PROJECT MANUAL AND SPECIFICATIONS

1872 Neosho Colored School Rehabilitation

639 Young Street
Neosho, Missouri

Grant Holder/Owner:

George Washington Carver Birthplace District Association, Inc.

BIDDING CONSTRUCTION DOCUMENTS

October 24, 2025

STRATA
ARCHITECTURE + PRESERVATION

INVITATION TO BID

1872 Neosho Colored School Rehabilitation
639 Young Street, Neosho, Missouri

Notice is hereby given that the George Washington Carver Birthplace District Association, Inc., Diamond, Missouri, will receive sealed for the '1872 Neosho Colored School Rehabilitation' project at 639 Young Street, Neosho, Missouri 64850, with bids clearly marked **"Bid - 1872 Neosho Colored School Rehabilitation Project"** on or before **3:00 P.M. CDT, Thursday, February 26, 2026, by email to: bids@strata-arch.com, or in person** to: George Washington Carver Birthplace District Association, c/o George Washington Carver National Monument, 5646 Carver Road, Diamond, MO 64840.

An in-person walk-through of the project site will be held on **Wednesday, February 4, 2026, at 1:30 pm**, 639 Young Street, Neosho, Missouri. Contractors who cannot attend the pre-bid meeting must make an appointment with the Owner's Representative at least 36 hours before the requested day and time for a tour. Contact information for the Owner's Representative is available in the Information for Bid.

Bid Documents will be available on Wednesday, January 21, 2026, in the following plan room and online:
Harry S Truman Coordinating Council online https://www.hstcc.org/bids
ePlan Online https://eplanbidding.com

There will be one (1) bid package associated with this bid. Please reference the drawings and project manual bid documents. The work includes providing all necessary labor, materials, and equipment for a completed and finished project.

This project is partially funded by a grant from the African American Cultural Heritage Action Fund of the National Trust for Historic Preservation, with Support from the JPB Foundation.

This material was produced with assistance from the Historic Preservation Fund, administered by the National Park Service, Department of the Interior, of the U.S. Government, and the Missouri Department of Natural Resources, State Historic Preservation Office. Any opinions, findings, and conclusions or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the views of the Department of the Interior or the Department of Natural Resources, State Historic Preservation Office, nor does the mention of the trade names or commercial products constitute endorsement or recommendation.

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The George Washington Carver Birthplace Association reserves the right to reject any and all submittals or to advertise for new submittals if deemed necessary.

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AIA® Document A701® – 2018

Instructions to Bidders

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

1872 Neosho Colored School Rehabilitation
639 Young Street
Neosho, MO 64850

THE OWNER:
(Name, legal status, address, and other information)

George Washington Carver Birthplace District Association, Inc.
5646 Carver Rd
Diamond, MO 64840
Chairperson, Lana Henry

THE ARCHITECT:
(Name, legal status, address, and other information)

STRATA Architecture Inc., a Missouri Corporation
1701 Oak Street, Suite 100
Kansas City, MO 64108
816-474-0900

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ADDITIONS AND DELETIONS: The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes added information as well as revisions to the standard form text is available from the author and should be reviewed.

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

FEDERAL, STATE, AND LOCAL LAWS MAY IMPOSE REQUIREMENTS ON PUBLIC PROCUREMENT CONTRACTS. CONSULT LOCAL AUTHORITIES OR AN ATTORNEY TO VERIFY REQUIREMENTS APPLICABLE TO THIS PROCUREMENT BEFORE COMPLETING THIS FORM.

It is intended that AIA Document G612™–2017, Owner's Instructions to the Architect, Parts A and B will be completed prior to using this document.

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ARTICLE 1 DEFINITIONS

§ 1.1 Bidding Documents include the Bidding Requirements and the Proposed Contract Documents. The Bidding Requirements consist of the advertisement or invitation to bid, Instructions to Bidders, supplementary instructions to bidders, the bid form, and any other bidding forms. The Proposed Contract Documents consist of the unexecuted form of Agreement between the Owner and Contractor and that Agreement's Exhibits, Conditions of the Contract (General, Supplementary and other Conditions), Drawings, Specifications, all Addenda, and all other documents enumerated in Article 8 of these Instructions.

