TRINITY EPISCOPAL CHURCH – SPIRE STABILIZATION & EXTERIOR REPAIR PROJECT

ABBEVILLE, SOUTH CAROLINA
PROJECT NO. 2019-001

MEADORS, Inc.
2811 Azalea Drive, Charleston SC, 29405
PHONE: 843-723-8585 | FAX: 843-577-3107 | WEBSITE: meadorsinc.com

Revised Bid Set
May 30, 2019

© 2019
# TABLE OF CONTENTS

**PROJECT NAME:** TRINITY EPISCOPAL CHURCH- SPIRE STABILIZATION & EXTERIOR REPAIR PROJECT

**PROJECT NUMBER:** 2019-001

<table>
<thead>
<tr>
<th>Division</th>
<th>Section Title</th>
<th>Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## PROCUREMENT AND CONTRACTING DOCUMENTS GROUP

### DIVISION 00 - PROCUREMENT AND CONTRACTING REQUIREMENTS

<table>
<thead>
<tr>
<th>Table of Contents</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>000107</td>
<td>Seals Page</td>
</tr>
<tr>
<td>002113</td>
<td>Instructions to Bidders</td>
</tr>
<tr>
<td>002213</td>
<td>Supplementary Instructions to Bidders</td>
</tr>
<tr>
<td>004100</td>
<td>Bid Form (submit with bid)</td>
</tr>
<tr>
<td></td>
<td>Alternate Form (submit with bid)</td>
</tr>
<tr>
<td></td>
<td>Unit Price Form (submit with bid)</td>
</tr>
<tr>
<td></td>
<td>Price Schedule Form (submit with bid)</td>
</tr>
<tr>
<td></td>
<td>Summary of Contractor Qualification Requirements</td>
</tr>
<tr>
<td>006113</td>
<td>Performance Bond and Payment Bond</td>
</tr>
</tbody>
</table>

## SPECIFICATIONS GROUP

### GENERAL REQUIREMENTS SUBGROUPS

### DIVISION 01 - GENERAL REQUIREMENTS

| 011000 | Summary | 4 |
| 012200 | Unit Prices | 3 |
| 012300 | Alternates | 2 |
| 012500 | Substitution Procedures | 3 |
| | Substitution Request Form | 2 |
| 012600 | Contract Modification Procedures | 3 |
| 012900 | Payment Procedures | 4 |
| 013100 | Project Management and Coordination | 6 |
| 013200 | Construction Progress Documentation | 4 |
| 013233 | Photographic Documentation | 3 |
| 013300 | Submittal Procedures | 6 |
| 013591 | Historic Treatment Procedures | 6 |
| 014000 | Quality Requirements | 5 |
| 015000 | Temporary Facilities and Controls | 4 |
| 017700 | Closeout Procedures | 5 |
| 017839 | Project Record Documents | 4 |

### CONSTRUCTION SUBGROUPS

### DIVISION 02 – EXISTING CONDITIONS

| 028716.13 | Bird Excrement Removal | 4 |

### DIVISION 04 - MASONRY

| 040513 | Mortars for Structural Repairs and Repointing | 8 |

### DIVISION 06 - WOOD, PLASTICS, AND COMPOSITES

Trinity Episcopal Church Spire Stabilization & Exterior Repair Project .......................................................... 05/29/2019
Project No. 2019-001 ........................................................................................................................................... Meadors, Inc.
<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>061000</td>
<td>Rough Carpentry</td>
<td>9</td>
</tr>
<tr>
<td>062012</td>
<td>Exterior Finish Carpentry</td>
<td>5</td>
</tr>
<tr>
<td>064023</td>
<td>Interior Woodwork</td>
<td>3</td>
</tr>
<tr>
<td>070150.19</td>
<td>Preparation for Reroofing</td>
<td>5</td>
</tr>
<tr>
<td>073113</td>
<td>Asphalt Shingle Roofing</td>
<td>6</td>
</tr>
<tr>
<td>073129</td>
<td>Wood Shingle Roofing</td>
<td>4</td>
</tr>
<tr>
<td>076200</td>
<td>Sheet Metal Flashing and Trim</td>
<td>8</td>
</tr>
<tr>
<td>077123</td>
<td>Gutters and Downspouts</td>
<td>9</td>
</tr>
<tr>
<td>079200</td>
<td>Joint Sealants</td>
<td>6</td>
</tr>
<tr>
<td>089119</td>
<td>Fixed Louvers</td>
<td>4</td>
</tr>
<tr>
<td>090120</td>
<td>Stucco Repairs and Replacement</td>
<td>6</td>
</tr>
<tr>
<td>090320</td>
<td>Historic Treatment of Plain Plastering</td>
<td>8</td>
</tr>
<tr>
<td>092900</td>
<td>Gypsum Board</td>
<td>4</td>
</tr>
<tr>
<td>096400</td>
<td>Historic Wood Flooring</td>
<td>3</td>
</tr>
<tr>
<td>099000</td>
<td>Architectural Coatings</td>
<td>8</td>
</tr>
</tbody>
</table>

ADDITIONAL INFORMATION
Trinity Episcopal Church Assessment 10.30.2015 .......................................................... 365
Trinity Episcopal Church Spire Assessment 11.11.2016 ...................................................... 33

END OF TABLE OF CONTENTS
1.1 DESIGN PROFESSIONALS OF RECORD

BUILDING ARCHITECT
Betty Prime
SC #8919
Architectural Drawings & Architectural Sections in Divisions 01 – 14;

1.2 DESIGN PROFESSIONALS OF RECORD

BUILDING ENGINEER
John Moore
No. 9400
Structural Drawings
SECTION 002113 – INSTRUCTIONS TO BIDDERS

PART 1 - GENERAL

1.1 FORM

A. Instructions to Bidders form shall be AIA Document A701, INSTRUCTIONS TO BIDDERS - 2018 EDITION, published by the American Institute of Architects, and amended by the Owner for this project.

END OF SECTION 002113
SECTION 002213 – SUPPLEMENTARY INSTRUCTIONS TO BIDDERS

PART 1 - GENERAL

1.1 GENERAL

A. The following supplements modify "Instructions to Bidders", AIA Document A701, 1997 Edition. Where portion of Instructions to Bidders is modified or deleted by Supplementary Instructions to Bidders, unaltered portions of Instructions to Bidders shall remain in effect.

1.2 ARTICLE 2 – BIDDERS REPRESENTATIONS

A. Add Subparagraph 2.1.5:

1. “2.1.5 The Bidder is properly licensed contractor in accordance with State of South Carolina Code.”

1.3 ARTICLE 3 – BIDDING DOCUMENTS

A. Add the following to 3.3.2: "All requests for substitution shall be submitted by bona-fide Bidder, using Standard CSI Substitution Request Form or form attached hereto."

B. Revise 3.3.4 to read: "Substitutions will be considered after the Contract award as specifically provided in Division 01."

1.4 ARTICLE 4 – BIDDING PROCEDURES

A. Add Subparagraph 4.1.8:

“4.1.8 Failure to submit a bid in the form requested or inclusion of any alternates, conditions, limitations or provisions not called for, will render the bid irregular; and shall be considered sufficient cause for rejection of bid. Failure to complete entries in all blanks in the Bid Form shall be considered sufficient cause for rejection of a bid.”

B. Add the following to 4.3.1: "Identify the following on the outside of Bid Envelope as follows:

RFP TRINITY EPISCOPAL CHURCH SPIRE STABILIZATION & EXTERIOR REPAIR PROJECT"

1.5 ARTICLE 7 - PERFORMANCE AND PAYMENT BOND

A. Add the following to 7.1.1: "Both a Performance Bond and a Payment Bond will be required, each in an amount equal to one hundred percent of the contract price."

END OF SECTION 002213

Attachment: Sample Format “Substitution Request Form.”
COMPLETE AND SUBMIT THIS FORM FOR APPROVAL OF SUBSTITUTES. SUBMISSION SHALL BE MADE IN DUPLICATE FOR EACH PROPOSED SUBSTITUTE ITEM.

SUBSTITUTION REQUEST FORM

TO: Betty Prime, Meadors, Inc., betty@meadorsinc.com

PROJECT: Trinity Episcopal Church Spire Stabilization & Exterior Repair Project

We submit for your consideration the following product instead of the specified item for the above project:

<table>
<thead>
<tr>
<th>Section</th>
<th>Paragraph</th>
<th>Specified Item</th>
</tr>
</thead>
<tbody>
<tr>
<td>_______</td>
<td>________</td>
<td>____________________________</td>
</tr>
</tbody>
</table>

Proposed Substitution: __________________________________________________________

Attach complete technical data, including laboratory tests, if applicable.

Include complete information on changes to Drawings and/or Specifications which proposed substitution will require for its proper installation.

Fill in blanks below:

A. Does the substitution affect dimensions shown on the drawings?
   Yes     No _

B. Will the undersigned pay for changes to building design, including engineering and detailing costs caused by the requested substitution?
   Yes     No _

C. What effect does substitution have on other trades?
   __________________________________________________________
   __________________________________________________________
   __________________________________________________________

D. Differences between proposed substitution and specified item?
   __________________________________________________________
   __________________________________________________________
   __________________________________________________________
Manufacturer's guarantees of proposed and specified items are:

Same ___  Different (Explain on Attachments)

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

The Undersigned states that the function, appearance, and quality are equivalent or superior to the specified item.

Submitted by:

__________________________________  For Use by Design Consultant

Signature

__________________________________  ___ Accepted  ___ Accepted as Noted

Firm ___ Not Accepted ___ Received Too Late

__________________________________  By: ________________________

Address

__________________________________  Date: _______________________

Date: ______  TEL/FAX: _______________________

Notes:

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

Attachment to Section 00120 - Supplementary Instructions to Bidders
TO: PRESERVATION SOUTH CAROLINA  
ATTEN: MIKE BEDENBAUGH  
P.O. BOX 506  
PROSPERITY, SC 29127  

FROM: ____________________________  
(Bidder)  
____________________________  
____________________________  
(Address)  

The Undersigned, having carefully examined drawings, project details, specifications, and other documents bound in the Project Manual, for TRINITY EPISCOPAL CHURCH SPIRE STABILIZATION & EXTERIOR REPAIR PROJECT, and the following addenda:  
Addendum No. ___ Dated_____  Addendum No. ___ Dated_____  Addendum No. ___ Dated_____  
Addendum No. ___ Dated_____  Addendum No. ___ Dated_____  Addendum No. ___ Dated_____  
as well as the premises and conditions affecting the work proposes to furnish all services, labor, materials and equipment called for by them for the entire work in accordance with said documents for the Stipulated Sum of _______________________________________________________________________ Dollars ($______________________), which sum is hereinafter called the "Base Bid".  

Unit Prices: The attached unit prices, if accepted in the award of this Contract, shall be used in establishing adjustment of Contract Price for additions to or deductions from work in accordance with applicable requirements specified in the General Conditions. Unit Prices listed shall include all costs, profit and overhead, and no further surcharges are to be added to any unit price item of work that may be ordered done.  

Unit prices, as submitted, may or may not be used in calculating additions or deductions from the Contract, at the option of Owner. Such unit prices as may be employed by Owner shall be written into the Contract and accepted and agreed upon by the respective parties to the Contract.  

Bid Holding Time: The Undersigned hereby agrees that this bid may not be revoked or withdrawn after time set for opening bids but shall remain open for acceptance for a period of SIXTY (60) days following such time.  

Contract Acceptance: In case the Undersigned be notified in writing by mail, telegraph or delivery of acceptance of this bid within 60 days after the time set for opening of bids, he agrees to execute, within ten days from notice, a contract for the work for the above-stated amount and at the same time to furnish and deliver to Owner a Performance Bond and a Payment Bond, in the form issued by the American Institute of Architects (AIA Form A312), each in an amount equal to 100 percent of the contract sum.  

Completion Time: The Undersigned agrees to commence actual physical work at the site, with an adequate
force and equipment, within ten calendar days from a date to be established in a "Notice to Proceed" and to substantially complete the work within 5 months from such date.

Contractor Resources: It is understood that, before a proposal is considered for award, Bidder may be requested by Architect to submit a statement of qualifications in detail as to his previous experience in performing similar or comparable work, and of his business and technical organization and financial resources available to be used in performing contemplated work.

Respectfully submitted,

Firm Name: ________________________________

Address: __________________________________

South Carolina Contractor's License No. __________

By: _______________________________________

Title: ____________________________________
BID ALTERNATE FORM:

Provide the following BID ALTERNATES:
Refer to Specification Section 012300 "Alternates" for additional information.

Alternate No. 1 – Faux Graining at 2nd floor ceiling, below bell tower:
ADD the sum of ___________________________ Dollars ($__________).

Alternate No. 2 – Lighting Protection, install new system instead of repairing and reusing existing:
ADD the sum of ___________________________ Dollars ($__________).

Alternate No. 3 – Replace two (2) drain lines @ bell tower gutter:
ADD the sum of ___________________________ Dollars ($__________).

Alternate No. 4 – Restore Louvered Shutters and associated trim as indicated on drawings:
ADD/DEDUCT the sum of ___________________________ Dollars ($__________).

Alternate No. 5 – Flat-lock and soldered built-in gutter at bell tower instead of stainless-steel built-in gutter:
ADD/DEDUCT the sum of ___________________________ Dollars ($__________).

Firm Name: ________________________________
Address:

______________________________

South Carolina Contractor's License No.: ________________

By: ________________________________
Title: ________________________________
**BID UNIT PRICE FORM:**

Provide the following UNIT PRICES:
Refer to Specification Section 012200 "Unit Prices" for additional information.

<table>
<thead>
<tr>
<th>NO.</th>
<th>ITEM</th>
<th>UNIT OF MEASURE</th>
<th>INCLUDED IN BASE BID</th>
<th>ADD</th>
<th>DEDUCT</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Roof Decking- Board Sheathing</td>
<td>SF</td>
<td>Refer to Specification Section 012200 Unit Prices for Scope of Work Included in Base Bid</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Gutter Decking - Plywood</td>
<td>SF</td>
<td>Refer to Specification Section 012200 Unit Prices for Scope of Work Included in Base Bid</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Stucco Repair</td>
<td>SF</td>
<td>Refer to Specification Section 012200 Unit Prices for Scope of Work Included in Base Bid</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Sister Joist</td>
<td>1 Joist</td>
<td>Refer to Specification Section 012200 Unit Prices for Scope of Work Included in Base Bid</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>T &amp; G Ceiling Board</td>
<td>SF</td>
<td>Refer to Specification Section 012200 Unit Prices for Scope of Work Included in Base Bid</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Floor Board</td>
<td>SF</td>
<td>Refer to Specification Section 012200 Unit Prices for Scope of Work Included in Base Bid</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Brick Replacement</td>
<td>Per brick</td>
<td>Refer to Specification Section 012200 Unit Prices for Scope of Work Included in Base Bid</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Firm Name: ____________________________________________

Address:
________________________________________________________________________

South Carolina Contractor's License No.: ____________
________________________________________________________________________

By: ____________________________________________

Title: _______________________________________
<table>
<thead>
<tr>
<th>Contractor:</th>
<th>Estimated Project Duration:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Cost</td>
</tr>
<tr>
<td>Bell Tower &amp; Spire - Spire Stabilization, New Roof, Gutter, and Associated Scope of Work</td>
<td></td>
</tr>
<tr>
<td>Sanctuary - New Roofs, Gutters, and Associated Scope of Work</td>
<td></td>
</tr>
<tr>
<td>PROJECT SUBTOTAL:</td>
<td></td>
</tr>
<tr>
<td>Overhead &amp; Profit</td>
<td></td>
</tr>
<tr>
<td>PROJECT TOTAL (BASE BID):</td>
<td></td>
</tr>
</tbody>
</table>
Summary of Qualifications for  
Contractor/Subcontractor Experience

Contractors to submit required qualifications submittals within 5 days of request. Contractor, Supervisor, and Subcontractors must be qualified and approved by the Architect, Engineer, and Owner prior to award of contract. Qualifications outlined below are mandatory. Submissions by bidders that do not meet the qualification requirements will not be considered.

General Contractor Experience:

An experienced firm regularly engaged in historic preservation treatments similar in nature, materials, design, and extent to this work as specified in each section, and that has a minimum of ten (10) years of experience in work similar to this procedure with a record of successful in-service performance that demonstrate the firm’s qualifications to perform this work.

Additional Personnel must also have the following experience:

1. Field Supervisor Qualifications: Full-time supervisors with a minimum ten (10) years of experience in historic preservation treatment work similar in nature, material, design, and extent to that indicated for this Project. Supervisor must have a working knowledge of the Secretary of the Interior’s Standards for Treatment of Historic Properties.
   a. Supervisors shall be on project site during times that historic preservation treatment work is in progress.
   b. Supervisors shall not be changed during the project except for causes beyond the control of the specialist firm. Any replacement supervisor must meet the same qualifications and be approved by the Architect and Engineer.

2. Minimum Subcontractor/Tradesman Qualification: Persons who are experienced in historic preservation treatment work of types they will be performing and have at least five (5) years’ documented experience.

SUBMITTALS:

- General Contractor Qualifications: Provide three (3) references from an architect/engineer/owner who has worked on a similar project with the offeror in the last ten (10) years.
- Field Supervisor Qualifications: Submit field supervisor’s resume. Supervisor must meet the minimum work experience required for this project.
- Tradesman Qualifications: Submit subcontractor/lead tradesman resumes. Subcontractor/Tradesman must meet the minimum work experience required for this project.
SECTION 006113 - PERFORMANCE BOND AND PAYMENT BOND

PART 1 - GENERAL

1.1 FORM

A. The form of Performance and Payment Bonds required under this contract will be AIA Document A312, "Performance Bond and Payment Bond", December 2010 Edition, published by the American Institute of Architects, copies of which are available from Architects upon written request.

END OF SECTION 006113
SECTION 011000 - 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. Work by Owner.
   4. Regulatory requirements.
   5. Access to site.
   6. Coordination with occupants.
   7. Work restrictions.
   8. Specification and drawing conventions.

B. Related Requirements:
   1. Section 015000 "Temporary Facilities and Controls" for limitations and procedures governing temporary use of Owner's facilities.
   3. Section 013591 "Historic Treatment Procedures" for historic treatment procedures.

1.3 PROJECT INFORMATION

A. Project Identification: Trinity Episcopal Church
   1. Project Location: 200 Church Street, Abbeville, SC 29620

B. Owner: Episcopal Diocese of Upper South Carolina
   1. Owner's Representative: Preservation South Carolina
      Mike Bedenbaugh

C. Architect: Meadors, Inc., PO Box 21758, Charleston, SC 29413.

D. Engineer: 4SE, Inc., 7 Radcliffe Street, Suite 201, Charleston, SC 29403

1.4 WORK COVERED BY CONTRACT DOCUMENTS

A. The Work of Project is defined by the Contract Documents and consists of the following: Trinity Episcopal Church is an iconic Abbeville landmark and is individually listed on the National Register of Historic Places. The scope of work for this project is focused on stabilizing the bell tower spire and installing new roofs and built-in stainless-steel gutter systems at the main sanctuary and bell tower. The project also includes limited exterior and interior finish carpentry, as well as masonry work. Contractors must meet the minimum qualifications outlined in this project manual.
B. Type of Contract:
   1. Project will be constructed under a single prime contract.

1.5 SPECIAL REQUIREMENTS
A. Contractor and Subcontractors must be qualified and approved by the Architect, Engineer, and Owner prior to award of contract.

1.6 REGULATORY REQUIREMENTS
A. Conform to requirements of all authorities having jurisdiction.
B. Standards for Historic Properties: All work shall comply with the Secretary of the Interior’s “Standards for the Treatment of Historic Properties.”

1.7 ACCESS TO SITE
A. General: Contractor shall have limited use of Project site for construction operations as indicated on Drawings by the Contract limits and as indicated by requirements of this Section.
B. Use of Site: Limit use of Project site to work outlined in drawings. Do not disturb portions of Project site beyond areas in which the Work is indicated.
   1. Driveways, Walkways and Entrances: Keep driveways, loading areas, 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.
C. Condition of Existing Building: Maintain portions of existing building affected by construction operation throughout construction period. Repair damage caused by construction operations.

1.8 COORDINATION WITH OCCUPANTS
A. Owner Limited Occupancy: The church is to remain closed during construction. Maintain existing entrance at the front of the building.
   1. Maintain access to existing walkways and other adjacent occupied or used facilities (Parish House). Do not close or obstruct walkways or other occupied or used areas without written permission from Owner and approval of authorities having jurisdiction.
   2. Main entrance at the front of the building to remain clear at all times so owner can come and go unimpeded. Active work areas are to be delineated by appropriate cautionary tape or like signage.
   3. Notify Owner not less than 72 hours in advance of activities that will affect Owner's operations of adjacent properties (Parish House).

1.9 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.
   2. Spire stabilization to be completed first. Once temporary stabilization is in place all other work can commence.
B. On-Site Work Hours: The church is to remain closed during construction. The adjacent Parish Building will remain open during construction.
1. Monday - Friday work hours between 7:30 AM – 5 PM.
2. Weekend Hours: 8:30 AM – 5 PM, owner must approve weekend hours to ensure work does not conflict with event schedule.
3. Hours for Core Drilling and Other Noisy Activity: After 8:00 AM.

C. Existing Utility Interruptions: Do not interrupt utilities serving facilities occupied by Owner, including the adjacent Parish House. All disruptions require approval by the owner.

D. Cleanup: Job site shall remain litter- and debris-free at all times. It shall be contractor’s responsibility to clean both interior and exterior work sites thoroughly at the end of each workday. It is allowable to use the dumpster on site for disposal of debris and trash.

E. Nonsmoking Building: Smoking is not permitted within the building or within 25 feet of entrances.

F. Controlled Substances: Use of tobacco products and other controlled substances on project site is not permitted.

1.10 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. Document Interpretation: In the case of conflicts or discrepancies between drawings and Divisions 02-49 of the specifications, or within or among the Contract Documents and not clarified by Addendum, the most stringent requirement shall apply.
1. Note: None of the documents included in the drawing index are intended to be considered in isolation of one another.
2. All bidders, sub-bidders, contractors, and sub-contractors shall utilize complete sets of the bidding and/or Construction Documents in quantifying and construction. Neither the owner nor architect assume responsibility for errors, omissions, or misinterpretations resulting from the use of incomplete sets of bidding and/or construction documents.

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

D. 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 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 011000
SECTION 012200 - 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 012600 “Contract Modification Procedures” for procedures for submitting and
      handling Change Orders.

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,
   applicable taxes, 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 No. 1 – Roof Decking (Board Sheathing):
   1. Description: Replace deteriorated 5/4 board sheathing with new 5/4” in-kind sheathing.
   2. Unit of Measurement: Square Foot.
   3. Included in Base Bid: Replacement of 25% of spire roof board sheathing and 10% of sanctuary roof board sheathing included in the base bid. Refer to drawings and specifications.

B. Unit Price No. 2 – Gutter Decking:
   1. Description: Replace deteriorated sheathing with new in-kind sheathing.
   2. Unit of Measurement: Square Foot.
   3. Included in Base Bid: Replacement of 35% of sanctuary gutter sheathing included in the base bid. Existing sheathing is ¾” plywood. Refer to drawings and specifications.

C. Unit Price No. 3 – Stucco Repair:
   1. Description: Replace deteriorated stucco with new compatible stucco.
   2. Unit of Measurement: Square Foot.
   3. Included in Base Bid: Refer to Drawings and Specifications.

D. Unit Price No. 4 – Sister Joists:
   1. Description: Sister joist at 2nd floor, below bell tower. Match height of existing joist. Nominal lumber to be used for sistering. Cut down height as required. See sheet A402 for location.
   2. Unit of Measurement: One (1) Joist.
   3. Included in Base Bid: None.

E. Unit Price No. 5 – T & G Ceiling Boards
   1. Description: Replace deteriorated tongue and groove ceiling boards with new in-kind boards.
   2. Unit of Measurement: Square Foot.
   3. Included in Base Bid: Replacement of 50% of 2nd floor ceiling boards below bell tower. Refer to drawings and specifications.

F. Unit Price No. 6 – Floor Boards
   1. Description: Replace deteriorated floor boards with new in-kind boards.
   2. Unit of Measurement: Square Foot.
   3. Included in Base Bid: Replacement of 50% of 2nd floor boards below bell tower. Refer to drawings and specifications.
G. Unit Price No. 7 – Brick Replacement

1. Description: Replace damaged or missing brick with reclaimed historic brick of the same size.
2. Unit of Measurement: 1 brick
3. Included in Base Bid: Refer to drawings and specifications.

END OF SECTION 012200
SECTION 012300 - 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: Faux Graining
   1. Base Bid: None.
   2. Alternate: Faux grain new ceiling boards, access hatch boards, and trim (below bell tower) as indicated on Drawings. Match existing finish.
   3. State amount to ADD.

B. Alternate No. 2: Lightning Protection
   1. Base Bid: Temporarily remove existing lightning protection system as required for repairs and installation of new roof and flashings. Reinstall lightning protection system. System to be UL Certified. All cable connectors to be replaced with appropriate non-ferrous connectors.
   2. Alternate: Install new UL Certified Lightning Protection System.
   3. State amount to ADD.

C. Alternate No. 3: Replace gutter drain lines at bell tower.
   1. Base Bid: Reuse existing (2) two drain lines. Evaluate and scope existing drains to determine current condition. Clean existing drain lines.
   2. Alternate: Replace existing (2) two drain lines with new PVC drain lines.
   3. State amount to ADD.

D. Alternate No. 4: Restore Louvered Shutters and associated trim.
   1. Base Bid: Install New Louvered Shutters and associated trim as indicated on Drawings.
   2. Alternate: Restore Louvered Shutters and associated trim as indicated on Drawings.
   3. State amount to ADD/DEDUCT.

E. Alternate No. 5: Bell Tower Gutter at base of spire.
   1. Base Bid: Install New 16-gauge stainless steel built-in formed gutter as indicated on drawings.
   2. Alternate: Install new 20 oz copper flat-lock and soldered built-in gutter at base of spire.
   3. State amount to ADD/DEDUCT.

END OF SECTION 012300
SECTION 012500 - SUBSTITUTION 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 substitutions after award of Contract.

1.3 DEFINITIONS

A. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor.

1. Substitutions for Cause: Changes proposed by Contractor that are required due to changed Project conditions, such as unavailability of product, regulatory changes, or unavailability of required warranty terms.

2. Substitutions for Convenience: Changes proposed by Contractor or Owner that are not required in order to meet other Project requirements but may offer advantage to Contractor or Owner.

1.4 ACTION SUBMITTALS

A. Substitution Requests: Submit one copy of each request for consideration. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.


2. Documentation: Show compliance with requirements for substitutions and the following, as applicable:

   a. Statement indicating why specified product or fabrication, or installation cannot be provided, if applicable.
   b. Coordination information, including a list of changes or revisions needed to other parts of the Work and to construction performed by Owner and separate contractors, that will be necessary to accommodate proposed substitution.
   c. Detailed comparison of significant qualities of proposed substitution with those of the Work specified. Include annotated copy of applicable Specification Section. Significant qualities may include attributes such as performance, weight, size, durability, visual effect, sustainable design characteristics, warranties, and specific features and requirements indicated. Indicate deviations, if any, from the Work specified.
d. Product Data, including drawings and descriptions of products and fabrication and installation procedures.

e. Samples, where applicable or requested.

f. Certificates and qualification data, where applicable or requested.

g. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners.

h. Material test reports from a qualified testing agency indicating and interpreting test results for compliance with requirements indicated.

i. Research reports evidencing compliance with building code in effect for Project.

j. Detailed comparison of Contractor's construction schedule using proposed substitution with products specified for the Work, including effect on the overall Contract Time. If specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating date of receipt of purchase order, lack of availability, or delays in delivery.

k. Cost information, including a proposal of change, if any, in the Contract Sum.

l. Contractor's certification that proposed substitution complies with requirements in the Contract Documents except as indicated in substitution request, is compatible with related materials, and is appropriate for applications indicated.

m. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.

3. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within seven days of receipt of a request for substitution. Architect will notify Contractor of acceptance or rejection of proposed substitution within 15 days of receipt of request, or seven days of receipt of additional information or documentation, whichever is later.


   b. Use product specified if Architect does not issue a decision on use of a proposed substitution within time allocated.

1.5 QUALITY ASSURANCE

   A. Compatibility of Substitutions: Investigate and document compatibility of proposed substitution with related products and materials. Engage a qualified testing agency to perform compatibility tests recommended by manufacturers.

1.6 PROCEDURES

   A. Coordination: Revise or adjust affected work as necessary to integrate work of the approved substitutions.
PART 2 - PRODUCTS

2.1 SUBSTITUTIONS

A. Substitutions for Cause: Submit requests for substitution immediately on discovery of need for change, but not later than 15 days prior to time required for preparation and review of related submittals.

1. Conditions: Architect will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:

   a. Requested substitution is consistent with the Contract Documents and will produce indicated results.
   b. Requested substitution provides sustainable design characteristics that specified product provided.
   c. Substitution request is fully documented and properly submitted.
   d. Requested substitution will not adversely affect Contractor's construction schedule.
   e. Requested substitution has received necessary approvals of authorities having jurisdiction.
   f. Requested substitution is compatible with other portions of the Work.
   g. Requested substitution has been coordinated with other portions of the Work.
   h. Requested substitution provides specified warranty.
   i. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.

