site at all times during Work. Do not change foremen during the course of the Project except for reasons beyond the control of the Installer; inform Architect/Engineer in advance of any changes.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Sheet-Metal Members: Deliver, store, and handle materials in such a manner as to prevent damage to materials or structure.

B. Sealants, Coatings, and Miscellaneous Materials:
   1. Deliver materials to Site in original containers and packaging with seals unbroken, labeled with manufacturer's name, product brand name and type, date of manufacture, lot number, and directions for storing.
   2. Keep materials dry and do not allow materials to be exposed to moisture during transportation, storage, handling, and installation. Reject and remove from Site new materials which exhibit evidence of moisture during application, or have been exposed to moisture.
   3. Store materials in original, undamaged containers in clean, dry, protected location on raised platforms with weather-protective coverings, within temperature range required by manufacturer. Protect stored materials from direct sunlight. Manufacturer's standard packaging and covering is not considered adequate weather protection.
   4. Handle materials to avoid damage.
   5. Conspicuously mark damaged or opened containers or containers with contaminated materials, and remove from Site as soon as possible.
   6. Remove and replace materials that cannot be applied within stated shelf life.

C. Limit stored materials on structures to safe loading capacity of structure at time materials are stored, and to avoid permanent deck deflection.

1.7 PROJECT CONDITIONS

A. Verify existing dimensions and details prior to start of sheet-metal Work. Notify Architect/Engineer of conditions found to be different than those indicated in the Contract Documents. Architect/Engineer will review situation and inform Contractor and Installer of changes.

B. Comply with Owner's limitations and restrictions for Site use and accessibility.

C. Environmental Limitations: Install sheet-metal members when existing and forecast weather conditions permit sealants, coatings, and miscellaneous materials to be installed according to sealant, coating, or miscellaneous material manufacturer's written instructions and warranty requirements.

D. Handle and install materials in strict accordance with safety requirements required by sheet-metal manufacturer; Safety Data Sheets (SDS); and local, state, and federal rules and regulations. Maintain Safety Data Sheets (SDS) with materials in storage area and available for ready reference on Site.

1.8 CHANGES IN WORK

A. During rehabilitation work, existing conditions may be encountered which are not known or are at variance with the Contract Documents. Such conditions may interfere with the Work and may consist of damage or deterioration of the substrate or surrounding materials that could jeopardize the integrity or performance of the Work.
   1. Notify Architect/Engineer of conditions that may interfere with the proper execution of the Work or jeopardize the performance of the Work prior to proceeding with the Work.

1.9 WARRANTY

A. Manufacturer's Warranty:
   1. Written warranty, signed by sheet-metal manufacturer, including:
      a. Replace sheet-metal Work that does not comply with requirements; that has corroded surface, coating that fails cohesively or adhesively, or other surface defects or imperfections; or that deteriorates in a manner not clearly specified by material supplier's data as an inherent quality of the material for the application indicated.
      b. Warranty does not include deterioration or damage from changes in sheet-metal environment from that reasonably anticipated at Substantial Completion, or physical damage from adjacent activities.
   2. Written warranty, signed by manufacturer against defects to the metal panels including color, fade, chalking, and film integrity.
   3. Warranty Period: 20 years after Substantial Completion date.

PART 2 PRODUCTS

2.1 DESIGN REQUIREMENTS

A. Design sheet-metal fastenings to reisit 75 mph winds and uplift pressures specified in Section 07 53 23 - EPDM Membrane Roofing.

2.2 SHEET METAL

A. For roof-penetration flashing, base counterflashings, and through wall flashing:
   1. Stainless-Steel Sheet: ASTM A240/A240M, Type 304; No. 2D finish; 26 gage.

B. For downspouts:
   1. Aluminum Sheet: ASTM B209, Alloy 3003, 3004, 3105, or 5005; temper suitable for forming and structural performance required, but not less than H14; 0.032 inches thick; finished as follows:
      a. High-performance-organic Finish: AAMA 2604, two-coat, thermocured system containing not less than 70 percent polyvinylidene fluoride resin by weight; color as selected by Architect/Engineer from manufacturer's full range.

C. Manufactured Roof Edges:
   1. FM Global approved, manufactured aluminum roof edge meeting ANSI/SPRI ES-1-2003 "Wind Design Standards".
      a. Carlisle Syntec: SecureEdge 2000 Fascia
      b. Firestone Building Products: Anchorgard SP Fascia
      c. Johns Manville: Presto Tite Roof Edge
      d. Metal Era: Anchor Tite Standard Fascia
   2. Alumium Thickness: .040"
   3. Height: As indicated on Drawings.
   4. Finish: High-performance-organic Finish: AAMA 2604, two-coat, thermocured system containing not less than 70 percent polyvinylidene fluoride resin by weight; color as selected by Architect/Engineer from manufacturer's full range.

2.3 AUXILIARY MATERIALS

A. Underlayment Materials:
   1. Self-Adhering Sheets: Rubberized-asphalt, self-adhering waterproofing sheets.

B. Termination Bars: Type-304-stainless-steel or aluminum bars, approximately 1-inch wide by 1/8-inch thick; with predrilled holes 8 inches on center.
   1. Fasteners for termination bars:
      a. Type: Maonry screw anchors
      b. Material: Stainless Steel
      c. Diameter: 3/16" or 1/4"in coordination with the termination bar
      d. Embeddment: 1-1/2"

C. Miscellaneous Materials:
   1. General: Provide materials and types of fasteners, solder, welding rods, protective coatings, separators, sealants, and other miscellaneous items required for installation.
   2. Fasteners: Wood screws, annular-threaded nails, self-tapping screws, self-locking rivets and bolts, and other suitable fasteners designed to withstand design loads. Size fasteners to provide penetration into substrate of at least 1 1/4 inches for nails and 3/4 inches for wood screws.
      a. Use stainless-steel fasteners, except that aluminum fasteners may be used with aluminum sheet metal, and copper or hardware bronze fasteners may be used with copper sheet metal.
      b. Exposed Fasteners: Heads match color of sheet metal by means of plastic caps or factory-applied coating.
      c. Fasteners for Flashing and Trim: Blind fasteners or self-drilling screws, gasketed, with hex washer head.
         1) Blind Fasteners: High-strength aluminum or stainless-steel rivets.
   3. Sealing Tape: Pressure-sensitive, 100-percent solids, polyisobutylene-compound sealing tape with release-paper backing. Provide permanently elastic, nonsag, nontoxic, non-staining tape.
   4. Elastomeric Sealant: ASTM C920, elastomeric silicone sealant; of type, grade, class, and use classifications required to seal joints in sheet-metal flashing and trim and remain watertight.
   5. Butyl Sealant: ASTM C1311, single-component, solvent-release, butyl-rubber sealant; polyisobutylene-plasticized; heavy-bodied for hooked-type expansion joints with limited movement.
   6. Bituminous Coating: SSPC Paint 12; compounded for 15-mil-dry-film thickness per coat.

7. Solder: ASTM B32.

2.4 FABRICATION

A. Custom fabricate to comply with recommendations in SMACNA's Architectural Sheet Metal Manual, that apply to design, dimensions, metal, and other characteristics of item indicated. Conform to dimensions and profiles shown in SMACNA's Architectural Sheet Metal Manual, unless requirements that are more stringent are indicated.
   1. Obtain field measurements for accurate fit before fabrication.
   2. Shop fabricate items where practicable.

B. Fabricate without excessive oil canning, buckling, or tool marks that are visually objectionable in opinion of Architect/Engineer, and true to line and levels indicated, with exposed edges folded back to form hems.
   1. Seams for Aluminum: Fabricate nonmoving seams with flat-lock seams. Form seams and seal with elastomeric sealant. Rivet joints for additional strength.
   2. Seams for Other than Aluminum: Fabricate nonmoving seams in accessories with flat-lock seams. Tin edges to be seamed, form seams, and solder.

C. Sealed Joints: Form non-expansion but movable joints in metal to accommodate elastomeric sealant and in compliance with recommendations in SMACNA's Architectural Sheet Metal Manual.

D. Expansion Provisions: Use lapped or bayonet-type expansion provisions where possible; otherwise, form expansion joints of intermeshing hooked flanges, not less than 1 inch deep, filled with butyl sealant concealed within joints.

E. Conceal fasteners and expansion provisions, where possible, on exposed-to-view sheet-metal flashing and trim, unless otherwise indicated.

F. Fabricate cleats and attachment devices from same material as accessory being anchored or from compatible, non-corrosive metal, and in thickness not less than that of metal being secured.

G. Roof Drainage Fabrications:
   1. Downspouts: Fabricate rectangular downspouts complete with mitered elbows. Furnish with metal hangers from same material as downspouts, and anchors.

H. Fabrications for Openings in Walls: Fabricate lintel flashings to extend 4 inches beyond wall openings. Form head and sill flashing with 2-inch-high end dams.

PART 3 EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions with Installer for compliance with requirements and other conditions affecting performance of sheet-metal flashings and trim.
   1. Ensure that work done by other trades is complete and ready for sheet-metal Work.
   2. Verify that areas and conditions under which sheet-metal Work is to be performed permit proper and timely completion of Work.
   3. Notify Architect/Engineer in writing of conditions which may adversely affect installation or performance of sheet-metal Work and recommend corrections.
   4. Do not proceed with installation of sheet-metal flashings and trim until adverse conditions have been corrected and reviewed by Architect/Engineer.
   5. Commencing sheet-metal Work constitutes acceptance of Work surfaces and conditions.

3.2 PROTECTION

A. Take precautions to ensure safety of people, including building users, passers-by, and workmen, and animals, and protection of property, including adjacent building elements, landscaping, and motor vehicles.

B. Prevent construction debris and other materials from coming into contact with pedestrians, motor vehicles, landscaping, buildings, and other surfaces that could be harmed by such contact.

C. Protect paving and sidewalks, and adjacent building areas from mechanical damage due to scaffolding and other equipment.

D. Limit access to Work areas.

E. Erect temporary protective canopies, as necessary, over walkways and at points of pedestrian and vehicular access that must remain in service during Work.

F. Assume responsibility for injury to persons or damage to property due to Work, and remedy at no cost to Owner.

3.3 INSTALLATION

A. General: Install sheet-metal flashings and trim according to recommendations in SMACNA's Architectural Sheet Metal Manual and as indicated.

B. Install sheet-metal flashing and trim to fit substrates and to result in watertight performance.
   1. Install true to line and levels indicated.
   2. Where exposed, install without excessive oil canning, buckling, or tool marks.
   3. Provide uniform, neat seams with minimum exposure of solder, welds, or sealant.
   4. Do not torch cut sheet metal.

C. Provide for thermal expansion of exposed flashing and trim.
   1. Space movement joints no more than 10 feet apart, with no joint within 24 inches of corner or intersection.
   2. Where lapped or bayonet-type expansion provisions cannot be used or would not be sufficiently watertight, form expansion joints of intermeshing hooked flanges, not less than 1 inch deep, filled with butyl sealant concealed within joints.

D. Metal Protection: Where dissimilar metals will contact each other or corrosive substrates, protect against galvanic action by painting contact surfaces with bituminous coating or by other permanent separation as recommended by fabricator or manufacturers of dissimilar metals.

E. Anchor sheet-metal flashing and trim and other components of Work securely in place, with provisions for thermal and structural movement. Use fasteners, solder, welding rods, protective coatings, separators, sealants, and other miscellaneous items as required.
   1. Space cleats not more than 12 inches apart. Anchor each cleat with two fasteners. Bend tabs over fasteners

F. Seal exposed joints with elastomeric sealant as required for watertight construction.

G. Soldered Joints: Clean surfaces to be soldered, removing oils and foreign matter. Pre-tin edges of sheets to be soldered to width of 1 1/2 inches except where pre-tinned surface would show in finished Work.
   1. Do not solder aluminum sheets.

H. Roof Drainage System Installation:

1. Downspouts:
    a. Join sections with 1-1/2-inch-telescoping joints.
    b. Provide fasteners designed to hold downspouts securely 1 inch away from walls; locate fasteners at top and bottom and at approximately 60 inches on center in between.

I. Roof Flashing Installation:
1. General:
    a. Set units true to line and level as indicated.
    b. Provide concealed fasteners where possible.
    c. Install Work with laps, joints, and seams that will be permanently watertight.
2. Counterflashing: Insert counterflashing in reglets or receivers and fit tightly to base flashing.
    a. Extend counterflashing 4 inches over base flashing.
    b. Secure in waterproof manner.
    c. Lap counterflashing joints at least 4 inches and bed with elastomeric sealant.

J. Wall Flashing Installation: Install continuous flashings to extend 4 inches beyond wall openings.

3.4 CLEANING

A. At the end of each workday, clean Site and Work areas and place rubbish, empty cans, rags, and other discarded materials in appropriate containers.

B. After completing sheet-metal Work:
1. Clean spillage and soiling from adjacent surfaces using cleaning agents and procedures recommended by manufacturer of affected surface. Exercise care to avoid scratching or damage to surfaces.
2. Repair surfaces stained, marred, or otherwise damaged during roofing Work.
3. Clean up debris and surplus materials and remove from Site.

3.5 PROTECTION

A. Protect sheet-metal flashings and trim from damage and wear during remainder of construction period.

END OF SECTION

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PART 1 GENERAL

1.1 SUMMARY

A. Section Includes: Surface preparation and installation of sealant in joints.

B. Related Sections:
1. Section 04 01 21 - Brick Masonry Repair and Replacement
2. Section 04 01 40 - Stone Restoration
3. Section 07 62 00 - Joint Restoration

1.2 REFERENCES

A. Reference Standards: Latest edition as of Specification date.
1. ASTM International:
a. C920: Standard Specification for Elastomeric Joint Sealants.
b. C1193: Standard Guide for Use of Joint Sealants
c. C1248: Standard Test Method for Staining of Porous Substrate by Joint Sealants.
d. C1521: Standard Practice for Evaluating Adhesion of Installed Weatherproofing Sealant Joints.

1.3 ADMINISTRATIVE REQUIREMENTS

A. Coordinate Work to ensure that adjacent areas are not adversely affected; that new materials and building interior are kept continuously dry; and that continuous, watertight, new sealant installation is provided. Coordinate:
1. With Owner's Representative.
2. With other trades:
a. To ensure that work done by other trades is complete and ready for sealant Work.
b. To avoid or minimize work on, or in immediate vicinity of, sealant Work in progress.
c. To ensure that subsequent work will not adversely affect completed sealant Work.

1.4 SUBMITTALS

A. Product Data: Sealant manufacturer's literature including written instructions for evaluating, preparing, and treating substrate; technical data including tested physical and performance properties; and installation instructions.
1. Include temperature ranges for storage and application of materials, and special cold-weather application requirements or limitations.
2. SpecData sheet for substrate cleaner and substrate primer recommended by sealant manufacturer for specific substrate surface and conditions.
3. Include Safety Data Sheets (SDS) for information only; safety restrictions are sole responsibility of Contractor.

B. Samples: Sealant manufacturer's color sample card, either printed or with thin sealant beads, showing range of colors available for each product exposed to view.

C. Manufacturer's Reports and Certifications:
1. Prior to sealant installation, report from sealant manufacturer with results of sealant compatibility, sealant and substrate staining, and mockup adhesion tests. Report shall:
a. State that materials which come into contact with or in close proximity to sealant have been tested.

b. Include sealant manufacturer's interpretation of test results relative to material performance, potential staining of sealant and substrates, dirt accumulation of sealant, and dirt runoff from sealant.
c. Include sealant manufacturer's recommendations for substrate preparation and primer needed to obtain durable adhesion and installation procedures successfully used in mockups and field tests.

2. Product Certificates: For each sealant product, accessory, related products, joint type, and substrate, sealant manufacturers' written approval of their products' use for specified conditions; based on mockups and field tests.

D. Installer Qualifications:
1. Certificate signed by sealant manufacturer, certifying that Installer complies with requirements.
2. Evidence that Installer's *existing company* has minimum five years of continuous experience in similar sealant work; list of at least five representative, successfully-completed projects of similar scope and size, including:
a. Project name.
b. Owner's name.
c. Owner's Representative name, address, and telephone number.
d. Description of work.
e. Sealant used.
f. Project supervisor.
g. Total cost of sealant work and total cost of project.
h. Completion date.

E. Sample Warranty: Copy of sealant manufacturer's warranty, stating obligations, remedies, limitations, and exclusions. Submitted with bid.

F. Following completion of the Work:
1. Sealant manufacturer's inspection report of completed sealant installation.
2. Completed warranty from sealant manufacturer.
3. Completed warranty from Installer.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: Experienced firm that has successfully completed sealant work similar in material, design, and extent to that indicated for Project; that is approved, authorized, or licensed by sealant manufacturer to install sealant; and that is eligible to receive sealant manufacturer's warranty. Must have successful installations of specified materials in local area in use for minimum of five years.
1. Employ foreman with minimum five years of experience as foreman on similar projects, to be on Site at all times during Work. Do not change foremen during the course of the Project except for reasons beyond the control of the Installer; inform Architect/Engineer in advance of any changes.

B. Mockups: Install ten feet of sealant in each type of joint to verify and set quality standards for materials and installation procedures, and to demonstrate aesthetic effects.
1. Include each type of backing material, sealant, primer and other related products.
2. Mockups shall be accessible or located as indicated by Owner's Representative.
3. Notify Owner's Representative and Architect/Engineer seven days in advance of date when mockups will be constructed.
4. Field-Adhesion Testing: After sealants have cured, perform field-adhesion tests according to ASTM C1521.
a. Conduct tests for each type of sealant and joint substrate, with and without primer.
b. Arrange for tests to take place with sealant manufacturer's technical representative present.

c. Sealants not evidencing adhesive failure from testing, in absence of other indications of noncompliance with requirements, will be considered satisfactory. Use alternate materials or modify installation procedure, or both, for sealants that fail to adhere to substrates.

5. If Architect/Engineer determines mockup does not comply with requirements, modify mockup or construct new mockup until mockup is approved.
6. Mockups, when approved by Owner's Representative and Architect/Engineer, will become standard for Work.
7. Do not begin joint sealant Work until mockup is accepted by Owner's Representative and Architect/Engineer.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, and handle materials according to manufacturer's recommendations and in such a manner as to prevent damage to materials or structure.

B. Deliver materials to Site in original packages with seals unbroken, labeled with manufacturer's name, product brand name and type, date of manufacture, lot number, and directions for storing and mixing with other components.

C. Keep materials dry and do not allow materials to be exposed to moisture during transportation, storage, handling, or installation. Reject and remove from Site new materials which exhibit evidence of moisture during application or which have been exposed to moisture.

D. Store materials in original, undamaged containers and packaging in clean, dry, protected location on raised platforms with weather-protective coverings, within temperature range required by manufacturer. Protect stored materials from direct sunlight. Manufacturer's standard packaging and covering is ***not*** considered adequate weather protection.

E. Limit stored materials on structures to safe loading capacity of structure at time materials are stored, and to avoid permanent deck deflection.

F. Conspicuously mark wet or damaged materials and remove from Site as soon as possible.

G. Remove and replace materials that cannot be applied within stated shelf life.

1.7 PROJECT CONDITIONS

A. Verify existing dimensions and details prior to start of sealant Work. Notify Architect/Engineer of conditions found to be different than those indicated in the Contract Documents. Architect/Engineer will review situation and inform Contractor and Installer of changes.

B. Comply with Owner's limitations and restrictions for Site use and accessibility.

C. Environmental Limitations: Install sealant when existing and forecast weather conditions permit sealant to be installed according to sealant manufacturer's written instructions and warranty requirements.

1. Do not install sealant when ambient or substrate temperatures are below 40 degrees F or are expected to fall below 40 degrees F in next 12 hours.
2. Do not proceed with installation during inclement weather except for temporary work necessary to protect building interior and installed materials. Remove temporary work and Work that becomes moisture damaged.

D. Handle and install materials in strict accordance with safety requirements required by sealant manufacturer; Safety Data Sheets (SDS); and local, state, and federal rules and regulations. Maintain Safety Data Sheets (SDS) with materials in storage area and available for ready reference on Site.

1.8 CHANGES IN WORK

A. During rehabilitation work, existing conditions may be encountered which are not known or are at variance with the Contract Documents. Such conditions may interfere with the Work and may consist of damage or deterioration of the substrate or surrounding materials that could jeopardize the integrity or performance of the Work.
   1. Notify Architect/Engineer of conditions that may interfere with the proper execution of the Work or jeopardize the performance of the Work prior to proceeding with the Work.

1.9 WARRANTY

A. Manufacturer's Warranty:
   1. Written warranty, signed by sealant manufacturer, including:
      a. Repair or replace sealant that does not comply with requirements; that does not remain watertight; that fails in adhesion, cohesion, or general durability; or that deteriorates in a manner not clearly specified by submitted sealant manufacturer's data as an inherent quality of the material for the application indicated.
   2. Warranty Period: 10 years from date of Substantial Completion.

PART 2 PRODUCTS

2.1 ELASTOMERIC JOINT SEALANTS

2.2 ELASTOMERIC JOINT SEALANTS

A. General:
   1. Comply with ASTM C920 and other requirements indicated.
   2. 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 sealant manufacturer, based on testing on similar projects, mockups and preconstruction testing for Project, and field experience.
   3. Select products based on mockups, preconstruction testing, and sealant manufacturer's

B. Single-Component, Non-sag, Polyurethane Sealants for use at stair and grade level joints; and concrete crack repairs:
   1. DynaTrol 1-XL manufactured by Pecora Corporation.
   2. MasterSeal NP 1 manufactured by BASF Building Systems.
   3. SikaFlex-1a manufactured by Sika Corporation.

C. Single-component, Non-sag, Silicone Sealants for use at façade and roof joints:
   1. 864 NST manufactured by Pecora Corporation.
   2. 756 SMS Building Sealant manufactured by Dow Corning Corporation.
   3. SCS9000 SilPruf NB manufactured by Momentive Performance Materials Inc.

2.3 AUXILIARY MATERIALS

A. General: Sealant-backer materials, primers, surface cleaners, masking tape, and other materials recommended by sealant manufacturer, that are non-staining and compatible with substrates; based on mockups, preconstruction testing, and sealant manufacturer's previous testing and experience.

2.4 SECONDARY JOINT SEALANT

A. Secondary joint seal shall be a polyurethane foam infused with a hydrophobic-acrylic impregnation installed behind the primary sealant where indicated on the drawings.

1. Backerseal by Emseal Joint Systems LTD.
2. Illmond 600 by Tremco.
3. Willseal 600 by Willseal LTD.

PART 3 EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions with Installer and sealant manufacturer's representative for compliance with requirements and for other conditions affecting installation or performance of sealant.
   1. Verify dimensions of sealant joints at Site by field measurement so that proper sealant profiles will be accurately maintained.
   2. Ensure that work done by other trades is complete and ready for sealant Work.
   3. Verify that areas and conditions under which sealant Work is to be performed permit proper and timely completion of Work.
   4. Notify Architect/Engineer in writing of conditions which may adversely affect installation or performance of sealant, including joints with widths less than those allowed by sealant manufacturer for applications indicated, and recommend corrections.
   5. Do not proceed with sealant Work until adverse conditions have been corrected and reviewed by Architect/Engineer.
   6. Commencing sealant Work constitutes acceptance of Work surfaces and conditions.

3.2 PROTECTION

A. Take precautions to ensure safety of people, including building users, passers-by, and workmen, and animals, and protection of property, including adjacent building elements, landscaping, and motor vehicles.

B. Prevent construction debris and other materials from coming into contact with pedestrians, motor vehicles, landscaping, buildings, and other surfaces that could be harmed by such contact.

C. Protect paving and sidewalks, and adjacent building areas from mechanical damage due to scaffolding and other equipment.

