PROJECT MANUAL

Construction Documents

DUBUQUE COUNTY COURTHOUSE
REROOF, PAINTING, & MASONRY REPAIR

720 CENTRAL AVENUE
DUBUQUE, IOWA 52001

FEH Project No. 2013317.07

12 JUNE 2017

FEH DESIGN

ARCHITECTURE / ENGINEERING / INTERIORS

SIOUX CITY, IA
712 252 3889

DES MOINES, IA
515 288 2000

DUBUQUE, IA
563 583 4900

DELAFIELD, WI
262 968 2055

Project Manual

12 JUNE 2017

Project No: 2013317.07

Bid Date: July 7, 2017 @ 3:00 p.m.

General Contract

DUBUQUE COUNTY COURTHOUSE
REROOF, PAINTING, & MASONRY REPAIR

720 CENTRAL AVENUE
DUBUQUE, IOWA 52001

For:
Dubuque County
Dubuque, Iowa

Architect / Structural:
FEH Design
951 Main Street
Dubuque, Iowa 52001
(563) 583-4900
Fax: (515) 288-1999

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12 June 2017

NOTICE OF PUBLIC HEARING

HEARING: Monday, June 12, 2017, @ 9:00 a.m. local time.

PROJECT: Dubuque County Courthouse Reroof, Painting, and Masonry Repair
Dubuque, Iowa 52001

For the

Dubuque County Board of Supervisors
Dubuque, IA

Notice hereby given to all interested citizens of Dubuque County, Iowa that at 9:00 a.m. on Monday, June 12, 2017, in the Dubuque County Board of Supervisors Chambers, fourth floor in the Courthouse, 720 Central Avenue, Dubuque, IA 52001, Dubuque County Supervisors shall hold a public hearing on the proposed plans, specifications and proposed form of contract. At said hearing any interested person may appear and file objections to the proposed plans, specifications and form of contract.

Published upon order of the Dubuque County Board of Supervisors, Dubuque, Iowa

Dubuque County Auditor
Denise Dolan

NOTICE TO BIDDERS

1. Sealed proposals will be received at the office of the Auditor of Dubuque County in the Courthouse, Dubuque, Iowa, until 3:00 p.m on Friday, July 7, 2017 and opened on Monday, July 10, 2017 at the 9:00 a.m meeting of the Dubuque County Board of Supervisors for the Dubuque County Courthouse Reroof. Painting and Masonry Repair Project.

2. A certified check or a cashier's check made payable to either Dubuque County or the Contractor, drawn upon a solvent bank, or a bid bond or proposal guarantee in an amount set forth in the proposal form, shall be filed with each proposal. A cashier's check, made payable to the Contractor, shall contain an unqualified endorsement to Dubuque County, signed by the Contractor or an authorized agent of the Contractor. If a contractor is awarded the contract, the Contractor shall file with Dubuque County an additional bond in the amount of not less than 100 percent of the contract sum securing the performance of the contract within 15 days of approval or awarding of the contract. Failure to execute that contract, file the second bond, or a certificate of insurance within 15 days of the date of the approval for the awarding of the contract as herein provided, will be just and sufficient cause for the denial of the award and forfeiture of the proposal guarantee.

3. All proposals must be filed on the forms furnished by Dubuque County, sealed and plainly marked. Proposals containing any reservations not provided for in the forms furnished may be rejected, and the County Board reserves the right to waive technicalities and to reject any or all proposals. Proposal forms may be seen and secured at the office of the County Engineer or County Auditor.

4. In keeping with the principles of Equal Employment Opportunity and the Civil Rights Act of 1964, no employee shall be favored or discriminated against in the hiring and placement process because of race, religion, color, sex, national origin, age, physical or mental disability, political affiliation or other non-merit factors, unless bona fide occupational requirements necessitate selective hiring.

5. Consideration will be given to a locally owned business if costs and other considerations are relatively equal.

6. By virtue of statutory authority, a preference will be given to products and provisions grown and coal produced within the State of Iowa, and also, a resident bidder shall be allowed a preference as against a nonresident bidder from a state or foreign country, which gives or requires a preference to bidders from that state or foreign country both, on projects in which there are no Federal Funds involved..

7. It is the policy of Dubuque County that Minority, Women and Disadvantaged Business Enterprises shall be given maximum practicable opportunity to participate in the performance of contracts financed in whole or in part with county funds, notwithstanding Chapters 23A.3 and Chapter 73 of the Code of Iowa.

8. Dubuque County requires that potential vendors employing personnel required to hold Commercial Drivers Licenses must comply with the provisions of the Commercial Driver's License Regulations, Code of Federal Regulations, Title 49, Part 382, and comply with procedures for the administration of the Department of Transportation substance abuse prevention program.

June 12, 2017, Board of Supervisors of Dubuque County, Iowa.

By: Denise M. Dolan, Dubuque County Auditor

* * * * * * * * * * *

Publication Date: _____ - Cascade Pioneer - Dyersville Commercial - Telegraph Herald

SECTION 001116 - ADVERTISEMENT FOR BIDS

Dubuque County Courthouse Reroof, Painting, and Masonry Repair
Dubuque County, Iowa

NOTICE IS HEREBY GIVEN: Sealed bids for the Renovation of the Dubuque County Courthouse Reroof, Painting, and Masonry Repair will be received by the **Dubuque County Board of Supervisors**. Sealed bids must be submitted to the **Dubuque County Auditor's Office, 720 Central Avenue, Dubuque, IA 52001 no later than 3:00 P.M., Friday, July 7, 2017**.

Bids will be publicly opened and publicly read out loud at **9:00 A.M., Monday, July 10, 2017 at the Dubuque County Board of Supervisors Meeting in the Board of Supervisors Chambers in the Courthouse, Fourth Floor, 720 Central Avenue, Dubuque, IA 52001**. The Dubuque County Board of Supervisors will review bids received, on Monday July 24, at 9 am at Dubuque County Board of Supervisors Chambers in the Courthouse, Fourth Floor, 720 Central Avenue, Dubuque, IA 52001. Award of the Contract shall be to the lowest responsive, responsible bidder. Neither the County nor its agents will assume liability for the inability of the bidder to submit a bid in a timely manner. Bids received after the deadline will be rejected. Bidders bear full and complete responsibility for the timely submission of such bid. Time of receipt shall be the time recorded and determined by the Dubuque County Auditor's office.

SUBJECT: Dubuque County Courthouse Reroof, Painting, and Masonry Repair
Dubuque, Iowa

Project Scope: The Work of the Project is defined by the Contract Documents and consists of the following:

1. Removal and replacement of the existing courthouse asphalt roof including metal flashing replacement.
2. Repainting of metal flashing and existing metal statuary bases.
3. Masonry repair and repointing of the existing courthouse tower and chimneys.
4. Alternates related to roofing materials, masonry tuckpointing and repair work, and door and window sealant replacement.

Bids will be received for the General Contract.

All bids shall be in accordance with Contract Documents prepared by **FEH** DESIGN, Architects / Engineers, which Contract Documents are made a part of this Notice by reference thereto.

Bidding Documents are on file at the Architect's Office, **951 Main Street, Dubuque, Iowa 52001** and the Board of Supervisors at the Dubuque County Courthouse, **720 Central Avenue, Dubuque, IA 52001**.
Bidding documents will be electronically posted on the following locations:

- Dubuque County website - http://dubuquecounty.org/facilities-maintenance/facilities-projects/
- Master Builders of Iowa website - http://www.mbionline.com/
- Iowa State Association of Counties website - www.iowacounties.org

Printed copies can be provided upon request through **FEH** DESIGN. Call 563.583.4900 to request a set.

BIDDING REQUIREMENTS

Each Bid shall be made on a form furnished by the Architect, and must be accompanied by a certified check or cashier's check drawn on an Iowa bank, or federally chartered bank, or a certified share draft drawn on a Iowa credit union or federally chartered credit union, or Bid Bond to be executed by corporation authorized to contract as a surety in the State of Iowa, in the amount equal to five percent (5%) of the amount of the Bid, made payable to the Dubuque County, Dubuque, Iowa and may be cashed by Dubuque County as liquidated damages in the event that the successful bidder fails to enter into a Contract and file a bond satisfactory to Dubuque County assuring the faithful fulfillment of the Contract and maintenance of said improvements as required by the law, the provisions of this Notice and Contract Documents within (10) days after acceptance of the lowest responsive, responsible bid. All bids shall be sealed and plainly marked. Any alteration of the Bid Form may be cause for rejection of the bid.

State Sales Tax: This project is tax exempt. **Do Not** include State Sales Tax in any calculation of Bid totals. Contractor will be provided with Iowa sales tax exemption number for this project.

BASIS OF BIDS

The successful Bidder will be required to furnish a Performance Bond and Labor and Material Payment Bond in an amount equal to one hundred percent (100%) of the Contract Sum, issued by a responsible Surety approved by the Dubuque County Board of Supervisors, Dubuque, Iowa and shall guarantee the faithful performance of the Contract and terms and conditions therein contained and the maintenance of said improvements pursuant to the provisions of the Contract Document. Bid Security shall be made payable to Dubuque County, Dubuque, Iowa.

Bid Security of two lowest Bidders will be retained until a contract has been awarded and executed, but no longer than 45 days. No Bidder may withdraw his bid within 60 days after opening of bids.

Dubuque County Board of Supervisors reserve the right to reject any or all bids, re-advertise for new bids, and to waive informalities that may be in the best interest of Dubuque County.

Payment will be made by Dubuque County from cash-on-hand from such sources as may be legally available.

The work under the Contract shall be commenced on or before a date to be specified in the Contract or written Notice to Proceed of the Owner, and shall achieve **Substantial Completion by October 12, 2017**.

By virtue of statutory authority, a preference will be given to products and provisions grown and coal produced within the State of Iowa and to Iowa Domestic Labor.

All bids will be governed by applicable provisions in the Iowa Code and Board Policies.

Pre-Bid Conference: A Pre-Bid Conference for interested bidders will be held **Thursday June 22, 2017 at 10:00 a.m. local time** at the Dubuque County Courthouse, 720 Central Avenue, Dubuque, Iowa 52001.

Each Bidder shall visit the site to familiarize themselves with conditions under which they will operate. All interested parties in attendance at the pre-bid meeting will sign the attendance form. Bidders shall visit the site prior to submitting their bid. There are no provisions for any additional dates for site visits

This Notice to Proposers is given and published pursuant to authorization and direction of the Assistant to the Dubuque County Board of Supervisors.

By order of the Dubuque County Board of Supervisors, 12 June 2017
Denise M. Dolan
Dubuque County Auditor

END OF ADVERTISEMENT FOR BID

DOCUMENT 002113 - INSTRUCTIONS TO BIDDERS

1.1 INSTRUCTIONS TO BIDDERS

A. AIA Document A701, "Instructions to Bidders," is hereby incorporated into the Procurement and Contracting Requirements by reference.

END OF DOCUMENT 002113

DOCUMENT 00 2213 - SUPPLEMENTARY INSTRUCTIONS TO BIDDERS

1.1 INSTRUCTIONS TO BIDDERS

A. The "*Instructions to Bidders*" AIA Document A701, 1997 Edition, Articles 1 through 8 inclusive, is a part of this Contract, a copy of which is available at cost from the office of the American Institute of Architects, Iowa Chapter, 400 Locust St., Ste. 100, Des Moines, IA 50309.

1.2 SUPPLEMENTARY INSTRUCTIONS TO BIDDERS

A. The following supplements modify or add to the AIA Instructions to Bidders. Where any part of the Instructions to Bidders is modified, the unaltered provisions of that part shall remain in effect.

1.3 MODIFIED INSTRUCTIONS

A. Article 1: Definitions

1. Modify paragraph 1.1 to include the Notice of Hearing and the Advertisement for Bid as part of the Bidding Documents.

B. Article 2: Bidder's Representations

1. Add the following clause 2.1.3.1

a. 2.1.3.1 The Bidder has investigated all the required fees, permits, and regulatory requirements of authorities having jurisdiction and has properly included in the submitted Bid, the cost of such fees, permits and requirements not otherwise indicated as provided by Owner.

2. Add the following subparagraph 2.1.5

a. 2.1.5 The Bidder is a properly licensed Contractor according to the laws and regulations of "Iowa's Contractor Law-Registration and Bonding". http://www.iowaworkforce.org/labor/contractor.htm and meets qualifications indicated in the Procurement and Contracting Documents.

3. Add the following subparagraph 2.1.6

a. 2.1.6 The Bidder has incorporated into the Bid adequate sums for work performed by installers whose qualifications meet those indicated in the Procurement and Contracting Documents.

C. Article 3: Bidding Documents

1. 3.2 Interpretation or Correction of Bidding Documents - Add the following subparagraphs:

a. 3.2.4 in the case of errors, inconsistencies, or ambiguities in the Bidding documents not interpreted or clarified by addendum or discovered too late for an addendum, the following applies:

1) The better quality or greater quantity of Work shall be provided.

2) To the best of their ability, the Bidders shall determine the proper methods or materials to fulfill the design intent of the Bidding Documents and include the cost of providing such methods in the Bid.
3) Failure to request clarification will not waive the responsibility of comprehension of the documents and performance of the Work in accordance with the intent of the documents. Signing the Agreement will be considered as thorough comprehension of intent of the Bidding Documents.

2. Add the following paragraph:

a. 3.5 Contracts

1) 3.5.1 The Owner invites the following Bids: Single Prime Contract.

D. Article 4: Bidding Procedures

1. 4.2 Bid Security

a. Add the following to Subparagraph 4.2.1:

1) Each Bid shall be accompanied by a certified check or cashier's check drawn on an Iowa bank, or federally chartered bank, or a certified share draft drawn on a Iowa credit union or federally chartered credit union, or Bid Bond to be executed by corporation authorized to contract as a surety in the State of Iowa, in the amount equal to five percent (5%) of the amount of the Bid, made payable to Dubuque County, Dubuque, Iowa and may be cashed by the County of Dubuque as liquidated damages in the event that the successful bidder fails to enter into a Contract and file a bond satisfactory to Dubuque County assuring the faithful fulfillment of the Contract and maintenance of said improvements as required by the law, the provisions of this Notice and Contract Documents within (10) days after acceptance of the lowest responsive, responsible bid. Bidders shall use AIA Document A310 – Bid Bond, or another corporate form approvable to Dubuque County.

b. Add the following to Subparagraph 4.2.2:

1) As soon as the Bids have been checked and compared, the Owner may, at their discretion, return the certified checks or other collateral accompanying those Bids that in Owner's judgment would not be considered in making the award. When award is made, the Bid guarantee of the two (2) lowest Bidders will be retained until the Contract and Bonds have been executed and the Contract approved by the Owner. Should the award be delayed more than sixth (60) days after opening of the Bids, all Bid guarantees will be returned, unless such delay is from cause beyond the control of the Owner.

2. 4.3 Submission of Bids

a. Add the following to Subparagraph 4.3.1:

1) Submit Bid and Bid security in **separate** opaque, sealed envelopes with: (1) Project name, (2) name of Bidder, and (3) division of Work or Contract.

ADDRESS BIDS TO: Denise Dolan, County Auditor
Dubuque County Auditor Office

720 Central Avenue
Dubuque, Iowa 52001

BIDS DUE: **Friday, July 7, 2017**
MAILED BIDS: Sent to address indicated above.
HAND-CARRIED BIDS: Deliver to address indicated above.
Bids will be publicly opened and read immediately at the designated time by the Board or Board designee.

3. 4.4 Modification or Withdrawal of Bid

   a. Add the following to Subparagraph 4.4.1:

      1) No Bid may be withdrawn within sixty (60) days from the scheduled date for receipt of Bids.

E. Article 6: Post Bid Information

   1. 6.3 Submittals

      a. 6.3.1 Delete the words "as soon as practicable after" (in the first line) and substitute the words "within seven (7) days of".

F. Article 7: Performance Bond and Labor and Material Payment Bond

   1. Modify Subparagraph 7.1.1 as follows:

      a. 7.1.1 The Contractor shall furnish in duplicate a Performance Bond, Maintenance Bond and Labor and Material Payment Bond, each in the amount of one hundred percent (100%) of the Contract Sum, issued by a responsible surety approved by Dubuque County, Dubuque, Iowa. Bidders shall use bid bond forms included in the specifications or of a corporate form approvable to **Dubuque County Board of Supervisors**. Performance Bond and Payment Bond AIA Document A312.

1.4 ADDITIONAL PROVISIONS

A. Add the following provisions, as indicated:

   1. Article 9: Additional Instructions

      a. 9.1 Preparation of Bids

         1) 9.1.1 Bids shall be submitted on the prescribed form and shall be subject to all requirements of the Contract Documents and these INSTRUCTION TO BIDDERS. The Bidder must bid all of the Alternates, if any are listed. Special care shall be exercised in the preparation of Bids. All Bids must be regular in every respect and no interlineations, excisions, or special conditions shall be made or included in the bid form of the Bidder.
         2) 9.1.2 Each Bid shall furnish the full business name, business address, and treasury member of the person, firm, or corporation submitting the Bid. The signature of the person signing a Bid shall be the usual signature of that person, and the name of each person signing a Bid shall be typed or printed below the signature.
         3) 9.1.3 A Bid by an Individual shall furnish his full name and complete address.

4) 9.1.4 A bid by a Partnership shall furnish the full name and complete home address of each partner. A Bid by a partnership shall be signed with the partnership's name by one of the members of the partnership or by an authorized representative, followed by the signature and designation of the person signing the Bid.
5) 9.1.5 A Bid by a Corporation shall be signed with the legal name of the corporation, followed by the State of Incorporation and by the signature of the president, secretary, or other person authorized to bind it in the matter. When requested by the Owner, satisfactory evidence of authority of the officer signing in behalf of a corporation shall be furnished. Attached to a Bid by a corporation shall be a list containing the name and complete home address of each principal officer of the corporation.
6) 9.1.6 The Owner may consider as irregular any Bid on which there is an alteration of or departure from the Bid Form hereto attached and at its option may reject the same.

b. 9.2 Errors In Bid

1) 9.2.1 Bidders or their authorized agents are expected to examine all Contract Documents, Drawings, Specifications, circulars, schedules, and other instructions pertaining to the Work. Failure to do so will be at the Bidder's own risk and he cannot secure relief on the plea of error in the Bid.

c. 9.3 Disqualification of Bidder

1) 9.3.1 Any one or more of the following causes may be considered as sufficient for the disqualification of a Bidder and the rejection of his Bid:
2) 9.3.1.1 More than one bid for the same work from an individual, firm, partnership, or corporation under the same or different names.
3) 9.3.1.2 Evidence of collusion among Bidders. (Participants in such collusion may receive no recognition as Bidders for any future work.)
4) 9.3.1.3 Lack of responsibility as evidenced by poor workmanship and progress of past work.
5) 9.3.1.4 Incomplete work that in the judgment of the Dubuque County Board of Supervisors might hinder or prevent the prompt completion of additional work if awarded.
6) 9.3.1.5 For being in arrears on existing contracts, in litigation with the Dubuque County Board of Supervisors, or having defaulted on a previous contract.
7) 9.3.1.6 The attention of Bidders is directed to Section 553.23 Code of IOWA, regarding unlawful combinations in making public contracts.

d. 9.4 Approval of Contract

1) 9.4.1 No contract is binding upon Dubuque County until it has been executed by and approved by the Dubuque County Board of Supervisors, and delivered to the Contractor and the Contract Bond has been filed and approved.

e. 9.5 Award

1) 9.5.1 The Dubuque County Board of Supervisors will select the Bid that it deems most reasonable and in its best interest in terms of cost, quality,

appearance, performance of the Contractor and the Contractor's proximity to the site and his ability to service the Project after it has been completed.

2) 9.5.2 The Contract will be awarded based on the above qualifications to the lowest responsible Bidder for the lowest combination of Base Bid and selected Alternates.

3) 9.5.3 The Dubuque County Board of Supervisors reserves the right to reject any or all bids, re-advertise for new bids, and to waive informalities that may be in the best interest of Dubuque County.

f. 9.6 Contract Time

1) 9.6.1 Bidder agrees to commence Work as soon as possible on or before 10 days after receiving a written "Notice to Proceed" from the Owner, and to substantially complete the Project as soon as possible. The dates of substantial completion shall be so stated by the General Construction Bidder in the space provided on the BID FORM.

END OF DOCUMENT 00 2213

BID FORM

1.1 BIDS DUE

A. Date: Friday, July 7, 2017.

B. Time: 3:00 p.m. local time.

C. Location: Dubuque County Auditor's Office, 720 Central Avenue, Dubuque, IA 52001.

1.2 OWNER

A. Dubuque County – c/o Dubuque County Supervisors.

1.3 ARCHITECT

A. **FEH** DESIGN., 951 Main Street, Dubuque, IA 52001.

B. Architect's File No. 2013317.07

1.4 BIDDER INFORMATION

A. Name: _____

B. Address: _____

C. Phone: _____

D. Email: _____

E. Date: _____

1.5 BID ACKNOWLEDGEMENTS

A. The Bidder, in compliance with Notice of Bid Letting for the **Dubuque County Courthouse Reroof, Painting, and Masonry Repair**, having examined the drawings and specifications with related documents and the site of the proposed work, and being familiar with all of the conditions surrounding the construction of the proposed Project, including the availability of materials and labor, hereby proposes to furnish all labor, materials, equipment and supplies and to construct the Project in accordance with the Contract Documents, within the time set forth therein, and at the prices stated below.

B. Bidder acknowledges receipt of the following Addenda covering revisions to the drawings and specifications, and the cost, if any, of such revisions has been included in the prices quoted:

Addendum No. _____, Date: _____; Addendum No. _____, Date: _____;

Addendum No. _____, Date: _____; Addendum No._____, Date:_____;

1.6 BASE BID

A. Bidder agrees to perform all of the Contract Work as described in the Specifications and shown on the Drawings for the sum of:

_____

_____ Dollars ($_____)

1.7 ALTERNATES

A. Alternate #1: Simulated Slate Shingle

_____ Add / Deduct ($ _____)

B. Alternate #2: Solar and Simulated Slate Shingle

_____ Add / Deduct ($ _____)

C. Alternate #3: Masonry Repair and Repointing of Courthouse Base

_____ Add / Deduct ($ _____)

D. Alternate #4: Courthouse Sealing of Window and Door Openings

_____ Add / Deduct ($ _____)

E. Alternate #5: Metalwork Refinishing

_____ Add / Deduct ($ _____)

1.8 UNIT PRICES

A. Unit Price #1: Roof Sheathing Replacement $ _____ / SF

B. Unit Price #2: Metal Flashing Replacement $ _____ / SF

1.9 PRICE GUARANTEE

A. The undersigned agrees that the price stated in this Bid is guaranteed for sixty (60) consecutive calendar days, Sundays and holidays included from the Bid due date. If accepted by Dubuque County within that period, the undersigned is to execute a formal contract with Dubuque County, for the performance of the Contract at the stated price and is not subject to escalation.

B. Accompanying this Bid is a certified check, cashier's check, or Bid Bond as Bid Security, as required by the Bidding Documents.

1.10 ACCEPTANCE OR REJECTION

A. Dubuque County reserves the right to reject any or all bids, re-advertise for new bids, and to waive informalities that may be in the best interest of the Board of Supervisors and Dubuque County.

1.11 TAXES

A. The undersigned certifies that all of the prices stated above do not include **IOWA** State Sales and Use Tax.

1.12 INSURANCE

A. The undersigned agrees to provide Liability Insurance, Workmen's Compensation Insurance, Employer's Liability, as required by applicable Federal, State, and Local Laws, and in the amounts specified. Certificates shall be filed with the Owner prior to commencement of the Work.

1.13 AGREEMENT AND PERFORMANCE, MAINTENANCE, LABOR AND MATERIAL PAYMENT BONDS

A. Upon receipt of Letter of Intent to Award Contract, the Bidder agrees to execute the Agreement and to furnish executed Performance, Maintenance, Labor and Material Payment Bonds within seven (7) calendar days after receipt of said Letter of Intent.

1.14 TIME OF COMPLETION

A. Substantial Completion is required for this project.

1. All work required by the Contract Documents shall achieve Substantial Completion by **October 12, 2017.**

B. In lieu of date indicated above, Bidder proposes that all work required by the Contract Documents shall be Substantially Completed by the date indicated below.

1. Bidder Proposed Substantial Completion Date: _____

1.15 SUBCONTRACTOR IDENTIFICATION

A. Roofing Subcontractor: _____

B. Sheet Metal Subcontractor: _____

C. Masonry Subcontractor: _____

1.16 LEGAL ADDRESS AND LEGAL STATUS OF BIDDER

A. Address:

B. Legal Classification: The undersigned does hereby declare that the Bidder has the legal status checked below:

1. _____ Individual
2. _____ Co-Partnership
3. _____ Corporation incorporated under the Laws of the State of

C. This Bid is submitted in the name of:

_____
Company

_____
Signature

_____
Title

D. Signed and sealed this_____day of_____, 20_____.

END OF SECTION BID FORM

DOCUMENT 00 5200 - STANDARD FORM OF AGREEMENT

STANDARD AMERICAN INSTITUTE OF ARCHITECTS' FORMS TO BE INCLUDED BY REFERENCE

The following standard forms produced by the American Institute of Architects are a part of these Bid Documents and will be included as parts of the signed contract.

NOTE: THIS FORM IS THE 2007 EDITION

STANDARD FORM OF AGREEMENT BETWEEN OWNER AND CONTRACTOR
American Institute of Architects - AIA Form A101 – 2007

These forms can be purchased from the American Institute of Architects' state office at cost.

AMERICAN INSTITUTE OF ARCHITECTURE
Iowa Chapter
400 Locust Street, Suite 100
Des Moines, Iowa 50309
(515) 244-7502

END OF DOCUMENT 00 5200

DOCUMENT 00 6100 - PERFORMANCE BOND AND PAYMENT BOND

STANDARD AMERICAN INSTITUTE OF ARCHITECTS' FORMS TO BE INCLUDED BY REFERENCE

The following standard form produced by the American Institute of Architects is a part of these Bid Documents and will be included as parts of the signed contract.

NOTE: THIS FORM IS THE 2010 EDITION

PERFORMANCE BOND AND PAYMENT BOND

American Institute of Architects - AIA Form A312 - 2010

This form can be purchased from the American Institute of Architects' state office at cost.

AMERICAN INSTITUTE OF ARCHITECTURE
Iowa Chapter
400 Locust Street, Suite 100
Des Moines, Iowa 50309
(515) 244-7502

END OF DOCUMENT 00 6100

DOCUMENT 00 6200 - CERTIFICATE OF INSURANCE

STANDARD AMERICAN INSTITUTE OF ARCHITECTS' FORMS TO BE INCLUDED BY REFERENCE

The following standard form produced by the American Institute of Architects is a part of these Bid Documents and will be included as parts of the signed contract.

NOTE: THIS FORM IS THE 1991 EDITION

ACORD CERTIFICATE OF INSURANCE 25-S (7/91)
American Institute of Architects - AIA Form G715 - 1991

This form can be purchased from the American Institute of Architects' state office at cost.

AMERICAN INSTITUTE OF ARCHITECTURE
Iowa Chapter
400 Locust Street, Suite 100
Des Moines, Iowa 50309
(515) 244-7502

END OF DOCUMENT 00 6200

DOCUMENT 00 7200 - GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION

STANDARD AMERICAN INSTITUTE OF ARCHITECTS' FORMS TO BE INCLUDED BY REFERENCE

The following standard forms produced by the American Institute of Architects are a part of these Bid Documents and will be included as parts of the signed contract.

NOTE: THIS FORM IS THE 2007 EDITION

GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION
American Institute of Architects - AIA Form A201 - 2007

These forms can be purchased from the American Institute of Architects' state office at cost.

AMERICAN INSTITUTE OF ARCHITECTURE
Iowa Chapter
400 Locust Street, Suite 100
Des Moines, Iowa 50309
(515) 244-7502

END OF DOCUMENT 00 7200

DOCUMENT 00 7300 - SUPPLEMENTARY GENERAL CONDITIONS

1.1 GENERAL CONDITIONS

A. The "*General Conditions of the Contract for Construction*", AIA Document A201, 2007 Edition, Article 1 through 15 inclusive, is a part of this Contract, a copy of which is available at cost from the office of the American Institute of Architects, Iowa Chapter, 400 Locust Street, Suite 100, Des Moines, IA 50309.

1.2 SUPPLEMENTARY GENERAL CONDITIONS

A. The following supplements modify, change, delete, or add to the AIA General Conditions. Where any part of the General Conditions is modified or voided by these Articles, the unaltered provisions of that part shall remain in effect.

1.3 MODIFIED CONDITIONS

A. Article 3: Contractor

1. Change Paragraph 3.18 to read as follows:

a. 3.18 Indemnification

1) 3.18.1 To the fullest extent permitted by law, the Contractor shall indemnify and hold harmless the Owner and the Architect/Engineer, and their agents, employees, and consultants from and against all claims, damages, losses, and expenses, including but not limited to attorneys' fees, arising out of or resulting from or in connection with the performance of the Work, provided that any such claim, damages, loss, or expense is caused in whole or in part by any negligent act or omission of the Contractor, any subcontractor, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, regardless of whether or not it is caused in part by the negligence or fault of a party indemnified hereunder. Such obligation shall not be construed to negate, abridge, or otherwise reduce any other right or obligation of indemnity what would otherwise exist as to any party or person described in the Agreement.

2) 3.18.2 In any and all Claims against the Owner or the Architect/Engineer or any of their agents, employees, and consultants by any employee of the Contractor, any subcontractor, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, the indemnification obligation under this Section shall not be limited in any way by any limitations on the amount or types of damages, compensation or benefits payable by or for the Contractor or any subcontractor under the workers' or workmen's compensation acts, disability benefit acts, or other employee benefit acts.

b. Add the following clause to 3.18;

1) 3.18.3 "Claims, damages, losses, and expenses" as these words are used in this agreement shall include claims, damages, losses, or expenses of any sort whatsoever and shall also include, but not be limited to (1) injury or

damage consequent upon the failure of or use or misuses by Contractor, its Subcontractors, agents, servants, or employees, of any kind of equipment, whether or not the same be owned, furnished, or loaned by Owner; (2) all attorneys' fees and costs incurred in bringing an action to enforce the provisions of this indemnity or any other indemnity contained in the General Conditions, as modified by the Supplementary General Conditions; and (3) time expended by the parties being indemnified and employees, at their usual rates plus cost of travel, long distance telephone, and reproduction of documents.

c. Add the following clause to 3.18;

1) 3.18.4 Contractor's indemnity obligations under this Paragraph 3.18 shall also specifically include, without limitation, all fines, penalties, damages, liability, costs, expenses (including, without limitation, reasonable attorneys' fees), and punitive damages (if any) arising out of, or in connection with, any (i) violation of or failure to comply with any law, statute, ordinance, rule, regulation, code, or requirement of a public authority that bears upon the performance of the Work by Contractor, Subcontractors, or any person or entity for whom either is responsible, (ii) means, methods, procedures, techniques, or sequences of execution or performance of the Work, and (iii) failure to secure and pay for permits, fees, approvals, licenses, and inspections as required under the Contract Documents, or any violation of any permit or other approval of a public authority applicable to the Work, by Contractor, Subcontractors, or any person or entity for whom either is responsible, but only to the extent caused by the negligent acts or omissions of Contractor, Design Consultants, Subcontractor, or any person or entity for whom either is responsible.

B. Article 5: Subcontractors

1. 5.2 Award of Subcontracts and other Contracts for Portions of the Work

a. 5.2.1 Replace the words "as soon as practicable" (line 1) with the words "within 10 days".

C. Article 7: Changes in the Work

1. Add the following Clauses to 7.1.2:

1) 7.1.2.1 All changes in Material or Methods as described in the Plans and Specifications must have written approval by the Owner and Architect prior to incorporation in the Project.
2) 7.1.2.2 All changes in the Plans and Specifications must be documented by a Change Order Form issued by the Architect & approved by the Owner.
3) 7.1.2.3 Total adjustments in Contract Amount are to reflect a reasonable markup to reflect overhead and profit, not to exceed as follows:
4) 7.1.2.3.1 Change executed by Subcontractor: 10% by Subcontractor for overhead and profit and 5% by General Contractor for coordination and profit. The maximum markup by General Contractor & Subcontractor shall not exceed 15% of base labor and material charges.
5) 7.1.2.3.2 Change executed by General Contractor without subcontractor involvement: 10% for overhead and profit.
6) 7.1.2.3.3 General Contractor and Sub-contractors shall provide written detailed documentation for each (sub) contractor showing their time and materials on all changes submitted for review by the Architect unless pre-

approved at a fixed amount.

D. Article 8: Time

1. Add the following new Clause to 8.1.1:

1) 8.1.1.1 The project shall be substantially complete by **October 12, 2017**. Contractor may, at Contractor's option, complete the Project at an earlier date to be indicated on the Bid Form.

E. Article 9: Payments And Completion

1. 9.3 Application for Payment

a. Add to Subparagraph 9.3.1 the following sentence:

1) 9.3.1 The form of Application for Payment shall be a notarized AIA Document G702, *APPLICATION AND CERTIFICATE FOR PAYMENT*, supported by AIA Documents G703, *CONTINUATION SHEET*. Contractor shall furnish forms.

b. Add the following new Clause to 9.3.1:

1) 9.3.1.3 Progress payments shall be made monthly upon application. Monthly estimates will be paid to the Contractor as the work progresses in the amounts equal to ninety-five percent (95%) of the Contract Value of the work completed, including materials and equipment delivered and properly stored at the Project site, during the preceding calendar month, and will be based upon an Application prepared by the Contractor and subject to the approval of the Architect. The Contractor shall submit the Application for Payment to the Architect not later than the first day of the following month. Dubuque County shall make payment to the Contractor by the last day of the month. Such monthly payments shall in no way be construed as an act of acceptance for any part of the work, partially or totally completed. The remaining balance of five percent (5%) of the Contract Sum, shall be paid by Dubuque County to the Contractor no earlier than thirty (30) days after the date of final acceptance of said Work by the Owner, subject to the conditions and in accordance with the provisions of Chapter 573 of the Code of Iowa. No such partial of final payment will be due until the Contractor has certified to the Dubuque County Board of Supervisors that the materials, labor and services involved in each estimate have been paid for in accordance with the requirements stated in the Specifications.

F. Article 11: Insurance and Bonds

1. 11.1 Contractor's Liability Insurance.

a. Add the following new clause to 11.1.1:

1) 11.1.1.9 Liability insurance shall include all major divisions of coverage and be on a comprehensive basis including:

a) Premises Operations.
b) Owner's and Independent Contractor's Protective.
c) Products and Completed Operations including provision for coverage

to be maintained for 1 year after final acceptance.

d) Personal and Advertising Injury Liability.
e) Contractual, including specified provision for Contractor's obligation under Paragraph 3.18.
f) Owned, Non-owned, and hired motor vehicles.
g) Broad Form Property Damage, including Completed Operations.
h) Additional Insured.

b. Add the following new Clause to 11.1.2:

1) 11.1.2.1 The insurance required by Subparagraph 11.1.1 shall be written for not less than the following limits, or greater if required by law:

a) Workmen's Compensation – Statutory Liability (including a waiver of subrogation clause in favor of the Owner and evidence of coverage).
Employers Liability:
$500,000 each accident
$500,000 disease policy limit
$500,000 disease each employee

b) Commercial General Liability (including a waiver of subrogation clause in favor of the Owner)

i. Each Occurrence Limit: $1,000,000 per project
ii. General Aggregate Limit: $2,000,000 per project
iii. Products – Completed Operations Aggregate Limit: $2,000,000 for one (1) year commencing with issuance of the final Certificate of Payment

iv. Personal and Advertising Injury Limit: $1,000,000
v. Fire Damage Limit (each fire): $100,000
vi. Medical Damage Limit (any one person): $5,000
vii. Additional Insured listed on Accord form:
a. Owner: Dubuque County
b. Architect: FEH DESIGN

G. With regard to above, such insurance policy shall also include that:

a. The insurer expressly agrees and states that the purchase of the policy and the including of the Owner as an Additional Insured does not waive any of the defenses of governmental immunity available to the Owner under Iowa Code Section 670.4 as it now exists and as it may be amended from time to time.
b. The insurer further agrees that this policy of insurance shall cover only those claims not subject to the defense of governmental immunity under Iowa Code Section 670.4 as it now exists and as it may be amended from time to time. Those claims not subject to Code of Iowa Section 670.4 shall be covered by the terms and conditions of this insurance policy.

a) Automobile Liability - (including a waiver of subrogation clause in favor of the Owner)

i. $1,000,000 Combined single limit per accident
ii. The insurer expressly agrees and states that the

purchase of the policy and the including of Dubuque County as an Additional Insured does not waive any of the defenses of governmental immunity available to the Owner under Iowa Code Section 670.4 as it now exists and as it may be amended from time to time.

iii. The insurer further agrees that this policy of insurance shall cover only those claims not subject to the defense of governmental immunity under Iowa Code Section 670.4 as it now exists and as it may be amended from time to time. Those claims not subject to Code of Iowa Section 670.4 shall be covered by the terms and conditions of this insurance policy.

iv. Additional Insured listed on Accord form:

a. Owner: Dubuque County
b. Architect: FEH Design

v. Independent Contractors or Subcontractors shall carry the insurance coverage specified above with the minimum limits set forth herein. General Contractor shall require Subcontractor and Sub-subcontractors to carry insurance coverage of such types and with such minimum limits as may be necessary or appropriate in light of the work being performed by each such Subcontractor and Sub-subcontractor and as may be required by all applicable laws, statutes, rules and regulations provided however, that Subcontractors and Sub-subcontractors must, in all cases, provide Worker's Compensation Insurance with statutory limits.

b) Umbrella Liability Insurance: $5,000,000 (each occurrence and aggregate). Refer to Supplemental Insurance requirements, Section 00 7350 for additional requirements.

c) The Owner will provide Builder's Risk coverage.
Deductible: $1000.00 paid by the claimant.

b. Add the following Clause to 11.1.3:

1) 11.1.3.1 The Contractor shall furnish two (2) copies of certificates herein required for each copy of Agreement, which shall specifically set forth evidence of all coverage required by 11.1.1 and 11.1.2. The form, *Certificate of Insurance*, shall be ACORD 25. AIA Document G715, *Supplementary Attachment*, (following this section), shall be completed and signed by the Contractor's insurance representative and attached to the ACORD Certificate. The Contractor shall furnish to the Owner and the Architect copies of any endorsements that are subsequently issued amending coverage or limits.
Contractor shall not commence work under this Contract until he has obtained all insurance required hereunder and such insurance has been approved by Owner, nor shall Contractor allow any sub-contractor to commence work on his subcontract until all insurance required of sub-contractor has been so obtained and approved. Approval of insurance required under this article during the life of the Contract, and for no less than one (1) year thereafter.
Rejected Certificates of Insurance shall be corrected as necessary and

resubmitted until approved.
Each and every policy shall contain an endorsement stating that the insurance company will not, prior to completion of contract or any policy expiration date shown on policy and certificate, whichever occurs first, terminate policy or change any coverage therein without first mailing by registered mail, written notice of such action at least thirty (30) days prior to termination or change, to Owner at whose request policy and certificate are issued.

2. 11.2 Owner's Liability Insurance

   a. Add the following to the last sentence of Subparagraph 11.2.1:

      1) The Owner shall purchase and maintain insurance covering the Owner's contingent liability for claims that may arise from operations under the Contract. Limits of $1,000,000 per occurrence with a $2,000,000 aggregate.

3. 11.3 Property Insurance

   a. Add to clause 11.3.1.1 the following sentence:

      1) The form of policy for this coverage shall be Completed Value.

   b. Add the following Clauses 11.3.1.1 and 11.3.1.2 to 11.3.1:

      1) 11.3.1.1 The Contractor shall deliver the required bonds to the Owner not later than ten (10) days following the date the Agreement is entered into, or if the Work is to be commenced prior thereto in response to a letter of intent, the Contractor shall, prior to the commencement of the Work, submit evidence satisfactory to the Owner that such bonds will be furnished.
      2) 11.3.1.2 The Contractor shall require the attorney-in-fact who executes the required bonds on behalf of the surety to be an Iowa resident agent and affix thereto a certified and current copy of the power of attorney.

   c. Change phrase "All Risk" to "Nearly All Risk" to allow for standard policy exclusions.
   d. Change clause 11.3.1.3 to read as follows:

      1) 11.3.1.3 This property insurance is written with a deductible of $1000.00 per occurrence. In the event of a paid claim, the Claimant, including subcontractors, shall be responsible for the deductible amount. Vandalism insurance shall not cover glass breakage. Should the Contractor desire this coverage, Contractor shall carry it at Contractor's cost. Payments of any insurance deductibles will be at the expense of the party claiming loss under the policy.

   e. Delete Clause 11.3.1.4 and substitute the following:

      1) 11.3.1.4 The Contractor shall provide insurance coverage for portions of the Work stored off the site after written approval of the Owner at the value established in the approval, and also for portions of the Work in transit.

4. 11.4 Performance Bond And Payment Bond

a. The Contractor shall furnish bonds covering faithful performance of the Contract and payment of obligations arising there under. Bonds may be obtained through the Contractor's usual source and the cost thereof shall be included in the Contract Sum. The amount of each bond shall be equal to 100 percent of the Contract Sum.

END OF DOCUMENT 00 7300

SECTION 01 1000 - SUMMARY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Project information.
2. Work covered by Contract Documents.
3. Phased construction.
4. Work by Owner.
5. Access to site.
6. Coordination with occupants.
7. Work restrictions.
8. Specification and Drawing conventions.
9. Miscellaneous provisions.

B. Related Requirements:

1. Section 01 5000 "Temporary Facilities and Controls" for limitations and procedures governing temporary use of Owner's facilities.

1.3 PROJECT INFORMATION

A. Project Identification: Dubuque County Courthouse Reroof, Painting, and Masonry Repair.

1. Project Location: Dubuque County Courthouse, 720 Central Avenue, Dubuque, Iowa 52001.

B. Owner: Dubuque County, Dubuque, Iowa.

1. Owner's Representative: Board of Supervisors and Chris Soeder, Dubuque County, 720 Central Avenue, Dubuque, Iowa 52001.

C. Architect: **FEH** DESIGN

1. 951 Main Street, Dubuque, Iowa 52001. Contact: Project Manager – Christy Monk; Telephone 563.583.4900 | Fax 515.288.1999.

1.4 Project Web Site: A Project Web site administered by Architect will be used for purposes of managing communication and documents during the construction stage.

1. See Division 01 Section "Project Management and Coordination" for Contractor's requirements for providing and utilizing the Project Web site.

1.5 WORK COVERED BY CONTRACT DOCUMENTS

A. The Work of Project is defined by the Contract Documents and consists of the following:

1. Removal and replacement of the existing courthouse asphalt roof including metal flashing replacement.
2. Repainting of metal flashing and existing metal statuary bases.
3. Masonry repair and repointing of the existing courthouse tower and chimneys.
4. Alternates related to roofing materials, masonry tuckpointing and repair work, and door and window sealant replacement.
5. Other Work indicated in the Contract Documents.

B. Type of Contract:

1. Project will be constructed under a single prime contract.

1.6 ACCESS TO SITE

A. General: Contractor shall have limited use of Project site for construction operations as indicated by requirements of this Section.

B. Use of Site: Limit use of Project site to areas within the Contract limits indicated. Do not disturb portions of Project site beyond areas in which the Work is indicated.