B. Substitutions for Convenience: Not allowed.

PART 3 - EXECUTION (Not Used)

END OF SECTION 012500
SUBSTITUTION REQUEST FORM

TO: Betty Prime, Meadors, Inc., betty@meadorsinc.com

PROJECT: Trinity Episcopal Church Spire Stabilization & Exterior Repair Project

We submit for your consideration the following product instead of the specified item for the above project:

<table>
<thead>
<tr>
<th>Section</th>
<th>Paragraph</th>
<th>Specified Item</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Proposed Substitution: __________________________________________________________

Attach complete technical data, including laboratory tests, if applicable.

Include complete information on changes to Drawings and/or Specifications which proposed substitution will require for its proper installation.

Fill in blanks below:

A. Does the substitution affect dimensions shown on the drawings?
   Yes   No

B. Will the undersigned pay for changes to building design, including engineering and detailing costs caused by the requested substitution?
   Yes   No

C. What effect does substitution have on other trades?
   __________________________________________________________
   __________________________________________________________
   __________________________________________________________
   __________________________________________________________

D. Differences between proposed substitution and specified item?
   __________________________________________________________
   __________________________________________________________
   __________________________________________________________
   __________________________________________________________
E. Manufacturer's guarantees of proposed and specified items are:

Same ___ Different (Explain on Attachments)

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

The Undersigned states that the function, appearance, and quality are equivalent or superior to the specified item.

Submitted by:

__________________________________ For Use by Design Consultant
Signature

__________________________________ ___ Accepted ___ Accepted as Noted
Firm ___ Not Accepted ___ Received Too Late

__________________________________ By: ________________________
Address

__________________________________ Date: _______________________
Date: _______ TEL/FAX: _______________________

Notes:

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

Attachment to Section 00120 - Supplementary Instructions to Bidders
SECTION 012600 - 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.

1.2 SUMMARY

A. Section includes administrative and procedural requirements for handling and processing Contract modifications.

B. Related Requirements:

1. Section 012500 "Substitution Procedures" for administrative procedures for handling requests for substitutions made after the Contract award.

1.3 MINOR CHANGES IN THE WORK

A. Architect will issue supplemental instructions authorizing minor changes in the Work, not involving adjustment to the Contract Sum or the Contract Time, on AIA Document G710, "Architect's Supplemental Instructions."

1.4 PROPOSAL REQUESTS

A. Owner-Initiated Proposal Requests: Architect will issue a detailed description of proposed changes in the Work that may require adjustment to the Contract Sum or the Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications.

1. Work Change Proposal Requests issued by Architect are not instructions either to stop work in progress or to execute the proposed change.

2. Within time specified in Proposal Request or 20 days, when not otherwise specified, after receipt of Proposal Request, submit a quotation estimating cost adjustments to the Contract Sum and the Contract Time necessary to execute the change.

a. 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.

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

c. Include costs of labor and supervision directly attributable to the change.

d. 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.
B. 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 taxes, 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.

1.5 ADMINISTRATIVE CHANGE ORDERS

A. Unit-Price Adjustment: See Section 012200 "Unit Prices" for administrative procedures for preparation of Change Order Proposal for adjusting the Contract Sum to reflect measured scope of unit-price work.

1.6 CHANGE ORDER PROCEDURES

A. On Owner’s approval of a Work Changes Proposal Request, Architect will issue a Change Order for signatures of Owner and Contractor on Owner approved form.

1.7 CONSTRUCTION CHANGE DIRECTIVE


1. Change Directive contains a complete description of change in the Work. It also designates method to be followed to determine change in the Contract Sum or the Contract Time.

B. Documentation: Maintain detailed records on a time and material basis of work required by the Change Directive.

1. After completion of change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.
SECTION 012900 - 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. Section 012200 "Unit Prices" for administrative requirements governing the use of unit prices.
   2. Section 012600 "Contract Modification Procedures" for administrative procedures for handling changes to the Contract.
   3. Section 013200 "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. Gantt Chart may serve to satisfy requirements for the schedule of values.
   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.
   2. Submit the schedule of values to Architect at earliest possible date, but no later than seven (7) days before the date scheduled for submittal of initial Applications for Payment.

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 (18-0168).
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. Description of the Work.
   b. Change Orders (numbers) that affect value.
   c. Dollar value of the percentage of the Contract Sum to nearest one-hundredth percent, adjusted to total 100 percent.


5. 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. If required, include evidence of insurance.

6. Each item in the schedule of values and Applications for Payment shall be complete.
   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.

7. Schedule Updating: Update and resubmit the schedule of values before the next Applications for Payment when Change Orders or Construction Change Directives result in a change in the Contract Sum.

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 indicated in the Agreement between Owner and Contractor. The period of construction work covered by each Application for Payment is the period indicated in the Agreement.
   1. Submit draft copy of Application for Payment seven (7) days prior to due date for review by Architect.

A. Application for Payment Forms: Use AIA Document G702 and AIA Document G703 Continuation Sheets as form for Applications for Payment.

B. 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.
   4. Indicate separate amounts for work being carried out under Owner-requested project acceleration.
C. 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.
   2. Provide supporting documentation that verifies amount requested, such as paid invoices. Match amount requested with amounts indicated on documentation.

D. Transmittal: Submit one signed and notarized PDF copy of each Application for Payment to Architect by a method ensuring receipt within 24 hours. Include waivers of lien and similar attachments if required.

E. Waivers of Mechanic's Lien: With each Application for Payment, submit waivers of mechanic's lien from entities lawfully entitled to file a mechanic's lien arising out of the Contract and related to the Work covered by the payment.
   1. When an application shows completion of an item, submit conditional final or full waivers.
   2. Owner reserves the right to designate which entities involved in the Work must submit waivers.
   3. Waiver Forms: Submit executed waivers of lien on forms acceptable to Owner.

F. 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). Contract to be updated monthly and submitted with Application for Payment.
   4. Certificates of insurance and insurance policies.
   5. Performance and payment bonds.
   6. Progress and preconstruction photographs.

G. 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.

H. 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 (maintenance documents, warranties, record documents etc.).
   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."
   6. AIA Document G707, "Consent of Surety to Final Payment."
   7. Evidence that claims have been settled.
   8. Final liquidated damages settlement statement.
PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 012900
SECTION 013100 - 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. Requests for Information (RFIs).
3. Project meetings.

B. Related Requirements:

1. Section 013200 "Construction Progress Documentation" for preparing and submitting Contractor's construction schedule.
2. Section 017700 "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. Subcontract 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 entities 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 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.
1.5 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. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities 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. Progress photographic documentation.
7. Pre-installation conferences.
8. Project closeout activities.

C. 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.

1.6 REQUESTS FOR INFORMATION (RFIs)

A. General: Immediately on discovery of the need for additional information or interpretation of the Contract Documents, 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 number.
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 similar software-generated form, 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 (7) 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 Change Proposal according to Section 012600 "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 10 days of receipt of the RFI response.

E. RFI Log: Prepare, maintain, and submit a tabular log of RFIs organized by the RFI number. Use Log Form with not less than the following:

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.

F. On receipt of Architect's action, update the RFI log and immediately distribute the RFI response to affected parties. Review response and notify Architect within seven days if Contractor disagrees with response.
1. Identification of related Minor Change in the Work, Construction Change Directive, and Proposal Request, as appropriate.
2. Identification of related Field Order, Work Change Directive, and Proposal Request, as appropriate.

1.7 PROJECT MEETINGS

A. General: 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 Architect 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 an electronic copy of the meeting minutes to everyone concerned, including Owner and Architect, within three days of the meeting.

B. Preconstruction Conference: Schedule and conduct a preconstruction conference before starting construction, at a time convenient to Owner and Architect, 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. Trades:
   a. Gutter (fabricator and welder).
   b. Roof (standing seam and single-ply).
   c. Stucco.
   d. Paint.
4. 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 RFI's.
   h. Procedures for testing and inspecting.
   i. Procedures for processing Applications for Payment.
   j. Distribution of the Contract Documents.
   k. Submittal procedures.
   l. Preparation of record documents.
   m. Use of the premises and existing building.
   n. Work restrictions.
   o. Working hours.
   p. Owner's occupancy requirements.
   q. Responsibility for temporary facilities and controls.
   r. Procedures for moisture and mold control.
   s. Procedures for disruptions and shutdowns.
t. Construction waste management and recycling.
u. Parking availability.
v. Work, and storage areas.
w. Equipment deliveries and priorities.
x. First aid.
y. Security.
z. Progress cleaning.

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

C. Project Closeout Conference: Schedule and conduct a project closeout conference, at a time convenient to Owner and Architect, but no later than 30 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. Requirements for delivery of material samples, attic stock, and spare parts.
   e. Preparation of Contractor’s punch list.
   f. Procedures for processing Applications for Payment at Substantial Completion and for final payment.
   g. Submittal procedures.
   h. Responsibility for removing temporary facilities and controls.

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

D. Progress Meetings: Conduct progress meetings weekly. Expect weekly site visits with the owner representative for the duration of the project. Architect and engineer to visit the site throughout the project but will not attend all weekly meetings.

1. Coordinate dates of meetings with preparation of payment requests.
2. Attendees: In addition to representatives of Owner and Architect, Contractor, subcontractor (at the discretion of the Contractor), and other concerned entities 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 monthly 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.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 013100
SECTION 013200 - 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. Contractor’s construction schedule.
      2. Construction schedule updating reports.
      3. Site condition reports.
      4. Special reports.
   B. Related Requirements:
      1. Section 013300 "Submittal Procedures" for submitting schedules and reports.

1.3 INFORMATIONAL SUBMITTALS
   A. Format for Submittals: Submit required submittals in the following format:
      1. PDF electronic file.
   B. Contractor’s Construction Schedule: Initial schedule, of size required to display entire schedule for entire construction period.
      1. Submit a PDF electronic copy of schedule.
   C. Construction Schedule Updating Reports: Submit monthly with Applications for Payment.
   D. Daily Logs: Submit at the conclusion of the project, a copy of the log will be turned over to the City’s assigned project manager to memorialize the restorative effort.
   E. Site Condition Reports: Submit at time of discovery of differing conditions.
   F. Special Reports: Submit at time of unusual event.

1.4 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 the Notice to Proceed 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.

B. Activities: Treat each story or separate area as a separate numbered activity for each main element of the Work. Comply with the following:
   1. Activity Duration: Define activities by location.
   2. Procurement Activities: Include procurement process activities for the following long lead items and major items, requiring a cycle of more than 60 days, as separate activities in schedule. Procurement cycle activities include, but are not limited to, submittals, approvals, purchasing, fabrication, and delivery.
   4. 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.
   5. Punch List and Final Completion: Include not more than 30 days for completion of punch list items and final completion.

C. 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 Restrictions: Show the effect of the following items on the schedule:
      a. Uninterruptible services.
      b. Seasonal variations.
   2. Work Stages: Indicate important stages of construction for each major portion of the Work, including, but not limited to, the following:
      a. Submittals.
      b. Mockups.
      c. Disassembly.
      d. Installation.
      e. Tests and inspections.
      f. Curing.
   3. 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.

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 CONTRACTOR’S CONSTRUCTION SCHEDULE (GANTT CHART)

A. Gantt-Chart Schedule with Critical Path: Submit a comprehensive, fully developed, horizontal, Gantt-chart-type, Contractor’s construction schedule due (5 business days) before restoration work commences. Critical path is required.

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 (by location) within time bar.

2.3 REPORTS

A. 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.

B. Daily Logs: The selected contractor will keep a log detailing work completed daily.

2.4 SPECIAL REPORTS

A. General: Submit special reports directly to Owner within one day of an occurrence. Distribute electronic 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.

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 and Owner, separate contractors, testing and inspecting agencies, and other parties identified by Contractor with a need-to-know schedule responsibility.
   1. When revisions are made, distribute updated schedules to the same parties. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in performance of construction activities.

C. At a minimum, reports and schedule to be submitted with pay applications monthly.

END OF SECTION 013200
SECTION 013233 - 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 013300 "Submittal Procedures" for submitting photographic documentation.
   2. Section 017700 "Closeout Procedures" for submitting photographic documentation as project record documents at Project closeout.

1.3 SUBMITTALS

A. Key Plan: Submit key plan in PDF or JPEG format 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. Key plan required for preconstruction and final completion construction photographs.

B. Construction Photographs: Submit images within three days of taking photographs.
   1. Digital Camera: Minimum sensor resolution of 8 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: Name photos based on location and date. Example: "Perimeter Wall – North Elevation_02.16.18"

1.4 COORDINATION

A. Auxiliary Services: Cooperate with Owner or Architect’s photographer and provide auxiliary services requested, including access to Project site and use of temporary facilities, including temporary lighting required to produce clear, well-lit photographs without obscuring shadows.
1.5 USAGE RIGHTS

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

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 CONSTRUCTION PHOTOGRAPHS

A. 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.

B. 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: Include date in file name for each image.

C. Preconstruction Photographs: Before commencement of 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. Take a minimum of 75 photographs to show existing conditions adjacent to areas of construction before starting the Work.
2. All preconstruction photographs must be submitted and approved by Architect before any work begins.

D. Periodic Construction Photographs: Take a minimum of 50 digital photographs monthly. Select vantage points to show status of construction and progress since last photographs were taken. Particular attention should be paid to capturing substrate and framing before finishes are applied.

E. 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.

F. Final Completion Construction Photographs: Take 75 photographs after date of Substantial Completion for submission as project record documents. Vantage points should match preconstruction photographs.

1. Do not include date stamp.

G. Additional Photographs: Architect and Owner may issue requests for additional photographs, in addition to periodic photographs specified.

1. Three days' notice will be given, where feasible.
2. In emergency situations, take additional photographs within 24 hours of request.
3. Circumstances that could require additional photographs include, but are not limited to, the following:
   a. Immediate follow-up when on-site events result in construction damage or losses.
   b. Substantial Completion of a major phase or component of the Work.
   c. Extra record photographs at time of final acceptance.
   d. Owner's request for special publicity photographs.

END OF SECTION 013233
SECTION 013300 - 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 Shop Drawings, Product Data, Samples, and other submittals.

B. Related Requirements:

1. Section 012900 "Payment Procedures" for submitting Applications for Payment and the schedule of values.
2. Section 013200 "Construction Progress Documentation" for submitting schedules and reports, including Contractor's construction schedule.
3. Section 017839 "Project Record Documents" for submitting record Drawings, record Specifications, and record Product Data.

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."


1.4 SUBMITTAL ADMINISTRATIVE REQUIREMENTS


a. Architect makes no representations as to the accuracy or completeness of digital data drawing files as they relate to the Contract Drawings.
b. Digital Drawing Format: Architect will provide Drawings in PDF format.

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 resubmittals, as follows. Time for review shall commence on Architect's receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.

1. Initial Review: Allow 7 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. Resubmittal Review: Allow 7 days for review of each resubmittal.

D. Electronic Submittals: Identify and incorporate information in each electronic submittal file as follows:

1. Assemble complete submittal package into a single indexed file incorporating submittal requirements of a single Specification Section and transmittal form with links enabling navigation to each item.
2. Name file with submittal number or other unique identifier, including revision identifier.
3. Provide means for insertion to permanently record Contractor's review and approval markings and action taken by Architect.
4. Transmittal Form for Electronic Submittals: Use electronic form acceptable to Owner, containing the following information:

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. Names of subcontractor, manufacturer, and supplier.
g. Category and type of submittal.
h. Submittal purpose and description.
i. Specification Section number and title.
j. Specification paragraph number or drawing designation and generic name for each of multiple items.
k. Drawing number and detail references, as appropriate.
SUBMITTAL PROCEDURES

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. Submit electronic submittals via email as PDF electronic files.

2. Action Submittals: Submit one PDF copy of each submittal unless otherwise indicated.
3. Informational Submittals: Submit one PDF copy of each submittal unless otherwise indicated.
4. 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.

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. Submit Product Data before or concurrent with Samples.

5. Submit Product Data in the following format:
   a. PDF electronic file via email.

6. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Shop Drawings on sheets at least 8-1/2 by 11 inches, but no larger than 30 by 42 inches.

C. 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. 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.
   e. Specification paragraph number and generic name of each item.

3. 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 that may be incorporated into the Work are indicated in individual Specification Sections. Such Samples must be in an undamaged condition at time of use.
   b. Samples not incorporated into the Work are the property of Owner.

4. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.
   a. Number of Samples: Submit one full set(s) of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Architect will return submittal with options selected.

D. Contractor's Construction Schedule: Comply with requirements specified in Section 013200 "Construction Progress Documentation."
E. Application for Payment and Schedule of Values: Comply with requirements specified in Section 012900 "Payment Procedures."

F. Test and Inspection Reports and Schedule of Tests and Inspections Submittals: Comply with requirements specified in Section 014000 "Quality Requirements."

G. Closeout Submittals and Maintenance Material Submittals: Comply with requirements specified in Section 017700 "Closeout Procedures."

H. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person as required in the Contract Documents.

I. 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.

J. 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.

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

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

M. 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.

N. Product Test Reports: Submit written reports indicating that 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.

O. Field Test Reports: Submit written 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.

1. Include list of codes, loads, and other factors used in performing these services.

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: See requirements in Section 017700 “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. Action Submittals: Architect will review each submittal, make marks to indicate corrections or revisions required, and return it. Architect will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action.

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

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

D. Incomplete submittals are unacceptable, will be considered nonresponsive, and will be returned for resubmittal without review.

E. Submittals not required by the Contract Documents may be returned by the Architect without action.

END OF SECTION 013300
SECTION 013591- HISTORIC TREATMENT 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. This project involves the rehabilitation of an historic building. Treat the building respectfully. Carefully inspect existing conditions and treat existing materials as irreplaceable. Do not remove, alter or disfigure any existing materials, elements or finishes, unless indicated on the Drawings, specified herein, or directed by the Architect.
   B. Section includes general protection and treatment procedures for designated historic spaces, rooms, areas, and surfaces in the entire Project, including general project guidelines, selected historic preservation resources and the following specific work:
      1. General Historic Treatment Procedures.
      2. Historic removal and dismantling.
   C. Codes and standards set forth by:
      1. All work shall be performed in accordance with the “Secretary of the Interior’s Standards for Preservation, “U.S. Department of the Interior, National Park Service, 1995.”

1.3 REFERENCES
   C. National Park Service Historic Preservation Briefs
      1. Preservation Brief 2: Repointing Mortar Joints in Historic Masonry Buildings
      2. Preservation Brief 16: The Use of Substitute Materials on Historic Building Exteriors

1.4 DEFINITIONS
   A. Consolidate: To strengthen loose or deteriorated materials in place.
   B. Dismantle: To disassemble and detach items by hand from existing construction to the limits indicated, using small hand tools and small one-hand power tools, so as to protect nearby
historic surfaces; and legally dispose of dismantled items off-site, unless indicated to be salvaged or reinstalled.

C. Existing to Remain: Existing items that are not to be removed or dismantled.

D. Historic: Spaces, areas, rooms, surfaces, materials, finishes, and overall appearance which are important to the successful preservation, conservation, restoration, and reconstruction as determined by the Owner and Architect. Designated historic spaces, areas, rooms, and surfaces may be indicated on drawings.

E. Match: To blend with adjacent construction and manifest no apparent difference in material type, species, cut, form, detail, color, grain, texture, or finish; as approved by the Owner or Architect.

F. Reconstruct: To remove existing item, replicate damaged or missing components, and reinstall in original position.

G. Refinish: To remove existing finishes to substrate and apply new finish to match original or as otherwise indicated.

H. Reinstall: To protect removed or dismantled item, repair and clean it as indicated for reuse, and reinstall it in original position, or where indicated.

I. Remove: Specifically, for historic spaces, areas, rooms, and surfaces, the term means to detach an item from existing construction to the limits indicated, using hand tools and hand-operated power equipment, and legally dispose of it off-site, unless indicated to be salvaged or reinstalled.

J. Repair: To correct damage and defects, retaining existing materials, features, and finishes while employing as little new material as possible. Includes patching, piecing-in, splicing, consolidating, or otherwise reinforcing or upgrading materials.

K. Replace: To remove, duplicate, and reinstall entire item with new material. The original item is the pattern for creating duplicates unless otherwise indicated.

L. Replicate: To reproduce in exact detail, materials, and finish, unless otherwise indicated.

M. Reproduce: To fabricate a new item, accurate in detail to the original, and in either the same or a similar material as the original, unless otherwise indicated.

N. Restore: To consolidate, replicate, reproduce, repair, and refinish as required to achieve the indicated results.

O. Retain: To keep existing items that are not to be removed or dismantled.

P. Reversible: New construction work, treatments, or processes that can be removed or undone in the future without damaging historic materials, unless otherwise indicated.

Q. Salvage: To protect removed or dismantled items and deliver them to Owner.

R. Stabilize: To provide structural reinforcement of unsafe or deteriorated items while maintaining the essential form as it exists at present; also, to reestablish a weather-resistant enclosure or to stabilize loose or detached original material in an effort to halt deterioration or future loss of historic material.
S. Strip: To remove existing finish down to base material, unless otherwise indicated.

1.5 PROJECT MEETINGS FOR HISTORIC TREATMENT

A. Preliminary Historic Treatment Preconstruction Conference:
   1. Conduct conference on site following Project Preconstruction Meeting.
   2. Attendees: Representatives of the Owner, Architect, Engineer, Contractor and Construction Supervisor shall be represented at the meeting.
   3. General: Review methods and procedures related to historic treatment including, but not limited to, the following:
      a. Review manufacturer’s written instructions for precautions and effects of historic treatment procedures on materials, components, and vegetation.
      b. Review and finalize historic treatment construction schedule; verify availability of materials, equipment, and facilities needed to make progress and avoid delays.
      c. Review qualifications of personnel assigned to the work and assign duties.
      d. Review areas where existing construction is to remain and requires protection.

   4. Removal and Dismantling:
      a. Inspect and discuss condition of construction to be removed or dismantled.
      b. Review requirements of other work that relies on substrates exposed by removal and dismantling work.

   5. Reporting: Construction Manager will record conference results and distribute copies to everyone in attendance and to others affected by decisions or actions resulting from conference.

1.6 MATERIALS OWNERSHIP

A. Historic items, relics, and similar objects including, but not limited to, artifacts, commemorative plaques and tablets, antiques, and other items of interest or value to Owner that may be encountered during removal and dismantling work remain Owner’s property. Carefully dismantle and salvage each item or object.

B. Coordinate with Owner’s representative, who will establish special procedures for dismantling, salvage, and storing materials.

1.7 SUBMITTALS

A. Historic Treatment Qualifications: Submit documentation of past project experience that meet the work experience outlined in the Summary of Contractor Qualification Requirements.

1.8 REGULATORY REQUIREMENTS

A. Comply with governing EPA notification regulations before beginning removal and dismantling work. Comply with hauling and disposal regulations of authorities having jurisdiction. The required research report and manufacturer’s data shall be on site and used for reference.
   1. Conform to all safety guidelines
2. For Cleaning: Comply with municipal and Federal regulations governing cleaning, chemical waste disposal, scaffolding and protection of adjacent surfaces.

B. Standards: Comply with ANSI/ASSE A10.6.

C. Comply with all OSHA regulations and safety guidelines for scaffolding and protection.

1.9 SITE PROTECTION

A. Protect persons, surrounding surfaces of building, and building site from harm resulting from historic treatment procedures.

1. Use only proven protection methods, appropriate to each area and surface being protected.
2. Provide barricades, barriers, and temporary directional signage to exclude public from areas where historic treatment work is being performed.
3. Contain dust and debris generated work and prevent it from reaching the public or adjacent surfaces.
4. Protect floors and other surfaces along haul routes from damage, wear, and staining.
5. Provide supplemental sound-control treatment to isolate work from other areas of the building.
6. Provide protection against spreading water at or beyond the work area by sheeting and tarpaulins.
7. Provide masking or covering on adjacent surfaces and permanent equipment. Secure coverings without the use of adhesive type tapes. Impervious sheeting which produces condensation should not be used.

B. All necessary precautions shall be taken to protect all parts of the historic building not being repaired from the effects of the work, including excessive amounts of water that should not be allowed to pond in any areas.

1.10 PROJECT CONDITIONS

A. General Size Limitation in Historic Spaces: Materials, products, and equipment used for performing the Work and for transporting debris, materials, and products shall be of sizes that clear surfaces within historic spaces, areas, rooms, and openings, including temporary protection, by 12 inches or more.

B. Conditions existing at time of inspection for pricing purpose will be maintained by Owner as far as practical.

C. If unanticipated asbestos is suspected, stop work in the area of potential hazard, shut off fans and other air handlers ventilating the area, and rope off area until the questionable material is identified. Re-assign workers to continue work in unaffected areas. Resume work in the area of concern after safe working conditions are verified.

D. Do not change sources or brands of materials during the course of the work.

E. Storage or sale of removed or dismantled items on-site is not permitted unless otherwise indicated.
1.11 GENERAL HISTORIC TREATMENT

A. The principal aim of any work must be to halt the process of deterioration and stabilize the item’s condition. Repair is a second option which becomes necessary only where preservation is not sufficient to ensure mid- to long-term survival. Repair should always be based on the fundamental principal of ‘minimal disturbance’. Follow the procedures approved in the historic treatment program.

1. Retain as much existing material as possible; repairing and consolidating rather than replacing.
2. Use additional material or structure to reinforce, strengthen, prop, tie, and/or support existing material or structure.
3. Use reversible processes wherever possible.
4. Use of traditional materials and historically accurate repair and replacement techniques.

B. Record existing work before each procedure (preconstruction) and progress during the work with digital preconstruction documentation photographs. Comply with requirements in Division 01 Section “Photographic Documentation.”

C. Ensure supervisory personnel are present when historic preservation treatment work begins and during its progress.

D. Notify Architect of Record and Owner of visible changes in the integrity of material or components whether due to environmental causes including biological attack, UV degradation, freezing, or thawing; or due to structural defects including cracks, movements, or distortion.

E. Owner’s approval is required for any change, addition or removal of historic structural fabric or historic property.

F. Where missing features are indicated to be repaired or replaced, provide features whose designs are based on accurate duplications rather than conjectural designs subject to the approval of the Owner and Architect.

G. Where work requires existing features to be removed or dismantled and reinstalled, perform these operations without damage to the material itself, to adjacent materials, or to the substrate.

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 the Architect for the visual and functional performance of in-place materials.
SECTION 014000 - QUALITY 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. 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 DEFINITIONS

A. 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.

B. 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.

C. Mockups: Full-size physical assemblies that are constructed on-site. Mockups are constructed to verify selections made under Sample submittals; to demonstrate aesthetic effects and, where indicated, qualities of materials and execution; to review coordination, testing, or operation; to show interface between dissimilar materials; and to demonstrate compliance with specified installation tolerances. Mockups are not Samples. Unless otherwise indicated, approved mockups establish the standard by which the Work will be judged.
D. Preconstruction Testing: Tests and inspections performed specifically for Project before products and materials are incorporated into the Work, to verify performance or compliance with specified criteria.

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.

1.4 CONFLICTING REQUIREMENTS

A. Document Interpretation: In the case of conflicts or discrepancies between Drawings and Divisions 02 - 49 of the Specifications, or within or among the Contract Documents and not clarified by Addendum, the most stringent requirement shall apply.

1. Note: None of the documents included in the drawing index are intended to be considered in isolation of one another.

2. All bidders, sub-bidders, contractors, and sub-contractors, shall utilize complete sets of the bidding and/or construction documents in quantifying and constructing. Neither the owner nor architect assumes responsibility for errors, omissions, or misinterpretations resulting from the use of incomplete sets of bidding and/or construction documents.

1.5 CONTRACTOR'S QUALITY-CONTROL PLAN

A. Quality-Control Personnel Qualifications: Engage qualified full-time personnel trained and experienced in managing and executing quality-assurance and quality-control procedures similar in nature and extent to those required for Project.

1. Project quality-control manager may also serve as Project superintendent.
B. Continuous Inspection of Workmanship: Describe process for continuous inspection during construction to identify and correct deficiencies in workmanship in addition to testing and inspection specified. Indicate types of corrective actions to be required to bring work into compliance with standards of workmanship established by Contract requirements and approved mockups.

C. Monitoring and Documentation: Maintain testing and inspection reports including log of approved and rejected results. Include work Architect has indicated as nonconforming or defective. Indicate corrective actions taken to bring nonconforming work into compliance with requirements. Comply with requirements of authorities having jurisdiction.

1.6 REPORTS AND DOCUMENTS

A. 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.

1.7 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. See specification sections for specific installer qualifications.

E. 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.

A. Qualifications: Submit documentation of past project experience that meet the work experience outlined in the Summary of Contractor Qualifications and specifications.

B. Testing Agency Qualifications: An NRTL, an NVLAP, or an independent agency with the experience and capability to conduct testing and inspecting indicated, as documented according to ASTM E 329; and with additional qualifications specified in individual Sections; and, where required by authorities having jurisdiction, that is acceptable to authorities.

