

**Spring Hope Railroad Depot  
Building Rehabilitation and  
Platform Addition  
101 South Ash Street  
Spring Hope, North Carolina 27882  
for the  
Town of Spring Hope**

**Alliance Architecture of the Triad**  
2601 Pilgrim Court #130  
Winston-Salem, NC 27106  
(336) 722-4447

**Moorefield Engineering, P.C.**  
Structural Consultant  
7990 North Point Blvd. #209  
Winston-Salem, NC 27106  
(336) 593-9623

**Beekman Point Engineering**  
Plumbing, Mechanical, and Fire Protection Sprinkler Consultant  
295 Seven Farms Drive  
Suite c-321  
Daniel Island, SC 29492  
(843) 471-5488

**Brite Engineering**  
Electrical Consultant  
2001 Old Westfield Road  
Pilot Mountain, NC 27041  
(336) 351-3781

**Allied Design Inc.**  
Consulting Civil Engineers  
4720 Kester Mill Road  
Winston-Salem, NC 27103  
(336) 765-2377

**David E. Gall**  
Historic Preservation Consultant  
938 West Fifth Street  
Winston-Salem, NC 27101  
(336)773-1213



**Project No: 23081    Date: February 28, 2025**

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**ADVERTISEMENT FOR BIDS**

**PROJECT:** Spring Hope Railroad Depot Building Rehabilitation and Platform Addition

**TIME:** 3:00 PM, Tuesday, April 29<sup>th</sup>, 2025

**PLACE:** Town Commissioners Chambers  
Spring Hope Town Hall  
118 West Railroad St.  
Spring Hope, NC 27882

Sealed Proposals for this project will be accepted at the place and until the time shown above, after which they will be opened and read publicly.

Bids will be received for Single Prime Construction Contracts covering all Work.

Digital copies of drawings and specifications will be provided by the office of the Architect after Thursday, March 20<sup>th</sup>, 2025. Drawings and specifications will also be available for review at Construct Connect (<https://www.constructconnect.com>), 800-424-3996 and Hispanic Contractors Association of the Carolinas ([info@hcacarolinas.org](mailto:info@hcacarolinas.org)), 704-908-2208

The depot will be open for inspection on the date of the pre-bid meeting.

A pre-bid conference will be held on Tuesday, April 1<sup>st</sup>, 2025, at 1:00 PM at the Spring Hope Town Hall. The Depot will be open for inspection following the conference. Attendance at the pre-bid meeting by General Contractors is optional but preferred. Subcontractors with an interest in this project are encouraged to attend the pre-bid meeting.

Bids must be submitted on the standard form of proposal provided by the Architect.

Pre-qualification of single prime general contractors is required. General contractors shall submit fully completed AIA Document A305 "General Contractor's Qualification Statement" included with specifications, by no later than Tuesday, April 8<sup>th</sup>, 2025, to Mr. Andrew DeIonno, Town Manager. E-mail to [adeionno@springhope.net](mailto:adeionno@springhope.net).

Security required with regard to the performance of the Contract is noted in the bid documents.

All Contractors must be licensed under prevailing State of North Carolina Laws governing their trade.

No bid may be withdrawn for a period of forty-five (45) days after receipt of bids, except as provided by North Carolina law. The Owner expressly reserves the right to reject any or all proposals, to waive informalities or irregularities in the proposals and to accept any proposal which in his judgement best serves the interest of the Owner.

SIGNED: Mr. Andrew DeIonno  
Town Manager  
Town of Spring Hope  
P.O. Box 87  
Spring Hope, NC 27882

Alliance Architecture of the Triad, PC  
2601 Pilgrim Court #130  
Winston-Salem, North Carolina 27106  
(336) 722-4447

SPRING HOPE RAILROAD DEPOT RESTORATION

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INSTRUCTIONS TO BIDDERS

BIDDERS'S REPRESENTATION

The submission of a bid will constitute evidence that the Contractor has fully examined the site and knows existing conditions and has made every provision for operating under existing conditions, has included all necessary labor, materials, equipment, systems, and other items, and has fully read and understands all of the bidding documents.

CONTRACTORS

All contractors must have proper license under North Carolina laws governing their respective trades at the time of bidding.

PROCEDURES FOR BIDDING

Bid proposals shall be prepared on the loose Proposal Form provided with the specifications. All blank spaces on the Proposal Form shall be properly completed. Numbers shall be stated both in writing in ink and in numerals and the entire completed form shall be without any lineation, alterations, or erasures.

The Contractor shall complete the Proposal Form as follows:

- a. If the documents are executed by a sole Owner, that fact shall be evidenced by the word "Owner" appearing after the name of the person executing the documents.
- b. If the documents are executed by a partnership, that fact shall be evidenced by the word "Partner" appearing after the name of the partner executing the documents.
- c. If the documents are executed by a corporation, they shall be executed by either the President or Vice President and attested by the Secretary in either case. The title of the office of such persons shall appear after the signatures. The seal of the corporation shall be impressed or embossed on each copy of the documents.
- d. All signatures shall be properly witnessed.

Proposals shall be addressed as follows:

To: Andrew DeIonno, Town Manager  
Town of Spring Hope  
P.O. Box 87  
Spring Hope, NC 27882

Contractors choosing to hand deliver proposals to the Owner may do so at the following location:

To: Andrew DeIonno, Town Manager  
Town of Spring Hope  
118 West Railroad St.  
Spring Hope, NC 27882



All proposals shall be delivered in a sealed opaque envelope marked on the outside with the designation "Proposal" and bearing the following information:

- Proposal for General Construction of Spring Hope Depot Building Rehabilitation and Platform Addition
- Name of Contractor
- Address of Contractor
- NC Contractor's license number

Modification of bids will be accepted only if received in writing or by telegram to the Owner prior to the time of the bid opening. Facsimile or electronic transmissions of bid modifications will not be accepted.

No bidder may withdraw, modify, or cancel a bid or any part of it for a period of forty-five (45) days after the bid opening.

#### PROPOSALS

The Owner will receive Single Prime Proposals covering general construction.

#### ADDENDA

Any addenda to the drawings or specifications issued during the time of bidding are to be considered part of the Proposal and in closing a Contract they will become a part thereof. Receipt of all addenda shall be acknowledged on the Proposal Form. No addenda will be issued by the Architect after four days prior to the date for receipt of bids. Bidders shall direct any questions regarding the project to the Architect in sufficient time for responses to be included in the final Addendum.

It shall be the responsibility of each bidder and any of his sub-contractors to determine the number and extent of any addenda that have been promulgated by the Architect which may affect the Work to be covered by his Proposal and to obtain all such addenda. Failure of a bidder to receive addenda as provided for herein shall not release such bidder from the obligation of his Proposal.

#### PROCEDURES FOR OBTAINING BID DOCUMENTS

Contractors and subcontractors may obtain digital sets of construction drawings and specifications from the Architect.

#### EXAMINATION OF BID DOCUMENTS

Should any bidder find any discrepancies or omissions in the bid documents, or should he be in doubt as to their meaning, he shall at once notify the Architect. If a clarification is warranted, a written instruction will be issued in the form of an addendum. Neither the Architect nor the Owner will be responsible for any oral instructions. If plans and specifications are determined to disagree after the Contract has been awarded, the Architect shall be the judge as to which was intended.

All bidders shall base their bid upon materials and equipment described in the bid documents. Substitutions will be considered only as specified in Section #016310.

PRE-QUALIFICATION

Pre-qualification of single prime general contractors is required. General contractors shall submit fully completed AIA Document A305 "Contractor's Qualification Statement" included with specifications by no later than fourteen (14) days prior to the bid date to Mr. Andrew DeIonno, Town Manager, Town of Spring Hope, Box 87, Spring Hope, NC 27882, or via e-mail to adeionno@springhope.net.

REJECTION OF BIDS

The Owner reserves the right to reject any and all bids, to waive informalities, and to determine the low bidder in case of tie bids.

BID OPENING

The bids will be publicly opened and read aloud.

POST BID INFORMATION

Prior to the execution of the Contract, the successful bidder shall submit the following:

- a. designation of work to be performed by the bidder's own forces.
- b. cost breakdown of each major item of the Work in his bid.
- c. the proprietary names and suppliers of principal items or systems proposed for the project.

BID DATE AND TIME

Bids will be received until 3:00 PM on Tuesday, April 29<sup>th</sup> 2025 at the Spring Hope Town Hall at 118 West Railroad St.



# AIA<sup>®</sup> Document A105<sup>™</sup> – 2017

## Standard Short Form of Agreement Between Owner and Contractor

AGREEMENT made as of the \_\_\_\_\_ day of \_\_\_\_\_ in the year \_\_\_\_\_  
*(In words, indicate day, month and year.)*

BETWEEN the Owner:  
*(Name, legal status, address and other information)*

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

and the Contractor:  
*(Name, legal status, address and other information)*

for the following Project:  
*(Name, location and detailed description)*

The Architect:  
*(Name, legal status, address and other information)*

Sample

The Owner and Contractor agree as follows.

Init.

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**ARTICLE 1 THE CONTRACT DOCUMENTS**

The Contractor shall complete the Work described in the Contract Documents for the Project. The Contract Documents consist of

- .1 this Agreement signed by the Owner and Contractor;
- .2 the drawings and specifications prepared by the Architect, dated \_\_\_\_\_, and enumerated as follows:

Drawings:  
Number

Title

Date

Specifications:  
Section

Title

Pages

.3 addenda prepared by the Architect as follows:

Number

Date

Pages

.4 written orders for changes in the Work, pursuant to Article 10, issued after execution of this Agreement;  
and

.5 other documents, if any, identified as follows:

## ARTICLE 2 DATE OF COMMENCEMENT AND SUBSTANTIAL COMPLETION

§ 2.1 The Contract Time is the number of calendar days available to the Contractor to substantially complete the Work.

### § 2.2 Date of Commencement:

Unless otherwise set forth below, the date of commencement shall be the date of this Agreement.

*(Insert the date of commencement if other than the date of this Agreement.)*

### § 2.3 Substantial Completion:

Subject to adjustments of the Contract Time as provided in the Contract Documents, the Contractor shall achieve Substantial Completion, as defined in Section 12.5, of the entire Work:

*(Check the appropriate box and complete the necessary information.)*

Not later than ( ) calendar days from the date of commencement.

By the following date:

## ARTICLE 3 CONTRACT SUM

§ 3.1 The Contract Sum shall include all items and services necessary for the proper execution and completion of the Work. Subject to additions and deductions in accordance with Article 10, the Contract Sum is: (\$ )

§ 3.2 For purposes of payment, the Contract Sum includes the following values related to portions of the Work:  
*(Itemize the Contract Sum among the major portions of the Work.)*

Portion of the Work

Value

§ 3.3 The Contract Sum is based upon the following alternates, if any, which are described in the Contract Documents and hereby accepted by the Owner:

*(Identify the accepted alternates. If the bidding or proposal documents permit the Owner to accept other alternates subsequent to the execution of this Agreement, attach a schedule of such other alternates showing the amount for each and the date when that amount expires.)*

§ 3.4 Allowances, if any, included in the Contract Sum are as follows:  
(Identify each allowance.)

Item	Price
------	-------

§ 3.5 Unit prices, if any, are as follows:  
(Identify the item and state the unit price and quantity limitations, if any, to which the unit price will be applicable.)

Item	Units and Limitations	Price per Unit (\$0.00)
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#### ARTICLE 4 PAYMENTS

§ 4.1 Based on Contractor's Applications for Payment certified by the Architect, the Owner shall pay the Contractor, in accordance with Article 12, as follows:  
(Insert below timing for payments and provisions for withholding retainage, if any.)

§ 4.2 Payments due and unpaid under the Contract Documents shall bear interest from the date payment is due at the rate below, or in the absence thereof, at the legal rate prevailing at the place of the Project.  
(Insert rate of interest agreed upon, if any.)

%

#### ARTICLE 5 INSURANCE

§ 5.1 The Contractor shall maintain the following types and limits of insurance until the expiration of the period for correction of Work as set forth in Section 14.2, subject to the terms and conditions set forth in this Section 5.1:

§ 5.1.1 Commercial General Liability insurance for the Project, written on an occurrence form, with policy limits of not less than (\$ ) each occurrence, (\$ ) general aggregate, and (\$ ) aggregate for products-completed operations hazard.

§ 5.1.2 Automobile Liability covering vehicles owned, and non-owned vehicles used, by the Contractor, with policy limits of not less than (\$ ) per accident, for bodily injury, death of any person, and property damage arising out of the ownership, maintenance, and use of those motor vehicles along with any other statutorily required automobile coverage.

§ 5.1.3 The Contractor may achieve the required limits and coverage for Commercial General Liability and Automobile Liability through a combination of primary and excess or umbrella liability insurance, provided that such primary and excess or umbrella insurance policies result in the same or greater coverage as those required under Section 5.1.1 and 5.1.2, and in no event shall any excess or umbrella liability insurance provide narrower coverage than the primary policy. The excess policy shall not require exhaustion of the underlying limits only through the actual payment by the underlying insurers.

§ 5.1.4 Workers' Compensation at statutory limits.

§ 5.1.5 Employers' Liability with policy limits not less than (\$ ) each accident, (\$ ) each employee, and (\$ ) policy limit.

§ 5.1.6 The Contractor shall provide builder's risk insurance to cover the total value of the entire Project on a replacement cost basis.

**§ 5.1.7 Other Insurance Provided by the Contractor**

*(List below any other insurance coverage to be provided by the Contractor and any applicable limits.)*

Coverage	Limits
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§ 5.2 The Owner shall be responsible for purchasing and maintaining the Owner's usual liability insurance and shall provide property insurance to cover the value of the Owner's property. The Contractor is entitled to receive an increase in the Contract Sum equal to the insurance proceeds related to a loss for damage to the Work covered by the Owner's property insurance.

§ 5.3 The Contractor shall obtain an endorsement to its Commercial General Liability insurance policy to provide coverage for the Contractor's obligations under Section 8.12.

§ 5.4 Prior to commencement of the Work, each party shall provide certificates of insurance showing their respective coverages.

§ 5.5 Unless specifically precluded by the Owner's property insurance policy, the Owner and Contractor waive all rights against (1) each other and any of their subcontractors, suppliers, agents, and employees, each of the other; and (2) the Architect, Architect's consultants, and any of their agents and employees, for damages caused by fire or other causes of loss to the extent those losses are covered by property insurance or other insurance applicable to the Project, except such rights as they have to the proceeds of such insurance.

**ARTICLE 6 GENERAL PROVISIONS**

**§ 6.1 The Contract**

The Contract represents the entire and integrated agreement between the parties and supersedes prior negotiations, representations or agreements, either written or oral. The Contract may be amended or modified only by a written modification in accordance with Article 10.

**§ 6.2 The Work**

The term "Work" means the construction and services required by the Contract Documents, and includes all other labor, materials, equipment, and services provided, or to be provided, by the Contractor to fulfill the Contractor's obligations.

**§ 6.3 Intent**

The intent of the Contract Documents is to include all items necessary for the proper execution and completion of the Work by the Contractor. The Contract Documents are complementary, and what is required by one shall be as binding as if required by all.

**§ 6.4 Ownership and Use of Architect's Drawings, Specifications and Other Documents**

Documents prepared by the Architect are instruments of the Architect's service for use solely with respect to this Project. The Architect shall retain all common law, statutory, and other reserved rights, including the copyright. The Contractor, subcontractors, sub-subcontractors, and suppliers are authorized to use and reproduce the instruments of service solely and exclusively for execution of the Work. The instruments of service may not be used for other Projects or for additions to this Project outside the scope of the Work without the specific written consent of the Architect.

## **§ 6.5 Electronic Notice**

Written notice under this Agreement may be given by one party to the other by email as set forth below.  
*(Insert requirements for delivering written notice by email such as name, title, and email address of the recipient, and whether and how the system will be required to generate a read receipt for the transmission.)*

## **ARTICLE 7 OWNER**

### **§ 7.1 Information and Services Required of the Owner**

**§ 7.1.1** If requested by the Contractor, the Owner shall furnish all necessary surveys and a legal description of the site.

**§ 7.1.2** Except for permits and fees under Section 8.7.1 that are the responsibility of the Contractor, the Owner shall obtain and pay for other necessary approvals, easements, assessments, and charges.

**§ 7.1.3** Prior to commencement of the Work, at the written request of the Contractor, the Owner shall furnish to the Contractor reasonable evidence that the Owner has made financial arrangements to fulfill the Owner's obligations under the Contract. The Contractor shall have no obligation to commence the Work until the Owner provides such evidence.

### **§ 7.2 Owner's Right to Stop the Work**

If the Contractor fails to correct Work which is not in accordance with the Contract Documents, the Owner may direct the Contractor in writing to stop the Work until the correction is made.

### **§ 7.3 Owner's Right to Carry Out the Work**

If the Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents and fails within a seven day period after receipt of written notice from the Owner to commence and continue correction of such default or neglect with diligence and promptness, the Owner may, without prejudice to other remedies, correct such deficiencies. In such case, the Architect may withhold or nullify a Certificate for Payment in whole or in part, to the extent reasonably necessary to reimburse the Owner for the cost of correction, provided the actions of the Owner and amounts charged to the Contractor were approved by the Architect.

### **§ 7.4 Owner's Right to Perform Construction and to Award Separate Contracts**

**§ 7.4.1** The Owner reserves the right to perform construction or operations related to the Project with the Owner's own forces, and to award separate contracts in connection with other portions of the Project.

**§ 7.4.2** The Contractor shall coordinate and cooperate with the Owner's own forces and separate contractors employed by the Owner.

## **ARTICLE 8 CONTRACTOR**

### **§ 8.1 Review of Contract Documents and Field Conditions by Contractor**

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

**§ 8.1.2** The Contractor shall carefully study and compare the Contract Documents with each other and with information furnished by the Owner. Before commencing activities, the Contractor shall (1) take field measurements and verify field conditions; (2) carefully compare this and other information known to the Contractor with the Contract Documents; and (3) promptly report errors, inconsistencies, or omissions discovered to the Architect.

### **§ 8.2 Contractor's Construction Schedule**

The Contractor, promptly after being awarded the Contract, shall prepare and submit for the Owner's and Architect's information a Contractor's construction schedule for the Work.

### **§ 8.3 Supervision and Construction Procedures**

**§ 8.3.1** The Contractor shall supervise and direct the Work using the Contractor's best skill and attention. The Contractor shall be solely responsible for and have control over construction means, methods, techniques, sequences, and procedures, and for coordinating all portions of the Work.



**§ 8.3.2** The Contractor, as soon as practicable after award of the Contract, shall furnish in writing to the Owner, through the Architect, the names of subcontractors or suppliers for each portion of the Work. The Contractor shall not contract with any subcontractor or supplier to whom the Owner or Architect have made a timely and reasonable objection.

#### **§ 8.4 Labor and Materials**

**§ 8.4.1** Unless otherwise provided in the Contract Documents, the Contractor shall provide and pay for labor, materials, equipment, tools, utilities, transportation, and other facilities and services necessary for proper execution and completion of the Work.

**§ 8.4.2** The Contractor shall enforce strict discipline and good order among the Contractor's employees and other persons carrying out the Contract Work. The Contractor shall not permit employment of unfit persons or persons not skilled in tasks assigned to them.

#### **§ 8.5 Warranty**

The Contractor warrants to the Owner and Architect that: (1) materials and equipment furnished under the Contract will be new and of good quality unless otherwise required or permitted by the Contract Documents; (2) the Work will be free from defects not inherent in the quality required or permitted; and (3) the Work will conform to the requirements of the Contract Documents. Any material or equipment warranties required by the Contract Documents shall be issued in the name of the Owner, or shall be transferable to the Owner, and shall commence in accordance with Section 12.5.

#### **§ 8.6 Taxes**

The Contractor shall pay sales, consumer, use, and similar taxes that are legally required when the Contract is executed.

#### **§ 8.7 Permits, Fees and Notices**

**§ 8.7.1** The Contractor shall obtain and pay for the building permit and other permits and governmental fees, licenses, and inspections necessary for proper execution and completion of the Work.

**§ 8.7.2** The Contractor shall comply with and give notices required by agencies having jurisdiction over the Work. If the Contractor performs Work knowing it to be contrary to applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, the Contractor shall assume full responsibility for such Work and shall bear the attributable costs. The Contractor shall promptly notify the Architect in writing of any known inconsistencies in the Contract Documents with such governmental laws, rules, and regulations.

#### **§ 8.8 Submittals**

The Contractor shall promptly review, approve in writing, and submit to the Architect shop drawings, product data, samples, and similar submittals required by the Contract Documents. Shop drawings, product data, samples, and similar submittals are not Contract Documents.

#### **§ 8.9 Use of Site**

The Contractor shall confine operations at the site to areas permitted by law, ordinances, permits, the Contract Documents, and the Owner.

#### **§ 8.10 Cutting and Patching**

The Contractor shall be responsible for cutting, fitting, or patching required to complete the Work or to make its parts fit together properly.

#### **§ 8.11 Cleaning Up**

The Contractor shall keep the premises and surrounding area free from accumulation of debris and trash related to the Work. At the completion of the Work, the Contractor shall remove its tools, construction equipment, machinery, and surplus material; and shall properly dispose of waste materials.

#### **§ 8.12 Indemnification**

To the fullest extent permitted by law, the Contractor shall indemnify and hold harmless the Owner, Architect, Architect's consultants, and agents and employees of any of them, from and against claims, damages, losses and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work, provided that such claim, damage, loss, or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), but only to the extent caused by the negligent acts or omissions of the Contractor, a subcontractor, anyone directly or indirectly employed by them or anyone for whose acts

they may be liable, regardless of whether or not such claim, damage, loss or expense is caused in part by a party indemnified hereunder.

## **ARTICLE 9 ARCHITECT**

§ 9.1 The Architect will provide administration of the Contract as described in the Contract Documents. The Architect will have authority to act on behalf of the Owner only to the extent provided in the Contract Documents.

§ 9.2 The Architect will visit the site at intervals appropriate to the stage of construction to become generally familiar with the progress and quality of the Work.

§ 9.3 The Architect will not have control over or charge of, and will not be responsible for, construction means, methods, techniques, sequences, or procedures, or for safety precautions and programs in connection with the Work, since these are solely the Contractor's responsibility. The Architect will not be responsible for the Contractor's failure to carry out the Work in accordance with the Contract Documents.

§ 9.4 Based on the Architect's observations and evaluations of the Contractor's Applications for Payment, the Architect will review and certify the amounts due the Contractor.

§ 9.5 The Architect has authority to reject Work that does not conform to the Contract Documents.

§ 9.6 The Architect will promptly review and approve or take appropriate action upon Contractor's submittals, but only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents.

§ 9.7 On written request from either the Owner or Contractor, the Architect will promptly interpret and decide matters concerning performance under, and requirements of, the Contract Documents.

§ 9.8 Interpretations and decisions of the Architect will be consistent with the intent of, and reasonably inferable from the Contract Documents, and will be in writing or in the form of drawings. When making such interpretations and decisions, the Architect will endeavor to secure faithful performance by both Owner and Contractor, will not show partiality to either and will not be liable for results of interpretations or decisions rendered in good faith.

§ 9.9 The Architect's duties, responsibilities, and limits of authority as described in the Contract Documents shall not be changed without written consent of the Owner, Contractor, and Architect. Consent shall not be unreasonably withheld.

## **ARTICLE 10 CHANGES IN THE WORK**

§ 10.1 The Owner, without invalidating the Contract, may order changes in the Work within the general scope of the Contract, consisting of additions, deletions or other revisions, and the Contract Sum and Contract Time shall be adjusted accordingly, in writing. If the Owner and Contractor cannot agree to a change in the Contract Sum, the Owner shall pay the Contractor its actual cost plus reasonable overhead and profit.

§ 10.2 The Architect may authorize or order minor changes in the Work that are consistent with the intent of the Contract Documents and do not involve an adjustment in the Contract Sum or an extension of the Contract Time. Such authorization or order shall be in writing and shall be binding on the Owner and Contractor. The Contractor shall proceed with such minor changes promptly.

§ 10.3 If concealed or unknown physical conditions are encountered at the site that differ materially from those indicated in the Contract Documents or from those conditions ordinarily found to exist, the Contract Sum and Contract Time shall be subject to equitable adjustment.

## **ARTICLE 11 TIME**

§ 11.1 Time limits stated in the Contract Documents are of the essence of the Contract.

§ 11.2 If the Contractor is delayed at any time in progress of the Work by changes ordered in the Work, or by labor disputes, fire, unusual delay in deliveries, unavoidable casualties, or other causes beyond the Contractor's control, the Contract Time shall be subject to equitable adjustment.

§ 11.3 Costs caused by delays or by improperly timed activities or defective construction shall be borne by the responsible party.

## **ARTICLE 12 PAYMENTS AND COMPLETION**

### **§ 12.1 Contract Sum**

The Contract Sum stated in this Agreement, including authorized adjustments, is the total amount payable by the Owner to the Contractor for performance of the Work under the Contract Documents.

### **§ 12.2 Applications for Payment**

**§ 12.2.1** At least ten days before the date established for each progress payment, the Contractor shall submit to the Architect an itemized Application for Payment for Work completed in accordance with the values stated in this Agreement. The Application shall be supported by data substantiating the Contractor's right to payment as the Owner or Architect may reasonably require, such as evidence of payments made to, and waivers of liens from, subcontractors and suppliers. Payments shall be made on account of materials and equipment delivered and suitably stored at the site for subsequent incorporation in the Work. If approved in advance by the Owner, payment may similarly be made for materials and equipment stored, and protected from damage, off the site at a location agreed upon in writing.

**§ 12.2.2** The Contractor warrants that title to all Work covered by an Application for Payment will pass to the Owner no later than the time of payment. The Contractor further warrants that upon submittal of an Application for Payment, all Work for which Certificates for Payment have been previously issued and payments received from the Owner shall, to the best of the Contractor's knowledge, information, and belief, be free and clear of liens, claims, security interests, or other encumbrances adverse to the Owner's interests.

### **§ 12.3 Certificates for Payment**

The Architect will, within seven days after receipt of the Contractor's Application for Payment, either (1) issue to the Owner a Certificate for Payment in the full amount of the Application for Payment, with a copy to the Contractor; (2) issue to the Owner a Certificate for Payment for such amount as the Architect determines is properly due, and notify the Contractor and Owner in writing of the Architect's reasons for withholding certification in part; or (3) withhold certification of the entire Application for Payment, and notify the Contractor and Owner of the Architect's reason for withholding certification in whole. If certification or notification is not made within such seven day period, the Contractor may, upon seven additional days' written notice to the Owner and Architect, stop the Work until payment of the amount owing has been received. The Contract Time and the Contract Sum shall be equitably adjusted due to the delay.

### **§ 12.4 Progress Payments**

**§ 12.4.1** After the Architect has issued a Certificate for Payment, the Owner shall make payment in the manner provided in the Contract Documents.

**§ 12.4.2** The Contractor shall promptly pay each subcontractor and supplier, upon receipt of payment from the Owner, an amount determined in accordance with the terms of the applicable subcontracts and purchase orders.

**§ 12.4.3** Neither the Owner nor the Architect shall have responsibility for payments to a subcontractor or supplier.

**§ 12.4.4** A Certificate for Payment, a progress payment, or partial or entire use or occupancy of the Project by the Owner shall not constitute acceptance of Work not in accordance with the requirements of the Contract Documents.

### **§ 12.5 Substantial Completion**

**§ 12.5.1** Substantial Completion is the stage in the progress of the Work when the Work or designated portion thereof is sufficiently complete in accordance with the Contract Documents so the Owner can occupy or utilize the Work for its intended use.

**§ 12.5.2** When the Contractor believes that the Work or designated portion thereof is substantially complete, it will notify the Architect and the Architect will make an inspection to determine whether the Work is substantially complete. When the Architect determines that the Work is substantially complete, the Architect shall prepare a Certificate of Substantial Completion that shall establish the date of Substantial Completion, establish the responsibilities of the Owner and Contractor, and fix the time within which the Contractor shall finish all items on the list accompanying the Certificate. Warranties required by the Contract Documents shall commence on the date of Substantial Completion of the Work or designated portion thereof unless otherwise provided in the Certificate of Substantial Completion.

## **§ 12.6 Final Completion and Final Payment**

**§ 12.6.1** Upon receipt of a final Application for Payment, the Architect will inspect the Work. When the Architect finds the Work acceptable and the Contract fully performed, the Architect will promptly issue a final Certificate for Payment.

**§ 12.6.2** Final payment shall not become due until the Contractor submits to the Architect releases and waivers of liens, and data establishing payment or satisfaction of obligations, such as receipts, claims, security interests, or encumbrances arising out of the Contract.

**§ 12.6.3** Acceptance of final payment by the Contractor, a subcontractor or supplier shall constitute a waiver of claims by that payee except those previously made in writing and identified by that payee as unsettled at the time of final Application for Payment.

## **ARTICLE 13 PROTECTION OF PERSONS AND PROPERTY**

The Contractor shall be responsible for initiating, maintaining and supervising all safety precautions and programs, including all those required by law in connection with performance of the Contract. The Contractor shall take reasonable precautions to prevent damage, injury, or loss to employees on the Work and other persons who may be affected thereby, the Work and materials and equipment to be incorporated therein, and other property at the site or adjacent thereto. The Contractor shall promptly remedy damage and loss to property caused in whole or in part by the Contractor, or by anyone for whose acts the Contractor may be liable.

## **ARTICLE 14 CORRECTION OF WORK**

**§ 14.1** The Contractor shall promptly correct Work rejected by the Architect as failing to conform to the requirements of the Contract Documents. The Contractor shall bear the cost of correcting such rejected Work, including the costs of uncovering, replacement, and additional testing.

**§ 14.2** In addition to the Contractor's other obligations including warranties under the Contract, the Contractor shall, for a period of one year after Substantial Completion, correct work not conforming to the requirements of the Contract Documents.

**§ 14.3** If the Contractor fails to correct nonconforming Work within a reasonable time, the Owner may correct it in accordance with Section 7.3.

## **ARTICLE 15 MISCELLANEOUS PROVISIONS**

### **§ 15.1 Assignment of Contract**

Neither party to the Contract shall assign the Contract as a whole without written consent of the other.

### **§ 15.2 Tests and Inspections**

**§ 15.2.1** At the appropriate times, the Contractor shall arrange and bear cost of tests, inspections, and approvals of portions of the Work required by the Contract Documents or by laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities.

**§ 15.2.2** If the Architect requires additional testing, the Contractor shall perform those tests.

**§ 15.2.3** The Owner shall bear cost of tests, inspections, or approvals that do not become requirements until after the Contract is executed. The Owner shall directly arrange and pay for tests, inspections, or approvals where building codes or applicable laws or regulations so require.

### **§ 15.3 Governing Law**

The Contract shall be governed by the law of the place where the Project is located, excluding that jurisdiction's choice of law rules.

## **ARTICLE 16 TERMINATION OF THE CONTRACT**

### **§ 16.1 Termination by the Contractor**

If the Work is stopped under Section 12.3 for a period of 14 days through no fault of the Contractor, the Contractor may, upon seven additional days' written notice to the Owner and Architect, terminate the Contract and recover from the Owner payment for Work executed including reasonable overhead and profit, and costs incurred by reason of such termination.

**§ 16.2 Termination by the Owner for Cause**

**§ 16.2.1** The Owner may terminate the Contract if the Contractor

- .1 repeatedly refuses or fails to supply enough properly skilled workers or proper materials;
- .2 fails to make payment to subcontractors for materials or labor in accordance with the respective agreements between the Contractor and the subcontractors;
- .3 repeatedly disregards applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of a public authority; or
- .4 is otherwise guilty of substantial breach of a provision of the Contract Documents.

**§ 16.2.2** When any of the above reasons exist, the Owner, after consultation with the Architect, may without prejudice to any other rights or remedies of the Owner and after giving the Contractor and the Contractor's surety, if any, seven days' written notice, terminate employment of the Contractor and may

- .1 take possession of the site and of all materials thereon owned by the Contractor, and
- .2 finish the Work by whatever reasonable method the Owner may deem expedient.

**§ 16.2.3** When the Owner terminates the Contract for one of the reasons stated in Section 16.2.1, the Contractor shall not be entitled to receive further payment until the Work is finished.

**§ 16.2.4** If the unpaid balance of the Contract Sum exceeds costs of finishing the Work, such excess shall be paid to the Contractor. If such costs exceed the unpaid balance, the Contractor shall pay the difference to the Owner. This obligation for payment shall survive termination of the Contract.

**§ 16.3 Termination by the Owner for Convenience**

The Owner may, at any time, terminate the Contract for the Owner's convenience and without cause. The Contractor shall be entitled to receive payment for Work executed, and costs incurred by reason of such termination, along with reasonable overhead and profit on the Work not executed.

**ARTICLE 17 OTHER TERMS AND CONDITIONS**

*(Insert any other terms or conditions below.)*

This Agreement entered into as of the day and year first written above.

*(If required by law, insert cancellation period, disclosures or other warning statements above the signatures.)*

\_\_\_\_\_  
**OWNER** *(Signature)*

\_\_\_\_\_  
*(Printed name and title)*

\_\_\_\_\_  
**CONTRACTOR** *(Signature)*

\_\_\_\_\_  
*(Printed name and title)*

LICENSE NO.:

JURISDICTION:



# AIA<sup>®</sup> Document A305™ – 2020

## Contractor's Qualification Statement

**THE PARTIES SHOULD EXECUTE A SEPARATE CONFIDENTIALITY AGREEMENT IF THEY INTEND FOR ANY OF THE INFORMATION IN THIS A305-2020 TO BE HELD CONFIDENTIAL.**

**SUBMITTED BY:**

*(Organization name and address.)*

**SUBMITTED TO:**

Town of Spring Hope, NC  
Office of Town Manager

**NAME OF PROJECT:**

Spring Hope Depot Restoration

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

**TYPE OF WORK TYPICALLY PERFORMED**

*(Indicate the type of work your organization typically performs, such as general contracting, construction manager as constructor services, HVAC contracting, electrical contracting, plumbing contracting, or other.)*

**THIS CONTRACTOR'S QUALIFICATION STATEMENT INCLUDES THE FOLLOWING:**

*(Check all that apply.)*

- Exhibit A – General Information
- Exhibit B – Financial and Performance Information
- Exhibit C – Project-Specific Information
- Exhibit D – Past Project Experience
- Exhibit E – Past Project Experience (Continued)

**CONTRACTOR CERTIFICATION**

The undersigned certifies under oath that the information provided in this Contractor's Qualification Statement is true and sufficiently complete so as not to be misleading.

\_\_\_\_\_  
**Organization's Authorized Representative  
Signature**

\_\_\_\_\_  
**Date**

\_\_\_\_\_  
**Printed Name and Title**

**NOTARY**

State of:

County of:

Signed and sworn to before me this    day of

\_\_\_\_\_  
**Notary Signature**

**My commission expires:**

# **Certification of Document's Authenticity**

**AIA® Document D401™ – 2003**

I, \_\_\_\_\_, hereby certify, to the best of my knowledge, information and belief, that I created the attached final document simultaneously with this certification at 15:48:14 ET on 10/12/2022 under Order No. 2114299176 from AIA Contract Documents software and that in preparing the attached final document I made no changes to the original text of AIA® Document A305™ – 2020, Contractor's Qualification Statement, as published by the AIA in its software, other than changes shown in the attached final document by underscoring added text and striking over deleted text.

\_\_\_\_\_  
*(Signed)*

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

\_\_\_\_\_  
*(Dated)*



# AIA<sup>®</sup> Document A305™ – 2020 Exhibit A

## General Information

This Exhibit is part of the Contractor’s Qualification Statement, submitted by \_\_\_\_\_ and dated the \_\_\_\_\_ day of \_\_\_\_\_ in the year \_\_\_\_\_.  
*(In words, indicate day, month and year.)*

### § A.1 ORGANIZATION

#### § A.1.1 Name and Location

§ A.1.1.1 Identify the full legal name of your organization.

§ A.1.1.2 List all other names under which your organization currently does business and, for each name, identify jurisdictions in which it is registered to do business under that trade name.

§ A.1.1.3 List all prior names under which your organization has operated and, for each name, indicate the date range and jurisdiction in which it was used.

§ A.1.1.4 Identify the address of your organization’s principal place of business and list all office locations out of which your organization conducts business. If your organization has multiple offices, you may attach an exhibit or refer to a website.

#### § A.1.2 Legal Status

§ A.1.2.1 Identify the legal status under which your organization does business, such as sole proprietorship, partnership, corporation, limited liability corporation, joint venture, or other.

- .1 If your organization is a corporation, identify the state in which it is incorporated, the date of incorporation, and its four highest-ranking corporate officers and their titles, as applicable.
- .2 If your organization is a partnership, identify its partners and its date of organization.
- .3 If your organization is individually owned, identify its owner and date of organization.

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.



- 4 If the form of your organization is other than those listed above, describe it and identify its individual leaders:

§ A.1.2.2 Does your organization own, in whole or in part, any other construction-related businesses? If so, identify and describe those businesses and specify percentage of ownership.

### § A.1.3 Other Information

§ A.1.3.1 How many years has your organization been in business?

§ A.1.3.2 How many full-time employees work for your organization?

~~§ A.1.3.3 List your North American Industry Classification System (NAICS) codes and titles. Specify which is your primary NAICS code.~~

~~§ A.1.3.4 Indicate whether your organization is certified as a governmentally recognized special business class, such as a minority business enterprise, woman business enterprise, service disabled veteran owned small business, woman owned small business, small business in a HUBZone, or a small disadvantaged business in the 8(a) Business Development Program. For each, identify the certifying authority and indicate jurisdictions to which such certification applies.~~

### § A.2 EXPERIENCE

§ A.2.1 Complete Exhibit D to describe up to four projects, either completed or in progress, that are representative of your organization's experience and capabilities **with historic rehabilitation projects.**

§ A.2.2 State your organization's total dollar value of work currently under contract.

§ A.2.3 Of the amount stated in Section A.2.2, state the dollar value of work that remains to be completed:

§ A.2.4 State your organization's average annual dollar value of construction work performed during the last five years.

### § A.3 CAPABILITIES

§ A.3.1 List the categories of work that your organization typically self-performs.

§ A.3.2 Identify qualities, accreditations, services, skills, or personnel that you believe differentiate your organization from others.

~~§ A.3.3 Does your organization provide design collaboration or pre-construction services? If so, describe those services:~~

~~§ A.3.4 Does your organization use building information modeling (BIM)? If so, describe how your organization uses BIM and identify BIM software that your organization regularly uses:~~

§ A.3.5 Does your organization use a project management information system? If so, identify that system.

#### § A.4 REFERENCES

§ A.4.1 Identify three client references **(for historic rehab projects)**  
*(Insert name, organization, and contact information)*

§ A.4.2 Identify three architect references: **(for historic rehab projects)**  
*(Insert name, organization, and contact information)*

§ A.4.3 Identify one bank reference:  
*(Insert name, organization, and contact information)*

§ A.4.4 Identify three subcontractor or other trade references:  
*(Insert name, organization, and contact information)*



# AIA<sup>®</sup> Document A305™ – 2020 Exhibit B

## Financial and Performance Information

This Exhibit is part of the Contractor’s Qualification Statement, submitted by and dated the day of in the year  
*(In words, indicate day, month and year.)*

### § B.1 FINANCIAL

§ B.1.1 Federal tax identification number:

§ B.1.2 Attach financial statements for the last three years prepared in accordance with Generally Accepted Accounting Principles, including your organization’s latest balance sheet and income statement. Also, indicate the name and contact information of the firm that prepared each financial statement.

§ B.1.3 Has your organization, its parent, or a subsidiary, affiliate, or other entity having common ownership or management, been the subject of any bankruptcy proceeding within the last ten years?

§ B.1.4 Identify your organization’s preferred credit rating agency and identification information.  
*(Identify rating agency, such as Dun and Bradstreet or Equifax, and insert your organization’s identification number or other method of searching your organization’s credit rating with such agency.)*

### § B.2 DISPUTES AND DISCIPLINARY ACTIONS

§ B.2.1 Are there any pending or outstanding judgments, arbitration proceedings, bond claims, or lawsuits against your organization, its parent, or a subsidiary, affiliate, or other entity having common ownership or management, or any of the individuals listed in Exhibit A, Section 1.2, in which the amount in dispute is more than \$75,000?  
*(If the answer is yes, provide an explanation.)*

§ B.2.2 In the last five years has your organization, its parent, or a subsidiary, affiliate, or other entity having common ownership or management:  
*(If the answer to any of the questions below is yes, provide an explanation.)*

.1 failed to complete work awarded to it?

.2 been terminated for any reason except for an owners’ convenience?

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

.3 had any judgments, settlements, or awards pertaining to a construction project in which your organization was responsible for more than \$75,000?

.4 filed any lawsuits or requested arbitration regarding a construction project?

**§ B.2.3** In the last five years, has your organization, its parent, or a subsidiary, affiliate, or other entity having common ownership or management; or any of the individuals listed in Exhibit A Section 1.2:  
*(If the answer to any of the questions below is yes, provide an explanation.)*

.1 been convicted of, or indicted for, a business-related crime?

.2 had any business or professional license subjected to disciplinary action?

.3 been penalized or fined by a state or federal environmental agency?



**AIA**<sup>®</sup>

# Document A305™ – 2020 Exhibit C

## Project Specific Information

This Exhibit is part of the Contractor’s Qualification Statement, submitted by \_\_\_\_\_ and dated the \_\_\_\_\_ day of \_\_\_\_\_ in the year \_\_\_\_\_.  
*(In words, indicate day, month and year.)*

**PROJECT:**

*(Name and location or address.)*

---

**CONTRACTOR’S PROJECT OFFICE:**

*(Identify the office out of which the contractor proposes to perform the work for the Project.)*

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

**TYPE OF WORK SOUGHT**

*(Indicate the type of work you are seeking for this Project, such as general contracting, construction manager as constructor, design-build, HVAC subcontracting, electrical subcontracting, plumbing subcontracting, etc.)*

**CONFLICT OF INTEREST**

Describe any conflict of interest your organization, its parent, or a subsidiary, affiliate, or other entity having common ownership or management, or any of the individuals listed in Exhibit A Section 1.2, may have regarding this Project.

**§ C.1 PERFORMANCE OF THE WORK**

**§ C.1.1** When was the Contractor’s Project Office established?

**§ C.1.2** How many full-time field and office staff are respectively employed at the Contractor’s Project Office?

**§ C.1.3** List the business license and contractor license or registration numbers for the Contractor’s Project Office that pertain to the Project.

**§ C.1.4** Identify key personnel from your organization who will be meaningfully involved with work on this Project and indicate (1) their position on the Project team, (2) their office location, (3) their expertise and experience, and (4) projects similar to the Project on which they have worked.

§ C.1.5 Identify portions of work that you intend to self-perform on this Project.

§ C.1.6 To the extent known, list the subcontractors you intend to use for major portions of work on the Project.

## § C.2 EXPERIENCE RELATED TO THE PROJECT

§ C.2.1 Complete Exhibit D to describe up to four projects performed by the Contractor's Project Office, either completed or in progress, that are relevant to this Project, such as projects in a similar geographic area or of similar project type. If you have already completed Exhibit D, but want to provide further examples of projects that are relevant to this Project, you may complete Exhibit E.

§ C.2.2 State the total dollar value of work currently under contract at the Contractor's Project Office:

§ C.2.3 Of the amount stated in Section C.2.2, state the dollar value of work that remains to be completed:

§ C.2.4 State the average annual dollar value of construction work performed by the Contractor's Project Office during the last five years.

§ C.2.5 List the total number of projects the Contractor's Project Office has completed in the last five years and state the dollar value of the largest contract the Contractor's Project Office has completed during that time.

## § C.3 SAFETY PROGRAM AND RECORD

§ C.3.1 Does the Contractor's Project Office have a written safety program?

§ C.3.2 List all safety-related citations and penalties the Contractor's Project Office has received in the last three years.

§ C.3.3 Attach the Contractor's Project Office's OSHA 300a Summary of Work-Related Injuries and Illnesses form for the last three years.

§ C.3.4 Attach a copy of your insurance agent's verification letter for your organization's current workers' compensation experience modification rate and rates for the last three years.

## § C.4 INSURANCE

§ C.4.1 Attach current certificates of insurance for your commercial general liability policy, umbrella insurance policy, and professional liability insurance policy, if any. Identify deductibles or self-insured retentions for your commercial general liability policy.

§ C.4.2 If requested, will your organization be able to provide property insurance for the Project written on a builder's risk "all-risks" completed value or equivalent policy form and sufficient to cover the total value of the entire Project on a replacement cost basis?

§ C.4.3 Does your commercial general liability policy contain any exclusions or restrictions of coverage that are prohibited in AIA Document A101-2017, Exhibit A, Insurance A.3.2.2.2? If so, identify.

§ C.5 SURETY

§ C.5.1 If requested, will your organization be able to provide a performance and payment bond for this Project?

§ C.5.2 Surety company name:

§ C.5.3 Surety agent name and contact information:

§ C.5.4 Total bonding capacity:

§ C.5.5 Available bonding capacity as of the date of this qualification statement:



**AIA**<sup>®</sup>

# Document A305™ – 2020 Exhibit D

## Contractor's Past Project Experience with Historic Rehab Projects

	1	2	3	4
PROJECT NAME				
PROJECT LOCATION				
PROJECT TYPE				
OWNER				
ARCHITECT				
CONTRACTOR'S PROJECT EXECUTIVE				
KEY PERSONNEL (include titles)				
PROJECT DETAILS	Contract Amount  Completion Date  % Self-Performed Work	Contract Amount  Completion Date  % Self-Performed Work	Contract Amount  Completion Date  % Self-Performed Work	Contract Amount  Completion Date  % Self-Performed Work
PROJECT DELIVERY METHOD	<input type="checkbox"/> Design-bid-build <input type="checkbox"/> Design-build <input type="checkbox"/> CM constructor <input type="checkbox"/> CM advisor <input type="checkbox"/> Other:	<input type="checkbox"/> Design-bid-build <input type="checkbox"/> Design-build <input type="checkbox"/> CM constructor <input type="checkbox"/> CM advisor <input type="checkbox"/> Other:	<input type="checkbox"/> Design-bid-build <input type="checkbox"/> Design-build <input type="checkbox"/> CM constructor <input type="checkbox"/> CM advisor <input type="checkbox"/> Other:	<input type="checkbox"/> Design-bid-build <input type="checkbox"/> Design-build <input type="checkbox"/> CM constructor <input type="checkbox"/> CM advisor <input type="checkbox"/> Other:
SUSTAINABILITY CERTIFICATIONS				





# AIA<sup>®</sup> Document A305<sup>™</sup> – 2020 Exhibit E

## Contractor's Past Project Experience with Historic Rehab Projects (Continued)

	1	2	3	4
PROJECT NAME				
PROJECT LOCATION				
PROJECT TYPE				
OWNER				
ARCHITECT				
CONTRACTOR'S PROJECT EXECUTIVE				
KEY PERSONNEL (include titles)				
PROJECT DETAILS	Contract Amount  Completion Date  % Self-Performed Work	Contract Amount  Completion Date  % Self-Performed Work	Contract Amount  Completion Date  % Self-Performed Work	Contract Amount  Completion Date  % Self-Performed Work
PROJECT DELIVERY METHOD	<input type="checkbox"/> Design-bid-build <input type="checkbox"/> Design-build <input type="checkbox"/> CM constructor <input type="checkbox"/> CM advisor <input type="checkbox"/> Other:	<input type="checkbox"/> Design-bid-build <input type="checkbox"/> Design-build <input type="checkbox"/> CM constructor <input type="checkbox"/> CM advisor <input type="checkbox"/> Other:	<input type="checkbox"/> Design-bid-build <input type="checkbox"/> Design-build <input type="checkbox"/> CM constructor <input type="checkbox"/> CM advisor <input type="checkbox"/> Other:	<input type="checkbox"/> Design-bid-build <input type="checkbox"/> Design-build <input type="checkbox"/> CM constructor <input type="checkbox"/> CM advisor <input type="checkbox"/> Other:
SUSTAINABILITY CERTIFICATIONS				

## Payment Bond

**CONTRACTOR:**

*(Name, legal status and address)*

**SURETY:**

*(Name, legal status and principal place of business)*

**OWNER:**

*(Name, legal status and address)*

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

Any singular reference to Contractor, Surety, Owner or other party shall be considered plural where applicable.

**CONSTRUCTION CONTRACT**

Date:

Amount:

Description:

*(Name and location)*

**BOND**

Date:

*(Not earlier than Construction Contract Date)*

Amount:

Modifications to this Bond:  None  See Section 18

**CONTRACTOR AS PRINCIPAL**

Company: *(Corporate Seal)*

**SURETY**

Company: *(Corporate Seal)*

Signature: \_\_\_\_\_

Name  
and Title:

*(Any additional signatures appear on the last page of this Payment Bond.)*

Signature: \_\_\_\_\_

Name  
and Title:

*(FOR INFORMATION ONLY — Name, address and telephone)*

**AGENT or BROKER:**

**OWNER'S REPRESENTATIVE:**

*(Architect, Engineer or other party:)*

**§ 1** The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to the Owner to pay for labor, materials and equipment furnished for use in the performance of the Construction Contract, which is incorporated herein by reference, subject to the following terms.

**§ 2** If the Contractor promptly makes payment of all sums due to Claimants, and defends, indemnifies and holds harmless the Owner from claims, demands, liens or suits by any person or entity seeking payment for labor, materials or equipment furnished for use in the performance of the Construction Contract, then the Surety and the Contractor shall have no obligation under this Bond.

**§ 3** If there is no Owner Default under the Construction Contract, the Surety's obligation to the Owner under this Bond shall arise after the Owner has promptly notified the Contractor and the Surety (at the address described in Section 13) of claims, demands, liens or suits against the Owner or the Owner's property by any person or entity seeking payment for labor, materials or equipment furnished for use in the performance of the Construction Contract and tendered defense of such claims, demands, liens or suits to the Contractor and the Surety.

**§ 4** When the Owner has satisfied the conditions in Section 3, the Surety shall promptly and at the Surety's expense defend, indemnify and hold harmless the Owner against a duly tendered claim, demand, lien or suit.

**§ 5** The Surety's obligations to a Claimant under this Bond shall arise after the following:

**§ 5.1** Claimants, who do not have a direct contract with the Contractor,

- .1 have furnished a written notice of non-payment to the Contractor, stating with substantial accuracy the amount claimed and the name of the party to whom the materials were, or equipment was, furnished or supplied or for whom the labor was done or performed, within ninety (90) days after having last performed labor or last furnished materials or equipment included in the Claim; and
- .2 have sent a Claim to the Surety (at the address described in Section 13).

**§ 5.2** Claimants, who are employed by or have a direct contract with the Contractor, have sent a Claim to the Surety (at the address described in Section 13).

**§ 6** If a notice of non-payment required by Section 5.1.1 is given by the Owner to the Contractor, that is sufficient to satisfy a Claimant's obligation to furnish a written notice of non-payment under Section 5.1.1.

**§ 7** When a Claimant has satisfied the conditions of Sections 5.1 or 5.2, whichever is applicable, the Surety shall promptly and at the Surety's expense take the following actions:

**§ 7.1** Send an answer to the Claimant, with a copy to the Owner, within sixty (60) days after receipt of the Claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed; and

**§ 7.2** Pay or arrange for payment of any undisputed amounts.

**§ 7.3** The Surety's failure to discharge its obligations under Section 7.1 or Section 7.2 shall not be deemed to constitute a waiver of defenses the Surety or Contractor may have or acquire as to a Claim, except as to undisputed amounts for which the Surety and Claimant have reached agreement. If, however, the Surety fails to discharge its obligations under Section 7.1 or Section 7.2, the Surety shall indemnify the Claimant for the reasonable attorney's fees the Claimant incurs thereafter to recover any sums found to be due and owing to the Claimant.

**§ 8** The Surety's total obligation shall not exceed the amount of this Bond, plus the amount of reasonable attorney's fees provided under Section 7.3, and the amount of this Bond shall be credited for any payments made in good faith by the Surety.

**§ 9** Amounts owed by the Owner to the Contractor under the Construction Contract shall be used for the performance of the Construction Contract and to satisfy claims, if any, under any construction performance bond. By the Contractor furnishing and the Owner accepting this Bond, they agree that all funds earned by the Contractor in the performance of the Construction Contract are dedicated to satisfy obligations of the Contractor and Surety under this Bond, subject to the Owner's priority to use the funds for the completion of the work.

**§ 10** The Surety shall not be liable to the Owner, Claimants or others for obligations of the Contractor that are unrelated to the Construction Contract. The Owner shall not be liable for the payment of any costs or expenses of any Claimant under this Bond, and shall have under this Bond no obligation to make payments to, or give notice on behalf of, Claimants or otherwise have any obligations to Claimants under this Bond.

**§ 11** The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders and other obligations.

**§ 12** No suit or action shall be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the state in which the project that is the subject of the Construction Contract is located or after the expiration of one year from the date (1) on which the Claimant sent a Claim to the Surety pursuant to Section 5.1.2 or 5.2, or (2) on which the last labor or service was performed by anyone or the last materials or equipment were furnished by anyone under the Construction Contract, whichever of (1) or (2) first occurs. If the provisions of this Paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.

**§ 13** Notice and Claims to the Surety, the Owner or the Contractor shall be mailed or delivered to the address shown on the page on which their signature appears. Actual receipt of notice or Claims, however accomplished, shall be sufficient compliance as of the date received.

**§ 14** When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

**§ 15** Upon request by any person or entity appearing to be a potential beneficiary of this Bond, the Contractor and Owner shall promptly furnish a copy of this Bond or shall permit a copy to be made.

**§ 16 Definitions**

**§ 16.1 Claim.** A written statement by the Claimant including at a minimum:

- .1 the name of the Claimant;
- .2 the name of the person for whom the labor was done, or materials or equipment furnished;
- .3 a copy of the agreement or purchase order pursuant to which labor, materials or equipment was furnished for use in the performance of the Construction Contract;
- .4 a brief description of the labor, materials or equipment furnished;
- .5 the date on which the Claimant last performed labor or last furnished materials or equipment for use in the performance of the Construction Contract;
- .6 the total amount earned by the Claimant for labor, materials or equipment furnished as of the date of the Claim;
- .7 the total amount of previous payments received by the Claimant; and
- .8 the total amount due and unpaid to the Claimant for labor, materials or equipment furnished as of the date of the Claim.

**§ 16.2 Claimant.** An individual or entity having a direct contract with the Contractor or with a subcontractor of the Contractor to furnish labor, materials or equipment for use in the performance of the Construction Contract. The term Claimant also includes any individual or entity that has rightfully asserted a claim under an applicable mechanic's lien or similar statute against the real property upon which the Project is located. The intent of this Bond shall be to include without limitation in the terms "labor, materials or equipment" that part of water, gas, power, light, heat, oil, gasoline, telephone service or rental equipment used in the Construction Contract, architectural and engineering services required for performance of the work of the Contractor and the Contractor's subcontractors, and all other items for which a mechanic's lien may be asserted in the jurisdiction where the labor, materials or equipment were furnished.

**§ 16.3 Construction Contract.** The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and all changes made to the agreement and the Contract Documents.

§ 16.4 **Owner Default.** Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.

§ 16.5 **Contract Documents.** All the documents that comprise the agreement between the Owner and Contractor.

§ 17 If this Bond is issued for an agreement between a Contractor and subcontractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

§ 18 Modifications to this bond are as follows:

Sample

*(Space is provided below for additional signatures of added parties, other than those appearing on the cover page.)*

**CONTRACTOR AS PRINCIPAL**

**SURETY**

Company:

*(Corporate Seal)*

Company:

*(Corporate Seal)*

Signature: \_\_\_\_\_

Name and Title: \_\_\_\_\_

Address \_\_\_\_\_

Signature: \_\_\_\_\_

Name and Title: \_\_\_\_\_

Address \_\_\_\_\_



# AIA® Document A312® – 2010

## Performance Bond

**CONTRACTOR:**

*(Name, legal status and address)*

**SURETY:**

*(Name, legal status and principal place of business)*

**OWNER:**

*(Name, legal status and address)*

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

Any singular reference to Contractor, Surety, Owner or other party shall be considered plural where applicable.

**CONSTRUCTION CONTRACT**

Date:

Amount:

Description:

*(Name and location)*

**BOND**

Date:

*(Not earlier than Construction Contract Date)*

Amount:

Modifications to this Bond:  None  See Section 16

**CONTRACTOR AS PRINCIPAL**

Company: *(Corporate Seal)*

**SURETY**

Company: *(Corporate Seal)*

Signature: \_\_\_\_\_

Name  
and Title:

*(Any additional signatures appear on the last page of this Performance Bond.)*

Signature: \_\_\_\_\_

Name  
and Title:

*(FOR INFORMATION ONLY — Name, address and telephone)*

**AGENT or BROKER:****OWNER'S REPRESENTATIVE:**

*(Architect, Engineer or other party:)*

**§ 1** The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to the Owner for the performance of the Construction Contract, which is incorporated herein by reference.

**§ 2** If the Contractor performs the Construction Contract, the Surety and the Contractor shall have no obligation under this Bond, except when applicable to participate in a conference as provided in Section 3.

**§ 3** If there is no Owner Default under the Construction Contract, the Surety's obligation under this Bond shall arise after

- .1 the Owner first provides notice to the Contractor and the Surety that the Owner is considering declaring a Contractor Default. Such notice shall indicate whether the Owner is requesting a conference among the Owner, Contractor and Surety to discuss the Contractor's performance. If the Owner does not request a conference, the Surety may, within five (5) business days after receipt of the Owner's notice, request such a conference. If the Surety timely requests a conference, the Owner shall attend. Unless the Owner agrees otherwise, any conference requested under this Section 3.1 shall be held within ten (10) business days of the Surety's receipt of the Owner's notice. If the Owner, the Contractor and the Surety agree, the Contractor shall be allowed a reasonable time to perform the Construction Contract, but such an agreement shall not waive the Owner's right, if any, subsequently to declare a Contractor Default;
- .2 the Owner declares a Contractor Default, terminates the Construction Contract and notifies the Surety; and
- .3 the Owner has agreed to pay the Balance of the Contract Price in accordance with the terms of the Construction Contract to the Surety or to a contractor selected to perform the Construction Contract.

**§ 4** Failure on the part of the Owner to comply with the notice requirement in Section 3.1 shall not constitute a failure to comply with a condition precedent to the Surety's obligations, or release the Surety from its obligations, except to the extent the Surety demonstrates actual prejudice.

**§ 5** When the Owner has satisfied the conditions of Section 3, the Surety shall promptly and at the Surety's expense take one of the following actions:

**§ 5.1** Arrange for the Contractor, with the consent of the Owner, to perform and complete the Construction Contract;

**§ 5.2** Undertake to perform and complete the Construction Contract itself, through its agents or independent contractors;

**§ 5.3** Obtain bids or negotiated proposals from qualified contractors acceptable to the Owner for a contract for performance and completion of the Construction Contract, arrange for a contract to be prepared for execution by the Owner and a contractor selected with the Owner's concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Construction Contract, and pay to the Owner the amount of damages as described in Section 7 in excess of the Balance of the Contract Price incurred by the Owner as a result of the Contractor Default; or

**§ 5.4** Waive its right to perform and complete, arrange for completion, or obtain a new contractor and with reasonable promptness under the circumstances:

- .1 After investigation, determine the amount for which it may be liable to the Owner and, as soon as practicable after the amount is determined, make payment to the Owner; or
- .2 Deny liability in whole or in part and notify the Owner, citing the reasons for denial.

**§ 6** If the Surety does not proceed as provided in Section 5 with reasonable promptness, the Surety shall be deemed to be in default on this Bond seven days after receipt of an additional written notice from the Owner to the Surety demanding that the Surety perform its obligations under this Bond, and the Owner shall be entitled to enforce any remedy available to the Owner. If the Surety proceeds as provided in Section 5.4, and the Owner refuses the payment or the Surety has denied liability, in whole or in part, without further notice the Owner shall be entitled to enforce any remedy available to the Owner.

§ 7 If the Surety elects to act under Section 5.1, 5.2 or 5.3, then the responsibilities of the Surety to the Owner shall not be greater than those of the Contractor under the Construction Contract, and the responsibilities of the Owner to the Surety shall not be greater than those of the Owner under the Construction Contract. Subject to the commitment by the Owner to pay the Balance of the Contract Price, the Surety is obligated, without duplication, for

- .1 the responsibilities of the Contractor for correction of defective work and completion of the Construction Contract;
- .2 additional legal, design professional and delay costs resulting from the Contractor's Default, and resulting from the actions or failure to act of the Surety under Section 5; and
- .3 liquidated damages, or if no liquidated damages are specified in the Construction Contract, actual damages caused by delayed performance or non-performance of the Contractor.

§ 8 If the Surety elects to act under Section 5.1, 5.3 or 5.4, the Surety's liability is limited to the amount of this Bond.

§ 9 The Surety shall not be liable to the Owner or others for obligations of the Contractor that are unrelated to the Construction Contract, and the Balance of the Contract Price shall not be reduced or set off on account of any such unrelated obligations. No right of action shall accrue on this Bond to any person or entity other than the Owner or its heirs, executors, administrators, successors and assigns.

§ 10 The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders and other obligations.

§ 11 Any proceeding, legal or equitable, under this Bond may be instituted in any court of competent jurisdiction in the location in which the work or part of the work is located and shall be instituted within two years after a declaration of Contractor Default or within two years after the Contractor ceased working or within two years after the Surety refuses or fails to perform its obligations under this Bond, whichever occurs first. If the provisions of this Paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.

§ 12 Notice to the Surety, the Owner or the Contractor shall be mailed or delivered to the address shown on the page on which their signature appears.

§ 13 When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

#### § 14 Definitions

§ 14.1 **Balance of the Contract Price.** The total amount payable by the Owner to the Contractor under the Construction Contract after all proper adjustments have been made, including allowance to the Contractor of any amounts received or to be received by the Owner in settlement of insurance or other claims for damages to which the Contractor is entitled, reduced by all valid and proper payments made to or on behalf of the Contractor under the Construction Contract.

§ 14.2 **Construction Contract.** The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and changes made to the agreement and the Contract Documents.

§ 14.3 **Contractor Default.** Failure of the Contractor, which has not been remedied or waived, to perform or otherwise to comply with a material term of the Construction Contract.

§ 14.4 **Owner Default.** Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.

§ 14.5 **Contract Documents.** All the documents that comprise the agreement between the Owner and Contractor.

§ 15 If this Bond is issued for an agreement between a Contractor and subcontractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.



§ 16 Modifications to this bond are as follows:

Sample

*(Space is provided below for additional signatures of added parties, other than those appearing on the cover page.)*

**CONTRACTOR AS PRINCIPAL**

**SURETY**

Company: \_\_\_\_\_  
*(Corporate Seal)*

Company: \_\_\_\_\_  
*(Corporate Seal)*

Signature: \_\_\_\_\_  
Name and Title: \_\_\_\_\_  
Address \_\_\_\_\_

Signature: \_\_\_\_\_  
Name and Title: \_\_\_\_\_  
Address \_\_\_\_\_

SECTION 007000

GENERAL CONDITIONS

SECTION 007000 – GENERAL CONDITIONS

AIA Document #A201, General Conditions of the Contract for Construction – 2017 Edition is hereby made a part of the Project Manual (specifications). This document may be examined at the architect's office and a copy of the document may be obtained by the contractor from the architect upon request.

END OF SECTION 007000

## SECTION 008000 SUPPLEMENT TO THE GENERAL CONDITIONS

The following information supplements, changes, modifies, deletes from, or adds to AIA Document #A201, the General Conditions of the Contract for Construction, 2017 edition . Where any Article, paragraph, sub-paragraph, or clause thereof of the General Conditions is modified or deleted by the following supplements, the unaltered provisions of the Article, paragraph, sub-paragraph, or clause remain in effect.

ARTICLE 1 GENERAL PROVISIONS:

- 1.1.1 Add the following: Contract documents shall also include the Notice to Bidders, Instructions to Bidders, the Bid Proposal, and all Bidding Documents.
- 1.1.2 Add the following: The Owner/Contractor Agreement shall be executed on AIA Document #A-105, Standard Short Form of Agreement Between Owner and Contractor where the basis of payment is a stipulated sum, 2017 Edition.
- 1.1.4 Add the following: The project is Spring Hope Railroad Depot Building Rehabilitation and Platform Addition.
- 1.2.1 Add the following: This Project Manual (specifications) intends to ensure that the Contractor make every effort to coordinate and complete the work within the bid time stipulated in Article 8 of this Supplement to the General Conditions and in a first-class workmanlike manner.
- 1.7 Add the following: Contractor shall receive from the architect, without charge, for his/her use and the use of sub-contractors, one electronic file of Drawings and Specifications. Contractors desiring paper editions of Drawings and Specifications may purchase them from the Town of Spring Hope for the cost of reproduction, shipping, and handling.

ARTICLE 2 THE OWNER:

- 2.1.1 Add the following: Wherever the term "Owner" is used, it refers to the Town of Spring Hope, 118 W. Railroad St., P.O. Box 87, Spring Hope, NC 27882.

ARTICLE 3 THE CONTRACTOR:

- 3.2.2 Add the following paragraph 3.2.2.1: If the Contractor discovers or identifies conditions or hazardous materials that he/she reasonably believes that the Owner is legally required to notify a public agency, he/she shall so advise the Owner, in writing, and give the Owner the first opportunity to provide such notification. In any event the Contractor shall have the right to report the aforementioned conditions or hazardous materials to public agencies having jurisdiction if he/she reasonably believes he/she is required to do so.

Add the following paragraph 3.2.2.2: The Contractor shall promptly, and before conditions are disturbed, notify the Owner in writing of:

.1 subsurface or latent physical conditions at the site which differ materially from those indicated in the Contract Documents or,

.2 unknown physical conditions at the job site, of an unusual type, which differ materially from those ordinarily encountered and generally recognized as inherent in work of the character and nature called for in the Contract Documents or,

.3 the presence of hazardous materials or contaminated areas not disclosed in the Contract Documents.

3.9.1 Add the following: For any reason during the Work, the Architect in his sole judgement, may direct the Contractor to remove and replace the Superintendent with an acceptable replacement within 10 days of such notification.

Add the following paragraph 3.19: Drug Abuse Policy and Procedure for Contractors: In addition to any current Drug Abuse Policy and Procedure maintained by the Contractor the following stipulations are required: the use, presence in the body, sale, or distribution of drugs by employees of the Contractor while present on the property owned by the Town of Spring Hope or within the Limit of Contract line is prohibited. Over-the-counter drugs and drugs prescribed by a physician for employee's personal use in quantities not exceeding specified dosage requirements are not subject to this policy. Employees using drugs prescribed by a physician or using over-the-counter drugs are responsible for being aware of any potential effect such drugs may have on their reactions, judgement, or ability to perform their duties, and, if impairment is possible, to report such use to their supervisor(s) prior to reporting to work. The Contractor and all sub-contractors shall have established written procedures for testing of all their employees prior to commencement of work on the project site. This policy shall be developed and executed in accordance with all applicable local, state, and federal laws, rules, and regulations.

#### ARTICLE 4 THE ARCHITECT:

4.1.1: Add the following: Wherever the term "Architect" is used, it refers to Alliance Architecture of the Triad, PC, 2601 Pilgrim Court, #130, Winston-Salem, NC 27106.

#### ARTICLE 6 CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS:

Add the following sub-paragraph 6.3.1 to paragraph 6.3: The Owner shall have first rights to any non-contaminated items to be permanently removed. The Contractor shall notify the Architect before any such items are disturbed or removed. The Contractor shall request written permission of the Owner prior to keeping or dispersing any non-contaminated item.

ARTICLE 7 CHANGES IN THE WORK:

Add the following to 7.1: the Contractor's allowance for overhead and profit shall not exceed 15% of the value of labor and materials for work performed by the Contractor. If the work is performed by a subcontractor, the General Contractor's overhead and profit shall not exceed 5%. Supervision, overhead, profit, bonds, labor burden, insurance, and all other expenses shall be included in these percentages.

ARTICLE 8 TIME:

8.1.1 Add the following: The Work shall commence on the date noted in the NOTICE TO PROCEED and shall be Substantially Complete within three hundred sixty five (365) consecutive calendar days. Failure to complete the work within 365 consecutive calendar days shall result in liquidated damages in the amount of \$150 (One Hundred Fifty)/calendar day to be paid by the Contractor to the Owner.

ARTICLE 9 PAYMENTS AND COMPLETION:

9.3.1 Add the following: The form of Application for Payment shall be AIA Document #G702, Application and Certification for Payment, supported by AIA Document G703, Continuation Sheet.

Add the following paragraph 9.3.1.3: Until substantial completion, retainage from progress payments to the Contractor shall be 5% of each payment.

ARTICLE 10 PROTECTION OF PERSONS AND PROPERTY:

The intention of this Project Manual (specifications) is to not include materials containing asbestos. The Contractor and/or suppliers shall ensure that no specified materials or offered substitutes contain asbestos. They shall advise the Architect if any asbestos is suspected of being contained in any specified or substituted materials.

10.2.4 Delete this paragraph as written and substitute the following: the use of explosives on this project is prohibited.

Add the following paragraph 10.2.9: The Contractor shall prepare and implement his/her own project specific health and safety plan, based on his/her health and safety programs and all written programs required by federal, state, and local regulations, and shall bear responsibility for the completeness and accuracy of the plan. The Contractor's health and safety plan and required documentation shall be available at the job site for review at all times.

Add the following paragraph 10.2.10: The Contractor shall notify, in writing, owners of adjacent properties, underground facilities, and utility owners when prosecution of the Work may affect them and shall cooperate with them in the protection, removal, relocation, and replacement of their property. A copy of such written notification shall be promptly provided to the Owner and Architect. All damage, injury, or property loss caused directly or indirectly in whole or in part, by the Contractor, any subcontractor, supplier, or any other individual or entity directly or indirectly employed by any of them to perform or furnish the Work or anyone for whose acts any of them may be liable, shall be remedied and paid for by the Contractor; provided that nothing in this paragraph shall waive or otherwise limit any claim that the Contractor may have for contribution, indemnification or reimbursement or additional compensation.

#### ARTICLE 11 INSURANCE AND BONDS:

Add the following:

1. Workman's Compensation: Statutory per requirements of the State of North Carolina
2. General Liability (including Premises-Operations; Independent Contractor's Protectives and Completed Operations; Broad Form Property Damage):
  - a. Combined single limit for Bodily Injury and Property Damage:
 

\$3,000,000	Each Occurrence (Bodily Injury)
\$3,000,000	Each Occurrence (Property Damage)
\$3,000,000	Aggregate
  - b. Products and Completed Operations Insurance shall be maintained for one year after final payment and the Contractor shall continue to provide evidence of such coverage to the Owner on an annual basis during the aforementioned period.
  - c. Property damage liability insurance shall include coverage for the following hazards:
 

C (Collapse)
  - d. Combined single limit for contractual liability (hold harmless coverage).
 

Bodily Injury:	\$3,000,000 Each Occurrence
Property Damage:	\$3,000,000 Each Occurrence
	\$3,000,000 Aggregate
3. Owner's Liability Insurance
  - a. Concerning the insurance described in paragraph 11.2, the Contractor shall provide this insurance with the following limits:

Bodily Injury: \$3,000,000 Each Occurrence  
\$3,000,000 Aggregate

Property Damage: \$3,000,000 Each Occurrence  
\$3,000,000 Aggregate

#### 4. Property Insurance

a. The Contractor shall purchase the following:

##### 1. All Risk

5. The Contractor shall furnish one copy of Certificates of Insurance herein required for each copy of the Agreement, which shall specifically set forth evidence of all required coverage. The form of the Certificates shall be AIA Document G715, Supplemental Attachment for ACORD Certificate of Insurance 25-S (7/90). The insurance policies to which the Certificate refers shall not be altered or cancelled until after 45 days written notice of such cancellation or alteration sent by certified mail to the Town of Spring Hope. The Contractor shall furnish to the Owner copies of any endorsements that are subsequently issued amending coverage or limits with 45 days of acceptance by the Owner. The Contractor's insurance agent shall obtain and review a copy of the Contract to verify all insurance obligations are noted. The certificate shall name the Owner as additional insured. All insurance required under this contract shall be written by a company or companies having a rating of "A" or above by the A.M. Best Company and which are licensed and authorized to do business in the State of North Carolina. Policies shall include completed operations insurance, with coverage extending for one year after acceptance of the Work by the Owner. All insurance shall be maintained in force for the duration of the Contract Time both during and between working hours.

#### ARTICLE 15 CLAIMS AND DISPUTES:

15.1.6.2: Delete this paragraph as written and substitute the following: If weather conditions are the basis for a claim of Additional Time, such Claim shall be documented by data submitted in accordance with 15.1.6.2.1 through 15.1.6.2.3. No other claims for extension of the Contract Time will be considered by the Architect except as described in this Article.

15.1.6.2.1: Normal bad weather prevailing at the construction site (based on the previous five years of U.S. Weather Bureau Records), delay caused by subcontractors or suppliers and shortage of workers or materials will not be deemed a justification for an Addition or extension of Contract Time.

15.1.6.2.2: Claims for extension of Contract Time due to bad weather will be considered by using the following mathematical model: a) calculate the average number of days of precipitation for the time period requested by the Contractor when the delay is proposed during the previous five year period (a day of precipitation is a day in which there was more than 0.01"

of precipitation), b) calculate the number of days of precipitation for the time period requested by the Contractor when the delay is proposed during the Contract Time, c) subtract a) from b).

15.1.6.2.3: To substantiate claims for extensions of time, it shall be the Contractor's responsibility to provide all precipitation data required by 15.16.2.2 from the National Climatic Data Center, 151 Patton Avenue, Room 120, Asheville, NC 28801-5001, (828) 271-4800. Data shall be provided as photocopies of original documents. Facsimile transmission of data will not be accepted.

END OF SECTION 008000



**FORM OF PROPOSAL**  
**for**  
**SINGLE PRIME**  
**GENERAL CONSTRUCTION OF ALL WORK**

**SPRING HOPE RAILROAD DEPOT**  
**BUILDING REHABILITATION AND PLATFORM ADDITION**  
**for the**  
**TOWN OF SPRING HOPE, NORTH CAROLINA**

To: Mr. Andrew DeIonno, Town Manager  
Town of Spring Hope  
Box 87  
118 West Railroad St.  
Spring Hope, NC 27882

Mr. DeIonno:

The undersigned, as bidder, hereby declares that the only person or persons interested in this proposal as principal or principals is or are named herein and that no other person than herein mentioned has any interest in this proposal or in the contract to be entered into; that this proposal is made without connection with any other person, company or parties making a bid or proposal; and that it is in all respects fair and in good faith without collusion or fraud. The bidder further declares that he/she has examined the site of the work and the contract documents relative thereto and has read all special provisions furnished prior to the opening of bids; that he/she has satisfied himself relative to the work to be performed. The bidder further declares that he/she will provide all labor, materials, equipment, insurance, and permits and abide by all local, state, and federal codes applicable to perform the work required for general construction of the Spring Hope Railroad Depot Building Rehabilitation and Platform Addition.

**SINGLE PRIME PROPOSAL FOR GENERAL CONSTRUCTION OF ALL WORK**

**BASE BID**

\_\_\_\_\_ Dollars,

(\$ \_\_\_\_\_) Base Bid to include all cash allowances but does not include alternate bids, if any.

**ALTERNATES**

Should any of the alternates, as described, in the contract documents be accepted, the amount written below shall be the amount to be "added to" the base bid.

ALTERNATE #1: Remove and dispose of exterior lead-based paint and paint all existing exterior painted surfaces.

ADD \_\_\_\_\_ Dollars.

(\$ \_\_\_\_\_).

ALTERNATE #2: Selectively disassemble and reconstruct two existing chimneys.

ADD \_\_\_\_\_ Dollars.  
(\$ \_\_\_\_\_).

ALTERNATE #3: Furnish and install project sign as detailed on the drawings.

ADD \_\_\_\_\_ Dollars.  
(\$ \_\_\_\_\_).

ALTERNATE #4: Furnish and install perimeter site security fence and gates.

ADD \_\_\_\_\_ Dollars  
(\$ \_\_\_\_\_).

**UNIT COSTS**

UNIT PRICE #1 for removal/replacement of poor soils: \_\_\_\_\_  
\_\_\_\_\_ (\$ \_\_\_\_\_) per cubic yard.

UNIT PRICE #2 for removal/replacement of mass rock: \_\_\_\_\_  
\_\_\_\_\_ (\$ \_\_\_\_\_) per cubic yard.

UNIT PRICE #3 for removal/replacement of trench rock: \_\_\_\_\_  
\_\_\_\_\_ (\$ \_\_\_\_\_) per cubic yard.

UNIT PRICE #4 to furnish and install additional duplex electrical receptacles: \_\_\_\_\_  
\_\_\_\_\_ (\$ \_\_\_\_\_) per receptacle.

UNIT PRICE #5 to furnish and install R-30 insulation at Depot crawl space and attic: \_\_\_\_\_  
\_\_\_\_\_ (\$ \_\_\_\_\_) per sq. ft.

**LIST OF SELECTED PRE-QUALIFIED SUB-CONTRACTORS**

060000 Window Rehabilitation Sub-Contractor

Name \_\_\_\_\_.

Address \_\_\_\_\_.

\_\_\_\_\_.

**LIST OF MAJOR SUB-CONTRACTORS**

Plumbing Sub-Contractor is

Name \_\_\_\_\_.

Address \_\_\_\_\_.

\_\_\_\_\_.

Phone No. \_\_\_\_\_.

Fire-Protection Sprinkler Subcontractor is

Name \_\_\_\_\_.

Address \_\_\_\_\_.

\_\_\_\_\_.

Phone No. \_\_\_\_\_.

HVAC Sub-Contractor is

Name \_\_\_\_\_.

Address \_\_\_\_\_.

\_\_\_\_\_.

Phone No. \_\_\_\_\_.

Electrical Sub-Contractor is

Name \_\_\_\_\_.

Address \_\_\_\_\_.

\_\_\_\_\_.

Phone No. \_\_\_\_\_.

Painting Sub-Contractor is

Name \_\_\_\_\_.

Address \_\_\_\_\_.

\_\_\_\_\_.

Phone No. \_\_\_\_\_.

The bidder further proposes and agrees hereby to commence work under this contract on a date to be specified in a written order of the designer and shall fully complete all work thereunder within 365 consecutive calendar days from and including said date. Applicable liquidated damages shall be stated in the Supplementary General Conditions.

The undersigned bidder further agrees to furnish a one hundred percent (100%) performance and labor and materials payment bond. Bonds shall be in conformance with North Carolina General Statutes

The general contractor shall include in his sealed bid proposal a list of any exclusions from his insurance coverages. The list shall be typewritten on the contractor's letterhead. If no list is provided, the owner will assume that the contractor has no exclusions from his insurance coverages.

**ADDENDA**

Addenda received and used in computing bid:

Addendum No. _____	Date _____
Addendum No. _____	Date _____
Addendum No. _____	Date _____
Addendum No. _____	Date _____
Addendum No. _____	Date _____
Addendum No. _____	Date _____

**Attach certified check or bid bond to this proposal.**

Respectfully submitted this \_\_\_\_\_ day of \_\_\_\_\_, 2025.

Name of Firm or Corporation making bid: \_\_\_\_\_

WITNESS:

By:

\_\_\_\_\_ Title: \_\_\_\_\_

(Proprietorship or Partnership)

(Owner/Partner/Pres./V. Pres.)

Address: \_\_\_\_\_

\_\_\_\_\_

License No. \_\_\_\_\_

Federal I.D. No. \_\_\_\_\_

ATTEST:

By: \_\_\_\_\_

(Corp. Sec. or Assistant Sec. only)

(CORPORATE SEAL)

# Coastal Environmental and Inspections, LLC

March 24, 2024

CE&I Project #: 099-ASB-I-24

Town of Spring Hope  
Attn: Andrew Deionno  
118 West Railroad Street  
Spring Hope, NC 27882

## **Re: 101 South Ash Street, Spring Hope, NC 27882; Asbestos PLM Bulk Sample Results**

On March 28, 2023, Coastal Environmental and Inspections, LLC (CE&I) representative Nick Fravel (NC Asbestos Inspector Accreditation #: 12946) was contracted to complete a limited asbestos assessment at the above referenced location. The purpose of this assessment was to determine if asbestos-containing materials (ACMs) are present prior to renovations.

CE&I completed the asbestos assessment in general accordance with the Environmental Protection Agency (EPA) Standard 40 CFR 763 Subpart E, Asbestos Hazard Emergency Response Act (AHERA) and the Occupational Safety and Health Administration (OSHA) Standard 29 CFR 1926.1101 Inspection Protocol. Per the National Emission Standards for Hazardous Air Pollutants (NESHAP) regulations, the identification of ACMs is required prior to renovation or demolition activities.

The front side directional reference is determined by facing *South Ash Street* from within the building. The right side, rear side, and left side directional references follow clockwise from the front side orientation.

At the initiation of the assessment, a visual inspection was conducted to determine Homogeneous Areas (HGAs), functional spaces, and sample locations. HGAs are suspect ACMs that are denoted by their color, texture, date of installation, and installation within the same functional space or spaces. Functional spaces are rooms, groups of rooms, or areas defined by the inspector, such as kitchens, restrooms, crawlspaces, or attics. The collection of suspect asbestos-containing materials, similar in appearance and texture, is required in all locations if they are installed in different functional spaces or on different dates.

Each HGA is further categorized as a surfacing material (e.g., plaster, ceiling texture, fire proofing), miscellaneous material (e.g., vinyl flooring, mastics, ceiling tiles), or thermal system insulation (e.g., pipe and tank insulation). Once categorized as surfacing material (SM), miscellaneous material (MM), or thermal system insulation (TSI), these materials are identified as friable or non-friable. Friable materials are defined as materials that can be pulverized or reduced to powder by hand pressure.

Per federal regulations, the collection of multiple samples is required for each homogenous suspect asbestos-containing material. CE&I collected thirty-four (34) bulk samples of the suspect asbestos-containing materials. Each asbestos bulk sample was placed in an individual sample bag, assigned a unique sample identification number, logged onto a chain of custody, and shipped to a third-party laboratory, Eurofins CEI (ECEI). Asbestos analysis of the bulk samples was performed utilizing the Polarized Light Microscopy (PLM) EPA 600/R93/116 and EPA 600/M4-82/020 methodologies (ECEI National Voluntary Laboratory Accreditation Plan (NVLAP) Lab Code 101768-0).

Federal regulations also require laboratories to separately analyze each homogeneous material within a submitted bulk sample. If a material is identified as asbestos containing, a positive stop instruction was issued to omit sample analysis of the same materials. Upon completion of the laboratory analysis, a total of thirty-eight (38) samples were analyzed from the thirty-four (34) submitted bulk samples.

An asbestos-containing material is defined, by the EPA, as any material containing greater than one percent (>1%) asbestos as outlined in Appendix A, Subpart F, 40 CFR Part 763 Section 1, PLM.

### **Summary of the Asbestos Results**

The following lists the sample numbers, material descriptions/locations and sample location, results, and estimated quantities of the materials:

### CE&I Summary Table - Asbestos PLM Analytical Results

Sample #	Sample Layer	Material Description and Location - Sample Location	Category	F/NF	Analytical Result	Quantity
031524-NF-01		White, brown drywall within the front left room	MM	NF	None Detected	4334 SF
031524-NF-02		White, brown drywall within the central room on the right side	MM	NF	None Detected	
031524-NF-03		White joint compound within the front left room	SM	F	None Detected	
031524-NF-04		White joint compound within the rear left room	SM	F	None Detected	
031524-NF-05		White joint compound within the central room	SM	F	None Detected	
031524-NF-06		White joint compound within the right side bathroom	SM	F	None Detected	
031524-NF-07		White joint compound within the storage room	SM	F	None Detected	
031524-NF-08		White, brown drywall and joint compound within the storage room	MM & SM	NF & F	None Detected	
031524-NF-09		Off-white vinyl sheet flooring within the rear left bathroom - Front side	MM	NF	None Detected	16 SF
031524-NF-10		Off-white vinyl sheet flooring within the rear left bathroom - Rear side	MM	NF	None Detected	
031524-NF-11		Gray vinyl sheet flooring within the right side bathroom - Front side	MM	NF	None Detected	20 SF
031524-NF-12		Gray vinyl sheet flooring within the right side bathroom - Rear side	MM	NF	None Detected	
031524-NF-13		Yellow carpet glue within the front left room	MM	NF	None Detected	1400 SF
031524-NF-14		Yellow carpet glue within the right side room	MM	NF	None Detected	
031524-NF-15		Yellow, black carpet glue within the central room on the left side - Front side	MM	NF	None Detected	782 SF
031524-NF-16		Yellow, black carpet glue within the central room on the left side - Rear side	MM	NF	None Detected	
031524-NF-17		White, brown 4'x2' ceiling tile within the central room on the left side - Front side	MM	F	None Detected	782 SF
031524-NF-18		White, brown 4'x2' ceiling tile within the central room on the left side - Rear side	MM	F	None Detected	
031524-NF-19		White, gray ceiling tile within the central room on the right side	MM	F	None Detected	420 SF
031524-NF-20		White, gray ceiling tile within the right side bathroom	MM	F	None Detected	
031524-NF-21		Off-white, white sink caulk within the rear left bathroom	MM	NF	None Detected	4 LF
031524-NF-22		Off-white, white sink caulk within the rear left bathroom	MM	NF	None Detected	
031524-NF-23		White interior door caulk within the front left room	MM	NF	None Detected	30 LF
031524-NF-24		White interior door caulk within the central room on the right side	MM	NF	None Detected	



## CE&I Summary Table - Asbestos PLM Analytical Results

Sample #	Sample Layer	Material Description and Location - Sample Location	Category	F/NF	Analytical Result	Quantity
031524-NF-25	First Layer	Yellow mastic within the rear left room	MM	NF	None Detected	1000 SF
	Second Layer	Gray leveling compound	MM	NF	None Detected	
031524-NF-26	First Layer	Yellow mastic within the central room on the right side	MM	NF	None Detected	
	Second Layer	Gray leveling compound	MM	NF	None Detected	
031524-NF-27		Black tarpaper within the central room	MM	NF	None Detected	2898 SF
031524-NF-28		Black tarpaper within the front left room	MM	NF	None Detected	
031524-NF-29		White, gray, and tan window caulk - Front side window	MM	NF	None Detected	320 LF
031524-NF-30		White, gray, and tan window caulk - Rear side window	MM	NF	None Detected	
031524-NF-31		White, gray, and tan window glaze - Front side window	MM	NF	None Detected	240 LF
031524-NF-32		White, gray, and tan window glaze - Rear side window	MM	NF	None Detected	
031524-NF-33	First Layer	Off-white vinyl base cove within the rear left bathroom	MM	NF	None Detected	240 LF
	Second Layer	Yellow mastic	MM	NF	None Detected	
031524-NF-34	First Layer	Off-white vinyl base cove within the rear left bathroom	MM	NF	None Detected	
	Second Layer	Yellow mastic	MM	NF	None Detected	

Category: MM – Miscellaneous Material; SM – Surfacing Material; TSI – Thermal System Insulation

F/NF: F – Friable; NF – Non-Friable

Total Estimated Quantity: Reflects the approximate square feet (SF) or linear feet (LF) of all the areas where the material was observed, including the sampling locations

CE&I collected samples from accessible suspect ACMs utilizing hand tools. This process limits the amount of destructive means that may be necessary to expose potential suspect ACMs. Additionally, this asbestos assessment did not include the collection of suspect asbestos-containing materials on the interior or exterior of mechanical equipment. Any suspect material on the interior or exterior of mechanical equipment must be assumed as asbestos-containing or proven non-asbestos-containing by laboratory analysis. If additional suspect asbestos-containing materials are identified during construction activities or on the interior or exterior of mechanical equipment, these materials shall be assumed to be asbestos-containing and managed in accordance with all federal, state, and local regulations or assessed by a certified asbestos inspector by sample collection and lab analysis at the time of their discovery.

### Absent Suspect Asbestos-Containing Building Materials

The following is a list of common suspect asbestos-containing materials that were not observed during the assessment:

- Pipe thermal system insulation
- Ceiling texture

### Non-Suspect Asbestos-Containing Building Materials

The following lists non-suspect asbestos-containing materials that were observed during the assessment:

- Wood paneling and exterior siding

- Fiberglass insulation
- Metal Room

### **Conclusions:**

#### **Asbestos-Containing Materials - Greater Than One Percent**

Based on the ECEI analytical results, the following materials were identified as asbestos-containing materials (>1% asbestos):

- None of the sampled materials were identified as asbestos-containing materials

#### **Non-Asbestos-Containing Materials**

Based on the ECEI analytical results, the following materials were not identified as asbestos-containing materials (Less than one percent (<1%) or None Detected):

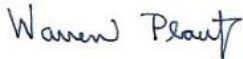
- White, brown drywall and joint compound throughout the building
- Off-white vinyl sheet flooring within the rear left bathroom
- Gray vinyl sheet flooring within the right side bathroom
- Yellow carpet glue throughout the building
- Yellow and black carpet glue within the central room on the left side
- Ceiling tiles throughout the building
- Off-white and white sink caulk
- White door caulk throughout the building
- Gray leveling compound
- Black tarpaper underlayment throughout the building
- White, gray, and tan window caulk and window glazing
- Off-white vinyl base cove and the associated yellow mastic within the rear left bathroom

### **Limitations**

No warranty is made regarding the conclusions and recommendations within this asbestos assessment. This report is provided for the exclusive use of the client or building owner. It is not intended to be used or relied upon in conjunction with other projects or by third-parties without the written consent of CE&I and the client or owner.

Should you have any questions regarding this asbestos report, please do not hesitate to contact me.

Thank you,



Warren Plautz, CIEC, Industrial Hygienist

Enclosures: ECEI Analytical Results and the Inspector's NC Asbestos Accreditation

March 20, 2024

Coastal Environmental and Inspections  
202 Nantucket Ct.  
Wilmington, NC 28412

**CLIENT PROJECT:** 101 South Ash Street, Spring Hope, NC, 099-ASB-I-24  
**CEI LAB CODE:** B245354

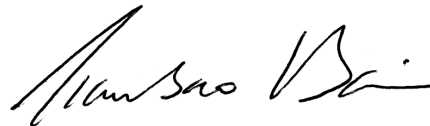
Dear Customer:

Enclosed are asbestos analysis results for PLM Bulk samples received at our laboratory on March 19, 2024. The samples were analyzed for asbestos using polarizing light microscopy (PLM) per the EPA 600 Method.

Sample results containing >1% asbestos are considered asbestos-containing materials (ACMs) per EPA regulatory requirements. The detection limit for the EPA 600 Method is <1% asbestos by weight as determined by visual estimation.

Thank you for your business and we look forward to continuing good relations.