1. Limits: Area directly adjacent to building.
2. Driveways, Walkways, Alley, and Entrances: Keep driveways, alley, and entrances serving premises clear and available to Owner, Owner's employees, and emergency vehicles at all times. Do not use these areas for parking or storage of materials.

    a. Schedule deliveries to minimize use of driveways and entrances by construction operations.
    b. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.
    c. DO NOT BLOCK ACCESS TO STAFF PARKING LOT OR SPACES.

C. Areas for staging of materials and equipment are significantly limited. Areas available for staging are as indicated on drawings.

1. Contractor has the option for additional staging in street parking spaces, with proper identification.

D. Condition of Existing Building: Maintain portions of existing building affected by construction operations in a weathertight condition throughout construction period. Repair damage caused by construction operations.

E. Condition of Existing Grounds: Maintain portions of existing grounds, landscaping, and hardscaping affected by construction operations throughout construction period. Repair damage caused by construction operations.

1.7 COORDINATION WITH OCCUPANTS

A. Full Owner Occupancy: Owner will occupy site and existing building(s) during entire construction period. Cooperate with Owner during construction operations to minimize conflicts and facilitate Owner usage. Perform the Work so as not to interfere with Owner's day-to-day operations. Maintain existing exits unless otherwise indicated.

1. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities. Do not close or obstruct walkways, corridors, or other occupied or used facilities without written permission from Owner and approval of authorities having jurisdiction.
2. Notify Owner not less than 72 hours in advance of activities that will affect Owner's operations.

1.8 WORK RESTRICTIONS

A. Work Restrictions, General: Comply with restrictions on construction operations.

1. Comply with limitations on use of public streets and with other requirements of authorities having jurisdiction. The City noise ordinance hours allow construction noise as follows: 7:00 a.m. and 8:00 p.m., Monday through Friday, and 9:00 a.m. and 6:00 p.m. on Saturday and Sunday.

B. On-Site Work Hours: Limit work in the existing building to normal business working hours of 7:00 a.m. to 5:00 p.m., Monday through Friday, unless otherwise indicated.

1. Weekend Hours: If weekend hours are anticipated, the contractor shall coordinate and schedule with the owner so a building representative can be on site.
2. Early Morning Hours: If early hours are anticipated, the contractor shall coordinate and schedule with the owner so a building representative can be on site. A noise variance may be required.
3. Hours for Utility Shutdowns: When the building is not occupied and as coordinated with the owner.
4. Hours for Exterior Work Adjacent to Courtrooms or Offices: As coordinated with the owner.

C. Existing Utility Interruptions: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after providing temporary utility services according to requirements indicated:

1. Notify Architect and Owner not less than two days in advance of proposed utility interruptions.
2. Obtain Owner's written permission before proceeding with utility interruptions.

D. Noise, Vibration, and Odors: Coordinate operations that may result in high levels of noise and vibration, odors, or other disruption to Owner occupancy with Owner.

1. Notify Owner not less than two days in advance of proposed disruptive operations.

2. Obtain Owner's written permission before proceeding with disruptive operations.

E. Nonsmoking Building: Smoking is not permitted within the building or within 50 feet of entrances, operable windows, or outdoor-air intakes.

F. Restricted Substances: Use of tobacco products and other controlled substances within the existing building and on Project site is **NOT PERMITTED**.

G. Employee Identification: Provide identification tags for Contractor personnel working on Project site. Require personnel to use identification tags at all times.

H. Employee Screening: Comply with Owner's requirements for background screening of Contractor personnel working on Project site.

1. Maintain list of approved screened personnel with Owner's representative.
2. **Dubuque County requires full background checks for ALL contract workers coming into the courthouse. All workers and consultants must complete the form at the end of this section.**

1.9 SPECIFICATION AND DRAWING CONVENTIONS

A. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:

1. Imperative mood and streamlined language are generally used in the Specifications. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.
2. Specification requirements are to be performed by Contractor unless specifically stated otherwise.

B. Division 01 General Requirements: Requirements of Sections in Division 01 apply to the Work of all Sections in the Specifications.

C. Drawing Coordination: Requirements for materials and products identified on Drawings are described in detail in the Specifications. One or more of the following are used on Drawings to identify materials and products:

1. Terminology: Materials and products are identified by the typical generic terms used in the individual Specifications Sections.
2. Abbreviations: Materials and products are identified by abbreviations published as part of the U.S. National CAD Standard and scheduled on Drawings.
3. Keynoting: Materials and products are identified by reference keynotes referencing Specification Section numbers found in this Project Manual.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 1000

Prospective Employee Background Check Consent Form

Last Name _____ First Name _____ Middle Name _____

Any Other Names Used _____ Phone Number(s) _____

Date of Birth _____ Sex _____ Social Security # _____

Current Address: _____

Three (3) Prior Addresses (Include City, State, Zip)

1. _____

2. _____

3. _____

Have you been convicted of a felony or a serious or aggravated misdemeanor in the past (5) years? _____

If yes, explain: _____

_____

_____

I hereby consent to the use of the above information to search my ***criminal history records***. I am of legal age, sign this as my own free act and deed, and understand what it means and what I am agreeing to by signing.

Signature _____ **Date** _____

RESULTS

For Internal Use Only

Form Received by:	Date:	Check Completed by:	Date

SECTION 012100 - ALLOWANCES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements governing allowances.

1. Certain items are specified in the Contract Documents by allowances. Allowances have been established in lieu of additional requirements and to defer selection of actual materials and equipment to a later date when direction will be provided to Contractor. If necessary, additional requirements will be issued by Change Order.

B. Types of allowances include the following:

1. Contingency allowances.

1.3 ACTION SUBMITTALS

A. Submit proposals for purchase of products or systems included in allowances, in the form specified for Change Orders.

1.4 INFORMATIONAL SUBMITTALS

A. Submit invoices or delivery slips to show actual quantities of materials delivered to the site for use in fulfillment of each allowance.

B. Submit time sheets and other documentation to show labor time and cost for installation of allowance items that include installation as part of the allowance.

C. Coordinate and process submittals for allowance items in same manner as for other portions of the Work.

1.5 COORDINATION

A. Coordinate allowance items with other portions of the Work. Furnish templates as required to coordinate installation.

1.6 LUMP-SUM ALLOWANCES

A. Allowance shall include cost to Contractor of specific products and materials ordered by Owner under allowance and shall include furnishing, delivery to Project site, and installing.

B. Unless otherwise indicated, Contractor's costs for labor, overhead and profit, and similar costs related to products and materials ordered by Owner under allowance shall be included as part of the Contract Sum and not part of the allowance.

1.7 CONTINGENCY ALLOWANCES

A. Use the contingency allowance only as directed by Architect for Owner's purposes and only by AIA form G703 or the Architect's tracking spreadsheet that indicate amounts to be charged to the allowance.

B. Changes authorizing use of funds from the contingency allowance will include Contractor's related costs and reasonable overhead and profit margins. These costs include delivery, installation, taxes (if applicable to Project), insurance, equipment rental, and similar costs.

C. At Project closeout, credit unused amounts remaining in the contingency allowance to Owner by Change Order.

1.8 ADJUSTMENT OF ALLOWANCES

A. Allowance Adjustment: To adjust allowance amounts, prepare a Change Order proposal based on the difference between purchase amount and the allowance, multiplied by final measurement of work-in-place where applicable. If applicable, include reasonable allowances for cutting losses, tolerances, mixing wastes, normal product imperfections, and similar margins.

1. Include installation costs in purchase amount only where indicated as part of the allowance.
2. If requested, prepare explanation and documentation to substantiate distribution of overhead costs and other margins claimed.

B. Submit claims for increased costs because of a change in scope or nature of the allowance described in the Contract Documents, whether for the purchase order amount or Contractor's handling, labor, installation, overhead, and profit.

1. Do not include Contractor's or subcontractor's indirect expense in the Change Order cost amount unless it is clearly shown that the nature or extent of work has changed from what could have been foreseen from information in the Contract Documents.
2. No change to Contractor's indirect expense is permitted for selection of higher- or lower-priced materials or systems of the same scope and nature as originally indicated.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 SCHEDULE OF ALLOWANCES

A. Allowance No. 1: Contingency Allowance: Include a contingency allowance of $25,000 for use according to Owner's instructions.

END OF SECTION 012100

SECTION 01 2200 - UNIT PRICES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements for unit prices.

B. Related Requirements:

1. Section 01 2600 "Contract Modification Procedures" for procedures for submitting and handling Change Orders.
2. Section 01 4000 "Quality Requirements" for general testing and inspecting requirements.

1.3 DEFINITIONS

A. Unit price is an amount incorporated in the Agreement, applicable during the duration of the Work as a price per unit of measurement for materials, equipment, or services, or a portion of the Work, added to or deducted from the Contract Sum by appropriate modification, if the scope of Work or estimated quantities of Work required by the Contract Documents are increased or decreased.

1.4 PROCEDURES

A. Unit prices include all necessary material, plus cost for delivery, installation, insurance, overhead, and profit.

B. Measurement and Payment: See individual Specification Sections for work that requires establishment of unit prices. Methods of measurement and payment for unit prices are specified in those Sections.

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

D. List of Unit Prices: A schedule of unit prices is included in Part 3. Specification Sections referenced in the schedule contain requirements for materials described under each unit price.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 SCHEDULE OF UNIT PRICES

A. Unit Price 1: Roof Sheathing Replacement.

1. Description: Replace deteriorated and unsuitable roof sheathing, to be determined after the existing roofing material has been removed.

2. Unit of Measurement: Square foot, based on field measurements.

B. Unit Price 2: Metal Flashing Replacement.

1. Description: Replace rusted, deteriorated, and non-weathertight existing galvanized metal flashing at statuary and roof transitions.

2. Unit of Measurement: Square foot, based on field measurements.

END OF SECTION 01 2200

SECTION 01 2300 - ALTERNATES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements for alternates.

1.3 DEFINITIONS

A. Alternate: An amount proposed by bidders and stated on the Bid Form for certain work defined in the bidding requirements that may be added to or deducted from the base bid amount if Owner decides to accept a corresponding change either in the amount of construction to be completed or in the products, materials, equipment, systems, or installation methods described in the Contract Documents.

1. Alternates described in this Section are part of the Work only if enumerated in the Agreement.
2. The cost or credit for each alternate is the net “addition to” or “deduction from” the Contract Sum to incorporate alternate into the Work. No other adjustments are made to the Contract Sum.

1.4 PROCEDURES

A. Coordination: Revise or adjust affected adjacent work as necessary to completely integrate work of the alternate into Project.

1. Include as part of each alternate, miscellaneous devices, accessory objects, and similar items incidental to or required for a complete installation whether or not indicated as part of alternate.

B. Notification: Immediately following award of the Contract, notify each party involved, in writing, of the status of each alternate. Indicate if alternates have been accepted, rejected, or deferred for later consideration. Include a complete description of negotiated revisions to alternates.

C. Execute accepted alternates under the same conditions as other work of the Contract.

D. Schedule: A schedule of alternates is included at the end of this Section. Specification Sections referenced in schedule contain requirements for materials necessary to achieve the work described under each alternate.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 SCHEDULE OF ALTERNATES

A. Alternate No. 1: Simulated Slate Shingle.
   1. **Base Bid Description**: Replacement of the existing courthouse asphalt roof shingle with a new asphalt shingle.
   2. **Alternate Description**: Replacement of the existing courthouse asphalt roof shingle with a simulated slate shingle.

B. Alternate No. 2: Solar and Simulated Slate Shingle.
   1. **Base Bid Description**: Replacement of the existing courthouse asphalt roof shingle with a new asphalt shingle.
   2. **Alternate Description**: Replacement of the existing courthouse asphalt roof shingle with a combination of solar and simulated slate shingles.

C. Alternate No. 3: Masonry Repair and Repointing of Courthouse Base.
   1. **Base Bid Description**: Masonry repair and repointing of the existing courthouse tower and chimneys ONLY. No masonry repair nor repointing on the main courthouse base; see drawings for additional detail.
   2. **Alternate Description**: Masonry repair and repointing on the main courthouse base.

D. Alternate No. 4: Courthouse Sealing of Window and Door Openings.
   1. **Base Bid Description**: No sealing of window and door openings.
   2. **Alternate Description**: Sealant replacement at doors and windows.

E. Alternate No. 5: Metalwork Refinishing.
   1. **Base Bid Description**: Metal refinishing directly relate to the roof replacement and at existing statuary bases.
   2. **Alternate Description**: Metal refinishing at all exterior, painted metal surfaces including existing cornices, friezes, and downspouts.

END OF SECTION 01 2300

SECTION 01 2600 - CONTRACT MODIFICATION PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1. AIA Document A201 referenced in this Project Manual which outlines specific project related requirements for contract modifications.

1.2 REQUIREMENTS INCLUDED

A. Contractor shall develop and implement change procedures as follows:

1. Prepare written Requests for Information to the Architect.
2. Provide written response to Architect's Supplemental Instructions.
3. Provide full written data and record system required to evaluate proposed changes.
4. Provide full documentation to Architect on Proposal Requests, Construction Change Directives and Change Orders.
5. Maintain detailed records of any Work proposed to be completed on a materials and labor basis.

1.3 DEFINITIONS

A. Request for Information (RFI): A written request prepared and issued by the Contractor to the Architect as a method to request Clarifications or changes to the Contract Documents. Also a written request by a Subcontractor to the Contractor which may be incorporated into the Contractor's RFI to the Architect.

B. Architect's Supplemental Instructions (ASI), AIA Document G710, current edition: A written order, instructions or interpretation, prepared and issued by the Architect to the Contractor making minor changes in the Work, not involving a change in the Contract Sum or Contract Time.

C. Proposal Request (PR), AIA Document G709, current edition: A written request prepared and issued by the Architect to the Contractor to provide a cost for a possible change in the Work and/or a possible adjustment in the Contract Sum or Contract Time.

D. Construction Change Directive (CCD): A written order prepared and issued by the Architect and signed by the Contractor, the Architect and the Owner directing a change in the Work prior to agreement on adjustment, if any, in the Contract Sum or Contract Time, or both.

E. Change Order (CO): See General Conditions, Subparagraph 7.2.1 for definition.

1.4 CLARIFICATIONS

A. If the Contractor finds errors, inconsistencies or omissions in the Contract Documents, the Contractor shall report all such conditions to the Architect, in writing, within a reasonable time not exceeding twenty-one (21) days after first observance.

B. If the Contractor requires additional direction to proceed with the Work, the Contractor shall prepare a Request for Information (RFI), present all related data and forward it to the Architect.

C. The Architect will reply, in writing, to all RFIs.

D. The Contractor shall prepare and maintain a written Project RFI Log listing as a minimum: the RFI Number, Date Issued, Subject, Date of Architect's Responses, and Remarks.

E. The Contractor shall update the Project RFI Log prior to every Construction Progress Meeting and provide copies for review and discussion at every Construction Progress Meeting.

F. Refer to Section 01 3100 – Project Management and Coordination, for additional information and requirements for RFI methods and procedures.

1.5 PRELIMINARY CHANGE PROCEDURES

A. At the request of the Contractor, Architect or Owner for a Clarification of the Contract Documents, the Architect may prepare and issue to the Contractor three (3) original copies of an Architect's Supplemental Instruction (ASI). The Contractor shall review the ASI, sign the ASI if in agreement with it, retain one (1) copy and return two (2) copies to the Architect. The Architect will retain one (1) original copy of the ASI, and transmit one (1) original copy to the Owner.

B. Contractor will have 5 business days to review distributed ASI and comment. If the contractor has an objection, clarifications, or modification to the ASI, the Contractor must respond within the 5 days. After 5 business days, or with no comments, the ASI will become final and part of the contract documents.

1.6 DOCUMENTATION OF PROPOSAL REQUESTS

A. When a possible change in the Work is being considered, the Architect will prepare and issue to the Contractor a Proposal Request. Proposal Requests will include:

1. A detailed description and location of the proposed change in the Work.
2. Additional or revised Drawings and Specifications.

B. The Proposal Request is for information only, and is not an instruction to execute the proposed changes.

C. Contractor-Initiated Proposals: If latent or changed conditions require modifications to the Contract, Contractor may initiate a claim by submitting a request for a change to Architect.

1. Include a statement outlining 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 the Contract Time.

2. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
3. Indicate applicable delivery charges, equipment rental, and amounts of trade discounts.
4. Include costs of labor and supervision directly attributable to the change.
5. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
6. Comply with requirements in Section 012500 "Substitution Procedures" if the proposed change requires substitution of one product or system for product or system specified.

D. The Contractor shall promptly reply to each Proposal Request within fourteen (14) calendar days, submitting a "not-to-exceed" price for any changes in the Contract Sum or Contract Time. The Contractor shall provide time and materials breakdowns for each portion of the proposed Work in accordance with the General Conditions Section 00 7200 with sufficient substantiating data to allow the Architect to evaluate the proposed costs.

E. The Owner shall have up to thirty (30) days, or such other time as may be agreed upon, in which to accept or reject the Contractor's proposal after its submission, and the Contractor shall not modify or withdraw the proposal during this period without the consent of the Owner.

F. The Architect will evaluate the Contractor's response to each Proposal Request against recognized cost estimating references. Upon acceptance of the Contractor's "not-to-exceed" price, the Architect will include the Proposal request into a subsquent change order.

G. When the Work of the Construction Change Directive (CCD) is complete, a Change Order (CO) will be processed. The Contractor shall submit time, materials and receipts records for review upon completion of authorized Work.

1.7 PREPARATION AND PROCESSING OF CHANGE ORDER

A. When accepted by the Owner, Construction Change Directives (CCD) and PR’s will be incorporated into Change Orders (CO).

B. The Architect will prepare each Change Order using the Owner's format or AIA Documents.

C. A Change Order may include Contractor responses to one or more Proposal Requests and Construction Change Directives (CCD).

D. Change Orders will describe changes in the Work, both additions and deletions, with references to revised Contract Documents or other supporting documents to define details of the changes.

E. Change Orders will include an accounting of the adjustments in the Contract Sum and Contract Time.

F. The Contractor, Architect, and then the Owner will sign and date the Change Order to indicate their agreement.

G. The Owner will process the Change Order for final encumbrance by the Owner's fiscal department.

H. The Owner will return fully executed copies of the Change Order to the Contractor and the Architect.

I. The Contractor shall include all adjustments to the Contract Sum in all subsequent Applications for Payment only after receipt of a fully executed copy of each Change Order.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 2600

SECTION 01 2900 - PAYMENT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements necessary to prepare and process Applications for Payment.

B. Related Requirements:

1. AIA Document A201, referenced in this Project Manual for reference to procedures and requirements of County.
2. Section 01 2600 "Contract Modification Procedures" for administrative procedures for handling changes to the Contract.
3. Section 01 3200 "Construction Progress Documentation" for administrative requirements governing the preparation and submittal of the Contractor's construction schedule.

1.3 DEFINITIONS

A. Schedule of Values: A statement furnished by Contractor allocating portions of the Contract Sum to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.

1.4 SCHEDULE OF VALUES

A. Coordination: Coordinate preparation of the schedule of values with preparation of Contractor's construction schedule.

1. Coordinate line items in the schedule of values with other required administrative forms and schedules, including the following:

    a. Application for Payment forms with continuation sheets.
    b. Submittal schedule.
    c. Items required to be indicated as separate activities in Contractor's construction schedule.
    d. Contractors Construction Schedule.

2. Submit the schedule of values to Architect at earliest possible date, but no later than seven days before the date scheduled for submittal of initial Applications for Payment.
3. Architect will review Initial Schedule of Values and make marks to indicate corrections or modifications required.
4. Architect will not review initial Application for Payment without approving the initial Schedule of Values.

B. Format and Content: Use Project Manual table of contents as a guide to establish line items for the schedule of values. Provide at least one line item for each Specification Section.

1. Identification: Include the following Project identification on the schedule of values:

    a. Project name and location.
    b. Name of Architect.
    c. Architect's project number.
    d. Contractor's name and address.
    e. Date of submittal.

2. Arrange schedule of values consistent with format of AIA Document G703.
3. Arrange the schedule of values in tabular form with separate columns to indicate the following for each item listed:

    a. Related Specification Section or Division.
    b. Description of the Work.
    c. Name of subcontractor.
    d. Name of manufacturer or fabricator.
    e. Name of supplier.
    f. Change Orders (numbers) that affect value.
    g. Dollar value of the following, as a percentage of the Contract Sum to nearest one-hundredth percent, adjusted to total 100 percent.

        1) Labor.
        2) Materials.
        3) Equipment.

4. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Coordinate with Project Manual table of contents. Provide multiple line items for principal subcontract amounts in excess of five percent of the Contract Sum.
5. Provide a breakdown of major cost items in the General Conditions as separate line items for the Schedule of Values. Include the following items, applicable to the Project, as part of the contractor’s normal breakdown.

    a. Bonds, insurance
    b. Mobilization
    c. Demobilization
    d. Permits and fees
    e. Shop drawings (include in individual product or in total in the General Conditions.
    f. Record Drawings
    g. Close out

6. Round amounts to nearest whole dollar; total shall equal the Contract Sum.
7. Provide a separate line item in the schedule of values for each part of the Work where Applications for Payment may include materials or equipment purchased or fabricated and stored, but not yet installed.

    a. Differentiate between items stored on-site and items stored off-site. It is required to include evidence of insurance for any items stored off-site, if these items are included on an application for payment. Provide the standard ACORD insurance Form for any items stored off-site.

8. Provide separate line items in the schedule of values for initial cost of materials, for each subsequent stage of completion, and for total installed value of that part of the Work.
9. Purchase Contracts: Provide a separate line item in the schedule of values for each purchase contract. Show line-item value of purchase contract. Indicate owner payments or deposits, if any, and balance to be paid by Contractor.
10. Each item in the schedule of values and Applications for Payment shall be complete. Include total cost and proportionate share of general overhead and profit 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 Contractor's option.

1.5 APPLICATIONS FOR PAYMENT

A. Each Application for Payment following the initial Application for Payment shall be consistent with previous applications and payments as certified by Architect and paid for by Owner.

   1. Initial Application for Payment, Application for Payment at time of Substantial Completion, and final Application for Payment involve additional requirements.

B. Payment Application Times: The date for each progress payment is as determined by the Contractor. The period of construction work covered by each Application for Payment is one month.

   1. Submit draft copy of Application for Payment seven days prior to due date for review by Architect.

C. Application for Payment Forms: Use AIA Document G703 as form for Applications for Payment.

D. Application Preparation: Complete every entry on form. Notarize and execute by a person authorized to sign legal documents on behalf of Contractor. Architect will return incomplete applications without action.

   1. Entries shall match data on the schedule of values and Contractor's construction schedule. Use updated schedules if revisions were made.
   2. Include amounts for work completed following previous Application for Payment, whether or not payment has been received. Include only amounts for work completed at time of Application for Payment.
   3. Include amounts of Change Orders and Construction Change Directives issued before last day of construction period covered by application.

E. Stored Materials: Include in Application for Payment amounts applied for materials or equipment purchased or fabricated and stored, but not yet installed. Differentiate between items stored on-site and items stored off-site.

   1. Provide certificate of insurance, evidence of transfer of title to Owner, and consent of surety to payment, for stored materials.

      a. Certificate of Insurance shall list Dubuque County as additional insured.

   2. Provide supporting documentation that verifies amount requested, such as paid invoices. Match amount requested with amounts indicated on documentation; do not include overhead and profit on stored materials.
   3. Provide summary documentation for stored materials indicating the following:

a. Value of materials previously stored and remaining stored as of date of previous Applications for Payment.
b. Value of previously stored materials put in place after date of previous Application for Payment and on or before date of current Application for Payment.
c. Value of materials stored since date of previous Application for Payment and remaining stored as of date of current Application for Payment.

4. Retainage: Deduct 5% from the completed work covered by each Application for Payment until the project is “Substantially Completed” as determined by the County, at which time the County will pay 95% of the total net amount earned.

F. Transmittal: Submit three signed and notarized original copies of each Application for Payment to Architect by a method ensuring receipt within 24 hours. One copy shall include waivers of lien and similar attachments. An electronic copy is also requested.

1. Transmit each copy with a transmittal form listing attachments and recording appropriate information about application.

G. Waivers of Mechanic's Lien: With each Application for Payment, submit waivers of mechanic's liens from subcontractors, sub-subcontractors, and suppliers for construction period covered by the previous application.

1. Submit partial waivers on each item for amount requested in previous application, after deduction for retainage, on each item.
2. When an application shows completion of an item, submit conditional final or full waivers.
3. Owner reserves the right to designate which entities involved in the Work must submit waivers.
4. Submit final Application for Payment with or preceded by conditional final waivers from every entity involved with performance of the Work covered by the application who is lawfully entitled to a lien.
5. Waiver Forms: Submit executed waivers of lien on forms, acceptable to Architect.

H. Initial Application for Payment: Administrative actions and submittals that must precede or coincide with submittal of first Application for Payment include the following:

1. List of subcontractors.
2. Schedule of values.
3. Contractor's construction schedule (preliminary if not final).
4. Products list (preliminary if not final).
5. Submittal schedule (preliminary if not final).
6. List of Contractor's staff assignments.
7. Initial progress report.
8. Report of preconstruction conference.
9. Certificates of insurance and insurance policies.
10. Performance and payment bonds.

I. Application for Payment at Substantial Completion: After Architect issues the Certificate of Substantial Completion, submit an Application for Payment showing 100 percent completion for portion of the Work claimed as substantially complete.

1. Include documentation supporting claim that the Work is substantially complete and a statement showing an accounting of changes to the Contract Sum.
2. This application shall reflect Certificate(s) of Substantial Completion issued previously for Owner occupancy of designated portions of the Work.

3. Submit "**Certificate of Completion Request" Form** included in this Project Manual. Review of project will not take place until receipt of this Form.

J. Final Payment Application: After completing Project closeout requirements, submit final Application for Payment with releases and supporting documentation not previously submitted and accepted, including, but not limited, to the following:

1. Evidence of completion of Project closeout requirements.
2. Insurance certificates for products and completed operations where required and proof that taxes, fees, and similar obligations were paid.
3. Updated final statement, accounting for final changes to the Contract Sum.
4. AIA Document G706, "Contractor's Affidavit of Payment of Debts and Claims."
5. AIA Document G706A, "Contractor's Affidavit of Release of Liens."
6. AIA Document G707, "Consent of Surety to Final Payment."
7. Evidence that claims have been settled.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 2900

SECTION 01 3100 - PROJECT MANAGEMENT AND COORDINATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:

1. General coordination procedures.
2. Coordination drawings.
3. Requests for Information (RFIs).
4. Project Web site.
5. Project meetings.

B. Related Requirements:

1. AIA Document A201 referenced in Project Manual which outlines specific project related requirements for project management and coordination.
2. Section 01 3200 "Construction Progress Documentation" for preparing and submitting Contractor's construction schedule.
3. Section 01 7300 "Execution" for procedures for coordinating general installation and field-engineering services, including establishment of benchmarks and control points.
4. Section 01 7700 "Closeout Procedures" for coordinating closeout of the Contract.

1.3 DEFINITIONS

A. RFI: Request from Owner, Architect, or Contractor seeking information required by or clarifications of the Contract Documents.

1.4 INFORMATIONAL SUBMITTALS

A. Subcontractor List: Prepare a written summary identifying individuals or firms proposed for each portion of the Work, including those who are to furnish products or equipment fabricated to a special design. Include the following information in tabular form:

1. Name, address, and telephone number of entity performing subcontract or supplying products.
2. Number and title of related Specification Section(s) covered by subcontract.
3. Drawing number and detail references, as appropriate, covered by subcontract.

B. Key Personnel Names: Within **15 days** of starting construction operations, submit a list of key personnel assignments, including superintendent and other personnel in attendance at Project site. Identify individuals and their duties and responsibilities; list addresses and telephone

numbers, including home, office, and cellular telephone numbers and e-mail addresses. Provide names, addresses, and telephone numbers of individuals assigned as alternates in the absence of individuals assigned to Project.

1. Post copies of list in project meeting room, in temporary field office and by each temporary telephone. Keep list current at all times.

1.5 GENERAL COORDINATION PROCEDURES

A. Coordination: Coordinate construction operations included in different Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations, included in different Sections that depend on each other for proper installation, connection, and operation.

1. Schedule construction operations in 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 ensure maximum performance and accessibility for required maintenance, service, and repair.
3. Make adequate provisions to accommodate items scheduled for later installation.

B. Prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and list of attendees at meetings.

C. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities, and activities of other contractors, to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:

1. Preparation of Contractor's construction schedule.
2. Preparation of the schedule of values.
3. Installation and removal of temporary facilities and controls.
4. Delivery and processing of submittals.
5. Progress meetings.
6. Preinstallation conferences.
7. Project closeout activities.
8. Startup and adjustment of systems.

D. Conservation: Coordinate construction activities to ensure that operations are carried out with consideration given to conservation of energy, water, and materials. Coordinate use of temporary utilities to minimize waste.

1. Salvage materials and equipment involved in performance of, but not actually incorporated into, the Work. See other Sections for disposition of salvaged materials that are designated as Owner's property.

1.6 COORDINATION DRAWINGS

A. Coordination Drawings, General: Prepare coordination drawings according to requirements in individual Sections, and additionally where installation is not completely shown on Shop Drawings, where limited space availability necessitates coordination, or if coordination is

required to facilitate integration of products and materials fabricated or installed by more than one entity.

1. Coordination Plan: provide coordination drawings showing required installation of new work prior to and subsequent to new activities.
2. Content: Project-specific information, drawn accurately to a scale large enough to indicate and resolve conflicts. Do not base coordination drawings on standard printed data. Include the following information, as applicable:

    a. Use applicable Drawings as a basis for preparation of coordination drawings. Prepare sections, elevations, and details as needed to describe relationship of various systems and components.
    b. Coordinate the addition of trade-specific information to the coordination drawings by multiple sub-contractors in a sequence that best provides for coordination of the information and resolution of conflicts between installed components before submitting for review.
    c. Indicate functional and spatial relationships of components of architectural, structural, civil, mechanical, and electrical systems.
    d. Indicate required installation sequences.
    e. Indicate dimensions shown on the Drawings. Specifically note dimensions that appear to be in conflict with submitted equipment and minimum clearance requirements. Provide alternate sketches to Architect indicating proposed resolution of such conflicts. Minor dimension changes and difficult installations will not be considered changes to the Contract.

B. Coordination Drawing Organization: Organize coordination drawings as follows:

1. Floor Plans and Reflected Ceiling Plans: Show architectural and structural elements, and mechanical, plumbing, fire-protection, fire-alarm, and electrical Work. Show locations of visible ceiling-mounted devices relative to acoustical ceiling grid. Supplement plan drawings with section drawings where required to adequately represent the Work.

2. Review: Architect will review coordination drawings to confirm that the Work is being coordinated, but not for the details of the coordination, which are Contractor's responsibility. If Architect determines that coordination drawings are not being prepared in sufficient scope or detail, or are otherwise deficient, Architect will so inform Contractor, who shall make changes as directed and resubmit.

1.7 REQUESTS FOR INFORMATION (RFIs)

A. General: Immediately on discovery of the need for additional information or interpretation of the Contract Documents and if not possible to request interpretation at the next Project Meeting, the **Contractor is to call the Architect** to review and determine if an RFI is required. If so determined by the Contractor and Architect, the Contractor shall prepare and submit an RFI in the form specified.

1. Architect will return RFIs submitted to Architect by other entities controlled by Contractor with no response.
2. Coordinate and submit RFIs in a prompt manner so as to avoid delays in Contractor's work or work of subcontractors.

B. Content of the RFI: Include a detailed, legible description of item needing information or interpretation and the following:

1. Project name.
2. Project numbers.
3. Date.
4. Name of Contractor.
5. Name of Architect.
6. RFI number, numbered sequentially.
7. RFI subject.
8. Specification Section number and title and related paragraphs, as appropriate.
9. Drawing number and detail references, as appropriate.
10. Field dimensions and conditions, as appropriate.
11. Contractor's suggested resolution. If Contractor's suggested resolution impacts the Contract Time or the Contract Sum, Contractor shall state impact in the RFI.
12. Contractor's signature.
13. Attachments: Include sketches, descriptions, measurements, photos, Product Data, Shop Drawings, coordination drawings, and other information necessary to fully describe items needing interpretation.

    a. Include dimensions, thicknesses, structural grid references, and details of affected materials, assemblies, and attachments on attached sketches.

C. RFI Forms: AIA Document G716 or a Software-generated form with substantially the same content as indicated above, acceptable to Architect.

    1. Attachments shall be electronic files in Adobe Acrobat PDF format.

D. Architect's Action: Architect will review each RFI, determine action required, and respond. Allow seven working days for Architect's response for each RFI. RFIs received by Architect after 1:00 p.m. will be considered as received the following working day.

    1. The following Contractor-generated RFIs will be returned without action:

        a. Requests for approval of submittals.
        b. Requests for approval of substitutions.
        c. Requests for approval of Contractor's means and methods.
        d. Requests for coordination information already indicated in the Contract Documents.
        e. Requests for adjustments in the Contract Time or the Contract Sum.
        f. Requests for interpretation of Architect's actions on submittals.
        g. Incomplete RFIs or inaccurately prepared RFIs.

    2. Architect's action may include a request for additional information, in which case Architect's time for response will date from time of receipt of additional information.
    3. Architect's action on RFIs that may result in a change to the Contract Time or the Contract Sum may be eligible for Contractor to submit Proposal Request according to Section 01 2600 "Contract Modification Procedures."

        a. If Contractor believes the RFI response warrants change in the Contract Time or the Contract Sum, notify Architect in writing within 7 days of receipt of the RFI response.

E. RFI Log: Prepare, maintain, and submit a tabular log of RFIs organized by the RFI number. Submit log at each Project Meeting and review any new RFI’s and / or any recently answered RFI’s that need discussion.

    1. Project name.

2. Name and address of Contractor.
3. Name and address of Architect.
4. RFI number including RFIs that were returned without action or withdrawn.
5. RFI description.
6. Date the RFI was submitted.
7. Date Architect's response was received.
8. Identification of related Minor Change in the Work, Construction Change Directive, and Proposal Request, as appropriate.

1.8 PROJECT WEB SITE

A. Use Project Web site (see Electronic Submittal Procedures section) for purposes of hosting and managing project communication and documentation until Final Completion. Project Web site shall include the following information:

1. Project directory.
2. Project correspondence.
3. Meeting minutes.
4. Contract modifications forms and logs.
5. RFI forms and logs.
6. Photo documentation.
7. Submittals forms and logs.
8. Payment application forms.

B. Project Correspondence will be coordinated through email.

1.9 PROJECT MEETINGS

A. General: Architect shall schedule and conduct meetings and conferences at Project site unless otherwise indicated.

1. Attendees: Inform participants and others involved, and individuals whose presence is required, of date and time of each meeting. Notify Owner and Contractor of scheduled meeting dates and times.
2. Agenda: Prepare the meeting agenda. Distribute the agenda to all invited attendees.
3. Minutes: Entity responsible for conducting meeting will record significant discussions and agreements achieved. Distribute the meeting minutes to everyone concerned, including Owner and Contractor, within four business days of the meeting.

B. Preconstruction Conference: Architect will schedule (and will conduct simultaneously with the Contractor) a Preconstruction Conference before starting construction activities, at a time convenient to Owner and Contractor, but no later than 15 days after execution of the Agreement.

1. Conduct the conference to review responsibilities and personnel assignments.
2. Attendees: Authorized representatives of Owner, Architect, and their consultants; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the conference. Participants at the conference shall be familiar with 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. Phasing.

c. Critical work sequencing and long-lead items.
d. Designation of key personnel and their duties.
e. Lines of communications.
f. Procedures for processing field decisions and Change Orders.
g. Procedures for RFIs.
h. Procedures for testing and inspecting.
i. Procedures for processing Applications for Payment.
j. Distribution of the Contract Documents.
k. Submittal procedures.
l. Use of the premises and existing building.
m. Work restrictions.
n. Working hours.
o. Responsibility for temporary facilities and controls.
p. Procedures for disruptions and shutdowns.
q. Construction waste management and recycling.
r. Use of site and storage areas.
s. Equipment deliveries and priorities.
t. First aid.
u. Security.
v. Progress cleaning.

4. Minutes: Architect will record and distribute meeting minutes.

C. Preinstallation Conferences: Conduct a preinstallation conference at Project site before each construction activity that requires coordination with other construction.

1. Attendees: Installer and representatives of manufacturers and fabricators involved in or affected by the installation and its coordination or integration with other materials and installations that have preceded or will follow, shall attend the meeting. Advise Architect of scheduled meeting dates.

D. Project Closeout Conference: Architect shall schedule and conduct a project closeout conference, at a time convenient to Owner and Contractor, but no later than 90 days prior to the scheduled date of Substantial Completion.

1. Conduct the conference to review requirements and responsibilities related to Project closeout.
2. Attendees: Authorized representatives of Owner, Architect and their consultants; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the meeting. Participants at the meeting shall be familiar with Project and authorized to conclude matters relating to the Work.
3. Agenda: Discuss items of significance that could affect or delay Project closeout, including the following:

a. Preparation of record documents.
b. Procedures required prior to inspection for Substantial Completion and for final inspection for acceptance.
c. Submittal of written warranties.
d. Preparation of Contractor's punch list.
e. Procedures for processing Applications for Payment at Substantial Completion and for final payment.
f. Submittal procedures.
g. Responsibility for removing temporary facilities and controls.

4. Project Close out Request form: identify expected date when form will be completed and submitted to Architect. Include date on Construction Schedule.

5. Minutes: Entity conducting meeting will record and distribute meeting minutes.

E. Progress Meetings: The Architect shall conduct progress meetings at biweekly intervals.

1. Coordinate dates of meetings with preparation of payment requests.
2. Attendees: In addition to representatives of Owner and Architect, each Contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the meeting shall be familiar with Project and authorized to conclude matters relating to the Work.
3. Agenda: Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.

    a. Contractor's Construction Schedule: Review progress since the last meeting. Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to Contractor's construction schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.

        1) Review schedule for next period.

    b. Review present and future needs of each entity present, including the following:

        1) Interface requirements.
        2) Sequence of operations.
        3) Status of submittals.
        4) Deliveries.
        5) Access.
        6) Site utilization.
        7) Temporary facilities and controls.
        8) Progress cleaning.
        9) Quality and work standards.
        10) Status of correction of deficient items.
        11) Field observations.
        12) Status of RFIs.
        13) Status of proposal requests.
        14) Pending changes.
        15) Status of Change Orders.
        16) Pending claims and disputes.
        17) Documentation of information for payment requests.

4. Minutes: Entity responsible for conducting the meeting will record and distribute the meeting minutes to each party present and to parties requiring information.

    a. Schedule Updating: Revise Contractor's construction schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with the report of each meeting.

F. Coordination Meetings: Conduct Project coordination meetings at weekly intervals. Project coordination meetings are in addition to specific meetings held for other purposes, such as progress meetings and preinstallation conferences.

1. Reporting: Record meeting results and distribute copies to everyone in attendance and to others affected by decisions or actions resulting from each meeting.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 3100

SECTION 01 3200 - CONSTRUCTION PROGRESS DOCUMENTATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements for documenting the progress of construction during performance of the Work, including the following:

1. Startup construction schedule.
2. Contractor's demolition and construction schedule.
3. Material location reports.
4. Site condition reports.
5. Special reports.

B. Related Requirements:

1. Section 01 3300 "Submittal Procedures" for submitting schedules and reports.
2. Section 01 4000 "Quality Requirements" for submitting a schedule of tests and inspections.

1.3 DEFINITIONS

A. Activity: A discrete part of a project that can be identified for planning, scheduling, monitoring, and controlling the construction project. Activities included in a construction schedule consume time and resources.

1. Critical Activity: An activity on the critical path that must start and finish on the planned early start and finish times.
2. Predecessor Activity: An activity that precedes another activity in the network.
3. Successor Activity: An activity that follows another activity in the network.

B. Cost Loading: The allocation of the schedule of values for the completion of an activity as scheduled. The sum of costs for all activities must equal the total Contract Sum unless otherwise approved by Architect.

C. Critical Path: The longest connected chain of interdependent activities through the network schedule that establishes the minimum overall Project duration and contains no float.

D. Event: The starting or ending point of an activity.

E. Float: The measure of leeway in starting and completing an activity.

1. Float time is not for the exclusive use or benefit of either Owner or Contractor, but is a jointly owned, expiring Project resource available to both parties as needed to meet schedule milestones and Contract completion date.
2. Free float is the amount of time an activity can be delayed without adversely affecting the early start of the successor activity.
3. Total float is the measure of leeway in starting or completing an activity without adversely affecting the planned Project completion date.

F. Resource Loading: The allocation of manpower and equipment necessary for the completion of an activity as scheduled.

1.4 INFORMATIONAL SUBMITTALS

A. Format for Submittals: Submit required submittals in the following format:

1. Working electronic copy of schedule file, where indicated.
2. PDF electronic file.

B. Startup construction schedule.

C. Contractor's Construction Schedule: Initial schedule, of size required to display entire schedule for entire construction period.

1. Submit a working electronic copy of schedule, and labeled to comply with requirements for submittals. Include type of schedule (initial or updated) and date on label.

D. Construction Schedule Updating Reports: Submit with Applications for Payment.

E. Daily Reports: Submit at weekly intervals.

F. Material Location Reports: Submit at weekly intervals.

G. Site Condition Reports: Submit at time of discovery of differing conditions.

H. Special Reports: Submit at time of unusual event.

1.5 QUALITY ASSURANCE

A. Prescheduling Conference: Conduct conference at Project site to comply with requirements in Section 01 3100 "Project Management and Coordination." Review methods and procedures related to the preliminary construction schedule and Contractor's construction schedule, including, but not limited to, the following:

1. Verify availability of qualified personnel needed to develop and update schedule.
2. Discuss constraints, including phasing, work stages, and interim milestones.
3. Review delivery dates for Owner-furnished products.
4. Review schedule for work of Owner's separate contracts.
5. Review submittal requirements and procedures.
6. Review time required for review of submittals and resubmittals.
7. Review requirements for tests and inspections by independent testing and inspecting agencies.
8. Review time required for Project closeout and Owner startup procedures.
9. Review and finalize list of construction activities to be included in schedule.

10. Review procedures for updating schedule.

1.6 COORDINATION

A. Coordinate Contractor's construction schedule with the schedule of values, submittal schedule, progress reports, payment requests, and other required schedules and reports.

1. Secure time commitments for performing critical elements of the Work from entities involved.
2. Coordinate each construction activity in the network with other activities and schedule them in proper sequence.

PART 2 - PRODUCTS

2.1 CONTRACTOR'S CONSTRUCTION SCHEDULE, GENERAL

A. Time Frame: Extend schedule from date established for commencement of the Work to date of final completion.

1. Contract completion date shall not be changed by submission of a schedule that shows an early completion date, unless specifically authorized by Change Order.
2. Substantial Completion: Indicate completion in advance of date established for Substantial Completion, and allow time for Architect's administrative procedures necessary for certification of Substantial Completion.
3. Punch List and Final Completion: Include not more than 30 days for completion of punch list items and final completion.

B. Constraints: Include constraints and work restrictions indicated in the Contract Documents and as follows in schedule, and show how the sequence of the Work is affected.

1. Work by Owner: Include a separate activity for each portion of the Work performed by Owner.
2. Owner-Furnished Products: Include a separate activity for each product. Include delivery date indicated in Section 01 1000 "Summary." Delivery dates indicated stipulate the earliest possible delivery date.
3. Work Restrictions: Show the effect of the following items on the schedule:

    a. Uninterruptible services.
    b. Provisions for future construction.
    c. Seasonal variations.
    d. Environmental control.