1. NRTL: A nationally recognized testing laboratory according to 29 CFR 1910.7.
2. NVLAP: A testing agency accredited according to NIST’s National Voluntary Laboratory Accreditation Program.

C. 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.

D. Factory-Authorized Service Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to inspect installation of manufacturer’s products that are similar in material, design, and extent to those indicated for this Project.

E. Mockups: Before installing portions of the Work requiring mockups, build mockups for each form of construction and finish required to comply with the following requirements, using materials indicated for the completed Work:

1. Build mockups in location and of size indicated or, if not indicated, as directed by Architect.
2. Notify Architect seven days in advance of dates and times when mockups will be constructed.
3. Employ supervisory personnel who will oversee mockup construction. Employ workers that will be employed during the construction at Project.
4. Demonstrate the proposed range of aesthetic effects and workmanship.
5. Obtain Architect’s approval of mockups before starting work, fabrication, or construction.
   a. Allow seven days for initial review and each re-review of each mockup.
6. Maintain mockups during construction in an undisturbed condition as a standard for judging the completed Work.

1.8 QUALITY CONTROL

A. Contractor Responsibilities: 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.

B. Retesting/Reinspection: Regardless of whether original tests or inspections were Contractor's responsibility, provide quality-control services, including retesting and reinspection, for construction that replaced Work that failed to comply with the Contract Documents.

C. 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.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 TEST AND INSPECTION LOG

A. Test and Inspection Log: Prepare a record of tests and inspections. Include the following:

1. Date test or inspection was conducted.
2. Description of the Work tested or inspected.
3. Date test or inspection results were transmitted to Architect.
4. Identification of testing agency or special inspector conducting test or inspection.

3.2 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.

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 014000
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 011000 "Summary" for work restrictions and limitations on utility interruptions.

1.3 USE CHARGES
A. General: Installation and removal of and use charges for temporary facilities shall be included in the Contract Sum unless otherwise indicated. Allow other entities to use temporary services and facilities without cost, including, but not limited to, Architect, occupants of Project, testing agencies, and authorities having jurisdiction.
B. Water and Sewer Service from Existing System: Water from Owner's existing water system is available for use without metering and without payment of use charges. Provide connections and extensions of services as required for construction operations.
C. Electric Power Service from Existing System: Electric power from Owner's existing source is available for use without metering and without payment of use charges. Provide connections and extensions of services as required for construction operations.

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

1.5 QUALITY ASSURANCE
A. Tests and Inspections: When temporary utilities are required, arrange for authorities having jurisdiction to test and inspect each temporary utility before use. Obtain required certifications and permits.
1.6 PROJECT CONDITIONS

A. Temporary Use of Permanent Facilities: Engage Installer of each permanent service to assume responsibility for operation, maintenance, and protection of each permanent service during its use as a construction facility before Owner's acceptance, regardless of previously assigned responsibilities.

PART 2 - PRODUCTS

2.1 TEMPORARY FACILITIES

A. Field Offices, General: Field Offices are allowed on site. Location of field office to be coordinated with Owner/Architect prior to installation.

B. Dumpster: Dumpster is allowed. Location of dumpster to be coordinated with Owner/Architect prior to installation. Construction debris to be cleaned up nightly.

C. Sanitary Facilities: Contractor to provide portalet. Location of portalet to be coordinated with Owner/Architect prior to installation.

D. Storage: Storage container allowed on site. Location of container to be coordinated with Owner/Architect prior to installation.

2.2 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 day to day operations of the arsenal and performance of the Work. Relocate and modify facilities as required by progress of the Work.

3.2 TEMPORARY UTILITY INSTALLATION

A. General: Install temporary service or connect to existing service.
   1. Arrange with utility company, Owner, and existing users for time when service can be interrupted, if necessary, to make connections for temporary services.

B. Sewers and Drainage: Provide temporary utilities to remove effluent lawfully. Provide a method to prevent solids such as stone, mortar, paint, residue from entering the drains and drain lines. Contractor shall be responsible for cleaning out drains and drain lines that become blocked or filled by sand or any other solids because of work performed under this contract.
C. Water Service: Connect to Owner's existing water service facilities. Clean and maintain water service facilities in a condition acceptable to Owner. At Substantial Completion, restore these facilities to condition existing before initial use.

D. Sanitary Facilities: Provide portalet.

E. Heating and Cooling: Provide temporary heating and cooling required by construction activities for curing or drying of completed installations or for protecting installed construction from adverse effects of low temperatures or high humidity. Select equipment that will not have a harmful effect on completed installations or elements being installed.

F. Electric Power Service: Connect to Owner's existing electric power service. Maintain equipment in a condition acceptable to Owner.

G. Lighting: Provide temporary lighting that provides adequate illumination for construction operations, observations, inspections, and traffic conditions.
   1. Install and operate temporary lighting that fulfills security and protection requirements without operating entire system.

3.3 SUPPORT FACILITIES INSTALLATION

A. Parking: Parking is available on site.

B. Dewatering Facilities and Drains: Comply with requirements of authorities having jurisdiction. Maintain Project site, excavations, and construction free of water.
   1. Dispose of rainwater in a lawful manner that will not result in flooding Project or adjoining properties or endanger permanent Work or temporary facilities.

C. Waste Disposal Facilities: Provide waste-collection containers in sizes adequate to handle waste from construction operations. Comply with requirements of authorities having jurisdiction. All waste must be removed from site daily.

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. Repair damage to existing facilities.

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 011000 "Summary."

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

D. Temporary Fire Protection:
      a. Follow fire-prevention plan and the following.
      b. Retain option Comply with NFPA 241 requirements unless otherwise indicated.
c. Remove and keep area free of combustibles including, rubbish, paper, waste, and chemicals, except to the degree necessary for the immediate work.

d. Prohibit smoking by all persons within the Project work and staging areas.


3. Fire Extinguishers, Fire Blankets, and Rag Buckets: Maintain fire extinguishers, fire blankets, and rag buckets for disposal of rags with combustible liquids. Maintain each as suitable for the type of fire risk in each work area. Ensure that nearby personnel and the fire watch is trained in fire-extinguisher and blanket operation.

3.5 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.

C. Termination and Removal: Remove each temporary facility when need for its service has ended, when it has been replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with 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. 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 015000
SECTION 017700 - 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. Final completion procedures.
   3. Warranties.
   4. Final cleaning.
   5. Repair of the Work.

B. Related Requirements:
   1. Section 013233 "Photographic Documentation" for submitting final completion construction photographic documentation.
   2. Section 017839 "Project Record Documents" for submitting record Drawings, record Specifications, and record Product Data.

1.3 ACTION SUBMITTALS

A. Product Data: For cleaning agents.

B. Contractor's List of Incomplete Items: Initial submittal at Substantial Completion.

C. Certified List of Incomplete Items: Final submittal at Final Completion.

1.4 CLOSEOUT SUBMITTALS

A. Certificates of Release: From authorities having jurisdiction.

B. Certificate of Insurance: For continuing coverage.

1.5 MAINTENANCE MATERIAL SUBMITTALS

A. Schedule of Maintenance Material Items: For maintenance material submittal items specified in other Sections.
1.6 SUBSTANTIAL COMPLETION PROCEDURES

A. Contractor's List of Incomplete Items: Prepare and submit a list of items to be completed and corrected (Contractor's punch list), indicating the value of each item on the list and reasons why the Work is incomplete.

B. Submittals Prior to Substantial Completion: Complete the following a minimum of 10 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.
   1. Certificates of Release: Obtain and submit releases from authorities having jurisdiction permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
   2. Submit closeout submittals specified in other Division 01 Sections, including project record documents, operation and maintenance manuals, final completion construction photographic documentation, damage or settlement surveys, property surveys, and similar final record information.
   3. Submit closeout submittals specified in individual Sections, including specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
   4. Submit maintenance material submittals specified in individual Sections, including tools, spare parts, extra materials, and similar items, and deliver to location designated by Architect. Label with manufacturer's name and model number where applicable.
      a. Schedule of Maintenance Material Items: Prepare and submit schedule of maintenance material submittal items, including name and quantity of each item and name and number of related Specification Section. Obtain Architect's signature for receipt of submittals.
   5. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.

C. Procedures Prior to Substantial Completion: Complete the following a minimum of 10 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.
   1. Advise Owner of pending insurance changeover requirements.
   2. Make final changeover of permanent locks and deliver keys to Owner. Advise Owner's personnel of changeover in security provisions.
   3. Complete startup and testing of systems and equipment.
   4. Perform preventive maintenance on equipment used prior to Substantial Completion.
   5. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems.
   6. Advise Owner of changeover in heat and other utilities.
   7. Participate with Owner in conducting inspection and walkthrough with local emergency responders.
   8. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
   9. Complete final cleaning requirements, including touchup painting.
  10. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.

D. Inspection: Submit a written request for inspection to determine Substantial Completion a minimum of 10 days prior to date the work will be completed and ready for final inspection and tests. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare the Certificate of Substantial Completion after inspection 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. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.
2. Results of completed inspection will form the basis of requirements for final completion.

1.7 FINAL COMPLETION PROCEDURES

A. Submittals Prior to Final Completion: Before requesting final inspection for determining final completion, complete the following:
1. Submit a final Application for Payment according to Section 012900 "Payment Procedures." All closeout documents must be submitted before final payment will be processed.
2. Certified List of Incomplete Items: Submit certified copy of Architect's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Architect. Certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
3. Certificate of Insurance: Submit evidence of final, continuing insurance coverage complying with insurance requirements.

B. Inspection: Submit a written request for final inspection to determine acceptance a minimum of 10 days prior to date the work will be completed and ready for final inspection and tests. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.
1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.

1.8 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 and proceeding from lowest floor to highest floor.
2. Organize items applying to each space by major element, including categories for ceiling, individual walls, floors, equipment, and building systems.
3. 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.
4. Submit list of incomplete items in the following format:
   a. PDF electronic file via email.

1.9 SUBMITTAL OF PROJECT WARRANTIES

A. Time of Submittal: Submit written warranties on request of Architect for designated portions of the Work where commencement of warranties other than date of Substantial Completion is indicated, or when delay in submittal of warranties might limit Owner's rights under warranty.

B. Organize warranty documents into an orderly sequence based on the table of contents of Project Manual.
1. Bind warranties and bonds in heavy-duty, three-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2-by-11-inch paper.
2. Provide heavy paper dividers with plastic-covered tabs for each separate warranty. Mark tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product and the name, address, and telephone number of Installer.
3. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project name, and name of Contractor.
4. Warranty Electronic File: Scan warranties and bonds and assemble complete warranty and bond submittal package into a single indexed electronic PDF file with links enabling navigation to each item. Provide bookmarked table of contents at beginning of document. Submit via email.

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 designated portion of Project:
   a. Clean Project site, yard, and grounds, in areas disturbed by 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. Remove tools, construction equipment, machinery, and surplus material from Project site.
   d. 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.
   e. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
   f. Sweep concrete floors broom clean in unoccupied spaces.
g. Clean transparent materials, including glass in doors and windows. Remove glazing compounds and other noticeable, vision-obscuring materials. Polish glass, taking care not to scratch surfaces.

h. Remove labels that are not permanent.

i. Wipe surfaces of mechanical and electrical equipment and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.

j. Clean light fixtures, lamps, globes, and reflectors to function with full efficiency.

k. Leave Project clean and ready for occupancy.

3.2 REPAIR OF THE WORK

A. Complete repair and restoration operations before requesting inspection for determination of Substantial Completion.

B. Repair or remove and replace defective construction. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment. Where damaged or worn items cannot be repaired or restored, provide replacements. Remove and replace operating components that cannot be repaired. Restore damaged construction and permanent facilities used during construction to specified condition.

1. Touch up and otherwise repair and restore marred or exposed finishes and surfaces. Replace finishes and surfaces that that already show evidence of repair or restoration.
SECTION 017839 - 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. Section includes administrative and procedural requirements for project record documents, including the following:

1. Record Drawings.
2. Record Specifications.
3. Record Product Data.
4. Miscellaneous record submittals.

B. Related Requirements:
1. Section 017700 "Closeout Procedures" for general closeout procedures.

1.3 CLOSEOUT SUBMITTALS

A. Record Drawings: Comply with the following:

1. Number of Copies: Submit copies of record Drawings as follows:
   a. Initial Submittal:
      1) Submit PDF electronic files of scanned record prints.
      2) Architect will indicate whether general scope of changes, additional information recorded, and quality of drafting are acceptable.
   b. Final Submittal:
      1) Submit PDF electronic files of scanned record prints on thumb drive and two set(s) of prints.
      2) Print each drawing, whether or not changes and additional information were recorded.

B. Record Specifications: Submit annotated PDF electronic files of Project's Specifications, including addenda and contract modifications on thumb drive. Provide one printed copy for Owner.

C. Record Product Data: Submit annotated PDF electronic files and directories of each submittal on thumb drive. Provide one printed copy for Owner.
D. Miscellaneous Record Submittals: See other Specification Sections for miscellaneous record-keeping requirements and submittals in connection with various construction activities. Submit annotated PDF electronic files and directories of each submittal on thumb drive. Provide one printed copy for Owner.

E. All printed record documents to be placed in a tabbed 3 ring binder.

PART 2 - PRODUCTS

2.1 RECORD DRAWINGS

A. Record Prints: Maintain one set of marked-up paper copies of the Contract Drawings and Shop Drawings, incorporating new and revised drawings as modifications are issued.

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 provide information for preparation of corresponding 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 acceptable drawing technique.
   c. Record data as soon as possible after obtaining it.
   d. Record and check the markup before enclosing concealed installations.
   e. Cross-reference record prints to corresponding archive photographic documentation.

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. Actual equipment locations.
   e. Locations of concealed internal utilities.
   f. Changes made by Change Order or Change Directive.
   g. Details not on the original Contract Drawings.
   h. Field records for variable and concealed conditions.
   i. Record information on the Work that is shown only schematically.

3. Mark the Contract Drawings and Shop Drawings completely and accurately. Use personnel proficient at recording graphic information in production of marked-up record prints.

4. Mark record sets with red-colored pen. 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. Record Digital Data Files: Immediately before inspection for Certificate of Substantial Completion, review marked-up record prints with Architect. When authorized, scan a full set of record prints of the Contract Drawings, as follows:
1. Format: PDF electronic file with comment function enabled via email for initial review submittal.

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. Format: Annotated PDF electronic file with comment function enabled via email. Provide two printed copies for Owner.
3. Record Files: Organize digital data information into separate electronic files that correspond to each sheet of the Contract Drawings. Name each file with the sheet identification. Include identification in each digital data file.
4. 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, record Specifications, and record Drawings where applicable.

B. Format: Submit record Specifications as annotated PDF electronic file on thumb drive. Provide one printed copy for Owner.

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.
B. Format: Submit record Product Data as annotated PDF electronic file on thumb drive. Provide one printed copy for Owner.

C. Include record Product Data directory organized by Specification Section number and title, electronically linked to each item of record Product Data.

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.

B. Format: Submit miscellaneous record submittals as PDF electronic file on thumb drive. Provide one printed copy for Owner.

   1. Include miscellaneous record submittals directory organized by Specification Section number and title, electronically linked to each item of miscellaneous record submittals.

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 revisions to project record documents as they occur; do not wait until end of Project.

B. Maintenance of Record Documents and Samples: Store record documents and Samples in the 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 017839
SECTION 028716.13 - BIRD EXCREMENT REMOVAL

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 requirements for bird-excrement removal.
   1. Removal of bird excrement on interior of building.
   2. Removal of bird excrement in bell tower.

B. Related Requirements:
   1. Section 013591 "Historic Treatment Procedures" for general historic treatment requirements.

1.4 INFORMATIONAL SUBMITTALS

A. Product Data and MSDS Sheets
B. Regulatory Requirements: Comply with notification regulations of authorities having jurisdiction before beginning excrement-removal work. Comply with collection and disposal regulations of authorities having jurisdiction.

1.6 FIELD CONDITIONS

A. Safety Precautions for Bird Excrement Removal:

1. All personnel must wear a National Institute for Occupational Safety and Health (NIOSH) approved full face respirator with a high efficiency particulate air (HEPA) filter for screening particles of 0.3 micron size. Dust and particle masks are not appropriate.
2. Respirators must be used in accordance with current OSHA regulations and GSA policy relevant to this condition and work. This includes fit-testing of respirators, maintenance, training, storage requirements, disposal of the debris, and other relevant topics.
3. All personnel must wear protective coveralls, gloves, boots, and hat.
4. Prior to removal, all excrement must be saturated with water under low pressure to prevent debris from becoming airborne.
5. On historic structures, only non-metallic tools (such as plastic spatulas and brushes with natural fiber or nylon bristles, or their equivalent) must be used to remove the excrement.
6. Removed excrement must be collected in plastic bags, sealed, and disposed at a sanitary landfill.
7. Building occupants and the general public must be kept clear of the work site during all operations. It is the cleaning personnel's responsibility to provide all barricades, signage, etc. necessary for public protection.

1.7 PRECONSTRUCTION TESTING

A. Preconstruction Testing Service: Engage a qualified bird-excrement-removal specialist to perform preconstruction testing on surfaces with accumulations of bird excrement.

1. Use test areas as indicated and representative of proposed materials and existing construction.
2. Propose changes to materials and methods to suit Project.
PART 2 - PRODUCTS

2.1 MATERIALS

A. General: Select materials and methods of use based on the following, subject to preconstruction testing:

1. Previous effectiveness in performing the work involved.
2. Minimal possibility of damaging exposed surfaces.
3. Consistency of each application.
4. Uniformity of the resulting overall appearance.
5. Do not use products or tools that could do the following:
   a. Remove, alter, or harm the present condition or future preservation of existing surfaces, including surrounding surfaces not in contract.
   b. Leave residue on surfaces.

B. Excrement Cleaner:

1. Basis-of-Design Product: Subject to compliance with requirements, provide Poop-Off by Life's Good Products or Architect approved comparable product.

C. Water: Clean, cold water.

D. Equipment: Stiff bristle brush, wooden scraper and garden hose.

PART 3 - EXECUTION

3.1 PROTECTION

A. Comply with temporary barrier requirements in Section 015000 "Temporary Facilities and Controls."

B. Protect persons, motor vehicles, surrounding surfaces of building, building site, plants, and surrounding buildings from harm resulting from excrement-removal procedures.

1. Use only proven protection methods, appropriate to each area and surface being protected.
2. Provide barricades, dustproof barriers, and temporary directional signage to exclude public from work areas.
3. Contain dust and debris generated by excrement-removal work and prevent it from reaching the public or adjacent surfaces.

C. Protect ceiling finishes to prevent moisture damage and staining.

D. Comply with each product manufacturer’s written instructions for protections and precautions. Protect against adverse effects of products and procedures on people and adjacent materials, components, and vegetation.

3.2 PREPARATION
A. Wood Surfaces: Prior to treatment with excrement removal chemicals, scrape wood surfaces to remove as much excrement as possible.

3.3 BIRD-EXCREMENT REMOVAL

A. Removing Bird Excrement: Have bird-excrement-removal work performed by a qualified bird-excrement-removal specialist.

1. Use materials and follow procedures as determined by preconstruction testing.
2. Before removal, treat bird excrement to kill pathogens; dampen excrement to prevent particles becoming airborne.
3. Use only nonmetallic tools, such as plastic spatulas and brushes with natural fiber or nylon bristles.
4. Collect excrement debris as it is removed, seal it in durable plastic bags, and legally dispose of it off-site.
5. Repeat removal procedure above where required to produce cleaning effect established by mockup.

B. Removing Bird-Excrement Stain: Clean as required in Section pertaining to cleaning substrate material from which bird excrement was removed.

END OF SECTION 028716.13
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.
B. Section 013591: Historic Treatment Procedures
C. Section 090120: Stucco Repairs and Replacement
D. Codes and Standards set forth by:
   3. Brick Institute of America Applied Standards

1.2 SUMMARY
A. Work includes, all labor, materials, equipment, and services necessary to complete the work of repointing mortars as shown in the Drawings, and as specified herein, and as may be required by conditions and authorities having jurisdiction, including, but is not necessarily limited to, the following:
   1. Repointing of historic brick mortar joints below deteriorated stucco and areas repaired due to removal of existing flashing, counterflashing, roofing, gutters, and all specified accessories. (NHL)
   2. Repoint brick mortar joints at interior of bell tower. (Type O)
   3. Constructing new crenellations. (Type O)
B. Related Sections:
   1. Section 013591 “Historic Treatment Procedures”.
   2. Section 090120 “Stucco Repairs and Replacement”.

1.3 SUBMITTALS
A. Contractor Qualifications: Submit documentation of mason’s past project experience that meets the work experience outlined in the specification. Provide references for a minimum of two (2) projects completed in the last five years that employed natural cement stuccos, including contact names and phone numbers. Submit resume of lead mason.
B. Product Data: For each type of product indicated, included material descriptions and all product labels for each product used. Include all MSDS and Material Specifications for all products used.
C. Samples
2. Brick: crenellations

1.4 PROJECT CONDITIONS
A. The Contractor is responsible for protecting existing adjacent materials and surfaces during the execution of the work and shall provide all necessary protection and follow all necessary work procedures to avoid damage to existing material assemblies not a part of the work in the Section.

B. The Contractor shall provide visible barriers and/or warning tape around the perimeter of the work area for visitor protection and shall also provide that nearby vehicles and adjacent structures will be protected from damage during the course of the work.

C. The Contractor shall coordinate masonry repointing with the other trades involved in exterior restoration work.

1.5 ENVIRONMENTAL CONDITIONS
A. General: Perform work only when temperature of products being used and air temperature and humidity comply with the manufacturer's requirements and requirements of this Section. In case of conflict, the most stringent requirements shall govern.

B. Take precautionary measures necessary to assure that excessive temperature changes do not occur.

C. Cold Weather Limitations on Use of Mortars: Do not mix or use mortars when air or masonry temperature is below 45 deg F or when it is expected to drop below 45 deg F within 72 hours of mortar application.

D. Hot Weather Limitations: Protect fresh mortar from rapid drying when temperature, humidity, and wind conditions might cause rapid drying of mortar.
   1. If ambient the air temperature exceeds 85 deg F or exceeds 80 deg F with a wind velocity greater than 8mph, flush mixer, transport container, and boards with cool water before they come into contact with the mortar ingredients. Maintain temperature of mortar below 120 deg F and use fresh mortar within 2 hours of initial mixing.
   2. Limit spread of beds to 4ft when temperatures exceeds 85 deg F or exceeds 80 deg F with a wind velocity greater than 8mph

E. If masonry work must be done when ambient temperature is freezing, or below, all masonry material must be at temperature between 50 degrees Fahrenheit and 85 degrees Fahrenheit, and the mortar, when used, shall have a temperature between 60 and 80 degrees Fahrenheit. In addition, all masonry shall be protected from temperatures below 40 degrees Fahrenheit for at least 72 hours after being laid. Heat for heating materials and heated temporary enclosures will be provided by Contractor.

F. Antifreeze admixtures will not be allowed in the mortar. No frozen work shall be built upon. No masonry unit having a film of frost on its surface shall be installed in the work. Any completed work found to be affected by frost shall be taken down and rebuilt.
1.6 QUALITY ASSURANCE

A. This structure is an historic building. The mortar work on this project is critical to the satisfactory execution of the work.
   1. Contractor Work Experience: Contractor must have a minimum of five (5) years demonstrated experience working on projects of similar scope, that employed portland and hydraulic lime mortars. Contractor to have a working knowledge of both the Secretary of the Interior's Standards for Treatment of Historic Properties.
   2. Lead Tradesman Work Experience: Lead tradesman must have a minimum of five (5) years demonstrated experience working on projects of similar scope, that employed portland and hydraulic lime mortars. Tradesman to have worked on a minimum of three projects.
   3. Source of materials: The Contractor shall not change sources or manufacturers of mortar materials during the course of the work.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials to site and store in manufacturer’s original unopened containers and packaging, bearing labels as to type and names of products and manufacturers, and which shall show grade, batch, and production data.

B. Deliver, store, and handle all products and materials to prevent damage, deterioration, or degradation and intrusion of foreign materials.

C. Storage and Protection: All materials must be protected from rainwater and ground moisture, and from staining or intermixture with earth or other types of materials.

   1. Sand
      a. Maintain sand at constant moisture content
      b. Cover pile when not in use
      c. Arrange pile for free drainage
      d. Do not use bottom portion of pile (wet or in contact with earth) in mortar

   2. Lime
      a. Do not tarp or wrap materials so as to trap moisture or permit condensation to form
      b. Allow air to circulate freely around units
      c. Do not use bags that have been broken or exposed to moisture

   3. Discard and remove from site deteriorated, contaminated materials, and products that have exceeded their restoration dates. Replace with fresh materials.

   4. The contractor becomes responsible for the product at the time it is received.

D. Laws, Codes, and Regulations: Work of this Section shall comply with all applicable federal, state, and local laws, codes, and regulations.

PART 2 - PRODUCTS

2.1 MATERIALS, GENERAL

A. Grade and Quality: Lime and aggregate shall conform to the requirements of this Section and shall be new, free from defects and of recent manufacture in date.

B. Prohibited materials: the following materials are strictly prohibited in all mortar specified in this section.
1. Antifreeze compounds or other admixtures
2. Air entraining agents

C. Portland Based Mortar
1. Portland Cement: ASTM C 150, Type 1, white where required for color matching of exposed mortar.
2. Lime: Shall conform to ASTM C207, Type S hydrated lime.
3. Aggregate: Shall be a variable graded (coarse to fine) washed sand matching the texture and range of sizes found in the original mortar. Natural or manufactured sharp sand, with at least four grades of sand forming a substantial part of the sand and no more than 1% of the particles smaller than grade 200. Clean, well-graded, sharp, angular crushed aggregate complying with the requirements for deleterious substances and soundness of ASTM C 144. Sand aggregate shall have a nominal top size of 2.38mm (No. 8 US sieve) with over 75% of the material having a diameter between 1mm (No. 16 US sieve) and 0.297mm (No. 50 US sieve).
4. Water: Shall be clean and free of acids, Alkalis or organic materials. If water must be transported or stored in a container, the container must not impart any chemicals to the water.
5. Pigment (applicable to bell tower work only): Pigment: UV stable, inorganic, iron oxide pigments.
   a. Basis of Design:
      1) Edison Coatings in 1 lb. and 5 lb. containers as Dry Color Pak, 3
         a) Northwest Drive, Plainville, CT 06062 (860-747-2220),
            http://www.edisoncoatings.com
      2) Or Approved equal.

D. Hydraulic Lime Based Mortar
1. Natural Hydraulic Lime: NHL 3.5
   a. All containers shall be marked including manufacturing date and batch number. Manufacturer is required to maintain production-sampling procedures for each batch for quality control purposes. Samples of proposed materials for mock up panels at the site provided by the manufacturer.
2. Aggregate: Shall be a variable graded (coarse to fine) washed sand and shell matching the texture and range of sizes found in the original mortar. Natural or manufactured sharp sand, with at least four grades of sand forming a substantial part of the sand and no more than 1% of the particles smaller than grade 200. Clean, well-graded, sharp, angular crushed aggregate complying with the requirements for deleterious substances and soundness of ASTM C 144. Sand aggregate shall have a nominal top size of 2.38mm (No. 8 US sieve) with over 75% of the material having a diameter between 1mm (No. 16 US sieve) and 0.297mm (No. 50 US sieve).
3. Water: Shall be clean and free of acids, Alkalis or organic materials. If water must be transported or stored in a container, the container must not impart any chemicals to the water.

2.2 MORTAR MIXES

A. Repointing Mortar – NHL (All locations except structural repointing in the bell tower)
1. 1 part NHL 3.5
2. 2.5 Parts aggregate

B. Repointing Mortar- Type O (Structural work at Bell Tower)
1. 1 Part Portland cement
2. 2 Part lime
3. 9 Parts aggregate
4. Pigment for color matching
C. New Construction of Crenellations- Type O
   1. 1 Part Portland cement
   2. 2 Part lime
   3. 9 Parts aggregate

2.3 BRICK
   1. Modular brick, match existing brick used to repair engaged pilasters on the north elevation.

PART 3 - EXECUTION

3.1 MORTAR PREPARATION
   A. On exposed masonry, remove all deteriorated mortar by hand with a chisel and mallet. Do not use power tools. Chisels are to be the appropriate size to fit cleanly into mortar joints without damage to surrounding surfaces.
      1. Rake joints to a depth of 1.5 times the mortar joint width or to sound mortar.
   B. Clean all surfaces.
   C. Brush, vacuum, or flush joints to remove all dirt and loose debris. Loose or disintegrated mortar beyond the minimum depth shall be removed.
   D. Removal of the mortar shall be done in a manner that does not score, chip, or otherwise damage masonry units or adjacent elements. Mortar should be removed cleanly from the masonry units, leaving square corners at the back of the cut.
   E. Use a hand chisel to finish joints adjacent to door and window openings to avoid damage to frames and trim.