D. Limit access to Work areas.

E. Erect temporary protective canopies, as necessary, over walkways and at points of pedestrian and vehicular access that must remain in service during Work.

F. Comply with sealant manufacturer's written instructions for protecting building and other surfaces against damage from exposure to its products.

G. Cover adjacent surfaces with materials that are proven to resist sealant.

H. Assume responsibility for injury to persons or damage to property due to Work, and remedy at no cost to Owner.

3.3 SURFACE PREPARATION

A. Remove existing sealant and other foreign material from joints.

B. Repair damaged or deteriorated substrate surfaces according to sealant manufacturer's written instructions and as approved by Architect/Engineer.

C. Clean joint substrates immediately before installing sealant, to comply with sealant manufacturer's written instructions based on mockups and preconstruction testing.
   1. Remove from substrate foreign material that could interfere with adhesion of sealant, including dirt, dust, existing sealant, oil, grease, and surface coatings.
   2. Provide dry substrate; prevent wetting of substrate prior to sealant installation.
   3. Clean porous substrates, such as concrete, masonry, stone, wood, by brushing, grinding, blast-cleaning, mechanical-abrading, or combination of methods to produce clean, sound substrate capable of developing optimum bond with sealant. Remove laitance and form-release agents from concrete. Remove loose particles remaining after cleaning operations by vacuuming or blowing out joints with oil-free, compressed air.
   4. Clean nonporous surfaces, such as metal, with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion of sealant.
   5. Joints with silicone sealant and preformed sealant seals should generally be masked as subsequent cleanup of spillage and smears may be very difficult.

3.4 INSTALLATION OF SEALANT

A. General: Comply with sealant manufacturer's written installation instructions for products and applications indicated, based on mockups and preconstruction testing.

B. Joint Priming: Prime joint substrates where recommended in writing by sealant manufacturer, based on mockups and preconstruction testing. Apply primer to comply with sealant manufacturer's written instructions.
   1. Confine primer to areas of sealant bond; do not allow spillage or migration onto adjoining surfaces.
   2. Limit priming to areas that will be covered with sealant in same day. Unless recommended otherwise by sealant manufacturer, reprime areas exposed for more than 24 hours.

C. Install sealant backer and position to produce cross-sectional shape and proper depth of installed sealant.
   1. Use properly-sized backer. Do not use multiple-backer units or braided-backer units to accommodate wide joints.
   2. Install backer with device that will provide consistent depth between substrate surface and outer surface of backer.
   3. Do not leave gaps between ends of sealant backers.
   4. Do not stretch, twist, puncture, or tear sealant backers.
   5. Remove wet backers and replace with dry materials.

D. Install sealant immediately after installing backer material; to produce uniform, cross-sectional shape and depth; to directly contact and fully wet joint sides and backer material; and to completely fill recesses in joint configuration.
   1. Install sealant flush with surface.
   2. Immediately after sealant application and before skinning or curing begins, tool joint with slightly concave surface, compressing sealant into joint to form smooth, uniform sealant bead; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint. Do not use tooling agent.
   3. Remove excess sealant from surfaces adjacent to joints.

3.5 FIELD QUALITY CONTROL

A. At completion of Project, observe installed sealant for damage or deterioration. If damage or deterioration occurs, neatly cut out and remove damaged or deteriorated sealant, prepare and prime surfaces, and install new sealant. Replace sealant immediately so new sealant is indistinguishable from original Work.

3.6 CLEANING

A. As sealant Work progresses, clean off excess sealant or sealant smears by methods and with cleaning materials approved in writing by sealant manufacturer and manufacturers of products in which joints occur. Exercise care to avoid scratching or damage to surfaces.

B. At the end of each workday, clean Site and Work areas and place rubbish, empty cans, rags, and other discarded materials in appropriate containers.

C. After completing sealant Work:
   1. Repair surfaces stained, marred, or otherwise damaged during sealant Work.
   2. Clean up debris and surplus materials and remove from Site.

3.7 PROTECTION

A. Protect sealant during and after curing period from contact with contaminating substances and from damage, so sealants are without deterioration or damage at time of Substantial Completion.

END OF SECTION

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PART 1 GENERAL

1.1 SUMMARY

A. Section includes surface preparation and the application of paint systems at new and existing exterior wood surfaces.

1.2 SUBMITTALS

A. Product Data: Coating manufacturer's literature including written instructions for evaluating, preparing, and treating substrate; technical data including tested physical and performance properties; mixing and application instructions; safety precautions for handling, storing, applying, and disposing of materials; and instructions for protecting surrounding areas from overspray. Indicate surfaces to which materials will be applied. Include:

B. Samples: For each type of paint system and each color and gloss of topcoat.

1.3 QUALITY ASSURANCE

A. Mockups: Apply mockups of each paint system indicated and each color and finish selected to verify preliminary selections made under Sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.

1.4 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 (7 deg C).
   1. Maintain containers in clean condition, free of foreign materials and residue.
   2. Remove rags and waste from storage areas daily.

1.5 FIELD CONDITIONS

A. Apply paints only when temperature of surfaces to be painted and ambient air temperatures are between 50 and 95 deg F (10 and 35 deg C).

B. Do not apply paints in snow, rain, fog, or mist; when relative humidity exceeds 85 percent; at temperatures less than 5 deg F (3 deg C) above the dew point; or to damp or wet surfaces.

PART 2 PRODUCTS

2.1 PAINT, GENERAL

A. Material Compatibility:
   1. Materials for use within each paint system shall be 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, products shall be recommended in writing by topcoat manufacturers for use in paint system and on substrate indicated.
   3. Color and Gloss: To match existing.

2.2 COATINGS FOR NEW OR EXISTING EXTERIOR WOOD

A. Primer:

1. Benjamin Moore: Moorwhite Exterior Wood Primer 100 (2.1 mils. DFT).
2. Sherwin Williams: Exterior Oil Based Wood Primer (2.3 mils. DFT).
3. PPG Industries, Inc.: Seal Grip Alkyd Universal Primer (2.2 mils DFT).

B. Intermediate Coat:
1. Benjamin Moore: Regal Select Exterior Paint Acrylic Latex (2.3 mils. DFT).
2. Sherwin Williams: Duration Exterior Acrylic Latex (2.8 mils. DFT).
3. PPG Industries, Inc.: Manor Hall Exterior 100% Acrylic Latex (2.5 mils DFT).

C. Finish Coat:
1. Benjamin Moore: Regal Select Exterior Paint Acrylic Latex (2.3 mils. DFT).
2. Sherwin Williams: Duration Exterior Acrylic Latex (2.8 mils. DFT).
3. PPG Industries, Inc.: Manor Hall Exterior 100% Acrylic Latex (2.5 mils DFT).

D. Color: White to match existing wood surfaces.

E. Gloss: Semi-gloss.

PART 3 EXECUTION

3.1 SURFACE PREPARATION FOR PAINTING

A. 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.

B. Existing Wood Surfaces
1. Remove grease, oil, dirt, and other contaminants that might impair bond of coating.
2. Remove loose or deteriorated paint, and other loose foreign matter.
3. Lightly sand existing coating to remove sheen and slightly roughen.
4. Feather edges of existing coating by sanding, grinding, or as recommended by coating manufacturer.

C. New Wood Surfaces
1. Scrape and clean knots. Before applying primer, apply coat of knot sealer recommended in writing by topcoat manufacturer for exterior use in paint system indicated.
2. Prime edges, ends, faces, undersides, and backsides of wood.
3. After priming, fill holes and imperfections in the finish surfaces with putty or plastic wood filler. Sand smooth when dried.

3.2 APPLICATION

A. General: Prepare and apply materials according to coating manufacturer’s written instructions, at recommended rates and coverages.

3.3 FIELD QUALITY CONTROL

A. Material Coverage Rates.
1. At beginning of application, calibrate material coverage rate with wet-mil thickness equivalent to minimum specified dry-mil thickness. Measure wet-mil thickness with thickness gauge.
2. Measure wet-mil thickness at least once for every 10 square feet of surface coated. Adjust coverage rate to maintain minimum thickness.

B. Owner may, at its expense, perform the following tests. Contractor shall provide access to test locations determined by Architect/Engineer.

1. Measure dry-film thickness of coating. Coating thickness is acceptable if within specified range.
2. Perform adhesion tests per ASTM C3359, Test Method A, after coating has cured. Coating adhesion is acceptable if no peeling or coating removal occurs (Rating 5A).
3. Perform pull-off tests per ASTM D4541, after coating has cured. Coating application is acceptable if test results are at least 100 pounds per square inch.
4. If coating application is acceptable, Owner will pay Contractor to repair substrate and coating as necessary at test locations.
5. If coating application is unacceptable, Architect/Engineer will determine remedy. Contractor shall remove and replace unacceptable coating or perform other remedial actions at no cost to Owner. Contractor shall also repair substrate and coating at test locations with unacceptable results at no cost to Owner. Contractor may, at own expense, perform additional measurements and testing to determine limits of areas with unacceptable coating.

C. Completed Work shall match approved mockup for color, texture, and coverage, in opinion of Architect/Engineer, and shall be free from flow-lines, streaks, blisters, and other surface imperfections. Remove, refinish, or recoat Work not complying with specified requirements.

3.4 CLEANING

A. At the end of each workday, clean Site and Work areas and place rubbish, empty cans, rags, and other discarded materials in appropriate containers.

B. After completing coating Work:
1. Clean spillage, overspray, and spatter from adjacent surfaces using cleaning agents and procedures recommended by manufacturer of affected surface. Exercise care to avoid scratching or damage to surfaces.
2. Repair surfaces stained, marred, or otherwise damaged during coating Work.
3. Clean up debris and surplus materials and remove from Site.

C. Waste Management:
1. Collect surplus coating materials that cannot be reused and deliver to recycling or disposal facility.
2. Treat materials that cannot be reused as hazardous waste and dispose of in an appropriate manner.

END OF SECTION

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PART 1 GENERAL

1.1 SUMMARY

A. Section Includes: Surface preparation, including crack repairs, and application of a flexible, elastomeric coating on exterior vertical concrete surfaces.

B. Related Sections:
   1. Section 07 92 00 - Joint Sealants

1.2 SUBMITTALS

A. Product Data: Manufacturer's literature including written instructions for evaluating, preparing, and treating substrate; technical data including tested physical and performance properties; mixing and application instructions; safety precautions for handling, storing, applying, and disposing of materials Include:

B. Samples: 8-inch-square samples, on representative samples of actual substrates, of each coating system and color to be applied, with texture to simulate actual conditions. For review of color and texture only.

C. Applicator Qualifications: Evidence that Applicator's *existing company* has minimum five years of continuous experience in similar coating work; list of at least five representative, successfully-completed projects of similar scope and size, including:
   1. Project name.
   2. Owner's name.
   3. Owner's Representative name, address, and telephone number.
   4. Description of work.
   5. Elastomeric coating used.
   6. Project supervisor.
   7. Total cost of coating work and total cost of project.
   8. Completion date.

1.3 ADMINISTRATIVE REQUIREMENTS

A. Coordinate Work to ensure that adjacent areas are not adversely affected. Coordinate:
   1. With Owner's Representative.
   2. With other trades:
      a. To ensure that work done by other trades is complete and ready for coating Work.
      b. To avoid or minimize work on, or in immediate vicinity of, coating Work in progress.
      c. To ensure that subsequent work will not adversely affect quality of completed coating Work.

B. Review repair and surface treatment materials and primers specified in other sections to ensure compatibility with elastomeric coatings to be used. Notify Architect/Engineer in writing of concerns with materials or primers installed by others and recommend remedies.

C. Schedule surface preparation and coating application Work so that dust and other contaminants from surface preparation Work will not adversely affect wet, newly-coated

1.4 QUALITY ASSURANCE

A. Applicator Qualifications: Experienced firm that has successfully completed coating work with similar materials, design, and extent to that indicated for Project. Must have successful applications of specified materials in local area in use for minimum of 5 years.

B. Mockups: Prepare surface and apply 25 square feet of flexible coating at location selected by the Architect/Engineer to demonstrate surface preparation, crack and joint treatment, aesthetic affects, and quality of materials and execution. Leave portion of prepared surface and each coating layer exposed to view. Provide required color, sheen, and texture on each surface.

1.5 PROJECT CONDITIONS

A. Environmental Limitations: Apply coating when existing and forecast weather conditions permit coating to be applied according to coating manufacturer's written instructions and warranty requirements.
   1. Apply only when substrate and ambient temperatures are between 50 and 90 degrees F, or within range recommended by coating manufacturer. Maintain minimum substrate and ambient temperatures for at least 24 hours before and after coating application.
   2. Do not apply in snow, rain, fog, or mist; when relative humidity exceeds 85 percent; at temperatures less than 5 degrees F above dew point; or when such conditions are imminent during the drying period.
   3. Do not apply to damp or wet substrate.

1.6 WARRANTY

A. Manufacturer's Warranty:
   1. Written warranty, signed by coating manufacturer, including:
      a. Materials to replace coating that does not comply with requirements; that fails in adhesion, cohesion, or general durability; that cracks, checks, fades, or chalks; or that deteriorates in manner not clearly specified by submitted coating manufacturer's data as inherent quality of material for application indicated.
   2. Warranty Period: 3 years after Substantial Completion date.

B. Contractor's Warranty:
   1. Written warranty, signed by Contractor, including:
      a. Repair or remove and replace coating that does not comply with requirements; that fails in adhesion, cohesion, or general durability; that cracks, checks, fades or chalks; or that deteriorates in manner not clearly specified by submitted coating manufacturer's data as inherent quality of material for application indicated.
   2. Warranty Period: 3 years after Substantial Completion date.

PART 2 PRODUCTS

2.1 ELASTOMERIC COATING MATERIALS

A. Source Limitations: Obtain materials through one source from single coating manufacturer, or from sources approved by coating manufacturer.

B. Material Compatibility: Provide crack fillers, block fillers, primers, elastomeric coatings, and related materials that are compatible with one another and substrates indicated under conditions of application and service, as demonstrated by manufacturer based on testing and field experience.

C. Material Quality: Provide manufacturer's best-quality elastomeric coating materials that are factory formulated and are recommended by manufacturer for application indicated. Material containers not displaying manufacturer's product identification are not acceptable.

2.2 ELASTOMERIC COATING

A. Elastomeric Coating: Factory-formulated; internally-plasticized, 100-percent-acrylic.
   1. Textured-finish Acrylic Coating: Use one of the following or approved equal.

a. MasterProtect EL 750 manufactured by BASF Construction Chemicals, LLC.
b. Perma-Crete Pitt-Flex Elastomeric Coating 4-210 manufactured by PPG Industries, Inc.
c. Stolastic 80211 Sand manufactured by Sto Corp.
d. Tammolastic Elastomeric Decorative Coating, Textured, manufactured by The Euclid Chemical Company.

2.3 AUXILIARY MATERIALS

A. Use crack fillers and sealants, detail materials, and primers recommended by coating manufacturer.

PART 3 EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions with Applicator and coating manufacturer's representative for compliance with requirements and other conditions affecting application or performance of coating.
   1. Ensure that work done by other trades is complete and ready for coating Work.
   2. Verify that areas and conditions under which coating Work is to be performed permit proper and timely completion of Work.
   3. Verify compatibility with and suitability of substrates, including existing coatings.
   4. Verify adhesion of existing coatings.
   5. Notify Architect/Engineer in writing of conditions which may adversely affect application or performance of coating and recommend corrections.
   6. Do not proceed with coating Work until adverse conditions have been corrected and reviewed by Architect/Engineer.
   7. Commencing coating Work constitutes acceptance of Work surfaces and conditions.

3.2 PROTECTION

A. Take precautions to ensure safety of people, including building users, passers-by, and workmen, and animals, and protection of property, including adjacent building elements, landscaping, and motor vehicles.

B. Prevent construction debris, coatings, and other materials from coming into contact with pedestrians, motor vehicles, landscaping, buildings, and other surfaces that could be harmed by such contact.

C. Protect paving and sidewalks, and adjacent building areas from mechanical damage due to scaffolding and other equipment.

D. Limit access to Work areas. Provide "Wet Paint" signs to protect newly coated surfaces.

E. Erect temporary protective canopies, as necessary, over walkways and at points of pedestrian and vehicular access that must remain in service during Work.

F. Take precautions against air-borne materials and runoff.

G. Masking and Preparation:
   1. Remove hardware, light fixtures, and other items that will not be coated. If removal is impractical because of size or weight of item, protect item during surface preparation and coating application. After completing coating Work, reinstall items removed, using workers skilled in trades involved.
   2. Comply with coating manufacturer's written instructions for protecting building and other surfaces against damage from exposure to its products.
   3. Cover adjacent surfaces with materials that are proven to resist coating system.
   4. Mask off or protect from spatter, overspray, or other damage surfaces not scheduled to receive coating.

5. Remove masking and other protective measures at completion of coating Work.

H. Assume responsibility for injury to persons or damage to property due to Work, and remedy at no cost to Owner.

3.3 SURFACE PREPARATION

A. Existing Coating:
   1. Remove all existing coatings from concrete surfaces.

B. Substrate: Clean and prepare substrate according to coating manufacturer's written instructions. Provide clean, dust-free, dry, and sound substrate for coating application.
   1. Remove fins and projections, splatter, and other irregularities which would prevent monolithic, continuous application of coating.
   2. Properly patch substrate defects, such as voids, form tie holes, honeycombing, and cracks, with latex-modified concrete or another material acceptable to coating manufacturer and Architect/Engineer.
   3. Remove grease, oil, asphalt solids, form-release agents, curing compounds, and other contaminants or film-forming coatings that might impair bond of elastomeric coating. If chemical removal is necessary, rinse with clean water.
   4. Scarify concrete surface to obtain an open surface texture ICRI CSP.3.
   5. Pressure wash concrete to provide clean surface, free of laitance, dirt, and other loose or foreign material, and to slightly roughen surface.
   6. Treat cracks, joints, changes in surface direction, and through-member penetrations with patching compound or sealant as recommended by coating manufacturer. Remove deteriorated existing sealant and other materials and replace with materials recommended by coating manufacturer.

C. Applicator and coating manufacturer's representative shall examine substrate to ensure that it is properly prepared and ready to receive coating.
   1. Coating manufacturer's representative shall report in writing to Applicator and Architect/Engineer conditions which may adversely affect coating system application or performance and recommend corrections.
   2. Do not proceed with coating application until unsatisfactory conditions have been corrected and reviewed by Architect/Engineer.
   3. Commencing coating application constitutes acceptance of Work surfaces and conditions.

3.4 APPLICATION

A. General: Prepare and apply materials according to coating manufacturer's written instructions, at recommended rates and coverages.
   1. Test prepared surfaces for alkalinity, moisture, and other conditions as recommended by coating manufacturer.

B. Mix materials thoroughly using a slow speed drill and paddle to uniform, smooth consistency. Do not thin or dilute.
   1. Stir as required during application.
   2. If surface film forms, do not stir film into material. Remove film and strain coating material before using.
   3. Maintain containers used for mixing and applying coating in clean condition, free of foreign materials and residue.

C. Apply coating by trowel roller, spray, or brush. Use applicator and technique best suited for substrate and type of material being applied.
   1. Apply materials as soon as practicable after completion of surface preparation or full curing of previous material application.

2. Do not coat over conditions detrimental to formation of durable coating film, such as dirt, rust, scale, grease, or moist or scuffed surfaces.
3. Apply barrier coat over incompatible primers or remove and re-prime.
4. Prime surfaces as necessary.
5. Apply elastomeric coating in one or two coats to provide thickness of 10 to 15 dry mils (0.010 to 0.015 inches) or as recommended by coating manufacturer, whichever is greater. Do not apply second coat until first coat has fully cured. Select application method to avoid excessive coating thickness.
    a. If undercoats or other conditions show through final coat, apply additional coats until coating film is of uniform finish, color, and appearance, if approved by Architect/Engineer.
    b. Ensure that edges, corners, and crevices receive minimum dry film thickness.
    c. Brush Application: Work material into surface in even film. Eliminate cloudiness, spotting, holidays, laps, brush marks, runs, sags, ropiness, or other surface imperfections. Neatly draw lines at edges and color breaks.
    d. Roller Application: Keep cover wet; do not dry roll. Apply material in sections. Lay on required amount of material, working material into grooves and rough areas. Then level material, working it into surface.
    e. Spray Application: Use spray application only when permitted by manufacturer's written instructions and authorities having jurisdiction. Apply material to provide equivalent hiding of brush-applied coat. Do not double back, building up film thickness of two coats in one application.

3.5 FIELD QUALITY CONTROL

A. Material Coverage Rates.
1. At beginning of application, calibrate material coverage rate with wet-mil thickness equivalent to minimum specified dry-mil thickness. Measure wet-mil thickness with thickness gauge.
2. Measure wet-mil thickness at least once for every 200 square feet of surface coated. Adjust coverage rate to maintain minimum thickness.

B. Completed Work shall match approved mockup for color, texture, and coverage, in opinion of Architect/Engineer, and shall be free from flow-lines, streaks, blisters, and other surface imperfections. Remove, refinish, or recoat Work not complying with specified requirements.

3.6 CLEANING

A. At the end of each workday, clean Site and Work areas and place rubbish, empty cans, rags, and other discarded materials in appropriate containers.

B. After completing coating Work:
1. Clean spillage, overspray, and spatter from adjacent surfaces using cleaning agents and procedures recommended by manufacturer of affected surface. Exercise care to avoid scratching or damage to surfaces.
2. Repair surfaces stained, marred, or otherwise damaged during coating Work.
3. Clean up debris and surplus materials and remove from Site.

C. Waste Management:
1. Collect surplus coating materials that cannot be reused and deliver to recycling or disposal facility.
2. Treat materials that cannot be reused as hazardous waste and dispose of in an appropriate manner.

END OF SECTION

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PART 1 GENERAL

1.1 SUMMARY

A. Section Includes: Surface preparation and application of coating system on existing steel surfaces and existing galvanized surfaces.
   1. A/E to inspect steel following preparation work to determine extent of steel repairs prior to coating application.

B. The contractor is cautioned that the paint on the steel services may contain lead. Coordinate with the Owner for locations of lead based paint.

C. Related Sections:
   1. Section 04 01 21 - Brick Masonry Repair and Replacement
   2. Section 07 62 00 - Sheet Metal Flashing and Trim

1.2 REFERENCES

A. Reference Standards: Latest edition as of Specification date.
   1. ASTM International:
      a. D3359: Standard Test Methods for Measuring Adhesion by Tape Test.
      b. D4541: Standard Test Method for Pull-off Strength of Coatings Using Portable Adhesion Testers.
   2. SSPC: The Society for Protective Coatings:
      a. SSPC-SP 2: Hand Tool Cleaning.
      b. SSPC-SP 3: Power Tool Cleaning.

1.3 ADMININSTRATIVE REQUIREMENTS

A. Coordinate Work to ensure that adjacent areas are not adversely affected. Coordinate:
   1. With Owner's Representative.
   2. With other trades:
      a. To ensure that work done by other trades is complete and ready for coating Work.
      b. To avoid or minimize work on, or in immediate vicinity of, coating Work in progress.
      c. To ensure that subsequent work will not adversely affect completed coating.

B. Review repair and surface treatment materials and primers specified in other sections to ensure compatibility with steel coating to be used. Notify Architect/Engineer in writing of concerns with materials or primers installed by others and recommended remedies.

C. Sequence surface preparation and coating application Work so that dust and other contaminants from surface preparation Work will not adversely affect wet, newly-coated surfaces.

1.4 SUBMITTALS

A. Product Data: Coating manufacturer's literature including written instructions for evaluating, preparing, and treating substrate; technical data including tested physical and performance properties; mixing and application instructions; safety precautions for handling, storing, applying, and disposing of materials; and instructions for protecting surrounding areas from overspray. Include:
   1. Surfaces to which materials will be applied.
   2. VOC content of components.
   3. Certification by coating manufacturer that products supplied comply with local VOC regulations.
   4. Coating manufacturer's color chart showing full range of colors available.
   5. Decoding information to verify shelf life of materials.