4. Construction Areas: Identify each major area of construction for each major portion of the Work. Indicate where each construction activity within a major area must be sequenced or integrated with other construction activities to provide for the following:

    a. Structural completion.
    b. Temporary enclosure and space conditioning.
    c. Permanent space enclosure.
    d. Completion of mechanical installation.
    e. Completion of electrical installation.
    f. Substantial Completion.

C. Upcoming Work Summary: Prepare summary report indicating activities scheduled to occur or commence prior to submittal of next schedule update. Summarize the following issues:

1. Unresolved issues.
2. Unanswered Requests for Information.
3. Pending modifications affecting the Work and Contract Time.

D. Recovery Schedule: When periodic update indicates the Work is 14 or more calendar days behind the current approved schedule, submit a separate recovery schedule indicating means by which Contractor intends to regain compliance with the schedule. Indicate changes to working hours, working days, crew sizes, and equipment required to achieve compliance, and date by which recovery will be accomplished.

2.2 STARTUP CONSTRUCTION SCHEDULE

A. Bar-Chart Schedule: Submit startup, horizontal, bar-chart-type construction schedule within seven days of date established for the Notice to Proceed.

B. Preparation: Indicate each significant construction activity separately. Identify first workday of each week with a continuous vertical line. Outline significant construction activities for first 90 days of construction. Include skeleton diagram for the remainder of the Work.

2.3 CONTRACTOR'S CONSTRUCTION SCHEDULE (GANTT CHART)

A. Gantt-Chart Schedule: Submit a comprehensive, fully developed, horizontal, Gantt-chart-type, Contractor's construction schedule within 30 days of date established for commencement of the Work. Base schedule on the startup construction schedule and additional information received since the start of Project.

B. Preparation: Indicate each significant construction activity separately. Identify first workday of each week with a continuous vertical line.

1. For construction activities that require three months or longer to complete, indicate an estimated completion percentage in 10 percent increments within time bar.

C. Contract Modifications: For each proposed contract modification and concurrent with its submission, prepare a time-impact analysis using a network fragment to demonstrate the effect of the proposed change on the overall project schedule.

2.4 REPORTS

A. Daily Construction Reports: Prepare a daily construction report recording the following information concerning events at Project site:

1. List of subcontractors at Project site.
2. Approximate count of personnel at Project site.
3. Equipment at Project site.
4. Material deliveries.
5. Accidents.
6. Meetings and significant decisions.
7. Unusual events (see special reports).
8. Stoppages, delays, shortages, and losses.

9. Emergency procedures.
10. Orders and requests of authorities having jurisdiction.
11. Change Orders received and implemented.
12. Services connected and disconnected.
13. Equipment or system tests and startups.
14. Substantial Completions authorized.

B. Material Location Reports: At monthly intervals, prepare and submit a comprehensive list of materials delivered to and stored at Project site and materials removed and recycled or disposed of off site. List shall be cumulative, showing materials previously reported plus items recently delivered. Include with list a statement of progress on and delivery dates for materials or items of equipment fabricated or stored away from Project site. Indicate the following categories for stored materials:

1. Material stored prior to previous report and remaining in storage.
2. Material stored prior to previous report and since removed from storage and installed.
3. Material stored following previous report and remaining in storage.

C. Site Condition Reports: Immediately on discovery of a difference between site conditions and the Contract Documents, prepare and submit a detailed report. Submit with a Request for Information. Include a detailed description of the differing conditions, together with recommendations for changing the Contract Documents.

2.5 SPECIAL REPORTS

A. General: Submit special reports directly to Owner within one day(s) of an occurrence. Distribute copies of report to parties affected by the occurrence.

B. Reporting Unusual Events: When an event of an unusual and significant nature occurs at Project site, whether or not related directly to the Work, prepare and submit a special report. List chain of events, persons participating, response by Contractor's personnel, evaluation of results or effects, and similar pertinent information. Advise Owner in advance when these events are known or predictable.

PART 3 - EXECUTION

3.1 CONTRACTOR'S CONSTRUCTION SCHEDULE

A. Contractor's Construction Schedule Updating: At monthly intervals, update schedule to reflect actual construction progress and activities. Issue schedule **one week before** each regularly scheduled progress meeting.

1. Revise schedule immediately after each meeting or other activity where revisions have been recognized or made. Issue updated schedule concurrently with the report of each such meeting.
2. Include a report with updated schedule that indicates every change, including, but not limited to, changes in logic, durations, actual starts and finishes, and activity durations.
3. As the Work progresses, indicate final completion percentage for each activity.

B. Distribution: Distribute copies of approved schedule to Architect, Owner, separate contractors, testing and inspecting agencies, and other parties identified by Contractor with a need-to-know schedule responsibility.

1. Post copies in Project meeting rooms and temporary field offices.
2. When revisions are made, distribute updated schedules 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 performance of construction activities.

END OF SECTION 01 3200

SECTION 01 3233 - PHOTOGRAPHIC DOCUMENTATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements for the following:

1. Preconstruction photographs.
2. Periodic construction photographs.
3. Final completion construction photographs.

B. Related Requirements:

1. Section 01 3300 "Submittal Procedures" for submitting photographic documentation.
2. Section 01 7700 "Closeout Procedures" for submitting photographic documentation as project record documents at Project closeout.

1.3 INFORMATIONAL SUBMITTALS

A. Key Plan: Submit key plan of Project site and building with notation of vantage points marked for location and direction of each photograph. Indicate elevation or story of construction. Include same information as corresponding photographic documentation.

B. Digital Photographs: Submit image files within three days of taking photographs.

1. Digital Camera: Minimum sensor resolution of 4 megapixels.
2. Format: Minimum 3200 by 2400 pixels, in unaltered original files, with same aspect ratio as the sensor, uncropped, date and time stamped, in folder named by date of photograph, accompanied by key plan file.
3. Identification: Provide the following information with each image description in file metadata tag:

    a. Name of Project.
    b. Name of Contractor.
    c. Date photograph was taken.
    d. Description of vantage point, indicating location, direction (by compass point), and elevation or story of construction.
    e. Unique sequential identifier keyed to accompanying key plan.

1.4 QUALITY ASSURANCE

A. Photographer Qualifications: An individual who has been regularly engaged as a professional photographer of construction or demolition projects for not less than three years.

1.5 USAGE RIGHTS

A. Obtain and transfer copyright usage rights from photographer to Owner for unlimited reproduction of photographic documentation.

PART 2 - PRODUCTS

2.1 PHOTOGRAPHIC MEDIA

A. Digital Images: Provide images in JPG format, produced by a digital camera with minimum sensor size of 4 megapixels, and at an image resolution of not less than 3200 by 2400 pixels.

PART 3 - EXECUTION

3.1 CONSTRUCTION PHOTOGRAPHS

A. Photographer: Engage a qualified photographer to take construction / deconstruction photographs.

B. General: Take photographs using the maximum range of depth of field, and that are in focus, to clearly show the Work. Photographs with blurry or out-of-focus areas will not be accepted.

1. Maintain key plan with each set of construction photographs that identifies each photographic location.

C. Digital Images: Submit digital images exactly as originally recorded in the digital camera, without alteration, manipulation, editing, or modifications using image-editing software.

1. Date and Time: Include date and time in file name for each image.
2. Field Office Images: Maintain one set of images accessible in the field office at Project site, available at all times for reference. Identify images in the same manner as those submitted to Architect.

D. Preconstruction Photographs: Before starting site staging of deconstruction / demolition, take photographs of Project site and surrounding properties, including existing items to remain during construction, from different vantage points, as directed by Architect.

1. Flag construction limits before taking construction photographs.
2. Take photographs to show existing conditions adjacent to property before starting the Work.
3. Take photographs of existing buildings either on or adjoining property to accurately record physical conditions at start of construction.
4. Take additional photographs as required to record settlement or cracking of adjacent structures, pavements, and improvements.

E. Periodic Construction Photographs: Take photographs weekly, with timing each month adjusted to coincide with the cutoff date associated with each Application for Payment. Select vantage points to show status of construction and progress since last photographs were taken.

F. Architect-Directed Construction Photographs: From time to time, Architect will instruct photographer about number and frequency of photographs and general directions on vantage

points. Select actual vantage points and take photographs to show the status of construction and progress since last photographs were taken.

END OF SECTION 01 3233

SECTION 01 3300 - SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

B. Division 1 Specification Section 01 3305 – Electronic Submittal Requirements for procedures of posting documents to a Project Web site.

1.2 SUMMARY

A. Section includes requirements for the submittal schedule and administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other submittals.

B. Submit shop drawings, product data, and samples required by Contract Documents.

C. Related Sections:

1. Division 01 Section "Payment Procedures" for submitting Applications for Payment and the schedule of values.
2. Division 01 Section "Construction Progress Documentation" for submitting schedules and reports, including Contractor's construction schedule.
3. Division 01 Section "Photographic Documentation" for submitting project photographs.
4. Division 01 Section "Operation and Maintenance Data" for submitting operation and maintenance manuals.
5. Division 01 Section "Project Record Documents" for submitting record Drawings, record Specifications, and record Product Data.
6. Division 01 Section "Demonstration and Training" for submitting video recordings of demonstration of equipment and training of Owner's personnel.

1.3 DEFINITIONS

A. Action Submittals: Written and graphic information and physical samples that require Architect's responsive action. Action submittals are those submittals indicated in individual Specification Sections as action submittals.

B. Informational Submittals: Written and graphic information and physical samples that do not require Architect's responsive action. Submittals may be rejected for not complying with requirements. Informational submittals are those submittals indicated in individual Specification Sections as informational submittals.

C. File Transfer Protocol (FTP): Communications protocol that enables transfer of files to and from another computer over a network and that serves as the basis for standard Internet protocols. An FTP site is a portion of a network located outside of network firewalls within which internal and external users are able to access files.

D. Portable Document Format (PDF): An open standard file format licensed by Adobe Systems used for representing documents in a device-independent and display resolution-independent fixed-layout document format.

1.4 ACTION SUBMITTALS

A. Submittal Schedule: Submit a schedule of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, ordering, manufacturing, fabrication, and delivery when establishing dates. Include additional time required for making corrections or modifications to submittals noted by the Architect and additional time for handling and reviewing submittals required by those corrections.

1. Coordinate submittal schedule with list of subcontracts, the schedule of values, and Contractor's construction schedule.
2. Final Submittal: Submit concurrently with the first complete submittal of Contractor's construction schedule.

    a. Submit revised submittal schedule to reflect changes in current status and timing for submittals.

3. Format:

    a. Scheduled date for first submittal.
    b. Specification Section number and title.
    c. Submittal category.
    d. Description of the Work covered.
    e. Scheduled date for Architect's final release or approval

1.5 SUBMITTAL ADMINISTRATIVE REQUIREMENTS

A. Architect's Digital Data Files: Electronic copies of PDF versions of “PLAN” Drawings of the Contract Drawings may be provided by Architect, upon request, for Contractor's use in preparing submittals. Electronic copies of **CAD Drawings** of the Contract Drawings will not be provided by Architect for Contractor's use in preparing submittals except as note elsewhere.

1. Architect will furnish Contractor digital data drawing PDF files of the Contract Drawings for use in preparing Shop Drawings. Copies of Architect’s digital files submitted as a required submittal without additional contractor specified information will be returned to the Contractor.

    a. Architect makes no representations as to the accuracy or completeness of digital data drawing files as they relate to the Contract Drawings.
    b. The following plot (PDF) files will by furnished for each appropriate discipline:

        1) Plan type drawings.
        2) Building detail drawings will not be provided

B. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.

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

2. Submit all submittal items required for each Specification Section concurrently unless partial submittals for portions of the Work are indicated on approved submittal schedule.
3. Submit action submittals and informational submittals required by the same Specification Section as separate packages under separate transmittals.
4. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.

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

C. Processing Time: Allow time for submittal review, including time for re-submittals, as follows. Time for review shall commence on Architect's receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, **including re-submittals**.

1. Initial Review: Allow 14 days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Architect will advise Contractor when a submittal being processed must be delayed for coordination.
2. Intermediate Review: If intermediate submittal is necessary, process it in same manner as initial submittal.
3. Re-submittal Review: Allow 14 days for review of each re-submittal.

D. Identification and Information: Identify and incorporate information in each electronic submittal file as follows:

1. Assemble complete submittal package into a single file for each submittal required. Submit each required submittal at the same time for the whole division.
2. Name file with submittal number or other unique identifier, including revision identifier.
3. Provide means for electronic insertion to permanently record Contractor's review and approval markings and action taken by Architect.
4. Include the following information on a sheet:

    a. Project name.
    b. Date.
    c. Name and address of Architect.
    d. Name of Contractor.
    e. Name of firm or entity that prepared submittal.
    f. Name of subcontractor.
    g. Name of supplier.
    h. Name of manufacturer.
    i. Number and title of appropriate Specification Section.
    j. Drawing number and detail references, as appropriate.
    k. Location(s) where product is to be installed, as appropriate.
    l. Related physical samples submitted directly.
    m. Other necessary identification.

5. Include the following information as keywords in the electronic file metadata:

    a. Project name.
    b. Number and title of appropriate Specification Section.
    c. Product name.

E. Options: Identify options requiring selection by the Architect.

F. Deviations: Identify deviations from the Contract Documents on submittals.

1. Submittals not reviewed by the General Contractor and stamped such will be rejected and sent back to the General Contractor for review. General Contractor to provide enough evidence of review, prior to submitting to the Architect for review. If upon review by the Architect, it is so deemed that the General Contractor did not review the submittal based on the amount of corrections that the Architect identifies, the Architect will cease review of the submittal and stamp as Revise and Resubmit without further review.

G. Additional Submittal Copies: Unless an additional submittal is required for final submittal or maintenance manuals, and unless Architect observes noncompliance with provisions in the Contract Documents, initial submittal may serve as final submittal.

H. Re-submittals: Make re-submittals in same form and number of copies as initial submittal.

1. Note date and content of previous submittal.
2. Note date and content of revision in label or title block and clearly indicate extent of revision.
3. Resubmit submittals until they are marked with approval notation from Architect's action stamp.

I. Distribution: Furnish electronic copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities.

J. Use for Construction: Use only final submittals that are marked with approval notation from Architect's action stamp.

1.6 CONTRACTOR'S USE OF ARCHITECT'S CAD FILES

A. General: At Contractor's written request, copies of Architect's CAD files may be provided to Contractor for Contractor's use in connection with the Project, subject to the following conditions:

1. Electronic copies of plan-type drawings will be made available at a cost of $100.00 payable to the Architect, depending on sheets requested, for each requested drawing. **Electronic copies will be distributed upon receipt of service fee and signed agreement**.
2. Contractor making request shall not distribute files to other parties.

B. Contractor making request shall provide a signed copy of the CAD/ELECTRONIC FILE TRANSFER TO CONTRACTOR form.

PART 2 - PRODUCTS

2.1 SUBMITTAL PROCEDURES

A. General Submittal Procedure Requirements: Prepare and submit submittals required by individual Specification Sections. Types of submittals are indicated in individual Specification Sections.

1. Shop Drawings shall be submitted in electronic format only.

2. Post electronic submittals as PDF electronic files directly to Project Web site specifically established for Project. (See Section 01 3305 for electronic submittal requirements)

    a. Architect will review electronic submittals and post annotated PDF electronic files directly to the project website for general contractor's use as directed in submittal comments.
    b. Contractor to annotate and retain one copy of file as an electronic Project record document file.

3. An electronic copy of all final, approved shop drawing submittals shall be submitted to the Owner at Project Close-Out. See Project Close-Out Section
4. Closeout Submittals and Maintenance Material Submittals: Comply with requirements specified in Division 01 Section "Closeout Procedures."
5. Certificates and Certifications Submittals: Provide a statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity.

    a. Provide a digital signature with digital certificate on electronically-submitted certificates and certifications where indicated.
    b. Provide a notarized statement on original paper copy certificates and certifications where indicated.

6. Test and Inspection Reports Submittals: Comply with requirements specified in Division 01 Section "Quality Requirements."

B. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.

1. If information must be specially prepared for submittal because standard published data are not suitable for use, submit as Shop Drawings, not as Product Data.
2. Mark each copy of each submittal to show which products and options are applicable.
3. Include the following information, as applicable:

    a. Manufacturer's catalog cuts.
    b. Manufacturer's product specifications.
    c. Standard color charts.
    d. Statement of compliance with specified referenced standards.
    e. Testing by recognized testing agency.
    f. Application of testing agency labels and seals.
    g. Notation of coordination requirements.
    h. Availability and delivery time information.

4. For equipment, include the following in addition to the above, as applicable:

    a. Wiring diagrams showing factory-installed wiring.
    b. Printed performance curves.
    c. Operational range diagrams.
    d. Clearances required to other construction, if not indicated on accompanying Shop Drawings.

5. Submit Product Data before or concurrent with Samples.
6. Submit Product Data in the following format:

    a. **PDF** electronic file.

b. Color Charts or items requiring true color representation not conducive to scanning or electronic formats:

1) Number of Copies: Submit the number of copies to the Architect which the Contractor requires, plus two-(2) which will be retained by the Architect, Architect's Consultant.

C. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data.

1. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:

a. Identification of products.
b. Schedules.
c. Compliance with specified standards.
d. Notation of coordination requirements.
e. Notation of dimensions established by field measurement.
f. Relationship and attachment to adjoining construction clearly indicated.
g. Seal and signature of professional engineer if specified.

2. 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** (30 by 42 inches)].
3. Submit Shop Drawings in the following format:

a. PDF electronic file.
b. For all submittals larger than 11"x17", Contractor shall submit one (1) Full Size paper copy to Aarchitect for reference only in addition to the electronic submittal. Paper copy will not be returned. Submittal will be returned after 7 calendar days if paper copy is not received by the Architect's office.

D. Samples: Submit Samples for review of kind, color, pattern, and texture for a check of these characteristics with other elements and for a comparison of these characteristics between submittal and actual component as delivered and installed.

1. Transmit Samples that contain multiple, related components such as accessories together in one submittal package.
2. Submit transmittal of sample shipment, onto the Project Web Site. Transmittal will be returned after 7 calendar days if samples are not received by the Architect's office.
3. Identification: Attach label on unexposed side of Samples that includes the following:

a. Generic description of Sample.
b. Product name and name of manufacturer.
c. Sample source.
d. Number and title of applicable Specification Section.

4. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.

a. Samples not incorporated into the Work, or otherwise designated as Owner's property, are the property of Contractor.

5. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from same material to be used for the Work, cured and finished in manner specified, and

physically identical with material or product proposed for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, the following: partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.

6. Number of Samples: Submit the number of copies to the Architect which the Contractor requires, plus two-(2) which will be retained by the Architect, Architect's Consultant.

    a. Submit a single Sample where assembly details, workmanship, fabrication techniques, connections, operation, and other similar characteristics are to be demonstrated.
    b. If variation in color, pattern, texture, or other characteristic is inherent in material or product represented by a Sample, submit at least three sets of paired units that show approximate limits of variations.

E. Product Schedule: As required in individual Specification Sections, prepare a written summary indicating types of products required for the Work and their intended location. Include the following information in tabular form:

1. Type of product. Include unique identifier for each product indicated in the Contract Documents.
2. Manufacturer and product name, and model number if applicable.
3. Number and name of room or space.
4. Location within room or space.
5. Submit product schedule in the following format:

    a. **PDF** electronic file.

F. Contractor's Construction Schedule: Comply with requirements specified in Division 01 Section "Construction Progress Documentation."

G. Application for Payment: Comply with requirements specified in Division 01 Section "Payment Procedures."

H. Schedule of Values: Comply with requirements specified in Division 01 Section "Payment Procedures."

I. Subcontractor List: Prepare a written summary identifying individuals or firms proposed for each portion of the Work, including those who are to furnish products or equipment fabricated to a special design. Include the following information in tabular form:

1. Name, address, and telephone number of entity performing subcontract or supplying products.
2. Number and title of related Specification Section(s) covered by subcontract.
3. Drawing number and detail references, as appropriate, covered by subcontract.
4. Submit subcontract list in the following format:

    a. **PDF** electronic file.

J. Coordination Drawings: Comply with requirements specified in Division 01 Section "Project Management and Coordination."

K. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, contact information of architects and owners, and other information specified.

L. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements in the Contract Documents. Submit record of Welding Procedure Specification and Procedure Qualification Record on American Welding Society (AWS) forms. Include names of firms and personnel certified.

M. Installer Certificates: Submit written statements on manufacturer's letterhead certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.

N. Manufacturer Certificates: Submit written statements on manufacturer's letterhead certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.

O. Product Certificates: Submit written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.

P. Material Certificates: Submit written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.

Q. Material Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.

R. Product Test Reports: Submit written reports indicating current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.

S. Research Reports: Submit written evidence, from a model code organization acceptable to authorities having jurisdiction, that product complies with building code in effect for Project. Include the following information:

1. Name of evaluation organization.
2. Date of evaluation.
3. Time period when report is in effect.
4. Product and manufacturers' names.
5. Description of product.
6. Test procedures and results.
7. Limitations of use.

T. Schedule of Tests and Inspections: Comply with requirements specified in Division 01 Section "Quality Requirements."

U. Compatibility Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for primers and substrate preparation needed for adhesion.

V. Field Test Reports: Submit reports indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements in the Contract Documents.

W. Maintenance Data: Comply with requirements specified in Division 01 Section "Operation and Maintenance Data."

X. Design Data: Prepare and submit written and graphic information, including, but not limited to, performance and design criteria, list of applicable codes and regulations, and calculations. Include list of assumptions and other performance and design criteria and a summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Include page numbers.

PART 3 - EXECUTION

3.1 CONTRACTOR'S REVIEW

A. Action and Informational Submittals: Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Architect.

B. Project Closeout and Maintenance/Material Submittals: Refer to requirements in Division 01 Section "Closeout Procedures."

C. Approval Stamp: Stamp each submittal with a uniform, approval stamp. Include Project name and location, submittal number, Specification Section title and number, name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

3.2 ARCHITECT'S ACTION

A. General: Architect will not review submittals that do not bear Contractor's approval stamp and will return them without action.

B. Action Submittals: Architect will review each submittal, make marks to indicate corrections or modifications required. Architect will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action, as follows:

1. Final Unrestricted Release: Where submittals are marked **"NO EXCEPTIONS TAKEN,"** the Work covered by the submittal may proceed provided it complies with requirements of the Contract Documents. Final acceptance will depend on that compliance.
2. Final-but-Restricted Release: When submittals are marked **"MAKE CORRECTIONS NOTED,"** the Work covered by the submittal may proceed provided it complies with both the Architect's notations and corrections on the submittal and requirements of the Contract Documents. Final acceptance will depend on that compliance.
3. Returned for Resubmittal: When submittal is marked **"REVISE AND RESUBMIT"** or **"REJECTED,"** do not proceed with the Work covered by the submittal, including purchasing, fabrication, delivery, or other activity. Revise or prepare a new submittal according to the Architect's notations. Resubmit without delay. Repeat if necessary to obtain a different action mark.

    a. Do not permit submittals marked **"REVISE AND RESUBMIT" or "REJECTED"** to be used at the Project Site or elsewhere where construction is in progress.

C. Informational Submittals: Architect will review each submittal and will not return it, or will return it if it does not comply with requirements. Architect will forward each submittal to appropriate party.

D. Partial submittals prepared for a portion of the Work will be reviewed when use of partial submittals has received prior approval from Architect.

E. Incomplete submittals are not acceptable, will be considered nonresponsive, and will be returned without review.

F. Submittals not required by the Contract Documents may not be reviewed and may be discarded.

G. Submittals that clearly demonstrate lack of review by the Contractor will be immediately be returned without review.

H. The Architect's review of these submittals is only for general conformance with the design concept of the work and general compliance with the information given in the Contract Documents. Any action shown is subject to the requirements of the drawings and specifications.

I. The review is not intended to be exhaustive; nor is the Architect or Owner's Representative obligated to verify dimensions, quantities, or the performance of any systems.

CAD/ELECTRONIC FILE TRANSFER TO CONTRACTOR
Dear *Contractor requesting Files*:
At your request, **FEH** DESIGN and its Consultants may provide electronic files for your convenience and use in the preparation of shop drawings related to **Dubuque County Courthouse Reroof, Painting, and Masonry Repair**, subject to the following terms and conditions:

Our electronic files are generated into **AutoCAD** drawing files. **FEH** DESIGN and its Consultants makes no representation as to the compatibility of these files with your hardware or your software. Please advise **FEH** DESIGN of the desired AutoCAD version you are requesting.
Data contained on these electronic files are part of our instruments of service and shall not be used by you for any purpose other than as a convenience in the preparation of the shop drawings for the referenced project. Any other use or reuse by you or by others will be at your sole risk and without liability or legal exposure to **FEH** DESIGN or our Consultants. You agree to make no claim and hereby waive, to the fullest extent permitted by law, any claim or cause of action of any nature against **FEH** DESIGN, our officers, directors, employees, agents or sub-consultants that may arise out of or in connection with your use of these electronic files.
Furthermore, you shall, to the fullest extent permitted by law, indemnify and hold **FEH** DESIGN and its Consultants harmless against all damages, liabilities or costs, including reasonable attorney's fees and defense costs arising out of or resulting from your use of these electronic files.
These electronic files are not construction documents. Differences may exist between these electronic files and corresponding hard-copy construction documents. **FEH** DESIGN and it's consultants makes no representation regarding the accuracy or completeness of the electronic files you receive. In the event that a conflict arises between the signed or sealed hard-copy construction documents, the signed or sealed hard-copy shall govern. You are responsible for determining if any conflict exists. By your use of these electronic files, you are not relieved of your duty to fully comply with the contract documents, including, and without limitation, the need to check, confirm and coordinate all dimensions and details, take field measurements, verify field conditions and coordinate your work with that of other contractors for the project.

Because information presented on the electronic files can be modified, unintentionally or otherwise, **FEH** DESIGN and its Consultants reserves the right to remove all indicia of ownership and/or involvement from each electronic display.
FEH DESIGN will furnish you electronic files of the following drawing sheets:

List of Contractor Requested Drawings: _____

AutoCAD version (ie. AutoCAD 2010, AutoCAD 2009 etc.): _____
Under no circumstances shall delivery of the electronic files for use by you be deemed a sale by **FEH** DESIGN, and we make no warranties, either express or implied, of merchantability and fitness for any particular purpose. In no event shall **FEH** DESIGN or it's Consultants be liable for any loss of profit or any consequential damages as a result of your use or reuse of these electronic files.

(*Contractor name and title)*	*(Officer or Legally Responsible Party)*
(Company)	*(Title)*
(Address)	*(Date)*
(Address)	

END OF SECTION 01 3300

SECTION 01 3305 – ELECTRONIC SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes requirements for the submittal schedule and administrative and procedural requirements for submitting Electronic Shop Drawings, Electronic Product Data, and other electronic submittals.

B. Related Sections:

1. Division 01 Section "Submittal Procedures" for general submittal requirements.
2. Division 01 Section "Construction Progress Documentation" for submitting schedules and reports, including Contractor's construction schedule.
3. Division 01 Section "Photographic Documentation" for submitting project photographs.
4. Division 01 Section "Operation and Maintenance Data" for submitting operation and maintenance manuals.
5. Division 01 Section "Project Record Documents" for submitting record Drawings, record Specifications, and record Product Data.
6. Division 01 Section "Demonstration and Training" for submitting video recordings of demonstration of equipment and training of Owner's personnel.

1.3 SUBMITTALS

1. Archive copies of Project Website files.
2. Website provider operation and access instructions.

1.4 DEFINITIONS:

A. File Transfer Protocol (FTP): Communications protocol that enables transfer of files to and from another computer over a network and that serves as the basis for standard Internet protocols. An FTP site is a portion of a network located outside of network firewalls within which internal and external users are able to access files.

PART 2 - PRODUCTS

2.1 PROJECT WEBSITE PROVIDER

A. Electronic Submittal Website Provider: Subject to compliance with requirements, provide products and/or service under their current licensing agreements by one of the following:

1. "Submittal Exchange" website service designed specifically for transmitting submittals between construction team members. www.submittalexchange.com. (1-800-714-0024)

2. "Newforma Project Cloud" (web based) designed for transmitting project information between construction team members. Www.newformaprojectcloud.com 1-800-303-4650 or email: projectcloud@newforma.com

3. "Building Works" website service designed for transmitting construction project information. www.BuildingWorksInc.com; 314.647.2812 or ann.schwetye@buildingworksinc.com
4. Pre-approved equal website provider.

B. Requirements:
1. No special hardware required
2. Unlimited user accounts
3. Provide project training and support
4. Ability to archive all project documents at end of project.
5. File sharing
6. Option for mobile device access

2.2 ELECTRONIC SUBMITTAL REQUIREMENTS

A. The following submittals and paperwork shall be transmitted to Architect in electronic (PDF) format via a website service designed specifically for transmitting submittals between construction team members. The contractor shall use the FTP site for the following information:

1. Shop drawing submittals
2. Product data submittals
3. Requests for Information
4. Project Directory
5. Project Correspondence
6. Contractor's reports
7. Project Meeting Minutes
8. Contract Modification (Change Orders) Logs
9. Request For Information forms, responses and logs
10. Architectural Supplemental Instructions (ASI's) and logs
11. Online document collaboration files
12. Project photographs and videos
13. Special Inspection reports

B. The electronic submittal process is not intended for the following:

1. Color samples, color charts, physical material samples.
2. Applications for Payment, and other submittals not related to shop drawings and product data and not indicated above.

C. Provide and use project website for purposes of managing project information and documentation noted elsewhere until Final Completion.

D. Project Website administration: Project website will be administered by the Architect/Engineer.

2.3 SUBMITTAL PROCEDURES

A. General Submittal Procedure Requirements: Prepare and submit submittals required by individual Specification Sections as required by Specification Section 01 3300.

B. The intent of electronic submittals is to expedite the construction process by reducing paperwork, improving information flow, and decreasing turnaround time.

1. Post electronic submittals as PDF files directly to the site specifically established for this project.

C. Submittal Preparation - Contractor may use any or all of the following options:

1. Subcontractors and Suppliers provide electronic (PDF) submittals to Contractor via email.
2. Subcontractors and Suppliers provide electronic (PDF) submittals to Contractor via the established submittal website.
3. Subcontractors and Suppliers provide paper submittals to General Contractor who electronically scans and converts all submittals to PDF format.

D. Contractor shall review and apply electronic stamp certifying that each submittal complies with the requirements of the Contract Documents including verification of manufacturer / product, dimensions and coordination of information with other parts of the work.

E. Contractor transmits each submittal using the established submittal website, and then is to notify the Architect.

F. Architect / Engineer, review comments will be made available on the established submittal website for downloading. Contractor will receive email notice of completed review.

G. Distribution of reviewed submittals to subcontractors and suppliers is the responsibility of the Contractor.

1. Contractor to submit CD-ROM or USB drive copies of reviewed submittals at project closeout for record purposes in accordance with Section 01 7700 – Closeout Procedures

2.4 COSTS:

A. Contractor shall include the cost of Electronic Submittal Website services in their proposal. This cost is included in the Contract Amount.
1. The intent is for the Electronic Submittal Website service cost to be used in lieu of postage or shipping costs typically paid for paper submittals.
2. Contractor shall be responsible for training their employees and/or sub-contractors regarding use of website and PDF submittals.
3. Internet Service and Equipment Requirements:
   a. Email address and Internet access at Contractor's main office and at the project site office.
   b. Adobe Acrobat (www.adobe.com) or other similar PDF review software for applying electronic stamps and comments.

PART 3 - EXECUTION – Not Used

END OF SECTION 01 3305

SECTION 01 4000 - QUALITY CONTROL REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements for quality assurance and quality control.

B. **Contractor is responsible for all testing and monitoring on the project** unless specifically noted to be provided by Owner in subsequent specification Sections.

C. Testing and inspecting services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.

1. Specific quality-assurance and -control requirements for individual construction activities are specified in the Sections that specify those activities. Requirements in those Sections may also cover production of standard products.
2. Specified tests, inspections, and related actions do not limit Contractor's other quality-assurance and -control procedures that facilitate compliance with the Contract Document requirements.
3. Requirements for Contractor to provide quality-assurance and -control services required by Architect, Owner, or authorities having jurisdiction are not limited by provisions of this Section.
4. Specific test and inspection requirements are not specified in this Section.

1.3 REQUIREMENTS INCLUDED

A. General Quality Control

B. Workmanship

C. Manufacturer's Instructions

D. Manufacturer's Certificates

E. Mockups

F. Manufacturer's Field Services

G. Testing Laboratory Services

H. Testing Agency Qualifications and Quality Assurance

I. Inspections

J. Retest Responsibility

K. Contractor's Responsibilities

L. Payment for Tests

M. Special Structural Testing and Inspection

1.4 RELATED REQUIREMENTS

A. Document 007200 - General Conditions: Inspecting and testing required by governing authorities.

B. Section 01 3300 - Submittals: Submittal of Manufacturer's Instructions and Certificates.

C. Quality Assurance and Quality Control paragraphs of each Technical Specifications Section.

1.5 DEFINITIONS

A. OC = Owner’s Consultant

B. OITL = Owner’s Independent Testing Laboratory

C. Quality-Assurance Services: Activities, actions, and procedures performed before and during execution of the Work to guard against defects and deficiencies and substantiate that proposed construction will comply with requirements.

D. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that actual products incorporated into the Work and completed construction comply with requirements. Services do not include contract enforcement activities performed by Architect.

E. Product Testing: Tests and inspections that are performed by an NRTL, an NVLAP, or a testing agency qualified to conduct product testing and acceptable to authorities having jurisdiction, to establish product performance and compliance with specified requirements.

F. Source Quality-Control Testing: Tests and inspections that are performed at the source, e.g., plant, mill, factory, or shop.

G. Field Quality-Control Testing: Tests and inspections that are performed on-site for installation of the Work and for completed Work.

H. Testing Agency: An entity engaged to perform specific tests, inspections, or both. Testing laboratory shall mean the same as testing agency.

I. Installer/Applicator/Erector: Contractor or another entity engaged by Contractor as an employee, Subcontractor, or Sub-subcontractor, to perform a particular construction operation, including installation, erection, application, and similar operations.

1. Use of trade-specific terminology in referring to a trade or entity does not require that certain construction activities be performed by accredited or unionized individuals, or that requirements specified apply exclusively to specific trade(s).

J. Experienced: When used with an entity or individual, "experienced" means having successfully completed a minimum of five previous projects similar in nature, size, and extent to this Project; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction.

1.6 CONFLICTING REQUIREMENTS

A. Referenced Standards: If compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer conflicting requirements that are different, but apparently equal, to Architect for a decision before proceeding.

B. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to Architect for a decision before proceeding.

1.7 INFORMATIONAL SUBMITTALS

A. Contractor's Statement of Responsibility: When required by authorities having jurisdiction, submit copy of written statement of responsibility sent to authorities having jurisdiction before starting work on the following systems:

1. Seismic-force-resisting system, designated seismic system, or component listed in the designated seismic system quality-assurance plan prepared by Architect.
2. Main wind-force-resisting system or a wind-resisting component listed in the wind-force-resisting system quality-assurance plan prepared by Architect.

B. Testing Agency Qualifications: For testing agencies specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include proof of qualifications in the form of a recent report on the inspection of the testing agency by a recognized authority.

C. Schedule of Tests and Inspections: Prepare in tabular form and include the following:

1. Specification Section number and title.
2. Entity responsible for performing tests and inspections.
3. Description of test and inspection.
4. Identification of applicable standards.
5. Identification of test and inspection methods.
6. Number of tests and inspections required.
7. Time schedule or time span for tests and inspections.
8. Requirements for obtaining samples.
9. Unique characteristics of each quality-control service.

1.8 REPORTS AND DOCUMENTS

A. Test and Inspection Reports: Prepare and submit certified written reports specified in other Sections. Include the following:

1. Date of issue.
2. Project title and number.
3. Name, address, and telephone number of testing agency.
4. Dates and locations of samples and tests or inspections.
5. Names of individuals making tests and inspections.
6. Description of the Work and test and inspection method.
7. Identification of product and Specification Section.
8. Complete test or inspection data.
9. Test and inspection results and an interpretation of test results.
10. Record of temperature and weather conditions at time of sample taking and testing and inspecting.
11. Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.
12. Recommendations on retesting and reinspecting.

B. Manufacturer's Technical Representative's Field Reports: Prepare written information documenting manufacturer's technical representative's tests and inspections specified in other Sections. Include the following:

1. Name, address, and telephone number of technical representative making report.
2. Statement on condition of substrates and their acceptability for installation of product.
3. Statement that products at Project site comply with requirements.
4. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.
5. Results of operational and other tests and a statement of whether observed performance complies with requirements.
6. Statement whether conditions, products, and installation will affect warranty.
7. Other required items indicated in individual Specification Sections.

C. Permits, Licenses, and Certificates: For Owner's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents, established for compliance with standards and regulations bearing on performance of the Work.

1.9 QUALITY ASSURANCE

A. General: Qualifications paragraphs in this article establish the minimum qualification levels required; individual Specification Sections specify additional requirements.

B. Manufacturer Qualifications: A firm experienced in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.

C. Fabricator Qualifications: A firm experienced in producing products similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.

D. Installer Qualifications: A firm or individual experienced in installing, erecting, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance.

E. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of the system, assembly, or product that is similar in material, design, and extent to those indicated for this Project.

F. Specialists: Certain Specification Sections require that specific construction activities shall be performed by entities who are recognized experts in those operations. Specialists shall satisfy qualification requirements indicated and shall be engaged for the activities indicated.

1. Requirements of authorities having jurisdiction shall supersede requirements for specialists.

G. Manufacturer's Technical Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to observe and inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.

1.10 QUALITY CONTROL

A. Maintain quality control over suppliers, manufacturer’s products, services, site conditions, and workmanship, to produce Work of specified quality. Quality control is the Contractor’s primary responsibility.

B. Owner Responsibilities: Where quality-control services are indicated as Owner's responsibility, Owner will engage a qualified testing agency to perform these services.

1. Owner will furnish Contractor with names, addresses, and telephone numbers of testing agencies engaged and a description of types of testing and inspecting they are engaged to perform.
2. Costs for retesting and reinspecting construction that replaces or is necessitated by work that failed to comply with the Contract Documents will be charged to Contractor, and the Contract Sum will be adjusted by Change Order.

1.11 CONTRACTOR RESPONSIBILITIES:

A. The Contractor shall schedule and coordinate all Pre-Construction, Pre-Installation, and Construction Testing and Inspection Operations. The Contractor shall provide a minimum of five (5) working days’ notice to the OITL, and the appropriate firms and/or agencies before starting Work requiring inspection or testing. The Contractor shall provide a minimum of three (3) working days’ notice thereafter for each testing or inspection for the continuation of that item with reasonable date and time fixed for such inspections and tests. If the Work is covered up prior to any required testing or observation, it shall be uncovered for review at the Contractor's expense.

B. Contractors shall cooperate with the OC and OITL personnel, and shall provide all scaffolding, staging or temporary heat necessary for OITL to access the Work, and the manufacturer's operations.

C. Contractors shall provide to the OITL without cost, samples of proposed materials which require testing and pay shipping costs of such samples to the OITL's or other testing agencies' facility.

D. Contractors shall provide the preliminary design mix (es) proposed to be used for concrete and other materials to the OITL which require verification for compliance or testing by the OITL.

E. Contractors shall furnish copies of test reports as required.

F. Contractors shall furnish incidental labor and facilities necessary:

G. To provide access to the Work to be tested,

H. To obtain and handle samples at the Project site or at the source of the product to be tested,

I. To facilitate inspections and tests. The Contractor shall notify the Architect, OC and OITL a minimum of three (3) working days prior to expected times for operations requiring the OC's or OITL's services.

J. The Contractor shall notify the Architect, OC and OITL a minimum of three (3) working days prior to expected times for operations requiring the OC's or OITL's services.

K. Contractors shall make arrangements with the OITL and pay for additional samples and tests taken for Contractor's convenience.

L. Inspection and testing shall in no way relieve the Contractor or supplier from responsibility for furnishing materials and workmanship in accordance with the Contract Documents.

M. Contractors shall comply with other instructions from the Architect regarding testing.

1.12 PAYMENT FOR TESTS AND INSPECTIONS

A. In general, the Contractor shall pay for Pre-Construction laboratory tests, field tests, and inspections conducted to determine the quality of materials and workmanship at the site.

B. The Owner will not pay for testing of mechanical and electrical systems, unless specified otherwise.

C. The Contractor shall pay for all retesting, re-inspection and re-observation costs.

1.13 TESTS AND INSPECTIONS, GENERAL

A. Tests and inspections not explicitly assigned to Owner are Contractor's responsibility. Perform additional quality-control activities required to verify that the Work complies with requirements, whether specified or not.

1. Unless otherwise indicated, provide quality-control services specified and those required by authorities having jurisdiction. Perform quality-control services required of Contractor by authorities having jurisdiction, whether specified or not.
2. Where services are indicated as Contractor's responsibility, engage a qualified testing agency to perform these quality-control services.

    a. Contractor shall not employ same entity engaged by Owner, unless agreed to in writing by Owner.

3. Notify testing agencies at least 24 hours in advance of time when Work that requires testing or inspecting will be performed.
4. Where quality-control services are indicated as Contractor's responsibility, submit a certified written report, in duplicate, of each quality-control service.
5. Testing and inspecting requested by Contractor and not required by the Contract Documents are Contractor's responsibility.
6. Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.

1.14 WORKMANSHIP

A. Comply with industry standards unless more restrictive tolerances or specified requirements indicate more rigid standards or more precise workmanship.

B. Perform Work by persons qualified to produce workmanship of specified quality.

C. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, and racking.

1.15 MANUFACTURER'S INSTRUCTIONS

A. Comply with Manufacturer's Instructions in full detail, including each step in sequence. Should Manufacturer's Instructions conflict with Contract Documents, request clarification from Architect before proceeding.

1.16 MANUFACTURER'S CERTIFICATES

A. When required by individual Specifications Section, submit Manufacturer's Certificate and/or Test Reports confirming that products meet or exceed specified requirements.

1.17 MOCKUPS

A. When required by individual Specifications Section, erect complete, full-scale mockup of assembly at Project site. Remove mockup when directed by Architect or as indicated in individual Sections.

1.18 MANUFACTURER'S FIELD SERVICES:

A. Where indicated, engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including service connections. Report results in writing as specified in Section 01 3300 "Submittal Procedures."

B. Manufacturer's Representative shall submit written reports to the Architect, Owner and Contractor listing observations and recommendations.

1.19 MANUFACTURER'S TECHNICAL SERVICES:

A. Where indicated, engage a manufacturer's technical representative to observe and inspect the Work. Manufacturer's technical representative's services include participation in preinstallation

conferences, examination of substrates and conditions, verification of materials, observation of Installer activities, inspection of completed portions of the Work, and submittal of written reports.

1.20 RETEST RESPONSIBILITIES

A. Where results of required inspections, tests, or similar prove unsatisfactory and do not indicate compliance of related Work with requirements of the Contract Documents, then retests are the responsibility of the Contractor, regardless of whether the original test was the Contractor's responsibility. Retesting of Work revised or replaced by the Contractor is the Contractor's responsibility, where required tests were performed on original Work.

B. When any testing or observations indicate the Work is non-compliant with the Contract Documents, all retesting and re-observations shall be performed by the Owner's testing or observation agencies. All costs for retesting and re-observations, including additional services of the design professionals, the design professional's consultants and the Owner's consultants are the Contractor's responsibility and shall be deducted from the Contract Sum by Change Order.

1.21 TESTING LABORATORY SERVICES

A. The Owner will select and pay for and the Contractor shall schedule the services of the Owner's Consultant (OC) and the Owners Independent Testing Laboratories, (OITL) to perform inspections, tests, and other services required by various Specification Sections.