§ 1.2 Definitions set forth in the General Conditions of the Contract for Construction, or in other Proposed Contract Documents apply to the Bidding Documents.

§ 1.3 Addenda are written or graphic instruments issued by the Architect, which, by additions, deletions, clarifications, or corrections, modify or interpret the Bidding Documents.

§ 1.4 A Bid is a complete and properly executed proposal to do the Work for the sums stipulated therein, submitted in accordance with the Bidding Documents.

§ 1.5 The Base Bid is the sum stated in the Bid for which the Bidder offers to perform the Work described in the Bidding Documents, to which Work may be added or deleted by sums stated in Alternate Bids.

§ 1.6 An Alternate Bid (or Alternate) is an amount stated in the Bid to be added to or deducted from, or that does not change, the Base Bid if the corresponding change in the Work, as described in the Bidding Documents, is accepted.

§ 1.7 A Unit Price is an amount stated in the Bid as a price per unit of measurement for materials, equipment, or services, or a portion of the Work, as described in the Bidding Documents.

§ 1.8 A Bidder is a person or entity who submits a Bid and who meets the requirements set forth in the Bidding Documents.

§ 1.9 A Sub-bidder is a person or entity who submits a bid to a Bidder for materials, equipment, or labor for a portion of the Work.

ARTICLE 2 BIDDER'S REPRESENTATIONS

§ 2.1 By submitting a Bid, the Bidder represents that:

- **.1** the Bidder has read and understands the Bidding Documents;
- **.2** the Bidder understands how the Bidding Documents relate to other portions of the Project, if any, being bid concurrently or presently under construction;
- **.3** the Bid complies with the Bidding Documents;
- **.4** the Bidder has visited the site, become familiar with local conditions under which the Work is to be performed, and has correlated the Bidder's observations with the requirements of the Proposed Contract Documents;
- **.5** the Bid is based upon the materials, equipment, and systems required by the Bidding Documents without exception; and
- **.6** the Bidder has read and understands the provisions for liquidated damages, if any, set forth in the form of Agreement between the Owner and Contractor.

ARTICLE 3 BIDDING DOCUMENTS

§ 3.1 Distribution

§ 3.1.1 Bidders shall obtain complete Bidding Documents, as indicated below, from the issuing office designated in the advertisement or invitation to bid, for the deposit sum, if any, stated therein.
(Indicate how, such as by email, website, host site/platform, paper copy, or other method Bidders shall obtain Bidding Documents.)

Bid Plan Rooms to receive electronic documents listed in the Invitation to Bid.

§ 3.1.2 Any required deposit shall be refunded to Bidders who submit a bona fide Bid and return the paper Bidding Documents in good condition within ten days after receipt of Bids. The cost to replace missing or damaged paper

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documents will be deducted from the deposit. A Bidder receiving a Contract award may retain the paper Bidding Documents, and the Bidder's deposit will be refunded.

§ 3.1.3 Bidding Documents will not be issued directly to Sub-bidders unless specifically offered in the advertisement or invitation to bid, or in supplementary instructions to bidders.

§ 3.1.4 Bidders shall use complete Bidding Documents in preparing Bids. Neither the Owner nor Architect assumes responsibility for errors or misinterpretations resulting from the use of incomplete Bidding Documents.

§ 3.1.5 The Bidding Documents will be available for the sole purpose of obtaining Bids on the Work. No license or grant of use is conferred by distribution of the Bidding Documents.

§ 3.1.6 Buy American: Consistent with Executive Order 13858, Strengthening Buy-American Preferences for Infrastructure Projects," as modified by Executive Order 14005, Ensuring the Future Is Made in All of America by All of America's Workers, the Bidder is encouraged to use, to the greatest extent practicable, iron and aluminum as well as steel, cement, and other manufactured products produced in the United States in every contract, subcontract, purchase order, or sub-award that is chargeable under this Award.