3.2 MORTAR MIXING
   A. All ingredients shall be measured by volume using pre-established uniform measure, rather than a less uniform measure such as a shovel.
   B. Dry mix all dry materials
   C. Mortar shall be mixed in an approved type power operated batch mixer. Mixing time shall be such as to produce a homogenous plastic mortar but shall not be less than five minutes; approximately two minutes of which shall be for mixing the dry materials and not less than three minutes for continuing the mixing after water has been added.
   D. A minimum amount of water shall be used to produce a workable consistency for the mortar’s intended purpose.
   E. Mortar for repointing shall be as dry a consistency as will produce a mortar sufficiently plastic to be worked into the joints and to hang onto a trowel. Record the amount of water used so that it may serve as a guide for future batches.
F. NHL: After mixing, mortars shall sit for 20 minutes prior to use to allow for initial shrinkage. Mortar shall be placed in final position within 2 ½ hours of mixing. Retempering of hardened material shall not be permitted.

G. Portland Mortar: Mortar shall be placed in final position within the open time outlined by the manufacturer. Non-factory bagged mortars shall be placed in final position within 2 ½ hours. Retempering of hardened material shall not be permitted.

3.3 MORTAR INSTALLATION

A. Repointing of Masonry:
1. Areas of significant structural cracking must be reported to the Architect prior to repair.
2. Rake out compromised and unsound mortar in masonry joint.
3. Use only clean tools and equipment, free from hardened or partially hardened materials.
4. Dampen masonry prior to repointing to reduce suction of water from the mortar and shrinkage cracks. Do not fully saturate masonry. Substrate shall be glistening.
5. Maintain hand mister bottles or a garden sprayer with clean, clear, potable water immediately available to masons at all times during the repointing process. A very low-pressure spray (garden hose with nozzle adjusted to a fine, low-volume mist) may be used over large areas providing erosion of joints is prevented.
6. Finish joints uniformly in areas with exposed masonry. Match profile of existing mortar joints. Do not overwork. Leave the surface of the masonry clean.
7. In all cases, the mortar joint shall not be left less than 5/8" from the face of the brick prior to stucco rehabilitation work.

B. Repointing of Exterior Walls
1. Rake out compromised and unsound mortar in masonry joint.
2. Use only clean tools and equipment, free from hardened or partially hardened materials.
3. Dampen masonry prior to repointing to reduce suction of water from the mortar and shrinkage cracks. Do not fully saturate masonry.
4. Maintain hand mister bottles or a garden sprayer with clean, clear, potable water immediately available to masons at all times during the repointing process. A very low-pressure spray (garden hose with nozzle adjusted to a fine, low-volume mist) may be used over large areas providing erosion of joints is prevented.
5. Pack joints with new mortar leaving no voids. Match existing depth of sound mortar. Care shall be taken not to over pack joints.
6. Use and place mortar in final position within the open time outlined in section 3.2. Do not re-temper or use material that has partially set, is caked or is lumpy.
7. Finish joints uniformly. Do not overwork. Leave the surface of the masonry clean.
8. Applicable to Repointing at Bell Tower Only. New mortar shall match the color and texture of the original mortar as close as practical. The required volume of pigment necessary to achieve the desired color may vary when combined with the aggregate. Cured samples should be compared to the original to ensure an aesthetic match. All parts for each specified mortar mix should be mixed by volume and not by weight. Dry ingredients should be well mixed prior to the addition of a water. Larger batches may require less pigment than smaller batches.
9. Remove any portion of the work that does not comply with the specification and replace with proper materials and install in compliance with these specifications at no additional cost to the Owner.

C. Repointing of Masonry to be Covered by Stucco
1. Rake out compromised and unsound mortar in masonry joint.
2. Use only clean tools and equipment, free from hardened or partially hardened materials.
3. Dampen masonry prior to repointing to reduce suction of water from the mortar and shrinkage cracks. Do not fully saturate masonry. Substrate shall be glistening.
4. Maintain hand mister bottles or a garden sprayer with clean, clear, potable water immediately available to masons at all times during the repointing process. A very low-pressure spray (garden hose with nozzle adjusted to a fine, low-volume mist) may be used over large areas providing erosion of joints is prevented.

5. Repoint localized areas in which the mortar has been removed more than 5/8” in depth. Do not overwork. Leave the surface of the masonry clean.

6. In all cases, the mortar joint shall not be left less than 5/8” from the face of the brick prior to stucco rehabilitation work.

7. Remove any portion of the work that does not comply with the specification and replace with proper materials and install in compliance with these specifications at no additional cost to the Owner.

D. Structural Repairs

1. Damage observed during the completion of this work shall be brought to the attention of the Architect of Record when identified for resolution prior to continuing with work on the area involved.

3.4 MORTAR CURING

A. Curing NHL Mortars:

1. Protect completed work from adverse weather, heavy rainfall, freezing, and drying by direct sunlight and winds until cured.

2. If ambient the air temperature exceeds 100 deg F or exceeds 90 deg F with a wind velocity greater than 8mph, fog spray all newly applied mortar until damp, a minimum of three times a day for 3 days following application.

3. Shield from direct sun and drying winds for the first 72 hours after installation.

B. Curing Portland Mortars:

1. Protect completed work from adverse weather, heavy rainfall, freezing, and drying by direct sunlight and winds until cured.

2. If ambient the air temperature exceeds 100 deg F or exceeds 90 deg F with a wind velocity greater than 8mph, fog spray all newly applied mortar until damp, a minimum of three times a day for 1 day following application.

3. Shield from direct sun and drying winds for the first 24 hours after installation.

3.5 BRICK INSTALLATION, GENERAL

A. Thickness: Build masonry crenellations to full thickness shown. Match existing crenellation profiles on the south elevation.

B. Use full-size units without cutting if possible. If cutting is required to provide a continuous pattern or to fit adjoining construction, cut units with motor-driven saws; provide clean, sharp, unchipped edges. Allow units to dry before laying unless wetting of units is specified. Install cut units with cut surfaces and, where possible, cut edges concealed.

3.6 BRICK INSTALLATION TOLERANCES

A. Dimensions and Locations of Elements:

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

B. Lay bricks as follows:
   1. With faces fully bedded in mortar and with head joints of depth equal to bed joints.
   2. With entire units, including areas under brick, fully bedded in mortar at starting course.

C. Lay bricks with completely filled bed and head joints; butter ends with sufficient mortar to fill head joints and shove into place. Do not deeply furrow bed joints or slush head joints.

D. Tool exposed joints slightly concave when thumbprint hard, using a jointer larger than joint thickness unless otherwise indicated.

E. Rake joints ½” deep for masonry walls to receive stucco.

3.7 CLEAN UP

A. Maintain clean surfaces on the face, sills, ledges, and projections of masonry on a daily basis.

B. With a trowel, strike off minor dabs of adherent mortar from face of masonry.

C. Remove minor mortar marks from masonry by misting with water and brushing with a small, stiff-bristle brush.

END OF SECTION 040513
SECTION 061000 - 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

This Section includes the following:
1. Framing with dimension lumber.
2. Wood blocking, cants, and nailers.
3. Roof sheathing material.
4. Miscellaneous wood.

1.3 RELATED SECTIONS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

B. Division 01 Section "Historic Preservation Treatment Procedures."

C. Section 070150.19 "Preparation for Reroofing."

1.4 REFERENCES

A. PS 1 - Construction and Industrial Plywood; National Institute of Standards and Technology (Department of Commerce); 2007.

B. PS 20 American Softwood Lumber Standard; National Institute of Standards and Technology (Department of Commerce); 1994.


1.5 DEFINITIONS

A. Dimension Lumber: Lumber of 2 inches nominal or greater.

B. Lumber grading agencies, and the abbreviations used to reference them, include the following:

2. NLGA: National Lumber Grades Authority.
4. WCLIB: West Coast Lumber Inspection Bureau.
5. WWPA: Western Wood Products Association.

C. Rough Carpentry: Carpentry work not specified in other Sections and not exposed, unless otherwise specified.

1.6 SUBMITTALS

A. Product Data: For each type of process and factory-fabricated product. Indicate component materials and dimensions and include construction and application details.

B. Material Certificates: For dimension lumber specified to comply with minimum allowable unit stresses. Indicate species and grade selected for each use and design values approved by the ALSC Board of Review.

C. Wood treatment data as follows, including chemical treatment manufacturer’s instructions for handling, storing, installing, and finishing treated materials:

1. For each type of preservative-treated wood product, include certification by treating plant stating type of preservative solution and pressure process used, net amount of preservative retained, and compliance with applicable standards and rules, regulations, and restrictions of applicable governing authorities.
2. For waterborne-treated products, include statement that moisture content of treated materials was reduced to levels indicated before shipment to Project site.
3. Include copies of warranties from chemical treatment manufacturers for each type of treatment.

D. Evaluation Reports: For the following, from ICC-ES:

1. Wood-preservative-treated wood.
2. Power-driven fasteners.

1.7 QUALITY ASSURANCE

A. Quality of Materials and Workmanship: Provide woodwork that complies with requirements of "Architectural Woodwork Quality Standards," published by Architectural Woodwork Institute (AWI) (hereinafter referred to as "woodworking standard").

B. Where contract documents indicate deviations from the woodworking standard, the contract documents shall govern.

C. Installer:

1. Maintain throughout duration of the work a crew who is fully qualified to satisfy requirements of the specifications.
2. Maintain throughout the duration of the work a qualified superintendent.

D. Lumber: Comply with PS 20 and approved grading rules and inspection agencies.


E. Plywood:
1. Comply with PS 1 where veneer plywood is specified.
2. Comply with APA PRP-108 where APA rated panels are specified; bearing APA trademark showing compliance with each specified requirement.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Protect wood against moisture and dimensional changes. Support stacks at several uniformly spaced points to prevent deformation. Store stacks raised above ground. Cover to protect from rain and snow. Select and arrange cover to allow air circulation under and all around stacks to prevent condensation. Remove from the site any wood products that have been subjected to moisture or that do not comply with the specified moisture requirements. Stack lumber, plywood, and other panels.

   1. Protect all lumber from rain, fog, snow, dew, and all other forms of moisture that may alter moisture content above specified requirements. The moisture content of lumber and plywood may be checked in the field with a reliable moisture meter.

   2. For lumber and plywood pressure treated with waterborne chemicals, place spacers between each bundle to provide air circulation.

1.9 PROJECT CONDITIONS

A. Fit woodwork to actual construction. Take field measurements before fabricating woodwork.

   B. Coordinate installation of woodwork with other work to avoid damage.

PART 2 - PRODUCTS

2.1 WOOD PRODUCTS, GENERAL

A. Lumber: Comply with DOC PS 20, “American Softwood Lumber Standard.” and with applicable rules of inspection grading agencies certified by ALSC’s Board of Review.

   1. Where nominal sizes are indicated, provide actual sizes required by DOC PS 20 for moisture content specified. Where actual sizes are indicated, they are minimum dressed sizes for dry lumber.

   2. Provide dressed lumber, S4S, unless otherwise indicated.

   3. Maximum moisture content: Provide kiln-dried lumber with a maximum moisture content between 6 and 11 percent. Maintain temperature and relative humidity during fabrication, storage and finishing operation so that moisture content values for wood at the time of installation do not exceed the above range.


   5. Texture: Smooth, flat, tight grain surface that will not telegraph grain through painted finish. Solid lumber stock, finger joints not acceptable. All wood and lumber shall be sound, properly seasoned, and dry and be straight, flat and true, free of twists, warps, bends, racking, knots, sap, splinters, cracks, nicks, gouges, and bark. Edges and sides shall be uniform in dimension and shape with no signs of bark removal.

   6. Grade Stamps:

      a. Provide lumber with each piece factory marked with grade stamp of inspection agency evidencing compliance with grading rule requirements and identifying grading agency, grade, species, moisture content at time of surfacing, and mill.
b. For exposed lumber, furnish pieces with grade stamps applied to ends or back of each piece, or omit grade stamps and provide grade-compliance certificates issued by inspection agency.

2.2 DIMENSION LUMBER

A. General: Provide dimension lumber of grades indicated according to the ALSC National Grading Rule (NGR) provisions of the inspection agency indicated.

B. For items of dimension lumber size, provide grade lumber of the following species for locations indicated on the structural drawings:

1. Species: Southern pine; SPIB.
2. Grade: Non-Dense Select Structural, Select Structural or Dense Select Structural, No. 1 grade for locations as indicated on the drawings.
3. Maximum moisture content for untreated lumber: 6 to 11 percent.

2.3 MISCELLANEOUS LUMBER

A. General:

1. Provide lumber of grades indicated according to the ALSC National Grading Rule (NGR) provisions of the inspection agency indicated.
2. Provide lumber for support or attachment of other construction, including cant strips, bucks, nailers, blocking, furring, grounds, stripping, and similar members.
3. Fabricate miscellaneous lumber from dimension lumber of sizes indicated and into shapes shown.

B. For items miscellaneous, provide grade lumber of the following species:

1. Species: Southern pine; SPIB.
2. Grade: Non-Dense Select Structural, Select Structural or Dense Select Structural, No. 1 grade for locations as indicated on the drawings.
3. Maximum moisture content for untreated lumber: 6 to 11 percent.

2.4 WOOD PRESERVATIVE-TREATED LUMBER

A. Preservative Treatment by Pressure Process: AWPA U1; Use Category UC2 for interior construction not in contact with the ground or masonry, Use Category UC3b for exterior construction not in contact with the ground or masonry, and Use Category UC4a for items in contact with the ground or masonry.

1. Preservative Chemicals: Acceptable to authorities having jurisdiction and containing no arsenic or chromium.

B. Drying requirements:

1. Prior to sizing and pressure treating lumber, dry to 19 percent.
2. After treatment, kiln-dry lumber and plywood to a maximum moisture content, as follows:
   a. Lumber: 19 percent
   b. Plywood: 15 percent.
3. Do not use material that is warped or that does not comply with requirements for untreated material. Use in locations as indicated on the drawings.

C. Mark lumber with treatment quality mark of an inspection agency approved by the ALSC Board of Review.

D. Obtain lumber only from true lumber yards that specialize in lumber and wood building materials and that are capable of kiln-drying lumber that meets these drying requirements or can provide such lumber.

E. Application: Treat items indicated on Drawings, and the following:
   1. Wood cants, nailers, curbs, equipment support bases, blocking, stripping, and similar members in connection with roofing, flashing, vapor barriers, and waterproofing.
   2. Wood sills, sleepers, blocking, furring, stripping, framing, supporting members, and similar concealed members in contact with masonry or concrete.
   3. Wood supporting members used in the construction of suspended decks or porch decks, moist or humid air, or enclosed construction that is exterior to the building envelope.
   4. Wood framing members less than 40 inches above grade.
   5. Wood floor plates that are installed over concrete slabs directly in contact with earth.

F. Retention Rates
   1. for lumber treated with ACQ: 0.40 pcf
   2. for lumber treated with CA-B: 0.21 pcf
   3. for lumber treated with CBA-A: 0.41 pcf
   4. for lumber treated with CA-C: 0.15 pcf
   5. for lumber treated with µCA-C: 0.15 pcf

G. Complete fabrication of treated items before treatment, where possible. If cut, drilled, or scratched, or otherwise abraded after treatment, apply field treatment complying with AWPA M4 to cut surfaces. Inspect each piece of lumber or plywood after drying and discard damaged or defective pieces.

2.5 PLYWOOD, GENERAL

A. Structural composite lumber made from wood veneers with grain primarily parallel to member lengths, evaluated and monitored according to ASTM D5456 and manufactured with an exterior-type adhesive complying with ASTM D2559 and containing no urea formaldehyde.

B. Provide plywood panels complying with DOC PS 1, "U.S. Product Standard for Construction and Industrial Plywood," where plywood is indicated. Factory mark structural-use panels with APA trademark evidencing compliance with grade requirements. Certification: Provide certification that plywood, untreated with fire-retardant, meets Standard Building Code Congress requirements for a flame spread of 200 or less (Class C) when tested in accordance with ASTM E84.

2.6 WOOD SHEATHING

A. Roof Sheathing (existing):
   1. Existing Decking: 5/4 pine boards, widths vary
   2. Thickness: 1 inch actual
B. Gutter Sheathing (replacement material @ sanctuary):
4. Basis of Design Product: CDX Plywood

C. Gutter Sheathing (new @ base of bell tower spire):
4. Basis of Design Product: CDX Plywood

D. Bell Tower Floor (new)
4. Basis of Design Product: BC Tongue and Groove Plywood

E. Thicknesses: Where nominal thicknesses are indicated, provide actual thickness to match existing, providing other project requirements such as grade, span rating, exposure, etc., are met:
1. 1/2 inch nominal: 7/16, 15/32, or 1/2 inch actual.
2. 5/8 inch nominal: 19/32, 5/8, or 21/32 inch actual.
3. 3/4 inch nominal: 11/16 or 3/4 actual.
4. 1 inch nominal: 1 inch actual.

2.7 FASTENERS

A. General:
1. All wood fastenings shall be per IBC Table 2304.9.1 “Fastening Schedule” unless noted otherwise.
2. Provide fasteners of size and type indicated that comply with requirements specified in this Article for material and manufacture for locations indicated on drawings.
3. Where rough carpentry is exposed to weather, in ground contact, or in area of high relative humidity, provide stainless steel fasteners of Type 304, 304L, 316 or 316L, unless otherwise indicated.
4. All steel fasteners in contact with pressure-preservative treated wood shall be stainless steel Type 304, 304L, 316 or 316L, unless otherwise indicated.

B. Nails, Wire, Brads, and Staples: ASTM F 1667. Nails shall be of the thickness required to penetrate 2/3 of the substrate.


D. Wood Screws: ANSI/ASME B18.6.1 and shall be of sufficient length to penetrate backing material a minimum of one inch.

E. Bolts and Nuts: Shall meet ASTM A307, grade A, with, ASTM A563 with hex nuts, where indicated on drawings, flat washers.


J. Toggle Bolts: FS FF-B-588, tumble-wing type, class and style as required.

K. Spacing: See Drawings.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verification of Conditions:

1. Thoroughly examine and document existing conditions prior to beginning successive phases of Work.
2. Note locations on drawings where examination of members and confirmation of deterioration by Engineer or Architect is required before replacement.

3.2 DISASSEMBLY

A. Disassemble all associated elements as required.

B. Remove architectural millwork by cutting through shaft of nail fasteners. Do not pull nails through; this will damage millwork. Use hacksaw blades mounted on handles intended for that purpose.

3.3 INSTALLATION, GENERAL

A. Remove miscellaneous hardware, nails, etc., from all existing woodwork.

B. Set rough carpentry to required levels and lines, with members plumb, true to line, cut, and fitted.

C. Apply field treatment complying with AWPA M4 to cut or abraded surfaces of preservative-treated lumber and plywood.

D. Fit rough carpentry to other construction; scribe and cope as needed for accurate fit. Locate nailers, blocking, and similar supports to comply with requirements for attaching other construction.

E. Provide blocking and framing as indicated and as required to support facing materials, fixtures, specialty items, and trim

F. Framing Standard: Comply with AF&PA's WCD 1, "Details for Conventional Wood Frame Construction," unless otherwise indicated.
G. Sort and select lumber so that natural characteristics will 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.

H. Discard units of material with defects that impair quality of rough carpentry and that are too small to use with minimum number of joints or optimum joint arrangement.

I. 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.

J. Securely attach rough carpentry work to substrate by anchoring and fastening as indicated on drawings, if not otherwise noted comply with the following:

K. 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 between members. Install fasteners without splitting wood; do not countersink nail heads, unless otherwise indicated.

L. Countersink nail heads on exposed carpentry work and fill holes with wood filler.

M. For exposed work, arrange fasteners in straight rows parallel with edges of members, with fasteners evenly spaced, and with adjacent rows staggered.
   1. Comply with indicated or approved fastener patterns where applicable. Before fastening, mark fastener locations, using a template made of sheet metal, plastic, or cardboard.
   2. Use finishing nails, unless otherwise indicated. Countersink nail heads and fill holes with wood filler. Indicate locations of other fasteners, such as wood screws, bolts, and lag screws, on Drawings.

N. Pre-drill members when necessary to avoid splitting wood.

O. Back Priming: For all wood materials scheduled to be painted, including treated wood, back prime, including all edges and concealed surfaces, prior to installation. Apply primer to the same specifications as for the exposed surfaces. Treat all cut edges, end cuts, and disturbed surfaces the same way. Wood items shall be completely encapsulated with primer. Installed items not back-primed shall be removed, properly primed, and reinstalled at the Contractor’s expense. Damaged materials shall be replaced. This provision applies to both interior and exterior installations.

3.4 WOOD STRUCTURAL PANEL INSTALLATION


B. Fastening Methods: Fasten panels as indicated below:
   1. Roof and Gutter Sheathing:
a. Nail to wood framing. Apply a continuous bead of glue to framing members at edges of wall sheathing panels (where framing is exposed).
b. Space panels 1/8 inch apart at edges and ends.

END OF SECTION 061000
SECTION 062012 – EXTERIOR FINISH 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.

B. Section 099000: Architectural Coatings.

C. Codes and standards set forth by:
   1. All work shall be performed in accordance with the “Secretary of the Interior’s Standards for Rehabilitation, “U.S. Department of the Interior, National Park Service, 1995.”
      a. Repair or replace, where necessary, deteriorated materials with new materials that duplicate old as closely as possible in appearance, color, and texture.
      b. Retain original material wherever possible.
   4. Forest Stewardship Council’s (FSC) Principles and Criteria for Forest Stewardship.

1.2 SUMMARY

A. Work includes, but is not necessarily limited to, the following:
   1. Replacement of specified features as chosen by the Architect.
      a. Gabled dormers at spire including but not limited to all trim, pediment panel, and decorative fretwork.

1.3 SCOPE

A. Provide finish carpentry items as shown, as specified, or as required to support finished work.

1.4 PROJECT CONDITIONS

A. Keep carpentry materials dry during delivery. Store lumber in stacks with provision for air condition through stacks. Protect bottom of stacks against contact with damp or wet surfaces. Protect exposed materials against weather.

B. Do not store dressed or treated lumber or plywood outdoors. Store materials for which a maximum moisture content is specified, only in areas where relative humidity has been reduced to a level where specified moisture content can be maintained with a tolerance of plus or minus 1%.

C. Protect installed work from damage by work of other trades until Architect’s acceptance of work. Adhere to required protection procedures.
   1. Presence of mildew or dry rot on any wood surface will be grounds for rejection.
1.5 SUBMITTALS

A. Submittals:
   1. Product Data: Submit product data and applicable MSDS sheets for all materials specified within this section.
   2. Subcontractor & Lead Tradesman Qualifications: Submit documentation of contractor’s past project experience that meets the work experience outlined in the specification. Submit resume for lead carpenter. Both must have a minimum of five (5) years demonstrated experience restoring finish carpentry.

1.6 ENVIRONMENTAL CONDITIONS

A. Weather Limitations for Exterior Work: Proceed with installation of exterior wood trim only when existing and forecasted weather conditions permit work to be performed and at least one coat of specified finish to be applied without exposure to rain, snow, or dampness.

1.7 QUALITY ASSURANCE

A. This structure is an historic building. The exterior finish carpentry work on this project is critical to the satisfactory execution of the work.

1.8 DELIVERY, STORAGE, AND HANDLING

A. It is the joint responsibility of the woodwork manufacturer and the Contractor to make certain that woodwork is not delivered until the building and storage areas are sufficiently dry and complete so that the woodwork will not be damaged. The Contractor will replace defective or damaged materials at no cost to the Architect.

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

C. Protect all finished surfaces after installation and finishing from damage and soiling. Maintain protection during subsequent work operations and remove same upon acceptance or when instructed by Architect.

PART 2 - PRODUCTS

2.1 MATERIALS, GENERAL

A. Use lumber bearing the official trademark and grade of the manufacturer’s association or inspection bureau under which it was manufactured and graded, except as specified otherwise herein. Use seasoned lumber, surfaced four sides and kiln or air dried to moisture content specified in association’s rules, except that moisture content is limited to a maximum of 11 percent. Wood-based materials and products to be certified in accordance with Forest Stewardship Council’s (FSC) Principles and Criteria for Forest Stewardship.

2.2 EXTERIOR FINISH CARPENTRY

A. Wood Materials: Trim Boards, Pediment Panel, and fretwork.
   1. Sapele shall be used for all new and replacement pieces.
   2. Pattern: Overall dimensions, pattern, and surface texture to match existing and as specified in Drawings.

2.3 MISCELLANEOUS MATERIALS

A. Caulking Materials: As specified in Section 079200 Joint Sealants.

B. Wood Filler
   1. Use a Bisphenol A based low viscosity liquid epoxy resin with appropriate hardener that cures to a high strength plastic solid under room temperatures.
   2. Epoxy to hardener ratio shall not exceed 5:1.
   3. Product shall be specifically designed to bond with historic wood fiber and must be able to be sanded and shaped when cured.
      a. Manufacturers:
         1) West System
         2) An Approved equal

C. Wood Consolidant
   1. Use a Bisphenol A based low viscosity liquid epoxy resin (unthickened) with appropriate hardener that cures to a high strength plastic solid under room temperatures.
   2. Epoxy to hardener ratio shall not exceed 5:1
   3. Product shall be specifically designed to bond with historic wood fiber and must be able to be sanded and shaped when cured.
      a. Manufacturers:
         1) West System
         2) An Approved equal

D. Fasteners for Exterior Finish Carpentry: All exterior fasteners shall be stainless steel grade 304 or better.

PART 3 - EXECUTION

3.1 PREPARATION

A. Examine substrates, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance.

B. Verify adequacy of backing and support framing.

C. Examine finish carpentry materials before installation. Reject materials that are wet, moisture damaged, and mold damaged.

D. Proceed with installation only after unsatisfactory conditions have been corrected.

E. Clean substrates of projections and substances detrimental to application.
3.2 FABRICATION

A. Match existing detailing.

B. In kind replacement: Except as specifically indicated otherwise, provide replacement elements with configurations, profiles, dimensions and joinery exactly matching those of existing elements.

C. Machining and Surfacing: Machine and surface all new and replacement wood elements to provide smooth even surfaces without saw marks or plane marks. Wood with surface irregularities, including but not limited to scratches, saw marks, and plane knife marks, visible after finish has been applied will be rejected and shall be replaced with properly finished wood elements at no additional cost.

3.3 INSTALLATION, GENERAL

A. Replace and repair woodwork as specified by Drawings.

B. Provide all wood blocking and framing required to support items of finish carpentry. Use fastening materials of types appropriate for the conditions encountered, including wood to wood, wood to masonry, and wood to metal stud framing. Counterbore holes for nuts and bolt heads, and countersink for screws. Use concealed fasteners in exposed surfaces of finish carpentry.

C. Install woodwork to comply with referenced quality standard for grade specified.

D. All exterior woodwork to be primed prior to installation.

E. Install woodwork true and straight with no distortions. Shim as required with concealed shims. Install level and plumb to a tolerance of 1/8 inch in 96 inches (3 mm in 2400 mm).

F. Scribe and cut woodwork to fit adjoining work and refinish cut surfaces or repair damaged finish at cuts.

G. Dutchman Repairs

1. Dutchman repairs shall be undertaken using the same material as the original unless otherwise specified. Species and grain to match. Match existing detailing.
2. Substitutions in material must be approved by Architect.

3.4 STANDING AND RUNNING TRIM INSTALLATION

A. Install with minimum number of joints possible, using full-length pieces (from maximum length of lumber available) to greatest extent possible. Do not use pieces less than 36 inches (900 mm) long, except where shorter single-length pieces are necessary. Scarf running joints and stagger joints in adjacent and related trim. Cope at returns and miter at corners.

B. Timely delivery and installation of carpentry work to avoid delaying other trades whose work is dependent on or affected by the carpentry work, and to comply with protection and storage requirements.

C. Examine all parts of the supporting structure and the conditions under which the carpentry work is to be installed, and notify the Architect, in writing of any conditions detrimental to the proper and timely completion of the work. Do not proceed with the installation until unsatisfactory conditions have been corrected in a manner acceptable to the installer.
3.5 ADJUSTING

A. Replace exterior finish carpentry that is damaged or does not comply with requirements. Exterior finish carpentry may be repaired or refinished if work complies with requirements and shows no evidence of repair or refinishing. Adjust joinery for uniform appearance.

3.6 CLEAN UP

A. Clean interior and exterior finish carpentry on exposed and semi-exposed surfaces. Touch up finishes to restore damaged or soiled areas.

B. Remove and replace finish carpentry materials that are wet, moisture damaged, and mold damaged as indicated by the Architect.

1. Indications that materials are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.

2. Indications that materials are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

END OF SECTION 062012
SECTION 064023 - INTERIOR WOODWORK

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. This Section includes the following:
   1. Removal and reinstallation of historic grained ceiling boards below the bell tower.
   2. Replacement of deteriorated grained ceiling boards below the bell tower.

1.3 SUBMITTALS
A. Product Data & MSDS Sheets: For each type of product indicated, including finishing materials and processes.
B. Samples for Verification:
   1. Tongue and Groove Ceiling Board Sample- min. 12"

1.4 QUALITY ASSURANCE
A. Fabricator Qualifications: Shop that employs skilled workers who custom fabricate products similar to those required for this Project and whose products have a record of successful in-service performance.