B. The Owner will employ and pay for a Special Inspector, if required by code authorities having jurisdiction, to provide structural system inspections during construction as may be required by applicable codes. The Contractor shall coordinate operations with the Special Inspector and cooperate with the Special Inspector in the required inspections.

C. When initial tests find noncompliance with the Contract Documents, all retesting will be performed by the OILT and all retesting costs shall be deducted from the Contract Sum by Change Order.

D. The Contractor shall employ and pay for services of laboratories to perform all other inspections, tests, and services required by individual Specification Sections. Services shall be performed in accordance with requirements of governing authorities and with specified standards.

E. The design mixes to be prepared and the design mix tests required for the Project before construction begins shall be arranged and paid for separately by the Contractor.

F. All tests specified and/or required by code, permit, or regulatory requirements shall be arranged and paid for separately by the Contractor, unless noted otherwise.

G. The Contractor shall include the costs of all Contractor testing requirements in their bid price.

H. Reports on tests from both the OITL and the Contractor's laboratories will be sent to the Contractor, the Architect, the Structural Engineer, the Owner's Representative and the Owner giving observations and results of tests, indicating compliance or noncompliance with specified standards and with Contract Documents.

1.22 TESTING AGENCY QUALIFICATIONS

A. "Approved Independent Testing Laboratory" shall mean an independent testing agency acceptable to the Owner and the Architect and possessing the professional qualifications, equipment and personnel to perform the specified tests and to evaluate and report the results.

1.23 TESTING AGENCY QUALITY ASSURANCE

A. Laboratory shall comply with requirements of ASTM D3740 and ASTM E329.

B. Laboratory shall maintain a full-time registered Engineer on staff to review services.

C. Laboratory shall be authorized to operate in the State in which the Project is located.

D. Testing equipment shall be calibrated at reasonable intervals with devices of an accuracy traceable to either NBS Standards or accepted values of natural physical constants.

E. No rejected materials shall be incorporated into the Work. All rejected materials shall be immediately identified by the Laboratory, marked and removed from the site at no expense to the Owner.

F. Testing Agency Responsibilities: Cooperate with Architect and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.

1. Notify Architect and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.
2. Determine the location from which test samples will be taken and in which in-situ tests are conducted.
3. Conduct and interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from requirements.
4. Submit a certified written report, in duplicate, of each test, inspection, and similar quality-control service through Contractor.
5. Do not release, revoke, alter, or increase the Contract Document requirements or approve or accept any portion of the Work.
6. Do not perform any duties of Contractor.

G. Associated Services: Cooperate with agencies performing required tests, inspections, and similar quality-control services, and provide reasonable auxiliary services as requested. Notify agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:

1. Access to the Work.
2. Incidental labor and facilities necessary to facilitate tests and inspections.
3. Adequate quantities of representative samples of materials that require testing and inspecting. Assist agency in obtaining samples.
4. Facilities for storage and field curing of test samples.
5. Delivery of samples to testing agencies.
6. Preliminary design mix proposed for use for material mixes that require control by testing agency.
7. Security and protection for samples and for testing and inspecting equipment at Project site.

H. Coordination: Coordinate sequence of activities to accommodate required quality-assurance and -control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.

1. Schedule times for tests, inspections, obtaining samples, and similar activities.

1.24 REFERENCES

A. ASTM D3740 - Practice for Evaluation of Agencies Engaged in Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction.

B. ASTM E329 - Standard Recommended Practice for Inspecting and Testing Agencies for Concrete, Steel, and Bituminous Materials as Used in Construction.

1.25 INSPECTIONS

A. When the Specifications, Architect's instruction, laws, ordinances or any public authority requires any Work to be inspected or approved, the Contractor shall provide a minimum of five (5) working days' notice to the appropriate firms and/or agencies before starting Work requiring inspection or testing. The Contractor shall provide a minimum of three (3) working days' notice thereafter for each testing or inspection for the continuation of that item with a reasonable date and time fixed for such inspections and tests. If the Work is covered up prior to any required testing or observation, it shall be uncovered for review at the Contractor's expense.

B. Inspection and testing services are required to verify certain aspects of the Work for compliances with requirements specified or indicated for the Owner. These services do not relieve the Contractor of responsibility for compliances with Contract Document requirements.

C. Inspection and testing agencies are not authorized to release, revoke, alter or enlarge requirements of the Contract Documents, or approve or accept any portion of the Work.

1.26 CODE-REQUIRED SPECIAL INSPECTIONS AND PROCEDURES AND REPORTS

A. The OITL agency and other inspection consultants shall submit reports and shall conduct and interpret tests and inspections and state in each report whether to the best of their knowledge; (1) test specimens and observations comply with Contract Documents, and specifically state any deviations, (2) record types and locations of defects found in Work, (3) record Work required and performed, to correct deficiencies.

B. Reports for tests and inspections shall be submitted in a timely manner to the Contractor, Building Official (if required), the Architect, the Structural Engineer, the Owner's Representative and the Owner.

1. Submit Reports for ongoing Work, to provide the information noted below:

a. Date issued.
b. Project title
c. Firm name and address
d. Name and signature of tester or inspector
e. Date and time of sampling
f. Date of test or inspection
g. Identification of Specification Section and products

h. Location in Project, including elevations, grid location and detail
i. Type of test or inspection
j. Results of tests or inspections and interpretations of same
k. Observations regarding compliance with Contract Documents or deviations therefrom

2. Submit two (2) original copies of a final, signed Report to the Owner stating that, to the best of the inspector's knowledge, the Work requiring testing and/or inspection conformed to the Construction Documents.

C. The OITL agency and/or inspectors shall submit reports including similar information as described in subparagraph A. above for conventional testing and inspection requirements as described in the Specifications in a timely manner to the Contractor, the Architect, the Structural Engineer, the Owner's Inspection Consultant(s), the Owner's Representative and the Owner, all as directed by the Owner.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 REPAIR AND PROTECTION

A. General: On completion of testing, inspecting, sample taking, and similar services, repair damaged construction and restore substrates and finishes.

1. Provide materials and comply with installation requirements specified in other Specification Sections or matching existing substrates and finishes. Restore patched areas and extend restoration into adjoining areas with durable seams that are as invisible as possible. Comply with the Contract Document requirements for cutting and patching in Section 01 7300 "Execution."

B. Protect construction exposed by or for quality-control service activities.

C. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

END OF SECTION 01 4000

SECTION 01 4200 - REFERENCES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 DEFINITIONS

A. General: Basic Contract definitions are included in the Conditions of the Contract.

B. "Approved": When used to convey Architect's action on Contractor's submittals, applications, and requests, "approved" is limited to Architect's duties and responsibilities as stated in the Conditions of the Contract.

C. "Directed": A command or instruction by Architect. Other terms including "requested," "authorized," "selected," "required," and "permitted" have the same meaning as "directed."

D. "Indicated": Requirements expressed by graphic representations or in written form on Drawings, in Specifications, and in other Contract Documents. Other terms including "shown," "noted," "scheduled," and "specified" have the same meaning as "indicated."

E. "Regulations": Laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, and rules, conventions, and agreements within the construction industry that control performance of the Work.

F. "Furnish": Supply and deliver to Project site, ready for unloading, unpacking, assembly, installation, and similar operations.

G. "Install": Unload, temporarily store, unpack, assemble, erect, place, anchor, apply, work to dimension, finish, cure, protect, clean, and similar operations at Project site.

H. "Provide": Furnish and install, complete and ready for the intended use.

I. "Project Site": Space available for performing construction activities. The extent of Project site is shown on Drawings and may or may not be identical with the description of the land on which Project is to be built.

1.3 INDUSTRY STANDARDS

A. Applicability of Standards: Unless the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into the Contract Documents to the extent referenced. Such standards are made a part of the Contract Documents by reference.

B. Publication Dates: Comply with standards in effect as of date of the Contract Documents unless otherwise indicated.

C. Copies of Standards: Each entity engaged in construction on Project should be familiar with industry standards applicable to its construction activity. Copies of applicable standards are not bound with the Contract Documents.

1. Where copies of standards are needed to perform a required construction activity, obtain copies directly from publication source.

1.4 ABBREVIATIONS AND ACRONYMS

A. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. This information is subject to change and is believed to be accurate as of the date of the Contract Documents.

1. AABC - Associated Air Balance Council; www.aabc.com.
2. AAMA - American Architectural Manufacturers Association; www.aamanet.org.
3. AAPFCO - Association of American Plant Food Control Officials; www.aapfco.org.
4. AASHTO - American Association of State Highway and Transportation Officials; www.transportation.org.
5. AATCC - American Association of Textile Chemists and Colorists; www.aatcc.org.
6. ABMA - American Bearing Manufacturers Association; www.americanbearings.org.
7. ACI - American Concrete Institute; (Formerly: ACI International); www.concrete.org.
8. ACPA - American Concrete Pipe Association; www.concrete-pipe.org.
9. AEIC - Association of Edison Illuminating Companies, Inc. (The); www.aeic.org.
10. AF&PA - American Forest & Paper Association; www.afandpa.org.
11. AGA - American Gas Association; www.aga.org.
12. AHAM - Association of Home Appliance Manufacturers; www.aham.org.
13. AHRI - Air-Conditioning, Heating, and Refrigeration Institute (The); www.ahrinet.org.
14. AI - Asphalt Institute; www.asphaltinstitute.org.
15. AIA - American Institute of Architects (The); www.aia.org.
16. AISC - American Institute of Steel Construction; www.aisc.org.
17. AISI - American Iron and Steel Institute; www.steel.org.
18. AITC - American Institute of Timber Construction; www.aitc-glulam.org.
19. AMCA - Air Movement and Control Association International, Inc.; www.amca.org.
20. ANSI - American National Standards Institute; www.ansi.org.
21. AOSA - Association of Official Seed Analysts, Inc.; www.aosaseed.com.
22. APA - APA - The Engineered Wood Association; www.apawood.org.
23. APA - Architectural Precast Association; www.archprecast.org.
24. API - American Petroleum Institute; www.api.org.
25. ARI - Air-Conditioning & Refrigeration Institute; (See AHRI).
26. ARI - American Refrigeration Institute; (See AHRI).
27. ARMA - Asphalt Roofing Manufacturers Association; www.asphaltroofing.org.
28. ASCE - American Society of Civil Engineers; www.asce.org.
29. ASCE/SEI - American Society of Civil Engineers/Structural Engineering Institute; (See ASCE).
30. ASHRAE - American Society of Heating, Refrigerating and Air-Conditioning Engineers; www.ashrae.org.
31. ASME - ASME International; (American Society of Mechanical Engineers); www.asme.org.
32. ASSE - American Society of Safety Engineers (The); www.asse.org.
33. ASSE - American Society of Sanitary Engineering; www.asse-plumbing.org.
34. ASTM - ASTM International; (American Society for Testing and Materials International); www.astm.org.
35. ATIS - Alliance for Telecommunications Industry Solutions; www.atis.org.
36. AWEA - American Wind Energy Association; www.awea.org.

37. AWI - Architectural Woodwork Institute; www.awinet.org.
38. AWMAC - Architectural Woodwork Manufacturers Association of Canada; www.awmac.com.
39. AWPA - American Wood Protection Association; (Formerly: American Wood-Preservers' Association); www.awpa.com.
40. AWS - American Welding Society; www.aws.org.
41. AWWA - American Water Works Association; www.awwa.org.
42. BHMA - Builders Hardware Manufacturers Association; www.buildershardware.com.
43. BIA - Brick Industry Association (The); www.gobrick.com.
44. BICSI - BICSI, Inc.; www.bicsi.org.
45. BIFMA - BIFMA International; (Business and Institutional Furniture Manufacturer's Association); www.bifma.com.
46. BISSC - Baking Industry Sanitation Standards Committee; www.bissc.org.
47. BOCA - BOCA; (Building Officials and Code Administrators International Inc.); (See ICC).
48. BWF - Badminton World Federation; (Formerly: International Badminton Federation); www.bwfbadminton.org.
49. CDA - Copper Development Association; www.copper.org.
50. CEA - Canadian Electricity Association; www.electricity.ca.
51. CEA - Consumer Electronics Association; www.ce.org.
52. CFFA - Chemical Fabrics & Film Association, Inc.; www.chemicalfabricsandfilm.com.
53. CFSEI - Cold-Formed Steel Engineers Institute; www.cfsei.org.
54. CGA - Compressed Gas Association; www.cganet.com.
55. CIMA - Cellulose Insulation Manufacturers Association; www.cellulose.org.
56. CISCA - Ceilings & Interior Systems Construction Association; www.cisca.org.
57. CISPI - Cast Iron Soil Pipe Institute; www.cispi.org.
58. CLFMI - Chain Link Fence Manufacturers Institute; www.chainlinkinfo.org.
59. CPA - Composite Panel Association; www.pbmdf.com.
60. CRI - Carpet and Rug Institute (The); www.carpet-rug.org.
61. CRRC - Cool Roof Rating Council; www.coolroofs.org.
62. CRSI - Concrete Reinforcing Steel Institute; www.crsi.org.
63. CSA - Canadian Standards Association; www.csa.ca.
64. CSA - CSA International; (Formerly: IAS - International Approval Services); www.csa-international.org.
65. CSI - Construction Specifications Institute (The); www.csinet.org.
66. CSSB - Cedar Shake & Shingle Bureau; www.cedarbureau.org.
67. CTI - Cooling Technology Institute; (Formerly: Cooling Tower Institute); www.cti.org.
68. CWC - Composite Wood Council; (See CPA).
69. DASMA - Door and Access Systems Manufacturers Association; www.dasma.com.
70. DHI - Door and Hardware Institute; www.dhi.org.
71. ECA - Electronic Components Association; www.ec-central.org.
72. ECAMA - Electronic Components Assemblies & Materials Association; (See ECA).
73. EIA - Electronic Industries Alliance; (See TIA).
74. EIMA - EIFS Industry Members Association; www.eima.com.
75. EJMA - Expansion Joint Manufacturers Association, Inc.; www.ejma.org.
76. ESD - ESD Association; (Electrostatic Discharge Association); www.esda.org.
77. ESTA - Entertainment Services and Technology Association; (See PLASA).
78. EVO - Efficiency Valuation Organization; www.evo-world.org.
79. FIBA - Federation Internationale de Basketball; (The International Basketball Federation); www.fiba.com.
80. FIVB - Federation Internationale de Volleyball; (The International Volleyball Federation); www.fivb.org.
81. FM Approvals - FM Approvals LLC; www.fmglobal.com.
82. FM Global - FM Global; (Formerly: FMG - FM Global); www.fmglobal.com.
83. FRSA - Florida Roofing, Sheet Metal & Air Conditioning Contractors Association, Inc.; www.floridaroof.com.
84. FSA - Fluid Sealing Association; www.fluidsealing.com.

85. FSC - Forest Stewardship Council U.S.; www.fscus.org.
86. GA - Gypsum Association; www.gypsum.org.
87. GANA - Glass Association of North America; www.glasswebsite.com.
88. GS - Green Seal; www.greenseal.org.
89. HI - Hydraulic Institute; www.pumps.org.
90. HI/GAMA - Hydronics Institute/Gas Appliance Manufacturers Association; (See AHRI).
91. HMMA - Hollow Metal Manufacturers Association; (See NAAMM).
92. HPVA - Hardwood Plywood & Veneer Association; www.hpva.org.
93. HPW - H. P. White Laboratory, Inc.; www.hpwhite.com.
94. IAPSC - International Association of Professional Security Consultants; www.iapsc.org.
95. IAS - International Approval Services; (See CSA).
96. ICBO - International Conference of Building Officials; (See ICC).
97. ICC - International Code Council; www.iccsafe.org.
98. ICEA - Insulated Cable Engineers Association, Inc.; www.icea.net.
99. ICPA - International Cast Polymer Alliance; www.icpa-hq.org.
100. ICRI - International Concrete Repair Institute, Inc.; www.icri.org.
101. IEC - International Electrotechnical Commission; www.iec.ch.
102. IEEE - Institute of Electrical and Electronics Engineers, Inc. (The); www.ieee.org.
103. IES - Illuminating Engineering Society; (Formerly: Illuminating Engineering Society of North America); www.ies.org.
104. IESNA - Illuminating Engineering Society of North America; (See IES).
105. IEST - Institute of Environmental Sciences and Technology; www.iest.org.
106. IGMA - Insulating Glass Manufacturers Alliance; www.igmaonline.org.
107. IGSHPA - International Ground Source Heat Pump Association; www.igshpa.okstate.edu.
108. ILI - Indiana Limestone Institute of America, Inc.; www.iliai.com.
109. Intertek - Intertek Group; (Formerly: ETL SEMCO; Intertek Testing Service NA); www.intertek.com.
110. ISA - International Society of Automation (The); (Formerly: Instrumentation, Systems, and Automation Society); www.isa.org.
111. ISAS - Instrumentation, Systems, and Automation Society (The); (See ISA).
112. ISFA - International Surface Fabricators Association; (Formerly: International Solid Surface Fabricators Association); www.isfanow.org.
113. ISO - International Organization for Standardization; www.iso.org.
114. ISSFA - International Solid Surface Fabricators Association; (See ISFA).
115. ITU - International Telecommunication Union; www.itu.int/home.
116. KCMA - Kitchen Cabinet Manufacturers Association; www.kcma.org.
117. LMA - Laminating Materials Association; (See CPA).
118. LPI - Lightning Protection Institute; www.lightning.org.
119. MBMA - Metal Building Manufacturers Association; www.mbma.com.
120. MCA - Metal Construction Association; www.metalconstruction.org.
121. MFMA - Maple Flooring Manufacturers Association, Inc.; www.maplefloor.org.
122. MFMA - Metal Framing Manufacturers Association, Inc.; www.metalframingmfg.org.
123. MHIA - Material Handling Industry of America; www.mhia.org.
124. MIA - Marble Institute of America; www.marble-institute.com.
125. MMPA - Moulding & Millwork Producers Association; (Formerly: Wood Moulding & Millwork Producers Association); www.wmmpa.com.
126. MPI - Master Painters Institute; www.paintinfo.com.
127. MSS - Manufacturers Standardization Society of The Valve and Fittings Industry Inc.; www.mss-hq.org.
128. NAAMM - National Association of Architectural Metal Manufacturers; www.naamm.org.
129. NACE - NACE International; (National Association of Corrosion Engineers International); www.nace.org.
130. NADCA - National Air Duct Cleaners Association; www.nadca.com.
131. NAIMA - North American Insulation Manufacturers Association; www.naima.org.
132. NBGQA - National Building Granite Quarries Association, Inc.; www.nbgqa.com.
133. NCAA - National Collegiate Athletic Association (The); www.ncaa.org.

134. NCMA - National Concrete Masonry Association; www.ncma.org.
135. NEBB - National Environmental Balancing Bureau; www.nebb.org.
136. NECA - National Electrical Contractors Association; www.necanet.org.
137. NeLMA - Northeastern Lumber Manufacturers Association; www.nelma.org.
138. NEMA - National Electrical Manufacturers Association; www.nema.org.
139. NETA - InterNational Electrical Testing Association; www.netaworld.org.
140. NFHS - National Federation of State High School Associations; www.nfhs.org.
141. NFPA - NFPA; (National Fire Protection Association); www.nfpa.org.
142. NFPA - NFPA International; (See NFPA).
143. NFRC - National Fenestration Rating Council; www.nfrc.org.
144. NHLA - National Hardwood Lumber Association; www.nhla.com.
145. NLGA - National Lumber Grades Authority; www.nlga.org.
146. NOFMA - National Oak Flooring Manufacturers Association; (See NWFA).
147. NOMMA - National Ornamental & Miscellaneous Metals Association; www.nomma.org.
148. NRCA - National Roofing Contractors Association; www.nrca.net.
149. NRMCA - National Ready Mixed Concrete Association; www.nrmca.org.
150. NSF - NSF International; (National Sanitation Foundation International); www.nsf.org.
151. NSPE - National Society of Professional Engineers; www.nspe.org.
152. NSSGA - National Stone, Sand & Gravel Association; www.nssga.org.
153. NTMA - National Terrazzo & Mosaic Association, Inc. (The); www.ntma.com.
154. NWFA - National Wood Flooring Association; www.nwfa.org.
155. PCI - Precast/Prestressed Concrete Institute; www.pci.org.
156. PDI - Plumbing & Drainage Institute; www.pdionline.org.
157. PLASA - PLASA; (Formerly: ESTA - Entertainment Services and Technology Association); www.plasa.org.
158. RCSC - Research Council on Structural Connections; www.boltcouncil.org.
159. RFCI - Resilient Floor Covering Institute; www.rfci.com.
160. RIS - Redwood Inspection Service; www.redwoodinspection.com.
161. SAE - SAE International; (Society of Automotive Engineers); www.sae.org.
162. SCTE - Society of Cable Telecommunications Engineers; www.scte.org.
163. SDI - Steel Deck Institute; www.sdi.org.
164. SDI - Steel Door Institute; www.steeldoor.org.
165. SEFA - Scientific Equipment and Furniture Association; www.sefalabs.com.
166. SEI/ASCE - Structural Engineering Institute/American Society of Civil Engineers; (See ASCE).
167. SIA - Security Industry Association; www.siaonline.org.
168. SJI - Steel Joist Institute; www.steeljoist.org.
169. SMA - Screen Manufacturers Association; www.smainfo.org.
170. SMACNA - Sheet Metal and Air Conditioning Contractors' National Association; www.smacna.org.
171. SMPTE - Society of Motion Picture and Television Engineers; www.smpte.org.
172. SPFA - Spray Polyurethane Foam Alliance; www.sprayfoam.org.
173. SPIB - Southern Pine Inspection Bureau; www.spib.org.
174. SPRI - Single Ply Roofing Industry; www.spri.org.
175. SRCC - Solar Rating and Certification Corporation; www.solar-rating.org.
176. SSINA - Specialty Steel Industry of North America; www.ssina.com.
177. SSPC - SSPC: The Society for Protective Coatings; www.sspc.org.
178. STI - Steel Tank Institute; www.steeltank.com.
179. SWI - Steel Window Institute; www.steelwindows.com.
180. SWPA - Submersible Wastewater Pump Association; www.swpa.org.
181. TCA - Tilt-Up Concrete Association; www.tilt-up.org.
182. TCNA - Tile Council of North America, Inc.; (Formerly: Tile Council of America); www.tileusa.com.
183. TEMA - Tubular Exchanger Manufacturers Association, Inc.; www.tema.org.

184. TIA - Telecommunications Industry Association; (Formerly: TIA/EIA - Telecommunications Industry Association/Electronic Industries Alliance); www.tiaonline.org.
185. TIA/EIA - Telecommunications Industry Association/Electronic Industries Alliance; (See TIA).
186. TMS - The Masonry Society; www.masonrysociety.org.
187. TPI - Truss Plate Institute; www.tpinst.org.
188. TPI - Turfgrass Producers International; www.turfgrasssod.org.
189. TRI - Tile Roofing Institute; www.tileroofing.org.
190. UBC - Uniform Building Code; (See ICC).
191. UL - Underwriters Laboratories Inc.; www.ul.com.
192. UNI - Uni-Bell PVC Pipe Association; www.uni-bell.org.
193. USAV - USA Volleyball; www.usavolleyball.org.
194. USGBC - U.S. Green Building Council; www.usgbc.org.
195. USITT - United States Institute for Theatre Technology, Inc.; www.usitt.org.
196. WASTEC - Waste Equipment Technology Association; www.wastec.org.
197. WCLIB - West Coast Lumber Inspection Bureau; www.wclib.org.
198. WCMA - Window Covering Manufacturers Association; www.wcmanet.org.
199. WDMA - Window & Door Manufacturers Association; www.wdma.com.
200. WI - Woodwork Institute; (Formerly: WIC - Woodwork Institute of California); www.wicnet.org.
201. WMMPA - Wood Moulding & Millwork Producers Association; (See MMPA).
202. WSRCA - Western States Roofing Contractors Association; www.wsrca.com.
203. WPA - Western Wood Products Association; www.wwpa.org.

B. Code Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. This information is believed to be accurate as of the date of the Contract Documents.

1. DIN - Deutsches Institut fur Normung e.V.; www.din.de.
2. IAPMO - International Association of Plumbing and Mechanical Officials; www.iapmo.org.
3. ICC - International Code Council; www.iccsafe.org.
4. ICC-ES - ICC Evaluation Service, LLC; www.icc-es.org.

C. Federal Government Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Information is subject to change and is up-to-date as of the date of the Contract Documents.

1. COE - Army Corps of Engineers; www.usace.army.mil.
2. CPSC - Consumer Product Safety Commission; www.cpsc.gov.
3. DOC - Department of Commerce; National Institute of Standards and Technology; www.nist.gov.
4. DOD - Department of Defense; http://dodssp.daps.dla.mil.
5. DOE - Department of Energy; www.energy.gov.
6. EPA - Environmental Protection Agency; www.epa.gov.
7. FAA - Federal Aviation Administration; www.faa.gov.
8. FG - Federal Government Publications; www.gpo.gov.
9. GSA - General Services Administration; www.gsa.gov.
10. HUD - Department of Housing and Urban Development; www.hud.gov.
11. LBL - Lawrence Berkeley National Laboratory; Environmental Energy Technologies Division; http://eetd.lbl.gov.
12. OSHA - Occupational Safety & Health Administration; www.osha.gov.
13. SD - Department of State; www.state.gov.
14. TRB - Transportation Research Board; National Cooperative Highway Research Program; www.trb.org.

15. USDA - Department of Agriculture; Agriculture Research Service; U.S. Salinity Laboratory; www.ars.usda.gov.
16. USDA - Department of Agriculture; Rural Utilities Service; www.usda.gov.
17. USDJ - Department of Justice; Office of Justice Programs; National Institute of Justice; www.ojp.usdoj.gov.
18. USP - U.S. Pharmacopeia; www.usp.org.
19. USPS - United States Postal Service; www.usps.com.

D. Standards and Regulations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the standards and regulations in the following list. This information is subject to change and is believed to be accurate as of the date of the Contract Documents.

1. CFR - Code of Federal Regulations; Available from Government Printing Office; www.gpo.gov/fdsys.
2. DOD - Department of Defense; Military Specifications and Standards; Available from Department of Defense Single Stock Point; http://dodssp.daps.dla.mil.
3. DSCC - Defense Supply Center Columbus; (See FS).
4. FED-STD - Federal Standard; (See FS).
5. FS - Federal Specification; Available from Department of Defense Single Stock Point; http://dodssp.daps.dla.mil.

    a. Available from Defense Standardization Program; www.dsp.dla.mil.
    b. Available from General Services Administration; www.gsa.gov.
    c. Available from National Institute of Building Sciences/Whole Building Design Guide; www.wbdg.org/ccb.

6. MILSPEC - Military Specification and Standards; (See DOD).
7. USAB - United States Access Board; www.access-board.gov.
8. USATBCB - U.S. Architectural & Transportation Barriers Compliance Board; (See USAB).

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 4200

SECTION 01 5000 - TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes requirements for temporary utilities, support facilities, and security and protection facilities.

B. Related Requirements:

1. Section 01 1000 "Summary" for work restrictions and limitations on utility interruptions.

1.3 USE CHARGES

A. General: The existing utilities available onsite can be used.

1.4 INFORMATIONAL SUBMITTALS

A. Site Plan: Show staging areas, and parking areas for construction personnel.

B. Erosion- and Sedimentation-Control Plan: Show compliance with requirements of EPA Construction General Permit or authorities having jurisdiction, whichever is more stringent.

C. Fire-Safety Program: Show compliance with requirements of NFPA 241 and authorities having jurisdiction. Indicate Contractor personnel responsible for management of fire-prevention program.

D. Dust- Control Plan: Submit coordination drawing and narrative that indicates the dust-control measures proposed for use, proposed locations, and proposed time frame for their operation.

E. Electric Service: Comply with NECA, NEMA, and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70.

F. Moisture- and Mold-Protection Plan: Describe procedures and controls for protecting materials and construction from water absorption and damage and mold.

G. Dust- and HVAC-Control Plan: Submit coordination drawing and narrative that indicates the dust- and HVAC-control measures proposed for use, proposed locations, and proposed time frame for their operation. Identify further options if proposed measures are later determined to be inadequate. Include the following:

1. Locations of dust-control partitions at each phase of work.

2. HVAC system isolation schematic drawing.
3. Location of proposed air-filtration system discharge.
4. Waste handling procedures.
5. Other dust-control measures.

H. Tests and Inspections: Arrange for authorities having jurisdiction to test and inspect each temporary utility before use. Obtain required certifications and permits.

1.5 PROJECT CONDITIONS

A. The existing site is alongside state highways; disruption to this traffic shall not be permitted.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Provide solid surface barricade materials for protection of adjacent buildings and related site components during the construction activities.

2.2 TEMPORARY FACILITIES

A. Field Offices, General: Provide an interior space as coordinated with the Owner.

B. Common-Use Field Office: Of sufficient size within the existing building to accommodate needs of Owner, Architect, and construction personnel office activities and to accommodate Project meetings specified in other Division 01 Sections. Keep office clean and orderly. Furnish and equip offices as follows:

1. Conference room of sufficient size to accommodate meetings of 6 individuals.
2. Drinking water.
3. Heating and cooling equipment necessary to maintain a uniform indoor temperature of 68 to 72 deg F.
4. Lighting fixtures capable of maintaining average illumination of 20 fc at desk height.

C. Storage and Fabrication enclosures: Provide enclosures sized, furnished, and equipped to accommodate materials and equipment for construction operations. If needed, a storage unit can be coordinated with the owner's representative.

1. Store combustible materials apart from building.

D. Self-contained Toilet Units: Single occupant units of chemical, aerated recirculation, or combustion type, vented; fully enclosed with a glass-fiber-reinforced polyester shell or similar non-absorbent material

2.3 EQUIPMENT

A. Fire Extinguishers: Portable, UL rated; with class and extinguishing agent as required by locations and classes of fire exposures.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Locate facilities where they will serve Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required by progress of the Work.

1. Locate facilities to limit site disturbance as specified in Section 011000 "Summary."

B. Provide each facility ready for use when needed to avoid delay. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.

3.2 TEMPORARY UTILITY INSTALLATION

A. General: The existing utilities available onsite can be used.

1. Arrange with utility company, Owner, for time when service can be interrupted, if necessary, to make connections for any additional, temporary services.

B. Isolation of Work Areas in Occupied Facilities: Prevent dust, fumes, and odors from entering occupied areas.

3.3 SUPPORT FACILITIES INSTALLATION

A. General
1. Maintain support facilities until Architect schedules Substantial Completion inspection. Remove before Substantial Completion. Personnel remaining after Substantial Completion will be permitted to use permanent facilities, under conditions acceptable to Owner.

B. Traffic Controls: Comply with requirements of authorities having jurisdiction.

1. Protect existing site improvements to remain including curbs, pavement, and utilities.
2. Maintain access for fire-fighting equipment and access to fire hydrants.

C. Parking: Some parking on street may be available for employee vehicles only.

D. Project Signs: Provide Project signs as indicated on drawings. Unauthorized signs are not permitted.

1. Identification Signs: Provide Project identification sign, see architectural drawings for sign requirements. Locations to be determined upon start of construction. Sign shall be anchored securely to construction limits fencing.
2. Temporary Signs: Provide other signs as indicated and as required informing public and individuals seeking entrance to Project.

a. Provide temporary, directional signs for construction personnel and visitors.

3. Maintain and touchup signs so they are legible at all times.

E. Waste Disposal Facilities: Comply with requirements specified in Section 01 7419 "Construction Waste Management and Disposal."

F. Lifts and Hoists: Provide facilities necessary for hoisting materials and personnel.

1. Truck cranes and similar devices used for hoisting materials are considered "tools and equipment" and not temporary facilities.

G. Temporary Use of Permanent Stairs: Use of stairs for construction traffic will be permitted, provided stairs are protected and finishes restored to existing condition at time of Substantial Completion.

3.4 SECURITY AND PROTECTION FACILITIES INSTALLATION

A. Protection of Existing Facilities: Protect existing vegetation, equipment, structures, utilities, and other improvements at Project site and on adjacent properties, except those indicated to be removed or altered.

B. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction as required to comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.

1. Comply with work restrictions specified in Section 01 1000 "Summary."

C. Stormwater Control: Comply with requirements of authorities having jurisdiction. Provide barriers in and around excavations and subgrade construction to prevent flooding by runoff of stormwater from heavy rains.

D. Tree and Plant Protection: Install temporary fencing located as indicated or outside the drip line of trees to protect vegetation from damage from construction operations. Protect tree root systems from damage, flooding, and erosion.

E. Site Enclosure Fence: Before construction operations begin, furnish and install site enclosure fence in a manner that will prevent people from easily entering site except by entrance gates.
1. Extent of Fence: As required to enclose entire Project site or portion determined sufficient to accommodate construction operations.

F. Barricades, Warning Signs, and Lights: Comply with requirements of authorities having jurisdiction for erecting structurally adequate barricades, including warning signs and lighting.

G. Temporary Egress: Maintain temporary egress from property as required by authorities having jurisdiction.

H. Covered Walkway: Erect protective, covered walkway for passage of individuals through or adjacent to Project site. Coordinate with entrance gates, other facilities, and obstructions. Comply with regulations of authorities having jurisdiction.
1. Provide overhead decking, protective enclosure walls, handrails, barricades, warning signs, exit signs, lights, safe and well-drained walkways, and similar provisions for protection and safe passage.

I. Temporary Enclosures: Provide temporary enclosures for protection of construction, in progress and completed, from exposure, foul weather, other construction operations, and similar activities. Provide temporary weathertight enclosure for building exterior.

1. Where heating or cooling is needed and permanent enclosure is incomplete, insulate temporary enclosures.

J. Temporary Fire Protection: Install and maintain temporary fire-protection facilities of types needed to protect against reasonably predictable and controllable fire losses. Comply with NFPA 241; manage fire-prevention program.

1. Prohibit smoking in construction areas.
2. Supervise welding operations, combustion-type temporary heating units, and similar sources of fire ignition according to requirements of authorities having jurisdiction.
3. Develop and supervise an overall fire-prevention and -protection program for personnel at Project site. Review needs with local fire department and establish procedures to be followed. Instruct personnel in methods and procedures. Post warnings and information.

3.5 MOISTURE AND MOLD CONTROL

A. Contractor's Moisture-Protection Plan: Avoid trapping water in finished work. Document visible signs of mold that may appear during construction.

3.6 OPERATION, TERMINATION, AND REMOVAL

A. Supervision: Enforce strict discipline in use of temporary facilities. To minimize waste and abuse, limit availability of temporary facilities to essential and intended uses.

B. Maintenance: Maintain facilities in good operating condition until removal.

1. Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation, and similar facilities on a 24-hour basis where required to achieve indicated results and to avoid possibility of damage.

C. Temporary Facility Changeover: Do not change over from using temporary security and protection facilities to permanent facilities until Substantial Completion.

D. Termination and Removal: Remove each temporary facility when need for its service has ended, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.

1. Materials and facilities that constitute temporary facilities are property of Contractor. Owner reserves right to take possession of Project identification signs.
2. Where area is intended for landscape development, remove soil and aggregate fill that do not comply with requirements for fill or subsoil. Repair or replace street paving, curbs, and sidewalks at temporary entrances, as required by authorities having jurisdiction.
3. At Substantial Completion, repair, renovate, and clean permanent facilities used during construction period. Comply with final cleaning requirements specified in Section 017700 "Closeout Procedures."

END OF SECTION 01 5000

SECTION 01 6000 - PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements for selection of products for use in Project; product delivery, storage, and handling; manufacturers' standard warranties on products; special warranties; and comparable products.

B. Related Sections:

1. Division 01 Section "Alternates" for products selected under an alternate.
2. Division 01 Section "References" for applicable industry standards for products specified.

1.3 DEFINITIONS

A. Products: Items obtained for incorporating into the Work, whether purchased for Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.

1. Named Products: Items identified by manufacturer's product name, including make or model number or other designation shown or listed in manufacturer's published product literature that is current as of date of the Contract Documents.
2. New Products: Items that have not previously been incorporated into another project or facility. Products salvaged or recycled from other projects are not considered new products.
3. Comparable Product: Product that is demonstrated and approved through submittal process to have the indicated qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics that equal or exceed those of specified product.

B. Basis-of-Design Product Specification: A specification in which a specific manufacturer's product is named and accompanied by the words "basis-of-design product," including make or model number or other designation, to establish the significant qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics for purposes of evaluating comparable products of additional manufacturers named in the specification.

1.4 ACTION SUBMITTALS

A. Comparable Product Requests: Submit request for consideration of each comparable product prior to bidding. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.

1. Include data to indicate compliance with the requirements specified in "Comparable Products" Article.
2. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within one week of receipt of a comparable product request. Architect will notify Contractor of approval or rejection of proposed comparable product request within 15 days of receipt of request, or seven days of receipt of additional information or documentation, whichever is later.

    a. Form of Approval: As specified in Division 01 Section "Submittal Procedures."
    b. Use product specified if Architect does not issue a decision on use of a comparable product request within time allocated.

B. Basis-of-Design Product Specification Submittal: Comply with requirements in Division 01 Section "Submittal Procedures." Show compliance with requirements.

1.5 QUALITY ASSURANCE

A. Compatibility of Options: If Contractor is given option of selecting between two or more products for use on Project, select product compatible with products previously selected, even if previously selected products were also options.

1.6 PRODUCT DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, and handle products using means and methods that will prevent damage, deterioration, and loss, including theft and vandalism. Comply with manufacturer's written instructions.

B. Delivery and Handling:

1. Schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction spaces.
2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.
3. Deliver products to Project site in an undamaged condition in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
4. Inspect products on delivery to determine compliance with the Contract Documents and to determine that products are undamaged and properly protected.

C. Storage:

1. Store products to allow for inspection and measurement of quantity or counting of units.
2. Store materials in a manner that will not endanger Project structure.
3. Protect stored products from damage and liquids from freezing.
4. Provide a secure location and enclosure at Project site for storage of materials and equipment. Coordinate location with Owner.

1.7 PRODUCT WARRANTIES

A. Warranties specified in other Sections shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on

product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.

1. Manufacturer's Warranty: Written warranty furnished by individual manufacturer for a particular product and specifically endorsed by manufacturer to Owner.
2. Special Warranty: Written warranty required by the Contract Documents to provide specific rights for Owner.

B. Special Warranties: Prepare a written document that contains appropriate terms and identification, ready for execution.

1. Manufacturer's Standard Form: Modified to include Project-specific information and properly executed.
2. Specified Form: When specified forms are included with the Specifications, prepare a written document using indicated form properly executed.
3. Refer to Divisions 02 through 49. Sections for specific content requirements and particular requirements for submitting special warranties.

C. Submittal Time: Comply with requirements in Division 01 Section "Closeout Procedures."

PART 2 - PRODUCTS

2.1 PRODUCT SELECTION PROCEDURES

A. General Product Requirements: Provide products that comply with the Contract Documents, are undamaged and, unless otherwise indicated, are new at time of installation.

1. Provide products complete with accessories, trim, finish, fasteners, and other items needed for a complete installation and indicated use and effect.
2. Standard Products: If available, and unless custom products or nonstandard options are specified, provide standard products of types that have been produced and used successfully in similar situations on other projects.
3. Owner reserves the right to limit selection to products with warranties not in conflict with requirements of the Contract Documents.
4. Where products are accompanied by the term "as selected," Architect will make selection.
5. Descriptive, performance, and reference standard requirements in the Specifications establish salient characteristics of products.
6. Or Equal: For products specified by name and accompanied by the term "or equal," or "or approved equal," or "or approved," comply with requirements in "Comparable Products" Article to obtain approval for use of an unnamed product.

B. Product Selection Procedures:

1. Product: Where Specifications name a single manufacturer and product, provide the named product that complies with requirements. Comparable products or substitutions for Contractor's convenience may be considered at Architect’s discretion, prior to bid.
2. Manufacturer/Source: Where Specifications name a single manufacturer or source, provide a product by the named manufacturer or source that complies with requirements. Comparable products or substitutions for Contractor's convenience may be considered at Architect’s discretion, prior to bid.
3. Products:

a. Non-restricted List: Where Specifications include a list of names of both available manufacturers and products, provide one of the products listed, or an unnamed product, that complies with requirements. Comply with requirements in "Comparable Products" Article for consideration of an unnamed product prior to bid.

4. Manufacturers:

a. Non-restricted List: Where Specifications include a list of available manufacturers, provide a product by one of the manufacturers listed, or a product by an unnamed manufacturer, that complies with requirements. Comply with requirements in "Comparable Products" Article for consideration of an unnamed manufacturer's product prior to bid.

5. Basis-of-Design Product: Where Specifications name a product, or refer to a product indicated on Drawings, and include a list of manufacturers, provide the specified or indicated product or a comparable product by one of the other named manufacturers. Drawings and Specifications indicate sizes, profiles, dimensions, and other characteristics that are based on the product named. Comply with requirements in "Comparable Products" Article for consideration of an unnamed product by one of the other named manufacturers.

C. Visual Matching Specification: Where Specifications require "match Architect's sample", provide a product that complies with requirements and matches Architect's sample. Architect's decision will be final on whether a proposed product matches.

D. Visual Selection Specification: Where Specifications include the phrase "as selected by Architect from manufacturer's full range" or similar phrase, select a product that complies with requirements. Architect will select color, gloss, pattern, density, or texture from manufacturer's product line that includes both standard and premium items.

2.2 COMPARABLE PRODUCTS

A. Conditions for Consideration: Architect will consider Contractor's request for comparable product when the following conditions are satisfied. If the following conditions are not satisfied, Architect may return requests without action, except to record noncompliance with these requirements:

1. Evidence that the proposed product does not require revisions to the Contract Documents that it is consistent with the Contract Documents and will produce the indicated results, and that it is compatible with other portions of the Work.
2. Detailed comparison of significant qualities of proposed product with those named in the Specifications. Significant qualities include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated.
3. Evidence that proposed product provides specified warranty.
4. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners, if requested.
5. Samples, if requested.

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 6000

SECTION 01 7300 - EXECUTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes general administrative and procedural requirements governing execution of the Work including, but not limited to, the following:

1. Construction layout.
2. Field engineering and surveying.
3. Installation of the Work.
4. Cutting and patching.
5. Progress cleaning.
6. Starting and adjusting.
7. Protection of installed construction.

B. Related Requirements:

1. Section 01 1000 "Summary" for limits on use of Project site.
2. Section 01 3300 "Submittal Procedures" for submitting surveys.
3. Section 01 7700 "Closeout Procedures" for submitting final property survey with Project Record Documents, recording of Owner-accepted deviations from indicated lines and levels, and final cleaning.

1.3 DEFINITIONS

A. Cutting: Removal of in-place construction necessary to permit installation or performance of other work.

B. Patching: Fitting and repair work required to restore construction to original conditions after installation of other work.

1.4 INFORMATIONAL SUBMITTALS

A. Cutting and Patching Plan: Submit plan describing procedures at least 10 days prior to the time cutting and patching will be performed. Include the following information:

1. Extent: Describe reason for and extent of each occurrence of cutting and patching.
2. Products: List products to be used for patching and firms or entities that will perform patching work.
3. Dates: Indicate when cutting and patching will be performed.
4. Utilities and Mechanical and Electrical Systems: List services and systems that cutting and patching procedures will disturb or affect. List services and systems that will be

relocated and those that will be temporarily out of service. Indicate length of time permanent services and systems will be disrupted.

B. Landfill Receipts: Submit copy of receipts issued by a landfill facility, licensed to accept hazardous materials, for hazardous waste disposal.