Kind Regards,



Tianbao Bai, Ph.D., CIH  
Laboratory Director

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**ASBESTOS ANALYTICAL REPORT**  
**By: Polarized Light Microscopy**

Prepared for

**Coastal Environmental and Inspections**

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CLIENT PROJECT: 101 South Ash Street, Spring Hope, NC, 099-ASB-I-24

LAB CODE: B245354

TEST METHOD: EPA 600 / R93 / 116 and EPA 600 / M4-82 / 020

REPORT DATE: 03/20/24

TOTAL SAMPLES ANALYZED: 34

# SAMPLES >1% ASBESTOS:



CEI

# Asbestos Report Summary

By: POLARIZING LIGHT MICROSCOPY

**PROJECT:** 101 South Ash Street, Spring Hope, NC,    **LAB CODE:** B245354  
099-ASB-I-24

**METHOD:** EPA 600 / R93 / 116 and EPA 600 / M4-82 / 020

Client ID	Layer	Lab ID	Color	Sample Description	ASBESTOS %
031524-NF-01		B245354.01	White,Brown	Drywall	None Detected
031524-NF-02		B245354.02	White,Brown	Drywall/Joint Compound	None Detected
031524-NF-03		B245354.03	White	Joint Compound	None Detected
031524-NF-04		B245354.04	White	Joint Compound	None Detected
031524-NF-05		B245354.05	White	Joint Compound	None Detected
031524-NF-06		B245354.06	White	Joint Compound	None Detected
031524-NF-07		B245354.07	White	Joint Compound	None Detected
031524-NF-08		B245354.08	White,Brown	Drywall/Joint Compound	None Detected
031524-NF-09		B245354.09	Off-white	Vinyl Sheet Flooring	None Detected
031524-NF-10		B245354.10	Off-white	Vinyl Sheet Flooring	None Detected
031524-NF-11		B245354.11	Gray	Vinyl Sheet Flooring	None Detected
031524-NF-12		B245354.12	Gray	Vinyl Sheet Flooring	None Detected
031524-NF-13		B245354.13	Yellow	Carpet Glue	None Detected
031524-NF-14		B245354.14	Yellow	Carpet Glue	None Detected
031524-NF-15		B245354.15	Yellow,Black	Carpet Glue	None Detected
031524-NF-16		B245354.16	Yellow,Black	Carpet Glue	None Detected
031524-NF-17		B245354.17	White,Brown	Ceiling Tile	None Detected
031524-NF-18		B245354.18	White,Brown	Ceiling Tile	None Detected
031524-NF-19		B245354.19	White,Gray	Ceiling Tile	None Detected
031524-NF-20		B245354.20	White,Gray	Ceiling Tile	None Detected
031524-NF-21		B245354.21	Off-white,White	Sink Caulk	None Detected
031524-NF-22		B245354.22	Off-white,White	Sink Caulk	None Detected
031524-NF-23		B245354.23	White	Door Caulk	None Detected
031524-NF-24		B245354.24	White	Door Caulk	None Detected
031524-NF-25	Layer 1	B245354.25	Yellow	Mastic	None Detected
	Layer 2	B245354.25	Gray	Leveling Compound	None Detected
031524-NF-26	Layer 1	B245354.26	Yellow	Mastic	None Detected
	Layer 2	B245354.26	Gray	Leveling Compound	None Detected
031524-NF-27		B245354.27	Black	Tar Paper Underlayment	None Detected
031524-NF-28		B245354.28	Black	Tar Paper Underlayment	None Detected
031524-NF-29		B245354.29	White,Gray Tan	Window Caulking	None Detected



CEI

# Asbestos Report Summary

By: POLARIZING LIGHT MICROSCOPY

**PROJECT:** 101 South Ash Street, Spring Hope, NC,    **LAB CODE:** B245354  
099-ASB-I-24

**METHOD:** EPA 600 / R93 / 116 and EPA 600 / M4-82 / 020

Client ID	Layer	Lab ID	Color	Sample Description	ASBESTOS %
031524-NF-30		B245354.30	White,Gray Tan	Window Caulking	None Detected
031524-NF-31		B245354.31	White,Gray Tan	Window Glazing	None Detected
031524-NF-32		B245354.32	White,Gray Tan	Window Glazing	None Detected
031524-NF-33		B245354.33A	Off-white	Vinyl Base Cove	None Detected
		B245354.33B	Yellow	Mastic	None Detected
031524-NF-34		B245354.34A	Off-white	Vinyl Base Cove	None Detected
		B245354.34B	Yellow	Mastic	None Detected

# ASBESTOS BULK ANALYSIS

By: POLARIZING LIGHT MICROSCOPY

**Client:** Coastal Environmental and Inspections  
 202 Nantucket Ct.  
 Wilmington, NC 28412

**Lab Code:** B245354  
**Date Received:** 03-19-24  
**Date Analyzed:** 03-19-24  
**Date Reported:** 03-20-24

**Project:** 101 South Ash Street, Spring Hope, NC, 099-ASB-I-24

## ASBESTOS BULK PLM, EPA 600 METHOD

Client ID Lab ID	Lab Description	Lab Attributes	NON-ASBESTOS COMPONENTS				ASBESTOS %
			Fibrous		Non-Fibrous		
<b>031524-NF-01</b> B245354.01	Drywall	Heterogeneous White,Brown Fibrous Bound	20%	Cellulose	80%	Gypsum Paint	None Detected
<b>031524-NF-02</b> B245354.02	Drywall/Joint Compound	Heterogeneous White,Brown Fibrous Bound	20%	Cellulose	75%	Gypsum Calc Carb Paint	None Detected
<b>031524-NF-03</b> B245354.03	Joint Compound	Heterogeneous White Non-fibrous Bound			60%	Binder Calc Carb Paint	None Detected
<b>031524-NF-04</b> B245354.04	Joint Compound	Heterogeneous White Non-fibrous Bound			60%	Binder Calc Carb Paint	None Detected
<b>031524-NF-05</b> B245354.05	Joint Compound	Heterogeneous White Non-fibrous Bound			60%	Binder Calc Carb Paint	None Detected
<b>031524-NF-06</b> B245354.06	Joint Compound	Heterogeneous White Non-fibrous Bound			60%	Binder Calc Carb Paint	None Detected
<b>031524-NF-07</b> B245354.07	Joint Compound	Heterogeneous White Non-fibrous Bound			60%	Binder Calc Carb Paint	None Detected

# ASBESTOS BULK ANALYSIS

By: POLARIZING LIGHT MICROSCOPY

**Client:** Coastal Environmental and Inspections  
 202 Nantucket Ct.  
 Wilmington, NC 28412

**Lab Code:** B245354  
**Date Received:** 03-19-24  
**Date Analyzed:** 03-19-24  
**Date Reported:** 03-20-24

**Project:** 101 South Ash Street, Spring Hope, NC, 099-ASB-I-24

## ASBESTOS BULK PLM, EPA 600 METHOD

Client ID Lab ID	Lab Description	Lab Attributes	NON-ASBESTOS COMPONENTS				ASBESTOS %
			Fibrous		Non-Fibrous		
<b>031524-NF-08</b> B245354.08	Drywall/Joint Compound	Heterogeneous	20%	Cellulose	73%	Gypsum	None Detected
		White,Brown	2%	Fiberglass	5%	Calc Carb	
		Fibrous			<1%	Paint	
		Bound					
<b>031524-NF-09</b> B245354.09	Vinyl Sheet Flooring	Homogeneous			100%	Vinyl	None Detected
		Off-white					
		Non-fibrous Tightly Bound					
<b>031524-NF-10</b> B245354.10	Vinyl Sheet Flooring	Homogeneous			100%	Vinyl	None Detected
		Off-white					
		Non-fibrous Tightly Bound					
<b>031524-NF-11</b> B245354.11	Vinyl Sheet Flooring	Heterogeneous	2%	Fiberglass	50%	Vinyl	None Detected
		Gray			48%	Foam	
		Non-fibrous					
		Bound					
Insufficient mastic present.							
<b>031524-NF-12</b> B245354.12	Vinyl Sheet Flooring	Heterogeneous	2%	Fiberglass	50%	Vinyl	None Detected
		Gray			48%	Foam	
		Non-fibrous Bound					
Insufficient mastic present.							
<b>031524-NF-13</b> B245354.13	Carpet Glue	Homogeneous			100%	Mastic	None Detected
		Yellow					
		Non-fibrous Bound					
<b>031524-NF-14</b> B245354.14	Carpet Glue	Homogeneous			100%	Mastic	None Detected
		Yellow					
		Non-fibrous Bound					



# ASBESTOS BULK ANALYSIS

By: POLARIZING LIGHT MICROSCOPY

**Client:** Coastal Environmental and Inspections  
 202 Nantucket Ct.  
 Wilmington, NC 28412

**Lab Code:** B245354  
**Date Received:** 03-19-24  
**Date Analyzed:** 03-19-24  
**Date Reported:** 03-20-24

**Project:** 101 South Ash Street, Spring Hope, NC, 099-ASB-I-24

## ASBESTOS BULK PLM, EPA 600 METHOD

Client ID Lab ID	Lab Description	Lab Attributes	NON-ASBESTOS COMPONENTS				ASBESTOS %
			Fibrous		Non-Fibrous		
<b>031524-NF-15</b> B245354.15	Carpet Glue	Heterogeneous Yellow,Black Non-fibrous Bound	2%	Cellulose	78%	Mastic	None Detected
					20%	Binder	
Unable to separate yellow and black carpet glue.							
<b>031524-NF-16</b> B245354.16	Carpet Glue	Heterogeneous Yellow,Black Non-fibrous Bound	2%	Cellulose	78%	Mastic	None Detected
					20%	Binder	
Unable to separate yellow and black carpet glue.							
<b>031524-NF-17</b> B245354.17	Ceiling Tile	Heterogeneous White,Brown Fibrous Loosely Bound	95%	Cellulose	5%	Paint	None Detected
<b>031524-NF-18</b> B245354.18	Ceiling Tile	Heterogeneous White,Brown Fibrous Loosely Bound	95%	Cellulose	5%	Paint	None Detected
<b>031524-NF-19</b> B245354.19	Ceiling Tile	Heterogeneous White,Gray Fibrous Loosely Bound	65%	Cellulose	15%	Perlite	None Detected
			15%	Fiberglass	5%	Paint	
<b>031524-NF-20</b> B245354.20	Ceiling Tile	Heterogeneous White,Gray Fibrous Loosely Bound	65%	Cellulose	15%	Perlite	None Detected
			15%	Fiberglass	5%	Paint	
<b>031524-NF-21</b> B245354.21	Sink Caulk	Heterogeneous Off-white,White Non-fibrous Bound			98%	Caulk	None Detected
					2%	Paint	

# ASBESTOS BULK ANALYSIS

By: POLARIZING LIGHT MICROSCOPY

**Client:** Coastal Environmental and Inspections  
 202 Nantucket Ct.  
 Wilmington, NC 28412

**Lab Code:** B245354  
**Date Received:** 03-19-24  
**Date Analyzed:** 03-19-24  
**Date Reported:** 03-20-24

**Project:** 101 South Ash Street, Spring Hope, NC, 099-ASB-I-24

## ASBESTOS BULK PLM, EPA 600 METHOD

Client ID Lab ID	Lab Description	Lab Attributes	NON-ASBESTOS COMPONENTS		ASBESTOS %
			Fibrous	Non-Fibrous	
<b>031524-NF-22</b> B245354.22	Sink Caulk	Heterogeneous	98%	Caulk	None Detected
		Off-white, White Non-fibrous Bound	2%	Paint	
<b>031524-NF-23</b> B245354.23	Door Caulk	Heterogeneous	98%	Caulk	None Detected
		White Non-fibrous Bound	2%	Paint	
<b>031524-NF-24</b> B245354.24	Door Caulk	Heterogeneous	98%	Caulk	None Detected
		White Non-fibrous Bound	2%	Paint	
<b>031524-NF-25</b> Layer 1 B245354.25	Mastic	Homogeneous	100%	Mastic	None Detected
		Yellow Non-fibrous Bound			
Layer 2 B245354.25	Leveling Compound	Homogeneous	100%	Binder	None Detected
		Gray Non-fibrous Bound			
<b>031524-NF-26</b> Layer 1 B245354.26	Mastic	Homogeneous	100%	Mastic	None Detected
		Yellow Non-fibrous Bound			
Layer 2 B245354.26	Leveling Compound	Homogeneous	100%	Binder	None Detected
		Gray Non-fibrous Bound			

# ASBESTOS BULK ANALYSIS

By: POLARIZING LIGHT MICROSCOPY

**Client:** Coastal Environmental and Inspections  
 202 Nantucket Ct.  
 Wilmington, NC 28412

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**Date Reported:** 03-20-24

**Project:** 101 South Ash Street, Spring Hope, NC, 099-ASB-I-24

## ASBESTOS BULK PLM, EPA 600 METHOD

Client ID Lab ID	Lab Description	Lab Attributes	NON-ASBESTOS COMPONENTS			ASBESTOS %	
			Fibrous	Non-Fibrous			
<b>031524-NF-27</b> B245354.27	Tar Paper Underlayment	Heterogeneous Black Fibrous Bound	70%	Cellulose	30%	Tar	None Detected
<b>031524-NF-28</b> B245354.28	Tar Paper Underlayment	Heterogeneous Black Fibrous Bound	70%	Cellulose	30%	Tar	None Detected
<b>031524-NF-29</b> B245354.29	Window Caulking	Heterogeneous White, Gray Tan Non-fibrous Bound			90%	Binder	None Detected
					10%	Paint	
<b>031524-NF-30</b> B245354.30	Window Caulking	Heterogeneous White, Gray Tan Non-fibrous Bound			90%	Binder	None Detected
					10%	Paint	
<b>031524-NF-31</b> B245354.31	Window Glazing	Heterogeneous White, Gray Tan Non-fibrous Bound	<1%	Talc	95%	Binder	None Detected
					5%	Paint	
<b>031524-NF-32</b> B245354.32	Window Glazing	Heterogeneous White, Gray Tan Non-fibrous Bound	<1%	Talc	95%	Binder	None Detected
					5%	Paint	
<b>031524-NF-33</b> B245354.33A	Vinyl Base Cove	Homogeneous Off-white Non-fibrous Tightly Bound			100%	Vinyl	None Detected

# ASBESTOS BULK ANALYSIS

By: POLARIZING LIGHT MICROSCOPY

**Client:** Coastal Environmental and Inspections  
 202 Nantucket Ct.  
 Wilmington, NC 28412

**Lab Code:** B245354  
**Date Received:** 03-19-24  
**Date Analyzed:** 03-19-24  
**Date Reported:** 03-20-24

**Project:** 101 South Ash Street, Spring Hope, NC, 099-ASB-I-24

## ASBESTOS BULK PLM, EPA 600 METHOD

Client ID Lab ID	Lab Description	Lab Attributes	NON-ASBESTOS COMPONENTS		ASBESTOS %
			Fibrous	Non-Fibrous	
B245354.33B	Mastic	Homogeneous Yellow Non-fibrous Bound	100%	Mastic	None Detected
<b>031524-NF-34</b> B245354.34A	Vinyl Base Cove	Homogeneous Off-white Non-fibrous Tightly Bound	100%	Vinyl	None Detected
B245354.34B	Mastic	Homogeneous Yellow Non-fibrous Bound	100%	Mastic	None Detected

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**LEGEND:** Non-Anth = Non-Asbestiform Anthophyllite  
Non-Trem = Non-Asbestiform Tremolite  
Calc Carb = Calcium Carbonate

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**METHOD:** EPA 600 / R93 / 116 and EPA 600 / M4-82 / 020

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**REPORTING LIMIT:** <1% by visual estimation

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**REPORTING LIMIT FOR POINT COUNTS:** 0.25% by 400 Points or 0.1% by 1,000 Points

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**REGULATORY LIMIT:** >1% by weight

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Due to the limitations of the EPA 600 method, nonfriable organically bound materials (NOBs) such as vinyl floor tiles can be difficult to analyze via polarized light microscopy (PLM). EPA recommends that all NOBs analyzed by PLM, and found not to contain asbestos, be further analyzed by Transmission Electron Microscopy (TEM). Please note that PLM analysis of dust and soil samples for asbestos is not covered under NVLAP accreditation. *Estimated measurement of uncertainty is available on request.*

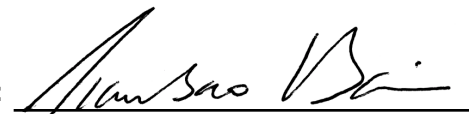
This report relates only to the samples tested or analyzed and may not be reproduced, except in full, without written approval by Eurofins CEI. Eurofins CEI makes no warranty representation regarding the accuracy of client submitted information in preparing and presenting analytical results. Interpretation of the analytical results is the sole responsibility of the client. Samples were received in acceptable condition unless otherwise noted. This report may not be used by the client to claim product endorsement by NVLAP or any other agency of the U.S. Government.

Information provided by customer includes customer sample ID and sample description.

**ANALYST:**

  
Nicholas Moore

**APPROVED BY:**

  
Tianbao Bai, Ph.D., CIH  
Laboratory Director





CEI

CHAIN OF CUSTODY

34

730 SE Maynard Road, Cary, NC 27511  
 Tel: 866-481-1412; Fax: 919-481-1442

LAB USE ONLY:

ECEI Lab Code: **B245354**

ECEI Lab I.D. Range:

COMPANY INFORMATION	PROJECT INFORMATION
ECEI CLIENT #: 29277	Job Contact: Warren Plautz
Company: Coastal Environmental and Inspections, LLC	Email / Tel: coastal.eai@gmail.com - (910) 233-7208
Address: 202 Nantucket Court	Project Name: 101 South Ash Street, Spring Hope, NC
Wilmington, NC 28412	Project ID#: 099-ASB-I-24
Email: coastal.eai@gmail.com	PO #:
Tel: (910) 233-7208 Fax: N/A	STATE SAMPLES COLLECTED IN: NC

IF TAT IS NOT MARKED STANDARD 3 DAY TAT APPLIES.

ASBESTOS	METHOD	TURN AROUND TIME					
		4 HR	8 HR	1 DAY	2 DAY	3 DAY	5 DAY
PLM BULK	EPA 600	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PLM POINT COUNT (400)	EPA 600	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PLM POINT COUNT (1000)	EPA 600	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PLM GRAV w POINT COUNT	EPA 600	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PLM BULK	CARB 435	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PCM AIR*	NIOSH 7400	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TEM AIR	EPA AHERA	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TEM AIR	NIOSH 7402	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TEM AIR (PCME)	ISO 10312	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TEM AIR	ASTM 6281-15	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TEM BULK	CHATFIELD	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TEM DUST WIPE	ASTM D6480-05 (2010)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TEM DUST MICROVAC	ASTM D5755-09 (2014)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TEM SOIL	ASTM D7521-16	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TEM VERMICULITE	CINCINNATI METHOD	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TEM QUALITATIVE	IN-HOUSE METHOD	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
OTHER:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

\*Blanks should be taken from the same sample lot as field samples.

REMARKS / SPECIAL INSTRUCTIONS: Positive stop for each homogeneous area (HGA) number. Do not analyze ceramic tile.

Accept Samples  
 Reject Samples

Relinquished By:	Date/Time	Received By:	Date/Time
<i>Nash w Paul</i>	3/15/2024	<b>BMB</b>	3/18/24 4:30
			3/19/24 8:00

By submitting samples, you are agreeing to ECEI's Terms and Conditions.

Samples will be disposed of 30 days after analysis

Page 1 of 3

Version: CCOC.07.18.1/2.LD

8180 5325 3100



CEI

# SAMPLING FORM

COMPANY CONTACT INFORMATION	
Company: Coastal Environmental and Inspections	Job Contact: Warren Plautz
Project Name: 101 South Ash Street, Spring Hope, NC	
Project ID #: 099-ASB-I-24	Tel: (910) 233-7208

SAMPLE ID#	DESCRIPTION / LOCATION	HGA* #	VOLUME/ AREA	TEST	
				PLM	TEM
031524-NF-01	Drywall	1		PLM <input checked="" type="checkbox"/>	TEM <input type="checkbox"/>
031524-NF-02	Drywall	1		PLM <input checked="" type="checkbox"/>	TEM <input type="checkbox"/>
031524-NF-03	Joint Compound	2		PLM <input checked="" type="checkbox"/>	TEM <input type="checkbox"/>
031524-NF-04	Joint Compound	2		PLM <input checked="" type="checkbox"/>	TEM <input type="checkbox"/>
031524-NF-05	Joint Compound	2		PLM <input checked="" type="checkbox"/>	TEM <input type="checkbox"/>
031524-NF-06	Joint Compound	2		PLM <input checked="" type="checkbox"/>	TEM <input type="checkbox"/>
031524-NF-07	Joint Compound	2		PLM <input checked="" type="checkbox"/>	TEM <input type="checkbox"/>
031524-NF-08	Drywall And Joint Compound	3		PLM <input checked="" type="checkbox"/>	TEM <input type="checkbox"/>
031524-NF-09	Off White Vinyl Sheet Flooring	4		PLM <input checked="" type="checkbox"/>	TEM <input type="checkbox"/>
031524-NF-10	Off White Vinyl Sheet Flooring	4		PLM <input checked="" type="checkbox"/>	TEM <input type="checkbox"/>
031524-NF-11	Gray Vinyl Sheet Flooring	5		PLM <input checked="" type="checkbox"/>	TEM <input type="checkbox"/>
031524-NF-12	Gray Vinyl Sheet Flooring	5		PLM <input checked="" type="checkbox"/>	TEM <input type="checkbox"/>
031524-NF-13	Yellow Carpet Glue	6		PLM <input checked="" type="checkbox"/>	TEM <input type="checkbox"/>
031524-NF-14	Yellow Carpet Glue	6		PLM <input checked="" type="checkbox"/>	TEM <input type="checkbox"/>
031524-NF-15	Black Carpet Glue	7		PLM <input checked="" type="checkbox"/>	TEM <input type="checkbox"/>
031524-NF-16	Black Carpet Glue	7		PLM <input checked="" type="checkbox"/>	TEM <input type="checkbox"/>
031524-NF-17	White 4'x2' Ceiling Tile	8		PLM <input checked="" type="checkbox"/>	TEM <input type="checkbox"/>
031524-NF-18	White 4'x2' Ceiling Tile	8		PLM <input checked="" type="checkbox"/>	TEM <input type="checkbox"/>
031524-NF-19	White 3'x3' Ceiling Tile	9		PLM <input checked="" type="checkbox"/>	TEM <input type="checkbox"/>
031524-NF-20	White 3'x3' Ceiling Tile	9		PLM <input checked="" type="checkbox"/>	TEM <input type="checkbox"/>
031524-NF-21	Bathroom Sink Caulk	10		PLM <input checked="" type="checkbox"/>	TEM <input type="checkbox"/>
031524-NF-22	Bathroom Sink Caulk	10		PLM <input checked="" type="checkbox"/>	TEM <input type="checkbox"/>
031524-NF-23	Interior Door Caulk	11		PLM <input checked="" type="checkbox"/>	TEM <input type="checkbox"/>
031524-NF-24	Interior Door Caulk	11		PLM <input checked="" type="checkbox"/>	TEM <input type="checkbox"/>
031524-NF-25	Leveling Compound	12		PLM <input checked="" type="checkbox"/>	TEM <input type="checkbox"/>
031524-NF-26	Leveling Compound	12		PLM <input checked="" type="checkbox"/>	TEM <input type="checkbox"/>
031524-NF-27	Tar Paper Underlayment	13		PLM <input checked="" type="checkbox"/>	TEM <input type="checkbox"/>
031524-NF-28	Tar Paper Underlayment	13		PLM <input checked="" type="checkbox"/>	TEM <input type="checkbox"/>

\* Column added by CE&I for reference purposes to indicate which samples are in the same Homogeneous Area

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CEI

**SAMPLING FORM**

COMPANY CONTACT INFORMATION	
Company: Coastal Environmental and Inspections	Job Contact: Warren Plautz
Project Name: 101 South Ash Street, Spring Hope, NC	
Project ID #: 099-ASB-I-24	Tel: (910) 233-7208

SAMPLE ID#	DESCRIPTION / LOCATION	HGA* #	VOLUME/ AREA	TEST	
				PLM <input type="checkbox"/>	TEM <input type="checkbox"/>
031524-NF-29	Exterior Window Caulk	14		PLM <input checked="" type="checkbox"/>	TEM <input type="checkbox"/>
031524-NF-30	Exterior Window Caulk	14		PLM <input checked="" type="checkbox"/>	TEM <input type="checkbox"/>
031524-NF-31	Window Glaze	15		PLM <input checked="" type="checkbox"/>	TEM <input type="checkbox"/>
031524-NF-32	Window Glaze	15		PLM <input checked="" type="checkbox"/>	TEM <input type="checkbox"/>
031524-NF-33	Off White Vinyl Base Cove And Mastic	16		PLM <input checked="" type="checkbox"/>	TEM <input type="checkbox"/>
031524-NF-34	Off White Vinyl Base Cove And Mastic	16		PLM <input checked="" type="checkbox"/>	TEM <input type="checkbox"/>
				PLM <input type="checkbox"/>	TEM <input type="checkbox"/>
				PLM <input type="checkbox"/>	TEM <input type="checkbox"/>
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				PLM <input type="checkbox"/>	TEM <input type="checkbox"/>
				PLM <input type="checkbox"/>	TEM <input type="checkbox"/>

\* Column added by CE&I for reference purposes to indicate which samples are in the same Homogeneous Area Page  3  of  3





NC DEPARTMENT OF HEALTH AND HUMAN SERVICES

ROY COOPER • Governor

KODY H. KINSLEY • Secretary

MARK T. BENTON • Deputy Secretary for Health

SUSAN KANSANGRA • Assistant Secretary for Public Health

Division of Public Health

September 26, 2023

Nicholas Fravel
110 Parsley Lane
Leland, NC 28451

Dear Mr. Fravel:

Based upon the review of your accreditation application, the Health Hazards Control Unit (HHCU) has determined that you have fulfilled the requirements and are eligible for asbestos accreditation as a(n) INSPECTOR. Your assigned North Carolina accreditation number is 12946, which is reflected on your enclosed North Carolina Accreditation card. Please be sure to take this card with you to any asbestos work site where you are employed. The State requires that all persons conducting asbestos abatement or asbestos management activities be accredited and have their identification card on site.

Your North Carolina Inspector accreditation will expire on SEPTEMBER 30, 2024. It is NOT the policy of the HHCU to issue renewal notices. If you wish to continue working as a(n) Inspector after this expiration date, you must successfully complete the required training and submit a completed application to this office prior to September 30, 2024. If you should continue to perform asbestos management activities as a(n) Inspector without a valid North Carolina accreditation, you will be in violation of State regulations and may be cited for noncompliance.

North Carolina Asbestos Accreditation card for Nicholas Fravel. Includes photo, name, address, and a table with columns: EXPIRATION (09-30-2024), DOB (09-08-1986), SEX (M), HT (5'11"), WT (180), CLASS (#, EXP), AIR MONITOR (80951, 05-24), INSPECTOR (12946, 09-24).

Sincerely,

Ed Norman (signature)

Ed Norman
Program Manager
Health Hazards Control Unit

Enclosure

NC DEPARTMENT OF HEALTH AND HUMAN SERVICES . DIVISION OF PUBLIC HEALTH



LOCATION: 5505 Six Forks Road, Building 1, Raleigh, NC 27609
MAILING ADDRESS: 1912 Mail Service Center, Raleigh, NC 27699-1912
www.ncdhhs.gov . TEL: 919-707-5950 . FAX: 919-870-4808

AN EQUAL OPPORTUNITY / AFFIRMATIVE ACTION EMPLOYER

# Coastal Environmental and Inspections, LLC

April 28, 2024

CE&I Project #: 099A-Pb-I-24

Town of Spring Hope  
Attn: Andrew Deionno  
118 West Railroad Street  
Spring Hope, NC 27882

## Re: 101 South Ash Street, Spring Hope, NC 27882; Lead Paint Assessments

On April 4, 2024, Coastal Environmental and Inspections, LLC (CE&I) was contracted to complete a lead paint assessment at the above referenced location. The purpose of these assessments was to determine if lead-based or lead-containing paint are present prior to renovations activities.

The front side directional reference is determined by facing *Main Street* from within the building and outside. The right side, rear side, and left side directional references follow clockwise from the front side orientation.

### Lead Paint Assessment:

CE&I utilized a VIKEN (Serial No: 3354) Model Pb200e X-Ray Fluorescence Spectrum (XRF) Analyzer to take lead paint readings from the building components.

### Lead Paint Federal Regulations:

The Environmental Protection Agency (EPA) definition of lead-based paint is any coating containing lead greater than or equal to one milligram per square centimeter ( $\geq 1.0 \text{ mg/cm}^2$ ) as measured by the XRF analyzer.

The EPA - Renovation, Repair, and Painting Final Rule (40 CFR 745) requires that renovations, repairs, or painting conducted for compensation must be performed by Certified Firms using Certified Renovators if lead-based paint is identified.

The Occupational Safety and Health Administration (OSHA) defines lead-containing paint as any detectable level of lead when repair, renovation, or demolition work will impact lead coated surfaces.

### Lead Paint Results:

The following lead-based paint XRF results are reported in milligram per square centimeter ( $\text{mg/cm}^2$ ). The following lists the sample numbers, concentrations (results), sample locations and descriptions, and the components:

#### Lead-Based Paint – EPA Definition

Coastal Environmental & Inspections - XRF Readings				
Reading #	Concentration	Location	Color	Component
49	2 mg/cm <sup>2</sup>	Storage Room 2	White	Door Jamb
50	2.1 mg/cm <sup>2</sup>	Storage Room 2	White	Door Stop
58	1.5 mg/cm <sup>2</sup>	Room 5	Off White	A Wall
60	1 mg/cm <sup>2</sup>	Room 5	White	Door Stop
61	6.3 mg/cm <sup>2</sup>	Room 5	White	Door
68	2.5 mg/cm <sup>2</sup>	Room 5	White	Window Sash
73	7.9 mg/cm <sup>2</sup>	Room 5	White	Window Sash
81	1.5 mg/cm <sup>2</sup>	Room 5	Blue	Door Jamb
82	1.8 mg/cm <sup>2</sup>	Room 5	White	Door Stop
83	1.7 mg/cm <sup>2</sup>	Room 5	White	Interior Door

<b>Coastal Environmental &amp; Inspections - XRF Readings</b>				
<b>Reading #</b>	<b>Concentration</b>	<b>Location</b>	<b>Color</b>	<b>Component</b>
91	15.6 mg/cm <sup>2</sup>	Room 6	White	Window Sash
99	6.6 mg/cm <sup>2</sup>	Bathroom 3	White	Door
100	5.9 mg/cm <sup>2</sup>	Bathroom 3	Brown	Door
101	6.8 mg/cm <sup>2</sup>	Room 6	Green	Wall
102	8.5 mg/cm <sup>2</sup>	Room 6	White	Ceiling
103	8.8 mg/cm <sup>2</sup>	Room 6	White	Crown Molding
104	1.8 mg/cm <sup>2</sup>	Exterior	White	Door Casing
106	13.7 mg/cm <sup>2</sup>	Exterior	Gray	Siding
118	1.8 mg/cm <sup>2</sup>	Exterior	White	Door Jamb
120	2.9 mg/cm <sup>2</sup>	Exterior	Blue	Door
126	2.2 mg/cm <sup>2</sup>	Exterior	White	Corner Trim
128	3.8 mg/cm <sup>2</sup>	Exterior	White	Frieze Board
129	9.8 mg/cm <sup>2</sup>	Exterior	White	Roof Support
151	1.7 mg/cm <sup>2</sup>	Exterior	White	Door Casing
157	3.2 mg/cm <sup>2</sup>	Exterior	White	Window Casing
161	1.2 mg/cm <sup>2</sup>	Exterior	White	Window Casing
171	1.7 mg/cm <sup>2</sup>	Exterior	Gray	Pipe
172	5.3 mg/cm <sup>2</sup>	Exterior	Gray	Crawlspace Access

Reference 'Coastal Environmental and Inspections Photo Documentation' for components identified as lead-based paint.

The following lead-containing paint XRF results are reported in milligram per square centimeter (mg/cm<sup>2</sup>). The following lists the sample numbers, concentrations (results), sample locations and descriptions, and the components:

Lead-Containing Paint – OSHA Definition

<b>Coastal Environmental &amp; Inspections - XRF Readings</b>				
<b>Reading #</b>	<b>Concentration</b>	<b>Location</b>	<b>Color</b>	<b>Component</b>
7	0.1 mg/cm <sup>2</sup>	Room 1	White	Door Jamb
9	0.2 mg/cm <sup>2</sup>	Room 1	White	Interior Door
10	0.2 mg/cm <sup>2</sup>	Room 1	Blue	Exterior Door
11	0.1 mg/cm <sup>2</sup>	Bathroom 1	White	Ceiling
12	0.1 mg/cm <sup>2</sup>	Bathroom 1	White	Crown Molding
13	0.1 mg/cm <sup>2</sup>	Bathroom 1	White	Door Jamb
14	0.2 mg/cm <sup>2</sup>	Bathroom 1	White	Door Stop
15	0.2 mg/cm <sup>2</sup>	Bathroom 1	White	Door
16	0.1 mg/cm <sup>2</sup>	Bathroom 2	White	Wall
17	0.1 mg/cm <sup>2</sup>	Bathroom 2	White	Door Jamb
18	0.1 mg/cm <sup>2</sup>	Bathroom 2	White	Door Stop
19	0.2 mg/cm <sup>2</sup>	Bathroom 2	White	Door
20	0.1 mg/cm <sup>2</sup>	Storage Room 1	White	Wall
24	0.1 mg/cm <sup>2</sup>	Storage Room 1	White	Door Casing

<b>Coastal Environmental &amp; Inspections - XRF Readings</b>				
<b>Reading #</b>	<b>Concentration</b>	<b>Location</b>	<b>Color</b>	<b>Component</b>
25	0.1 mg/cm2	Storage Room 1	White	Door
26	0.1 mg/cm2	Bathroom 2	White	Base Molding
27	0.1 mg/cm2	Bathroom 2	White	Door Casing
28	0.1 mg/cm2	Room 2	White	Chair Railing
29	0.1 mg/cm2	Room 2	White	Base Molding
30	0.1 mg/cm2	Room 2	White	Wall
31	0.1 mg/cm2	Room 2	White	Door Jamb
33	0.2 mg/cm2	Room 3	Stained	Chair Railing
34	0.1 mg/cm2	Room 3	Stained	Base Molding
35	0.1 mg/cm2	Room 3	White	Wall
36	0.1 mg/cm2	Room 3	Stained	Door Jamb
38	0.1 mg/cm2	Room 3	Blue	Exterior Door
39	0.1 mg/cm2	Room 3	Blue	Door Casing
40	0.2 mg/cm2	Room 3	Blue	Threshold
42	0.2 mg/cm2	Room 4	White	Door Jamb
43	0.1 mg/cm2	Room 4	White	Door Stop
44	0.2 mg/cm2	Room 4	White	Interior Door
46	0.1 mg/cm2	Storage Room 2	Stained	Window Sill
47	0.1 mg/cm2	Storage Room 2	Stained	Window Casing
48	0.1 mg/cm2	Storage Room 2	Stained	Door
52	0.1 mg/cm2	Room 5	White	Crown Molding
53	0.1 mg/cm2	Room 5	White	A Wall
54	0.1 mg/cm2	Room 5	White	B Wall
55	0.1 mg/cm2	Room 5	White	C Wall
56	0.1 mg/cm2	Room 5	White	D Wall
57	0.3 mg/cm2	Room 5	Brown	A Wall
59	0.7 mg/cm2	Room 5	White	Door Jamb
62	0.1 mg/cm2	Room 5	White	Door Jamb
63	0.7 mg/cm2	Room 5	White	Door Jamb
64	0.1 mg/cm2	Room 5	White	Door Casing
65	0.1 mg/cm2	Room 5	White	Window Jamb
66	0.1 mg/cm2	Room 5	White	Window Casing
67	0.8 mg/cm2	Room 5	White	Window Sill
69	0.2 mg/cm2	Room 5	Brown	Base Molding
70	0.3 mg/cm2	Room 5	White	Window Jamb
71	0.1 mg/cm2	Room 5	White	Window Casing
72	0.9 mg/cm2	Room 5	White	Window Sill
74	0.2 mg/cm2	Room 5	White	Window Jamb
75	0.1 mg/cm2	Room 5	White	Window Casing
76	0.7 mg/cm2	Room 5	White	Window Sill
77	0.2 mg/cm2	Room 5	White	Window Jamb

<b>Coastal Environmental &amp; Inspections - XRF Readings</b>				
<b>Reading #</b>	<b>Concentration</b>	<b>Location</b>	<b>Color</b>	<b>Component</b>
77	0.2 mg/cm2	Room 5	White	Window Jamb
78	0.2 mg/cm2	Room 5	White	Window Casing
79	0.7 mg/cm2	Room 5	White	Window Sill
84	0.6 mg/cm2	Room 5	Blue	Exterior Door
85	0.2 mg/cm2	Room 5	White	Threshold
86	0.2 mg/cm2	Room 5	White	Door Casing
87	0.1 mg/cm2	Room 6	White	Ceiling
88	0.6 mg/cm2	Room 6	White	Crown Molding
89	0.1 mg/cm2	Room 6	White	Window Casing
90	0.9 mg/cm2	Room 6	White	Window Sill
94	0.2 mg/cm2	Room 6	White	Interior Door
96	0.1 mg/cm2	Bathroom 3	White	Ceiling
97	0.1 mg/cm2	Bathroom 3	White	Wall
98	0.2 mg/cm2	Bathroom 3	White	Door Stop
107	0.1 mg/cm2	Exterior	Blue	Window Jamb
108	0.2 mg/cm2	Exterior	White	Window Casing
109	0.1 mg/cm2	Exterior	Blue	Window Sill
110	0.1 mg/cm2	Exterior	White	Window Sill
112	0.2 mg/cm2	Exterior	Gray	Window Apron
113	0.2 mg/cm2	Exterior	Gray	Siding
114	0.2 mg/cm2	Exterior	White	Handrail
115	0.1 mg/cm2	Exterior	Gray	Handrail
117	0.1 mg/cm2	Exterior	Gray	Ramp Floor
119	0.5 mg/cm2	Exterior	White	Door Casing
121	0.5 mg/cm2	Exterior	Gray	Threshold
122	0.1 mg/cm2	Exterior	White	Window Jamb
123	1.3 mg/cm2	Exterior	White	Window Casing
124	0.2 mg/cm2	Exterior	White	Window Sill
125	0.1 mg/cm2	Exterior	Blue	Window Covering
127	0.1 mg/cm2	Exterior	White	Soffit
130	0.1 mg/cm2	Exterior	White	Fascia
132	0.1 mg/cm2	Exterior	White	Handrail
133	0.2 mg/cm2	Exterior	White	Baluster
134	0.1 mg/cm2	Exterior	Gray	Floor
135	0.1 mg/cm2	Exterior	White	Post
136	0.1 mg/cm2	Exterior	White	Post
137	0.1 mg/cm2	Exterior	White	Window Jamb
138	0.1 mg/cm2	Exterior	White	Window Casing
139	0.1 mg/cm2	Exterior	White	Window Sill
140	0.1 mg/cm2	Exterior	Blue	Window Sash
141	0.2 mg/cm2	Exterior	Blue	Window Jamb

Coastal Environmental & Inspections - XRF Readings				
Reading #	Concentration	Location	Color	Component
143	0.1 mg/cm <sup>2</sup>	Exterior	Blue	Window Sill
145	0.5 mg/cm <sup>2</sup>	Exterior	White	Door Jamb
146	0.2 mg/cm <sup>2</sup>	Exterior	White	Door Casing
147	0.4 mg/cm <sup>2</sup>	Exterior	Blue	Door
148	0.1 mg/cm <sup>2</sup>	Exterior	White	Threshold
149	0.3 mg/cm <sup>2</sup>	Exterior	White	Door Casing
150	0.5 mg/cm <sup>2</sup>	Exterior	White	Band
152	0.2 mg/cm <sup>2</sup>	Exterior	White	Handrail
153	0.1 mg/cm <sup>2</sup>	Exterior	White	Handrail
155	0.1 mg/cm <sup>2</sup>	Exterior	Gray	Steps
156	0.3 mg/cm <sup>2</sup>	Exterior	White	Window Jamb
158	0.5 mg/cm <sup>2</sup>	Exterior	White	Window Sill
159	0.5 mg/cm <sup>2</sup>	Exterior	White	Window Sill
162	0.4 mg/cm <sup>2</sup>	Exterior	White	Window Sill
163	0.2 mg/cm <sup>2</sup>	Exterior	White	Window Sill
164	0.2 mg/cm <sup>2</sup>	Exterior	Blue	Window Sash
165	0.1 mg/cm <sup>2</sup>	Exterior	White	Handrail
166	0.1 mg/cm <sup>2</sup>	Exterior	Gray	Handrail
168	0.1 mg/cm <sup>2</sup>	Exterior	White	Post
169	0.2 mg/cm <sup>2</sup>	Exterior	Gray	Porch Floor
170	0.3 mg/cm <sup>2</sup>	Exterior	White	Door Casing

## Conclusions:

### Lead-Based Paint

Based on the XRF results, the following components were identified as being coated with lead-based paint, per the EPA definition:

#### *Storage Room*

- White door jamb and door stop

#### *Room 5*

- Off-white walls
- Blue door jambs
- White window sashes
- White doors, door jambs, and door stops

#### *Room 6*

- White window sash
- Original green wood walls
- Original white crown molding
- Original white wood ceilings

### *Bathroom 3*

- White and brown paint on the bathroom door

### *Exterior*

- Gray pipe
- Blue doors
- White door jambs
- White corner trim
- White door casings
- White frieze board
- White roof support
- Original gray siding
- White window casings
- Gray crawlspace access

Note: A majority of the original building components were inaccessible at the time of the assessment as they were covered with newer building materials. All of the original painted components (e.g., wood ceilings, wood walls, crown molding, and base molding) must be assumed to be coated with lead-based paint.

All similar and like components must be assumed and treated as lead-based paint. All inaccessible painted surfaces, which are discovered during repairs, renovations, or demolition, shall be assumed to equal or exceed the standard of 1.0 mg/cm<sup>2</sup> and managed as lead-based paint.

Contracted renovation, repair, or painting activities that will impact the above outlined components shall be completed by EPA Lead Certified Firms with Certified Renovators. Lead control measures should utilize “lead safe work practices” as outlined by OSHA.

Maintenance and repair activities that will impact the above outlined components shall be conducted by trained personnel. Lead control measures shall utilize “lead safe work practices” as outlined by OSHA, to include the Respiratory Protection Standard (29CFR 1910.134).

Reference ‘Coastal Environmental and Inspections Photo Documentation’ for components identified as lead-based paint.

### **Lead-Containing Paint**

Based on the XRF results, the following components were identified as being coated with lead-containing paint, per the OSHA definition:

#### *Room 1*

- White door jambs and door (entrance door)
- Blue door (exterior side of the entrance door)

#### *Bathroom 1*

- White ceiling
- White crown molding
- White door jamb, door stop, and door

#### *Bathroom 2*

- White walls
- White base molding
- White door jamb, door stop, door casing, and door

*Storage Room 1*

- White walls
- White door casing and door

*Room 2*

- White walls
- White door jambs
- White chair railing
- White base molding

*Room 3*

- White walls
- Stained door jamb
- Stained chair railing
- Stained base molding
- Stained window components
- Blue door casing and threshold

*Room 4*

- White door jambs, door stops, and doors

*Storage Room 2*

- Stained windowsill, window casing, and door

*Room 5*

- White walls
- Brown wall
- White crown molding
- White base molding
- White door jambs, door casings, and thresholds
- White window jambs, window casings, and windowsills

*Room 6*

- White ceiling
- White crown molding
- White window casings and windowsills

*Bathroom 3*

- White walls
- White door stop

*Exterior*

- Gray steps
- White band
- White soffit
- Gray thresholds
- White thresholds
- Newer gray siding
- Gray window apron
- Blue window coverings
- Gray and white handrails
- Gray deck, porch, and ramp floors
- White deck balusters and posts
- White door jambs and door casings



*Exterior Continued*

- Blue window jambs, windowsills, and window sashes
- White window jambs, window casings, windowsills, window sashes

Contracted work activities that will impact the above outlined components shall be completed by lead trained personnel utilizing “lead safe work practices” as outlined by OSHA.

Maintenance and repair activities that will impact these surfaces shall be conducted by trained personnel. Lead control measures shall utilize “lead safe work practices” as outlined by OSHA, to include the Respiratory Protection Standard (29CFR 1910.134).

**Limitations**

No warranty is made with regards to the conclusions and recommendations within this lead assessment report. This report is provided for the exclusive use of the client or owner. It is not intended to be used or relied upon in conjunction with other projects or by third-parties without the written consent of CE&I and the client or owner.

The recommendations are based in general accordance with federal, state, and local regulations and guidelines. Compliance and response actions are the sole responsibility of the client or owner and should be conducted in accordance with all federal, state, and local regulations or guidelines.

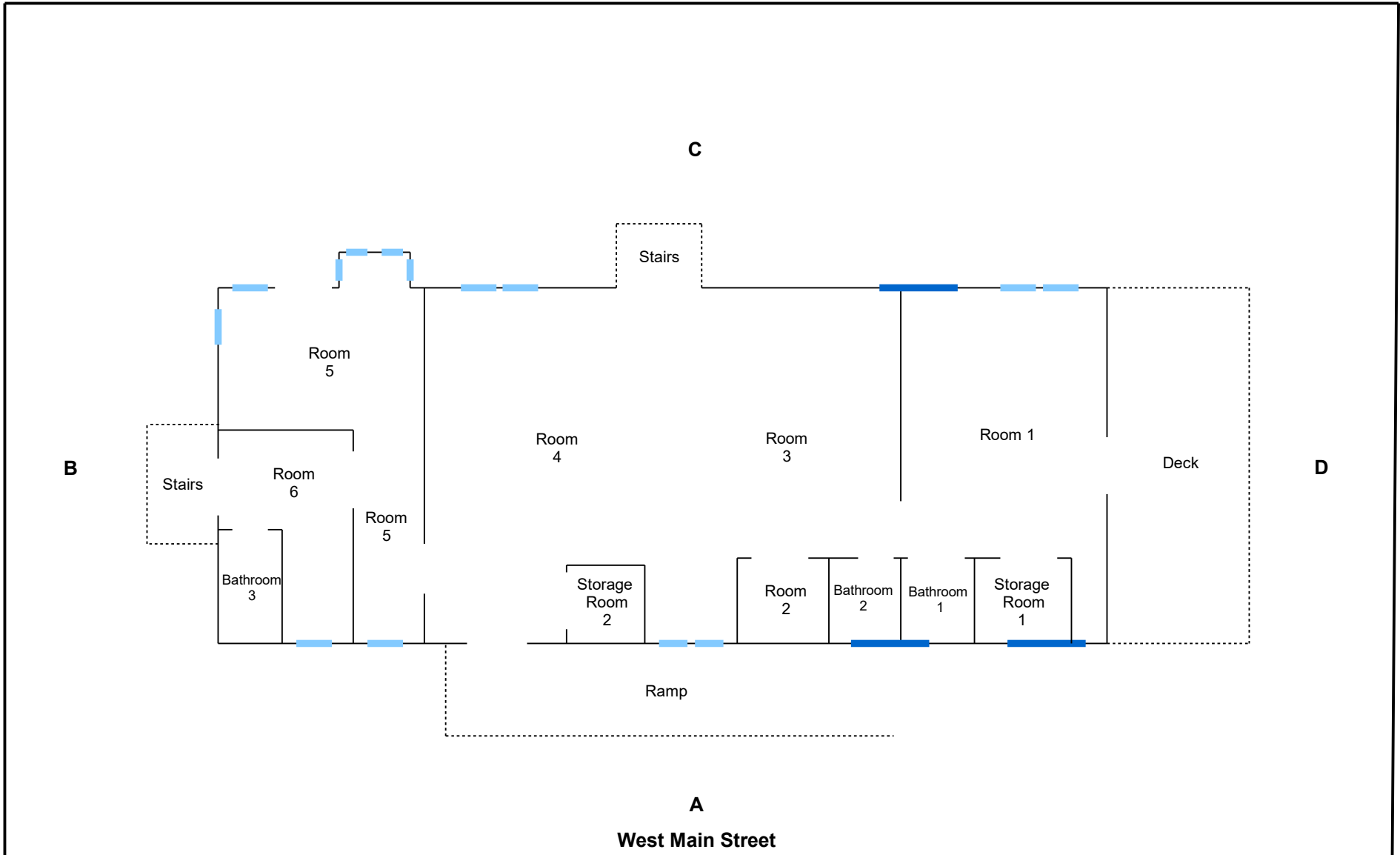
Should you have any questions regarding this report, please do not hesitate to contact me.

Thank you,



Warren Plautz, CIEC, Industrial Hygienist

Enclosures: Coastal Environmental and Inspections Figure, Photo Documentation, XRF Readings Table, and the Inspector’s Lead Inspector Accreditation



**LEGEND**

- Window
- Oversized Exterior Door

**COASTAL ENVIRONMENTAL  
& INSPECTIONS, LLC**

202 Nantucket Court  
Wilmington, NC 28412

**Figure 1**

101 South Ash Street  
Spring Hope, NC 27882

CE&I Project #: 099A-Pb-I-24 / Not To Scale

# Coastal Environmental and Inspections

## Photo Documentation



1. Storage Room 2

White door jamb and stop



2. Room 5

White Door Stop

# Coastal Environmental and Inspections

## Photo Documentation



3. Room 5  
White Door



4. Room 5  
Window Sash

# Coastal Environmental and Inspections

## Photo Documentation



5. Room 5  
Blue Door Jamb



6. Room 5  
White Door Stop

# Coastal Environmental and Inspections

## Photo Documentation



7. Room 5  
White Door



8. Bathroom 3  
White Side of the Door

# Coastal Environmental and Inspections

## Photo Documentation



9. Bathroom 3  
Brown Side of the  
Door



10. Room 6  
Original White Ceiling  
and Crown Molding  
Original Green Wall

# Coastal Environmental and Inspections

## Photo Documentation



11. White Exterior Door Casing



12. Original Gray Siding



**Coastal Environmental and Inspections**  
Photo Documentation



13. White Exterior Door Jamb and Blue Door



14. White Exterior Corner Trim

# Coastal Environmental and Inspections

## Photo Documentation



15. White Exterior Frieze Board and Roof Support



16. White Exterior Door Casing

# Coastal Environmental and Inspections

## Photo Documentation



17. White Exterior Window Casing



18. White Exterior Window Casing

**Coastal Environmental and Inspections**  
Photo Documentation



19. Gray Exterior Pipe



20. White Exterior  
Crawlspace Access  
Door

**Company** Viken Detection  
**Model** Pb200i  
**Type** XRF Lead Paint Analyzer  
**Serial Num.** 3354  
**App Version** Pb200i-5.3.1

Coastal Environmental & Inspections - XRF Readings								
Reading #	Concentration	Units	Result	Location	Color	Component	Mode	Analytic Mode
1	1	mg/cm2	Positive	Calibration	N/A	N/A	Action Level	Lead Paint
2	1	mg/cm2	Positive	Calibration	N/A	N/A	Action Level	Lead Paint
3	0.9	mg/cm2	Negative	Calibration	N/A	N/A	Action Level	Lead Paint
4	0.1	mg/cm2	Negative	Calibration	N/A	N/A	Action Level	Lead Paint
5	0	mg/cm2	Negative	Calibration	N/A	N/A	Action Level	Lead Paint
6	0	mg/cm2	Negative	Calibration	N/A	N/A	Action Level	Lead Paint
7	0.1	mg/cm2	Positive OSHA	Room 1	White	Door Jamb	Action Level	Lead Paint
8	0	mg/cm2	Negative	Room 1	White	Door Stop	Action Level	Lead Paint
9	0.2	mg/cm2	Positive OSHA	Room 1	White	Interior Door	Action Level	Lead Paint
10	0.2	mg/cm2	Positive OSHA	Room 1	Blue	Exterior Door	Action Level	Lead Paint
11	0.1	mg/cm2	Positive OSHA	Bathroom 1	White	Ceiling	Action Level	Lead Paint
12	0.1	mg/cm2	Positive OSHA	Bathroom 1	White	Crown Molding	Action Level	Lead Paint
13	0.1	mg/cm2	Positive OSHA	Bathroom 1	White	Door Jamb	Action Level	Lead Paint
14	0.2	mg/cm2	Positive OSHA	Bathroom 1	White	Door Stop	Action Level	Lead Paint
15	0.2	mg/cm2	Positive OSHA	Bathroom 1	White	Door	Action Level	Lead Paint
16	0.1	mg/cm2	Positive OSHA	Bathroom 2	White	Wall	Action Level	Lead Paint
17	0.1	mg/cm2	Positive OSHA	Bathroom 2	White	Door Jamb	Action Level	Lead Paint
18	0.1	mg/cm2	Positive OSHA	Bathroom 2	White	Door Stop	Action Level	Lead Paint
19	0.2	mg/cm2	Positive OSHA	Bathroom 2	White	Door	Action Level	Lead Paint
20	0.1	mg/cm2	Positive OSHA	Storage Room 1	White	Wall	Action Level	Lead Paint
21	0	mg/cm2	Negative	Storage Room 1	White	Base Molding	Action Level	Lead Paint
22	0	mg/cm2	Negative	Storage Room 1	White	Door Jamb	Action Level	Lead Paint
23	0	mg/cm2	Negative	Storage Room 1	White	Door Stop	Action Level	Lead Paint
24	0.1	mg/cm2	Positive OSHA	Storage Room 1	White	Door Casing	Action Level	Lead Paint
25	0.1	mg/cm2	Positive OSHA	Storage Room 1	White	Door	Action Level	Lead Paint
26	0.1	mg/cm2	Positive OSHA	Bathroom 2	White	Base Molding	Action Level	Lead Paint
27	0.1	mg/cm2	Positive OSHA	Bathroom 2	White	Door Casing	Action Level	Lead Paint
28	0.1	mg/cm2	Positive OSHA	Room 2	White	Chair Railing	Action Level	Lead Paint
29	0.1	mg/cm2	Positive OSHA	Room 2	White	Base Molding	Action Level	Lead Paint
30	0.1	mg/cm2	Positive OSHA	Room 2	White	Wall	Action Level	Lead Paint
31	0.1	mg/cm2	Positive OSHA	Room 2	White	Door Jamb	Action Level	Lead Paint
32	0	mg/cm2	Negative	Room 2	White	Door Casing	Action Level	Lead Paint
33	0.2	mg/cm2	Positive OSHA	Room 3	Stained	Chair Railing	Action Level	Lead Paint
34	0.1	mg/cm2	Positive OSHA	Room 3	Stained	Base Molding	Action Level	Lead Paint
35	0.1	mg/cm2	Positive OSHA	Room 3	White	Wall	Action Level	Lead Paint
36	0.1	mg/cm2	Positive OSHA	Room 3	Stained	Door Jamb	Action Level	Lead Paint
37	0	mg/cm2	Negative	Room 3	Stained	Interior Door	Action Level	Lead Paint
38	0.1	mg/cm2	Positive OSHA	Room 3	Blue	Exterior Door	Action Level	Lead Paint
39	0.1	mg/cm2	Positive OSHA	Room 3	Blue	Door Casing	Action Level	Lead Paint
40	0.2	mg/cm2	Positive OSHA	Room 3	Blue	Threshold	Action Level	Lead Paint
41	0	mg/cm2	Negative	Room 3	Blue	Door Stop	Action Level	Lead Paint
42	0.2	mg/cm2	Positive OSHA	Room 4	White	Door Jamb	Action Level	Lead Paint
43	0.1	mg/cm2	Positive OSHA	Room 4	White	Door Stop	Action Level	Lead Paint
44	0.2	mg/cm2	Positive OSHA	Room 4	White	Interior Door	Action Level	Lead Paint
45	0	mg/cm2	Negative	Room 4	Blue	Exterior Door	Action Level	Lead Paint
46	0.1	mg/cm2	Positive OSHA	Storage Room 2	Stained	Window Sill	Action Level	Lead Paint
47	0.1	mg/cm2	Positive OSHA	Storage Room 2	Stained	Window Casing	Action Level	Lead Paint
48	0.1	mg/cm2	Positive OSHA	Storage Room 2	Stained	Door	Action Level	Lead Paint
49	2	mg/cm2	Positive EPA	Storage Room 2	White	Door Jamb	Action Level	Lead Paint
50	2.1	mg/cm2	Positive EPA	Storage Room 2	White	Door Stop	Action Level	Lead Paint
51	0	mg/cm2	Negative	Room 5	White	Ceiling	Action Level	Lead Paint
52	0.1	mg/cm2	Positive OSHA	Room 5	White	Crown Molding	Action Level	Lead Paint

Coastal Environmental & Inspections - XRF Readings								
Reading #	Concentration	Units	Result	Location	Color	Component	Mode	Analytic Mode
53	0.1	mg/cm2	Positive OSHA	Room 5	White	A Wall	Action Level	Lead Paint
54	0.1	mg/cm2	Positive OSHA	Room 5	White	B Wall	Action Level	Lead Paint
55	0.1	mg/cm2	Positive OSHA	Room 5	White	C Wall	Action Level	Lead Paint
56	0.1	mg/cm2	Positive OSHA	Room 5	White	D Wall	Action Level	Lead Paint
57	0.3	mg/cm2	Positive OSHA	Room 5	Brown	A Wall	Action Level	Lead Paint
58	1.5	mg/cm2	Positive EPA	Room 5	Off White	A Wall	Action Level	Lead Paint
59	0.7	mg/cm2	Positive OSHA	Room 5	White	Door Jamb	Action Level	Lead Paint
60	1	mg/cm2	Positive EPA	Room 5	White	Door Stop	Action Level	Lead Paint
61	6.3	mg/cm2	Positive EPA	Room 5	White	Door	Action Level	Lead Paint
62	0.1	mg/cm2	Positive OSHA	Room 5	White	Door Jamb	Action Level	Lead Paint
63	0.7	mg/cm2	Positive OSHA	Room 5	White	Door Jamb	Action Level	Lead Paint
64	0.1	mg/cm2	Positive OSHA	Room 5	White	Door Casing	Action Level	Lead Paint
65	0.1	mg/cm2	Positive OSHA	Room 5	White	Window Jamb	Action Level	Lead Paint
66	0.1	mg/cm2	Positive OSHA	Room 5	White	Window Casing	Action Level	Lead Paint
67	0.8	mg/cm2	Positive OSHA	Room 5	White	Window Sill	Action Level	Lead Paint
68	2.5	mg/cm2	Positive EPA	Room 5	White	Window Sash	Action Level	Lead Paint
69	0.2	mg/cm2	Positive OSHA	Room 5	Brown	Base Molding	Action Level	Lead Paint
70	0.3	mg/cm2	Positive OSHA	Room 5	White	Window Jamb	Action Level	Lead Paint
71	0.1	mg/cm2	Positive OSHA	Room 5	White	Window Casing	Action Level	Lead Paint
72	0.9	mg/cm2	Positive OSHA	Room 5	White	Window Sill	Action Level	Lead Paint
73	7.9	mg/cm2	Positive EPA	Room 5	White	Window Sash	Action Level	Lead Paint
74	0.2	mg/cm2	Positive OSHA	Room 5	White	Window Jamb	Action Level	Lead Paint
75	0.1	mg/cm2	Positive OSHA	Room 5	White	Window Casing	Action Level	Lead Paint
76	0.7	mg/cm2	Positive OSHA	Room 5	White	Window Sill	Action Level	Lead Paint
77	0.2	mg/cm2	Positive OSHA	Room 5	White	Window Jamb	Action Level	Lead Paint
78	0.2	mg/cm2	Positive OSHA	Room 5	White	Window Casing	Action Level	Lead Paint
79	0.7	mg/cm2	Positive OSHA	Room 5	White	Window Sill	Action Level	Lead Paint
80	0	mg/cm2	Negative	Room 5	White	Door Jamb	Action Level	Lead Paint
81	1.5	mg/cm2	Positive EPA	Room 5	Blue	Door Jamb	Action Level	Lead Paint
82	1.8	mg/cm2	Positive EPA	Room 5	White	Door Stop	Action Level	Lead Paint
83	1.7	mg/cm2	Positive EPA	Room 5	White	Interior Door	Action Level	Lead Paint
84	0.6	mg/cm2	Positive OSHA	Room 5	Blue	Exterior Door	Action Level	Lead Paint
85	0.2	mg/cm2	Positive OSHA	Room 5	White	Threshold	Action Level	Lead Paint
86	0.2	mg/cm2	Positive OSHA	Room 5	White	Door Casing	Action Level	Lead Paint
87	0.1	mg/cm2	Positive OSHA	Room 6	White	Ceiling	Action Level	Lead Paint
88	0.6	mg/cm2	Positive OSHA	Room 6	White	Crown Molding	Action Level	Lead Paint
89	0.1	mg/cm2	Positive OSHA	Room 6	White	Window Casing	Action Level	Lead Paint
90	0.9	mg/cm2	Positive OSHA	Room 6	White	Window Sill	Action Level	Lead Paint
91	15.6	mg/cm2	Positive EPA	Room 6	White	Window Sash	Action Level	Lead Paint
92	0	mg/cm2	Negative	Room 6	White	Door Jamb	Action Level	Lead Paint
93	0	mg/cm2	Negative	Room 6	Blue	Door Stop	Action Level	Lead Paint
94	0.2	mg/cm2	Positive OSHA	Room 6	White	Interior Door	Action Level	Lead Paint
95	0	mg/cm2	Negative	Room 6	Blue	Exterior Door	Action Level	Lead Paint
96	0.1	mg/cm2	Positive OSHA	Bathroom 3	White	Ceiling	Action Level	Lead Paint
97	0.1	mg/cm2	Positive OSHA	Bathroom 3	White	Wall	Action Level	Lead Paint
98	0.2	mg/cm2	Positive OSHA	Bathroom 3	White	Door Stop	Action Level	Lead Paint
99	6.6	mg/cm2	Positive EPA	Bathroom 3	White	Door	Action Level	Lead Paint
100	5.9	mg/cm2	Positive EPA	Bathroom 3	Brown	Door	Action Level	Lead Paint
101	6.8	mg/cm2	Positive EPA	Room 6	Green	Wall	Action Level	Lead Paint
102	8.5	mg/cm2	Positive EPA	Room 6	White	Ceiling	Action Level	Lead Paint
103	8.8	mg/cm2	Positive EPA	Room 6	White	Crown Molding	Action Level	Lead Paint
104	1.8	mg/cm2	Positive EPA	Exterior	White	Door Casing	Action Level	Lead Paint
105	0	mg/cm2	Negative	Exterior	White	Band	Action Level	Lead Paint
106	13.7	mg/cm2	Positive EPA	Exterior	Gray	Siding	Action Level	Lead Paint
107	0.1	mg/cm2	Positive OSHA	Exterior	Blue	Window Jamb	Action Level	Lead Paint
108	0.2	mg/cm2	Positive OSHA	Exterior	White	Window Casing	Action Level	Lead Paint
109	0.1	mg/cm2	Positive OSHA	Exterior	Blue	Window Sill	Action Level	Lead Paint
110	0.1	mg/cm2	Positive OSHA	Exterior	White	Window Sill	Action Level	Lead Paint

**Coastal Environmental & Inspections - XRF Readings**

Reading #	Concentration	Units	Result	Location	Color	Component	Mode	Analytic Mode
111	0	mg/cm2	Negative	Exterior	Blue	Window Sash	Action Level	Lead Paint
112	0.2	mg/cm2	Positive OSHA	Exterior	Gray	Window Apron	Action Level	Lead Paint
113	0.2	mg/cm2	Positive OSHA	Exterior	Gray	Siding	Action Level	Lead Paint
114	0.2	mg/cm2	Positive OSHA	Exterior	White	Handrail	Action Level	Lead Paint
115	0.1	mg/cm2	Positive OSHA	Exterior	Gray	Handrail	Action Level	Lead Paint
116	0	mg/cm2	Negative	Exterior	White	Baluster	Action Level	Lead Paint
117	0.1	mg/cm2	Positive OSHA	Exterior	Gray	Ramp Floor	Action Level	Lead Paint
118	1.8	mg/cm2	Positive EPA	Exterior	White	Door Jamb	Action Level	Lead Paint
119	0.5	mg/cm2	Positive OSHA	Exterior	White	Door Casing	Action Level	Lead Paint
120	2.9	mg/cm2	Positive EPA	Exterior	Blue	Door	Action Level	Lead Paint
121	0.5	mg/cm2	Positive OSHA	Exterior	Gray	Threshold	Action Level	Lead Paint
122	0.1	mg/cm2	Positive OSHA	Exterior	White	Window Jamb	Action Level	Lead Paint
123	1.3	mg/cm2	Positive OSHA	Exterior	White	Window Casing	Action Level	Lead Paint
124	0.2	mg/cm2	Positive OSHA	Exterior	White	Window Sill	Action Level	Lead Paint
125	0.1	mg/cm2	Positive OSHA	Exterior	Blue	Window Covering	Action Level	Lead Paint
126	2.2	mg/cm2	Positive EPA	Exterior	White	Corner Trim	Action Level	Lead Paint
127	0.1	mg/cm2	Positive OSHA	Exterior	White	Soffit	Action Level	Lead Paint
128	3.8	mg/cm2	Positive EPA	Exterior	White	Frieze Board	Action Level	Lead Paint
129	9.8	mg/cm2	Positive EPA	Exterior	White	Roof Support	Action Level	Lead Paint
130	0.1	mg/cm2	Positive OSHA	Exterior	White	Fascia	Action Level	Lead Paint
131	0	mg/cm2	Negative	Exterior	White	Fascia	Action Level	Lead Paint
132	0.1	mg/cm2	Positive OSHA	Exterior	White	Handrail	Action Level	Lead Paint
133	0.2	mg/cm2	Positive OSHA	Exterior	White	Baluster	Action Level	Lead Paint
134	0.1	mg/cm2	Positive OSHA	Exterior	Gray	Floor	Action Level	Lead Paint
135	0.1	mg/cm2	Positive OSHA	Exterior	White	Post	Action Level	Lead Paint
136	0.1	mg/cm2	Positive OSHA	Exterior	White	Post	Action Level	Lead Paint
137	0.1	mg/cm2	Positive OSHA	Exterior	White	Window Jamb	Action Level	Lead Paint
138	0.1	mg/cm2	Positive OSHA	Exterior	White	Window Casing	Action Level	Lead Paint
139	0.1	mg/cm2	Positive OSHA	Exterior	White	Window Sill	Action Level	Lead Paint
140	0.1	mg/cm2	Positive OSHA	Exterior	Blue	Window Sash	Action Level	Lead Paint
141	0.2	mg/cm2	Positive OSHA	Exterior	Blue	Window Jamb	Action Level	Lead Paint
142	0	mg/cm2	Negative	Exterior	Blue	Window Casing	Action Level	Lead Paint
143	0.1	mg/cm2	Positive OSHA	Exterior	Blue	Window Sill	Action Level	Lead Paint
144	0	mg/cm2	Negative	Exterior	Blue	Window Sash	Action Level	Lead Paint
145	0.5	mg/cm2	Positive OSHA	Exterior	White	Door Jamb	Action Level	Lead Paint
146	0.2	mg/cm2	Positive OSHA	Exterior	White	Door Casing	Action Level	Lead Paint
147	0.4	mg/cm2	Positive OSHA	Exterior	Blue	Door	Action Level	Lead Paint
148	0.1	mg/cm2	Positive OSHA	Exterior	White	Threshold	Action Level	Lead Paint
149	0.3	mg/cm2	Positive OSHA	Exterior	White	Door Casing	Action Level	Lead Paint
150	0.5	mg/cm2	Positive OSHA	Exterior	White	Band	Action Level	Lead Paint
151	1.7	mg/cm2	Positive EPA	Exterior	White	Door Casing	Action Level	Lead Paint
152	0.2	mg/cm2	Positive OSHA	Exterior	White	Handrail	Action Level	Lead Paint
153	0.1	mg/cm2	Positive OSHA	Exterior	White	Handrail	Action Level	Lead Paint
154	0	mg/cm2	Negative	Exterior	White	Baluster	Action Level	Lead Paint
155	0.1	mg/cm2	Positive OSHA	Exterior	Gray	Steps	Action Level	Lead Paint
156	0.3	mg/cm2	Positive OSHA	Exterior	White	Window Jamb	Action Level	Lead Paint
157	3.2	mg/cm2	Positive EPA	Exterior	White	Window Casing	Action Level	Lead Paint
158	0.5	mg/cm2	Positive OSHA	Exterior	White	Window Sill	Action Level	Lead Paint
159	0.5	mg/cm2	Positive OSHA	Exterior	White	Window Sill	Action Level	Lead Paint
160	0	mg/cm2	Negative	Exterior	Blue	Window Sash	Action Level	Lead Paint
161	1.2	mg/cm2	Positive EPA	Exterior	White	Window Casing	Action Level	Lead Paint
162	0.4	mg/cm2	Positive OSHA	Exterior	White	Window Sill	Action Level	Lead Paint
163	0.2	mg/cm2	Positive OSHA	Exterior	White	Window Sill	Action Level	Lead Paint
164	0.2	mg/cm2	Positive OSHA	Exterior	Blue	Window Sash	Action Level	Lead Paint
165	0.1	mg/cm2	Positive OSHA	Exterior	White	Handrail	Action Level	Lead Paint
166	0.1	mg/cm2	Positive OSHA	Exterior	Gray	Handrail	Action Level	Lead Paint
167	0	mg/cm2	Negative	Exterior	White	Baluster	Action Level	Lead Paint
168	0.1	mg/cm2	Positive OSHA	Exterior	White	Post	Action Level	Lead Paint

**Coastal Environmental & Inspections - XRF Readings**

Reading #	Concentration	Units	Result	Location	Color	Component	Mode	Analytic Mode
169	0.2	mg/cm2	Positive OSHA	Exterior	Gray	Porch Floor	Action Level	Lead Paint
170	0.3	mg/cm2	Positive OSHA	Exterior	White	Door Casing	Action Level	Lead Paint
171	1.7	mg/cm2	Positive EPA	Exterior	Gray	Pipe	Action Level	Lead Paint
172	5.3	mg/cm2	Positive EPA	Exterior	Gray	Crawlspace Access	Action Level	Lead Paint
173	0.9	mg/cm2	Negative	Calibration	N/A	N/A	Action Level	Lead Paint
174	1	mg/cm2	Positive	Calibration	N/A	N/A	Action Level	Lead Paint
175	1	mg/cm2	Positive	Calibration	N/A	N/A	Action Level	Lead Paint
176	0	mg/cm2	Negative	Calibration	N/A	N/A	Action Level	Lead Paint
177	0.1	mg/cm2	Negative	Calibration	N/A	N/A	Action Level	Lead Paint
178	0.1	mg/cm2	Negative	Calibration	N/A	N/A	Action Level	Lead Paint





NC DEPARTMENT OF HEALTH AND HUMAN SERVICES

ROY COOPER • Governor
KODY H. KINSLEY • Secretary
MARK T. BENTON • Deputy Secretary for Health
SUSAN KANSANGRA • Assistant Secretary for Public Health
Division of Public Health

January 25, 2024

Warren L Plautz
202 Nantucket Ct
Wilmington, NC 28412

Dear Mr. Plautz:

The Health Hazards Control Unit (HHCU) has determined that you have fulfilled the application requirements and are eligible for lead certification as a(n) RISK ASSESSOR. Your assigned Risk Assessor certification number is 120247, which is reflected on your enclosed North Carolina Lead Certification card. The State requires that all persons conducting regulated lead-based paint activities be certified and have their identification card on-site.

A "Lead-Based Paint Activity Summary" shall be submitted to the HHCU by the certified inspector or risk assessor within 45 days of each inspection, risk assessment, or lead hazard screen conducted. The information shall be submitted on a form provided or approved by the Program, per 10A NCAC 41C .0807(b), Lead-Based Paint Hazard Management Program Rules.

Accredited refresher training must be completed at least every 24 months from the date of the last accredited training course AND within twelve months prior to applying for certification. The HHCU strongly recommends that individuals note the date of certification expiration and ensure all refresher training meets the above requirements.

Your North Carolina Risk Assessor certification will expire on JANUARY 31, 2025. It is NOT the policy of the HHCU to issue renewal notices. If you wish to continue working as a(n) Risk Assessor after this expiration date, you must successfully complete the required training and submit a completed application to this office prior to January 31, 2025. If you should perform lead-based paint activities as a(n) Risk Assessor without a valid North Carolina certification, you will be in violation of State regulations and may be cited for noncompliance.

If you have any questions, please contact our office at (919) 707-5954.

North Carolina Lead Certification card for Warren L Plautz, including photo, name, address, and a table of certification details (DOB, SEX, HT, WT, DISCIPLINE, #, LAST COURSE, EXPIRATION).

Sincerely,

Ed Norman (signature)

Ed Norman
Program Manager
Health Hazards Control Unit

NC DEPARTMENT OF HEALTH AND HUMAN SERVICES . DIVISION OF PUBLIC HEALTH

LOCATION: 5505 Six Forks Road, Building 1, Raleigh, NC 27609
MAILING ADDRESS: 1912 Mail Service Center, Raleigh, NC 27699-1912
www.ncdohhs.gov . TEL: 919-707-5950 . FAX: 919-870-4808

AN EQUAL OPPORTUNITY / AFFIRMATIVE ACTION EMPLOYER

## SECRETARY OF THE INTERIOR'S STANDARDS FOR REHABILITATION

The intent of the Standards is to assist the long-term preservation of a property's significance through the preservation of historic materials and features. The Standards pertain to historic buildings of all materials, construction types, sizes, and occupancy and encompass the exterior and the interior of historic buildings. The Standards also encompass related landscape features and the building's site and environment, as well as attached, adjacent, or related new construction. To be certified, a rehabilitation project must be determined by the Secretary to be consistent with the historic character of the structure(s) and, where applicable, the district in which it is located. The following Standards are to be applied to specific rehabilitation projects in a reasonable manner, taking into consideration economic and technical feasibility.

1. A property shall be used for its historic purpose or be placed in a new use that requires minimal change to the defining characteristics of the building and its site and environment.
2. The historic character of a property shall be retained and preserved. The removal of historic materials or alteration of features and spaces that characterize a property shall be avoided.
3. Each property shall be recognized as a physical record of its time, place, and use. Changes that create a false sense of historical development, such as adding conjectural features or architectural elements from other buildings, shall not be undertaken.
4. Most properties change over time; those changes that have acquired historic significance in their own right shall be retained and preserved.
5. Distinctive features, finishes, and construction techniques or examples of craftsmanship that characterize a historic property shall be preserved.
6. Deteriorated historic features shall be repaired rather than replaced. Where the severity of deterioration requires replacement of a distinctive feature, the new feature shall match the old in design, color, texture, and other visual qualities and, where possible, materials. Replacement of missing features shall be substantiated by documentary, physical, or pictorial evidence.
7. Chemical or physical treatments, such as sandblasting, that cause damage to historic materials shall not be used. The surface cleaning of structures, if appropriate, shall be undertaken using the gentlest means possible.
8. Significant archeological resources affected by a project shall be protected and preserved. If such resources must be disturbed, mitigation measures shall be undertaken.

## SECRETARY OF THE INTERIOR'S STANDARDS FOR REHABILITATION

9. New additions, exterior alterations, or related new construction shall not destroy historic materials that characterize the property. The new work shall be differentiated from the old and shall be compatible with the massing, size, scale, and architectural features to protect the historic integrity of the property and its environment.
10. New additions and adjacent or related new construction shall be undertaken in such a manner that if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired.

### **Guidelines for Rehabilitating Historic Buildings**

The Guidelines assist in applying the Standards to rehabilitation projects in general; consequently, they are not meant to give case-specific advice or address exceptions or rare instances. For example, they cannot tell a building owner which features of an historic building are important in defining the historic character and must be preserved or which features could be altered, if necessary, for the new use. Careful case-by-case decision-making is best accomplished by seeking assistance from qualified historic preservation professionals in the planning stage of the project. Such professionals include architects, architectural historians, historians, archeologists, and others who are skilled in the preservation, rehabilitation, and restoration of the historic properties. These Guidelines are also available in PDF format.

The Guidelines on Sustainability for Rehabilitating Historic Buildings stress the inherent sustainability of historic buildings and offer specific guidance on “recommended” rehabilitation treatments and “not recommended” treatments, which could negatively impact a building’s historic character. These Guidelines are also available as an interactive web feature.

Source: <https://www.nps.gov/tps/standards/rehabilitation.htm>

## SECTION 010100 - SUMMARY

## PART 1 - GENERAL

## 1.1 RELATED DOCUMENTS

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

## 1.2 SUMMARY

- A. This Section includes the following:

- 1. Work covered by the Contract Documents.
- 2. Type of the Contract.
- 3. Use of premises.
- 4. Owner's occupancy requirements.
- 5. Work restrictions.
- 6. Specification formats and conventions.
- 7. Miscellaneous provisions.

- B. Related Sections include the following:

- 1. Division 1 Section "Temporary Facilities and Controls" for limitations and procedures governing temporary use of Owner's facilities,

- C. **SEE SPECIFICATION SECTIONS 012500, 012900, and 017700 FOR SPECIAL CONTRACTOR'S BOOKKEEPING AND PROJECT MANAGEMENT RESPONSIBILITIES RESPECTING THE OWNER'S BUDGET ALLOCATIONS.**

## 1.3 WORK COVERED BY CONTRACT DOCUMENTS

- A. Project Identification: Spring Hope Railroad Depot Building Rehabilitation and Platform Addition.

- 1. Project Location: 101 South Ash St., Spring Hope, NC

- B. Owner: Town of Spring Hope, NC, 118 W Railroad St. Spring Hope NC 27882

- 1. Owner's Representative: Andrew DeIonno, Town Manager

- C. Architect: Alliance Architecture of the Triad, 2601 Pilgrim Court, #130, Winston-Salem, NC 27106

- D. The Work consists of the following:

- 1. The Work Includes: Lead paint abatement, termite control, concrete masonry work, troweled-on bituminous dampproofing, brick masonry restoration, metal fabrications, steel stairs and ramps, wood rehabilitation work, rough carpentry, wood structural columns and brackets, pre-engineered roof trusses, finish carpentry, board and batten

wood siding, standing seam metal roofing, manufactured roofing specialties, insulation, joint sealants, steel doors and frames, stile and rail wood doors, ceiling access doors, overhead coiling door, door hardware, glazing, light gauge steel framing, gypsum board wall and ceiling construction, wood flooring removal and reinstallation, resilient floor tile, painting, finishing wood floors, toilet compartments, signs, fire extinguishers, toilet accessories, coat hooks, plastic laminate countertops, horizontal louver blinds, and PME and two-signal fire protection sprinkler system work.

#### 1.4 TYPE OF CONTRACT

- A. Project will be constructed under a single prime contract.

#### 1.5 USE OF PREMISES

- A. General: Contractor shall have full use of premises for construction operations, including use of Project site as defined by contract limit line, during construction period. Contractor's use of premises is limited only by Owner's right to perform work or to retain other contractors on portions of Project.
- B. Parking is limited in Downtown Spring Hope. All contractors are hereby notified that parking will be restricted to spaces/areas designated by the Town of Spring Hope.
- C. Use of Site: Limit use of premises to areas within the Contract limits indicated. Do not disturb portions of the Project site beyond areas in which the Work is indicated.
  - 1. Driveways and Entrances: Keep driveways and entrances serving premises clear and available to emergency vehicles at all times. Do not use these areas for parking or storage of materials.
    - a. Schedule deliveries to minimize use of driveways and entrances.
    - b. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.
- D. Use of Existing Building: Maintain existing building in a weathertight and secure condition throughout construction period. Repair damage caused by construction operations. Protect building during construction period.

#### 1.6 SPECIFICATION FORMATS AND CONVENTIONS

- A. Specification Format: The Specifications are organized into Divisions and Sections using the 16-division format and CSI/CSC's "MasterFormat" numbering system.
  - 1. Section Identification: The Specifications use Section numbers and titles to help cross-referencing in the Contract Documents. Sections in the Project Manual are in numeric sequence; however, the sequence is incomplete because all available Section numbers are not used. Consult the table of contents at the beginning of the Project Manual to determine numbers and names of Sections in the Contract Documents.
  - 2. Division 1: Sections in Division 1 govern the execution of the Work of all Sections in the Specifications.
- B. 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. Abbreviated Language: Language used in the Specifications and other Contract Documents is abbreviated. Words and meanings shall be interpreted as appropriate. Words implied, but not stated, shall be inferred as the sense requires. Singular words

shall be interpreted as plural, and plural words shall be interpreted as singular where applicable as the context of the Contract Documents indicates.

2. Imperative mood and streamlined language are generally used in the Specifications. Requirements expressed in the imperative mood are to be performed by Contractor. Occasionally, the indicative or subjunctive mood may be used in the Section Text for clarity to describe responsibilities that must be fulfilled indirectly by Contractor or by others when so noted.
  - a. 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.

#### 1.7 MISCELLANEOUS PROVISIONS

- A. The Spring Hope Fire Department shall be permitted access to all areas of the building at all times. The fire department phone number is 252-478-3620.
- B. The Spring Hope Town Manager's office represents the Owner in all matters pertaining to contract construction. A Project Manager from this office will be the single spokesman for the Town. All official contact, decisions, problem resolution and coordination will be through the assigned Town Project Manager. The Town Police should be contacted during any emergency or for after-hours assistance. The police department phone number is 252-478-5197.
- C. The General Contractor shall post signs at all entrances into the construction site indicating firearms, alcohol, and non-prescription drugs are not allowed on the Town property, or on any Town construction site. This includes accidentally leaving guns, rifles, or shot guns in gun racks in the back windows of pickup trucks.
- D. The General Contractor shall be responsible for all costs related to repairs of water damage to the building, including furnishings, occurring during the construction phase of the project. The designer, owner, and contractor shall survey existing water damage prior to construction and the contractor shall prepare marked construction drawings and photographic record of this survey with copies distributed to the owner and architect. The contractor shall be fully responsible for all damage not so documented.
- E. Contractor's superintendent shall be on the job site at all times and shall be capable of speaking English.
- F. There will be no project web site for this project.
- G. The contractor may establish a work schedule of his own choosing for the portions of construction involved in the project that do not require interruption of utility services (electric and water, etc.) to Town facilities. The contractor shall submit to the Town and to the designer his regular daily work schedule and shall notify the Town Project Manager in advance of any deviations. The Town reserves the right to limit the contractor's activities when they conflict with Town operations. The Owner will solely approve scheduling of all interruptions of utility to Town facilities.
- H. The contractor shall comply with all applicable federal, state, and local regulations covering removal and disposal of asbestos containing, and other hazardous materials on this project.
- I. The architect and Owner will make all final material and color selections.

- J. The Contractor shall, within 10 days of award of Contract, submit to the Architect for review, the name and resume' of the proposed superintendent. The Superintendent must speak English and he/she must be always present when work is conducted at the job site. If for any reason during the construction of the Work, the Architect, in his sole judgment, may direct the Contractor to remove and replace the superintendent with an acceptable replacement with 10 days of such written notification and this change in personnel shall be undertaken by the Contractor at no change in the contract price.
- K. Smoking and use of other tobacco products is not permitted in the Depot.
- L. All of the contractor's employees, subcontractor's employees, and subcontract employees shall exhibit proper behavior. Indecent language, acts, or dress will not be accepted. Any employees in violation or proper behavior will be ejected from the construction site by the proper authorities.
- M. Should the contractor damage any existing construction, then the contractor shall be required to pay all costs required to repair or replace the damaged material. The Owner shall determine what constitutes damage and whether repair or replacement will be an approved remedy.
- N. Local deer hunting season will not be recognized for the contractor's failure to man the job site.
- O. Fire watch: When required by the local fire official or these specifications for building demolition or building construction during working hours that is hazardous in nature, the contractor shall provide qualified personnel to serve as an on-site fire watch. Fire watch personnel will have at least one approved means of notifying the fire department. Their sole responsibility shall be to perform constant patrols and watch for and report any occurrence of fire.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 010100



SECTION 010200 - ALLOWANCES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements governing allowances.

1.In some cases, these allowances include installation. Allowances have been established in lieu of additional requirements and to defer selection of actual materials and equipment to a later date when additional information is available for evaluation. If necessary, additional requirements will be issued by Change Order.

- B. Types of allowances include the following:

1.Lump-sum allowances. Allowance amounts include the value of overhead, profit, bonds, insurance, and labor burden.

- C. Related Sections: The following Sections contain requirements that relate to this Section:

1.Division 1 Section "Modification Procedures" specifies procedures for submitting and handling Change Orders.

2.Division 1 Section "Quality Control Services" specifies procedures governing the use of allowances for inspection and testing.

1.3 SUBMITTALS

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

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine products covered by an allowance promptly upon delivery for damage or defects.

3.2 PREPARATION

- A. Coordinate materials and their installation for each allowance with related materials and installations to ensure that each allowance item is completely integrated and interfaced with related work.

3.3 SCHEDULE OF ALLOWANCES

A. SINGLE PRIME CONTRACT ALLOWANCES:

1. Allowance #1: Lump sum contingency allowance in the amount of \$40,000.00 (forty thousand dollars).
2. Allowance #2: Lump sum material allowance for R-30 Batt insulation with Kraft paper facing in the amount of 1,500 sq. ft. furnished and installed.

END OF SECTION 010200

## 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 1 Specification Sections, apply to this Section.

## 1.2 SUMMARY

- A. This 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. 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: Modify 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 modifications 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. Add Alternate #1:

- a. Remove all existing exterior lead-based paint from wood and metal surfaces down to bare wood and bare metal. See specification section 060000 regarding paint removal techniques at historic wood surfaces. Paint removal work shall fully comply with all local, state and federal requirements for worker protections, and safety during paint removal and for legal disposal of all lead-based paint.
- b. Apply 3-coat new paint work as specified in Division 9 on all existing exterior painted surfaces.

B. Add Alternate #2:

Selectively demolish two existing chimneys by carefully removing and salvaging existing bricks with each chimney's masonry saved separately from the other chimney. Remove old mortar completely and clean all surfaces of all bricks (see specification section 049010). Demolition shall extend full height from the top of chimneys to existing steel bearing assemblies in the attic of the depot (see drawing A8.1). Reconstruct both chimneys in design and with new tinted mortar and joint reinforcing to match original. Maintain and keep any existing sheet metal wood stove flues found within existing masonry flues. Clean attic and roof surfaces of any dust, dirt, or debris resulting from this work. Note: One new plumbing vent (in base bid) will be installed in one of the chimneys. See plumbing drawings.

C. Add Alternate #3:

Furnish and install project identification sign specified in Section #104310 and as detailed in drawings.

D. Add Alternate #4:

Furnish, install, and remove perimeter site security fence and gates. See site civil plan for fence location.

END OF SECTION 012300

## SECTION 012500 - 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 1 Specification Sections, apply to this Section.

## 1.2 SUMMARY

- A. This Section specifies administrative and procedural requirements for handling and processing Contract modifications.
- B. Related Sections include the following:
  - 1. Division 1 Section "Allowances" for procedural requirements for handling and processing allowances.
  - 2. Division 1 Section "Unit Prices" for administrative requirements for using unit prices.
  - 3. Division 1 Section "Product Requirements" for administrative procedures for handling requests for substitutions made after 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. Proposal Requests issued by Architect are for information only. Do not consider them instructions either to stop work in progress or to execute the proposed change.
  - 2. Within 7 calendar 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, amounts of trade discounts, and office overhead.
    - 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 unforeseen conditions require modifications to the Contract, Contractor may propose changes 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, amounts of trade discounts, and office overhead.
  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 Division 1 Section "Product Requirements" if the proposed change requires substitution of one product or system for product or system specified.

## 1.5 ALLOWANCES

- A. Allowance Adjustment: To adjust allowance amounts, base each Change Order proposal on the difference between purchase amount and the allowance, multiplied by final measurement of work-in-place. If applicable, include reasonable allowances for cutting losses, tolerances, mixing wastes, normal product imperfections, and similar margins.
1. Include installation costs in purchase amount only where indicated as part of the allowance.
  2. If requested, prepare explanation and documentation to substantiate distribution of overhead costs and other margins claimed.
  3. Submit substantiation of a change in scope of work, if any, claimed in Change Orders related to unit-cost allowances.
  4. Owner reserves the right to establish the quantity of work-in-place by independent quantity survey, measure, or count.
- B. Submit claims for increased costs because of a change in scope or nature of the allowance described in the Contract Document. Submit claims within 7 days of receipt of the Change Order or Construction Change Directive authorizing work to proceed. Owner will reject claims submitted later than 10 days after such authorization.
1. Do not include Contractor's or subcontractor's indirect expense in the Change Order cost amount unless it is clearly shown that the nature or extent of work has changed from what could have been foreseen from information in the Contract Documents.
  2. No change to Contractor's indirect expense is permitted for selection of higher- or lower-priced materials or systems of the same scope and nature as originally indicated.

1.6 CHANGE ORDER PROCEDURES

- A. On Owner's approval of a Proposal Request, Architect will issue a Change Order for signatures of Owner and Contractor on AIA Document G701.

1.7 CONSTRUCTION CHANGE DIRECTIVE

- A. Construction Change Directive: Architect may issue a Construction Change Directive on AIA Document G714. Construction Change Directive instructs Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.
  - 1. Construction 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 Construction Change Directive.
  - 1. After completion of change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 012500

## SECTION 012700 - 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 1 Specification Sections, apply to this Section.

## 1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for unit prices.
- B. Related Sections include the following:
  - 1. Division 1 Section "Allowances" for procedures for using unit prices to adjust quantity allowances.
  - 2. Division 1 Section "Contract Modification Procedures" for procedures for submitting and handling Change Orders.
  - 3. Division 1 Section "Quality Requirements" for general testing and inspecting requirements.

## 1.3 DEFINITIONS

- A. Unit price is an amount proposed by bidders, stated on the Bid Form, as a price per unit of measurement for materials or services added to or deducted from the Contract Sum by appropriate modification, if estimated quantities of Work required by the Contract Documents are increased or decreased.
- B. Unit prices quoted by the contractor shall reflect actual conditions and specification requirements particular to this project.

## 1.4 PROCEDURES

- A. Unit prices include all necessary material, plus cost for delivery, installation, insurance, bonds, applicable taxes, labor burden, overhead, and profit.
- B. Measurement and Payment: Refer to 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 list of unit prices is included in Part 3. Specification Sections referenced in the schedule contain requirements for materials described under each unit price and replacement materials, where applicable.
- E. For Unit Prices #1-3. Refer to Section 022000 for description of crushed stone and granular fill.

## PART 2 - PRODUCTS (Not Used)

## PART 3 - EXECUTION

## 3.1 LIST OF UNIT PRICES

- A. Unit Price No. 1 - Remove and Replace Poor Soils:
  - 1. Description: Poor soils removal and replacement according to Division 2 Section "Earthwork". Replacement soil shall be granular natural soil for fill material except top most 12" shall be top soil.
  - 2. Unit of Measurement: Cubic yard of soil excavated.
- B. Unit Price No. 2 - Remove mass rock:
  - 1. Description: Mass rock removal and replacement according to division 2 Section "Earthwork". Replacement material shall be crushed stone for fill material except top most 12" shall be top soil.
  - 2. Unit of Measurement: Cubic yard of rock removed.
- C. Unit Price No. 3 - Remove trench rock:
  - 1. Description: Trench rock removal and replacement according to Division 2 Section "Earthwork". Replacement material shall be crushed stone for fill material except top most 12" shall be top soil.
  - 2. Unit of Measurement: Cubic yard of rock removed.
- D. Unit Price No. 4 – furnish and install additional duplex electrical receptacles.
  - 1. Description: Receptacle installation in accordance with Section #016000.
  - 2. Unit of Measurement: Per single duplex receptacle.
- E. Unit Price #5. Furnish and install R-30 fiberglass Batt insulation with single sided kraft paper at attic and/or crawl space locations at the Depot where insulation is currently missing.
  - 1. Description: Insulation as specified in Section #072100.
  - 2. Unit of Measurement: Per square foot.

END OF SECTION 012700

## 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 1 Specification Sections, apply to this Section.

## 1.2 SUMMARY

- A. This Section specifies administrative and procedural requirements necessary to prepare and process Applications for Payment.
- B. Related Sections include the following:
  - 1. Division 1 Section "Contract Modification Procedures" for administrative procedures for handling changes to the Contract.
  - 2. Division 1 Section "Unit Prices" for administrative requirements governing use of unit prices.
  - 3. Division 1 Section "Construction Progress Documentation" for administrative requirements governing preparation and submittal of Contractor's Construction Schedule and Submittals Schedule.

## 1.3 DEFINITIONS

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

## 1.4 SCHEDULE OF VALUES

- A. Coordination: Coordinate preparation of the Schedule of Values with preparation of Contractor's Construction Schedule.
  - 1. Correlate 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. Submittals Schedule.
    - c. Contractor's Construction Schedule.
  - 2. Submit the Schedule of Values to Architect at earliest possible date but no later than seven days before the date scheduled for submittal of initial Applications for Payment.