1.5 PROJECT CONDITIONS
A. Environmental Limitations: Do not deliver or install woodwork until building is enclosed, wet work is complete.
B. Field Measurements: Where woodwork is 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.
PART 2 - PRODUCTS

2.1 MATERIALS
A. Wood Species and Cut for Transparent Grained Finish (Ceiling tongue and groove boards):
   Match bell tower ceiling species, cut, and finish.
B. Fasteners: 304 stainless steel trim screws, 2 ¼”.

2.2 FABRICATION, GENERAL
A. Interior Woodwork Grade: Provide Premium grade interior woodwork complying with the referenced quality standard.
B. Wood Moisture Content: Comply with requirements of referenced quality standard for wood moisture content in relation to ambient relative humidity during fabrication and in installation areas.
C. Fabricate woodwork to dimensions, profiles, and details indicated.
D. Complete fabrication, including assembly and finishing, to maximum extent possible, before shipment to Project site.

2.3 INTERIOR STANDING AND RUNNING TRIM FOR TRANSPARENT FINISH
A. Grade: Custom.
B. Wood Species and Cut: Match bell tower ceiling species, cut and finish.

PART 3 - EXECUTION

3.1 EXAMINATION
A. Documentation: Photograph existing condition of ceiling including pattern, etc. for ease of reinstallation.

3.2 PREPARATION
A. Condition woodwork to average prevailing humidity conditions in installation areas before installation.
B. Before installing architectural woodwork, examine shop-fabricated work for completion and complete work as required, including removal of packing.
3.3 INSTALLATION

A. Standing and Running Trim: Install with minimum number of joints possible, using full-length pieces (from maximum length of lumber available) to greatest extent possible. Do not use pieces less than 36 inches long. Stagger joints in adjacent boards. Stagger pattern has to be approved.

B. Install woodwork level, plumb, true, and straight. Shim as required with concealed shims. Install level and plumb (including tops) to a tolerance of 1/8 inch in 96 inches.

C. Scribe and cut woodwork to fit adjoining work and refinish cut surfaces.

D. Anchor woodwork to anchors or blocking built in or directly attached to substrates. Secure with countersunk, concealed fasteners and blind nailing as required for complete installation. Edge screw boards with trim screws. Pilot bore a hole at each screw location.

E. Touch up finishing work specified in this Section after installation of woodwork. Fill nail holes with matching filler where exposed.

3.4 ADJUSTING AND CLEANING

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

B. Clean woodwork on exposed surfaces. Special care should be taken not to damage grained surface of ceiling boards.

END OF SECTION 064023
SECTION 070150.19 - 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 existing roofs.

B. Related Requirements:
   1. Section 011000 "Summary" for use of the premises and phasing requirements.
   2. Section 015000 "Temporary Facilities and Controls" for temporary construction and environmental-protection measures for reroofing preparation.

1.3 DEFINITIONS

A. Roofing Terminology: Definitions in ASTM D 1079 and glossary of NRCA's "The NRCA Roofing and Waterproofing Manual" apply to work of this Section.

B. Full Roof Tear-Off: Removal of existing roofing system from deck.

1.4 SUBMITTALS

A. Provide photographs of decking to document fastening pattern prior to applying new roof.

B. Provide a letter from the manufacturer stating that the fasteners and attachment rates meet the requirements for the manufacturer's warranty.

1.5 QUALITY ASSURANCE

A. Regulatory Requirements: Comply with governing EPA notification regulations before beginning roofing removal. Comply with hauling and disposal regulations of authorities having jurisdiction.

B. Reroofing Conference: Conduct conference at Project site.
   1. Meet with Owner; Architect; roofing system manufacturer's representative; roofing installer, including project manager, superintendent, and foreman; and installers whose work interfaces with or affects reroofing, including installers of roof deck, roof accessories, and roof-mounted equipment.
2. Review methods and procedures related to roofing system tear-off and replacement, 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 drains and 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 notification of Architect.
   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. Asbestos removal and discovery of asbestos-containing materials.
   m. Governing regulations and requirements for insurance and certificates if applicable.
   n. Existing conditions that may require notification of Architect before proceeding.

1.6 FIELD CONDITIONS

A. Existing Roofing System: Asphalt Shingles (main sanctuary) and Wood Shingles (bell tower spire).

B. Protect building to be reroofed, adjacent buildings, walkways, site improvements, exterior plantings, and landscaping from damage or soiling from reroofing operations.

C. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities.

D. Conditions existing at time of inspection for bidding are maintained by Owner as far as practical.

   1. Construction Drawings for existing roofing system are provided for Contractor's convenience and information but 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.

E. Limit construction loads on roof as directed by Structural Engineer for rooftop equipment wheel loads and uniformly distributed loads.

F. 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.

G. 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.

PART 2 - PRODUCTS

2.1 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. Shut off rooftop utilities and service piping before beginning the Work.
B. Test existing roof drains to verify that they are not blocked or restricted. Immediately notify Architect of any blockages or restrictions.
C. Coordinate with Owner to shut down air-intake equipment in the vicinity of the Work. Cover air-intake louvers before proceeding with reroofing work that could affect indoor air quality or activate smoke detectors in the ductwork.
D. During removal operations, have sufficient and suitable materials on-site to facilitate rapid installation of temporary protection in the event of unexpected rain.
E. Maintain roof drains in functioning condition to ensure roof drainage at end of each workday. Prevent debris from entering or blocking roof drains and conductors. Use roof-drain plugs specifically designed for this purpose. Remove roof-drain plugs at end of each workday, when no work is taking place, or when rain is forecast.

1. 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. Do not permit water to enter into or under existing roofing system components that are to remain.

3.2 ROOF REMOVAL

A. General: Notify Owner each day of extent of roof tear-off proposed for that day.
B. Full Roof Tear-Off: Remove existing roofing and other roofing system components down to the deck.

1. Remove wood blocking, curbs, and nailers.
2. Remove fasteners from deck.
3.3 DECK PREPARATION

A. Provide visual inspection after the existing roofing is removed and the substrate is exposed. Confirm spacing and existing fastener type meets the 2015 IBC code for Abbeville’s wind zone. Install additional fasteners as required to meet code. Provide photographs of decking to document fastening pattern prior to applying new roof.

B. Replace deck as directed by Architect. Deck replacement will be paid for by adjusting the Contract Sum according to unit prices included in the Contract Documents. Some decking replacement has been included in the base bid scope of work. See Section 012200 Unit Pricing for amount of deck replacement to be included in the base bid.

C. Remove damaged, corroded, and backed-out fasteners from deck.

D. 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. Do not proceed with installation until directed by Architect.

E. If deck surface is unsuitable for receiving new roofing or if structural integrity of deck is suspect, immediately notify Architect. Do not proceed with installation until directed by Architect. If retaining first paragraph below, consider revising to add fastening requirements.

3.4 INFILL MATERIALS INSTALLATION

A. Immediately after roof tear-off, and inspection and repair, if needed, of deck, fill in tear-off areas to match existing roofing system construction.

B. Install new roofing patch over roof infill area. If new roofing is installed the same day tear-off is made, roofing patch is not required.

3.5 FLASHING REMOVAL

A. Remove all existing flashings. Clean substrates of contaminants, such as asphalt, sheet materials, dirt, and debris.

B. Replace all metal flashings and counter flashings with materials as specified. See Section 076200 Sheet Metal Flashings and Trim.

C. When directed by Architect, replace framing, wood blocking, curbs, and nailers to comply with Section 061000 "Rough Carpentry."

3.6 FASTENER TESTING

A. Obtain roofing manufacturer's approval to proceed with specified fastening pattern. Provide a letter from the manufacturer stating that the fasteners and attachment rates meet the requirements for the manufacturer’s warranty.
3.7 DISPOSAL

A. Collect demolished materials and place in containers. Promptly dispose of demolished materials. Do not allow demolished materials to accumulate on-site.

1. Storage or sale of demolished items or materials on-site is not permitted.

B. Transport and legally dispose of demolished materials off Owner's property.

END OF SECTION 070150.19
SECTION 073113 - 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. This Section includes the following:
   1. Asphalt shingles and accessories.
   2. Underlayment materials.

B. Related Sections:
   1. Section 061000 "Rough Carpentry" for roof decking/sheathing materials.
   2. Section 076200 "Sheet Metal Flashing and Trim" for metal and flashings.
   3. Section 077123 "Gutters and Downspouts"

1.3 SUBMITTALS

A. Product Data: For each type of product indicated, including details of construction relative to materials, dimensions of individual components, profiles, textures and colors.

B. Samples for Verification: For the following products, of sizes indicated, to verify color selected.
   2. Self-Adhering Underlayment: 12 inches square.

C. Qualification Data: For Installer, including certificate signed by asphalt shingle manufacturer stating that Installer is approved, authorized, or licensed to install roofing system indicated.

D. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency or by manufacturer and witnessed by a qualified testing agency, for asphalt shingles. Data to show that installation meets wind design criteria.

E. Maintenance Data: For asphalt shingles to include in maintenance manuals.

F. Warranties: Special warranties specified in this Section.

1.4 QUALITY ASSURANCE

A. Installer Qualifications: A firm or individual that is approved, authorized, or licensed by asphalt shingle roofing system manufacturer to install roofing system indicated and to meet wind and other warranty requirements.
B. Fire-Test-Response Characteristics: Provide asphalt shingle and related roofing materials with the fire-test-response characteristics indicated, as determined by testing identical products per test method below by UL or another testing and inspecting agency acceptable to authorities having jurisdiction. Identify materials with appropriate markings of applicable testing and inspecting agency.

1. Exterior Fire-Test Exposure: Class A; ASTM E 108 or UL 790, for application and roof slopes indicated.

C. Wind-Resistance-Test Characteristics: Provide products identical to those tested according to UL 997 and passed. Identify each bundle of asphalt shingles with appropriate markings of applicable testing and inspecting agency.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Store roofing materials in a dry, well-ventilated, weathertight location according to asphalt shingle manufacturer's written instructions. Store underlayment rolls on end on pallets or other raised surfaces. Do not double-stack rolls.

1. Handle, store, and place roofing materials in a manner to avoid significant or permanent damage to roof deck or structural supporting members.

B. Protect unused underlayment from weather, sunlight, and moisture when left overnight or when roofing work is not in progress.

1.6 PROJECT CONDITIONS

A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit asphalt shingle roofing to be performed according to manufacturer's written instructions and warranty requirements.

1. Install self-adhering sheet underlayment within the range of ambient and substrate temperatures recommended by manufacturer.

1.7 WARRANTY

A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace asphalt shingles that fail in materials or workmanship within specified warranty period. Materials failures include manufacturing defects and failure of asphalt shingles to self-seal after a reasonable time.

1. CONTRACTOR TO USE A MINIMUM OF THREE (3) GAF ACCESSORY PRODUCTS TO QUALIFY FOR REQUIRED LIFETIME PRODUCT WARRANTY.

B. Workmanship Warranty: 100% coverage for workmanship errors within the following warranty period:

1. Warranty Period: 2 years from date of Substantial Completion.

PART 2 - PRODUCTS
2.1 GLASS-FIBER-REINFORCED ASPHALT SHINGLES

A. Three-Dimensional, Laminated, self-sealing, granule surfaced, asphalt shingle with a strong fibers glass reinforced core and stain protection, which prevents pronounced discoloration from blue-green algae through formulation/unique blends of granules. Complying with UL 790 Class A with UL 997 Wind Resistance Label; ASTM D 7158, Class H; ASTM D 3161, Type 1, Class F; ASTM D 3018, Type 1; ASTM D 3462; AC438; Dade County Approved, Florida Building Code Approved, ICC Report Approval.

1. Basis-of-Design Product: Subject to compliance with requirements, provide Timberline HD by GAF Materials Corporation or comparable product by one of the following:
   a. CertainTeed.
   b. Owens Corning.

2. Strip Size: Manufacturer's standard.

3. Color and Blends: As selected by Architect from manufacturer's full range of colors.

B. Hip and Ridge Shingles: Manufacturer's standard units to match asphalt shingles.

C. Ridge Vent: Cobra® Rigid Vent 3™ or approved equal.

D. Starter Strip (for application at eave and at rake edge): Manufacturer's standard starter strip.

E. CONTRACTOR TO USE A MINIMUM OF THREE (3) GAF ACCESSORY PRODUCTS TO QUALIFY FOR REQUIRED LIFETIME PRODUCT WARRANTY.

2.2 UNDERLAYMENT MATERIALS

A. Felt: ASTM D 4869, Type II (30#), asphalt-saturated organic felts, nonperforated.

B. Self-Adhering, High-Temperature Sheet: Minimum 30 mils thick, consisting of a slip-resistant polyethylene- or polypropylene-film top surface laminated to a layer of butyl- or SBS-modified asphalt adhesive, with release-paper backing; specifically designed to withstand high metal temperatures beneath metal roofing. Provide primer according to written recommendations of underlayment manufacturer.

   1. Products: Subject to compliance with requirements, provide one of the following:
      a. Grace Construction Products, a unit of W. R. Grace & Co.-Conn.; Grace Ice and Water Shield HT.
      b. Suprema Lastobond Shield HT
      c. Henry Company; Blueskin PE200 HT.
      d. Owens Corning; WeatherLock Specialty Tile & Metal Underlayment.


   3. Low-Temperature Flexibility: ASTM D 1970; passes after testing at minus 20 deg F or lower.

2.3 ACCESSORIES

A. Asphalt Roofing Cement: ASTM D 4586, Type II, asbestos free.
B. Roofing Nails: ASTM F 1667; stainless-steel or copper wire shingle nails, minimum 0.120-inch-diameter, barbed shank, sharp-pointed, with a minimum 3/8-inch-diameter flat head and of sufficient length to penetrate 3/4 inch into solid wood decking or extend at least 1/8 inch through OSB or plywood sheathing.
   1. Where nails are in contact with metal flashing, use nails made from same metal as flashing.
C. Felt Underlayment Nails: Stainless-steel wire with low-profile capped heads or disc caps, 1-inch minimum diameter.

2.4 METAL FLASHING AND TRIM
A. Sheet Metal Flashing and Trim: Comply with requirements in Division 07 Section "Sheet Metal Flashing and Trim."
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 item.
   1. Step Flashings (16 oz): Fabricate with a headlap of 2 inches and a minimum extension of 5 inches over the underlying asphalt shingle and up the vertical surface.
   3. Cricket Flashings (16 oz): Fabricate with concealed flange extending a minimum of 18 inches beneath upslope asphalt shingles and 6 inches beyond each side of chimney and 6 inches above the roof plane.
   4. Metal Drip Edges (20 oz): Brake-formed sheet metal with at least 4-inch roof deck flange and 1-1/2-inch fascia flange with 3/8-inch drip at lower edge. Furnish in lengths of 8 or 10 feet.
C. Roof Vent: Salvo 502 Copper Roof Vent, low profile. Confirm sizing prior to ordering.

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 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 asphalt shingles.
   3. For the record, prepare written report with photographs, endorsed by Installer, listing conditions detrimental to performance of work.
B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION
A. Prepare shingles, accessories and roof substrates in accordance with manufacturer’s requirements for wind and other warranties.

B. Clean substrates of projections and substances detrimental to application. Cover knotholes or other minor voids in substrate with sheet metal flashing secured with noncorrosive roofing nails.

C. Coordinate installation with flashings and other adjoining work to ensure proper sequencing. Do not install roofing materials until all vent stacks and other penetrations through roof sheathing have been installed and are securely fastened against movement.

3.3 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 self-adhering sheet underlayment, wrinkle free. Prime substrate if recommended by underlayment manufacturer. Comply with temperature restrictions of underlayment manufacturer for installation; use primer for installing underlayment at low temperatures. Apply in shingle fashion to shed water, with end laps of not less than 6 inches staggered 24 inches between courses. Overlap side edges not less than 3-1/2 inches. Roll laps and edges with roller. Cover underlayment within 14 days.

3.4 METAL FLASHING INSTALLATION

A. General: Install metal flashings and other sheet metal to comply with requirements in Division 07 Section "Sheet Metal Flashing and Trim."

1. Install metal flashings according to recommendations in ARMA’s "Residential Asphalt Roofing Manual" and asphalt shingle recommendations in NRCA's "The NRCA Roofing and Waterproofing Manual."

B. Place metal drip edge (T-Type) tight with fascia boards at all rake and eave edges and extend 3 inches minimum back from roof edge bend downward over the fascia boards. Weather lap joints 2 inches minimum. Fasten in place with nails spaced 8 to 10 inches apart.

C. At eaves, place drip edge (T-Type) directly onto deck below underlayment. At rakes, place drip edge over underlayment. Following drip edge installation, cover drip edge with underlayment lapped minimum 2 inches onto flashing.

3.5 ASPHALT SHINGLE INSTALLATION


B. Install starter strip along lowest roof edge, consisting of an asphalt shingle strip at least 7 inches wide with self-sealing strip face up at roof edge.

1. Extend asphalt shingles 1/2 inch over drip edge at eaves and rakes.
2. Install starter strip along rake edge.
C. Install first and remaining courses of asphalt shingles stair-stepping diagonally across roof deck with manufacturer's recommended offset pattern at succeeding courses, maintaining uniform exposure. Ensure that shingles are sealed in accordance with manufacturer's requirements.

D. Fasten asphalt shingle strips with a minimum of six roofing nails located according to manufacturer's written instructions for applicable wind uplift requirements.

1. Where roof slope is less than 4:12, seal asphalt shingles with asphalt roofing cement spots where cement is not already present.

2. When ambient temperature during installation is below 50 deg F, seal asphalt shingles with asphalt roofing cement spots.

E. All valleys to be open.

F. Ridge and Hip Cap 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. Install ridge vent.

END OF SECTION 073113
SECTION 073129- WOOD 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 REFERENCES

A. CSSB: Cedar Shake and Shingle Bureau.
C. UL: Underwriters Laboratories.

1.3 SUMMARY

A. This Section includes the following:
   1. Wood shingles and accessories.

B. Related Sections:
   1. Section 061000 "Rough Carpentry" for roof decking/sheathing materials.
   2. Section 076200 "Sheet Metal Flashing and Trim" for metal and flashings.
   3. Section 077123 “Gutters and Downspouts”

1.4 SUBMITTALS

A. Product Data: For each type of product indicated, including details of construction relative to materials, dimensions of individual components, profiles, textures and colors.

B. Samples for Verification: For the following products, of sizes indicated:
   1. Wood Shingle: Full-size wood shingle of each profile specified.
   2. Copper Rib Cap: 1 cap (see Section 076200 Sheet Metal Flashings and Trim).

C. Qualifications: Submit documentation of roofing contractors past project experience that meets the minimum 5-year work experience outlined in the specification.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: A qualified wood shingle roofing specialist with five years’ experience installing wood shingle roofs. The crew chief and at least one other member of the roofing crew shall have previously installed at least 12 wood shake or shingle roof systems and shall be thoroughly familiar with all aspects of the installation.
B. Material Certification: All shingle or shake bundles shall bear the Cedar Shake and Shingle Bureau label.

C. Pre-Roofing Conference: Before the roofing Work is scheduled to commence, a conference shall be held at the site for the purpose of reviewing the Drawings and the Specifications and discussing requirements for the Work. The conference shall be attended by the Architect, Contractor, and the roofing applicator.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Store roofing materials in a dry, well-ventilated, weathertight location according to shingle manufacturer's written instructions.

1. Handle, store, and place roofing materials in a manner to avoid damage to roof deck or structural supporting members.

B. Deliver materials to the site in the manufacturer's labeled unopened containers.

1.7 PROJECT CONDITIONS

A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit wood shingle roofing to be performed according to manufacturer's written instructions.

1. Do not install underlayment or shingles on wet surfaces.

B. Moisture Protection:

1. Cover, seal or otherwise protect the roof and flashings so that water cannot accumulate or flow under completed portions. When and where necessary to accomplish this, provide temporary water cut-offs.

2. Limit the removal of existing materials to areas that can be completely re-roofed or temporarily protected within the same day.

1.8 WARRANTY

A. Workmanship Warranty: 100% coverage for workmanship errors within the following warranty period:

1. Warranty Period: 2 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 SHINGLES

A. UL Classified, Certi-Last No. 1 blue label grade western red cedar shingles certified by the Cedar Shake and Shingle Bureau.

1. 16 inches x ½"
2. Profile: Shingle profiles vary, match existing pattern of hexagon and square shingles.
3. Pressure treated

B. Starter Course: 15 inch long starter course shingle.

C. Nails for Shingles:
   1. 16 inch shingles: 3d stainless-steel type 304 nails.

2.2 METAL FLASHING AND TRIM

A. Sheet Metal Flashing and Trim: Comply with requirements in Division 07 Section "Sheet Metal Flashing and Trim."

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 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 asphalt shingles.
   3. For the record, prepare written report with photographs, endorsed by Installer, listing conditions detrimental to performance of work.

B. Existing shingles are assumed to be 16". Shingles profiles a mixture of square and hexagon. Shingle size is based on fallen shingles found in the bell tower. Field verify the shingle size and reveal. Notify architect if size and reveal deviates from the specification. Reveal not to exceed standards outlined by Cedar Shake and Shingle Bureau.

C. Proceed with installation only after unsatisfactory conditions have been corrected and shingle size and reveal has been confirmed.

3.2 PREPARATION

A. Do not proceed with application of shingles or shakes until all surfaces are dry, free of all debris and protruding nails, and properly supported for shingle nailing and application.

B. Clean substrates of projections and substances detrimental to application. Cover knotholes or other minor voids in substrate with sheet metal flashing secured with noncorrosive roofing nails.

C. Prepare shingles, accessories and roof substrates in accordance with manufacturer's requirements for wind and other warranties.

D. Coordinate installation with flashings and other adjoining work to ensure proper sequencing.
3.3 METAL FLASHING INSTALLATION

A. General: Install metal flashings and other sheet metal to comply with requirements in Division 07 Section "Sheet Metal Flashing and Trim."

1. Install metal flashings according to recommendations in NRCA's "The NRCA Roofing and Waterproofing Manual."

3.4 SHINGLE INSTALLATION

A. Installing Shingles:

1. Start shingles at eaves with a starter course so that the first course of shingles are doubled. Set the first and starter course of shingles so that they project beyond the metal drip edge one inch.

2. Space shingles 1/4 inch apart from adjacent shingle.

3. Stagger joints in courses so that no joints in any three adjacent courses are in alignment.

4. Shingle Weather Exposure:
   a. 16 inch shingle: 5 inch exposure.

5. Hip and Ridge Shingles:
   a. Start shingles at hips and ridges with a starter course.
   b. Use shingles of uniform width from 3 inches to 5 inches wide.
   c. Miter cut the shingles so that they can be installed with an alternate overlap between courses.

6. Nailing Shingles:
   a. Secure each shingle with two nails. Place each nail not more than 3/4 inch from the side of the shingle and not more than 2 inches above the butt line of the next course.
   b. Drive nails flush without driving the nail heads into the shingles or crushing the wood.

END OF SECTION 073113
SECTION 076200 – 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.

B. Section 013591: “Historic Treatment Procedures”.

C. Section 073113: “Asphalt Shingles”.

D. Section 061000 “Rough Carpentry” for wood nailers, curbs, and blocking.

E. Codes and standards set forth by:
   1. All work shall be performed in accordance with the “Secretary of the Interior’s Standards for Rehabilitation, “U.S. Department of the Interior, National Park Service, 1995.”
      a. Repair or replace, where necessary, deteriorated materials with new materials that duplicate old as closely as possible in appearance, color, and texture.
   3. Sheet Metal Roofing Standard: Comply with SMACNA’s “Architectural Sheet Metal Manual” unless more stringent requirements are specified or shown on Drawings
   4. Sheet Metal Standard for Flashing and Trim: Comply with NRCA’s "The NRCA Roofing Manual" and SMACNA’s "Architectural Sheet Metal Manual" requirements for dimensions and profiles shown unless more stringent requirements are indicated.
   5. Sheet Metal Standard for Copper: Comply with Revere’s "Copper and Common Sense." Conform to dimensions and profiles shown unless more stringent requirements are indicated.

1.2 SUMMARY

A. Section includes:
   1. Copper sheet metal flashing and trim.

B. Extents of each type of flashing and sheet metal work is indicated on the drawings and by the provisions of this section and as required to provide a complete water-tight roof assembly.

C. Preparation, cleaning, and priming of substrate.

D. Without restricting the volume or quantity, work included under this Section shall consists of but not be limited to:
   1. Shop-formed flashing and sheet metal work related to internal gutters, roofing, and gable terminations. Work includes removal of existing sheet metal flashings and installation of new sheet metal flashings and counter flashings.
   2. Shop-formed copper rib caps (spire roof).
   3. All other sheet metal fabrications indicated on the Contract Documents.
E. Coordinate installation of sheet metal flashing and trim with interfacing and adjoining construction to provide a leak-proof, secure, and noncorrosive installation.

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 leak proof, secure, and noncorrosive installation.

1.4 SCOPE
A. General: Provide all labor, materials, equipment, and services required to complete sheet metal flashing installation as specified herein and required by existing conditions and authorities having jurisdiction.

1.5 SUBMITTALS
A. Product Data: Submit complete product data for all products used in this Section.
B. Submit documentation of sheet metal fabricators past project experience that meets the minimum 5-year work experience outlined in the specification.

1.6 PROJECT CONDITIONS
A. Historic roofing craftsmanship characteristic of the structure are to be treated with sensitivity, to be preserved and followed.
B. Replacement and repair work shall be equal to original workmanship. Sheet metal work shall match prototype exposure, size, pattern, and material. Reinstall compatible fastenings.

1.7 ENVIRONMENTAL CONDITIONS
A. Do not perform work on metal in misty or rainy weather.
B. Do not apply metal flashing to wet roof sheathing.
C. At the end of the work day, provide building protection for any exterior roofing element removed for repair or replacement.
D. Remove only a quantity of sheet metal, which may be repaired on the same day. At the end of the day use 15 pound roofing felt or polyethylene sheeting to drape over missing roofing and insert under roof unit or temporarily secure areas of existing roofing and roof as required to make roof watertight and windproof.
E. Contractor is responsible for prevent damage and protecting building envelope and interior during completion of work.
1.8 QUALITY ASSURANCE

A. Sheet Metal Flashing Fabricator and Installer Qualifications: Employs skilled workers who have (5) years’ experience and 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. Furnish names of owners and architects of three buildings on which applicator has installed satisfactory flashing similar to type herein specified.

B. Uniform Wind Load Capacity: Design, size and install components to withstand positive and negative wind loading pressures in accordance with International Building Code and as verified by Structural Engineer.

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 products and accessories against damage and discoloration. Inside dry storage is required to prevent condensation from forming between sheets and components. 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.

C. Do not overload roof with stored materials or permit excessive traffic on completed roof surfaces.

1.10 WARRANTY

A. Special Warranty: Provide Warranty in which Installer agrees to repair or replace components of sheet metal flashing and trim that fail in materials or workmanship within specified warranty period.

1. Failures include, but are not limited to, the following:
   a. Structural failures including, but not limited to, rupturing, cracking, or puncturing.
   b. Wrinkling or buckling.
   c. Loose parts.
   d. Failure to remain weathertight, including uncontrolled water leakage.
   e. Deterioration of metals, metal finishes, and other materials beyond normal weathering, including nonuniformity of color or finish.
   f. Galvanic action between sheet metal roofing and dissimilar materials.

2. Warranty Period: Two years from date of Substantial Completion.

B. Special Warranty Architectural Sheet Copper: Manufacturer’s standard form in which manufacturer agrees to replace defective architectural sheet copper that shows evidence of free from defects in workmanship and materials within the specified warranty period.

1. Finish Warranty Period: 25 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: SMACNA's "Architectural Sheet Metal Manual" requirements for dimensions and profiles shown unless more stringent requirements are indicated.

C. Sheet Metal Standard for Copper: Comply with Revere's "Copper and Common Sense." Conform to dimensions and profiles shown unless more stringent requirements are indicated.

D. SPRI Wind Design Standard: Manufacture and install copings and roof edge flashings tested according to SPRI ES-1 and capable of resisting the following design pressure 115 MPH as required by local building codes.

E. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes to prevent buckling, opening of joints, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects.
   1. Temperature Change: 120 deg F, ambient; 180 deg F, material surfaces.

2.2 SHEET METAL FLASHING MATERIALS

A. General: Protect mechanical and other finishes on exposed surfaces from damage by applying strippable, temporary protective film before shipping.

B. Copper Sheet: ASTM B 370, cold-rolled copper sheet, H00 or H01 temper.
   1. 16 oz/sq. ft. and 20 oz/sq. ft.
   2. Non-patinated exposed finish: Mill
   3. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
      a. Hussey Copper Ltd.
      b. Revere Copper Products, Inc.
      c. Canadian Brass

2.3 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 unless otherwise indicated.

B. Fasteners: Use fasteners designed to withstand design loads and recommended by manufacturer of primary sheet metal.
   1. General: All fasteners must be compatible with base material on which they are used.
   2. Fasteners for Copper Sheet:
      a. Copper or passivated Series 300 stainless steel.
      b. No aluminum fasteners shall be used with copper sheet.
c. Use copper rivets with non-ferrous mandrels. All copper rivets must be soldered over.