1.5 QUALITY ASSURANCE

A. Cutting and Patching: Comply with requirements for and limitations on cutting and patching of construction elements.

1. Structural Elements: When cutting and patching structural elements that are to remain, notify Architect of locations and details of cutting and await directions from Architect before proceeding. Shore, brace, and support structural elements during cutting and patching. Do not cut and patch structural elements in a manner that could change their load-carrying capacity or increase deflection

PART 2 - PRODUCTS

2.1 MATERIALS

A. General: Comply with requirements specified in other Sections.

B. In-Place Materials: Use materials for patching identical to in-place materials. For exposed surfaces, use materials that visually match in-place adjacent surfaces to the fullest extent possible.

1. If identical materials are unavailable or cannot be used, use materials that, when installed, will provide a match acceptable to Architect for the visual and functional performance of in-place materials.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examination and Acceptance of Conditions: Before proceeding with each component of the Work, examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.

B. Written Report: Where a written report listing conditions detrimental to performance of the Work is required by other Sections, include the following:

1. Description of the Work.
2. List of detrimental conditions, including substrates.
3. List of unacceptable installation tolerances.
4. Recommended corrections.

C. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

3.2 PREPARATION

A. Existing Utility Information: Furnish information to local utility that is necessary to adjust, move, or relocate existing utility structures, utility poles, lines, services, or other utility appurtenances located in or affected by construction. Coordinate with authorities having jurisdiction.

B. Field Measurements: Take field measurements as required to fit the Work properly. Recheck measurements before installing each product. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

C. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents caused by differing field conditions outside the control of Contractor, submit a request for information to Architect according to requirements in Section 01 3100 "Project Management and Coordination."

3.3 INSTALLATION

A. General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.

1. Make vertical work plumb and make horizontal work level.
2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.
3. Conceal pipes, ducts, and wiring in finished areas unless otherwise indicated.

B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.

C. Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Substantial Completion.

D. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.

E. Sequence the Work and allow adequate clearances to accommodate movement of construction items on site and placement in permanent locations.

F. Tools and Equipment: Do not use tools or equipment that produce harmful noise levels.

G. Joints: Make joints of uniform width. Where joint locations in exposed work are not indicated, arrange joints for the best visual effect. Fit exposed connections together to form hairline joints.

H. Hazardous Materials: Use products, cleaners, and installation materials that are not considered hazardous.

3.4 CUTTING AND PATCHING

A. Cutting and Patching, General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time, and complete without delay.

1. Cut in-place construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.

B. Temporary Support: Provide temporary support of work to be cut.

C. Protection: Protect in-place construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.

D. Existing Utility Services and Mechanical/Electrical Systems: Where existing services/systems are required to be removed, relocated, or abandoned, bypass such services/systems before cutting to minimize interruption to occupied areas.

E. Cutting: Cut in-place construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction.

1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots neatly to minimum size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
2. Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
3. Concrete and Masonry: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.
4. Excavating and Backfilling: Comply with requirements in applicable Sections where required by cutting and patching operations.
5. Proceed with patching after demolition operations requiring cutting are complete.

F. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other work. Patch with durable seams that are as invisible as practicable. Provide materials and comply with installation requirements specified in other Sections, where applicable.

1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate physical integrity of installation.

G. Cleaning: Clean areas and spaces where cutting and patching are performed. Remove paint, mortar, oils, putty, and similar materials from adjacent finished surfaces.

3.5 OWNER-INSTALLED PRODUCTS

A. Site Access: Provide access to Project site for Owner's personnel.

3.6 PROGRESS CLEANING

A. General: Clean Project site and work areas daily, including common areas. Enforce requirements strictly. Dispose of materials lawfully.

1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
2. Do not hold waste materials more than seven days during normal weather or three days if the temperature is expected to rise above 80 deg F.

3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.

    a. Use containers intended for holding waste materials of type to be stored.

B. Site: Maintain Project site free of waste materials and debris.

C. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.

D. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.

E. Exposed Surfaces in Finished Areas: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.

F. Waste Disposal: Do not bury or burn waste materials on-site. Do not wash waste materials down sewers or into waterways. Comply with waste disposal requirements in Section 01 7419 "Construction Waste Management and Disposal."

G. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.

H. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.

I. Limiting Exposures: Supervise construction operations to assure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

3.7 PROTECTION OF INSTALLED CONSTRUCTION

A. Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.

END OF SECTION 01 7300

SECTION 01 7700 - CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:

1. Substantial Completion procedures.
2. Preliminary Inspection Procedure.
3. Final completion procedures.
4. Warranties.
5. Final cleaning.
6. Substantial Completion of the Contract, Pre-Closeout and Inspection Procedure.
7. Final Inspection Procedure.
8. Final Completion and Final Payment Conditions.

B. Related Sections:

1. Division 01 Section "Execution" for progress cleaning of Project site.
2. Divisions 02 through 49 Sections for specific closeout and special cleaning requirements for the Work in those Sections.

1.3 SUBSTANTIAL COMPLETION OF THE CONTRACT, PRE-CLOSEOUT AND INSPECTION PROCEDURE

A. When the Work, or a designated portion thereof, is approaching Substantial Completion, the Contractor shall submit a written request stating that they have inspected the Work and that it is ready for an inspection for Substantial Completion by the Architect, together with a list of items to be completed or corrected. If the Architect considers the Work to be sufficiently complete, the Architect will establish a date for the Pre-Closeout Meeting and an inspection for Substantial Completion.

B. The Architect shall schedule and conduct a Pre-Closeout Meeting.

C. The Pre-Closeout Meeting shall be conducted at the site before any inspections for Substantial Completion. The Architect, Contractor, Subcontractors, and representatives of the Owner shall attend. The Architect shall review all aspects of the Project Closeout, a Project Closeout Checklist and time schedule and clarify all requirements of the Contract Documents.

D. The Architect shall administrate the Project Pre-Closeout Meeting in accordance with Specifications Section 01 3000.

E. Refer to applicable Specification Sections for additional Closeout requirements and information.

F. The Architect, accompanied by the Owner and Contractor, will conduct the inspection for Substantial Completion. If the Architect determines that the Work is then substantially complete, the Architect will prepare a Certificate of Substantial Completion, as provided in the General Conditions of the Contract, and a list (punch list for Substantial Completion) of work items remaining to be completed or corrected by the Contractor.

G. As a condition of and prior to the date of Substantial Completion of the Contract, the Contractor shall submit to the Architect for approval and delivery to the Owner, the following:

1. Evidence of compliance with requirements of governing authorities, including copies of Certificates of Inspection.

H. Warranties required by the Contract Documents shall commence on the date of Substantial Completion of the Work or designated portion thereof unless otherwise provided in the Certificate of Substantial Completion.

1.4 SUBSTANTIAL COMPLETION

A. Preliminary Procedures: Before requesting final observation for determining date of Substantial Completion, complete the following. List items below that are incomplete with request.

1. Prepare a list of items to be completed and corrected (punch list), the value of items on the list, and reasons why the Work is not complete.
2. Advise Owner of pending insurance changeover requirements.
3. Submit specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
4. Obtain and submit releases permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
5. Prepare and submit final completion construction photographic documentation, damage or settlement surveys, property surveys, and similar final record information.
6. Make final changeover of permanent locks and deliver keys to Owner. Advise Owner's personnel of changeover in security provisions.
7. Terminate and remove temporary facilities from Project site, along with construction tools, and similar elements.
8. Advise Owner of changeover in utilities.
9. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.
10. Complete final cleaning requirements.
11. Touch up and otherwise repair and restore marred site conditions to eliminate visual defects.

B. Observation: Submit a written request for Review for Substantial Completion. Contractor shall complete the **Closeout form** at the end of this section, to request a Review for Substantial completion.

1. Complete and submit one form for each request for review. For each Phase of the Work, provide a completed form requesting the review for Substantial Completion.

C. On receipt of request, Architect will either proceed with the review or notify Contractor of unfulfilled requirements. Architect will prepare the Certificate of Substantial Completion after the review or will notify Contractor of items, either on Contractor's list or additional items identified by Architect, that must be completed or corrected before certificate will be issued.

1. Re-Observation: Request a follow up review when the Work identified in previous observations as “incomplete”, are completed or corrected.
2. Results of completed reviews will form the basis of requirements for final completion.
3. Architect will provide for one Initial Review for Substantial Completion for each identified Phase of the Work, and one Final Review for each Phase. If additional reviews are required because of work not complete or correct by the General Contractor or their Sub-Contractors, the General Contractor will be responsible for paying for the Architect’s time to perform subsequent re-observations and reviews.

1.5 FINAL COMPLETION OF THE CONTRACT AND INSPECTION PROCEDURE

A. Preliminary Procedures: Before requesting final review for determining final completion, complete the following:

1. Submit certified copy of Architect's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Architect. The certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
2. Submit evidence of final, continuing insurance coverage complying with insurance requirements.

B. Observation: Submit a written request for final review for acceptance. On receipt of request, Architect will either proceed with review or notify Contractor of unfulfilled requirements. Architect will prepare a final Certificate for Payment after observation or will notify Contractor of construction that must be completed or corrected before certificate will be issued.

1. Re-Observation: Request review when the Work identified in previous observations as “incomplete”, are completed or corrected.

C. As a condition of and prior to Project Final Completion of the Contract, the Contractor shall prepare and submit to the Architect for approval and delivery to the Owner, original signed copies of each of the following:

1. A completed and signed Project Closeout Checklist, indicating all items have been completed.

1.6 LIST OF INCOMPLETE ITEMS (PUNCH LIST)

A. Organization of List: Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction.

1. Organize list of spaces in sequential order, starting with exterior areas first.
2. Include the following information at the top of each page:

    a. Project name.
    b. Date.
    c. Name of Architect.
    d. Name of Contractor.
    e. Page number.

3. Submit list of incomplete items in the following format:

a. PDF electronic file.

B. When the items on the punch list(s) for Substantial Completion have been fully completed or corrected, the Contractor shall return the punch list to the Architect indicating in writing that the Work is complete, that each punch list item conforms to the Contract Documents and the Contractor shall request a final inspection. The Architect will establish a date for the Final Inspection.

C. The Architect, accompanied by the Owner and Contractor, will conduct the Final Inspection. If the Architect determines that the Work is then acceptable under the Contract Documents and the Contract fully performed, the Architect will so notify the Owner and the Contractor in writing. If the Architect determines that the Work is not fully performed, the Contractor shall complete all remaining items of Work before the Work will be considered for Final Acceptance.

1.7 FINAL PAYMENT CONDITIONS

A. Final Completion or the Date of Final Acceptance for the purposes of these Specifications shall mean the date on which the Architect and Owner accept the site in writing. Final Completion shall not be construed to mean acceptance of any Work subsequently found to be inferior, substandard, missing or not in accord with the Contract Documents. Such Work shall be remedied as directed by the Architect, the same as though the Work had not been approved.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

PART 3 - EXECUTION

3.1 FINAL CLEANING

A. General: Perform final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.

B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.

1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a portion of Project:

a. Clean Project site, yard, and grounds, in areas disturbed by demolition and construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.
b. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.

c. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.
d. Remove tools, construction equipment, machinery, and surplus material from Project site.
e. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
f. Remove debris and surface dust from limited access spaces, including roofs, equipment vaults, manholes, and similar spaces.
g. Leave Project clean and ready for occupancy.

END OF SECTION 01 7700

SECTION 017710 - CLOSEOUT FORM

1.1 CERTIFICATE OF COMPLETION REQUEST

A. This Certificate is to be signed by the Contractor and transmitted to the Architect as the request for review of Substantial completion. The intent of this certificate is to expedite closeout of the project and to help assure the Owner that the portion of the work described below is complete, complies with all regulatory requirements and can be occupied for its intended purpose.

1.2 I _____ hereby certify the following:

(Insert Contractor Name / Company)

A. I have reviewed the Contract Documents including all modifications.

B. I have inspected the Work.

C. The Work is completed in accordance with the Contract Documents and all approved contract modifications.

D. A separate 8 ½ x 11 exhibit may be attached which clearly describes the area in consideration for review. Exhibits may include representative floor plans or site plans.

E. The portion of the Work ready for review for Substantial Completion is identified as follows

☐ The Entire Project

☐ The following portions of the project:

_____
_____
_____
_____
_____
_____
_____
_____
_____

The undersigned has acknowledged that the following portions of Work are not complete or ready for review. These portions will be reviewed under a separate request by the Contractor.

_____
_____
_____
_____
_____
_____
_____
_____
_____
_____

1.3 Contractor understands and agrees that if the architect and/or the engineers determine that the work is insufficiently complete to perform the observations, the owner may assess the contractor for the cost of the additional time and expense incurred by the architect, engineers and the owner for additional site visits, observations and expenses. These costs will be deducted from the contract amount through the change order process.

_____

(Contractor Name / Company Name)

_____

(Signature)

_____

(Date)

END OF SECTION 017710

SECTION 01 7823 - OPERATION AND MAINTENANCE DATA

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes administrative and procedural requirements for preparing operation and maintenance manuals, including the following:

1. Operation and maintenance documentation directory.
2. Operation manuals for systems, subsystems, and equipment.
3. Maintenance manuals for the care and maintenance of products, materials, and finishes systems and equipment.

B. Related Sections include the following:
1. Division 01 Section "Submittal Procedures" for submitting copies of submittals for operation and maintenance manuals.
2. Division 01 Section "Closeout Procedures" for submitting operation and maintenance manuals.
3. Division 01 Section "Project Record Documents" for preparing Record Drawings for operation and maintenance manuals.
4. Divisions 02 through 49 Sections for specific operation and maintenance manual requirements for the Work in those Sections.

1.3 DEFINITIONS

A. System: An organized collection of parts, equipment, or subsystems united by regular interaction.

B. Subsystem: A portion of a system with characteristics similar to a system.

1.4 SUBMITTALS

A. Initial Submittal: Submit 2 draft copies of each manual at least 15 days before requesting inspection for Substantial Completion. Include a complete operation and maintenance directory. Architect will return one copy of draft and mark whether general scope and content of manual are acceptable.

B. Final Submittal: Submit 3 copies of each manual in final form at least 15 days before final inspection. Architect will return copy with comments within 15 days after final inspection.

1. Correct or modify each manual to comply with Architect's comments. Submit 3 copies of each corrected manual within 15 days of receipt of Architect's comments.

1.5 COORDINATION

A. Where operation and maintenance documentation includes information on installations by more than one factory-authorized service representative, assemble and coordinate information furnished by representatives and prepare manuals.

PART 2 - PRODUCTS

2.1 OPERATION AND MAINTENANCE DOCUMENTATION DIRECTORY

A. Organization: Include a section in the directory for each of the following:

1. List of documents.
2. List of systems.
3. List of equipment.
4. Table of contents.

B. List of Systems and Subsystems: List systems alphabetically. Include references to operation and maintenance manuals that contain information about each system.

C. List of Equipment: List equipment for each system, organized alphabetically by system. For pieces of equipment not part of system, list alphabetically in separate list.

D. Tables of Contents: Include a table of contents for each emergency, operation, and maintenance manual.

E. Identification: In the documentation directory and in each operation and maintenance manual, identify each system, subsystem, and piece of equipment with same designation used in the Contract Documents. If no designation exists, assign a designation according to ASHRAE Guideline 4, "Preparation of Operating and Maintenance Documentation for Building Systems."

2.2 MANUALS, GENERAL

A. Organization: Unless otherwise indicated, organize each manual into a separate section for each system and subsystem, and a separate section for each piece of equipment not part of a system. Each manual shall contain the following materials, in the order listed:

1. Title page.
2. Table of contents.
3. Manual contents.

B. Title Page: Enclose title page in transparent plastic sleeve. Include the following information:

1. Subject matter included in manual.
2. Name and address of Project.
3. Name and address of Owner.
4. Date of submittal.
5. Name, address, and telephone number of Contractor.
6. Name and address of Architect.
7. Cross-reference to related systems in other operation and maintenance manuals.

C. Table of Contents: List each product included in manual, identified by product name, indexed to

the content of the volume, and cross-referenced to Specification Section number in Project Manual.

1. If operation or maintenance documentation requires more than one volume to accommodate data, include comprehensive table of contents for all volumes in each volume of the set.

D. Manual Contents: Organize into sets of manageable size. Arrange contents alphabetically by system, subsystem, and equipment. If possible, assemble instructions for subsystems, equipment, and components of one system into a single binder.

1. Binders: Heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, in thickness necessary to accommodate contents, sized to hold 8-1/2-by-11-inch paper; with clear plastic sleeve on spine to hold label describing contents and with pockets inside covers to hold folded oversize sheets.

    a. If two or more binders are necessary to accommodate data of a system, organize data in each binder into groupings by subsystem and related components. Cross-reference other binders if necessary to provide essential information for proper operation or maintenance of equipment or system.
    b. Identify each binder on front and spine, with printed title "OPERATION AND MAINTENANCE MANUAL," Project title or name, and subject matter of contents. Indicate volume number for multiple-volume sets.

2. Dividers: Heavy-paper dividers with plastic-covered tabs for each section. Mark each tab to indicate contents. Include typed list of products and major components of equipment included in the section on each divider, cross-referenced to Specification Section number and title of Project Manual.
3. Protective Plastic Sleeves: Transparent plastic sleeves designed to enclose diagnostic software diskettes for computerized electronic equipment.
4. Supplementary Text: Prepared on 8-1/2-by-11-inch white bond paper.
5. Drawings: Attach reinforced, punched binder tabs on drawings and bind with text.

    a. If oversize drawings are necessary, fold drawings to same size as text pages and use as foldouts.
    b. If drawings are too large to be used as foldouts, fold and place drawings in labeled envelopes and bind envelopes in rear of manual. At appropriate locations in manual, insert typewritten pages indicating drawing titles, descriptions of contents, and drawing locations.

2.3 OPERATION MANUALS

A. Content: In addition to requirements in this Section, include operation data required in individual Specification Sections and the following information:

1. System, subsystem, and equipment descriptions.
2. Performance and design criteria if Contractor is delegated design responsibility.
3. Operating standards.
4. Operating procedures.
5. Operating logs.
6. Precautions against improper use.
7. License requirements including inspection and renewal dates.

B. Descriptions: Include the following:

1. Product name and model number.
2. Manufacturer's name.
3. Complete nomenclature and number of replacement parts.

2.4 PRODUCT MAINTENANCE MANUAL

A. Content: Organize manual into a separate section for each product, material, and finish. Include source information, product information, maintenance procedures, repair materials and sources, and warranties and bonds, as described below.

B. Source Information: List each product included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual.

C. Product Information: Include the following, as applicable:

1. Product name and model number.
2. Manufacturer's name.
3. Color, pattern, and texture.
4. Material and chemical composition.
5. Reordering information for specially manufactured products.

D. Maintenance Procedures: Include manufacturer's written recommendations and the following:

1. Inspection procedures.
2. Types of cleaning agents to be used and methods of cleaning.
3. List of cleaning agents and methods of cleaning detrimental to product.
4. Schedule for routine cleaning and maintenance.
5. Repair instructions.

E. Repair Materials and Sources: Include lists of materials and local sources of materials and related services.

F. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.

1. Include procedures to follow and required notifications for warranty claims.

2.5 SYSTEMS AND EQUIPMENT MAINTENANCE MANUAL

A. Content: For each system, subsystem, and piece of equipment not part of a system, include source information, manufacturers' maintenance documentation, maintenance procedures, maintenance and service schedules, spare parts list and source information, maintenance service contracts, and warranty and bond information, as described below.

B. Source Information: List each system, subsystem, and piece of equipment included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual.

C. Manufacturers' Maintenance Documentation: Manufacturers' maintenance documentation including the following information for each component part or piece of equipment:

1. Standard printed maintenance instructions and bulletins.
2. Drawings, diagrams, and instructions required for maintenance, including disassembly and component removal, replacement, and assembly.
3. Identification and nomenclature of parts and components.
4. List of items recommended to be stocked as spare parts.

D. Maintenance Procedures: Include the following information and items that detail essential maintenance procedures:

1. Test and inspection instructions.
2. Troubleshooting guide.
3. Precautions against improper maintenance.
4. Disassembly; component removal, repair, and replacement; and reassembly instructions.
5. Aligning, adjusting, and checking instructions.
6. Demonstration and training videotape, if available.

E. Spare Parts List and Source Information: Include lists of replacement and repair parts, with parts identified and cross-referenced to manufacturers' maintenance documentation and local sources of maintenance materials and related services.

F. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.

1. Include procedures to follow and required notifications for warranty claims.

PART 3 - EXECUTION

3.1 MANUAL PREPARATION

A. Operation and Maintenance Documentation Directory: Prepare a separate manual that provides an organized reference to emergency, operation, and maintenance manuals.

B. Product Maintenance Manual: Assemble a complete set of maintenance data indicating care and maintenance of each product, material, and finish incorporated into the Work.

C. Operation and Maintenance Manuals: Assemble a complete set of operation and maintenance data indicating operation and maintenance of each system, subsystem, and piece of equipment not part of a system.

1. Engage a factory-authorized service representative to assemble and prepare information for each system, subsystem, and piece of equipment not part of a system.
2. Prepare a separate manual for each system and subsystem, in the form of an instructional manual for use by Owner's operating personnel.

D. Manufacturers' Data: Where manuals contain manufacturers' standard printed data, include only sheets pertinent to product or component installed. Mark each sheet to identify each product or component incorporated into the Work. If data include more than one item in a tabular format, identify each item using appropriate references from the Contract Documents. Identify data applicable to the Work and delete references to information not applicable.

1. Prepare supplementary text if manufacturers' standard printed data are not available and

where the information is necessary for proper operation and maintenance of equipment or systems.

E. Drawings: Prepare drawings supplementing manufacturers' printed data to illustrate the relationship of component parts of equipment and systems and to illustrate control sequence and flow diagrams. Coordinate these drawings with information contained in Record Drawings to ensure correct illustration of completed installation.

1. Do not use original Project Record Documents as part of operation and maintenance manuals.
2. Comply with requirements of newly prepared Record Drawings in Division 01 Section "Project Record Documents."

F. Comply with Division 01 Section "Closeout Procedures" for schedule for submitting operation and maintenance documentation.

END OF SECTION 01 7823

SECTION 01 7839 - PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes administrative and procedural requirements for Project Record Documents, including the following:

1. Record Drawings.
2. Record Specifications.
3. Record Product Data.

B. Related Sections include the following:

1. Division 01 Section "Closeout Procedures" for general closeout procedures.
2. Division 01 Section "Operation and Maintenance Data" for operation and maintenance manual requirements.
3. Divisions 02 through 49 Sections for specific requirements for Project Record Documents of the Work in those Sections.

1.3 SUBMITTALS

A. Record Drawings: Comply with the following:

1. Number of Copies: Submit copies of Record Drawings as follows:

a. Initial Submittal: Submit one set(s) of corrected Record Transparencies and one set(s) of marked-up Record Prints. Architect will initial and date each plot and mark whether general scope of changes, additional information recorded, and quality of drafting are acceptable. Architect will return plots and prints for organizing into sets, printing, binding, and final submittal.
b. Final Submittal: Submit one set(s) of marked-up Record Prints. Print each Drawing, whether or not changes and additional information were recorded.

B. Record Specifications: Submit 2 copies of Project's Specifications, including addenda and contract modifications.

C. Record Product Data: Submit 3 copies of each Product Data submittal.

1. Where Record Product Data is required as part of operation and maintenance manuals, submit marked-up Product Data as an insert in manual instead of submittal as Record Product Data.

PART 2 - PRODUCTS

2.1 RECORD DRAWINGS

A. Record Prints: Maintain one set of blue- or black-line white prints of the Contract Drawings and Shop Drawings.

1. Preparation: Mark Record Prints to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to prepare the marked-up Record Prints.

    a. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.
    b. Accurately record information in an understandable drawing technique.
    c. Record data as soon as possible after obtaining it. Record and check the markup before enclosing concealed installations.

2. Content: Types of items requiring marking include, but are not limited to, the following:

    a. Dimensional changes to Drawings.
    b. Revisions to details shown on Drawings.
    c. Revisions to routing of piping and conduits.
    d. Revisions to electrical circuitry.
    e. Actual equipment locations.
    f. Locations of concealed internal utilities.
    g. Changes made by Change Order or Change Directive.
    h. Changes made following Architect's written orders.
    i. Details not on the original Contract Drawings.
    j. Field records for variable and concealed conditions.
    k. Record information on the Work that is shown only schematically.

3. Mark the Contract Drawings or Shop Drawings, whichever is most capable of showing actual physical conditions, completely and accurately. If Shop Drawings are marked, show cross-reference on the Contract Drawings.
4. Mark record sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at same location.
5. Mark important additional information that was either shown schematically or omitted from original Drawings.
6. Note Construction Change Directive numbers, alternate numbers, Change Order numbers, and similar identification, where applicable.

B. Newly Prepared Record Drawings: Prepare new Drawings instead of preparing Record Drawings where Architect determines that neither the original Contract Drawings nor Shop Drawings are suitable to show actual installation.

1. New Drawings may be required when a Change Order is issued as a result of accepting an alternate, substitution, or other modification.
2. Consult Architect for proper scale and scope of detailing and notations required to record the actual physical installation and its relation to other construction. Integrate newly prepared Record Drawings into Record Drawing sets; comply with procedures for formatting, organizing, copying, binding, and submitting.

C. Format: Identify and date each Record Drawing; include the designation "PROJECT RECORD

DRAWING" in a prominent location.

1. Record Prints: Organize Record Prints and newly prepared Record Drawings into manageable sets. Bind each set with durable paper cover sheets. Include identification on cover sheets.
2. Identification: As follows:

    a. Project name.
    b. Date.
    c. Designation "PROJECT RECORD DRAWINGS."
    d. Name of Architect.
    e. Name of Contractor.

2.2 RECORD SPECIFICATIONS

A. Preparation: Mark Specifications to indicate the actual product installation where installation varies from that indicated in Specifications, addenda, and contract modifications.

1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
2. Mark copy with the proprietary name and model number of products, materials, and equipment furnished, including substitutions and product options selected.
3. Record the name of manufacturer, supplier, Installer, and other information necessary to provide a record of selections made.
4. For each principal product, indicate whether Record Product Data has been submitted in operation and maintenance manuals instead of submitted as Record Product Data.
5. Note related Change Orders and Record Drawings where applicable.

2.3 RECORD PRODUCT DATA

A. Preparation: Mark Product Data to indicate the actual product installation where installation varies substantially from that indicated in Product Data submittal.

1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
2. Include significant changes in the product delivered to Project site and changes in manufacturer's written instructions for installation.
3. Note related Change Orders, Record Specifications, and Record Drawings where applicable.

2.4 MISCELLANEOUS RECORD SUBMITTALS

A. Assemble miscellaneous records required by other Specification Sections for miscellaneous record keeping and submittal in connection with actual performance of the Work. Bind or file miscellaneous records and identify each, ready for continued use and reference.

PART 3 - EXECUTION

3.1 RECORDING AND MAINTENANCE

A. Recording: Maintain one copy of each submittal during the construction period for Project Record Document purposes. Post changes and modifications to Project Record Documents as they occur; do not wait until the end of Project.

B. Maintenance of Record Documents and Samples: Store Record Documents and Samples in the field office apart from the Contract Documents used for construction. Do not use Project Record Documents for construction purposes. Maintain Record Documents in good order and in a clean, dry, legible condition, protected from deterioration and loss. Provide access to Project Record Documents for Architect's reference during normal working hours.

END OF SECTION 01 7839

SECTION 02 4119 - SELECTIVE DEMOLITION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Demolition and removal of selected portions of building or structure.
2. Salvage of existing items to be reused or recycled.

B. Related Requirements:

1. Section 01 1000 "Summary" for restrictions on use of the premises, Owner-occupancy requirements, and phasing requirements.
2. Section 01 7300 "Execution" for cutting and patching procedures.

1.3 DEFINITIONS

A. Remove: Detach items from existing construction and dispose of them off-site unless indicated to be salvaged or reinstalled.

B. Remove and Salvage: Detach items from existing construction, in a manner to prevent damage, and store in location directed by Owner.

C. Remove and Reinstall: Detach items from existing construction, in a manner to prevent damage, prepare for reuse, and reinstall where indicated.

D. Existing to Remain: Leave existing items that are not to be removed and that are not otherwise indicated to be salvaged or reinstalled.

E. Dismantle: To remove by disassembling or detaching an item from a surface, using gentle methods and equipment to prevent damage to the item and surfaces; disposing of items unless indicated to be salvaged or reinstalled.

1.4 MATERIALS OWNERSHIP

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

B. Historic items, relics, antiques, and similar objects including, but not limited to, cornerstones and their contents, commemorative plaques and tablets, and other items of interest or value to Owner that may be uncovered during demolition remain the property of Owner.

1. Carefully salvage in a manner to prevent damage and promptly return to Owner.

1.5 PREINSTALLATION MEETINGS

A. Predemolition Conference: Conduct conference at Project site.

1. Inspect and discuss condition of construction to be selectively demolished.
2. Review structural load limitations of existing structure.
3. Review and finalize selective demolition schedule and verify availability of materials, demolition personnel, equipment, and facilities needed to make progress and avoid delays.
4. Review requirements of work performed by other trades that rely on substrates exposed by selective demolition operations.
5. Review areas where existing construction is to remain and requires protection.

1.6 INFORMATIONAL SUBMITTALS

A. Qualification Data: For refrigerant recovery technician.

B. Proposed Protection Measures: Submit report, including Drawings, that indicates the measures proposed for protecting individuals and property, for environmental protection, for dust control and, for noise control. Indicate proposed locations and construction of barriers.

C. Schedule of Selective Demolition Activities: Indicate the following:

1. Detailed sequence of selective demolition and removal work, with starting and ending dates for each activity. Ensure Owner's on-site operations are uninterrupted.
2. Interruption of utility services. Indicate how long utility services will be interrupted.
3. Coordination for shutoff, capping, and continuation of utility services.
4. Use of elevator and stairs.
5. Coordination of Owner's continuing occupancy of portions of existing building and of Owner's partial occupancy of completed Work.

D. Predemolition Photographs or Video: Show existing conditions of adjoining construction, including finish surfaces, that might be misconstrued as damage caused by demolition operations. Comply with Section 01 3233 "Photographic Documentation." Submit before Work begins.

E. Warranties: Documentation indicating that existing warranties are still in effect after completion of selective demolition.

1.7 CLOSEOUT SUBMITTALS

A. Inventory: Submit a list of items that have been removed and salvaged.

1.8 FIELD CONDITIONS

A. Owner will occupy portions of building immediately adjacent to selective demolition area. Conduct selective demolition so Owner's operations will not be disrupted.

B. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.

C. Notify Architect of discrepancies between existing conditions and Drawings before proceeding with selective demolition.

D. Hazardous Materials: It is not expected that hazardous materials will be encountered in the Work.

1. If suspected hazardous materials are encountered, do not disturb; immediately notify Architect and Owner. Hazardous materials will be removed by Owner under a separate contract.

E. Historic Areas: Demolition and hauling equipment and other materials shall be of sizes that clear surfaces within historic spaces, areas, rooms, and openings, including temporary protection, by 12 inchesor more.

F. Storage or sale of removed items or materials on-site is not permitted.

G. Utility Service: Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.

1. Maintain fire-protection facilities in service during selective demolition operations.

1.9 COORDINATION

A. Arrange selective demolition schedule so as not to interfere with Owner's operations.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.

B. Standards: Comply with ASSE A10.6 and NFPA 241.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify that utilities have been disconnected and capped before starting selective demolition operations.

B. Review Project Record Documents of existing construction or other existing condition and hazardous material information provided by Owner. Owner does not guarantee that existing conditions are same as those indicated in Project Record Documents.

C. Survey of Existing Conditions: Record existing conditions by use of preconstruction photographs or video.

1. Comply with requirements specified in Section 01 3233 "Photographic Documentation."

2. Inventory and record the condition of items to be removed and salvaged. Provide photographs or video of conditions that might be misconstrued as damage caused by salvage operations.
3. Before selective demolition or removal of existing building elements that will be reproduced or duplicated in final Work, make permanent record of measurements, materials, and construction details required to make exact reproduction.

3.2 UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS

A. Existing Services/Systems to Remain: Maintain services/systems indicated to remain and protect them against damage.

1. Protect existing lightning protection system from damage during roofing work.

3.3 PROTECTION

A. Temporary Protection: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.

1. Provide protection to ensure safe passage of people around selective demolition area and to and from occupied portions of building.
2. Provide temporary weather protection, during interval between selective demolition of existing construction on exterior surfaces and new construction, to prevent water leakage and damage to structure and interior areas.
3. Protect walls, ceilings, floors, and other existing finish work that are to remain or that are exposed during selective demolition operations.
4. Comply with requirements for temporary enclosures and dust control specified in Section 01 5000 "Temporary Facilities and Controls."

B. Temporary Shoring: Design, provide, and maintain shoring, bracing, and structural supports as required to preserve stability and prevent movement, settlement, or collapse of construction and finishes to remain, and to prevent unexpected or uncontrolled movement or collapse of construction being demolished.

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

C. Remove temporary barricades and protections where hazards no longer exist.

3.4 SELECTIVE DEMOLITION, GENERAL

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

1. Proceed with selective demolition systematically, from higher to lower level. Complete selective demolition operations above each floor or tier before disturbing supporting members on the next lower level.
2. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping. Temporarily cover openings to remain.

3. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
4. Do not use cutting torches until work area is cleared of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting flame-cutting operations. Maintain portable fire-suppression devices during flame-cutting operations.
5. Maintain fire watch during and for at least 1 hours after flame-cutting operations, if applicable.
6. Maintain adequate ventilation when using cutting torches.
7. Remove decayed, vermin-infested, or otherwise dangerous or unsuitable materials and promptly dispose of off-site.
8. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
9. Dispose of demolished items and materials promptly.

B. Site Access and Temporary Controls: Conduct selective demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.

C. Work in Historic Areas: Selective demolition may be performed only in areas of Project that are not designated as historic. In historic spaces, areas, and rooms, or on historic surfaces, the terms "demolish" or "remove" shall mean historic "removal" or "dismantling" as specified in Historic specification sections.

D. Removed and Salvaged Items:

1. Clean salvaged items.
2. Pack or crate items after cleaning. Identify contents of containers.
3. Store items in a secure area until delivery to Owner.
4. Transport items to Owner's storage area on-site as designated by Owner.
5. Protect items from damage during transport and storage.

E. Removed and Reinstalled Items:

1. Clean and repair items to functional condition adequate for intended reuse.
2. Pack or crate items after cleaning and repairing. Identify contents of containers.
3. Protect items from damage during transport and storage.
4. Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make item functional for use indicated.

F. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by Architect, items may be removed to a suitable, protected storage location during selective demolition and cleaned and reinstalled in their original locations after selective demolition operations are complete.

3.5 SELECTIVE DEMOLITION PROCEDURES FOR SPECIFIC MATERIALS

A. Masonry: Demolish in small sections. Cut masonry at junctures with construction to remain, using power-driven saw, and then remove masonry between saw cuts.

B. Roofing: Remove no more existing roofing than what can be covered in one day by new roofing and so that building interior remains watertight and weathertight. See Division 7 and 26 Sections for new roofing requirements.

1. Remove existing roofing system down to substrate.

3.6 DISPOSAL OF DEMOLISHED MATERIALS

A. Remove demolition waste materials from Project site and dispose of them in an EPA-approved construction and demolition waste landfill acceptable to authorities having jurisdiction.

1. Do not allow demolished materials to accumulate on-site.
2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
3. Remove debris from elevated portions of building by chute, hoist, or other device that will convey debris to grade level in a controlled descent.

B. Burning: Do not burn demolished materials.

3.7 CLEANING

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

END OF SECTION 02 4119

SECTION 04 0310 - HISTORIC MASONRY RESTORATION AND CLEANING

PART 1 - GENERAL

1.1 GENERAL REQUIREMENTS

A. It is the intent of this specification to protect historic structures to the greatest extent possible. Use the gentlest means to perform the work and take the greatest of care to ensure that the historic materials are not damaged in the process of the work. In addition to requirements in this section, comply with NPS Hist Prop.

1.2 WORK INCLUDED

A. Base Bid: Masonry repair and repointing of the existing courthouse tower and chimneys.

B. Alternate: Masonry repair and repointing of the courthouse brick, limestone, and terra cotta.

1. Protection of adjacent non-masonry surfaces.
2. Rebuilding designated masonry.
3. Cleaning of masonry surfaces.
4. Repointing of mortar joints.
5. Sealing cracks in masonry.
6. Cleaning up residue.

1.3 DESCRIPTION OF WORK

A. The general procedure for restoration and cleaning of the brick and stone masonry shall be as follows:

1. Repair/replace designated brick masonry.
2. Thoroughly clean building masonry. (The intent is to remove the surface dirt at areas receiving masonry work without damaging the brick, stone and mortar.)
3. Remove unsound mortar and materials from joints and cracks.
4. Repoint prepared joints with mortar.
5. Apply sealant at designated cracks.

1.4 REFERENCES

A. The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

1. ASTM INTERNATIONAL (ASTM)
   a. ASTM A36/A36M (2008) Standard Specification for Carbon Structural Steel
   b. ASTM C1324 (2010) Standard Test Method for Examination and Analysis of Hardened Masonry Mortar
   c. ASTM C144 (2011) Standard Specification for Aggregate for Masonry Mortar

d. ASTM C1489 (2001; E 2008; R 2008) Standard Specification for Lime Putty for Structural Purposes
e. ASTM C170/C170M (2009) Standard Test Method for Compressive Strength of Dimension Stone
f. ASTM C207 (2006; R 2011) Standard Specification for Hydrated Lime for Masonry Purposes
g. ASTM C216 (2012) Facing Brick (Solid Masonry Units Made from Clay or Shale)
h. ASTM C34 (2010) Structural Clay Load-Bearing Wall Tile
i. ASTM C67 (2012) Standard Test Methods for Sampling and Testing Brick and Structural Clay Tile
j. ASTM C881/C881M (2010) Standard Specification for Epoxy-Resin-Base Bonding Systems for Concrete
k. ASTM E11 (2009e1) Wire Cloth and Sieves for Testing Purposes
l. ASTM E2659 (2009) Standard Practice for Certificate Programs
m. ASTM E96/E96M (2010) Standard Test Methods for Water Vapor Transmission of Materials

2. NATIONAL PARK SERVICE (NPS)
   a. NPS Hist Prop (1995) National Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings
   b. NPS TPS Brief 1 (2000) Assessing Cleaning and Water-Repellent Treatments for Historic Masonry Buildings
   c. NPS TPS Brief 2 (1998) Repointing Mortar Joints in Historic Masonry Buildings

1.5 DEFINITIONS

A. Terms are defined below as applicable to this project:

1. Aggregates
   a. The sand component of mortar.
2. Biocides
   a. A chemical treatment meant to eliminate organic growth on the masonry units and mortar and prohibit re-growth.
3. Binder
   a. The component of mortar that binds together the aggregate particles into a cohesive material.
4. Dispersed Lime Crack Injection
   a. A repair method in which dispersed lime material is injected into small hairline cracks by use of needle or syringe.
5. Consolidant
   a. A chemical product meant to strengthen loose or deteriorated stone.
6. Dutchman
   a. A repair method in which deteriorated stone is removed in part and replaced with salvaged, harvested or new stone to make a seamless patch.
7. Insitu
   a. A term referencing a repair procedure in which the masonry units and mortar remain in place and are repaired without removal from the wall system
8. Joint Sealant
   a. A flexible, chemical product that is used to create a weather-tight seal at the boundary of masonry units with other units or dissimilar materials.
9. Lead Flashing

a. An extruded lead material that is inserted into joints to assist in precluding water entry into the masonry.

10. Lime Wash
    a. A protective surface treatment comprised of calcium hydroxide particles in suspension in water, along with small amounts of calcium carbonate, silica particles and other minerals.

11. Mockup
    a. Specific area on the building approved by Architect to demonstrate the contractor's ability to apply, match and install specified materials.

12. Mortar
    a. A mixture of binders, aggregates, and pigments used for reconstruction, repointing or stucco applications.

13. New Elements
    a. New, non-historic materials added to masonry structures to aid in their ability to resist loads (typically seismic) or to resist water infiltration.

14. Patch
    a. The use of substitute repair materials to treat damaged or deteriorated masonry units insitu.

15. Remediate
    a. The practice of restoring a historic masonry structure and its component materials with the intent to maintain the original fabric to the greatest extent possible.

16. Remove
    a. Specifically for historic masonry materials, the term means to detach an item from existing construction to the limits indicated.

17. Replace
    a. To reinstall an item in its original position (or where indicated) after remedial treatment, or to duplicate and reinstall an entire item with new material; with the original item serving as the pattern for creating the duplicate.

18. Repoint
    a. To remove existing mortar joints to the specified depth and replace with a mortar that matches in color, texture, and performance with maximum breathability, bond, and flexibility to accommodate movement.

19. Retool
    a. A repair method in which a chisel is used to re-create the surrounding stone texture finish by removing loose pieces of stone.

20. Surface Treatment
    a. The application of traditional materials or contemporary chemical products to the surface of masonry to provide protection to the masonry units and mortar and/or prevent water infiltration.

21. Test Panel
    a. Specific area on the building approved by the Architect to demonstrate individual applicator competency in workmanship proficiency during the on-site training program.

22. Tuckpointing
    a. Often called skim-coating, an American practice of surface repairing mortar joints without the required removal of existing deteriorated mortar beneath. This practice is not recommended for mortar joint repair work on historic masonry. There is also an acceptable British form of tuckpointing practice that involves careful thin penciling of smaller joints within larger ones to give the wall the appearance of an ashlar finish.

23. Water Repellent
    a. A chemical product designed to preclude water entry into a masonry wall system.
24. Wall System
    a. A term used to address the fact that masonry structures are comprised of different materials but function holistically, requiring that all restoration and cleaning process take into account the implications of the treatment to the adjacent materials and the building as a whole.
25. Masonry Treatment Requirement (MTR)
    a. Defined treatments that are required by the specification (contract) documents for project specific repairs to masonry.
26. Saturated Surface Dry (SSD)
    a. Defined as a condition of the wall surface after water has been applied and allowed to dry to a point with no standing water visible.

1.6 PRE-CONSTRUCTION CONFERENCE

A. Prior to beginning the work of this Section, convene a meeting with the Owner and Architect to review the requirements of the Quality Control Plan, Project Training Program, installation procedures, location of required mockup areas, and all job conditions and processes. All subcontracting firms involved with this work shall participate in this meeting.

1.7 SUBMITTALS

A. SUBMITTAL PROCEDURES:

1. Preconstruction Submittals
   a. Quality Control Plan
   b. Project Training Program
2. Shop Drawings
   a. Documentation
3. Product Data
   a. Cleaning and Restoration Methods
   b. Cleaning Materials
   c. Qualifications
   d. Water Infiltration
   e. Stone Consolidants
4. Samples
   a. Mock-ups
5. Certificates
   a. Repair Materials

1.8 QUALITY CONTROL

A. Submit resumes for all historic masonry workers, demonstrating the minimum experience required. Product manufacturers, vendors, distributors, or suppliers of materials will not be permitted to offer on-site project training certificates or historic masonry consultation services.