6. Include Safety Data Sheets (SDS) for information only; safety restrictions are sole responsibility of Contractor.

B. Samples: 8-inch-square samples, on rigid backing, of each coating system and color and gloss of finish coat to be applied. For review of color and texture only.
   1. Provide step samples, defining each separate coat. Use representative colors when preparing samples for review. Resubmit until required color, sheen, and texture are achieved.
   2. Label each sample for location and application.
   3. Provide list of materials and applications for each coat of each sample.

C. Applicator Qualifications: Evidence that Applicator's *existing company* has minimum five years of continuous experience in similar coating work; list of at least five representative, successfully-completed projects of similar scope and size, including:
   1. Project name.
   2. Owner's name.
   3. Owner's Representative name, address, and telephone number.
   4. Description of work.
   5. Coatings used.
   6. Project supervisor.
   7. Total cost of coating work and total cost of project.
   8. Completion date.

1.5 EXTRA MATERIALS

A. A. Furnish and deliver to Owner one gallon, of each color and finish of steel coating material applied. Provide materials in unopened, factory-sealed containers for storage and identified with labels describing contents.

1.6 QUALITY ASSURANCE

A. Applicator Qualifications: Experienced firm that has successfully completed coating work similar in material, design, and extent to that indicated for Project; and that is approved by coating manufacturer to apply coating. Must have successful applications of specified materials in local area in use for minimum of five years.
   1. Employ foreman trained with minimum five years of experience as foreman on similar projects, who is fluent in English, to be on Site at all times during Work. Do not change foremen during the course of the Project except for reasons beyond the control of the Applicator; inform Architect/Engineer in advance of any changes.

B. Mockups: Prepare surface and apply coating system to representative member designated by Architect/Engineer to demonstrate surface preparation, aesthetic affects, and quality of materials and execution. Leave portion of prepared surface and each coating layer exposed to view.
   1. Coating manufacturer's representative shall observe mockup and approve in writing surface preparation and coating application.
   2. Owner may, at its expense, verify coating thickness and perform adhesion and pull-off tests. Contractor shall, at no cost to Owner, repair coating and substrate damaged by testing.
   3. If Architect/Engineer determines mockup does not comply with requirements, modify mockup or construct new mockup until mockup is approved. Pay for additional testing requested by Owner. Do not proceed with coating Work until mockup is approved.
   4. Approved mockup will be acceptance standard for remainder of coating Work.
   5. Approved mockup may become part of completed Work if undisturbed at time of Substantial Completion.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, and handle materials according to manufacturer's recommendations and in such a manner as to prevent damage to materials or structure.

B. Deliver materials to Site in original containers and packaging with seals unbroken, labeled with:
   1. Manufacturer's name.
   2. Product brand name, type, and color.
   3. VOC content.
   4. Color name and number.
   5. Date of manufacture and batch number.
   6. Directions for storing, handling, mixing with other components, and application, including precautions.
   7. Thinning instructions if applicable.

C. Store materials in original, undamaged containers and, if permitted, partially-used materials in tightly-covered containers in clean, dry, well-ventilated, protected location on raised platforms with weather-protective coverings, within temperature range required by manufacturer. Protect stored materials from direct sunlight, heat, sparks, and flames.

D. Limit stored materials on structures to safe loading capacity of structure at time materials are stored, and to avoid permanent deck deflection.

E. Conspicuously mark damaged or opened containers or containers with contaminated materials, and remove from Site as soon as possible.

F. Remove and replace materials that cannot be applied within stated shelf life.

1.8 PROJECT CONDITIONS

A. Verify existing dimensions and details prior to start of coating Work. Notify Architect/Engineer of conditions found to be different than those indicated in the Contract Documents. Architect/Engineer will review situation and inform Contractor and Applicator of changes.

B. Comply with Owner's limitations and restrictions for Site use and accessibility.

C. Environmental Limitations: Apply coating when existing and forecast weather conditions permit coating to be applied according to coating manufacturer's written instructions.
   1. Do not apply when substrate and ambient temperatures are less than 50 degrees F or more than 95 degrees F, or outside of range recommended by coating manufacturer. Maintain minimum substrate and ambient temperatures for at least 24 hours before and after coating application.
   2. Do not apply to damp or wet substrates; in snow, rain, fog, or mist; when relative humidity exceeds 80 percent or maximum value recommended by coating manufacturer; or when substrate temperature is less than 5 degrees F above dew point.

D. Handle and install materials in strict accordance with safety requirements required by coating manufacturer; Safety Data Sheets (SDS); and local, state, and federal rules and regulations. Maintain Safety Data Sheets (SDS) with materials in storage area and available for ready reference on Site.

E. Maintain adequate ventilation during preparation and application of coating materials.

1.9 CHANGES IN WORK

A. During rehabilitation work, existing conditions may be encountered which are not known or are at variance with the Contract Documents. Such conditions may interfere with the Work and may consist of

damage or deterioration of the substrate or surrounding materials that could jeopardize the integrity or performance of the Work.

1. Notify Architect/Engineer of conditions that may interfere with the proper execution of the Work or jeopardize the performance of the Work prior to proceeding with the Work

PART 2 PRODUCTS

2.1 STEEL COATING MATERIALS

A. Source Limitations: Obtain materials through one source from single coating manufacturer, or from sources approved by coating manufacturer.

B. Material Compatibility: Provide primers, intermediate coats, finish coats, and related materials that are compatible with one another and substrates indicated under conditions of application and service, as demonstrated by manufacturer based on testing and field experience.

C. Material Quality: Provide manufacturer's best-quality coating materials that are factory formulated and are recommended by manufacturer for application indicated. Material containers not displaying manufacturer's product identification are not acceptable.

2.2 COATINGS FOR EXISITNG STEEL

A. Use one of the following systems:
   1. Tnemec Co., Inc.:
      a. Primer: Chembuild Series 135 (5.0 mils DFT).
      b. Intermediate Coat: Endura-Shield II Series 1074 (2.5 mils DFT).
      c. Finish Coat: Endura-Shield II Series 1074 (2.5 mils DFT).
   2. PPG Industries Inc.
      a. Primer: Pittguard 95-245 Series (6.0 mils DFT).
      b. Intermediate Coat: Pitthane 95-8800 Series (4.0 mils DFT).
      c. Finish Coat: Pitthane 95-8800 Series (4.0 mils DFT).
   3. Benjamin Moore
      a. Primer: Corotech Epoxy Mastic Coating V160 (6.0 mils DFT).
      b. Intermediate Coat: Corotech Polyamide Epoxy Coating V400 (4.0 mils DFT).
      c. Finish Coat: Corotech Polyamide Epoxy Coating V400 (4.0 mils DFT).

2.3 COATINGS FOR GALVANIZED STEEL

A. Use one of the following systems or approved equal:
   1. Tnemec Co., Inc.:
      a. Primer: Hi Build Epoxoline Series 66 (4.0 mils DFT).
      b. Intermediate Coat: Endura-Shield II Series 1074 (2.5 mils DFT).
      c. Finish Coat: Endura-Shield II Series 1074 (2.5 mils DFT).
   2. PPG Industries Inc.
      a. Primer: Pittguard 95-245 Series (6.0 mils DFT).
      b. Intermediate Coat: 95-8800 Series (4.0 mils DFT).
      c. Finish Coat: Pitthane 95-8800 Series (4.0 mils DFT).
   3. Benjamin Moore
      a. Primer: Corotech Epoxy Mastic Coating V160 (6.0 mils DFT).
      b. Intermediate Coat: Corotech Polyamide Epoxy Coating V400 (4.0 mils DFT).
      c. Finish Coat: Corotech Polyamide Epoxy Coating V400 (4.0 mils DFT).

B. Provide primer with slightly lighter tint than finish coat to facilitate verification of top coat coverage.

PART 3 EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions with Applicator and coating manufacturer's representative for compliance with requirements and other conditions affecting application or performance of coating.
   1. Ensure that work done by other trades is complete and ready for coating Work.
   2. Verify that areas and conditions under which coating Work is to be performed permit proper and timely completion of Work.
   3. Verify compatibility with and suitability of substrates, including existing coatings.
   4. Verify adhesion of existing coatings.
   5. Notify Architect/Engineer in writing of conditions which may adversely affect application or performance of coating and recommend corrections.
   6. Do not proceed with coating Work until adverse conditions have been corrected and reviewed by Architect/Engineer.
   7. Commencing coating Work constitutes acceptance of Work surfaces and conditions.

3.2 PROTECTION

A. Take precautions to ensure safety of people, including building users, passers-by, and workmen, and animals, and protection of property, including adjacent building elements, landscaping, and motor vehicles.

B. Prevent construction debris, coatings, and other materials from coming into contact with pedestrians, motor vehicles, landscaping, buildings, and other surfaces that could be harmed by such contact.

C. Protect paving and sidewalks, and adjacent building areas from mechanical damage due to scaffolding and other equipment.

D. Limit access to Work areas. Provide "Wet Paint" signs to protect newly coated surfaces.

E. Erect temporary protective canopies, as necessary, over walkways and at points of pedestrian and vehicular access that must remain in service during Work.

F. Take precautions to protect against air-borne materials and runoff.

G. Masking and Preparation:
   1. Comply with coating manufacturer's written instructions for protecting building and other surfaces against damage from exposure to its products.
   2. Cover adjacent surfaces with materials that are proven to resist coating system.
   3. Mask off or protect from spatter, overspray, or other damage surfaces not scheduled to receive coating.
   4. Remove masking and other protective measures at completion of coating Work.

H. Assume responsibility for injury to persons or damage to property due to Work, and remedy at no cost to Owner.

3.3 SURFACE PREPARATION

A. Substrate: Clean and prepare substrate according to coating manufacturer's written instructions. Provide clean, dust-free, dry, and sound substrate for coating application.
   1. Remove loose rust, loose or deteriorated paint, and other loose foreign matter in accordance with SSPC-SP 2 or SSPC-SP 3.
   2. Lightly sand existing coating to remove sheen and slightly roughen.
   3. Feather edges of existing coating by sanding, grinding, or as recommended by coating manufacturer.

4. Remove grease, oil, dirt, and other contaminants that might impair bond of coating. Use cleaner/degreaser or chemical removal as necessary; rinse thoroughly with copious amounts of clean water.

B. Applicator and coating manufacturer's representative shall examine substrate to ensure that it is properly prepared and ready to receive coating.
   1. Coating manufacturer's representative shall report in writing to Applicator and Architect/Engineer conditions which may adversely affect coating system application or performance and recommend corrections.
   2. Do not proceed with coating application until unsatisfactory conditions have been corrected and reviewed by Architect/Engineer.
   3. Commencing coating application constitutes acceptance of Work surfaces and conditions.

3.4 APPLICATION

A. General: Prepare and apply materials according to coating manufacturer's written instructions, at recommended rates and coverages.

B. Test prepared surfaces for moisture and other conditions as recommended by coating manufacturer. Verify that ambient air and substrate surface temperatures, relative humidity, and dew point are within ranges recommended by coating manufacturer and are forecast to remain within these ranges during coating curing period.

C. Mix materials thoroughly to uniform, smooth consistency. Do not thin or dilute unless permitted by coating manufacturer; use recommended thinners within recommended limits.
   1. Stir as required during application.
   2. If surface film forms, do not stir film into material. Remove film and strain coating material before using.
   3. Maintain containers used for mixing and applying coating in clean condition, free of foreign materials and residue.

D. Apply coating by roller, spray, or brush. Use applicator and technique best suited for substrate and type of material being applied.
   1. Apply materials as soon as practicable after completion of surface preparation or full curing of previous material application.
   2. Do not coat over conditions detrimental to formation of durable coating film, such as dirt, rust, scale, grease, or moist or scuffed surfaces.
   3. Spot prime exposed steel surfaces to provide thickness of as recommended by coating manufacturer.
   4. Apply finish coat in one or two coats to provide thickness as recommended by coating manufacturer. Do not apply second coat until first coat has fully cured. Select application method to avoid excessive coating thickness.
      a. If undercoats or other conditions show through final coat, apply additional coats until coating film is of uniform finish, color, and appearance, if approved by Architect/Engineer.
      b. Ensure that edges, corners, and crevices receive minimum dry film thickness.
      c. Brush Application: Work material into surface in even film. Eliminate cloudiness, spotting, holidays, laps, brush marks, runs, sags, ropiness, or other surface imperfections. Neatly draw lines at edges and color breaks.
      d. Roller Application: Keep cover wet; do not dry roll. Apply material in sections. Lay on required amount of material, working material into grooves and rough areas. Then level material, working it into surface.
      e. Spray Application: Use spray application only when permitted by manufacturer's written instructions and authorities having jurisdiction. Apply material to provide equivalent hiding of brush-applied coat. Do not double back, building up film thickness of two coats in one application.
   5. Do not coat over UL, FMG, or other labels.

3.5 FIELD QUALITY CONTROL

A. Material Coverage Rates.
   1. At beginning of application, calibrate material coverage rate with wet-mil thickness equivalent to minimum specified dry-mil thickness. Measure wet-mil thickness with thickness gauge.
   2. Measure wet-mil thickness at least once for every 10 square feet of surface coated. Adjust coverage rate to maintain minimum thickness.

B. Owner may, at its expense, perform the following tests. Contractor shall provide access to test locations determined by Architect/Engineer.
   1. Measure dry-film thickness of coating. Coating thickness is acceptable if within specified range.
   2. Perform adhesion tests per ASTM C3359, Test Method A, after coating has cured. Coating adhesion is acceptable if no peeling or coating removal occurs (Rating 5A).
   3. Perform pull-off tests per ASTM D4541, after coating has cured. Coating application is acceptable if test results are at least 100 pounds per square inch.
   4. If coating application is acceptable, Owner will pay Contractor to repair substrate and coating as necessary at test locations.
   5. If coating application is unacceptable, Architect/Engineer will determine remedy. Contractor shall remove and replace unacceptable coating or perform other remedial actions at no cost to Owner. Contractor shall also repair substrate and coating at test locations with unacceptable results at no cost to Owner. Contractor may, at own expense, perform additional measurements and testing to determine limits of areas with unacceptable coating.

C. Completed Work shall match approved mockup for color, texture, and coverage, in opinion of Architect/Engineer, and shall be free from flow-lines, streaks, blisters, and other surface imperfections. Remove, refinish, or recoat Work not complying with specified requirements.

3.6 CLEANING

A. At the end of each workday, clean Site and Work areas and place rubbish, empty cans, rags, and other discarded materials in appropriate containers.

B. After completing coating Work:
   1. Clean spillage, overspray, and spatter from adjacent surfaces using cleaning agents and procedures recommended by manufacturer of affected surface. Exercise care to avoid scratching or damage to surfaces.
   2. Repair surfaces stained, marred, or otherwise damaged during coating Work.
   3. Clean up debris and surplus materials and remove from Site.

C. Waste Management:
   1. Collect surplus coating materials that cannot be reused and deliver to recycling or disposal facility.
   2. Treat materials that cannot be reused as hazardous waste and dispose of in an appropriate manner.

END OF SECTION

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STATE OF CONNECTICUT

QUI TRANSTULIT SUSTINET

DANNEL P. MALLOY GOVERNOR

EASTERN CONNECTICUT STATE UNIVERSITY
DR. ELSA NUÑEZ
PRESIDENT

NOBLE HALL
ROOF REPLACEMENT AND MASONRY RESTORATION
EASTERN CONNECTICUT STATE UNIVERSITY
WILLIMANTIC, CONNECTICUT
PROJECT NO. BI-RW-337

WISS, JANNEY, ELSTNER ASSOCIATES, INC.
2 TRAP FALLS ROAD, SUITE 502
SHELTON, CT, 06494
203-944-9424

STATE OF CONNECTICUT
JANET M. LYNCH
No. 26000
LICENSED PROFESSIONAL ENGINEER
1-21-2019

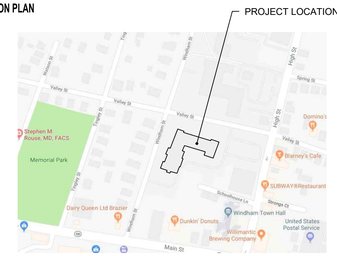
LIST OF DRAWINGS

CODE DATA

2015 INTERNATIONAL BUILDING CODE
2015 INTERNATIONAL ENERGY CONSERVATION CODE
2015 INTERNATIONAL EXISTING BUILDING CODE
2018 CONNECTICUT FIRE SAFETY CODE
2018 CONNECTICUT STATE BUILDING CODE

1. THRESHOLD BUILDING: NO
2. USE GROUP: R-2 UNCHANGED
3. BUILDING HEIGHT: 3 STORIES / 46 FEET UNCHANGED
4. FLOOR AREA: 23,120 SF UNCHANGED
5. CONSTRUCTION TYPE: 3B UNCHANGED
6. OCCUPANT LOAD: ALLOWABLE 121 PER FLOOR / ACTUAL 79 MAX PER FLOOR UNCHANGED
7. CAPACITY OF EXITS: DOORS MIN 510 AT SECOND FLOOR / STAIRS 360 AT GROUND FLOOR UNCHANGED
8. FIRE RESISTANT RATING:
   a. EXTERIOR WALLS: 2 HRS UNCHANGED
   b. FIRE WALLS 7 PARTY WALLS: 2 HRS UNCHANGED
   c. FIRE SEPARATION ASSEMBLIES: 1-1/2 HRS UNCHANGED
   d. SMOKE BARRIERS: 1 HR UNCHANGED
   e. FIRE ENCLOSURES OF EXITS, EXIT HALLWAYS AND STAIRS: 1 HR UNCHANGED
   f. ELEVATOR SHAFT: 1 HR UNCHANGED
   g. EXIT ACCESS CORRIDORS: 1/2 HR UNCHANGED
   h. SEPARATIONS:
   i. TENENT SPACES 0 HR UNCHANGED
   ii. DWELLING UNITS 1/2 HR UNCHANGED
   iii. OTHER NON-BEARING 0 HR UNCHANGED
   i. INTERIOR BEARING WALLS AND COLUMNS:
   i. SUPPORTING MORE THAN ONE FLOOR: 0 HR UNCHANGED
   ii. SUPPORTING ONE FLOOR AND ROOF ONLY: 0 HR UNCHANGED
   j. STRUCTURAL MEMBERS SUPPORTING WALL: 0 HR UNCHANGED
   k. FLOOR CONSTRUCTION INCLUDING BEAMS: : 0 HR UNCHANGED
   l. ROOF CONSTRUCTION: 0 HR UNCHANGED
9. FIRE PROTECTION SYSTEM: FULL FIRE SUPRESSION SYSTEM
   a. WET SPRINKLER SYSTEM: UNCHANGED
   b. ALARMS: VOICE ACTIVATED UNCHANGED
   c. AUTOMATIC FIRE DETECTION SYSTEM: NONE BUILDING FULLY SPRINKLERED UNCHANGED
   d. SUPERVISION: YES UNCHANGED
10. EXISTING ATTIC INSULATION ± R30