C. Solder: ASTM B 32, Grade Sn50, 50 percent tin and 50 percent lead with maximum lead content of 0.05 percent.

D. Sealant Tape: Pressure-sensitive, 100 percent solids, polyisobutylene compound sealant tape with release-paper backing. Provide permanently elastic, nonsag, nontoxic, nonstaining tape 1/2 inch wide and 1/8 inch thick.

E. Caulk: Single part polyurethane sealant as indicated in Section 079200 Joint Sealants.

2.4 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. 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.
   3. 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. Fabricate cleats and attachment devices from same material as accessory being anchored or from compatible, noncorrosive metal.

D. 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.

E. Seams in Copper: Fabricate nonmoving seams with flat-lock seams. Tin edges to be seamed, form seams, and solder.

F. Do not use graphite pencils to mark metal surfaces.

PART 3 - EXECUTION

3.1 GENERAL

A. The installed work of this Section shall not be used as a storage space for other materials.

B. Do not permit unnecessary walking on the repaired sections of finished roof and sheet metal flashing. Require all personnel to wear rubber-soled shoes when installing or walking on a finished roof.
3.2 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. Before commencement of work, carefully examine all surfaces to receive work and notify the Architect in writing of any conditions detrimental to the performance of this work. Do not proceed until unsatisfactory or deteriorated conditions have been inspected, corrected and are acceptable to the Architect and the applicator. Commencement of work will be construed as the applicator's acceptance of all surfaces. Commencement of the work prior to the Architect's inspection and acceptance is done at the applicator's risk.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.3 UNDERLAYMENT INSTALLATION

A. Comply with guidelines and temperature restrictions of underlayment manufacturer for installation. Apply in shingle fashion to shed water, with end laps of not less than 6 inches staggered 24 inches between courses. Overlap side edges not less than 3-1/2 inches. Roll laps and edges with roller. Cover underlayment within 14 days. See Section 073113 Asphalt Shingles for material specification.

3.4 INSTALLATION

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 separating surfaces with a permanent separation as recommended by sheet metal manufacturer or cited sheet metal standard.
   1. Underlayment: Where installing sheet metal flashing and trim directly on cementitious or wood substrates, install underlayment and cover with slip sheet.
C. Fasteners: Use fastener sizes that penetrate substrate not less than recommended by fastener manufacturer to achieve maximum pull-out resistance.

D. Conceal fasteners and expansion provisions in exposed work and locate to minimize possibility of leakage. Fasteners shall not be exposed.

E. Soldered Joints: Clean surfaces to be soldered, removing oils and foreign matter. Pre-tin edges of sheets to be soldered to a width of 1-1/2 inches (38 mm), except where pre-tinned surface would show in finished Work.
   1. Do not use torches for soldering.
   2. Heat surfaces to receive solder and flow solder into joint. Fill joint completely. Completely remove flux and spatter from exposed surfaces.
   3. Copper Soldering: Tin edges of uncoated sheets, using solder for copper.
   4. Soldering: All soldering shall be done with well heated solders to heat sheet thoroughly and to sweat solder completely through full width of seam. Ample solder shall be used and seam shall show at least one full inch of evenly flowed solder. Wherever possible, all soldering shall be done in flat position. Seams on slopes steeper than 45 degrees shall be soldered a second time.

3.5 FLASHING

A. General: Install sheet metal wall flashing to intercept and exclude penetrating moisture according to cited sheet metal standard unless otherwise indicated.

B. Flashing shall be fabricated out of copper sheet metal. See Asphalt Shingle Section 073113 for gauge of copper by location.

C. Install new sheet metal in accordance with Drawings, reviewed shop drawings, manufacturer’s instructions and standards of workmanship as published by SMACNA

D. Fabricate shapes as detailed and approved.

E. Accurately fabricate and fit parts, with surfaces free from warp, wave, buckle, dent or other defects, and with square corners and angles, unless otherwise shown.

F. Install water and weather tight where exposed to the weather, with the provision for free expansion and contraction without causing leaks.

G. Clean soldered surfaces prior to soldering. Fully flow soldered joints. Scrape and finish exposed solder smooth. Remove traces of flux or acid.

H. Exposed fasteners are not permitted.

I. Fold, bead, hem or return exposed edges of fabricated sheet metal; no raw edges will be permitted.

J. Close all ends.
3.6 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."

3.7 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.

END OF SECTION 076200
SECTION 077123 – GUTTERS AND DOWNSPOUTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Documents and general provisions of the Contract, including the General and Supplementary Conditions and Division 01 Specifications Sections, apply to this section.

B. Codes and standards set forth by:
   1. Preservation Brief #4, "Roofing for Historic Buildings" as published by the U. S. National Park Service.
   2. Sheet Metal Roofing Standard: Comply with SMACNA's "Architectural Sheet Metal Manual" unless more stringent requirements are specified or shown on Drawings
   4. Sheet Metal Standard for Copper: Comply with Revere's "Copper and Common Sense." Conform to dimensions and profiles shown unless more stringent requirements are indicated.

1.2 SUMMARY

A. Section Includes but is not limited to:
   1. Removal of existing internal membrane and fluid applied gutters, insulation, ventilation boxes, and accessories complete.
   2. Installation of internal 18-gauge stainless steel gutters as indicated in the Drawings. Install expansion joints as required.
   3. Modification of leader heads as required for installation of new thru-wall scuppers and scupper liners.
   4. Replacement of missing and damaged downspout brackets.
   5. Installing new stainless-steel overflow pipes and scuppers.
   6. Replace one (1) missing splash block.

B. Related Sections
   1. Section 013591: “Historic Treatment Procedures”
   2. Section 061000 "Rough Carpentry" for sheathing, wood nailers, curbs, and blocking.
   4. Section 076200 "Sheet Metal Flashing and Trim" for metal roof flashings and counter-flashings.
   5. Section 073129 “Wood Shingle Roofing”.
   6. Section 079200: "Joint Sealants".

1.3 PERFORMANCE REQUIREMENTS

A. General: Install gutter and downspouts to withstand structural movement, thermally induced movement, and exposure to weather without failing, rattling, leaking, and fastener disengagement.

B. Thermal Movements: Provide exterior metal fabrications that allow for thermal movements resulting from the following maximum change (range) in ambient and surface temperatures by
preventing buckling, opening of joints, overstressing of components, failure of connections, and other detrimental effects. Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.
1. Temperature Change (Range): 120 deg F, ambient; 180 deg F, material surfaces.

1.4 SUBMITTALS
A. Samples for Verification.
   1. Downspout brackets.
   2. Welding Sample: See Section 1.7E for requirements.
B. Product Data: Submit product data for all materials specified.
C. Fabricator/Installer Qualifications
D. Welding certificates from AWS. Minimum Requirement: AWS 6G Stainless

1.5 PROJECT CONDITIONS
A. Installation Requirements
   1. Installation contractor is responsible for installing system, including anchorage to substrate and necessary modifications to meet specified and drawn requirements and maintain visual design concepts in accordance with Contract Documents and following installation methods as stipulated by the manufacturer.
   2. Drawings are diagrammatic and are intended to establish basic dimension of units, sight lines, and profiles of units.
      a. Make modifications only to meet field conditions and to ensure fitting of system components.
      b. Obtain Architect's approval of modifications.
      c. Provide concealed fastening wherever possible.
      d. Attachment considerations: Account for site peculiarities and expansion and contraction movements so there is no possibility of loosening, weakening and fracturing connection between units and building structure or between components themselves.
      e. Obtain Architect's approval for connections to building elements at locations other than indicated in Drawings.
      f. Accommodate building structure deflections in system connections to structure.
   3. System shall accommodate movement of components without buckling, failure of joint seals, undue stress on fasteners, or other detrimental effects when subjected to seasonal temperature changes and live loads.

1.6 ENVIRONMENTAL ISSUES
A. Do not apply gutter or downspout materials during inclement weather.
1.7 QUALITY ASSURANCE


B. Sheet Metal Flashing Fabricator and Installer Qualifications: Employs skilled workers who have (5) years’ experience and custom fabricate sheet metal gutters similar to that required for this Project and whose products have a record of successful in-service performance. Furnish names of owners and architects of two buildings on which applicator has installed satisfactory internal gutters similar to type herein specified. All welders must be certified by AWS specifically for the welding procedures as outlined in this specification. Minimum certification is AWS 6G Stainless.

C. Uniform Wind Load Capacity: Design, size and install components to withstand positive and negative wind loading pressures in accordance with International Building Code and as verified by Structural Engineer.

D. Owner is to hire third party inspector to inspect lapping and welding methods of stainless-steel gutter liner prior to and during installation. Contractor to provide architect and third-party inspector with profile and sample that is at least 12” in length. Sample to be lapped and welded. Sample is to be an exact replica and duplication of materials to be used and process to be performed during installation of actual system. Contractor, Inspector, and Architect to meet prior to installation of stainless-steel gutter liner to review sample and discuss installation methods. Inspector to provide 100% inspection of welds during installation.

1.8 DELIVERY STORAGE AND HANDLING

A. Packing, Shipping, Handling, and Unloading: Protect finish metal faces.

B. Acceptance at Site: Examine each component and accessory as delivered and confirm that material and finish is undamaged. Do not accept or install damaged materials.

C. Prevent contact with materials that could cause discoloration, staining, or damage.

D. Stack pre-formed material to prevent twisting, bending, and abrasions, and to provide ventilation. Slope to drain.

1.9 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. Finish Warranty Period: 20 years from date of Substantial Completion.
PART 2 - PRODUCTS

2.1 SHEET METAL MATERIALS

A. General: Protect mechanical and other finishes on exposed surfaces from damage by applying strippable, temporary protective film before shipping.

B. Stainless Steel Sheet (Gutter Liner, thru-wall scuppers): ASTM A 240/A 240M or ASTM A 666, Type 304L, dead soft, fully annealed; with smooth flat surface
   1. 16-gauge
   2. 304L Stainless Steel, mill finish
   3. Profile as indicated in Drawings.
   4. Gutter liner sheets to be installed in 10ft. sections.

C. Copper Sheet (counter flashing): ASTM B 370, cold-rolled copper sheet, H00 or H01 temper.
   1. 16 oz/sq. ft.
   2. Non-patinated exposed finish: Mill
   3. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
      a. Hussey Copper Ltd.
      b. Revere Copper Products, Inc.
      c. Canadian Brass

2.2 DOWNSPOUT MATERIALS

A. Copper Downspout Brackets: Copper Downspout Bracket to match existing straps. Fasten with non-corrosive metals screw. Lead shields to be used when fastening into masonry.

B. Splash Blocks
   1. Concrete splash blocks- Match existing.

2.3 MISCELLANEOUS MATERIALS

A. General: Provide materials and types of fasteners, solder, protective coatings, sealants, and other miscellaneous items as required for complete installation and as recommended by manufacturer unless otherwise indicated.

B. Through Wall Pipe (overflow at gutters): 3" 304 stainless steel pipe, ASTM A312.

C. Fasteners: Use fasteners designed to withstand design loads and recommended by manufacturer of primary sheet metal.
   1. General: All fasteners must be compatible with base material on which they are used.
   2. Fasteners for Copper Sheet: Copper or passivated Series 300 stainless steel.
      a. No aluminum fasteners shall be used with copper sheet.
   3. Use copper rivets with non-ferrous mandrels.

D. Solder (Copper): ASTM B 32, Grade Sn50, 50 percent tin and 50 percent lead with maximum lead content of 0.05 percent.
   1. Flux: Muriatic acid neutralized with zinc or approved brand of soldering flux.

E. Filler Metal (Stainless-steel): 308L, 309L or 316L stainless steel metal filler.
1. Flux: Tri-mix gas

F. Caulk (metal to masonry): Single part linear polyurethane polymer as indicated in Section 079200 “Joint Sealants”

2.4 UNDERLAYMENT MATERIALS

A. Self-Adhering, High-Temperature Sheet: Minimum 30 mils thick, consisting of a slip-resistant polyethylene- or polypropylene-film top surface laminated to a layer of butyl- or SBS-modified asphalt adhesive, with release-paper backing; specifically designed to withstand high metal temperatures beneath metal roofing. Provide primer according to written recommendations of underlayment manufacturer.

1. Products: Subject to compliance with requirements, provide one of the following:
   a. Soprema, Lastobond Shield HT
   b. Grace Construction Products, a unit of W. R. Grace & Co.-Conn.; Grace Ice and Water Shield HT.
   c. Henry Company; Blueskin PE200 HT.
   d. Owens Corning; WeatherLock Specialty Tile & Metal Underlayment.


3. Low-Temperature Flexibility: ASTM D 1970; passes after testing at minus 20 deg F or lower.

B. Slip Sheet: Rosin-sized building paper, 3 lb/100 sq. ft. minimum

2.5 FABRICATION, GENERAL

A. Shop Assembly: Preassemble items in the shop to greatest extent possible. Disassemble units only as necessary for shipping and handling limitations. Use connections that maintain structural value of joined pieces. Clearly mark units for reassembly and coordinated installation.

B. Fabricate gutters, downspouts, and fittings to the shape and profile indicated on the Drawings. When fabrication details are not indicated follow the applicable requirements of the Architectural Sheet Metal Manual of the Sheet Metal And Air Conditioning Contractors National Association, Inc.

C. Expansion Provisions: Follow provisions to accommodate expansion and contraction of gutter systems.

D. Solder for Copper:

1. Solder metal joints except those indicated or required to be movement type joints in accordance with the "Copper in Architecture" handbook published by the Copper Development Association Inc. (CDA).

2. Tin edges of copper sheets and cleats at soldered joints.

3. Upon completion of each area of soldering, carefully remove flux and other residue from surfaces. Neutralize acid flux by washing with baking soda solution, and then flushing with clear water. Use special care to neutralize and clean crevices.

E. Cut, drill, and punch metals cleanly and accurately. Remove burrs and ease edges to a radius of approximately 1/32 inch, unless otherwise indicated. Remove sharp or rough areas on exposed surfaces.
F. Form bent-metal corners to smallest radius possible without causing grain separation or otherwise impairing work.

G. Form exposed work true to line and level with accurate angles and surfaces and straight edges.

H. Weld corners and seams continuously to comply with the following:
   1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
   2. Obtain fusion without undercut or overlap.
   3. Remove welding flux immediately.
   4. At exposed connections, finish exposed welds and surfaces smooth and blended so no roughness shows after finishing and contour of welded surface matches that of adjacent surface.

I. Form exposed connections with hairline joints, flush and smooth, using concealed fasteners where possible. Where exposed fasteners are required, use Phillips flat-head (countersunk) screws or bolts, unless otherwise indicated. Locate joints where least conspicuous.

J. Fabricate seams and other connections that will be exposed to weather in a manner to exclude water. Provide weep holes where water may accumulate.

K. Cut, reinforce, drill, and tap metal fabrications as indicated to receive finish hardware, screws, and similar items.

L. Provide for anchorage of type indicated; coordinate with supporting structure. Space anchoring devices to secure metal fabrications rigidly in place and to support indicated loads.

2.6 FINISHES, GENERAL

   A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.

   B. Finish metal fabrications after assembly.

PART 3 - EXECUTION

3.1 GENERAL

   A. The installed work of this Section shall not be used as a storage space for other materials.

   B. Do not permit unnecessary walking on the repaired sections of finished gutter and sheet metal flashing. Require all personnel to wear rubber-soled shoes when installing or walking on a finished gutter.

3.2 PREPARATION

   A. Verify that substrates are in place and ready for installation of gutters.

   B. Do not install the Work of this Section unless all necessary nailers, blocking and other supporting components have been provided.
      1. Coordinate installation of roof perimeter flashing with installation of gutter system.
C. Confirm that substrate system is even, smooth, sound, clean, dry, and free from defects.

3.3 GENERAL

A. General: Install framing and supports to comply with requirements of items being supported, including manufacturers' written instructions and requirements indicated on Shop Drawings.
1. Provide flashing, counterflashsing, cap flashing, metal trim, or any other fabricated items and miscellaneous sheet metalwork indicated or required to provide a complete and watertight installation.
2. Install gutters and downspout brackets as indicated and in accordance with the Drawings and pertinent provisions of SMACNA Architectural Sheet Metal Manual.
3. Anchor supports for operable partitions securely to and rigidly brace from building structure.
4. All gutters, scuppers, and roof drains must be replaced and securely attached to structure.

B. Work Quality:

1. General: Except as otherwise indicated, comply with Architects installation instructions and recommendations and with cited industry standards. Anchor units of work securely in place by methods indicated, providing for thermal expansion of units; conceal fasteners where possible, and set units true to line and level as indicated. Install work with laps, joints, and seams that will be permanently watertight and weatherproof
   a. Install units plumb, square, and free from warp or twist while maintaining dimensional tolerances and alignment with surrounding construction.
   b. Fit gutters to downspouts and flashings for watertight connections. Make corners square, surfaces true and straight in planes, and lines accurate to profiles.
   c. Miter, lap seam and close corner joints with welds. Seal seams and joints watertight with welds.
   d. Install expansion joints at frequency recommended by the cited industry standards. Do not fasten moving seams such that movement is restricted.
   e. Coordinate with installation of roofing system and roof accessories

C. Gutters shall have the minimum cross section dimensions as shown on the drawings.

D. The opening in the gutter into the downspout shall equal the existing drain sizes in locations shown on the drawings.

E. 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 separating surfaces with a permanent separation as recommended by sheet metal manufacturer or cited sheet metal standard.
   1. Underlayment: Where installing sheet metal flashing and trim directly on cementitious or wood substrates, install underlayment and cover with slip sheet.

F. Fasteners: Use fastener sizes that penetrate substrate not less than recommended by fastener manufacturer to achieve maximum pull-out resistance.

G. Conceal fasteners and expansion provisions in exposed work and locate to minimize possibility of leakage. Fasteners shall not be exposed.

H. Soldered Joints: Clean surfaces to be soldered, removing oils and foreign matter. Pre-tin edges of sheets to be soldered to a width of 1-1/2 inches (38 mm), except where pre-tinned surface would show in finished Work.
1. Do not use torches for soldering.
2. Heat surfaces to receive solder and flow solder into joint. Fill joint completely. Completely remove flux and spatter from exposed surfaces.
3. Copper Soldering: Tin edges of uncoated sheets, using solder for copper.
4. Soldering: All soldering shall be done with well heated solders to heat sheet thoroughly and to sweat solder completely through full width of seam. Ample solder shall be used and seam shall show at least one full inch of evenly flowed solder. Wherever possible, all soldering shall be done in flat position. Seams on slopes steeper than 45 degrees shall be soldered a second time.

3.4 UNDERLAYMENT INSTALLATION

A. Comply with guidelines and temperature restrictions of underlayment manufacturer for installation. Apply in shingle fashion to shed water, with end laps of not less than 6 inches staggered 24 inches between courses. Overlap side edges not less than 3-1/2 inches. Roll laps and edges with roller. Cover underlayment within 14 days.

B. Apply slip sheet, wrinkle free, over underlayment before installing sheet metal gutter.

3.5 INTERNAL GUTTER INSTALLATION

A. Internal Gutters

1. Remove of existing internal membrane/fluid applied gutters, thru-wall scuppers, insulation, and accessories down to deck.
2. Install as indicated on Drawings and in accordance with cited industry standards.
3. Install gutter level.
4. Install expansion joints as required by cited industry standards.
5. Provide fasteners as indicated and as recommended by cited industry standards.

B. Scupper liners

1. Remove existing scupper liner. Repair stucco substrate.
2. Locate new scupper liners per Drawings. Fabricate new scupper liners.
3. Install as indicated on Drawings and in accordance with cited industry standards.
4. Provide fasteners as indicated and as recommended by cited industry standards.

C. Downspouts

1. Replace damaged and missing downspouts brackets, securely attach downspouts to structure.

D. Installation of Missing Splash Blocks: Install splash block where downspout discharges onto grade (north elevation).

E. Install counter-flashing as indicated to prevent water from migrating behind gutter system.
3.6 ERECTION TOLERANCES

A. Installation Tolerances: Shim and align sheet metal 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.


3.7 CLEAN UP

A. Remove damaged, defective or improperly installed materials. Replace with new materials installed per requirements of this section.

B. Remove temporary protective coverings and strippable films as sheet metal are installed unless otherwise indicated in manufacturer's written installation instructions. On completion of sheet metal installation, remove unused materials and clean finished surfaces as recommended by sheet metal manufacturer. Maintain sheet metal in clean condition during construction.

C. Clean finished surfaces according to manufacturer's written instructions; maintain clean condition until Final Completion.
   1. Clean exposed metal surfaces of substances that interfere with uniform oxidation and weathering.
   2. Clean and neutralize flux materials. Clean off excess solder.
   3. Clean off excess sealants.

END OF SECTION 077123
SECTION 079200 - 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. Joint sealants.

B. Related Sections:
1. Section 013591: “Historic Treatment Procedures”.
2. Section 076200 "Sheet Metal Flashing and Trim".
3. Section 077123 “Gutters and Downspouts”.
4. Section 099000 “Architectural Coatings”.

1.3 SUBMITTALS
A. Product Data: For each joint-sealant product indicated.

B. Joint-Sealant Schedule: Include the following information:
1. Joint-sealant application, joint location, and designation.
2. Joint-sealant manufacturer and product name.

C. Manufacturer and Special Installer Warranties

1.4 QUALITY ASSURANCE
A. Source Limitations: Obtain each kind of joint sealant from single source from single manufacturer.

1.5 PROJECT 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.

1.6 WARRANTY

A. Special Installer's Warranty: Manufacturer's standard form in which 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 Manufacturer's Warranty: Manufacturer's standard form in which joint-sealant manufacturer agrees to furnish joint sealants to repair or replace those that do not comply with performance and other requirements specified in this Section within specified warranty period.
   1. Warranty Period for Urethane Sealants: 5 years from date of Substantial Completion.
   2. Warranty Period for Silicone Sealants: 20 years from date of Substantial Completion.

C. Special warranties specified in this article exclude deterioration or failure of joint sealants from the following:
   1. Movement of the structure caused by structural settlement or errors attributable to design or construction resulting in stresses on the sealant exceeding sealant manufacturer's written specifications for sealant elongation and compression.
   2. Disintegration of joint substrates from natural 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 MATERIALS, 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.

2.2 MATERIALS, 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. Liquid-Applied Joint Sealants: Comply with ASTM C 920 and other requirements indicated for each liquid-applied joint sealant specified, including those referencing ASTM C 920 classifications for type, grade, class, and uses related to exposure and joint substrates.
C. Stain-Test-Response Characteristics: Where sealants are specified to be non-staining to porous substrates, provide products that have undergone testing according to ASTM C 1248 and have not stained porous joint substrates indicated for Project.

D. Colors of Exposed Joint Sealants: As selected by Architect from manufacturer's full range.

2.3 ELASTOMERIC JOINT SEALANTS

A. Elastomeric Sealants: Comply with ASTM C 920 and other requirements indicated for each liquid-applied chemically curing sealant specified, including those referencing ASTM C 920 classifications for type, grade, class, and uses related to exposure and joint substrates.

B. Joint Sealant Material (Wood to Wood): Sealant to be paintable.
   1. Exterior
      a. Sashco Big Stretch Sealant
      b. An approved equal
      NOTE: Sealants must be primed

2.4 URETHANE JOINT SEALANTS

A. Joint Sealant Material (Wood to Metal) (Metal to Stucco):
   1. Exterior
      a. Single-Component, Nonsag, Urethane Joint Sealant: ASTM C 920, Type S, Grade NS, Class 25, for Use NT.
         1) Sika Corporation, Inc.; Sikaflex - 1a
         2) BASF Building Systems; Sonolastic NP1.
         3) Tremco; Vulkem 116.

2.5 JOINT-SEALANT BACKING

A. General: Provide sealant backings of material and type that are non-staining; are compatible with joint substrates, sealants, primers, and other joint fillers; and are 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) or other type, as approved in writing by joint-sealant manufacturer for joint application indicated, and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance:

C. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint-filler materials or joint surfaces at back of joint where such adhesion would result in sealant failure. Provide self-adhesive tape where applicable.

2.6 MISCELLANEOUS MATERIALS

A. Primer: Material recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests. Prime all joint substrates unless indicated otherwise in writing by the Architect.
B. Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials, free of oily residues or other substances capable of staining or harming joint substrates and adjacent nonporous surfaces in any way, and formulated to promote optimum adhesion of sealants to joint substrates.

C. Masking Tape: Non-staining, 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 joint-sealant performance.

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

C. Before commencement of work, carefully examine all surfaces to receive work and notify the Architect in writing of any conditions detrimental to the performance of this work. Do not proceed until unsatisfactory or deteriorated conditions have been inspected, corrected and are acceptable to the Architect and the applicator. Commencement of work will be construed as the applicator’s acceptance of all surfaces. Commencement of the work prior to the Architect’s inspection and acceptance is done at the applicator’s risk.

3.2 PREPARATION

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

1. Remove all foreign material from joint substrates that could interfere with adhesion of joint sealant, including dust, paints (except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer), old joint sealants, oil, grease, waterproofing, water repellents, water, surface dirt, and frost.

2. Clean porous joint substrate surfaces by brushing, grinding, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint sealants. Remove loose particles remaining after cleaning operations above by vacuuming or blowing out joints with oil-free compressed air.

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.

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 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.

E. Tooling of Non-sag Sealants: Immediately after sealant application and before skinning or
curing begins, tool sealants according to requirements specified in subparagraphs below to form
smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure
contact and adhesion of sealant with sides of joint.

1. Remove excess sealant from surfaces adjacent to joints.
2. Use tooling agents that are approved in writing by sealant manufacturer and that do not
discolor sealants or adjacent surfaces.
3. Provide concave joint profile per Figure 8A in ASTM C 1193, unless otherwise indicated.
   a. Use masking tape to protect surfaces adjacent to recessed tooled joints.

F. Installation of Preformed Foam Sealants: Install each length of sealant immediately after
removing protective wrapping. Do not pull or stretch material. Produce seal continuity at ends,
turns, and intersections of joints. For applications at low ambient temperatures, apply heat to
sealant in compliance with sealant manufacturer's written instructions.

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 and remove damaged or deteriorated joint sealants immediately so installations with repaired areas are indistinguishable from original work.

3.6 JOINT-SEALANT SCHEDULE

A. Exterior joints in vertical surfaces and horizontal nontraffic surfaces.

1. Joint Locations:
   a. Control and expansion joints in unit masonry.
   b. Joints between metal panels.
   c. Joints between different materials listed above.
   d. Perimeter joints between materials listed above and frames of doors and windows.
   e. Control and expansion joints in ceilings and other overhead surfaces.
   f. Other dynamic joints as indicated.
   g. Construction joints in copper flashing.
   h. Joints between copper flashing and stucco masonry.
   i. Joints between copper flashing and woodwork.

2. Joint Sealant: Paintable single component non-sag urethane sealant, as recommended by manufacturer.

3. Joint-Sealant Color: As selected by Architect from manufacturers full range of colors.

END OF SECTION
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.

B. Related Sections:
   2. Section 076200: Sheet Metal Flashings and Trim.

C. Codes and standards set forth by:
   1. All work shall be performed in accordance with the “Secretary of the Interior’s Standards for Rehabilitation, "U.S. Department of the Interior, National Park Service, 1995."
      a. Repair or replace, where necessary, deteriorated materials with new materials that duplicate old as closely as possible in appearance, color, and texture.
      b. Retain original material wherever possible.

1.2 SUMMARY

A. Work includes, but is not necessarily limited to, the following:
   1. New louvered shutters (spire) to match existing.
      a. Construct new louvered shutters complete. Provide complete assembly for new shutters, jamb, trim, and sill. Match existing profiles unless otherwise noted.
      b. Provide flashing, hardware mesh, and insect screen.

1.3 DEFINITIONS

A. Restoration: The act or process of accurately depicting the form, features, and character of a property as it appeared at a particular period of time by means of the removal of features from other periods in its history and reconstruction of missing features from the restoration period.

B. Restore: To consolidate, replicate, reproduce, repair, and refinish as required to achieve the indicated results.

1.4 SCOPE

A. General: Provide all labor, materials, equipment, and services required to complete wood shutter restoration as specified herein and required by existing conditions and authorities having jurisdiction.

1.5 SUBMITTALS

A. Product Data: Submit product data and applicable MSDS sheets for all materials specified within this section.
B. Contractor Qualifications: Submit documentation of contractor’s past project experience that meets the work experience outlined in the specification. Submit resume for lead/fabricator carpenter.

C. Shop Drawings for Louvered Shutter Assembly. Show location of each item, dimensioned plans and elevations, large-scale details, attachment devices, and other components. Provide details for hardware mesh and insect screen attachment.

1.6 PROJECT CONDITIONS

A. Do not install products that are wet, moisture damaged, or contaminated.

B. The Contractor must create a catalog of all items removed site with a template approved by the Architect prior to removal. Template shall include a description of each item, location in structure, date of removal, location to which item was removed to, and date of return to the site.

C. Protect openings from damage or deterioration until time of substantial completion.

D. The Contractor is responsible for protecting existing adjacent materials and surfaces during the execution of the work and shall provide all necessary protection and follow all necessary work procedures to avoid damage to existing material assemblies not a part of the work in the Section.