B. QUALITY CONTROL PLAN

1. Prior to beginning restoration and cleaning work, submit a written Quality Control Plan. Include a separate section in the overall project Quality Control Plan specifically addressing this restoration and cleaning work. Do not proceed without written approval of the plan. At a minimum, include the items in the Quality Control Plan
   a. Describe methods of dust containment during the work specific to the restoration and cleaning work.
   b. Describe the methods of protecting surrounding masonry, windows, doors, roof, and building trim as well as surrounding landscape. Provide drawings of protection when requested.
   c. Describe the work procedures, materials, and tools the contractor proposes to use for each MTR specified.
   d. Describe the sequence of each MTR.
   e. Describe the methods for shoring and providing a safe working environment.
   f. Describe the methods for select deconstruction of individual masonry units and tools for cleaning the masonry for reuse.
   g. Describe the method and approach to mortar joint removal.
   h. Describe the method and approach to cleaning mortar coating smears and old patching materials from the masonry surfaces.
   i. Describe, in detail, the procedures relating to techniques and tools proposed for masonry matching.
   j. Describe the complete masonry removal and matching procedures; include equipment, approach, length of time the masonry will be out of the wall, documentation on mapping the location, and where (on-site or in shop) the masonry units will be repaired.
   k. Describe the procedure for matching of different colors at different locations.
   l. Describe the procedure for mixing and matching of substitute repair materials.
   m. Describe the methods and system by which the use of reclaimed masonry units can be utilized.
   n. Describe the methods for setting masonry back into its original position and maintaining the original bond patterns and joint width.
   o. Describe the methods of transition points where replacement/preservation work will meet the original historic work.
   p. Describe the on-site project training program. Provide the opportunity for workers to be trained in each masonry treatment requirement (MTR) as work proceeds.

C. QUALIFICATIONS

1. Masonry Firm
   a. The firm performing the masonry work shall have a minimum of five years experience on similar projects. The firm shall have completed work similar in material, design, and extent to that indicated for this Project and shall demonstrate a record of successful in-service performance. Proven implementation of NPS Hist Prop and related Preservation Briefs are required.

2. Field Supervision
   a. Retain an experienced full-time supervisor on the project site at all times when masonry restoration is in progress. A single individual shall be responsible for supervising the historic masonry restoration work throughout the duration of the project.

3. Masonry Applicator
   a. Employ craftspeople who are experienced with and specialize in restoration work of the types they will be performing. All masonry restoration treatments must be performed by a craftsperson that is familiar with historic masonry construction and has worked on historic masonry projects for at least five years. Only skilled

journeyman masons who are familiar and experienced with the materials and methods specified may be used.

4. Project Training Definition and Use
   a. In addition to five years demonstrable experience on masonry restoration projects, offer workers project training certificate(s) within the framework of ASTM E2659. Project training certificates are earned by individual workers and issued with the understanding that they are for limited time use, enforceable only to this specific project and for a specific MTR. It is not necessary, nor a requirement of this specification, that all restoration workers obtain all project training certificates offered. Rather it is desirable that workers be trained for each project specific task they will perform to ensure the highest quality results from the cleaning and restoration program.

D. Documentation
   a. Submit digital photographic documentation of the all phases of masonry restoration, including prior to the start of restoration work. Provide thorough photo documentation of the project and project details and targeted areas.

E. Cleaning and Restoration Mock-ups

1. Cleaning and Restoration Methods
   a. Submit the cleaning and restoration methods, and materials selected for a specific structure for approval before work starts. Take into account the total construction system of the building to be worked upon, including different masonry and mortar materials, as well as non-masonry elements which may be affected by the work. Utilize mockups to identify the appropriate cleaning and restoration treatment and materials and set the standard for each project task. Demonstrate the correct execution of the approved cleaning and restoration methods and materials during the on-site workmanship training program within the framework of ASTM E2659.

2. Cleaning Products and Procedures
   a. Establish cleaning products and procedures during the mockup process; selecting the least aggressive method used to achieve the desired level of clean. Where chemical products are selected for cleaning, use them in accordance with the manufacturer's instructions.

F. Masonry Mock-ups

1. Submit mock-ups of each treatment proposed for use in the work. No masonry or mortar shall be used in the work until the mock-ups and the represented material and workmanship have been approved. Materials shall be submitted and approved prior to the creation of mock-ups. The location for placement, size, and location of mock-ups will be as directed.

2. Mock-ups shall demonstrate the methods and quality of workmanship to be performed in each masonry treatment requirement (MTR). Provide a mockup for each MTR indicated.
   a. Prepare mock-ups on existing walls under the same weather conditions expected during the remainder of the work.
   b. Throughout restoration, retain approved mock-up panels in undisturbed condition, suitably marked, as a standard for judging completed work.
   c. Review manufacturer's product data sheets to determine suitability of each product for each surface.
   d. Apply products using manufacturer-approved application methods, determining actual requirements for application.
   e. Obtain approval as to the preservation treatment approach, design, and workmanship to include, but not limited to the verification of all material applications

and finishes as specified to the requirements of color, texture, profiles, and finishes before proceeding with work.

f. Mock-ups: May be performed on inconspicuous sections of actual construction
   1) Location as directed.
   2) Size: 2 feet by 3 feet or as appropriate for the repair specified
   3) Repair unacceptable work.

3. Repointing
   a. Repoint mortar joints, minimum acceptable mock up dimensions: twelve feet in length - 2/3 horizontal joints and 1/3 vertical joints. Demonstrate method for cutting out mortar joints, preparing wall for repointing, mixing mortar, installing mortar and curing the mortar. Prepare and place repointing mortar in accordance with NPS TPS Brief 2 and in compliance with NPS Hist Prop.

4. Retooling Stone Masonry Insitu
   a. Demonstrate treatment technique and methods to retool three deteriorated stone faces insitu in all known historic profile textures identified. Finishes include, but are not limited to, corduroy and point chisel finishes.

5. Masonry Removal and Replacement
   a. Fully remove masonry and replace to specified dimensions and texture. Select size of masonry units representing typical conditions. Return one masonry unit to same location, set to surrounding profile joint width and bond pattern. Set masonry unit using specified mortar. Confirm with Owner and Architect that the replacement masonry units meet specification requirements for matching and that sufficient quantity required for the work have been identified. Leave one stone dry-set into opening set on wood shims for evaluation and approval of preparation conditions.

6. Substitute Repair Material
   a. Patching - Apply substitute repair material on at least two masonry units for repair. Include one masonry unit on which to demonstrate proficiency in removing previous patching material and repairing with new substitute repair material. Include the removal of metal anchors at two locations and fill in the holes with substitute repair material on the second masonry unit (where applicable).
   b. Dutchman - Undertake dutchman repairs in two locations, including one that is only cut and prepared for application. Demonstrate the quality of the stone insert, as well as the workmanship and techniques to be performed in the dutchman repairs. Do not proceed with other dutchman repairs until the technique has been approved.

7. Crack Repair
   a. Repair one crack, 600 mm 2 feet in length, using mortar. Repair one crack, 600 mm 2 feet in length, using dispersed hydrated lime injection technique with appropriate substitute repair material.

8. Surface Treatments
   a. Install a minimum 16 square foot mockup for each surface treatment on each substrate to be treated. For water repellents and/or consolidants, demonstrate the equipment and installation procedure.

9. New Masonry Elements
   a. Install new accessories in a manner demonstrating their final installation on the structure.

1.9 DELIVERY, STORAGE, AND HANDLING

A. Furnish cement in suitable bags used for packaging cements. Labeling of packages shall clearly define contents, manufacturer, and batch identification. Detergents, masonry cleaners, paint removers, solvents, epoxies and other chemicals used for masonry cleaning shall be in sealed

containers that legibly show the designated name, formula or specification number, quantity, date of manufacture, manufacturer's formulation number, manufacturer's directions including any warnings and special precautions, and name of manufacturer. Store materials in weathertight structures which will exclude moisture and contaminants. Accessories shall be stored avoiding contamination and deterioration. Admixtures which have been in storage onsite for six months or longer, or which have been subjected to freezing, shall not be used unless retested and proven to meet the specified requirements.

1.10 FIELD CONDITIONS

A. General Ambient Conditions

1. Masonry, mortar, and epoxy adhesives shall not be placed when weather conditions detrimentally affect the quality of the finished product. No masonry or mortar shall be placed when the air temperature is below 40 degrees F in the shade. When air temperature is likely to exceed 90 degrees F masonry and mortar shall have a temperature not exceeding 90 degrees F when deposited. Materials to be used in the work shall be neither produced nor placed during periods of rain or other precipitation. Stop material placements, and protect all in-place material from exposure, during periods of rain or other precipitation. Masonry surfaces shall be cleaned only when air temperatures are above 40 degrees F and will remain so until masonry has dried out, but for not less than 7 days after completion of the work.

B. Masonry Installation Conditions

1. Do not perform any masonry repointing unless air temperatures are between 40 degrees F and 95 degrees F and will remain so for at least 48 hours after completion of work. Phase repointing during hot weather by completing process on the shady side of the building or schedule installation of materials during cooler evening hours to prevent premature evaporation of the water from the mortar. Do not use frozen materials or materials mixed or coated with ice or frost. Do not lower the freezing point of mortar by the use of admixtures or anti-freeze agents. Do not add chlorides to the mortar. Prevent repointing mortar from staining the face of the masonry or other exposed surfaces. Immediately remove all repointing mortar that comes in contact with such surfaces. Cover partially completed work when work is not in progress. Protect sills, ledges and projections from mortar droppings. If the Contractor fails to protect against building damage as a result of work of this Section, such damage shall be the Contractor's responsibility. The Contractor shall restore damaged areas to the complete satisfaction of the Owner at no expense to the Owner. Do not apply products under conditions outside manufacturer's requirements, which include:
    a. Surfaces that are frozen; allow complete thawing prior to installation.
    b. Surface and air temperatures below 40 degrees F.
    c. Surface and air temperatures above 95 degrees F.
    d. When surface or air temperature is not expected to remain above 40 degrees F for at least 48 hours after application.
    e. Wind conditions that may blow materials onto surfaces not intended to be treated.

1.11 WARRANTIES

A. Cleaning Warranty

1. Warrant cleaning procedures for a period of two years against harm to substrate (masonry and mortar) or to adjacent materials including, but not limited to, discoloration of substrate from improper procedures or usage, chemical damage from inadequate rinse procedures, and abrasive damage from improper procedures.

B. Repair Warranty

1. Warrant repair procedures, including repointing, for a period of two years against: discoloration or mismatch of new mortar to adjacent original historic mortar, discoloration or damage to masonry from improper mortar clean-up, loss of bond between masonry and mortar, fracturing of masonry edges from improper mortar joint preparation procedures or improper mortar formulation, and occurrence of efflorescence.

PART 2 - PRODUCTS

2.1 CLEANING MATERIALS

A. Selection of appropriate cleaning products requires a clear understanding of the masonry materials to be cleaned, a rationale for the cleaning, and an understanding of the anticipated level of cleanliness expected from the cleaning program. Caution against over-cleaning of surfaces which may be detrimental, and which may remove desirable historic surface details or patinas. For example, if cleaning reveals unexpected joint painting or historic signage; suspend the cleaning action, protect the exposed area and notify the Architect. Research has determined that overly aggressive cleaning methods and materials can cause subtle, long-term damage to masonry units. Use products that have a minimum 5 year performance record on similar projects. Selection of the products shall be predicated on long-term negative effects to the masonry rather than current level of cleanliness of the comparable structure.

B. CHEMICAL CLEANERS

1. Chemical cleaners range from acidic to alkaline in their chemical makeup. Along with the cleaner, provide the associated pre and post treatment material to neutralize the long term effects of the chemicals. All products shall be commercially available and have a proven record of cleaning masonry without altering, damaging or discoloring the masonry units or mortar.

C. BIOCIDES

1. Use biocides that are chemical treatments designed to remove organic growth from masonry. The manufacturer's literature for all biocides shall contain information on the product as well as the expected service life of the material and any detrimental effects it may have on the masonry or mortar.

D. LIQUID STRIPPABLE MASKING AGENT

1. Liquid strippable masking agent shall be manufacturer's standard liquid, film-forming, strippable masking material for protecting glass, metal, and polished stone surfaces from the damaging effect of acidic and alkaline masonry cleaners.

E. CLEANING IMPLEMENTS

1. Furnish brushes that contain natural or nylon fiber bristles only. Do not use wire brushes. Scrapers and application paddles shall be made of wood with rounded edges. Metallic tools are not permitted.

F. WATER

1. Obtain potable water from a local source. Filter to remove minerals resulting in a neutral pH, prior to application.

2.2 REPAIR MATERIALS

A. Use materials, physical and chemical properties, and composition of masonry and mortar in renovation work that match the original existing masonry and mortar to be repaired, unless samples and testing determine that existing mixtures and materials are faulty or non-performing. Masonry materials used for repair and renovation shall match the original existing historic materials as closely as possible in composition, color, texture, strength, size, finishing and porosity. Substitute repair materials shall be of one type and from one source, when used in repair treatments which will have surfaces exposed in the finished structure.

B. MORTAR

1. The replacement mortar shall coexist with the old in a sympathetic, supportive and, if necessary, sacrificial capacity. The replacement mortar shall have greater vapor permeability and be softer (measured in compressive strength) than the masonry units. The replacement mortar shall be as vapor permeable, and as soft, or softer, (measured in compressive strength) than the existing historic mortar. Measure water vapor transmission in accordance with ASTM E96/E96M.

C. MATCHING

1. Take test specimens of existing mortar from a sound and intact representative portion of the structure, at locations indicated by Architect. The replacement mortar shall match the original existing material in color, texture and tooling. The sand shall match the sand in the original existing mortar by color, shape and particle size distribution as defined using ASTM C144; ASTM E11 sieves. Use of admixtures is subject to approval.

2.3 REPLACEMENT MASONRY MATERIALS

A. REPLACEMENT BRICK

1. Replacement brick shall match in color, shape, size, texture and appearance to the existing historic brick. Test brick in comparison to the original existing historic brick using ASTM C67. Reclaimed brick shall be used only upon Architect approval. Brick shall meet the requirements of ASTM C216 Grade SW unless otherwise specified.

B. REPLACEMENT STONE

1. Replacement stone shall match in type, color, shape, size, texture and finish-profile the appearance of the existing historic stone units. Test replacement stone in comparison to the existing historic stone using ASTM C170/C170M.

C. REPLACEMENT TERRA COTTA

1. Replacement terra cotta shall match in color, shape, size, texture and finish-profile to the appearance of the existing historic terra cotta units. Test replacement terra cotta in comparison to the existing historic terra cotta using ASTM C34.

2.4 MASONRY ELEMENTS

A. EPOXY ANCHOR ADHESIVES

1. Use an epoxy-resin grout to bond steel anchors to masonry. The grout shall be a 100 percent solids, moisture insensitive, low creep, structural adhesive. The epoxy shall conform to ASTM C881/C881M, Type IV; Grade and Class selected to conform to the manufacturer's recommendations for the application.

B. METAL ATTACHMENTS

1. Anchors for spall repairs shall be threaded stainless steel, size as indicated. Other plates, angles, anchors, and embedments shall conform to ASTM A36/A36M, and shall be prime painted with inorganic zinc primer.

C. SURFACE TREATMENTS

1. Contemporary chemical treatments to stabilize masonry units without impeding water vapor transmission are permitted for use, including, silanes and siloxanes that react chemically with the masonry.

D. CONSOLIDATES

1. Consolidants shall be commercially available products designed to strengthen loose or deteriorated stone without damaging intact stone or affecting the vapor transmission properties of the original material.

E. WATER REPELLENTS

1. Water repellents shall be commercially available products designed to preclude water droplet entry into the masonry walls without affecting the vapor transmission properties of the original material.

2.5 EQUIPMENT

A. CLEANING EQUIPMENT

1. Cleaning equipment shall not cause staining, erosion, marring, or other damage or changes in the appearance of the surfaces to be cleaned.

B. SANDBLASTING

1. Sandblasting equipment is not allowed for cleaning masonry surfaces.

C. WATER BLASTING

1. Provide water blasting equipment including a trailer-mounted water tank, pumps, high-pressure hose, wand with safety release cutoff control, nozzle, and auxiliary water re-supply equipment. Do not operate the equipment at a pressure which will cause etching or other damage to the masonry surface or mortar joints. Operate the equipment at a discharge capacity of 55 to 400 psi and 2.5 to 3 gpm for general surface cleaning operations. The water tank and auxiliary re-supply equipment shall be of sufficient capacity to permit continuous operations. Provide protective covers and barriers as required to prevent over-spray onto adjacent surfaces.

D. SPRAY EQUIPMENT

1. Spray equipment for chemical cleaners shall be low-pressure tanks or chemical pumps suitable for chemical cleaner indicated, and shall be equipped with stainless steel, cone-shaped spray-tip. Spray equipment for water shall disperse water through a fan-shaped spray tip at an angle of not less than 15 degrees. Spray equipment shall deliver water at a pressure not greater than 400 psi and at a volume between 2.5 and 3 gpm. Spray equipment for heated water shall be capable of maintaining temperature, at flow rates indicated, between 140 and 180 degrees F. Keep the spray-tip at a 10-inch minimum distance from the wall surface during operations.

E. ALTERNATIVE BLASTING METHODS

1. Alternative blasting methods require equipment designed to discharge sponges, walnut shells, ice, soda and other friable materials. These are specially designed systems that must be operated in accordance with manufacturer's recommendations and maintained in good working order. Do not operate the equipment at a pressure which will cause etching or other damage to the masonry surface or mortar joints. Determine the discharge capacity on a case by case basis during the mockup test panel demonstration and approval process. Provide protective covers and barriers as required to prevent over-spray onto adjacent surfaces.

F. DRILLING EQUIPMENT

1. Use standard handheld masonry drills, commonly used for drilling small holes in concrete and masonry to drill holes in masonry for patch anchors and other applications. The drill shall be a small, powered, handheld type, using rotary drilling mode only. Impact and rotary impact type drills will not be allowed.

G. COMPRESSED AIR SUPPLIES

1. Compressed air equipment shall deliver clean, oil and moisture free compressed air at the surface to be cleaned. The compressed air line shall have at least two in-line air filters to remove oil and moisture from the air supply. Test the compressed air supply during each shift for the presence of oil and moisture.

PART 3 - EXECUTION

3.1 EVALUATION AND ANALYSIS

A. Undertake masonry renovation only after complete evaluation and analysis of the areas to be repaired are completed, including sampling and testing of the existing mortar to determine its composition and qualities. No repair work shall be undertaken until conditions that have caused masonry deterioration have been identified. Correct such conditions, if possible, prior to start of the work.

B. MORTAR ANALYSIS

1. Analyze existing original historic mortar before repointing in order to provide a match with the new repointing mortar. Historic mortars are usually softer than newer mortars, often using lime as a binder rather than cement. Lime for repointing mortar shall conform to ASTM C207, Type S, or ASTM C1489 unless otherwise specified. Full laboratory analysis of the existing mortar shall conform to ASTM C1324, and include methods for precise determination of the binder constituents. Field analysis of the existing mortar shall be as specified below.

C. FIELD (INSITU) MORTAR ANALYSIS

1. Analyze the mortar composition and detect cracks, degradation and de-bonding from the surrounding masonry. Also determine previous surface coating treatments that may be contributing to the current conditions.

2. Compare the bedding mortar with the pointing mortar and determine the cross-sectional characteristics of the wall.

3. Determine the level of moisture movement in the insitu mortar, and if the mortar or masonry units are handling the brunt of the water movement through the wall.

4. Assess the physical characteristics of the mortar and determine indirect compressive strength. Gather data on insitu mortar joint shear strength.

D. TAKING AND PREPARATION OF SAMPLES

1. Take and analyze samples of unweathered original historic mortar and different type of mortar in the structure in order to match the new mortar to be used for repointing. Remove three or four samples of each type of mortar to be matched with a hand chisel from several locations on the building. Set aside the largest sample for comparison with the repointing mortar. Place the remaining samples in labeled, sealed sample bags for transport to the laboratory.

2. LABORATORY MORTAR ANALYSIS EQUIPMENT
   a. Equipment for evaluating historic mortar in the lab includes physical preparation and analysis equipment such as scales, ovens, compression machines, sieves, sieve shakers and the like. All lab equipment should be calibrated and in good working condition. To accurately determine the binder constituents and proportions requires additional equipment such as high magnification microscopes to perform petrography, specialized ovens to perform Differential Thermal Analysis and specialized equipment to perform X-Ray diffraction analysis. This specialized equipment should be operated and the results analyzed only by trained, experienced personnel.

3. LABORATORY MASONRY UNIT EVALUATION EQUIPMENT
   a. Equipment for evaluating masonry units in the lab includes physical preparation and analysis equipment such as scales, ovens, compression machines, freeze-thaw equipment, soaking chambers and the like. All lab equipment should be calibrated and in good working condition.

E. BINDER ANALYSIS

1. Subject a part of the historic mortar sample to Differential Thermal Analysis or X-ray Diffraction to determine the binder components.

F. AGGREGATE ANALYSIS

1. Separate aggregate of the mortar sample from the binder. The separated aggregate shall be rinsed clean with water and dried. Examine the aggregate with a magnifying glass, and record the component materials as to range of materials, sizes, colors, as well as the presence of other materials or perform sand analysis using a sieve analysis of the aggregate as part of the ASTM C1324 process.

3.2 PREPARATION

A. MATERIAL HANDLING AND ASSOCIATED EQUIPMENT

1. MIXING, TRANSPORTING, AND PLACING JOB MATERIALS
   a. Provide equipment used for mixing, transporting, placing, and confining masonry and mortar placements capable of satisfactorily mixing material and supporting uninterrupted placement operations. Equipment used for mixing, conveying, and placing of materials shall be clean, free of old materials and contaminants, and shall conform to the material manufacturer's

2. ASSOCIATED EQUIPMENT
   a. Provide associated equipment, such as mixer timing equipment, valves, pressure gauges, pressure hoses, other hardware, and tools, as required to ensure a continuous supply of material and operation control.

3. PROTECTION
   a. Protect persons, motor vehicles, adjacent surfaces, surrounding buildings, equipment, and landscape materials from chemicals used and runoff from cleaning and paint removal operations. Erect temporary protection covers, which will remain in operation during the course of the work, over pedestrian walkways and at personnel and vehicular points of entrance and exit.
4. INTERIOR PROTECTION
   a. Protect the interior of buildings from the weather, cleaning, and repair operations at all times.
5. WORKER EXPOSURES
   a. Exposure of workers to chemical substances shall not exceed the limits established.

3.3 EQUIPMENT AND TECHNIQUES DEMONSTRATION

A. Demonstrate equipment and techniques of operation in an approved location. Dependable and sufficient equipment, appropriate and adequate to accomplish the work specified, shall be assembled at the work site in sufficient lead time before the start of the work to permit inspection, calibration of weighing and measuring devices, adjustment of parts, and the making of any repairs that may be required. Maintain the equipment in good working condition throughout the project.

3.4 MASONRY CLEANING

A. Historic materials shall not be damaged or marred in the process of cleaning. Cleaning shall conform to NPS TPS Brief 1. Protect open joints to prevent water and cleaner intrusion into the interior of the structure from pressure spraying. Protect non-masonry materials and severely deteriorated masonry by approved methods prior to initiation of cleaning operations. Masonry cleaning shall remove all organic and inorganic contaminants from the surface and pores of the substrate, without causing any short or long-term negative consequences. Surfaces shall be evenly cleaned with no evidence of streaking or bleaching. The cleaning process shall not affect the density, porosity, or color of the masonry or mortar. Cleaned masonry shall have a neutral pH. Use the gentlest methods possible for cleaning historic masonry to achieve the desired results. Make test patches to determine a satisfactory cleaning result. Cleaning shall proceed in an orderly manner, working from top to bottom of each scaffold width and from one end of each elevation to the other. Perform cleaning in a manner which results in uniform coverage of all surfaces, including corners, moldings, interstices and which produces an even effect without streaking or damage to masonry. The cleaning materials, equipment, and methods shall not result in staining, erosion, marring, or other damage to the surfaces of the structure. Following an initial inspection and evaluation of the structure and surfaces, give the structure a surface cleaning which shall be completed prior to start of repair work, and sampling and testing of mortars. The work shall provide for the complete cleaning of all exterior masonry surfaces of the structures, removing all traces of moss, dirt, and other contaminants to allow determination of the masonry's color and shades, finish and texture, and other properties. Following completion of the surface cleaning of the structure (or side of structure) the masonry shall be dried prior to the start of any repair work. The following sequence of methods shall be used to determine the least aggressive, effective cleaning method:

1. Water with brushes
2. Water with mild soap
3. Water with stronger soap
4. Water with stronger soap plus ammonia
5. Water with stronger soap plus vinegar (but not on calcareous masonry)

6. Stronger chemical cleaners, only when above methods are determined to be ineffective by the Architect

B. CHEMICAL CLEANERS

1. Do not use acidic chemical cleaners on limestone, marble, concrete and other calcareous (calcium containing) masonry materials. If chemical cleaners are used on such materials, they shall be alkaline based and utilized with neutralizing afterwashes.

C. TEST PATCHES

1. Demonstrate the materials, equipment, and methods to be used in cleaning in a test section approximately 3 feet by 3 feet. The location of the test section, and the completed test section is subject to approval. Adjust the cleaning process as required and the test section rerun until an acceptable process is obtained. Locate test patches in inconspicuous areas of the building. The areas tested shall exhibit soiling characteristics representative of those larger areas to be cleaned. Also conduct tests on areas to be stripped of paint. Allow tested areas to dry before a determination is made on the effectiveness of a particular treatment.

D. WATER CLEANING

1. PRESSURE SPRAYING
   a. Spray apply water to masonry surfaces to comply with requirements indicated by test patches for location, purpose, water temperature, pressure, volume, and equipment. Unless otherwise indicated, the surface washing shall be done with clean, low pressure water (pressure of less than 55 psi and 2.5 to 3 gpm discharge) and the spray nozzle shall not be held less than 12 inches from surface of masonry. Water shall be applied side to side in overlapping bands to produce uniform coverage.
2. HAND SCRUBBING
   a. Scrub surfaces to be cleaned to remove surface contaminants. Pre-wet surfaces and use hand-held natural bristle or nylon brushes. Do not use wire brushes.
3. RINSING
   a. Rinse scrubbed surfaces clean of all contaminants and cleaning solutions with water in a low-to-moderate pressure spray, working upwards from bottom to top of each treated area. The rinsing cycle shall remove all traces of contaminants and cleaning solutions.
4. CHEMICAL CLEANING
   a. Chemical cleaning of historic masonry shall use the gentlest means possible to achieve the desired result as determined by test patches. Chemical cleaning is the use of any product in addition to water, including detergents, ammonia, vinegar, and bleach. Proceed in an orderly manner, working from top to bottom of each scaffold width and from one end of each elevation to the other. Cleaning shall result in uniform coverage of all surfaces, including corners, moldings, interstices and produce an even effect without streaking or damage to masonry. Do not apply chemical cleaners to the same masonry surfaces more than twice.
5. SURFACE PREWETTING
   a. Wet masonry surfaces to be cleaned with chemical cleaners with water using a low pressure spray before application of any cleaner.
6. ACIDIC CHEMICAL CLEANING
   a. Apply acidic chemical cleaners according to manufacturer's instructions. Acidic chemical cleaners shall not be applied to masonry with high calcium content (e.g. marble, limestone). Apply acidic cleaners to masonry surfaces by low pressure spray 50 psi max., roller, or brush. Cleaner shall remain on masonry surface for the

time period recommended by manufacturer. Manual scrubbing by brushes shall be employed as indicated by test patches for the specific location. Cleaned surfaces shall be rinsed with a low-to-moderate pressure spray of water to remove all traces of chemical cleaner.

7. ALKALINE CHEMICAL CLEANING – REWASH PHASE
   a. Apply alkaline chemical cleaners to masonry surfaces according to manufacturer's instructions, by low pressure spray 50 psi max., roller, or brush. Cleaner shall remain on masonry surface for the time period recommended by the manufacturer. Manual scrubbing by brushes shall be employed as indicated by test patches for the specific location. Cleaned surfaces shall be rinsed with a low-to-moderate pressure spray of water.

8. ALKALINE CHEMICAL CLEANING – AFTERWASH PHASE
   a. Immediately after rinsing of alkaline cleaned surfaces, apply a neutralizing afterwash to the cleaned masonry areas. Neutralizing afterwash shall be applied according to manufacturer's instructions, by low pressure spray 50 psi max., roller, or brush. Afterwash shall remain on masonry surface for the time period recommended by manufacturer. Cleaned surfaces shall be rinsed with a low-to-moderate pressure spray of water to remove all traces of chemical cleaners.

9. pH TESTING
   a. Determine the pH of masonry surfaces which have been chemically cleaned using pH monitoring pencils or papers. Rinse chemically cleaned masonry of all chemical residues until a neutral pH (7) reading is obtained from the masonry surface.

3.5 MASONRY REPAIR

A. Match repaired surfaces with adjacent existing surfaces in all respects. Proceed with masonry repair only after the cause of deterioration has been identified and corrected. Demonstrate the materials, methods and equipment proposed for use in the repair work in test panels. The location, number, size and completed test panels is subject to approval. Use products in accordance with the manufacturer's instructions.

B. DETERIORATION INVESTIGATION

1. Perform a field investigation, conducted by the historic masonry consultant, to determine the causes and extent of degradation. To facilitate the investigation, utilize the following techniques.
   a. Employ a field microscope to closely assess the conditions at the surface of the mortar and masonry units. Determine the mortar composition, detect cracks and assess for degradation and debonding from the surrounding masonry. Detect previous surface coating treatments on the mortar and masonry that may be contributing to the current conditions. Employ a boroscope to examine mortar deeper in the joint. Compare the bedding mortar with the pointing mortar and ascertain the cross-sectional characteristics of the wall.
   b. Employ moisture meters to determine the level of moisture in the mortar and masonry, and if the mortar or masonry units are handling the brunt of the water movement through the wall. Infrared thermography, employed by a trained investigator, can provide additional information on the moisture conditions. Employ rilem tubes to determine the rate of water uptake into the masonry. To access the physical characteristics of hard mortar, use a spring-loaded impact device to determine indirect compressive strength. For evaluating softer mortars, mortar integrity deeper in the wall, and the condition of the masonry units, a drill resistance tool shall be employed by an experienced consultant. Utilize technologies such as ground penetrating radar or metal detection equipment to map metal reinforcement

and embedments in the wall. Use flat (bladder) jacks or jacks and rams to gather data on insitu mortar joint shear strength and deformation and stress in the wall.

C. REPOINTING MASONRY

1. Repoint masonry in accordance with NPS TPS Brief 2.

D. WALL PREPARATION

1. Remove old caulking, grout, or non-original mortar from previously repaired joints to a minimum depth of 2.5 times the width of the joint. Cut all joints (unless otherwise noted) back to sound, solid, back up material. Leave a clean, square face at the back of the joint to provide for maximum contact of repointing mortar.
   a. Shallow or feather edging is not permitted. Remove loose particles from joints. Clean joints, followed by blowing with filtered, dry, compressed air or vacuum.
   b. Existing horizontal mortar joints (bed joints) that are filled with a hard Portland mortar may be cut out using a diamond blade that is narrower than the joint width. The middle one-third of the mortar joint may be cut using a rotary power saw. The remaining mortar shall be removed from the masonry joints by hand using masonry chisels or pneumatic carving tools.
   c. Vertical joints (head joints) shall not be cut out using rotary power saws. All vertical head joints must be removed by hand using a pneumatic carving tool, or hammer and chisel.
   d. Remove existing historic lime-based mortar using only small-headed chisels that are no wider than half the width of the existing masonry joints. Pneumatic air carving chisels are permitted as are specially designed mortar removal reciprocating tools (i.e. Arbortech Saw).
   e. Do not widen the existing masonry joints. The surrounding masonry edges shall not be spalled or chipped in the process of mortar removal. Damage to surrounding masonry units resulting from rotary blade over running is not permitted. Replace all masonry units damaged during mortar removal with replacement units that match the original.
   f. Permit applicators to be trained at the project site in this masonry treatment requirement

E. MIXING AND INSTALLATION

1. Repointing mortar shall be pre-blended in single containers in a factory-controlled environment.

F. PRESOAKING MASONRY /MORTAR CONSISTENCY /LIFTS

1. Use the same mortar as the repointing mortar for setting the replacement masonry. Soak exposed surfaces of historic masonry adjacent to joint with water prior to repointing. Allow time for excess water to run off and evaporate prior to repointing. Joint surfaces shall be damp but free from standing water. Maintain a water sprayer on site at all times during the repointing process. The mortar material shall resemble the consistency of brown sugar during installation. This drier consistency enables the material to be tightly packed into the joint, allows for cleaner work, and prevents shrinkage cracks as the mortar cures. Point joints in layers or "lifts" where the joints are deeper than 32 mm 1-1/4 inch. Apply in layers not less than 1/2 the depth but not more than 32 mm 1-1/4 inch or until a uniform depth is formed.

G. COMPRESSION / JOINT FINISH / CURING

1. Compress each layer thoroughly and allow it to become thumbprint hard before applying the next layer.

2. When mortar is thumbprint hard at the surface of the wall, finish the joints to match the original historic joint profile. Allow water evaporation from the freshly repointed walls in order to initiate the carbonation process in high lime content mortars. The carbonation of lime mortar initially requires wet-and-dry cycles, which can be created by water misting the joints after the mortar application when dry weather conditions prevail. Finish the joint profile before these cycles are started. Depending on the environmental conditions (temperature and humidity), carry out water misting until a full nine alternating wet-and-dry cycles are completed.
3. Adjust curing methods to ensure that the repointing mortar is damp without eroding the surface of the mortar.

H. PROTECTION

1. Keep the mortar from drying out too quickly or from becoming too wet. Protect it from direct sun and high winds for the first 72 hours after installation or from driving rain for the first 24 hours, using plastic sheeting if necessary. Be careful not to create a greenhouse effect by sealing off air movement in an attempt to protect the wall with plastic. Allow for air circulation to facilitate the carbonation process.

I. RETOOLING STONE MASONRY INSITU

1. Scale off all loose pieces of original stone from masonry intended to remain in place, including surface material in powder or granular form and detachments of planer elements, spalls and chips. Sound all stone on building by using the "ring test method" in order to distinguish fully intact stone from those in which delamination may be hidden or pieces of unstable material may not be immediately visible. Any stone that is designated for retooling insitu can became a candidate for removal if, after chiseling is completed, the solid stone substrate is no longer in plane or plumb with the surrounding stone masonry surfaces.

J. MASONRY REMOVAL AND REPLACEMENT

1. Before removing any deteriorated masonry units, establish bonding patterns, levels and coursings. Remove masonry that has deteriorated or is damaged beyond repair, as determined through investigation and evaluation. Carefully demolish or remove entire units from joint to joint, without damaging surrounding units in a manner that permits replacement with full-size units. Support and protect remaining masonry work that surrounds removal area. Maintain flashing, reinforcement, lintels, and adjoining construction in an undamaged condition. Notify Architect of unforeseen detrimental conditions including voids, cracks, bulges, and loose masonry units in existing masonry backup, rotted wood, rusted metal, and other deteriorated items. Remove as many whole masonry units as possible without damage.
    a. Remove mortar, loose particles, and soil from masonry by cleaning with hand chisels, brushes, and water.
    b. Remove sealants by cutting close to masonry units with utility knife and cleaning with solvents. Clean surrounding masonry areas by removing mortar, dust, and loose particles in preparation for replacement.
    c. Replace removed masonry with harvested masonry units, where possible, or with new masonry units matching the existing units. Butter vertical joints for full width before setting and set units in full bed of mortar, unless otherwise indicated. Remove mortar used for laying/setting masonry units before mortar sets to the repointing depth of the surrounding area. Repoint new mortar joints in repaired area to comply with requirements for repointing existing masonry units.
    d. If a few isolated masonry units are to be replaced, remove each without disturbing the surrounding masonry. Remove deteriorated masonry units and mortar requiring replacement by hand chiseling. Do not damage adjoining masonry units during the removal of deteriorated units and mortar.

e. Test the new element for fitting into its space without mortar. If wedges are used to support and align the new unit, cover them with at least 1-1/2 inches of mortar when pointing is complete.
f. Cover the four sides and back of the space with sufficient mortar to ensure that there will be no air spaces when the new unit is set. Line up and set the new unit by tapping it into place with a wooden or rubber mallet. Align the face of new unit with that of existing masonry.
g. Repoint joints to match the rest of the wall after new units have been properly installed and adjusted.
h. Clean replacement areas with a non-metallic brush and water to remove excess mortar.

K. SUBSTITUTE MASONRY REPAIR

1. Repair or replace original historic masonry materials only if surfaces are extensively deteriorated (surface missing to a depth of 100 mm 4 inches or more) or are threatening the safety of the structure or individuals. Deteriorated surfaces shall be removed and repaired or replaced only upon approval. Repairs and replacements shall match the materials, colors, and finish of the existing historic masonry as closely as possible.

L. AREAS TO BE REMOVED

1. Remove unsound, weak, or damaged masonry and mortar in areas as indicated. Loose particles, laitance, spalling, cracked, or debonded masonry and mortar and foreign materials shall be removed with hand tools unless otherwise noted. Surfaces prepared for repair shall be cleaned free of dust, dirt, masonry chips, oil or other contaminants, rinsed with water, and dried before repair work is begun. Protect surfaces of the structure, and surfaces adjacent to the work area from damage which may result from removal, cleaning, and repair operations.

2. APPLICATION OF SUBSTITUTE REPAIR MATERIALS
   a. Place substitute repair materials to rebuild spalled or damaged areas to match the original surface finish, level, texture, bonding patterns, color and porosity. Match the finished appearance of the substitute repair material patch with the adjacent existing surface. Apply samples to the masonry units insitu.
      1) Substitute repair material shall not be installed in thicknesses exceeding 50 mm 2 inches. Masonry repairs in excess of 2 inches thick shall utilize a Dutchman repair approach or replacement unit.
      2) Remove all loose mortar and masonry prior to installation of the substitute repair material. "Sound" the masonry with a hammer to verify its integrity. If necessary, cut away an additional 1/2 inch of the masonry substrate to ensure the surface to be repaired is solid and stable.
      3) Remove any sealant residue. Cut out used anchors, threaded rod anchors and/or dowels within the damaged masonry area. Any anchors that are free of rust, solidly embedded, and do not project beyond the solid masonry surface may remain.
      4) Using clean water and a scrub brush, clean all dust from surface and pores of the substrate.
      5) Pre-wet the substrate with water prior to the application of the repair material to prevent the substrate from drawing out the moisture too quickly. Re-wet the surface with water again immediately before applying the repair material. Use approved methods to deliver the substitute repair work as demonstrated.
      6) Follow manufacturers' instructions pertaining to the placement of materials. If the manufacturer requires that installers of a specified product be trained, provide this documentation to the Architect. Training certificates previously issued by product companies for the application of specified products cannot

be substituted for the Project Training "Substitute Repair Material Certificate" on this project.

3. MASONRY AND SUBSTITUTE MATERIAL REPAIR FINISHES AND COLOR
   a. Match the exposed surfaces of masonry and substitute material repair finish, color, texture, and surface detail with the original surface. Mechanical finishing and texturing may be required to produce the required finish and appearance. The finishing and texturing shall conceal bond lines between the repaired area and adjacent surfaces. The texturing shall provide replication of all surface details, including tooling and machine marks. Use low-impact energy type equipment in finishing and texturing, which will not weaken the patch or damage the patch bond and the adjacent masonry.

4. PATCH ANCHORS
   a. Provide patch anchors to ensure that the patch is tied to the existing masonry structure at a frequency of at least one patch anchor per 4 square inches of patch plan surface area; specific locations for patch anchors shall be as indicated. Use small handheld, low-speed rotary masonry drills to produce holes in the existing masonry, within the limits for the patch anchor installation.

5. HOLES
   a. Drill holes into the existing substrate material of the masonry using rotary (non-hammer) drills. Holes shall have a diameter of 3 mm 1/8 inch larger than the anchor diameter. The holes shall be drilled to a depth of 100 mm 4 inches, except as otherwise indicated or directed. Drill holes shall not penetrate completely through the masonry, and shall provide at least 25 mm 1 inch of cover around the drill hole. Holes shall be cleaned by water blasting to remove drill dust and other debris and then blown dry with filtered, dry, compressed air. Drill holes shall be conditioned in accordance with the epoxy adhesive manufacturer's recommendations.

6. ANCHOR INSTALLATION
   a. Clean anchors to remove all contaminants which may hinder epoxy bond. Epoxy adhesive shall be pressure injected into the back of the drilled holes. The epoxy shall fill the holes without spilling excess epoxy when the anchors are inserted. Insert anchors immediately into the holes. The anchors shall be set back from the exterior face at least 25 mm 1 inch. Install anchors without breaking or chipping the exposed masonry surface. Where voids exist in the masonry units or between the wythes, use socks to contain the epoxy.

7. CLEANUP
   a. Remove excess epoxy and spills from the surface of the masonry. Leave the surface of the masonry in a clean and uncontaminated condition. Remove spills on adjacent surfaces and repair surfaces as required.

8. DUTCHMAN REPAIRS
   a. Select stone for Dutchman repairs from the following three sources listed in order of priority: 1) stone harvested from the same elevation and stone type; 2) approved salvaged stone; 3) new stone made from a similar stone type. Fit the new piece into place with tolerances of no more than plus or minus 1.5 mm 1/16-inch. Provide supporting rods of stainless steel as necessary for the extent of the repair and the location. Closely blend repairs in with the surrounding original materials.

M. SURFACE TREATMENTS

1. WATER INFILTRATION
   a. Application of water proofing is not allowed. Water repellents may be applied upon Architect and Owner approval of the recommendation and justification, by the masonry contractor, that no other means will control water infiltration.

2. STONE CONSOLIDANTS

3. Use of stone consolidants is not allowed unless justifying data can be provided.

3.6 NEW ELEMENTS

A. Evaluate new materials and components for both functional and aesthetic impacts on historic structures.

B. STRUCTURAL UPGRADES

1. Mechanical anchors used to reinforce masonry structures shall be designed by a registered professional structural engineer. It is critical that such strengthening measures take into account the current loads and stresses in the structure and the nature in which the building has historically managed thermal and other environmental changes or cycles. Submit manufacturers literature, design analysis and detail drawings for the proposed additional materials.

C. JOINT SEALANT

1. Provide joint sealing as specified in Section 07 92 00 JOINT SEALANTS. Install sealants in accordance with manufacturer's recommendations.

3.7 FINAL CLEANING

A. No sooner than 72 hours after completion of the repair work and after joints are sealed, faces and other exposed surfaces of masonry shall be washed down with water applied with a soft bristle brush, then rinsed with clean water. Discolorations which cannot be removed by these procedures, shall be considered defective work. Perform cleaning work when temperature and humidity conditions allow the surfaces to dry rapidly. Protect adjacent surfaces from damage during cleaning operations.

3.8 PROTECTION OF WORK

A. Protect work against damage from subsequent operations.

3.9 DEFECTIVE WORK

A. Defective work shall be repaired or replaced, as directed, using approved procedures.

3.10 FINAL INSTALLATION

A. Following completion of the work, inspect the structure for damage, staining, and other distresses. The patches shall be inspected for cracking, crazing, delamination, unsoundness, staining and other defects. The finish, texture, color and shade, and surface tolerances of the patches shall be inspected to verify that all requirements have been met. Repair surfaces exhibiting defects as directed.

END OF SECTION 04 0310

SECTION 05 0371 - HISTORIC METAL PREPARATION FOR PAINTING

PART 1 - GENERAL

1.1 GENERAL REQUIREMENTS

A. It is the intent of this specification to protect historic metal to the greatest extent possible while providing preparation for painting. Use the gentlest means to perform the work and take the greatest of care to ensure that the historic materials are not damaged in the process of work.