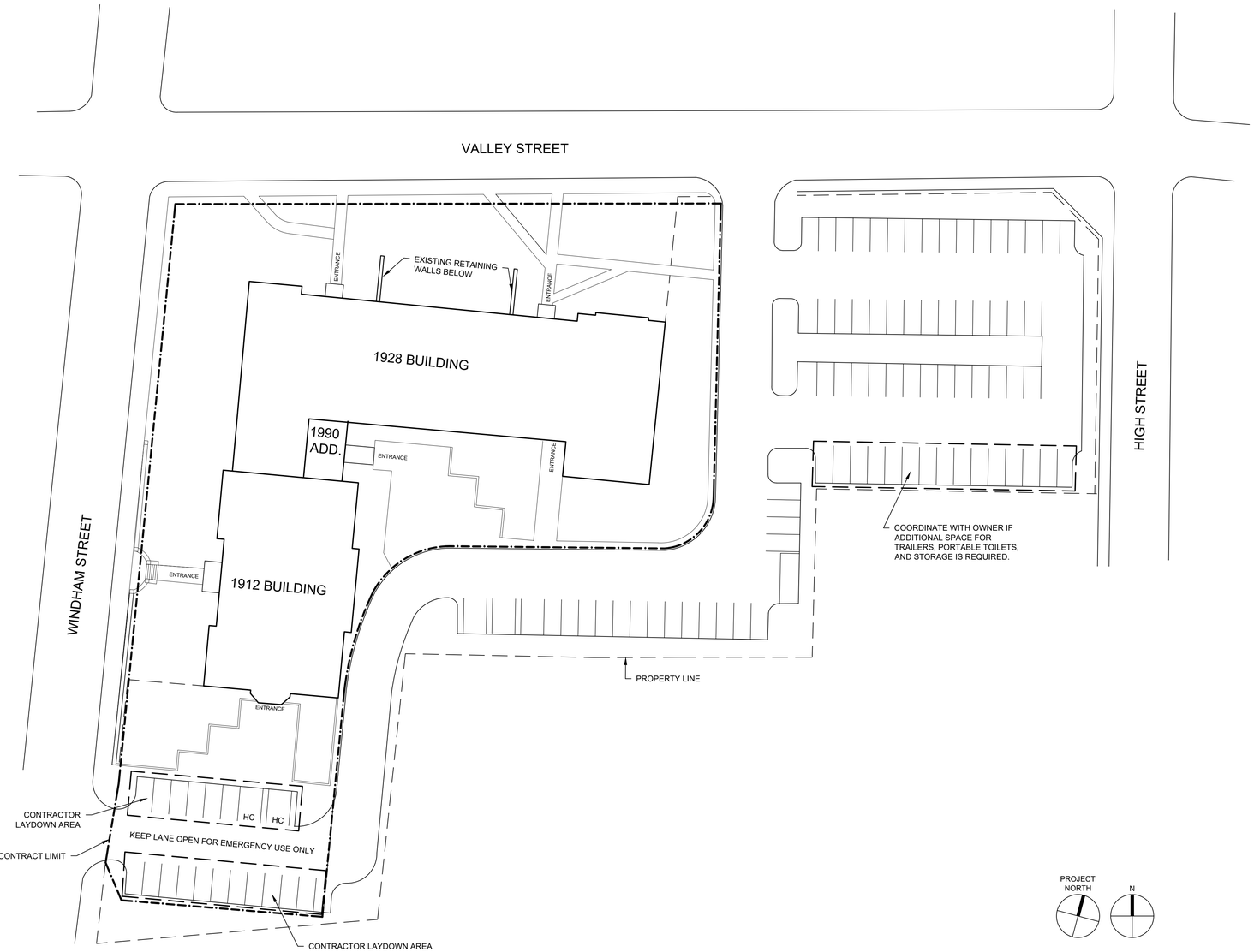
LOCATION PLAN



APPROVALS

DEPT. OF ADMINISTRATIVE SERVICES DATE

AGENCY DATE



1 SITE PLAN
SCALE: 1/32" = 1'-0"

STATE OF CONNECTICUT
JARRET M. LYNCH
No. 29000
LICENSED PROFESSIONAL ENGINEER
1-21-2019

drawing title: SITE PLAN

REVISIONS

mark	date	description
	1/21/19	BID SET

STATE OF CONNECTICUT
DEPARTMENT OF ADMINISTRATIVE SERVICES

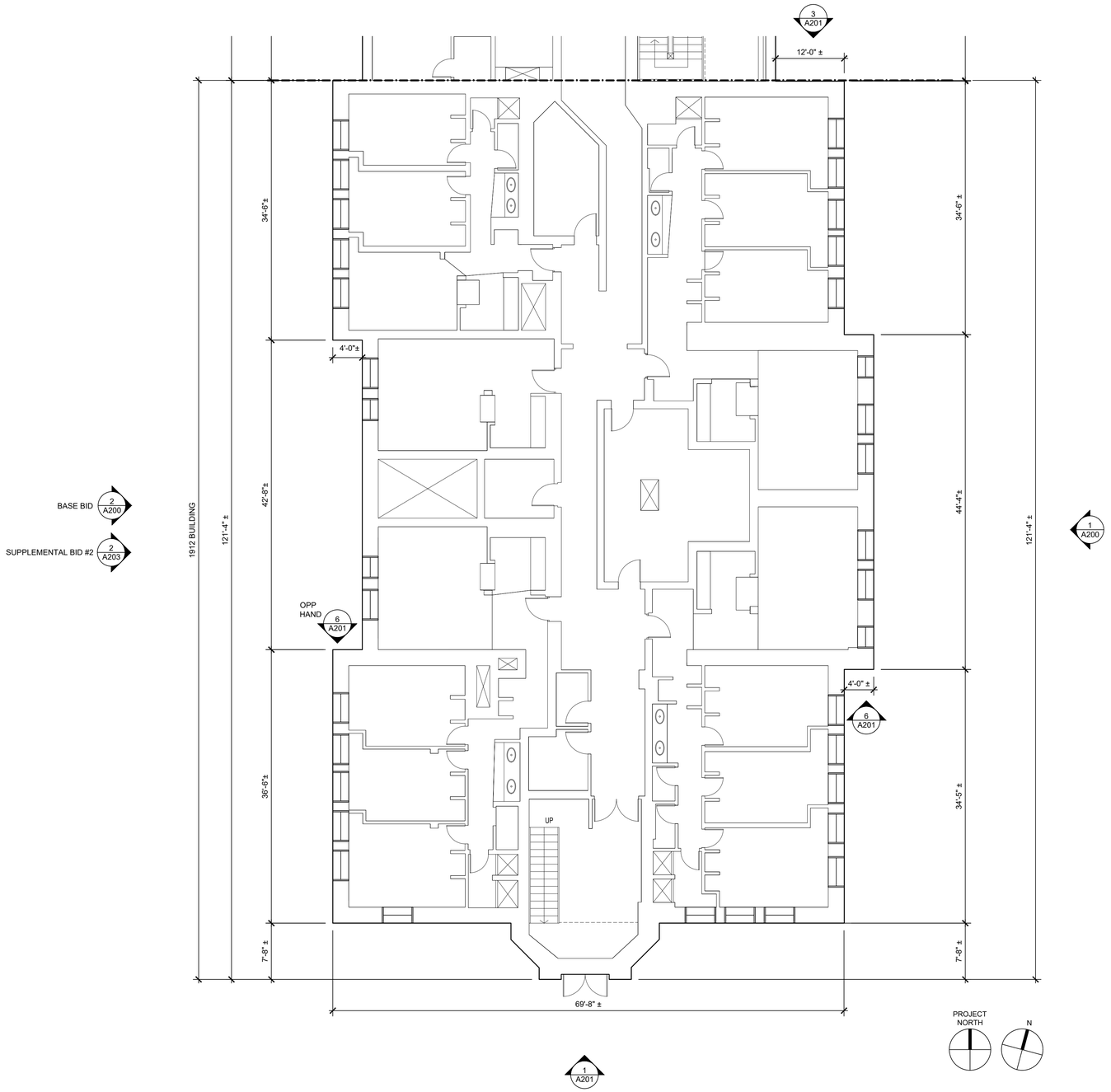
drawing prepared by
Wiss, Janney, Elstner Associates, Inc.
2 TRAP FALLS ROAD, SUITE 502
SHELTON, CT

project
NOBLE HALL - ESCU
Roof Replacement and Masonry Restoration
Willimantic, Connecticut

CAD no.
project no. BI-RW-337

date 1/21/2019
scale As Noted
drawn by HER
approved by PCL
drawing no. **A100**

NOTES:
1. ALL DOORS TO BUILDING SHALL BE ACCESSIBLE AT ALL TIMES DURING CONSTRUCTION.
2. PROVIDE SIDEWALK PROTECTION AT DOORS TO MAINTAIN PUBLIC SAFETY.
3. REFER TO EXTERIOR ELEVATION DRAWINGS FOR WORK SCOPE AT FACADES.



1 GROUND FLOOR PLAN - 1912 BUILDING
SCALE: 1/8" = 1'-0"

STATE OF CONNECTICUT
JARET M. LYNCH
No. 29000
LICENSED PROFESSIONAL ENGINEER
1-21-2019

drawing title
GROUND FLOOR PLAN - 1912 BUILDING

REVISIONS

mark	date	description
	1/21/19	BID SET

STATE OF CONNECTICUT
DEPARTMENT OF ADMINISTRATIVE SERVICES

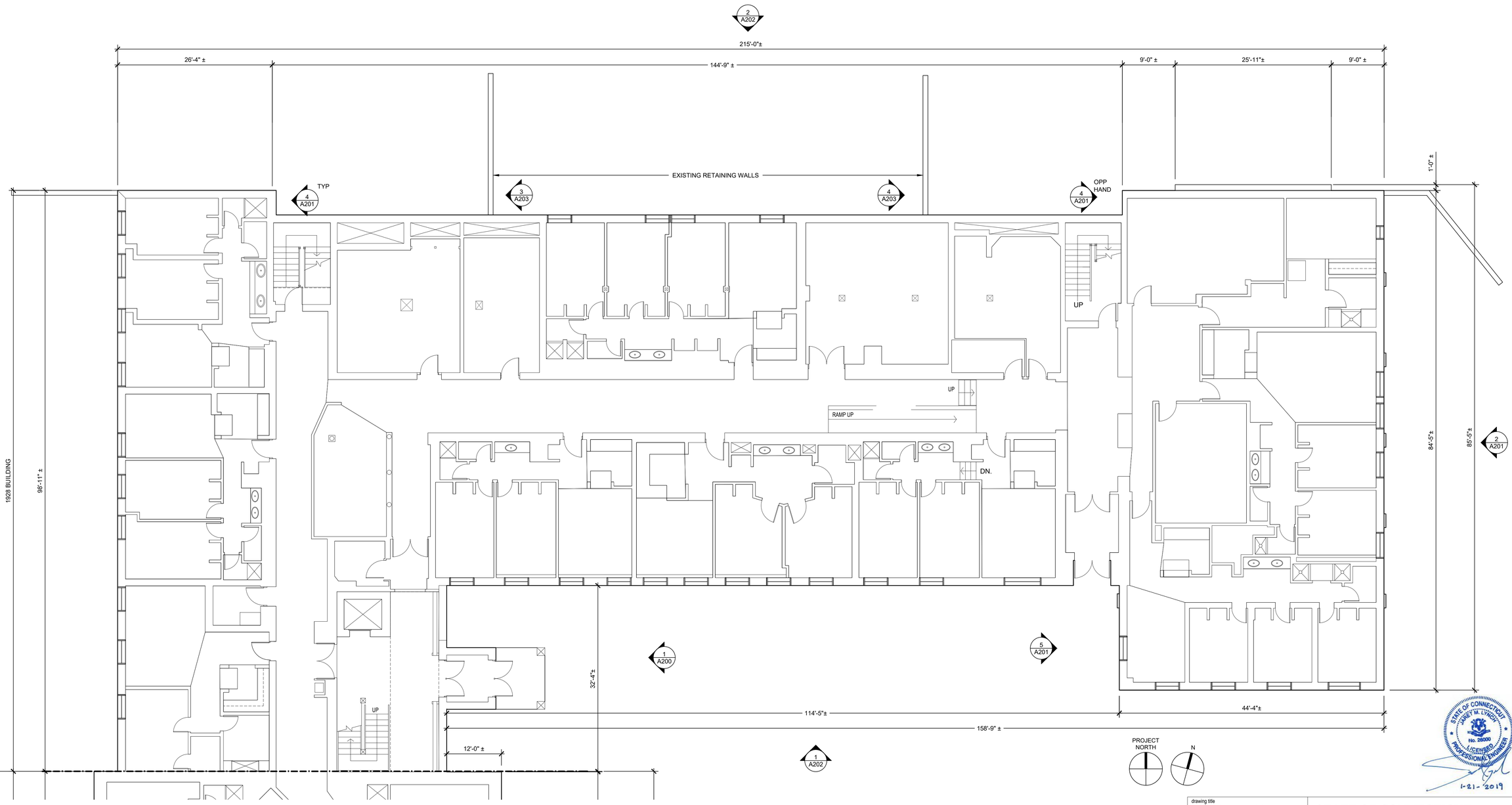
drawing prepared by
Wiss, Janney, Elstner Associates, Inc.
2 TRAP FALLS ROAD, SUITE 502
SHELTON, CT

project
NOBLE HALL - ESCU
Roof Replacement and Masonry Restoration
Willimantic, Connecticut

CAD no.
project no. BI-RW-337

date 1/21/2019
scale As Noted
drawn by HER
approved by PCL
drawing no. **A101**

NOTES:
1. ALL DOORS TO BUILDING SHALL BE ACCESSIBLE AT ALL TIMES DURING CONSTRUCTION.
2. PROVIDE SIDEWALK PROTECTION AT DOORS TO MAINTAIN PUBLIC SAFETY.
3. REFER TO EXTERIOR ELEVATION DRAWINGS FOR WORK SCOPE AT FACADES.



STATE OF CONNECTICUT
JANET M. LYNCH
No. 26000
LICENSED PROFESSIONAL ENGINEER
1-21-2019

1 GROUND FLOOR PLAN - 1928 BUILDING
SCALE: 1/8" = 1'-0"

drawing title
GROUND FLOOR PLAN - 1928 BUILDING

REVISIONS

mark	date	description
	1/21/19	BID SET

STATE OF CONNECTICUT
DEPARTMENT OF ADMINISTRATIVE SERVICES

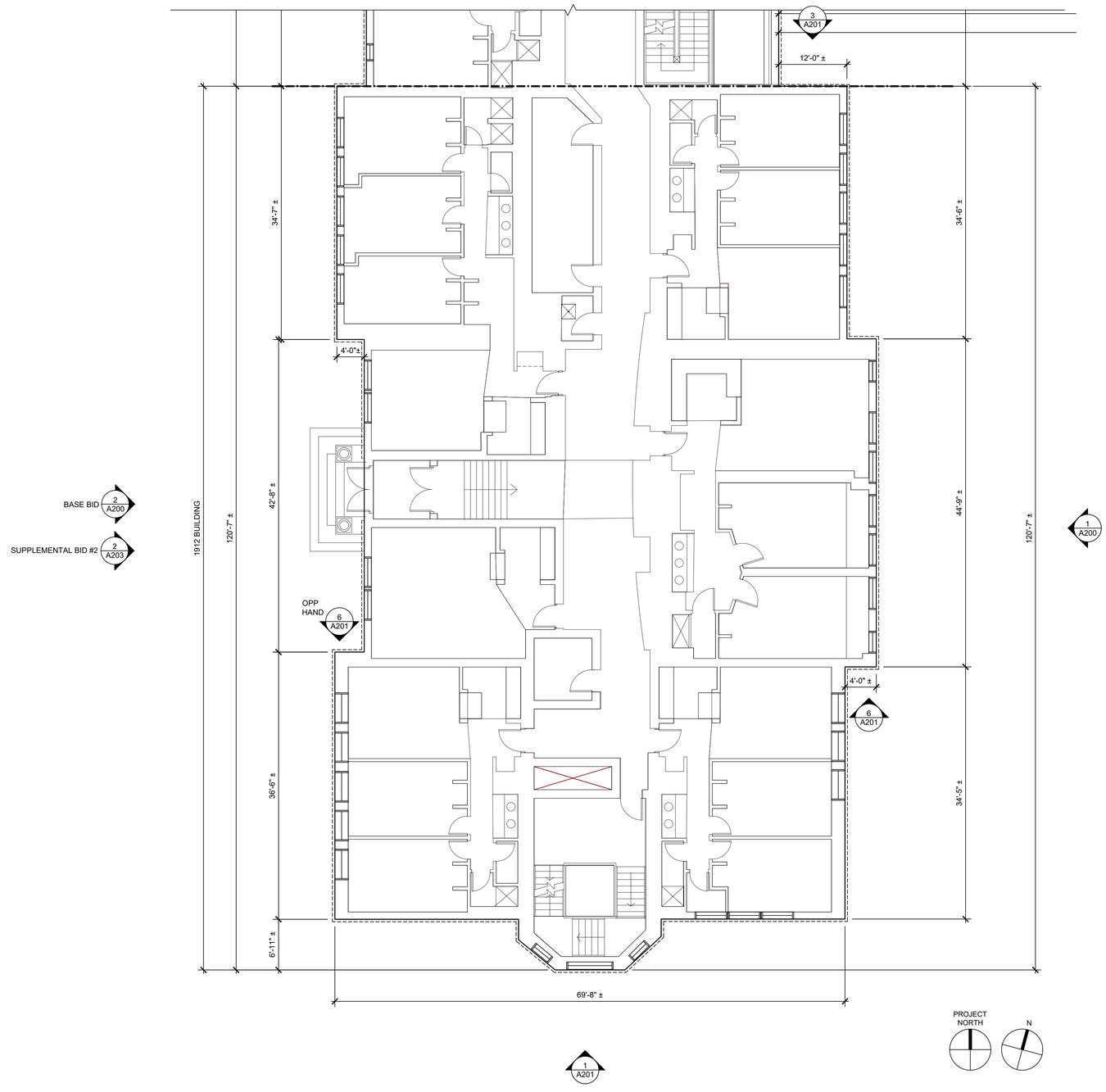
drawing prepared by
Wiss, Janney, Elstner Associates, Inc.
2 TRAP FALLS ROAD, SUITE 502
SHELTON, CT

project
NOBLE HALL - ESCU
Roof Replacement and Masonry Restoration
Willimantic, Connecticut

CAD no.
project no. BI-RW-337

date 1/21/2019
scale As Noted
drawn by HER
approved by PCL
drawing no. **A102**

NOTES:
1. ALL DOORS TO BUILDING SHALL BE ACCESSIBLE AT ALL TIMES DURING CONSTRUCTION.
2. PROVIDE SIDEWALK PROTECTION AT DOORS TO MAINTAIN PUBLIC SAFETY.
3. REFER TO EXTERIOR ELEVATION DRAWINGS FOR WORK SCOPE AT FACADES.



1 FIRST FLOOR PLAN - 1912 BUILDING
SCALE: 1/8" = 1'-0"

STATE OF CONNECTICUT
JANET M. LYNCH
No. 28000
LICENSED PROFESSIONAL ENGINEER
1-21-2019

drawing title
FIRST FLOOR PLAN
1912 BUILDING

REVISIONS

mark	date	description
	1/21/19	BID SET

STATE OF CONNECTICUT
DEPARTMENT OF ADMINISTRATIVE SERVICES

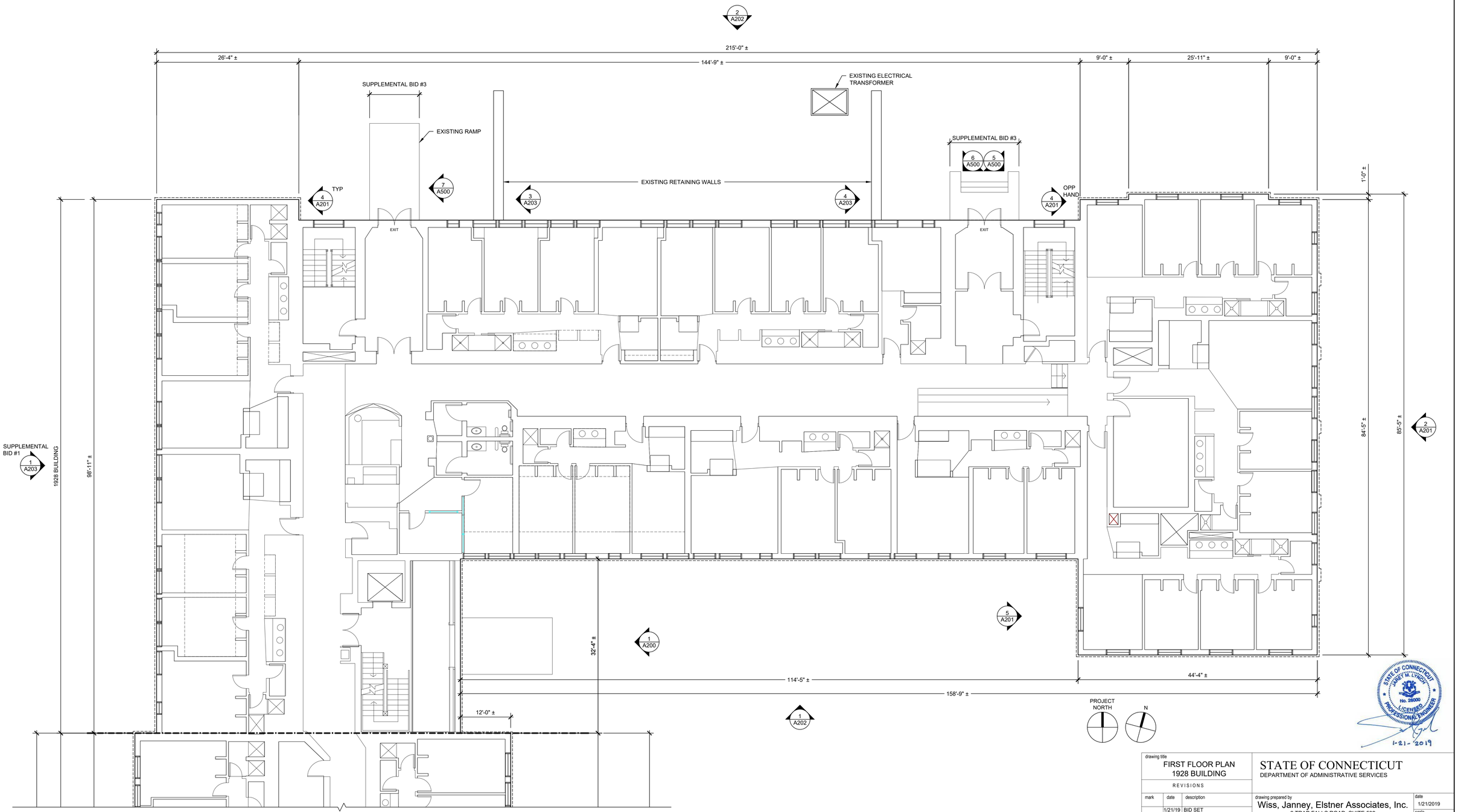
drawing prepared by
Wiss, Janney, Elstner Associates, Inc.
2 TRAP FALLS ROAD, SUITE 502
SHELTON, CT

date: 1/21/2019
scale: As Noted
drawn by: HER
approved by: PCL
drawing no.: **A103**

project
NOBLE HALL - ESCU
Roof Replacement and Masonry Restoration
Willimantic, Connecticut

CAD no.
project no. BI-RW-337

NOTES:
1. ALL DOORS TO BUILDING SHALL BE ACCESSIBLE AT ALL TIMES DURING CONSTRUCTION.
2. PROVIDE SIDEWALK PROTECTION AT DOORS TO MAINTAIN PUBLIC SAFETY.
3. REFER TO EXTERIOR ELEVATION DRAWINGS FOR WORK SCOPE AT FACADES.



1 FIRST FLOOR PLAN - 1928 BUILDING
SCALE: 1/8" = 1'-0"

STATE OF CONNECTICUT
JANET M. LYNCH
No. 26000
LICENSED PROFESSIONAL ENGINEER
1-21-2019

drawing title
FIRST FLOOR PLAN
1928 BUILDING

REVISIONS

mark	date	description
	1/21/19	BID SET

STATE OF CONNECTICUT
DEPARTMENT OF ADMINISTRATIVE SERVICES

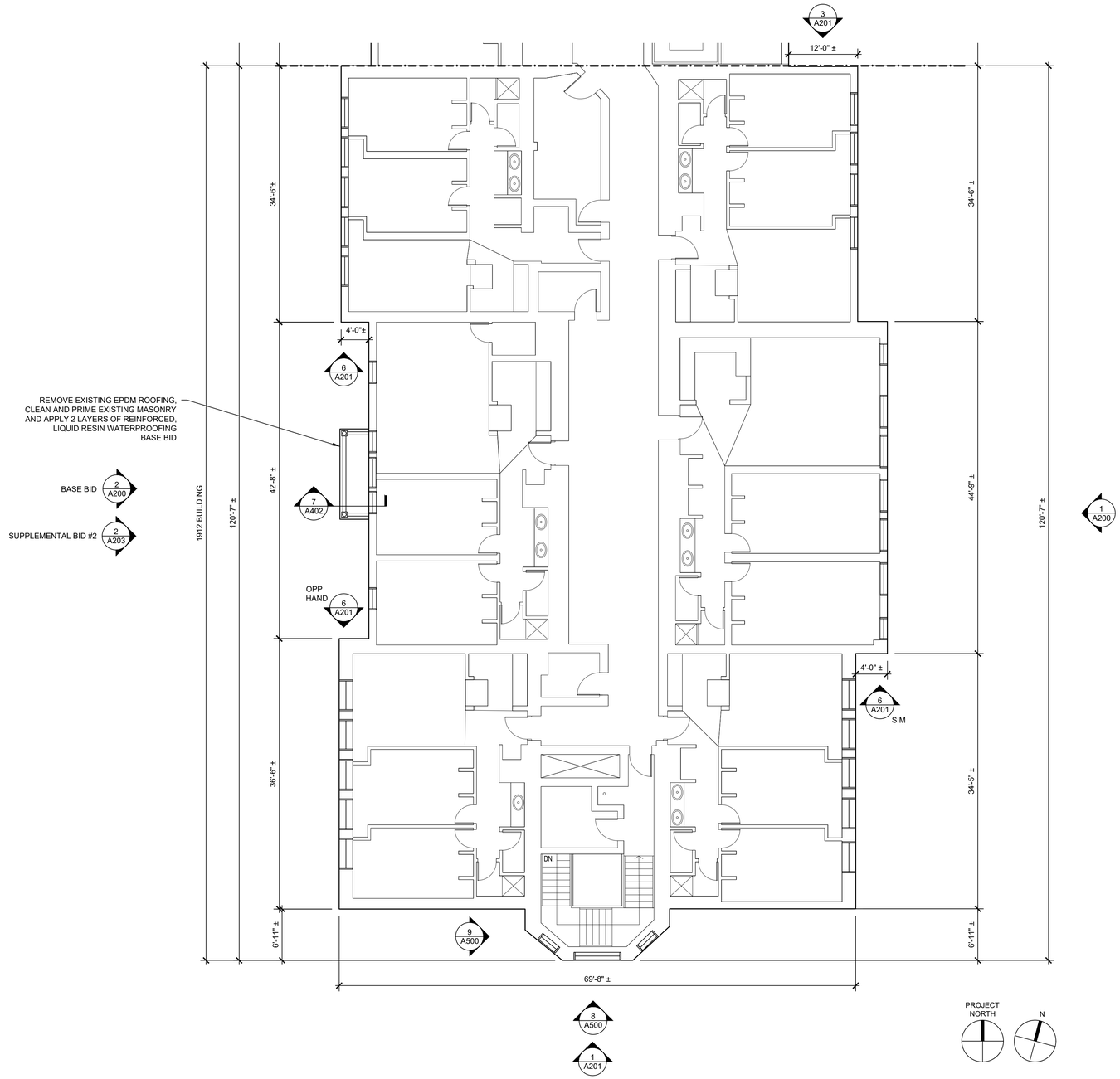
drawing prepared by
Wiss, Janney, Elstner Associates, Inc.
2 TRAP FALLS ROAD, SUITE 502
SHELTON, CT

date: 1/21/2019
scale: As Noted
drawn by: HER
approved by: PCL
drawing no.: A104

project
NOBLE HALL - ESCU
Roof Replacement and Masonry Restoration
Willimantic, Connecticut

CAD no.
project no.: BI-RW-337

NOTES:
1. ALL DOORS TO BUILDING SHALL BE ACCESSIBLE AT ALL TIMES DURING CONSTRUCTION.
2. PROVIDE SIDEWALK PROTECTION AT DOORS TO MAINTAIN PUBLIC SAFETY.
3. REFER TO EXTERIOR ELEVATION DRAWINGS FOR WORK SCOPE AT FACADES.