E. The Contractor shall provide visible barriers and warning tape around the perimeter of the work area for visitor protection and shall also provide that nearby vehicles and adjacent structures will be protected from damage during the course of the work.

F. Do not store dressed or treated lumber or plywood outdoors. Store materials for which a maximum moisture content is specified, only in areas where relative humidity has been reduced to a level where specified moisture content can be maintained with a tolerance of plus or minus 1%.

1.7 ENVIRONMENTAL CONDITIONS

A. Weather Limitations for Exterior Work: Proceed with installation of exterior wood trim only when existing and forecasted weather conditions permit work to be performed and at least one coat of specified finish to be applied without exposure to rain, snow, or dampness.

1.8 QUALITY ASSURANCE

A. Work Experience:
   1. Contractor must have a minimum of five (5) years demonstrated historic finish carpentry experience and are thoroughly experienced with materials and methods specified.
   2. Lead carpenter/Fabricator must have a minimum of five (5) years demonstrated experience.

B. Laws, Codes, and Regulations: All work of this Section shall comply with all applicable federal, state, and local laws, codes, and regulations.

1.9 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials to site and store in manufacturer’s original unopened containers and packaging, bearing labels as to type and names of products and manufacturers, and which shall show grade, batch, and production data.
B. Deliver, store, and handle all products and materials to prevent damage, deterioration, or degradation and intrusion of foreign materials

C. Replacements: In the event of damage to the products, immediately make all repairs and replacements at no additional cost to the Architect.

PART 2 - PRODUCTS

2.1 Materials


B. Louvered Shutters: Sapele shall be used for all new and replacements pieces.

C. Shutter Casing, Jamb, and Trim: Sapele shall be used for all new and replacements pieces.

D. Sills: Sapele shall be used for all new and replacement sills.

E. Hardware Mesh: ½” x ½” aluminum hardware mesh, attach with compatible non-ferrous, heavy gauge staples.

F. Insect Screen: aluminum screen, attach with compatible non-ferrous, heavy gauge staples.

G. Caulking Materials: As specified in Section 079200 Joint Sealants.

H. Wood Filler
   1. Use a Bisphenol A based low viscosity liquid epoxy resin with appropriate hardener that cures to a high strength plastic solid under room temperatures.
   2. Epoxy to hardener ratio shall not exceed 5:1.
   3. Product shall be specifically designed to bond with historic wood fiber and must be able to be sanded and shaped when cured.
      a. Manufacturers:
         1) West System
         2) An Approved equal

I. Fasteners: All exterior fasteners shall be stainless steel grade 304 or better.

PART 3 - EXECUTION

3.1 PREPARATION

A. Examine substrates, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance.

B. Verify adequacy of backing and support framing.

C. Examine materials before installation. Reject materials that are wet, moisture damaged, and mold damaged.

D. Proceed with installation only after unsatisfactory conditions have been corrected.

E. Clean substrates of projections and substances detrimental to application.
3.2 FABRICATION

A. Match existing detailing.

B. In kind replacement: Except as specifically indicated otherwise, provide replacement elements with configurations, profiles, dimensions and joinery exactly matching those of existing elements.

C. Machining and Surfacing: Machine and surface all new and replacement wood elements to provide smooth even surfaces without saw marks or plane marks. Wood with surface irregularities, including but not limited to scratches, saw marks, and plane knife marks, visible after finish has been applied will be rejected and shall be replaced with properly finished wood elements at no additional cost.

D. All exterior woodwork to be primed prior to installation.

3.3 INSTALLATION, GENERAL

A. Replace louvered shutter assembly and woodwork as specified by Drawings.

B. Provide all wood blocking and framing required to support items. Use fastening materials of types appropriate for the conditions encountered, including wood to wood, wood to masonry, and wood to metal stud framing. Counterbore holes for nuts and bolt heads, and countersink for screws. Use concealed fasteners in exposed surfaces.

C. Install woodwork to comply with referenced quality standard for grade specified.

D. Install woodwork true and straight with no distortions. Shim as required with concealed shims. Install level and plumb to a tolerance of 1/8 inch in 96 inches (3 mm in 2400 mm).

E. Scribe and cut woodwork to fit adjoining work and refinish cut surfaces or repair damaged finish at cuts.

3.4 ADJUSTING

A. Replace fixed louver assembly’s that are damaged or do not comply with requirements.

3.5 CLEAN UP

A. Protect surfaces from contact with contaminating substances resulting from construction operations.

B. Upon completion of work, remove tools, equipment, and other unnecessary materials from site. Return adjacent area and surrounding property to the condition which existed prior to the start of work.

C. Remove and legally dispose off-site all debris, rubbish, and other materials resulting from operations of this section.

END OF SECTION 080352
SECTION 090120 – STUCCO REPAIRS AND REPLACEMENT

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.

B. Codes and Standards set forth by:

1.2 SUMMARY

A. Work includes, all labor, materials, equipment, and services necessary to complete the work of stucco repairs and new stucco as shown on the Drawings, as specified herein, and as may be required by conditions and authorities having jurisdiction, including, but is not necessarily limited to, the following:

   1. Repair stucco damage related to removal of existing roofs, flashing, counterflashing, and gutter systems. Modify stucco as required to install new roofs, flashing, counterflashing, and internal gutters.
      a. Contractor is responsible for repairing stucco, brick, and mortar damage caused by contractor during the process of performing the scope of work outlined in the drawings.
      b. Preparation of existing stucco to receive new work. Repointing masonry substrate as required.
      c. Application of stucco as specified.
      d. Finish new stucco to match existing.
         1) Natural Cement Stucco (new work and repairs to existing historic stucco).
         2) Portland Cement Stucco (repairs to stucco on existing modern crenellations adjacent to main sanctuary gutter at South Elevation).

   2. Stucco new crenellations on the north elevation. Stucco previously modified engaged pilasters on the north elevation. See drawings outlining locations.
      a. Application of stucco as specified.
      b. Finish new stucco to match existing.
         1) Natural Cement Stucco.

B. Related Sections
   1. Section 013591 “Historic Treatment Procedures”.
   2. Section 040513 “Mortars for Structural Repairs and Repointing”.

STUCCO REPAIRS AND REPLACEMENT
Trinity Episcopal Church Spire Stabilization & Exterior Repair Project
Project No. 2019-001
Meadors, Inc.

090120 - 1
05/29/2019
1.3 **SCOPE**

A. Provide all labor and materials to repair and restore stucco as specified herein and as detailed on the Drawings.

1.4 **SUBMITTALS**

A. Contractor Qualifications: Submit documentation of mason’s past project experience that meets the work experience outlined in the specification. Provide references for a minimum of two (2) projects completed in the last five years that employed natural cement stuccos, including contact names and phone numbers. Submit resume of lead mason.

B. Product Data, MSDS, and manufacturer’s instructions for all specified materials used during the course of the work. Provide product literature that indicates that products meet or exceed specified requirements, and ingredients meet applicable ASTM standards.

C. Submit stucco design mix. If pre-mix is selected, design mix is not required.

D. Prepare portable samples approximately 18 x 18 inches. Once a matching stucco sample has been approved by the Architect, on site mockup may begin.

E. Pre-installation meeting shall be held to review extent of stucco repairs.

1.5 **PROJECT CONDITIONS**

A. Protection of Building: Protect building elements and finishes from damage and from deterioration caused by work of this section.

  1. Minimize levels of dust during stucco removal and application operations.
  2. Protect open joints and other vulnerable areas from water penetration to prevent leakage during the course of the work. Open areas shall not be left exposed overnight or when inclement weather is predicted.
  3. Protect adjacent work from moisture deterioration and soiling due to stucco rehabilitation work. Provide temporary coverings as required to prevent spattering of stucco on other materials.
  4. The Contractor shall provide visible barriers and / or warning tape around the perimeter of the work area for visitor protection and shall provide that nearby vehicles and adjacent structures and foliage are protected from damage during the stucco rehabilitation work.
  5. Contractor shall coordinate stucco work with the other trades involved in exterior rehabilitation work.

1.6 **SEQUENCING AND SCHEDULING**

A. Perform stucco repair work in the following sequence:

  1. Remove plant growth.
  2. Repair stucco with new stucco materials. Repoint masonry below stucco as required.
  3. After repairs have been completed and cured, perform a final cleaning to remove residues from this work.
  4. Prep surface and paint stucco following required curing.
1.7 ENVIRONMENTAL CONDITIONS

A. General: Perform work only when temperature of products being used and air temperature and humidity comply with the manufacturer’s requirements and requirements of this Section. In case of conflict, the most stringent requirements shall govern.

B. Cold Weather Limitations on use of stucco: Do not mix or use stucco when air or masonry temperature is below 40 degrees F or when it is expected to drop below 40 degrees F within 72 hours of stucco application. Protect work from freezing for not less than 72 hours after set of material has occurred.

C. When ambient air temperature is below 40 degrees F, heat mixing water to maintain stucco temperature between 40 and 120 degrees F until placed. If necessary, store materials in a heated area to allow stucco temperatures to remain above 40 degrees F throughout the placement and finishing cycle.

D. Hot Weather Limitations: Under hot, dry and windy conditions use proper pre-dampening, protection and moist curing procedures as required to keep stucco moist for 72 hours following final tooling.

1.8 QUALITY ASSURANCE

A. The Contractor shall not change sources or manufacturers of stucco materials during the course of the work.

B. Mock-Up: Before starting work, prepare and stucco a sample area of not less than 4 feet high and 4 feet long using the procedures, proposed colors and texture, finish and workmanship for approval by the Architect.
   1. Approved test panels and samples shall become part of the finished work at the Contractor’s option and shall establish the standard of quality expected through the remainder of the construction. The Contractor shall prepare up to three samples if required to obtain approval without additional compensation.

C. Work Experience: Contractor and lead mason to perform the work in this section shall have at least five (5) years demonstrated experience working with natural cement stuccos. Contractor to have a working knowledge of the Secretary of the Interior’s Standards for Treatment of Historic Properties. Experience only in new stucco work is insufficient experience for work.

1.9 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials to site and store in manufacturer’s original unopened containers and packaging, bearing labels as to type and names of products and manufacturers, and which shall show grade, batch, and production data.

B. Deliver, store, and handle all products and materials to prevent damage, deterioration, or degradation and intrusion of foreign materials.

C. Storage and Protection: All materials must be protected from rainwater and ground moisture, and from staining or intermixture with earth or other types of materials.
   1. Do not tarp or wrap materials so as to trap moisture or permit condensation to form
   2. Allow air to circulate freely around materials.
   3. Do not use bags that have been broken or exposed to moisture. Reseal open bags at the end of the workday in a manner to prevent moisture intrusion.
4. Discard and remove from site deteriorated, contaminated materials and products that have exceeded their expiration dates. Replace with fresh materials.
5. The contractor becomes responsible for the product at the time it is received.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Basis of Design: Natural Cement Stucco (new work and repairs to existing historic stucco).
   1. Option 1 (pre-mix): Rosendale Natural Cement 14S Tan as manufactured by Edison Coatings, Inc., Plainville, CT (800) 341-6621.
      a. Approved Equal
   2. Option 2 (site-mix): Rosendale Natural Cement 10C as manufactured by Edison Coatings, Inc., Plainville, CT (800) 341-6621.
      a. Approved Equal

2.2 MATERIALS, General

A. Grade and Quality: Materials shall conform to the requirements of this Section and shall be new, free from defects, and of recent manufacture.
B. Portland Cement: ASTM C 150, Type 1.
C. Natural Cement: Natural cement processed from argillaceous limestone and meeting the requirements of ASTM C10. Artificial mixtures of other cementitious materials, fly ash, slag, Portland cement, hydraulic lime or lime-pozzolan mixtures are not permitted as substitutes for natural cement.
D. Natural Cement Aggregate: ASTM C897 natural sand blend, rounded to sub-angular in shape, washed, screened and dried. Aggregate to be selected to match the color and texture of the original stucco aggregates as closely as possible while remaining in compliance with ASTM C897 grading and soundness requirements.
E. Portland Cement Aggregate: Shall be a variable graded (coarse to fine) washed sand and shell matching the texture and range of sizes found in the original mortar. Natural or manufactured sharp sand, with at least four grades of sand forming a substantial part of the sand and no more than 1% of the particles smaller than grade 200. Clean, well-graded, sharp, angular crushed aggregate complying with the requirements for deleterious substances and soundness of ASTM C 144. Sand aggregate shall have a nominal top size of 2.38mm (No. 8 US sieve) with over 75% of the material having a diameter between 1mm (No. 16 US sieve) and 0.297mm (No. 50 US sieve).
F. Lime: Shall conform to ASTM C207, Type S hydrated lime.
G. Admixtures: NO admixtures shall be used without the express written consent of the Architect and the stucco manufacturer. Calcium chloride is not permitted in any stucco.
H. Water: Shall be clean and free of acids, Alkalis or organic materials. If water must be transported or stored in a container, the container must not impart any chemicals to the water.
2.3 STUCCO MIXES

A. Natural Cement Stucco

1. Option 1 premix includes Natural Cement and Sand. Add enough water to form a workable consistency. Premix is to be used for scratch and finish coats.

2. Option 2 site mix:
   a. Pigment additives not to be used in stucco mix.
   b. Scratch Coat
      1) 1 Part Rosendale Natural Cement 10C
      2) 2 Parts Sand
      3) Enough water to form a workable consistency
   c. Finish Coat
      1) 1 Part Rosendale Natural Cement 10C
      2) 2-3 Parts Sand (match texture of existing stucco)
      3) Enough water to form a workable consistency.

B. Portland Based Stucco

1. Scratch Coat
   a. 1 part portland cement
   b. 1 part hydrated lime
   c. 6 parts sand
   d. Enough water to form a workable consistency

2. Finish Coat
   a. 1 part portland cement
   b. 1 part hydrated lime
   c. 6 parts sand
   d. Enough water to form a workable consistency

PART 3 - EXECUTION

3.1 GENERAL

A. The Contractor shall hold a pre-installation meeting with the architect prior to starting repairs.

3.2 PREPARATION

A. Remove all loose, deteriorated, and severely cracked stucco to the masonry substrate. Remove stucco using hand tools. Do not use power tools. Avoid over sounding to prevent additional damage.

B. Probe areas of loose stucco to ensure no abandoned fasteners remain adhered to the masonry substrate

1. Remove abandoned fasteners that would impede successful patching of the stucco.

2. Notify Architect of the presence of ferrous fasteners scheduled to be retained.

C. Square off large areas to receive new patching, back-beveling edges to receive new stucco. Where possible, square off patches to coincide with scoring lines on stucco surface.
D. Wash areas to be patched thoroughly with clean water to remove dust and loose debris prior to patching.

3.3 NATURAL CEMENT STUCCO MIXING

A. Mix stucco thoroughly prior to use.
B. It is recommended that a dust mask be worn during mixing.
C. All stucco shall be preblended, pre-colored and prepackaged under controlled factory conditions. All ingredients are to be batched within plus or minus 1% accuracy, except pigments which shall be weighed to a precision of 0.02%.
D. Thoroughly mix stucco in quantities needed for immediate use, using mechanical mortar mixer or paddle mixer. Add approximately half the required water and mix stucco for a minimum of 5 minutes, and then slowly add water as needed to reach the desired working consistency. Do not exceed mix time of 10 minutes.
E. Add only clean, potable water at the project site. Do not add sand, stone, cement, lime, bonding agents, coloring admixtures, set accelerators, plasticizers, air entraining admixtures or other materials unless specifically authorized in writing.
F. Use a batch type mixer in accordance with ASTM C270, Subparagraph 6.3.
G. Mixed stucco must be used before initial set, so mix only as much material as will be used within 10 minutes for quick-setting stucco, or within 30 minutes for regular setting stucco. Once material has begun to set, it should not be re-tempered or adjusted with additional water but should be discarded.

3.4 NATURAL CEMENT STUCCO MIXING

A. Mix stucco thoroughly prior to use.
B. It is recommended that a dust mask be worn during mixing. Do not mix more material than can be used within 30 minutes. Discard any mixed material that has been unused for 30 minutes or more.
C. Thoroughly mix stucco ingredients in accordance with ASTM C270 in quantities needed for immediate use.
D. Stucco containing any portion of cement must be placed in the work within two hours of its introduction into the stucco mix. Retempering of stucco shall be done with potable water in small amounts. After two hours all unused stucco shall be discarded.
E. All mixing boards and mechanical mixers are to be thoroughly cleaned between batches.

3.5 INSTALLATION

A. Stucco Repair by Patching
1. Ensure mortar joints are raked back to key new stucco. Rake out brick mortar joints to a minimum depth of $\frac{1}{2}''$. 
2. Surface should be free of debris, dust, dirt, grease, oil, paint, and vegetation. Clean with a bristle brush. A clean surface is necessary to obtain a good bond between the stucco and substrate.

3. Area should be cut on the diagonal and squared off with a butt joint to provide a neat patch. If necessary, and as reviewed by the Architect, it may be preferred to stucco the area of an entire feature.

4. New patch must not overlap existing stucco.

5. Pre-dampen masonry surfaces to receive stucco for a minimum of 20 minutes prior to stucco placement. Masonry surfaces should be saturated but free of excess or standing water at time of stucco placement. Substrate shall be glistening, and no standing water should remain during a new application.

6. Scratch coat: Fill joints and spread stucco to provide thin “bond coat” on the masonry surface.

7. Finish coat: A second, heavier application is then applied and finished immediately.

8. Stucco patches shall match the existing surface texture and tooling unless otherwise noted.

9. Allow stucco to fully cure before final cleaning. Longer cure times are required in cooler weather. Only low pressure should be used to avoid damaging new stucco. Only cleaning materials approved by the stucco manufacturer, and only at the approved rates of dilution and dwell time.

10. After initial cure, prepare surface and paint stucco.

3.6 CURING

A. Protect completed work from adverse weather, heavy rainfall, freezing, and drying by direct sunlight and winds until cured.

B. Once the material has been finished, it must be maintained in a damp condition throughout its curing period. Generally, this period of wet curing will be a minimum of 3 days, depending on conditions.

1. Natural Cement: Consult your Edison Coatings technical representative for curing guidelines for your specific project conditions. Acceptable curing methods include draping burlap over the fresh stucco and maintaining the burlap in a damp condition, or frequent misting with water, or covering with polyethylene.

3.7 CLEANING

A. Remove temporary coverings used to protect adjacent surfaces from stucco spatter. Promptly remove stucco from surfaces which are not to be plastered. Repair surfaces which have been stained, marred or otherwise damaged during the stucco work. Remove unused materials, containers, equipment and debris after stucco work is complete.

B. After stucco is thoroughly cured and set, clean masonry surfaces, walls, sills, overhangs, etc.

3.8 PRODUCTION

A. Remove and replace all damaged products and materials that are wet, moisture damaged, or mold damaged.

END OF SECTION 090120
SECTION 090320 – HISTORIC TREATMENT OF PLAIN PLASTERING

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.

B. Section 099000: Architectural Coatings

C. Codes and Standards set forth by:
   2. Preservation Brief #21 “Repairing Historic Flat Plaster” as published by the U.S. National Park Service.

1.2 SUMMARY

A. This project involves the rehabilitation of an historic building. Treat the building respectfully. Carefully respect existing conditions and treat existing materials as irreplaceable. Do not remove, alter or disfigure any existing materials, elements or finishes, unless indicated on the Drawings, specified herein, or directed by the Architect.

B. This Section includes the following:
   1. Repair ceiling in Narthex.
      a. Repair of cracks, holes, chips and gouges in flat plaster surfaces. The intent is to restore all finish to original appearance.
      b. Patching of existing plasterwork where entire sections need to be replaced.
      c. Reattach plaster that has lost the mechanical key.

1.3 DEFINITIONS

A. Restoration: the act or process of accurately depicting the form, features, and character of a property as it appeared at a particular period of time by means of the removal of features from other periods in its history and reconstruction of missing features, removal of inadequate and incongruous repairs, and the repair of existing features from the restoration period.

1.4 SCOPE

A. General: Provide all labor, materials, equipment, and services required to complete the plaster restoration work, and required by existing conditions and authorities having jurisdiction.
   1. Contractor shall survey all areas where existing plaster is shown to remain and to be repaired, in order to verify extent of patch or repair.
2. Cutting out and removing existing interior plaster surfaces where needed to repair existing plaster.
3. Where lath is damaged, cut, or detached from framing repair lath to ensure secure attachment. Provide additional blocking as necessary.
4. Cutting out and removing existing plaster on walls and ceilings as required for installation of new work.
   a. All cutting for installation of new work should be coordinated with appropriate trade to ensure correct location and size of cuts.
5. Repair and patching cracks, spalls, delamination, breaks, losses, chips, holes or other defects in plaster surfaces.
6. Providing new plaster to align with existing plaster at existing walls and ceilings.
7. Plaster patching and new plaster ceilings to match historic conditions of plaster.
8. New plaster ceilings and walls completely replaced can be done with a wire lath substrate.
9. Where wood lath is damaged, cut, or detached from framing repair wood lath, ensure secure attachment.
10. Reattachment: use washers and appropriate length screws and spacing to secure plaster that is still in place but has lost the mechanical key.
   a. Entire surface of patched areas must be skimmed with finish coat
11. Cleaning of all existing plasterwork on the walls and ceilings of the existing building within the room included in the scope of work.

### 1.5 SUBMITTALS

A. Product Data: Submit manufacturer’s product data and MSDS sheets for all products.

B. Sample: Materials, tools and techniques to be used on the job shall be used to prepare a 12” X 12” samples of each finish and will demonstrate the finish texture and color.
   1. Obtain the Architect’s approval of sample before starting the plaster repair work.

### 1.6 QUALITY ASSURANCE

A. Qualification: Qualifications: All work to be performed by skilled subcontractor having successful experience in comparable plaster restoration projects including work on at least three (3) projects similar in scope and scale to this Project in the last five years.
   1. Only skilled plasters that are familiar and experienced with the specified methods are to be used for the work.
   2. One skilled plasterer shall be present at all times during the direction and execution of the work.
   3. If personnel changes during the progress of the work, new sample installations may be required to be prepared by person(s) doing the work at the discretion of the Architect.

B. Allowable Tolerances: All plaster repairs shall be keyed to exactly match and continue edges and contours of existing plaster work. Repairs shall be true and flat in connections with adjacent surfaces when checked with an 8 ft. straight edge; do not exceed 1/8 inch variation in 8 ft. for bow, warp, plumb, or level for flat and curved surfaces.
   1. All Plaster to be well adhered to substrate.

C. Defects
   1. Plastering with defects of such character as will mar the appearance of finished Work, or which is otherwise defective, shall be rejected, removed and replaced at the Contractor’s expense.
2. All ridges, ledges and visual irregularities shall be rejected, removed and plaster replaced at the Contractor's expense.

3. Any defects or irregularities of plaster restoration work telegraphing through paint shall be cause for rejection of the Work. The Contractor shall remove any subsequent work, remove and replace the defective or irregular plaster restoration work and have the subsequent work replaced by skilled workman in the appropriate trades, to the satisfaction of the Architect, at the Contractor's expense.

D. Pre-Installation Meeting: Following Contractor survey of existing conditions, Contractor to hold pre-installation meeting to review methods and procedures and to confirm repair quantities.

E. Maintain samples in an undisturbed condition during construction as a standard for judging the completed Work

1.7 DELIVERY, STORAGE, AND HANDLING

A. Deliver plaster restoration materials to the job site in original unopened packages with manufacturer's name and brand thereon. Previously opened bags and containers of material will be rejected.

B. Storage and Protection: Materials should be stored in the manufacturer's unopened container in a cool, dry place at a temperature of 45°F or higher and out of direct sunlight. Materials should not be stacked more than three containers high. Material containers must be tightly closed after use. Protect all materials from damage until used. Do not use degraded or contaminated materials.

C. Laws, Codes, and Regulations: Work of this Section shall comply with all applicable federal, state, and local laws, codes, and regulations.

1.8 PROJECT CONDITIONS

A. The Contractor is responsible for protecting existing adjacent materials during the execution of the work. Provide all necessary protection and work procedures to avoid damage to existing material assemblies not a part of the work of this Section. At a minimum, the Contractor shall:
   1. Protect adjacent plaster surfaces from moisture or mechanical damage during plaster restoration work.
   2. Protect adjacent woodwork, doors and windows from plaster spattering and staining.
   3. Protect floors below work areas from dropping plaster with tarps or heavy drop cloths. It is critical that new and repaired plaster areas are completely cured and dry prior to the start of finish activities. Allow ample time in the schedule to coordinate these critical activities.

1.9 ENVIRONMENTAL CONDITIONS

A. Environmental Requirements, General: Comply with requirements of referenced plaster application standards and recommendations of plaster manufacturer for environmental conditions before, during, and after application of plaster.

B. The substrate must be sound and dry and the area must be free of dust, dirt and water.
C. The work of this Section shall be executed only when the air and surface temperatures are 45 degrees Fahrenheit and rising or less than 90 degrees F and falling. Minimum temperature for cleaning shall be 45 degrees F and above for at least two hours after completion and above freezing for at least 24 hours after completion.

D. Ventilation: Ventilate building spaces in compliance with ASTM C 842 and as required to remove water in excess of that required for hydration of plaster. Begin ventilation immediately after plaster is applied and continue until it sets.

E. Protection
   1. Restoration of existing plaster shall be done in such manner as not to cause damage to continuous work.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Plaster: Master of Plaster Finishing Systems, Inc. Restoration Base and Finish Plaster. P.O. Box 766, Irmo, SC 29063

B. Water for cleaning: Clean, potable, pH neutral, free of oils, acids, alkalis, salts, organic matter and contaminants.

C. Metal Lath: Expanded Metal: ASTM C847, except as modified by ASTM C841 and this specification.

D. Wood Lath for Repairs: Reuse undamaged historic lath. If unavailable match existing wood lath.

E. Metal Accessories: Grounds and casing corner beads shall be zinc-coated sheet steel, 26 ga. or heavier, with expanded or perforated flanges or clips so shaped and fabricated as to permit complete embedment in the plaster.

F. Plaster washers: Perforated metal washers as approved by Architect.

G. Bonding Compound for Existing Surfaces: meet requirements of MIL-B-19235.

2.2 PLASTER MIXES

A. General: Do not use admixtures, including pigments, air entraining agents, accelerators, retarders, water repellent agents, antifreeze compounds, or other admixtures unless otherwise located.

B. Brown Coat
   1. Master of Plaster Restoration Base Plaster

C. Finish Coat
   1. Master of Plaster Restoration Finish Plaster
PART 3 - EXECUTION

3.1 INSPECTION

A. Examine the areas and conditions where plaster work is to be installed and correct any conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions have been corrected by the Contractor in a manner acceptable to the Architect.

3.2 GENERAL

A. Sequence plaster installation properly with the installation and protection of other work, so that neither will be damaged by the installation of others work.

B. Cut out and replace all unbonded spots except areas and cracks to be repaired with plaster washers. Build in the work in others and do all cutting and patching of plaster in this connection. Where abutting other built-in materials, plaster shall be finished tightly against them and neatly trimmed unless otherwise indicated.

C. Plaster thicknesses indicated shall be considered as a minimum; plaster shall be of such thickness required to plumb and square wall surfaces so that plaster is flush with adjacent surfaces.

D. Replicate, repair and restore flat wall and ceiling plaster as indicated.

E. Plaster repairs shall be executed edge to edge in long strips or large areas for each separate coat. Where breaks are necessary lap new work over adjoining work.

F. Bring finished surfaces of plaster to true planes and when complete surface shall be clean, free from blisters, pits, discoloration, cracks or other defects. In all cases the plastering throughout is to be delivered clean and perfect in every respect.

3.3 PREPARATION

A. Scrub all walls and ceilings to remove dirt, soot, dust, oils, and stains.

B. Use a mild detergent solution and a soft bristle scrub brush to scrub all walls and ceilings. Rinse and dry walls and ceilings with a squeegee.

C. Minimize water usage to avoid excessively wetting work area. Use towels or drop cloths to prevent water accumulation on floors. Dry floors with towels immediately if water gets on floor surfaces. Dry surfaces immediately after rinsing.

D. Remove all loose and flaking paint, wallpaper, spalled plaster, insect nests, spider webs and other foreign substances.

E. Use scrapers to remove all loose and flaking paint on all walls and ceilings. Remove all painted finishes where the condition of the existing painted surface is unsuitable for receiving finishes by scraping or stripping. Do not damage existing sound plaster.

F. Scrape off all other foreign materials down to sound plaster.
G. Do not gouge walls or ceiling while scraping. Keep scraper blade flat and almost normal to the surface.

3.4 MIXING

A. Mix according to manufacturer’s recommendations.

3.5 EXECUTION

A. Carefully remove existing damaged plaster not removed under demolition.

B. Verify attachment of lath (where existing) to masonry substrate or wood framing. Inspect wood lath in all existing plaster walls and partitions.