3. Subschedules: Where the Work is separated into phases requiring separately phased payments, provide subschedules showing values correlated with each phase of payment.
- B. Format and Content: Use the Project Manual table of contents as a guide to establish line items for the Schedule of Values. Provide at least one line item for each Specification Section.
1. Identification: Include the following Project identification on the Schedule of Values:
    - a. Project name and location.
    - b. Name of Architect.
    - c. Architect's project number.
    - d. Contractor's name and address.
    - e. Date of submittal.
  2. Submit draft of AIA Document G703 with Continuation Sheets.
  3. Arrange the Schedule of Values in tabular form with separate columns to indicate the following for each item listed:
    - a. Related Specification Section or Division.
    - b. Description of the Work.
    - c. Name of subcontractor.
    - d. Name of manufacturer or fabricator.
    - e. Name of supplier.
    - f. Change Orders (numbers) that affect value.
    - g. Dollar value.
      - 1) Percentage of the Contract Sum to nearest one-hundredth percent, adjusted to total 100 percent.
  4. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Coordinate with the Project Manual table of contents. Provide several line items for principal subcontract amounts, where appropriate. Include separate line items under required principal subcontracts for operation and maintenance manuals, punch list activities, Project Record Documents, and demonstration and training in the amount of 5 percent of the Contract Sum. Section or division shall be specifically identified. Use of vague terminology such as "miscellaneous" or "labor" is not acceptable and schedule of values of continuation sheets bearing such language will be rejected.
  5. Round amounts to nearest whole dollar; total shall equal the Contract Sum.
  6. 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 off-site, include evidence of insurance or bonded warehousing.
  7. Provide separate line items in the Schedule of Values for initial cost of materials, for each subsequent stage of completion, and for total installed value of that part of the Work.
  8. Allowances: Provide a separate line item in the Schedule of Values for each allowance. Show line-item value of unit-cost allowances, as a product of the unit cost, multiplied by

- measured quantity. Use information indicated in the Contract Documents to determine quantities.
9. Each item in the Schedule of Values and Applications for Payment shall be complete. Include total cost and proportionate share of general overhead and profit for each item.
    - a. Temporary facilities and other major cost items that are not direct cost of actual work-in-place may be shown either as separate line items in the Schedule of Values or distributed as general overhead expense, at Contractor's option.
  10. 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 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.
- C. Payment Application Times: Progress payments shall be submitted to Architect by the date of the monthly progress meeting at the job site (which shall be scheduled during the last week of a month). The period covered by each Application for Payment is one month, ending on the last day of the previous payment period.
- D. Payment Application Forms: Use AIA Document G702 and AIA Document G703 Continuation Sheets as form for Applications for Payment.
- E. Payment Application Forms: Use forms provided by Owner for Applications for Payment. Sample copies are included at end of this Section.
- F. 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 of Change Orders and Construction Change Directives issued before last day of construction period covered by application.
  3. Include with each Application, a notarized Sales Tax Reporting Form indicating the amount of N.C. Sales Tax included in that month's Application. The form should include: the period during which the Sales Tax was paid (this period should coincide with the Application period), a list of each vendor's invoice with date and amount of sales tax paid, and a statement indicating that the taxes were paid for materials/equipment used on this project.

- G. Transmittal: Submit 3 signed and notarized original copies of each Application for Payment to Architect. All copies shall include waivers of lien and similar attachments if required.
1. Transmit each copy with a transmittal form listing attachments and recording appropriate information about application.
- H. Waivers of Mechanic's Lien: With each Application for Payment, submit waivers of mechanic's liens from subcontractors, sub-subcontractors, and suppliers for construction period covered by the previous application.
1. Submit partial waivers on each item for amount requested in previous application, after deduction for retainage, on each item.
  2. When an application shows completion of an item, submit final or full waivers.
  3. Owner reserves the right to designate which entities involved in the Work must submit waivers.
  4. Submit final Application for Payment with or preceded by final waivers from every entity involved with performance of the Work covered by the application who is lawfully entitled to a lien.
  5. Waiver Forms: Submit waivers of lien on forms, executed in a manner acceptable to Owner.
- I. Initial Application for Payment: Administrative actions and submittals that must precede or coincide with submittal of first Application for Payment include the following:
1. List of subcontractors.
  2. Schedule of Values.
  3. Contractor's Construction Schedule (preliminary if not final).
  4. Products list.
  5. Schedule of unit prices.
  6. Submittals Schedule (preliminary if not final).
  7. List of Contractor's staff assignments.
  8. List of Contractor's principal consultants.
  9. Copies of building permits.
  10. Copies of authorizations and licenses from authorities having jurisdiction for performance of the Work.
  11. Initial progress report.
  12. Report of preconstruction conference.
  13. Certificates of insurance and insurance policies.
  14. Performance and payment bonds.
  15. Data needed to acquire Owner's insurance.
  16. Initial settlement survey and damage report if required.
- J. Application for Payment at Substantial Completion: After issuing 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 Certificates of Partial Substantial Completion issued previously for Owner occupancy of designated portions of the Work.

- K. Final Payment Application: Submit final Application for Payment with releases and supporting documentation not previously submitted and accepted, including, but not limited, to the following:
1. Evidence of completion of Project closeout requirements.
  2. Insurance certificates for products and completed operations where required and proof that taxes, fees, and similar obligations were paid.
  3. Updated final statement, accounting for final changes to the Contract Sum.
  4. AIA Document G706, "Contractor's Affidavit of Payment of Debts and Claims."
  5. AIA Document G706A, "Contractor's Affidavit of Release of Liens."
  6. AIA Document G707, "Consent of Surety to Final Payment."
  7. Evidence that claims have been settled.
  8. Final meter readings for utilities, a measured record of stored fuel, and similar data as of date of Substantial Completion or when Owner took possession of and assumed responsibility for corresponding elements of the Work.
  9. Final, liquidated damages settlement statement.
- L. Contractor's false submittal of data in any pay application is a fraudulent act and may result in his disapproval for bidding on further Town contracts.

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 1 Specification Sections, apply to this Section.

## 1.2 SUMMARY

- A. This Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:
  - 1. Coordination Drawings.
  - 2. Administrative and supervisory personnel.
  - 3. Project meetings.
- B. Related Sections include the following:
  - 1. Division 1 Section "Construction Progress Documentation" for preparing and submitting Contractor's Construction Schedule.
  - 2. Division 1 Section "Execution Requirements" for procedures for coordinating general installation and field-engineering services, including establishment of benchmarks and control points.
  - 3. Division 1 Section "Closeout Procedures" for coordinating Contract closeout.
- C. The contractor hereby specifically acknowledges that the Contract Documents are sufficiently full and complete to have enabled it to determine the cost of all work; that the drawings, the specifications, and all addenda are sufficient to enable the Contractor to construct the work outlined therein in accordance with applicable laws, statutes, building codes and regulations, and otherwise to fulfill all of its obligations under the Contract Documents. In addition, the Contractor acknowledges that if it reasonably should have known, that the Contract Documents contain any error, inconsistency or omission, the Contractor shall be responsible for such performance and shall bear the cost for correction of the work thereof.
- D. Where Contract Documents require work be inspected, tested or approved, and when Contractor determines that the work is Substantially Complete, the Contractor shall give timely notice, including written notice where required, however, should work requiring testing, inspection, or approval not be in readiness, Contractor, or the sub-contractor responsible, shall pay professional fees, travel and living expenses, as applicable, for persons inconvenienced by false notice.

## 1.3 COORDINATION

- 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, which depend on each other for proper installation, connection, and operation.
- B. Coordination: Contractor shall coordinate his construction operations with those of other contractors and entities to ensure efficient and orderly installation of each part of the Work. Contractor shall coordinate his operations with 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 with other contractors to ensure maximum accessibility for required maintenance, service, and repair.
  - 3. Make adequate provisions to accommodate items scheduled for later installation.
  - 4. Where availability of space is limited, coordinate installation of different components to ensure maximum performance and accessibility for required maintenance, service, and repair of all components, including mechanical and electrical.
- C. Prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and list of attendees at meetings.
  - 1. Prepare similar memoranda for Owner and separate contractors if coordination of their Work is required.
- D. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities and activities of other contractors to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:
  - 1. Preparation of Contractor's Construction Schedule.
  - 2. Preparation of the Schedule of Values.
  - 3. Installation and removal of temporary facilities and controls.
  - 4. Delivery and processing of submittals.
  - 5. Progress meetings.
  - 6. Preinstallation conferences.
  - 7. Project closeout activities.
  - 8. Startup and adjustment of systems.
  - 9. Project closeout activities.
- E. Conservation: Coordinate construction activities to ensure that operations are carried out with consideration given to conservation of energy, water, and materials.



## 1.4 SUBMITTALS

- A. Coordination Drawings: Prepare Coordination Drawings if limited space availability necessitates maximum utilization of space for efficient installation of different components or if coordination is required for installation of products and materials fabricated by separate entities.
1. Content: Project-specific information, drawn accurately to scale. Do not base Coordination Drawings on reproductions of the Contract Documents or standard printed data. Include the following information, as applicable:
    - a. Indicate functional and spatial relationships of components of architectural, structural, civil, mechanical, and electrical systems.
    - b. Indicate required installation sequences.
    - c. Indicate dimensions shown on the Contract Drawings and make specific note of dimensions that appear to be in conflict with submitted equipment and minimum clearance requirements. Provide alternate sketches to Architect for resolution of such conflicts. Minor dimension changes and difficult installations will not be considered changes to the Contract.
  2. Sheet Size: At least 8-1/2 by 11 inches (215 by 280 mm) but no larger than 30 by 40 inches (750 by 1000 mm).
  3. Number of Copies: Submit four opaque copies of each submittal. Architect will return two copies.
    - a. Submit four copies where Coordination Drawings are required for operation and maintenance manuals. Architect will retain two copies; remainder will be returned. Mark up and retain one returned copy as a Project Record Drawing.
  4. Refer to individual Sections for Coordination Drawing requirements for Work in those Sections.
- B. Key Personnel Names: Within seven days of execution of the agreement, submit a list of key personnel assignments, including superintendent and other personnel in attendance at Project site. Identify individuals and their duties and responsibilities; list addresses and telephone numbers, including home and office telephone numbers. Provide names, addresses, and telephone numbers of individuals assigned as standbys in the absence of individuals assigned to Project.
1. Post copies of list in Project meeting room, in temporary field office, and by each temporary telephone. Keep list current at all times.
- C. Within 14 days of the Notice to Proceed, contractor shall submit a list of subcontractors and material suppliers to the Architect and a copy to the Town of Spring hope in accordance with Article 16 of the general conditions.

## 1.5 REQUEST FOR INFORMATION (RFI)

- A. General: Immediately on discovery of the need for additional information, clarification, or interpretation of the Contract Documents, Contractor shall prepare and submit an RFI in the form specified.
1. Architect will return without response those RFIs submitted to Architect by other entities controlled by Contractor.
  2. Coordinate and submit RFIs in a prompt manner to avoid delays in Contractor's work or work of subcontractors.
  3. Content of the RFI: Include a detailed, legible description of item needing information or interpretation and the following:
    - a. Project name
    - b. Owner name
    - c. Owner's Project number
    - d. Name of Architect
    - e. Architect's Project number
    - f. Date
    - g. Name of Contractor
    - h. RFI number, numbered sequentially
    - i. RFI subject
    - j. Specification Section number and title and related paragraphs, as appropriate
    - k. Drawing number and detail references, as appropriate
    - l. Field dimensions and conditions, as appropriate.
    - m. Contractor's suggested resolution. If Contractor's suggested resolution impacts the Contract Time or the Contract Sum, Contractor shall state impact in the RFI.
    - n. Contractor's signature.
    - o. Attachments: Include sketches, descriptions, measurements, photos, Product Data, Shop Drawings, coordination drawings, and other information necessary to fully describe items needing interpretation.
      - 1) Include dimensions, thicknesses, structural grid references, and details of affected materials, assemblies, and attachments on attached sketches.
- B. RFI Forms: AIA Document G716.
1. Attachments shall be electronic files in PDF format.
- C. Architect Is Action:
1. The Architect will review Requests for Information to determine whether they are Requests for Information as defined herein.
    - a. If the Architect determines that the document is not a Request for Information, it will be returned to the Contractor unreviewed and will be marked as a "non-compliant RFI" with the procedures set forth in the contract documents.
    - b. If the Architect determines that the documents are a Request for Information, but that the information contained in the request is incomplete it will return the Request for Information back with notification about the needed information in order to complete its response. Once returned there will be no consideration for delay to the project due to the requested additional information.

- c. If the Architect determines that the documents are a Request for Information, it will proceed with providing an answer in a timely fashion. The Architect shall NOT be required to respond to any RFI's within a certain calendar timeframe. This condition shall supersede any agreed condition of the General Conditions of the Contract between the Owner and Contractor. By accepting the specifications, the Contractor agrees to this condition.
2. On receipt of Architect' 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.

#### 1.6 ADMINISTRATIVE AND SUPERVISORY PERSONNEL

- A. General: In addition to Project superintendent, provide other administrative and supervisory personnel as required for proper performance of the Work.
  1. Include special personnel required for coordination of operations with other contractors.

#### 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 the 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. Regardless of their attendance at preconstruction and monthly progress meetings, mail copies of approved copies of meeting minutes to: Town of Spring Hope, Architect, Historic Preservation Consultant, Structural Engineer, Civil Engineer, Mechanical Engineer, and Electrical Engineer. Architect will provide mailing addresses for these personnel.
  3. Minutes: Record significant discussions and agreements achieved. Within 48 hours of every meeting forward a draft copy of meeting minutes to Architect for review and approval. Architect will forward review comments within 48 hours.
- B. Preconstruction Conference: Schedule a preconstruction conference before starting construction, at a time convenient to Owner and Architect, but no later than 10 days after execution of the Agreement. Hold the conference at a Project site or another convenient location. Conduct the meeting to review responsibilities and personnel assignments.
  1. Attendees: Authorized representatives of Owner, Architect, and their consultants; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the conference. All participants at the conference shall be familiar with the Project and authorized to conclude matters relating to the Work.
  2. 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. Procedures for processing field decisions and Change Orders.
  - f. Procedures for requests for interpretations (RFIs).
  - g. Procedures for testing and inspecting.
  - h. Procedures for processing Applications for Payment.
  - i. Distribution of the Contract Documents.
  - j. Submittal procedures.
  - k. Preparation of Record Documents.
  - l. Use of the premises and existing building.
  - m. Work restrictions.
  - n. Owner's occupancy requirements.
  - o. Responsibility for temporary facilities and controls.
  - p. Parking availability.
  - q. Office, work, and storage areas.
  - r. Equipment deliveries and priorities.
  - s. First aid.
  - t. Security.
  - u. Progress cleaning.
  - v. Working hours.
3. Minutes: Record and distribute meeting minutes in accordance with procedures noted in 01310/1.6A3.
- C. Preinstallation Conferences: Conduct a preinstallation conference at Project site before sitework, masonry repointing and repair, window rehabilitation, wood floor repair and refinishing work, door hardware installation, plumbing, and electrical work.
1. Attendees: Installer and representatives of manufacturers and fabricators involved in or affected by the installation and its coordination or integration with other materials and installations that have preceded or will follow, shall attend the meeting. Advise Architect of scheduled meeting dates.
  2. Agenda: Review progress of other construction activities and preparations for the particular activity under consideration, including requirements for the following:
    - a. The Contract Documents.
    - b. Options.
    - c. Related requests for interpretations (RFIs).
    - d. Related Change Orders.
    - e. Purchases.
    - f. Deliveries.
    - g. Submittals.
    - h. Review of mockups.
    - i. Possible conflicts.
    - j. Compatibility problems.
    - k. Time schedules.
    - l. Weather limitations.
    - m. Manufacturer's written recommendations.
    - n. Warranty requirements.
    - o. Compatibility of materials.
    - p. Acceptability of substrates.

- q. Temporary facilities and controls.
  - r. Space and access limitations.
  - s. Regulations of authorities having jurisdiction.
  - t. Testing and inspecting requirements.
  - u. Installation procedures.
  - v. Coordination with other work.
  - w. Required performance results.
  - x. Protection of adjacent work.
  - y. Protection of construction and personnel.
- 3. Record significant conference discussions, agreements, and disagreements, including required corrective measures and actions.
  - 4. Reporting: Distribute minutes of the meeting to each party present and to parties who should have been present. Follow submission requirements in 013100/1.6A3.
  - 5. Do not proceed with installation if the conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to the performance of the Work and reconvene the conference at earliest feasible date.
- D. Progress Meetings: Conduct progress meetings at monthly intervals. Coordinate dates of meetings with preparation of payment requests.
- 1. Attendees: In addition to representatives of Owner and Architect, each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the conference shall be familiar with the Project and authorized to conclude matters relating to the Work.
  - 2. 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) Off-site fabrication.
      - 6) Access.
      - 7) Site utilization.
      - 8) Temporary facilities and controls.
      - 9) Work hours.
      - 10) Hazards and risks.

- 11) Progress cleaning.
  - 12) Quality and work standards.
  - 13) Status of correction of deficient items.
  - 14) Field observations.
  - 15) Requests for interpretations (RFIs).
  - 16) Status of proposal requests.
  - 17) Pending changes.
  - 18) Status of Change Orders.
  - 19) Pending claims and disputes.
  - 20) Documentation of information for payment requests.
3. Minutes: Record the meeting minutes.
  4. Reporting: Distribute minutes of the meeting to each party present and to parties who should have been present. See 013100/1.3A2 and 013100/1.3A3.
    - a. Schedule Updating: Revise Contractor's Construction Schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with the report of each meeting.
- E. Coordination Meetings: Conduct Project coordination meetings at regular intervals. Project coordination meetings are in addition to specific meetings held for other purposes, such as progress meetings and preinstallation conferences.
1. Attendees: Representatives of contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the conference shall be familiar with the Project and authorized to conclude matters relating to the Work.
  2. Agenda: Review and correct or approve minutes of the previous coordination meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.
    - a. Combined Contractor's Construction Schedule: Review progress since the last coordination meeting. Determine whether each contract is on time, ahead of schedule, or behind schedule, in relation to Combined 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.
    - b. Schedule Updating: Revise Combined Contractor's Construction Schedule after each coordination meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with report of each meeting.
    - c. Review present and future needs of each contractor present, including the following:
      - 1) Interface requirements.
      - 2) Sequence of operations.
      - 3) Status of submittals.
      - 4) Deliveries.
      - 5) Off-site fabrication.
      - 6) Access.
      - 7) Site utilization.

- 8) Temporary facilities and controls.
  - 9) Work hours.
  - 10) Hazards and risks.
  - 11) Progress cleaning.
  - 12) Quality and work standards.
  - 13) Change Orders.
3. Reporting: Record meeting results and distribute copies to everyone in attendance and to others affected by decisions or actions resulting from each meeting. Forward copies of meeting records to Architect and Owner.

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 1 Specification Sections, apply to this Section.

## 1.2 SUMMARY

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

1. Preliminary Construction Schedule.
2. Contractor's Construction Schedule.
3. Submittals Schedule.
4. Daily construction reports.
5. Material location reports.
6. Field condition reports.
7. Special reports.

- B. Related Sections include the following:

1. Division 1 Section "Payment Procedures" for submitting the Schedule of Values.
2. Division 1 Section "Project Management and Coordination" for submitting and distributing meeting and conference minutes.
3. Division 1 Section "Submittal Procedures" for submitting schedules and reports.
4. Division 1 Section "Photographic Documentation" for submitting construction photographs.
5. Division 1 Section "Quality Requirements" for submitting a schedule of tests and inspections.

## 1.3 DEFINITIONS

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

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

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



- C. CPM: Critical path method, which is a method of planning and scheduling a construction project where activities are arranged based on activity relationships. Network calculations determine when activities can be performed and the critical path of Project.
  - D. Critical Path: The longest connected chain of interdependent activities through the network schedule that establishes the minimum overall Project duration and contains no float.
  - E. Event: The starting or ending point of an activity.
  - F. Float: The measure of leeway in starting and completing an activity.
    - 1. Float time belongs to Owner.
    - 2. Free float is the amount of time an activity can be delayed without adversely affecting the early start of the successor activity.
    - 3. Total float is the measure of leeway in starting or completing an activity without adversely affecting the planned Project completion date.
  - G. Fragment: A partial or fragmentary network that breaks down activities into smaller activities for greater detail.
  - H. Major Area: A story of construction, a separate building, or a similar significant construction element.
  - I. Milestone: A key or critical point in time for reference or measurement.
  - J. Network Diagram: A graphic diagram of a network schedule, showing activities and activity relationships.
  - K. Resource Loading: The allocation of manpower and equipment necessary for the completion of an activity as scheduled.
- 1.4 SUBMITTALS
- A. Qualification Data: For scheduling consultant.
  - B. Submittals Schedule: Submit eight copies of schedule. Arrange the following information in a tabular format:
    - 1. Scheduled date for first submittal.
    - 2. Specification Section number and title.
    - 3. Submittal category (action or informational).
    - 4. Name of subcontractor.
    - 5. Description of the Work covered.
    - 6. Scheduled date for Architect's final release or approval.
  - C. Preliminary Construction Schedule: Submit eight opaque copies. This schedule must be submitted a minimum of ten working days prior to the first monthly meeting. It shall be reviewed with subcontractors and an updated edition shall be provided by the contractor at each monthly meeting.

1. Approval of cost-loaded preliminary construction schedule will not constitute approval of Schedule of Values for cost-loaded activities.
  - D. Preliminary Network Diagram: Submit eight opaque copies, large enough to show entire network for entire construction period. Show logic ties for activities.
  - E. Contractor's Construction Schedule: Within 30 days of the Notice To Proceed, submit eight opaque copies of initial schedule, large enough to show entire schedule for entire construction period. One copy of the current approved schedule shall be posted by the contractor at the project site and marked daily showing actual progress of the work.
    1. Submit an electronic copy of schedule, using software indicated, on CD-R, and labeled to comply with requirements for submittals. Include type of schedule (Initial or Updated) and date on label.
  - F. CPM Reports: Concurrent with CPM schedule, submit eight copies of each of the following computer-generated reports. Format for each activity in reports shall contain activity number, activity description, cost and resource loading, original duration, remaining duration, early start date, early finish date, late start date, late finish date, and total float in calendar days.
    1. Activity Report: List of all activities sorted by activity number and then early start date, or actual start date if known.
    2. Logic Report: List of preceding and succeeding activities for all activities, sorted in ascending order by activity number and then early start date, or actual start date if known.
    3. Total Float Report: List of all activities sorted in ascending order of total float.
  - G. Field Condition Reports: Submit three copies at time of discovery of differing conditions.
  - H. Special Reports: Submit two copies at time of unusual event.
  - I. The contractor's project administrators shall develop a daily log of construction events covering construction progress and daily weather conditions that affect the progress of construction. Copies of the logs shall be provided to the architect on a weekly basis for his review. Copies of the log shall also be provided to the architect at each monthly meeting with a written request for weather related time extensions. The contractor shall also provide 5 year average precipitation data from NOAA as noted in the General Conditions for the selected time period noted in the time extension request. The requests will be evaluated and approved or disapproved by the Architect and the Town of Spring Hope. The architect shall keep a running total of time of approved weather related delays for granting one change order at the end of the project for contract adjustment to the Contract Time.
- 1.5 QUALITY ASSURANCE
- A. Scheduling Consultant Qualifications: An experienced specialist in CPM scheduling and reporting, with capability of producing CPM reports and diagrams within 24 hours of Architect's request.
  - B. Prescheduling Conference: Conduct conference at Project site to comply with requirements in Division 1 Section "Project Management and Coordination." Review methods and procedures related to the Preliminary Construction Schedule and Contractor's Construction Schedule, including, but not limited to, the following:

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

## 1.6 COORDINATION

- A. Coordinate preparation and processing of schedules and reports with performance of construction activities and with scheduling and reporting of separate contractors.
- B. Coordinate Contractor's Construction Schedule with the Schedule of Values, list of subcontracts, Submittals Schedule, progress reports, payment requests, and other required schedules and reports.
  1. Secure time commitments for performing critical elements of the Work from parties involved.
  2. Coordinate each construction activity in the network with other activities and schedule them in proper sequence.

## PART 2 - PRODUCTS

### 2.1 SUBMITTALS SCHEDULE

- A. Preparation: Submit a schedule of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, resubmittal, ordering, manufacturing, fabrication, and delivery when establishing dates.
  1. Coordinate Submittals Schedule with list of subcontracts, the Schedule of Values, and Contractor's Construction Schedule.
  2. Initial Submittal: Submit concurrently with preliminary bar-chart schedule. Include submittals required during the first 60 days of construction. List those required to maintain orderly progress of the Work and those required early because of long lead time for manufacture or fabrication.
  3. Final Submittal: Submit concurrently with the first complete submittal of Contractor's Construction Schedule.

### 2.2 CONTRACTOR'S CONSTRUCTION SCHEDULE, GENERAL

- A. Procedures: Comply with procedures contained in AGC's "Construction Planning & Scheduling."

- B. Time Frame: Extend schedule from date established for the Notice to Proceed to date of Substantial 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.
- C. Activities: Treat each story or separate area as a separate numbered activity for each principal element of the Work. Comply with the following:
1. 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.
    - a. HVAC Units.
    - b. Main electrical disconnect panel(s).
  2. Submittal Review Time: Include review and resubmittal times indicated in Division 1 Section "Submittal Procedures" in schedule. Coordinate submittal review times in Contractor's Construction Schedule with Submittals Schedule.
  3. Startup and Testing Time: Include not less than five working days for startup and testing.
  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.
- D. 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. Phasing: Arrange list of activities on schedule by phase.
  2. Work by Owner: Include a separate activity for each portion of the Work performed by Owner.
  3. Products Ordered in Advance: Include a separate activity for each product. Include delivery date indicated in Division 1 Section "Summary." Delivery dates indicated stipulate the earliest possible delivery date.
  4. Work Restrictions: Show the effect of the following items on the schedule:
    - a. Coordination with existing construction.
    - b. Limitations of continued occupancies.
    - c. Uninterruptible services.
    - d. Use of premises restrictions.
    - e. Seasonal variations.
    - f. Environmental control.
  5. Work Stages: Indicate important stages of construction for each major portion of the Work, including, but not limited to, the following:
    - a. Subcontract awards.
    - b. Submittals.
    - c. Purchases.
    - d. Mockups.
    - e. Fabrication.

- f. Sample testing.
  - g. Deliveries.
  - h. Installation.
  - i. Tests and inspections.
  - j. Adjusting.
  - k. Curing.
  - l. Startup and placement into final use and operation.
6. Area Separations: Identify each major area of construction for each major portion of the Work. Indicate where each construction activity within a major area must be sequenced or integrated with other construction activities to provide for the following:
- a. Structural completion.
  - b. Permanent space enclosure.
  - c. Completion of mechanical installation.
  - d. Completion of electrical installation.
  - e. Substantial Completion.
7. Other Constraints: As may be determined by the contractor.
- E. Milestones: Include milestones indicated in the Contract Documents in schedule, including, but not limited to, the Notice to Proceed, Substantial Completion, and Final Completion.
- F. Cost Correlation: At the head of schedule, provide a cost correlation line, indicating planned and actual costs. On the line, show dollar volume of the Work performed as of dates used for preparation of payment requests.
1. Refer to Division 1 Section "Payment Procedures" for cost reporting and payment procedures.
  2. Contractor shall assign cost to construction activities on the CPM schedule. Costs shall not be assigned to submittal activities unless specified otherwise but may, with Architect's approval, be assigned to fabrication and delivery activities.
  3. Total cost assigned to activities shall equal the total Contract Sum.
- G. Contract Modifications: For each proposed contract modification and concurrent with its submission, prepare a time-impact analysis using fragnets to demonstrate the effect of the proposed change on the overall project schedule.
- H. Computer Software: Prepare schedules using a program that has been developed specifically to manage construction schedules.

### 2.3 PRELIMINARY CONSTRUCTION SCHEDULE

- A. Bar-Chart Schedule: Submit preliminary horizontal bar-chart-type construction schedule within seven days of date established for the Notice to Proceed.
- B. Preparation: Indicate each significant construction activity separately. Identify first workday of each week with a continuous vertical line. Outline significant construction activities for first 60 days of construction. Include skeleton diagram for the remainder of the Work and a cash requirement prediction based on indicated activities.

### 2.4 CONTRACTOR'S CONSTRUCTION SCHEDULE (CPM SCHEDULE)

- A. General: Prepare network diagrams using AON (activity-on-node) format.
- B. Preliminary Network Diagram: Submit diagram within 14 days of date established for the Notice to Proceed. Outline significant construction activities for the first 60 days of construction. Include skeleton diagram for the remainder of the Work and a cash requirement prediction based on indicated activities.
- C. CPM Schedule: Prepare Contractor's Construction Schedule using a computerized, time-scaled CPM network analysis diagram for the Work.
  - 1. Develop network diagram in sufficient time to submit CPM schedule so it can be accepted for use no later than 30 days after date established for the Notice to Proceed.
    - a. Failure to include any work item required for performance of this Contract shall not excuse Contractor from completing all work within applicable completion dates, regardless of Architect's approval of the schedule.
  - 2. Conduct educational workshops to train and inform key Project personnel, including subcontractors' personnel, in proper methods of providing data and using CPM schedule information.
  - 3. Establish procedures for monitoring and updating CPM schedule and for reporting progress. Coordinate procedures with progress meeting and payment request dates.
  - 4. Use "one workday" as the unit of time. Include list of nonworking days and holidays incorporated into the schedule.
- D. CPM Schedule Preparation: Prepare a list of all activities required to complete the Work. Using the preliminary network diagram, prepare a skeleton network to identify probable critical paths.
  - 1. Activities: Indicate the estimated time duration, sequence requirements, and relationship of each activity in relation to other activities. Include estimated time frames for the following activities:
    - a. Preparation and processing of submittals.
    - b. Mobilization and demobilization.
    - c. Purchase of materials.
    - d. Delivery.
    - e. Fabrication.

- f. Utility interruptions.
    - g. Installation.
    - h. Testing.
    - i. Punch list and final completion.
    - j. Activities succeeding final completion
  2. Critical Path Activities: Identify critical path activities, including those for interim completion dates. Scheduled start and completion dates shall be consistent with Contract milestone dates.
  3. Processing: Process data to produce output data on a computer-drawn, time-scaled network. Revise data, reorganize activity sequences, and reproduce as often as necessary to produce the CPM schedule within the limitations of the Contract Time.
  4. Format: Mark the critical path. Locate the critical path near center of network; locate paths with most float near the edges.
    - a. Subnetworks on separate sheets are permissible for activities clearly off the critical path.
- E. Initial Issue of Schedule: Prepare initial network diagram from a list of straight "early start-total float" sort. Identify critical activities. Prepare tabulated reports showing the following:
1. Contractor or subcontractor and the Work or activity.
  2. Description of activity.
  3. Principal events of activity.
  4. Immediate preceding and succeeding activities.
  5. Early and late start dates.
  6. Early and late finish dates.
  7. Activity duration in workdays.
  8. Total float or slack time.
  9. Average size of workforce.
  10. Dollar value of activity (coordinated with the Schedule of Values).
- F. Schedule Updating: Concurrent with making revisions to schedule, prepare tabulated reports showing the following:
1. Identification of activities that have changed.
  2. Changes in early and late start dates.
  3. Changes in early and late finish dates.
  4. Changes in activity durations in workdays.
  5. Changes in the critical path.
  6. Changes in total float or slack time.
  7. Changes in the Contract Time.
- G. Value Summaries: Prepare two cumulative value lists, sorted by finish dates.
1. In first list, tabulate activity number, early finish date, dollar value, and cumulative dollar value.
  2. In second list, tabulate activity number, late finish date, dollar value, and cumulative dollar value.
  3. In subsequent issues of both lists, substitute actual finish dates for activities completed as of list date.

4. Prepare list for ease of comparison with payment requests; coordinate timing with progress meetings.
  - a. In both value summary lists, tabulate "actual percent complete" and "cumulative value completed" with total at bottom.
  - b. Submit value summary printouts one week before each regularly scheduled progress meeting.

## 2.6 REPORTS

- A. Field Condition Reports: Immediately on discovery of a difference between field conditions and the Contract Documents, prepare and submit a detailed report. Submit with a request for interpretation. Include a detailed description of the differing conditions, together with recommendations for changing the Contract Documents.

## 2.7 SPECIAL REPORTS

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

## 2.8 COORDINATION DRAWINGS

- A. Coordination drawings shall be prepared by the contractors to ensure that the space provided within the structure is properly utilized for the installation of all mechanical, plumbing, and HVAC ductwork, electrical conduits and equipment, and any ceiling-mounted lighting and audio-visual equipment or other work required to be in the building. Under the direction and coordination of the general contractor, the contractors will be required to collectively prepare CAD drawings showing each trade's work. Electronic CAD files of the reflected ceiling plans will be provided to the general contractor to assist in the production of these drawings. The drawings shall be produced with a  $\frac{1}{4}'' = 1$  ft scale, utilize a separate color for each trade, and be produced in the following order to help prevent space conflicts and subsequent drawing revisions:
  1. Ceiling-mounted lighting. electrical panelboards, switchboards, transformers, etc.
  2. Sanitary waste and potable water piping.
  3. HVAC equipment and ductwork. Mechanical equipment and piping 4" and larger.
  4. Electrical conduit greater than 1" diameter, electrical and teledata cabletrays/raceways.
  5. Mechanical piping less than 4" diameter.
  6. Potable water and gas piping.
  7. All other required work.
  8. Indicate relationship of components shown on separate shop drawings.
  9. Indicate required installation sequences.
  10. Refer to Division 15 Section "Basic Mechanical Materials and Methods" and Division 16 Section "Basic Electrical Materials and Methods" for specific Coordination Drawing requirements for mechanical and electrical installation.



11. After all information has been recorded, submit these drawings to the Architect. Do not begin any HVAC, plumbing, or electrical work until coordination Drawings have been approved in writing by the Architect.

### PART 3 - EXECUTION

#### 3.1 CONTRACTOR'S CONSTRUCTION SCHEDULE

- A. Scheduling Consultant: Engage a consultant to provide planning, evaluation, and reporting using CPM scheduling.
  1. In-House Option: Owner may waive the requirement to retain a consultant if Contractor employs skilled personnel with experience in CPM scheduling and reporting techniques. Submit qualifications.
  2. Meetings: Scheduling consultant shall attend all meetings related to Project progress, alleged delays, and time impact.
- B. Contractor's Construction Schedule Updating: At monthly intervals, update schedule to reflect actual construction progress and activities. Issue schedule one week before each regularly scheduled progress meeting.
  1. Revise schedule immediately after each meeting or other activity where revisions have been recognized or made. Issue updated schedule concurrently with the report of each such meeting.
  2. Include a report with updated schedule that indicates every change, including, but not limited to, changes in logic, durations, actual starts and finishes, and activity durations.
  3. As the Work progresses, indicate Actual Completion percentage for each activity.
- C. Distribution: Distribute copies of approved schedule to Architect, Owner, separate contractors, testing and inspecting agencies, and other parties identified by Contractor with a need-to-know schedule responsibility.
  1. Post copies in Project meeting rooms and temporary field offices.
  2. When revisions are made, distribute updated schedules to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in performance of construction activities.
  3. Regardless of their attendance at monthly progress meetings, forward copies of each updated construction schedule to:
    - a. Town of Spring Hope
    - b. Architect
    - c. Historic Preservation Consultant
    - d. Structural Engineer
    - e. Civil Engineer
    - f. Plumbing Engineer
    - g. Mechanical Engineer
    - h. Electrical Engineer

END OF SECTION 013200

## SECTION 013220 - 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 1 Specification Sections, apply to this Section.

## 1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for the following:
  - 1. Preconstruction photographs.
  - 2. Weekly construction progress photographs.
- B. Related Sections include the following:
  - 1. Division 1 Section "Demonstration and Training" for submitting videotapes of demonstration of equipment and training of Owner's personnel.

## 1.3 SUBMITTALS

- A. Qualification Data: For photographer.
- B. Key Plan: Submit key plan of Project site and building with notation of vantage points marked for location and direction of each photograph. Include same label information as corresponding set of photographs.
- C. Construction Photographs: Submit one prints of each photographic view within seven days of taking photographs.
  - 1. Format: **8-by-10-inch (203-by-254-mm)** smooth-surface matte prints on single-weight commercial-grade photographic paper, enclosed back to back in clear plastic sleeves that are punched for standard 3-ring binder.
  - 2. Identification: On back of each print, provide an applied label or rubber-stamped impression with the following information:
    - a. Name of Project.
    - b. Date photograph was taken if not date stamped by camera.
    - c. Description of vantage point, indicating location, direction (by compass point), and elevation or story of construction.
    - d. Unique sequential identifier.

## 1.4 EXTRA PRINTS

- A. Extra Prints: If requested by Architect, Contractor, photographer shall prepare extra prints of photographs. Photographer shall distribute these prints directly to designated parties who will pay the costs for extra prints.

B.  
PART 2 - PRODUCTS

N/A

PART 3 - EXECUTION

3.1 CONSTRUCTION PHOTOGRAPHS

- A. General: Take weekly progress 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. Film Images:
  - 1. Date Stamp: Unless otherwise indicated, date and time stamp each photograph as it is being taken so stamp is integral to photograph.
- C. Preconstruction Photographs: Before starting construction, take black-and-white photographs of Project site and surrounding properties, including existing items to remain during construction, from different vantage points.
  - 1. Take eight photographs to show existing conditions adjacent to property before starting the Work.
  - 2. Take additional photographs as required to record settlement or cracking of adjacent structures, pavements, and improvements.

END OF SECTION 013220

## 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 1 Specification Sections, apply to this Section.

## 1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for submitting Contractor's Construction Schedule, Shop Drawings, Product Data, Samples, Mock Ups and other submittals.
- B. Related Sections include the following:
  - 1. Division 1 Section "Payment Procedures" for submitting Applications for Payment and the Schedule of Values.
  - 2. Division 1 Section "Project Management and Coordination" for submitting and distributing meeting and conference minutes and for submitting Coordination Drawings.
  - 3. Division 1 Section "Construction Progress Documentation" for submitting schedules and reports, including Contractor's Construction Schedule and the Submittals Schedule.
  - 4. Division 1 Section "Photographic Documentation" for submitting construction photographs.
  - 5. Division 1 Section "Quality Requirements" for submitting test and inspection reports.
  - 6. Division 1 Section "Closeout Procedures" for submitting warranties.
  - 7. Division 1 Section "Project Record Documents" for submitting Record Drawings, Record Specifications, and Record Product Data.
  - 8. Division 1 Section "Operation and Maintenance Data" for submitting operation and maintenance manuals.
  - 9. Division 1 Section "Demonstration and Training" for submitting videotapes of demonstration of equipment and training of Owner's personnel.
  - 10. Divisions 2 through 16 Sections for specific requirements for submittals in those Sections.

## 1.3 DEFINITIONS

- A. Action Submittals: Written and graphic information that requires Architect's responsive action.
- B. Informational Submittals: Written information that does not require Architect's responsive action. Submittals may be rejected for not complying with requirements.

## 1.4 SUBMITTAL PROCEDURES

- A. General: Electronic copies of CAD Drawings of the Contract Drawings will not be provided by Architect for Contractor's use in preparing submittals. Electronic or fax transmission of submittals will not be accepted by Architect or Engineers.
- 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. 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. Submittals Schedule: Comply with requirements in Division 1 Section "Construction Progress Documentation" for list of submittals and time requirements for scheduled performance of related construction activities.
- D. Processing Time: Allow enough 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 15 days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Architect will advise Contractor when a submittal being processed must be delayed for coordination.
  - 2. Intermediate Review: If intermediate submittal is necessary, process it in same manner as initial submittal.
  - 3. Resubmittal Review: Allow 15 days for review of each resubmittal.
  - 4. Sequential Review: Where sequential review of submittals by Architect's consultants, Owner, or other parties is indicated, allow 21 days for initial review of each submittal.
  - 5. Concurrent Consultant Review: Where the Contract Documents indicate that submittals may be transmitted simultaneously to Architect and to Architect's consultants, allow 15 days for review of each submittal. Submittal will be returned to Architect before being returned to Contractor.
  - 6. The Architect/Engineer will review up to 2 submissions of each shop drawing/submittal: 1) the initial submission and 2) a revised submission with additions or corrections requested by the Architect if the first submission is marked "revise and resubmit or "rejected". Additional time needed by the Architect/Engineer to review more than 2 submissions of a particular shop drawing/submittal will be invoiced to the Contractor at the Architect/Engineer's regular hourly professional fee rate for payment within 30 days. Should the Contractor fail to pay the Architect's invoice within 30 days, the Contractor hereby agrees to have the value of any such invoices debited as a Change Order to the final contract sum. The Owner will then use the debited sum to reimburse the Architect within 30 days of issuance of final payment.

- E. Identification: Place a permanent label or title block on each submittal for identification.
1. Indicate name of firm or entity that prepared each submittal on label or title block.
  2. Provide a space approximately **6 by 8 inches** on label or beside title block to record Contractor's review and approval markings and action taken by Architect.
  3. Include the following information on label for processing and recording action taken:
    - a. Project name.
    - b. Date.
    - c. Name and address of Architect.
    - d. Name and address of Contractor.
    - e. Name and address of subcontractor.
    - f. Name and address of supplier.
    - g. Name of manufacturer.
    - h. Submittal number or other unique identifier, including revision identifier.
      - 1) Submittal number shall use Specification Section number followed by a decimal point and then a sequential number (e.g., 061000.01). Resubmittals shall include an alphabetic suffix after another decimal point (e.g., 061000.01.A).
    - i. Number and title of appropriate Specification Section.
    - j. Drawing number and detail references, as appropriate.
    - k. Location(s) where product is to be installed, as appropriate.
    - l. Other necessary identification.
- F. Deviations: Highlight, encircle, or otherwise specifically identify deviations from the Contract Documents on submittals.
- G. Additional Copies: Unless additional copies are required for final submittal, and unless Architect observes noncompliance with provisions in the Contract Documents, initial submittal may serve as final submittal.
1. Submit one copy of submittal to concurrent reviewer in addition to specified number of copies to Architect.
  2. Additional copies submitted for maintenance manuals will not be marked with action taken and will be returned.
- H. Transmittal: Package each submittal individually and appropriately for transmittal and handling. Transmit each submittal using a transmittal form. Architect will return submittals, without review, received from sources other than Contractor.
1. Transmittal Form: Use AIA Document G810.
  2. Transmittal Form: Provide locations on form for the following information:
    - a. Project name.
    - b. Date.
    - c. Destination (To:).
    - d. Source (From:).

- e. Names of subcontractor, manufacturer, and supplier.
  - f. Category and type of submittal.
  - g. Submittal purpose and description.
  - h. Specification Section number and title.
  - i. Drawing number and detail references, as appropriate.
  - j. Transmittal number.
  - k. Submittal and transmittal distribution record.
  - l. Remarks.
  - m. Signature of transmitter.
3. On an attached separate sheet, prepared on Contractor's letterhead, record relevant information, requests for data, revisions other than those requested by Architect on previous submittals, and deviations from requirements in the Contract Documents, including minor variations and limitations. Include same label information as related submittal.
- I. Resubmittals: Make resubmittals in same form and number of copies as initial submittal.
    1. Note date and content of previous submittal.
    2. Note date and content of revision in label or title block and clearly indicate extent of revision.
    3. Resubmit submittals until they are marked.
  - J. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms. Keep one copy of all shop drawings in job trailer.
  - K. Use for Construction: Use only final submittals with mark indicating "approved" or "approved as noted".

## PART 2 - PRODUCTS

### 2.1 ACTION SUBMITTALS

- A. General: Prepare and submit Action Submittals required by individual Specification Sections.
- 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 printed 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 written recommendations.
    - b. Manufacturer's product specifications.
    - c. Manufacturer's installation instructions.

- d. Standard color charts.
  - e. Manufacturer's catalog cuts.
  - f. Wiring diagrams showing factory-installed wiring.
  - g. Printed performance curves.
  - h. Operational range diagrams.
  - i. Mill reports.
  - j. Standard product operation and maintenance manuals.
  - k. Compliance with specified referenced standards.
  - l. Testing by recognized testing agency.
  - m. Application of testing agency labels and seals.
  - n. Notation of coordination requirements.
4. Submit Product Data before or concurrent with Samples.
  5. Number of Copies: Submit five copies of Product Data, unless otherwise indicated. Architect will return three copies. Mark up and retain one returned copy as a Project Record Document to be kept in job trailer.
- C. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data.
1. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:
    - a. Dimensions.
    - b. Identification of products.
    - c. Fabrication and installation drawings.
    - d. Roughing-in and setting diagrams.
    - e. Wiring diagrams showing field-installed wiring, including power, signal, and control wiring.
    - f. Shopwork manufacturing instructions.
    - g. Templates and patterns.
    - h. Schedules.
    - i. Design calculations.
    - j. Compliance with specified standards.
    - k. Notation of coordination requirements.
    - l. Notation of dimensions established by field measurement.
    - m. Relationship to adjoining construction clearly indicated.
    - n. Seal and signature of professional engineer if specified.
    - o. Wiring Diagrams: Differentiate between manufacturer-installed and field-installed wiring.
  2. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Shop Drawings on sheets at least 8-1/2 by 11 inches (215 by 280 mm) but no larger than 30 by 40 inches (750 by 1000 mm).
  3. Number of Copies: Submit five opaque (bond) copies of each submittal. Architect will return three copies.
- D. Samples: Submit Samples for review of kind, color, pattern, and texture for a check of these characteristics with other elements and for a comparison of these characteristics between submittal and actual component as delivered and installed.



1. Transmit Samples that contain multiple, related components such as accessories together in one submittal package.
  2. 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 appropriate specification section and referenced paragraph number.
  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, or otherwise designated as Owner's property, are the property of Contractor.
  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.
  5. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from same material to be used for the Work, cured and finished in manner specified, and physically identical with material or product proposed for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, the following: partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.
    - a. Number of Samples: Submit three sets of Samples. Architect will retain two Sample sets; remainder will be returned. Mark up and retain one returned Sample set as a Project Record Sample.
      - 1) Submit a single Sample where assembly details, workmanship, fabrication techniques, connections, operation, and other similar characteristics are to be demonstrated.
      - 2) If variation in color, pattern, texture, or other characteristic is inherent in material or product represented by a Sample, submit at least three sets of paired units that show approximate limits of variations.
- E. Product Schedule or List: As required in individual Specification Sections, prepare a written summary indicating types of products required for the Work and their intended location. Include the following information in tabular form:

1. Type of product. Include unique identifier for each product.
  2. Number and name of room or space.
  3. Location within room or space.
  4. Number of Copies: Submit three copies of product schedule or list, unless otherwise indicated. Architect will return two copies.
    - a. Mark up and retain one returned copy as a Project Record Document.
- F. Contractor's Construction Schedule: Comply with requirements specified in Division 1 Section "Construction Progress Documentation" for Construction Manager's action.
- G. Submittals Schedule: Comply with requirements specified in Division 1 Section "Construction Progress Documentation."
- H. Application for Payment: Comply with requirements specified in Division 1 Section "Payment Procedures."
- I. Schedule of Values: Comply with requirements specified in Division 1 Section "Payment Procedures."
- J. 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. Use CSI Form 1.5A. Include the following information in tabular form:
1. Name, address, and telephone number of entity performing subcontract or supplying products.
  2. Number and title of related Specification Section(s) covered by subcontract.
  3. Drawing number and detail references, as appropriate, covered by subcontract.
  4. Number of Copies: Submit three copies of subcontractor list, unless otherwise indicated. Architect will return one copy.
    - a. Mark up and retain one returned copy as a Project Record Document.

## 2.2 INFORMATIONAL SUBMITTALS

- A. General: Prepare and submit Informational Submittals required by other Specification Sections.
1. Number of Copies: Submit five copies of each submittal, unless otherwise indicated. Architect will not return copies.
  2. Certificates and Certifications: Provide a notarized 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.
  3. Test and Inspection Reports: Comply with requirements specified in Division 1 Section "Quality Requirements."
- B. Coordination Drawings: Comply with requirements specified in Division 1 Section "Project Management and Coordination."

- C. Contractor's Construction Schedule: Comply with requirements specified in Division 1 Section "Construction Progress Documentation."
- D. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.
- E. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements in the Contract Documents. Submit record of Welding Procedure Specification (WPS) and Procedure Qualification Record (PQR) on AWS forms. Include names of firms and personnel certified.
- F. Installer Certificates: Prepare 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.
- G. Manufacturer Certificates: Prepare written statements on manufacturer's letterhead certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.
- H. Product Certificates: Prepare written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.
- I. Material Certificates: Prepare written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.
- J. Material Test Reports: Prepare 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.
- K. Product Test Reports: Prepare written reports indicating current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.
- L. Research/Evaluation Reports: Prepare written evidence, from a model code organization acceptable to authorities having jurisdiction, that product complies with building code in effect for Project. Include the following information:
  - 1. Name of evaluation organization.
  - 2. Date of evaluation.
  - 3. Time period when report is in effect.
  - 4. Product and manufacturers' names.
  - 5. Description of product.
  - 6. Test procedures and results.
  - 7. Limitations of use.
- M. Schedule of Tests and Inspections: Comply with requirements specified in Division 1 Section "Quality Requirements."

- N. Preconstruction Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements in the Contract Documents.
- O. Compatibility Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for primers and substrate preparation needed for adhesion.
- P. Field Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, 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.
- Q. Maintenance Data: Prepare written and graphic instructions and procedures for operation and normal maintenance of products and equipment. Comply with requirements specified in Division 1 Section "Operation and Maintenance Data."
- R. Design Data: Prepare written and graphic information, including, but not limited to, performance and design criteria, list of applicable codes and regulations, and calculations. Include list of assumptions and other performance and design criteria and a summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Include page numbers.
- S. Manufacturer's Instructions: Prepare written or published information that documents manufacturer's recommendations, guidelines, and procedures for installing or operating a product or equipment. Include name of product and name, address, and telephone number of manufacturer. Include the following, as applicable:
1. Preparation of substrates.
  2. Required substrate tolerances.
  3. Sequence of installation or erection.
  4. Required installation tolerances.
  5. Required adjustments.
  6. Recommendations for cleaning and protection.
- T. Manufacturer's Field Reports: Prepare written information documenting factory-authorized service representative's tests and inspections. Include the following, as applicable:
1. Name, address, and telephone number of factory-authorized service representative making report.
  2. Statement on condition of substrates and their acceptability for installation of product.
  3. Statement that products at Project site comply with requirements.
  4. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.
  5. Results of operational and other tests and a statement of whether observed performance complies with requirements.
  6. Statement whether conditions, products, and installation will affect warranty.
  7. Other required items indicated in individual Specification Sections.

- U. Insurance Certificates and Bonds: Prepare written information indicating current status of insurance or bonding coverage. Include name of entity covered by insurance or bond, limits of coverage, amounts of deductibles, if any, and term of the coverage.
- V. Construction Photographs: Comply with requirements specified in Division 1 Section "Photographic Documentation."

### PART 3 - EXECUTION

#### 3.1 CONTRACTOR'S REVIEW

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

#### 3.2 ARCHITECT'S ACTION

- A. General: Architect will not review submittals that do not bear Contractor's approval stamp and will return them without action.
- B. Action Submittals: Architect will review each submittal, make marks to indicate corrections or modifications required, and return it. Architect will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action taken.
- C. Informational Submittals: Architect will review each submittal and will not return it, or will return it if it does not comply with requirements. Architect will forward each submittal to appropriate party.
- D. Partial submittals are not acceptable, will be considered nonresponsive, and will be returned without review.
- E. Submittals not required by the Contract Documents may not be reviewed and may be discarded.

END OF SECTION 013300

## SECTION 013510 - SPECIAL PROCEDURES FOR HISTORIC TREATMENT

## PART 1 - GENERAL

## 1.1 RELATED DOCUMENTS

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

## 1.2 SUMMARY

- A. This Section includes special procedures for historic treatment on Project including, but not limited to, the following:
  - 1. Storage and protection of existing historic materials.
  - 2. Temporary protection of historic materials during construction.
  - 3. Protection during application of chemicals.
  - 4. Protection during use of heat-generating equipment.
  - 5. Historic treatment procedures.
- B. Related Sections include the following:
  - 1. Division 1 Section "Construction Progress Documentation" for preconstruction photographs taken before construction begins.
  - 2. The Secretary of the Interior's Standards for Rehabilitation.
  - 3. Section 049010 - Brick masonry restoration and cleaning
  - 4. Section 060000 - Wood Rehabilitation.

## 1.3 DEFINITIONS

- A. "Preservation": To apply measures necessary to sustain the existing form, integrity, and materials of a historic property. Work may include preliminary measures to protect and stabilize the property.
- B. "Rehabilitation": To make possible a compatible use for a property through repair, alterations, and additions while preserving those portions or features that convey its historical, cultural, or architectural values.
- C. "Stabilize": To apply measures designed to reestablish a weather-resistant enclosure and the structural reinforcement of an item or portion of the building while maintaining the essential form as it exists at present.
- D. "Protect and Maintain": To remove deteriorating corrosion, reapply protective coatings, and install protective measures such as temporary guards.
- E. "Repair": To stabilize, consolidate, or conserve; to retain existing materials and features while employing as little new material as possible. Repair includes patching, piecing-in, splicing,

consolidating, or otherwise reinforcing or upgrading materials. Within restoration, repair also includes limited replacement in kind, rehabilitation, and reconstruction, with compatible substitute materials for deteriorated or missing parts of features when there are surviving prototypes.

- F. "Replace": To duplicate and replace entire features with new material in kind. Replacement includes the following conditions:
  - 1. Duplication: Includes replacing elements damaged beyond repair or missing. Original material is indicated as the pattern for creating new duplicated elements.
  - 2. Replacement with New Materials: Includes replacement with new material when original material is not available as patterns for creating new duplicated elements.
  - 3. Replacement with Substitute Materials: Includes replacement with compatible substitute materials. Substitute materials are not allowed, unless otherwise indicated.
- G. "Remove": To detach items from existing construction and legally dispose of them off-site unless indicated to be removed and salvaged or removed and reinstalled.
- H. "Remove and Salvage": To detach items from existing construction and deliver them to Owner intact and available for reinstallation.
- I. "Remove and Reinstall": To detach items from existing construction, repair and clean them for reuse, and reinstall them where indicated.
- J. "Existing to Remain" or "Retain": Existing items of construction that are not to be removed and that are not otherwise indicated to be removed and salvaged, or removed and reinstalled.
- K. "Material in Kind": Material that matches existing materials, as much as possible, in species, cut, color, grain, and finish.

#### 1.4 STORAGE AND PROTECTION OF HISTORIC MATERIALS

- A. Removed and Reinstalled Historic Materials:
  - 1. Clean and repair historic items to functional condition adequate for intended reuse.
  - 2. Pack or crate items after cleaning and repairing. Identify contents of containers.
  - 3. Protect items from damage during storage.
  - 4. Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make item functional for use indicated.
- B. Existing Historic Materials to Remain: Protect construction indicated to remain against damage and soiling during historic treatment.
  - 1. Exterior Items of Original Construction.
    - a. Board and batten wood siding.
    - b. Crawl space skirt boards and access doors.
    - c. Windows noted on window rehabilitation schedule.

- d. Freight room sliding doors.
  - e. Rafter tails, soffits, and eave trim.
  - f. Horizontal trim boards and timbers.
  - g. Chimneys.
  - h. Gable end rake brackets.
  - i. Transoms.
2. Interior Items of Original Construction.
    - a. Building wall framing.
    - b. Roof framing and roof deck
    - c. Flooring framing and timber decking.
    - d. Windows noted on window rehabilitation schedule.
    - e. Two 4-panel doors found in south end of depot. These doors are to be salvaged and reused.
    - f. Walls and framing where wall surface is beaded wood boards or boards with v-groove joints.
    - g. Two sash sliding window in original south wall of freight room and horizontal wall finish boards.
    - h. Walls of original freight master's room (repurposed as the new "network room").
    - i. Crawl space brick structural bearing piers, and including loose bricks found on crawl space earth floor.
    - j. Framing supporting exterior skirt boards.
    - k. Steel pans in attic supporting chimneys.
- C. Storage and Protection: When removed from their existing location, store historic materials within a weathertight enclosure where they are protected from wetting by rain, snow, or ground water, and temperature variations. Secure stored materials to protect from theft.
1. Identify removed items with an inconspicuous mark indicating their original location.
- ## 1.5 PROJECT-SITE CONDITIONS
- A. Exterior Cleaning and Repairing:
1. Proceed with the work only when forecasted weather conditions are favorable.
    - a. Wet Weather: Do not attempt repairs during rainy or foggy weather. Do not apply primer, paint, putty, or epoxy when the relative humidity is above 80 percent. Do not remove exterior elements of structures when rain is forecast or in progress.
    - b. Do not perform exterior wet work when the air temperature is below 40 deg F (5 deg C).
    - c. Do not begin cleaning, patching, or repairing when there is any likelihood of frost or freezing.
    - d. Do not begin cleaning when either the air or the surface temperature is below 45 deg F (7 deg C) unless approved means are provided for maintaining a 45 deg F (7 deg C) temperature of the air and materials during, and for 48 hours subsequent to, cleaning.
  2. Perform cleaning and rinsing of the exterior only during daylight hours.



## PART 2 - PRODUCTS - (Not Used)

## PART 3 - EXECUTION

## 3.1 PROTECTION, GENERAL

- A. Ensure that supervisory personnel are present when work begins and during its progress.
- C. Temporary Protection of Historic Materials during Construction:
  - 1. Protect existing materials during installation of temporary protections and construction. Do not deface or remove existing materials.
  - 2. Attachments of temporary protection to existing construction shall be approved by Architect prior to installation.
- C. Existing Drains: Prior to the start of work or any cleaning operations, test drains and other water removal systems to ensure that drains and systems are functioning properly. Notify Architect immediately of drains or systems that are stopped or blocked. Do not begin Work of this Section until the drains are in working order.
  - 1. Provide a method to prevent solids including stone or mortar residue from entering the drains, drain lines, or to cause staining of existing metal roofing. Clean out drains and drain lines that become blocked or filled by sand or any other solids because of work performed under this Contract.
  - 2. Protect storm drains from pollutants. Block drains or filter out sediments, allowing only clean water to pass.

## 3.2 PROTECTION DURING APPLICATION OF CHEMICALS

- A. Protect persons, motor vehicles, surrounding surfaces of building being restored, building site, plants, and surrounding buildings from harm or damage resulting from applications of chemical cleaners and paint removers.
- B. Comply with requirements in Division 1 Section "Temporary Facilities and Controls."
- C. Cover adjacent surfaces with materials that are proven to resist chemical cleaners selected for Project unless chemicals being used will not damage adjacent surfaces. Use covering materials that contain only waterproof, UV-resistant adhesives. Apply masking agents to comply with manufacturer's written instructions. Do not apply liquid masking agent to painted or porous surfaces. When no longer needed, promptly remove masking to prevent adhesive staining.
- D. Do not clean surfaces during winds of sufficient force to spread cleaning solutions to unprotected surfaces.
- E. Neutralize and collect alkaline and acid wastes and dispose of off Owner's property.

- F. Dispose of runoff from chemical operations by legal means and in a manner that prevents soil erosion, undermining of paving and foundations, damage to landscaping, and water penetration into building interiors.

### 3.3 PROTECTION DURING USE OF HEAT-GENERATING EQUIPMENT

- A. Comply with the following procedures while performing work with heat-generating equipment, including welding, cutting, soldering, brazing, paint removal with heat, and other operations where open flames or implements utilizing heat are used:
  - 1. Obtain Owner's approval for operations involving use of open-flame or welding equipment.
    - a. Notification shall be given for each occurrence and location of work with heat-generating equipment.
    - b. All heat generating work shall cease at least two hours before the end of a work day.
  - 2. As far as practical, use heat-generating equipment in shop areas or outside the building.
  - 3. Before work with heat-generating equipment commences, furnish personnel to serve as a fire watch (or watches) for location(s) where work is to be performed and at floors immediately above or below the work area.
  - 4. Do not perform work with heat-generating equipment in or near rooms or in areas where flammable liquids or explosive vapors are present or thought to be present. Use a combustible gas indicator test to ensure that the area is safe.
  - 5. Remove and keep the area free of combustibles, including, rubbish, paper, waste, etc., within area of operations.
    - a. If combustible material cannot be removed, provide fireproof blankets to cover such materials.
  - 6. Where possible, furnish and use baffles of metal or gypsum board to prevent the spraying of sparks or hot slag into surrounding combustible material.
  - 7. Prevent the extension of sparks and particles of hot metal through open windows, doors, holes, and cracks in floors, walls, ceilings, roofs, and other openings.
  - 8. Inspect each location of the day's work not sooner than 30 minutes after completion of operations to detect hidden or smoldering fires and to ensure that proper housekeeping is maintained.
- B. Where sprinkler protection exists and is functional, maintain it without interruption while operations are being performed. If operations are performed close to automatic sprinkler heads, shield the individual heads temporarily with guards.

### 3.4 HISTORIC TREATMENT PROCEDURES

- A. The principal aim of preservation work is to halt the process of deterioration and stabilize the item's condition, unless otherwise indicated. Repair is required where specifically indicated. The following procedures shall be followed:

1. Retain as much existing material as possible; repair and consolidate rather than replace.
  2. Use additional material or structure to reinforce, strengthen, prop, tie, and support existing material or structure.
  3. Use reversible processes wherever possible.
  4. Use traditional replacement materials and techniques. New work shall be distinguishable to the trained eye, on close inspection, from old work.
- B. Prohibit smoking by personnel performing work inside of the building at all times.
- C. Obtain Architect's review and written approval in the form of a Constructive Change Directive or Supplemental Instruction before making changes or additions to construction or removing historic materials not otherwise shown on the drawings or specified.
- D. Notify Architect of visible changes in the integrity of material or components whether due to environmental causes including insect or other biological attack, UV degradation, freezing, or thawing; or due to structural defects including cracks, movement, or distortion.
1. Do not proceed with the work in question until directed by Architect.
- E. Where missing features are indicated to be repaired or replaced, provide features whose designs are based on accurate duplications rather than on conjectural designs, subject to the approval of Architect.
- F. Where Work requires existing features to be removed, cleaned, and reused, perform these operations without damage to the material itself, to adjacent materials, or to the substrate. Turn over all salvaged original door hardware to the owner.
- G. Identify new or replacement materials and features with inconspicuous, permanent marks to distinguish them from original materials. Record the legend of identification marks and the locations of these marks on Record Drawings.
- H. When cleaning, match samples of existing materials that have been cleaned and identified for acceptable cleaning levels. Avoid overcleaning to prevent damage to existing materials during cleaning.

END OF SECTION 013510

## SECTION 015000 - TEMPORARY FACILITIES AND CONTROLS

## PART 1 - GENERAL

## 1.1 RELATED DOCUMENTS

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

## 1.2 SUMMARY

- A. This Section includes requirements for construction facilities and temporary controls, including temporary utilities, support facilities, and security and protection facilities. Except for telephone and fax the Owner will pay for all temporary utilities during the completion of the project. The contractor shall pay for any required connections. The contractor shall connect to existing power and water services on-site as required.

- 1. Temporary utilities include, but are not limited to, the following:

- a. Temporary electric light.
- b. Temporary heat.
- c. Ventilation.
- d. Telephone service.
- e. Sanitary facilities, including drinking water.

- 2. Support facilities include, but are not limited to, the following:

- a. Field office facilities.
- b. Dewatering facilities and drains.
- c. Temporary enclosures.
- d. Hoists.
- e. Temporary project identification signs and bulletin boards.
- f. Waste disposal services.
- g. Rodent and pest control.
- h. Construction aids and miscellaneous services and facilities.
- i. Project signs

- 3. Security and protection facilities include, but are not limited to, the following:

- a. Temporary fire protection.
- b. Barricades, warning signs and lights.
- c. Environmental protection.
- d. Accident prevention signage per OSHA.

- 4. Contractor shall provide temporary toilet units.

- B. Any necessary shutdowns of electrical or other utilities must be approved at least 48 hours in advance with the Town of Spring Hope. It is imperative that adjacent utilities and other existing services be maintained at all times except for approved schedule interruptions.
- C. The Project Expediter will be responsible for periodic watering of the site, as needed to reduce or limit fugitive dust. Burning of construction debris on the site is prohibited and proper off-site disposal of these materials in an approved landfill is required by all of the contractors. The site shall be well maintained including removal of debris. Debris shall be removed from Town property. Use of Town trash receptacles is prohibited. The Project Expediter must cut grass and weeds inside the project boundary as necessary to maintain a neat appearance at the site. Grass should not exceed 8" in height. Project Expediter will be responsible for trimming on both sides of any construction fence including up to 3' on the outside of the fence along the base.
- D. Related Sections include the following:
  - 1. Division 1 Section "Summary" for limitations on utility interruptions and other work restrictions.
  - 2. Division 1 Section "Alternates" for temporary site perimeter security fence and gates.
  - 3. Division 2 Section "Dewatering" for disposal of ground water at Project site.
  - 4. Division 2 Section "Termite Control" for pest control.
- E. All contractor parking and storage shall be restricted to an area approved by the Town of Spring Hope.

### 1.3 DEFINITIONS

- A. Permanent Enclosure: As determined by Architect, existing roofing is complete and weathertight; and all openings are closed with permanent construction or substantial temporary closures.

### 1.4 USE CHARGES

- A. General: Connection and disconnection cost and use charges for temporary facilities shall be included in the Contract Sum. Allow other entities to use temporary services and facilities without cost, including, but not limited to, Owner's Representatives, Architect, testing agencies, and authorities having jurisdiction.

### 1.5 SUBMITTALS

- A. Site Plan: Show temporary facilities, utility hookups, staging areas, and parking areas for construction personnel.

### 1.6 QUALITY ASSURANCE

- A. Electric Service: Comply with NECA, NEMA, and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70.
- B. Tests and Inspections: Arrange for authorities having jurisdiction to test and inspect each temporary utility before use. Obtain required certifications and permits.

- C. Regulations: Comply with industry standards and applicable laws and regulations of authorities having jurisdiction including, but not limited to, the following:
  - 1. Building code requirements.
  - 2. Health and safety regulations.
  - 3. Utility company regulations.
  - 4. Police, fire department, and rescue squad rules.
  - 5. Environmental protection regulations.
  - 6. Town of Spring Hope
  
- D. Standards: Comply with NFPA 241 “Standard for Safeguarding Construction, Alterations, and Demolition Operations,” ANSI A10 Series standards for “Safety Requirements for Construction and Demolition,” and NECA Electrical Design Library “Temporary Electrical Facilities”.
  - 1. Electrical Service: Comply with NEMA, NECA, and UL standards and regulations for temporary electric service. Install service in compliance with NFPA to “National Electric Code.”

## 1.7 PROJECT CONDITIONS

- A. Temporary Use of Permanent Facilities: Installer of each permanent service shall 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.
- B. Before any construction fence is installed, the contractor shall obtain the approval of the Town's construction project manager.
- C. All accessible entrances and/or fire exits for buildings surrounding the construction site shall be maintained by the contractor until substantial completion.

## PART 2 - PRODUCTS

### 2.1 MATERIALS

- A. Pavement: Comply with Division 2 pavement Sections.
- B. Chain-Link Construction Fencing- See Alternate #4: Minimum 2-inch (50-mm), 0.148-inch- (3.76-mm-) thick, galvanized steel, chain-link fabric fencing; minimum 6 feet (1.8 m) high with galvanized steel pipe posts; minimum 2-3/8-inch- (60-mm-) OD line posts and 2-7/8-inch- (73-mm-) OD corner and pull posts, with 1-5/8-inch- (42-mm-) OD top rails. Top edge of fence shall have exposed selvage.
- C. Lumber and Plywood: Comply with requirements in Division 6 Section "Rough Carpentry".

- D. Paint: Comply with requirements in Division 9 painting Sections.
1. For job built temporary offices, shops, sheds, fences, and other exposed lumber and plywood, provide exterior-grade acrylic-latex emulsion over exterior primer.
  2. For sign panels and applying graphics, provide exterior-grade alkyd gloss enamel over exterior primer.

## 2.2 TEMPORARY FACILITIES

- A. Field Offices, General: Prefabricated or mobile units with serviceable finishes, temperature controls, and foundations adequate for normal loading.
- B. Common-Use Field Office: Of sufficient size to accommodate needs of construction personnel. Keep office clean and orderly. Furnish and equip offices as follows:
1. Furniture required for Project-site documents including file cabinets, plan tables, plan racks, and bookcases.
  2. Conference room of sufficient size to accommodate meetings of 12 individuals. Provide electrical power service and 120-V ac duplex receptacles, with not less than 1 receptacle on each wall. Furnish room with conference table, chairs, and 4-foot- (1.2-m-) square tack board.
  3. Drinking water and private toilet.
  4. Coffee machine and supplies.
  5. Heating and cooling equipment necessary to maintain a uniform indoor temperature of 68 to 72 deg F (20 to 22 deg C).
  6. Lighting fixtures capable of maintaining average illumination of 20 fc (215 lx) at desk height.
- C. Storage and Fabrication Facilities: Provide storage and fabrication facilities sized, furnished, and equipped to accommodate materials and equipment for construction operations. These facilities shall include temporary utility service. Facilities may be open shelters or fully enclosed spaces within the building or elsewhere within the construction site.
1. Store combustible materials apart from building.

## 2.3 EQUIPMENT

- A. Fire Extinguishers: Portable, UL rated; with class and extinguishing agent as required by locations and classes of fire exposures. Provide a minimum of two on the first floor of the Depot, one in the crawl space, and one in the attic when any Work occurs there.
- B. HVAC Equipment: Unless Owner authorizes use of permanent HVAC system, provide vented, self-contained, liquid-propane-gas or fuel-oil heaters with individual space thermostatic control.
1. Use of gasoline-burning space heaters, open-flame heaters, or salamander-type heating units is prohibited.
  2. Heating Units: Listed and labeled for type of fuel being consumed, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
  3. Permanent HVAC System: If Owner authorizes use of permanent HVAC system for temporary use during construction, provide filter with MERV of 8 at each return air grille in system and remove at end of construction.

4. The time which the HVAC equipment is used to complete the finish work of the project is not to be included in the guarantee period of the equipment.
- C. Water Hoses: Provide ¾ inch (19mm), heavy duty, abrasion-resistant, flexible rubber hoses 100 feet (30m) long, with pressure rating greater than the maximum pressure of the water distribution systems. Provide adjustable shutoff nozzles at hose discharge.
- D. Electrical Outlets: Provide properly configured, NEMA-polarized outlets to prevent insertion of 110 to 120 volt plugs into higher voltage outlets. Provide receptacle outlets equipped with ground-fault circuit interrupters, reset button, and pilot light for connection of power tools and equipment.
- E. Electrical Power Cords: Provide grounded extension cords. Use hard-service cords where exposed to abrasion and traffic. Provide waterproof connectors to connect separate lengths of electric cords if single lengths will not reach areas where construction activities are in progress. Do not exceed safe length-voltage ratio.
- F. Lamps and Light Fixtures: Provide general service incandescent lamps of wattage required for adequate illumination. Provide guard cages or tempered-glass enclosures where exposed to breakage. Provide exterior fixtures where exposed to moisture.
- G. Temporary Offices: Provide prefabricated or mobile units or similar job-built construction with lockable entrances, operable windows, and serviceable finishes. Provide heated and air-conditioned units on foundations adequate for normal loading.
- H. Temporary Toilet Units: Provide self-contained, single-occupant toilet units of the chemical, aerated recirculation, or combustion type. Provide units properly vented and fully enclosed with a glass-fiber reinforced polyester shell or similar nonabsorbent material.
- I. Fire Extinguishers: Provide hand-carried, portable, UL-rated, Class A fire extinguishers for temporary offices and similar spaces. In other locations, provide hand-carried, portable, UL-rated, Class ABC, dry-chemical extinguishers, or a combination of extinguishers of NFPA recommended classes for the exposures.

### PART 3 - EXECUTION

#### 3.1 INSTALLATION, GENERAL

- A. Locate facilities where they will serve Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required by progress of the Work.
- B. Provide each facility ready for use when needed to avoid delay. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.
- C. If the Contractor intends to run temporary utility lines through Owner's property, at locations not indicated on construction drawings, the Contractor must submit plans for approval by the Architect and the Owner.

#### 3.2 TEMPORARY UTILITY INSTALLATION



- A. General: Install temporary service or connect to existing service.
  - 1. Any necessary shutdowns of electrical or other utilities must be approved at least 7 days in advance with the Town of Spring Hope. It is imperative that adjacent utilities and other existing services be maintained at all times except for scheduled interruptions.
- B. Sewers and Drainage: Provide temporary utilities to remove effluent lawfully.
  - 1. Connect temporary sewers to municipal system as directed by authorities having jurisdiction.
- C. Water Service: Install water service and distribution piping in sizes and pressures adequate for construction.
- D. Water Service: Use of Owner's existing water service facilities will be permitted, as long as facilities are cleaned and maintained in a condition acceptable to Owner. At Substantial Completion, restore these facilities to condition existing before initial use.
  - 1. Where installations below an outlet might be damaged by spillage or leakage, provide a drip pan of suitable size to minimize water damage. Drain accumulated water promptly from pans.
- E. Sanitary Facilities: Provide temporary toilets, wash facilities, and drinking water for use of construction personnel. Comply with authorities having jurisdiction for type, number, location, operation, and maintenance of fixtures and facilities. Contractors and employees will not be permitted to use restroom facilities in the Depot.
  - 1. Provide toilet tissue, paper towels, paper cups and similar disposable materials for each facility. Provide covered waste containers for used material.
  - 2. Toilets: Install self-contained toilet units, shield toilets to ensure privacy. Use of privies will not be permitted.
    - a. Provide separate facilities for male and female personnel.
- F. 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.
  - 1. Heating Units: Provide temporary heating units that have been tested and labeled by UL, FM, or another recognized trade association related to the type of fuel being consumed.
  - 2. Heating Facilities: Except where the Owner authorizes use of the permanent system, provide vented, self-contained, LP-gas with individual space thermostatic control.
    - a. Use of gasoline-burning space heaters, open flame, or salamander heating units is prohibited.
- G. Ventilation and Humidity Control: Provide temporary ventilation required by construction activities for curing or drying of completed installations or for protecting installed construction from adverse effects of high humidity. Select equipment that will not have a harmful effect on

completed installations or elements being installed. Coordinate ventilation requirements to produce ambient condition required and minimize energy consumption.

- H. Electric Power Service: Provide electric power service and distribution system of sufficient size, capacity, and power characteristics required for construction operations.
  - 1. Connect temporary service to existing power company source.
- I. Lighting: Provide temporary lighting with local switching 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.
- J. Telephone Service: Provide temporary telephone service in common-use facilities for use by all construction personnel. Install one telephone line(s) for each field office. Enunciator bell shall be audible outside of job trailer.
  - 1. Provide additional telephone lines for the following:
    - a. Provide a dedicated telephone line for each facsimile machine and computer in each field office.
  - 2. At each telephone, post a list of important telephone numbers.
    - a. Police and fire departments.
    - b. Ambulance service.
    - c. Contractor's home office.
    - d. Architect's office.
    - e. Engineers' offices.
    - f. Owner's office.
    - g. Principal subcontractors' field and home offices.
  - 3. Provide superintendent with cellular telephone or portable two-way radio for use when away from field office.
- K. Electronic Communication Service: Provide temporary electronic communication service, including electronic mail, in common-use facilities.

### 3.3 SUPPORT FACILITIES INSTALLATION

- A. General: Comply with the following:
  - 1. Provide incombustible construction for offices, shops, and sheds located within construction area or within **30 feet (9 m)** of building lines. Comply with NFPA 241.
  - 2. Maintain support facilities until near Substantial Completion. Remove before Substantial Completion. Personnel remaining after Substantial Completion will be permitted to use permanent facilities, under conditions acceptable to Owner.

- B. Temporary Roads and Paved Areas: Construct and maintain temporary roads and paved areas adequate for construction operations. Locate temporary roads and paved areas as indicated on Drawings.
1. Provide dust-control treatment that is nonpolluting and no tracking. Reapply treatment as required to minimize dust.
- C. Traffic Controls: Comply with requirements of authorities having jurisdiction.
1. Protect existing site improvements to remain including curbs, pavement, and utilities.
  2. Maintain access for fire-fighting equipment and access to fire hydrants.
- D. Parking: Provide temporary parking areas for construction personnel, as indicated on drawings. All contractor parking shall be restricted to the construction site.
- E. 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 nor endanger permanent Work or temporary facilities.
  2. Remove snow and ice as required to minimize accumulations.
  3. Comply with applicable requirements in Division 2.
- F. Project Identification and Temporary Signs: Provide Project identification and other signs as indicated on Drawings and as needed to inform subcontractors delivery truck drivers public and individuals seeking entrance to Project or as required for safety rerouting of vehicles/pedestrians, and for temporary closings. Support on painted posts or framing of preservative-treated wood or steel. Owner must approve and authorize all sign text and installation locations. Do not permit installation of unauthorized signs.
1. Provide temporary, directional signs for construction personnel and visitors.
  2. Maintain and touchup signs so they are legible at all times.
  3. Engage an experienced sign painter to apply graphics. Comply with details indicated.
- G. Collection and Disposal of Waste: Collect Waste from construction areas and elsewhere daily. Comply with requirements of NFPA 241 for removal of combustible waste materials and debris. Enforce requirements strictly. Do not hold materials more than 7 days during normal weather or 3 days when the temperature is expected to rise above 80 deg. F (27 deg. C). Handle hazardous, dangerous, or unsanitary waste materials separately from other waste by containerizing properly. Dispose of material lawfully.
- H. Waste Disposal Facilities: Provide waste-collection containers in sizes adequate to handle waste from construction operations. Comply with requirements of authorities having jurisdiction. Comply with Division 1 Section "Execution Requirements" for progress cleaning requirements.
- I. Lifts and Hoists: Provide facilities necessary for hoisting materials and personnel.
1. Truck cranes and similar devices used for hoisting materials are considered "tools and equipment" and not temporary facilities.

- J. Temporary Stairs: Until permanent stairs are available, provide temporary stairs with handrails where ladders are not adequate.
- K. Existing Stair Usage: Use of Owner's existing stairs will be permitted, as long as stairs are cleaned and maintained in a condition acceptable to Owner. At Substantial Completion, restore stairs to condition existing before initial use.
  - 1. Provide protective coverings, barriers, devices, signs, or other procedures to protect stairs and to maintain means of egress. If, despite such protection, stairs become damaged, restore damaged areas at no expense to the Owner so no evidence remains of correction work.
- L. Temporary Use of Permanent Stairs: Cover finished, permanent stairs with protective covering of plywood or similar material so finishes will be undamaged at time of acceptance.

### 3.4 SECURITY AND PROTECTION FACILITIES INSTALLATION

- A. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction in ways and by methods that 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 Division 1 Section "Summary."
- B. Temporary Erosion and Sedimentation Control: Comply with requirements specified in Division 2.
- C. Stormwater Control: Comply with authorities having jurisdiction. Provide barriers in and around excavations and subgrade construction to prevent flooding by runoff of stormwater from heavy rains.
- D. Pest Control: Engage pest-control service to recommend practices to minimize attraction and harboring of rodents, roaches, and other pests and to perform extermination and control procedures at regular intervals so Project will be free of pests and their residues at Substantial Completion. Perform control operations lawfully, using environmentally safe materials.
- E. Barricades, Warning Signs, and Lights: Comply with requirements of authorities having jurisdiction for erecting structurally adequate barricades, including warning signs and lighting. Provide utility work barricades for excavations.
- F. Temporary Enclosures: Provide temporary enclosures for protection of construction, in progress and completed, from exposure, foul weather, other construction operations, and similar activities. Provide temporary weathertight enclosure for building exterior.
  - 1. Where heating or cooling is needed and permanent enclosure is not complete, insulate temporary enclosures. Provide temporary enclosures where there is no other provision for containment of conditioned air. Coordinate with ventilating and material drying or curing requirements to avoid deleterious conditions and effects
  - 2. Install tarpaulins securely, with incombustible wood framing and other materials. Close openings of 25 sq. ft. (2.3 sq. m) or less with plywood or similar material.

3. Where temporary wood or plywood enclosure exceeds 100 sq. ft. (9.2 sq. m) in area, use UL-labeled, fire-retardant-treated material for framing and main sheathing.
- G. Temporary Fire Protection: Install and maintain temporary fire-protection facilities of types needed to protect against reasonably predictable and controllable fire losses. Comply with NFPA 241.
1. Prohibit smoking inside of the Depot.
  2. Supervise welding operations, combustion-type temporary heating units, and similar sources of fire ignition according to requirements of authorities having jurisdiction.
  3. Develop and supervise an overall fire-prevention and protection program for personnel at Project site. Review needs with local fire department and establish procedures to be followed. Instruct personnel in methods and procedures. Post warnings and information.
  4. Provide temporary standpipes and hoses for fire protection. Hang hoses with a warning sign stating that hoses are for fire-protection purposes only and are not to be removed. Match hose size with outlet size and equip with suitable nozzles.
  5. Instruct all personnel on job site as to the locations of fire extinguishers.

### 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.
1. Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation, and similar facilities on a 24-hour basis where required to achieve indicated results and to avoid possibility of damage.
  2. Keep temporary services and facilities clean and neat in appearance. Operate in a safe and efficient manner. Relocate temporary services and facilities as the Work progresses. Do not overload facilities or permit them to interfere with progress. Take necessary fire-prevention measures. Do not allow hazardous, dangerous, or unsanitary conditions, or public nuisances to develop or persist on-site.
- C. Temporary Facility Changeover: Do not change over from using temporary security and protection facilities to permanent facilities until Substantial Completion.
- D. Termination and Removal: Remove each temporary facility when need for its service has ended, when it has been replaced by authorized use of a permanent facility, or no later than Substantial Completion and with the approval of the Architect and Owner. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.
1. Materials and facilities that constitute temporary facilities are property of Contractor. Owner reserves right to take possession of Project identification signs.
  2. Where area is intended for landscape development, remove soil and aggregate fill that do not comply with requirements for fill or subsoil. Remove materials contaminated with road oil, asphalt and other petrochemical compounds, and other substances that might impair growth of plant materials or lawns. Repair or replace street paving, curbs, and sidewalks at temporary entrances, as required by authorities having jurisdiction.

3. At Substantial Completion, clean and renovate permanent facilities used during construction period. Comply with final cleaning requirements specified in Division 1 Section "Closeout Procedures."

END OF SECTION 015000

## SECTION 016000 - PRODUCT REQUIREMENTS

## PART 1 - GENERAL

## 1.1 RELATED DOCUMENTS

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

## 1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for selection of products for use in Project; product delivery, storage, and handling; manufacturers' standard warranties on products; special warranties; product substitutions; and comparable products.
- B. Related Sections include the following:
  - 1. Division 1 Section "Allowances" for products selected under an allowance.
  - 2. Division 1 Section "Alternates" for products selected under an alternate.
  - 3. Division 1 Section "Closeout Procedures" for submitting warranties for Contract closeout.
  - 4. Divisions 2 through 16 Sections for specific requirements for warranties on products and installations specified to be warranted.
- C. Compliance of Work – Local, State, and Federal

All work of this project shall comply with the requirements of applicable project building codes and regulations. Where conflict or ambiguity exists, request clarification of requirements from Architect. Compliance includes, but is not limited to the following:

- 1. Insulation requirements.
- 2. Environmental regulations.
- 3. Accessibility requirements.
- 4. Local, state, and federal requirements. **NOTE: Contractor must provide evidence of good faith effort to comply with Federal Buy America and Buy American programs.**

## 1.3 DEFINITIONS

- A. Products: Items purchased for incorporating into the Work, whether purchased for Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.
  - 1. Named Products: Items identified by manufacturer's product name, including make or model number or other designation shown or listed in manufacturer's published product literature, that is current as of date of the Contract Documents.
  - 2. New Products: Items that have not previously been incorporated into another project

3. **Comparable Product:** Product that is demonstrated and approved through submittal process, or where indicated as a product substitution, to have the indicated qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics that equal or exceed those of specified product.
- B. **Substitutions:** Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor.
- C. **Basis-of-Design Product Specification:** Where a specific manufacturer's product is named and accompanied by the words "basis of design," including make or model number or other designation, to establish the significant qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics for purposes of evaluating comparable products of other named manufacturers.

#### 1.4 SUBMITTALS

- A. **Product List:** Submit a list, in tabular form, showing specified products. Include generic names of products required. Include manufacturer's name and proprietary product names for each product.
  1. Coordinate product list with Contractor's Construction Schedule and the Submittals Schedule.
  2. Form: Tabulate information for each product under the following column headings:
    - a. Specification Section number and title.
    - b. Generic name used in the Contract Documents.
    - c. Proprietary name, model number, and similar designations.
    - d. Manufacturer's name and address.
    - e. Supplier's name and address.
    - f. Installer's name and address.
    - g. Projected delivery date or time span of delivery period.
    - h. Identification of items that require early submittal approval for scheduled delivery date.
  3. **Initial Submittal:** Within 10 days after date of commencement of the Work, submit 3 copies of product list. Include a written explanation for omissions of data and for variations from Contract requirements.
  4. **Architect's Action:** Architect will respond in writing to Contractor within 10 days of receipt of product list. Architect's response will include a list of unacceptable product selections and a brief explanation of reasons for this action. Architect's response, or lack of response, does not constitute a waiver of requirement to comply with the Contract Documents.
- B. **Substitution Requests:** Substitutions will only be considered prior to receipt of bids as noted in Section 016310.

#### 1.5 QUALITY ASSURANCE



- A. Compatibility of Options: If Contractor is given the option of selecting between two or more products for use on Project, product selected shall be compatible with products previously selected, even if previously selected products were also options.
  - 1. Each contractor is responsible for providing products and construction methods compatible with products and construction methods of other contractors.
  - 2. If a dispute arises between contractors over concurrently selectable but incompatible products, Architect will determine which products shall be used.

#### 1.6 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, and handle products using means and methods that will prevent damage, deterioration, and loss, including theft. Comply with manufacturer's written instructions.
- B. Delivery and Handling:
  - 1. Schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction spaces.
  - 2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.
  - 3. Deliver products to Project site in an undamaged condition in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
  - 4. Inspect products on delivery to ensure compliance with the Contract Documents and to ensure that products are undamaged and properly protected.
- C. Storage:
  - 1. Store products to allow for inspection and measurement of quantity or counting of units.
  - 2. Store materials in a manner that will not endanger Project structure.
  - 3. Store products that are subject to damage by the elements, under cover in a weathertight enclosure above ground, with ventilation adequate to prevent condensation.
  - 4. Store cementitious products and materials on elevated platforms.
  - 5. Store foam plastic from exposure to sunlight, except to extent necessary for period of installation and concealment.
  - 6. Comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.
  - 7. Protect stored products from damage and liquids from freezing.
  - 8. Provide a secure location and enclosure at Project site for storage of materials and equipment.

#### 1.7 PRODUCT WARRANTIES

- A. Warranties specified in other Sections shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.

1. Manufacturer's Warranty: Preprinted written warranty published by individual manufacturer for a particular product and specifically endorsed by manufacturer to Owner.
  2. Special Warranty: Written warranty required by or incorporated into the Contract Documents, either to extend time limit provided by manufacturer's warranty or to provide more rights for Owner.
- B. Special Warranties: Prepare a written document that contains appropriate terms and identification, ready for execution. Submit a draft for approval before final execution.
1. Manufacturer's Standard Form: Modified to include Project-specific information and properly executed.
  2. Specified Form: When specified forms are included with the Specifications, prepare a written document using appropriate form properly executed.
  3. Refer to Divisions 2 through 16 Sections for specific content requirements and particular requirements for submitting special warranties.
- C. Submittal Time: Comply with requirements in Division 1 Section "Closeout Procedures."

## PART 2 - PRODUCTS

### 2.1 PRODUCT SELECTION PROCEDURES

- A. General Product Requirements: Provide products that comply with the Contract Documents, that are undamaged and, unless otherwise indicated, that are new at time of installation.
1. Provide products complete with accessories, trim, finish, fasteners, and other items needed for a complete installation and indicated use and effect.
  2. Standard Products: If available, and unless custom products or nonstandard options are specified, provide standard products of types that have been produced and used successfully in similar situations on other projects.
  3. Owner reserves the right to limit selection to products with warranties not in conflict with requirements of the Contract Documents.
  4. Where products are accompanied by the term "as selected," Architect will make selection.
  5. Where products are accompanied by the term "match sample," sample to be matched is Architect's.
  6. Descriptive, performance, and reference standard requirements in the Specifications establish "salient characteristics" of products.
  7. Or Equal: Where products are specified by name and accompanied by the term "or equal" or "or approved equal" or "or approved". Architect will make final determination of approval of product.
- B. Product Selection Procedures:
1. Product: Where Specifications name a single product and manufacturer, provide the named product that complies with requirements.
  2. Manufacturer/Source: Where Specifications name a single manufacturer or source, provide a product by the named manufacturer or source that complies with requirements.

3. Products: Where Specifications include a list of names of both products and manufacturers, provide one of the products listed that complies with requirements.
4. Manufacturers: Where Specifications include a list of manufacturers' names, provide a product by one of the manufacturers listed that complies with requirements.
5. Available Products: Where Specifications include a list of names of both products and manufacturers, provide one of the products listed.
6. Available Manufacturers: Where Specifications include a list of manufacturers, provide a product by one of the manufacturers listed.
7. Product Options: Where Specifications indicate that sizes, profiles, and dimensional requirements on Drawings are based on a specific product or system, provide the specified product or system.
8. Basis-of-Design Product: Where Specifications name a product and include a list of manufacturers, provide the specified product. Drawings and Specifications indicate sizes, profiles, dimensions, and other characteristics that are based on the product named.
9. Visual Matching Specification: Where Specifications require matching an established Sample, select a product that complies with requirements and matches Architect's sample. Architect's decision will be final on whether a proposed product matches.
10. Visual Selection Specification: Where Specifications include the phrase "as selected from manufacturer's colors, patterns, textures" or a similar phrase, select a product that complies with other specified requirements.
  - a. Standard Range: Where Specifications include the phrase "standard range of colors, patterns, textures" or similar phrase, Architect will select color, pattern, density, or texture from manufacturer's product line that does not include premium items.
  - b. Full Range: Where Specifications include the phrase "full range of colors, patterns, textures" or similar phrase, Architect will select color, pattern, density, or texture from manufacturer's product line that includes both standard and premium items.

PART 3 - EXECUTION (Not Used)

END OF SECTION 016000

## SECTION 016310 – SUBSTITUTIONS

## PART 1 - GENERAL

## 1.1 RELATED DOCUMENTS

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

## 1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for handling requests for substitutions made after award of the Contract.
- B. Related Sections: The following Sections contain requirements that relate to this Section:
  - 1. Division 1 Section "Materials and Equipment" specifies requirements governing the Contractor's selection of products and product options.

## 1.3 SUBMITTALS

- A. Substitution Request Submittal: The Architect will consider requests for substitution if received 10 days prior to the bid date. Requests for substitution received after this time period will not be considered.
  - 1. Submit 3 copies of each request for substitution for consideration. Submit requests in the form and according to procedures required for change-order proposals.
  - 2. Identify the product or the fabrication or installation method to be replaced in each request. Include related Specification Section and Drawing numbers.
  - 3. Provide complete documentation showing compliance with the requirements for substitutions, and the following information, as appropriate:
    - a. Coordination information, including a list of changes or modifications needed to other parts of the Work and to construction performed by the Owner and separate contractors, that will be necessary to accommodate the proposed substitution.
    - b. A detailed comparison of significant qualities of the proposed substitution with those of the Work specified. Significant qualities may include elements, such as performance, weight, size, durability, and visual effect.
    - c. Product Data, including Drawings and descriptions of products and fabrication and installation procedures.
    - d. Samples, where applicable or requested.
    - e. A statement indicating the substitution's effect on the Contractor's Construction Schedule compared to the schedule without approval of the substitution. Indicate the effect of the proposed substitution on overall Contract Time.
    - f. Cost information, including a proposal of the net change, if any in the Contract Sum.
    - g. The Contractor's certification that the proposed substitution conforms to requirements in the Contract Documents in every respect and is appropriate for the applications indicated.
    - h. The Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of the failure of the substitution to perform adequately.

- i. Substitution provides specified warranty.
- j. Substitution has been coordinated with other portions of the work.
- k. Substitution has received necessary reviews/approval by AHJ.