1 SECOND FLOOR PLAN - 1912 BUILDING
SCALE: 1/8" = 1'-0"

STATE OF CONNECTICUT
JAMES M. LYNCH
No. 28000
LICENSED PROFESSIONAL ENGINEER
1-21-2019

drawing title: SECOND FLOOR PLAN - 1912 BUILDING

REVISIONS

mark	date	description
	1/21/19	BID SET

STATE OF CONNECTICUT
DEPARTMENT OF ADMINISTRATIVE SERVICES

drawing prepared by
Wiss, Janney, Elstner Associates, Inc.
2 TRAP FALLS ROAD, SUITE 502
SHELTON, CT

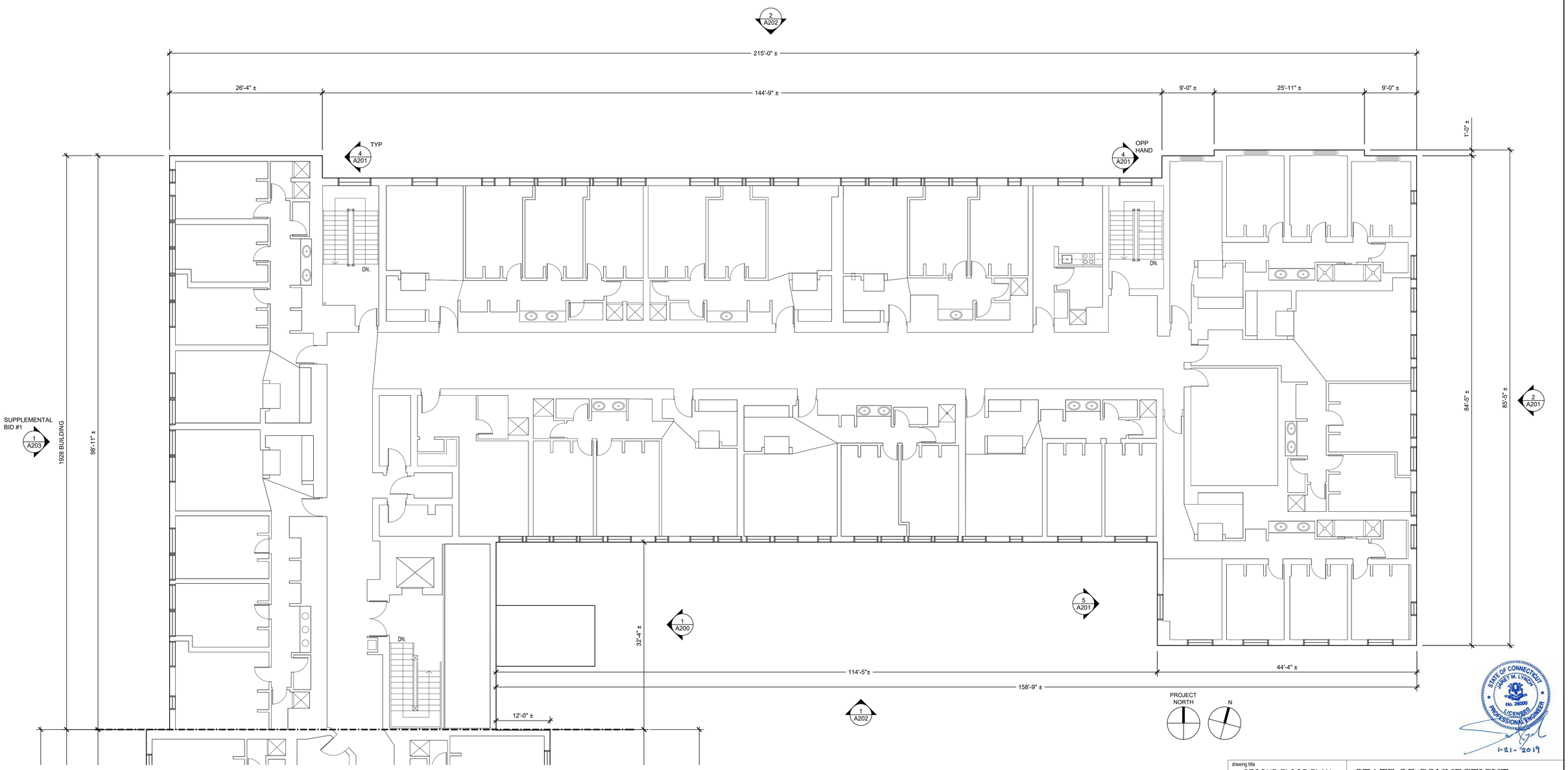
project
NOBLE HALL - ESCU
Roof Replacement and Masonry Restoration
Willimantic, Connecticut

CAD no.

project no. BI-RW-337

date 1/21/2019
scale As Noted
drawn by HER
approved by PCL
drawing no. **A105**

NOTES:
1. ALL DOORS TO BUILDING SHALL BE ACCESSIBLE AT ALL TIMES DURING CONSTRUCTION.
2. PROVIDE SIDEWALK PROTECTION AT DOORS TO MAINTAIN PUBLIC SAFETY.
3. REFER TO EXTERIOR ELEVATION DRAWINGS FOR WORK SCOPE AT FACADES.



1 SECOND FLOOR PLAN - 1928 BUILDING
SCALE: 1/8" = 1'-0"

STATE OF CONNECTICUT
JANET M. LYNCH
No. 26000
LICENSED PROFESSIONAL ENGINEER
1-21-2019

drawing title: SECOND FLOOR PLAN - 1928 BUILDING

REVISIONS

mark	date	description
	1/21/19	BID SET

STATE OF CONNECTICUT
DEPARTMENT OF ADMINISTRATIVE SERVICES

drawing prepared by: Wiss, Janney, Elstner Associates, Inc.
2 TRAP FALLS ROAD, SUITE 502
SHELTON, CT

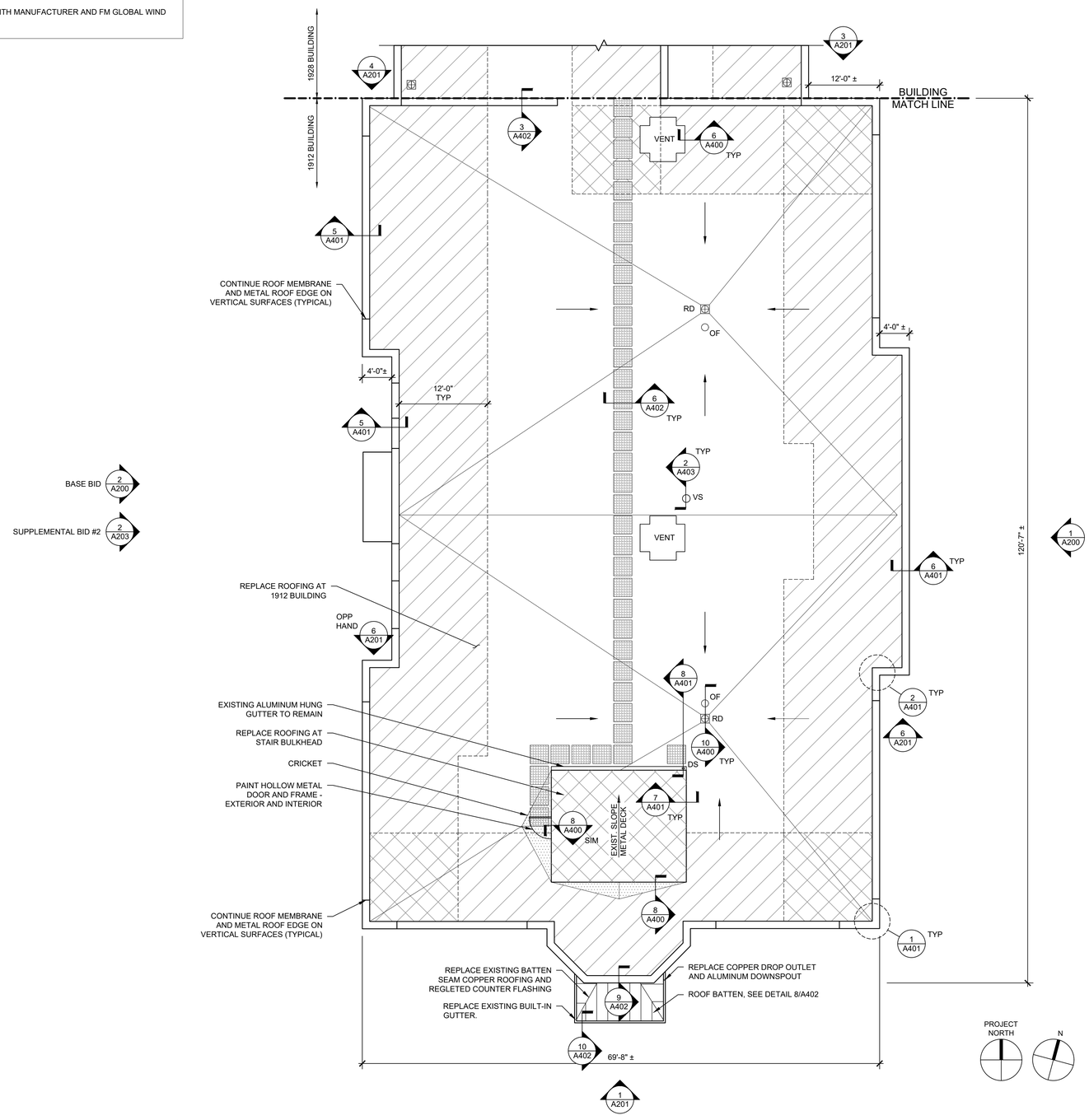
date: 1/21/2019
scale: As Noted
drawn by: HER
approved by: PCL
drawing no.: A106

project: NOBLE HALL - ESCU
Roof Replacement and Masonry Restoration
Willimantic, Connecticut

CAD no.
project no.: BI-RW-337

NOTES:

1. REMOVE EXISTING EPDM ROOFING MEMBRANE, FLASHING, AND COVER BOARD TO EXISTING PLYWOOD SHEATHING AT 1912 BUILDING ROOF. SEE DETAIL 1/A400.
2. REMOVE EXISTING EPDM ROOFING MEMBRANE, FLASHING, COVER BOARD, INSULATION TO EXISTING STEEL DECK AT STAIR BULKHEAD ROOF. SEE DETAIL 2/A400.
3. PROVIDE NEW EPDM ROOFING MEMBRANE, FLASHING, AND COVER BOARD AT 1912 BUILDING ROOF. SEE DETAIL 3/A400.
4. PROVIDE NEW EPDM ROOFING MEMBRANE, FLASHING, COVER BOARD, AND INSULATION AT STAIR BULKHEAD ROOF. SEE DETAIL 4/A400.
5. COORDINATE INSULATION FASTENING PATTERN LAYOUTS WITH MANUFACTURER AND FM GLOBAL WIND UPLIFT REQUIREMENTS.



BASE BID — 2/A200

SUPPLEMENTAL BID #2 — 2/A203

1 ROOF PLAN - 1912 BUILDING
SCALE: 1/8" = 1'-0"

LEGEND

- NEW CRICKET
- SLOPE DOWN OF EXISTING PLYWOOD SHEATHING
- WALKPAD
- RD — EXISTING ROOF DRAIN
- S — EXISTING OVERFLOW SCUPPER
- VS — EXISTING VENT STACK
- CP — EXISTING CONDUIT PENETRATION
- ELEVATOR SHAFT VENT AND CRICKET
- EXISTING STEEL SUPPORT FOR COOLING TOWER
- GF — EXISTING GRAVITY FAN
- ER — EXISTING EQUIPMENT RAIL
- HS — EXISTING HOT STACK
- OF — EXISTING OVERFLOW DRAIN
- FM GLOBAL PERIMETER ZONE
- FM GLOBAL CORNER ZONE
- VENT — EXISTING ATTIC VENT
- DS — EXISTING DOWNSPOUT
- EF — EXISTING EXHAUST FAN

STATE OF CONNECTICUT
JOSEF M. LYNCH
No. 26500
LICENSED PROFESSIONAL ENGINEER
1-21-2019

drawing title: ROOF PLAN - 1912 BUILDING

REVISIONS

mark	date	description
	1/21/19	BID SET

STATE OF CONNECTICUT
DEPARTMENT OF ADMINISTRATIVE SERVICES

drawing prepared by
Wiss, Janney, Elstner Associates, Inc.
2 TRAP FALLS ROAD, SUITE 502
SHELTON, CT

date: 1/21/2019
scale: As Noted
drawn by: HER
approved by: PCL

project
NOBLE HALL - ESCU
Roof Replacement and Masonry Restoration
Willimantic, Connecticut

CAD no.
project no.: BI-RW-337

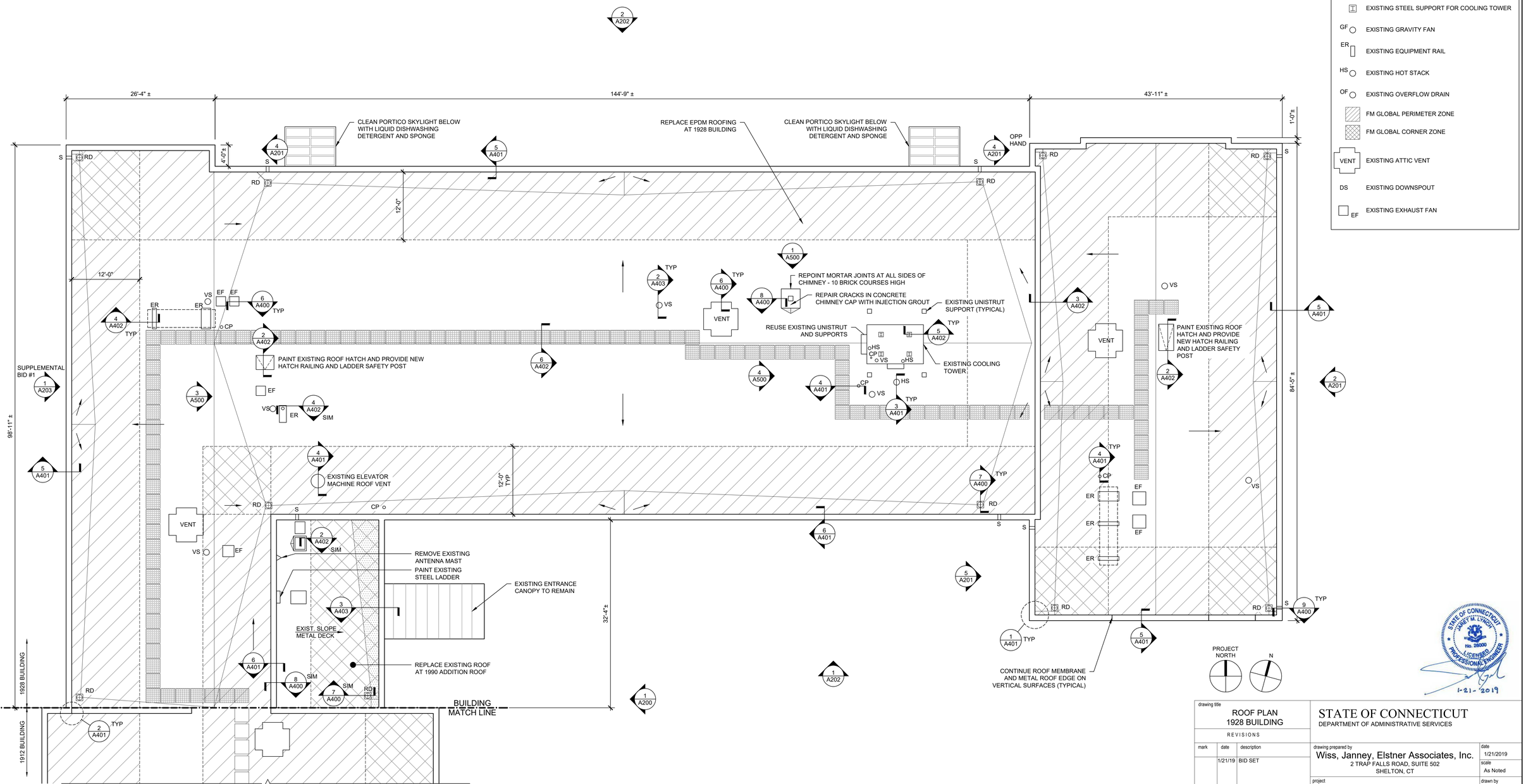
drawing no.: **A107**

NOTES:

1. REMOVE EXISTING EPDM ROOFING MEMBRANE, FLASHING, AND COVER BOARD TO EXISTING PLYWOOD SHEATHING AT 1928 BUILDING ROOF. SEE DETAIL 1/A400.
2. REMOVE EXISTING EPDM ROOFING MEMBRANE, FLASHING, COVER BOARD, AND INSULATION TO METAL DECK AT 1990 ADDITION ROOF. SEE DETAIL 2/A400.
3. PROVIDE NEW EPDM ROOFING MEMBRANE, FLASHING, AND COVER BOARD AT 1928 BUILDING ROOF. SEE DETAIL 3/A400.
4. PROVIDE NEW EPDM ROOFING MEMBRANE, FLASHING, COVER BOARD, AND INSULATION AT 1990 ADDITION ROOF. SEE DETAIL 4/A400.
5. COORDINATE INSULATION FASTENING PATTERN LAYOUTS WITH MANUFACTURER AND FM GLOBAL WIND UPLIFT REQUIREMENTS.

LEGEND

- NEW CRICKET
- SLOPE DOWN OF EXISTING PLYWOOD SHEATHING
- WALKPAD
- RD — EXISTING ROOF DRAIN
- S — EXISTING OVERFLOW SCUPPER
- VS — EXISTING VENT STACK
- CP — EXISTING CONDUIT PENETRATION
- ELEVATOR SHAFT VENT AND CRICKET
- EXISTING STEEL SUPPORT FOR COOLING TOWER
- GF — EXISTING GRAVITY FAN
- ER — EXISTING EQUIPMENT RAIL
- HS — EXISTING HOT STACK
- OF — EXISTING OVERFLOW DRAIN
- FM GLOBAL PERIMETER ZONE
- FM GLOBAL CORNER ZONE
- VENT — EXISTING ATTIC VENT
- DS — EXISTING DOWNSPOUT
- EF — EXISTING EXHAUST FAN



1 ROOF PLAN - 1928 BUILDING
SCALE: 1/8" = 1'-0"

STATE OF CONNECTICUT
JARRET M. LYNCH
No. 29000
LICENSED PROFESSIONAL ENGINEER
1-21-2019

drawing title: ROOF PLAN 1928 BUILDING

REVISIONS

mark	date	description
	1/21/19	BID SET

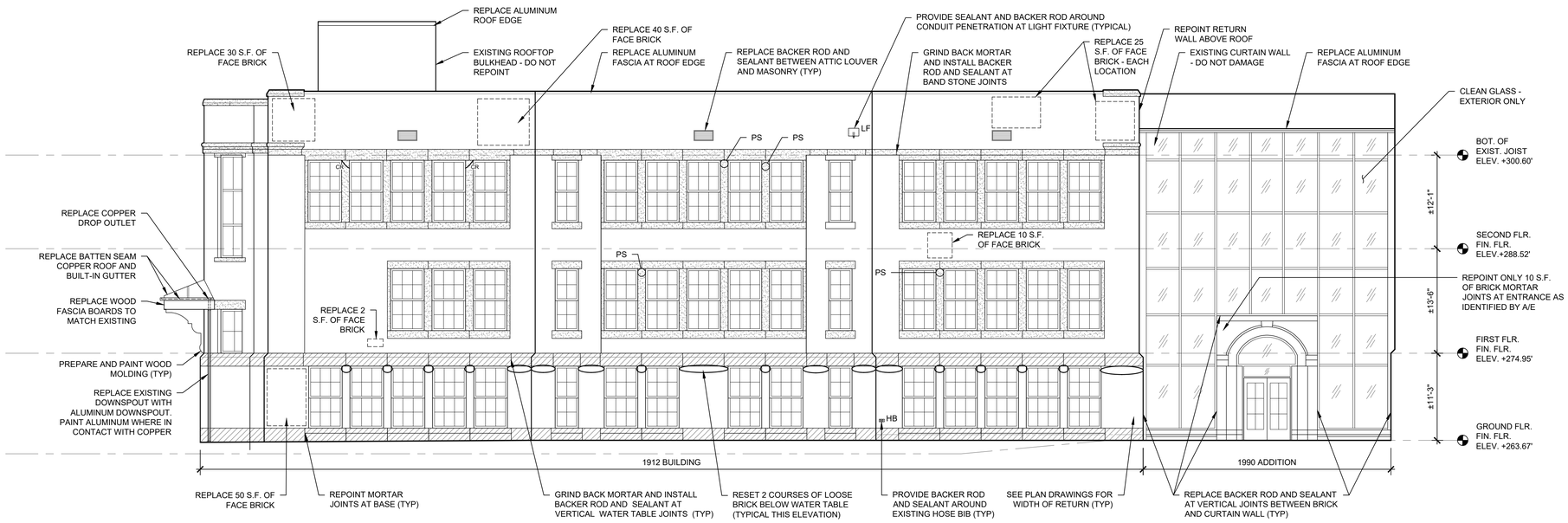
STATE OF CONNECTICUT
DEPARTMENT OF ADMINISTRATIVE SERVICES

drawing prepared by: Wiss, Janney, Elstner Associates, Inc.
2 TRAP FALLS ROAD, SUITE 502
SHELTON, CT

date: 1/21/2019
scale: As Noted
drawn by: HER
approved by: PCL

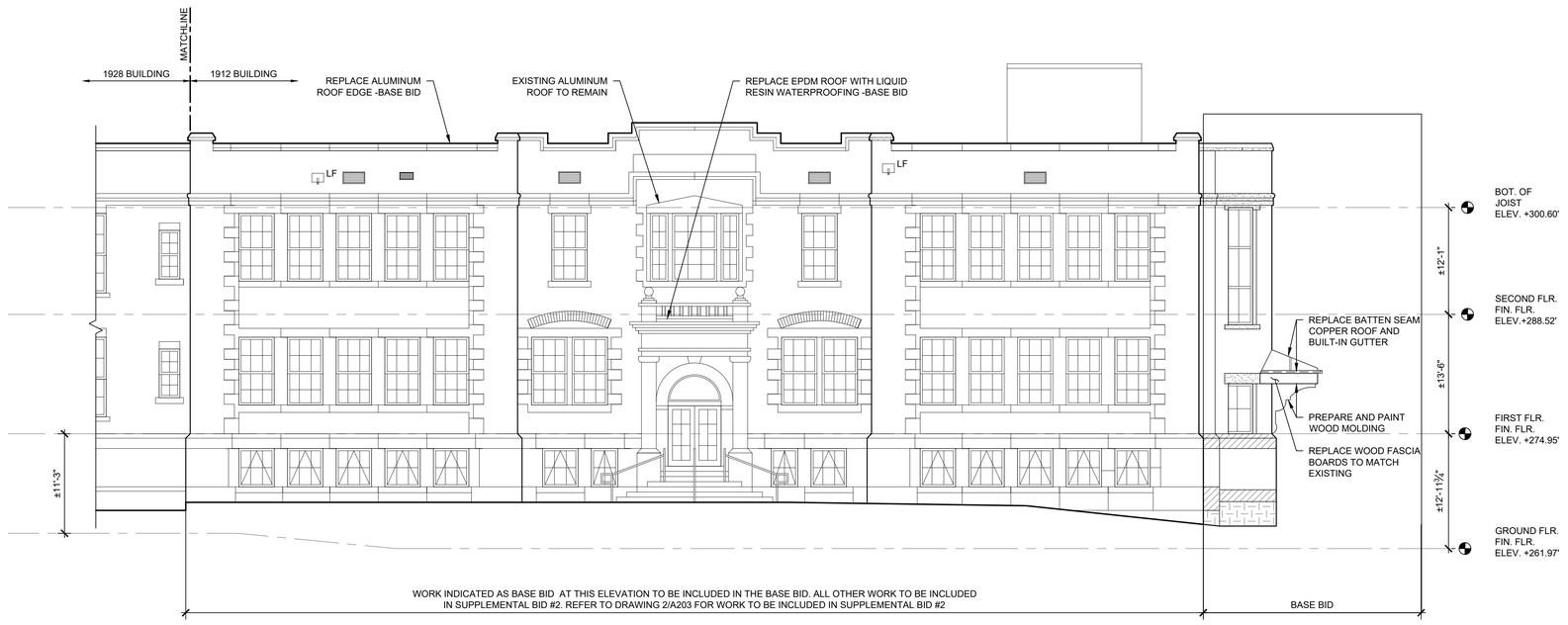
project: NOBLE HALL - ESCU
Roof Replacement and Masonry Restoration
Willimantic, Connecticut