§ 3.1.7 Federal Participation Disclosure – "This project will be partially funded with Federal funds from the United States Department of Commerce, Economic Development Administration and therefore is subject to the Federal laws and regulations associated with that program."

§ 3.2 Modification or Interpretation of Bidding Documents
§ 3.2.1 The Bidder shall carefully study the Bidding Documents, shall examine the site and local conditions, and shall notify the Architect of errors, inconsistencies, or ambiguities discovered and request clarification or interpretation pursuant to Section 3.2.2.

§ 3.2.2 Requests for clarification or interpretation of the Bidding Documents shall be submitted by the Bidder in writing and shall be received by the Architect at least seven days prior to the date for receipt of Bids.
(Indicate how, such as by email, website, host site/platform, paper copy, or other method Bidders shall submit requests for clarification and interpretation.)

Bidders shall email the Architect of Record for clarification or interpretation of Bid Documents to: bids@strata-arch.com by Friday, February 13, 2026, at 4:00 pm. Clarifications requested after that date will not be answered.

§ 3.2.3 Modifications and interpretations of the Bidding Documents shall be made by Addendum. Modifications and interpretations of the Bidding Documents made in any other manner shall not be binding, and Bidders shall not rely upon them.

§ 3.3 Substitutions
§ 3.3.1 The materials, products, and equipment described in the Bidding Documents establish a standard of required function, dimension, appearance, and quality to be met by any proposed substitution.

§ 3.3.2 Substitution Process
§ 3.3.2.1 Written requests for substitutions shall be received by the Architect at least ten days prior to the date for receipt of Bids. Requests shall be submitted in the same manner as that established for submitting clarifications and interpretations in Section 3.2.2.

§ 3.3.2.2 Bidders shall submit substitution requests on a Substitution Request Form if one is provided in the Bidding Documents.

§ 3.3.2.3 If a Substitution Request Form is not provided, requests shall include (1) the name of the material or equipment specified in the Bidding Documents; (2) the reason for the requested substitution; (3) a complete description of the proposed substitution including the name of the material or equipment proposed as the substitute, performance and test data, and relevant drawings; and (4) any other information necessary for an evaluation. The request shall include a statement setting forth changes in other materials, equipment, or other portions of the Work, including

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changes in the work of other contracts or the impact on any Project Certifications (such as LEED), that will result from incorporation of the proposed substitution.

§ 3.3.3 The burden of proof of the merit of the proposed substitution is upon the proposer. The Architect's decision of approval or disapproval of a proposed substitution shall be final.

§ 3.3.4 If the Architect approves a proposed substitution prior to receipt of Bids, such approval shall be set forth in an Addendum. Approvals made in any other manner shall not be binding, and Bidders shall not rely upon them.

§ 3.3.5 No substitutions will be considered after the Contract award unless specifically provided for in the Contract Documents.

§ 3.4 Addenda

§ 3.4.1 Addenda will be transmitted to Bidders known by the issuing office to have received complete Bidding Documents.

(Indicate how, such as by email, website, host site/platform, paper copy, or other method Addenda will be transmitted.)

Addenda will be transmitted to Bidders by email (if registered at the Bid Walk-Through), by bid plan rooms where the project is held, or by emailing bids@strata-arch.com to register for bidding related emails.

§ 3.4.2 Addenda will be available where Bidding Documents are on file.

§ 3.4.3 Addenda will be issued no later than four days prior to the date for receipt of Bids, except an Addendum withdrawing the request for Bids or one which includes postponement of the date for receipt of Bids.

§ 3.4.4 Prior to submitting a Bid, each Bidder shall ascertain that the Bidder has received all Addenda issued, and the Bidder shall acknowledge their receipt in the Bid.

ARTICLE 4 BIDDING PROCEDURES

§ 4.1 Preparation of Bids

§ 4.1.1 Bids shall be submitted on the forms included with or identified in the Bidding Documents.