C. Refasten and replace deteriorated lath as required.

D. Remove damaged plaster carefully without breaking or damaging wood lath. When lath is exposed and specified to be removed, remove lath intact without pry marks, splitting or other damage. Do not damage the substrate or assembly to which lath is attached. Remove fasteners from lath and substrate. Carefully extract fasteners to avoid splitting. Clean and salvage all lath, removing all residue of plaster.

E. Use chisels or other cutting tool to clean and shape surface defects edges to a minimum 1/16 inch depth. Widen holes and cracks to permit adequate patching plaster penetration to sufficiently bond. Scrape off loose or spalling plaster to sound plaster substrate. Shape edges of gouges and dents to receive patching plaster of sufficient thickness (minimum 1/16 inch deep) without feathering.

F. All preparation shall be done with compatible materials and methods that will not compromise the integrity of the plasters, and will not telegraph through finished surfaces.

G. At completion of work, all new and historic plaster should be well adhered to substrate.

3.6 APPLICATION, General

A. Apply per manufacturer’s standard requirements.

B. Tolerances: Do not deviate more than 1/8 inch in 8'-0" from a true plane in finished plaster surfaces, as measured by a 8'-0" straightedge placed at any location on surface.

C. Plaster flush with existing surfaces.

D. Apply thicknesses and number of coats of plaster as required by the depth of the defect to the surface.

3.7 CRACK REPAIR, REPAIR OF SMALL AREAS

A. Where directed by architect, stabilize cracks and detached plaster with plaster washers and appropriate length screws and spacing to secure plaster that is still in place but has lost the mechanical key.
1. Use plaster washers at 12-inch intervals around the perimeter of the areas to be patched to ensure attachment to the substrate. Countersink plaster washers in plaster surface and conceal using specified spackling compound.
   a. Entire surface of patched areas must be reskimmed with finish coat following the installation of plaster washers.

B. Cracks less than 3/16”:
   1. Rout out crack as required back to sound material.
   2. Fill crack with bonding agent and finish coat to create a smooth surface.

C. Cracks greater than 3/16”:
   1. Rout out crack as required back to sound material.
   2. Crack edges shall be beveled back to provide mechanical key to the patching material.
   3. Fill depth of crack with scratch/brown coat mixture, working plaster material in below back-beveled edges, leaving depth for a finish coat of lime plaster. Trowel to a straight, flat surface and leave rough for finish coat.
   4. Recreate profile, if extant.
   5. Sand smooth.

D. Chips and gouges greater than 1/8” deep:
   1. Remove all loose material as required back to sound material.
   2. Infill with finish coat plaster flush with adjacent surfaces.
   3. Recreate profile, if extant.

E. Small chips and gouges
   1. Repair with finish coat plaster.
   2. Recreate profile, if extant.

3.8 FINISHING

A. Cut, patch, point-up and repair plaster as necessary to restore shrinkage cracks, dents and imperfections. Repair or replace work to eliminate blisters, buckles, excessive crazing and check cracking, dry-outs, efflorescence, sweat-outs and similar defects, and where bond to the substrate has failed. Patched surfaces in existing plaster surfaces shall be imperceptible.

B. Sand smooth-troweled finishes lightly to remove trowel marks.

C. Remove temporary protection and enclosure of other work. Remove plaster from other surfaces which are not to be plastered. Repair floors, walls and other surfaces which have been stained, marred or otherwise damaged during the plastering work. When plastering work is completed, remove unused materials, containers and equipment and clean floors of plaster debris.

D. Provide final protection and maintain conditions, in a manner suitable to Installer, which ensures plaster work being without damage or deterioration at time of substantial completion.

E. See Section 099000 “Architectural Coatings” for preparation and application methods of plaster architectural coatings.
3.9 CURING
A. During the application of each coat of plaster, keep exterior openings closed until the plaster has set, then adjust for proper ventilation to regulate the drying and curing of the plaster.
B. Protect plaster against too rapid drying.

3.10 CLEAN UP
A. Collect and dispose of waste material, packaging, debris, and effluent associated with the cleaning work in accordance with local, state, and federal environmental regulations.
B. Upon completion of work, remove all protective coverings and coatings, and clean window glass and other spattered surfaces.
C. Rinse treated areas to clean and remove all biological growth and chemicals.

END OF SECTION 090320
SECTION 092900 - GYPSUM BOARD

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes the following:
   1. Repair damaged ceiling in narthex.
      a. Finish texture to match existing.

1.3 SUBMITTALS

A. Product Data and MSDS Sheets: For each type of product indicated.

1.4 QUALITY ASSURANCE

A. STC-Rated Assemblies: For STC-rated assemblies, provide materials and construction identical to those tested in assembly indicated according to ASTM E 90 and classified according to ASTM E 413 by an independent testing agency.

1.5 STORAGE AND HANDLING

A. Store materials inside under cover and keep them dry and protected against damage from weather, condensation, direct sunlight, construction traffic, and other causes. Stack panels flat to prevent sagging.

1.6 PROJECT CONDITIONS

A. Environmental Limitations: Comply with ASTM C 840 requirements or gypsum board manufacturer’s written recommendations, whichever are more stringent.

B. Do not install interior products until installation areas are enclosed.

C. Do not install panels that are wet, those that are moisture damaged, and those that are mold damaged.
   1. Indications that panels are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.
2. Indications that panels are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

D. WARRANTY

1. Provide products that offer twelve months of coverage against in place exposure damage (delamination, deterioration and decay).

PART 2 - PRODUCTS

2.1 PANELS, GENERAL

A. Size: Provide in maximum lengths and widths available that will minimize joints in each area and that correspond with support system indicated.

2.2 INTERIOR GYPSUM BOARD

A. General: Complying with ASTM C 36/C 36M or ASTM C 1396/C 1396M, as applicable to type of gypsum board indicated and whichever is more stringent.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   a. American Gypsum.
   b. CertainTeed.
   c. Georgia-Pacific Gypsum.
   d. Lafarge North America Inc.
   e. National Gypsum Company.
   f. USG Corporation.

B. Standard Gypsum Board

1. Core: Regular gypsum core. Match existing thickness.

2. Long Edges: Tapered.

3. Panel complies with requirements of ASTM C 1396.

2.3 JOINT TREATMENT MATERIALS

A. General: Comply with ASTM C 475/C 475M.

B. Joint Tape:

1. Interior Gypsum Wallboard: Paper.

C. Joint Compound for Interior Gypsum Wallboard: For each coat use formulation that is compatible with other compounds applied on previous or for successive coats.

1. Prefilling: At open joints and damaged surface areas, use setting-type taping compound.
2. Embedding and First Coat: For embedding tape and first coat on joints, fasteners, and trim flanges, use drying-type, all-purpose compound.

3. Fill Coat: For second coat, use drying-type, all-purpose compound.

4. Finish Coat: For third coat, use drying-type, all-purpose compound.

2.4 AUXILIARY MATERIALS

A. General: Provide auxiliary materials that comply with referenced installation standards and manufacturer's written recommendations.

B. Steel Drill Screws: ASTM C 1002, unless otherwise indicated.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine areas and substrates, with Installer present, and including framing, for compliance with requirements and other conditions affecting performance.

B. Examine panels before installation. Reject panels that are wet, moisture damaged, and mold damaged.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 APPLYING AND FINISHING PANELS, GENERAL

A. Comply with ASTM C 840 and manufacturers recommendations.

B. Install ceiling panels across framing to minimize the number of abutting end joints and to avoid abutting end joints in central area of each ceiling. Stagger abutting end joints of adjacent panels not less than one framing member.

C. Install panels with face side out. Butt panels together for a light contact at edges and ends with not more than 1/16 inch of open space between panels. Do not force into place.

D. Locate edge and end joints over supports, except in ceiling applications where intermediate supports or gypsum board back-blocking is provided behind end joints. Do not place tapered edges against cut edges or ends.

E. Form control and expansion joints with space between edges of adjoining gypsum panels.

F. Wood Framing: Install gypsum panels over wood framing, with floating internal corner construction. Do not attach gypsum panels across the flat grain of wide-dimension lumber, including floor joists and headers. Float gypsum panels over these members or provide control joints to counteract wood shrinkage.
3.3 APPLYING INTERIOR GYPSUM BOARD

A. Install interior gypsum board in the following locations:

1. Moisture- and Mold-Resistant Gypsum Board: Ceiling Surfaces.

B. Single-Layer Application:

1. On ceilings, apply gypsum panels before wall/partition board application to greatest extent possible and at right angles to framing, unless otherwise indicated.

2. Fastening Methods: Apply gypsum panels to supports with steel drill screws.

3.4 INSTALLING TRIM ACCESSORIES

A. General: For trim with back flanges intended for fasteners, attach to framing with same fasteners used for panels. Otherwise, attach trim according to manufacturer's written instructions.

3.5 FINISHING GYPSUM BOARD

A. General: Treat gypsum board joints, interior angles, edge trim, control joints, penetrations, fastener heads, surface defects, and elsewhere as required to prepare gypsum board surfaces for decoration. Promptly remove residual joint compound from adjacent surfaces.

B. Prefill open joints and damaged surface areas.

C. Apply joint tape over gypsum board joints, except those with trim having flanges not intended for tape.

D. Gypsum Board Finish Levels: Finish panels to levels indicated below and according to ASTM C 840:

1. Level 4: At panel surfaces that will be exposed to view.
SECTION 096400 – HISTORIC WOOD FLOORING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes the following:

1. Removal and Reinstallation procedures of historic floors where specified by Architect.

2. Replacement of deteriorated and missing historic floors where specified by Architect.

1.3 SUBMITTALS

A. Product Data: For each type of product used in this section.

B. Samples for Verification: For each type of matching reclaimed wood flooring and accessory, approximately 12 inches long and of same thickness and material indicated for the Work and showing the full range of normal color and texture variations expected.

1.4 QUALITY ASSURANCE

A. Quality Standards: Unless otherwise indicated, comply with the applicable following standards for work on existing historic buildings:


1.5 DELIVERY, STORAGE, AND HANDLING

A. Protect wood flooring from exposure to moisture. Do not deliver wood flooring until after concrete, masonry, plaster, ceramic tile, and similar wet work is complete and dry.

B. Store wood flooring materials in a dry, warm, ventilated, weathertight location.

1.6 PROJECT CONDITIONS

A. Conditioning period begins not less than seven days before wood flooring installation, is continuous through installation, and continues not less than seven days after wood flooring installation.
1. **Wood Flooring Conditioning:** Move wood flooring into spaces where it will be installed, no later than the beginning of the conditioning period.
   
   a. Do not install flooring until it adjusts to relative humidity of, and is at same temperature as, space where it is to be installed.
   
   b. Open sealed packages to allow wood flooring to acclimatize immediately on moving flooring into spaces in which it will be installed.

2. After conditioning period, maintain relative humidity and ambient temperature planned for building occupants.

**PART 2 - PRODUCTS**

2.1 **HISTORIC WOOD FLOORING**

   A. **Solid-Wood, Strip Flooring:** Kiln dried to 6 to 9 percent maximum moisture content, to match existing configuration.

   1. **Species and Grade:** Reclaimed material to match existing.
   
   2. **Cut:** Plain sawn.
   
   3. **Thickness and Face Width:** To match existing.
   
   4. **Lengths:** To match existing.

2.2 **ACCESSORY MATERIALS**

   A. **Trim:** In same species and grade as wood flooring, unless otherwise indicated.

   B. **Fasteners:** 304 stainless steel trim screws, 3".

**PART 3 - EXECUTION**

3.1 **EXAMINATION**

   A. Examine substrates, areas and conditions, with Installer present, for compliance with requirements for maximum moisture content, installation tolerances, and other conditions affecting performance of wood flooring.

   1. Proceed with installation only after unsatisfactory conditions have been corrected.

   B. **Documentation:** Photograph existing condition of flooring including pattern, etc. for ease of reinstallation if flooring is to be removed.

3.2 **REMOVAL OF FLOORBOARDS WHERE SPECIFIED**

   A. Carefully remove the baseboard and the finished floor, label and set aside for reinstallation.

   B. As each piece is removed, mark it as to its original location; during storage, organize by location to ease reinstallation.
C. Remove baseboard, beginning with top moldings which are often separate from the broad, flat sections. Apply pressure only at nail until all nails are exposed and the trim pieces can be removed.
   1. To remove nails, pull them out from the back of the board; cut nail heads first, if required.

3.3 INSTALLATION OF FLOORBOARDS WHERE SPECIFIED

A. Carefully install floor boards and baseboards with trim screws in original locations. Match fastener locations on existing boards (face fastened, or edge fastened at tongue).
   1. Where applicable edge screw boards with trim screws. Pilot bore a hole at each screw location.

B. Replace and repair boards as specified by Drawings.

C. Replacement boards: Install with minimum number of joints possible, using full-length pieces to greatest extent possible. Do not use pieces less than 36 inches long, except where shorter single-length pieces are necessary. Stagger joints in adjacent boards. Stagger pattern has to be approved.

D. Provide all wood blocking and framing required to support items. Use fastening materials of types appropriate for the conditions encountered, including wood to wood and wood to masonry. Counterbore holes for nuts and bolt heads, and countersink for screws. Use concealed fasteners in exposed surfaces of finish carpentry.

E. Install woodwork to comply with referenced quality standard for grade specified.

F. Scribe and cut woodwork to fit adjoining work and refinish cut surfaces or repair damaged finish at cuts.

3.4 PROTECTION

A. Protect installed wood flooring during remainder of construction period with covering of heavy kraft paper or other suitable material. Do not use plastic sheet or film that might cause condensation.

B. Do not move heavy and sharp objects directly over kraft-paper-covered wood flooring. Protect flooring with plywood or hardboard panels to prevent damage from storing or moving objects over flooring.

END OF SECTION 096400
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.

B. Section 013959: Historic Treatment Procedures

C. Codes and standards set forth by:
   1. All work shall be performed in accordance with the “Secretary of the Interior’s Standards for Rehabilitation, “U.S. Department of the Interior, National Park Service, 1995.”
   2. “Standard (Type 1)” as defined by the Painting and Decorating Contractors of America in their “Modern Guide to Paint Specifications”, current edition
   3. MPI Standards:
      a. Products: Complying with MPI standards indicated and listed in "MPI Approved Products List."
      b. Preparation and Workmanship: Comply with requirements in "MPI Architectural Painting Specification Manual" for products and paint systems indicated.
   4. ASTM D16-03 “Standard Terminology for Paint, Related Coatings, Materials, and Applications”
   5. In addition to complying with all pertinent codes and standards, it shall be assumed that the existing painted surfaces at the spire (louvered shutters, frame assembly, sill, pediment, and trim are lead-based). All items are scheduled to be replaced.

1.2 SUMMARY

A. This project involves the restoration of an historic building. Treat the building respectfully. Carefully inspect existing conditions and treat existing materials as irreplaceable. Do not remove, alter or disfigure any existing materials, elements or finishes, unless indicated on the Drawings, specified herein, or directed by the Architect.

B. Section includes historic treatment of plain painting as follows:

   Paint building exterior in locations indicated on the Drawings. Locations include but are not limited to interior narthex ceiling and spire louvered shutters, frame assembly, sill, pediment, and trim. Scope of work includes the following:
   1. Preparing substrates.
   2. Plain painting of exterior non-historic surfaces.
   3. Plain painting of interior non-historic surfaces.

C. Paint exposed surfaces, except where these Specifications indicate that the surface or material is not to be painted or is to remain natural. If an item or a surface is not specifically mentioned, paint the item or surface the same as similar adjacent materials or surfaces. If a color of finish is not indicated, Architect will select from standard colors and finishes available.

   1. Do not paint prefinished items, finished metal surfaces, operating parts, and labels.
   2. Do not alter, remove, or paint over historic finishes unless explicitly specified.
1.3 DEFINITIONS
A. "Paint" includes coating systems materials, primers, emulsions, enamels, stains, sealers and fillers, and other applied materials whether used as prime, intermediate, or finish coats.

1.4 SUBMITTALS
A. Product Data: For each paint system indicated. Include block fillers and primers.
   1. Provide manufacturers' technical information, label analysis, and application instructions for each material proposed for use.

B. Product List: For each product indicated, include the following:
   1. Cross-reference to paint system and locations of application areas. Use same designations indicated on Drawings and in schedules.
   2. Printout of current "MPI Approved Products List" for each product category specified in Part 2, with the proposed product highlighted.

C. Qualifications: Submit documentation of paint contractors past project experience that meets the minimum 5-year work experience outlined in the specification.

D. Samples. Provide samples of each color and material to be applied, with texture to simulate actual conditions, on representative samples of the actual substrate.
   1. Define each separate coat, including block fillers and primers. Use representative colors when preparing samples for review. Resubmit until required sheen, color, and texture is achieved.
   2. Provide a list of materials and application for each coat of each sample. Label each sample as to location and application.

E. Closeout Documentation:
   1. Provide list of color names, numbers, and formulas.
   2. Provide product warranties.

1.5 QUALITY ASSURANCE
1. Work Experience: A qualified painting specialist with five years' expertise in painting.

B. Lead Based Paint: Items included in the painter's scope of work are new. Disturbance of existing lead-based paints are not included in the scope of work.

1.6 PROJECT CONDITIONS
A. The Contractor is responsible for protecting existing adjacent materials and surfaces during the execution of the work and shall provide all necessary protection and follow all necessary work procedures to avoid damage to existing material assemblies not a part of the work in the Section.

B. The Contractor shall provide visible barriers and / or warning tape around the perimeter of the work area for visitor protection and shall also provide that nearby vehicles and adjacent structures will be protected from damage during the course of the work.
1.7 ENVIRONMENTAL CONDITIONS

A. The coating manufacturer’s requirements for ambient temperature, humidity, and ventilation during painting operations, and temperature of surfaces to receive a coating shall be strictly followed.

B. Apply water-based paints only when the temperature of surfaces to be painted and surrounding air temperatures are between 50 and 90 degrees F.

C. Apply solvent-thinned paints only when the temperature of surfaces to be painted and surrounding air temperatures are between 50 and 95 degrees F.

D. Do not paint exterior when temperature is below 50° F when the surface is damp, or when temperature is likely to drop to freezing within 24 hours. Avoid painting when surface is exposed to hot sun or early morning dew.

1. Painting may continue during inclement weather if surfaces and areas to be painted are enclosed and heated within temperature limits specified by manufacturer during application and drying periods.

E. Comply with the manufacturer’s recommendations as to environmental conditions under which the coating systems may be applied.

F. Do not apply paint in areas where dust is being generated.

G. VOC Content: Provide materials that comply with VOC limits of authorities having jurisdiction.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Deliver all coating materials to site and store in manufacturer’s original unopened containers and packaging, bearing manufacturer’s name and label and the following information:

1. Product name or title of material
2. Product description (generic classification or binder type).
3. Manufacturer’s stock number and date of manufacture.
4. Contents by volume, for pigment and vehicle constituents.
5. Thinning instructions.
6. Application instructions.
7. Color name and number.

B. Protection

1. Store only the approved materials on the job site and store only in a suitable and designated area restricted to the storage of paint materials. Space shall comply with the paint manufacturer’s requirements for storage temperature. Protect from freezing.
2. Use all means necessary to ensure the safe storage and use of paint materials and the prompt and safe disposal of waste.
3. Use all means necessary to protect paint materials before, during, and after application and to protect the installed work and materials of all other Trades.
4. Keep storage area neat and orderly. Remove oily rags and waste daily.

C. Replacements: In the event of damage to the products, immediately make all repairs and replacements at no additional cost to the Architect.
1. Order replacement materials at the earliest possible date, to avoid delaying completion of the Work.

PART 2 - PRODUCTS

2.1 MATERIALS, GENERAL

A. Material Compatibility:
   1. Provide materials for use within each paint system that are compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
   2. For each coat in a paint system, provide products recommended in writing by manufacturers of topcoat for use in paint system and on substrate indicated.

2.2 MODERN PAINT MATERIALS, GENERAL

A. Transition Coat: Paint manufacturer's recommended coating for use where a residual existing coating is incompatible with the paint system.

B. Products listed below represent materials that will likely be used for painting elements. This section assures quality of Work by listing regulatory language and by setting standards of quality for materials. Information from the testing shall guide product selection.

2.3 MANUFACTURERS

A. Manufactures: Provide best quality grade of paint as regularly manufactured by specified manufacturer. Primer coats must be produced by the same manufacturer as the top coats unless otherwise specified. Subject to compliance with requirements, provide products by one of the following or equivalent MPI listed manufacturer:
   1. Benjamin Moore & Co.
   2. Sherwin-Williams Co.
   3. Or Approved Equal

B. Substitutions must be approved by Architect.

2.4 PREPARATORY MATERIALS

A. Pigments, thinners, and solvents used with any coating material shall be as recommended by the paint manufacturer for the particular product.

2.5 PAINT MATERIALS, GENERAL

A. Material Compatibility:
   1. All paint and finishing materials shall be lead free.
   2. Provide materials for use within each paint system that are compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
3. For each coat in a paint system, provide products recommended in writing by manufactures of topcoat for use in paint system and on substrate indicated.
4. Colors: As selected by Architect from manufacturer’s full range.

B. Joint Sealant Material (Wood to Wood): Sealant to be paintable.
   1. Exterior
      a. Sashco Big Stretch Sealant
      b. An approved equal
      NOTE: Sealants must be primed

C. Joint Sealant Material (Wood to Metal) (Metal to Stucco):
   1. Exterior
      a. Single-Component, Nonsag, Urethane Joint Sealant: ASTM C 920, Type S, Grade NS, Class 25, for Use NT.
      1) Sika Corporation, Inc.; Sikaflex - 1a
      2) BASF Building Systems; Sonolastic NP1.
      3) Tremco; Vulkem 116.

2.6 EXTERIOR WOOD PRIMER & PAINT

A. Exterior Wood Primer
   1. Benjamin Moore Fresh Start Fast Dry Exterior Wood Primer (094)
   2. Or an Approved Equal.

B. Exterior Wood Paint
   1. Benjamin Moore Aura Exterior Paint Semi-Gloss (632) (Spire Woodwork including but not limited to louvered shutters, frame assembly, pediments, and trim boards).
   2. Or an Approved Equal

2.7 INTERIOR PRIMER & PAINT

A. Interior Primer
   1. Benjamin Moore Fresh Start Multi-Purpose Latex Primer (N023)

B. Interior Paint
   1. Finish paint not included in scope of work.

PART 3 - EXECUTION

3.1 PAINTING, GENERAL

A. Execution of the Work:
   1. Remove failed coatings and repaint.
   2. Verify that substrate surface conditions are suitable for painting.
   3. Allow other trades to repair items in place and retain as much original material as possible before repainting.
   4. Install temporary protective measures to protect historic painted surfaces that shall be treated later.

B. Matching Existing Painted Surfaces:
   1. Color match existing painted surfaces to ensure new painting visually matches the existing coatings in color and sheen.
C. Mechanical Abrasion: Where mechanical abrasion is needed for the work, use only the gentlest mechanical methods, such as scraping and lightly hand sanding, that will not abrade softer substrates, reducing clarity of detail. Do not use abrasive methods such as rotary sanding, rotary wire brushing, or power tools except as indicated as part of the historic treatment program and as approved by Architect.

D. Heat Processes: Do not use torches, heat guns, or heat plates.

3.2 EXAMINATION:

A. Before commencement of work, carefully examine all surfaces to be painted and notify the Architect in writing of any conditions detrimental to the performance of this work. Do not proceed until unsatisfactory or deteriorated conditions have been inspected, corrected and are acceptable to the Architect and the applicator. Commencement of work will be construed as the applicator's acceptance of all surfaces. Commencement of the work prior to the Architect's inspection and acceptance is done at the applicator's risk.

B. Maximum Moisture Content of Substrates: Do not begin application of coatings unless moisture content of exposed surface is below the maximum value recommended in writing by paint manufacturer and not greater than the following maximum values when measured with an electronic moisture meter appropriate to the substrate material:

3.3 INSPECTION:

A. Prior to all work of this Section, carefully inspect the installed work of all other Trades and verify that all such work is complete to the point where this installation may properly commence.

B. Verify that paint finishes may be applied in strict accordance with all pertinent codes and regulations and the requirements of these Specifications.

3.4 DISCREPENCIES

A. In the event of discrepancy, immediately notify the Architect.

B. Do not proceed with installation in areas of discrepancy until all such discrepancies have been fully resolved. Commencement of work shall be construed as acceptance of the surfaces and, therefore, the Contractor shall be fully responsible for satisfactory work as required herein.

3.5 SURFACE PREPARATION

A. General: For application of approved removal products, use only such equipment as is recommended for application of the paint removal product by the manufacturer, and as approved by the Architect.

1. General: Use only the gentlest, appropriate method necessary to clean surfaces in preparation for painting. Clean all surfaces, corners, contours, and interstices.

B. Compatibility: Prior to actual use of the application equipment, use all means necessary to verify that the proposed equipment is actually compatible with the material to be applied and that the integrity of the finish will not be jeopardized by use of the proposed application equipment. Contractor to coordinate with manufacturer's representatives on appropriate tools and equipment.
C. Prior to all surface preparation and paint operations, completely mask, remove, or otherwise adequately protect all hardware, accessories, machined surfaces, plates, lighting fixtures, and similar items in contact with painted surfaces but not scheduled to receive paint.

D. Clean substrates of substances that could impair bond of paints, including dirt, oil, grease and incompatible paint and encapsulates.

E. Do not proceed with treatment until proper protection has been installed for adjacent materials.

F. Detergent Cleaning: Wash surfaces by hand using clean rags, sponges, and bristle brushes. Scrub surface with detergent solution and bristle brush until soil is thoroughly dislodged and can be removed by rinsing. Use small brushes to remove soil from joints and crevices. Dip brush in solution often to ensure that adequate fresh detergent is used and that surface remains wet. Rinse with water applied by clean rags or sponges.

G. Solvent Cleaning: Use solvent cleaning to remove oil, grease, smoke, tar, and asphalt from painted or unpainted surfaces before other preparation work. Wipe surfaces with solvent using clean rags and sponges. If necessary, spot-solvent cleaning may be employed just prior to commencement of paint application, provided enough time is allowed for complete evaporation.

H. Mildew: Clean off existing mildew, algae, moss, plant material, loose paint, grease, dirt, and other debris by scrubbing with bristle brush or sponge and detergent solution. Scrub mildewed areas with mildewcide. Rinse with water applied by clean rags or sponges.

I. Contractor shall reclaim and dispose of all spent media used in conjunction with this project in accordance with applicable laws.

3.6 PAINT REMOVAL

A. Schedule all cleaning and painting so that dust and other contaminants from the cleaning process will not fall on wet, newly painted surfaces.

B. Adequate illumination shall be provided in all areas where painting and staining operations are in progress.

3.7 MATERIAL PREPARATION OF PAINT

A. Mix and prepare materials in accordance with manufacturer’s directions or those specified herein, whichever is more stringent.

B. Stir materials before application to produce a mixture of uniform density and stir as required during application of the materials. Do not stir into the material any foreign materials, residue or surface film. Remove any such deleterious material and strain coating materials before using if necessary.

C. Add minimum amount of solvents or thinners to coating materials as necessary to achieve proper consistency for method of application.

3.8 PAINT APPLICATION

A. Prepare surfaces to be painted according to the Surface-Preparation Schedule and with manufacturer’s written instructions for each substrate condition.
B. Apply a transition coat over incompatible existing coatings.

C. General Finish Application for Paint
   1. All materials shall be applied under adequate illumination, evenly spread, and smoothly flowed on with the proper type and size of brushes, roller covers, and bucket grids, to avoid run, sags, holidays, brush marks, air bubbles, and excessive roller stipple.
   2. The number of coats and film thickness shall be the same regardless of the method of application. Do not apply succeeding coats until previous coat has dried or cured as recommended by paint manufacturer. Give special attention to ensure that surfaces, including edges, corners, and crevices receive a dry film thickness equivalent to that of flat surfaces.
   3. Apply each coat at not less than recommended spreading rate to provide the dry film millimeter thickness specified by the manufacturer for each paint coating.
   4. Coverage and hiding shall be complete. When color, stain, mark of any kind, dirt or undercoats show through the final schedule coat of paint to the surface, it shall be covered by additional coats until the paint film is of uniform finish, color, appearance and coverage at no additional cost to the Architect.
   5. Back prime any new material before installation unless specified to receive a transparent finish.
   6. Touch-up painting as required to provide smooth, even finish prior to final acceptance of work.

3.9 CLEAN UP

A. General
   1. Provide daily cleanup.
   2. During progress of the Work, do not allow the accumulation of empty containers or other excess items except in area specifically set aside for that purpose. Do not store paint materials uncovered.
   3. Prevent accidental spilling or splashing of paint materials, and in the event of such spill, immediately remove all spilled material and the waste or other equipment used to clean up the spill, and wash the surfaces to their original undamaged condition, all at no additional cost to the Architect.

B. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

C. Upon completion of the painting or finishing, remove excess paint materials, tools and equipment, drop cloths and other protective materials, and debris from the site.

D. Prior to final acceptance: Upon completion of this portion of the Work, visually inspect the surfaces. Clean paint spots or spatters from surfaces not scheduled to receive paint, such as landings, adjacent masonry, and fixtures, leaving surfaces in a satisfactory condition.

END OF SECTION 099000