CAD no.
project no.: BI-RW-337
drawing no.: **A108**



1 EAST ELEVATION - 1912 BLDG BASE BID

SCALE: 1/8" = 1'-0"



2 WEST ELEVATION - 1912 BUILDING BASE BID WORK

SCALE: 1/8" = 1'-0"

LEGEND

- EXISTING BRICK
- EXISTING GRANITE
- EXISTING LIMESTONE
- EXISTING CAST STONE
- NEW COATING
- EXISTING CONCRETE
- EXISTING WINDOW
- EXISTING GLASS/IGU
- EXISTING STEEL LINTEL. COMPLETELY EXPOSE STEEL LINTELS AND REMOVE ALL LOOSE RUST AND PAINT. SEE 2/A500.
- LF EXISTING LIGHT FIXTURE
- HB EXISTING HOSE BIB
- CP SEAL EXISTING CONDUIT/PIPE PENETRATION
- PS PATCH STONE SPALL
- CR CRACK INJECTION WITH GROUT

GENERAL NOTES:

1. CLEAN ALL EXTERIOR, CONCRETE, BRICK, GRANITE, LIMESTONE, AND CAST STONE AT BUILDING ELEVATIONS.
2. REPOINT ALL MORTAR JOINTS AT BRICK, GRANITE, LIMESTONE, AND CAST STONE AT BUILDING ELEVATIONS UNLESS OTHERWISE NOTED.
3. LOCATIONS OF FACE BRICK REPLACEMENT SHOWN ARE APPROXIMATE. A/E TO IDENTIFY EXACT LOCATIONS IN FIELD.
4. IN ADDITION TO LOCATIONS WHERE OUTER WYTHE BRICK REPLACEMENT IS SHOWN REPLACEMENT OF INDIVIDUAL FACE BRICK SHALL BE INCLUDED IN THE CONTRACT AS FOLLOWS:
   - BASE BID - 1,200 BRICKS
   - SUPPLEMENTAL BID NO. 1 - 100 BRICKS
   - SUPPLEMENTAL BID NO. 2 - 200 BRICKS

   A/E WILL IDENTIFY LOCATIONS OF INDIVIDUAL BRICK REPLACEMENTS IN FIELD.
5. REPLACE ALL SEALANT AND BACKER ROD BETWEEN WINDOW/DOOR FRAMES AND MASONRY AT BUILDING ELEVATIONS.
6. REMOVE ALL LIGHT FIXTURES AS REQUIRED TO COMPLETE MASONRY WORK. REINSTALL FOLLOWING MASONRY WORK.
7. FOLLOWING ALL OTHER MASONRY AND SEALANT REPAIRS APPLY WATER REPELLANT TO ALL CAST STONE UNITS.

STATE OF CONNECTICUT JANET M. LYNCH No. 26000 LICENSED PROFESSIONAL ENGINEER
1-21-2019

drawing title: EXTERIOR ELEVATIONS

REVISIONS

mark	date	description
	1/21/19	BID SET

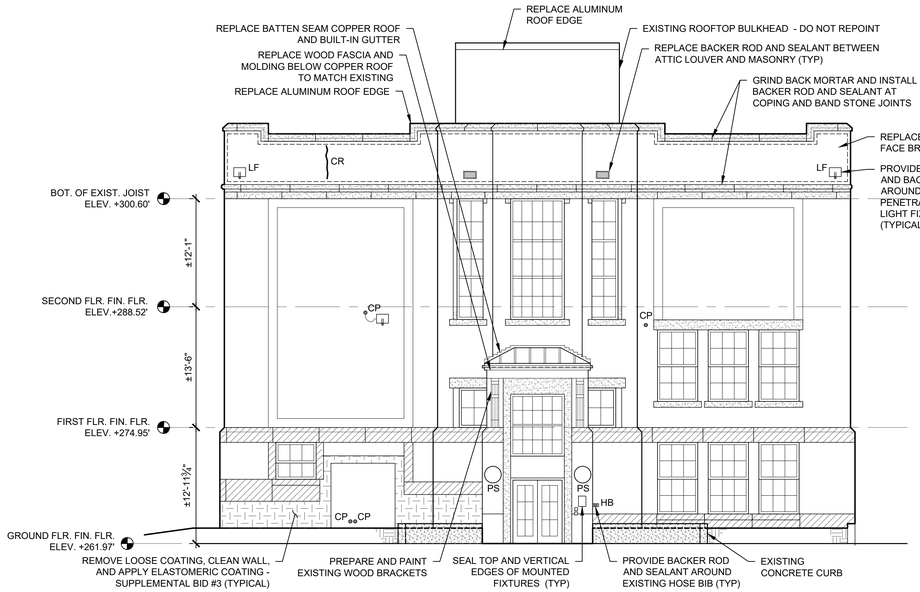
STATE OF CONNECTICUT
DEPARTMENT OF ADMINISTRATIVE SERVICES

drawing prepared by
Wiss, Janney, Elstner Associates, Inc.
2 TRAP FALLS ROAD, SUITE 502
SHELTON, CT

date: 1/21/2019
scale: As Noted
drawn by: HER
approved by: PCL
drawing no.: A200

project
NOBLE HALL - ESCU
Roof Replacement and Masonry Restoration
Willimantic, Connecticut

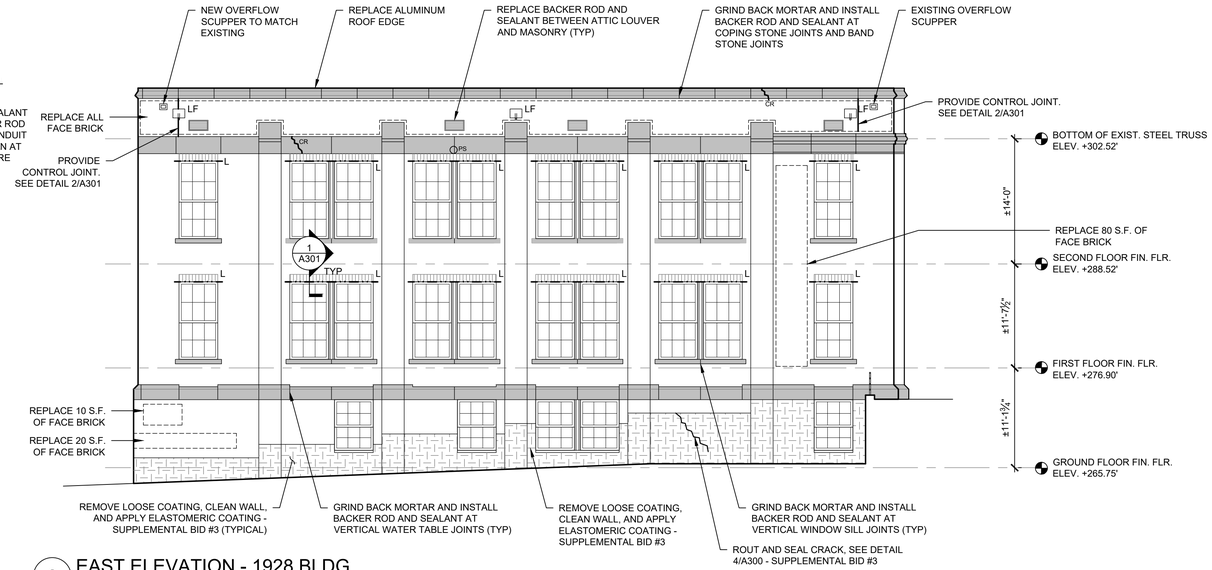
CAD no.
project no.: BI-RW-337



1 SOUTH ELEVATION - 1912 BLDG

SCALE: 1/8" = 1'-0"

NOTE: ALL WORK INDICATED TO BE INCLUDED IN BASE BID UNLESS OTHERWISE NOTED



2 EAST ELEVATION - 1928 BLDG

SCALE: 1/8" = 1'-0"

NOTE: ALL WORK INDICATED TO BE INCLUDED IN BASE BID UNLESS OTHERWISE NOTED

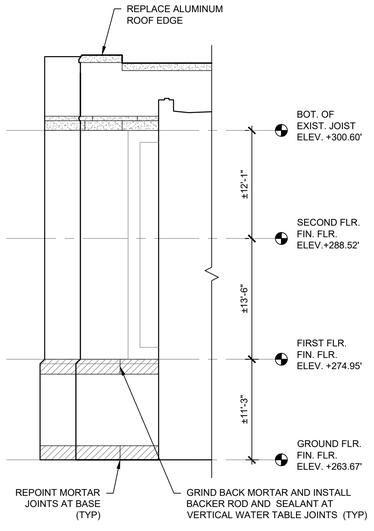
LEGEND

- EXISTING BRICK
- EXISTING GRANITE
- EXISTING LIMESTONE
- EXISTING CAST STONE
- NEW COATING
- EXISTING CONCRETE
- EXISTING WINDOW
- EXISTING GLASS/IGU
- L — EXISTING STEEL LINTEL. COMPLETELY EXPOSE STEEL LINTELS AND REMOVE ALL LOOSE RUST AND PAINT. SEE 2/A500.
- LF — EXISTING LIGHT FIXTURE
- HB — EXISTING HOSE BIB
- CP — SEAL EXISTING CONDUIT/PIPE PENETRATION
- PS — PATCH STONE SPALL
- CR — CRACK INJECTION WITH GROUT

GENERAL NOTES:

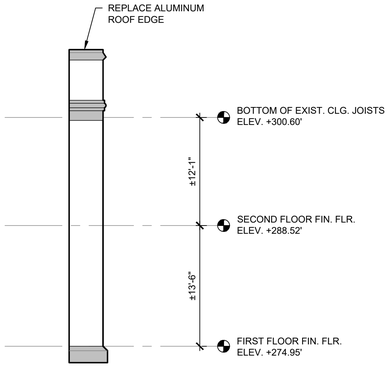
1. CLEAN ALL EXTERIOR, CONCRETE, BRICK, GRANITE, LIMESTONE, AND CAST STONE AT BUILDING ELEVATIONS.
2. REPOINT ALL MORTAR JOINTS AT BRICK, GRANITE, LIMESTONE, AND CAST STONE AT BUILDING ELEVATIONS UNLESS OTHERWISE NOTED.
3. LOCATIONS OF FACE BRICK REPLACEMENT SHOWN ARE APPROXIMATE. A/E TO IDENTIFY EXACT LOCATIONS IN FIELD.
4. IN ADDITION TO LOCATIONS WHERE OUTER WYTHE BRICK REPLACEMENT IS SHOWN REPLACEMENT OF INDIVIDUAL FACE BRICK SHALL BE INCLUDED IN THE CONTRACT AS FOLLOWS:
   - BASE BID - 1,200 BRICKS
   - SUPPLEMENTAL BID NO. 1 - 100 BRICKS
   - SUPPLEMENTAL BID NO. 2 - 200 BRICKS

   A/E WILL IDENTIFY LOCATIONS OF INDIVIDUAL BRICK REPLACEMENTS IN FIELD.
5. REPLACE ALL SEALANT AND BACKER ROD BETWEEN WINDOW/DOOR FRAMES AND MASONRY AT BUILDING ELEVATIONS.
6. REMOVE ALL LIGHT FIXTURES AS REQUIRED TO COMPLETE MASONRY WORK. REINSTALL FOLLOWING MASONRY WORK.
7. FOLLOWING ALL OTHER MASONRY AND SEALANT REPAIRS APPLY WATER REPELLANT TO ALL CAST STONE UNITS.



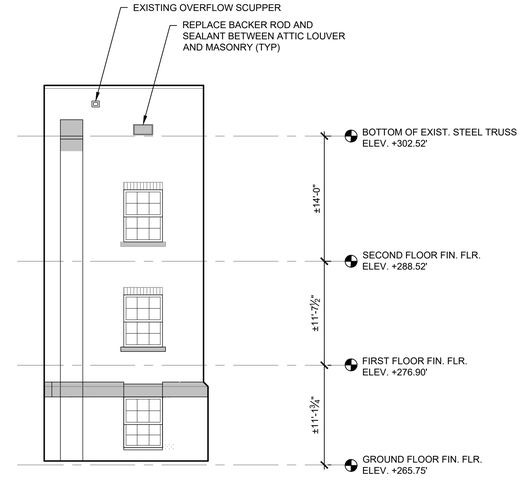
3 RETURN AT NORTH ELEVATION - 1912 BUILDING BASE BID ALL WORK

SCALE: 1/8" = 1'-0"



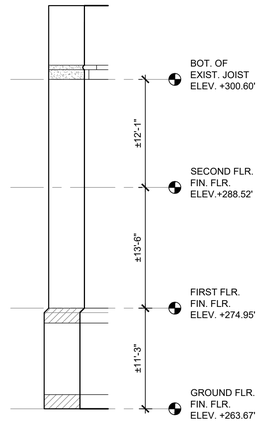
4 RETURN AT NORTH ELEVATION - 1928 BUILDING BASE BID ALL WORK

SCALE: 1/8" = 1'-0"



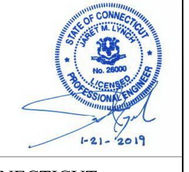
5 RETURN AT SOUTH ELEVATION - 1928 BUILDING BASE BID ALL WORK

SCALE: 1/8" = 1'-0"



6 RETURN AT EAST ELEVATION - 1912 BUILDING BASE BID ALL WORK

SCALE: 1/8" = 1'-0"



drawing title: EXTERIOR ELEVATIONS

REVISIONS

mark	date	description
	1/21/19	BID SET

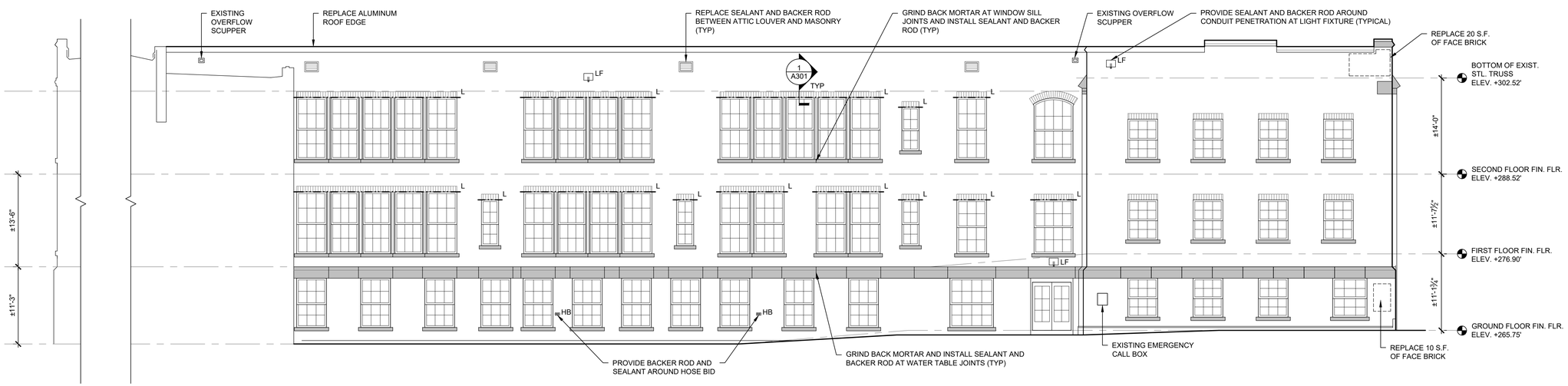
STATE OF CONNECTICUT
DEPARTMENT OF ADMINISTRATIVE SERVICES

drawing prepared by: Wiss, Janney, Elstner Associates, Inc.
2 TRAP FALLS ROAD, SUITE 502
SHELTON, CT

date: 1/21/2019
scale: As Noted
drawn by: HER
approved by: PCL
drawing no.: A201

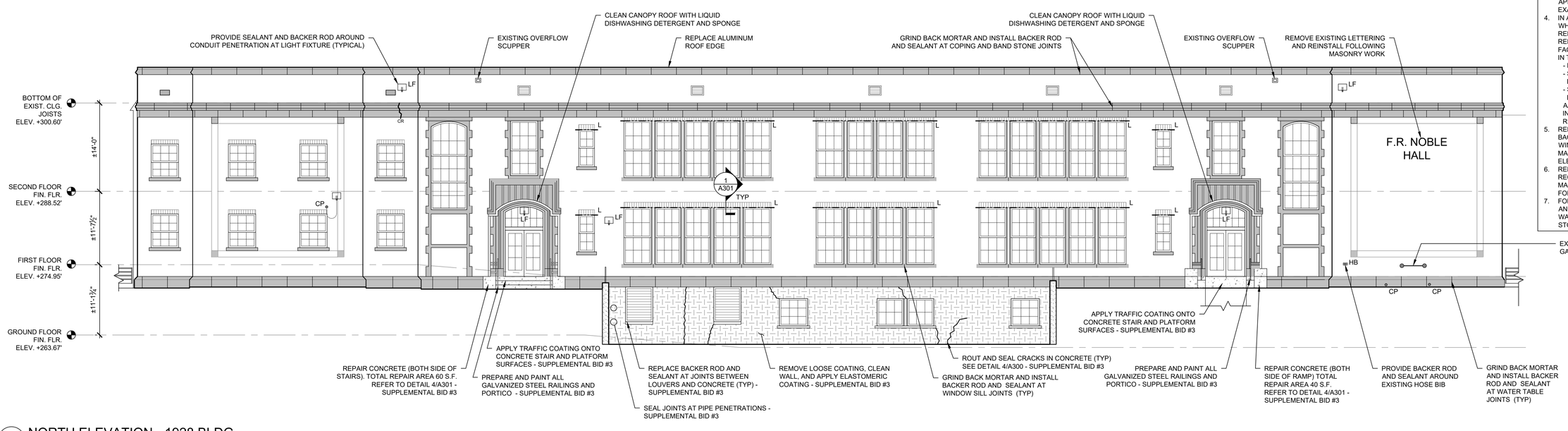
project: NOBLE HALL - ESCU
Roof Replacement and Masonry Restoration
Willimantic, Connecticut

CAD no.
project no.: BI-RW-337



1 SOUTH ELEVATION - 1928 BLDG - BASE BID ALL WORK

SCALE: 1/8" = 1'-0"



2 NORTH ELEVATION - 1928 BLDG

SCALE: 1/8" = 1'-0"

NOTE: ALL WORD INDICATED TO BE INCLUDED IN BASE BID UNLESS NOTED OTHERWISE

LEGEND

- EXISTING BRICK
- EXISTING GRANITE
- EXISTING LIMESTONE
- EXISTING CAST STONE
- NEW COATING
- EXISTING CONCRETE
- EXISTING WINDOW
- EXISTING GLASS/IGU
- L — EXISTING STEEL LINTEL. COMPLETELY EXPOSE STEEL LINTELS AND REMOVE ALL LOOSE RUST AND PAINT. SEE 2/A500.
- LF — EXISTING LIGHT FIXTURE
- HB — EXISTING HOSE BIB
- CP — SEAL EXISTING CONDUIT/PIPE PENETRATION
- PS — PATCH STONE SPALL
- CR — CRACK INJECTION WITH GROUT

GENERAL NOTES:

1. CLEAN ALL EXTERIOR, CONCRETE, BRICK, GRANITE, LIMESTONE, AND CAST STONE AT BUILDING ELEVATIONS.
2. REPOINT ALL MORTAR JOINTS AT BRICK, GRANITE, LIMESTONE, AND CAST STONE AT BUILDING ELEVATIONS UNLESS OTHERWISE NOTED.
3. LOCATIONS OF FACE BRICK REPLACEMENT SHOWN ARE APPROXIMATE. A/E TO IDENTIFY EXACT LOCATIONS IN FIELD.
4. IN ADDITION TO LOCATIONS WHERE OUTER WYTHE BRICK REPLACEMENT IS SHOWN REPLACEMENT OF INDIVIDUAL FACE BRICK SHALL BE INCLUDED IN THE CONTRACT AS FOLLOWS:
   - BASE BID - 1,200 BRICKS
   - SUPPLEMENTAL BID NO. 1 - 100 BRICKS
   - SUPPLEMENTAL BID NO. 2 - 200 BRICKS

   A/E WILL IDENTIFY LOCATIONS OF INDIVIDUAL BRICK REPLACEMENTS IN FIELD.
5. REPLACE ALL SEALANT AND BACKER ROD BETWEEN WINDOW/DOOR FRAMES AND MASONRY AT BUILDING ELEVATIONS.
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7. FOLLOWING ALL OTHER MASONRY AND SEALANT REPAIRS APPLY WATER REPELLANT TO ALL CAST STONE UNITS.