## PART 2 - PRODUCTS

### 2.1 SUBSTITUTIONS

- A. Conditions: The Architect will receive and consider the Contractor's request for substitution when one or more of the following conditions are satisfied, as determined by the Architect. If the following conditions are not satisfied, the Architect will return the requests without action except to record noncompliance with these requirements.
- 1. Extensive revisions to the Contract Documents are not required.
  - 2. Proposed changes are in keeping with the general intent of the Contract Documents.
  - 3. The request is timely, fully documented, and properly submitted.
  - 4. The specified product or method of construction cannot be provided within the Contract Time. The Architect will not consider the request if the product or method cannot be provided as a result of failure to pursue the Work promptly or coordinate activities properly.
  - 5. The request is directly related to an "or-equal" clause or similar language in the Contract Documents.
  - 6. The requested substitution offers the Owner a substantial advantage, in cost, time, energy conservation, or other considerations, after deducting additional responsibilities the Owner must assume. The Owner's additional responsibilities may include compensation to the Architect for redesign and evaluation services, increased cost of other construction by the Owner, and similar considerations.
  - 7. The specified product or method of construction cannot receive necessary approval by a governing authority, and the requested substitution can be approved.
  - 8. The specified product or method of construction cannot be provided in a manner that is compatible with other materials and where the Contractor certifies that the substitution will overcome the incompatibility.
  - 9. The specified product or method of construction cannot be coordinated with other materials and where the Contractor certifies that the proposed substitution can be coordinated.
  - 10. The specified product or method of construction cannot provide a warranty required by the Contract Documents and where the Contractor certifies that the proposed substitution provides the required warranty.
- B. The Contractor's submittal and the Architect's acceptance of Shop Drawings, Product Data, or Samples for construction activities not complying with the Contract Documents do not constitute an acceptable or valid request for substitution, nor do they constitute approval.

## PART 3 - EXECUTION (Not Applicable)

END OF SECTION 016310

## SECTION 01700 - EXECUTION REQUIREMENTS

## PART 1 - GENERAL

## 1.1 RELATED DOCUMENTS

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

## 1.2 SUMMARY

- A. This Section includes general procedural requirements governing execution of the Work including, but not limited to, the following:

1. Construction layout.
2. Locating of existing utilities.
3. Field engineering and surveying.
4. General installation of products.
5. Progress cleaning.
6. Starting and adjusting.
7. Protection of installed construction.
8. Correction of the Work.
9. Marking of underground work.

- B. Related Sections include the following:

1. Division 1 Section "Submittal Procedures" for submitting surveys.
2. Division 1 Section "Cutting and Patching" for procedural requirements for cutting and patching necessary for the installation or performance of other components of the Work.
3. Division 1 Section "Closeout Procedures" for final cleaning.

## 1.3 SUBMITTALS

- A. Qualification Data: For land surveyor and professional engineer.
- B. Certificates: Submit certificate signed by land surveyor and professional engineer certifying that location and elevation of improvements comply with requirements.
- C. Landfill Receipts: Submit copy of receipts issued by a landfill facility, licensed to accept hazardous materials, for hazardous waste disposal.

## 1.4 QUALITY ASSURANCE

- A. Land Surveyor Qualifications: A professional land surveyor who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing land-surveying services of the kind indicated.

## PART 2 - PRODUCTS (Not Used)

## PART 3 - EXECUTION

## 3.1 EXAMINATION

- A. Existing Conditions: The existence and location of site improvements, utilities, and other construction indicated as existing are not guaranteed. Before beginning work, investigate and verify the existence and location of mechanical and electrical systems and other construction affecting the Work.
1. Before construction, verify the location and points of connection of utility services.
- B. Existing Utilities: The existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Before beginning sitework, investigate and verify the existence and location of underground utilities and other construction affecting the Work by using an approved utility locator service company.
1. Before construction, verify the location and invert elevation at points of connection of sanitary sewer, storm sewer, and water-service piping; and underground electrical services.
  2. Furnish location data for work related to Project that must be performed by public utilities serving Project site.
- C. Acceptance of Conditions: Examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.
1. Written Report: Where a written report listing conditions detrimental to performance of the Work is required by other Sections, include the following:
    - a. Description of the Work.
    - b. List of detrimental conditions, including substrates.
    - c. List of unacceptable installation tolerances.
    - d. Recommended corrections.
  2. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
  3. Examine roughing-in for mechanical and electrical systems to verify actual locations of connections before equipment and fixture installation.
  4. Examine walls, floors, and roofs for suitable conditions where products and systems are to be installed.
  5. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

## 3.2 PREPARATION

- A. Existing Utility Information: Furnish information to local utility that is necessary to adjust, move, or relocate existing utility structures, utility poles, lines, services, or other utility

appurtenances located in or affected by construction. Coordinate with authorities having jurisdiction.

- B. **Field Measurements:** Take field measurements as required to fit the Work properly. Recheck measurements before installing each product. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.
- C. **Space Requirements:** Verify space requirements and dimensions of items shown diagrammatically on Drawings.
- D. **Review of Contract Documents and Field Conditions:** Immediately on discovery of the need for clarification of the Contract Documents, submit a request for information to Architect. Include a detailed description of problem encountered, together with recommendations for changing the Contract Documents.

### 3.3 CONSTRUCTION LAYOUT

- A. **Verification:** Before proceeding to lay out the Work, verify layout information shown on Drawings, in relation to the property survey and existing benchmarks. If discrepancies are discovered, notify Architect and Construction Manager promptly.
- B. **General:** Engage a land surveyor to lay out the Work using accepted surveying practices.
  - 1. Establish benchmarks and control points to set lines and levels at each story of construction and elsewhere as needed to locate each element of Project.
  - 2. Establish dimensions within tolerances indicated. Do not scale Drawings to obtain required dimensions.
  - 3. Inform installers of lines and levels to which they must comply.
  - 4. Check the location, level and plumb, of every major element as the Work progresses.
  - 5. Notify Architect and Construction Manager when deviations from required lines and levels exceed allowable tolerances.
  - 6. Close site surveys with an error of closure equal to or less than the standard established by authorities having jurisdiction.
- C. **Site Improvements:** Locate and lay out site improvements, including pavements, grading, fill and topsoil placement, utility slopes, and invert elevations.
- D. **Building Lines and Levels:** Locate and lay out control lines and levels for structures, building foundations, column grids, and floor levels, including those required for mechanical and electrical work. Transfer survey markings and elevations for use with control lines and levels. Level foundations and piers from two or more locations.
- E. **Record Log:** Maintain a log of layout control work. Record deviations from required lines and levels. Include beginning and ending dates and times of surveys, weather conditions, name and duty of each survey party member, and types of instruments and tapes used. Make the log available for reference by Architect and Owner.



## 3.4 FIELD ENGINEERING

- A. Identification: Owner will identify existing benchmarks, control points, and property corners.
- B. Reference Points: Locate existing permanent benchmarks, control points, and similar reference points before beginning the Work. Preserve and protect permanent benchmarks and control points during construction operations.
  - 1. Do not change or relocate existing benchmarks or control points without prior written approval of Architect. Report lost or destroyed permanent benchmarks or control points promptly. Report the need to relocate permanent benchmarks or control points to Architect before proceeding.
  - 2. Replace lost or destroyed permanent benchmarks and control points promptly. Base replacements on the original survey control points.
- C. Benchmarks: Establish and maintain a minimum of two permanent benchmarks on Project site, referenced to data established by survey control points. Comply with authorities having jurisdiction for type and size of benchmark.
  - 1. Record benchmark locations, with horizontal and vertical data, on Project Record Documents.
  - 2. Where the actual location or elevation of layout points cannot be marked, provide temporary reference points sufficient to locate the Work.
  - 3. Remove temporary reference points when no longer needed. Restore marked construction to its original condition.
- D. The Contractor shall provide all shoring, temporary framing, falsework, bracing, and guying required for new construction and all shoring and cribbing required for renovation to existing construction to provide for safe and proper erection and installation, stability, and sequencing of construction. This Work shall be provided under the supervision and with the approval of a North Carolina registered professional engineer paid by the Contractor.

## 3.5 INSTALLATION

- A. General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.
  - 1. Make vertical work plumb and make horizontal work level.
  - 2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.
  - 3. Conceal pipes, ducts, and wiring in finished areas, unless otherwise indicated.
- B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.
- C. Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Substantial Completion.
- D. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.

- E. Tools and Equipment: Do not use tools or equipment that produce harmful noise levels.
- F. Templates: Obtain and distribute to the parties involved templates for work specified to be factory prepared and field installed. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing products to comply with indicated requirements.
- G. Anchors and Fasteners: Provide anchors and fasteners as required to anchor each component securely in place, accurately located and aligned with other portions of the Work.
  - 1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by Architect.
  - 2. Allow for building movement, including thermal expansion and contraction.
  - 3. Coordinate installation of anchorages. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.
- H. Joints: Make joints of uniform width. Where joint locations in exposed work are not indicated, arrange joints for the best visual effect. Fit exposed connections together to form hairline joints.
- I. Hazardous Materials: Use products, cleaners, and installation materials that are not considered hazardous.
- J. Contractor shall furnish and install a 10 gauge insulated copper wire to the top of all non-metallic underground piping to facilitate future locating of pipes. Terminate wire in waterproof boxes flush with grade. Contractor will locate on as-built drawings all locations of non-metallic pipe and termination boxes.

### 3.6 PROGRESS CLEANING

- A. General: Clean Project site and work areas daily, including common areas. Coordinate progress cleaning for joint-use areas where more than one installer has worked. Enforce requirements strictly. Dispose of materials lawfully.
  - 1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
  - 2. Do not hold materials more than 7 days during normal weather or 3 days if the temperature is expected to rise above 80 deg F (27 deg C).
  - 3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.
- B. Site: Maintain Project site free of waste materials and debris.
- C. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.
  - 1. Remove liquid spills promptly.
  - 2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.

- D. **Installed Work:** Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.
- E. **Concealed Spaces:** Remove debris from concealed spaces before enclosing the space.
- F. **Exposed Surfaces in Finished Areas:** Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.
- G. **Waste Disposal:** Burying or burning waste materials on-site will not be permitted. Washing waste materials down sewers or into waterways will not be permitted.
- H. **During handling and installation,** clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.
- I. **Clean and provide maintenance on completed construction** as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.
- J. **Limiting Exposures:** Supervise construction operations to assure that no part of the construction completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

### 3.7 STARTING AND ADJUSTING

- A. **Start equipment and operating components** to confirm proper operation. Remove malfunctioning units, replace with new units, and retest.
- B. **Adjust operating components** for proper operation without binding. Adjust equipment for proper operation.
- C. **Test each piece of equipment** to verify proper operation. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.
- D. **Manufacturer's Field Service:** If a factory-authorized service representative is required to inspect field-assembled components and equipment installation, comply with qualification requirements in Division 1 Section "Quality Requirements."

### 3.8 PROTECTION OF INSTALLED CONSTRUCTION

- A. **Provide final protection and maintain conditions** that ensure installed Work is without damage or deterioration at time of Substantial Completion.
- B. **Comply with manufacturer's written instructions** for temperature and relative humidity.

### 3.9 CORRECTION OF THE WORK

- A. Repair or remove and replace defective construction. Restore damaged substrates and finishes. Comply with requirements in Division 1 Section "Cutting and Patching."
  - 1. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment.
- B. Restore permanent facilities used during construction to their specified condition.
- C. Remove and replace damaged surfaces that are exposed to view if surfaces cannot be repaired without visible evidence of repair.
- D. Repair components that do not operate properly. Remove and replace operating components that cannot be repaired.
- E. Remove and replace chipped, scratched, and broken glass or reflective surfaces.

END OF SECTION 017000

## SECTION 017310 - CUTTING AND PATCHING

## PART 1 - GENERAL

## 1.1 RELATED DOCUMENTS

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

## 1.2 SUMMARY

- A. This Section includes procedural requirements for cutting and patching. All cutting and patching work on masonry, concrete, gypsum board, and/or wood surfaces shall be by the General Contractor. All cutting and patching of utility systems such as ductwork, piping, conduit, etc. shall be by respective trades/subcontractors. Each trade is responsible for coordinating cutting and patching with the General Contractor. The General Contractor shall employ experienced tradesmen and craftsmen familiar with surfaces to be cut or patched to undertake cutting and patching work required by subcontractors. For example, cutting or patching of masonry surfaces shall be undertaken by an experienced mason; cutting or patching of wood surfaces shall be undertaken by an experienced carpenter.
- B. Related Sections include the following:
  - 1. Division 1 Section "Selective Demolition" for demolition of selected portions of the building.
  - 2. Divisions 2 through 16 Sections for specific requirements and limitations applicable to cutting and patching individual parts of the Work.

## 1.3 DEFINITIONS

- A. Cutting: Removal of in-place construction necessary to permit installation or performance of other Work.
- B. Patching: Fitting and repair work required to restore surfaces to original conditions after installation of other Work.

## 1.4 SUBMITTALS

- A. Cutting and Patching Proposal: Submit a proposal describing procedures at least 10 days before the time cutting and patching will be performed, requesting approval to proceed. Include the following information:
  - 1. Extent: Describe cutting and patching, show how they will be performed, and indicate why they cannot be avoided.
  - 2. Changes to In-Place Construction: Describe anticipated results. Include changes to structural elements and operating components as well as changes in building's appearance and other significant visual elements.
  - 3. Products: List products to be used and firms or entities that will perform the Work.

4. Dates: Indicate when cutting and patching will be performed.
5. Utility Services and Mechanical/Electrical Systems: List services/systems that cutting and patching procedures will disturb or affect. List services/systems that will be relocated and those that will be temporarily out of service. Indicate how long services/systems will be disrupted.
6. Structural Elements: Where cutting and patching involve adding reinforcement to structural elements, submit details and engineering calculations showing integration of reinforcement with original structure.
7. Architect's Approval: Obtain approval of cutting and patching proposal before cutting and patching. Approval does not waive right to later require removal and replacement of unsatisfactory work.

## 1.5 QUALITY ASSURANCE

- A. Structural Elements: Do not cut and patch structural elements in a manner that could change their load-carrying capacity or load-deflection ratio.
  1. Obtain approval of the cutting and patching proposal before cutting and patching the following structural elements:
    - a. Foundation construction.
    - b. Bearing walls
    - c. Structural beams, girders, joists, rafters
    - d. Lintels.
    - e. Miscellaneous framing members
    - f. Equipment supports.
- B. Operational Elements: Do not cut and patch operating elements and related components in a manner that results in reducing their capacity to perform as intended or that results in increased maintenance or decreased operational life or safety:
  1. Primary operational systems and equipment.
  2. Air or smoke barriers.
  3. Mechanical systems piping and ducts.
  4. Control systems.
  5. Communication systems.
  6. Electrical wiring systems.
- C. Miscellaneous Elements: Do not cut and patch miscellaneous elements or related components in a manner that could change their load-carrying capacity, that results in reducing their capacity to perform as intended, or that results in increased maintenance or decreased operational life or safety.
  1. Water, moisture, or vapor barriers.
  2. Membranes and flashings.
  3. Equipment supports.
  4. Piping, ductwork, vessels, and equipment.
  5. Noise- and vibration-control elements and systems.

- D. Visual Requirements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch construction exposed on the exterior or in occupied spaces in a manner that would, in Architect's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.
- E. Cutting and Patching Conference: Before proceeding, meet at Project site with parties involved in cutting and patching, including mechanical and electrical trades. Review areas of potential interference and conflict. Coordinate procedures and resolve potential conflicts before proceeding.

## 1.6 WARRANTY

- A. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during cutting and patching operations, by methods and with materials so as not to void existing warranties.

## PART 2 - PRODUCTS

### 2.1 MATERIALS

- A. General: Comply with requirements specified in other Sections.
- B. In-Place Materials: Use materials 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, and in the opinion of the Architect, will match the visual and functional performance of in-place materials.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine surfaces to be cut and patched and conditions under which cutting and patching are to be performed. If unsafe or unsatisfactory conditions are encountered, notify the Architect in writing.
  - 1. Compatibility: Before patching, verify compatibility with and suitability of substrates, including compatibility with in-place finishes or primers.
  - 2. Proceed with installation only after unsafe or unsatisfactory conditions have been corrected.

### 3.2 PREPARATION

- A. Temporary Support: Provide temporary support of Work to be cut.
- B. Protection: Protect in-place construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.

- C. Adjoining Areas: Avoid interference with use of adjoining areas or interruption of free passage to adjoining areas.

### 3.3 PERFORMANCE

- A. General: Employ skilled workers to perform cutting and patching, See 017310/1.2A. Proceed with cutting and patching at the earliest feasible time, and complete without delay.
  - 1. Cut in-place construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.
- B. Cutting: Cut in-place construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.
  - 1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots as small as possible, neatly to size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
  - 2. Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
  - 3. Concrete: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.
  - 4. Masonry: Where exposed, use small power saws or hand chisels to remove individual units so that new work may be installed by tothing into existing work.
  - 5. Excavating and Backfilling: Comply with requirements in applicable Division 2 Sections where required by cutting and patching operations.
  - 6. Mechanical and Electrical Services: Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after cutting.
  - 7. Proceed with patching after construction operations requiring cutting are complete.
- C. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other Work. Patch with durable seams that are as invisible as possible. Provide materials and comply with installation requirements specified in other Sections.
  - 1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate integrity of installation.
  - 2. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will eliminate evidence of patching and refinishing.
    - a. Clean piping, conduit, and similar features before applying paint or other finishing materials.
    - b. Restore damaged pipe covering to its original condition.
  - 3. Floors and Walls: Where walls or partitions that are removed extend one finished area into another, patch and repair floor and wall surfaces in the new space. Provide an even surface of uniform finish, color, texture, and appearance. Remove in-place floor and wall



coverings and replace with new materials, if necessary, to achieve uniform color and appearance.

- a. Where patching occurs in a painted surface, apply primer and intermediate paint coats over the patch and apply final paint coat over entire unbroken surface containing the patch. Provide additional coats until patch blends with adjacent surfaces.
4. Ceilings: Patch, repair, or rehang in-place ceilings as necessary to provide an even-plane surface of uniform appearance.
  5. Exterior Building Enclosure: Patch components in a manner that restores enclosure to a weathertight condition.
- D. Cleaning: Clean areas and spaces where cutting and patching are performed. Completely remove paint, mortar, oils, putty, and similar materials.

END OF SECTION 017310

## SECTION 017320 - SELECTIVE DEMOLITION

## PART 1 - GENERAL

## 1.1 RELATED DOCUMENTS

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

## 1.2 SUMMARY

- A. This Section includes the following:

1. Demolition and removal of selected portions of building or structure.
2. Coordination of demolition of existing power poles, power distribution boxes, and meters with local power company.
3. Demolition of existing pavements where noted on the drawings.
2. Salvage of existing items to be reused or recycled.
3. Coordination of removal and disposal of light fixture ballasts containing PCB's.

- B. Related Sections include the following:

1. Division 1 Section "Summary" for use of premises and Owner-occupancy requirements.
2. Division 1 Section "Photographic Documentation" for preconstruction photographs taken before selective demolition operations.
3. Division 1 Section "Temporary Facilities and Controls" for temporary construction and environmental-protection measures for selective demolition operations.
4. Division 1 Section "Cutting and Patching" for cutting and patching procedures.
5. Division 2 Section "Site Clearing" for site clearing and removal of above- and below-grade improvements.

## 1.3 DEFINITIONS

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

## 1.4 MATERIALS OWNERSHIP

- A. Historic items, relics, and similar objects and other items of interest or value to Owner that may be encountered during selective demolition remain Owner's property. Carefully remove and salvage each item or object in a manner to prevent damage and deliver promptly to Owner.

1. Coordinate with Owner's Architect, who will establish special procedures for removal and salvage.

- 2.

#### 1.5 SUBMITTALS

- A. Qualification Data: For professional engineer.

- B. Schedule of Selective Demolition Activities: Indicate the following:

1. Detailed sequence of selective demolition and removal work, with starting and ending dates for each activity.
2. Interruption of utility services. Indicate how long utility services will be interrupted.
3. Coordination for shutoff, capping, and continuation of utility services.
4. Locations of proposed dust- and noise-control temporary partitions and means of egress.
5. Means of protection for items to remain and items in path of waste removal from building.

- C. Inventory: After selective demolition is complete, submit a list of items that have been removed and salvaged.

- D. Landfill Records: Indicate, in writing, receipt and acceptance of hazardous wastes by a landfill facility licensed to accept hazardous wastes.

#### 1.6 QUALITY ASSURANCE

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

- B. Standards: Comply with ANSI A10.6 and NFPA 241.

- C. Predemolition Conference: Conduct conference at Project site to comply with requirements in Division 1 Section "Project Management and Coordination." Review methods and procedures related to selective demolition including, but not limited to, the following:

1. Inspect and discuss condition of construction to be selectively demolished.
2. Review structural load limitations of existing structure.
3. Review and finalize selective demolition schedule and verify availability of materials, demolition personnel, equipment, and facilities needed to make progress and avoid delays.
4. Review requirements of work performed by other trades that rely on substrates exposed by selective demolition operations.
5. Review areas where existing construction is to remain and requires protection.

#### 1.7 PROJECT CONDITIONS

- A. Conditions existing at time of inspection for bidding purposes will be maintained by Owner as far as practical.

- B. Notify Architect of discrepancies between existing conditions and Drawings before proceeding with selective demolition.
- C. Hazardous Materials: Hazardous materials are present in construction to be selectively demolished.
  - 1. Hazardous material remediation is specified elsewhere in the Contract Documents.
  - 2. Do not disturb hazardous materials or items suspected of containing hazardous materials except under procedures specified elsewhere in the Contract Documents.
- D. Storage or sale of removed items or materials on-site is not permitted.
- E. Utility Service: Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.
- F. Burning of demolished materials is not permitted on the Owner's property.

#### 1.8 WARRANTY

- A. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during selective demolition, by methods and with materials so as not to void existing warranties.

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

#### PART 3 - EXECUTION

##### 3.1 EXAMINATION

- A. Verify that utilities have been disconnected and capped.
- B. Survey existing conditions and correlate with requirements indicated to determine extent of selective demolition required.
- C. Inventory and record the condition of items to be removed and reinstalled and items to be removed and salvaged.
- D. When unanticipated mechanical, electrical, or structural elements that conflict with intended function or design are encountered, investigate and measure the nature and extent of conflict. Promptly submit a written report to Architect.
- E. Engage a professional engineer to survey condition of building to determine whether removing any element might result in structural deficiency or unplanned collapse of any portion of structure or adjacent structures during selective demolition operations.
- F. Survey of Existing Conditions: Record existing conditions by use of measured drawings and preconstruction photographs.
  - 1. Comply with requirements specified in Division 1 Section "Photographic Documentation."

2. Before selective demolition or removal of existing building elements that will be reproduced or duplicated in final Work, make permanent record of measurements, materials, and construction details.

- G. Perform surveys as the Work progresses to detect hazards resulting from selective demolition activities.

### 3.2 UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS

- A. Existing Services/Systems: Maintain services/systems indicated to remain and protect them against damage during selective demolition operations.

1. Comply with requirements for existing services/systems interruptions specified in Division 1 Section "Summary."

- B. Service/System Requirements: Locate, identify, disconnect, and seal or cap off indicated utility services and mechanical/electrical systems serving areas to be selectively demolished.

1. Arrange to shut off indicated utilities with utility companies.
2. If services/systems are required to be removed, relocated, or abandoned, before proceeding with selective demolition provide temporary services/systems that bypass area of selective demolition and that maintain continuity of services/systems to other buildings.
3. Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit after bypassing.
  - a. Where entire wall is to be removed, existing services/systems may be removed with removal of the wall.

### 3.3 PREPARATION

- A. Site Access and Temporary Controls: Conduct selective demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.

1. Comply with requirements for access and protection specified in Division 1 Section "Temporary Facilities and Controls."

- B. Temporary Facilities: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.

1. Provide protection to ensure safe passage of people around selective demolition area and to and from occupied portions of building.
2. Provide temporary weather protection, during interval between selective demolition of existing construction on exterior surfaces and new construction, to prevent water leakage and damage to structure and interior areas.
3. Protect walls, ceilings, floors, and other existing finish work that are to remain or that are exposed during selective demolition operations.
4. Comply with requirements for temporary enclosures, dust control, heating, and cooling specified in Division 1 Section "Temporary Facilities and Controls."

- C. Temporary Shoring: Provide and maintain shoring, bracing, and structural supports as required to preserve stability and prevent movement, settlement, or collapse of construction and finishes to remain, and to prevent unexpected or uncontrolled movement or collapse of construction being demolished. Shoring shall be designed by NC licensed professional engineer and evidence of his/her designs services shall be provided if requested. Contractor shall pay for Engineering Services to design shoring.
1. Strengthen or add new supports when required during progress of selective demolition.

### 3.4 SELECTIVE DEMOLITION, GENERAL

- A. General: Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations and as follows:
1. Proceed with selective demolition systematically, from higher to lower level. Complete selective demolition operations above each floor or tier before disturbing supporting members on the next lower level.
  2. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping, to minimize disturbance of adjacent surfaces. Temporarily cover openings to remain.
  3. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
  4. Do not use cutting torches until work area is cleared of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting flame-cutting operations. Maintain fire watch and portable fire-suppression devices during flame-cutting operations. Discontinue flame cutting operations at least two hours before the close of the workday.
  5. Maintain adequate ventilation when using cutting torches.
  6. Remove decayed, vermin-infested, or otherwise dangerous or unsuitable materials and promptly dispose of off-site.
  7. Remove structural framing members and lower to ground by method suitable to avoid free fall and to prevent ground impact or dust generation.
  8. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
  9. Dispose of demolished items and materials promptly.
- B. Reuse of Building Elements: Do not demolish building elements beyond what is indicated on Drawings without Architect's approval.
- C. Removed and Reinstalled Items:
1. Clean and repair items to functional condition adequate for intended reuse. Paint equipment to match new equipment.
  2. Pack or crate items after cleaning and repairing. Identify contents of containers.
  3. Protect items from damage during storage.
  4. Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make item functional for use indicated.

- D. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by Architect, items may be removed to a suitable, protected storage location during selective demolition and cleaned and reinstalled in their original locations after selective demolition operations are complete.

### 3.5 SELECTIVE DEMOLITION PROCEDURES FOR SPECIFIC MATERIALS

- A. Concrete: Demolish in small sections. Cut concrete to a depth of at least **3/4 inch (19 mm)** at junctures with construction to remain, using power-driven saw. Dislodge concrete from reinforcement at perimeter of areas being demolished, cut reinforcement, and then remove remainder of concrete indicated for selective demolition. Neatly trim openings to dimensions indicated.
- B. Masonry: Demolish in small sections. Cut masonry at junctures with construction to remain, using power-driven saw, then remove masonry between saw cuts.
- C. Concrete Slabs-on-Grade: Saw-cut perimeter of area to be demolished, then break up and remove.
- D. Resilient Floor Coverings: Remove floor coverings and adhesive according to recommendations in RFCI-WP and its Addendum.
  - 1. Remove residual adhesive and prepare substrate for new floor coverings by one of the methods recommended by RFCI.
- E. Air-Conditioning Equipment: Remove equipment without releasing refrigerants.
- F. Coordinate removal of PCB-containing light fixture ballasts. Demolition of these ballasts is specified in Division 16.

### 3.6 DISPOSAL OF DEMOLISHED MATERIALS

- A. General: Except for items or materials indicated to be reused, salvaged, reinstalled, or otherwise indicated to remain Owner's property, remove demolished materials from Project site and legally dispose of them in an EPA-approved landfill.
  - 1. Do not allow demolished materials to accumulate on-site.
  - 2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
  - 3. Remove debris from elevated portions of building by chute, hoist, or other device that will convey debris to grade level in a controlled descent.
  - 4. Comply with requirements specified in Division 1 Section "Construction Waste Management."
- B. Burning: Do not burn demolished materials.
- C. Disposal: Transport demolished materials off Owner's property and legally dispose of them.

### 3.7 CLEANING

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

### 3.8 SELECTIVE DEMOLITION SCHEDULE

- A. Partial demolition of existing masonry piers in crawl space as needed to prepare for pier construction work shown on structural work.
- B. Two existing interior four-panel wood doors to be salvaged, rehabilitated and reinstalled.
- C. Existing walls, door, and shelving at network room #104 to be temporarily disassembled, salvaged, stored, and reconstructed in their original location.
- D. Two existing pad-mounted heat pumps to be turned over to owner.
- E. Existing utility poles, power distribution boxes, and electric meters where noted on the drawings. This selective demolition to be undertaken by local power company with coordination provided by the General Contractor.

END OF SECTION 017320



## 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 1 Specification Sections, apply to this Section.

## 1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:

1. Inspection procedures.
2. Warranties.
3. Final cleaning.

- B. Related Sections include the following:

1. Division 1 Section "Payment Procedures" for requirements for Applications for Payment for Substantial and Final Completion.
2. Division 1 Section "Photographic Documentation" for submitting Final Completion construction photographs and negatives.
3. Division 1 Section "Execution Requirements" for progress cleaning of Project site.
4. Division 1 Section "Project Record Documents" for submitting Record Drawings, Record Specifications, and Record Product Data.
5. Division 1 Section "Operation and Maintenance Data" for operation and maintenance manual requirements.
6. Division 1 Section "Demonstration and Training" for requirements for instructing Owner's personnel.
7. Divisions 2 through 16 Sections for specific closeout and special cleaning requirements for the Work in those Sections.

## 1.3 SUBSTANTIAL COMPLETION

- A. Preliminary Procedures: Before requesting inspection for determining date of Substantial Completion, complete the following. List items below that are incomplete in request.

1. Prepare a list of items to be completed and corrected (punch list), the value of items on the list, and reasons why the Work is not complete.
2. Advise Owner of pending insurance changeover requirements.
3. Submit specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
4. Obtain and submit releases permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
5. Prepare and submit Project Record Documents, operation and maintenance manuals, damage or settlement surveys, property surveys, and similar final record information.

6. Deliver tools, spare parts, extra materials, and similar items to location designated by Owner. Label with manufacturer's name and model number where applicable.
7. Make final changeover of permanent locks and deliver keys to Owner. Advise Owner's personnel of changeover in security provisions.
8. Complete startup testing of systems.
9. Submit test/adjust/balance records.
10. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
11. Advise Owner of changeover in heat and other utilities.
12. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.
13. Complete final cleaning requirements, including touchup painting.
14. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.

B. Inspection: Submit a written request for inspection for Substantial Completion. 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. The Architect and Engineers will conduct 2 inspections: 1) a pre-final inspection for the purpose of developing the "punch list" in conjunction with the Certificate of Substantial Completion and, 2) ONE follow up inspection of completed punch list items. If, during the reinspection, the architect determines that the "punch list" items have not been completed then the inspection will be halted and rescheduled on a future date when the "punch list" is fully completed.
2. Reinspection: Contractor shall reinspect punch list items and shall request reinspection in writing when the Work identified in previous inspections as incomplete is completed or corrected.
3. Results of completed inspection will form the basis of requirements for Final Completion.

#### 1.4 FINAL COMPLETION

A. Preliminary Procedures: Before requesting final inspection for determining date of Final Completion, complete the following:

1. Submit a final Application for Payment according to Division 1 Section "Payment Procedures."
2. Submit certified copy of Architect's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Architect. The certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
3. Submit evidence of final, continuing insurance coverage complying with insurance requirements.
4. Submit pest-control final inspection report and warranty.
5. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems. Submit demonstration and training videotapes.

- B. Inspection: Submit a written request for final inspection for acceptance. 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.
  - 2. If necessary, reinspection will be repeated. See 017700/1.3B.1.

#### 1.5 LIST OF INCOMPLETE ITEMS (PUNCH LIST)

- A. Preparation: Contractor shall prepare and submit three copies 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.

#### 1.6 WARRANTIES

- A. Submittal Time: Submit written warranties on request of Architect for designated portions of the Work where commencement of warranties other than date of Project Acceptance is indicated.
- B. Partial Occupancy: Submit properly executed warranties within 7 days of completion of designated portions of the Work that are completed and occupied or used by Owner during construction period by separate agreement with Contractor.
- C. Organize warranty documents into an orderly sequence based on the table of contents of the Project Manual.
  - 1. Bind warranties and bonds in heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive **8-1/2-by-11-inch (215-by-280-mm)** 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.
- D. Provide additional copies of each warranty to include in operation and maintenance manuals.

### 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: Provide final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.
- B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.
  - 1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a portion of Project:
    - a. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.
    - b. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
    - c. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.
    - d. Remove tools, construction equipment, machinery, and surplus material from Project site.
    - e. Remove snow and ice to provide safe access to building.
    - f. 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.
    - g. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
    - h. Sweep floors broom clean in unoccupied spaces.
    - i. Clean all exposed wood roof framing surfaces at events room #102 and network room #104, including but not limited to: ceiling joists, rafters, supplementary wood framing, and underside of roof deck, of dirt, grit, and other deleterious substances.
    - j. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other noticeable, vision-obscuring materials. Replace chipped or broken glass and other damaged transparent materials. Polish mirrors and glass, taking care not to scratch surfaces.
    - k. Remove labels that are not permanent.
    - l. Touch up and otherwise repair and restore marred, exposed finishes and surfaces. Replace finishes and surfaces that cannot be satisfactorily repaired or restored or that already show evidence of repair or restoration.
      - 1) Do not paint over "UL" and similar labels, including mechanical and electrical nameplates.
    - m. Wipe surfaces of mechanical and electrical equipment and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.

- n. Replace parts subject to unusual operating conditions.
  - o. Clean plumbing fixtures to a sanitary condition, free of stains, including stains resulting from water exposure.
  - p. Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills.
  - q. Clean ducts, blowers, and coils if units were operated without filters during construction.
  - r. Clean light fixtures, lamps, globes, and reflectors to function with full efficiency. Replace burned-out bulbs, and those noticeably dimmed by hours of use.
  - s. Leave Project clean and ready for occupancy.
- C. Comply with safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on Owner's property. Do not discharge volatile, harmful, or dangerous materials into drainage systems. Remove waste materials from Project site and dispose of lawfully.

END OF SECTION 017700

## SECTION 017810 - 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 1 Specification Sections, apply to this Section.

## 1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for Project Record Documents, including the following:
  - 1. Record Drawings.
  - 2. Record Specifications.
  - 3. Record Product Data.
- B. Related Sections include the following:
  - 1. Division 1 Section "Closeout Procedures" for general closeout procedures.
  - 2. Division 1 Section "Operation and Maintenance Data" for operation and maintenance manual requirements.
  - 3. Divisions 2 through 16 Sections for specific requirements for Project Record Documents of the Work in those Sections.

## 1.3 SUBMITTALS

- A. Record Drawings: Comply with the following:
  - 1. Number of Copies: Submit one set of marked-up Record Prints.
  - 2. Number of Copies: Submit copies of Record Drawings as follows:
    - a. Initial Submittal: Submit one set of set of marked-up Record Prints. Architect will mark whether general scope of changes and additional information recorded are acceptable. Architect will return prints for organizing into sets, printing, binding, and final submittal.
    - b. Final Submittal: Submit one set of marked-up Record Prints,
- B. Record Specifications: Submit one copy of Project's Specifications, including addenda and contract modifications.
- C. Record Shop Drawings and Product Data:
  - 1. Architect will forward one set of shop drawings and product data to the Owner through the term of construction and these documents will constitute the Owner's record documents.

## PART 2 - PRODUCTS

## 2.1 RECORD DRAWINGS

- A. Record Prints: Maintain one set of blue- or black-line white prints of the Contract Drawings and Shop Drawings.
1. Preparation: Mark Record Prints continuously during the construction phase of the project to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to prepare the marked-up Record Prints.
    - a. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.
    - b. Accurately record information in an understandable drawing technique.
    - c. Record data as soon as possible after obtaining it. Record and check the markup before enclosing concealed installations.
  2. Content: Types of items requiring marking include, but are not limited to, the following:
    - a. Dimensional changes to Drawings.
    - b. Revisions to details shown on Drawings.
    - c. Depths of foundations below first floor.
    - d. Locations and depths of underground utilities including all non-metallic piping marked with copper wire identification.
    - e. Revisions to routing of piping and conduits.
    - f. Revisions to electrical circuitry.
    - g. Actual equipment locations.
    - h. Duct size and routing.
    - i. Locations of concealed internal utilities.
    - j. Changes made by Change Order.
    - k. Changes made following Architect's written orders.
    - l. Details not on the original Contract Drawings.
    - m. Field records for variable and concealed conditions.
    - n. Record information on the Work that is shown only schematically.
  3. Mark the Contract Drawings or Shop Drawings, whichever is most capable of showing actual physical conditions, completely and accurately. If Shop Drawings are marked, show cross-reference on the Contract Drawings.
  4. Mark record sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at same location.
  5. Mark important additional information that was either shown schematically or omitted from original Drawings.
  6. Note Construction Change Directive numbers, alternate numbers, Change Order numbers, and similar identification, where applicable.
  7. Architect will check "as-built" record drawings on a monthly basis to verify construction conditions.

- B. Format: Identify and date each Record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location.
  - 1. Record Prints: Organize Record Prints and newly prepared Record Drawings into manageable sets. Bind each set with durable paper cover sheets. Include identification on cover sheets.
  - 2. Identification: As follows:
    - a. Project name.
    - b. Date.
    - c. Designation "PROJECT RECORD DRAWINGS."
    - d. Name of Architect.
    - e. Name of Contractor.

## 2.2 RECORD SPECIFICATIONS

- A. Preparation: Mark Specifications to indicate the actual product installation where installation varies from that indicated in Specifications, addenda, and contract modifications.
  - 1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
  - 2. Mark copy with the proprietary name and model number of products, materials, and equipment furnished, including substitutions and product options selected.
  - 3. Record the name of manufacturer, supplier, Installer, and other information necessary to provide a record of selections made.
  - 4. For each principal product, indicate whether Record Product Data has been submitted in operation and maintenance manuals instead of submitted as Record Product Data.
  - 5. Note related Change Orders and Record Drawings where applicable.

## 2.3 MISCELLANEOUS RECORD SUBMITTALS

- A. Assemble miscellaneous records required by other Specification Sections for miscellaneous record keeping and submittal in connection with actual performance of the Work. Bind or file miscellaneous records and identify each, ready for continued use and reference.

## PART 3 - EXECUTION

### 3.1 RECORDING AND MAINTENANCE

- A. Recording: Maintain one copy of each submittal during the construction period for Project Record Document purposes. Post changes and modifications to Project Record Documents as they occur; do not wait until the end of Project.
- B. Maintenance of Record Documents and Samples: Store Record Documents and Samples in the field office apart from the Contract Documents used for construction. Do not use Project Record Documents for construction purposes. Maintain Record Documents in good order and



in a clean, dry, legible condition, protected from deterioration and loss. Provide access to Project Record Documents for Architect's reference during normal working hours.

END OF SECTION 017810

## SECTION 017820 - OPERATION AND MAINTENANCE DATA

## PART 1 - GENERAL

## 1.1 RELATED DOCUMENTS

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

## 1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for preparing operation and maintenance manuals, including the following:
  - 1. Operation and maintenance documentation directory.
  - 2. Emergency manuals.
  - 3. Operation manuals for systems, subsystems, and equipment.
  - 4. Maintenance manuals for the care and maintenance of products, materials, and finishes systems and equipment.
- B. Related Sections include the following:
  - 1. Division 1 Section "Submittal Procedures" for submitting copies of submittals for operation and maintenance manuals.
  - 2. Division 1 Section "Closeout Procedures" for submitting operation and maintenance manuals.
  - 3. Division 1 Section "Project Record Documents" for preparing Record Drawings for operation and maintenance manuals.
  - 4. Divisions 2 through 16 Sections for specific operation and maintenance manual requirements for the Work in those Sections.

## 1.3 DEFINITIONS

- A. System: An organized collection of parts, equipment, or subsystems united by regular interaction.
- B. Subsystem: A portion of a system with characteristics similar to a system.

## 1.4 SUBMITTALS

- A. Initial Submittal: Submit 2 draft copies of each manual at least 15 days before requesting inspection for Substantial Completion. Include a complete operation and maintenance directory. Architect will return one copy of draft and mark whether general scope and content of manual are acceptable.
- B. Final Submittal: Submit three copies] of each manual in final form at least 15 days before final inspection.

## 1.5 COORDINATION

- A. Where operation and maintenance documentation includes information on installations by more than one factory-authorized service representative, assemble and coordinate information furnished by representatives and prepare manuals.

## PART 2 - PRODUCTS

### 2.1 OPERATION AND MAINTENANCE DOCUMENTATION DIRECTORY

- A. Organization: Include a section in the directory for each of the following:
  - 1. List of documents.
  - 2. List of systems.
  - 3. List of equipment.
  - 4. Table of contents.
- B. List of Systems and Subsystems: List systems alphabetically. Include references to operation and maintenance manuals that contain information about each system.
- C. List of Equipment: List equipment for each system, organized alphabetically by system. For pieces of equipment not part of system, list alphabetically in separate list.
- D. Tables of Contents: Include a table of contents for each emergency, operation, and maintenance manual.
- E. Identification: In the documentation directory and in each operation and maintenance manual, identify each system, subsystem, and piece of equipment with same designation used in the Contract Documents. If no designation exists, assign a designation according to ASHRAE Guideline 4, "Preparation of Operating and Maintenance Documentation for Building Systems."

### 2.2 MANUALS, GENERAL

- A. Organization: Unless otherwise indicated, organize each manual into a separate section for each system and subsystem, and a separate section for each piece of equipment not part of a system. Each manual shall contain the following materials, in the order listed:
  - 1. Title page.
  - 2. Table of contents.
  - 3. Manual contents.
- B. Title Page: Enclose title page in transparent plastic sleeve. Include the following information:
  - 1. Subject matter included in manual.
  - 2. Name and address of Project.
  - 3. Name and address of Owner.
  - 4. Date of submittal.
  - 5. Name, address, and telephone number of Contractor.

6. Name and address of Architect.
  7. Cross-reference to related systems in other operation and maintenance manuals.
- C. Table of Contents: List each product included in manual, identified by product name, indexed to the content of the volume, and cross-referenced to Specification Section number in Project Manual.
1. If operation or maintenance documentation requires more than one volume to accommodate data, include comprehensive table of contents for all volumes in each volume of the set.
- D. Manual Contents: Organize into sets of manageable size. Arrange contents alphabetically by system, subsystem, and equipment. If possible, assemble instructions for subsystems, equipment, and components of one system into a single binder.
1. Binders: Heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, in thickness necessary to accommodate contents, sized to hold 8-1/2-by-11-inch (215-by-280-mm) paper; with clear plastic sleeve on spine to hold label describing contents and with pockets inside covers to hold folded oversize sheets.
    - a. If two or more binders are necessary to accommodate data of a system, organize data in each binder into groupings by subsystem and related components. Cross-reference other binders if necessary to provide essential information for proper operation or maintenance of equipment or system.
    - b. Identify each binder on front and spine, with printed title "OPERATION AND MAINTENANCE MANUAL," Project title or name, and subject matter of contents. Indicate volume number for multiple-volume sets.
  2. Dividers: Heavy-paper dividers with plastic-covered tabs for each section. Mark each tab to indicate contents. Include typed list of products and major components of equipment included in the section on each divider, cross-referenced to Specification Section number and title of Project Manual.
  3. Protective Plastic Sleeves: Transparent plastic sleeves designed to enclose diagnostic software diskettes for computerized electronic equipment.
  4. Supplementary Text: Prepared on 8-1/2-by-11-inch (215-by-280-mm) white bond paper.
  5. Drawings: Attach reinforced, punched binder tabs on drawings and bind with text.
    - a. If oversize drawings are necessary, fold drawings to same size as text pages and use as foldouts.
    - b. If drawings are too large to be used as foldouts, fold and place drawings in labeled envelopes and bind envelopes in rear of manual. At appropriate locations in manual, insert typewritten pages indicating drawing titles, descriptions of contents, and drawing locations.

### 2.3 EMERGENCY MANUALS

- A. Content: Organize manual into a separate section for each of the following:
1. Type of emergency.
  2. Emergency instructions.
  3. Emergency procedures.

- B. Type of Emergency: Where applicable for each type of emergency indicated below, include instructions and procedures for each system, subsystem, piece of equipment, and component:
1. Fire.
  2. Flood.
  3. Gas leak.
  4. Water leak.
  5. Power failure.
  6. Water outage.
  7. System, subsystem, or equipment failure.
  8. Chemical release or spill.
- C. Emergency Instructions: Describe and explain warnings, trouble indications, error messages, and similar codes and signals. Include responsibilities of Owner's operating personnel for notification of Installer, supplier, and manufacturer to maintain warranties.
- D. Emergency Procedures: Include the following, as applicable:
1. Instructions on stopping.
  2. Shutdown instructions for each type of emergency.
  3. Operating instructions for conditions outside normal operating limits.
  4. Required sequences for electric or electronic systems.
  5. Special operating instructions and procedures.

## 2.4 OPERATION MANUALS

- A. Content: In addition to requirements in this Section, include operation data required in individual Specification Sections and the following information:
1. System, subsystem, and equipment descriptions.
  2. Performance and design criteria if Contractor is delegated design responsibility.
  3. Operating standards.
  4. Operating procedures.
  5. Operating logs.
  6. Wiring diagrams.
  7. Control diagrams.
  8. Piped system diagrams.
  9. Precautions against improper use.
  10. License requirements including inspection and renewal dates.
- B. Descriptions: Include the following:
1. Product name and model number.
  2. Manufacturer's name.
  3. Equipment identification with serial number of each component.
  4. Equipment function.
  5. Operating characteristics.
  6. Limiting conditions.
  7. Performance curves.
  8. Engineering data and tests.

9. Complete nomenclature and number of replacement parts.
- C. Operating Procedures: Include the following, as applicable:
1. Startup procedures.
  2. Equipment or system break-in procedures.
  3. Routine and normal operating instructions.
  4. Regulation and control procedures.
  5. Instructions on stopping.
  6. Normal shutdown instructions.
  7. Seasonal and weekend operating instructions.
  8. Required sequences for electric or electronic systems.
  9. Special operating instructions and procedures.
- D. Systems and Equipment Controls: Describe the sequence of operation, and diagram controls as installed.
- E. Piped Systems: Diagram piping as installed, and identify color-coding where required for identification.

## 2.5 PRODUCT MAINTENANCE MANUAL

- A. Content: Organize manual into a separate section for each product, material, and finish. Include source information, product information, maintenance procedures, repair materials and sources, and warranties and bonds, as described below.
- B. Source Information: List each product included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual.
- C. Product Information: Include the following, as applicable:
1. Product name and model number.
  2. Manufacturer's name.
  3. Color, pattern, and texture.
  4. Material and chemical composition.
  5. Reordering information for specially manufactured products.
- D. Maintenance Procedures: Include manufacturer's written recommendations and the following:
1. Inspection procedures.
  2. Types of cleaning agents to be used and methods of cleaning.
  3. List of cleaning agents and methods of cleaning detrimental to product.
  4. Schedule for routine cleaning and maintenance.
  5. Repair instructions.
- E. Repair Materials and Sources: Include lists of materials and local sources of materials and related services.

- F. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.

- 1. Include procedures to follow and required notifications for warranty claims.

## 2.6 SYSTEMS AND EQUIPMENT MAINTENANCE MANUAL

- A. Content: For each system, subsystem, and piece of equipment not part of a system, include source information, manufacturers' maintenance documentation, maintenance procedures, maintenance and service schedules, spare parts list and source information, maintenance service contracts, and warranty and bond information, as described below.
- B. Source Information: List each system, subsystem, and piece of equipment included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual.
- C. Manufacturers' Maintenance Documentation: Manufacturers' maintenance documentation including the following information for each component part or piece of equipment:
  - 1. Standard printed maintenance instructions and bulletins.
  - 2. Drawings, diagrams, and instructions required for maintenance, including disassembly and component removal, replacement, and assembly.
  - 3. Identification and nomenclature of parts and components.
  - 4. List of items recommended to be stocked as spare parts.
- D. Maintenance Procedures: Include the following information and items that detail essential maintenance procedures:
  - 1. Test and inspection instructions.
  - 2. Troubleshooting guide.
  - 3. Precautions against improper maintenance.
  - 4. Disassembly; component removal, repair, and replacement; and reassembly instructions.
  - 5. Aligning, adjusting, and checking instructions.
  - 6. Demonstration and training compact disk, if available.
- E. Maintenance and Service Schedules: Include service and lubrication requirements, list of required lubricants for equipment, and separate schedules for preventive and routine maintenance and service with standard time allotment.
  - 1. Scheduled Maintenance and Service: Tabulate actions for daily, weekly, monthly, quarterly, semiannual, and annual frequencies.
  - 2. Maintenance and Service Record: Include manufacturers' forms for recording maintenance.
- F. Spare Parts List and Source Information: Include lists of replacement and repair parts, with parts identified and cross-referenced to manufacturers' maintenance documentation and local sources of maintenance materials and related services.
- G. Maintenance Service Contracts: Include copies of maintenance agreements with name and telephone number of service agent.

- H. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.
  - 1. Include procedures to follow and required notifications for warranty claims.

### PART 3 - EXECUTION

#### 3.1 MANUAL PREPARATION

- A. Operation and Maintenance Documentation Directory: Prepare a separate manual that provides an organized reference to emergency, operation, and maintenance manuals.
- B. Emergency Manual: Assemble a complete set of emergency information indicating procedures for use by emergency personnel and by Owner's operating personnel for types of emergencies indicated.
- C. Product Maintenance Manual: Assemble a complete set of maintenance data indicating care and maintenance of each product, material, and finish incorporated into the Work.
- D. Operation and Maintenance Manuals: Assemble a complete set of operation and maintenance data indicating operation and maintenance of each system, subsystem, and piece of equipment not part of a system.
  - 1. Engage a factory-authorized service representative to assemble and prepare information for each system, subsystem, and piece of equipment not part of a system.
  - 2. Prepare a separate manual for each system and subsystem, in the form of an instructional manual for use by Owner's operating personnel.
- E. Manufacturers' Data: Where manuals contain manufacturers' standard printed data, include only sheets pertinent to product or component installed. Mark each sheet to identify each product or component incorporated into the Work. If data include more than one item in a tabular format, identify each item using appropriate references from the Contract Documents. Identify data applicable to the Work and delete references to information not applicable.
  - 1. Prepare supplementary text if manufacturers' standard printed data are not available and where the information is necessary for proper operation and maintenance of equipment or systems.
- F. Drawings: Prepare drawings supplementing manufacturers' printed data to illustrate the relationship of component parts of equipment and systems and to illustrate control sequence and flow diagrams. Coordinate these drawings with information contained in Record Drawings to ensure correct illustration of completed installation.
  - 1. Do not use original Project Record Documents as part of operation and maintenance manuals.
  - 2. Comply with requirements of newly prepared Record Drawings in Division 1 Section "Project Record Documents."



- G. Comply with Division 1 Section "Closeout Procedures" for schedule for submitting operation and maintenance documentation.

END OF SECTION 017820

## SECTION 018200 - DEMONSTRATION AND TRAINING

## PART 1 - GENERAL

## 1.1 RELATED DOCUMENTS

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

## 1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for instructing Owner's personnel, including the following:
  - 1. Demonstration of operation of systems, subsystems, and equipment.
  - 2. Training in operation and maintenance of systems, subsystems, and equipment.
  - 3. Demonstration and training compact video disks.
- B. Related Sections include the following:
  - 1. Division 1 Section "Project Management and Coordination" for requirements for preinstruction conferences.
  - 2. Divisions 2 through 16 Sections for specific requirements for demonstration and training for products in those Sections.
- C. An equipment training session for the Owner's maintenance and operations personnel will be scheduled as a separate meeting after equipment start up. Systems shall include, but are not limited to, electrical, fire alarm, mechanical, two-signal, fire protection sprinkler and water supply and treatment.

## 1.3 SUBMITTALS

- A. Instruction Program: Submit two copies of outline of instructional program for demonstration and training, including a schedule of proposed dates, times, for training.
- B. Demonstration and Training Compact Video Disk: Submit one copy within seven days of end of training.
  - 1. Identification: On each copy, provide an applied label with the following information:
    - a. Name of Project.
    - b. Name and address of photographer.
    - c. Name of Architect.
    - d. Name of Contractor.
    - e. Date compact video disk was recorded.

## 1.4 COORDINATION

- A. Coordinate instruction schedule with Owner's operations. Adjust schedule as required to minimize disrupting Owner's operations.

## PART 2 - PRODUCTS

### 2.1 INSTRUCTION PROGRAM

- A. Program Structure: Develop an instruction program that includes individual training for each system and equipment not part of a system, as required by individual Specification Sections, and as follows:
  - 1. Fire-protection systems, including fire alarm and sprinkler.
  - 2. HVAC systems, including air-handling equipment, air distribution systems and terminal equipment and devices.
  - 3. HVAC instrumentation and controls.
  - 4. Electrical service and distribution, including transformers, switchboards, panelboards, and motor controls.
  - 5. Lighting equipment and controls.
- B. Training Modules: Develop a teaching outline. Include a description of specific skills and knowledge. For each outline include instruction for the following:
  - 1. Basis of System Design, Operational Requirements, and Criteria: Include the following:
    - a. System, subsystem, and equipment descriptions.
    - b. Performance and design criteria if Contractor is delegated design responsibility.
    - c. Operating standards.
    - d. Regulatory requirements.
    - e. Equipment function.
    - f. Operating characteristics.
    - g. Limiting conditions.
  - 2. Documentation: Review the following items in detail:
    - a. Emergency manuals.
    - b. Operations manuals.
    - c. Maintenance manuals.
    - d. Project Record Documents.
    - e. Identification systems.
    - f. Warranties and bonds.
    - g. Maintenance service agreements and similar continuing commitments.
  - 3. Emergencies: Include the following, as applicable:
    - a. Instructions on meaning of warnings, trouble indications, and error messages.
    - b. Instructions on stopping.
    - c. Shutdown instructions for each type of emergency.
    - d. Operating instructions for conditions outside of normal operating limits.
    - e. Sequences for electric or electronic systems.
    - f. Special operating instructions and procedures.

4. Operations: Include the following, as applicable:
  - a. Startup procedures.
  - b. Equipment or system break-in procedures.
  - c. Routine and normal operating instructions.
  - d. Regulation and control procedures.
  - e. Control sequences.
  - f. Safety procedures.
  - g. Instructions on stopping.
  - h. Normal shutdown instructions.
  - i. Operating procedures for emergencies.
  - j. Operating procedures for system, subsystem, or equipment failure.
  - k. Seasonal and weekend operating instructions.
  - l. Required sequences for electric or electronic systems.
  - m. Special operating instructions and procedures.
  
5. Adjustments: Include the following:
  - a. Alignments.
  - b. Checking adjustments.
  - c. Noise and vibration adjustments.
  - d. Economy and efficiency adjustments.
  
6. Troubleshooting: Include the following:
  - a. Diagnostic instructions.
  - b. Test and inspection procedures.
  
7. Maintenance: Include the following:
  - a. Inspection procedures.
  - b. Types of cleaning agents to be used and methods of cleaning.
  - c. List of cleaning agents and methods of cleaning detrimental to product.
  - d. Procedures for routine cleaning
  - e. Procedures for preventive maintenance.
  - f. Procedures for routine maintenance.
  - g. Instruction on use of special tools.
  
8. Repairs: Include the following:
  - a. Diagnosis instructions.
  - b. Repair instructions.
  - c. Disassembly; component removal, repair, and replacement; and reassembly instructions.
  - d. Instructions for identifying parts and components.
  - e. Review of spare parts needed for operation and maintenance.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Assemble educational materials necessary for instruction, including documentation and training outline.
- B. Set up instructional equipment at instruction location.

3.2 INSTRUCTION

- A. Scheduling: Provide instruction at mutually agreed times.
  - 1. Schedule training with Owner with at least fourteen days' advance notice.
- B. Restore systems and equipment to condition existing before initial training use.

3.3 DEMONSTRATION AND TRAINING COMPACT VIDEO DISKS

- A. Compact Video Disk Format: Provide high-quality color compact disk.
- B. Narration: Describe scenes on compact video disk by audio narration by microphone while compact video disk is recorded. Include description of items being viewed.

END OF SECTION 018200

## SECTION 020750 - LEAD PAINT ABATEMENT/INTERIM CONTROL

## PART 1 - GENERAL

## 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other specification sections apply to this Section.

## 1.2 SUMMARY

- A. The work of this section shall include the collection and legal disposal of lead paint chips and residue resulting from hand scraping and sanding (feathering) process specified for interior surface preparation in Section 099120. Wholesale stripping of existing painted surfaces is required at exterior painted surfaces noted in Alternate #1
- B. All Work on the depot must be conducted in accordance with the occupational Health and Safety Administration (OSHA) and the Secretary of the Interior's Standards for Rehabilitation. It is essential that all lead paint interim control work be undertaken with care and respect for the historic character of the depot that appears in its design and details. In conducting all reviews of the abatement/interim control work, the Architect will be requiring close adherence to a high quality of workmanship that will maintain the historic character of the depot. Further, the installation of auxiliary equipment, devices, utilities, etc. will likewise be required to be respectful of the historic character of the structure. The Contractor should bid the work of this section accordingly.
- C. All existing painted surfaces in the Spring Hope Depot contain lead-based paint.
- D. This Section includes selective lead paint abatement, paint film stabilization, friction impact surface treatment, dust removal, and disposal. The Contractor shall furnish all labor, material and equipment necessary to remove and dispose of lead based paint as described in 020750/1.2A and shall coordinate lead paint disposal with all local, state, and federal requirements. Lead paint shall be removed and disposed as follows:
  - 1. where noted on the drawings or indicated in the specifications.
  - 2. where cutting or other alteration of a lead paint bearing surface will cause lead paint, lead paint debris, or lead paint dust to become airborne. At these locations, the Contractor shall undertake lead paint abatement so as to provide a surface free of lead paint so as to minimize and prevent lead paint, lead paint debris, or lead paint dust from becoming a health hazard and shall remove scraped paint, debris, and dust from the job site and legally dispose of it. Where the Contractor undertakes such abatement, the extent of the abatement shall be determined by the contractor with the Architect's approval and adjoining edges of existing lead-based containing paint shall be feathered to meet the lead paint abated surface.
  - 3. where there is loose paint that can be removed with hand scrapers or by chemical stripping or heat gun application as noted in Section 060000.
  - 4. where lead paint has been abated the Work shall not be deemed complete if the surface, in the opinion of the architect and the painting sub-contractor, is not ready to receive new paint finishing.
- E. The lead paint abatement sub-contractor shall visit the site before submitting a sub-contract quotation

and shall familiarize himself with the drawings and specifications and shall investigate such local conditions as rules and regulations, the availability and cost of labor, transportation, approved disposal areas, etc. which may affect his performance of the work of the Contract. No allowance will be made by reason of his failure to do so or any error on his part. No consideration will be given at a later date for alleged misunderstandings as to requirements of work, materials to be furnished, or conditions required by the nature of the building and/or site.

- F. The following abatement methods are not approved: torch or flame burning, abrasive blasting with water or solid particles, the use of potassium or sodium hydroxide solutions, methyl chloride or caustic chemicals and scraping procedures that will gouge woodwork.
- G. Refer to related specification sections: 015000 Construction Facilities and Temporary Controls for construction facilities and temporary utilities, support facilities, and security and protection.
- H. The Work of this section will not be deemed complete until it has received all approvals required by this section and has been accepted by the painting sub-contractor, in writing, as "ready to receive paint." For approvals required, see 020750/1.2E and 020750/1.2E4, and 020750/1.2J.
- I. Contractor shall notify NCDENR Health Hazard Control Unit regarding lead paint abatement work on this project and shall obtain NCDENR approval of all lead paint removal, storage, and disposal.

### 1.3 REFERENCE SPECIFICATIONS

- A. The Contractor is responsible for conducting work in accordance with all current applicable rules and regulations governing lead based paint removal and disposal and the operations associated with this project whether listed in this specification or not.
  - 1. "Lead Exposure in Construction," 29 CFR Part 1926.62
  - 2. "Lead Exposure Reduction," TSCA Title IV.
  - 3. "North Carolina Occupational Safety and Health Standards for the Construction Industry," 29 CFR Part 1926 as adopted by 13 NCAC 7C.0102(a).
  - 4. North Carolina General Statutes, Chapters 97, 130, and 143.
  - 5. "Fundamentals Governing the Design and Operation of Local Exhaust Systems," Z9.2-1979.
  - 6. "American National Standard for Respiratory Protection Respiratory Use - Physical Qualifications for Personnel," Z88.6-1984.
  - 7. "Practices for Respiratory Protection," Z88.2-1992.
  - 8. Hazardous Waste Standards for Generators, Transporters, Treaters, Storers, and Disposers Requirements, 40 CFR 262, 263, 264, and 265.

### 1.4 PRE-ABATEMENT CONFERENCE

- A. The General Contractor shall organize a pre-abatement conference prior to beginning any lead paint abatement. The following entities shall be apprised of the date, time, and location of this conference: General Contractor, lead paint abatement sub-contractor, painting sub-contractor, finish carpentry sub-contractor (or other carpentry contractor involved in cutting of existing painted wood surfaces), Owner, Architect, and owner's hazardous materials consultant. The pre-abatement conference shall be conducted in accordance with specification section 013100 and the general contractor shall provide written meeting minutes of this conference in accordance with section 012000. Notify attendees in

writing at least five working days prior to the conference.

1. Review methods, procedures, and outcomes related to lead paint abatement and disposal.
2. Examine existing conditions and report on any condition that may restrict or impair compliance with specification requirements.
3. Review governing regulations.
4. Review safety procedures.
5. Review any temporary protective measures.

## PART 2 - PRODUCTS

### 2.1 GENERAL REQUIREMENTS

- A. The disturbance of lead-based paint may cause lead dust to be released into the building's atmosphere thereby creating a potential health hazard to workers or other building occupants. Apprise all workers, supervisory personnel, subcontractors, and consultants who will be at the job site of the seriousness of the hazard and of proper work procedures to be followed.
- B. The Contractor is responsible for proceeding in such a manner as to provide a workplace free of recognized hazards likely to cause injury or death. The Contractor shall be responsible for performing this abatement and disposal so that significant lead exposures do not develop.

## PART 3 - EXECUTION

### 3.1 DISPOSAL

- A. All materials and miscellaneous contaminated debris shall be properly sealed and protected and the storage area shall be secured and have limited access. Collect liquid waste in labeled, non-porous, 55-gallon drums or smaller. Wrap or dry bag waste in two layers of 6-mil plastic/bags, label, and store in covered container.
- B. Waste may not be stored for more than 180 days. All hazardous waste containers must be labeled with "HAZARDOUS WASTE" and the date waste was first collected in that container, along with all other disposal requirements.
- C. Keep containers in good condition, replace leaking containers and clean up any spillage. Inspect the containers and storage area at the beginning and end of each work day and record results of inspections in daily log book.
- D. An enclosed vehicle will be used to haul waste to the disposal site. No rental vehicles or trailers are permitted. Vehicle type, vehicle covers, and work practices shall assure that no waste becomes airborne during the loading, transport and unloading activity and that the material is properly disposed without breaking any seals. The Contractor is responsible for all safe transportation of disposed materials.
- E. The Contractor shall distribute a copy of all waste shipment records to the architect upon completion of the project. Waste shipment and disposal records shall stipulate the weight of disposed material



and shall identify this project by name.

END OF SECTION 020750

## SECTION 022000 - EARTHWORK

## PART 1 - GENERAL

## 1.1 RELATED DOCUMENTS

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

## 1.2 SUMMARY

- A. This Section includes the following:

- 1. Preparing subgrades at crawl space in Depot for excavations for new concrete footings shown on structural drawings.
- 2. Excavate subgrades for footings at platform addition.
- 3. Subgrade excavation work for plumbing and fire protection sprinkler work, shall conform to the requirements of this section.

- B. Related Sections: The following Sections contain requirements that relate to this Section.

- 1. Division 2 Section "Site Clearing" for clearing of crawl space and stump removal.

- C. Cut and fill on this project is not balanced. Contractor shall determine amount of cut and borrow needed to meet contract requirements and include same in total project price. No extras will be allowed for cut/fill except for rock removal and additional excavation.

- D. Provide OSHA-Required "Competent Person" to monitor all excavation work.

## 1.3 DEFINITIONS

- A. Excavation consists of the removal of material encountered to subgrade elevations and the reuse or disposal of materials removed.

- B. Subgrade: The uppermost surface of an excavation or the top surface of a fill or backfill immediately below subbase, drainage fill, or topsoil materials.

- C. Borrow: Soil material obtained off-site when sufficient approved soil material is not available from excavations.

- D. Subbase Course: The layer placed between the subgrade and base course in a paving system or the layer placed between the subgrade and surface of a pavement or walk.

- E. Base Course: The finish paving material for the driveway and parking areas.

- F. Drainage Fill: Course of washed granular material supporting slab-on-grade placed to cut off upward capillary flow of pore water.
- G. Unauthorized excavation consists of removing materials beyond indicated subgrade elevations or dimensions without direction by the Architect. Unauthorized excavation, as well as remedial work directed by the Architect, shall be at the Contractor's expense.
- H. Structures: Buildings, footings, foundations, retaining walls, slabs, tanks, mechanical and electrical appurtenances, or other man-made stationary features constructed above or below ground surface.
- I. Utilities include on-site underground pipes, conduits, ducts, and cables, as well as underground services within building lines.
- J. Additional Excavation: When excavation has reached required subgrade elevations, notify Architect who will make an inspection of conditions. If unsuitable bearing materials as defined by the soils engineer are encountered at required subgrade elevations, carry excavations deeper. Measure additional excavation and replace excavated material as directed by soils engineer. Verify measurements by recording on shipping tickets with time and date and size of all truckloads of authorized bad soil, rubble, or rock removed from site. Removal of unsuitable material and its replacement as directed will be paid on the basis of contract conditions relative to changes in work, except as follows:
  - 1.No allowance will be made for unsuitable materials encountered in first 2-1/2' of excavation.
  - 2.No allowance will be made for replacement of otherwise suitable soils containing excess moisture to meet compaction requirements.
  - 3.No allowance will be made for replacement of this contractor's previously placed soils not meeting compaction requirements.

#### 1.4 SUBMITTALS

- A. General: Submit the following according to the Conditions of the Contract and Division 1 Specification Sections.
- B. Test Reports: In addition to test reports required under field quality control, submit the following:
  - 1.Laboratory analysis of each soil material proposed for fill and backfill from on-site and borrow sources.
  - 2.One optimum moisture-maximum density curve for each soil material.
  - 3.Report of actual unconfined compressive strength and/or results of bearing tests of each stratum tested.
  - 4.Verification of each footing subgrade.
  - 5.Field reports; in place soil density tests.

#### 1.5 QUALITY ASSURANCE

- A. Codes and Standards: Perform earthwork complying with requirements of authorities having jurisdiction.
- B. Owner will employ testing laboratory/engineer to perform soil bearing testing for footings and concrete testing and to perform required field and laboratory testing..
- C. Testing and Inspection Service: Contractor will employ a qualified independent geotechnical engineering testing agency to classify proposed on-site and borrow soils to verify that soils comply with specified requirements.
- D. Coordinate quality control testing to inspect and approve subgrades and fill layers before further construction work is performed.

#### 1.6 PROJECT CONDITIONS

- A. Locate existing below grade utilities in areas of work. Provide adequate means of protection during earthwork operations in the area. Should unrecorded utilities be encountered during earthwork, consult Owner immediately for instructions. Cooperate with Owner and utility company to keep utility in operation. Repair damaged utility to the satisfaction of the Owner.
- B. Existing Utilities: Do not interrupt existing utilities serving facilities occupied by the Owner or others except when permitted in writing by the Architect and then only after acceptable temporary utility services have been provided. Should uncharted, or incorrectly charted, piping or other utilities be encountered during excavation, consult utility owner immediately for directions. Cooperate with Owner and utility companies in keeping respective services and facilities in operation. Repair damaged utilities to satisfaction of utility owner.
  - 1. Provide a minimum 48-hours' notice to the Architect and receive written notice to proceed before interrupting any utility.
  - 2. Demolish and completely remove from site existing underground utilities indicated to be removed. Coordinate with utility companies for shutoff of services if lines are active.

#### PART 2 - PRODUCTS

##### 2.1 SOIL MATERIALS

- A. General: Provide approved borrow soil materials from on-site when sufficient approved soil materials are not available from excavations.
- B. Satisfactory Soil Materials: ASTM D 2487 soil classification groups GW, GP, GM, SW, SP, and SM; free of rock or gravel larger than 2 inches in any dimension, debris, waste, frozen materials, vegetation and other deleterious matter.

- C. Unsatisfactory Soil Materials: ASTM D 2487 soil classification groups GC, SC, ML, MH, CL, CH, OL, OH, and PT.
- D. Backfill and Fill Materials: Satisfactory soil materials.
- E. Subbase and Base Material: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand, ASTM D 2940, with at least 95 percent passing a 1-1/2-inch sieve and not more than 8 percent passing a No. 200 sieve or, aggregate base course (ABC stone) as specified in Section 1010-1 and 1010-2 of the N.C. Department of Transportation standard specifications for roads and structures, latest edition.
- F. Engineered Fill: Subbase or base materials.
- G. Bedding Material: Subbase or base materials with 100 percent passing a 1-inch sieve and not more than 8 percent passing a No. 200 sieve.
- H. Drainage Fill: Washed, evenly graded mixture of crushed stone, or crushed or uncrushed gravel, ASTM D 448, coarse aggregate grading size 57, with 100 percent passing a 1-1/2-inch sieve and not more than 5 percent passing a No. 8 sieve.
- I. Filtering Material: Evenly graded mixture of natural or crushed gravel or crushed stone and natural sand, with 100 percent passing a 1-1/2-inch sieve and 0 to 5 percent passing a No. 50 sieve.
- J. Impervious Fill: Clayey gravel and sand mixture capable of compacting to a dense state.

### PART 3 - EXECUTION

#### 3.1 PREPARATION

- A. Protect structures, existing crawl space footings, brick masonry piers, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earthwork operations.
- B. Protect subgrades and foundation soils against freezing temperatures or frost. Provide protective insulating materials as necessary.
- C. Provide erosion control measures to prevent erosion or displacement of soils and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways.
- D. Protection of Persons and Property: Barricade open excavations occurring as part of this work.

#### 3.2 DEWATERING

- A. Prevent surface water and subsurface or ground water from entering excavations, from ponding on prepared subgrades, and from flooding Project site and surrounding area.
- B. Protect subgrades and foundation soils from softening and damage by rain or water accumulation.
- C. Do not allow water to accumulate in excavations. Remove water to prevent softening of foundation bottoms, undercutting footings, and soil changes detrimental to stability of subgrades and foundations. Provide and maintain pumps, well points, sumps, suction and discharge lines, and other dewatering system components necessary to convey water away from excavations. Maintain until dewatering is no longer required.
- D. Establish and maintain temporary drainage ditches and other diversions outside excavation limits to convey rain water and water removed from excavations to collecting or runoff areas. Do not use trench excavations as temporary drainage ditches.

### 3.3 EXCAVATION

- A. Explosives: Do not use explosives.
- B. EXCAVATION CLASSIFICATION: Following classifications will be made when unanticipated types of excavations are encountered. Do not perform such work until material has been cross-sectioned and classified by registered soils engineer. Rock excavation will be paid for on basis of unit prices set forth in contract.

Rock excavation shall be defined as the removal of a formation that cannot be excavated without systematic drilling and blasting. In contrast, normal or earth excavation is a formation that, when plowed and ripped, breaks down into small enough pieces to be easily moved, can be loaded in hauling units, and can be readily incorporated into an embankment or foundation in relatively thin layers. Boulders larger than 1/2 cubic yard shall be classified rock. The Contractor shall expose and clean the rock material for inspection and measurement by the soils engineer. Any material moved or removed without the measurement and approval by the soils engineer will be considered as earth excavation. The Architect is to be the final judge on what is to be classified as rock excavation. For General Excavation, the Contractor shall provide a demonstration that the material cannot be ripped with a crawler tractor rated at a minimum of 50,000 pounds drawbar pull at one mile per hour, pulling a single-tooth ripper. For trench rock excavation, the Contractor shall provide a demonstration that the material cannot be removed with a backhoe equipped with a minimum 1/2 cubic yard heavy duty trenching bucket placed on a machine capable of a lifting capacity of 7,500 pounds at a trench depth of ten(10) feet. The contractor may be required to provide equipment specification data verifying the above minimum-rated equipment will be used for demonstration purposes. The equipment is to be in good repair and in proper working condition.

Intermittent drilling that may be performed to increase production, and not necessary to permit excavation of material encountered, will be considered unclassified excavation.

Rock payment lines are limited to the following:

1. 2' outside of concrete work for which forms are required except footings.

2. One-foot outside perimeter of footings.

3. Near outside dimensions of concrete work where no forms are required.

### 3.4 STABILITY OF EXCAVATIONS

- A. Comply with local codes, ordinances, and requirements of authorities having jurisdiction to maintain stable excavations.
- B. Slope sides of excavations to comply with local codes, ordinances, and requirements of agencies having jurisdiction. Shore and brace where sloping is not possible because of space restrictions or stability of material excavated. Maintain sides and slopes of excavations in safe condition until completion of backfilling.
- C. Shoring and Bracing: Provide materials for shoring and bracing, such as sheet piling, uprights, stringers, and cross braces, in good serviceable condition. Maintain shoring and bracing in excavations regardless of time period excavations will be open. Extend shoring and bracing as excavation progresses.

Cease operations and notify Owner's representative immediately if safety of structure appears to be endangered. Take precautions to support structure until determination is made regarding continuing operations.

Provide permanent steel sheet piling or pressure-creosoted timber sheet piling wherever subsequent removal of sheet piling might permit lateral movement of soil under adjacent structures. Cut off tops a minimum of 2'-6" below final grade and leave permanently in place.

### 3.5 STORAGE OF EXCAVATED MATERIALS

- A. Stockpile excavated materials acceptable for backfill and fill where directed. Place, grade, and shape stockpiles for proper drainage.
- B. Locate and retain soil materials away from edge of excavations.
- C. Legally dispose, off-site, of excess excavated soil material and materials not acceptable for use as backfill or fill.

### 3.6 EXCAVATION FOR STRUCTURES

- A. Excavate to indicated elevations and dimensions within a tolerance of plus or minus 0.10 foot. Extend excavations a sufficient distance from structures for placing and removing concrete formwork, installing services and other construction, and for inspections. All footings to bear on controlled compacted fill or to be embedded into compacted/undisturbed soil.

1.Excavations for Footings and Foundations: Do not disturb bottom of excavation. Excavate by hand to final grade just before placing concrete reinforcement. Trim bottoms to required lines and grades to leave solid base to receive other work.

### 3.7 APPROVAL OF SUBGRADE

- A. Notify Architect when excavations have reached required subgrade.
- B. When Soils Engineer determines that unforeseen unsatisfactory soil is present, continue excavation and replace with compacted backfill or fill material as directed.

1.Unforeseen additional excavation and replacement material will be paid according to the Contract provisions for changes in Work. Owner's testing firm shall confirm scope and volume.

- C. Reconstruct subgrades damaged by freezing temperatures, frost, rain, accumulated water, or construction activities, as directed by the Architect.

### 3.8 UNAUTHORIZED EXCAVATION

- A. Fill unauthorized excavation under foundations or wall footings by extending indicated bottom elevation of concrete foundation or footing to excavation bottom, without altering required top elevation. Lean concrete fill may be used to bring elevations to proper position when acceptable to the Architect.

1.Fill unauthorized excavations under other construction as directed by the Soils Engineer.

### 3.9 BACKFILL

- A. Backfill excavations promptly, but not before completing the following:
  - 1.Acceptance of construction below finish grade.
  - 2.Concrete formwork removal.
  - 3.Removal of trash and debris from excavation.
  - 4.Removal of temporary shoring and bracing, and sheeting.
  - 5.Installing permanent or temporary horizontal bracing on horizontally supported walls.

### 3.10 SUBSURFACE DRAINAGE BACKFILL



- A. Subsurface Drain: Place a layer of filter fabric around perimeter of drainage trench or at footing, as indicated. Place a 6-inch compacted course of filtering material on filter fabric to support drainage pipe. After installing and testing, encase drainage pipe in a minimum of 6 inches of compacted filtering material and wrap in filter fabric, overlapping edges at least 6 inches.
- B. Drainage Backfill: Place and compact drainage backfill of filtering material over subsurface drain, in width indicated, to within 12 inches of final subgrade. Overlay drainage backfill with one layer of filter fabric, overlapping edges at least 6 inches.

### 3.11 FILL

- A. Preparation: Remove vegetation, topsoil, debris, wet, and unsatisfactory soil materials, obstructions, and deleterious materials from ground surface prior to placing fills.
  - 1. Break up sloped surfaces steeper than 1 vertical to 4 horizontal so fill material will bond with existing surface.
- B. When subgrade or existing ground surface to receive fill has a density less than that required for fill, break up ground surface to depth required, pulverize, moisture-condition or aerate soil and recompact to required density.
- C. Place fill material in layers to required elevations for each location listed below.
  - 1. Under footings and foundations, use engineered fill.

### 3.12 MOISTURE CONTROL

- A. Uniformly moisten or aerate subgrade and each subsequent fill or backfill layer before compaction to within 2 percent of optimum moisture content.
  - 1. Do not place backfill or fill material on surfaces that are muddy, frozen, or contain frost or ice.
  - 2. Remove and replace or scarify and air-dry satisfactory soil material that is too wet to compact to specified density.
    - a. Stockpile or spread and dry removed wet satisfactory soil material. Assist draining by discing, harrowing, or pulverizing until moisture content is reduced to a satisfactory value.

### 3.13 COMPACTION

- A. Place backfill and fill materials in layers not more than 8 inches in loose depth for material compacted by hydraulic hand tampers, and not more than 4 inches in loose depth for material compacted by hand-operated tampers.

- B. Place backfill and fill materials evenly on all sides of structures to required elevations. Place backfill and fill uniformly along the full length of each structure.
- C. Percentage of Maximum Dry Density Requirements: Compact soil to not less than the following percentages of maximum dry density according to ASTM D 1557:
  - 1. Under structures, building slabs, steps, and pavements, compact the top 12 inches below subgrade to 100% standard and each layer of backfill or fill material at 95 percent maximum dry density.

### 3.14 FIELD QUALITY CONTROL

- A. Testing Agency Services: Allow testing agency to inspect and test each subgrade and each fill or backfill layer. Do not proceed until test results for previously completed work verify compliance with requirements.
  - 1. Perform field in-place density tests according to ASTM D 1556 (sand cone method), ASTM D 2167 (rubber balloon method), or ASTM D 2937 (drive cylinder method), as applicable.
    - a. Field in-place density tests may also be performed by the nuclear method according to ASTM D 2922, provided that calibration curves are periodically checked and adjusted to correlate to tests performed using ASTM D 1556. With each density calibration check, check the calibration curves furnished with the moisture gages according to ASTM D 3017.
    - b. When field in-place density tests are performed using nuclear methods, make calibration checks of both density and moisture gages at beginning of work, on each different type of material encountered, and at intervals as directed by the Architect.
  - 2. Footing Subgrade: At footing subgrades, perform at least one test of each soil stratum to verify design bearing capacities. Subsequent verification and approval of other footing subgrades may be based on a visual comparison of each subgrade with related tested strata when acceptable to the Architect.

- B. When testing agency reports that subgrades, fills, or backfills are below specified density, scarify and moisten or aerate, or remove and replace soil to the depth required, recompact and retest until required density is obtained.

### 3.15 PROTECTION

- A. Protecting Graded Areas: Protect newly graded areas from traffic, freezing, and erosion. Keep free of trash and debris.
- B. Repair and re-establish grades to specified tolerances where completed or partially completed surfaces become eroded, rutted, settled, or lose

compaction due to subsequent construction operations or weather conditions.

1. Scarify or remove and replace material to depth directed by the Architect; reshape and recompact at optimum moisture content to the required density.

- C. Settling: Where settling occurs during the Project correction period, remove finished surfacing, backfill with additional approved material, compact, and reconstruct surfacing.

1. Restore appearance, quality, and condition of finished surfacing to match adjacent work, and eliminate evidence of restoration to the greatest extent possible.

### 3.16 DISPOSAL OF SURPLUS AND WASTE MATERIALS

- A. Disposal: Remove surplus satisfactory soil and waste material, including unsatisfactory soil, trash, and debris, and legally dispose of it on the Owner's property at an approved location.

END OF SECTION 022000

## SECTION 022300 - SITE CLEARING

## PART 1 - GENERAL

## 1.1 RELATED DOCUMENTS

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

## 1.2 SUMMARY

- A. This Section includes the following:

1. Clearing of loose materials and tree stumps from crawl space.
2. Disconnecting and making safe removal of existing crawl space utilities as noted on PME drawings.\
3. Removal of existing planting curbs and underground utilities at north (Pine Street) end of site.

- B. Related Sections include the following:

1. Division 1 Section "Temporary Facilities and Controls" for temporary utilities, temporary construction and support facilities, temporary security and protection facilities.
2. Division 1 Section "Execution Requirements" for verifying utility locations and for recording field measurements.
3. Division 1 Section "Selective Demolition" for partial demolition of buildings or structures undergoing alterations.
4. Division 2 Section "Earthwork" for soil materials, excavating, backfilling, and site grading.

- C. **All loose items removed from the crawl space that may be of historic value shall be stockpiled outside of the crawl space for viewing by the Owner before they are disposed of.**

- D. **All loose bricks found on grade in the crawl space shall be salvaged and stored.**

## 1.3 DEFINITIONS

- A. Topsoil: Natural or cultivated surface-soil layer containing organic matter and sand, silt, and clay particles; friable, pervious, and black or a darker shade of brown, gray, or red than underlying subsoil; reasonably free of subsoil, clay lumps, gravel, and other objects more than **2 inches (50 mm)** in diameter; and free of subsoil and weeds, roots, toxic materials, or other nonsoil materials.

## 1.4 MATERIAL OWNERSHIP

- A. Except for materials indicated to remain Owner's property, cleared materials shall become Contractor's property and shall be removed from Project site.

## 1.5 SUBMITTALS

- A. Photographs, sufficiently detailed, of existing crawl space that be misconstrued as damage caused by site clearing.

- B. Record drawings, according to Division 1 Section "Project Record Documents," identifying and accurately locating capped utilities and other subsurface structural, electrical, and mechanical conditions.

#### 1.6 QUALITY ASSURANCE

- A. Preinstallation Conference: Conduct conference at Project site to comply with requirements in Division 1 Section "Project Management and Coordination."

#### 1.7 PROJECT CONDITIONS

- A. Traffic: Minimize interference with adjoining roads, streets, walks, and other adjacent occupied or used facilities during site-clearing operations.
  - 1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction.
  - 2. Provide alternate routes around closed or obstructed traffic ways if required by authorities having jurisdiction.
- B. Salvable Improvements: Carefully remove items indicated to be salvaged and store on Owner's premises where indicated.
- C. Utility Locator Service: Notify utility locator service for area where Project is located before site clearing.

#### PART 2 – PRODUCTS N/A

#### 2.1 SOIL MATERIALS

#### PART 3 - EXECUTION

#### 3.1 PREPARATION

- A. Protect and maintain benchmarks and survey control points from disturbance during construction.
- B. Protect existing site improvements to remain from damage during construction.
  - 1. Restore damaged improvements to their original condition, as acceptable to Owner.

#### 3.2 UTILITIES

- A. Owner will arrange for disconnecting and sealing indicated utilities that serve existing structures before site clearing, when requested by Contractor.

1. Verify that utilities have been disconnected and capped before proceeding with site clearing.
- B. Locate, identify, disconnect, and seal or cap off utilities indicated to be removed.
  1. Arrange with utility companies to shut off indicated utilities.
  2. Owner will arrange to shut off indicated utilities when requested by Contractor.
- C. Existing Utilities: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:
  1. Notify Architect not less than two days in advance of proposed utility interruptions.
  2. Do not proceed with utility interruptions without Architect's written permission.
- D. Excavate for and remove underground utilities indicated to be removed. See PME drawings.

### 3.3 CLEARING AND GRUBBING

- A. Remove obstructions, trees, shrubs, grass, and other vegetation to permit installation of new construction.
  1. Do not remove trees, shrubs, and other vegetation indicated to remain or to be relocated.
  2. Grind stumps and remove roots, obstructions, and debris extending to a depth of **12 inches** below exposed subgrade in crawl space.
  3. Use only hand methods for grubbing within crawl space.
- B. Fill depressions caused by clearing and grubbing operations with satisfactory soil material unless further excavation or earthwork is indicated.
  1. Place fill material in horizontal layers not exceeding a loose depth of **8 inches (200 mm)**, and compact each layer to a density equal to adjacent original ground.

### 3.4 SITE IMPROVEMENTS

- A. Remove existing above- and below-grade improvements as indicated and as necessary to facilitate new construction.
- B. Remove slabs, paving, curbs, gutters, and aggregate base as indicated.
  1. Unless existing full-depth joints coincide with line of demolition, neatly saw-cut length of existing pavement to remain before removing existing pavement. Saw-cut faces vertically.
  2. Paint cut ends of steel reinforcement in concrete to remain to prevent corrosion.

### 3.5 DISPOSAL

- A. Disposal: Remove surplus soil material, unsuitable topsoil, obstructions, demolished materials, and waste materials including trash and debris, and legally dispose of them off Owner's property.

SECTION 022300

SITE CLEARING

END OF SECTION 022300

## SECTION 022400 - DEWATERING

## PART 1 - GENERAL

## 1.1 RELATED DOCUMENTS

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

## 1.2 SUMMARY

- A. This Section includes construction dewatering.
- B. Related Sections include the following:
  - 1. Division 1 Section "Temporary Facilities and Controls" for temporary utilities and support facilities.
  - 2. Division 2 Section "Earthwork" for excavating, backfilling, site grading and for site utilities.

## 1.3 PERFORMANCE REQUIREMENTS

- A. Dewatering Performance: Furnish, install, test, operate, monitor, and maintain dewatering system of sufficient scope, size, and capacity to control ground-water flow into excavations and permit construction to proceed on dry, stable subgrades.
  - 1. Maintain dewatering operations to ensure erosion control, stability of excavations and constructed slopes, that excavation does not flood, and that damage to subgrades and permanent structures is prevented.
  - 2. Prevent surface water from entering excavations by grading, dikes, or other means.
  - 3. Accomplish dewatering without damaging existing buildings adjacent to excavation.
  - 4. Remove dewatering system if no longer needed.

## 1.4 QUALITY ASSURANCE

- A. Regulatory Requirements: Comply with water disposal requirements of authorities having jurisdiction.

## 1.5 PROJECT CONDITIONS

- A. Existing Utilities: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted in writing by Architect and then only after arranging to provide temporary utility services according to requirements indicated.



- B. Survey adjacent structures and improvements, employing a qualified professional engineer or land surveyor, establishing exact elevations at fixed points to act as benchmarks. Clearly identify benchmarks and record existing elevations.
  - 1. During dewatering, regularly resurvey benchmarks , maintaining an accurate log of surveyed elevations for comparison with original elevations. Promptly notify Architect if changes in elevations occur or if cracks, sags, or other damage is evident in adjacent construction.

## PART 2 - PRODUCTS (Not Used)

## PART 3 - EXECUTION

### 3.1 PREPARATION

- A. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by dewatering operations.
  - 1. Prevent surface water and subsurface or ground water from entering excavations, from ponding on prepared subgrades, and from flooding site and surrounding area.
- B. Install dewatering system to ensure minimum interference with roads, streets, walks, and other adjacent occupied and used facilities.
  - 1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction. Provide alternate routes around closed or obstructed traffic ways if required by authorities having jurisdiction.

### 3.2 INSTALLATION

- A. Install dewatering system utilizing wells, well points, or similar methods complete with pump equipment, standby power and pumps, filter material gradation, valves, appurtenances, water disposal, and surface-water controls.
- B. Before excavating below ground-water level, place system into operation to lower water to specified levels. Operate system continuously until drains, sewers, and structures have been constructed and fill materials have been placed, or until dewatering is no longer required.
- C. Provide an adequate system to lower and control ground water to permit excavation, construction of structures, and placement of fill materials on dry subgrades. Install sufficient dewatering equipment to drain water-bearing strata above and below bottom of drains, sewers, and other excavations.
  - 1. Do not permit open-sump pumping that leads to loss of fines, soil piping, subgrade softening, and slope instability.

- D. Reduce hydrostatic head in water-bearing strata below subgrade elevations of foundations, drains, sewers, and other excavations.
- E. Dispose of water removed by dewatering in a manner that avoids endangering public health, property, and portions of work under construction or completed. Dispose of water in a manner that avoids inconvenience to others. Provide sumps, sedimentation tanks, and other flow-control devices as required by authorities having jurisdiction.
- F. Provide standby equipment on-site, installed and available for immediate operation, to maintain dewatering on continuous basis if any part of system becomes inadequate or fails. If dewatering requirements are not satisfied due to inadequacy or failure of dewatering system, restore damaged structures and foundation soils at no additional expense to Owner.
  - 1. Remove dewatering system from Project site on completion of dewatering. Plug or fill well holes with sand or cut off and cap wells a minimum of 36 inches (900 mm) below overlying construction.
- G. Damages: Promptly repair damages to adjacent facilities, surfaces, and pavements caused by dewatering operations.

END OF SECTION 022400

## SECTION 023610 - TERMITE CONTROL

## PART 1 - GENERAL

## 1.1 RELATED DOCUMENTS

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

## 1.2 SUMMARY

- A. This Section includes the following:
  - 1. Soil treatment with termiticide at Depot and new platform.
    - a. Treatments shall be applied by drilled injections into masonry piers in the crawl space and by liquid application where soil adjoins exterior walls.
    - b. Treatments applied at piers and walls at platform addition. The pier and soil applications shall be installed on different dates.
- B. Related Sections include the following:
  - 1. Division 6 Section "Rough Carpentry" for wood preservative treatment by pressure process.

## 1.3 PERFORMANCE REQUIREMENTS

- A. Service Life of Soil Treatment: Soil treatment by use of a termiticide that is effective for not less than five years against infestation of subterranean termites.

## 1.5 SUBMITTALS

- A. Product Data: For termiticide.
  - 1. Include the EPA-Registered Label for termiticide products.
- B. Product Certificates: For termite control products, signed by product manufacturer.
- C. Qualification Data: For Installer of termite control products.
- D. Soil Treatment Application Report: After application of termiticide is completed, submit report for Owner's record information, including the following:
  - 1. Date and time of application.

2. Moisture content of soil before application.
3. Brand name and manufacturer of termiticide.
4. Quantity of undiluted termiticide used.
5. Dilutions, methods, volumes, and rates of application used.
6. Areas of application.
7. Water source for application.

E. Warranty: Special warranty specified in this Section.

#### 1.6 QUALITY ASSURANCE

- A. Installer Qualifications: A specialist who is licensed according to regulations of authorities having jurisdiction to apply termite control treatment and products in jurisdiction where Project is located, and who employs workers trained and approved by termiticide manufacturer to install manufacturer's products.
- B. Regulatory Requirements: Formulate and apply termiticides according to the EPA-Registered Label.
- C. Source Limitations: Obtain termite control products from the Town's contracted pest control provider: Hometown Pest Solution, Box 112, Black Creek, NC 27813, (252) 290-0132.

#### 1.7 PROJECT CONDITIONS

- A. Environmental Limitations: To ensure penetration, do not treat soil that is water saturated or frozen. Do not treat soil while precipitation is occurring. Comply with requirements of the EPA-Registered Label and requirements of authorities having jurisdiction.

#### 1.8 COORDINATION

- A. Coordinate soil treatment application with excavating, filling, grading, and concreting operations. Treat soil at exterior building perimeter after final backfilling is completed and drill/inject masonry piers in coordination with other work in crawl space.

#### 1.9 WARRANTY

- A. Special Warranty: Manufacturer's standard form, signed by Applicator and Contractor certifying that termite control work, consisting of applied soil termiticide treatment, will prevent infestation of subterranean termites. If subterranean termite activity or damage is discovered during warranty period, re-treat soil and repair or replace damage caused by termite infestation.

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

#### 1.10 MAINTENANCE SERVICE

- A. Continuing Service: Beginning at Substantial Completion, provide 12 months continuing service including monitoring, inspection, and re-treatment for occurrences of termite activity. Provide a standard continuing service agreement. State services, obligations, conditions, and terms for agreement period; and terms for future renewal options.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

- A. Retain above for nonproprietary or below for semiproprietary specification. Refer to Division 1 Section "Product Requirements."
- B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  1. Termiticides:
    - a. Aventis Environmental Science USA LP; Termidor.
    - b. Bayer Corporation; Premise 75.
    - c. Dow AgroSciences LLC; Dursban TC.
    - d. FMC Corporation, Agricultural Products Group; Torpedo.
    - e. Syngenta; Demon TC.