1.2 WORK INCLUDED

A. Base Bid: Repainting of existing painted metal flashing and statuary bases.

B. Alternate: Repainting of existing painted metal friezes, cornices, and downspouts as identified on the documents.

1.3 REFERENCES

A. The publication listed below form a part of this section to the extent referenced.
   1. ASTM INTERNATIONAL (ASTM)
      a. ASTM D3359 (2009e2) Measuring Adhesion by Tape Test
   2. THE SOCIETY FOR PROTECTIVE COATINGS (SSPC)
      a. SSPC WJ-4 Waterjet Cleaning of Metals – Light Cleaning.

1.4 SYSTEM DESCRIPTION

A. The procedures proposed for the accomplishment of the work shall provide for safe conduct of the work, protection of property which is to remain undisturbed, and coordination with other work in progress. Submit one copy of the Work Plan including a detailed description of the methods and equipment to be used for each operation, and the sequence of operations.

1.5 SUBMITTALS

A. Submit the following in accordance with Section 01 33 00.

B. SUBMITTAL PROCEDURES:
   1. Product Data
   2. Work Plan
   3. Materials
   4. Qualifications

1.6 QUALITY ASSURANCE

A. Training
   1. Inform workers, having access to an affected work area, of the contents of the applicable material data safety sheets (MSDS) and of potential health and safety hazard and

protective controls associated with materials used on the project. An affected work area is one which may receive dust and mists from the surface preparation operations. Workers involved in surface preparation and clean-up shall be trained in maintaining the integrity of elements on historic structures. Instruct personnel having a need to use respirators and masks in the use and maintenance of such equipment.

B. Coordination
   1. Coordinate work to minimize exposure of building occupants, other Contractor personnel, and visitors to mists and odors from surface preparation and cleaning operations.

C. Qualifications
   1. Provide qualified workers trained and experienced in the preparation for painting of wood surfaces in historic structures, submit documentation of 5 consecutive years of work of this type and a statement certified by the Contractor attesting that the experience and qualifications of the workers (journeymen) comply with the specifications.. Provide a list of similar jobs identifying when, where, and for whom the work was done and a current point-of-contact for identified references.

PART 2 - PRODUCTS

2.1 SURFACE PREPARATION

A. Power wash surface at 3,000-3.500 psi with a zero-degree oscillating tip. Do not damage existing metal.

PART 3 - EXECUTION

3.1 GENERAL REQUIREMENTS

A. Use methods for preparation of historic metal surfaces for painting which are the gentlest possible to achieve the desired results. Historic substrate materials shall not be damaged or marred in the process of surface preparations. Material and application requirements for paints are covered in Section 09 9960 High Performance Coatings.

3.2 PROTECTION OF AREAS NOT TO BE PAINTED

A. Remove or protect items not to be painted, which are in contact with or adjacent to painted surfaces, prior to surface preparation and painting operations. Replace items removed prior to painting when painting is completed. Following completion of painting, workers skilled in the trades involved shall reinstall removed items. Surfaces damaged by preparation shall be restored to original condition.

3.3 CLEANING OF SURFACES

A. Surfaces to be painted shall be clean and free of grease, dirt, dust and other foreign matter before application of paint or surface treatments. Cleaning shall be programmed so that dust and other contaminants will not fall on newly prepared or newly painted surfaces.

3.4 EXISTING PAINT

A. Existing paint shall be tested for adhesion to substrate in accordance with ASTM D3359, Test Method A and shall obtain a rating of 4 or better in order to be considered sound. Existing paint meeting this requirement may be considered a satisfactory base for repainting.

3.5 SURFACE PREPARATION

A. After cleaning and removal of deteriorated paint, edges of remaining chipped paint shall be feather-edged and sanded smooth. Repair damaged areas such as, but not limited to, nail holes, cracks, chips, and spalls with suitable material to match adjacent undamaged areas.

3.6 METAL SURFACES

A. Metal surfaces shall be cleaned of foreign matter. Surfaces shall be free from soils and corrosion; e.g. grease, oil, solder flux, welding flux, weld spatter, sand, loose rust, scale, and other contaminants that might interfere with the application of the new finish. Cleaning methods shall be the gentlest possible to achieve the desired result. Metals which are soft, thin, or exhibit fine detail shall not be abrasively cleaned. Evidence of corrosion or contamination on a previously cleaned surface shall be cause for recleaning prior to painting.

3.7 TIMING

A. Surfaces that have been cleaned and otherwise prepared for painting shall be given a coat of the specified first coat as soon as practical after such pretreatment has been completed, but prior to any deterioration of the prepared surface. Unless otherwise directed, the first coat primer shall be applied within 48 hours of surface preparation.

3.8 SURFACES TO BE PREPARED FOR PAINTING

A. Surfaces shall be prepared as specified in Section 09 9960 High Performance Coatings.

3.9 CLEANING

A. Preparation materials and other deposits on adjacent surfaces shall be removed and the entire job left clean and ready for painting.

END OF SECTION 05 0371

SECTION 06 1000 - ROUGH CARPENTRY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Wood blocking and nailers.

B. Related Requirements:

1. Section 06 1600 "Sheathing" for sheathing, subflooring, and underlayment.

1.3 DEFINITIONS

A. Boards or Strips: Lumber of less than 2 inches nominal size in least dimension.

B. Dimension Lumber: Lumber of 2 inches nominal size or greater but less than 5 inches nominal size in least dimension.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of process and factory-fabricated product. Indicate component materials and dimensions and include construction and application details.

1. Include data for wood-preservative treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements. Indicate type of preservative used and net amount of preservative retained.
2. For products receiving a waterborne treatment, include statement that moisture content of treated materials was reduced to levels specified before shipment to Project site.

1.5 DELIVERY, STORAGE, AND HANDLING

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

PART 2 - PRODUCTS

2.1 WOOD PRODUCTS, GENERAL

A. Lumber: DOC PS 20 and applicable rules of grading agencies indicated. If no grading agency is indicated, comply with the applicable rules of any rules-writing agency certified by the ALSC Board of Review. Grade lumber by an agency certified by the ALSC Board of Review to inspect and grade lumber under the rules indicated.

1. Factory mark each piece of lumber with grade stamp of grading agency.
2. Dress lumber, S4S, unless otherwise indicated.

B. Maximum Moisture Content of Lumber: 19 percent unless otherwise indicated.

2.2 WOOD-PRESERVATIVE-TREATED LUMBER

A. Preservative Treatment by Pressure Process: AWPA U1; Use Category UC2.

1. Preservative Chemicals: Acceptable to authorities having jurisdiction and containing no arsenic or chromium.

B. Kiln-dry lumber after treatment to a maximum moisture content of 19 percent. Do not use material that is warped or that does not comply with requirements for untreated material.

C. Mark lumber with treatment quality mark of an inspection agency approved by the ALSC Board of Review.

2.3 MISCELLANEOUS LUMBER

A. General: Provide miscellaneous lumber indicated and lumber for support or attachment of other construction, including the following:

1. Blocking.
2. Nailers.

B. Concealed Boards: 19 percent maximum moisture content and Construction or No. 2 grade lumber of any species.

C. For blocking not used for attachment of other construction, Utility, Stud, or No. 3 grade lumber of any species may be used provided that it is cut and selected to eliminate defects that will interfere with its attachment and purpose.

D. For blocking and nailers used for attachment of other construction, select and cut lumber to eliminate knots and other defects that will interfere with attachment of other work.

E. For furring strips for installing plywood or hardboard paneling, select boards with no knots capable of producing bent-over nails and damage to paneling.

2.4 FASTENERS

A. General: Fasteners shall be of size and type indicated and shall comply with requirements specified in this article for material and manufacture.

B. Nails, Brads, and Staples: ASTM F 1667.

C. Power-Driven Fasteners: Fastener systems with an evaluation report acceptable to authorities having jurisdiction, based on ICC-ES AC70.

D. Wood Screws: ASME B18.6.1.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Framing Standard: Comply with AF&PA's WCD 1, "Details for Conventional Wood Frame Construction," unless otherwise indicated.

B. Framing with Engineered Wood Products: Install engineered wood products to comply with manufacturer's written instructions.

C. Set rough carpentry to required levels and lines, with members plumb, true to line, cut, and fitted. Fit rough carpentry accurately to other construction. Locate nailers, blocking, and similar supports to comply with requirements for attaching other construction.

D. Install shear wall panels to comply with manufacturer's written instructions.

E. Install metal framing anchors to comply with manufacturer's written instructions. Install fasteners through each fastener hole.

F. Install sill sealer gasket to form continuous seal between sill plates and foundation walls.

G. Do not splice structural members between supports unless otherwise indicated.

H. Provide blocking and framing as indicated and as required to support facing materials, fixtures, specialty items, and trim.

I. Sort and select lumber so that natural characteristics do not interfere with installation or with fastening other materials to lumber. Do not use materials with defects that interfere with function of member or pieces that are too small to use with minimum number of joints or optimum joint arrangement.

J. Comply with AWPA M4 for applying field treatment to cut surfaces of preservative-treated lumber.

1. Use inorganic boron for items that are continuously protected from liquid water.
2. Use copper naphthenate for items not continuously protected from liquid water.

K. Where wood-preservative-treated lumber is installed adjacent to metal decking, install continuous flexible flashing separator between wood and metal decking.

L. Securely attach rough carpentry work to substrate by anchoring and fastening as indicated, complying with the following:

1. Table 2304.9.1, "Fastening Schedule," in ICC's International Building Code (IBC).
2. Table R602.3(1), "Fastener Schedule for Structural Members," and Table R602.3(2), "Alternate Attachments," in ICC's International Residential Code for One- and Two-Family Dwellings.
3. ICC-ES evaluation report for fastener.

M. Use steel common 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. Make tight connections between members. Install fasteners without splitting wood. Drive nails snug but do not countersink nail heads unless otherwise indicated.

3.2 WOOD BLOCKING, AND NAILER INSTALLATION

A. Install where indicated and where required for attaching other work. Form to shapes indicated and cut as required for true line and level of attached work. Coordinate locations with other work involved.

B. Attach items to substrates to support applied loading. Recess bolts and nuts flush with surfaces unless otherwise indicated.

C. Provide permanent grounds of dressed, pressure-preservative-treated, key-beveled lumber not less than 1-1/2 inches wide and of thickness required to bring face of ground to exact thickness of finish material. Remove temporary grounds when no longer required.

3.3 PROTECTION

A. Protect wood that has been treated with inorganic boron (SBX) from weather. If, despite protection, inorganic boron-treated wood becomes wet, apply EPA-registered borate treatment. Apply borate solution by spraying to comply with EPA-registered label.

B. Protect rough carpentry from weather. If, despite protection, rough carpentry becomes wet, apply EPA-registered borate treatment. Apply borate solution by spraying to comply with EPA-registered label.

END OF SECTION 06 1000

SECTION 06 1600-SHEATHING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Roof sheathing.

B. Related Requirements:

1. Section 06 1000 “Rough Carpentry” for plywood backing panels.
2. Division 07 for water-resistive barrier applied over roof sheathing.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of process and factory-fabricated product. Indicate component materials and dimensions and include construction and application details.

1. Include data for wood-preservative treatment from chemical treatment manufacturer and certification by treating plant that treated plywood complies with requirements. Indicate type of preservative used and net amount of preservative retained.
2. Include data for fire-retardant treatment from chemical treatment manufacturer and certification by treating plant that treated plywood complies with requirements. Include physical properties of treated materials.
3. For fire-retardant treatments, include physical properties of treated plywood both before and after exposure to elevated temperatures, based on testing by a qualified independent testing agency according to ASTM D 5516.

1.4 QUALITY ASSURANCE

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

1.5 DELIVERY, STORAGE, AND HANDLING

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

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Fire-Resistance Ratings: As tested according to ASTM E 119; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.

1. Fire-Resistance Ratings: Indicated by design designations from UL's "Fire Resistance Directory" or from the listings of another qualified testing agency.

2.2 WOOD PANEL PRODUCTS

A. Plywood:
1. Either DOC PS 1 or DOC PS 2 unless otherwise indicated.

B. Oriented Strand Board: DOC PS 2.

C. Thickness: match thickness of adjacent roofing sheathing panels.

D. Factory mark panels to indicate compliance with applicable standard.

2.3 ROOF SHEATHING

A. Plywood Sheathing: Exterior, Structural I sheathing.

1. Span Rating: Not less than 48/24.
2. Nominal Thickness: Match Existing.

2.4 FASTENERS

A. General: Provide fasteners of size and type indicated that comply with requirements specified in this article for material and manufacture.

1. For roof sheathing, provide fasteners

B. Nails, Brads, and Staples: ASTM F 1667.

C. Screws for Fastening Wood Structural Panels to Cold-Formed Metal Framing: ASTM C 954, except with wafer heads and reamer wings, length as recommended by screw manufacturer for material being fastened.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Do not use materials with defects that impair quality of sheathing or pieces that are too small to use with minimum number of joints or optimum joint arrangement. Arrange joints so that pieces do not span between fewer than three support members.

B. Cut panels at penetrations, edges, and other obstructions of work; fit tightly against abutting construction unless otherwise indicated.

C. Securely attach to substrate by fastening not less than the existing sheathing is fastened or as indicated, whichever is more stringent, complying with the following:

1. Table 2304.9.1, "Fastening Schedule," in the ICC's International Building Code.
2. Table R602.3(1), "Fastener Schedule for Structural Members," and Table R602.3(2), "Alternate Attachments," in the ICC's International Residential Code for One- and Two-Family Dwellings.
3. ICC-ES evaluation report for fastener.

D. 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. Make tight connections. Install fasteners without splitting wood.

E. Coordinate roof sheathing installation with flashing and joint-sealant installation so these materials are installed in sequence and manner that prevent exterior moisture from passing through completed assembly.

F. Do not bridge building expansion joints; cut and space edges of panels to match spacing of structural support elements.

G. Coordinate sheathing installation with installation of materials installed over sheathing so sheathing is not exposed to precipitation or left exposed at end of the workday when rain is forecast.

3.2 WOOD STRUCTURAL PANEL INSTALLATION

A. General: Comply with applicable recommendations in APA Form No. E30, "Engineered Wood Construction Guide," for types of structural-use panels and applications indicated.

B. Fastening Methods: Fasten panels as indicated below:

1. Roof Sheathing:

   a. Nail to wood framing.
   b. Screw to cold-formed metal and to hot-rolled steel framing.
   c. Space panels 1/8 inch apart at edges and ends.

END OF SECTION 06 1600

SECTION 07 0150.19 - PREPARATION FOR REROOFING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Full tear-off of entire roof system.
2. Re-cover preparation of entire roof area.
3. Removal of flashings and counterflashings.

B. Related Requirements:

1. Section 01 1000 "Summary" for use of premises and for phasing requirements.
2. Section 01 5000 "Temporary Facilities and Controls" for temporary construction and environmental-protection measures for reroofing preparation.

1.3 UNIT PRICES

A. Work of this Section is affected by roof sheathing removal and replacement unit price and metal flashing replacement.

1.4 DEFINITIONS

A. EPS: Molded (expanded) polystyrene.

B. Full Roof Tear-off: Removal of existing roofing system down to existing roof deck.

C. OSB: Oriented strand board.

D. Partial Roof Tear-off: Removal of selected components and accessories from existing roofing system.

E. Roofing Terminology: Definitions in ASTM D 1079 and glossary of NRCA's "The NRCA Roofing Manual: Membrane Roof Systems" apply to work of this Section.

F. Roof Re-Cover Preparation: Existing roofing system is to remain and be prepared for new roof installed over it.

1.5 PREINSTALLATION MEETINGS

A. Preliminary Roofing Conference: Before starting removal Work, conduct conference at Project site.

1. Meet with Owner, Architect, Owner's insurer if applicable, testing and inspecting agency representative, roofing Installer, and installers whose work interfaces with or affects roofing, including installers of roof accessories and roof-mounted equipment.
2. Review methods and procedures related to roofing tear-off, including, but not limited to, the following:

    a. Reroofing preparation, including roofing system manufacturer's written instructions.
    b. Temporary protection requirements for existing roofing system components that are to remain.
    c. Existing roof drainage during each stage of reroofing, and roof-drain plugging and plug removal.
    d. Construction schedule and availability of materials, Installer's personnel, equipment, and facilities needed to avoid delays.
    e. Existing roof deck conditions requiring Architect notification.
    f. Existing roof deck removal procedures and Owner notifications.
    g. Condition and acceptance of existing roof deck and base flashing substrate for reuse.
    h. Structural loading limitations of roof deck during reroofing.
    i. Base flashings, special roofing details, drainage, penetrations, equipment curbs, and condition of other construction that affect reroofing.
    j. HVAC shutdown and sealing of air intakes.
    k. Shutdown of fire-suppression, -protection, and -alarm and -detection systems.
    l. Hazardous material discovery procedure.
    m. Governing regulations and requirements for insurance and certificates if applicable.
    n. Existing conditions that may require Architect notification before proceeding.

1.6 ACTION SUBMITTALS

A. Product Data: For each type of product.

1.7 INFORMATIONAL SUBMITTALS

A. Qualification Data: For Installer.

1. Include certificate that Installer is approved by warrantor of existing roofing system.

B. Field Test Reports:

1. Fastener pull-out test report.

C. Photographs or Videotape: Show existing conditions of adjoining construction and site improvements, including exterior and interior finish surfaces, that might be misconstrued as having been damaged by reroofing operations.

1. Submit before Work begins.

D. Landfill Records: Indicate receipt and acceptance of demolished roofing materials by a landfill facility licensed to accept them.

1.8 QUALITY ASSURANCE

A. Regulatory Requirements:

1. Comply with governing EPA notification regulations before beginning roofing removal.
2. Comply with hauling and disposal regulations of authorities having jurisdiction.

1.9 FIELD CONDITIONS

A. Existing Roofing System: Asphalt shingle roofing.

B. Owner will occupy portions of building immediately below reroofing area.

1. Conduct reroofing so Owner's operations are not disrupted.
2. Provide Owner with not less than 72 hours' written notice of activities that may affect Owner's operations.
3. Coordinate work activities daily with Owner so Owner has adequate advance notice to place protective dust and water-leakage covers over sensitive equipment and furnishings, shut down HVAC and fire-alarm or -detection equipment if needed, and evacuate occupants from below work area.
4. Before working over structurally impaired areas of deck, notify Owner to evacuate occupants from below affected area.

    a. Verify that occupants below work area have been evacuated before proceeding with work over impaired deck area.

C. Protect building to be reroofed, adjacent buildings, walkways, site improvements, exterior plantings, and landscaping from damage or soiling from reroofing operations.

D. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities.

E. Conditions existing at time of inspection for bidding will be maintained by Owner as far as practical.

1. Construction Drawings for existing roofing system are provided for Contractor's convenience and information, but they are not a warranty of existing conditions. They are intended to supplement rather than serve in lieu of Contractor's own investigations. Contractor is responsible for conclusions derived from existing documents.

F. Limit construction loads on existing roof areas to remain, and existing roof areas scheduled to be reroofed to 20psf for uniformly distributed loads.

G. 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.

1. Remove only as much roofing in one day as can be made watertight in the same day.

H. Hazardous Materials: It is not expected that hazardous materials, such as asbestos-containing materials, will be encountered in the Work.

1. Existing roof will be left no less watertight than before removal.
2. If materials suspected of containing hazardous materials are encountered, do not disturb; immediately notify Architect and Owner.

    a. Hazardous materials will be removed by Owner under a separate contract.

1.10 WARRANTY

A. Existing Warranties: There are no existing warranties in place regarding the existing roof.

PART 2 - PRODUCTS

2.1 TEMPORARY PROTECTION MATERIALS

A. EPS Insulation: ASTM C 578.

B. Plywood: DOC PS 1, Grade CD, Exposure 1.

C. OSB: DOC PS 2, Exposure 1.

2.2 INFILL AND REPLACEMENT MATERIALS

A. Wood blocking, curbs, and nailers are specified in Section 06 1000 "Rough Carpentry."

B. Plywood roof sheathing is specified in Section 06 1600 "Sheathing."

C. Fasteners: Factory-coated steel fasteners with metal or plastic plates listed in FM Approvals' RoofNav, and acceptable to new roofing system manufacturer.

2.3 AUXILIARY REROOFING MATERIALS

A. General: Use auxiliary reroofing preparation materials recommended by roofing system manufacturer for intended use and compatible with components of new roofing system.

PART 3 - EXECUTION

3.1 PREPARATION

A. Protection of In-Place Conditions:

1. Protect existing statuary and roofing elements.

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. Notify Owner each day of extent of roof tear-off proposed for that day.

B. Lower removed roofing materials to ground and onto lower roof levels, using dust-tight chutes or other acceptable means of removing materials from roof areas.

C. Full Roof Tear-off: Remove existing roofing and other roofing system components down to the existing roof deck.

1. Remove vapor retarder or sheathing covering.
2. Remove base flashings and counter flashings only if deteriorated.
3. Remove flashings at pipes, curbs, mechanical equipment, and other penetrations only if deteriorated.

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. Provide additional deck securement as indicated on Drawings.

E. Replace plywood roof sheathing as directed by Architect.

1. Roof sheathing replacement will be paid for by adjusting the Contract Sum according to unit prices included in the Contract Documents.

3.4 ROOF RE-COVER PREPARATION

A. Remove blisters, ridges, buckles, and other substrate irregularities from existing roofing that inhibit new recover boards from conforming to substrate.

1. Broom clean existing substrate.
2. Coordinate with Owner's inspector to schedule times for tests and inspections.
3. Verify that existing substrate is dry.

    a. Spot check substrates with an electrical capacitance moisture-detection meter.

4. Remove materials that are wet or damp.

    a. Removal will be paid for by adjusting the Contract Sum according to unit prices included in the Contract Documents.

3.5 BASE FLASHING REMOVAL

A. Remove existing base flashings if deteriorated.

1. Clean substrates of contaminants, such as asphalt, sheet materials, dirt, and debris.

B. Do not damage metal counterflashings that are to remain.

1. Replace metal counterflashings damaged during removal with counterflashings of same metal, weight or thickness, and finish as existing.

3.6 FASTENER PULL-OUT TESTING

A. Perform fastener pull-out tests according to SPRI FX-1, and submit test report to Architect and roofing manufacturer before installing new roofing system.

1. Obtain Architect's and roofing manufacturer's approval to proceed with specified fastening pattern.

    a. Architect or Roofing manufacturer may furnish revised fastening pattern commensurate with pull-out test results.

3.7 DISPOSAL

A. Collect demolished materials and place in containers.

1. Promptly dispose of demolished materials.
2. Do not allow demolished materials to accumulate on-site.
3. 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 07 0150.19

SECTION 07 3113 - ASPHALT SHINGLES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Asphalt shingles.
2. Underlayment.
3. Metal flashing and trim.

1.3 DEFINITION

A. Roofing Terminology: See ASTM D 1079 and glossary of NRCA's "The NRCA Roofing and Waterproofing Manual" for definitions of terms related to roofing work in this Section.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Samples for Initial Selection: For each type of asphalt shingle indicated.

1. Include similar Samples of accessories involving color selection.

C. Samples for Verification: For the following products, of sizes indicated:

1. Asphalt Shingles: Full size.
2. Ridge and Hip Cap Shingles: Full size.

1.5 INFORMATIONAL SUBMITTALS

A. Product Test Reports: For each type of asphalt shingle and underlayment product indicated, for tests performed by a qualified testing agency.

B. Sample Warranty: For manufacturer's warranty.

1.6 CLOSEOUT SUBMITTALS

A. Maintenance Data: For asphalt shingles to include in maintenance manuals.

1.7 QUALITY ASSURANCE

A. Installer Qualifications: An authorized representative who is trained and approved by manufacturer.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Store roofing materials in a dry, well-ventilated location protected from weather, sunlight, and moisture according to manufacturer's written instructions.

B. Store underlayment rolls on end on pallets or other raised surfaces. Do not double stack rolls.

C. Protect unused roofing materials from weather, sunlight, and moisture when left overnight or when roofing work is not in progress.

D. Handle, store, and place roofing materials in a manner to prevent damage to roof deck or structural supporting members.

1.9 FIELD CONDITIONS

A. Environmental Limitations: Install self-adhering sheet underlayment within the range of ambient and substrate temperatures recommended in writing by manufacturer.

1.10 WARRANTY

A. Manufacturer's Warranty: Manufacturer agrees to repair or replace asphalt shingles that fail within specified warranty period.

1. Failures include, but are not limited to, the following:

    a. Manufacturing defects.

2. Material Warranty Period: 25 years from date of Substantial Completion, prorated, with first five years nonprorated.
3. Algae-Resistance Warranty Period: Asphalt shingles will not discolor for five years from date of Substantial Completion.

B. Roofing Installer's Warranty: On warranty form at end of this Section, signed by Installer, in which Installer agrees to repair or replace components of asphalt-shingle roofing that fail in materials or workmanship within specified warranty period.

1. Warranty Period: Two years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Exterior Fire-Test Exposure: Provide asphalt shingles and related roofing materials identical to those of assemblies tested for Class A fire resistance according to ASTM E 108 or UL 790 by

Underwriters Laboratories or another testing and inspecting agency acceptable to authorities having jurisdiction. Identify products with appropriate markings of applicable testing agency.

2.2 GLASS-FIBER-REINFORCED ASPHALT SHINGLES

A. Three-Tab-Strip Asphalt Shingles: ASTM D 3462/D 3462M, glass-fiber reinforced, mineral-granule surfaced, and self-sealing; with tabs regularly spaced.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

    a. Atlas Roofing Corporation.
    b. CertainTeed Corporation.
    c. GAF Materials Corporation.
    d. IKO.
    e. Malarkey Roofing Products.
    f. Owens Corning.
    g. PABCO Roofing Products.
    h. TAMKO Roofing Products, Inc.

2. Strip Size: 3 tabs, regularly spaced
3. Cutout Shape: Square.
4. Butt Edge: Straight cut.
5. Strip Size: Manufacturer's standard.
6. Algae Resistance: Granules resist algae discoloration.
7. Impact Resistance: UL 2218, Class 4.
8. Color and Blends: Match existing.

B. Hip and Ridge Shingles: Manufacturer's standard units to match existing asphalt shingle configuration.

2.3 UNDERLAYMENT MATERIALS

A. Self-Adhering Sheet Underlayment, Polyethylene Faced: ASTM D 1970/D 1970M, minimum of 40-mil-thick, slip-resisting, polyethylene-film-reinforced top surface laminated to SBS-modified asphalt adhesive, with release backing; cold applied.

1. Basis-of-Design Product: Subject to compliance with requirements, provide Grace Ice and Water Shield by GCP Applied Technologies, Inc. or comparable product by one of the following:

    a. Carlisle Coatings & Waterproofing, Inc.
    b. CertainTeed Roofing Corportation
    c. GAF
    d. Johns Mansville; A Berkshire Hathaway Company
    e. Owens Corning

2.4 ACCESSORIES

A. Asphalt Roofing Cement: ASTM D 4586, Type II, asbestos free.

B. Roofing Nails: ASTM F 1667; aluminum, stainless-steel, copper, or hot-dip galvanized-steel wire shingle nails, minimum 0.120-inch-diameter, sharp-pointed, with a minimum 3/8-inch-diameter flat head and of sufficient length to penetrate 3/4 inchinto solid wood decking or extend at least 1/8 inchthrough OSB or plywood sheathing.

1. Where nails are in contact with metal flashing, use nails made from same metal as flashing.

2.5 METAL FLASHING AND TRIM

A. General: Comply with requirements in Section 07 6200 "Sheet Metal Flashing and Trim."

1. Sheet Metal: Stainless steel.

B. Fabricate sheet metal flashing and trim to comply with recommendations in SMACNA's "Architectural Sheet Metal Manual" that apply to design, dimensions, metal, and other characteristics of the item.

1. Apron Flashings: Fabricate with lower flange a minimum of 4 inches over and 4 inches beyond each side of downslope asphalt shingles and 6 inches up the vertical surface.
2. Step Flashings: Fabricate with a headlap of 3 inches and a minimum extension of 5 inches over the underlying asphalt shingle and up the vertical surface.
3. Cricket or Backer Flashings: Fabricate with concealed flange extending a minimum of 24 inches beneath upslope asphalt shingles and 6 inches beyond each side of chimney and 6 inches above the roof plane.
4. Open-Valley Flashings: Fabricate in lengths not exceeding 10 feet with 1-inch-high, inverted-V profile at center of valley and equal flange widths of 12 inches.

C. Vent Pipe Flashings: ASTM B 749, Type L51121, at least 1/16 inch thick. Provide lead sleeve sized to slip over and turn down into pipe, soldered to skirt at slope of roof, and extending at least 4 inches from pipe onto roof.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.

1. Examine roof sheathing to verify that sheathing joints are supported by framing and blocking or metal clips and that installation is within flatness tolerances.
2. Verify that substrate is sound, dry, smooth, clean, sloped for drainage, and completely anchored; and that provisions have been made for flashings and penetrations through asphalt shingles.

B. Prepare written report, endorsed by Installer, listing conditions detrimental to performance of the Work.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 UNDERLAYMENT INSTALLATION

A. General: Comply with underlayment manufacturer's written installation instructions applicable to products and applications indicated unless more stringent requirements apply.

B. Self-Adhering Sheet Underlayment: Install, wrinkle free, on roof deck. Comply with low-temperature installation restrictions of underlayment manufacturer if applicable. Install lapped in direction that sheds water. Lap sides not less than 3-1/2 inches. Lap ends not less than 6 inches staggered 24 inches between courses. Roll laps with roller. Cover underlayment within seven days. **Entire roof to receive self-adhered underlayment.**

3.3 METAL FLASHING INSTALLATION

A. General: Install metal flashings and other sheet metal to comply with requirements in Section 07 6200 "Sheet Metal Flashing and Trim."

1. Install metal flashings according to recommendations in ARMA's "Residential Asphalt Roofing Manual" and NRCA's "NRCA Guidelines for Asphalt Shingle Roof Systems."

B. Apron Flashings: Extend lower flange over and beyond each side of downslope asphalt shingles and up the vertical surface.

C. Step Flashings: Install with a headlap of 3 inches and extend over the underlying asphalt shingle and up the vertical surface. Fasten to roof deck only.

D. Cricket or Backer Flashings: Install against the roof-penetrating element extending concealed flange beneath upslope asphalt shingles and beyond each side.

E. Open-Valley Flashings: Install centered in valleys, lapping ends at least 8 inches in direction to shed water. Fasten upper end of each length to roof deck beneath overlap.

1. Secure hemmed flange edges into metal cleats spaced 12 inches apart and fastened to roof deck.
2. Adhere 9-inch-wide strip of self-adhering sheet to metal flanges and to self-adhering sheet underlayment.

F. Pipe Flashings: Form flashing around pipe penetrations and asphalt shingles. Fasten and seal to asphalt shingles as recommended by manufacturer.

3.4 ASPHALT-SHINGLE INSTALLATION

A. General: Install asphalt shingles according to manufacturer's written instructions, recommendations in NRCA's "NRCA Guidelines for Asphalt Shingle Roof Systems."

B. Install starter strip along lowest roof edge, consisting of an asphalt-shingle strip with tabs removed with self-sealing strip face up at roof edge.

1. Extend asphalt shingles over fasciae at eaves and rakes to match existing condition.
2. Install starter strip along rake edge.

C. Install first and remaining courses of asphalt shingles stair-stepping diagonally across roof deck with offset pattern at succeeding courses, maintaining uniform exposure, and matching existing shingle configuration/spacing.

D. Install asphalt shingles by single-strip column or racking method, maintaining uniform exposure. Install full-length first course followed by cut second course, repeating alternating pattern in succeeding courses.

E. Fasten asphalt-shingle strips with a minimum of five roofing nails located according to manufacturer's written instructions.

1. When ambient temperature during installation is below 50 deg F, seal asphalt shingles with asphalt roofing cement spots.
2. Where roof slope exceeds 20:12, seal asphalt shingles with asphalt roofing cement spots after fastening with additional roofing nails.
3. Where roof slope is less than 4:12, seal asphalt shingles with asphalt roofing cement spots.

F. Open Valleys: Cut and fit asphalt shingles at open valleys, trimming upper concealed corners of shingle strips. Maintain uniform width of exposed open valley from highest to lowest point.

1. Set valley edge of asphalt shingles in a 3-inch-wide bed of asphalt roofing cement.
2. Do not nail asphalt shingles to metal open-valley flashings.

G. Hip and Ridge Shingles: Maintain same exposure of cap shingles as roofing shingle exposure. Lap cap shingles at ridges to shed water away from direction of prevailing winds. Fasten with roofing nails of sufficient length to penetrate sheathing.

3.5 ROOFING INSTALLER'S WARRANTY

A. WHEREAS <**Insert name**> of <**Insert address**>, herein called the "Roofing Installer," has performed roofing and associated work ("the work") on the following project:

1. Owner: Dubuque County
2. Address: 720 Central Avenue, Dubuque, Iowa 52001.
3. Building Name/Type: Dubuque County Courthouse.
4. Address: 720 Central Avenue, Dubuque, Iowa 52001.
5. Area of the Work: Roof.
6. Acceptance Date: <**Insert date**>.
7. Warranty Period: <**Insert time**>.
8. Expiration Date: <**Insert date**>.

B. AND WHEREAS Roofing Installer has contracted (either directly with Owner or indirectly as a subcontractor) to warrant the work against leaks and faulty or defective materials and workmanship for designated Warranty Period,

C. NOW THEREFORE Roofing Installer hereby warrants, subject to terms and conditions herein set forth, that during Warranty Period he will, at his own cost and expense, make or cause to be made such repairs to or replacements of the work as are necessary to correct faulty and defective work and as are necessary to maintain the work in a watertight condition.

D. This Warranty is made subject to the following terms and conditions:

1. Specifically excluded from this Warranty are damages to the work and other parts of the building, and to building contents, caused by:

a. Lightning;
b. Peak gust wind speed exceeding 100 mph;

c. Fire;
d. Failure of roofing system substrate, including cracking, settlement, excessive deflection, deterioration, and decomposition;
e. Faulty construction of parapet walls, copings, chimneys, skylights, vents, equipment supports, and other edge conditions and penetrations of the work;
f. Vapor condensation on bottom of roofing; and
g. Activity on roofing by others, including construction contractors, maintenance personnel, other persons, and animals, whether authorized or unauthorized by Owner.

2. When the work has been damaged by any of foregoing causes, Warranty shall be null and void until such damage has been repaired by Roofing Installer and until cost and expense thereof have been paid by Owner or by another responsible party so designated.
3. Roofing Installer is responsible for damage to the work covered by this Warranty but is not liable for consequential damages to building or building contents resulting from leaks or faults or defects of the work.
4. During Warranty Period, if Owner allows alteration of the work by anyone other than Roofing Installer, including cutting, patching, and maintenance in connection with penetrations, attachment of other work, and positioning of anything on roof, this Warranty shall become null and void on date of the alterations, but only to the extent the alterations affect the work covered by this Warranty. If Owner engages Roofing Installer to perform the alterations, Warranty shall not become null and void unless Roofing Installer, before starting the alterations, notified Owner in writing, showing reasonable cause for claim, that the alterations would likely damage or deteriorate the work, thereby reasonably justifying a limitation or termination of this Warranty.
5. During Warranty Period, if original use of roof is changed and it becomes used for, but was not originally specified for, a use or service more severe than originally specified, this Warranty shall become null and void on date of the change, but only to the extent the change affects the work covered by this Warranty.
6. Owner shall promptly notify Roofing Installer of observed, known, or suspected leaks, defects, or deterioration and shall afford reasonable opportunity for Roofing Installer to inspect the work and to examine evidence of such leaks, defects, or deterioration.
7. This Warranty is recognized to be the only warranty of Roofing Installer on the work and shall not operate to restrict or cut off Owner from other remedies and resources lawfully available to Owner in cases of roofing failure. Specifically, this Warranty shall not operate to relieve Roofing Installer of responsibility for performance of the work according to requirements of the Contract Documents, regardless of whether Contract was a contract directly with Owner or a subcontract with Owner's General Contractor.

E. IN WITNESS THEREOF, this instrument has been duly executed this <**Insert day**> day of <**Insert month**>, 2017.

1. Authorized Signature: <**Insert signature**>.
2. Name: <**Insert name**>.
3. Title: <**Insert title**>.

END OF SECTION 07 3113

SECTION 07 3126 – SIMULATED SLATE SHINGLES (ALTERNATE)

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Slate shingles.
2. Underlayment.
3. Ridge accessories.
4. Flashing.

B. Related Requirements:

1. Section 07 7253 "Snow Guards" for snow guards.

1.3 DEFINITIONS

A. Roofing Terminology: See ASTM D 1079 and glossary in NRCA's "NRCA Roofing and Waterproofing Manual" for definitions of terms related to roofing work in this Section.

1.4 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1.5 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Samples: For each exposed product and for each color and texture specified.

1. Slate Shingles: Full size.
2. Ridge Cap: 12-inch- long Sample.
3. Exposed Metal Valley Flashing: 12 inches square.
4. Fasteners: Three fasteners of each type, length, and finish.

C. Samples for Initial Selection: For each type of slate shingle.

D. Samples for Verification: For the following products, of sizes indicated:

1. Slate Shingle: Full size, of each color, size, texture, and shape.
2. Ridge Cap: 12-inch- long Sample.

3. Exposed Metal Valley Flashing: 12 inches square.
4. Fasteners: Three fasteners of each type, length, and finish.

1.6 INFORMATIONAL SUBMITTALS

A. Material Test Reports: For each slate variety, based on evaluation of comprehensive tests performed by a qualified testing agency.

B. Evaluation Reports: For synthetic underlayment, from ICC-ES or other testing and inspecting agency acceptable to authorities having jurisdiction, indicating that product is suitable for intended use under applicable building codes.

1.7 MAINTENANCE MATERIAL SUBMITTALS

A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Slate Shingles: 100 sq. ft. of each type and color, in unbroken bundles.

1.8 QUALITY ASSURANCE

A. Mockups: Build mockups to verify selections made under Sample submittals, to demonstrate aesthetic effects, and to set quality standards for materials and execution.

1. Build mockups for slate shingles including related roofing materials.

a. Size: 48 inches long by 48 inches wide.

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.
3. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.9 DELIVERY, STORAGE, AND HANDLING

A. Store underlayment rolls in a dry, well-ventilated location protected from weather, sunlight, and moisture according to manufacturer's written instructions.

1. Store on end, on pallets or other raised surfaces. Do not double-stack rolls.

B. Protect unused underlayment from weather, sunlight, and moisture when left overnight or when roofing work is not in progress.

C. Handle, store, and place roofing materials in a manner to prevent damage to roof deck or structural supporting members.

1.10 FIELD CONDITIONS

A. Environmental Limitations: Install self-adhering sheet underlayment within the range of ambient and substrate temperatures recommended in writing by manufacturer.

1.11 WARRANTY

A. Roofing Installer's Warranty: On warranty form at end of this Section, signed by Installer, in which Installer agrees to repair or replace components of slate-shingle roofing that fail in materials or workmanship within specified warranty period.

1. Warranty Period: Two years from date of Substantial Completion.

2. Project Warranty: provide 50 year Gold Star warranted system

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Exterior Fire-Test Exposure: Provide slate shingles and related roofing materials identical to those of assemblies tested for Class A fire resistance according to ASTM E 108 or UL 790 by Underwriters Laboratories Inc. or another testing and inspecting agency acceptable to authorities having jurisdiction. Identify products with appropriate markings of applicable testing agency.

2.2 SLATE SHINGLES

A. Slate Shingles: Composite rubber and plastic tiles with UV stabilizers, dense, and sound; with nail holes machine punched; with no broken or cracked slates, no broken exposed corners, and no broken corners on covered ends that could sacrifice nailing strength or laying of a watertight roof.
1. Basis of Design: Empire Slate tiles as manufactured by EcoStar LLC

2. Thickness and Surface Texture: Nominal 1/4 inch, smooth and textured.
3. Length: 18 inches.
4. Width: 12 inches.
5. Nail Holes: Two per shingle to comply with warranty requirements.
6. Butt Shape: Traditional Standard Square cut.
7. Color: Shall be chosen from greys and blacks to match existing color, with option to blend these colors.
8. Weather-Exposure Color Change: Weathering.
9. Exposure: 6 inch

B. Starter Slate: Slate shingles with chamfered nail holes front-side punched.

1. Length: Exposure of slate shingle plus head lap.

C. Hip and Ridge Slate: Slate shingles fabricated with vertical grain orientation.

2.3 UNDERLAYMENT MATERIALS

A. Synthetic Underlayment: A flexible, rubberized asphalt, fiberglass-reinforced membrane with a granular surface that provides maximum skid-resistance during installation; evaluated and documented to be suitable for use as a roof underlayment under applicable codes by a testing and inspecting agency acceptable to authorities having jurisdiction.

1. Basis of design: Glacier Guard as manufactured by EcoStar.

2.4 ACCESSORIES

A. Butyl Sealant: ASTM C 1311, single-component, solvent-release butyl rubber sealant; polyisobutylene plasticized; heavy bodied.

B. Elastomeric Sealant: ASTM C 920, elastomeric polyurethane polymer sealant; of type, grade, class, and use classifications required to seal joints in slate-shingle roofing and remain watertight.

C. Slating Nails: ASTM F 1667, stainless-steel, ring-shanked, wire nails; 0.135-inch minimum thickness; sharp pointed; with 3/8-inch- minimum diameter flat head; of sufficient length to penetrate a minimum of 3/4 inch into sheathing.

1. Where nails are in contact with metal flashing, use nails made from same metal as flashing.

D. Underlayment Nails: Corrosion resistant, or hot-dip galvanized-steel wire nails with low-profile metal or plastic caps, 1-inch minimum diameter.

1. Provide cap nails complying with written recommendations of synthetic-underlayment manufacturer.
2. Provide with minimum 0.0134-inch- thick cap, and with minimum 0.105-inch- thick shank of length to penetrate at least 3/4 inch into roof sheathing.

2.5 METAL FLASHING AND TRIM

A. General: Comply with requirements in Section 07 6200 "Sheet Metal Flashing and Trim."

1. Sheet Metal: Stainless steel.

B. Fabricate sheet metal flashing and trim to comply with recommendations in SMACNA's "Architectural Sheet Metal Manual" for design, dimensions, metal, and other characteristics of the item.

1. Apron Flashings: Fabricate with lower flange extending a minimum of 4 inches over and 4 inches beyond each side of downslope slate shingles and 6 inches up the vertical surface.
2. Step Flashings: Fabricate with a head lap of 3 inches and a minimum extension of 5 inches both horizontally and vertically.
3. Cricket and Backer Flashings: Fabricate with concealed flange extending a minimum of 18 inches beneath upslope slate shingles and 6 inches beyond each side of vertical surface and 6 inches above the roof plane.
4. Open-Valley Flashings: Fabricate in lengths not exceeding 10 feet with 1-inch- high, inverted-V profile at center of valley and equal flange widths of 12 inches.

C. Vent-Pipe Flashings: ASTM B 749, Type L51121, at least 1/16 inch thick. Provide lead sleeve sized to slip over and turn down into pipe, soldered to skirt at slope of roof and extending at least 4 inches from pipe onto roof.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.

1. Examine roof sheathing to verify that sheathing joints are supported by framing and blocking or metal clips and that installation is within flatness tolerances.
2. Verify that substrate is sound, dry, smooth, clean, sloped for drainage, and completely anchored and that provision has been made for flashings and penetrations through roofing.

B. Prepare written report, endorsed by Installer, listing conditions detrimental to performance of the Work.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 UNDERLAYMENT INSTALLATION

A. General: Comply with underlayment manufacturer's written installation instructions applicable to products and applications indicated unless more stringent requirements apply.