STATE OF CONNECTICUT JANET M. LYNCH No. 26500 LICENSED PROFESSIONAL ENGINEER
1-21-2019

drawing title: EXTERIOR ELEVATIONS

REVISIONS

mark	date	description
	1/21/19	BID SET

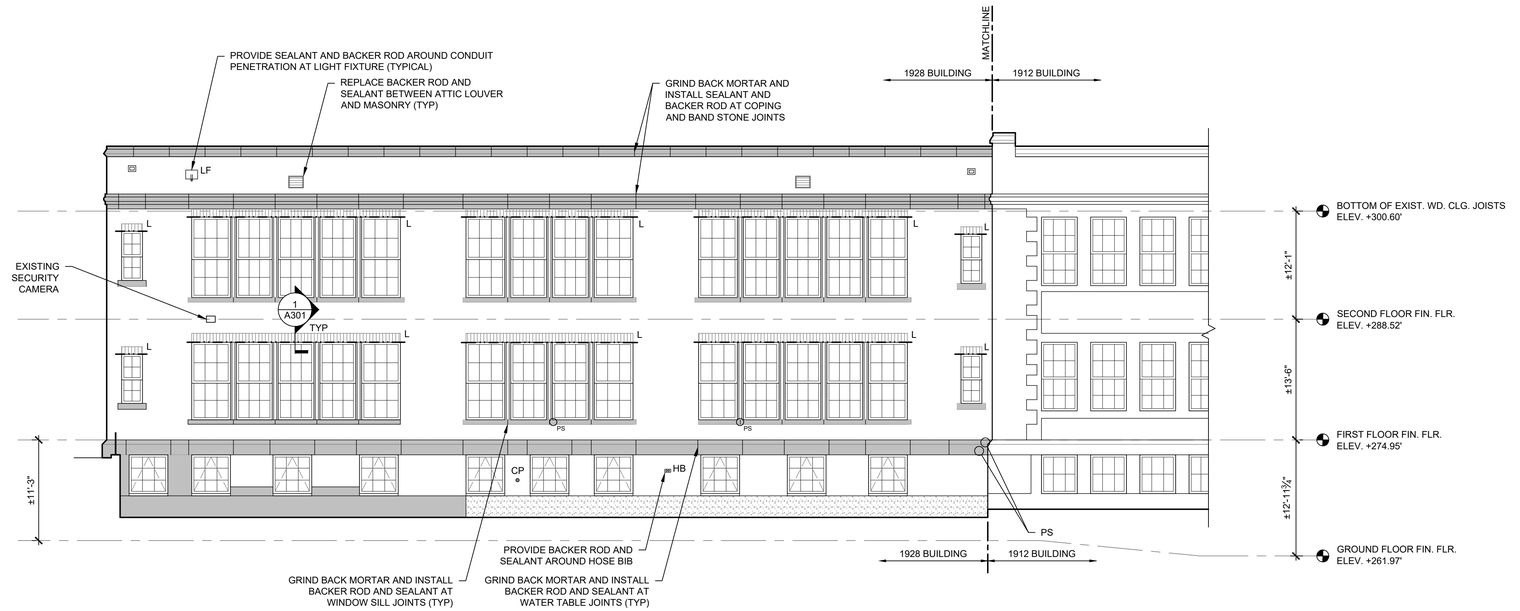
STATE OF CONNECTICUT
DEPARTMENT OF ADMINISTRATIVE SERVICES

drawing prepared by: Wiss, Janney, Elstner Associates, Inc.
2 TRAP FALLS ROAD, SUITE 502
SHELTON, CT

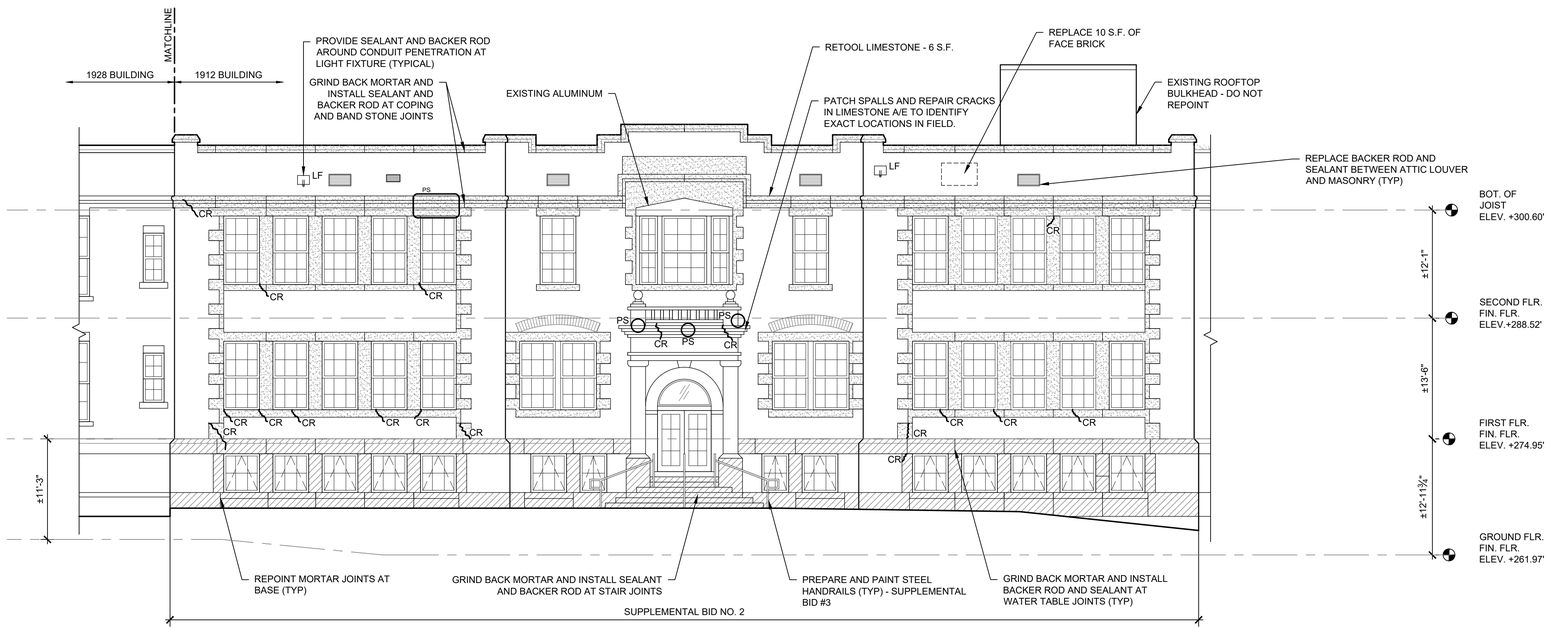
date: 1/21/2019
scale: As Noted
drawn by: HER
approved by: PCL
drawing no.: **A202**

project: NOBLE HALL - ESCU
Roof Replacement and Masonry Restoration
Willimantic, Connecticut

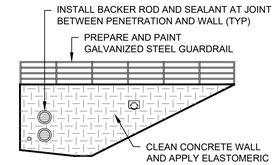
CAD no.
project no.: BI-RW-337



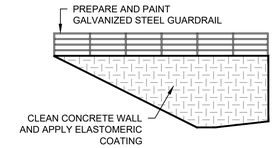
1 WEST ELEVATION - 1928 BUILDING - SUPPLEMENTAL BID #1 ALL WORK
SCALE: 1/8" = 1'-0"



2 WEST ELEVATION - 1912 BUILDING - SUPPLEMENTAL BID #2 - UNLESS NOTED OTHERWISE
SCALE: 1/8" = 1'-0"



3 RETAINING WALL WEST ELEVATION - 1928 BLDG - SUPPLEMENTAL BID #3 ALL WORK
SCALE: 1/8" = 1'-0"



4 RETAINING WALL EAST ELEVATION - 1928 BLDG - SUPPLEMENTAL BID #3 ALL WORK
SCALE: 1/8" = 1'-0"

LEGEND

- EXISTING BRICK
- EXISTING GRANITE
- EXISTING LIMESTONE
- EXISTING CAST STONE
- NEW COATING
- EXISTING CONCRETE
- EXISTING WINDOW
- EXISTING GLASS/IGU
- L — EXISTING STEEL LINTEL. COMPLETELY EXPOSE STEEL LINTELS AND REMOVE ALL LOOSE RUST AND PAINT. SEE 2/A500.
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- CR — CRACK INJECTION WITH GROUT

GENERAL NOTES:

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drawing title: EXTERIOR ELEVATIONS

REVISIONS

mark	date	description
	1/21/19	BID SET

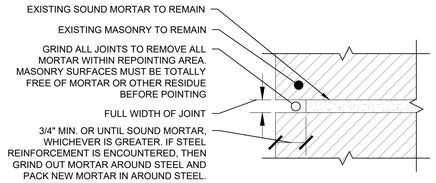
STATE OF CONNECTICUT
DEPARTMENT OF ADMINISTRATIVE SERVICES

drawing prepared by: Wiss, Janney, Elstner Associates, Inc.
2 TRAP FALLS ROAD, SUITE 502
SHELTON, CT

date: 1/21/2019
scale: As Noted
drawn by: HER
approved by: PCL
drawing no.: **A203**

project: NOBLE HALL - ESCU
Roof Replacement and Masonry Restoration
Willimantic, Connecticut

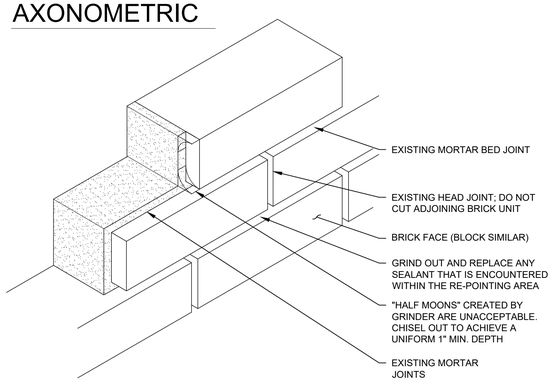
CAD no.
project no.: BI-RW-337



1 BRICK REPOINTING

SCALE: 1" = 1'-0"

AXONOMETRIC



NOTE: DO NOT CUT OR DAMAGE EXISTING MASONRY TO REMAIN. UNITS DAMAGED BY THE CONTRACTOR SHALL BE REPLACED BY THE CONTRACTOR TO MATCH EXISTING AT NO COST TO THE OWNER.

INSTRUCTIONS

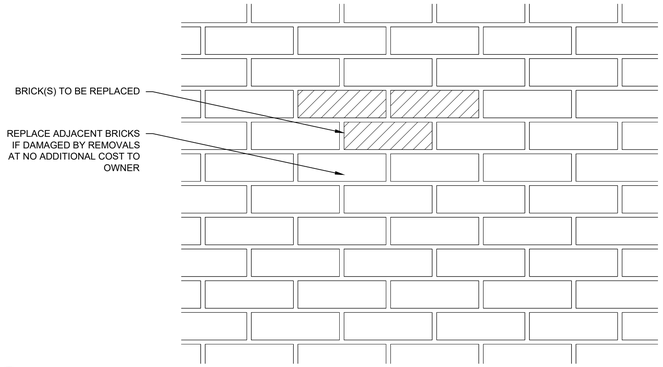
A. GRIND OUT EXISTING JOINT TO A MINIMUM DEPTH OF 1" A, OR DEEPER TO SOUND MORTAR.

B. FLUSH OUT LOOSE MATERIAL WITH WATER SPRAY.

C. PRE HYDRATE MORTAR (PER ASTM C270) BY MIXING MORTAR DRY. THEN MIX AGAIN WITH ONLY ENOUGH WATER TO PRODUCE A WORKABLE MIX.

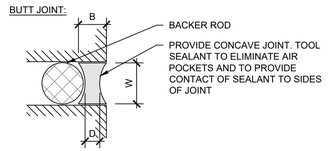
D. WET MORTAR JOINT. PACK IN NEW PRE HYDRATED TUCK POINTING MORTAR IN THIN LAYERS UNTIL JOINT IS FILLED AND TOOL TO CONCAVE PROFILE.

E. DISCARD ANY UNUSED MORTAR NOT USED WITHIN 2 1/2 HOURS AFTER INITIAL ADDITION OF WATER



2 BRICK REPLACEMENT

SCALE: 1" = 1'-0"



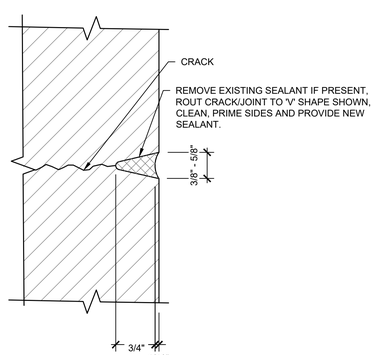
SEALANT DEPTH AND BACKER ROD DIAMETER (BUTT JOINT) SHALL BE BASED ON THE FOLLOWING TABLE:

JOINT WIDTH (W)	¼"	⅜"	½"	⅝"	¾"	⅞"	1"	1 ¼"	1 ½"
SEALANT DEPTH (D)	¼"	¼"	¼"	¼" - ⅜"	⅜" - ½"	⅜" - ½"	⅜" - ½"	½"	½"
BACKER ROD DIAMETER	⅜"	½"	⅝"	¾"	1"	1 ¼"	1 ¼"	1 ½"	2"

NOTES:
1. BOND LINE (B) - MIN. 3/8" ON CONCRETE, STUCCO, OR MASONRY; MIN. 1/4" ON METAL OR GLASS
2. SEALANT DEPTH (D) - MIN. 1/4"
3. TOOL SEALANT TO ELIMINATE AIR POCKETS AND TO PROVIDE CONTACT OF SEALANT TO SIDES OF JOINT. PROVIDE "HOURGLASS" PROFILE WHERE POSSIBLE (B>D)

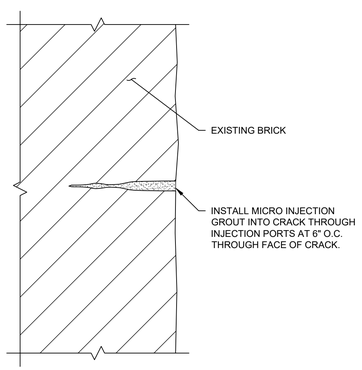
3 SEALANT JOINT DETAIL

SCALE: 3" = 1'-0"



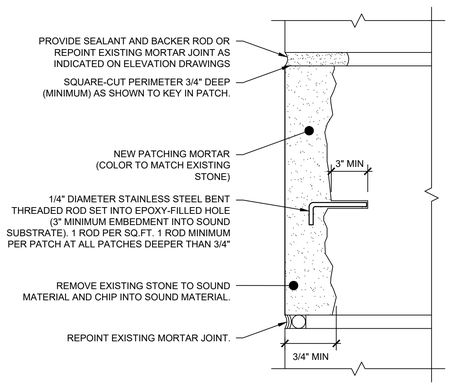
4 CRACK REPAIR WITH SEALANT

SCALE: N.T.S.



5 CRACK REPAIR WITH GROUT

SCALE: N.T.S.



6 PATCH REPAIR

SCALE: N.T.S.

drawing title: MASONRY DETAILS

REVISIONS

mark	date	description
	1/21/19	BID SET

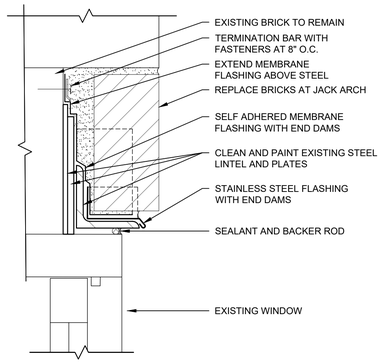
STATE OF CONNECTICUT
DEPARTMENT OF ADMINISTRATIVE SERVICES

drawing prepared by: Wiss, Janney, Elstner Associates, Inc.
2 TRAP FALLS ROAD, SUITE 502
SHELTON, CT

date: 1/21/2019
scale: As Noted
drawn by: HER
approved by: PCL
drawing no.: **A300**

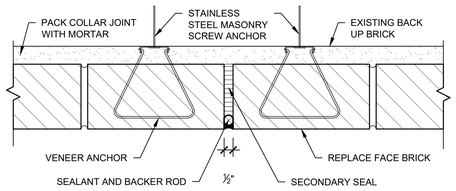
project: NOBLE HALL - ESCU
Roof Replacement and Masonry Restoration
Willimantic, Connecticut

CAD no.
project no.: BI-RW-337



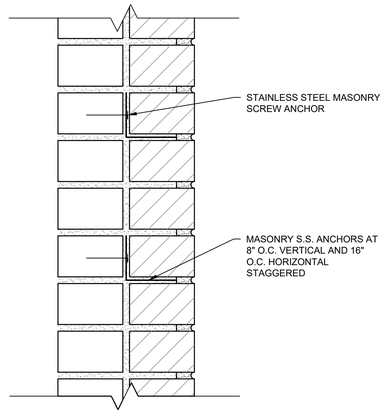
1 LINTEL PAINTING AND FLASHING

SCALE: 3"=1'-0"



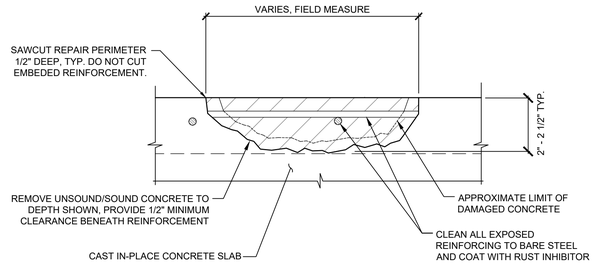
2 BRICK CONTROL JOINT

SCALE: 3"=1'-0"



3 TYPICAL FACE BRICK REPLACEMENT

SCALE: 3"=1'-0"



4 CONCRETE PATCHING REPAIR

SCALE: N.T.S.

drawing title

MASONRY DETAILS

REVISIONS

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STATE OF CONNECTICUT
DEPARTMENT OF ADMINISTRATIVE SERVICES

drawing prepared by
Wiss, Janney, Elstner Associates, Inc.
2 TRAP FALLS ROAD, SUITE 502
SHELTON, CT

project
NOBLE HALL - ESCU
Roof Replacement and Masonry Restoration
Willimantic, Connecticut

CAD no.

project no.
BI-RW-337

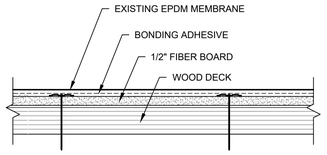
date
1/21/2019

scale
As Noted

drawn by
HER

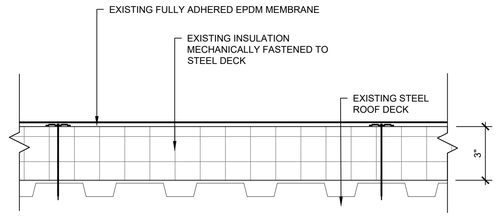
approved by
PCL

drawing no.
A301



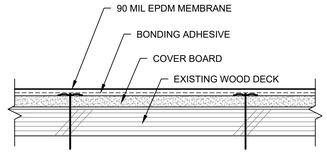
1 EXISTING TYPICAL ROOF ASSEMBLY AT 1912 AND 1928 BLDGS

SCALE: 3"=1'-0"



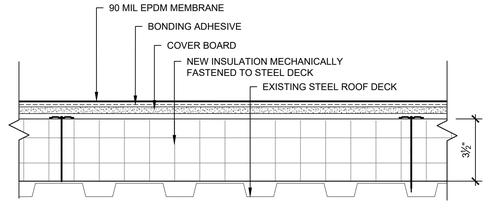
2 EXISTING ROOF ASSEMBLY AT METAL DECK

SCALE: 3"=1'-0"



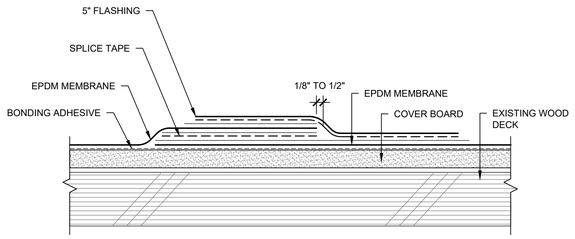
3 TYPICAL NEW ROOF ASSEMBLY AT 1912 AND 1928 BUILDINGS

SCALE: 3" = 1'-0"



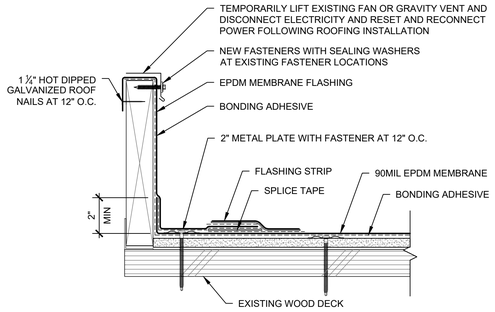
4 NEW ROOF ASSEMBLY AT METAL DECK

SCALE: 3" = 1'-0"



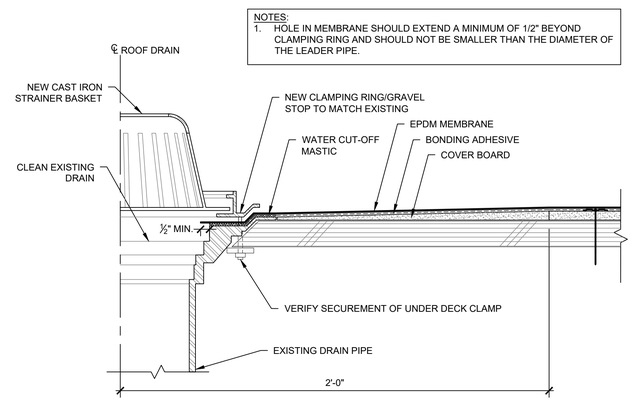
5 LAP SPLICE

SCALE: 6" = 1'-0"



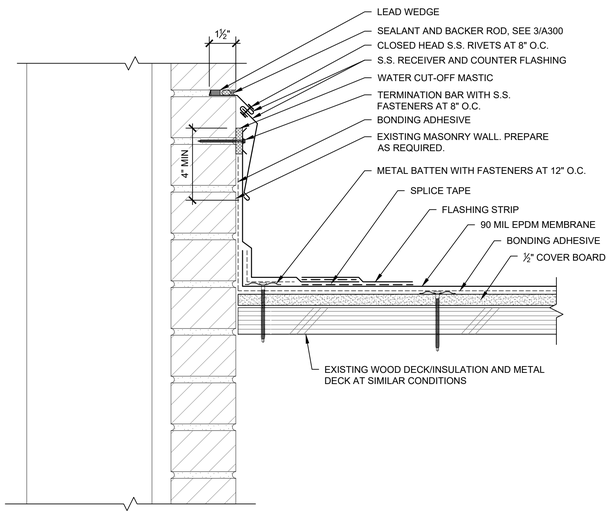
6 CURB FLASHING

SCALE: 3" = 1'-0"



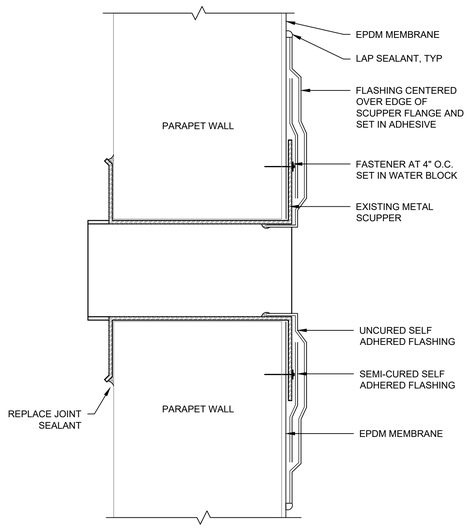
7 ROOF DRAIN

SCALE: 3" = 1'-0"



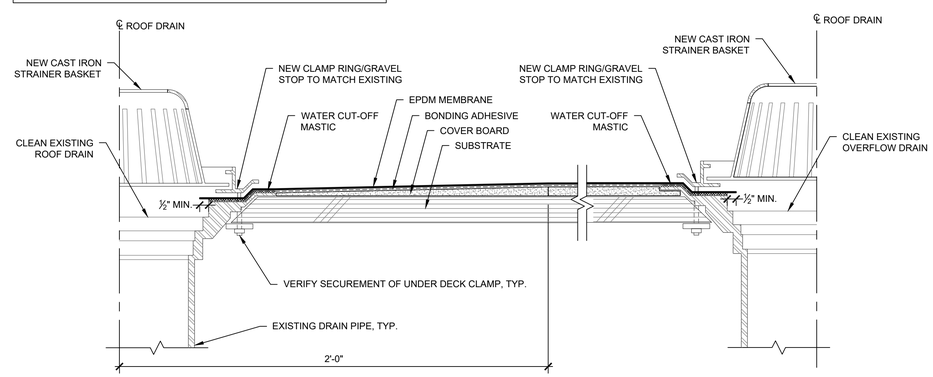
8 TERMINATION AT WALL

SCALE: 3" = 1'-0"



9 THRU WALL SCUPPER

SCALE: 3" = 1'-0"



10 ROOF DRAIN WITH OVER FLOW DRAIN

SCALE: 3" = 1'-0"

STATE OF CONNECTICUT
JANET M. LYNCH
No. 28000
LICENSED PROFESSIONAL ENGINEER
1-21-2019

drawing title: ROOF DETAILS

REVISIONS

mark	date	description
	1/21/19	BID SET

STATE OF CONNECTICUT
DEPARTMENT OF ADMINISTRATIVE SERVICES

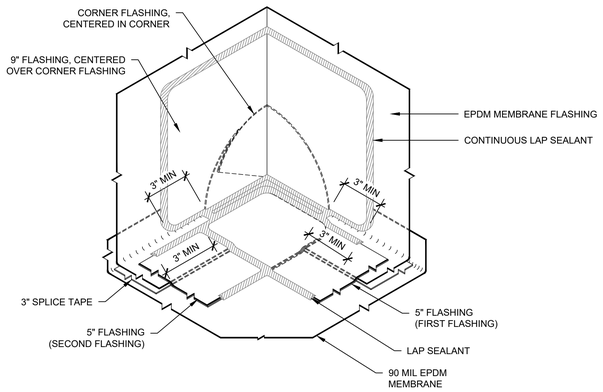
drawing prepared by: Wiss, Janney, Elstner Associates, Inc.
2 TRAP FALLS ROAD, SUITE 502
SHELTON, CT

date: 1/21/2019
scale: As Noted
drawn by: HER
approved by: PCL
drawing no.