### 2.2 SOIL TREATMENT

- A. Termiticide: Provide an EPA-registered termiticide complying with requirements of authorities having jurisdiction, in an aqueous solution formulated to prevent termite infestation. Provide quantity required for application at the label volume and rate for the maximum termiticide concentration allowed for each specific use, according to product's EPA-Registered Label.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Applicator present, for compliance with requirements for moisture content of soil, interfaces with earthwork, and foundation work, landscaping, and other conditions affecting performance of termite control. Notify Architect, in writing, of any unsatisfactory conditions.
  1. Proceed with application only after unsatisfactory conditions have been corrected.

### 3.2 PREPARATION

- A. General: Comply with the most stringent requirements of authorities having jurisdiction and with manufacturer's written instructions for preparation before beginning application of termite control treatment. Remove all extraneous sources of wood cellulose and other edible materials such as wood debris, tree stumps and roots, stakes, formwork, and construction waste wood from soil within and around foundations and crawl space.
- B. Soil Treatment Preparation: Remove foreign matter and impermeable soil materials that could decrease treatment effectiveness on areas to be treated. Loosen, rake, and level soil to be treated. Excavate treatment trench (6" x 6") at building wall per termiticide manufacturer recommendation.
  - 1. Fit filling hose connected to water source at the site with a backflow preventer, complying with requirements of authorities having jurisdiction.

### 3.3 APPLICATION, GENERAL

- A. General: Comply with the most stringent requirements of authorities having jurisdiction and with manufacturer's EPA-Registered Label for products.

### 3.4 APPLYING SOIL TREATMENT

- A. Application: Mix soil treatment termiticide solution to a uniform consistency. Provide quantity required for application at the label volume and rate for the maximum specified concentration of termiticide, according to manufacturer's EPA-Registered Label, to the following so that a continuous horizontal and vertical termiticidal barrier or treated zone is established around and under building construction. Distribute treatment evenly.
  - 1. Slabs-on-Grade: Under existing ground-supported slab construction and including new footings, building slabs, and attached slabs as an overall treatment. Treat soil materials before new concrete footings and slabs are placed.
  - 2. Foundations: Adjacent soil including soil along the entire outside perimeter of existing foundation walls.
  - 3. Crawlspace: Soil under and adjacent to foundations as previously indicated. Treat adjacent areas including around entrance platform, porches, and equipment bases. Core drill masonry piers at 12" o.c. and inject termiticide.
  - 4. Penetrations: At areas where walls will receive new penetrations.
- B. Backfill exterior trenches with topsoil flush with surrounding grades. Avoid disturbance of treated soil after application. Keep off treated areas until completely dry.
- C. Protect termiticide solution, dispersed in treated soils and fills, from being diluted until ground-supported slabs are installed. Use waterproof barrier according to EPA-Registered Label instructions.
- D. Post warning signs in areas of application.
- E. Reapply soil treatment solution to areas disturbed by subsequent excavation, grading, landscaping, or other construction activities following application.

SECTION 023610

TERMITE CONTROL

END OF SECTION 02361

## SECTION 048100 - UNIT MASONRY ASSEMBLIES

## PART 1 - GENERAL

## 1.1 RELATED DOCUMENTS

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

## 1.2 SUMMARY

- A. This Section includes unit masonry assemblies consisting of the following:
  - 1. Concrete masonry units (CMUs).
  - 2. Face brick from salvage of existing.
  - 3. Mortar and grout.
  - 4. Masonry joint reinforcement.
  - 5. Ties and anchors.
  - 6. Concrete splash blocks.
  - 7. Trowel applied bituminous fibrated mastic dampproofing.
  - 8. Foamed block core insulation at platform.
- B. Related Sections include the following:
  - 1. Division 7 Section "Joint Sealants" for sealing of joints in unit masonry.
- C. Products installed, but not furnished, under this Section include the following:
  - 1. Manufactured reglets in masonry joints for metal flashing, furnished under Division 7 Section "Sheet Metal Flashing and Trim."
- D. Contractor shall conduct a pre-installation on conference in accordance with Section 013100 before starting any masonry work.

## 1.3 DEFINITIONS

- A. Reinforced Masonry: Masonry containing reinforcing steel in grouted cells.

## 1.4 PERFORMANCE REQUIREMENTS

- A. Provide unit masonry that develops indicated net-area compressive strengths ( $f'_m$ ) at 28 days.
- B. Determine net-area compressive strength ( $f'_m$ ) of masonry from average net-area compressive strengths of masonry units and mortar types (unit-strength method) according to Tables 1 and 2 in ACI 530.1/ASCE 6/TMS 602.
- C. Determine net-area compressive strength ( $f'_m$ ) of masonry by testing masonry prisms according to ASTM C 1314.



## 1.5 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Shop Drawings: For the following:
  - 1. Masonry Units: Show sizes, profiles, coursing, and locations of special shapes.
  - 2. Reinforcing Steel: Detail bending and placement of unit masonry reinforcing bars. Comply with ACI 315, "Details and Detailing of Concrete Reinforcement."
- C. Samples for Initial Selection: For the following:
  - 1. Colored mortar to match existing.
- D. List of Materials Used in Constructing Sample Masonry and Mortar Panels: List generic product names together with manufacturers, manufacturers' product names, model numbers, lot numbers, batch numbers, source of supply, and other information as required to identify materials used. Include mix proportions for mortar and grout and source of aggregates.
  - 1. Submittal is for information only. Neither receipt of list nor approval of mockup constitutes approval of deviations from the Contract Documents unless such deviations are specifically brought to the attention of Architect and approved in writing.
- E. Qualification Data: For testing agency.
- F. Material Certificates: Include statements of material properties indicating compliance with requirements including compliance with standards and type designations within standards. Provide for each type and size of the following:
  - 1. Masonry units.
    - a. Include material test reports substantiating compliance with requirements.
    - b. For masonry units in structural masonry, include data and calculations establishing average net-area compressive strength of units.
  - 2. Cementitious materials. Include brand, type, and name of manufacturer.
  - 3. Preblended, dry mortar mixes. Include description of type and proportions of ingredients.
  - 4. Grout mixes. Include description of type and proportions of ingredients.
  - 5. Reinforcing bars.
  - 6. Joint reinforcement.
  - 7. Anchors, ties, and metal accessories.
- G. Mix Designs: For each type of mortar and grout. Include description of type and proportions of ingredients.
  - 1. Include test reports, per ASTM C 780, for mortar mixes required to comply with property specification.
  - 2. Include test reports, per ASTM C 1019, for grout mixes required to comply with compressive strength requirement.

- H. Statement of Compressive Strength of Concrete Masonry: For each combination of masonry unit type and mortar type, provide statement of average net-area compressive strength of masonry units, mortar type, and resulting net-area compressive strength of masonry determined according to Tables 1 and 2 in ACI 530.1/ASCE 6/TMS 602.
- I. Cold-Weather Procedures: Detailed description of methods, materials, and equipment to be used to comply with cold-weather requirements.

#### 1.6 QUALITY ASSURANCE

- A. Testing Agency Qualifications: An independent agency qualified according to ASTM C 1093 for testing indicated, as documented according to ASTM E 548.
- B. Source Limitations for Masonry Units: Obtain exposed masonry units of a uniform texture and color, or a uniform blend within the ranges accepted for these characteristics, through one source from a single manufacturer for each product required.
- C. Source Limitations for Mortar Materials: Obtain mortar ingredients of a uniform quality, including color for exposed masonry, from a single manufacturer for each cementitious component and from one source or producer for each aggregate.
- D. Sample Mockup Panels: Build sample panels to verify selections made under sample submittals and to demonstrate aesthetic effects. Mockup shall use existing bricks from salvage and reflect proposed range of aesthetic effects and workmanship and will be used as the standard for judging workmanship. Notify the architect and obtain approval of mock up 7 (seven) days before starting any masonry work. Maintain mock up in an undisturbed condition throughout construction. Comply with requirements in Division 1 Section "Quality Requirements" for mockups.
  - 1. At contractor's option, masonry mock-up may be a fully reconstructed crawl space pier. Panel shall be constructed with salvage brick, mortar, wire reinforcing and other installation materials. Mockup shall not be constructed until brick colors and mortar color have been approved.
  - 2. Where masonry is to match existing, erect panels at location directed by architect.
  - 3. Clean one-half of exposed faces of mock-up with masonry cleaner indicated.
  - 4. Protect approved sample panels from the elements with weather-resistant membrane.
  - 5. Approval of sample panels is for color, texture, and blending of masonry units; relationship of mortar and sealant colors to masonry unit colors; tooling of joints; aesthetic qualities of workmanship; and other material and construction qualities specifically approved by Architect in writing. Contractor shall include the cost of four (4) brick sample mock-ups and four (4) mortar sample mock-ups in his bid.
    - a. Approval of sample panels does not constitute approval of deviations from the Contract Documents contained in sample panels unless such deviations are specifically approved by Architect in writing
  - 6. Erect block mock up panel to include joint reinforcing, trowel applied bituminous fibrated mastic damp proofing, and wood furring and board/batten wood siding.

## 1.7 DELIVERY, STORAGE, AND HANDLING

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

## 1.8 PROJECT CONDITIONS

- A. Protection of Masonry: During construction, cover tops of chimneys with waterproof sheeting at end of each day's work. Cover partially completed masonry when construction is not in progress.
  - 1. Extend cover a minimum of **24 inches** down both sides and hold cover securely in place.
- B. Do not apply uniform floor or roof loads for at least 12 hours and concentrated loads for at least 3 days after building masonry piers.
- C. Stain Prevention: Prevent grout, mortar, and soil from staining the face of masonry to be left exposed or painted. Immediately remove grout, mortar, and soil that come in contact with such masonry.
  - 1. Protect base of walls from rain-splashed mud and from mortar splatter by spreading coverings on ground and over wall surface.
  - 2. Protect roofs, and projections from mortar droppings.
  - 3. Protect surfaces of window and door frames, as well as similar products with painted and integral finishes, from mortar droppings.
  - 4. Turn scaffold boards near the wall on edge at the end of each day to prevent rain from splashing mortar and dirt onto completed masonry.
- D. Cold-Weather Requirements: Do not use frozen materials or materials mixed or coated with ice or frost. Do not build on frozen substrates. Remove and replace unit masonry damaged by frost or by freezing conditions. Comply with cold-weather construction requirements contained in ACI 530.1/ASCE 6/TMS 602.
  - 1. Cold-Weather Cleaning: Use liquid cleaning methods only when air temperature is **40 deg F** and above and will remain so until masonry has dried, but not less than 7 days after completing cleaning.

- E. Hot-Weather Requirements: Comply with hot-weather construction requirements contained in ACI 530.1/ASCE 6/TMS 602.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

- A. In other Part 2 articles where titles below introduce lists, the following requirements apply to product selection:
  - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the manufacturers specified.

### 2.2 MASONRY UNITS, GENERAL

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

### 2.3 CONCRETE MASONRY UNITS (CMUs)

- A. Shapes: Provide shapes indicated and as follows:
  - 1. Provide square-edged units for outside corners, unless otherwise indicated.
- B. Concrete Masonry Units: ASTM C 90.
  - 1. Unit Compressive Strength: Provide units with minimum average net-area compressive strength of **1900 psi**.
  - 2. Weight Classification: Lightweight.
  - 3. Size (Width): Manufactured to dimensions 3/8 inch less than nominal dimensions.
  - 4. Size (Width): Manufactured to the following dimensions:
    - a. 100 mm nominal; 92 mm actual (4" nominal)
    - b. 150 mm nominal; 143 mm actual (6" nominal).
    - c. 200 mm nominal; 194 mm actual (8" nominal).
    - d. 300 mm nominal; 295 mm actual.
  - 5. Exposed Faces: Provide color and texture matching the range represented by Architect's sample.

### 2.4 BRICK

- A. General: Use existing bricks recovered from salvage:

1. For chimney caps and for similar applications that would otherwise expose unfinished brick surfaces, provide units without cores or frogs and with exposed surfaces parged with mortar.

## 2.5 MORTAR AND GROUT MATERIALS

- A. Portland Cement: ASTM C 150, Type I or II, except Type III may be used for cold-weather construction. Provide natural color or white cement as required to produce mortar color to match existing.
- B. Hydrated Lime: ASTM C 207, Type S.
- C. Portland Cement-Lime Mix: Packaged blend of Portland cement complying with ASTM C 150, Type I or Type III, and hydrated lime complying with ASTM C 207, Type S to match existing.
- D. Masonry Cement for Brick Mortar: ASTM C 91. Approved manufacturers: Flamingo, Solomon Grind, or Lafarge/Magnolia.
- E. Aggregate for Mortar: ASTM C 144.
  1. For mortar that is exposed to view, use washed aggregate consisting of natural sand or crushed stone.
  2. For joints less than **1/4 inch** thick, use aggregate graded with 100 percent passing the **No. 16** sieve.
- F. Aggregate for Grout: ASTM C 404.
- G. Water: Potable.

## 2.6 REINFORCEMENT

- A. Uncoated Steel Reinforcing Bars: ASTM A 615/A 615M or ASTM A 996/A 996M, **Grade 60 (Grade 420)**.
- B. Masonry Joint Reinforcement, General: ASTM A 951 UBC Standard 21-10.
  1. Interior Walls: Hot-dip galvanized, carbon steel.
  2. Exterior Walls: Hot-dip galvanized, carbon, steel.
  3. Wire Size for Side Rods: W2.8 or **0.188-inch** diameter.
  4. Wire Size for Cross Rods: W2.8 or **0.188-inch** diameter.
  5. Wire Size for Veneer Ties: W2.8 or **0.188-inch** diameter.
  6. Spacing of Cross Rods, Tabs, and Cross Ties: Not more than **16 inches** o.c.
  7. Provide in lengths of not less than **10 feet**, with prefabricated corner and tee units.
- C. Masonry Joint Reinforcement for Single-Wythe Masonry: Either ladder or truss type with single pair of side rods.
- D. Masonry Joint Reinforcement for Multiwythe Masonry:
  1. Ladder type with 1 side rod at each face shell of hollow masonry units more than **4 inches** in width, plus 1 side rod at each wythe of masonry **4 inches** or less in width.

2. Tab type, either ladder or truss design, with 1 side rod at each face shell of backing wythe and with rectangular tabs sized to extend at least halfway through facing wythe but with at least **5/8-inch** cover on outside face.
3. Adjustable (two-piece) type, either ladder or truss design, with one side rod at each face shell of backing wythe and with separate ties that extend into facing wythe. Ties have two hooks that engage eyes or slots in reinforcement and resist movement perpendicular to wall. Ties extend at least halfway through facing wythe but with at least **5/8-inch** cover on outside face. Ties have hooks or clips to engage a continuous horizontal wire in the facing wythe.

## 2.7 TIES AND ANCHORS

- A. Materials: Provide ties and anchors specified in subsequent paragraphs that are made from materials that comply with eight subparagraphs below, unless otherwise indicated.
  1. Hot-Dip Galvanized, Carbon-Steel Wire: ASTM A 82; with ASTM A 153/A 153M, Class B-2 coating.
- B. Rigid Anchors: Fabricate from steel bars **1-1/2 inches** wide by **1/4 inch** thick by **24 inches** long, with ends turned up **2 inches** or with cross pins, unless otherwise indicated.
  1. Corrosion Protection: **Hot-dip galvanized to comply with ASTM A 153/A 153M**

## 2.8 MISCELLANEOUS ANCHORS

- A. Unit Type Inserts in Concrete: Cast-iron or malleable-iron wedge-type inserts.
- B. Anchor Bolts: Steel bolts complying with **ASTM A 307, Grade A (ASTM F 568M, Property Class 4.6)**; with **ASTM A 563 (ASTM A 563M)** hex nuts and, where indicated, flat washers; hot-dip galvanized to comply with ASTM A 153/A 153M, Class C; of dimensions indicated.
  1. Headed bolts.
  2. Nonheaded bolts, bent in manner indicated.
- D. Postinstalled Anchors: Provide chemical or torque-controlled expansion anchors, with capability to sustain, without failure, a load equal to six times the load imposed when installed in solid or grouted unit masonry and equal to four times the load imposed when installed in concrete, as determined by testing per ASTM E 488 conducted by a qualified independent testing agency.
  1. Corrosion Protection: Carbon-steel components zinc plated to comply with ASTM B 633, Class Fe/Zn 5 (5 microns) for Class SC 1 service condition (mild).
  2. Corrosion Protection: Stainless-steel components complying with **ASTM F 593 and ASTM F 594, Alloy Group 1 or 2 (ASTM F 738M and ASTM F 836M, Alloy Group 1 or 4)** for bolts and nuts; ASTM A 666 or ASTM A 276, Type 304 or 316, for anchors.

## 2.9 EMBEDDED FLASHING MATERIALS

- A. Metal Flashing: Provide metal flashing complying with Division 7 Section "Sheet Metal Flashing and Trim" and as shown on the drawings, Sheet #A8.1.

## 2.10 MISCELLANEOUS MASONRY ACCESSORIES

- A. Compressible Filler: Premolded filler strips complying with ASTM D 1056, Grade 2A1; compressible up to 35 percent; of width and thickness indicated; formulated from neoprene.
- B. Bond-Breaker Strips: Asphalt-saturated, organic roofing felt complying with ASTM D 226, Type I (No. 15 asphalt felt).
- C. Reinforcing Bar Positioners: Wire units designed to fit into mortar bed joints spanning masonry unit cells with loops for holding reinforcing bars in center of cells. Units are formed from 0.142-inch steel wire, hot-dip galvanized after fabrication. Provide units with either two loops or four loops as needed for number of bars indicated.
- D. Adhesive: Type recommended by insulation board manufacturer for application indicated.
- E. Trowel applied bituminous fibrated mastic damp proofing: Karnack #86.

## 2.11 MASONRY CLEANERS

- A. Refer to Section 049010 for general cleaning of all masonry.

## 2.12 MORTAR AND GROUT MIXES

- A. General: Do not use admixtures, including pigments, air-entraining agents, accelerators, retarders, water-repellent agents, antifreeze compounds, or other admixtures, unless otherwise indicated.
  - 1. Do not use calcium chloride in mortar or grout.
  - 2. Limit cementitious materials in mortar to portland cement and lime.
  - 3. Add cold-weather admixture (if used) at same rate for all mortar that will be exposed to view, regardless of weather conditions, to ensure that mortar color is consistent.
- B. Preblended, Dry Mortar Mix: Furnish dry mortar ingredients in form of a preblended mix. Measure quantities by weight to ensure accurate proportions, and thoroughly blend ingredients before delivering to Project site.
- C. Mortar for Unit Masonry: Comply with ASTM C 270, Property Specification. Provide the following types of mortar for applications stated unless another type is indicated].
  - 1. For masonry below grade or in contact with earth, use Type S.
  - 2. For reinforced masonry, use Type S.
  - 3. For exterior, above-grade, load-bearing and non-load-bearing chimneys, and for other applications where another type is not indicated, use Type N.
- D. Pigmented Mortar: Use colored cement product or select and proportion pigments with other ingredients to produce color required. Do not add pigments to colored cement products.
  - 1. Match existing.
- E. Grout for Unit Masonry: Comply with ASTM C 476.

1. Use grout of type indicated or, if not otherwise indicated, of type (fine or coarse) that will comply with Table 1.15.1 in ACI 530.1/ASCE 6/TMS 602 for dimensions of grout spaces and pour height.
2. Provide grout with a slump of 8 to 11 inches (200 to 280 mm) as measured according to ASTM C 143/C 143M.

### 2.13 CONCRETE SPLASH BLOCKS

- A. 3,500 PSI concrete, 24" L x 11½" W x 2¾ H, with "U" shaped top discharge basin.

### 2.14 FOAMED IN-PLACE BLOCK CORE INSULATION

- B. Core-fill 500 or approved equal.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

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

### 3.2 INSTALLATION, GENERAL

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



- F. Matching Existing Masonry: Match coursing, bonding, color, and texture of existing masonry.
- G. Wetting of Brick: Wet brick before laying if initial rate of absorption exceeds 30 g/30 sq. in. (30 g/194 sq. cm) per minute when tested per ASTM C 67. Allow units to absorb water so they are damp but not wet at time of laying.
- H. Comply with construction tolerances in ACI 530.1/ASCE 6/TMS 602 and with the following:
1. For conspicuous vertical lines, such as external corners, door jambs, reveals, and expansion and control joints, do not vary from plumb by more than 1/8 inch in 10 feet (3 mm in 3 m), 1/4 inch in 20 feet (6 mm in 6 m), or 1/2 inch (12 mm) maximum.
  2. For vertical alignment of exposed head joints, do not vary from plumb by more than 1/4 inch in 10 feet (6 mm in 3 m), or 1/2 inch (12 mm) maximum.
  3. For conspicuous horizontal lines, such as lintels, sills, parapets, and reveals, do not vary from level by more than 1/8 inch in 10 feet (3 mm in 3 m), 1/4 inch in 20 feet (6 mm in 6 m), or 1/2 inch (12 mm) maximum.
  4. For exposed bed joints, do not vary from thickness indicated by more than plus or minus 1/8 inch (3 mm), with a maximum thickness limited to 7/16 inch (12 mm). Do not vary from bed-joint thickness of adjacent courses by more than 1/8 inch (3 mm).
  5. For exposed head joints, do not vary from thickness indicated by more than plus or minus 1/8 inch (3 mm). Do not vary from adjacent bed-joint and head-joint thicknesses by more than 1/8 inch (3 mm).
  6. For faces of adjacent exposed masonry units, do not vary from flush alignment by more than 1/16 inch (1.5 mm) except due to warpage of masonry units within tolerances specified for warpage of units.
  7. For exposed bed joints and head joints of stacked bond, do not vary from a straight line by more than 1/16 inch (1.5 mm) from one masonry unit to the next.

### 3.3 LAYING MASONRY WALLS

- A. Lay out walls in advance for accurate spacing of surface bond patterns with uniform joint thicknesses and for accurate location of openings, movement-type joints, returns, and offsets. Avoid using less-than-half-size units, particularly at corners, jambs, and, where possible, at other locations.
- B. Bond Pattern for Exposed Masonry: Unless otherwise indicated, lay exposed masonry in bond pattern to match existing and bond pattern indicated on Drawings; do not use units with less than nominal 4-inch (100-mm) horizontal face dimensions at corners or jambs.
- C. Lay concealed masonry with all units in a wythe in running bond or bonded by lapping not less than 2 inches (50 mm). Bond and interlock each course of each wythe at corners. Do not use units with less than nominal 4-inch (100-mm) horizontal face dimensions at corners or jambs.
- D. Stopping and Resuming Work: Stop work by racking back units in each course from those in course below; do not tooth. When resuming work, clean masonry surfaces that are to receive mortar, remove loose masonry units and mortar, and wet brick if required before laying fresh masonry.
- E. Built-in Work: As construction progresses, build in items specified in this and other Sections. Fill in solidly with masonry around built-in items.

- F. Where built-in items are to be embedded in cores of hollow masonry units, place a layer of metal lath, wire mesh, or plastic mesh in the joint below and rod mortar or grout into core.
- G. Fill cores in hollow concrete masonry units with grout **24 inches (600 mm)** under bearing plates, beams, lintels, posts, and similar items, unless otherwise indicated.

### 3.4 MORTAR BEDDING AND JOINTING

- A. Lay hollow masonry units as follows:
  - 1. With face shells fully bedded in mortar and with head joints of depth equal to bed joints.
  - 2. With webs fully bedded in mortar in all courses of piers, columns, and pilasters.
  - 3. With webs fully bedded in mortar in grouted masonry, including starting course on footings.
  - 4. With entire units, including areas under cells, fully bedded in mortar at starting course on footings where cells are not grouted.
- B. Lay solid masonry units with completely filled bed and head joints; butter ends with sufficient mortar to fill head joints and shove into place. Do not deeply furrow bed joints or slush head joints.
- C. Tool exposed joints slightly concave when thumbprint hard, using a jointer larger than joint thickness, unless otherwise indicated.

### 3.5 MASONRY JOINT REINFORCEMENT

- A. General: Install entire length of longitudinal side rods in mortar with a minimum cover of **5/8 inch (16 mm)** on exterior side of walls, **1/2 inch (13 mm)** elsewhere. Lap reinforcement a minimum of **6 inches (150 mm)**.
  - 1. Space reinforcement not more than **16 inches (406 mm)** o.c.
  - 2. Space reinforcement not more than **8 inches (203 mm)** o.c. in foundation walls and chimneys.
  - 3. Provide reinforcement not more than **8 inches (203 mm)** above and below wall openings and extending **12 inches (305 mm)** beyond openings.
    - a. Reinforcement above is in addition to continuous reinforcement.
- B. Interrupt joint reinforcement at control and expansion joints, unless otherwise indicated.
- C. Provide continuity at wall intersections by using prefabricated T-shaped units.
- D. Provide continuity at corners by using prefabricated L-shaped units.
- E. Cut and bend reinforcing units as directed by manufacturer for continuity at corners, returns, offsets, and other special conditions.

### 3.6 ANCHORING MASONRY TO STRUCTURAL MEMBERS

- A. Anchor masonry to structural members where masonry abuts or faces structural members to comply with the following:
  - 1. Provide an open space not less than **1/2 inch (13 mm)** in width between masonry and structural member, unless otherwise indicated. Keep open space free of mortar and other rigid materials.
  - 2. Anchor masonry to structural members with anchors embedded in masonry joints and attached to structure.
  - 3. Space anchors as indicated, but not more than **24 inches (610 mm)** o.c. vertically and **36 inches (915 mm)** o.c. horizontally.

### 3.7 MASONRY-CELL INSULATION

- A. Pump foamed in-place insulation into cavities as shown on plans and as specified in manufacturer's literature, to completely fill void spaces. Maintain inspection ports to show presence of insulation at extremities of each pour area. Close ports after complete coverage has been confirmed.
- B. *Foam in place:* Engage an experienced dealer/applicator who has been trained and licensed by the product manufacturer and which has not less than three (3) years direct experience in the installation of the product used. The installer/manufacturer will provide a two (2) year warranty. The fire resistance ratings are to be minimum ASTM E-84; combustion characteristics ASTM E 136, non-combustible, Class A building material.
- C. Install foamed-in-place insulation from the interior of the building prior to installation of interior finish work. All compliance of the manufacturer's instructions must be met. Fill all open cells and voids in hollow concrete masonry walls. The foam insulation shall be pumped through a horizontal row of 5/8" holes drilled into the mortar joints every 8" on center at an approximate height of 5' above finished floor level around the entire wall area. Repeat this method again above the first joint of any bond beam. Patch all holes and retool course. The installation contractor shall be trained, approved, and certified by the product manufacturer.

### 3.8 FLASHING, WEEP HOLES, CAVITY DRAINAGE, AND VENTS

- A. General: Install embedded flashing and weep holes in masonry at shelf angles, lintels, ledges, other obstructions to downward flow of water in wall, and where indicated. Install vents at shelf angles, ledges, and other obstructions to upward flow of air in cavities, and where indicated.
- B. Install flashing as follows, unless otherwise indicated:
  - 1. Prepare masonry surfaces so they are smooth and free from projections that could puncture flashing. Where flashing is within mortar joint, place through-wall flashing on sloping bed of mortar and cover with mortar. Before covering with mortar, seal penetrations in flashing with adhesive, sealant, or tape as recommended by flashing manufacturer.
  - 2. At multiwythe masonry walls, including cavity walls, extend flashing through outer wythe, turned up a minimum of **8 inches (200 mm)**, and **1-1/2 inches (38 mm)** into the inner wythe. Form **1/4-inch (6-mm)** hook in edge of flashing embedded in inner wythe.
  - 3. Interlock end joints of ribbed sheet metal flashing by overlapping ribs not less than **1-1/2 inches (38 mm)** or as recommended by flashing manufacturer, and seal lap with

- elastomeric sealant complying with requirements in Division 7 Section "Joint Sealants" for application indicated.
4. Install metal drip edges and sealant stops with ribbed sheet metal flashing by interlocking hemmed edges to form hooked seam. Seal seam with elastomeric sealant complying with requirements in Division 7 Section "Joint Sealants" for application indicated.
  5. Install metal drip edges beneath flexible flashing at exterior face of wall. Stop flexible flashing **1/2 inch (13 mm)** back from outside face of wall and adhere flexible flashing to top of metal drip edge.
  6. Install metal flashing termination beneath flexible flashing at exterior face of wall. Stop flexible flashing **1/2 inch (13 mm)** back from outside face of wall and adhere flexible flashing to top of metal flashing termination.
  7. Cut flexible flashing off flush with face of wall after masonry wall construction is completed.
- C. Install reglets and nailers for flashing and other related construction where they are shown to be built into masonry.
- D. Install weep holes in head joints in exterior wythes of first course of masonry immediately above embedded flashing and as follows:
1. Use specified open head joints in new walls and cotton rope wicks in repaired existing walls to form weep holes.
  2. Use wicking material to form weep holes above flashing under brick sills. Turn wicking down at lip of sill to be as inconspicuous as possible.
  3. Space weep holes **24 inches (600 mm)** o.c., unless otherwise indicated.
  4. Cover cavity side of weep holes with wire mesh netting.
  5. Trim wicking material flush with outside face of wall after mortar has set.
- E. Place wire mesh netting in cavities as soon as practical to a height equal to height of first course above top of flashing, but not less than **2 inches (50 mm)**, to maintain drainage.
- F. Install open head joints in exterior wythes at spacing indicated.
1. Close cavities off vertically and horizontally with blocking in manner indicated. Install through-wall flashing and weep holes above horizontal blocking.

### 3.9 REINFORCED UNIT MASONRY INSTALLATION

- A. Temporary Formwork and Shores: Construct formwork and shores as needed to support reinforced masonry elements during construction.
1. Construct formwork to provide shape, line, and dimensions of completed masonry as indicated. Make forms sufficiently tight to prevent leakage of mortar and grout. Brace, tie, and support forms to maintain position and shape during construction and curing of reinforced masonry.
  2. Do not remove forms and shores until reinforced masonry members have hardened sufficiently to carry their own weight and other temporary loads that may be placed on them during construction.
- B. Placing Reinforcement: Comply with requirements in ACI 530.1/ASCE 6/TMS 602

- C. Grouting: Do not place grout until entire height of masonry to be grouted has attained enough strength to resist grout pressure.
  - 1. Comply with requirements in ACI 530.1/ASCE 6/TMS 602 for cleanouts and for grout placement, including minimum grout space and maximum pour height.
  - 2. Limit height of vertical grout pours to not more than 60 inches (1520 mm).

### 3.10 REPAIRING, POINTING, AND CLEANING OF NEW MASONRY

- A. Remove and replace masonry units that are loose, chipped, broken, stained, or otherwise damaged or that do not match adjoining units. Install new units to match adjoining units; install in fresh mortar, pointed to eliminate evidence of replacement.
- B. Pointing: During the tooling of joints, enlarge voids and holes, except weep holes, and completely fill with mortar. Point up joints, including corners, openings, and adjacent construction, to provide a neat, uniform appearance. Prepare joints for sealant application, where indicated.
- C. In-Progress Cleaning: Clean unit masonry as work progresses by dry brushing to remove mortar fins and smears before tooling joints.
- D. Final Cleaning: After mortar is thoroughly set and cured, clean exposed masonry as follows:
  - 1. Remove large mortar particles by hand with wooden paddles and nonmetallic scrape hoes or chisels.
  - 2. Test cleaning methods on sample wall panel; leave one-half of panel uncleaned for comparison purposes. Obtain Architect's approval of sample cleaning before proceeding with cleaning of masonry.
  - 3. Protect adjacent roof and non-masonry surfaces from contact with cleaner by covering them with liquid strippable masking agent or polyethylene film and waterproof masking tape.
  - 4. Wet wall surfaces with water before applying cleaners; remove cleaners promptly by rinsing surfaces thoroughly with clear water.
  - 5. Clean brick by bucket-and-brush hand-cleaning method described in BIA Technical Notes 20.
  - 6. Clean concrete masonry by cleaning method indicated in NCMA TEK 8-2A applicable to type of stain on exposed surfaces.

### 3.11 CONCRETE SPLASH BLOCK INSTALLATION

- A. Furnish and install one concrete splash block at each downspout.

### 3.12 MOCKUP PANEL DISPOSAL

- A. Contractor shall demolish and remove mock-up panel immediately prior to substantial completion but only after the architect has approved removal.

### 3.13 MASONRY WASTE DISPOSAL

- A. Salvageable Materials: Unless otherwise indicated, excess brick masonry materials are Owner's property. At completion of unit masonry work, store salvaged brick on wood pallets in building crawl space.
- B. Waste Disposal as Fill Material: Dispose of clean masonry waste, including excess or soil-contaminated sand, waste mortar, and broken masonry units.
- C. Excess Masonry Waste: Remove excess clean masonry waste and other masonry waste, and legally dispose of off Owner's property.

END OF SECTION 048100

## SECTION 049010 – BRICK MASONRY RESTORATION AND CLEANING

## PART 1 - GENERAL

## 1.1 RELATED DOCUMENTS

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

## 1.2 SUMMARY

- A. This Section includes restoration and cleaning of brick and stone as follows:
  - 1. Full height deconstruction, salvage, cleaning, and reconstruction of two existing brick chimneys from top of chimney to interior attic bearing point of masonry. This work is included as “Add” Alternate #2 in Section 012300.
  - 2. Repointing and reconstruction work at existing brick piers in crawl space. See structural drawings and architectural crawl space plan.
- B. Related Sections include the following:
  - 1. Division 1 Section “Alternates” for chimney reconstruction work under alternate #2.
  - 2. Division 4 Section "Unit Masonry Assemblies" for new clay masonry construction.
  - 3. Division 7 Section "Sheet Metal Flashing and Trim" for metal flashing installed in or on restored clay masonry.
- C. Contractors shall conduct a pre-installation conference in accordance with Section 013100 before beginning deconstruction of two existing chimneys.

## 1.3 DEFINITIONS

- A. Low-Pressure Spray: 100 to 400 psi (690 to 2750 kPa); 4 to 6 gpm (0.25 to 0.4 L/s).
- B. Medium-Pressure Spray: 400 to 800 psi (2750 to 5500 kPa); 4 to 6 gpm (0.25 to 0.4 L/s).
- C. High-Pressure Spray: 800 to 1200 psi (5500 to 8250 kPa); 4 to 6 gpm (0.25 to 0.4 L/s). No high-pressure spray permitted on this project.

## 1.4 SUBMITTALS

- A. Product Data: For each type of product indicated. Include recommendations for application and use. Include test data substantiating that products comply with requirements.
- B. Restoration Program: For each phase of restoration process, provide detailed description of materials, methods, equipment, and sequence of operations to be used for each phase of restoration work including protection of surrounding materials on building and Project site.

1. Include methods for keeping pointing mortar damp during curing period.
  2. If materials and methods other than those indicated are proposed for any phase of restoration work, provide a written description, including evidence of successful use on comparable projects, and a testing program to demonstrate their effectiveness for this Project.
- C. Cleaning Program: Describe cleaning process in detail, including materials, methods, and equipment to be used and protection of surrounding materials on building and Project site, and control of runoff during operations.
1. If materials and methods other than those indicated are proposed for cleaning work, provide a written description, including evidence of successful use on comparable projects, and a testing program to demonstrate their effectiveness for this Project.

### 1.5 QUALITY ASSURANCE

- A. Restoration Specialist Qualifications: Engage an experienced, preapproved masonry restoration and cleaning firm to perform work of this Section. Firm shall have completed work similar in material, design, and extent to that indicated for this Project with a record of successful in-service performance.
1. Field Supervision: Restoration specialist firms shall maintain experienced full-time supervisors on Project site during times that masonry cleaning is in progress. Supervisors shall not be changed during Project except for causes beyond the control of restoration specialist firm.
  3. Restoration Worker Qualifications: Persons who are experienced and specialize in restoration work of types they will be performing
- B. Chemical Manufacturer Qualifications: A firm regularly engaged in producing masonry cleaners that have been used for similar applications with successful results, and with factory-trained representatives who are available for consultation and Project-site inspection and assistance at no additional cost.
- C. Source Limitations: Obtain each type of material for masonry restoration (face brick, cement, sand, etc.) from one source with resources to provide materials of consistent quality in appearance and physical properties.
- D. Mockups: Prepare mockups of restoration and cleaning as follows to demonstrate aesthetic effects and qualities of materials and execution. Prepare mockups on existing walls under same weather conditions to be expected during remainder of the Work.
1. Clean 10 heavily soiled existing bricks and provide tinted mortar sample.
    - a. Test cleaners and methods on samples of adjacent materials for possible adverse reactions unless cleaners and methods are known to have deleterious effect.
    - b. Allow a waiting period of not less than seven days after completion of sample cleaning to permit a study of sample bricks for negative reactions.



## 1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver cleaning products to Project site in manufacturer's original and unopened containers, labeled with manufacturer's name and type of products.
- B. Store cementitious materials on elevated platforms, under cover, and in a dry location. Do not use cementitious materials that have become damp.
- C. Store hydrated lime in manufacturer's original and unopened containers. Discard lime if containers have been damaged or have been opened for more than two days.
- D. Store lime putty covered with water in sealed containers.
- E. Store sand where grading and other required characteristics can be maintained and contamination avoided.

## 1.7 PROJECT CONDITIONS

- A. Reconstruct chimney masonry only when air temperature is between and **40 and 90 deg F (4 and 32 deg C)** and is predicted to remain so for at least 7 days after completion of work.
- B. Cold-Weather Requirements: Comply with the following procedures for masonry chimney reconstruction:
  - 1. When air temperature is below **40 deg F (4 deg C)**, heat mortar ingredients and masonry to produce temperatures between **40 and 120 deg F (4 and 49 deg C)**.
  - 2. When mean daily air temperature is below **40 deg F (4 deg C)**, provide enclosure and heat to maintain temperatures above **32 deg F (0 deg C)** within the enclosure for 7 days after reconstruction.
- C. Hot-Weather Requirements: Protect masonry reconstruction when temperature and humidity conditions produce excessive evaporation of water from mortar and repair materials. Provide artificial shade and wind breaks and use cooled materials as required. Do not apply mortar to substrates with temperatures of **90 deg F (32 deg C)** and above.
- D. Clean masonry surfaces only when air temperature is **40 deg F (4 deg C)** and above and is predicted to remain so for at least 7 days after completion of cleaning.

## 1.8 SEQUENCING AND SCHEDULING

- A. Order replacement materials at earliest possible date, to avoid delaying completion of the Work.
- B. Order sand for mortar immediately after approval of mockups. Take delivery of and store at Project site a sufficient quantity of sand to complete Project.
- C. Perform masonry reconstruction in the following sequence:
  - 1. Carefully deconstruct existing chimneys. See drawing sheet #A8.1. Undertake each chimney deconstruction separately from the other. Do not damage or soil existing

roofing when undertaking deconstruction and reconstruction noted in paragraph #7 below.

2. Salvage a sample of existing mortar from each chimney. Samples should be marked, indicating which chimney they came from.
3. Store salvaged masonry in a secure location.
4. Prepare a mockup sample illustrating final cleaning of at least 10 of the most heavily soiled bricks.
5. After cleaning mockup has been approved, clean all existing bricks that will be reinstalled.
6. Allow 7 days for bricks to dry after final cleaning.
7. Reconstruct both chimneys to match elevation, plan, and flashing/counterflashing details shown on the drawings. Note that reconstruction will include new wire joint reinforcing and flashing/counterflashing. See specification section 042000.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

- A. In other Part 2 articles where titles below introduce lists, the following requirements apply for product selection:
  1. Manufacturers: Subject to compliance with requirements, provide products by the manufacturers specified.

### 2.2 MORTAR MATERIALS

- A. Portland Cement: ASTM C 150, Type I.
  1. Provide white non staining cement containing not more than 0.60 percent total alkali when tested according to ASTM C 114.
- B. Hydrated Lime: ASTM C 207, Type S by Riverton Corporation.
- C. Factory-Prepared Lime Putty: Screened, fully-slaked lime putty, prepared from pulverized lime complying with ASTM C 5.
- D. Mortar Sand: ASTM C 144, unless otherwise indicated.
  1. Color: Provide natural sand; of color necessary to produce required mortar color.
  2. For pointing mortar, provide sand with rounded edges.
  3. Match size, texture, and gradation of existing mortar sand as closely as possible. Blend several sands, if necessary, to achieve suitable match.
- E. Mortar Pigments: Natural and synthetic iron oxides, compounded for mortar mixes. Use only pigments with a record of satisfactory performance in masonry mortars.
- F. Mortar proportions:
 

White Portland Cement:	1 Part
Lime or Lime Putty:	2 Parts
Aggregate:	9 Parts
- G. Water: Potable.

### 2.3 CLEANING MATERIALS

- A. Water for Cleaning: Potable.
- B. Hot Water: Heat water to a temperature of 140 to 160 deg F (60 to 71 deg C).
- C. Job-Mixed Detergent Solution: Solution prepared by mixing 2 cups (0.5 L) of tetrasodium polyphosphate (TSPP), 1/2 cup (125 mL) of laundry detergent, and 20 quarts (20 L) of hot water for every 5 gal. (20 L) of solution required.
- D. Job-Mixed Mold, Mildew, and Algae Remover: Solution prepared by mixing 2 cups (0.5 L) of tetrasodium polyphosphate (TSPP), 5 quarts (5 L) of 5 percent sodium hypochlorite (bleach), and 15 quarts (15 L) of hot water for every 5 gal. (20 L) of solution required.

### 2.4 MORTAR MIXES

- A. Preparing Lime Putty: Slake quicklime and prepare lime putty according to appendix to ASTM C 5 and manufacturer's written instructions.
- B. Measurement and Mixing: Measure cementitious materials and sand in a dry condition by volume or equivalent weight. Do not measure by shovel; use known measure. Mix materials in a clean, mechanical batch mixer.
  - 1. Mixing Pointing Mortar: Thoroughly mix cementitious materials and sand together before adding any water. Then mix again adding only enough water to produce a damp, unworkable mix that will retain its form when pressed into a ball. Maintain mortar in this dampened condition for 15 to 30 minutes. Add remaining water in small portions until mortar reaches desired consistency. Use mortar within one hour of final mixing; do not retemper or use partially hardened material.
- C. Do not use admixtures of any kind in mortar, unless otherwise indicated.

### 2.5 DETERGENT CLEANING SOLUTIONS

- 1. Use tri-sodium phosphate (TSP) in water solution per 049010/2.3c.

## PART 3 - EXECUTION

### 3.1 PROTECTION

- A. Protect persons, motor vehicles, surrounding surfaces of building being restored, building site, plants, and surrounding buildings from harm resulting from masonry restoration work.
  - 1. Erect temporary protective covers over walkways and at points of pedestrian and vehicular entrance and exit that must remain in service during course of restoration and cleaning work.

- B. Comply with chemical cleaner manufacturer's written instructions for protecting building and other surfaces against damage from exposure to its products. Prevent chemical cleaning solutions from coming into contact with pedestrians, motor vehicles, landscaping, buildings, and other surfaces that could be harmed by such contact.
  - 1. Cover adjacent surfaces with materials that are proven to resist chemical cleaners used unless chemical cleaners being used will not damage adjacent surfaces. Use materials that contain only waterproof, UV-resistant adhesives. Apply masking agents to comply with manufacturer's written instructions. Do not apply liquid masking agent to painted or porous surfaces. When no longer needed, promptly remove masking to prevent adhesive staining.
  - 2. Keep wall wet below area being cleaned to prevent streaking from runoff.
  - 3. Do not clean masonry during winds of sufficient force to spread cleaning solutions to unprotected surfaces.
  - 4. Neutralize and collect alkaline and acid wastes for disposal off Owner's property.
  - 5. Dispose of runoff from cleaning operations by legal means and in a manner that prevents soil erosion, undermining of paving and foundations, damage to landscaping, and water penetration into building interiors.
  
- C. Prevent mortar from staining face of surrounding masonry and other surfaces.
  - 1. Cover sills, ledges, roofs, and projections to protect from mortar droppings.
  - 2. Keep wall area wet below rebuilding and pointing work to discourage mortar from adhering.
  - 3. Immediately remove mortar in contact with exposed masonry and other surfaces.
  - 4. Clean mortar splatters from scaffolding at end of each day.

### 3.2 CLEANING MASONRY, GENERAL

- A. Proceed with cleaning in an orderly manner; work from top to bottom of each scaffold width and from one end of each elevation to the other.
  
- B. Use only those cleaning methods indicated for each masonry material and location.
  - 1. Do not use wire brushes or brushes that are not resistant to chemical cleaner being used. Do not use plastic-bristle brushes if natural-fiber brushes will resist chemical cleaner being used.
  - 2. Use spray equipment that provides controlled application at volume and pressure indicated, measured at spray tip. Adjust pressure and volume to ensure that cleaning methods do not damage masonry.
    - a. Equip units with pressure gages.
  - 3. For chemical cleaner spray application, use low-pressure tank or chemical pump suitable for chemical cleaner indicated, equipped with cone-shaped spray tip.
  - 4. For water spray application, use fan-shaped spray tip that disperses water at an angle of 25 to 50 degrees.
  - 5. For heated water spray application, use equipment capable of maintaining temperature between 140 and 160 deg F (60 and 71 deg C) at flow rates indicated.

- C. Perform each cleaning method indicated in a manner that results in uniform coverage of all surfaces, including corners, moldings, and interstices, and that produces an even effect without streaking or damaging masonry surfaces.
- D. Removing Plant Growth: Completely remove plant, moss, and shrub growth from masonry surfaces.
- E. Preliminary Cleaning: Before beginning general cleaning, remove extraneous substances that are resistant to cleaning methods being used. Extraneous substances include paint, caulking, asphalt, and tar.
  - 1. Remove paint and caulking with alkaline paint remover.
    - a. Comply with requirements for paint removal.
    - b. Repeat application up to two times if needed.
  - 2. Remove asphalt and tar with solvent-type paint remover.
    - a. Apply only to asphalt and tar by brush without prewetting.
    - b. Allow paint remover to remain on surface for 10 to 30 minutes.
    - c. Rinse off with cold water using low-pressure spray.
    - d. Repeat application if needed.
- F. Water Spray Applications: Unless otherwise indicated, hold spray nozzle at least **6 inches (150 mm)** from surface of masonry and apply water in horizontal back and forth sweeping motion, overlapping previous strokes to produce uniform coverage.
- G. Chemical Cleaner Application Methods: Apply chemical cleaners to masonry surfaces to comply with chemical cleaner manufacturer's written instructions; use brush or spray application methods, at Contractor's option. Do not spray apply at pressures exceeding **50 psi (345 kPa)**. Do not allow chemicals to remain on surface for periods longer than those indicated or recommended by manufacturer.
- H. Rinse off chemical residue and soil by working upward from bottom to top of each treated area at each stage or scaffold setting. Periodically during each rinse, test pH of rinse water running off of cleaned area to determine that chemical cleaner is completely removed.
  - 1. Apply neutralizing agent and repeat rinse, if necessary, to produce tested pH of between 6.7 and 7.5.
- I. After cleaning is complete, remove protection no longer required. Remove tape and adhesive marks.

### 3.3 CLEANING BRICKWORK

- A. Cold-Water Wash: Use cold water applied by low-pressure spray.
- B. Cold Water Soak:
  - 1. Apply cold water by intermittent soaking.

2. Use perforated hoses or other means that will apply a fine water mist to entire surface being cleaned.
3. Apply water in cycles with at least 30 minutes between cycles.
4. Continue water application until surface encrustation has softened sufficiently to permit its removal by water wash, as indicated by cleaning tests.
5. Remove soil and softened surface encrustation from masonry with cold water applied by low-pressure spray.

C. Detergent Cleaning:

1. Wet masonry with cold water applied by low-pressure spray.
2. Scrub masonry with detergent solution using medium-soft brushes until soil is thoroughly dislodged and can be removed by rinsing. Use small brushes to remove soil from mortar joints and crevices. Dip brush in solution often to ensure that adequate fresh detergent is used and that masonry surface remains wet.
3. Rinse with cold water applied by low-pressure spray to remove detergent solution and soil.
4. Repeat cleaning procedure above where required to produce cleaning effect established by mockup.

3.4 FINAL CLEANING

- A. After mortar has fully hardened, thoroughly clean exposed masonry surfaces of excess mortar and foreign matter; use wood scrapers, stiff-nylon or -fiber brushes, and clean water, spray applied at low pressure.
  1. Do not use metal scrapers or brushes.
  2. Do not use acidic or alkaline cleaners.
- B. Wash adjacent woodwork and other non-masonry surfaces. Use detergent and soft brushes or cloths.
- C. Clean masonry debris from roof. Rinse off roof.
- D. Sweep and rake adjacent pavement and grounds to remove masonry debris. Where necessary, low pressure wash surfaces to remove mortar, dust, dirt, and stains.

END OF SECTION 049010

## SECTION 055000 - METAL FABRICATIONS

## PART 1 - GENERAL

## 1.1 RELATED DOCUMENTS

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

## 1.2 SUMMARY

- A. This Section includes the following metal fabrications:

1. Rough hardware.
2. Loose bearing and leveling plates.
3. Metal posts and railings.
4. Wire cloth and frames for railing assemblies.
5. Pipe railing brackets
6. Stainless steel skirt on 2 sides of janitor's floor sink.
7. Perforated metal and frames for exterior eave vents.
8. Bent steel plate fire extinguisher cabinet supports.
9. Steel angle countertop support frames.

- B. Related Sections: The following Sections contain requirements that relate to this Section:

1. Division 5 Section "Structural Steel" for structural steel framing system components.

## 1.3 SUBMITTALS

- A. General: Submit each item in this Article according to the Conditions of the Contract and Division 1 Specification Sections.
- B. Shop drawings detailing fabrication and erection of each metal fabrication indicated. Include plans, elevations, sections, and details of metal fabrications and their connections. Show anchorage and accessory items. Provide templates for anchors and bolts specified for installation under other Sections.

## 1.4 QUALITY ASSURANCE

- A. Fabricator Qualifications: Firm experienced in producing metal fabrications similar to those indicated for this Project with a record of successful in-service performance, and with sufficient production capacity to produce required units without delaying the Work.
- B. Welding Standards: Comply with applicable provisions of AWS D1.1 "Structural Welding Code--Steel," AWS D1.2 "Structural Welding

Code--Aluminum," and AWS D1.3 "Structural Welding Code--Sheet Steel."

#### 1.5 PROJECT CONDITIONS

- A. Field Measurements: Check actual locations of walls and other construction to which metal fabrications must fit by accurate field measurements before fabrication. Show recorded measurements on final shop drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

### PART 2 - PRODUCTS

#### 2.1 FERROUS METALS

- A. Metal Surfaces, General: For metal fabrications exposed to view in the completed Work, provide materials selected for their surface flatness, smoothness, and freedom from surface blemishes. Do not use materials with exposed pitting, seam marks, roller marks, rolled trade names, or roughness.
- B. Steel Plates, Shapes, and Bars: ASTM A 36/A 36M.
- C. Welding Rods and Bare Electrodes: Select according to AWS specifications for the metal alloy to be welded.

#### 2.2 PAINT

- A. Shop Primer for Ferrous Metal: Fast-curing, lead- and chromate-free, universal modified-alkyd primer complying with performance requirements of FS TT-P-664, selected for good resistance to normal atmospheric corrosion, compatibility with finish paint systems indicated, and capability to provide a sound foundation for field-applied topcoats despite prolonged exposure.
- B. Galvanizing Repair Paint: High-zinc-dust-content paint for regalvanizing welds in galvanized steel, with dry film containing not less than 94 percent zinc dust by weight, and complying with DOD-P-21035 or SSPC-Paint 20.
- C. Bituminous Paint: Cold-applied asphalt mastic complying with SSPC-Paint 12, except containing no asbestos fibers.

#### 2.3 FASTENERS

- A. General: Provide plated fasteners complying with ASTM B 633, Class Fe/Zn 25 for electrodeposited zinc coating, for exterior use or where built into exterior walls. Select fasteners for the type, grade, and class required.



- B. Bolts and Nuts: Regular hexagon-head bolts, ASTM A 307, Grade A (ASTM F 568, Property Class 4.6), with hex nuts, ASTM A 563 (ASTM A 563M), and, where indicated, flat washers.
- C. Machine Screws: ANSI B18.6.3.
- D. Lag Bolts: ANSI B18.2.1 (ANSI B18.2.3.8M).
- E. Wood Screws: Flat head, carbon steel, ANSI B18.6.1.
- F. Plain Washers: Round, carbon steel, ANSI B18.22.1 (ANSI B18.22M).
- G. Lock Washers: Helical, spring type, carbon steel, ANSI B18.21.1.
- H. Toggle Bolts: FS FF-B-588, tumble-wing type, class and style as required.

#### 2.4 GROUT

- A. Nonshrink, Nonmetallic Grout: Factory-packaged, nonstaining, noncorrosive, nongaseous grout complying with ASTM C 1107. Provide grout specifically recommended by manufacturer for interior and exterior applications.
- B. Products: Subject to compliance with requirements, provide one of the following:

##### 1. Nonshrink, Nonmetallic Grouts:

- a. B-6 Construction Grout; W. R. Bonsal Co.
- b. Diamond-Crete Grout; Concrete Service Materials Co.
- c. Supreme; Cormix Construction Chemicals.
- d. Sure-grip High Performance Grout; Dayton Superior Corp.
- e. Euco N-S Grout; Euclid Chemical Co.
- f. Five Star Grout; Five Star Products.
- g. Vibropruf #11; Lambert Corp.
- h. Crystex; L & M Construction Chemicals, Inc.
- i. Masterflow 928 and 713; Master Builders Technologies, Inc.
- j. Sealtight 588 Grout; W. R. Meadows, Inc.
- k. SonogROUT 14; Sonneborn Building Products--ChemRex, Inc.
- l. Kemset; The Spray-Cure Company.

#### 2.5 FABRICATION, GENERAL

- A. Form metal fabrications from materials of size, thickness, and shapes indicated but not less than that needed to comply with performance requirements indicated. Work to dimensions indicated or accepted on shop drawings, using proven details of fabrication and support. Use type of materials indicated or specified for various components of each metal fabrication.

- B. Form exposed work true to line and level with accurate angles and surfaces and straight sharp edges.
- C. Allow for thermal movement resulting from the following maximum change (range) in ambient temperature in the design, fabrication, and installation of installed metal assemblies to prevent buckling, opening up of joints, and overstressing of welds and fasteners. Base design calculations on actual surface temperatures of metals due to both solar heat gain and nighttime sky heat loss.
  - 1. Temperature Change (Range): 100 deg F (55.5 deg C).
- D. Shear and punch metals cleanly and accurately. Remove burrs.
- E. Ease exposed edges to a radius of approximately 1/32 inch (1 mm), unless otherwise indicated. Form bent-metal corners to smallest radius possible without causing grain separation or otherwise impairing work.
- F. Remove sharp or rough areas on exposed traffic surfaces.
- G. 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 that no roughness shows after finishing, and contour of welded surface matches those adjacent.
- H. Form exposed connections with hairline joints, flush and smooth, using concealed fasteners wherever possible. Use exposed fasteners of type indicated or, if not indicated, Phillips flat-head (countersunk) screws or bolts. Locate joints where least conspicuous.
- I. Provide for anchorage of type indicated; coordinate with supporting structure. Fabricate and space anchoring devices to secure metal fabrications rigidly in place and to support indicated loads.
- J. Shop Assembly: Preassemble items in shop to greatest extent possible to minimize field splicing and assembly. 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.
- K. Cut, reinforce, drill, and tap metal fabrications as indicated to receive finish hardware, screws, and similar items.

- L. Fabricate joints that will be exposed to weather in a manner to exclude water or provide weep holes where water may accumulate.

#### 2.6 ROUGH HARDWARE

- A. Furnish bent, or otherwise custom-fabricated, bolts, plates, anchors, hangers, dowels, and other miscellaneous steel and iron shapes as required for framing and supporting woodwork, and for anchoring or securing woodwork to concrete or other structures. Straight bolts and other stock rough hardware items are specified in Division 6 Sections.
- B. Fabricate items to sizes, shapes, and dimensions required. Furnish malleable-iron washers for heads and nuts that bear on wood structural connections and furnish steel washers elsewhere.

#### 2.7 LOOSE BEARING AND LEVELING PLATES

- A. Provide loose bearing and leveling plates for steel items bearing on masonry or concrete construction, made flat, free from warps or twists, and of the required thickness and bearing area. Drill plates to receive anchor bolts and for grouting as required. Galvanize after fabrication.

#### 2.8 POSTS AND RAILINGS

- A. Fabricate posts and railings, as detailed on the drawings, from hot dipped zinc coated (galvanized) pipe, Schedule 40 in accordance with ASTM A53, A120, A135 or A795. Provide threaded fittings and all necessary accessories for a complete system including wall escutcheons.

#### 2.9 STEEL PIPE RAILING WIRE CLOTH AND FRAMES

- A. As detailed on the drawings, furnish and install galvanized woven wire cloth railing infill panels in galvanized steel bar frames having welded bar-to-bar connections with all welds ground smooth. Steel bars shall be 1/8" x 1" and 3/16" x 1" as detailed. Woven wire cloth shall be McNichols, Inc. (1-800-237-3820) pre-galvanized, .120 gauge, 2" opening, plain weave woven wire cloth.

#### 2.10 STEEL PIPE RAILING BRACKETS

- A. Where exterior steel pipe rails are attached to walls, furnish and install cast galvanized steel handrail brackets similar and equal to J. Blum #1382 with galvanized countersunk lag bolt fasteners. Where required, furnish round galvanized steel shims to maintain centerline alignment of railings. Note: where brackets are attached to wood siding, square wood shims (as detailed on the drawings) may be installed.

## 2.11 STAINLESS STEEL SKIRT WAINSCOTT AT TERRAZZO RECEPTORS

- A. Provide 20-gauge type 304 stainless steel wainscot/splashguard on 2 sides of terrazzo receptor. Inside corners shall be fabricated by bending sheet steel continuously or by stainless steel slip angles set in bed of sealant: skirt shall be 3'-0" high x width of receptor.

## 2.12 PERFORATED METAL AND FRAMES FOR EXTERIOR EAVE VENTS

- A. Located between exterior rafter tails and as detailed on the drawings: 26-gauge (0.05") carbon steel perforated sheet metal with 1/16" round holes on 3/32" staggered centers with mitered 1" U-edging frames. All steel work pre-finished w/powder-coat paint in custom color provided by architect. McNichols Co., 1-800-237-3820.

## 2.13 BENT STEEL PLATE FIRE EXTINGUISHER CABINET SUPPORTS.

- A. 8" x 8" x 8" x 3/8" bent steel plate bored to receive screw attachment to wall blocking and wood fire extinguisher cabinet. See detail on drawings.

## 2.14 STEEL ANGLE COUNTERTOP SUPPORT FRAMES.

- A. 2" x 2" x 3/8" steel angles bolted to double light gauge steel wall studs. See detail on drawings

## 2.15 STEEL AND IRON FINISHES

- A. Galvanizing: For those items indicated for galvanizing, apply zinc coating by the hot-dip process complying with the following requirements:

- 1. ASTM A 153 for galvanizing iron and steel hardware.
- 2. ASTM A 123 for galvanizing both fabricated and unfabricated iron and steel products made of uncoated rolled, pressed, and forged shapes, plates, bars, and strip 0.0299 inch (0.76 mm) thick or thicker.

- B. Preparation for Shop Priming: Prepare uncoated ferrous metal surfaces to comply with minimum requirements indicated below for SSPC surface preparation specifications and environmental exposure conditions of installed metal fabrications:

- 1. Exteriors (SSPC Zone 1B): SSPC-SP 6 "Commercial Blast Cleaning."
- 2. Interiors (SSPC Zone 1A): SSPC-SP 3 "Power Tool Cleaning."

- C. Apply shop primer to uncoated surfaces of metal fabrications, except those with galvanized finishes or to be embedded in concrete, sprayed-on fireproofing, or masonry, unless otherwise indicated. Comply with requirements of SSPC-PA 1 "Paint Application Specification No. 1" for shop painting.

1.Stripe paint corners, crevices, bolts, welds, and sharp edges.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Coordinate and furnish anchorages, setting drawings, diagrams, templates, instructions, and directions for installing anchorages, including concrete inserts, sleeves, anchor bolts, and miscellaneous items having integral anchors that are to be embedded in concrete or masonry construction. Coordinate delivery of such items to Project site.

3.2 INSTALLATION, GENERAL

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

## 3.3 SETTING LOOSE PLATES

- A. Clean concrete and masonry bearing surfaces of bond-reducing materials and roughen to improve bond to surfaces. Clean bottom surface of bearing plates.
- B. Set loose leveling and bearing plates on wedges or other adjustable devices. After the bearing members have been positioned and plumbed, tighten the anchor bolts. Do not remove wedges or shims, but if protruding, cut off flush with the edge of the bearing plate before packing with grout.

1. Use nonshrink, metallic grout in concealed locations where not exposed to moisture; use nonshrink, nonmetallic grout in exposed locations, unless otherwise indicated.

2. Pack grout solidly between bearing surfaces and plates to ensure that no voids remain.

## 3.4 ADJUSTING AND CLEANING

- A. Touchup Painting: Immediately after erection, clean field welds, bolted connections, and abraded areas of shop paint, and paint exposed areas with same material as used for shop painting to comply with SSPC-PA 1 requirements for touching up shop-painted surfaces.

1. Apply by brush or spray to provide a 2.0-mil (0.05-mm) minimum dry film thickness.

- B. Touchup Painting: Cleaning and touchup painting of field welds, bolted connections, and abraded areas of the shop paint on miscellaneous metal is specified in Division 9 Section "Painting."
- C. For galvanized surfaces, clean welds, bolted connections, and abraded areas, and apply galvanizing repair paint to comply with ASTM A 780.

END OF SECTION 055000

## SECTION 055110 - METAL STAIRS

## PART 1 - GENERAL

## 1.1 RELATED DOCUMENTS

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

## 1.2 SUMMARY

- A. This Section includes the following:
  - 1. Preassembled steel stairs with checkered steel plate treads and closed steel risers.
- B. Related Sections include the following:
  - 1. Division 5 Section 055000 "Metal Fabrications" for metal posts, railings, and expanded metal infill.

## 1.3 PERFORMANCE REQUIREMENTS

- A. Structural Performance of Stairs: Provide metal stairs capable of withstanding the effects of gravity loads and the following loads and stresses within limits and under conditions noted in the NC Building Code.
- B. Structural Performance of Railings: Provide railings capable of withstanding the effects of gravity loads and the loads and stresses within limits and under conditions noted in the NC Building Code.
- C. Seismic Performance: Provide metal stairs capable of withstanding the effects of earthquake motions determined according to NC Building Code.

## 1.4 SUBMITTALS

- A. Product Data: For metal stairs and the following:
  - 1. Metal floor plate treads.
- B. Shop Drawings: Include plans, elevations, sections, details, and attachments to other work.
  - 1. Provide templates for anchors and bolts specified for installation under other Sections.

## 1.5 QUALITY ASSURANCE

- A. NAAMM Stair Standard: Comply with "Recommended Voluntary Minimum Standards for Fixed Metal Stairs" in NAAMM AMP 510, "Metal Stairs Manual," for class of stair designated, unless more stringent requirements are indicated.
  - 1. Preassembled Stairs: Service class.
- B. Welding: Qualify procedures and personnel according to the following:
  - 1. AWS D1.1, "Structural Welding Code--Steel."
  - 2. AWS D1.3, "Structural Welding Code--Sheet Steel."

## 1.6 COORDINATION

- A. Coordinate installation of anchorages for metal stairs. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.

## PART 2 - PRODUCTS

## 2.1 MANUFACTURERS

- A. Provide products by local metal stair fabricator complying with these specifications.

## 2.2 METALS, GENERAL

- A. Metal Surfaces, General: Provide materials with smooth, flat surfaces, unless otherwise indicated. For components exposed to view in the completed Work, provide materials without seam marks, roller marks, rolled trade names, or blemishes.

## 2.3 FERROUS METALS

- A. Steel Plates, Shapes, and Bars: ASTM A 36/A 36M.
- B. Steel Tubing: ASTM A 500 (cold formed).
- C. Checkered-Steel Floor Plate: ASTM A 786/A 786M, rolled from plate complying with ASTM A 36/A 36M or ASTM A 283/A 283M, Grade C or D.
- D. Uncoated, Hot-Rolled Steel Sheet: ASTM A 1011/A 1011M, either commercial steel, Type B, or structural steel, Grade 30 (Grade 205), unless another grade is required by design loads.

## 2.4 FASTENERS



- A. General: Provide zinc-plated fasteners with coating complying with ASTM B 633, Class Fe/Zn 25 for exterior use, and Class Fe/Zn 5 where built into exterior walls. Select fasteners for type, grade, and class required.
- B. Bolts and Nuts: Regular hexagon-head bolts, ASTM A 307, Grade A (ASTM F 568M, Property Class 4.6); with hex nuts, ASTM A 563 (ASTM A 563M); and, where indicated, flat washers.
- C. Anchor Bolts: ASTM F 1554, Grade 36.
  - 1. Provide hot-dip or mechanically deposited, zinc-coated anchor bolts for stairs indicated to be shop primed with zinc-rich primer.
- D. Machine Screws: ASME B18.6.3 (ASME B18.6.7M).
- E. Lag Bolts: ASME B18.2.1 (ASME B18.2.3.8M).
- F. Plain Washers: Round, ASME B18.22.1 (ASME B18.22M).
- G. Lock Washers: Helical, spring type, ASME B18.21.1 (ASME B18.21.2M).

## 2.5 MISCELLANEOUS MATERIALS

- A. Welding Rods and Bare Electrodes: Select according to AWS specifications for metal alloy welded.
- B. Universal Shop Primer: Fast-curing, lead- and chromate-free, universal modified-alkyd primer complying with MPI#79.
- C. Galvanizing Repair Paint: High-zinc-dust-content paint for regalvanizing welds in steel, complying with SSPC-Paint 20.
- D. Bituminous Paint: Cold-applied asphalt emulsion complying with ASTM D 1187.
- E. Nonshrink, Nonmetallic Grout: Factory-packaged, nonstaining, noncorrosive, nongaseous grout complying with ASTM C 1107. Provide grout specifically recommended by manufacturer for interior and exterior applications.

## 2.6 FABRICATION, GENERAL

- A. Provide complete stair assemblies, including metal framing, hangers, struts, railings, clips, brackets, bearing plates, and other components necessary to support and anchor stairs and platforms on supporting structure.
  - 1. Join components by welding, unless otherwise indicated.
  - 2. Use connections that maintain structural value of joined pieces.
- B. Preassembled Stairs: Assemble stairs in shop to greatest extent possible. Disassemble units only as necessary for shipping and handling limitations. Clearly mark units for reassembly and coordinated installation.

- C. Cut, drill, and punch metals cleanly and accurately. Remove burrs and ease edges to a radius of approximately  $1/32$  inch (1 mm), unless otherwise indicated. Remove sharp or rough areas on exposed surfaces.
- D. Form bent-metal corners to smallest radius possible without causing grain separation or otherwise impairing work.
- E. Form exposed work true to line and level with accurate angles and surfaces and straight edges.
- F. Weld connections 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. Weld exposed corners and seams continuously, unless otherwise indicated.
  - 5. 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.
- G. 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.

## 2.7 STEEL-FRAMED STAIRS

- A. Stair Framing:
  - 1. Fabricate stringers of steel channels.
  - 2. Construct platforms of checkered steel plate or channel headers and miscellaneous framing members as needed to comply with performance requirements.
  - 3. Weld or bolt stringers to headers; weld or bolt framing members to stringers and headers. If using bolts, fabricate and join so bolts are not exposed on finished surfaces.

## 2.8 FINISHES

- A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
- B. Finish metal stairs after assembly.
- C. Preparation for Shop Priming: Prepare uncoated ferrous-metal surfaces to comply with minimum requirements indicated below for SSPC surface preparation specifications and environmental exposure conditions of installed products.
- D. Apply shop primer to uncoated surfaces of metal stair components, except those with galvanized finishes and those to be embedded in concrete or masonry unless otherwise indicated. Comply with SSPC-PA 1, "Paint

Application Specification No. 1: Shop, Field, and Maintenance Painting of Steel," for shop painting.

1. Stripe paint corners, crevices, bolts, welds, and sharp edges.

### PART 3 - EXECUTION

#### 3.1 INSTALLATION, GENERAL

- A. Fastening to In-Place Construction: Provide anchorage devices and fasteners where necessary for securing metal stairs to in-place construction. Include threaded fasteners for concrete and masonry inserts, through-bolts, lag bolts, and other connectors.
- B. Cutting, Fitting, and Placement: Perform cutting, drilling, and fitting required for installing metal stairs. Set units accurately in location, alignment, and elevation, measured from established lines and levels and free of rack.
- C. Install metal stairs by welding stair framing to steel structure or to weld plates cast into concrete, unless otherwise indicated.
- D. Provide temporary bracing or anchors in formwork for items that are to be built into concrete, masonry, or similar construction.
- E. Fit exposed connections accurately together to form hairline joints. Weld connections that are not to be left as exposed joints but cannot be shop welded because of shipping size limitations. Do not weld, cut, or abrade surfaces of exterior units that have been hot-dip galvanized after fabrication and are for bolted or screwed field connections.
- F. Field Welding: Comply with the following requirements:
  1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
  2. Obtain fusion without undercut or overlap.
  3. Remove welding flux immediately.
  4. At exposed connections, finish exposed welds and surfaces smooth and blended so no roughness shows after finishing and contour of welded surface matches that of adjacent surface.

#### 3.2 INSTALLING METAL STAIRS WITH GROUTED BASEPLATES

- A. Clean concrete and masonry bearing surfaces of bond-reducing materials, and roughen to improve bond to surfaces. Clean bottom surface of baseplates.
- B. Set steel stair baseplates on wedges, shims, or leveling nuts. After stairs have been positioned and aligned, tighten anchor bolts. Do not remove wedges or shims but, if protruding, cut off flush with edge of bearing plate before packing with grout.
  1. Use nonmetallic, nonshrink grout, unless otherwise indicated.
  2. Pack grout solidly between bearing surfaces and plates to ensure that no voids remain.

## 3.3 ADJUSTING AND CLEANING

- A. Touchup Painting: Immediately after erection, clean field welds, bolted connections, and abraded areas of shop paint, and paint exposed areas with the same material as used for shop painting to comply with SSPC-PA 1 for touching up shop-painted surfaces.
  - 1. Apply by brush or spray to provide a minimum 2.0-mil (0.05-mm) dry film thickness.
- B. Touchup Painting: Cleaning and touchup painting of field welds, bolted connections, and abraded areas of shop paint are specified in Division 9 painting Sections.

END OF SECTION 055110

## SECTION 060000 – WOOD REHABILITATION WORK

## PART 1 - GENERAL

## 1.1 RELATED DOCUMENTS:

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification sections, apply to work of this section.

## 1.2 SUMMARY:

- A. Extent and location of work is throughout the project area. Types of existing wooden elements include:
  - 1. Window assemblies
  - 2. The window rehabilitation schedule on Sheet #A8.1 provides a general list of the minimum number of rehabilitation tasks.
- B. Glazing replacements, if required, are specified in section 088000.
- C. Lead paint interim control/abatement is specified in Section 020750. Painting is specified in Section 099110 and 099120.
- D. Repair schedule: The contractor shall prepare a repair schedule indicating the location and extent of specific repairs to be undertaken. This schedule is to ensure that the contractor and architect are in agreement as to the extent and method of repair, replacement to be undertaken, such that unnecessary replacement does not take place. Windows which are racked or have loose joints shall be dismantled and reassembled as necessary to correct the defect. The repair schedule should include:
  - 1. Schedule of window repairs. A separate 8.5"x11" schedule for each opening shall be prepared indicating the extent of repairs necessary to make each window assembly appropriately functional with all missing or irreparably damaged parts replaced.
  - 2. The method of repair shall be noted for each repair listed above, ie. Epoxy consolidation, dutchman, scarf, replacement.
- E. Shop Drawings: Indicate location, profile and other details of assembly of each element to be replaced.
- F. Samples: 12" lengths of each item to be replaced shall be supplied unless another length or more complete assemble is appropriate for the architect's approval.

## 1.3 QUALITY ASSURANCE:

- A. Single Source Responsibility: Obtain repair and replacement elements from a single manufacturer.
- B. Craftsman Qualifications: the General Contractor shall employ a craftsman with a minimum of 15 years experience in wood rehabilitation work similar to tasks outlined in this Section to undertake wood rehabilitation tasks specified herein. Any workers who assist the principal craftsman shall each

have at least five years experience in wood rehabilitation work. Upon request by the architect, furnish references of previous projects completed by the principal craftsman and assistants including project name, location, client name and client phone number.

#### 1.4 PRODUCT DELIVERY, STORAGE, AND HANDLING:

- A. Protect individual elements during transit, storage and handling to prevent damage, soiling and deterioration.

#### 1.5 PROJECT CONDITIONS:

- A. Conditioning: Do not deliver or install repair elements until conditions for temperature and relative humidity have been stabilized and will be maintained in storage and installation areas during remainder of construction period to comply with requirements of the following quality standard applicable to project's geographical location.

1. "Architectural Woodwork Quality Standards" including Section 100-S-3 2. "Moisture Content" of Architectural Woodwork Institute (AWI).

### PART 2 - PRODUCTS

#### 2.1 MANUFACTURERS:

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering repair elements or supplies for more than 10 years may be incorporated in the work subject to approval of the architect.

#### 2.2 WOODEN REPAIR ELEMENTS:

- A. AWI Quality Standard: Comply with "Architectural Woodwork Quality Standards" including all appropriate sections for windows of Architectural Woodwork Institute (AWI). All work shall meet AWI standards for "Custom" Grade.
- B. Wood Species for Painted Finish: Longleaf southern yellow pine, plain sawn. Wood shall be dried to 6-12% moisture content.
- C. Wood Species for secondary woods: Southern yellow pine, plain sawn. In damp locations a rot resistant wood species or pressure treatment shall be used
- D. Dimensions and profiles shall accurately replicate the original elements in their unpainted or finished condition.

#### 2.3 EPOXY CONSOLIDATION MATERIALS:

- A. Epoxy resins, fillers, and hardeners especially formulated for consolidation of rotten or otherwise damaged wood may be used with the approval of the architect. Epoxy consolidants shall be installed by personnel with at least 5 years experience in this craft. Approved manufacturers of epoxy consolidants include:

1. Abatron, Inc. 1-800-445-1754

- 2.Epoxy Technology, Inc. 1-800-227-2201
- 3.Advanced Repair Technology 607-264-9040
- 4.Conserv Epoxies 973-579-1112
- 5.Wood Care Systems 425-827-6000
- 6.West Systems 866-937-8797

#### 2.4 BACK PRIMING:

- A. Repair elements not intended for Transparent Finish: Seal all faces and edges of elements with primer sealer compatible with finishes indicated in:

- 1.Division-9 section "Painting".

### PART 3 - EXECUTION

#### 3.1 EXAMINATION:

- A. Examine installed woodwork for missing, rotten, or pest damaged elements. Dismantle as necessary to determine the extent of damage. Prepare the REPAIR SCHEDULE.

- 1.Ensure that all substrates are sound.
- 2.Reject all unacceptable repairs or replacement elements.

- B. Do not proceed with installation until unsatisfactory conditions have been corrected.

#### 3.2 Window Rehabilitation Schedule.

- A. The Work listed on the Window Rehabilitation Schedule on Sheet #A8.1 designated for rehabilitation shall include the following minimum tasks. The Window Rehabilitation Schedule and this specification point out observable repairs, however, if other repairs are needed the Contractor shall undertake other needed work. When window rehabilitation is completed, all double hung windows shall slide smoothly in their stops. The Contractor may observe condition of existing wood elements prior to bidding on the date of the Pre-Bid Meeting

- B. Rehabilitation of windows removed from their frames shall be undertaken with window laying flat on a wood work table as large or larger than the window and in an area with ample illumination. Natural daylight supplemented by artificial light is the preferred means of illumination.

#### 3.3 Window Rehabilitation

- A. REPLACE MISSING OR BROKEN GLAZING, MATCH EXISTING. Glazing shall be as scheduled and specified.
- B. REPAIR WOOD DETERIORATION THROUGHOUT. Work included in this task includes epoxy consolidation repair of any wood deterioration at sashes, frames, and or trim. The Contractor shall be required to make two types of epoxy repairs: 1) where existing wood surfaces have deterioration through 50% or less of their cross

section area, use epoxy consolidation to make needed repairs, and, 2) where hardware has been removed by prior alteration to the wood member or where the Work of this contract requires removal of hardware, use epoxy consolidants to fill void areas. Use epoxy consolidants in strict accordance with manufacturer's instructions. Prior to performing this Work, the Contractor shall clean dirt and soot from all existing sashes, frames, glass, and trim. Sashes, frames, and trim shall be cleaned so that surfaces are prepared to receive new paint finish specified in Division 9 of the specifications. Note: coordinate cleaning with painting sub-contractor. If painting sub-contractor is unwilling to accept base surface for finishing, reclean the surface until it is ready to receive paint. Cleaning shall be done with a dry soft cloth or tri-sodium phosphate and water wet solution and sponge/cloth. Dry any wet surfaces before painting.

- C. **REPAIR WINDOW JAMB.** Work included in this task is any repair and rehabilitation of window frames needed to ensure weathertightness of completed Work.
- D. **CLEAN AND REPAIR EXISTING HARDWARE FOR REUSE.** Where possible, existing hardware shall be retained and rehabilitated for reuse. Contractor shall remove existing paint, rust, or other deterioration. Where possible, reinstall using original fasteners but only if original fasteners provide for secure attachment and allow smooth operation of moving parts. New fasteners shall match existing.
- E. **REPLACE MISSING HARDWARE.** Each window sash shall be equipped with the following minimum hardware items:
  - 1. finger pull/lift hardware: #158E bright brass by Crown City Hardware Co.
  - 2. Sash lock: #800 bright brass by Crown City Hardware Co.

Approved equal manufacturers for pulls and locks: HB Ives, inc. or Renovator's Supply Co.

- F. **PULLEY WHEELS AND PULLEY CORDS WITH NYLON ROPE.** Where existing pulley wheels and ropes are missing or not functioning properly, furnish and install new pulley wheels and ropes to match existing. Approved manufacturer: Blaine Window Hardware, Inc. #00571, 1-800-678-1919. Approved equal manufacturers: Crown City Hardware, Inc. or Renovator's Supply Co. Use new nylon rope for cord replacement as needed. Repair or replace counterweights in existing jamb pockets. Supplier: Blaine Window Hardware, Inc. Approved equal manufacturers: Crown City Hardware, Inc. or Renovator's Supply Co.
- G. **CAST IRON COUNTERWEIGHTS** in 2 lb. 2.5 lb., 3.0 lb., or 3.5 lb. combinations to suit weight of sash.
- H. **REMOVE EXISTING WEATHERSTRIPPING AND REPLACE WITH NEW BRONZE COPPER WEATHERSTRIPPING.** Furnish and install sixteen-ounce bent copper or bronze at head, stool, and full height at jambs.
- I. **REMOVE AND REPAIR WINDOW SASHES.** Contractor shall remove existing sashes from frames. The sashes and frames shall be labeled by the Contractor at a concealed location with window numbers from the drawings so that each sash will be returned to its original frame. Any glass breakage without prior documentation from the Architect/Contractor walk-thru shall be replaced with matching glazing at the Contractor's expense. Carefully remove all existing glazing. Make repairs or replace pieces of existing sash that are missing or damaged. Match cross section profiles of existing wood members. Work shall conform to AWI Section 1000. Store removed sashes in a clean, dry, and secure location. Repairs to sashes shall be undertaken on a flat work table with ample ambient lighting. Provide a temporary weathertight



closure at existing opening while window is removed. Furnish and install new glazing with new glazing points in existing/repairs sash. Furnish and install new glazing putty.

- J. REPLACE WOOD TRIM TO MATCH EXISTING, PAINT. The Contractor shall be required to make two types of epoxy repairs top trim including frames: 1) where existing wood surfaces have deterioration through 50% or less of their cross section area, use epoxy consolidation to make needed repairs and, 2) where hardware has been removed by prior alterations to the wood member or where the Work of this contract requires removal of hardware, use epoxy consolidants to fill void areas. Use epoxy consolidants in strict accordance with manufacturer's instructions. Repairs to wood elements shall be in accordance with AWI Section 1000. Where stops are missing, replace with new wood stops to match existing. Where existing wood stools are missing, furnish/install new wood stool to match existing at other sashes.
- K. REMOVE, REPAIR, PAINT AND REINSTALL EXISTING SASH. After completion of all tasks necessary for a complete rehabilitation of sashes and frames, reinstall sash in frame. All work shall conform to AWI Section 1000. Verify that all hardware is functioning properly and that sashes slide smoothly in jambs and all locking hardware functions correctly. Make hardware adjustments as needed. Leave all windows locked upon completion of the Work.

#### 3.4 INSTALLATION:

- A. Hardware: For installation see Division-8 "Builder's Hardware" section of these specifications.
- B. Fasteners: For installation see Division-6 "Finish Carpentry" section of these specifications.
  - 1.Reinstall all repaired elements.
  - 2.Install all replacement elements, scribing and fitting the new work to the old rather than cutting the original material.

#### 3.5 ADJUSTING AND PROTECTION:

- A. Operation: Rehang or adjust doors or windows which do not swing or operate freely. If necessary, remove/reinstall/refinish stops so that windows and doors do not rattle in their frames.
- B. Protect windows to ensure that windows are without damage at time of Substantial Completion.

END OF SECTION 080000

## 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 1 Specification Sections, apply to this Section.

## 1.2 SUMMARY

- A. Refer to drawings for extent of rough carpentry work.
- B. This Section includes the following:
  - 1. Wood blocking, and nailers.
  - 2. Wood furring and grounds.
  - 3. Wood wall armoring at events room.
  - 4. Supplementary wood framing shown on structural drawings and needed for framing repairs at attic and crawl space.
  - 5. Utility shelving at janitor's closet.
- C. Related Sections include the following:
  - 1. Division 6 Section "Finish Carpentry" for nonstructural carpentry items exposed to view and not specified in another section.
  - 2. Division 6 section "Wood Rehabilitation" for repairs to existing historic woodwork.

## 1.3 DEFINITIONS

- A. Exposed Framing: Framing not concealed by other construction.
- B. Dimension Lumber: Lumber of 2 inches nominal or greater but less than 5 inches nominal in least dimension.
- C. Timber: Lumber of 5 inches nominal or greater in least dimension.
- D. Lumber grading agencies, and the abbreviations used to reference them, include the following:
  - 1. NeLMA: Northeastern Lumber Manufacturers' Association.
  - 2. NLGA: National Lumber Grades Authority.
  - 3. RIS: Redwood Inspection Service.
  - 4. SPIB: The Southern Pine Inspection Bureau.
  - 5. WCLIB: West Coast Lumber Inspection Bureau.
  - 6. WWPA: Western Wood Products Association.

#### 1.4 SUBMITTALS

- A. Product Data: For each type of process and factory-fabricated product. Indicate component materials and dimensions and include construction and application details.
  - 1. Include data for wood-preservative treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements. Indicate type of preservative used and net amount of preservative retained.
  - 2. For products receiving a waterborne treatment, include statement that moisture content of treated materials was reduced to levels specified before shipment to Project site.
  - 3. Include copies of warranties from chemical treatment manufacturers for each type of treatment.
- B. Material Certificates: For dimension lumber specified to comply with minimum allowable unit stresses. Indicate species and grade selected for each use and design value approved by the ALSC Board of Review.

#### 1.5 QUALITY ASSURANCE

- A. Some products and execution are specified in this section by reference to published specifications or standards of the following (with respective abbreviations used):
  - American Society of Testing Materials (ASTM)
  - American National Standards Institute (ANSI)
  - American Forest and Paper Association (AFPA)
  - Southern Pine Inspection Bureau (NSLB)
  - US Department of commerce Voluntary Product Standards (PS)
- B. Forest Certification: For the following wood products, provide materials produced from wood obtained from forests certified by an FSC-accredited certification body to comply with FSC 1.2, "Principles and Criteria":
  - 1. Dimension lumber framing.
  - 2. Timber.
  - 3. Laminated veneer lumber.
  - 4. Parallel-strand lumber.
  - 5. Rim boards.
  - 6. Miscellaneous lumber.

#### 1.6 DELIVERY, STORAGE, AND HANDLING

- A. Stack lumber plywood and other panels flat with spacers between each bundle to provide air circulation. Provide for air circulation around stacks and under coverings.
- B. Keep materials under cover and dry. Protect from weather and contact with damp or wet surfaces.

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

## PART 2 - PRODUCTS

### 2.1 WOOD PRODUCTS, GENERAL

- A. Lumber: DOC PS 20 and applicable rules of grading agencies indicated. If no grading agency is indicated, provide lumber that complies with the applicable rules of any rules-writing agency certified by the ALSC Board of Review. Provide lumber graded by an agency certified by the ALSC Board of Review to inspect and grade lumber under the rules indicated.
  - 1. Factory mark each piece of lumber with grade stamp of grading agency.
  - 2. For exposed lumber indicated to receive a stained or natural finish, mark grade stamp on end or back of each piece.
  - 3. 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.
  - 4. Provide dressed lumber, S4S, unless otherwise indicated.
- B. Engineered Wood Products: Provide engineered wood products acceptable to authorities having jurisdiction and for which current model code research or evaluation reports exist that show compliance with building code in effect for Project.
  - 1. Allowable Design Stresses: Provide engineered wood products with allowable design stresses, as published by manufacturer, that meet or exceed those indicated. Manufacturer's published values shall be determined from empirical data or by rational engineering analysis and demonstrated by comprehensive testing performed by a qualified independent testing agency.

### 2.2 WOOD-PRESERVATIVE-TREATED LUMBER

- A. Preservative Treatment by Pressure Process: AWPA C2, except that lumber that is not in contact with the ground and is continuously protected from liquid water may be treated according to AWPA C31 with inorganic boron (SBX).
  - 1. Preservative Chemicals: Acceptable to authorities having jurisdiction and containing no arsenic or chromium.
  - 2. For exposed items indicated to receive a stained or natural finish, use chemical formulations that do not require incising, contain colorants, bleed through, or otherwise adversely affect finishes.
- B. Kiln-dry lumber after treatment (KDAT) to a maximum moisture content of 19 percent. Do not use material that is warped or does not comply with requirements for untreated material.
- C. Mark lumber with treatment quality mark of an inspection agency approved by the ALSC Board of Review.

1. For exposed lumber indicated to receive a stained or natural finish, mark end or back of each piece.

D. Application: Treat items indicated on Drawings, and the following:

1. Wood nailers, curbs, equipment support bases, blocking, stripping, and similar members in connection with flashing, vapor barriers, and waterproofing.
2. Wood sills, sleepers, blocking, furring, stripping, and similar concealed members in contact with masonry or concrete.
3. Wood framing and furring attached directly to the interior of below-grade exterior masonry or concrete walls.
4. Wood framing members that are less than 18 inches above the ground in crawlspaces or unexcavated areas.

### 2.3 DIMENSION LUMBER FRAMING

- A. Maximum Moisture Content: 19 percent.
- B. Non-Load-Bearing Interior Partitions: Construction or No. 2 grade of any species.
- C. Ceiling Joists (Non-Load-Bearing): Construction or No. 2 grade and any of the following species:
  1. Mixed southern pine; SPIB.
- D. Joists, Rafters, and Other Framing Not Listed Above: Construction or No. 2 grade and any of the following species:
  1. Southern pine; SPIB.
  2. Mixed southern pine; SPIB.

### 2.4 MISCELLANEOUS LUMBER

- A. General: Provide miscellaneous lumber indicated and lumber for support or attachment of other construction, including the following:
  1. Blocking.
  2. Nailers.
  3. Furring.
  4. Grounds.
  5. Utility shelving.
- B. For items of dimension lumber size, provide Construction or No. 2 grade lumber with 19 percent maximum moisture content of any species not specified to receive wood preservative treatment.
- C. For blocking not used for attachment of other construction, Utility, Stud, or No. 3 grade lumber of any species may be used provided that it is cut and selected to eliminate defects that will interfere with its attachment and purpose.

- D. For blocking and nailers used for attachment of other construction, select and cut lumber to eliminate knots and other defects that will interfere with attachment of other work.
- E. For furring strips for installing plywood or hardboard paneling, select boards with no knots capable of producing bent-over nails and damage to paneling.

## 2.5 PLYWOOD BACKING PANELS

- A. Telephone and Electrical Equipment Backing Panels: DOC PS 1, Exposure 1, C-D Plugged, fire-retardant treated, in thickness indicated or, if not indicated, not less than 1/2-inch nominal thickness.

## 2.6 FASTENERS

- A. General: Provide fasteners of size and type indicated that comply with requirements specified in this Article for material and manufacture.
  - 1. Where rough carpentry is exposed to weather, in ground contact, pressure-preservative treated, or in area of high relative humidity, provide fasteners of Type 304 stainless steel.
- B. Nails and Brads: ASTM F 1667.
  - 1. Staples not permitted on this project.
- C. Power-Driven Fasteners: NES NER-272.
- D. Wood Screws: ASME B18.6.1.
- E. Lag Bolts: ASME B18.2.1.
- F. Bolts: Steel bolts complying with ASTM A 307, Grade A; with ASTM A 563 hex nuts and, where indicated, flat washers.
- G. Expansion Anchors: Anchor bolt and sleeve assembly of material indicated below with capability to sustain, without failure, a load equal to 6 times the load imposed when installed in unit masonry assemblies and equal to 4 times the load imposed when installed in concrete as determined by testing per ASTM E 488 conducted by a qualified independent testing and inspecting agency.
  - 1. Material: Stainless steel with bolts and nuts complying with ASTM F 593 and ASTM F 594, Alloy Group 1 or 2.

## 2.7 MISCELLANEOUS MATERIALS

- A. Adhesives for Gluing Furring and Sleepers to Concrete or Masonry: Formulation complying with ASTM D 3498 that is approved for use indicated by adhesive manufacturer.
  - 1. Use adhesives that have a VOC content of 70 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

- D. Water-Repellent Preservative: NWWDA-tested and -accepted formulation containing 3-iodo-2-propynyl butyl carbamate, combined with an insecticide containing chlorpyrifos as its active ingredient.

### PART 3 - EXECUTION

#### 3.1 INSTALLATION, GENERAL

- A. Set rough carpentry to required levels and lines, with members plumb, true to line, cut, and fitted. Fit rough carpentry to other construction; scribe and cope as needed for accurate fit. Locate furring, nailers, blocking, grounds, and similar supports to comply with requirements for attaching other construction.
- B. Framing Standard: Comply with AF&PA's "Details for Conventional Wood Frame Construction," unless otherwise indicated.
- C. Framing with Engineered Wood Products: Install engineered wood products to comply with manufacturer's written instructions.
- D. Metal Framing Anchors: Install metal framing to comply with manufacturer's written instructions.
- E. Do not splice structural members between supports, unless otherwise indicated.
- F. Provide blocking and framing as indicated and as required to support facing materials, fixtures, specialty items, and trim.
  - 1. Provide metal clips for fastening gypsum board or lath at corners and intersections where framing or blocking does not provide a surface for fastening edges of panels. Space clips not more than 16 inches o.c.
- G. Provide fire blocking in furred spaces, stud spaces, and other concealed cavities as indicated and as follows:
  - 1. Fire block furred spaces of walls, at each floor level, at ceiling, and at not more than 96 inches o.c. with solid wood blocking or noncombustible materials accurately fitted to close furred spaces.
  - 2. Fire block concealed spaces of wood-framed walls and partitions at each floor level, at ceiling line of top story, and at not more than 96 inches o.c. Where fire blocking is not inherent in framing system used, provide closely fitted solid wood blocks of same width as framing members and 2-inch nominal- thickness.
  - 3. Fire block concealed spaces between floor sleepers with same material as sleepers to limit concealed spaces to not more than 100 sq. ft. and to solidly fill space below partitions.
- H. 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.

- I. Comply with AWWA M4 for applying field treatment to cut surfaces of preservative-treated lumber.
  - 1. Use inorganic boron for items that are continuously protected from liquid water.
  - 2. Use copper naphthenate for items not continuously protected from liquid water.
- J. Securely attach rough carpentry work to substrate by anchoring and fastening as indicated, complying with the following: See Structural Drawings Sheet #S3
- K. Use common wire nails, unless otherwise indicated in Structural DWGS (Sheet #S3). 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.