B. Synthetic Underlayment: Install on roof deck parallel with and starting at the eaves. Lap sides and ends and treat laps as recommended in writing by manufacturer but not less than 4 inches for side laps and 8 inches for end laps. Stagger end laps between succeeding courses at interval recommended in writing by manufacturer. Cover underlayment within period recommended in writing by manufacturer.
1. Apply continuous 36” wide sheet in valley centered over valley.

3.3 METAL FLASHING INSTALLATION

A. General: Install metal flashings and other sheet metal to comply with requirements in Section 07 6200 "Sheet Metal Flashing and Trim."

1. Install metal flashings according to recommendations in NRCA's "NRCA Roofing and Waterproofing Manual."

B. Apron Flashings: Extend lower flange over and beyond each side of downslope slate shingles and up the vertical surface.

C. Step Flashings: Install with a head lap of 3 inches and extend both horizontally and vertically. Install with lower edge of flashing upslope of, and concealed by, butt of overlying slate shingle. Fasten to roof deck only.

D. Cricket and Backer Flashings: Install against the roof-penetrating element, extending concealed flange beneath upslope slate shingles and beyond each side.

E. Valley Flashings: Install centrally in valleys, lapping ends at least 8 inches in direction that sheds water. Fasten upper end of each length to roof deck beneath overlap.

F. Pipe Flashings: Form flashing around pipe penetrations and slate shingles. Fasten and seal to slate shingles.

3.4 SLATE-SHINGLE INSTALLATION

A. General: Beginning at eaves, install slate shingles according to manufacturer's written instructions and to details and recommendations in NRCA's "NRCA Roofing Manual: Steep-Slope Roof Systems."
   1. Install shingle starter course chamfered face down.

B. Install first and succeeding shingle courses chamfered face up. Install full-width first course at rake edge.

   1. Offset joints of uniform-width slate shingles by half the shingle width in succeeding courses.

C. Maintain uniform exposure of shingle courses midway between eaves and ridge, and increase head lap of succeeding shingle courses to ensure uniform exposure on remaining shingle courses.

D. Extend shingle starter course and first course 1 inch over fasciae at eaves as required to match existing shingle profile edge.

E. Extend shingle starter course and succeeding courses 1 inch over fasciae at rakes as required to match existing shingle profile edge.

F. Cut and fit slate neatly around roof vents, pipes, ventilators, and other projections through roof.

G. Hang slate with two slating nails for each shingle with nail heads lightly touching slate. Do not drive nails home, which draws slates downward, and do not leave nail heads protruding enough to interfere with the overlapping shingle above.

H. Ridges: Install ridge slate in saddle configuration.
   1. Anchor ridge slate to supporting wood nailer strip with nails or adhesive without penetrating underlying slate.
   2. Seal hip centerline joint with elastomeric sealant.

I. Open Valleys: Cut slate shingles to form straight lines at open valleys, trimming upper concealed corners of shingles. Maintain uniform width of exposed open valley from highest to lowest point.

   1. Do not nail shingles to valley metal flashings.

J. Closed Valleys: Cut slate shingles to form straight lines at closed valleys, trimming upper concealed corners of shingles. Maintain uniform gap at centerline of valley of 3/4 to 1 inch.

   1. Do not nail shingles to valley metal flashings.

3.5 RIDGE ACCESSORY INSTALLATION

A. Metal Ridge Caps: Install units according to manufacturer's written instructions.

3.6 ADJUSTING AND CLEANING

A. Remove and replace damaged or broken slate shingles.

B. Remove excess slate and debris from Project site.

3.7 ROOFING INSTALLER'S WARRANTY

A. The Roofing contractor shall provide an installers warranty form acceptable to the owner and architect or use the following warranty.

B. WHEREAS _____of, _____ herein called the "Roofing Installer," has performed roofing and associated work ("the work") on the following project:

1. Owner: .
2. Address: .
3. Building Name/Type: .
4. Address: .
5. Area of the Work: .
6. Acceptance Date: .
7. Warranty Period: .
8. Expiration Date: .

C. AND WHEREAS Roofing Installer has contracted indirectly as a subcontractor to warrant the work against leaks and faulty or defective materials and workmanship for designated Warranty Period,

D. NOW THEREFORE Roofing Installer hereby warrants, subject to terms and conditions herein set forth, that during Warranty Period he will, at his own cost and expense, make or cause to be made such repairs to or replacements of the work as are necessary to correct faulty and defective work and as are necessary to maintain the work in a watertight condition.

E. This Warranty is made subject to the following terms and conditions:

1. Specifically excluded from this Warranty are damages to the work and other parts of the building, and to building contents, caused by:

    a. Lightning;
    b. Fire;
    c. Failure of roofing system substrate, including cracking, settlement, excessive deflection, deterioration, and decomposition;
    d. Faulty construction of parapet walls, copings, chimneys, skylights, vents, equipment supports, and other edge conditions and penetrations of the work;
    e. Vapor condensation on bottom of roofing; and
    f. Activity on roofing by others, including construction contractors, maintenance personnel, other persons, and animals, whether authorized or unauthorized by Owner.

2. When the work has been damaged by any of foregoing causes, Warranty shall be null and void until such damage has been repaired by Roofing Installer and until cost and expense thereof have been paid by Owner or by another responsible party so designated.
3. Roofing Installer is responsible for damage to the work covered by this Warranty but is not liable for consequential damages to building or building contents resulting from leaks or faults or defects of the work.
4. During Warranty Period, if Owner allows alteration of the work by anyone other than Roofing Installer, including cutting, patching, and maintenance in connection with penetrations, attachment of other work, and positioning of anything on roof, this Warranty shall become null and void on date of the alterations, but only to the extent the alterations affect the work covered by this Warranty. If Owner engages Roofing Installer to perform the alterations, Warranty shall not become null and void unless Roofing Installer, before starting the alterations, notified Owner in writing, showing reasonable cause for claim, that the alterations would likely damage or deteriorate the work, thereby reasonably justifying a limitation or termination of this Warranty.
5. During Warranty Period, if original use of roof is changed and it becomes used for, but was not originally specified for, a use or service more severe than originally specified, this Warranty shall become null and void on date of the change, but only to the extent the change affects the work covered by this Warranty.
6. Owner shall promptly notify Roofing Installer of observed, known, or suspected leaks, defects, or deterioration and shall afford reasonable opportunity for Roofing Installer to inspect the work and to examine evidence of such leaks, defects, or deterioration.
7. This Warranty is recognized to be the only warranty of Roofing Installer on the work and shall not operate to restrict or cut off Owner from other remedies and resources lawfully available to Owner in cases of roofing failure. Specifically, this Warranty shall not operate to relieve Roofing Installer of responsibility for performance of the work according to requirements of the Contract Documents, regardless of whether Contract was a contract directly with Owner or a subcontract with Owner's General Contractor.

F. IN WITNESS THEREOF, this instrument has been duly executed this day of,.

1. Authorized Signature: .
2. Name: .
3. Title: .

END OF SECTION 07 3126

SECTION 07 7253 - SNOW GUARDS (ALTERNATE)

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:
   1. Rail-type, flat-mounted snow guards.

1.3 ACTION SUBMITTALS

A. Product Data: Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for snow guards.

B. Shop Drawings: Include roof plans showing layouts and attachment details of snow guards.

   1. Include details of rail-type snow guards.
   2. Include calculation of number and location of snow guards based on snow load, roof slope, roof type, components, spacings, and finish.

C. Samples: Base, bracket, and 12-inch- long rail.

1.4 INFORMATIONAL SUBMITTALS

A. Product Test Reports: For each type of snow guard, for tests performed by manufacturer and witnessed by a qualified testing agency.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Performance Requirements: Provide snow guards that withstand exposure to weather and resist thermally induced movement without failure, rattling, or fastener disengagement due to defective manufacture, fabrication, installation, or other defects in construction.

   1. Temperature Change: 120 deg F, ambient; 180 deg F, material surfaces.

B. Structural Performance:

   1. Snow Loads: ground snow load of 40 psf.

2.2 RAIL-TYPE SNOW GUARDS

A. Flat-Mounted, Rail-Type Snow Guards:

1. Basis of Design: Model #225 Three pipe adjustable snow guard as manufactured by Alpine Snowguards, a division of Vermont Slate & Copper Services.

2. Description: Units fabricated from metal baseplate anchored to adjustable bracket and equipped with three bars.
3. Brackets and Baseplate: Aluminum Powder Coated Bracket with Stainless Steel Base Plate, color to match roofing.
4. Bars: Aluminum Powder Coated, color to match roofing.
5. Provide all couplings, end caps and collars
6. Fasteners: Compatible with simulated slate shingle system to meet shingle system warranty requirements.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions, with Installer present, for compliance with requirements for installation tolerances, snow guard attachment, and other conditions affecting performance of the Work.

1. Verify compatibility with and suitability of substrates including compatibility with existing finishes or primers.

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

3.2 PREPARATION

A. Clean and prepare substrates for bonding snow guards.

B. Prime substrates according to snow guard manufacturer's written instructions.

3.3 INSTALLATION

A. Install snow guards according to manufacturer's written instructions. Space rows as recommended by manufacturer.

B. Attachment for Slate Shingle Roofing:
1. Flat-Mounted, Rail-Type Snow Guards: Mechanically anchored through predrilled holes concealed by the shingles

END OF SECTION 07 7253

SECTION 07 6200 - SHEET METAL FLASHING AND TRIM

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:
   1. Formed equipment and statuary support flashing. Refer to drawings regarding extent of metal flashing that is part of the base bid.
   2. Contractor to replace flashing noted in the documents and deteriorated flashing via the unit price. All metal to be field-coated per Division 09 specification section.
   3. This is an historic building; all work shall be done by qualified contractor. Extensive photographs shall be taken prior to starting work, as identified in division 01.

B. Related Requirements:

   1. Section 01 2200 “Unit Prices” for deteriorated existing metal flashing.
   2. Section 06 1000 "Rough Carpentry" for wood nailers, curbs, and blocking.
   3. Section 07 3113 "Asphalt Shingles" for materials and installation of sheet metal flashing and trim integral with roofing. (Base Bid)
   4. Section 07 3126 "Simulated Slate Shingles" for materials and installation of sheet metal flashing and trim integral with roofing. (Alternate)
   5. Section 09 9960 “High Performance Coatings”.

1.3 COORDINATION

A. Coordinate sheet metal flashing and trim layout and seams with sizes and locations of penetrations to be flashed, and joints and seams in adjacent materials.

B. Coordinate sheet metal flashing and trim installation with adjoining roofing and wall materials, joints, and seams to provide leakproof, secure, and noncorrosive installation.

1.4 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

   1. Review construction schedule. Verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
   2. Review special roof details, roof drainage, roof-penetration flashing, equipment curbs, and condition of other construction that affect sheet metal flashing and trim.
   3. Review requirements for insurance and certificates if applicable.
   4. Review sheet metal flashing observation and repair procedures after flashing installation.

1.5 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for each manufactured product and accessory.

B. Shop Drawings: For sheet metal flashing and trim.

1. Include plans, elevations, sections, and attachment details.
2. Detail fabrication and installation layouts, expansion-joint locations, and keyed details. Distinguish between shop- and field-assembled work.
3. Include identification of material, thickness, weight, and finish for each item and location in Project.
4. Include details for forming, including profiles, shapes, seams, and dimensions.
5. Include details for joining, supporting, and securing, including layout and spacing of fasteners, cleats, clips, and other attachments. Include pattern of seams.
6. Include details of termination points and assemblies.
7. Include details of roof-penetration flashing.
8. Include details of edge conditions, including eaves, ridges, valleys, rakes, crickets, and counterflashings as applicable.
9. Include details of special conditions.
10. Include details of connections to adjoining work.
11. Detail formed flashing and trim at scale of not less than 1-1/2 inches per 12 inches.

1.6 INFORMATIONAL SUBMITTALS

A. Qualification Data: For fabricator.

B. Product Test Reports: For each product, for tests performed by a qualified testing agency.

C. Sample Warranty: For special warranty.

1.7 CLOSEOUT SUBMITTALS

A. Maintenance Data: For sheet metal flashing and trim, and its accessories, to include in maintenance manuals.

1.8 QUALITY ASSURANCE

A. Fabricator Qualifications: Employs skilled workers who custom fabricate sheet metal flashing and trim similar to that required for this Project and whose products have a record of successful in-service performance.

1.9 DELIVERY, STORAGE, AND HANDLING

A. Do not store sheet metal flashing and trim materials in contact with other materials that might cause staining, denting, or other surface damage. Store sheet metal flashing and trim materials away from uncured concrete and masonry.

B. Protect strippable protective covering on sheet metal flashing and trim from exposure to sunlight and high humidity, except to extent necessary for period of sheet metal flashing and trim installation.

1.10 WARRANTY

A. Special Warranty on Finishes: Manufacturer agrees to repair finish or replace sheet metal flashing and trim that shows evidence of deterioration of factory-applied finishes within specified warranty period.

1. Exposed Panel Finish: Deterioration includes, but is not limited to, the following:

a. Color fading more than 5 Hunter units when tested according to ASTM D 2244.
b. Chalking in excess of a No. 8 rating when tested according to ASTM D 4214.
c. Cracking, checking, peeling, or failure of paint to adhere to bare metal.

2. Finish Warranty Period: 20 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. General: Sheet metal flashing and trim assemblies shall withstand wind loads, structural movement, thermally induced movement, and exposure to weather without failure due to defective manufacture, fabrication, installation, or other defects in construction. Completed sheet metal flashing and trim shall not rattle, leak, or loosen, and shall remain watertight.

B. Sheet Metal Standard for Flashing and Trim: Comply with SMACNA's "Architectural Sheet Metal Manual" requirements for dimensions and profiles shown unless more stringent requirements are indicated.

C. Recycled Content of Steel-Sheet Flashing and Trim: Postconsumer recycled content plus one-half of preconsumer recycled content not less than 25 percent.

D. 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. Base calculations on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.

1. Temperature Change: 120 deg F, ambient; 180 deg F, material surfaces.

2.2 SHEET METALS

A. General: Protect mechanical and other finishes on exposed surfaces from damage by applying strippable, temporary protective film before shipping.

B. Stainless-Steel Sheet: ASTM A 240/A 240M, Type 304, dead soft, fully annealed; with smooth, flat surface.

1. Finish: 2B (bright, cold rolled).

C. Metallic-Coated Steel Sheet: Provide zinc-coated (galvanized) steel sheet according to ASTM A 653/A 653M, G90coating designation; prepainted by coil-coating process to comply with ASTM A 755/A 755M.

1. Surface: Smooth, flat and mill phosphatized for field painting.

2.3 UNDERLAYMENT MATERIALS

A. Felt: ASTM D 226/D 226M, Type II (No. 30), asphalt-saturated organic felt; nonperforated.

B. Synthetic Underlayment: Laminated or reinforced, woven polyethylene or polypropylene, synthetic roofing underlayment; bitumen free; slip resistant; suitable for high temperatures over 220 deg F; and complying with physical requirements of ASTM D 226/D 226M for Type I and Type II felts.

C. Slip Sheet: Rosin-sized building paper, 3 lb/100 sq. ft. minimum.

2.4 MISCELLANEOUS MATERIALS

A. General: Provide materials and types of fasteners, solder, protective coatings, sealants, and other miscellaneous items as required for complete sheet metal flashing and trim installation and as recommended by manufacturer of primary sheet metal or manufactured item 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 design loads and recommended by manufacturer of primary sheet metal or manufactured item.

1. General: Blind fasteners or self-drilling screws, gasketed, with hex-washer head.

    a. Exposed Fasteners: Heads matching color of sheet metal 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 metal.
    b. Blind Fasteners: High-strength aluminum or stainless-steel rivets suitable for metal being fastened.
    c. Spikes and Ferrules: Same material as gutter; with spike with ferrule matching internal gutter width.

2. Fasteners for Stainless-Steel Sheet: Series 300 stainless steel.
3. Fasteners for Zinc-Coated (Galvanized) Steel Sheet: Series 300 stainless steel or hot-dip galvanized steel according to ASTM A 153/A 153M or ASTM F 2329.

C. Solder:

1. For Stainless Steel: ASTM B 32, Grade Sn60, with acid flux of type recommended by stainless-steel sheet manufacturer.
2. For Zinc-Coated (Galvanized) Steel: ASTM B 32, Grade Sn50, 50 percent tin and 50 percent lead or Grade Sn60, 60 percent tin and 40 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 inchwide and 1/8 inch thick.

E. Elastomeric Sealant: ASTM C 920, elastomeric polyurethane polymer sealant; of type, grade, class, and use classifications required to seal joints in sheet metal flashing and trim 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. Epoxy Seam Sealer: Two-part, noncorrosive, aluminum seam-cementing compound, recommended by aluminum manufacturer for exterior nonmoving joints, including riveted joints.

H. Bituminous Coating: Cold-applied asphalt emulsion according to ASTM D 1187.

2.5 FABRICATION, GENERAL

A. General: Custom fabricate sheet metal flashing and trim to comply with details shown and recommendations in cited sheet metal standard that apply to design, dimensions, geometry, metal thickness, and other characteristics of item required. Fabricate sheet metal flashing and trim in shop to greatest extent possible.

1. Fabricate sheet metal flashing and trim in thickness or weight needed to comply with performance requirements, but not less than that specified for each application and metal.
2. Obtain field measurements for accurate fit before shop fabrication.
3. Form sheet metal flashing and trim to fit substrates without excessive oil canning, buckling, and tool marks; true to line, levels, and slopes; and with exposed edges folded back to form hems.
4. Conceal fasteners and expansion provisions where possible. Do not use exposed fasteners on faces exposed to view.

B. Fabrication Tolerances: Fabricate sheet metal flashing and trim that is capable of installation to a tolerance of 1/4 inch in 20 feet on slope and location lines indicated on Drawings and within 1/8-inch offset of adjoining faces and of alignment of matching profiles.

C. Fabrication Tolerances: Fabricate sheet metal flashing and trim that is capable of installation to tolerances specified in MCA's "Guide Specification for Residential Metal Roofing."

D. Expansion Provisions: Form metal for thermal expansion of exposed flashing and trim.

1. Form expansion joints of intermeshing hooked flanges, not less than 1 inch deep, filled with butyl sealant concealed within joints.
2. Use lapped expansion joints only where indicated on Drawings.

E. Fabricate cleats and attachment devices from same material as accessory being anchored or from compatible, noncorrosive metal.

F. Fabricate cleats and attachment devices of sizes as recommended by cited sheet metal standard for application, but not less than thickness of metal being secured.

G. Seams: Fabricate nonmoving seams with flat-lock seams. Tin edges to be seamed, form seams, and solder.

H. Do not use graphite pencils to mark metal surfaces.

2.6 WALL SHEET METAL FABRICATIONS

A. Opening Flashings in Frame Construction: Fabricate sill, and similar flashings to extend 4 inches beyond wall openings, as applicable. Form head and sill flashing with 2-inch-high, end dams. Profiles to match existing conditions. Fabricate from the following materials:
   1. Galvanized Steel: 0.022 inch thick, to match existing metal in place.

2.7 MISCELLANEOUS SHEET METAL FABRICATIONS

A. Equipment and Statuary Support Flashing: Fabricate from the following materials:

   1. Galvanized Steel: 0.028 inch thick to match existing metal in place.

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. Verify compliance with requirements for installation tolerances of substrates.
   2. Verify that substrate is sound, dry, smooth, clean, sloped for drainage, and securely anchored.
   3. Verify that air- or water-resistant barriers have been installed over sheathing or backing substrate to prevent air infiltration or water penetration.

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

3.2 UNDERLAYMENT INSTALLATION

A. Felt Underlayment: Install felt underlayment, wrinkle free, using adhesive to minimize use of mechanical fasteners under sheet metal flashing and trim. Apply in shingle fashion to shed water, with lapped joints of not less than 2 inches.

B. Synthetic Underlayment: Install synthetic underlayment, wrinkle free, according to manufacturers' written instructions, and using adhesive where possible to minimize use of mechanical fasteners under sheet metal.

C. Apply slip sheet, wrinkle free, over underlayment before installing sheet metal flashing and trim.

3.3 INSTALLATION, GENERAL

A. General: Anchor sheet metal flashing and trim and other components of the Work securely in place, with provisions for thermal and structural movement. Use fasteners, solder, protective coatings, separators, sealants, and other miscellaneous items as required to complete sheet metal flashing and trim system.

   1. Install sheet metal flashing and trim true to line, levels, and slopes. Provide uniform, neat seams with minimum exposure of solder, welds, and sealant.

2. Install sheet metal flashing and trim to fit substrates and to result in watertight performance. Verify shapes and dimensions of surfaces to be covered before fabricating sheet metal.
3. Space cleats not more than 12 inches apart. Attach each cleat with at least two fasteners. Bend tabs over fasteners.
4. Install exposed sheet metal flashing and trim with limited oil canning, and free of buckling and tool marks.
5. Torch cutting of sheet metal flashing and trim is not permitted.
6. Do not use graphite pencils to mark metal surfaces.

B. 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 or by other permanent separation as recommended by sheet metal manufacturer or cited sheet metal standard.

1. Coat concealed side of stainless-steel sheet metal flashing and trim with bituminous coating where flashing and trim contact wood, ferrous metal, or cementitious construction.
2. Underlayment: Where installing sheet metal flashing and trim directly on cementitious or wood substrates, install underlayment and cover with slip sheet.

C. Expansion Provisions: Provide for thermal expansion of exposed flashing and trim. Space movement joints at maximum of 10 feet with no joints within 24 inches of corner or intersection.

1. Form expansion joints of intermeshing hooked flanges, not less than 1 inch deep, filled with sealant concealed within joints.
2. Use lapped expansion joints only where indicated on Drawings.

D. Fasteners: Use fastener sizes that penetrate wood blocking or sheathing not less than 1-1/4 inches for nails and not less than 3/4 inch for wood screws.

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. Seal joints as required for watertight construction.

1. Use sealant-filled joints unless otherwise indicated. Embed hooked flanges of joint members not less than 1 inch into sealant. Form joints to completely conceal sealant. When ambient temperature at time of installation is between 40 and 70 deg F, set joint members for 50 percent movement each way. Adjust setting proportionately for installation at higher ambient temperatures. Do not install sealant-type joints at temperatures below 40 deg F.
2. Prepare joints and apply sealants to comply with requirements in Section 07 9200 "Joint Sealants."

G. Soldered Joints: Clean surfaces to be soldered, removing oils and foreign matter. Pre-tin edges of sheets with solder to width of 1-1/2 inches; however, reduce pre-tinning where pre-tinned surface would show in completed Work.

1. Do not solder metallic-coated steel sheet.
2. Do not use torches for soldering.
3. Heat surfaces to receive solder, and flow solder into joint. Fill joint completely. Completely remove flux and spatter from exposed surfaces.

4. Stainless-Steel Soldering: Tin edges of uncoated sheets, using solder for stainless steel and acid flux. Promptly remove acid flux residue from metal after tinning and soldering. Comply with solder manufacturer's recommended methods for cleaning and neutralization.

3.4 MISCELLANEOUS FLASHING INSTALLATION

A. Equipment Support Flashing: Coordinate installation of equipment support flashing with installation of roofing and equipment. Weld or seal flashing with elastomeric sealant to equipment support member.

3.5 ERECTION TOLERANCES

A. Installation Tolerances: Shim and align sheet metal flashing and trim within installed tolerance of 1/4 inch in 20 feet on slope and location lines indicated on Drawings and within 1/8-inch offset of adjoining faces and of alignment of matching profiles.

B. Installation Tolerances: Shim and align sheet metal flashing and trim within installed tolerances specified in MCA's "Guide Specification for Residential Metal Roofing."

3.6 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 flashing and trim are installed unless otherwise indicated in manufacturer's written installation instructions. On completion of sheet metal flashing and trim installation, remove unused materials and clean finished surfaces as recommended by sheet metal flashing and trim manufacturer. Maintain sheet metal flashing and trim in clean condition during construction.

E. Replace sheet metal flashing and trim that have been damaged or that have deteriorated beyond successful repair by finish touchup or similar minor repair procedures.

END OF SECTION 07 6200

SECTION 07 9200 - JOINT SEALANTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Urethane joint sealants.

B. Related Requirements:

1. Section 04 0310 "Historic Masonry Restoration and Cleaning" historically-appropriate locations for sealant.

1.3 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1.4 ACTION SUBMITTALS

A. Product Data: For each joint-sealant product.

B. Samples for Initial Selection: Manufacturer's color charts consisting of strips of cured sealants showing the full range of colors available for each product exposed to view.

C. Samples for Verification: For each kind and color of joint sealant required, provide Samples with joint sealants in 1/2-inch-wide joints formed between two 6-inch-long strips of material matching the appearance of exposed surfaces adjacent to joint sealants.

1.5 INFORMATIONAL SUBMITTALS

A. Preconstruction Field-Adhesion-Test Reports: Indicate which sealants and joint preparation methods resulted in optimum adhesion to joint substrates based on testing specified in "Preconstruction Testing" Article.

1.6 QUALITY ASSURANCE

A. Installer Qualifications: An authorized representative who is trained and approved by manufacturer.

B. Product Testing: Test joint sealants using a qualified testing agency.

1. Testing Agency Qualifications: Qualified according to ASTM C 1021 to conduct the testing indicated.

C. Mockups: Install sealant in mockups of assemblies specified in other Sections that are indicated to receive joint sealants specified in this Section. Use materials and installation methods specified in this Section.

1.7 PRECONSTRUCTION TESTING

A. Preconstruction Field-Adhesion Testing: Before installing sealants, field test their adhesion to Project joint substrates as follows:

1. Locate test joints where indicated on Project or, if not indicated, as directed by Architect.
2. Conduct field tests for each kind of sealant and joint substrate.
3. Notify Architect seven days in advance of dates and times when test joints will be erected.
4. Arrange for tests to take place with joint-sealant manufacturer's technical representative present.

    a. Test Method: Test joint sealants according to Method A, Field-Applied Sealant Joint Hand Pull Tab, in Appendix X1.1 in ASTM C 1193 or Method A, Tail Procedure, in ASTM C 1521.

        1) For joints with dissimilar substrates, verify adhesion to each substrate separately; extend cut along one side, verifying adhesion to opposite side. Repeat procedure for opposite side.

5. Report whether sealant failed to adhere to joint substrates or tore cohesively. Include data on pull distance used to test each kind of product and joint substrate. For sealants that fail adhesively, retest until satisfactory adhesion is obtained.
6. Evaluation of Preconstruction Field-Adhesion-Test Results: Sealants not evidencing adhesive failure from testing, in absence of other indications of noncompliance with requirements, will be considered satisfactory. Do not use sealants that fail to adhere to joint substrates during testing.

1.8 FIELD CONDITIONS

A. Do not proceed with installation of joint sealants under the following conditions:

1. When ambient and substrate temperature conditions are outside limits permitted by joint-sealant manufacturer or are below 40 deg F.
2. When joint substrates are wet.
3. Where joint widths are less than those allowed by joint-sealant manufacturer for applications indicated.
4. Where contaminants capable of interfering with adhesion have not yet been removed from joint substrates.

1.9 WARRANTY

A. Special Installer's Warranty: Installer agrees to repair or replace joint sealants that do not comply with performance and other requirements specified in this Section within specified warranty period.

1. Warranty Period: Two years from date of Substantial Completion.

B. Special warranties specified in this article exclude deterioration or failure of joint sealants from the following:

1. Movement of the structure caused by stresses on the sealant exceeding sealant manufacturer's written specifications for sealant elongation and compression.
2. Disintegration of joint substrates from causes exceeding design specifications.
3. Mechanical damage caused by individuals, tools, or other outside agents.
4. Changes in sealant appearance caused by accumulation of dirt or other atmospheric contaminants.

PART 2 - PRODUCTS

2.1 JOINT SEALANTS, GENERAL

A. Compatibility: Provide joint sealants, backings, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by joint-sealant manufacturer, based on testing and field experience.

B. Colors of Exposed Joint Sealants: As selected by Architect and Owner to match exterior.

2.2 URETHANE JOINT SEALANTS

A. Urethane, S, NS, 35, NT: Single-component, nonsag, nontraffic-use, plus 35 percent and minus 35 percent movement capability, urethane joint sealant; ASTM C 920, Type S, Grade NS, Class 35, Use NT.

1. Products: Subject to compliance with requirement, provide one of the following:

a. BASF Building Systems; MasterSeal NP 1.
b. Or approved equal.

2.3 JOINT-SEALANT BACKING

A. Sealant Backing Material, General: Nonstaining; compatible with joint substrates, sealants, primers, and other joint fillers; and approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.

B. Cylindrical Sealant Backings: ASTM C 1330, Type C (closed-cell material with a surface skin), and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance.

2.4 MISCELLANEOUS MATERIALS

A. Primer: Material recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.

B. Cleaners: As approved in Division 04 Masonry specification section.

C. Masking Tape: Nonstaining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine joints indicated to receive joint sealants, with Installer present, for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting performance of the Work.

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

3.2 PREPARATION

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

1. Remove all foreign material from joint substrates that could interfere with adhesion of joint sealant, including dust, paints (except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer), old joint sealants, oil, grease, waterproofing, water repellents, water, surface dirt, and frost.
2. Clean porous joint substrate surfaces by brushing to produce a clean, sound substrate capable of developing optimum bond with joint sealants. Remove loose particles remaining after cleaning operations above by vacuuming or blowing out joints with oil-free compressed air. Porous joint substrates include the following:

    a. Masonry.

3. Remove laitance and form-release agents from concrete.
4. Clean nonporous joint substrate surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion of joint sealants. Nonporous joint substrates include the following:

    a. Metal.
    b. Glass.

B. Joint Priming: Prime joint substrates where recommended by joint-sealant manufacturer or as indicated by preconstruction joint-sealant-substrate tests or prior experience. Apply primer to comply with joint-sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.

C. Masking Tape: Use masking tape where required to prevent contact of sealant or primer with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or

by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

3.3 INSTALLATION OF JOINT SEALANTS

A. General: Comply with joint-sealant manufacturer's written installation instructions for products and applications indicated, unless more stringent requirements apply.

B. Sealant Installation Standard: Comply with recommendations in ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.

C. Install sealant backings of kind indicated to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.

1. Do not leave gaps between ends of sealant backings.
2. Do not stretch, twist, puncture, or tear sealant backings.
3. Remove absorbent sealant backings that have become wet before sealant application, and replace them with dry materials.

D. Install bond-breaker tape behind sealants where sealant backings are not used between sealants and backs of joints.

E. Install sealants using proven techniques that comply with the following and at the same time backings are installed:

1. Place sealants so they directly contact and fully wet joint substrates.
2. Completely fill recesses in each joint configuration.
3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.

F. Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants according to requirements specified in subparagraphs below to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.

1. Remove excess sealant from surfaces adjacent to joints.
2. Use tooling agents that are approved in writing by sealant manufacturer and that do not discolor sealants or adjacent surfaces.
3. Provide concave joint profile per Figure 8A in ASTM C 1193 unless otherwise indicated.
4. Provide flush joint profile at locations to match existing conditions according to Figure 8B in ASTM C 1193.
5. Provide recessed joint configuration of recess depth and at locations to match existing conditions according to Figure 8C in ASTM C 1193.

3.4 CLEANING

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

3.5 PROTECTION

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

3.6 JOINT-SEALANT SCHEDULE

A. Joint-Sealant Application: Exterior joints in vertical surfaces and horizontal nontraffic surfaces JS-1.

1. Joint Locations:

    a. Control and expansion joints in unit masonry.
    b. Joints in dimension stone cladding.
    c. Perimeter joints between materials listed above and frames of doors, windows, and louvers.
    d. Control and expansion joints in masonry.
    e. Other joints as indicated on Drawings.

2. Joint Sealant: Urethane, nonstaining, nonsag, S, NS, 35, NT.
3. Joint-Sealant Color: Match existing masonry color, as verified with Owner and Architect.

END OF SECTION 07 9200

SECTION 09 9600 - HIGH-PERFORMANCE COATINGS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes surface preparation and the application of high-performance coating systems on the following substrates:

1. Exterior Substrates:

a. Galvanized metal.

B. Related Requirements:

1. Section 05 0371 "Historic Metal Preparation for Painting" for preparation for primers listed in this section.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product. Include preparation requirements and application instructions. Indicate VOC content.

B. Samples for Initial Selection: For each type of topcoat product indicated.

C. Samples for Verification: For each type of coating system and each color and gloss of topcoat indicated.

1. Submit Samples on rigid backing, 8 inches square.
2. Apply coats on Samples in steps to show each coat required for system.
3. Label each coat of each Sample.
4. Label each Sample for location and application area.

D. Product List: Cross-reference to coating system and locations of application areas. Use same designations indicated on Drawings and in schedules. Include color designations.

1.4 MAINTENANCE MATERIAL SUBMITTALS

A. Furnish extra materials, from the same product run, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Coatings: 5 percent, but not less than 1 gal.of each material and color applied.

1.5 QUALITY ASSURANCE

A. Mockups: Apply mockups of each coating system indicated to verify preliminary selections made under Sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.

1. Architect will select one surface to represent surfaces and conditions for application of each coating system.

    a. Architect will designate items or areas required.

2. Final approval of color selections will be based on mockups.

    a. If preliminary color selections are not approved, apply additional mockups of additional colors selected by Architect at no added cost to Owner.

3. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
4. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Store materials not in use in tightly covered containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 45 deg F.

1. Maintain containers in clean condition, free of foreign materials and residue.
2. Remove rags and waste from storage areas daily.

1.7 FIELD CONDITIONS

A. Apply coatings only when temperature of surfaces to be coated and ambient air temperatures are between 50 and 95 deg F.

B. Do not apply coatings when relative humidity exceeds 85 percent; at temperatures less than 5 deg F above the dew point; or to damp or wet surfaces.

C. Do not apply exterior coatings in snow, rain, fog, or mist.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products indicated in the Exterior High-Performance Coating Schedule at the end of this section or comparable product by basis of design manufacturer **Tnemec Company**.

2.2 HIGH-PERFORMANCE COATINGS, 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. Products shall be of same manufacturer for each coat in a coating system.

B. VOC Content: Products shall comply with VOC limits of authorities having jurisdiction.

1. Flat Paints and Coatings: 50 g/L.
2. Nonflat Paints and Coatings: 150 g/L.
3. Primers, Sealers, and Undercoaters: 200 g/L.
4. Anti-Corrosive and Anti-Rust Paints Applied to Ferrous Metals: 250 g/L.
5. Zinc-Rich Industrial Maintenance Primers: 340 g/L.
6. Pretreatment Wash Primers: 420 g/L.
7. Floor Coatings: 100 g/L.
8. Shellacs, Clear: 730 g/L.
9. Shellacs, Pigmented: 550 g/L.

C. Colors: As selected by Architect from manufacturer's full range to match existing exterior white.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.

B. Verify suitability of substrates, including surface conditions and compatibility, with existing finishes and primers.

C. Proceed with coating application only after unsatisfactory conditions have been corrected.

1. Application of coating indicates acceptance of surfaces and conditions.

3.2 PREPARATION

A. Comply with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual" applicable to substrates and coating systems indicated.

B. Steel Substrates: Remove rust and loose mill scale as recommended in specification section 05 0371 “Historic Metal Preparation for Painting”.

C. Galvanized-Metal Substrates: Remove grease and oil residue from galvanized sheet metal by mechanical methods to produce clean, lightly etched surfaces that promote adhesion of subsequently applied coatings.

3.3 APPLICATION

A. Apply high-performance coatings according to manufacturer's written instructions and recommendations.

1. Use applicators and techniques suited for coating and substrate indicated.

B. Tint each undercoat a lighter shade to facilitate identification of each coat if multiple coats of the same material are to be applied. Tint undercoats to match color of finish coat, but provide sufficient difference in shade of undercoats to distinguish each separate coat.

C. If undercoats or other conditions show through final coat, apply additional coats until cured film has a uniform coating finish, color, and appearance.

D. Apply coatings to produce surface films without cloudiness, spotting, holidays, laps, brush marks, runs, sags, ropiness, or other surface imperfections. Produce sharp glass lines and color breaks.

3.4 CLEANING AND PROTECTION

A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.

B. After completing coating application, clean spattered surfaces. Remove spattered coatings by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.

C. Protect work of other trades against damage from coating operation. Correct damage to work of other trades by cleaning, repairing, replacing, and recoating, as approved by Architect, and leave in an undamaged condition.

D. At completion of construction activities of other trades, touch up and restore damaged or defaced coated surfaces.

3.5 EXTERIOR HIGH-PERFORMANCE COATING SCHEDULE

A. Galvanized-Metal Substrates:

1. Pigmented Fluoronar over Mastic Primer System:

a. Prime Coat on Bare Steel: Primer, anti-corrosive acrylic mastic, for metal.

1) Tnemec Series 118 Uni Bond Mastic at 6.0-8.0 mils DFT.

b. Full Prime Coat on steel: Primer, anti-corrosive acrylic mastic, for metal..

1) Tnemec Series 118 Uni Bond Mastic at 6.0-8.0 mils DFT

c. Finish Coat: Fluoronar, Semi-Gloss.

1) Tnemec Series 1071 Fluoronar at 2.0-3.1 mils DFT.

END OF SECTION 09 9600

SECTION 26 3100 - ROOF INTEGRATED PHOTOVOLTAIC COLLECTORS

PART 1 GENERAL

1.1 Summary

A.. Section includes: Fully operational roof integrated photovoltaic, grid tied, electric generating system.

B. Definitions
   1. RIPV – Roof integrated PV system consisting of the roof element that has the solar array built into it rather than using a separate array. This enhancement consists of installing a complete, grid connected PV system in the available and designated roof space.

C. Guidelines:
   1. Provide a complete and useable PV system to include but not limited to PV Modules Array, BOS (Balance of System) components PV modules, wiring, fuses, combiner circuit, monitors, meters, inverters, transformers, transfer switch and lightning protection as applicable.

   2. Consider roof-mounted photovoltaic energy generating systems for building with recommended clearance from shading, appropriate roof orientation, and roof area availability. Roof availability will have to consder other roof mounted systems which may include required HVAC equipment, personnel access paths and standoffs from the roof edge.Functional roof availability may be less that 50%. Additional space will be required in building for RIPV inverter, disconnect switches and over-current protection.

D. Performance Requirements:
   1. PV system shall be estimated to produce energy quantities as listed on the drawings.
   2. AC kWh energy production shall take into consideration system losses, including but not limited to wire losses, fault protection losses, inverter efficiency and system component degradation over life expectacy of system.
   3. Method and results of PV system performance estimates shall be shared with Owner and submitted as part of the bid.
   4. AC kWh energy production estimates shall report quantities of physical area required for PV modules and PV system size.

1.2 RELATED SECTIONS

A. Section 06 1000 “Rough Carpentry”
B. Section 06 1500 “Sheathing”
C. Division 7 Sections related to roofing materials.

1.3 REFERENCES

A UL 1703 –Flat Plate Photovoltaic Modules and Panels; Current edition, Including All Revisions
B. UL 790 Standard Test Method for Fire Tests of Roof Coverings

1.4 SUBMITTALS

A. Submit under provisions of Section 01 3000

B. See Section 01 6000

C. Product Data: Provide manufacturer's printed product information indicating material characteristics, performance criteria and product limitations.

D. Manufacturer's Installation Instructions: Provide published instructions that indicate preparation required and installation procedures.

E. Certificate of Compliance: Provide Certificate of Compliance from an independent laboratory indicating that the roof integrated photovoltaic made in normal production meet or exceeds the requirements of the following:
1. UL 790 Class A Fire Resistance
2. UL 1703 Flat Plate Photovoltaic Modules and Panels.

F. Shop Drawings:
1. Submit shop drawings covering fabrication, installation and finish of specified systems.
a. Fully dimensioned plans and elevations with detail coordination keys.
b. Electrical and structural penetration details of weather-tight building envelope.
c. Locations and types of exposed fasteners and joints
d. Wiring diagrams
e. Rough-in requirements.

1.5 QUALITY ASSURANCE

A. Single Source Responsibility: To ensure quality of appearance and performance, obtain equipment for system from single source photovoltaic system installer or from manufacturers approved by photovoltaic system installer.
B. Manufacturer Qualifications: Submit proof that photovoltaic installer is member in good standing with manufacturer's credentialed photovoltaic program and is familiar with application of PV system.
C. Manufacturing facility certified to ISO 9001
D. Provide system meeting requirements of federal, state and local building codes
E. Provide system that meets or exceeds governing electric utility company interconnection requirements for self-generating equipment.
F. Certifications: Submit system component manufacturer's certification that products furnished for project meet or exceed specified requirements.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Comply with requirements of Section 01 6000
B. Protect finished surfaces as necessary to prevent damages.
C. Do not leave coating residue on any surfaces
D. Replace damaged units.

1.7 PROJECT CONDITIONS

A. Environmental Requirements:
   1. Do not install system during rain, snow or windy conditions
   2. Work on a dry roof only.
B. Existing Conditions: Ensure existing conditions are stable, solid and ready to accept new constructions.

1.8 WARRANTY

A. Furnish Standard PV modules and panel components providing manufacturer's limited warranty of 10 year minimum
B. Furnish 25 year power generation warranty
C. Extended Warranties Protection:
   1. Gold Warranty – Inverter, PV modules & other components covered for 10 years Workmanship covered for 15 year period

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturer: Provide products manufactured and or sold by the CertainTeed Corporation.

B. Substitutions: As approved by Architect.

C. Requests for substitutions will be considered in accordance with provisions of Section.01 60 00.

2.2 Basis of Design: CertainTeed Apollo II PV System.

2.3 Required Equipment
1. See CertainTeed Apollo kits (Modules & Balance of System)
2. Offer at additional expense Online Monitoring System Option

PART 3 EXECUTION

3.1 EXAMINATION
A. Verify item provided by other Sections of are properly sized and located.
B. Examine supporting members to ensure surfaces are at proper elevation and are free from dirt or other deleterious matter.

3.2 INSTALLATION

A. Locate PV array as shown on Drawings and approved shop drawings

B. Install photovoltaic system in accordance with NEC, manufacturer's printed instructions, electric utility service provider requirements and approved shop drawings.

..C. Install PV modules and DC to AC inverters with sufficient clearance to allow for proper ventilation and cooling.
1. Comply with manufacturer's clearance recommendations.

D. Preferred installation requires operational PV modules in location and manner to ensure maximum unobstructed, direct sun exposure.

E Provide suitable means to secure attachments to mounting surfaces and structures.

F Installer shall verify that site, mounting surface substrate, supports and other site and work conditions are adequate and proper for installation

3.3 FIELD QUALITY CONTROL

A. Manufacturer's Field Services: Comply with Sections 01 40 00

3.4 COMMISSIONING

A. Provide system commissioning under provisions of Section 01 9100
B. Commissioning:
1. To be provided by Contractor/Installer
2. Prior to commissioning ensure PV system has passed and received final inspection certificate from authorities having jurisdiction and local utility.
3. Provide training to designated Owners representative.
4. Ensure that installation has been performed in accordance with NEC and other local codes.
Following NEC articles refer to PV Systems
a. Article 690 Solar Photovoltaic Systems
b. Article 230 Service Equipment – Disconnecting Means
c. Article 240 Overcurrent Protections
d. Article 250 Grounding
e. Article 300 Wiring Methods
f. Article 310 Conductors for General Wiring
g. Article 705 Interconnected Electrical Power Production Sources
5. Refer to commissioning requirements contained within IEEE 1547.1 Standard Conformance Test Procedures for Equipment Interconnecting Distributed Resources with Electric Power Systems.
6. Provide suitable tools and equipment for commissioning.
7. Provide commissioning certificate to Owner

3.5 PROTECTION

A. Protect finished work in accordance with Section 01 7600.

END OF SECTION