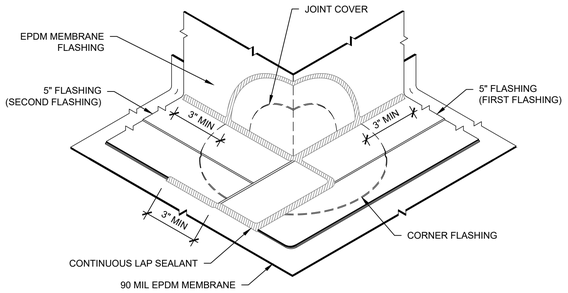
project: NOBLE HALL - ESCU
Roof Replacement and Masonry Restoration
Willimantic, Connecticut

CAD no.
project no. BI-RW-337

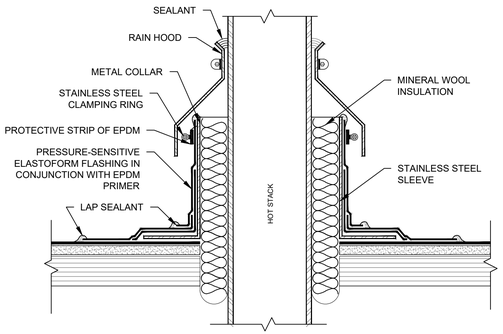
A400



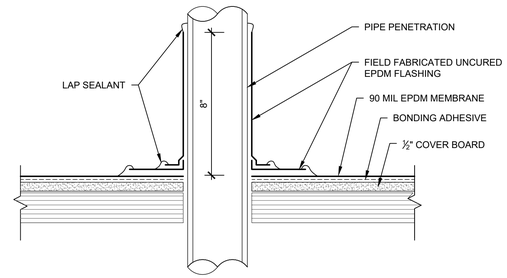
1 INSIDE CORNER FLASHING
SCALE: 3"=1'-0"



2 OUTSIDE CORNER FLASHING
SCALE: 3"=1'-0"

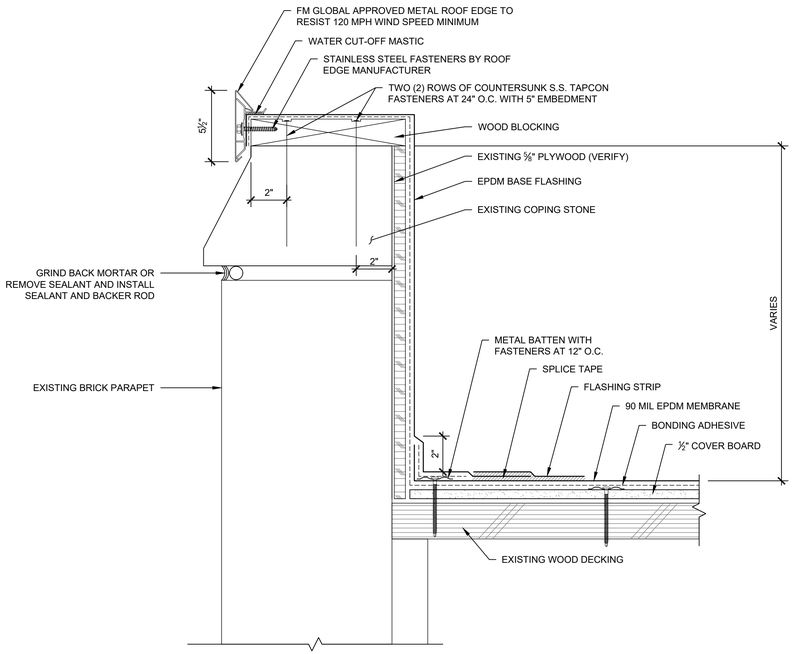


3 HOT STACK FLASHING
SCALE: 3"=1'-0"

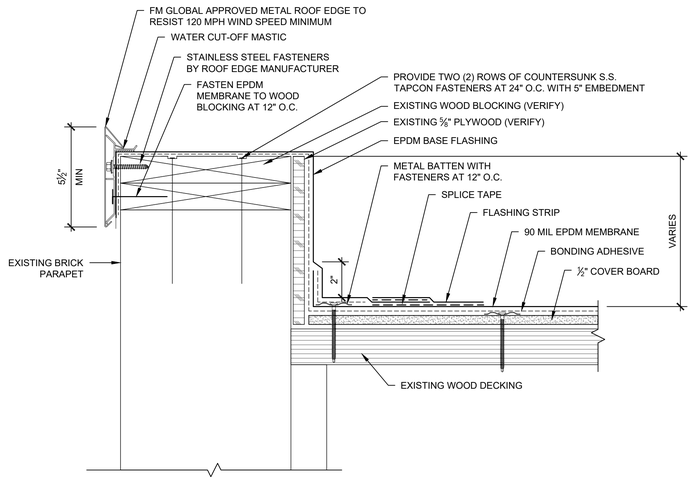


NOTES:
1. TEMPERATURE OF PIPE MUST NOT EXCEED 180°F.
2. FIELD FABRICATED EPDM FLASHING MUST HAVE A MINIMUM 3" MEMBRANE SPLICE.
3. ADDITIONAL FASTENING IS REQUIRED AT ALL PENETRATIONS.
4. APPLY PRIMER PRIOR TO INSTALLING SEAM TAPE.

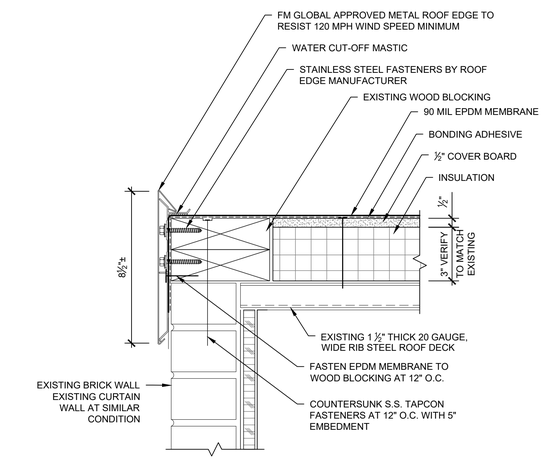
4 TYPICAL PIPE PENETRATION FLASHING
SCALE: 3"=1'-0"



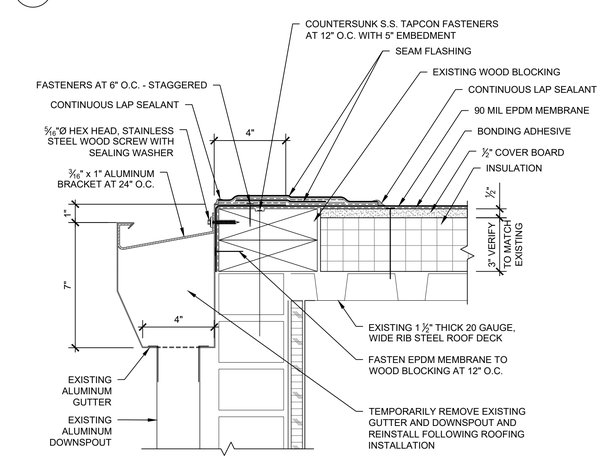
5 ROOF PARAPET AT COPING STONE
SCALE: 3"=1'-0"



6 ROOF PARAPET WITHOUT COPING STONE
SCALE: 3"=1'-0"



7 ROOF EDGE AT STAIR BULKDHEAD
SCALE: 3"=1'-0"



8 HUNG GUTTER AT STAIR BULKHEAD
SCALE: 3"=1'-0"

drawing title: ROOF DETAILS

REVISIONS

mark	date	description
	1/21/19	BID SET

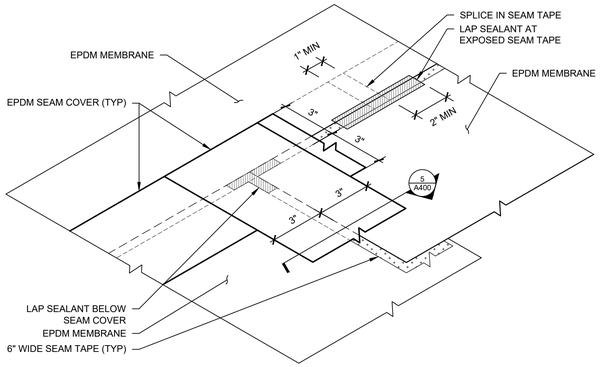
STATE OF CONNECTICUT
DEPARTMENT OF ADMINISTRATIVE SERVICES

drawing prepared by: Wiss, Janney, Elstner Associates, Inc.
2 TRAP FALLS ROAD, SUITE 502
SHELTON, CT

date: 1/21/2019
scale: As Noted
drawn by: HER
approved by: PCL
drawing no.: **A401**

project: NOBLE HALL - ESCU
Roof Replacement and Masonry Restoration
Willimantic, Connecticut

CAD no.
project no.: BI-RW-337



1 TYPICAL SEAM COVER AT 'T' CONNECTION
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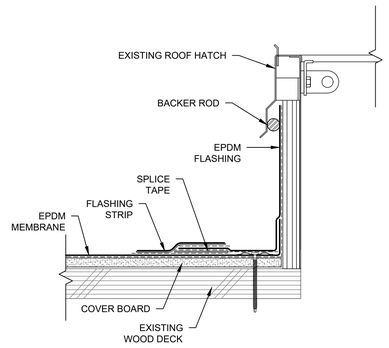

2 FLASHING AT ROOF HATCH
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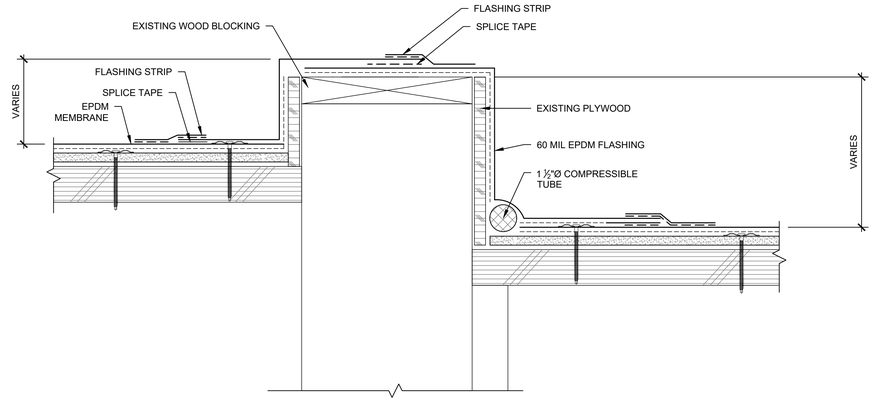
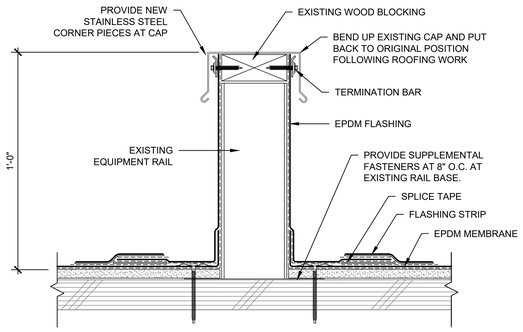
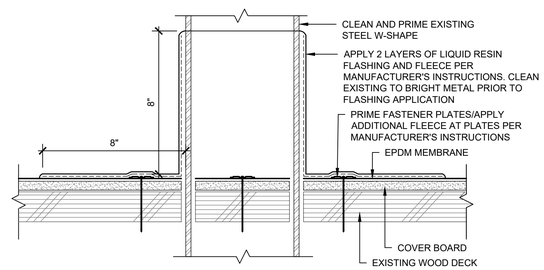


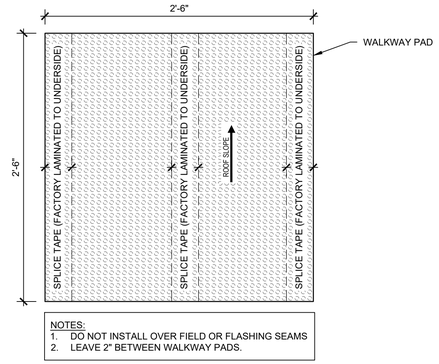
3 ROOF DIVIDER
SCALE: 3"=1'-0"



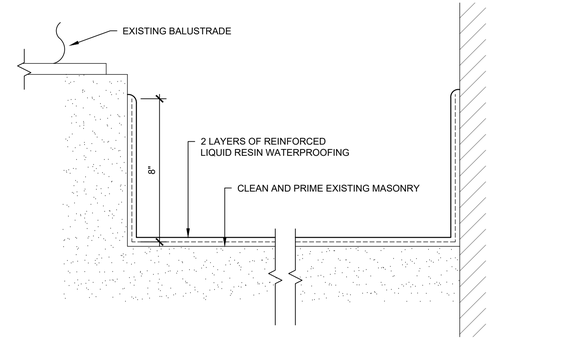
4 EQUIPMENT RAIL
SCALE: 3"=1'-0"



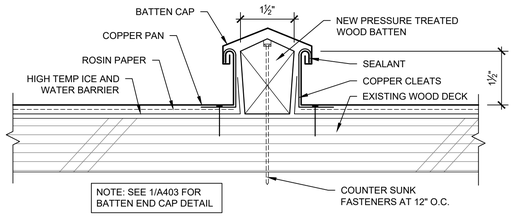
5 PENETRATION WITH LIQUID RESIN FLASHING
SCALE: 3"=1'-0"



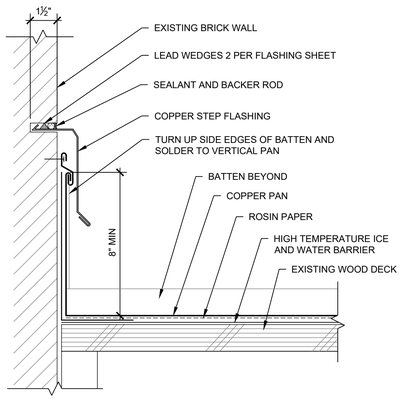
6 WALKWAY PAD
SCALE: 1 1/2"=1'-0"



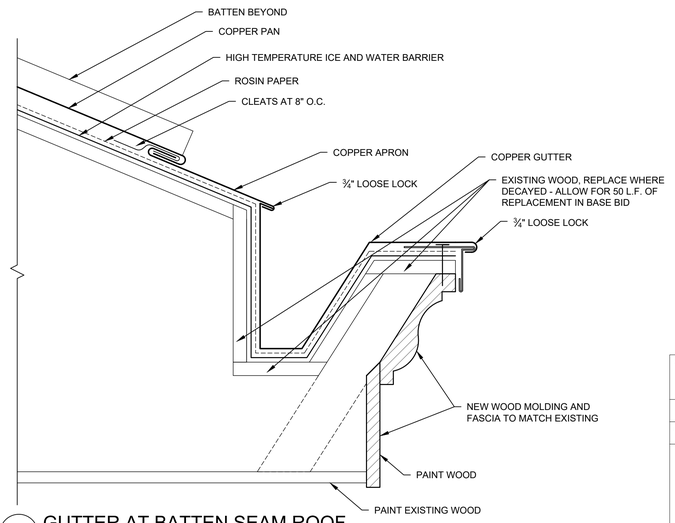
7 WEST ROOF ENTRANCE
SCALE: 3"=1'-0"



8 BATTEN
SCALE: 6"=1'-0"



9 BATTEN AT RISING WALL
SCALE: 3"=1'-0"



10 GUTTER AT BATTEN SEAM ROOF
SCALE: 3"=1'-0"

STATE OF CONNECTICUT
JANET M. LYNCH
No. 26000
LICENSED PROFESSIONAL ENGINEER
1-21-2019

drawing title: ROOF DETAILS

REVISIONS

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STATE OF CONNECTICUT
DEPARTMENT OF ADMINISTRATIVE SERVICES

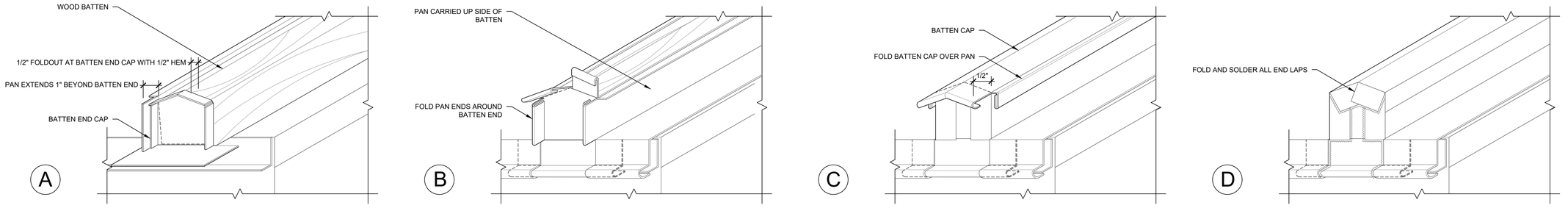
drawing prepared by
Wiss, Janney, Elstner Associates, Inc.
2 TRAP FALLS ROAD, SUITE 502
SHELTON, CT

date: 1/21/2019
scale: As Noted
drawn by: HER
approved by: PCL
drawing no.

project
NOBLE HALL - ESCU
Roof Replacement and Masonry Restoration
Willimantic, Connecticut

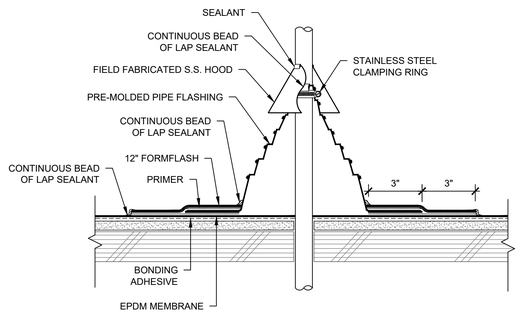
CAD no.
project no. BI-RW-337

A402



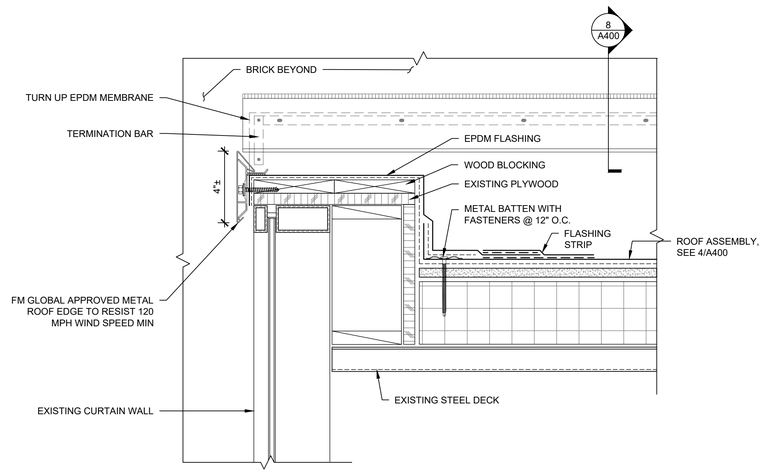
1 FINISHED PENTAGONAL BATTEN END PROCESS

SCALE: 6"=1'-0"



2 PENETRATION WITH PIPE FLASHING

SCALE: 3"=1'-0"



3 ROOF EDGE AT CURTAIN WALL

SCALE: 3"=1'-0"

drawing title
ROOF DETAILS

REVISIONS

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DEPARTMENT OF ADMINISTRATIVE SERVICES

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project no.
BI-RW-337

date
1/21/2019

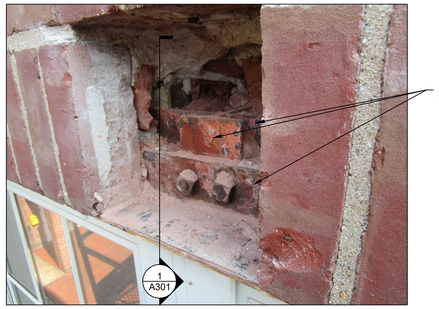
scale
As Noted

drawn by
HER

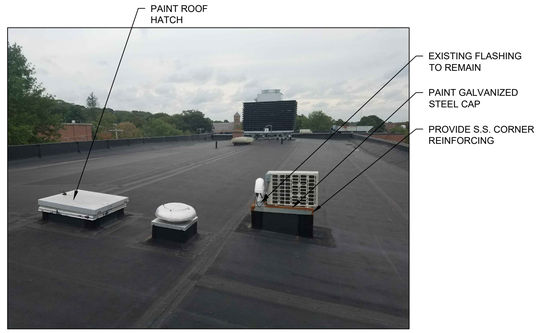
approved by
PCL

drawing no.
A403

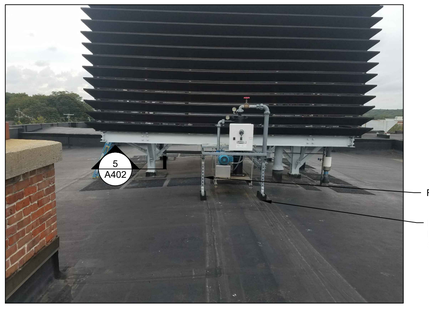
1 CHIMNEY AT 1928 ROOF
SCALE: N.T.S.



2 LINTEL AT 1928 BUILDING
SCALE: N.T.S.



3 1928 ROOF LOOKING EAST
SCALE: N.T.S.



4 EXISTING COOLING TOWER
SCALE: N.T.S.

5 CONCRETE REPAIRS AT NORTH ELEVATION SUPPLEMENTAL BID #3
SCALE: N.T.S.

6 CONCRETE REPAIRS AT NORTH ELEVATION SUPPLEMENTAL BID #3
SCALE: N.T.S.

7 CONCRETE REPAIRS AT NORTH ELEVATION SUPPLEMENTAL BID #3
SCALE: N.T.S.

8 WOOD REPLACEMENT AND PAINTING AT 1912 SOUTH ENTRANCE
SCALE: N.T.S.

9 COPPER ROOF AT 1912 SOUTH ELEVATION
SCALE: N.T.S.

STATE OF CONNECTICUT
JANET M. LYNCH
No. 25000
LICENSED PROFESSIONAL ENGINEER
1-21-2019

drawing title
PHOTO DETAILS

REVISIONS

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STATE OF CONNECTICUT
DEPARTMENT OF ADMINISTRATIVE SERVICES

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2 TRAP FALLS ROAD, SUITE 502
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