### 3.2 WOOD GROUND, SLEEPER, BLOCKING, AND NAILER INSTALLATION

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

### 3.3 WOOD FURRING INSTALLATION

- A. Install level and plumb with closure strips at edges and openings. Shim with wood as required for tolerance of finish work.
- B. Furring to Receive Plywood or Simulated T&G Wood Paneling: Install 1-by-3-inch nominal size furring horizontally at 24 inches.
- C. Furring to Receive Gypsum Board: Install 1-by-2-inch nominal size furring vertically at 16 inches.

### 3.4 PROTECTION

- A. Protect wood that has been treated with inorganic boron (SBX) from weather. If, despite protection, inorganic boron-treated wood becomes wet, apply EPA-registered borate treatment. Apply borate solution by spraying to comply with EPA-registered label.



- B. Protect rough carpentry from weather. If, despite protection, rough carpentry becomes wet, apply EPA-registered borate treatment. Apply borate solution by spraying to comply with EPA-registered label.

END OF SECTION 061000

## SECTION 061600 - SHEATHING

## PART 1 - GENERAL

## 1.1 RELATED DOCUMENTS

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

## 1.2 SUMMARY

- A. This Section includes the following:
  - 1. Floor underlayment.
  - 2. Plywood subflooring.
  - 3. Roof sheathing
- B. Related Sections include the following:
  - 1. Division 9 Section "Resilient Tile Flooring".

## 1.3 SUBMITTALS

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

## 1.4 DELIVERY, STORAGE, AND HANDLING

- A. Stack plywood and other panels flat with spacers between each bundle to provide air circulation. Provide for air circulation around stacks and under coverings.

## PART 2 - PRODUCTS

## 2.1 WOOD PANEL PRODUCTS, GENERAL

- A. Plywood: DOC PS 1.
- B. Thickness: 3/4-inch, tongue and groove.
- C. Factory mark panels to indicate compliance with applicable standard.

## 2.2 SUBFLOORING AND UNDERLAYMENT

- A. Plywood Subfloor: DOC PS 1.
  - 1. Span Rating: Not less than 16.
  - 2. Nominal Thickness: Not less than [23/32 inch (18.3 mm)].

3. Edge Detail: Tongue and groove.

- B. Underlayment, General: Provide underlayment in nominal thicknesses indicated or, if not indicated, not less than 1/2 inch over board or uneven subfloors.
- C. Plywood underlayment: Exterior/exposure 1, C-C plugged.

### 2.3 ROOF SHEATHING

- A. APA-Rated structural I sheathing, exterior.

### 2.4 FASTENERS

- A. General: Provide fasteners of size and type indicated that comply with requirements specified in this Article for material and manufacture.
- B. Nails and Brads: ASTM F 1667.
- C. Power-Driven Fasteners: NES NER-272.
- D. Wood Screws: ASME B18.6.1.
- E. Ring Shank Nails for Underlayment Installation: ASTM F1667-21.

### 2.5 WEATHER-RESISTANT SHEATHING PAPER

- A. Building Paper: ASTM D 226, Type 1 (No. 15 asphalt-saturated organic felt), unperforated

## PART 3 - EXECUTION

### 3.1 INSTALLATION, GENERAL

- A. Remove all existing carpet underlayment board.
- B. Set existing protruding nails, and rough sand any raised ridges or edges of original timber flooring.
- C. Apply 1 layer of 15# felt throughout area to receive VCT flooring.
- D. Do not use materials with defects that impair quality of sheathing or pieces that are too small to use with minimum number of joints or optimum joint arrangement.
- E. Install underlayment panels lightly butted.
- F. Cut panels at penetrations, edges, and other obstructions of work; fit tightly against abutting construction, unless otherwise indicated.

- G. Using ring shank nails, securely attach to substrate by fastening as indicated, complying with NC Building Code.
- H. Sand flush any differences in edges of panels.

3.2 INSTALLATION OF STRUCTURAL USE PANELS

- A. Comply with applicable recommendations contained in APA form #E30 and as follows:
  - 1. Sheathing: Nail/screw to framing per structural plans, where not specifically indicated on the plans, install per manufacturer's suggested requirement.

END OF SECTION 06160

## SECTION 062000 - FINISH CARPENTRY

## PART 1 - GENERAL

## 1.1 RELATED DOCUMENTS

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

## 1.2 SUMMARY

- A. This Section includes the following:

1. Interior standing and running trim for field-painted finish.
2. Wood shelving.
3. Wood fire extinguisher cabinets.
4. Wood base.
5. Wood thresholds.
6. Wood door stops.
7. Beaded wood boards to match existing.
8. Beaded plywood wall panels and for installation between rafters and as wall finish at Events Room.
9. Miscellaneous hardware.
10. Preservative treated wood gable end decorative trim for north and south gable ends.
11. Wood interior sign frames.
12. Wood trim frame to receive metal vents specified in section 055000 for exterior eave ventilation.
13. Cutting and preparing existing wood boards from salvage for mounting coat hooks.
14. Project sign and frame.
15. Board and batten wood siding

- B. Related Sections include the following:

1. Division 1 Section "Alternates" for project sign & frame.
2. Division 6 Section "Rough Carpentry" for furring, blocking, and other carpentry work not exposed to view and for structural wood decking and framing exposed to view.
3. Division 9 Section "Painting" for priming and backpriming of finish carpentry.

## 1.3 DEFINITIONS

- A. Inspection agencies, and the abbreviations used to reference them, include the following:

1. NELMA - Northeastern Lumber Manufacturers Association.
2. NHLA - National Hardwood Lumber Association.
3. NLGA - National Lumber Grades Authority.
4. RIS - Redwood Inspection Service.
5. SCMA - Southern Cypress Manufacturers Association.
6. SPIB - Southern Pine Inspection Bureau.
7. WCLIB - West Coast Lumber Inspection Bureau.
8. WWPA - Western Wood Products Association.

#### 1.4 SUBMITTALS

- A. Product Data: For each type of process and factory-fabricated product. Include construction details, material descriptions, dimensions of individual components and profiles, textures, and colors.
  - 1. Include data for wood-preservative treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements. Indicate type of preservative used, net amount of preservative retained, and chemical treatment manufacturer's written instructions for handling, storing, installing, and finishing treated material.
- B. Research/Evaluation Reports: Showing that fire-retardant-treated wood complies with building code in effect for Project.
- C. Shop drawings showing location of each item, dimensioned plans and elevations, large-scale details, attachment devices, and other components.
  - 1. Show details full scale.
  - 2. Show locations and sizes of furring and blocking, including concealed blocking and reinforcing specified in other Sections.
  - 3. Show locations and sizes of cutouts and holes for items installed in architectural woodwork.
- D. Product Certificates signed by woodwork fabricator certifying that products comply with specified requirements.
- E. Quality Marking: Mark each unit or architectural woodwork with mill or fabricator identification and grade mark, located on surfaces which will not be exposed after installation.

#### 1.5 QUALITY ASSURANCE

- A. Installer Qualifications: A qualified installer.
- B. Quality Standard: Except as otherwise indicated, comply with the following standards.
  - 1. AWI Quality Standard: "Architectural Woodwork Quality Standards" of the Architectural Woodwork Institute for grades of interior architectural woodwork, construction, finishes and other requirements.
    - a. Provide AWI Certification Labels or Certificates of Compliance indicating that woodwork meets requirements of grades specified.

#### 1.6 DELIVERY, STORAGE, AND HANDLING

- A. Protect materials against weather and contact with damp or wet surfaces. Stack lumber, plywood, and other panels. Provide for air circulation within and around stacks and under temporary coverings.

- B. Deliver interior finish carpentry only when environmental conditions meet requirements specified for installation areas. If finish carpentry must be stored in other than installation areas, store only where environmental conditions meet requirements specified for installation areas.

#### 1.7 PROJECT CONDITIONS

- A. Environmental Limitations: Do not deliver or install interior finish carpentry until building is enclosed and weatherproof, wet work in space is completed and nominally dry, and HVAC system is operating and maintaining temperature and relative humidity at occupancy levels during the remainder of the construction period.
- B. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit work to be performed according to manufacturer's written instructions and warranty requirements and at least one coat of specified finish to be applied without exposure to rain, snow, or dampness.

### PART 2 - PRODUCTS

#### 2.1 MATERIALS, GENERAL

- A. Lumber: DOC PS 20 and applicable grading rules of inspection agencies certified by the American Lumber Standards' Committee Board of Review.
  - 1. Factory mark each piece of lumber with grade stamp of inspection agency indicating grade, species, moisture content at time of surfacing, and mill.
  - 2. For exposed lumber, mark grade stamp on end or back of each piece.
- B. General: Provide materials that comply with requirements of the AWI quality standard for each type of woodwork and quality grade indicated and, where the following products are part of interior woodwork, with requirements of the referenced product standards that apply to product characteristics indicated:
  - 1. Softwood Plywood: DOC PS 1 (INT BD-DFPA) with edge banding.
  - 2. Hardwood Plywood and Face Veneers: HPVA HP-1.
  - 3. Hardboard: AHA A135.4 Min. 1/4" thick.
  - 4. Medium-Density Fiberboard: ANSI A208.2 made without formaldehyde and complying with;
    - a. Product: Subject to compliance with requirements, provide Medite II by Medite Corp
  - 5. Particleboard: ANSI A208.1, Grade M-2 made with no phenol-formaldehyde resins.
- C. Wood Moisture Content: Provide kiln-dried lumber with an average content range for 9% to 13% for exterior work and 6% to 11% for interior work. Maintain temperature and relative humidity during fabrications, storage and finishing operations so that moisture content values for woodwork at time of installation do not exceed 5% - 10% for mild regions.

#### 2.2 WOOD-PRESERVATIVE-TREATED MATERIALS

- A. Water-Repellent Preservative Treatment by Nonpressure Process: AWPAN1.
  - 1. Preservative Chemicals: 3-iodo-2-propynyl butyl carbamate (IPBC), combined with an insecticide containing chloropyrifos.
  - 2. Use chemical formulations that do not bleed through or otherwise adversely affect finishes. Do not use colorants in solution to distinguish treated material from untreated material.
- B. Preservative Treatment by Pressure Process: AWPAC2 (lumber) and AWPAC9 (plywood), except that lumber that is not in contact with the ground and is continuously protected from liquid water may be treated according to AWPAC31 with inorganic boron (SBX).
  - 1. Preservative Chemicals: Acceptable to authorities having jurisdiction and **[one of]** the following:
    - a. Chromated copper arsenate (CCA).
    - b. Ammoniacal copper quat (ACQ).
    - c. Copper bis (dimethyldithiocarbamate) (CDDC).
    - d. Ammoniacal copper citrate (CC).
    - e. Copper azole, Type A (CBA-A).
    - f. Oxine copper (copper-8-quinolinolate) in a light petroleum solvent.
  - 2. Do not use chemical formulations that require incising.
  - 3. For exposed items indicated to receive transparent finish, do not use chemical formulations that contain colorants or that bleed through or otherwise adversely affect finishes.
  - 4. Kiln-dry material after treatment to levels required for untreated material. Do not use material that is warped or does not comply with requirements for untreated material.
  - 5. Mark each treated item with the Quality Mark Requirements of an inspection agency approved by the American Lumber Standards' Committee Board of Review.

### 2.3 INTERIOR STANDING AND RUNNING TRIM (INCLUDING BEADED WOOD BOARDS, BASE, SHELVING, THRESHOLDS, DOOR STOPS, INTERIOR SIGN FRAMES, AND EXTERIOR EAVE VENT FRAMES FOR OPAQUE FINISH)

- A. Quality Standard: Comply with AWI Section 300 for trim and AWI Section 600 for shelving.
  - 1. Grade: custom.
- B. Assemble moldings in plant to maximum extent possible. Miter corners in plant and prepare for field assembly with bolted fittings designed to pull connections together.
- C. Wood species for shelving, trim, and base: pine.
- D. Wood species for threshold: cypress.

### 2.4 WOOD FIRE EXTINGUISHER CABINETS

- A. Quality Standard: Comply with AWI Section 400 for box and Section 500 for doors.
  - 1. Grade: custom.
  - 2. Wood species: pine.



## 2.5 INTERIOR NON-RATED FRAMES, JAMBS, AND TRIM FOR OPAQUE FINISH

- A. Quality Standard: Comply with AWI Section 900 and WIC Section 12, "Interior Jambs."
  - 1. Grade: custom.
  - 2. Wood species: pine.
- B. Wood species: Any closed grain hardwood listed in referenced woodworking standard.

## 2.6 DECORATIVE GABLE END TRIM FOR OPAQUE FINISH

- A. Quality Standard: Comply with AWI Section 900.
  - 1. Grade: custom.
- B. Wood Species: Cypress

## 2.7 BEADED PLYWOOD PANELS

- A. Quality Standard: Comply with AWI Section 200.
- B. ½" x 4' x 8' panels with bead spacing to match existing. Arlington Coal and Lumber Company, (781) 643-8100 or approved equal.
- C. Wood "A" Veneer: Pine.

## 2.8 BOARD AND BATTEN WOOD SIDING

- A. Quality Standard: Comply with AWI Section 300.1
  - 1. Grade: Custom
- B. Wood Species: Pine

## 2.9 MISCELLANEOUS HARDWARE

- A. Fire extinguisher cabinet hardware
  - 1. Door pull: Stanley #CD80-4050 brass or approved equal.
  - 2. Door continuous piano hinge: Stanley #S476-110SC311, 1.5" wide, brass, or approved equal.
- B. Coat hooks
  - 1. Stanley #SP80-3956, or approved equal.

## 2.10 MISCELLANEOUS MATERIALS

- A. Fasteners for Exterior Finish Carpentry: Provide nails or screws of the following materials, in sufficient length to penetrate minimum of 1-1/2 inches (38 mm) into substrate, unless otherwise recommended by manufacturer:

1. Stainless steel.
- B. Fasteners for Interior Finish Carpentry: Nails, screws, and other anchoring devices of type, size, material, and finish required for application indicated to provide secure attachment, concealed where possible.
  1. Where finish carpentry materials are exposed in areas of high humidity, provide fasteners and anchorages with hot-dip galvanized coating complying with ASTM A 153/A 153M.
- C. Paneling Adhesives: Comply with paneling manufacturer's written recommendations for adhesives.
  1. Use adhesives that have a VOC content of 50 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
- D. Glue: Aliphatic- or phenolic-resin wood glue recommended by manufacturer for general carpentry use.
  1. Use wood glues that have a VOC content of 30 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
- E. Sealants: Comply with requirements in Division 7 Section "Joint Sealants" for materials required for sealing siding work.

## 2.11 FABRICATION

- A. Wood Moisture Content: Comply with requirements of specified inspection agencies and with manufacturer's written recommendations for moisture content of finish carpentry at relative humidity conditions existing during time of fabrication and in installation areas.
- B. Back out or kerf backs of the following members, except members with ends exposed in finished work:
  1. Exterior standing and running trim wider than **5 inches (125 mm)**.
  2. Interior standing and running trim.
- C. Ease edges of lumber less than **1 inch (25 mm)** in nominal thickness to **1/16-inch (1.5-mm)** radius and edges of lumber **1 inch (25 mm)** or more in nominal thickness to **1/8-inch (3-mm)** radius.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine substrates, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.2 PREPARATION

- A. Clean substrates of projections and substances detrimental to application.
- B. Before installing finish carpentry, condition materials to average prevailing humidity in installation areas for a minimum of 24 hours, unless longer conditioning is recommended by manufacturer.
- C. Prime lumber for exterior applications to be painted, including both faces and edges. Cut to required lengths and prime ends. Comply with requirements in Division 9 Section "Painting."

### 3.3 INSTALLATION, GENERAL

- A. Do not use materials that are unsound, warped, improperly treated or finished, inadequately seasoned, or too small to fabricate with proper jointing arrangements.
  - 1. Do not use manufactured units with defective surfaces, sizes, or patterns.
- B. Install finish carpentry level, plumb, true, and aligned with adjacent materials. Use concealed shims where necessary for alignment.
  - 1. Scribe and cut finish carpentry to fit adjoining work. Refinish and seal cuts as recommended by manufacturer.
  - 2. Countersink fasteners, fill surface flush, and sand where face fastening is unavoidable.
  - 3. Install to tolerance of **1/8 inch in 96 inches (3 mm in 2438 mm)** for level and plumb. Install adjoining finish carpentry with **1/32-inch (0.8-mm)** maximum offset for flush installation and **1/16-inch (1.5-mm)** maximum offset for reveal installation.
  - 4. Coordinate finish carpentry with materials and systems in or adjacent to it. Provide cutouts for mechanical and electrical items that penetrate finish carpentry.

### 3.4 STANDING AND RUNNING TRIM INSTALLATION

- A. Install with minimum number of joints practical, using full-length pieces from maximum lengths of lumber available. Do not use pieces less than **24 inches (610 mm)** long, except where necessary. Stagger joints in adjacent and related standing and running trim. Cope at returns and miter at corners to produce tight-fitting joints with full-surface contact throughout length of joint. Use scarf joints for end-to-end joints. Plane backs of casings to provide uniform thickness across joints, where necessary for alignment.
  - 1. Install trim after gypsum board joint finishing operations are completed.
  - 2. Drill pilot holes in hardwood before fastening to prevent splitting. Fasten to prevent movement or warping. Countersink fastener heads on exposed carpentry work and fill holes.

### 3.5 ADJUSTING

- A. Replace finish carpentry that is damaged or does not comply with requirements. 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 CLEANING

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

END OF SECTION 062000

## SECTION 072100 - BUILDING INSULATION

## PART 1 - GENERAL

## 1.1 RELATED DOCUMENTS

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

## 1.2 SUMMARY

- A. This section includes the following:
  - 1. Concealed building insulation.
  - 2. Vapor retarders.
  - 3. Rigid roof insulation board
  - 4. Exposed fiberglass Batt insulation to be added in void areas at Depot attic and crawl space where insulation is presently missing. See Allowance #2 in section 010200.
- B. Related sections include the following:
  - 1. Division 4 Section 048100 Unit Masonry Assemblies for Foamed Block Core Insulation.

## 1.3 SUBMITTALS

- A. Product Data: For each type of product indicated.

## 1.4 QUALITY ASSURANCE

- A. Source Limitations: Obtain each type of building insulation through one source from a single manufacturer.
- B. Fire-Test-Response Characteristics: Provide insulation and related materials with the fire-test-response characteristics indicated, as determined by testing identical products per test method indicated below by UL or another testing and inspecting agency acceptable to authorities having jurisdiction. Identify materials with appropriate markings of applicable testing and inspecting agency.
  - 1. Surface-Burning Characteristics: ASTM E 84.
  - 2. Fire-Resistance Ratings: ASTM E 119.
  - 3. Combustion Characteristics: ASTM E 136.

## 1.5 DELIVERY, STORAGE, AND HANDLING

- A. Protect insulation materials from physical damage and from deterioration by moisture, soiling, and other sources. Store inside and in a dry location. Comply with manufacturer's written instructions for handling, storing, and protecting during installation.

- B. Protect plastic insulation as follows:
1. Do not expose to sunlight, except to extent necessary for period of installation and concealment.
  2. Protect against ignition at all times. Do not deliver plastic insulating materials to Project site before installation time.
  3. Complete installation and concealment of plastic materials as rapidly as possible in each area of construction.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

- A. In other Part 2 articles where titles below introduce lists, the following requirements apply to product selection:
1. Products: Subject to compliance with requirements, provide one of the products specified.

### 2.2 GLASS-FIBER BLANKET INSULATION

- A. Manufacturers:
1. CertainTeed Corporation.
  2. Johns Manville.
  3. Owens Corning.
- B. Unfaced, Glass-Fiber Blanket Insulation: ASTM C 665, Type I (blankets without membrane facing); consisting of fibers; with maximum flame-spread and smoke-developed indexes of 25 and 50, respectively; passing ASTM E 136 for combustion characteristics.
- C. Faced, Glass-Fiber Blanket Insulation: ASTM C 665, Type III (blankets with reflective membrane facing), Class A (membrane-faced surface with a flame-spread index of 25 or less); Category 1 (membrane is a vapor barrier), faced with foil-scrim-kraft, foil-scrim, or foil-scrim-polyethylene polypropylene-scrim-kraft vapor-retarder membrane on 1 face.
- D. Where glass-fiber blanket insulation is indicated by the following thicknesses, provide blankets in batt or roll form with thermal resistances indicated:
1. Thickness as shown on drawings with a thermal resistance of 30 deg F x h x sq. ft./Btu at 75 deg F (5.2 K x sq. m/W at 24 deg C).

### 2.3 RIGID BOARD INSULATION FOR UNDERSLAB INSTALLATION

- A. Extruded-Polystyrene Board Insulation: ASTM C 578, of type and density below, with maximum flame-spread and smoke-developed indexes of 75 and 450, respectively:
1. Manufacturers:

- a. DiversiFoam Products.
- b. Dow Chemical Company.
- c. Owens Corning.

2. Type IV, 1.6 lb./cu. Ft., unless otherwise indicated.

#### 2.4 VAPOR RETARDERS

- A. Polyethylene Vapor Retarders: ASTM D 4397, 6 mils thick, with maximum permeance rating of 0.13 perm (7.5 ng/Pa x s x sq. m).
- B. Vapor-Retarder Tape: Pressure-sensitive tape of type recommended by vapor-retarder manufacturer for sealing joints and penetrations in vapor retarder.
- C. Vapor-Retarder Fasteners: Pancake-head, self-tapping steel drill screws; with fender washers.
- D. Single-Component Nonsag Urethane Sealant: ASTM C 920, Type I, Grade NS, Class 25, Use NT related to exposure, and Use O related to vapor-barrier-related substrates.
- E. Adhesive for Vapor Retarders: Product recommended by vapor-retarder manufacturer and with demonstrated capability to bond vapor retarders securely to substrates indicated.

### PART 3 - EXECUTION

#### 3.1 EXAMINATION

- A. Examine substrates and conditions, with Installer present, for compliance with requirements of Sections in which substrates and related work are specified and for other conditions affecting performance. If detrimental conditions are encountered, notify architect in writing.
  1. Proceed with installation only after unsatisfactory conditions have been corrected.

#### 3.2 PREPARATION

- A. Clean substrates of substances harmful to insulation or vapor retarders, including removing projections capable of puncturing vapor retarders or of interfering with insulation attachment.

#### 3.3 INSTALLATION, GENERAL

- A. Comply with insulation manufacturer's written instructions applicable to products and application indicated.
- B. Install insulation that is undamaged, dry, and unsoiled and that has not been left exposed at any time to ice, rain, and snow.

- C. Extend insulation in thickness indicated to envelop entire area to be insulated. Cut and fit tightly around obstructions and fill voids with insulation. Remove projections that interfere with placement.
- D. Water-Piping Coordination: If water piping is located within insulated exterior walls, coordinate location of piping to ensure that it is placed on warm side of insulation and insulation encapsulates piping.
- E. For preformed insulating units, provide sizes to fit applications indicated and selected from manufacturer's standard thicknesses, widths, and lengths. Apply single layer of insulation units to produce thickness indicated unless multiple layers are otherwise shown or required to make up total thickness.

#### 3.4 FOIL FACED POLYISOCYANURATE BOARD ROOF INSTALLATION

- A. ASTM C 1289. TYPE I, Class I with maximum flame-spread and smoke developed indexes of 75 and 450 respectively.
  - 1. Manufacturers:
    - a. Atlas Roofing Corporation.
    - b. Dow Chemical Company.
    - c. Rmax, Inc.

#### 3.5 INSTALLATION OF PERIMETER INSULATION

- A. On vertical surfaces, set insulation units in adhesive applied according to manufacturer's written instructions. Use adhesive recommended by insulation manufacturer.
  - 1. If not otherwise indicated, extend insulation a minimum of **24 inches** below exterior grade line.
- B. On horizontal surfaces, loosely lay insulation units according to manufacturer's written instructions. Stagger end joints and tightly abut insulation units.
- C. Protect below-grade insulation on vertical surfaces from damage during backfilling by applying protection course with joints butted. Set in adhesive according to insulation manufacturer's written instructions.
- D. Protect top surface of horizontal insulation from damage during concrete work by applying protection course with joints butted.

#### 3.6 INSTALLATION OF GENERAL BUILDING INSULATION

- A. Apply insulation units to substrates by method indicated, complying with manufacturer's written instructions. If no specific method is indicated, bond units to substrate with adhesive or use mechanical anchorage to provide permanent placement and support of units.



- B. Seal joints between foam-plastic insulation units by applying adhesive, mastic, or sealant to edges of each unit to form a tight seal as units are shoved into place. Fill voids in completed installation with adhesive, mastic, or sealant as recommended by insulation manufacturer.
- C. Set vapor-retarder-faced units with vapor retarder in location indicated of construction, unless otherwise indicated.
  - 1. Tape joints and ruptures in vapor retarder and seal each continuous area of insulation to surrounding construction to ensure airtight installation.
- D. Install mineral-fiber insulation in cavities formed by framing members according to the following requirements:
  - 1. Use insulation widths and lengths that fill the cavities formed by framing members. If more than one length is required to fill cavity, provide lengths that will produce a snug fit between ends.
  - 2. Place insulation in cavities formed by framing members to produce a friction fit between edges of insulation and adjoining framing members.
  - 3. Maintain **3-inch** clearance of insulation around recessed lighting fixtures.
- E. Install board insulation between rafters at events room by adhesive attachment to finish ceiling panels as follows:
  - 1. Fasten with insulation anchor adhesive according to anchor manufacturer's written instructions.
  - 2. Install board insulation by pressing insulation into adhesive, taking care not to compress insulation below indicated thickness.
- F. Stuff glass-fiber loose-fill insulation into miscellaneous voids and cavity spaces where shown. Compact to approximately 40 percent of normal maximum volume equaling a density of approximately **2.5 lb/cu. ft.**

### 3.7 INSTALLATION OF VAPOR RETARDERS

- A. General: Extend vapor retarder to extremities of areas to be protected from vapor transmission. Secure in place with adhesives or other anchorage system as indicated. Extend vapor retarder to cover miscellaneous voids in insulated substrates, including those filled with loose-fiber insulation.
- B. Install vapor barrier continuously on earth substrate at Depot crawl space and at platform crawl space.
- C. Seal vertical joints in vapor retarders over framing by lapping not less than two wall studs. Fasten vapor retarders to wood framing at top, end, and bottom edges; at perimeter of wall openings; and at lap joints. Space fasteners **16 inches** o.c.
- D. Before installing vapor retarder, apply urethane sealant to flanges of metal framing including runner tracks, metal studs, and framing around door and window openings. Seal overlapping joints in vapor retarders with vapor-retarder tape according to vapor-retarder manufacturer's

written instructions. Seal butt joints with vapor-retarder tape. Locate all joints over framing members or other solid substrates.

- E. Firmly attach vapor retarders to metal framing and solid substrates with vapor-retarder fasteners as recommended by vapor-retarder manufacturer.
- F. Seal joints caused by pipes, conduits, electrical boxes, and similar items penetrating vapor retarders with vapor-retarder tape to create an airtight seal between penetrating objects and vapor retarder.
- G. Repair tears or punctures in vapor retarders immediately before concealment by other work. Cover with vapor-retarder tape or another layer of vapor retarder.

### 3.8 PROTECTION

- A. Protect installed insulation and vapor retarders from damage due to harmful weather exposures, physical abuse, and other causes. Provide temporary coverings or enclosures where insulation is subject to abuse and cannot be concealed and protected by permanent construction immediately after installation.

END OF SECTION 072100

## SECTION 072710 - SELF-ADHERING SHEET AIR BARRIERS

## PART 1 - GENERAL

## 1.1 RELATED DOCUMENTS

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

## 1.2 SUMMARY

- A. This Section includes self-adhering vapor-retarding, modified bituminous sheet air barriers.
- B. Related Sections include:
  - 1. Division 4 Section "Unit Masonry Assemblies" for embedded flashings.
  - 2. Division 6 Section "Sheathing" for wall sheathings, wall sheathing joint-and-penetration treatments, building paper, and building wraps.
  - 3. Division 7 Section "Building Insulation" for foam-plastic board insulation.
  - 4. Division 7 Section "Sheet Metal Flashing and Trim" for sheet metal flashings.
  - 5. Division 7 Section "Building Insulation" for foam-plastic board insulation.

## 1.3 DEFINITIONS

- A. ABAA: Air Barrier Association of America
- B. Air Barrier Assembly: The collection of air barrier materials and auxiliary materials applied to an opaque wall, including joints and junctions to abutting construction, to control air movement through the wall.

## 1.4 PERFORMANCE REQUIREMENTS

- A. General: Air barrier shall be capable of performing as a continuous vapor-retarding air barrier. Air barrier assemblies shall be capable of accommodating substrate movement and of sealing substrate expansion and control joints, construction material changes, penetrations, and transitions at perimeter conditions without deterioration and air leakage exceeding specified limits.
- B. Air Barrier Assembly Air Leakage: Not to exceed 0.01 cfm/sq. ft. of surface area at 1.57lbf/sq. ft. (0.05 L/s x sq. m of surface area at 75 Pa) ASTM E 283

## 1.5 SUBMITTALS

- A. Product Data: Include manufacturer's written instructions for evaluating, preparing, and treating substrate; technical data; and tested physical and performance properties of air barrier.

- B. Shop Drawings: Show locations and extent of air barrier. Include details for substrate joints and cracks, counterflashing strip, penetrations, inside and outside corners, terminations, and tie-ins with adjoining construction.

- 1. Include details of interfaces with other materials that form part of air barrier.

- C. Qualification Data: For Applicator.

- D. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, for air barriers.

#### 1.6 QUALITY ASSURANCE

- A. Applicator Qualifications: A firm experienced in applying air barrier materials similar in material, design, and extent to those indicated for this Project, whose work has resulted in applications with a record of successful in-service performance.

#### 1.7 DELIVERY, STORAGE, AND HANDLING

- A. Store liquid materials in their original undamaged packages in a clean, dry, protected location, and within temperature range required by air barrier manufacturer.

- B. Remove and replace liquid materials that cannot be applied within their stated shelf life.

- C. Store rolls according to manufacturer's written instructions.

- D. Protect stored materials from direct sunlight.

#### 1.8 PROJECT CONDITIONS

- A. Environmental Limitations: Apply air barrier within the range of ambient and substrate temperatures recommended by air barrier manufacturer. Protect substrates from environmental conditions that affect performance of air barrier. Do not apply air barrier to a damp or wet substrate or during snow, rain, fog, or mist.

### PART 2 - PRODUCTS

#### 2.1 SELF-ADHERING SHEET AIR BARRIER

- A. Modified Bituminous Sheet: 40-mil- (1.0-mm-) thick, self-adhering sheet consisting of 36 mils (0.9 mm) of rubberized asphalt laminated to a 4-mil- (0.1-mm-) thick, polyethylene film with release liner on adhesive side.

- 1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:

- 2. Products: Subject to compliance with requirements, provide one of the following:

- a. Carlisle Coatings & Waterproofing; CCW-705.

- b. Grace, W. R. & Co.; Perm-A-Barrier.

- c. Henry Company; Blueskin SA.
  - d. Meadows, W. R., Inc.; SealTight Air-Shield.
  - e. NEI; AC AirSeal.
  - f. Rubber Polymer Corporation; Rub-R-Wall SA.
  - g. Tremco, Incorporated; ExoAir 110.
3. Physical and Performance Properties:
- a. Membrane Air Permeance: Not to exceed 0.004 cfm/sq. ft. of surface area at 1.57-lbf/sq. ft. (0.02 L/s x sq. m of surface area at 75-Pa)
  - b. Tensile Strength: 250 psi (1.7 MPa) minimum; ASTM D 412, Die C, modified.
  - c. Ultimate Elongation: 200 percent minimum; ASTM D 412, Die C modified.
  - d. Low-Temperature Flexibility: Pass at minus 20 deg F (minus 29 deg C), ASTM D 1970
  - e. Crack Cycling: Unaffected after 100 cycles of 1/8-inch (3-mm) movement; ASTM C 836.
  - f. Puncture Resistance: 40lbf (180 N) minimum, ASTM E 154
  - g. Water Absorption: 0.15 percent weight-gain maximum after 48-hour immersion at 70 deg F (21 deg C); ASTM D 570.
  - h. Vapor Permeance: 0.05 perms (2.9 ng/Pa x s x sq. m), ASTM E 96, Water Method.

## 2.2 AUXILIARY MATERIALS

- A. General: Auxiliar materials recommended by air barrier manufacturer for intended use and compatible with air barrier.
- B. Primer: Liquid waterborne primer recommended for substrate by manufacturer of air barrier manufacturer.
- C. Modified Bituminous Strip: Vapor-retarding, 40-mil- (1.0-mm-) thick, smooth-surfaced, self-adhering; consisting of 36 mils (0.9 mm) of rubberized asphalt laminated to a 4-mil- (0.1-mm-) thick polyethylene film with release liner backing.
- D. Termination Mastic: Cold fluid-applied elastomeric liquid; trowel grade.
- E. Substrate Patching Membrane: Manufacturer's standard trowel-grade substrate filler.
- F. Adhesive and Tape: Air barrier manufacturer's adhesive and pressure-sensitive adhesive tape.
- G. Stainless Steel Sheet: ASTM A 240/A 240 M, Type 304, 0.0187 inch (0.5 mm) thick, and Series 300 stainless steel fasteners.
- H. Sprayed Polyurethane Foam Sealant: 1- or 2-component, foamed-in-place, polyurethane foam sealant, 1.5 to 2.0 lb./cu. ft. (24 to 32 kg/cu. m) density; flame spread index of 25 or less according to ASTM E 162; with primer and noncorrosive substrate cleaner recommended by foam sealant manufacturer.
- I. Joint Sealant: ASTM C 920, single-component, neutral-curing silicone; Class 100/50 (low-modulus), Grade NS, Use NT related to exposure, and, as applicable to joint substrates indicated, Use O. Comply with Division 7 Section "Joint Sealants."

## PART 3 - EXECUTION

## 3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements and other conditions affecting performance.
  - 1. Verify that substrates are sound and free of oil, grease, dirt, excess mortar, or other contaminants.
  - 2. Proceed with installation only after unsatisfactory conditions have been corrected.

## 3.2 SURFACE PREPARATION

- A. Clean, prepare, and treat substrate according to manufacturer's written instructions. Provide clean, dust-free, and dry substrate for air barrier application.
- B. Mask off adjoining surfaces not covered by air barrier to prevent spillage and overspray affecting other construction.
- C. Prepare, fill, prime, and treat joints and cracks in substrates. Remove dust and dirt from joints and cracks according to ASTM D 4258.
  - 1. Install modified bituminous strips and center over treated construction and contraction joints and cracks exceeding a width of 1/16 inch (1.6 mm).
- D. Bridge and cover isolation joints with overlapping modified bituminous strips.
- E. At changes in substrate plane, apply sealant or termination mastic beads at sharp corners and edges to form a smooth transition from one plane to another.
- F. Cover gaps in substrate plane and form a smooth transition from one substrate plane to another with stainless-steel sheet mechanically fastened to structural framing to provide continuous support for air barrier.

## 3.3 INSTALLATION

- A. Install modified bituminous sheets according to air barrier manufacturer's written instructions and according to recommendations in ASTM D 6135.
  - 1. When ambient and substrate temperatures range between 24 and 40 deg F (minus 4 and plus 5 deg C), install self-adhering modified bituminous air barrier sheets produced for low-temperature application. Do not use low-temperature sheet if ambient or substrate temperature is higher than 60 deg F (16 deg C).
- B. Corners: Prepare, prime, and treat inside and outside corners according to ASTM D 6135.
  - 1. Install modified bituminous strips centered over vertical inside corners. Install 3/4 inch (19-mm) fillets of termination mastic on horizontal inside corners.

- C. Prepare, treat, and seal vertical and horizontal surfaces at terminations and penetrations with termination mastic and according to ASTM D 6135.
- D. Apply primer to substrates at required rate and allow to dry. Limit priming to areas that will be covered by air barriers sheet in same day. Reprime areas exposed for more than 24 hours.
- E. Apply and firmly adhere modified bituminous sheet horizontally over area to receive air barrier sheets. Accurately align sheets and maintain a uniform 2-1/2-inch- (64-mm-) minimum lap widths and end laps. Overlap and seal seams and stagger end laps to ensure airtight installation.
  - 1. Apply sheets in a shingled manner to shed water without interception by any exposed sheet edges.
  - 2. Roll sheets firmly to enhance adhesion to substrate.
- F. Apply continuous modified bituminous sheets over modified bituminous strips bridging substrate cracks, construction, and contraction joints.
- G. Seal exposed edges of sheets at seams, cuts, penetrations, and terminations not concealed by metal counterflashings or ending in reglets with termination mastic.
- H. Install air barrier sheets and auxiliary materials to form a seal with adjacent construction and to maintain a continuous air barrier.
- I. At end of each working day, seal top edge of membrane to substrate with termination mastic.
- J. Apply joint sealants forming part of air barrier assembly within manufacturer's recommended application temperature ranges. Consult manufacturer when sealant cannot be applied within these temperature ranges.
- K. Repair punctures, voids, and deficient lapped seams in air barrier. Slit and flatten fishmouths and blisters. Patch with air barrier sheet extending 6 inches (150 mm) beyond repaired areas in all directions.
- L. Correct deficiencies in or remove air barrier that does not comply with requirements; repair substrates and reapply air barrier components.

### 3.4 CLEANING AND PROTECTION

- A. Protect air barrier system from damage during application and remainder of construction period, according to manufacturer's written instructions.
  - 1. Protect air barrier from exposure to UV light and harmful weather exposure as required by manufacturer. Remove and replace air barrier exposed to these conditions for more than 30 days.
  - 2. Protect air barrier from contact with creosote, uncured coal-tar products, TPO, EPDM, flexible PVC membranes, and sealants not approved by air barrier manufacturer.

- B. Clean spills, stains, and soiling from adjacent construction that would be exposed in the completed work using cleaning agents and procedures recommended by manufacturer of affected construction.

END OF SECTION 072710



## SECTION 074110 - SHEET METAL ROOFING

## PART 1 - GENERAL

## 1.1 RELATED DOCUMENTS

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

## 1.2 SUMMARY

- A. This Section includes the following sheet metal roofing:
  - 1. Pref-finished standing seam metal roofing, gutters, and downspouts for platform addition.
- B. Related Sections include the following:
  - 1. Division 7 Section 076100 "Sheet Metal Flashing and Trim" for flashings and other sheet metal work not part of sheet metal roofing.

## 1.3 PERFORMANCE REQUIREMENTS

- A. General: Provide complete sheet metal roofing system, including, but not limited to, custom-fabricated metal roof pans, cleats, clips, anchors and fasteners, sheet metal flashing and drainage components related to sheet metal roofing, fascia panels, trim, underlayment, and accessories as indicated and as required for a weathertight installation.
- B. Wind-Uplift Resistance: Provide custom-fabricated sheet metal roofing capable of resisting the following design negative uplift pressure. Provide clips, fasteners, and clip spacings of type indicated and with capability to sustain, without failure, a load equal to 3 times the design negative uplift pressure.
  - 1. Design Negative Uplift Pressure: 105 lbs/sq. ft
- C. Wind-Uplift Resistance: Provide portable roll-forming equipment capable of producing sheet metal roofing assemblies that comply with UL 580 for Class 90 wind-uplift resistance.
  - 1. Maintain UL certification of portable roll-forming equipment for duration of sheet metal roofing work.
- D. Thermal Movements: Provide sheet metal roofing that allows for thermal movements resulting from the following maximum change (range) in ambient and surface temperatures by preventing buckling, opening of joints, hole elongation, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Provide clips that resist rotation and avoid shear stress as a result of sheet metal roofing thermal movements. 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.

- E. Water Infiltration: Provide sheet metal roofing that does not allow water infiltration to building interior, with metal flashing and connections of sheet metal roofing lapped to allow moisture to run over and off the material.

#### 1.4 SUBMITTALS

- A. Product Data: For each product indicated. Include details of construction relative to materials, dimensions of individual components and profiles, and finishes.
- B. Shop Drawings: Show fabrication and installation layouts of sheet metal roofing, including plans, elevations, and keyed references to termination points. Distinguish between shop- and field-assembled work. Include the following:
  - 1. Details for forming sheet metal roofing, including seams and dimensions.
  - 2. Details of edge conditions, including eaves, ridges, valleys, rakes, crickets, and counterflashings.
  - 3. Details of special conditions.
  - 4. Details of connections to adjoining work.
  - 5. Details of gutters and downspouts.
- C. Samples for Initial Selection: For each type of sheet metal roofing indicated with factory-applied color finishes.
  - 1. Include similar Samples of trim and accessories involving color selection.
- D. Samples for Verification: For each type of exposed finish required, prepared on Samples of size indicated below:
  - 1. Sheet Metal Roofing: 12 inches long by actual panel width, including finished seam. Include fasteners, closures, and other attachments.
  - 2. Trim and Closures: 12 inches long. Include fasteners and other exposed accessories.
  - 3. Accessories: 12-inch long Samples for each type of accessory.
  - 4. Gutter and downspout: 12" long x actual size, one sample of each.

#### 1.5 QUALITY ASSURANCE

- A. Custom-Fabricated Sheet Metal Roofing Fabricator Qualifications: A shop that employs skilled and experienced workers who custom-fabricate sheet metal roofing similar to that required for this Project and whose products have a record of successful in-service installation and performance.
- B. Sheet Metal Roofing Standard: Comply with SMACNA's "Architectural Sheet Metal Manual." Conform to dimensions and profiles shown unless more stringent requirements are indicated.
- C. Preliminary Roofing Conference: Before starting roof [construction, conduct conference at Project site. Comply with requirements for preinstallation conferences in Division 1 Section 013100 "Project Management and Coordination." Review methods and procedures related to roof construction and sheet metal roofing including, but not limited to, the following:

1. Meet with Owner, Architect, Owner's insurer if applicable, sheet metal roofing Installer, if different from fabricator, and installers whose work interfaces with or affects sheet metal roofing including installers of roof accessories.
- D. Preinstallation Conference: Conduct conference at Project site. Comply with requirements in Division 1 Section 013100 "Project Management and Coordination." Review methods and procedures related to sheet metal roofing including, but not limited to, the following:
1. Meet with Owner, Architect, Owner's insurer if applicable, sheet metal roofing Installer, and installers whose work interfaces with or affects sheet metal roofing including installers of roof accessories.

#### 1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver components, and other sheet metal roofing materials so as not to be damaged or deformed. Package sheet metal roofing materials so they are protected during transportation and handling.
- B. Unload, store, handle, and erect sheet metal roofing materials in a manner to prevent bending, warping, twisting, and surface damage to metal and/or factory finish.
- C. Stack materials on platforms or pallets, covered with suitable weathertight and ventilated covering. Store sheet metal roofing materials to ensure dryness. Do not store sheet metal roofing materials in contact with other materials that might cause staining, denting, galvanic action, or other surface damage.
- D. Protect strippable protective covering on sheet metal roofing from exposure to sunlight and high humidity, except to extent necessary for period of sheet metal roofing installation.

#### 1.7 COORDINATION

- A. Coordinate installation of roof penetrations, roof curbs, and equipment supports, if any.
- B. Coordinate sheet metal roofing with rain drainage work, flashing, trim, and construction of parapets, walls, and other adjoining work to provide a leakproof, secure, and noncorrosive installation.

#### 1.8 WARRANTY

- A. Special Warranty on Finishes: Manufacturer's standard form in which manufacturer agrees to repair finish or replace sheet metal roofing that shows evidence of deterioration of factory-applied finishes within specified warranty period.
  1. Fluoropolymer Finish: Deterioration includes, but is not limited to, the following:
    - a. Color fading more than 5 Hunter units when tested according to ASTM D 2244.
    - b. Chalking in excess of a No. 8 rating when tested according to ASTM D 4214.
    - c. Cracking, checking, peeling, or failure of paint to adhere to bare metal.

2. Finish Warranty Period: Ten (10) years from date of Substantial Completion.
3. Installers Warranty Period: Two (2) years from date of Substantial Completion.
4. Contractor's Warranty Period: Warrant watertight roofing and flashing assembly for Five (5) years from date of Substantial Completion.

## PART 2 - PRODUCTS

### 2.1 ROOFING, GUTTER, AND DOWNSPOUT SHEET METALS

- A. Metallic-Coated Steel Sheet Prepainted with Coil Coating: Steel sheet metallic coated by the hot-dip process and prepainted by the coil-coating process to comply with ASTM A 755/A 755M.
1. Zinc-Coated (Galvanized) Steel Sheet: ASTM A 653/A 653M, G90 (Z275) coating designation; structural quality.
  2. Metal Thickness: 22 gauge.
  3. Exposed Finishes: Apply the following coil coating, as specified or indicated on Drawings:
    - a. High-Performance Organic Finish: Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.
      - 1) Fluoropolymer Two-Coat System: Manufacturer's standard two-coat, thermocured system consisting of specially formulated inhibitive primer and fluoropolymer color topcoat containing not less than 70 percent polyvinylidene fluoride resin by weight; complying with physical properties and coating performance requirements of AAMA 2604, except as modified below:
        - a) Humidity Resistance: 1000 hours.
        - b) Water Resistance: 1000 hours.
      - 2) Color: As selected by Architect and approved by Owner from manufacturer's full range. To obtain exact finish, insert names of coating manufacturers and products

### 2.2 UNDERLAYMENT MATERIALS

- A. Felts: ASTM D 226, Type II (No. 30), asphalt-saturated organic felts.
- B. Self-Adhering, Polyethylene-Faced Sheet: ASTM D 1970, 40 mils thick minimum, consisting of slip-resisting polyethylene-film reinforcing and top surface laminated to SBS-modified asphalt adhesive, with release-paper backing; cold applied.
1. Products:

- a. Carlisle Coatings & Waterproofing, Div. of Carlisle Companies Inc; Dri-Start "A."
  - b. Grace, W. R. & Co.; Grace Ice and Water Shield.
  - c. Johns Manville International, Inc; Roof Defender.
  - d. Owens Corning; WeatherLock.
  - e. Polyguard Products, Inc; Polyguard Deck Guard.
- C. Slip Sheet: Building paper, minimum 5 lb/100 sq. ft, rosin sized.

### 2.3 MISCELLANEOUS MATERIALS

- A. General: Provide materials and types of fasteners, solder, welding rods, protective coatings, separators, sealants, and other miscellaneous items as required for a complete roofing system and as recommended by fabricator for sheet metal roofing.
- B. Fasteners: Wood screws, annular threaded nails, self-tapping screws, self-locking rivets and bolts, and other suitable fasteners designed to withstand design loads.
1. Nails for Copper Sheet: Copper, hardware bronze, or Series 300 stainless steel, 0.109 inch minimum and not less than 7/8 inch long, barbed with large head.
  2. Exposed Fasteners: Heads matching color of sheet metal by means of plastic caps or factory-applied coating.
  3. Fasteners for Flashing and Trim: Blind fasteners or self-drilling screws, gasketed, with hex washer head.
  4. Blind Fasteners: High-strength aluminum or stainless-steel rivets.
  5. Spikes and Ferrules: Same material as gutter; with spike and ferrule matching internal gutter width.
- C. Elastomeric Joint Sealant: ASTM C 920, of base polymer, type, grade, class, and use classifications required to produce joints in sheet metal roofing that will remain weathertight and as recommended by roll-formed sheet metal roofing manufacturer for installation indicated.
- D. Bituminous Coating: Cold-applied asphalt mastic, SSPC-Paint 12, compounded for 15-mil dry film thickness per coat. Provide inert-type non-corrosive compound free of asbestos fibers, sulfur components, and other deleterious impurities.

### 2.4 ACCESSORIES

- A. Sheet Metal Roofing Accessories: Provide components required for a complete sheet metal roofing assembly including trim, copings, fasciae, corner units, ridge closures, clips, flashings, sealants, gaskets, fillers, closure strips, and similar items. Match material and finish of sheet metal roofing, unless otherwise indicated.
1. Closures: Where seams are not turned down, provide closures at eaves and ridges, fabricated of same metal as sheet metal roofing.
  2. Cleats: Mechanically seamed cleats formed from the same material as base material. Fold cleats back over fastener heads.

- B. Flashing and Trim: Formed from 24 gauge, zinc-coated (galvanized) steel sheet or aluminum-zinc alloy-coated steel sheet prepainted with coil coating. Provide flashing and trim as required to seal against weather and to provide finished appearance. Locations include, but are not limited to, eaves, rakes, corners, bases, framed openings, ridges, fasciae, and fillers. Finish flashing and trim with same finish system as adjacent sheet metal roofing.

## 2.5 FABRICATION

- A. General: Custom fabricate sheet metal roofing to comply with details shown and recommendations in SMACNA's "Architectural Sheet Metal Manual" that apply to the design, dimensions (pan width and seam height), geometry, metal thickness, and other characteristics of installation indicated. Fabricate sheet metal roofing and accessories at the shop to greatest extent possible.
  - 1. Standing-Seam Roofing: Form standing-seam pans 16 inches wide with finished seam height of 1 inch.
- B. General: Fabricate roll-formed sheet metal roofing panels to comply with details shown and roll-formed sheet metal roofing manufacturer's written instructions.
- C. Fabricate sheet metal roofing to allow for expansion work sufficient to prevent leakage, damage, and deterioration of the Work. Form exposed sheet metal work to fit substrates without excessive oil canning, buckling, and tool marks, true to line and levels indicated, and with exposed edges folded back to form hems.
  - 1. Lay out sheet metal roofing so cross seams, when required, are made in direction of flow with higher pans overlapping lower pans. Stagger cross seams.
  - 2. Fold and cleat eaves and transverse seams in the shop.
  - 3. Form and fabricate sheets, seams, strips, cleats, valleys, ridges, edge treatments, integral flashings, and other components of metal roofing to profiles, patterns, and drainage arrangements shown and as required for leakproof construction.
- D. Expansion Provisions: Where lapped or bayonet-type expansion provisions in the Work cannot be used, form expansion joints of intermeshing hooked flanges, not less than 1 inch (25 mm) deep, filled with sealant (concealed within joints).
- E. Sealant Joints: Where movable, nonexpansion-type joints are indicated or required to produce weathertight seams, form metal to provide for proper installation of elastomeric sealant, in compliance with SMACNA standards.
- F. Metal Protection: Where dissimilar metals will contact each other, protect against galvanic action by painting contact surfaces with bituminous coating, by applying rubberized-asphalt underlayment to each contact surface, or by other permanent separation as recommended by manufacturers of dissimilar metals or by fabricator.
- G. Sheet Metal Accessories: Custom fabricate flashings and trim to comply with recommendations in SMACNA's "Architectural Sheet Metal Manual" that apply to design, dimensions, metal, and other characteristics of item indicated. Obtain field measurements for accurate fit before shop fabrication.

1. Form exposed sheet metal accessories that are without excessive oil canning, buckling, and tool marks and that are true to line and levels indicated, with exposed edges folded back to form hems.
2. Sealed Joints: Form nonexpansion but movable joints in metal to accommodate elastomeric sealant to comply with SMACNA standards.
3. Conceal fasteners and expansion provisions where possible. Exposed fasteners are not allowed on faces of accessories exposed to view.
4. Fabricate cleats and attachment devices from same material as accessory being anchored or from compatible, noncorrosive metal.
  - a) Size: As recommended by SMACNA's "Architectural Sheet Metal Manual" for application but not less than thickness of metal being secured.

## 2.6 ROOF DRAINAGE SHEET METAL FABRICATIONS

- A. Hanging Gutters: Fabricate to cross section indicated, complete with end pieces, outlet tubes, and other accessories as required. Fabricate in minimum 96-inch long sections. Furnish flat-stock gutter spacers and gutter brackets fabricated from same metal as gutters, of size recommended by SMACNA but not less than twice the gutter thickness. Fabricate expansion joints, expansion-joint covers, and gutter accessories from same metal as gutters.
  1. Gutter Style: 6" half-round pre-finished galvanized steel.
  2. Expansion Joints: Butt type.
  3. Accessories: Adjustable shank fascia mounted hangers, spacers and clips all with two coats of spray applied paint in shop. Color to match prefinished gutters.
- B. Downspouts: Fabricate round downspouts complete with mitered elbows with fittings to drain into storm drain boots. Furnish with metal hangers, from same material as downspouts and anchors.
  1. Manufactured Hanger Style: Steel straps finished to match downspout.
  2. Fabricate base bid downspouts from the following material:
    - a. Pre-finished galvanized Steel: 0.0217 inch

## 2.7 FINISHES, GENERAL

- A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
- B. Protect mechanical and painted finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.
- C. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. Noticeable variations in the same piece are not acceptable. Variations in appearance of other components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

## PART 3 - EXECUTION

## 3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances, sheet metal roofing supports, and other conditions affecting performance of work.
  - 1. Examine primary and secondary roof framing to verify that rafters, purlins, angles, channels, and other structural panel support members and anchorages have been installed.
  - 2. Examine solid roof sheathing to verify that sheathing joints are supported by framing or blocking and that installation is within flatness tolerances.
  - 3. Verify that substrate is sound, dry, smooth, clean, sloped for drainage, and completely anchored, and that provision has been made for scuppers, flashings, and penetrations through sheet metal roofing.
  - 4. For the record, prepare written report, endorsed by Installer, listing conditions detrimental to performance of work.
- B. Examine roughing-in for components and systems penetrating sheet metal roofing to verify actual locations of penetrations relative to seam locations of sheet metal roofing before sheet metal roofing installation.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

## 3.2 PREPARATION

- A. Install flashings and other sheet metal to comply with requirements specified in Division 7 Section "Sheet Metal Flashing and Trim."

## 3.3 UNDERLAYMENT INSTALLATION

- A. Felt Underlayment: Install felt underlayment and building-paper slip sheet on roof sheathing under sheet metal roofing. Use adhesive for temporary anchorage, where possible, to minimize use of mechanical fasteners under sheet metal roofing. Apply at locations indicated on Drawings, in shingle fashion to shed water, with lapped joints of not less than 2 inches (50 mm).
- B. Self-Adhering Sheet Underlayment: Install self-adhering sheet underlayment, wrinkle free, on roof sheathing under sheet metal roofing. Apply primer if required by underlayment manufacturer. Comply with temperature restrictions of underlayment manufacturer for installation; use primer rather than nails for installing underlayment at low temperatures. Apply at locations indicated on Drawings, 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 with roller. Cover underlayment within 14 days.
- C. Install flashings to cover underlayment to comply with requirements specified in Division 7 Section 076100 "Sheet Metal Flashing and Trim."
- D. Apply slip sheet over underlayment before installing sheet metal roofing.



## 3.4 INSTALLATION, GENERAL

- A. General: Install sheet metal roofing perpendicular to purlins or supports. Anchor sheet metal roofing and other components of the Work securely in place, with provisions for thermal and structural movement. Install fasteners, solder, welding rods, protective coatings, separators, sealants, and other miscellaneous items as required for a complete roofing system and as recommended by fabricator for sheet metal roofing.
1. Field cutting of sheet metal roofing by torch is not permitted.
  2. Rigidly fasten eave end of sheet metal roofing and allow ridge end free movement due to thermal expansion and contraction. Pre-drill roofing.
  3. Provide metal closures at rake edges.
  4. Flash and seal sheet metal roofing with weather closures at eaves, rakes, and at perimeter of all openings. Fasten with self-tapping screws.
  5. Locate and space fastenings in uniform vertical and horizontal alignment.
  6. Locate roofing splices over, but not attached to, structural supports. Stagger roofing splices and end laps to avoid a four-panel lap splice condition.
  7. Lap metal flashing over sheet metal roofing to allow moisture to run over and off the material.
- B. Fasteners: Use fasteners of sizes that will not penetrate completely through substrate.
1. Steel Roofing: Use stainless-steel fasteners.
- C. Metal Protection: Where dissimilar metals will contact each other or corrosive substrates, protect against galvanic action by painting contact surfaces with bituminous coating, by applying rubberized-asphalt underlayment to each contact surface, or by other permanent separation as recommended by fabricator of sheet metal roofing or manufacturers of dissimilar metals.
- D. Conceal fasteners and expansion provisions where possible in exposed work and locate to minimize possibility of leakage. Cover and seal fasteners and anchors as required for a tight installation.
- E. Fascia: Align bottom of sheet metal roofing and fasten with blind rivets, bolts, or self-tapping screws. Flash and seal sheet metal roofing with weather closures where fasciae meet soffits, along lower panel edges, and at perimeter of all openings.

## 3.5 CUSTOM-FABRICATED SHEET METAL ROOFING INSTALLATION

- A. Fabricate and install Work with lines and corners of exposed units true and accurate. Form exposed faces flat and free of buckles, excessive waves, and avoidable tool marks, considering temper and reflectivity of metal. Provide uniform, neat seams with minimum exposure of solder, welds, and sealant. Fold back sheet metal to form a hem on concealed side of exposed edges, unless otherwise indicated.
1. Install cleats to hold sheet metal panels in position. Attach each cleat with two fasteners to prevent rotation.
  2. Nail cleats not more than 12 inches o.c. Bend tabs over nails.

- B. Seal joints as shown and as required for leakproof construction. Provide low-slope transverse seams using cleats where backup of moisture may occur.
  - 1. Where sealant-filled joints are used, embed hooked flanges of joint members not less than 1 inch into sealant. Form joints to completely conceal sealant. When ambient temperature at time of installation is moderate, between 40 and 70 deg F, set joint members for 50 percent movement either way. Adjust setting proportionately for installation at higher ambient temperatures. Do not install sealant-type joints at temperatures below 40 deg F.
  - 2. Prepare joints and apply sealants to comply with requirements in Division 7 Section 079200 "Joint Sealants."
- C. Standing-Seam Roofing: Attach standing-seam metal pans to substrate with cleats, double-nailed at 12 inches o.c. Install pans reaching from eave to ridge before moving to adjacent pans. Lock each pan to pan below with transverse seam. Before pans are locked, apply continuous bead of sealant to top flange of lower pan. Crimp standing seams by folding over twice so cleat and pan edges are completely engaged.
  - 1. Loose-lock pans at eave edges to continuous cleats and flanges on back edges of gutters.
  - 2. Fold over seams after crimping at locations shown.

### 3.6 GUTTER AND DOWNSPOUT INSTALLATION

- A. General: Install sheet metal roof drainage items to produce complete roof drainage system according to SMACNA recommendations and as indicated. Coordinate installation of roof perimeter flashing with installation of roof drainage system.
- B. Hanging Gutters: Join sections with riveted and soldered joints or with lapped joints sealed with elastomeric sealant. Provide for thermal expansion. Attach gutters at eave or fascia to firmly anchored fascia mounted hangers spaced not more than 36 inches apart. Provide end closures and seal watertight with sealant. Slope to downspouts.
  - 1. Fasten gutter spacers to front and back of gutter.
  - 2. Loosely lock straps to front gutter bead and anchor to roof deck.
- C. Downspouts: Join sections with 1-1/2 inch telescoping joints. Provide fasteners designed to hold downspouts securely 1 inch away from walls; locate fasteners at top and bottom and at each splice joint in between.
  - 1. Downspouts drain to splashblocks.

### 3.7 ACCESSORY INSTALLATION

- A. General: Install accessories with positive anchorage to building and weathertight mounting and provide for thermal expansion. Coordinate installation with flashings and other components.
  - 1. Install components required for a complete sheet metal roofing assembly including trim, copings, ridge closures, seam covers, flashings, sealants, gaskets, fillers, closure strips, and similar items.

- B. Flashing and Trim: Comply with performance requirements, manufacturer's written installation instructions, and SMACNA's "Architectural Sheet Metal Manual." Provide concealed 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 weather resistant.

### 3.8 ERECTION TOLERANCES

- A. Installation Tolerances: Shim and align sheet metal roofing within installed tolerance of 1/4 inch in 20 feet on slope and location lines as indicated and within 1/8-inch offset of adjoining faces and of alignment of matching profiles.

### 3.9 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 and sealants.
- C. Remove temporary protective coverings and strippable films, if any, as sheet metal roofing is installed. On completion of sheet metal roofing installation, clean finished surfaces, including removing unused fasteners, metal filings, pop rivet stems, and pieces of flashing. Maintain in a clean condition during construction.
- D. Replace panels that have been damaged or have deteriorated beyond successful repair by finish touchup or similar minor repair procedures.

END OF SECTION 074110

## SECTION 076100 - SHEET METAL FLASHING

## PART 1- GENERAL

## 1.1 RELATED DOCUMENTS

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

## 1.2 SUMMARY

- A. This Section includes the following:
  - 1.Metal flashing, counterflashing, and accessories.

## 1.3 RELATED SECTIONS

- A. The following Sections contain requirements that relate to this Section:
  - 1.Division 1 Section 010300, Alternates, for description of alternate bids.
  - 2.Division 7 Section 074110 Sheet Metal Roofing, for flashing and couterflashing of sheet metal roofing.
  - 3.Division 7 Section 079010, Joint Sealants, for joint sealers installed in connection with roofing work not otherwise specified in this Section.

## 1.4 SUBMITTALS

- A. Product data including metal manufacturer's and fabricator's specifications, installation instructions, construction techniques guide and general recommendations for flashing applications. Include certification or other data substantiating that materials comply with requirements. A copy of the metal manufacturer's specifications and construction techniques guide shall be kept in the job trailer for the duration of the project.
- B. Samples consisting of 12-inch-square specimens of specified metal flashing material.
- C. Field Samples of each different configuration on field mock up as shown on the drawings.
- D. Warranty: provide metal manufacturer's standard warranty indicating that metal products shall be free of perforation resulting from corrosion for a period of twenty (20) years from the date of Substantial Completion. Warranty document shall name this project specifically.

## 1.5 QUALIFY ASSURANCE

- A. Qualifications: Workmen shall demonstrate the following:
  - 1.Installer shall demonstrate not less than ten (10) years of successful experience with installation of traditional sheet metal step flashing.

Installer shall be qualified in practical geometry, pattern drafting, the accurate fabrication of complex metalwork, shop and field soldering, and the layout and installation of metal flashing and counterflashing.

- B. Field Samples: Before proceeding with fabrication of metal roofing components, prepare Field Mockup of each different type of work. Incorporate materials and methods of fabrication and installation identical with project requirements. Retain accepted Field Mockup as quality standard for acceptance of completed metal roofing and flashing for the duration of the project.

1. Prepare a Field Sample on site for each different configuration of flashing, stepped counterflashing, and accessories. Install in location and size agreed upon with the Architect.

2. Field Mockup shall be provided of sufficient size and scope to show typical layout, pattern of seams, edge construction, and relationship to other work.

3. Obtain Architect's and Owner's acceptance of Field Samples before start of final Work.

#### 1.6 PROJECT CONDITIONS

- A. Coordinate work of this section with interfacing and adjoining work for proper sequencing of each installation. Ensure best possible weather resistance and durability of work and protection of materials and finishes.

### PART 2 - PRODUCTS

#### 2.1 MATERIALS

- A. Galvanized Steel: ASTM A 526, G 90 (ASTM A 526M, Z 275), commercial quality, or ASTM A 527, G 90 (ASTM A 527M, Z 275), lock-forming quality, hot-dip galvanized steel sheet with 0.20 percent copper, not less than 0.0396 inch (1.0 mm) thick, unless otherwise indicated.

1. Paint Grip: Mill phosphatized where indicated for painting.

- B. Lead-coated copper sheet where noted on the drawings for flashing and counterflashing: 16 oz., conforming to ASTM B101-12.

- C. Paper Slip Sheet: Minimum 5-lb. rosin-sized building paper.

- D. Felts: Provide asphalt-saturated organic felts conforming to the requirements of ASTM D 226, Type II (30 lb.).

- E. Solder: Provide 60 - 40 tin/lead solder (ASTM B 32), with acid-chloride type flux, except use rosin flux over tinned surfaces. All solder products must meet minimum requirements of roofing metal manufacturer.

- F. Fasteners: For galvanized steel use stainless steel nails.

- G. Wood Blocking and Furring Strips: Fabricated to sizes required for proper performance of work from lumber preservative treated by pressure

process using a chemical solution that is non-hygroscopic and non-corrosive to the type of metal roofing. Submit written documentation indicating metal manufacturer's approval of pressure treated wood products.

- H. Accessories: Provide all cleats, expansion cleats, reglets, and all other accessories needed for a complete installation. Accessories shall be of the same metal as base bid or alternate bid metal products.

## 2.2 FABRICATED UNITS

- A. General Metal Fabrication: Shop-fabricate work to greatest extent possible. Comply with existing details and details shown. Except as otherwise shown or specified, comply with applicable recommendations and details of "Architectural Sheet Metal Manual" by SMACNA.

1. Fabricate for waterproof and weather-resistant performance with expansion provisions for running work, sufficient to permanently prevent leakage, damage, or deterioration of the work. Form work to fit substrate.

2. Form exposed sheet metal work without excessive oil-canning, buckling, and tool marks, true to line and levels indicated, with exposed edges folded back to form hems.

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

## PART 3 - EXECUTION

### 3.1 REMOVAL

- A. Remove and dispose of existing flashing and counterflashing within Scope of Work.
- B. Remove all previous roofing fasteners and other protrusions from wood deck so as to provide a flat surface to receive new metal work.

### 3.2 PROTECTION

- A. Protect interior of building from water infiltration during work of this Section.
- B. Protect existing work to remain and adjacent property from damage related to demolition or ongoing roofing/metal.
- C. Store new flashing materials in a clean, dry, area that is well ventilated.

### 3.3 EXAMINATION

- A. Examine roof decking for conditions adverse to installation of flashing. Roof deck must be smooth, clean, and dry. Report adverse conditions to the Architect in writing, before proceeding with new metal work.

Proceeding with work indicates installer has examined and substrate as an approved surface to receive new metal work.

### 3.4 PREPARATION

- A. Coordinate metal roofing with chimney reconstruction under alternate bid, to provide a permanently leakproof, secure, and noncorrosive installation.
- B. Fire Protection: During soldering and other work with a potential for igniting fires, station watchmen in areas susceptible to fire ignition. Maintain watchmen until potential for ignition is no longer present. Inspect areas where soldering or other heat producing operations have occurred within 2 hours of completion of operations for latent head, smoldering fire sources, or other conditions that might cause fire and render harmless.
- C. Roofer shall wear rubber soled shoes. There shall be no unnecessary walking over the roof. Follow roofing manufacturer's material handling instructions.

### 3.5 INSTALLATION

- A. Install felt underlayment on wood deck and cover with paper slip sheet under metal roofing. Use adhesive for temporary anchorage, where possible, to minimize use of mechanical fasteners under metal roofing. Lap joints are 2 inches minimum.
- B. Form and fabricate sheets, seams, strips, attachment cleats, integral flashings, counterflashing, and other components of metal roofing to profiles, patterns, and drainage arrangements shown and as required for permanently leakproof construction. Provide for thermal expansion and contraction of the work. Shop-fabricate materials to greatest extent possible.
- C. Fabricate and install work with lines and corners of exposed units true and accurate. Form exposed faces flat and free of buckles, excessive waves, and avoidable tool marks considering temper and reflectivity of metal. Provide uniform, neat seams with minimum exposure of solder. Except as otherwise shown, fold back sheet metal to form a hem on concealed side of exposed edges. Install 2" wide cleats at 1'-0" on center. Flux residues must be neutralized and removed after soldering. Use soldering irons only (3 lb. minimum each). Do not use abrasives in preparing the surface for soldering.
- D. In acceptance and rejection of work, no allowances will be made for lack of skill or experience of workmen.

### 3.6 CLEANING AND PROTECTION

- A. Clean exposed metal surfaces of substances that would interfere with uniform oxidation and weathering.
- B. Provide final protection in a manner acceptable to installer that ensures

that metal roofing is without damage or deterioration at time of  
Substantial

END OF SECTION 076100



## 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 1 Specification Sections, apply to this Section.

## 1.2 SUMMARY

- A. This Section includes joint sealants for the following applications:
  - 1. Exterior joints in the following vertical surfaces and horizontal nontraffic surfaces:
    - a. Perimeter joints between adjoining surfaces and frames of doors, windows, and louvers and other wall penetrations.
    - b. Joints between dissimilar materials.
    - c. Other joints as indicated.
  - 2. Exterior joints in the following horizontal traffic surfaces:
    - a. Isolation and contraction joints in cast-in-place concrete slabs.
  - 3. Interior joints in the following vertical surfaces and horizontal nontraffic surfaces:
    - a. Perimeter joints of exterior openings where indicated.
    - b. Perimeter joints between interior wall surfaces and frames of interior doors and windows.
    - c. Joints between plumbing fixtures and adjoining walls, floors, and counters.
    - d. Joints between dissimilar materials.
    - e. Other joints as indicated.
- B. Related Sections include the following:
  - 1. Division 8 Section "Glazing" for glazing sealants.

## 1.3 PERFORMANCE REQUIREMENTS

- A. Provide silicone joint sealants that establish and maintain watertight and airtight continuous joint seals without staining or deteriorating joint substrates.
- B. Provide acrylic latex silicone for interior applications that establish and maintain airtight and watertight continuous joint seals without staining or deteriorating joint substrates.

#### 1.4 SUBMITTALS

- A. Product Data: For each joint-sealant product indicated.
- B. Samples for Initial Selection: Manufacturer's color charts consisting of strips of cured sealants showing the full range of colors, including custom colors, available for each product exposed to view.
- C. Product Certificates: For each type of joint sealant and accessory, signed by product manufacturer.
- D. Warranties: Special warranties specified in this Section.

#### 1.5 QUALITY ASSURANCE

- A. Installer qualifications: Manufacturer's authorized installer who is approved or licensed for installation of silicone sealants required for this product.
- B. Source Limitations: Obtain each type of joint sealant through one source from a single manufacturer.
- C. Mockups: Build mockups incorporating sealant joints, as follows, to verify selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution:
  - 1. Joints in mockups of assemblies specified in other Sections that are indicated to receive elastomeric joint sealants, which are specified by reference to this Section.

#### 1.6 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 (5 deg C).
  - 2. When joint substrates are wet.
  - 3. Where joint widths are less than those allowed by joint-sealant manufacturer for applications indicated.
  - 4. Contaminants capable of interfering with adhesion have not yet been removed from joint substrates.

#### 1.7 WARRANTY

- A. Special Installer's Warranty: Installer's standard form in which Installer agrees to repair or replace elastomeric 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 elastomeric sealant manufacturer agrees to furnish elastomeric 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: Two years from date of Substantial Completion.
- C. Special warranties specified in this Article exclude deterioration or failure of elastomeric joint sealants from the following:
  - 1. Movement of the structure resulting in stresses on the sealant exceeding sealant manufacturer's written specifications for sealant elongation and compression caused by structural settlement or errors attributable to design or construction.
  - 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 MANUFACTURERS

- A. Products: Subject to compliance with requirements, provide one of the products listed in other Part 2 articles.

### 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 sealant manufacturer, based on testing and field experience.
- B. Colors of Exposed Joint Sealants: As selected by Architect from manufacturer's full range including manufacturer's custom colors.

### 2.3 SILICONE JOINT SEALANTS

- A. Silicone 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. Stain-Test-Response Characteristics: Where elastomeric sealants are specified to be nonstaining to porous substrates, provide products that have undergone testing according to ASTM C 1248 and have not stained porous joint substrates indicated for Project.
- C. Single-Component Neutral-Curing Silicone Sealant for exterior traffic surfaces:
  - 1. Products:
    - a. Dow Corning Corporation; 890-SL.

- b. Pecora Corporation; 300 Pavement Sealant.
    - c. Dow Corning Corporation; SL Parking Structure Sealant.
  - 2. Type and Grade: S (single component) and P (pourable).
  - 3. Class: 100/50.
  - 4. Use[s] Related to Exposure: NT and T (traffic).
  - 5. Uses Related to Joint Substrates: M and O, as applicable to joint substrates indicated.
    - a. Use O Joint Substrates: concrete and brick.
- D. Single-Component Neutral-Curing Silicone Sealant for general interior and exterior applications:
  - 1. Available Products:
    - a. Dow Corning Corporation; 795.
    - b. Pecora Corporation; 895
    - c. TREMCO Inc.; Vulkem 116.
  - 2. Type and Grade: S (single component) and NS (nonsag).
  - 3. Class: 100/50.
  - 4. Use Related to Exposure: NT (nontraffic).
  - 5. Uses Related to Joint Substrates: M, and, as applicable to joint substrates indicated, O.
    - a. Use O Joint Substrates: galvanized, steel, brick, granite, limestone marble and wood.
  - 6. Stain-Test-Response Characteristics: Nonstaining to porous substrates per ASTM C 1248.
- E. Single-Component Mildew-Resistant Neutral-Curing Silicone Sealant for perimeter of plumbing fixtures:
  - 1. Products:
    - a. Pecora Corporation; 898.
    - b. Tremco; Tremsil 600 White.
    - c. Dow Corning #786.
  - 2. Type and Grade: S (single component) and NS (nonsag).
  - 3. Class: 25.
  - 4. Use Related to Exposure: NT (nontraffic).
  - 5. Uses Related to Joint Substrates: M as applicable to joint substrates indicated, O.
    - a. Use O Joint Substrates: galvanized steel and ceramic tile.

## 2.4 JOINT-SEALANT BACKING

- A. General: Provide sealant backings of material and type that are nonstaining; 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), O (open-cell material), B (bicellular material with a surface skin) or any of the preceding types, 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. Elastomeric Tubing Sealant Backings: Neoprene, butyl, EPDM, or silicone tubing complying with ASTM D 1056, nonabsorbent to water and gas, and capable of remaining resilient at temperatures down to **minus 26 deg F (minus 32 deg C)**. Provide products with low compression set and of size and shape to provide a secondary seal, to control sealant depth, and to otherwise contribute to optimum sealant performance.
- D. 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.

## 2.5 MISCELLANEOUS MATERIALS

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

## PART 3 - EXECUTION

### 3.1 EXAMINATION

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

### 3.2 PREPARATION

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

1. Remove all foreign material from joint substrates that could interfere with adhesion of joint sealant, including dust, paints (except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer), old joint sealants, oil, grease, waterproofing, water repellents, water, surface dirt, and frost.
  2. Clean porous joint substrate surfaces by brushing, grinding, blast cleaning, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint sealants. Remove loose particles remaining after cleaning operations above by vacuuming or blowing out joints with oil-free compressed air. Porous joint substrates include the following:
    - a. Concrete.
  3. Remove laitance and form-release agents from concrete.
  4. Clean nonporous surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion of joint sealants. Nonporous joint substrates include the following:
    - a. Metal.
    - b. Glass.
- B. Joint Priming: Prime joint substrates, where recommended in writing by joint-sealant manufacturer, based on 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 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. Acoustical Sealant Application Standard: Comply with recommendations in ASTM C 919 for use of joint sealants in acoustical applications as applicable to materials, applications, and conditions indicated.
- D. Install sealant backings of type 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.

- E. Install bond-breaker tape behind sealants where sealant backings are not used between sealants and backs of joints.
- F. 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.
- G. Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants according to requirements specified 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 configuration per Figure 5A in ASTM C 1193, unless otherwise indicated.

#### 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.

END OF SECTION 079200

## PART 1 GENERAL

## 1.1 RELATED DOCUMENTS

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

## 1.2 SUMMARY

## A. Section Includes:

1. Pressed steel hollow metal doors and frames.
2. Fire-rated hollow metal doors and frames.
3. Rough bucks, frame reinforcing, door reinforcing, door insulation, closer reinforcements, clip angles and anchorage.
4. Factory prime paint finish.
5. Grouting of hollow metal frames with masonry mortar where not covered under other Sections.

## B. Related Sections:

1. Section 04210 - Unit Masonry: Grouting of frames in masonry construction.
2. Section 08710 - Hardware: Finish hardware.
3. Section 09900 - Painting: Finish painting.

## 1.3 REFERENCES

- A. ANSI/SDI-100-83 - Recommended Specifications - Standard Steel Doors and Frames, Steel Door Institute, unless herein specified.
- B. Underwriters' Laboratories Inc. (UL) UL 10C-98 – Fire Tests of Door Assemblies.
- C. NFPA-80-1995 – Standard for Fire Doors and Windows.
- D. NFPA-101-1997 – Life Safety Code.
- E. NFPA-105-1993 – Standard for Smoke and Draft Control Assemblies.
- F. ASTM-A 366-95A – Specification for Steel, Sheet, Carbon, Cold-Rolled, Commercial Quality.
- G. ASTM-A 568-95 – Specification for Steel, Sheet, Carbon, and High Strength, Low-Alloy, Hot-Rolled, and Cold-Rolled.
- H. ASTM-A 569-91a – Specification for Steel, Carbon, (0.15 maximum percent), Hot-Rolled Sheet and Strip Commercial Quality.
- I. ASTM-A 924-95 – General Requirements for Steel Sheet, Metallic Coated by the Hot-Dip Process.
- J. ANSI A250.8-1998/SDI 100 – Recommended Specifications for Standard Steel Doors and Frames.



- K. SDI-105-92 – Recommended Erection Instructions for Steel Frames.
- L. ANSI A115.1-17 - Specification for Door and Frame Preparation for Hardware.
- M. ANSI A156.7 - Standard Template Hinge Dimensions.

#### 1.4 SUBMITTALS

- A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification sections.
- B. Product Data: For each type of door and frame indicated, include door designation, type, level and model, material description, core description, construction details, label compliance, sound and fire-resistance ratings, and finishes.
- C. Shop Drawings: Indicate door and frame elevations and sections, materials, gauges, finishes door thickness, door swing, stile and rail dimensions, undercuts, fabrication and erection details, locations of finish hardware by dimension and locations/details of all lite openings and louvers. Do not proceed with fabrication until all details are approved.

#### 1.5 QUALITY ASSURANCE

- A. Applicable Standards: Specifications and standards of SDI 100-98.
- B. Wind Load Performance Requirements: Comply with wind load requirements of Uniform Building Code. Deflection shall not exceed 1/175 of span.
- C. Supplier Qualification: Qualified direct distributor of products to be furnished. The distributor shall have in their regular employment an A.H.C./C.D.C. or person of equivalent experience who will be available at reasonable times to consult with the Architect, Contractor and/or Owner regarding any matters affecting the total door and frame openings.
- D. Installer Qualification: Experience with installation of similar materials.
- E. Fire-Rated Door Assemblies: Where fire-rated door assemblies are indicated or required, provide fire-rated door and frame assemblies that comply with NFPA 80 "Standard for Fire Doors and Windows", and have been tested, listed, and labeled in accordance with ASTM E152 "Standard Methods of Fire Tests of Door Assemblies" by nationally recognized independent testing and inspection agency acceptable to authorities having jurisdiction.
  - 1. Temperature Rise Rating: At stairwell enclosures, provide doors which have Temperature Rise Rating of 450 degrees F maximum in 30 minutes of fire exposure.

#### 1.6 PRODUCT HANDLING

- A. Deliver hollow metal doors in manufacturer's protective covering. Handle hollow metal with care to prevent damage.

- B. Door Storage: Store doors in upright position, under cover. Place doors on at least 4 inch (101.6) high wood sills or on floors in manner that will prevent rust and damage. Do not use non-vented plastic or canvas shelters which create humidity chamber and promote rusting. If corrugated wrapper on door becomes wet, or moisture appears, remove wrapping immediately. Provide 1/4 inch (6.3) space between doors to promote air circulation.
- C. Frame Storage: Store frames under cover on 4 inch wood sills on floors in manner that will prevent rust and damage. Do not use non-vented plastic or canvas shelters which create humidity chamber and promote rusting. Store assembled frames in vertical position, 5 units maximum in stack. Provide 1/4 inch space between frames to promote air circulation.

### 1.7 SEQUENCING AND SCHEDULING

- A. Deliver doors and frames to the jobsite in a timely manner so as not to delay progress of other trades.

## PART 2 PRODUCTS

### 2.1 MANUFACTURERS

- A. Provide products as hereafter specified. Substitutions other than those manufacturers listed as Approved Equals must be approved, in writing, via addenda, prior to bid. Procedure for substitutions shall be as outlined in Division 1. No substitutions will be considered after award of contract.

### 2.2 Hollow Metal Doors and Frames.

#### A. Acceptable Manufacturers.

1. Curries, Mason City, IA.
2. Mesker Door, Inc. Huntsville, AL.
3. Republic Builders Products, McKenzie, TN.

#### B. Materials

1. Steel requirements; All doors and frames to be manufactured of commercial quality, stretcher leveled flatness, cold rolled steel per ASTM-A366 and A-568 general requirements or galvanized to A-60 minimum coating weight standard per ASTM-A924. Internal reinforcing may be manufactured of hot rolled pickled or oiled steel per ASTM-A569.
2. Coating Materials: Use manufacturers standard rust inhibiting primer conforming to ANSI-A224.1-1990.
3. Core Materials; non labeled doors or labeled doors, polystyrene foam core – self extinguishing, non-toxic in case if fire.

#### C. Fabrication

##### 1. General:

- a. Fabricate all doors and frames in accordance with ANSI A250.8-1998/S.D.I.-100 except where more stringent requirements are specified.
- b. Prepare doors to receive finish hardware per approved schedules. Include hardware function holes and required mortises with reinforcing. Provide additional steel backer reinforcing at points where door closers are attached.
- c. Supply only doors and frames manufactured by one of the acceptable manufacturers listed in the specification.

- d. Exterior Door Construction: For exterior locations and elsewhere as indicated, fabricate doors, panels, and frames from galvanized steel sheet. Close top and bottom edges of doors flush as an integral part of door construction or by addition of 0.0635 inch (1.6 mm) thick, galvanized steel channels with channel webs placed even with top and bottom edges. Seal joints in top edges of doors against water penetration. Comply with SDI 112.
- e. Core Construction: One of the following manufacturer's standard core materials that produce a door complying with SDI standards:
  - 1. Resin-impregnated kraft/paper honeycomb.
  - 2. Polyurethane conforming to ASTM C591.
  - 3. Polystyrene conforming to ASTM C578.
  - 4. Vertical steel stiffeners.
  - 5. Rigid mineral-fiber board with internal sound deadener on inside of face sheets.
- f. Clearances for Non-Fire-Rated Doors: Not more than **1/8 inch (3.2 mm)** at jambs and heads, except not more than **1/4 inch (6.4 mm)** between pairs of doors. Not more than **3/4 inch (19 mm)** at bottom.
- g. Clearances for Fire-Rated Doors: As required by NFPA 80.
- h. Single-Acting, Door-Edge Profile: Comply with ANSI/SDI 100 requirements.
- i. Tolerances: Comply with SDI 117, "Manufacturing Tolerances for Standard Steel Doors and Frames."
- j. Fabricate concealed stiffeners, reinforcement, edge channels, louvers, and moldings from only cold-rolled steel sheet.
- k. Exposed Fasteners: Unless otherwise indicated, provide countersunk flat or oval heads for exposed screws and bolts.
- l. Hardware Preparation: Prepare doors and frames to receive mortised and concealed hardware according to final door hardware schedule and templates provided by hardware supplier. Comply with applicable requirements in ANSI A250.6 and ANSI A115 Series specifications for door and frame preparation for hardware.
  - 1. For concealed overhead door closers, provide space, cutouts, reinforcement, and provisions for fastening in top rail of doors or head of frames, as applicable.
- m. Frame Construction: Fabricate frames to shape shown.
  - 1. Fabricate frames with mitered or coped and continuously welded corners.
  - 2. For exterior applications, fabricate frames with mitered or coped and continuously welded corners.

- n. Reinforce doors and frames to receive surface-applied hardware. Drilling and tapping for surface-applied hardware may be done at Project site.
2. Hollow Metal Doors:
- a. Classification: Exterior; SDI Level 3 – Model 2, 16 gauge seamless design. Interior; SDI Level 2 – Model 2, 18 gauge seamless design.
  - b. Face sheet finish: Exterior; A-60 galvanized, primed. Interior; cold rolled, primed.
  - c. Seamless construction by welding and filling at factory only.
  - d. Vertical lock edges beveled 1/8” in 2”. Furnish doors sized for 1/8” operating clearance at each jamb and head. Undersize doors to receive continuous hinges adequately to preserve operating clearance. Door shall be undercut 5/8” at sill edge.
  - e. Top and bottom channels:
    - 1) Not less than 16 gauge flush or inverted.
    - 2) Welded to face sheets.
    - 3) Close top of out-swinging exterior doors flush by the addition of steel top channel filler. Fill with Metal Filler, grind smooth and re-prime.
  - f. All doors conform to ANSI-A250.4-1994 Level “A” criteria and be tested to 1,000,000 operating cycles and 23 twist tests. Certification of Level “A” doors is to be submitted with approval drawings by the distributor. Do not bid or supply any type or gauge door not having passed this test criteria.
3. Frames:
- a. Construction: Exterior; 16 gauge A-60 galvanized, cold rolled steel; primed. Interior; 16 gauge cold rolled steel; primed.
  - b. Profiles shall be furnished as shown on drawings. **Where smoke seals and weatherstripping is called for, furnish kerfed type frame profile with gasketing suited to the required condition.**
  - b. All frames set in masonry walls are to be face welded and ground smooth. Re-prime the welded areas.
  - c. Provide temporary shipping bars to help protect from damage during transit and handling. Shipping bars are to be removed by frame installer prior to blocking and setting frame.
  - d. All welds on frames, transoms and sidelites to be ground flush with neatly mitered or butted joint cuts.
  - e. **All frames scheduled to receive heavy weight hinges shall have full Width hinge straps welded across the rabbets at top and bottom of each hinge reinforcement.**
4. Frame Anchors:
- a. Wall anchors for frames in masonry walls: Flat perforated or corrugated “T” shape with wall leg not less than 2” wide by 10” long or wire type not less than 3/16” diameter.
  - b. Provide one jamb anchor for each 30” section.
  - c. Floor anchors shall be angle clip type, 16 gauge, welded flush to the bottom of each leg.

- d. Jamb anchors for in-place masonry or concrete walls shall consist of 3/8" countersunk head bolt with expansion anchor at each anchor location. Weld pipe spacers or other manufacturers standard design into back of frame soffit to prevent collapse of frame profile. Location of these anchors shall be coordinated by the General Contractor.
1. Hardware Preparations:
    - a. Reinforce components for hardware installation in accordance to ANSI A250.6-1997/SDI-107.
    - b. All door reinforcement for closers or locks shall be channel or box type.
    - c. Hinge and lock stiles shall be a continuous 14 gauge (minimum) integral channel used to form reinforcements.
    - d. Punch single leaf frames to receive 3 silencers at strike jamb. Double door frames shall receive 2 silencers at frame header.
    - e. Factory prepared hardware locations to be in accord with "Recommended Locations for Builders Hardware for Standard Steel doors and Frames" as adopted by the Steel Door Institute (SDI).
    - f. Furnish welded-in mortar guards at each cutout adjacent to masonry wall construction.
- D. Finishes
1. Prime Finish: Manufacturer's standard, factory-applied coat of rust-inhibiting primer complying with ANSI A250.10 for acceptance criteria.

## PART 3 EXECUTION

### 3.1 EXAMINATION

- A. Examine supporting structure and conditions under which hollow metal is to be installed. Do not proceed with installation until unsatisfactory conditions have been corrected.

### 3.2 INSTALLATION

#### A. Setting Hollow Metal Frames:

1. Set all frames in accordance with SDI 105-92.
2. Set welded frames in position prior to beginning partition work. Remove temporary spreaders and brace frames at bottom and center until permanent anchors are set.
3. Install all fire rated frames in accordance with NFPA-80-1995.

#### B. Hollow Metal Door installation:

1. Install hollow metal doors using hardware specified in finish hardware sets.
2. Maintain 1/8" operating clearance between door and frame edges, at meeting stiles of pairs and between transom panels and frames.
3. Maintain 1/8" clearance between door bottom and thresholds. Doors without thresholds shall have 5/8" clearance above floor.

#### A. Adjustment and cleaning hollow metal:

1. Remove dirt and excess mortar, sealant or glazing compounds from exposed surfaces.
2. Adjust moving parts for smooth operation. Shim as necessary for proper clearances.
3. Fill all dents, holes, etc. with metal filler and sand smooth and flush with adjacent surfaces, re-prime/paint to match.

- D. Mount hardware units at heights indicated in the following applicable publications, except as specifically indicated or required to comply with governing regulations and except as otherwise directed by the Architect.
1. "Recommended Locations for Builders Hardware for Custom Hollow Metal Doors and Frames" as published by DHI and NAAMM.

END OF SECTION

## SECTION 082120 - STILE AND RAIL WOOD DOORS

## PART 1 - GENERAL

## 1.1 RELATED DOCUMENTS

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

## 1.2 SUMMARY

- A. This Section includes the following:
  - 1. Custom interior exterior stile and rail wood doors.
  - 2. Shop priming stile and rail wood doors and frames.
  - 3. Prepping Owner's existing door scurrently in storage to receive new hardware and hanging it on new wood frames.

## 1.3 REFERENCES

## A. STANDARDS

- 1. WDMA I.S. 6A – Industry Standard for Architectural Stile and Rail Doors.

## B. CODES

- 1. NFPA-101 – Life Safety Code
- 2. IBC 2003 – International Building Code
- 3. ANSI-A117.1 – Accessible and Usable Buildings and Facilities.
- 4. ADA – Americans with Disabilities Act
- 5. NCBC – North Carolina Building Code

## 1.4 SUBMITTALS

- A. Product Data: For each type of door. Include details of construction.
  - 1. Include factory-finishing specifications for priming.
- B. Shop Drawings: Indicate location, size, and hand of each door; elevation of each kind of door; core material, construction details not covered in Product Data, including those for stiles, rails, panels, and moldings (sticking); and other pertinent data.
  - 1. Indicate dimensions and locations of mortises and holes for hardware.
  - 2. Indicate doors to be factory finished and finish requirements.
  - 3. Provide elevations and details of construction.
- C. Samples for Initial Selection: For factory-finished doors.

- D. Samples for Verification: Corner sections of doors, approximately 8 by 10 inches (200 by 250 mm), with door faces and edgings representing typical range of color and grain for each species of veneer and solid lumber required and as expected in finish work.
- E. Product Certificates: Signed by door manufacturers.
- F. Warranty: Special warranty specified in this Section.

#### 1.5 QUALITY ASSURANCE

- A. Source Limitations: Obtain stile and rail wood doors of special design and construction from same fabricator who is a member in good standing of the American Woodwork Institute and Wood Door Manufacturer's Association.
- B. Quality Standard for Doors of Special Design and Construction: Comply with AWI's "Architectural Woodwork Quality Standards" and with WDMA I. S. #6A "Industry Standard for Architectural Stile and Doors" unless more stringent requirements are specified.
  - 1. Provide AWI Quality Certification Labels or an AWI letter of licensing for Project indicating that doors comply with requirements of grades specified.

#### 1.6 DELIVERY, STORAGE, AND HANDLING

- A. Comply with requirements of referenced standard and manufacturer's written instructions.
- B. Package doors individually in opaque plastic bags or cardboard cartons.
- C. Protect doors during transit, storage, and handling to prevent damage, soiling, and deterioration. Doors are to be shipped from manufacturer in individual polybags, and shall be inspected immediately upon arrival at jobsite for any damage or defects.
- D. Identify each door with individual opening numbers that correlate with designation system used on shop drawings and contract drawings for door, frames and hardware. Use only temporary, removable, or concealed markings.
- E. Do not deliver or install doors until building is enclosed and weather tight, wet-work is complete and dry, and HVAC system is operating and maintaining ambient temperature and relative humidity at occupancy level in storage and installation areas.

#### 1.7 PROJECT CONDITIONS

- A. Environmental Limitations: Do not deliver or install doors until building is enclosed, wet work is complete, and HVAC system is operating and maintaining temperature and relative humidity at occupancy levels during the remainder of the construction period.

#### 1.8 WARRANTY

- A. Special Warranty: Manufacturer's standard form, signed by manufacturer, Installer, and Contractor, in which manufacturer agrees to repair or replace doors that are defective in materials



or workmanship, and have warped (bow, cup, or twist) more than **1/4 inch (6.4 mm)** in a **42-by-84-inch (1067-by-2134-mm)** section.

1. Warranty shall also include installation and finishing that may be required due to repair or replacement of defective doors.
2. Warranty shall be in effect during the following period of time from date of Substantial Completion:

- a. Interior Doors: Life of installation.

- B. Contractor shall replace or refinish doors where contractor's actions contributed to rejection or voiding of manufacturer's warranty.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

- A. In other Part 2 articles where titles below introduce lists, the following requirements apply to product selection:
  1. Products: Subject to compliance with requirements, provide one of the products specified.

### 2.2 MATERIALS

- A. General: Use only materials that comply with referenced quality standards unless more stringent requirements are specified.
  1. Assemble exterior doors and sidelites, including components, with wet-use adhesives complying with ASTM D 5572 for finger joints and ASTM D 5751 for joints other than finger joints.
  2. Assemble interior doors, frames, and sidelites, including components, with either dry-use or wet-use adhesives complying with ASTM D 5572 for finger joints and ASTM D 5751 for joints other than finger joints.
- B. Low-Emitting Materials:
  1. Provide doors made with adhesives and composite wood products that do not contain urea-formaldehyde resins.
- C. Panel Products: Any of the following:
  1. Particleboard made from wood particles, with binder containing no urea-formaldehyde resin, complying with ANSI A208.1, Grade M-2.
  2. Veneer core plywood, made with adhesive containing no urea-formaldehyde resin.

### 2.3 STILE AND RAIL DOORS OF SPECIAL DESIGN AND CONSTRUCTION

- A. Manufacturers:

1. Algoma Hardwoods, Inc.
2. Eggers Industries; Architectural Door Division.
3. Weyerhaeuser.
4. Graham Door

B. Construction, General:

1. Grade of Doors for Opaque Finish: Custom.
2. Panel Designs: Drawings indicate panel designs. Do not modify intended aesthetic effects, as judged solely by Architect, except with Architect's approval. If modifications are proposed, submit comprehensive explanatory data to Architect for review.

C. MATERIALS

1. Assemble doors, including components, with minimum WDMA Type II adhesives.
2. Provide interior doors made with composite wood products that have urea-formaldehyde emission levels below the published maximums in the ANSI A208.1-latest edition Particleboard standard.
3. Stile and rail construction shall be veneered with a structural engineered core and edge-bands of the same species as the face veneer.
4. Raised-panel construction shall be veneered, wood-based product with mitered, raised rims made from matching clear lumber. Panel thickness shall be not less than 1-1/8 inches for 1-3/4 inch thick doors.
5. Flat-panel construction shall be veneered, wood-based product. Panel Thickness shall be not less than 5/8 inches for 1-3/4 inch thick doors.
6. Provide WDMA Premium Grade faces as follows:
  - a. Veneer Cut: Plain Sawn
  - b. Veneer Species: Mill Option for Opaque Finish Paint.

D. Custom Interior Doors with Four Panels:

1. Refer to drawings for door design.
2. Stile and Rail Widths: As indicated.
3. Molding Profile: As indicated.
4. Raised-Panel Thickness: As indicated.

E.. Custom Exterior Doors with Four Panels:

1. Refer to drawings for door design.
2. Stile and Rail Widths: As indicated.
3. Molding Profile: As indicated.
4. Raised-Panel Thickness: As indicated

2.4 FABRICATION

- A. Fabricate stile and rail wood doors in sizes indicated for Project-site fitting.
- B. Factory fit doors to suit frame-opening sizes indicated, with the following uniform clearances and bevels, unless otherwise indicated:
  - 1. Clearances: Provide **1/8 inch (3.2 mm)** at heads, jambs, and between pairs of doors. Provide **1/2 inch (13 mm)** from bottom of door to top of decorative floor finish or covering. Where threshold is shown or scheduled, provide **3/8 inch (10 mm)** from bottom of door to top of threshold.
  - 2. Bevel doors **1/8 inch in 2 inches (3-1/2 degrees)** at lock edge square edge at hinge jamb.
- C. Factory machine doors for hardware that is not surface applied. Locate hardware to comply with DHI-WDHS-3. Comply with final hardware schedules, door frame Shop Drawings, DHI A115-W Series standards, and hardware templates.
  - 1. Coordinate measurements of hardware mortises in metal frames to verify dimensions and alignment before factory machining.
- D. Transom and Side Panels: Fabricate panels to match adjoining doors in materials, finish, and quality of construction.

## 2.5 SHOP PRIMING

- A. Doors for Opaque Finish: Shop apply one coat of wood primer specified in Division 9 Section "Painting" to faces and edges of doors, including mortises and cutouts.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine doors and substrates, with Installer present, for suitable conditions where wood stile and rail doors and frames will be installed.
  - 1. Verify that installed frames comply with indicated requirements for type, size, location, and swing characteristics and have been installed with plumb jambs and level heads.
  - 2. Reject doors with defects.
  - 3. Notify Architect, in writing of any conditions detrimental to a successful installation.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.2 INSTALLATION

- A. Install wood doors and frames level, plumb, true, and aligned with adjacent materials. Use concealed shims where necessary for alignment.
  - 1. Countersink fasteners, fill surface flush, and sand smooth.

- B. Hardware: For installation, see Division 8 Section "Door Hardware."
- C. Install wood doors to comply with manufacturer's written instructions and with referenced quality standard, and as indicated.
- D. Job-Fitted Doors: Align and fit doors in frames with uniform clearances and bevels as indicated below; do not trim stiles and rails in excess of limits set by manufacturer. Machine doors for hardware. Seal cut surfaces after fitting and machining.
  - 1. Clearances: Provide **1/8 inch (3.2 mm)** at heads, jambs, and between pairs of doors. Provide **1/8 inch (3.2 mm)** from bottom of door to top of decorative floor finish or covering. Where threshold is shown or scheduled, provide **1/4 inch (6.4 mm)** from bottom of door to top of threshold.
  - 2. Bevel non-fire-rated doors **1/8 inch in 2 inches (3-1/2 degrees)** at lock and hinge edges.
- E. Factory-Fitted Doors: Align in frames for uniform clearance at each edge.
- F. Field-Finished Doors: Refer to the following for finishing requirements:
  - 1. Division 9 Section "Painting."

### 3.3 ADJUSTING AND PROTECTING

- A. Operation: Rehang or replace doors that do not swing or operate freely.
- B. Refinish or replace doors damaged during installation.
- C. Finished Doors: Replace doors that are damaged or do not comply with requirements. Doors may be repaired or refinished if work complies with requirements and shows no evidence of repair or refinishing.
- D. Protect doors as recommended by door manufacturer to ensure that wood doors are without damage or deterioration at the time of substantial completion.

END OF SECTION 082120

## SECTION 083110 - ACCESS DOORS AND FRAMES

## PART 1 - GENERAL

## 1.1 RELATED DOCUMENTS

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

## 1.2 SUMMARY

- A. This Section includes the following:
  - 1. Access doors and frames for ceilings.
- B. All access doors and frames shall be painted to match surrounding surfaces in colors) approved by the Owner.
- C. Contractor shall review access door sizes with architect and sub contractors to verify location, function and size for its intended use. Doors shall be neither too large or too small for intended use.

## 1.3 SUBMITTALS

- A. Product Data: For each type of access door and frame indicated. Include construction details, fire ratings, materials, individual components and profiles, and finishes.
- B. Shop Drawings: Show fabrication and installation details of access doors and frames for each type of substrate. Include plans, elevations, sections, details, and attachments to other work.
- C. Access Door and Frame Schedule: Provide complete access door and frame schedule, including types, locations, sizes, latching or locking provisions, and other data pertinent to installation.

## 1.4 QUALITY ASSURANCE

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

## 1.5 COORDINATION

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

## PART 2 - PRODUCTS

## 2.1 STEEL MATERIALS

- A. Steel Sheet: electrolytic zinc-coated, ASTM A 591/A 591M with cold-rolled steel sheet substrate complying with ASTM A 1008/A 1008M, Commercial Steel (CS), exposed.
- B. Metallic-Coated Steel Sheet: ASTM A 653/A 653M, Commercial Steel (CS) with A60 (ZF180) zinc-iron-alloy (galvannealed) coating or G60 (Z180) mill-phosphatized zinc coating; stretcher-leveled standard of flatness; with minimum thickness indicated representing specified thickness according to ASTM A 924/A 924M.
- C. Steel Finishes: Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
  - 1. Factory-Primed Finish: Apply shop primer immediately after cleaning and pretreating.

## 2.2 INTERIOR ACCESS DOORS AND FRAMES FOR CEILINGS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  - 1. Acudor Products, Inc.
  - 2. J. L. Industries, Inc.
  - 3. Karp Associates, Inc.
  - 4. Larsen's Manufacturing Company.
  - 5. Milcor Inc.
  - 6. Nystrom, Inc.
  - 7. Williams Bros. Corporation of America (The).
  - 8. Best Access Doors (basis of design product)
- B. Flush Access Doors and Frames: Fabricated from steel sheet.
  - 1. Locations: Ceiling surfaces.
  - 2. Door: Minimum [~~0.060-inch~~ (1.5-mm-)] **dimension**> thick sheet metal, set flush with frame.
  - 3. Frame: Minimum [~~0.060-inch~~ (1.5-mm-)] thick sheet metal with flange.
  - 4. Hinges: Continuous piano.
  - 5. Latch: Hasp and keeper for owner's padlock.

## 2.3 FABRICATION

- A. General: Provide access door and frame assemblies manufactured as integral units ready for installation.
- B. Metal Surfaces: For metal surfaces exposed to view in the completed Work, provide materials with smooth, flat surfaces without blemishes. Do not use materials with exposed pitting, seam marks, roller marks, rolled trade names, or roughness.

- C. Doors and Frames: Grind exposed welds smooth and flush with adjacent surfaces. Furnish attachment devices and fasteners of type required to secure access panels to types of supports indicated.
  - 1. Exposed Flanges: Nominal 1 to 1-1/2 inches (25 to 38 mm) wide around perimeter of frame.
  - 2. Provide mounting holes in frames for attachment of units to metal or wood framing.

### PART 3 - EXECUTION

#### 3.1 INSTALLATION

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

#### 3.2 ADJUSTING AND CLEANING

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

#### 3.3 SCHEDULE OF ACCESS DOORS

- A. Interior ceiling access doors
  - 1. 22" x 30", basis of design: Best Access Doors #BA-UF-5000-PC-22-30 for installation in beaded wood board ceiling

END OF SECTION 083110

## SECTION 083310 - OVERHEAD COILING DOORS

## PART 1 - GENERAL

## 1.1 RELATED DOCUMENTS

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

## 1.2 SUMMARY

- A. This Section includes the following types of overhead coiling doors:

- 1. Open grille security door with manual operation

## 1.3 DEFINITIONS

- A. Operation Cycle: One complete cycle of a door begins with the door in the closed position. The door is then moved to the open position and back to the closed position.

## 1.4 PERFORMANCE REQUIREMENTS

- A. Structural Performance: Provide overhead coiling doors capable of withstanding the effects of gravity loads and the following loads and stresses without evidencing permanent deformation of door components:
- B. Operation-Cycle Requirements: Design overhead coiling door component and operator to operate for not less than 10,000 cycles.

## 1.5 SUBMITTALS

- A. Product Data: For each type and size of overhead coiling door and accessory. Include details of construction relative to materials, dimensions of individual components, profiles, and finishes. Provide roughing-in diagrams, operating instructions, and maintenance information. Include the following:
  - 1. Setting drawings, templates, and installation instructions for built-in or embedded anchor devices.
  - 2. Summary of forces and loads on walls and jambs.
  - 3. Weight of entire assembly.
- B. Shop Drawings: For special components and installations not dimensioned or detailed in manufacturer's data sheets.
- C. Samples for Initial Selection: Manufacturer's color charts showing the full range of colors available for units with factory-applied finishes.
- D. Samples for Verification: Of each type of exposed finish required, prepared on Samples of size indicated below and of same thickness and



material indicated for Work. Where finishes involve normal color and texture variations, include Sample sets showing the full range of variations expected.

- 1.Curtain Grille: 12-inch (300-mm) length.
- 2.Bottom Bar: 6-inch (150-mm) length.
- 3.Guides: 6-inch (150-mm) length.
- 4.Brackets: 6 inches (150 mm) square.
- 5.Hood: 6 inches (150 mm) square.

- E. Installer Certificates: Signed by manufacturer certifying that installers comply with specified requirements.

#### 1.6 QUALITY ASSURANCE

- A. Installer Qualifications: Engage an experienced installer who is an authorized representative of the overhead coiling door manufacturer for both installation and maintenance of units required for this Project.
- B. Source Limitations: Obtain overhead coiling doors through one source from a single manufacturer.

### PART 2 - PRODUCTS

#### 2.1 MATERIALS

- A. Manufacturer: Subject to compliance with requirements, provide products by one of the following:
- 1.Overhead Door Co., Upward coiling steel security grille #671.
  - 2.Approved equal manufacturers: Cookson or Cornell Iron Works.

#### 2.2 DOOR CURTAIN MATERIALS AND CONSTRUCTION

- A. Door Curtain: Fabricate overhead coiling door curtain of interlocking lattice in continuous lengths for width of door without splices. Unless otherwise indicated, provide grille of material thickness recommended by door manufacturer for performance, size, and type of door indicated, and as follows:
- B. Endlocks: Manufacturer's standard locks on not less than alternate curtain slats for curtain alignment and resistance against lateral movement.
- C. Bottom Rail: Manufacturer's standard profile matching finish of door curtain.
- D. Curtain Jamb Guides: Manufacturer's standard guides for indicated counter door mounting and operation with finish to match grille.

#### 2.3 HOODS AND ACCESSORIES

- A. Hood: Form to entirely enclose coiled grille and operating mechanism at opening head. Contour to suit end brackets to which hood is attached.

Roll and reinforce top and bottom edges for stiffness. Provide closed ends for surface-mounted hoods and fascia for any portion of between-jamb mounting projecting beyond wall face. Provide intermediate support brackets as required to prevent sag.

1. Shape: Square.

- B. Push/Pull Handles: For push-up-operated doors, provide manufacturer's standard lifting handles on bottom rail of door.
- C. Slide Bolt: Fabricate with side locking bolts to engage through slots in tracks for locking by keylock specified in Division 8, located on both left and right jamb sides, operable from coil side.
- D. Fabricate locking device assembly with keylock cylinder scheduled in Section 087100, mortised into curtain bottom rail on coil side. Supply two key locks.

#### 2.4 COUNTERBALANCING MECHANISM

- A. General: Counterbalance doors by means of adjustable-tension steel helical torsion spring, mounted around a steel shaft and contained in a spring barrel connected to door curtain with required barrel rings. Use grease-sealed bearings or self-lubricating graphite bearings for rotating members.
- B. Counterbalance Barrel: Fabricate spring barrel of hot-formed, structural-quality, welded or seamless carbon-steel pipe, of sufficient diameter and wall thickness to support rolled-up curtain without distortion of slats and to limit barrel deflection to not more than 0.03 in./ft. (2.5 mm/m) of span under full load.
- C. Provide spring balance of one or more oil-tempered, heat-treated steel helical torsion springs. Size springs to counterbalance weight of curtain, with uniform adjustment accessible from outside barrel. Provide cast-steel barrel plugs to secure the ends of springs to barrel and shaft. Springs shall be oil tempered, 20,000 cycle, torsion springs.
- D. Fabricate torsion rod for counterbalance shaft of cold-rolled steel, sized to hold fixed spring ends and carry torsional load.
- E. Brackets: Provide mounting brackets of manufacturer's standard design, either cast-iron or cold-rolled steel plate with bell-mouth guide groove for curtain with powder coat finish.
- F. Bottom Bar: Prefinished double angle steel.
- G. Guide Type: Extruded aluminum with continuous wear strips. Wall angles and any pack-out angles shall be prefinished galvanized steel.

#### 2.5 FINISHES, GENERAL

- A. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. Noticeable variations in the same piece are not acceptable. Variations in appearance of other components are acceptable

if they are within the range of approved Samples and are assembled or installed to minimize contrast.

- B. Finish shall be selected from manufacturer's standard color range for factory applied finish.

### PART 3 - EXECUTION

#### 3.1 INSTALLATION

- A. General: Install door and operating equipment complete with necessary hardware, jamb and head mold strips, anchors, inserts, hangers, and equipment supports according to Shop Drawings, manufacturer's written instructions, and as specified.

#### 3.2 ADJUSTING

- A. Lubricate bearings and sliding parts; adjust doors to operate easily, free from warp, twist, or distortion and fitting tight for entire perimeter.

#### 3.3 DEMONSTRATION

- A. Startup Services: Engage a factory-authorized service representative to perform startup services and to train Owner's maintenance personnel as specified below:

1. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.
2. Train Owner's maintenance personnel on procedures and schedules related to troubleshooting, servicing, and preventive maintenance.
3. Review data in the maintenance manuals. Refer to Division 1 Section "Project Closeout."
4. Schedule training with Owner with at least 7 days' advance notice.

END OF SECTION 083310

## PART 1 – GENERAL

## 1.01 SUMMARY

- A. Section includes hardware for doors specified in “Hardware Sets”.
- B. Related Divisions:
  - 1. Division 03 Concrete
  - 2. Division 06 Rough & Finish Carpentry
  - 3. Division 07 Joint Sealants
  - 4. Division 08 Openings

## 1.02 REFERENCES

- A. American National Standards Institute/Builders Hardware Manufacturers Association (ANSI):
  - 1. ANSI/BHMA A156.1 Butts & Hinges (2016)
  - 2. ANSI/BHMA A156.3 Exit Devices (2020)
  - 3. ANSI/BHMA A156.4 Door Controls – Closers (2019)
  - 4. ANSI/BHMA A156.5 Cylinders and Input Devices for Locks (2020)
  - 5. ANSI/BHMA A156.6 Architectural Door Trim (2015)
  - 6. ANSI/BHMA A156.7 Template Hinge Dimensions (2016)
  - 7. ANSI/BHMA A156.13 Mortise Locks & Latches (2017)
  - 8. ANSI/BHMA A156.18 Materials & Finishes (2020)
  - 9. ANSI/BHMA A156.22 Door Gasketing Systems (2017)
  - 10. ANSI/BHMA A156.28 Keying Systems (2018)
- B. International Code Council/American National Standards Institute (ICC/ANSI)/ADA:
  - 1. ICC/ANSI A117.1 Standards for Accessible and Usable Buildings and Facilities.
- C. Door and Hardware Institute (DHI):
  - 1. DHI Publication – Abbreviations and Symbols (2019).
  - 2. DHI Publication – Installation Guide for Doors and Hardware (2020).
  - 3. DHI Publication – Sequence and Format of Hardware Schedule (2019).
- D. National Fire Protection Agency (NFPA):
  - 1. NFPA 70 National Electrical Code.
  - 2. NFPA 80 Standard for Fire Doors and Other Opening Protectives.
  - 3. NFPA 105 Standard for the Installation of Smoke Door Assemblies.

## 1.03 SUBMITTALS

- A. Submit in accordance with Conditions of the Contract and Division 01 Administrative Requirements and Submittal Procedures Section.
- B. Shop Drawings:

1. Schedule hardware in vertical format using the DHI publication Sequence and Formatting for the Hardware Schedule.
2. Include abbreviations and symbols page to include manufacturers' abbreviations, finish code descriptions, and fastener abbreviations including descriptions according to the DHI publication Abbreviations and Symbols.
3. Detail headings referencing the Architect's heading, opening number, locations, fire rating, handing, degree of opening, and description of the opening elements. Include Voltage, amperage, and operational descriptions for openings that have electrified hardware.
4. Coordinate final door hardware schedule with doors, frames, and related work listing proper sizing of hardware, addressing door thickness, handing, function, mounting accessories, and finish of hardware.
5. List related door devices specified in other Sections for each opening.
6. Architectural Hardware Consultant (AHC), as certified by DHI, who will affix seal attesting to completeness and correctness, including the review of the hardware schedule prior to submittal.

C. Product Data:

1. Furnish manufacturers' catalog sheets on design, grade, and function of items listed in hardware schedule. Submit only relevant information and circle or highlight the technical information including: model numbers, sizing information, voltage and amperage requirements, options and accessories required, means of fastening, listings of fire-rated applications, and finishes.

E. Templates:

1. Within fourteen days of receiving approved door hardware submittals submit complete list of templates for each hardware item to the opening manufacturers and the installers. Include detailed lists of the hardware location requirements for mortised and surface applied hardware.

F. Closeout Submittals: Include the following information as well as highlight and flag fire rated openings for annual inspections:

1. Cover page with required information:
  - a. Project name
  - b. Hardware supplier's name and contact information.
  - c. Date of substantial completion.
2. Final record hardware schedule.
3. Product Data.
4. Keying Schedule.
5. Operating and Maintenance Manual.
6. Warranty Information.

#### 1.04 QUALITY ASSURANCE

- A. Hardware supplier shall employ an Architectural Hardware Consultant (AHC) as certified by DHI and a member of the seal program who will be available at reasonable times during course of work for Project hardware consultation.
- B. Where openings are required to be accessible door hardware shall conform to ICC/ANSI A117.1.

- C. Fire Rated Door Assemblies: Where fire-rated door assemblies are indicated, provide door hardware complying with NFPA 80 that are listed and/or labeled by a qualified testing agency for fire-protection ratings indicated.
- D. Smoke and Draft Control Door Assemblies: Where smoke and draft control doors are required, provide door hardware that meets requirements of assemblies in compliance with NFPA 105.
- E. Door hardware certified to ANSI/BHMA standards as noted, manufacturer must participate and be listed in BHMA Certified Products Directory.
- F. Substitution requests shall be submitted in compliance with Division 01: create a comparison chart that includes the testing information as well as the warranty for both the specified product and the proposed substitution. Include the reason for requesting the substitution, clear catalog copy highlighting the proposed product and options, compliance statement, technical data, product warranty and lead time, to show how the proposed can meet or exceed established level of design, function, and quality.
  - 1. Items listed with no substitute manufacturers have been requested by the Owner to meet existing standard and will not be reviewed for substitution unless the product is no longer available.
- G. Meetings: Comply with requirements in Division 01 Section "Project Meetings."
  - 1. Keying Meeting
    - a. Within fourteen days of receiving approved door hardware submittals, contact Owner to establish a keying conference. Include keying meeting decisions into final keying schedule submittal after reviewing the following, but not limited to:
      - i. Function of the building, flow of traffic, individual area's purpose, and degree of security.
      - ii. Lock functions and operation.
      - iii. Preliminary key system schematic diagram.
      - iv. Verify existing keyway(s), and/or proposed keyway(s)
      - v. Visual key and cylinder identification
      - vi. Quantity of keys required including master level keys, change keys, and keys per lock.
      - vii. Review the key control system.
      - viii. Determine the recipient and contact information for the delivery of keys and accessories.
  - 2. Pre-installation Meeting
    - a. Convene meeting within fourteen days of receiving approved door hardware submittals. Participants from all affected buildings trades shall attend. Minimum participants should include: Contractor, installer, material supplier, and manufacturer representatives.
    - b. Inspect and discuss preparatory work performed by other trades.
    - c. Include in-conference decisions regarding proper installation methods and procedures for receiving and handling hardware.
    - d. Review and finalize construction schedule and verify availability of materials, installer's personnel, equipment, and facilities needed to make progress and avoid delays.
    - e. Review required testing, inspecting, and certifying procedures.

- H. Installer Qualifications: Specialized in performing installation of this Section and have five years minimum documented experience.

#### 1.05 DELIVERY, STORAGE, AND HANDLING

- A. Pack each item complete with necessary parts and fasteners in manufacturer's original packaging.
- B. Mark hardware that is not bulk packed with architect's opening number, hardware set number, and item number for each type of hardware. Include keyset symbols and corresponding hardware component for keyed products. Mark hardware that is bulk packed with manufacturers' part number and reference all hardware sets associated.
- C. Deliver hardware to the job site according to the phasing agreed upon in the pre-installation meeting. Inventory the delivery with the supplier's assistance. Immediately note shortages and damages on the shipping receipts and bill of lading. Coordinate replacement or repair with the supplier.
- D. Deliver permanent keys, cores, and related accessories directly to Owner via registered mail or overnight package service. Establish the instructions for delivery to Owner at "Keying Conference."
- E. Provide a clean, dry, and secure room for hardware delivered. Shelve hardware off the floor and with larger items of hardware stored on pallets. Arrange locksets and keyed cylinders by opening number. Organize the balance of hardware by brand, model of hardware, and hardware set number. Leave the door markings of the hardware visible for installers.
- F. Waste Management and Disposal: Separate waste materials for use or recycling in accordance with Division 01.

#### 1.06 WARRANTY

- A. General Warranty: Comply Division 01 for Warranty requirements.
- B. Special Warranty: Warranties specified in this article will not deprive Owner of other rights.
  - 1. Ten years for manual door closers.
  - 2. Five years for locks.
  - 3. Five years for exit devices.

#### 1.07 MAINTENANCE

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

### PART 2 – PRODUCTS

#### 2.01 MATERIALS

## A. General:

1. Produce hardware units of basic metal and forming method using manufacturer's standard metal alloy, composition, temper, and hardness, but in no case of lesser (commercially recognized) quality than specified within this specification section for applicable hardware units for finish designations indicated.

## B. Fasteners:

1. Furnish screws for installation with each hardware item. Use only fasteners that are furnished by the hardware manufacturer to meet the manufacturer's templating requirements, warranty and NFPA 80 requirements.
2. Provide Phillips flat-head screws except as otherwise indicated.
3. Finish exposed screws to match hardware finish or, if exposed in surfaces of other work, to match finish of this other work as closely as possible including "prepared for paint" surfaces to receive painted finish.
4. Use machine screws with lead expansion shields at hardware mounting to masonry walls and floors.
5. Wood screw with plastic anchors at drywall applications without reinforcement and wood screws at applications with reinforcements.
6. Provide concealed fasteners for hardware units that are exposed when door is closed except to the extent no standard units of type specified are available with concealed fasteners.
  - a. Do not use thru-bolts for installation where bolt head or nut on opposite face is exposed in other work unless their use is the only means of reinforcing the work adequately to fasten the hardware securely.
  - b. Where thru-bolts are used as a means of reinforcing the work, provide sleeves for each thru-bolt or use sex nut fasteners.
7. At exterior openings furnish stainless-steel fasteners for exposed fasteners, for example thresholds and screw-applied weatherstripping.

## 2.02 CONVENTIONAL HINGES

- A. Hinges, electric hinges, and self-closing hinges of one manufacturer as listed for continuity of design and consideration of warranty.

## B. Standards: Products to be certified and listed by the following:

1. Butts and Hinges: ANSI/BHMA A156.1.
2. Template Hinge Dimensions: ANSI/BHMA A156.7.
3. Self-Closing Hinges: ANSI/BHMA A156.17.

## C. Butt Hinges:

1. Hinge weight and size unless otherwise indicated in hardware sets:
  - a. Doors up to 36" wide and up to 1-3/4" thick provide hinges with a minimum thickness of .134" and a minimum of 4-1/2" in height.
  - b. Doors over 36" wide up to 48" wide and up to 1-3/4" thick provide hinges with a minimum thickness of .145" and a minimum of 5" in height.
  - c. Doors greater than 1-3/4" thick provide hinges with a minimum thickness of .190" and a minimum of 5" in height.
  - d. Width of hinge is to be minimum required to clear surrounding trim.
  - e. Doors considered to be low to medium frequency use would require standard weight hinges and medium to high frequency use would require heavy weight hinges.
2. Base material unless otherwise indicated in hardware sets:



- a. Exterior Doors: 304 Stainless Steel, Brass or Bronze material.
  - b. Interior Doors: Steel material.
  - c. Fire Rated Doors: Steel or 304 Stainless Steel materials.
  - d. Stainless Steel ball bearing hinges to have stainless steel ball bearings. Steel ball bearings are unacceptable.
3. Quantity of hinges per door unless otherwise stated in hardware sets:
- a. Doors up to 60" in height provide 2 hinges.
  - b. Doors 60" up to 90" in height provide 3 hinges.
  - c. Doors 90" up to 120" in height provide 4 hinges.
  - d. Doors over 120" in height add 1 additional hinge per each additional 30" in height or fraction thereof.
  - e. Dutch doors provide 4 hinges up to 120" in height and 1 additional per each additional 30" in height or fraction thereof.
4. Hinge design and options unless otherwise indicated in hardware sets:
- a. Hinges are to be of a square corner five-knuckle design, flat button tips and have ball bearings unless otherwise indicated in hardware sets.
  - b. Out-swinging lockable and access-controlled doors are required to have Non-Removable Pins (NRP) to prevent removal of pin while door is in closed position.
  - c. When full width of opening is required, use hinges that are designed to swing door completely from opening when door is opened to 95 degrees.

D. Acceptable Manufacturers:

1. Hager
2. Ives
3. McKinney

## 2.03 HEAVY DUTY MORTISE LOCKS AND LATCHES

- A. Locks and latches of one manufacturer as listed for continuity of design and consideration of warranty.
- B. Standards: Product to be certified and listed by following:
1. ANSI/BHMA A156.13 Series 1000 Certified to Grade 1 for Operational and Security.
  2. UL/cUL Labeled and listed up to 3 hours for single doors up to 48" in width and up to 96" in height.
  3. UL10C/UBC 7-2 Positive Pressure Rated.
  4. ICC/ANSI A117.1.
- C. Lock and latch function numbers and descriptions of manufacturer's series as listed in hardware sets.
- D. Material and Design:
1. Lock cases from fully wrapped, 12-gauge steel, zinc dichromate for corrosion resistance.
  2. Non-handed, field reversible without opening lock case.
  3. Break-away spindles to prevent unlocking during forced entry or vandalism.
  4. Levers, zinc cast, forged brass or stainless steel and plated to match finish designation in hardware sets.
  5. Sectional Roses, solid brass or stainless-steel material and have a minimum diameter of 2-7/16".
  6. Armor fronts, self-adjusting to accommodate a square edge door or a standard 1/8" beveled edge door.
- E. Latch and Strike:

1. Stainless steel latch bolt with minimum of 3/4" throw and deadlocking for keyed and exterior functions.
2. Strike is to fit a standard ANSI A115 prep measuring 1-1/4" x 4-7/8" with proper lip length to protect surrounding trim.
3. Deadbolts to be 1-3/4" total length with a minimum of a 1" throw and 3/4" internal engagement when fully extended and made of stainless-steel material.

F. Acceptable Manufacturers:

Sargent	8200 Series
Schlage	L9000
Accurate Lock	8700 Series

2.04 MORTISE LOCK LEVERS

- A. Levers of one manufacturer as listed for continuity of design and consideration of warranty.
- B. Levers shall be solid cast bronze 3 5/8"P x 6"L x 2" Diameter w/Rose. Levers shall be manufactured to function with the mortise lock manufacturer.

C. Acceptable Manufacturers:

Trimco Mastercraft	Driggs-LR
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2.05 EXIT DEVICES

- A. Exit Devices of one manufacturer as listed for continuity of design and consideration of warranty. Touchpad type finish to match balance of door hardware.
- B. Standards: Manufacturer to be certified and/or listed by the following:
  1. BHMA Certified ANSI A156.3 Grade 1.
  2. UL/cUL Listed for up to 3 hours for "A" labeled doors.
  3. UL10C/UBC 7-2 Positive Pressure Rated.
  4. UL 305 Listed for Panic Hardware.
- C. Material and Design:
  1. Provide exit devices with actuators that extend a minimum of one-half of door width.
  2. 1" Diameter Crossbar tubing.
  3. Latch bolts:
    - a. Rim device – 3/4" throw, Pullman type with automatic dead-latching, stainless steel
    - b. Surface vertical rod device – Top 1/2" throw, Pullman type with automatic dead-latching, stainless steel.  
Bottom 1/2" throw, Pullman type, held retracted during door swing, stainless steel.
  4. Fasteners: Wood screws, machine screws, and thru bolts.
- D. Lock and Latch Functions: Function numbers and descriptions of manufacturer's series and lever styles indicated in door hardware sets.
- E. Acceptable Manufactures:

Von Duprin	55 Series
Sargent	

## 2.06 CYLINDERS AND KEYING

- A. Cylinders of one manufacturer as listed for continuity of design and consideration of warranty.
- B. Products to be certified and listed by the following:
1. Auxiliary Locks: ANSI/BHMA A156.5
- C. Cylinders:
1. Provide cylinders matched to the types required for hardware that has a locking function and for keyed electronic functions. Furnish with appropriate collars, cams, and tailpieces to fit and operate associated hardware. Stacking collars is not acceptable, a single collar of proper size is required.
  2. Manufacturer's standard tumbler type six-pin conventional cylinder.
  3. Provide concealed key control (CKC) at cylinder by stamping or permanently marking the keyset symbol in a location on the cylinder that is concealed when installed.
- D. Keying:
1. Key into Owner's existing key system.
  2. Provide a bitting list to Owner of combinations as established and expand to twenty-five percent for future use or as directed by Owner.
    - a. Include all the keysets and bittings of the original key system creating one clean version of the entire key system.
  3. Keys to be shipped directly to the Owner's Representative as established during the keying conference.
    - a. Package the keys in individual envelopes, grouped by keyset symbol, and label envelopes with project name, factory registry number, and keyset symbol.
  4. Stamp large bow key blanks with visual key control (keyset symbol) and "Do Not Duplicate".
  5. Provide construction keyed cylinders as required per the keying meeting.
- E. Acceptable Manufacturers:

Best
Schlage
Sargent
Existing keyway manufacturer

## 2.07 PUSH/PULL PLATES AND BARS

- A. Push/Pull plates and bars of one manufacturer as listed for continuity of design and consideration of warranty.
- B. Push plates: Plates shall be solid cast bronze. Furnish oval-head countersunk screws to match finish.
- C. Acceptable Manufacturers:

Trimco Mastercraft	Nampa Grande
Rockwood	Deco RM5598B

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D. Pull Plates: Pulls shall be solid cast bronze. Plates shall be solid cast bronze. Provide proper fasteners for door construction.

E. Acceptable Manufacturers:

Trimco Mastercraft	Cascade x Nampa Grande
Rockwood	Deco 5534

2.08 CLOSERS:

A. Standards: Manufacturer to be certified by the following:

1. BHMA Certified ANSI A156.4 Grade 1.
2. UL/ULC Listed up to 3 hours.

B. Material and Design:

1. Provide aluminum non-handed Traditional design ANSI / BHMA 156.4 (Pot Belly)
2. Closers with clock-type coil spring power adjustable to a wide range of closing power.
3. Closers to be rack and pinion type, cast aluminum alloy shell construction, with adjustable backcheck, closing sweep, and latch speed control valves.
4. Provide mounting arms and brackets as required.
5. Double heat-treated steel, tempered springs.
6. Precision machined heat-treated steel piston.
7. Triple heat-treated steel spindle.
8. Full rack and pinion operation.

C. Mounting:

1. Out-swing doors surface parallel arm mount closers except where noted on hardware schedule.
2. In-swing doors surface regular arm mount closers except where noted on hardware schedule.
3. Provide brackets and shoe supports for aluminum doors and frames to mount fifth screw.
4. Furnish drop plates where top rail conditions on door do not allow for mounting of closer and where backside of closer is exposed through glass.

D. Size closers in compliance with requirements for accessibility. Comply with following maximum opening force requirements.

1. Interior hinged openings: 5.0 lbs.
2. Fire-rated and exterior openings are to be adjusted to have minimum opening force allowable by authority having jurisdiction.

E. Fasteners: Provide self-reaming, self-tapping wood and machine screws, and sex nuts and bolts for each closer.

F. Acceptable manufacturers:

Norton	78 Series
Accentra	1900 Series

## 2.09 PROTECTIVE TRIM

- A. Protective trim of one manufacturer as listed for continuity of design and consideration of warranty.
- B. Size of protection plate: single doors, size two inches less door width (LDW) on push side of door, and one inch less door width on pull side of door. For pairs of doors, size one inch less door width (LDW) on push side of door, and 1/2 inch on pull side of door. Adjust sizes to accommodate accompanying hardware, such as, edge guards, astragals, and others.
1. Kick Plates 8" high or sized to door bottom rail height.
  2. Mop Plates 4" high.
- C. Products to be certified and listed by the following:
1. Architectural Door Trim: ANSI/BHMA A156.6.
- D. Material and Design:
1. Plates shall be 1/8" thick bronze sheet. Furnish oval-head countersunk screws to match finish.
- E. Acceptable Manufacturers:

Trimco Mastercraft	Grace
Rockwood Deco	K1062

## 2.10 DOOR GASKETING AND WEATHERSTRIP

- A. Door gasketing and weatherstrip of one manufacturer as listed for continuity of design and consideration of warranty.
- B. Provide continuous weatherstrip gasketing on exterior doors and provide smoke, light, or sound gasketing where indicated on hardware schedule. Provide noncorrosive fasteners for exterior applications.
1. Perimeter gasketing: Apply to head and jamb, forming seal between door and frame.
  2. Meeting stile gasketing: Fasten to meeting stiles, forming seal when doors are in closed position.
  3. Door bottoms: Apply to bottom of door, forming seal with threshold or floor when door is in closed position.
  4. Sound Gasketing: Cutting or notching for stop mounted hardware not permitted.
  5. Drip Guard: Apply to exterior face of frame header. Lip length to extend 4" beyond width of door.
- C. Products to be certified and listed by the following:
1. Door Gasketing and Edge Seal Systems: ANSI/BHMA A156.22.
  2. BHMA certified for door sweeps, automatic door bottoms, and adhesive applied gasketing.
- D. Smoke-Labeled Gasketing: Comply with NFPA 105 listed, labeled, and acceptable to Authorities Having Jurisdiction, for smoke control indicated.
1. Provide smoke-labeled gasketing on 20-minute rated doors and on smoke rated doors.

- E. Fire-Rated Gasketing: Comply with NFPA 80 listed, labeled, and acceptable to Authorities Having Jurisdiction, for fire ratings indicated.
- F. Refer to Section 08 1416 Wood Doors for Category A or Category B. Comply with UBC 7-2 and UL10C positive pressure where frame applied intumescent seals are required.

G. Acceptable Manufacturers:

1. Perimeter Gasketing:

	Stop Applied
Pemko	B73
National Guard	
Zero	

2. Meeting Stile Weatherstrip:

Pemko	29326
National Guard	
Zero	

3. Auto Door Bottom:

Pemko	412 PKL / 411 APKL
National Guard	
Zero	

## 2.11 SILENCERS

- A. Where smoke, light, or weather seal are not required, provide three silencers per single door frame, two per double door frame and four per Dutch door frame.
- B. Products to be certified and listed by the following:
1. Auxiliary Hardware: ANSI/BHMA A156.16

C. Acceptable Manufacturers:

	Wood Frame
Hager	308D
Rockwood	
Trimco	

## 2.12 KEY CABINET

- A. Provide key cabinet; surface mounted to wall.
- B. Key control system:
1. Include two sets of key tags, hooks, labels, and envelopes.
  2. Contain system in metal cabinet with baked enamel finish.
  3. Capacity will be able to hold actual quantities of keys, plus 50 percent.

4. Provide tools, instruction sheets, and accessories required to complete installation.

C. Acceptable Manufacturers:

Lund Equipment
Telkee Incorporated
Key Control

### 2.13 FINISHES

- A. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if within range of approved samples. Noticeable variations in the same piece are not acceptable. Variations in appearance of other components are acceptable if they are within range of approved samples.
- B. Comply with base material and finish requirements indicated by ANSI/BHMA A156.18 designations in hardware schedule.

## PART 3 – EXECUTION

### 3.01 EXAMINATION

- A. Examine doors and frames, with installers present, for compliance with requirements for installation tolerances, labeled fire-rated construction, wall and floor construction, and other conditions affecting performance.
- B. Where hardware will be installed directly on walls inspect applications for blocking material of sufficient type and size for hardware.
- C. Where existing products will be reused, examine existing door and frame sizes, preps, swings, ratings, and compare to the specified hardware for compatibility and functionality. The hardware set specified should act as guide for design and function. Provide filler plates as needed to fill and repair existing materials. Test any existing to remain hardware for functionality and visually inspect for damage. Note any defective or damaged products as well as noting any code deficiencies and submit issues and estimated costs for direction of how to proceed with repair or replacement.
- D. Notify Architect via a prepared written report and endorsed by installer of any discrepancies between the door schedule, door types, drawings, and scheduled hardware. List conditions detrimental to application, to the proper and timely completion of the work and performance of the hardware. Proceed only after such discrepancies or conflicts have been resolved in writing.

### 3.02 INSTALLATION

- A. Install hardware using manufacturers' recommended fasteners and installation instructions, at height locations and clearance tolerances that comply with:
  1. NFPA 80
  2. NFPA 105
  3. ICC/ANSI A117.1
  4. DHI Publication – Installation Guide for Doors and Hardware

5. Approved shop drawings
  6. Approved hardware schedule
- B. Install soffit mounted gaskets prior to other soffit mounted hardware ensuring a continuous seal around the perimeter of the opening without cutting or notching.
  - C. Locate surface mounted door closers on stairwell side of stair doors, interior side of exterior openings, or on the room side of openings, unless it is a sterile room.
  - D. Locate wall mounted bumper to contact the operating trim. Verify that pushbuttons of locksets do not contact the stop and inadvertently lock the door.
  - E. Mount armor, mop, and kick plates flush with the bottom of the door and centered horizontally on the door.
  - F. Notch thresholds with no larger than a 1/32-inch gap matching the frame profile. Set in a full bed of sealant complying with requirements specified in Division 07 Section "Joint Sealants" forming a tight seal between threshold and mounting surface. Caulk and seal the entire perimeter to prevent water leakage. Remove excess sealants immediately and clean the area thoroughly.
  - G. Do not install surface mounted items until finishes have been completed on substrates involved. Set unit level, plumb and true to line location.

### 3.03 FIELD QUALITY CONTROL

- A. Schedule a final walk through to inspect hardware installation ten (10) business days before final acceptance of the Owner. Visually inspect for proper fasteners and verify that doors open, close, latch properly, and that openings are installed to meet NFPA 80 and ANSI A117.1 requirements. Correct deficiencies, including missing hardware immediately. Provide a written report detailing discrepancies of each opening within five (5) business days of the walk through.
- B. Prior to receiving certificate of occupancy have doors inspected by a Certified Fire and Egress Door Assembly Inspector (CFDAI), as certified by Intertek (ITS), submit a written report to the Owner and Contractor. Doors failing inspection must be adjusted, modified, or replaced to be within appropriate code requirements without delay.

### 3.04 ADJUSTMENT, CLEANING, AND DEMONSTRATING

- A. Prior to final adjustments, the HVAC system must be completed and balanced. Test that all openings meet ANSI A117.1 for closer opening pressure, closing speed, latching, and hardware operating forces. Replace items that cannot be adjusted to operate freely and smoothly or as intended for application.
- B. Prior to final walk-through inspection, clean adjacent surfaces soiled by hardware installation. Clean finish hardware per manufacturer's instructions after final adjustments have been made. Remove all protection and replace items that cannot be cleaned to manufacturer's level of finish quality.



- C. Demonstration and training will be conducted as per the following sessions. All sessions will be recorded and turned over to the Owner for future use.
1. Hardware Maintenance: Conduct a training class for building maintenance personnel demonstrating the adjustment, operation, and maintenance of ALL hardware. Special tools for finish hardware to be turned over and demonstrated usage at the meeting.
  2. Key control system: Train the Owner's designated representative on the key control system demonstrating the permanent file keys, duplicate loaner keys, key receipts, key envelopes, key change identification sheets, bitting lists, tags, and labels. When key management software is provided training will be provided for the setup and usage of the software.

### 3.05 PROTECTION

- A. Leave manufacturer's protective film intact and, protect exit devices, locks, and surface mounted hardware with kraft paper or bubble wrap. Cover fire labels at painted products that bear a label with magnetic or masking tape. Keep protection in place until time of final cleaning and adjustment.

### 3.06 HARDWARE SET SCHEDULE

- A. Door hardware items have been placed in sets which are intended to be a guide of design, grade, quality, function, operation, and performance.
1. Review products that may require mounting accessories to meet door, frame, and swing conditions as these final details vary from manufacturer to manufacturer and provide as required.
  2. Where additional items of hardware are required for completion of the Work, a written statement of such omission, error, or other discrepancy is required to be submitted to the Architect, prior to bid date for clarification via an addendum.
- B. Manufacturer List

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<b>Code</b>	<b>Name</b>
LC	LCN Closers
MC	McKinney
NO	Norton
PE	Pemko
RO	Rockwood
SC	Schlage
ST	Stanley
VA01	Various
VO	Von Duprin

1. Abbreviations listed below do not appear in the manufacturer's literature, for any other abbreviations refer to manufacturer's literature.:
  - a. LDW = Less than Door Width
  - b. LAR = Length as Required
  - c. QTY = Quantity
  - d. CTC = Centerline to Centerline

e. BTB = Back-to-Back mounting

### 3.07 HARDWARE SCHEDULE

#### Hardware Sets

##### Set #01 - EXT PR - EVENT SPACE

Doors: 102A, 102B

6 Hinges	TA314 4 1/2 X 4 1/2 NRP X BT	10B(SS)	MC
1 Exit Device	5547NL-OP x 555NL-CA #10 WDA	US10B	VO
1 Exit Device	5547EO #10 WDA	US10B	VO
1 Mortise Cylinder	As required	613	SC
1 Electric Strike	310-4(S)-24D-LCBMA	613	FO
2 Cast Pull	RM5534	US10B	RO
2 Closer	UNI 78 B/D H	613E	YA
2 Astragal by Door Manu	ASTRAGAL – see drawings		VA01
1 Power Supply	AQD1-4F2		SN
2 Door position switch	DPS - as required		SN
NOTE: Install DPS 6" From Frame Latch Edge To CL			
1 Weatherstrip	B73		PE
2 Auto Door Bottom	412 PKL	D	PE
1 Wood Threshold	Wood Threshold – See Div. 6 Specifications	-	-
1 Card reader	By security vendor		VA01

##### Set #02 - EXT - EVENT SPACE [ WOOD DOOR ]

Doors: 102C

3 Hinges	TA314 4 1/2 X 4 1/2 NRP X BT	10B(SS)	MC
1 Exit Device	55NL-OP x 110WD-NL	US10B	VO
1 Mortise Cylinder	As required	613	SC
1 Electric Strike	9600-LBM	613	HS
1 Cast Pull	RM5534	US10B	RO
1 Cast Plate	RM5598B 3 1/2 x 15	US10B	RO
1 Closer	UNI 78 B/D H	613E	YA
1 Power Supply	AQD1-4F2		SN
1 Door position switch	DPS - as required		SN
NOTE: Install DPS 6" From Frame Latch Edge To CL			
1 Weatherstrip	B73		PE
1 Auto Door Bottom	411 APKL		PE
1 Wood Threshold	Wood Threshold – See Div. 6 Specifications	-	-
1 Card reader	By security vendor		VA01

**Set #03 - EXT - KITCHEN**

Doors: 113

3 Hinges	TA314 4 1/2 X 4 1/2 NRP X BT	10B(SS)	MC
1 Narrow Stile Lock	8756 - Office function	626	VA01
1 Mortise Cylinder	As required	613	SC
1 Electric Strike	1600-CDB	613E	HS
1 Closer	UNI 78 B/D H	613E	YA
1 Power Supply	AQD1-4F2		SN
1 Door position switch	DPS - as required		SN
NOTE: Install DPS 6" From Frame Latch Edge To CL			
1 Weatherstrip	B73		PE
1 Auto Door Bottom	411 APKL		PE
1 Wood Threshold	Wood Threshold – See Div. 6 Specifications	-	-
1 Card reader	By security vendor		VA01
2 Deco lever - set	Cottonwood lever	US10B	VA01

**Set #04 - EXT - CORR**

Doors: 114

3 Hinges	TA314 4 1/2 X 4 1/2 NRP X BT	10B(SS)	MC
1 Narrow Lockset	8759 - Storeroom Function	626	VA01
1 Mortise Cylinder	As required	613	SC
1 Closer	UNI 78 B/D H	613E	YA
1 Weatherstrip	B73		PE
1 Auto Door Bottom	411 APKL		PE
1 Wood Threshold	Wood Threshold – See Div. 6 Specifications	-	-
1 Deco lever - set	Cottonwood lever	US10B	VA01

**Set #05 - BACK OF HOUSE**

Doors: 105

3 Hinges	TA786 4 1/2 X 4 1/2 X BT	10B	MC
1 Cast Pull	RM5534	US10B	RO
2 Cast Plate	RM5598B 3 1/2 x 15	US10B	RO
1 Closer	78 B/D H	613E	YA
1 Smoke Seal	S88 BL - LAR		PE
1 Wood Threshold	Wood Threshold – See Div. 6 Specifications	-	-
1 Wood Stop	Wood Stop – See Div. 6 Specifications	-	-

**Set #06 - RESTROOM [1 3/8" DOOR]**

Doors: 108, 109

**Set #06 - RESTROOM [1 3/8" DOOR]**

3 Hinges	TA714 4 X 4 X BT	10B	MC
1 Cast Pull	RM5534	US10B	RO
2 Cast Plate	RM5598B 3 1/2 x 15	US10B	RO
1 Closer	78 B/D H	613E	YA
1 Smoke Seal	S88 BL - LAR		PE
1 Wood stop	Wood Stop – See Div. 6 Specifications	-	-

**Set #07 - JAN [ 1 3/8" DOOR ]**

Doors: 110

3 Hinges	TA714 4 X 4 X BT	10B	MC
1 Narrow Lockset	8759 - Storeroom Function	626	VA01
1 Mortise Cylinder	As required	613	SC
1 Wood stop	Wood Stop – See Div. 6 Specifications	-	-
2 Deco lever - set	Cottonwood lever	US10B	VA01

**Set #08 - KITCHEN**

Doors: 111

3 Hinges	TA786 4 1/2 X 4 1/2 X BT	10B	MC
1 Accurate Lock	8745 - Classroom function	622	VA01
1 Mortise Cylinder	As required	613	SC
1 Closer	78 B/D H	613E	YA
1 Smoke Seal	S88 BL - LAR		PE
1 Wood stop	Wood Stop – See Div. 6 Specifications	-	-
1 Deco lever - set	Cottonwood lever	US10B	VA01

**Set #09 - EXT - MEP**

Doors: 126

3 Hinges	TA314 4 1/2 X 4 1/2 NRP X BT	10B(SS)	MC
1 Narrow Lockset	8759 - Storeroom Function	626	VA01
1 Mortise Cylinder	As required	613	SC
1 Closer	UNI 78 B/D H	613E	YA
1 Smoke Seal	S88 BL - LAR		PE
1 Auto Door Bottom	411 APKL		PE
1 Threshold	157 D x LAR		PE
2 Deco lever - set	Cottonwood lever	US10B	VA01

**Set #10 - RESTROOM**

Doors: 124, 125

**Set #10 - RESTROOM**

3 Hinges	TA786 4 1/2 X 4 1/2 X BT	10B	MC
1 Cast Pull	RM5534	US10B	RO
2 Cast Plate	RM5598B 3 1/2 x 15	US10B	RO
1 Closer	78 B/D H	613E	YA
1 Door Stop	406	US10B	RO
1 Smoke Seal	S88 BL - LAR		PE
1 Threshold	271 D x LAR		PE

**Set #11 - JANITOR**

Doors: 123

3 Hinges	TA714 4 1/2 X 4 1/2 X BT	10B	MC
1 Narrow Lockset	8759 - Storeroom Function	626	VA01
1 Mortise Cylinder	As required	613	SC
1 Closer	78 B/D H	613E	YA
1 Smoke Seal	S88 BL - LAR		PE
1 Threshold	271 D x LAR		PE
1 Deco lever - set	Cottonwood lever	US10B	VA01

**Set #12 - RISER ROOM**

Doors: 118, 117

3 Hinges	TA714 4 X 4 X BT	10B	MC
1 Deco lever - set	Cottonwood lever	US10B	VA01
1 Narrow Stile Lock	8759 - Storeroom Function	626	VA01
1 Cylinder	As required	613	SC

**Set #13 - STOR**

Doors: 104

2 Existing Hinges	Existing hinges to be reused	-	-
1 Existing Handle	Existing handles to be reused	-	-
1 Padlock Hasp	81-1720, 4-1/2"	2C	ST

End of Section

## SECTION 088000 - GLAZING

## PART 1 - GENERAL

## 1.1 RELATED DOCUMENTS

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

## 1.2 SUMMARY

- A. This Section includes base bid glazing for the following products and applications, including those specified in other Sections where glazing requirements are specified by reference to this Section:
  - 1. Interior and exterior windows.
  - 2. Exterior transoms.
- B. Related Sections include the following:
  - 1. Division 6 Section 060000 "Wood Rehabilitation".
- C. Glass Types:
  - Type A: Flat, clear, double strength, 1/8" thick, float glass.

## 1.3 DEFINITIONS

- A. Manufacturers of Glass Products: Firms that produce primary glass, fabricated glass, or both, as defined in referenced glazing publications.
- B. Glass Thicknesses: Indicated by thickness designations in millimeters according to ASTM C 1036.

## 1.4 PERFORMANCE REQUIREMENTS

- A. General: Provide glazing systems capable of withstanding normal thermal movement and wind and impact loads (where applicable) without failure, including loss or glass breakage attributable to the following: defective manufacture, fabrication, and installation; failure of sealants to remain watertight and airtight; deterioration of glazing materials; or other defects in construction.
- B. Glass Design: Glass thickness designations indicated are minimums and are for detailing only. Confirm glass thicknesses by analyzing Project loads and in-service conditions. Provide glass lites in the thickness designations indicated for various size openings, but not less than thicknesses and in strengths (annealed or heat treated) required to meet or exceed the following criteria:
  - 1. Glass Thicknesses: Select minimum glass thicknesses to comply with ASTM E 1300, according to the following requirements:

- a. Specified Design Wind Loads: Per NC Building Code, but not less than wind loads applicable to Project as required by ASCE 7 "Minimum Design Loads for Buildings and Other Structures": Section 6.0 "Wind Loads."
  - b. Specified Design Snow Loads: Per NC Building Code, but not less than snow loads applicable to Project as required by ASCE 7, "Minimum Design Loads for Buildings and Other Structures": Section 7.0, "Snow Loads."
  - c. Maximum Lateral Deflection: For glass supported on all 4 edges, provide thickness required that limits center deflection at design wind pressure to 1/50 times the short side length or 1 inch (25 mm), whichever is less.
  - d. Minimum Glass Thickness for Exterior Lites: Not less than 1/8 inch.
- C. Thermal Movements: Provide glazing that allows for thermal movements resulting from the following maximum change (range) in ambient and surface temperatures acting on glass framing members and glazing components. 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 (67 deg C), ambient; 180 deg F (100 deg C), material surfaces.
- D. Thermal and Optical Performance Properties: Provide glass with performance properties specified based on manufacturer's published test data, as determined according to procedures indicated below:
1. For monolithic-glass lites, properties are based on units with lites 1/8 inch thick.

## 1.5 SUBMITTALS

- A. Product Data: For each glass product and glazing material indicated.
- B. Samples: For the following products, in the form of 12-inch- (300-mm-) square Samples for glass and of 12-inch- (300-mm-) long Samples for sealants. Install sealant Samples between two strips of material representative in color of the adjoining framing system.
- C. Samples: For the following products, in the form of 12-inch- (300-mm-) square Samples for glass.
  1. Each type of clear float glass.
- D. Glazing Schedule: Use same designations indicated on Drawings for glazed openings in preparing a schedule listing glass types and thicknesses for each size opening and location.
- E. Product Certificates: Signed by manufacturers of glass and glazing products certifying that products furnished comply with requirements.
- F. Qualification Data: For installers.

- G. Preconstruction Adhesion and Compatibility Test Report: From glazing sealant manufacturer indicating glazing sealants were tested for adhesion to glass and glazing channel substrates and for compatibility with glass and other glazing materials.

#### 1.6 QUALITY ASSURANCE

- A. Installer Qualifications: An experienced installer who has completed glazing similar in material, design, and extent to that indicated for this Project; whose work has resulted in glass installations with a record of successful in-service performance; and who employs glass installers for this Project who are certified under the National Glass Association's Certified Glass Installer Program.
- B. Source Limitations for Glass: Obtain the following through one source from a single manufacturer.

#### 1.7 DELIVERY, STORAGE, AND HANDLING

- A. Protect glazing materials according to manufacturer's written instructions and as needed to prevent damage to glass and glazing materials from condensation, temperature changes, direct exposure to sun, or other causes.

#### 1.8 PROJECT CONDITIONS

- A. Environmental Limitations: Do not proceed with glazing when ambient and substrate temperature conditions are outside limits permitted by glazing material manufacturers and when glazing channel substrates are wet from rain, frost, condensation, or other causes.
  - 1. Do not install liquid glazing sealants when ambient and substrate temperature conditions are outside limits permitted by glazing sealant manufacturer or below 40 deg F (4.4 deg C).

### PART 2 - PRODUCTS

#### 2.1 MANUFACTURERS

- A. In other Part 2 articles where titles below introduce lists, the following requirements apply to product selection:
  - 1. Products: Subject to compliance with requirements, provide one of the products specified.

#### 2.2 GLASS PRODUCTS

- A. Double Strength (DS) Annealed Float Glass (Type "A"): ASTM C 1036, Type I (transparent flat glass), Quality-Q3; of class indicated.
  - 1. Ultra-Clear (Low-Iron) Float Glass: Class I (clear); with a minimum 91 percent visible light transmission and a minimum solar heat gain coefficient of 0.87.
    - a. Products:



- 1) AFG Industries Inc.; Krystal Klear.
- 2) Pilkington Building Products North America; Optiwhite.
- 3) PPG Industries, Inc.; Starphire.

### 2.3 GLAZING SEALANTS

A. General: Provide products of type indicated, complying with the following requirements:

1. Compatibility: Select glazing sealants that are compatible with one another and with other materials they will contact, including glass products, under conditions of service and application, as demonstrated by sealant manufacturer based on testing and field experience.
2. Suitability: Comply with sealant and glass manufacturers' written instructions for selecting glazing sealants suitable for applications indicated and for conditions existing at time of installation.
3. Colors of Exposed Glazing Sealants: As selected by Architect from manufacturer's full range.
4. Glazing compound must contain boiled linseed oil.

B. Products/Manufacturers

1. Sarco Multi-Glaze
2. Crawford Painter's Putty

### 2.4 MISCELLANEOUS GLAZING MATERIALS

A. General: Provide products of material, size, and shape complying with referenced glazing standard, requirements of manufacturers of glass and other glazing materials for application indicated, and with a proven record of compatibility with surfaces contacted in installation.

B. Cleaners, Primers, and Sealers: Types recommended by sealant or gasket manufacturer.

C. Glazing Points:

1. Red Devil #1722
2. Hyde Glazing Points
3. Fletcher's Glazier's Points

### 2.5 FABRICATION OF GLAZING UNITS

A. Fabricate glazing units in sizes required to glaze openings indicated for Project, with edge and face clearances, edge and surface conditions, and bite complying with written instructions of product manufacturer and referenced glazing publications, to comply with system performance requirements.

B. Grind smooth and polish exposed glass edges and corners.

## PART 3 - EXECUTION

## 3.1 EXAMINATION

- A. Examine framing glazing, with Installer present, for compliance with the following:
  - 1. Manufacturing and installation tolerances, including those for size, squareness, and offsets at corners.
  - 2. Presence and functioning of weep system.
  - 3. Minimum required face or edge clearances.
  - 4. Effective sealing between joints of glass-framing members.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

## 3.2 PREPARATION

- A. Clean glazing channels and other framing members receiving glass immediately before glazing. Remove coatings not firmly bonded to substrates.

## 3.3 GLAZING, GENERAL

- A. Comply with combined written instructions of manufacturers of glass, sealants, gaskets, and other glazing materials, unless more stringent requirements are indicated, including those in referenced glazing publications.
- B. Glazing channel dimensions, as indicated on Drawings, provide necessary bite on glass, minimum edge and face clearances, and adequate sealant thicknesses, with reasonable tolerances. Adjust as required by Project conditions during installation.
- C. Protect glass edges from damage during handling and installation. Remove damaged glass from Project site and legally dispose of off Project site. Damaged glass is glass with edge damage or other imperfections that, when installed, could weaken glass and impair performance and appearance.
- D. Apply primers to joint surfaces where required for adhesion of sealants, as determined by preconstruction sealant-substrate testing.
- E. Install setting blocks in sill rabbets, sized and located to comply with referenced glazing publications, unless otherwise required by glass manufacturer. Set blocks in thin course of compatible sealant suitable for heel bead.
- F. Do not exceed edge pressures stipulated by glass manufacturers for installing glass lites.
- G. Provide edge blocking where indicated or needed to prevent glass lites from moving sideways in glazing channel, as recommended in writing by glass manufacturer and according to requirements in referenced glazing publications.
- H. Set glass lites in each series with uniform pattern, draw, bow, and similar characteristics.

## 3.4 CLEANING AND PROTECTION

- A. Protect exterior glass from damage immediately after installation by attaching crossed streamers to framing held away from glass. Do not apply markers to glass surface. Remove nonpermanent labels, and clean surfaces.
- B. Protect glass from contact with contaminating substances resulting from construction operations, including weld splatter. If, despite such protection, contaminating substances do come into contact with glass, remove substances immediately as recommended by glass manufacturer.
- C. Remove and replace glass that is broken, chipped, cracked, or abraded or that is damaged from natural causes, accidents, and vandalism, during construction period.
- D. Wash glass on both exposed surfaces in each area of Project not more than four days before date scheduled for inspections that establish date of Substantial Completion. Wash glass as recommended in writing by glass manufacturer.

END OF SECTION 088000

## SECTION 091110 - NON-LOAD-BEARING STEEL FRAMING

## PART 1 - GENERAL

## 1.1 RELATED DOCUMENTS

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

## 1.2 SUMMARY

- A. This Section includes non-load-bearing steel framing members for the following applications:
  - 1. Framing systems (e.g., supports for partition walls, framed soffits, furring, etc.).
  - 2. Interior suspension systems (e.g. supports for ceiling).

## 1.3 SUBMITTALS

- A. Product Data: For each type of product indicated.

## PART 2 - PRODUCTS

## 2.1 NON-LOAD-BEARING STEEL FRAMING, GENERAL

- A. Framing Members, General: Comply with ASTM C 754 for conditions indicated.
  - 1. Steel Sheet Components: Comply with ASTM C 645 requirements for metal, unless otherwise indicated.
  - 2. Protective Coating: ASTM A 653/A 653M, G40 (Z120), hot-dip galvanized.

## 2.2 SUSPENSION SYSTEM COMPONENTS

- A. Tie Wire: ASTM A 641/A 641M, Class 1 zinc coating, soft temper, 0.0625-inch- (1.59-mm-) diameter wire, or double strand of 0.0475-inch- (1.21-mm-) diameter wire.
- B. Wire Hangers: ASTM A 641/A 641M, Class 1 zinc coating, soft temper, 0.162-inch (4.12-mm) diameter.
- C. Carrying Channels: Cold-rolled, commercial-steel sheet with a base-metal thickness of 0.0538 inch (1.37 mm) and minimum 1/2-inch- (12.7-mm-) wide flanges.
  - 1. Depth: 1-1/2 inches (38 mm).
- D. Furring Channels (Furring Members):

1. Cold-Rolled Channels: 0.0538-inch (1.37-mm) bare-steel thickness, with minimum 1/2-inch- (12.7-mm-) wide flanges, 3/4 inch (19.1 mm) deep.
  2. Steel Studs: ASTM C 645.
    - a. Minimum Base-Metal Thickness: Not thinner than 25 gauge.
    - b. Depth: 3-5/8 inches with flanges bent back 90 degrees and doubled over to form 3/16 inch wide minimum lip (return).
  3. Hat-Shaped, Rigid Furring Channels: ASTM C 645, 7/8 inch (22.2 mm) deep.
    - a. Minimum Base Metal Thickness: Not thinner than 26 gauge.
  4. Resilient Furring Channels: 1/2-inch- (12.7-mm-) deep members designed to reduce sound transmission.
    - a. Configuration: Asymmetrical or hat shaped.
- E. Grid Suspension System for Ceilings: ASTM C 645, direct-hung system composed of main beams and cross-furring members that interlock.
1. Products: Subject to compliance with requirements, provide one of the following:
    - a. Armstrong World Industries, Inc.; Drywall Grid Systems.
    - b. Chicago Metallic Corporation; Drywall Furring System.
    - c. USG Corporation; Drywall Suspension System.

### 2.3 STEEL FRAMING FOR FRAMED ASSEMBLIES

- A. Steel Studs and Runners: ASTM C 645.
1. Minimum Base-Metal Thickness: Not thinner than 25 gauge. Provide 20 gauge studs at door jambs and headers.
- B. Slip-Type Head Joints: Where indicated, provide one of the following:
1. Single Long-Leg Runner System: ASTM C 645 top runner with 2-inch- (50.8-mm-) deep flanges in thickness not less than indicated for studs, installed with studs friction fit into top runner and with continuous bridging located within 12 inches (305 mm) of the top of studs to provide lateral bracing.
  2. Double-Runner System: ASTM C 645 top runners, inside runner with 2-inch- (50.8-mm-) deep flanges in thickness not less than indicated for studs and fastened to studs, and outer runner sized to friction fit inside runner.
  3. Deflection Track: Steel sheet top runner manufactured to prevent cracking of finishes applied to interior partition framing resulting from deflection of structure above; in thickness not less than indicated for studs and in width to accommodate depth of studs.
    - a. Products: Subject to compliance with requirements, provide one of the following:
      - 1) Steel Network Inc. (The); VertiClip SLD VertiTrack VTD Series.
      - 2) Superior Metal Trim; Superior Flex Track System (SFT).
      - 3) U. S. Gypsum Co.; Deflection Track.

- C. Flat Strap and Backing Plate: Steel sheet for blocking and bracing in length and width indicated.
1. Minimum Base-Metal Thickness: **0.0179 inch**.
- D. Cold-Rolled Channel Bridging: **0.0538-inch (1.37-mm)** bare-steel thickness, with minimum **1/2-inch (12.7-mm-)** wide flanges.
1. Depth: **1-1/2 inches (38.1 mm)**.
  2. Clip Angle: Not less than **1-1/2 by 1-1/2 inches (38.1 by 38.1 mm)**, **0.068-inch- (1.73-mm-)** thick, galvanized steel.
- E. Hat-Shaped, Rigid Furring Channels: ASTM C 645.
1. Minimum Base Metal Thickness: Not thinner than 26 gauge.
  2. Depth: **7/8 inch (22.2 mm)**.
- F. Resilient Furring Channels: **1/2-inch- (12.7-mm-)** deep, steel sheet members designed to reduce sound transmission.
1. Configuration: Asymmetrical or hat shaped.
- G. Cold-Rolled Furring Channels: **0.0538-inch (1.37-mm)** bare-steel thickness, with minimum **1/2-inch- (12.7-mm-)** wide flanges.
1. Depth: **3/4 inch (19.1 mm)**.
  2. Furring Brackets: Adjustable, corrugated-edge type of steel sheet with minimum bare-steel thickness of **0.0312 inch (0.79 mm)**.
  3. Tie Wire: ASTM A 641/A 641M, Class 1 zinc coating, soft temper, **0.0625-inch- (1.59-mm-)** diameter wire, or double strand of **0.0475-inch- (1.21-mm-)** diameter wire.
- H. Z-Shaped Furring: With slotted or nonslotted web, face flange of **1-1/4 inches (31.8 mm)**, wall attachment flange of **7/8 inch (22.2 mm)**, minimum bare-metal thickness of **0.0179 inch (0.45 mm)**, and depth required to fit insulation thickness indicated.

## 2.4 AUXILIARY MATERIALS

- A. General: Provide auxiliary materials that comply with referenced installation standards.
1. Fasteners for Metal Framing: Of type, material, size, corrosion resistance, holding power, and other properties required to fasten steel members to substrates.
- B. Isolation Strip at Exterior Walls: Provide one of the following:
1. Foam Gasket: Adhesive-backed, closed-cell vinyl foam strips that allow fastener penetration without foam displacement, **1/8 inch (3.2 mm)** thick, in width to suit steel stud size.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine areas and substrates, with Installer present, and including welded hollow-metal frames, cast-in anchors, and structural framing, for compliance with requirements and other conditions affecting performance. Notify Architect, in writing, of any detrimental conditions affecting installation or performance.
  - 1. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.2 PREPARATION

- A. Suspended Assemblies: Coordinate installation of suspension systems with installation of overhead structure to ensure that inserts and other provisions for anchorages to building structure have been installed to receive hangers at spacing required to support the Work and that hangers will develop their full strength.
  - 1. Furnish concrete inserts and other devices indicated to other trades for installation in advance of time needed for coordination and construction.

### 3.3 INSTALLATION, GENERAL

- A. Installation Standard: ASTM C 754.
  - 1. Gypsum Board Assemblies: Also comply with requirements in ASTM C 840 that apply to framing installation.
- B. Install supplementary framing, and blocking to support fixtures, equipment services, heavy trim, furnishings, or similar construction.
- C. Install bracing at terminations in assemblies.
- D. Do not bridge building control and expansion joints with non-load-bearing steel framing members. Frame both sides of joints independently.

### 3.4 INSTALLING SUSPENSION SYSTEMS

- A. Install suspension system components in sizes and spacings indicated on Drawings, but not less than those required by referenced installation standards for assembly types and other assembly components indicated.
- B. Isolate suspension systems from building structure where they abut or are penetrated by building structure to prevent transfer of loading imposed by structural movement.
- C. Suspend hangers from building structure as follows:
  - 1. Install hangers plumb and free from contact with insulation or other objects within ceiling plenum that are not part of supporting structural or suspension system.

- a. Splay hangers only where required to miss obstructions and offset resulting horizontal forces by bracing, countersplaying, or other equally effective means.
  2. Where width of ducts and other construction within ceiling plenum produces hanger spacings that interfere with locations of hangers required to support standard suspension system members, install supplemental suspension members and hangers in the form of trapezes or equivalent devices.
    - a. Size supplemental suspension members and hangers to support ceiling loads within performance limits established by referenced installation standards.
  3. Wire Hangers: Secure by looping and wire tying, either directly to structures or to inserts, eye screws, or other devices and fasteners that are secure and appropriate for substrate, and in a manner that will not cause hangers to deteriorate or otherwise fail.
  4. Flat Hangers: Secure to structure, including intermediate framing members, by attaching to inserts, eye screws, or other devices and fasteners that are secure and appropriate for structure and hanger, and in a manner that will not cause hangers to deteriorate or otherwise fail.
  5. Do not connect or suspend steel framing from ducts, pipes, or conduit.
- D. Seismic Bracing: Sway-brace suspension systems with hangers used for support.
- E. Installation Tolerances: Install suspension systems that are level to within **1/8 inch in 12 feet (3 mm in 3.6 m)** measured lengthwise on each member that will receive finishes and transversely between parallel members that will receive finishes.

### 3.5 INSTALLING FRAMED ASSEMBLIES

- A. Where studs are installed directly against exterior masonry walls or dissimilar metals at exterior walls, install isolation strip between studs and exterior wall.
- B. Install studs so flanges within framing system point in same direction.
- C. Install tracks (runners) at floors and overhead supports. Extend framing full height to structural supports or substrates above suspended ceilings, except where partitions are indicated to terminate at suspended ceilings. Continue framing around ducts penetrating partitions above ceiling.
  1. Slip-Type Head Joints: Where framing extends to overhead structural supports, install to produce joints at tops of framing systems that prevent axial loading of finished assemblies.
  2. Door Openings: Screw vertical studs at jambs to jamb anchor clips on door frames; install runner track section (for cripple studs) at head and secure to jamb studs.
    - a. Install two studs at each jamb, unless otherwise indicated.
    - b. Install cripple studs at head adjacent to each jamb stud, with a minimum **1/2-inch (12.7-mm)** clearance from jamb stud to allow for installation of control joint in finished assembly.
    - c. Extend jamb studs through suspended ceilings and attach to underside of overhead structure.



3. Other Framed Openings: Frame openings other than door openings the same as required for door openings, unless otherwise indicated. Install framing below sills of openings to match framing required above door heads.
- D. Direct Furring:
1. Screw to wood framing.
  2. Attach to concrete or masonry with stub nails, screws designed for masonry attachment, or powder-driven fasteners spaced 24 inches (610 mm) o.c.
- E. Installation Tolerance: Install each framing member so fastening surfaces vary not more than 1/8 inch (3 mm) from the plane formed by faces of adjacent framing.

END OF SECTION 091110

## SECTION 092500 - GYPSUM BOARD

## PART 1 - GENERAL

## 1.1 RELATED DOCUMENTS

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

## 1.2 SUMMARY

- A. This Section includes the following:

- 1. Interior gypsum board.

- B. Related Sections include the following:

- 1. Division 7 Section "Building Insulation" for insulation and vapor retarders installed in assemblies that incorporate gypsum board.
- 2. Division 7 Section "Joint Sealants" for acoustical sealants installed in assemblies that incorporate gypsum board.
- 3. Division 9 Section "Non-Load-Bearing Steel Framing" for non-structural framing and suspension systems that support gypsum board.
- 4. Division 9 painting Sections for primers applied to gypsum board surfaces.

## 1.3 SUBMITTALS

- A. Product Data: For each type of product indicated.

- B. Samples: For the following products:

- 1. Trim Accessories: Full-size Sample in **12-inch-** (300-mm-) long length for each trim accessory indicated.

## 1.4 QUALITY ASSURANCE

- A. Mockups: Before beginning gypsum board installation, install mockups of at least **100 sq. ft. (9 sq. m)** in surface area to demonstrate aesthetic effects and set quality standards for materials and execution.

- 1. Install mockups for the following:

- a. Each level of gypsum board finish indicated for use in exposed locations.

- 2. Apply or install final decoration indicated, including painting on exposed surfaces for review of mockups.
- 3. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

## 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 and conditioned.
- C. Do not install panels that are wet, those that are moisture damaged, and those that are mold damaged.
  - 1. Indications that panels are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.
  - 2. Indications that panels are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

## PART 2 - PRODUCTS

## 2.1 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 Co.
    - b. G-P Gypsum.
    - c. National Gypsum Company.
    - d. USG Corporation.
- B. Regular Type:
  - 1. Thickness: 5/8 inch (12.7 mm).
  - 2. Long Edges: Tapered.

- C. Ceiling Type: Manufactured to have more sag resistance than regular-type gypsum board.
  - 1. Thickness: 1/2 inch (12.7 mm).
  - 2. Long Edges: Tapered.

### 2.3 TRIM ACCESSORIES

- A. Interior Trim: ASTM C 1047.
  - 1. Material: Galvanized
  - 2. Shapes:
    - a. Cornerbead.
    - b. Expansion (control) joint.

### 2.4 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. Embedding and First Coat: For embedding tape and first coat on joints, fasteners, and trim flanges, use all-purpose compound.
    - a. Use setting-type compound for installing paper-faced metal trim accessories.
  - 2. Fill Coat: For second coat, use drying-type, all-purpose compound.
  - 3. Finish Coat: For third coat, use all-purpose compound.

### 2.5 AUXILIARY MATERIALS

- A. General: Provide auxiliary materials that comply with referenced installation standards and manufacturer's written recommendations.
- B. Laminating Adhesive: Adhesive or joint compound recommended for directly adhering gypsum panels to continuous substrate.
  - 1. Use adhesives that have a VOC content of 50 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
- C. Steel Drill Screws: ASTM C 1002, unless otherwise indicated.
  - 1. Use screws complying with ASTM C 954 for fastening panels to steel members from 0.033 to 0.112 inch (0.84 to 2.84 mm) thick.

2. For fastening cementitious backer units, use screws of type and size recommended by panel manufacturer.
- D. Sound Control Insulation: 3” thick ASTM C 665, Type I (insulation without membrane facing) produced by combining thermosetting resins with mineral fibers manufactured from glass, slag wool, or rock wool. Install from floor to 6” above ceiling or as otherwise detailed on the drawings.
  1. Fire-Resistance-Rated Assemblies: Comply with mineral-fiber requirements of assembly.
- E. Acoustical Sealant: As specified in Division 7 Section "Joint Sealants."
- F. Thermal Insulation: As specified in Division 7 Section "Building Insulation."
- G. Vapor Retarder: As specified in Division 7 Section "Building Insulation."

### PART 3 - EXECUTION

#### 3.1 EXAMINATION

- A. Examine areas and substrates, with Installer present, and including welded hollow-metal frames and framing, for compliance with requirements and other conditions affecting performance. Notify Architect, in writing, of any unsatisfactory conditions.
- B. Examine panels before installation. Reject panels that are wet, moisture damaged, and mold damaged.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

#### 3.2 APPLYING AND FINISHING PANELS, GENERAL

- A. Comply with ASTM C 840.
- B. Install ceiling panels across framing to minimize the number of abutting end joints and to avoid abutting end joints in central area of each ceiling. Stagger abutting end joints of adjacent panels not less than one framing member.
- C. Install panels with face side out. Butt panels together for a light contact at edges and ends with not more than **1/16 inch (1.5 mm)** of open space between panels. Do not force into place.
- D. Locate edge and end joints over supports, except in ceiling applications where intermediate supports or gypsum board back-blocking is provided behind end joints. Do not place tapered edges against cut edges or ends. Stagger vertical joints on opposite sides of partitions. Do not make joints other than control joints at corners of framed openings.
- E. Form control joints with space between edges of adjoining gypsum panels.
- F. Cover both faces of support framing with gypsum panels in concealed spaces (above ceilings, etc.), except in chases braced internally.

1. Unless concealed application is indicated or required for sound, fire, air, or smoke ratings, coverage may be accomplished with scraps of not less than 8 sq. ft. (0.7 sq. m) in area.
  2. Fit gypsum panels around ducts, pipes, and conduits.
  3. Where partitions intersect structural members projecting below underside of floor/roof slabs and decks, cut gypsum panels to fit profile formed by structural members; allow 1/4- to 3/8-inch- (6.4- to 9.5-mm-) wide joints to install sealant.
- G. Isolate perimeter of gypsum board applied to non-load-bearing partitions at structural abutments, except floors. Provide 1/4- to 1/2-inch- (6.4- to 12.7-mm-) wide spaces at these locations, and trim edges with edge trim where edges of panels are exposed. Seal joints between edges and abutting structural surfaces with acoustical sealant.
- H. Attachment to Steel Framing: Attach panels so leading edge or end of each panel is attached to open (unsupported) edges of stud flanges first.
- I. 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. Regular Type: As indicated on Drawings.
  2. Ceiling Type: As indicated on Drawings.
- B. Single-Layer Application:
1. On ceilings, apply gypsum panels before wall/partition board application to greatest extent possible and at right angles to framing, unless otherwise indicated.
  2. On partitions/walls, apply gypsum panels vertically (parallel to framing) [horizontally (perpendicular to framing), unless otherwise indicated or required by fire-resistance-rated assembly, and minimize end joints.
    - a. Stagger abutting end joints not less than one framing member in alternate courses of panels.
    - b. At high walls, install panels horizontally, unless otherwise indicated or required by fire-resistance-rated assembly.
  3. On Z-furring members, apply gypsum panels vertically (parallel to framing) with no end joints. Locate edge joints over furring members.
  4. 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.

- B. Control Joints: Install control joints according to ASTM C 840 and in specific locations approved by Architect for visual effect.
- C. Interior Trim: Install in the following locations:
  - 1. Cornerbead: Use at outside corners.

### 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, rounded or beveled edges, 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:
  - 1. Level 4: At panel surfaces that will be exposed to view, unless otherwise indicated.
    - a. Primer and its application to surfaces are specified in other Division 9 Sections.

### 3.6 PROTECTION

- A. Protect installed products from damage from weather, condensation, direct sunlight, construction, and other causes during remainder of the construction period.
- B. Remove and replace panels that are wet, moisture damaged, and mold damaged.
  - 1. Indications that panels are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.
  - 2. Indications that panels are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

END OF SECTION 092500

## SECTION 096400 - WOOD FLOORING, REMOVAL, MILLING, AND REINSTALLATION

## PART 1 - GENERAL

## 1.1 RELATED DOCUMENTS

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

## 1.2 SUMMARY

- A. This Section includes the following:

1. Removal and disposal of existing carpet underlayment board throughout areas where it may be found.
2. Removal and salvage of existing 2" thick pine plank flooring. Removal and salvage process shall include removal of all fasteners from existing plank flooring and shipping to facility for remilling.
3. Remilling shall include milling  $\frac{3}{4}$ " tongue and groove finish flooring to be reinstalled at Events Room and Network Room of existing depot building.
4. Surplus wood remaining after remilling of  $\frac{3}{4}$ " finish flooring shall remain the property of the Owner.
5. This sub-contractor shall transport surplus wood and  $\frac{3}{4}$ " finish flooring to the job site. Store surplus wood at a location directed by the Owner.
6. Reinstall  $\frac{3}{4}$ " tongue and groove remilled finish flooring in Events Room and Network Room as specified in this Section.

- B. Related Sections include the following:

1. Division 6 Section "Rough Carpentry" for wood substrates, including sleepers and subflooring.

## 1.3 SUBMITTALS

- A. Product sample of remilled  $\frac{3}{4}$ " thick tongue & groove in 2'-0" length x anticipated width(s).

## 1.4 QUALITY ASSURANCE

- A. Installer Qualifications: An experienced installer who has completed wood flooring, removal, milling, and reinstallation, similar in material, design, and extent to that indicated for this Project and whose work has resulted in wood flooring installations with a record of successful in-service performance.
- B. Source Limitations: Obtain removal, milling, and reinstallation from one source with resources to provide materials and products of consistent quality in appearance and physical properties.



## 1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver wood flooring materials in bundles prepared at the milling facility.
- B. Protect wood flooring from exposure to moisture. Do not deliver wood flooring until after concrete, masonry, and similar wet-work is complete and dry.
- C. Store wood flooring materials in a dry, warm, well-ventilated, weathertight location.
- D. Move wood flooring into spaces where it will be installed, at least seven days before installation.

## 1.6 PROJECT CONDITIONS

- A. Conditioning: Maintain relative humidity planned for building occupants and an ambient temperature between 65 and 75 deg F (18 and 24 deg C) in spaces to receive wood flooring for at least seven days before installation, during installation, and for at least seven days after installation. After post-installation period, maintain relative humidity and ambient temperature planned for building occupants.

1. For unfinished products, open sealed packages to allow wood flooring to acclimatize.

2. Do not install flooring until it adjusts to the relative humidity of and is at the same temperature as the space where it is to be installed.

3. Close spaces to traffic during flooring installation and for time period after installation recommended in writing by this subcontractor and finish manufacturers.

## 1.7 WARRANTY

- A. General Warranty: Special warranty specified in this Article shall not deprive Owner of other rights Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by Contractor under requirements of the Contract Documents.

## 1.8 SURPLUS WOOD MATERIALS

- A. Surplus salvaged wood materials shall be packaged by this sub-contractor with protective covering for storage and identified with labels describing quantity and size of contents.

## PART 2 - PRODUCTS

## 2.1 REMILLED FLOORING

- A. Remilled Strip Flooring: Provide milled wood flooring as follows:
  - 1. Species: Existing
  - 2. Grade: Existing

- 3.Cut: Plain sawn and tongue & groove edge milled.
- 4.Thickness: 3/4 inch (19 mm).
- 5.Face Width: Existing (widths vary)
- 6.Matching: None required.
- 7.Back: Channeled (kerfed) for stress relief.
- 8.Random Lengths: Provide standard random-length strips.

## 2.2 FINISHING MATERIALS

- A. Wood Filler: Formulated to fill and repair seams, defects, and open-grain hardwood floors; compatible with finish system components and recommended by filler and finish manufacturers for use indicated. If required to match approved samples, provide pigmented filler.

## 2.3 ACCESSORY MATERIALS

- A. Felt Underlayment: ASTM D 226, Type I, No. 15, asphalt-saturated felt.
- B. Fasteners: As recommended by manufacturer, but not less than recommended in NOFMA's "Installing Hardwood Flooring."
- C. Cork Expansion strip: FSHHC576, Type I-B, Class 2.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements, installation tolerances, and other conditions affecting performance of wood flooring. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.2 INSTALLATION

- A. General: Comply with flooring remilling shop's written instructions, but not less than recommendations in NOFMA's "Installing Hardwood Flooring," as applicable to flooring type.
- B. Pattern: Lay wood flooring in pattern indicated on Drawings or, if not indicated, as directed by Architect.
- C. Expansion Space: Provide expansion space at walls and other obstructions and terminations of flooring of not less than 3/4 inch (19 mm), unless otherwise indicated on Drawings.

1.Unless fully concealed by trim, fill expansion space with flush cork expansion strip.

- D. Felt Underlayment: Where remilled flooring is nailed to subfloor, install flooring over a layer of asphalt-saturated felt.
- E. Solid-Wood Flooring: Blind nail flooring to substrate according to NOFMA's written recommendations.

3.3 SANDING AND FINISHING

- A. Machine-sand flooring to remove offsets, ridges, cups, and sanding-machine marks that would be noticeable after finishing. Vacuum and tack with a clean cloth immediately before applying finish.
- B. Apply filler according to manufacturer's written instructions.
  - 1.Fill and repair seams and defects.
- C. Apply stain to match approved Sample if required. See specification section 099200

3.4 PROTECTION

- A. Cover installed wood flooring to protect it from damage or deterioration, before and after finishing, during remainder of construction period. Use heavy kraft-paper or other suitable covering. Do not use plastic sheet or film that could cause condensation.
  - 1.Do not cover site-finished floors with kraft paper, or any other material, until finish reaches full cure, but not less than seven days after applying last coat.

END OF SECTION 096400

## SECTION 096510 - RESILIENT FLOOR TILE

## PART 1 - GENERAL

## 1.1 RELATED DOCUMENTS

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

## 1.2 SUMMARY

- A. This Section includes the following:
  - 1. Vinyl composition tile (VCT) in two colors.

## 1.3 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Samples for Initial Selection: For each type of product indicated.
- C. Maintenance Data: For resilient products to include in maintenance manuals.
- D. Product Certificates: Signed by manufacturers of resilient products certifying that each product furnished complies with requirements.

## 1.4 QUALITY ASSURANCE

- A. Installer Qualifications: Engage an experienced installer to perform work of this Section who has specialized in installing resilient products similar to those required for this Project and with a record of successful in-service performance.
- B. Source Limitations: Obtain each type, color, and pattern of product specified from one source with resources to provide products of consistent quality in appearance and physical properties without delaying.

## 1.5 DELIVERY, STORAGE, AND HANDLING

- A. Store resilient products and installation materials in dry spaces protected from the weather, with ambient temperatures maintained within range recommended by manufacturer, but not less than 50 deg F (10 deg C) or more than 90 deg F (32 deg C). Store tiles on flat surfaces.

## 1.6 PROJECT CONDITIONS

- A. Maintain temperatures within range recommended by manufacturer, but not less than [70 deg F (21 deg C)] Insert temperature or more than 95 deg F (35 deg C), in spaces to receive floor tile during the following time periods:
  - 1. 48 hours before installation.
  - 2. During installation.
  - 3. 48 hours after installation.
- B. Do not install products until they are at the same temperature as the space where they are to be installed.
- C. Close spaces to traffic during flooring installation and for time period after installation recommended in writing by manufacturer.
- D. Install tiles and accessories after other finishing operations, including painting, have been completed.
- E. After postinstallation period, maintain temperatures within range recommended by manufacturer, but not less than 55 deg F (13 deg C) or more than 95 deg F (35 deg C).

## 1.7 EXTRA MATERIALS

- A. Furnish extra materials described below that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
  - 1. Floor Tile: Furnish 1 box for every 50 boxes or fraction thereof, of each type, color, and pattern of floor tile installed.
- B. Deliver extra materials to Owner.

## PART 2 - PRODUCTS

## 2.1 MANUFACTURERS

- A. Products: Subject to compliance with requirements, provide one of the products listed in other Part 2 articles.

## 2.2 COLORS AND PATTERNS

- A. Colors and Patterns: As selected by Architect from manufacturer's full range.

## 2.3 VINYL COMPOSITION TILE

- A. Vinyl Composition Tile (VCT): ASTM F 1066, in two colors.
  - 1. Armstrong World Industries, Inc.; "Standard Excelon".
  - 2. Azrock Commercial Flooring, DOMCO.
  - 3. Congoleum Corporation.
  - 4. Mannington Mills, Inc.
  - 5. Tarkett Inc.
- B. Class: 2 (through-pattern tile).
- C. Wearing Surface: Smooth.
- D. Thickness: 0.125 inch (3.2 mm).
- E. Size: 12 by 12 inches (305 by 305 mm).
- F. Fire-Test-Response Characteristics:
  - 1. Critical Radiant Flux Classification: Class I, not less than 0.45 W/sq. cm per ASTM E 648.

## 2.4 INSTALLATION MATERIALS

- A. Trowelable Leveling and Patching Compounds: Latex-modified, portland cement based or blended hydraulic cement based formulation provided or approved by resilient product manufacturer for applications indicated.
- B. Adhesives: Water-resistant type recommended by manufacturer to suit resilient products and substrate conditions indicated.

## PART 3 - EXECUTION

## 3.1 EXAMINATION

- A. Examine substrates, with Installer present, for compliance with requirements for installation tolerances, moisture content, and other conditions affecting performance.
  - 1. Verify that finishes of substrates comply with tolerances and other requirements specified in other Sections and that substrates are free of cracks, ridges, depressions, scale, and foreign deposits that might interfere with adhesion of resilient products.
  - 2. Proceed with installation only after unsatisfactory conditions have been corrected.

## 3.2 PREPARATION

- A. Prepare substrates according to manufacturer's written recommendations to ensure adhesion of resilient products.
- B. Remove substrate coatings and other substances that are incompatible with adhesives and that contain soap, wax, oil, or silicone, using mechanical methods recommended by manufacturer. Do not use solvents.
- C. Use trowelable leveling and patching compound to fill cracks, holes, and depressions in substrates.
- D. Move resilient products and installation materials into spaces where they will be installed at least 48 hours in advance of installation.
  - 1. Do not install resilient products until they are same temperature as space where they are to be installed.
- E. Sweep and vacuum clean substrates to be covered by resilient products immediately before installation. After cleaning, examine substrates for moisture, alkaline salts, carbonation, and dust. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.3 TILE INSTALLATION

- A. Lay out tiles from center marks established with principal walls, discounting minor offsets, so tiles at opposite edges of room are of equal width. Adjust as necessary to avoid using cut widths that equal less than one-half tile at perimeter.
  - 1. Lay tiles square with room axis **or as shown on the drawings.**
- B. Match tiles for color and pattern by selecting tiles from cartons in the same sequence as manufactured and packaged, if so numbered. Discard broken, cracked, chipped, or deformed tiles.
  - 1. Lay tiles with grain running in one direction.
- C. Scribe, cut, and fit tiles to butt neatly and tightly to vertical surfaces and permanent fixtures including: cabinets, pipes, outlets, edgings, door frames, and thresholds.
- D. Extend tiles into toe spaces, door reveals, closets, and similar openings.
- E. Maintain reference markers, holes, and openings that are in place or marked for future cutting by repeating on floor tiles as marked on substrates. Use chalk or other nonpermanent, nonstaining marking device.
- F. Install tiles on covers for telephone and electrical ducts and similar items in finished floor areas. Maintain overall continuity of color and pattern with pieces of tile installed on covers. Tightly adhere tile edges to substrates that abut covers and to cover perimeters.
- G. Adhere tiles to flooring substrates using a full spread of adhesive applied to substrate to produce a completed installation without open

cracks, voids, raising and puckering at joints, telegraphing of adhesive spreader marks, and other surface imperfections.

- H. Hand roll tiles according to tile manufacturer's instructions.

#### 3.4 RESILIENT ACCESSORY INSTALLATION

- A. Resilient Molding Accessories: Butt to adjacent materials and tightly adhere to substrates throughout length of each piece. Install reducer strips at edges of floor coverings that would otherwise be exposed.

#### 3.5 CLEANING AND PROTECTION

- A. Perform the following operations immediately after completing resilient product installation:

1. Remove adhesive and other blemishes from exposed surfaces.
2. Sweep and vacuum surfaces thoroughly.
3. Damp-mop surfaces to remove marks and soil.

- a. Do not wash surfaces until after time period recommended by manufacturer.

- B. Protect resilient products from mars, marks, indentations, and other damage from construction operations and placement of equipment and fixtures during remainder of construction period. Use protection methods recommended in writing by manufacturer.

1. Apply protective floor polish to horizontal surfaces that are free from soil, visible adhesive, and surface blemishes if recommended in writing by manufacturer.

- a. Use commercially available product acceptable to manufacturer.
- b. Coordinate selection of floor polish with Owner's maintenance service.

2. Cover products installed on horizontal surfaces with undyed, untreated building paper until Substantial Completion.
3. Do not move heavy and sharp objects directly over surfaces. Place hardboard or plywood panels over flooring and under objects while they are being moved. Slide or roll objects over panels without moving panels.

- C. Clean floor surfaces not more than 4 days before dates scheduled for inspections intended to establish date of Substantial completion in each area of Project. Clean products according to manufacturer's written recommendations.

1. Before cleaning, strip protective floor polish that was applied after completing installation only if required to restore polish finish and if recommended by flooring manufacturer.



2. After cleaning, reapply polish to floor surfaces to restore protective floor finish according to flooring manufacturer's written recommendations, Coordinate with Owner's maintenance program.

END OF SECTION 096510

## SECTION 09900 - PAINTING

## PART 1 - GENERAL

## 1.1 RELATED DOCUMENTS

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

## 1.2 SUMMARY

- A. This Section includes base bid surface preparation and field painting of exposed exterior and interior items and surfaces.
  - 1. All new exterior wood or metal surfaces.
  - 2. All new and existing interior wood surfaces including but not limited to:
    - a. Wood windows, doors, and frames.
    - b. Wood armoring, base, door stops, and thresholds.
    - c. Wood trim.
    - d. Beaded wood board interior wall and ceiling finish.
    - e. Wood surfaces at new eave soffit vents.
    - f. Wood mouldings.
    - g. Wood sign frames.
    - h. Wood board and batten siding.
  - 3. Exterior surfaces of existing wood windows that have been reglazed.
  - 4. New and existing gypsum board walls and ceilings.
  - 5. Wood surfaces of windows where renovations and repair work has occurred.
  - 6. Surface preparation, priming, and finish coats specified in this Section are in addition to shop priming and surface treatment specified in other Sections.
  - 7. Signs directing construction traffic and parking.
  - 8. Galvanized steel posts, pipe rail, and mesh infill.
  - 9. HVAC grilles and diffusers with factory prime finish.
  - 10. Decorative gable end trim boards.
  - 11. Hollow metal doors and frames.
  - 12. Exposed Concrete Masonry at Platform
  - 13. Project sign and posts.
  - 14. Access doors and frames.
- B. Paint exposed surfaces, except where the paint schedules indicate that a surface or material is not to be painted or is to remain natural. If the paint schedules do not specifically mention an item or a surface, paint the item or surface the same as similar adjacent materials or surfaces whether or not schedules indicate colors. If the schedules do not indicate color or finish, the Architect will select from standard colors and finishes available.
- C. Do not paint prefinished items, concealed surfaces, finished metal surfaces, operating parts, and labels.
  - 1. Labels: Do not paint over Underwriters Laboratories (UL), Factory Mutual (FM), or other code-required labels or equipment name, identification, performance rating, or nomenclature plates.

- D. Related Sections include the following:
1. Division 1 Section 012300 "Alternates." See Alternate #1
  2. Division 1 Section 013300 "Submittal Procedures" for mock-ups to be painted in accordance with this Section.
  3. Division 5 Section 055000 "Metal Fabrications" for shop priming ferrous metal.
- E. **No spray application of paint will be permitted on this project. All paint and primers shall be applied by brush or rollers.**

### 1.3 DEFINITIONS

- A. General: Standard coating terms defined in ASTM D 16 apply to this Section.
1. Flat refers to a lusterless or matte finish with a gloss range below 15 when measured at an 85-degree meter.
  2. Eggshell refers to low-sheen finish with a gloss range between 5 and 20 when measured at a 60-degree meter.
  3. Satin refers to low-sheen finish with a gloss range between 15 and 35 when measured at a 60-degree meter.
  4. Semigloss refers to medium-sheen finish with a gloss range between 30 and 65 when measured at a 60-degree meter.
  5. Full gloss refers to high-sheen finish with a gloss range more than 65 when measured at a 60-degree meter.

### 1.4 SUBMITTALS

- A. Product Data: For each paint system specified. Include block fillers and primers.
1. Manufacturer's Information: Provide manufacturer's technical information, including label analysis and instructions for handling, storing, and applying each coating material proposed for use.
- B. Samples for Initial Selection: Manufacturer's color charts showing the full range of colors available for each type of finish-coat material indicated.
1. After color selection, the Architect will furnish color chips for surfaces to be coated.
- C. Samples for Verification: Of each color and material to be applied, with texture to simulate actual conditions, on representative Samples of the actual substrate.
1. Provide stepped Samples, defining each separate coat, including block fillers and primers. Use representative colors when preparing Samples for review. Resubmit until required sheen, color, and texture are achieved.
  2. Provide a list of materials and applications for each coat of each sample. Label each sample for location and application.
  3. Submit Samples on the following substrates for the Architect's review of color and texture only:
    - a. Painted Wood: Provide two 12-inch- (300-mm-) square samples of each color and

material on hardboard.

- b. Metal: Provide two 4-inch- (100-mm-) square samples of flat metal and two 8-inch- (200-mm-) long samples of solid metal for each color and finish.
- c. Gypsum board: Provide two 12 inch square samples of each color.
- d. Concrete masonry: Provide two 8" x 8" x 1 5/8" square samples on concrete masonry for each color and finish.

### 1.5 QUALITY ASSURANCE

- A. Applicator Qualifications: Engage an experienced applicator who has completed painting system applications similar in material and extent to that indicated for this Project with a record of successful in-service performance.
- B. Source Limitations: Obtain block fillers, primers, and undercoat materials for each coating system from the same manufacturer as the finish coats.
- C. Benchmark Samples (Mockups): Provide a full-coat benchmark finish sample of coating and substrate. Duplicate finish of approved prepared samples.
  - 1. Final approval of colors will be from job-applied samples.

### 1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to the Project Site in manufacturer's original, unopened packages and containers 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.
  - 8. VOC content.
- B. Store materials not in use in tightly covered containers in a well-ventilated area at a minimum ambient temperature of 45 deg F (7 deg C). Maintain containers used in storage in a clean condition, free of foreign materials and residue.
  - 1. Protect from freezing. Keep storage area neat and orderly. Remove oily rags and waste daily. Take necessary measures to ensure that workers and work areas are protected from fire and health hazards resulting from handling, mixing, and application.

### 1.7 PROJECT CONDITIONS

- A. Apply water-based paints only when the temperature of surfaces to be painted and surrounding air temperatures are between 50 and 90 deg F (10 and 32 deg C).
- B. Apply solvent-thinned paints only when the temperature of surfaces to be painted and surrounding air temperatures are between 45 and 95 deg F (7.2 and 35 deg C).

- C. Do not apply paint in snow, rain, fog, or mist; or when the relative humidity exceeds 85 percent; or at temperatures less than 5 deg F (3 deg C) above the dew point; or to damp or wet surfaces.
  - 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.

## PART 2 - PRODUCTS

### 2.1 PAINT MATERIALS, GENERAL

- A. Material Compatibility: Use primers, undercoats, and finish-coat materials that are compatible with one another and the substrates indicated under conditions of service and application, as demonstrated by manufacturer based on testing and field experience.
- B. Material Quality: Use manufacturer's best-quality paint material of the various coating types specified. Paint-material containers not displaying manufacturer's product identification will not be acceptable.
  - 1. Proprietary Names: Use of manufacturer's proprietary product names to designate colors or materials is not intended to imply that products named are required to be used to the exclusion of equivalent products of other manufacturers. Furnish manufacturer's material data and certificates of performance for proposed substitutions.
- C. Colors: Provide color selections made by the Architect. See Section #099010.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with the Applicator present, under which painting will be performed for compliance with paint application requirements.
  - 1. Do not begin to apply paint until unsatisfactory conditions have been corrected and surfaces receiving paint are thoroughly dry.
  - 2. Start of painting will be construed as the Applicator's acceptance of surfaces and conditions within a particular area.
- B. Coordination of Work: Review other Sections in which primers are provided to ensure compatibility of the total system for various substrates. On request, furnish information on characteristics of finish materials to ensure use of compatible primers.
  - 1. Notify the Architect about anticipated problems using the materials specified over substrates primed by others.

### 3.2 PREPARATION

- A. General: Remove hardware and hardware accessories, plates, machined surfaces, lighting fixtures, and similar items already installed that are not to be painted. If removal is impractical or impossible because of the size or weight of the item, provide surface-applied protection before surface

preparation and painting.

1. After completing painting operations in each space or area, reinstall items removed using workers skilled in the trades involved.
- B. Cleaning: Before applying paint or other surface treatments, clean the substrates of substances that could impair the bond of the various coatings. Remove oil and grease before cleaning.
1. Schedule cleaning and painting so dust and other contaminants from the cleaning process will not fall on wet, newly painted surfaces.
- C. Surface Preparation: Clean and prepare surfaces to be painted according to manufacturer's written instructions for each particular substrate condition and as specified.
1. Provide barrier coats over incompatible primers or remove and reprime.
  2. Wood: Clean surfaces of dirt, oil, and other foreign substances with scrapers, mineral spirits, and sandpaper, as required. Hand sand surfaces exposed to view smooth and dust off. Do not use power blasting to remove paint from wood or masonry surfaces.
    - a. Scrape and clean small, dry, seasoned knots, and apply a thin coat of white shellac or other recommended knot sealer before applying primer. After priming, fill holes and imperfections in finish surfaces with putty or plastic wood filler. Hand sand smooth when dried.
    - b. Prime, stain, or seal wood to be painted immediately on delivery. Prime edges, ends, faces, undersides, and backsides of wood.
    - c. Seal tops, bottoms, and cutouts of unprimed wood doors with a heavy coat of varnish or sealer immediately on delivery.
  3. Metals: Clean ungalvanized ferrous-metal surfaces that have not been shop coated; remove oil, grease, dirt, loose mill scale, and other foreign substances. Brush the entire surface area. Rinse the area with clear water to remove detergent and allow metal to dry before applying primer. For all other metals, use solvent or mechanical cleaning methods that comply with the Steel Structures Painting Council's (SSPC) recommendations.
    - a. Blast steel surfaces clean as recommended by paint system manufacturer and according to requirements of SSPC-SP 10.
    - b. Treat bare and sandblasted or pickled clean metal with a metal treatment wash coat before priming.
    - c. Touch up bare areas and shop-applied prime coats that have been damaged. Wire-brush, clean with solvents recommended by paint manufacturer, and touch up with the same primer as the shop coat.
  4. Galvanized Surfaces: Clean galvanized surfaces with nonpetroleum-based solvents so surface is free of oil and surface contaminants. Remove pretreatment from galvanized sheet metal fabricated from coil stock by mechanical methods.
- D. Materials Preparation: Mix and prepare paint materials according to manufacturer's written instructions.
1. Maintain containers used in mixing and applying paint in a clean condition, free of foreign

- materials and residue.
  2. Stir material before application to produce a mixture of uniform density. Stir as required during application. Do not stir surface film into material. If necessary, remove surface film and strain material before using.
  3. Use only thinners approved by paint manufacturer and only within recommended limits.
- E. Tinting: Tint each undercoat a lighter shade to simplify identification of each coat when multiple coats of the same material are applied. Tint undercoats to match the color of the finish coat, but provide sufficient differences in shade of undercoats to distinguish each separate coat.

### 3.3 APPLICATION

- A. General: Apply paint according to manufacturer's written instructions. Use applicators and techniques best suited for substrate and type of material being applied.
1. Paint colors, surface treatments, and finishes are indicated in the schedules.
  2. Do not paint over dirt, rust, scale, grease, moisture, scuffed surfaces, or conditions detrimental to formation of a durable paint film.
  3. Provide finish coats that are compatible with primers used.
  4. The term "exposed surfaces" includes areas visible when permanent or built-in fixtures, convector covers, covers for finned-tube radiation, grilles, and similar components are in place. Extend coatings in these areas, as required, to maintain the system integrity and provide desired protection.
  5. Paint surfaces behind movable equipment and furniture the same as similar exposed surfaces. Before the final installation of equipment, paint surfaces behind permanently fixed equipment or furniture with prime coat only.
  6. Paint interior surfaces of ducts at with a flat, nonspecular black paint where visible through registers or grilles.
  7. Paint back sides of access panels and removable or hinged covers to match exposed surfaces.
  8. Finish doors on tops, bottoms, and side edges the same as faces.
  9. Sand lightly between each succeeding enamel or varnish coat.
- B. Scheduling Painting: Apply first coat to surfaces that have been cleaned, pretreated, or otherwise prepared for painting as soon as practicable after preparation and before subsequent surface deterioration.
1. The number of coats and the film thickness required are the same regardless of application method. Do not apply succeeding coats until the previous coat has cured as recommended by the manufacturer. If sanding is required to produce a smooth, even surface according to manufacturer's written instructions, sand between applications.
  2. Omit primer on metal surfaces that have been shop primed and touchup painted.
  3. If undercoats, stains, or other conditions show through final coat of paint, apply additional coats until paint film is of uniform finish, color, and appearance. Give special attention to ensure edges, corners, crevices, welds, and exposed fasteners receive a dry film thickness equivalent to that of flat surfaces.
  4. Allow sufficient time between successive coats to permit proper drying. Do not recoat surfaces until paint has dried to where it feels firm, does not deform or feel sticky under moderate thumb pressure, and where application of another coat of paint does not cause the undercoat to lift or lose adhesion.

- C. Application Procedures: Apply paints and coatings by brush and roller, according to manufacturer's written instructions.
  - 1. Brushes: Use brushes best suited for the type of material applied. Use brush of appropriate size for the surface or item being painted.
  - 2. Rollers: Use rollers of carpet, velvet back, or high-pile sheep's wool as recommended by the manufacturer for the material and texture required.
  - 3. Spray Equipment: Spray application of paint will not be permitted.
- D. Minimum Coating Thickness: Apply paint materials no thinner than manufacturer's recommended spreading rate. Provide the total dry film thickness of the entire system as recommended by the manufacturer.
- E. Prime Coats: Before applying finish coats, apply a prime coat of material, as recommended by the manufacturer, to material that is required to be painted or finished and that has not been prime coated by others. Recoat primed and sealed surfaces where evidence of suction spots or unsealed areas in first coat appears, to ensure a finish coat with no burn through or other defects due to insufficient sealing.
- F. Pigmented (Opaque) Finishes: Completely cover surfaces as necessary to provide a smooth, opaque surface of uniform finish, color, appearance, and coverage. Cloudiness, spotting, holidays, laps, brush marks, runs, sags, ropiness, or other surface imperfections will not be acceptable.
- G. Completed Work: Match approved samples for color, texture, and coverage. Remove, refinish, or repaint work not complying with requirements.

#### 3.4 FIELD QUALITY CONTROL

- A. The Owner reserves the right to invoke the following test procedure at any time and as often as the Owner deems necessary during the period when paint is being applied:
  - 1. The Owner may direct the Contractor to stop painting if test results show material being used does not comply with specified requirements. The Contractor shall remove noncomplying paint from the site, pay for testing, and repaint surfaces previously coated with the rejected paint. If necessary, the Contractor may be required to remove rejected paint from previously painted surfaces if, on repainting with specified paint, the 2 coatings are incompatible.

#### 3.5 CLEANING

- A. Cleanup: At the end of each workday, remove empty cans, rags, rubbish, and other discarded paint materials from the site.
  - 1. After completing painting, clean glass and paint-spattered surfaces. Remove spattered paint by washing and scraping. Be careful not to scratch or damage adjacent finished surfaces.

#### 3.6 PROTECTION

- A. Protect work of other trades, whether being painted or not, against damage by painting. Correct damage by cleaning, repairing or replacing, and repainting, as approved by Architect.
- B. Provide "Wet Paint" signs to protect newly painted finishes. Remove temporary protective



wrappings provided by others to protect their work after completing painting operations.

1. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces. Comply with procedures specified in PDCA P1.

### 3.7 EXTERIOR PAINT SCHEDULE

- A. **Zinc-Coated Metal:** Provide the following finish systems over exterior zinc-coated (galvanized) metal surfaces:

1. **Semigloss, Acrylic-Enamel Finish:** 2 finish coats over a galvanized metal primer.
  - a. **Primer:** Galvanized metal primer applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 1.2 mils (0.031 mm).
  - b. **First and Second Coats:** Semigloss, exterior, acrylic-latex enamel applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 2.6 mils (0.066 mm).

- B. **Wood Surfaces:** Provide the following finish systems over exterior wood surfaces.

**Medium-Shade, Semigloss, Acrylic-Enamel Finish:** 2 finish coats over primer.

**Primer:** Exterior, acrylic-latex primer applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 1.4 mils (0.036 mm).

**First and Second Coats:** Semigloss, waterborne, exterior, acrylic-latex enamel applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 2.4 mils (0.061 mm).

### 3.8 INTERIOR PAINT SCHEDULE

- A. **Woodwork:** Provide the following paint finish systems over new, interior wood surfaces:

1. **Semigloss, Alkyd-Enamel Finish:** 2 finish coats over a primer.
  - a. **Primer:** Alkyd or latex-based, interior enamel undercoater applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 1.2 mils (0.031 mm).
  - b. **First and Second Coats:** Odorless, semigloss, alkyd, interior enamel applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 2.4 mils (0.061 mm).

- B. **Ferrous Metal:** Provide the following finish systems over ferrous metal:

1. **Semigloss, Alkyd-Enamel Finish:** One finish coat over an enamel undercoater and a primer.
  - a. **Primer:** Quick-drying, rust-inhibitive, alkyd-based or epoxy-metal primer, as

recommended by the manufacturer for this substrate, applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 1.5 mils.

- b. Undercoat: Alkyd, interior enamel undercoat or semigloss, interior, alkyd-enamel finish coat, as recommended by the manufacturer for this substrate, applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 1.2 mils.
- c. Finish Coat: Odorless, semigloss, alkyd, interior enamel applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 1.4 mils.

C. Concrete Masonry Units: Provide the following finish systems over interior concrete masonry block units.

- 1. Low-Luster, Acrylic-Enamel Finish: 2 finish coats over a block filler.
  - a. Block Filler: High-performance, latex-based, block filler applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 5.0 mils.
  - b. First and Second Coats: Low-luster (eggshell or satin), acrylic-latex, interior enamel applied at spreading rate recommended by the manufacturer to achieve a total dry of not less than 2.6 mils.

D. Zinc-Coated Metal: Provide the following finish systems over zinc coated metal.

Semigloss, Acrylic-Enamel Finish: 2 finish coats over a primer.

Primer: Galvanized metal primer applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 1.2 mil.

First and Second Coats: Semigloss, acrylic-latex, interior enamel applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 2.6 mils.

E. Gypsum Board Substrates:

- 1. Latex System: MP1 INT 9.2A
  - a. Prime Coat: Interior latex primer to match topcoat.
  - b. Intermediate Coat: Interior latex matching topcoat.
  - c. Topcoat: Interior latex eggshell.

END OF SECTION 099000

## SECTION 099010

## RELATED DOCUMENTS:

Drawings and general provisions of Contract, including General and Supplementary Conditions and General Requirements, apply to work specified in this section.

## DESCRIPTION OF WORK:

The following schedule is a guide for bidding. Final paint/epoxy/colors will be selected by the Architect and Owner for each space. Colors will be selected from manufacturer's full range of custom colors.

Paint Schedule: Manufacturer names/numbers.

Paint per specifications.

<u>Color #</u>	<u>Identification</u>
1	Alt. #1: Sherwin Williams, color name: Ibis White, color number: SW 7000
2	Alt. #1: Sherwin Williams, color name: Dark Hunter Green, color number: SW 0041
3	Alt. #1: Sherwin Williams, color name: Deep Maroon, color number: SW 0072
4	Base Bid: Sherwin Williams, color name: Black Swan, color number: SW 6279
5	Base Bid: Sherwin Williams, color name: Ibis White, color number: SW 7000
6	Base Bid: Tinted White Wash
7	Base Bid: White Wash
8	Base Bid: TBD
9	Base Bid: TBD
10	Base Bid; TBD
11	Base Bid: TBD
12	Base Bid: TBD
13	Base Bid: TBD
14	Base Bid: Match existing color of board and batten siding
15	Base Bid: TBD
16	Base Bid: TBD
17	Base Bid TBD
18	Base Bid: TBD

19 Base Bid: Match Existing

SCHEDULE

#1 Exterior designated wood surfaces: New and Existing board and batten siding, skirt boards, trim, horizontal timber boards at skirt, rafter tails, eave and gable end soffits, north porch and stair landings, treads, risers, railings, framing, and metal roll-up door.

#2 Exterior face of window and door frames.

#3 Exterior windows and doors.

#4 Exterior metal stair and ramp framing and posts, railings, and expanded metal infill and chimney base flashing and counterflashing.

#5 Exterior gable end decorative trim.

#6 Interior wood armoring, chair rail, and wood base.

#7 Interior beaded wood board walls above chair rail in events room.

#8 Interior wood trim and beaded board infill paneling between rafters.

#9 Interior walls at rooms #105-112, and #120-123.

#10 Interior door frames at rooms #105-112.

#11 Interior doors at rooms #105-112.

#12 Raised panels at interior doors at rooms #105-112.

#13 Interior wood baseboards and crown moldings at rooms #105-112.

#14 Wood surfaces (exposed and concealed) at attic eave vents.

#15 Faces of raised panels at interior and exterior faces of 4-panel doors.

#16 Original sliding freight doors and frames and timber bumpers.

#17 Wood exterior door thresholds.

#18 Reglazed ext. windows and ext. wall voids where signs and framing have been removed.

Note: Paint finishes in rooms #108-112 shall be epoxy.

END OF SECTION 099010

## SECTION 099110 - EXTERIOR PAINTING

## PART 1 - GENERAL

## 1.1 RELATED DOCUMENTS

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

## 1.2 SUMMARY

- A. This Section includes surface preparation and the application of paint systems on the following exterior substrates:
  - 1. Steel.
  - 2. Galvanized metal.
  - 3. Wood.
  - 4. Concrete masonry.
- B. Related Sections include the following:
  - 1. Division 1 Section 012300 Alternates for exterior paint removal and painting of existing painted surfaces.
  - 2. Division 5 Sections for shop priming of metal substrates with primers specified in this Section.
  - 3. Division 6 Sections for shop priming carpentry with primers specified in this Section.
  - 4. Division 8 Sections for factory priming windows and doors with primers specified in this Section.
- C. Exterior surfaces to be painted in the base bid:
  - 1. All new steel framing and railings (including painting the underside of steel decking and framing).
  - 2. New wood and hollow metal doors and frames.
  - 3. Wood door thresholds.
  - 4. Reglazed windows. See Window Rehabilitation Schedule on the drawings.
  - 5. All wood surfaces of new eave soffit vents, including wood that is concealed. Note that screen vents and frames in eave soffit vents will be factory finished.
  - 6. Existing surfaces at building wall where demolished east side ramp was removed.
  - 7. Existing east side wall where old "library" sign was removed.
  - 8. West side patch work where old thru-wall air conditioner was removed.
  - 9. All sides of new gable end decorative boards at north and south ends of the building.
  - 10. Coiling door and frame.
  - 11. New board and batten wood siding.
  - 12. Coating of treated wood platform columns with bituminous paint where concealed in concrete footings.
- D. Exterior surfaces where existing lead based paint is to be stripped to bare wood and new 3-coat paint applied:

1. Board and batten siding and horizontal trim boards
2. Crawl space skirt boards, trim, and access doors.
3. Eave and rake soffits, trim, brackets, and underside of roof deck.
4. Windows and frames.
5. Stairs, landings, and railings (including undersides and concealed surfaces)
6. North porch including flooring, stairs, railings, trim, and horizontal and vertical structural Framing (including under the porch).
7. Original sliding freight doors and frames and timber bumpers.
8. Horizontal timber boards at east elevation.

### 1.3 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Samples for Initial Selection: For each type of topcoat product indicated.
- C. Samples for Verification: For each type of paint system and each color and gloss of topcoat indicated.
  1. Submit Samples on rigid backing, 8 inches (200 mm) square.
  2. Step coats on Samples to show each coat required for system.
  3. Label each coat of each Sample.
  4. Label each Sample for location and application area.
- D. 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.

### 1.4 QUALITY ASSURANCE

- A. MPI Standards:
  1. Products: Complying with MPI standards indicated and listed in "MPI Approved Products List."
  2. Preparation and Workmanship: Comply with requirements in "MPI Architectural Painting Specification Manual" for products and paint systems indicated.
- B. Mockups: Apply benchmark samples of each paint system indicated and each color and finish selected to verify preliminary selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.
  1. Architect will select one surface to represent surfaces and conditions for application of each paint system specified in Part 3.
    - a. Vertical and Horizontal Surfaces: Provide samples of at least 100 sq. ft. (9 sq. m).
  2. Final approval of color selections will be based on benchmark samples.

- a. If preliminary color selections are not approved, apply additional benchmark samples of additional colors selected by Architect at no added cost to Owner.

#### 1.5 DELIVERY, STORAGE, AND HANDLING

- A. Store materials not in use in tightly covered containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 45 deg F (7 deg C).
  1. Maintain containers in clean condition, free of foreign materials and residue.
  2. Remove rags and waste from storage areas daily.

#### 1.6 PROJECT CONDITIONS

- A. Apply paints only when temperature of surfaces to be painted and ambient air temperatures are between 50 and 95 deg F (10 and 35 deg C).
- B. Do not apply paints in snow, rain, fog, or mist; when relative humidity exceeds 85 percent; at temperatures less than 5 deg F (3 deg C) above the dew point; or to damp or wet surfaces.

#### 1.7 EXTRA MATERIALS

- A. Furnish extra materials described below that are from same production run (batch mix) as materials applied and that are packaged for storage and identified with labels describing contents.
  1. Quantity: Furnish an additional 5 percent, but not less than 1 gal. (3.8 L) of each material and color applied.

### PART 2 - PRODUCTS

#### 2.1 MANUFACTURERS

- A. Sherwin Williams
- B. Pittsburgh Paints
- C. Benjamin Moore
- D. Pratt and Lambert

#### 2.2 PAINT, 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.
- B. Colors: As selected by Architect from manufacturer's full range. As indicated in section 099010.

## 2.3 PRIMERS/SEALERS

- A. Bonding Primer (Water Based): MPI #17.
  - 1. VOC Content: E Range of E1.
- B. Wood-Knot Sealer: Sealer recommended in writing by topcoat manufacturer for use in paint system indicated.

## 2.4 METAL PRIMERS

- A. Alkyd Anticorrosive Metal Primer: MPI #79.
  - 1. VOC Content: E Range of E2.

## 2.5 WOOD PRIMERS

- A. Exterior Latex Wood Primer: MPI #6.
  - 1. VOC Content: E Range of E1.

## 2.6 EXTERIOR LATEX PAINTS

- A. Exterior Latex (Semigloss): MPI #11 (Gloss Level 5).
  - 1. VOC Content: E Range of E1.

## 2.7 EXTERIOR CONCRETE MASONRY

- A. Exterior Latex (Semigloss): MPI #3.
  - 1. VOC Content: E Range of E1.

## 2.8 EXTERIOR TREATED WOOD COLUMN BITUMINOUS COATING

- A. Brush applied.

## PART 3 - EXECUTION

## 3.1 EXAMINATION

- A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of work. Report, in writing, to the Architect, any conditions detrimental to successful completion of painting work. Failure to report detrimental conditions indicates contractor approves substrates as ready for painting.
- B. Maximum Moisture Content of Substrates: When measured with an electronic moisture meter as follows:



1. Wood: 15 percent.
- C. Verify suitability of substrates, including surface conditions and compatibility with existing finishes and primers.
  - D. Begin coating application only after unsatisfactory conditions have been corrected and surfaces are dry.
    1. Beginning coating application constitutes Contractor's acceptance of substrates and conditions.
- 3.2 PREPARATION
- A. Comply with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual" applicable to substrates and paint systems indicated.
  - B. Remove plates, machined surfaces, door hardware, light fixtures, and similar items already in place that are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and painting.
    1. After completing painting operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection if any.
    2. Do not paint over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.
  - C. Clean substrates of substances that could impair bond of paints, including dirt, oil, grease, and incompatible paints and encapsulants.
    1. Provide barrier coats or remove incompatible primers and reprime substrate with compatible primers as required to produce paint systems indicated.
  - D. Steel Substrates: Remove rust and loose mill scale. Clean using methods recommended in writing by paint manufacturer.
  - E. Galvanized-Metal Substrates: Remove grease and oil residue from galvanized sheet metal fabricated from coil stock by mechanical methods to produce clean, lightly etched surfaces that promote adhesion of subsequently applied paints.
  - F. Wood Substrates:
    1. Scrape and clean knots, and apply coat of knot sealer before applying primer.
    2. Sand surfaces that will be exposed to view, and dust off.
    3. Prime edges, ends, faces, undersides, and backsides of wood immediately upon delivery.
    4. After priming, fill holes and imperfections in the finish surfaces with putty or plastic wood filler. Sand smooth when dried.
  - G. Materials Preparation: Mix and prepare paint materials according to manufacturer's written instructions.
    1. Maintain containers used in mixing and applying paint in a clean condition, free of foreign materials and residue.

2. Stir material before application to produce a mixture of uniform density. Stir as required during application. Do not stir surface film into material. If necessary, remove surface film and strain material before using.
3. Use only thinners approved by paint manufacturer and only within recommended limits.

### 3.3 APPLICATION

- A. Apply paints according to manufacturer's written instructions.
  1. Use applicators and techniques suited for paint and substrate indicated.
  2. Paint surfaces behind movable items same as similar exposed surfaces. Before final installation, paint surfaces behind permanently fixed items with prime coat only.
- B. Tint each undercoat a lighter shade to facilitate identification of each coat if multiple coats of same material are to be applied. Tint undercoats to match color of topcoat, but provide sufficient difference in shade of undercoats to distinguish each separate coat.
- C. If undercoats or other conditions show through topcoat, apply additional coats until cured film has a uniform paint finish, color, and appearance.
- D. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.
- E. General:
  1. Paint colors, surface treatments, and finishes are indicated in the schedules.
  2. Do not paint over dirt, rust, scale, grease, moisture, scuffed surfaces, or conditions detrimental to formation of a durable paint film.
  3. Provide finish coats that are compatible with primers used.
  4. The term "exposed surfaces" includes areas visible when permanent fixtures, grilles, and similar components are in place. Extend coatings in these areas, as required, to maintain the system integrity and provide desired protection.
- F. Scheduling Painting: Apply first coat to surfaces that have been cleaned, pretreated, or otherwise prepared for painting as soon as practicable after preparation and before subsequent surface deterioration.
  1. The number of coats and the film thickness required are the same regardless of application method. Do not apply succeeding coats until the previous coat has cured as recommended by the manufacturer. If sanding is required to produce a smooth, even surface according to manufacturer's written instructions, sand between applications.
  2. Omit primer on metal surfaces that have been shop primed and touchup painted.
  3. If undercoats, stains, or other conditions show through final coat of paint, apply additional coats until paint film is of uniform finish, color, and appearance. Give special attention to ensure edges, corners, crevices, welds, and exposed fasteners receive a dry film thickness equivalent to that of flat surfaces.
  4. Allow sufficient time between successive coats to permit proper drying. Do not recoat surfaces until paint has dried to where it feels firm, does not deform or feel sticky under moderate thumb pressure, and where application of another coat of paint does not cause the undercoat to lift or lose adhesion.

- G. Application Procedures: Apply paints and coatings by brush, roller, spray, or other applicators according to manufacturer's written instructions.
1. Brushes: Use brushes best suited for the type of material applied. Use brush of appropriate size for the surface or item being painted.
  2. Rollers: Use rollers of carpet, velvet back, or high-pile sheep's wool as recommended by the manufacturer for the material and texture required.
  3. Spray Equipment: **Not permitted on this project.**
- H. Minimum Coating Thickness: Apply paint materials no thinner than manufacturer's recommended spreading rate. Provide the total dry film thickness of the entire system as recommended by the manufacturer.
- I. Prime Coats: Before applying finish coats, apply a prime coat of material, as recommended by the manufacturer, to material that is required to be painted or finished and that has not been prime coated by others. Recoat primed and sealed surfaces where evidence of suction spots or unsealed areas in first coat appears, to ensure a finish coat with no burn through or other defects due to insufficient sealing.
- J. Pigmented (Opaque) Finishes: Completely cover surfaces as necessary to provide a smooth, opaque surface of uniform finish, color, appearance, and coverage. Cloudiness, spotting, holidays, laps, brush marks, runs, sags, ropiness, or other surface imperfections will not be acceptable.
- K. Completed Work: Match approved samples for color, texture, and coverage. Remove, refinish, or repaint work not complying with requirements.

### 3.4 CLEANING AND PROTECTION

- A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.
- B. After completing paint application, clean spattered surfaces. Remove spattered paints by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.
- C. Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.
- D. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

### 3.5 EXTERIOR PAINTING SCHEDULE

- A. Steel Substrates:
1. Alkyd System: MPI EXT 5.1D.
    - a. Prime Coat: Alkyd anticorrosive metal primer.
    - b. Intermediate Coat: Exterior alkyd enamel matching topcoat.

- c. Topcoat: Exterior alkyd enamel (flat) (semigloss) (gloss).
- B. Galvanized-Metal Substrates:
  - 1. Latex Over Water-Based Primer System: MPI EXT 5.3H.
    - a. Prime Coat: Waterborne galvanized-metal primer.
    - b. Intermediate Coat: Exterior latex matching topcoat.
    - c. Topcoat: Exterior latex (flat) (semigloss) (gloss).
- C. Dressed Lumber Substrates: Including architectural woodwork and doors.
  - 1. Latex System: MPI EXT 6.3L.
    - a. Prime Coat: Exterior latex wood primer.
    - b. Intermediate Coat: Exterior latex matching topcoat.
    - c. Topcoat: Exterior latex (semigloss).
- D. Wood Substrates: Including fascias, soffits, and framing, and board/batten wood siding.
  - 1. Latex System: MPI EXT 6.4K.
    - a. Prime Coat: Exterior latex wood primer.
    - b. Intermediate Coat: Exterior latex matching topcoat.
    - c. Topcoat: Exterior latex (semigloss).
- E. Treated Wood Column Substrates:
  - 1. Two coats of ASTM D1187/D1187M bituminous paint applied to portions of new platform columns concealed in concrete footings. Allow minimum 6 hours of drying time for each coat.
- F. Dimension Lumber Substrates, Nontraffic Surfaces:
  - 1. Latex System: MPI EXT 6.2M.
    - a. Prime Coat: Exterior latex wood primer.
    - b. Intermediate Coat: Exterior latex matching topcoat.
    - c. Topcoat: Exterior latex (semigloss).
- G. Masonry Substrates:
  - 1. Latex System: MPI EXT 4.1A
    - a. Prime Coat: Exterior latex matching top coat.
    - b. Intermediate Coat: Exterior latex matching topcoat.
    - c. Topcoat: Exterior latex (semigloss).

END OF SECTION 099110

## SECTION 099120 - INTERIOR PAINTING

## PART 1 - GENERAL

## 1.1 RELATED DOCUMENTS

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

## 1.2 SUMMARY

- A. This Section includes surface preparation and the application of paint systems on the following interior substrates:

1. Steel.
2. Galvanized metal.
3. Gypsum board.
4. New finish wood and exposed rough carpentry surfaces.
5. Existing wood surfaces
6. Infill panels between existing rafters.
7. New doors and frames.
8. Beaded wood board walls and ceilings.
9. Simulated beaded wood board paneling.
10. Concrete masonry.
11. HVAC grilles that have been factory primed.

- B. Note: Exposed existing wood ceiling joists and rafters will not be painted.

- C. Related Sections include the following:

1. Division 5 Sections for shop priming of metal substrates with primers specified in this Section.
2. Division 6 Sections for shop priming carpentry with primers specified in this Section.
3. Division 9 Section "Exterior Painting" for surface preparation and the application of paint systems on exterior substrates.

- D. All paint shall be applied by brush or roller. No spray application of paint shall be permitted.

## 1.3 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Samples for Initial Selection: For each type of topcoat product indicated.
- C. Samples for Verification: For each type of paint system and in each color and gloss of topcoat indicated.

1. Submit Samples on rigid backing, 8 inches square.
2. Step coats on Samples to show each coat required for system.
3. Label each coat of each Sample.
4. Label each Sample for location and application area.

D. 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.

#### 1.4 QUALITY ASSURANCE

A. MPI Standards:

1. Products: Complying with MPI standards indicated and listed in "MPI Approved Products List."
2. Preparation and Workmanship: Comply with requirements in "MPI Architectural Painting Specification Manual" for products and paint systems indicated.

B. Mockups: Apply benchmark samples of each paint system indicated and each color and finish selected to verify preliminary selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.

1. Architect will select one surface to represent surfaces and conditions for application of each paint system specified in Part 3.
  - a. Wall and Ceiling Surfaces: Provide samples of at least 100 sq. ft..
2. Apply benchmark samples after permanent lighting and other environmental services have been activated.
3. Final approval of color selections will be based on benchmark samples.
  - a. If preliminary color selections are not approved, apply additional benchmark samples of additional colors selected by Architect at no added cost to Owner.

#### 1.5 DELIVERY, STORAGE, AND HANDLING

A. Store materials not in use in tightly covered containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 45 deg F.

1. Maintain containers in clean condition, free of foreign materials and residue.
2. Remove rags and waste from storage areas daily.

#### 1.6 PROJECT CONDITIONS

A. Apply paints only when temperature of surfaces to be painted and ambient air temperatures are between 50 and 95 deg F.

- B. Do not apply paints when relative humidity exceeds 85 percent; at temperatures less than 5 deg F above the dew point; or to damp or wet surfaces.

### 1.7 EXTRA MATERIALS

- A. Furnish extra materials described below that are from same production run (batch mix) as materials applied and that are packaged for storage and identified with labels describing contents.
  - 1. Quantity: Furnish an additional 5 percent, but not less than 1 gal. of each material and color applied.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

- A. Benjamin Moore
- B. Pratt and Lambert
- C. Sherwin Williams
- D. Pittsburgh Paints

### 2.2 PAINT, 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.
- B. Chemical Components of Field-Applied Interior Paints and Coatings: Provide products that comply with the following limits for VOC content, exclusive of colorants added to a tint base, when calculated according to 40 CFR 59, Subpart D (EPA Method 24) and the following chemical restrictions; these requirements do not apply to primers or finishes that are applied in a fabrication or finishing shop:
  - 1. Flat Paints and Coatings: VOC content of not more than 50 g/L.
  - 2. Nonflat Paints and Coatings: VOC content of not more than 150 g/L.
  - 3. Aromatic Compounds: Paints and coatings shall not contain more than 1.0 percent by weight of total aromatic compounds (hydrocarbon compounds containing one or more benzene rings).
  - 4. Restricted Components: Paints and coatings shall not contain any of the following:
    - a. Acrolein.
    - b. Acrylonitrile.
    - c. Antimony.

- d. Benzene.
- e. Butyl benzyl phthalate.
- f. Cadmium.
- g. Di (2-ethylhexyl) phthalate.
- h. Di-n-butyl phthalate.
- i. Di-n-octyl phthalate.
- j. 1,2-dichlorobenzene.
- k. Diethyl phthalate.
- l. Dimethyl phthalate.
- m. Ethylbenzene.
- n. Formaldehyde.
- o. Hexavalent chromium.
- p. Isophorone.
- q. Lead.
- r. Mercury.
- s. Methyl ethyl ketone.
- t. Methyl isobutyl ketone.
- u. Methylene chloride.
- v. Naphthalene.
- w. Toluene (methylbenzene).
- x. 1,1,1-trichloroethane.
- y. Vinyl chloride.

- C. Colors: As selected by Architect from manufacturer's full range. See specification Section #099010

### 2.3 BLOCK FILLERS

- A. Interior/Exterior Latex Block Filler MPI #4.

### 2.4 PRIMERS/SEALERS

- A. Interior Latex Primer/Sealer: MPI #50.

- 1. VOC Content: E Range of E3.

- B. Wood-Knot Sealer: Sealer recommended in writing by topcoat manufacturer for use in paint systems indicated.

### 2.5 METAL PRIMERS

- A. Rust-Inhibitive Primer (Water Based): MPI #107.

- 1. VOC Content: E Range of E3.

- B. Waterborne Galvanized-Metal Primer: MPI #134.

- 1. VOC Content: E Range of E3.



## 2.6 WOOD PRIMERS

- A. Interior Latex-Based Wood Primer: MPI #39.

## 2.7 LATEX PAINTS

- A. Interior Latex (Eggshell): MPI #52 (Gloss Level 3).
  - 1. VOC Content: E Range of E3.
- B. Interior Latex (Satin): MPI #43 (Gloss Level 4).
  - 1. VOC Content: E Range of E3.
- C. Interior Latex (Semigloss): MPI #54 (Gloss Level 5).
  - 1. VOC Content: E Range of E3.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of work. Report, in writing, to the Architect, any conditions detrimental to the successful completion of painting work. Failure to report detrimental conditions indicates contractor approves substrates as ready for painting.
- B. Maximum Moisture Content of Substrates: When measured with an electronic moisture meter as follows:
  - 1. Concrete: 12 percent.
  - 2. Masonry (Clay and CMU): 12 percent.
  - 3. Wood: 15 percent.
  - 4. Gypsum Board: 12 percent.
- C. Verify suitability of substrates, including surface conditions and compatibility with existing finishes and primers.
- D. Begin coating application only after unsatisfactory conditions have been corrected and surfaces are dry.
  - 1. Beginning coating application constitutes Contractor's acceptance of substrates and conditions.

### 3.2 PREPARATION

- A. Comply with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual" applicable to substrates indicated.
- B. Remove plates, machined surfaces, door hardware, lighting fixtures, and similar items already in place that are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and painting.
  - 1. After completing painting operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection if any.
  - 2. Do not paint over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.
- C. Clean substrates of substances that could impair bond of paints, including dirt, oil, grease, and incompatible paints and encapsulants.
  - 1. Provide barrier coats or remove incompatible primers and reprime substrate with compatible primers as required to produce paint systems indicated.
- D. Concrete Masonry Substrates: Remove efflorescence and chalk. Do not paint surfaces if moisture content or alkalinity of surfaces to be painted exceeds that permitted in manufacturer's written instructions.
- E. Steel Substrates: Remove rust and loose mill scale. Clean using methods recommended in writing by paint manufacturer.
- F. Galvanized-Metal Substrates: Remove grease and oil residue from galvanized sheet metal fabricated from coil stock by mechanical methods to produce clean, lightly etched surfaces that promote adhesion of subsequently applied paints.
- G. Gypsum Board Substrates: Do not begin paint application until finishing compound is dry and sanded smooth.
- H. Wood Substrates:
  - 1. Scrape and clean knots and apply coat of knot sealer before applying primer.
  - 2. Sand surfaces that will be exposed to view, and dust off.
  - 3. Prime edges, ends, faces, undersides, and backsides of wood.
  - 4. After priming, fill holes and imperfections in the finish surfaces with putty or plastic wood filler. Sand smooth when dried.
- I. Materials Preparation: Mix and prepare paint materials according to manufacturer's written instructions.
  - 1. Maintain containers used in mixing and applying paint in a clean condition, free of foreign materials and residue.
  - 2. Stir material before application to produce a mixture of uniform density. Stir as required during application. Do not stir surface film into material. If necessary, remove surface film and strain material before using.
  - 3. Use only thinners approved by paint manufacturer and only within recommended limits.

## 3.3 APPLICATION

- A. Apply paints according to manufacturer's written instructions. No spray application of paint will be permitted on this project.
  - 1. Use applicators and techniques suited for paint and substrate indicated.
  - 2. Paint surfaces behind movable equipment and furniture same as similar exposed surfaces. Before final installation, paint surfaces behind permanently fixed equipment or furniture with prime coat only.
  - 3. Paint front and backsides of access panels, removable or hinged covers, and similar hinged items to match exposed surfaces.
- B. Tint each undercoat a lighter shade to facilitate identification of each coat if multiple coats of same material are to be applied. Tint undercoats to match color of topcoat but provide sufficient difference in shade of undercoats to distinguish each separate coat.
- C. If undercoats or other conditions show through topcoat, apply additional coats until cured film has a uniform paint finish, color, and appearance.
- D. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.
- E. General:
  - 1. Paint colors, surface treatments, and finishes are indicated in the schedules.
  - 2. Do not paint over dirt, rust, scale, grease, moisture, scuffed surfaces, or conditions detrimental to formation of a durable paint film.
  - 3. Provide finish coats that are compatible with primers used.
  - 4. The term "exposed surfaces" includes areas visible when permanent or built-in fixtures, grilles, and similar components are in place. Extend coatings in these areas, as required, to maintain the system integrity and provide desired protection.
- F. Scheduling Painting: Apply first coat to surfaces that have been cleaned, pretreated, or otherwise prepared for painting as soon as practicable after preparation and before subsequent surface deterioration.
  - 1. The number of coats and the film thickness required are the same regardless of application method. Do not apply succeeding coats until the previous coat has cured as recommended by the manufacturer. If sanding is required to produce a smooth, even surface according to manufacturer's written instructions, sand between applications.
  - 2. Omit primer on metal surfaces that have been shop primed and touchup painted.
  - 3. If undercoats, stains, or other conditions show through final coat of paint, apply additional coats until paint film is of uniform finish, color, and appearance. Give special attention to ensure edges, corners, crevices, welds, and exposed fasteners receive a dry film thickness equivalent to that of flat surfaces.
  - 4. Allow sufficient time between successive coats to permit proper drying. Do not recoat surfaces until paint has dried to where it feels firm, does not deform or feel sticky under moderate thumb pressure, and where application of another coat of paint does not cause the undercoat to lift or lose adhesion.

- G. Application Procedures: Apply paints and coatings by brush, roller, spray, or other applicators according to manufacturer's written instructions.
1. Brushes: Use brushes best suited for the type of material applied. Use brush of appropriate size for the surface or item being painted.
  2. Rollers: Use rollers of carpet, velvet back, or high-pile sheep's wool as recommended by the manufacturer for the material and texture required.
  3. Spray Equipment: Not permitted.
- H. Minimum Coating Thickness: Apply paint materials no thinner than manufacturer's recommended spreading rate. Provide the total dry film thickness of the entire system as recommended by the manufacturer.
- I. Prime Coats: Before applying finish coats, apply a prime coat of material, as recommended by the manufacturer, to material that is required to be painted or finished and that has not been prime coated by others. Recoat primed and sealed surfaces where evidence of suction spots or unsealed areas in first coat appears, to ensure a finish coat with no burn through or other defects due to insufficient sealing.
- J. Pigmented (Opaque) Finishes: Completely cover surfaces as necessary to provide a smooth, opaque surface of uniform finish, color, appearance, and coverage. Cloudiness, spotting, holidays, laps, brush marks, runs, sags, ropiness, or other surface imperfections will not be acceptable.
- K. Completed Work: Match approved samples for color, texture, and coverage. Remove, refinish, or repaint work not complying with requirements.
- L. Painting Mechanical and Electrical Work: Paint items exposed in equipment rooms and occupied spaces including, but not limited to, the following:
1. Mechanical Work:
    - a. Visible portions of internal surfaces of metal ducts, without liner, behind air inlets and outlets.
    - b. Grilles and louvers that have been factory primed.

### 3.4 CLEANING AND PROTECTION

- A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.
- B. After completing paint application, clean spattered surfaces. Remove spattered paints by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.
- C. Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.
- D. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

## 3.5 INTERIOR PAINTING SCHEDULE

## A. CMU Substrates:

1. Latex System: MPI INT 4.2A.
  - a. Prime Coat: Interior/Exterior Block Filler.
  - b. Intermediate Coat: Interior latex matching topcoat.
  - c. Topcoat: Interior Latex (eggshell).
2. Epoxy System: MPI INT 4.2G
  - a. Prime Coat: Interior/Exterior Block Filler.
  - b. Intermediate Coat: Water Based 1 part Epoxy.
  - c. Topcoat: Water Based 1 par Epoxy.

## B. Steel Substrates:

1. Quick-Drying Enamel System: MPI INT 5.1A.
  - a. Prime Coat: Quick-drying alkyd metal primer.
  - b. Intermediate Coat: Quick-drying enamel matching topcoat.
  - c. Topcoat: Quick-drying enamel (semigloss).

## C. Galvanized-Metal Substrates:

1. Latex Over Waterborne Primer System: MPI INT 5.3J.
  - a. Prime Coat: Waterborne galvanized-metal primer.
  - b. Intermediate Coat: Interior latex matching topcoat.
  - c. Topcoat: (semigloss).

## D. Gypsum Board Substrates:

1. Latex System: MPI INT 9.2A.
  - a. Prime Coat: Interior latex primer/sealer matching topcoat.
  - b. Intermediate Coat: Interior latex matching topcoat.
  - c. Topcoat: Interior latex (eggshell).

## E. Wood Panel Substrates: Including painted plywood.

1. Latex System: MPI INT 6.4R.
  - a. Prime Coat: Interior latex-based wood primer.
  - b. Intermediate Coat: Interior latex matching topcoat.
  - c. Topcoat: Interior latex (semigloss).

END OF SECTION 099120

## SECTION 099200 - FINISHING WOOD FLOORS

## PART 1 - GENERAL

## 1.1 RELATED DOCUMENTS

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

## 1.2 SUMMARY

- A. The Work of this Section includes:

- 1. Finishing of existing reinstalled wood floors at Room #102

- B. Related Sections include the following:

- 1. Division 2 Section "Selective Demolition" for selective removal of designated items of the Work.

- 2. Division 9 Section "Painting" for finishing of other wood surfaces.

- C. The Contractor shall examine existing wood floors prior to bidding to determine their type and condition and include every item of labor, tools, devices, and equipment needed to provide a project with completed finished reinstalled existing wood floors where scheduled.

- E. Schedule floor finishing work at times when there is full ventilation of spaces where finishes are being applied. The General Contractor shall confer with the wood flooring sub-contractor regarding the best means of ventilation needed to accomplish the Work and this means shall be included in the Contractor's bid price and this means must be in accordance with the floor finishing product manufacturer's recommendations.

- F. Belt sanders to be used on this project shall have an integral raising/lowering lever. Floor polishers used on this project shall have an operating speed of 200 rpm or less. Always start belt sanders with the sandpaper raised off the floor and have the drum on the floor surface only when the machine is being moved forward or backward.

- G. The "grit" type of each sandpaper noted in this specification is a general recommendation and the wood flooring sub-contractor may substitute an alternative grit based on his observations of floor conditions in order to achieve the best quality final finish.

- H. Only the highest quality workmanship and finishing will be accepted. Lapping mark and dry marks on completed finishing work will not be accepted.

## 1.3 SUBMITTALS

- A. Submit manufacturer's product data and technical information, including MDS sheets, for wood floor finishing products. Technical information shall include label analysis and instructions for handling, storing, and applying each finishing material.

- B. Submit samples of finished existing wood floorboard salvaged from a room designated for floor finishing. Both samples should evidence the final effect and finish range to be expected in completed work. Do not proceed until samples have been approved by the Architect.
- C. Submit catalog cuts illustrating sanding machines and other powered and handheld devices/tools that will be used in contact with wood floors.
- D. Provide standard maintenance instructions book from wood floor finishing product manufacturer.

#### 1.4 QUALITY ASSURANCE

- A. Applicator qualifications: engage an experienced applicator who has completed projects similar in material and extent indicated for this project with a record of successful in-service performance. This sub-contractor shall employ a foreman with at least six years of experience in finishing wood floors and assistants/craftsmen each with at least three years of experience in finishing wood floors.
- B. Obtain all finishing materials from a single respective manufacturer.
- C. Benchmark Sample (mockup): provide a fully completed 6'x 6' mockup of a finished existing wood floor in area designated by the Architect. Duplicate finish of previously prepared samples noted in 099200/1.3B. Undertake application of benchmark samples after permanent lighting and other environmental services have been activated. Apply coatings and use specified techniques. After finishes are accepted, the Architect will use the finished areas to evaluate remaining similar work.

#### 1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to the job site in manufacturer's original, unopened packages and containers bearing the manufacturer's name and label and the following information:
  - 1.Product name or title of material.
  - 2.Product description.
  - 3.Manufacturer's stock number and date of manufacture.
  - 4.Contents by volume of vehicle constituents.
  - 5.Application instructions.
  - 6.VOC content.
- B. Store materials not in use in tightly covered containers in a well-ventilated area outside of the depot at a mean ambient temperature of 45 deg F. Maintain containers used in storage in a clean condition, free from foreign materials and residue. Protect from freezing. Keep storage area neat and orderly. Remove finish applicators and waste from the depot at the conclusion of each workday. Take necessary measures and precautions to ensure that workers and work areas are protected from fire and health hazards resulting from handling, mixing, and application.

## 1.6 PROJECT CONDITIONS

- A. Apply finishing products in accordance with manufacturer's instructions when surrounding air temperatures are between 50 and 90 deg F. and rooms are fully ventilated.

## PART 2 - PRODUCTS

## 2.1 PRODUCTS

- A. Provide manufacturer's best quality of finishing materials.
- B. Specified floor finishing products:

1. BonaKemi Bonatech "Traffic" in satin finish  
1-800-872-5515.

## PART 3 - EXECUTION

## 3.1 EXAMINATION

- A. Examine surfaces, areas, and conditions with the applicator sub-contractor present under which finishing will be required for compliance with specification requirements. Do not begin finishing until unsatisfactory conditions have been corrected and surfaces to receive application products are dry and dust/dirt free. Start of finishing work will indicate applicator sub-contractor's acceptance of surfaces and conditions in a particular area.

## 3.2 PREPARATION - GENERAL

- A. Remove existing stored materials, loose doors, etc. from rooms to be refinished so as to provide a clear and unobstructed work area.
- B. Inspection: inspect flooring for defective or loose boards or protruding nail heads and/or scratches. Mark their locations with a soft lead pencil. Tighten loose boards by face nailing with 6d or 8d nails fastened into sub-floor and joists. Countersink any protruding nail heads below the surface of the wood. Note: countersinking of nail heads is important - sanding exposed nails can produce sparks creating a fire hazard at the surface of the sander or in the sander dust bag.
- C. Protection: install heavy kraft paper or other approved material to cover and protect wood base, door frames, and other surfaces from damage during the wood floor finishing process.
- D. For existing wood floor areas evidencing deep scratches, at the General Contractor's discretion, remove damaged boards and replace them or make angled "passes" with sanders to remove the scratch. After the scratch is removed, sand in the direction of the grain to remove evidence of angled sanding marks. Undertake angled and follow-up sanding so as the "even out" the work so that there is not a noticeable depression in the flooring.
- E. Second and third sanding "passes" shall remove a minimal amount of the wood



floor surface - approximately 1/32".

- F. Cleaning: before apply finishing materials, clean the wood floor of substances that could impair the application or final appearance of the product. Schedule cleaning so that dust and other contaminants will not soil newly painted surfaces.
- G. Materials Preparation: Mix and prepare materials in accordance with manufacturer's instructions. Maintain containers used in mixing and applying products in a clean condition, free of foreign materials and residue. Stir products before application to produce a material of uniform density. Stir as required during application.
- H. Install first application of floor finish on the same day as the final floor screening operation.
- I. Whenever vacuuming operations are called for in this specification, each vacuuming operation shall consist of one "pass" parallel to the grain and one "pass" perpendicular to the grain.
- J. Do not begin operation of floor sanding or screening equipment until all workmen have read the equipment manufacturer's operating instructions. After reading these instructions, store the instruction booklet in the job trailer.

### 3.3 PREPARATION - REINSTALLED WOOD FLOORS

- A. Use only approved mechanical and handheld devices/tools/equipment in contact with wood floors. Use devices/tools/equipment in accordance with manufacturer's recommendations and in such a manner as to provide the highest quality of floor finishing work.
- B. New wood floors to be finished shall be installed in accordance with Section 096400.
- C. Sand the wood floor:
  - 1. Install/change sandpaper in belt sanders only when they are unplugged. Install sandpaper without overtightening.
  - 2. Start sanding process in each room at right hand wall with sander located so that 2/3 of the floor is in front of machine. Start sander with sandpaper raised off of floor. Easing the sanding drum to the floor, move sander forward at a slow, even, pace. Approaching the wall in front, gradually raise the drum off the floor. Cover the same path on the forward operation by pulling the machine backward, easing the drum to the floor as the backward pass begins. Upon reaching the original starting point, ease the sanding drum from the floor and move the machine to the left approximately 3 or 4 inches. Repeat the forward and backward passes, moving to the left as each set of passes is completed. When 2/3 of the area of the room is sanded, turn the machine in the opposite direction and sand the remaining 1/3 in the same manner. Sand so that passes made in the 1/3 area overlap the first passes by 2 to 3 feet in order to blend the two areas.

3. After completing the first sanding operation, use an edging device to sand corners and inaccessible areas. Use the same grit sand paper on the edger that was used on the belt sander. Move the edger in a quarter-circle pattern at end walls overlapping into the drum sanded area 4"-6" and following the direction of the grain. Along walls parallel to the floor direction, move the edger back and forth with the direction of the flooring, also overlapping the drum sanded area. Use edger carefully so that edged areas are even in elevation and appearance with belt sanded areas.

- D. Use 36 grit sandpaper for first "pass." Make a minimum of three "passes" of floor preparation sanding as previously specified before seeking approval to apply new floor finishes. Second "pass" shall be with a 40 grit sandpaper and the third pass with an 80 grit sandpaper." After each "pass," clean and sweep the area. After the second "pass," inspect the floor and furnish/install custom filler product consisting of sawdust and chemical binding agent to fill voids. Verify that chemical binding agent is compatible with new floor finishes before application. Allow filler to dry overnight before proceeding with final sanding "pass."
- E. In any areas where hand scraping is required, avoid gouging the wood floor with the scraper. Always scrape in the direction of the wood grain.
- F. Use floor buffing machine with fine screen throughout the area to be finished following the final sanding "pass." The screen shall be the same grit as the final sanding "pass." Move the buffing machine back and forth in the direction of the floor boards.

#### 3.4 APPLICATION

- A. Apply products in accordance with manufacturer's written instructions. Use application devices and techniques best suited for wood floor type and condition and for type of finishing material being applied. Do not proceed with finish application until new wood has been acclimatized in accordance with Division 9 Section - Wood Flooring.
- B. Before proceeding, complete and seek approval of 6'x6' benchmark floor sample previously specified in this Section.
- C. Installer shall examine all existing conditions prior to application of wood floor finishing products. If conditions are found to be detrimental or unsatisfactory, installer shall notify the General Contractor, in writing, regarding specific conditions encountered. Do not proceed until unsatisfactory conditions have been corrected. Proceeding with floor finishing work shall indicate that installer has accepted existing conditions and will proceed to install floor finish in accordance with specifications.
- D. Prepare floor to receive finish by following floor finish manufacturer's required installation regimen.

For specified product, use the following regimen:

1. clean floor with manufacturer's recommended floor cleaning product.
2. abrade flooring with manufacturer's recommended conditioning pad. Note:

this step may be omitted at the installer's option if final floor prep screening provides satisfactory abrasion.

3.vacuum thoroughly.

4.tack with slightly damp mop or cloth.

- E. Apply floor finish in three or four coats as noted below. Use a separate, clean, applicator for sealer and each finish coat. If more than 48 hours passes between coat applications, abrade floor surface in accordance with floor finish manufacturer's recommendations, including vacuuming and application of light water tack.

1.sealer coat (BonaTech BonaSeal specified)

2.except where noted, install three coats of BonaTech Traffic finish.

- F. Shake floor finish product well before using. Mix two part system of hardener and floor finish in accordance with manufacturer's instructions.
- G. Pour a 6"-8" wide line of the finish along the starting wall following the grain of the wood. Using a clean, pre-dampened applicator, draw the applicator forward with the grain of the wood, moving the finish toward the opposite wall. Holding the applicator at a "snowplow angle" will maintain a wet edge at all times. Maintain at least a 3" wide wet edge at all times to ensure a proper coverage rate. At the end of each run, turn the applicator and pad it out to the wet edge. Feather out all turns. To avoid lapping and dry marks, use manufacturer's recommended coverage. Do not spread finish too thin.
- H. Allow first coat to dry for 2-3 hours. Note: pot life of two-part mixed product specified is 4 hours maximum. Do not re-mix. Discard mixed floor finish product materials if they are not used within 4 hours of initial mixing.
- I. Allow finish to cure for approximately 7 days or longer if recommended by floor finish sub-contractor and operate mechanical ventilation systems continuously during this time. Post signs and barriers or lock doors to prevent persons from walking on curing floors. Do not walk on curing floors. Do not clean the floor with water or detergent during the 7 day curing time.

Note: it shall be the responsibility of the General Contractor to schedule and coordinate floor finishing work with the floor finishing sub-contractor in conjunction with other ongoing work. No Additional Contract Time will be approved for failure to coordinate other ongoing work with floor finishing, including seven day curing time.

- J. Protect finished wood floors from excessive accumulation of dirt until Substantial Completion. Provide temporary walk-off mats at all exterior doors.
- K. Immediately prior to Substantial Completion, damp wipe all finished wood floors with manufacturer's approved wood floor cleaner and buff with a white polishing pad.

END OF SECTION 099200.

## SECTION 101550 - TOILET COMPARTMENTS

## PART 1 - GENERAL

## 1.1 RELATED DOCUMENTS

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

## 1.2 SUMMARY

- A. This Section includes baked-enamel units as follows:
  - 1. Toilet Enclosures: Overhead braced.
  - 2. Urinal Screens: Wall hung.
- B. Related Sections include the following:
  - 1. Division 6 Section "Rough Carpentry" for blocking.
  - 2. Division 10 "Toilet and Bath Accessories" for toilet tissue dispensers, grab bars, and similar accessories.

## 1.3 SUBMITTALS

- A. Product Data: For each type of product indicated. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes.
- B. Shop Drawings: Include plans, elevations, sections, details, and attachments to other work.
  - 1. Show locations of cutouts for compartment-mounted toilet accessories.
  - 2. Show locations of reinforcements for compartment-mounted grab bars.
- C. Samples for Initial Selection: For each type of unit indicated.
- D. Samples for Verification: Of each type of color and finish required for units, prepared on 6-inch- (150-mm-) square Samples of same thickness and material indicated for Work.

## 1.4 QUALITY ASSURANCE

- A. Comply with requirements in CID-A-A-60003, "Partitions, Toilets, Complete."

## 1.5 PROJECT CONDITIONS

- A. Field Measurements: Verify actual locations of walls, columns, ceilings, and other construction contiguous with toilet compartments by field measurements before fabrication and indicate measurements on Shop Drawings.

## PART 2 - PRODUCTS

## 2.1 METAL UNITS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
1. Accurate Partitions Corporation.
  2. General Partitions Mfg. Corp.
  3. Hadrian Inc.
  4. Knickerbocker Partitions Corp.
  5. Metpar Corp.
  6. Sanymetal; a Crane Plumbing Company.
- B. Baked-Enamel Units: Facing sheets and closures fabricated from ASTM A 653/A 653M (hot-dip galvanized or galvanized), commercial steel sheet for exposed applications, that is mill phosphatized, and selected for smoothness.
1. Facing Sheet Thicknesses: Minimum base-metal (uncoated) thicknesses as follows:
    - a. Pilasters, Braced at Both Ends: Manufacturer's standard thickness, but not less than **0.0329 inch (0.85 mm)**.
    - b. Panels: 25 mm (1") thick with cover sheets not less than 22 ga.
    - c. Doors: Manufacturer's standard thickness, but not less than **0.0269 inch (0.7 mm)**.
    - d. Wall-Hung Urinal Screens: Manufacturer's standard thickness, but not less than **0.0329 inch (0.85 mm)**.
  2. Finish: Manufacturer's standard pigmented, organic coating, including thermosetting, electrostatically applied, and powder coatings. Provide coating system that complies with coating manufacturer's written instructions for pretreatment, application, baking, and minimum dry film thickness.
    - a. Color: One color in each room as selected by Architect from manufacturer's full range of colors.
- C. Door, Panel, and Pilaster Construction: Seamless, metal facing sheets are pressure laminated to core material. Units have continuous, interlocking molding strip or lapped and formed edge closures. Exposed surfaces are free of pitting, seam marks, roller marks, stains, discolorations, telegraphing of core material, or other imperfections. Corners are sealed by welding or clips. Exposed welds are ground smooth.
1. Core Material: Manufacturer's standard sound-deadening honeycomb of resin-impregnated kraft paper in thickness required to provide finished thickness of **1 inch (25 mm)** for doors and panels and **1-1/4 inches (32 mm)** for pilasters.
  2. Grab-Bar Reinforcement: Provide concealed internal reinforcement for grab bars mounted on units.
  3. Tapping Reinforcement: Provide concealed reinforcement for tapping (threading) at locations where machine screws are used for attaching items to units.
  4. Urinal-Screen Construction: Matching panels.

- D. Pilaster Shoes and Sleeves (Caps): Stainless steel, ASTM A 666, Type 302 or 304, not less than **0.0312 inch (0.8 mm)** specified thickness and **3 inches (75 mm)** high, finished to match hardware.
- E. Brackets (Fittings):
  - 1. Stirrup Type: Ear or U-brackets, stainless steel.
  - 2. Full-Height (Continuous) Type: Manufacturer's standard design; stainless steel.

## 2.2 ACCESSORIES

- A. Hardware and Accessories: Manufacturer's standard design, heavy-duty operating hardware and accessories.
  - 1. Material: Stainless steel.
- B. Overhead Bracing: Manufacturer's standard continuous, extruded-aluminum head rail with antigrip profile and in manufacturer's standard finish.
- C. Support Posts for Urinal Screens: Manufacturer's standard aluminum post with floor shoe for anchoring to floor construction.
- D. Anchorages and Fasteners: Manufacturer's standard exposed fasteners of stainless steel or chrome-plated steel or brass, finished to match hardware, with theft-resistant-type heads. Provide sex-type bolts for through-bolt applications. For concealed anchors, use hot-dip galvanized or other rust-resistant, protective-coated steel.

## 2.3 FABRICATION

- A. Overhead-Braced Units: Provide manufacturer's standard corrosion-resistant supports, leveling mechanism, fasteners, and anchors at pilasters to suit floor conditions. Make provisions for setting and securing continuous head rail at top of each pilaster. Provide shoes at pilasters to conceal supports and leveling mechanism.
- B. Doors: Unless otherwise indicated, provide **24-inch- (610-mm-)** wide in-swinging doors for standard toilet compartments and **36-inch- (914-mm-)** wide out-swinging doors with a minimum **32-inch- (813-mm-)** wide clear opening for compartments indicated to be accessible to people with disabilities.
  - 1. Hinges: Manufacturer's continuous hinge, self-closing type that can be adjusted to hold doors open at any angle up to 90 degrees.
  - 2. Latch and Keeper: Manufacturer's standard recessed latch unit designed for emergency access and with combination rubber-faced door strike and keeper. Provide units that comply with accessibility requirements of authorities having jurisdiction at compartments indicated to be accessible to people with disabilities.
  - 3. Coat Hook: Manufacturer's standard combination hook and rubber-tipped bumper, sized to prevent door from hitting compartment-mounted accessories.
  - 4. Door Bumper: Manufacturer's standard rubber-tipped bumper at out-swinging doors.

5. Door Pull: Manufacturer's standard unit at all doors and complies for use at accessible stalls and meets accessibility requirements of authorities having jurisdiction. Provide units on both sides of doors.

### PART 3 - EXECUTION

#### 3.1 INSTALLATION

- A. General: Comply with manufacturer's written installation instructions. Install units rigid, straight, level, and plumb. Secure units in position with manufacturer's anchoring devices for installation with full length channels.
- B. Overhead-Braced Units: Secure pilasters to floor and level, plumb, and tighten. Secure continuous head rail to each pilaster with not less than two fasteners. Hang doors to align tops of doors with tops of panels and adjust so tops of doors are parallel with overhead brace when doors are in closed position.

#### 3.2 ADJUSTING

- A. Hardware Adjustment: Adjust and lubricate hardware according to manufacturer's written instructions for proper operation. Set hinges on in-swinging doors to hold doors open approximately 30 degrees from closed position when unlatched. Set hinges on out-swinging doors to return doors to fully closed position.

END OF SECTION 101550

- B. Examine supporting members to ensure that surfaces are at elevations indicated or required to comply with authorities having jurisdiction and are free from dirt and other deleterious matter.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.2 INSTALLATION

- A. General: Locate signs and accessories where indicated, using mounting methods of types described and in compliance with manufacturer's written instructions.
  - 1. Install signs level, plumb, and at heights indicated, with sign surfaces free from distortion and other defects in appearance.
  - 2. Interior Wall Signs: Install signs on walls adjacent to latch side of door where applicable. Where not indicated or possible, such as double doors, install signs on nearest adjacent walls. Locate to allow approach within 3 inches (75 mm) of sign without encountering protruding objects or standing within swing of door.
- B. Wall-Mounted Panel Signs: Attach panel signs to wall surfaces using methods indicated below:
  - 1. Mechanical Fasteners: Use nonremovable mechanical fasteners placed through predrilled holes. Attach signs with fasteners and anchors suitable for concealed secure attachment to substrate as recommended in writing by sign manufacturer.
- C. Cast-Metal Plaques: Mount plaques using standard fastening methods recommended in writing by manufacturer for type of wall surface indicated.
  - 1. Face Mounting: Mount plaques using exposed fasteners with rosettes attached through face of plaque into wall surface.

### 3.3 CLEANING AND PROTECTION

- A. After installation, clean soiled sign surfaces according to manufacturer's written instructions. Protect signs from damage until acceptance by Owner.

### 3.4 SIGN SCHEDULE

- A. Refer to drawings.

END OF SECTION 104310



## SECTION 104310 - SIGNS

## PART 1 - GENERAL

## 1.1 RELATED DOCUMENTS

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

## 1.2 SUMMARY

- A. This Section includes the following:

1. Painted wood interior signs with braille nomenclature.
2. Painted wood exterior building identification sign.
3. Cast-metal plaques.
4. Signage accessories.
5. Project identification (Alternate #3)

- B. Related Sections include the following:

1. Division 1 Section "Alternates" project identification sign.
2. Division 1 Section "Temporary Facilities and Controls" for temporary project identification signs.
3. Division 15 Section "Mechanical Identification" for labels, tags, and nameplates for mechanical equipment.
4. Division 16 Section "Electrical Identification" for labels, tags, and nameplates for electrical equipment.

## 1.3 SUBMITTALS

- A. Product Data: Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for each type of sign.
- B. Shop Drawings: Include plans, elevations, and large-scale sections of typical members and other components. Show mounting methods, grounds, mounting heights, layout, spacing, reinforcement, accessories, and installation details. Provide 2 full size copies of cast metal plaque, one for initial submittal and one follow-up incorporating any red-marked changes to initial submittal.
  1. Provide nomenclature for each sign, including large-scale details of wording, lettering, artwork, and braille layout.
- C. Samples for Initial Selection: For each type of sign material indicated that involves color selection.
- D. Samples for Verification: For each type of sign, include the following Samples to verify color selected:

1. Painted Wood Signs: Full-size Samples of each type of sign required.
2. Casting: Show representative texture, character style, spacing, finish, and method of attachment.
3. Approved samples will not be returned for installation into Project.

E. Maintenance Data: For signage cleaning and maintenance requirements to include in maintenance manuals.

#### 1.4 QUALITY ASSURANCE

- A. Installer Qualifications: An employer of workers trained and approved by signage manufacturer.
- B. Source Limitations: Obtain each sign type through one source from a single manufacturer.
- C. Regulatory Requirements: Comply with the Americans with Disabilities Act (ADA) and with code provisions as adopted by authorities having jurisdiction.

#### 1.5 PROJECT CONDITIONS

- A. Field Measurements: Where sizes of signs are determined by dimensions of surfaces on which they are installed, verify dimensions by field measurement before fabrication and indicate measurements on Shop Drawings.

#### 1.6 COORDINATION

- A. For signs supported by or anchored to permanent construction, advise installers of anchorage devices about specific requirements for placement of anchorage devices and similar items to be used for attaching signs.

### PART 2 - PRODUCTS

#### 2.1 MANUFACTURERS

- A. In other Part 2 articles where titles below introduce lists, the following requirements apply for product selection:
  1. Manufacturers: Subject to compliance with requirements, provide products by the manufacturers specified.

#### 2.2 PAINTED WOOD SIGNS

- A. General: Provide panel signs that comply with requirements indicated for materials, thicknesses, finishes, colors, designs, shapes, sizes, and details of construction.

1. Produce smooth panel sign surfaces constructed to remain flat under installed conditions within tolerance of plus or minus 1/16 inch (1.5 mm) measured diagonally.

B. Suppliers/Fabricators:

1. Any approved local supplier/fabricator complying with specification requirements.

- C. Graphic Content and Style: Provide sign copy that complies with requirements indicated on Drawings on artwork supplied on electronic media by Architect for size, style, spacing, content, mounting height and location, material, finishes, and colors of signage.

- D. Tactile and Braille Copy for Interior Signs: Manufacturer's standard process for producing copy complying with ADA Accessibility Guidelines and ICC/ANSI A117.1. Text shall be accompanied by Grade 2 braille. Produce precisely formed characters with square cut edges free from burrs and cut marks. Apply with pressure sensitive adhesive backing.

1. Panel Material: Opaque acrylic sheet.
2. Raised-Copy Thickness: Not less than 1/32 inch (0.8 mm).

### 2.3 CAST-METAL PLAQUES

- A. General: Provide castings free from pits, scale, sand holes, and other defects. Comply with requirements specified for metal, border style, background texture, and finish and in required thickness, size, shape, and copy.

B. Manufacturers:

1. American Graphics Inc.
2. Gemini Incorporated.
3. Matthews International Corporation; Bronze Division.

- C. Bronze Castings: ASTM B 584, alloy UNS No. C83600 (No. 1 manganese bronze).

- D. Border Style: Raised flat band.

- E. Background Texture: Manufacturer's standard stipple finish.

- F. Mounting: Rosettes and fasteners matching plaque finish for substrates encountered.

### 2.4 PAINTED WOOD SIGN TYPES

- A. Interior and exterior signs as detailed on the drawings.

1. Sign surfaces: 3/4" ADA rated, DOC PS 1, MDO plywood with A/C veneers. Sign nomenclature on "A" veneer side.

2. Wood trim: Southern Pine installed in accordance with AWI Section 300, Custom Grade.
  3. All fasteners: stainless steel.
  4. Paint for all surfaces: primer and two finish coats as specified in section 099000.
  5. Nomenclature and artwork: Vinyl adhered.
  6. Wood posts for Alt. #3: Southern Pine, pressure treated (AWPA C2) KDAT.
- B. Symbols of Accessibility: Provide symbol fabricated from opaque nonreflective vinyl film, 0.0035-inch (0.089-mm) nominal thickness, with pressure-sensitive adhesive backing suitable for interior applications.

## 2.5 ACCESSORIES

- A. Mounting Methods: Use concealed fasteners.
- B. Anchors and Inserts: Provide stainless steel anchors and inserts for exterior installations and elsewhere as required for corrosion resistance. Use toothed steel or lead expansion-bolt devices for drilled-in-place anchors.

## 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. Protect mechanical finishes on exposed surfaces from damage by applying strippable, temporary protective covering before shipping.

## 2.7 COPPER-ALLOY FINISHES

- A. Cast-Bronze Plaque Finishes: Exposed surfaces free from porosity, burrs, and rough spots; with returns finished with fine-grain air blast.
1. Raised Areas: Hand-tool and buff borders and raised copy to produce manufacturer's standard satin finish.
  2. Background Finish: Dark oxidized.

## 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.

SECTION 105220 - FIRE EXTINGUISHERS AND ACCESSORIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes the following:

- 1. Fire extinguishers installed in wood cabinets specified in Section 062000.
- 2. Surface mounted fire extinguishers on brackets.

1.3 SUBMITTALS

- A. General: Submit the following according to the Conditions of the Contract and Division 1 Specification Sections.
- B. Product data for fire extinguishers and brackets.

1.4 QUALITY ASSURANCE

- A. Single-Source Responsibility: Obtain fire extinguishers from a single manufacturer.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  - 1. J.L. Industries. (specified)
  - 2. Larsen's Manufacturing Co.
  - 3. Potter-Roemer, Inc.

2.2 EXTINGUISHERS

- A. Fire Extinguisher: Cosmic IOE, 10 Pound, ABC type, by J. L. Industries or approved equal. One per F. E. cabinet. Use same extinguisher where bracket mounted.
- B. Brackets: J. L. Industries #846.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Follow manufacturer's printed instructions for installation.
- B. Install in locations noted on the drawings.

END OF SECTION 105220

## SECTION 108000 - TOILET ACCESSORIES

## PART 1 - GENERAL

## 1.1 RELATED DOCUMENTS

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

## 1.2 SUMMARY

- A. This Section includes toilet accessory items as scheduled.

## 1.3 SUBMITTALS

- A. General: Submit the following according to Conditions of Contract and Division 1 Specifications Sections.
- B. Product data for each toilet accessory item specified, including construction details relative to materials, dimensions, gages, profiles, mounting method, specified options, and finishes.
- C. Maintenance instructions including replaceable parts and service recommendations.

## 1.4 QUALITY ASSURANCE

- A. Inserts and Anchorages: Furnish accessory manufacturers' standard inserts and anchoring devices. Coordinate delivery with other work to avoid delay.
- B. Single-Source Responsibility: Provide products of same manufacturer for each type of accessory unit and for units exposed to view in same areas, unless otherwise acceptable to Architect.

## 1.5 PROJECT CONDITIONS

- A. Coordination: Coordinate accessory locations, installation, and sequencing with other work to avoid interference with and ensure proper installation, operation, adjustment, cleaning, and servicing of toilet accessory items.

## PART 2 - PRODUCTS

## 2.1 ACCEPTABLE MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide toilet accessories by one of the following:
1. A & J Washroom Accessories.
  2. American Specialties, Inc.
  3. Bobrick Washroom Equipment, Inc. (specified)
  4. Bradley Corporation.
  5. McKinney/Parker.
  6. Uline.
  7. Handy Washroom Direct.

## 2.2 MATERIALS, GENERAL

- A. Stainless Steel: AISI Type 302/304, with polished No. 4 finish, 0.034-inch (22-gage) minimum thickness.
- B. Brass: Leaded and unleaded, flat products, ASTM B 19; rods, shapes, forgings, and flat products with finished edges, ASTM B 16; Castings, ASTM B 30.
- C. Sheet Steel: Cold-rolled, commercial quality ASTM A 366, 0.04-inch (20-gage) minimum. Surface preparation and metal pretreatment as required for applied finish.
- D. Galvanized Steel Sheet: ASTM A 527, G60.
- E. Chromium Plating: Nickel and chromium electro-deposited on base metal, ASTM B 456, Type SC 2.
- F. Baked Enamel Finish: Factory-applied, gloss white, baked acrylic enamel coating.
- G. Stainless Steel Mirror Surfaces: Not less than 0.04-inch (20-gage) AISI Type 302/304 stainless steel sheet, stretcher-leveled with No. 8 polished mirror finish. Bond to 1/4-inch minimum hardboard backing.
- H. Galvanized Steel Mounting Devices: ASTM A 153, hot-dip galvanized after fabrication.
- I. Fasteners: Screws, bolts, and other devices of same material as accessory unit, or of galvanized steel where concealed.



## 2.3 ACCESSORY SCHEDULE:

Item A Toilet Paper Holder	Bobrick #B-2888
Item B Assist Rails	Bobrick #B-6806.99
Item C Paper Towel Dispenser	Bobrick #B-263
Item D Sanitary Napkin Disposal	Bradley #4791-11
Item E Lavatory Mirror	Bobrick #B290-1830
Item F Soap Dispenser	Bobrick #B-2111
Item G Mop Holder	Bobrick #B-223
Item H Waste Receptacle	Uline #H-1476
Item I Baby Changing Table	Uline #H-9600 (Koala Care KB300)
Item J Bottle Opener	Handy Washroom Direct #ASI 0711B

## 2.4 FABRICATION

- A. Surface-Mounted Toilet Accessories, General: Except where otherwise indicated, fabricate units with tight seams and joints, exposed edges rolled. Hang doors or access panels with continuous stainless steel piano hinge. Provide concealed anchorage wherever possible.
- B. Keys: Provide universal keys for access to toilet accessory units requiring internal access for servicing, resupply, etc. Provide minimum of six keys to Owner's representative.

## PART 3 - EXECUTION

## 3.1 INSTALLATION

- A. Install toilet accessory units according to manufacturers' instructions, using fasteners appropriate to substrate as recommended by unit manufacturer. Install units plumb and level, firmly anchored in locations and at heights indicated.
- B. Secure mirrors to walls in concealed, tamperproof manner with special hangers, toggle bolts, or screws. Set units plumb, level, and square at locations indicated, according to manufacturer's instructions for type of substrate involved.
- C. Install grab bars to withstand a downward load of at least 250 lbf, complying with ASTM F 446.

## 3.2 ADJUSTING AND CLEANING

- A. Adjust toilet accessories for proper operation and verify that mechanisms function smoothly. Replace damaged or defective items.
- B. Clean and polish all exposed surfaces strictly according to manufacturer's recommendations after removing temporary labels and protective coatings.

END OF SECTION 108000

## SECTION 123560 - COUNTERTOPS

## PART 1 - GENERAL

## 1.1 RELATED DOCUMENTS

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

## 1.2 SUMMARY

- A. This Section includes the following:
  - 1. Plastic laminate covered countertop.
- B. Related Sections include the following:
  - 1. Division 15 Section "Plumbing Fixtures" for sinks and plumbing fittings.

## 1.3 SUBMITTALS

- A. Product Data: For the following:
  - 1. Plastic-laminate countertops.
- B. Shop Drawings: For countertops. Include plans, elevations, details, and attachments to other work. Show materials, finishes, edge and backsplash profiles, methods of joining countertops, and cutouts for plumbing fixtures.
- C. Samples for Initial Selection: For each type of material exposed to view.
- D. Samples for Verification:
  - 1. Plastic laminate for countertops, 8 by 10 inches (200 by 250 mm).
  - 2. One full-size plastic-laminate countertop, with backsplash 8 by 10 inches (200 by 250 mm), in configuration specified.

## 1.4 PROJECT CONDITIONS

- A. Environmental Limitations: Do not deliver or install countertop until building is enclosed, wet-work is complete, and HVAC system is operating and maintaining temperature and relative humidity at occupancy levels during the remainder of the construction period.
- B. Established Dimensions: Where countertop is indicated to fit to other construction, establish dimensions for areas where countertop is to fit. Coordinate construction to ensure that actual

dimensions correspond to established dimensions. Provide fillers and scribes to allow for trimming and fitting.

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

## 1.5 COORDINATION

- A. Coordinate layout and installation of blocking and reinforcement in partitions for support of casework.
- B. Coordinate locations of utilities that will penetrate countertops or backsplashes.

## PART 2 - PRODUCTS

### 2.1 PLASTIC-LAMINATE COUNTERTOPS

- A. Configuration: Provide countertops with the following front, cove (intersection of top with backsplash), backsplash, and endsplash style:
  - 1. Front: Self-edge.
  - 2. Cove: Applied (backsplash rests on top forming seam at inside corner).
  - 3. Backsplash: Square edge with scribe.
  - 4. Endsplash: Square edge with scribe.
- B. Plastic-Laminate Substrate: Particleboard not less than **3/4 inch (19 mm)** thick.
  - 1. For countertops at sinks, use Grade M-2-Exterior-Glue particleboard or exterior-grade plywood.
  - 2. Build up countertop thickness to **1-1/2 inches (38 mm)** at front, back, and ends with additional layers of particleboard laminated to top.
- C. Backer Sheet: Provide plastic-laminate backer sheet on underside of countertop substrate.
- D. One color of laminate will be selected for countertops.

## PART 3 - EXECUTION

### 3.1 INSTALLATION

- A. Install countertop level and plumb to a tolerance of **1/8 inch in 8 feet (3 mm in 2.4 m)**.
- B. Fasten plastic-laminate countertops by screwing through blocking as detailed on the drawings. Form seams using splines to align adjacent surfaces, and secure with glue and concealed clamping devices designed for this purpose.

1. Provide cutouts for sinks, including holes for faucets and accessories.
2. Seal edges of cutouts by saturating with varnish.

3.2 ADJUSTING AND CLEANING

- A. Clean countertops on exposed and semiexposed surfaces. Touch up finishes to restore damaged or soiled areas.

END OF SECTION 123560

## SECTION 124910 - HORIZONTAL LOUVER BLINDS

## PART 1 - GENERAL

## 1.1 RELATED DOCUMENTS

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

## 1.2 SUMMARY

- A. This Section includes the following types of venetian blinds and accessories:

- 1.2" wide wood louver blinds, for windows where scheduled on the drawings.

## 1.3 SUBMITTALS

- A. Product Data: For each type of product indicated. Include styles, material descriptions, construction details, dimensions of individual components and profiles, features, finishes, and operating instructions.

- B. Shop Drawings: Show location and extent of horizontal louver blinds. Include elevations, sections, details, and dimensions not shown in Product Data. Show installation details, mountings, attachments to other Work, operational clearances, and relationship to adjoining work.

- C. Samples for Initial Selection: For each colored component of each type of horizontal louver blind indicated.

- 1. Include similar Samples of accessories involving color selection.

- D. Samples for Verification: For the following products, prepared on Samples from the same material to be used for the Work.

- 1. Louver Slat: Not less than 12 inches (300 mm) long.

- 2. Tapes: Full width, not less than 6 inches (150 mm) long.

- 3. Horizontal Louver Blind: Full-size unit, not less than 16 inches (400 mm) wide by 24 inches (600 mm) long.

- 4. Valance: Full-size unit, not less than 12 inches (300 mm) wide.

- E. Window Treatment Schedule: Include horizontal louver blinds in schedule using same room designations indicated on Drawings.

- F. Product Certificates: For each type of horizontal louver blind product, signed by product manufacturer.

- G. Product Test Reports: For each type of horizontal louver blind product.

- H. Maintenance Data: For horizontal louver blinds to be included in maintenance manuals. Include the following:

- 1. Methods for maintaining horizontal louver blinds and finishes.

2.Precautions about cleaning materials and methods that could be detrimental to finishes and performance.

3.Operating hardware.

#### 1.4 QUALITY ASSURANCE

- A. Source Limitations: Obtain horizontal louver blinds through one source from a single manufacturer.
- B. Mockups: Build mockups to verify selections made under sample Submittals and to demonstrate aesthetic effects and qualities of materials and execution. Mock up shall be installed at a typical window designated by the Architect.

1.Build mockups in the location and of the size indicated or, if not indicated, as directed by Architect.

2.Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

#### 1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver blinds in factory packages, marked with manufacturer and product name, lead-free designation, and location of installation using same room designations indicated on Drawings and in a window treatment schedule.

#### 1.6 PROJECT CONDITIONS

- A. Environmental Limitations: Do not install horizontal louver blinds until construction and wet and dirty finish work in spaces, including painting, is complete and ambient temperature and humidity conditions are maintained at the levels indicated for Project when occupied for its intended use.
- B. Field Measurements: Where horizontal louver blinds are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication and indicate measurements on Shop Drawings. Allow clearances for operable glazed units' operation hardware throughout the entire operating range. Notify Architect of discrepancies. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

#### 1.7 EXTRA MATERIALS

- A. Furnish extra materials described below that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1.Horizontal Louver Blinds: Before installation begins, for each size, color, texture, pattern, and gloss indicated, full-size units equal to 5 percent of amount installed.

### PART 2 - PRODUCTS

#### 2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products

by one of the following:

1.2" wide wood louver blinds

a. Davidson-Bishop Corporation (1-336-889-2930) or approved equal.

B. Louver Slats: 2" wide, factory finished hardwood, .12" thickness.

C. Headrail: Formed steel long edges rolled; fully enclosing operating mechanisms on three sides and ends; capacity for one blind[s] per headrail, unless otherwise indicated [on Drawings] 2" x 2 ¼" x .018" thick, iron phosphate treated, prime coated, baked enamel final finish.

D. Headrail/Valance: Manufacturer's standard, 2 ½" wide with 2 ¾" returns.

1. Finish Color Characteristics: Wood in finish to match slats

E. Bottom Rail: Wood in finish to match slats

F. Tilt Control: Consisting of enclosed clutch type worm gear mechanism.

1. Tilt Operation: Manual with wood wand and cord-operated tilter.

2. Length of Tilt Control: [Length required to make operation convenient from floor level].

3.1. Tilt: Full, two direction.

G. Tilt-Control and Cord-Lock Position: [Right side of headrail, respectively] unless otherwise indicated.

H. Ladders: Evenly spaced to prevent long-term louver sag.

1. For Blinds with Nominal Slat Width 2 Inches (50 mm) or More  
Manufacturer's standard-width spun rayon cloth tapes.

I. Valance: Manufacturer's standard wood valance.

1. Finish Color Characteristics: [Match color, texture, pattern, and gloss of louver slats]

J. Mounting: [End] mounting permitting easy removal and replacement without damaging blind or adjacent surfaces and finishes; with spacers and shims required for blind placement and alignment indicated.

1. Provide intermediate support brackets if end support spacing exceeds spacing recommended by manufacturer for weight and size of blind.

K. Hold-Down Brackets: Manufacturer's standard, as indicated.

L. Side Channels and Perimeter Seals: Manufacturer's standard for eliminating light gaps when blinds are closed.

M. Colors, Textures, Patterns, and Gloss: Select from manufacturer's full range of available colors.

## 2.2 HORIZONTAL LOUVER BLINDS FABRICATION

- A. Product Standard and Description: Comply with AWCMA Document 1029, unless otherwise indicated, for each horizontal louver blind designed to be self-leveling and consisting of louver slats, rails, ladders, tapes, lifting and tilting mechanisms, cord, cord lock, tilt control, and installation hardware.
- B. Concealed Components: Noncorrodible or corrosion-resistant-coated materials.
- 1.Lifting and Tilting Mechanisms: With permanently lubricated moving parts.
- C. Unit Sizes: Obtain units fabricated in sizes to fill window and other openings as follows, measured at 74 deg F (23 deg C):
- 1.Blind Units Installed between (Inside) Jambs: Width equal to 1/4 inch (6 mm) per side or 1/2 inch (12 mm) total, plus or minus 1/8 inch (3 mm), less than jamb-to-jamb dimension of opening in which each blind is installed. Length equal to 1/4 inch (6 mm), plus or minus 1/8 inch (3 mm), less than head-to-sill dimension of opening in which each blind is installed.
- D. Installation Brackets: Designed for easy removal and reinstallation of blind, for supporting headrail, and operating hardware, and for hardware position and blind mounting method indicated.
- E. Installation Fasteners: Not fewer than two fasteners per bracket, fabricated from metal noncorrosive to blind hardware and adjoining construction; type designed for securing to supporting substrate; and supporting blinds and accessories under conditions of normal use.
- F. Color-Coated Finish:
- 1.Wood: Selected from full range of manufacturer's available colors.
- G. Component Color: Provide rails, cords, ladders, and exposed-to-view [wood] and plastic matching or coordinating with slat color, unless otherwise indicated.

### PART 3 - EXECUTION

#### 3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances, operational clearances, and other conditions affecting performance. Proceed with installation only after unsatisfactory conditions have been corrected.

#### 3.2 HORIZONTAL LOUVER BLIND INSTALLATION

- A. Install blinds level and plumb and aligned with adjacent units according to manufacturer's written instructions, and located so exterior louver edges in any position are not closer than [1 inch (25 mm)] to interior face of glass. Install intermediate support as required to prevent



deflection in headrail. Allow clearances between adjacent blinds and for operating glazed opening's operation hardware, if any.

- B. Flush Mounted: Install blinds with louver edges flush with finish face of opening if slats are tilted open.
- C. Jamb Mounted: Install headrail flush with face of opening jamb and head.

### 3.3 ADJUSTING

- A. Adjust horizontal louver blinds to operate smoothly, easily, safely, and free from binding or malfunction throughout entire operational range.

### 3.4 CLEANING AND PROTECTION

- A. Clean blind surfaces after installation, according to manufacturer's written instructions.
- B. Provide final protection and maintain conditions, in a manner acceptable to manufacturer and Installer, that ensure that horizontal louver blinds are without damage or deterioration at time of Substantial Completion.
- C. Replace damaged blinds that cannot be repaired, in a manner approved by Architect, before time of Substantial Completion.

### 3.5 DEMONSTRATION

- A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain systems. Refer to Division 1 Section "Closeout Procedures".

END OF SECTION 124910