§ 4.1.2 All blanks on the bid form shall be legibly executed. Paper bid forms shall be executed in a non-erasable medium.

§ 4.1.3 Sums shall be expressed in both words and numbers, unless noted otherwise on the bid form. In case of discrepancy, the amount entered in words shall govern.

§ 4.1.4 Edits to entries made on paper bid forms must be initialed by the signer of the Bid.

§ 4.1.5 All requested Alternates shall be bid. If no change in the Base Bid is required, enter "No Change" or as required by the bid form.

§ 4.1.6 Where two or more Bids for designated portions of the Work have been requested, the Bidder may, without forfeiture of the bid security, state the Bidder's refusal to accept award of less than the combination of Bids stipulated by the Bidder. The Bidder shall neither make additional stipulations on the bid form nor qualify the Bid in any other manner.

§ 4.1.7 Each copy of the Bid shall state the legal name and legal status of the Bidder. As part of the documentation submitted with the Bid, the Bidder shall provide evidence of its legal authority to perform the Work in the jurisdiction where the Project is located. Each copy of the Bid shall be signed by the person or persons legally authorized to bind the Bidder to a contract. A Bid by a corporation shall further name the state of incorporation and have the corporate seal affixed. A Bid submitted by an agent shall have a current power of attorney attached, certifying the agent's authority to bind the Bidder.

§ 4.1.8 A Bidder shall incur all costs associated with the preparation of its Bid.

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§ 4.2 Bid Security
§ 4.2.1 Each Bid shall be accompanied by the following bid security:
(Insert the form and amount of bid security.)

« »

§ 4.2.2 The Bidder pledges to enter into a Contract with the Owner on the terms stated in the Bid and shall, if required, furnish bonds covering the faithful performance of the Contract and payment of all obligations arising thereunder. Should the Bidder refuse to enter into such Contract or fail to furnish such bonds if required, the amount of the bid security shall be forfeited to the Owner as liquidated damages, not as a penalty. In the event the Owner fails to comply with Section 6.2, the amount of the bid security shall not be forfeited to the Owner.

§ 4.2.3 If a surety bond is required as bid security, it shall be written on AIA Document A310™, Bid Bond, unless otherwise provided in the Bidding Documents. The attorney-in-fact who executes the bond on behalf of the surety shall affix to the bond a certified and current copy of an acceptable power of attorney. The Bidder shall provide surety bonds from a company or companies lawfully authorized to issue surety bonds in the jurisdiction where the Project is located.

§ 4.2.4 The Owner will have the right to retain the bid security of Bidders to whom an award is being considered until (a) the Contract has been executed and bonds, if required, have been furnished; (b) the specified time has elapsed so that Bids may be withdrawn; or (c) all Bids have been rejected. However, if no Contract has been awarded or a Bidder has not been notified of the acceptance of its Bid, a Bidder may, beginning 90 days after the opening of Bids, withdraw its Bid and request the return of its bid security.

§ 4.3 Submission of Bids
§ 4.3.1 A Bidder shall submit its Bid as indicated below:
(Indicate how, such as by website, host site/platform, paper copy, or other method Bidders shall submit their Bid.)

Barring changes addressed in future addenda, Bids are due **by** 3:00 PM, Central Time, Thursday, February 26, 2026.

Bids may be emailed to:

bids@strata-arch.com
INCLUDE – 'Bid – 1872 Neosho Colored School Rehabilitation' in the email Subject Line

OR In person, addressed as such:

Grant Funding Manager
Harry S Truman Coordinating Council, Missouri State Regional Planning Commission
Attn: Amanda Hampton, MBA, Community Planner
107 N. Jefferson St.
Neosho, MO 64850
417-499-7758

§ 4.3.2 Paper copies of the Bid, the bid security, and any other documents required to be submitted with the Bid shall be enclosed in a sealed opaque envelope. The envelope shall be addressed to the party receiving the Bids and shall be identified with the Project name, the Bidder's name and address, and, if applicable, the designated portion of the Work for which the Bid is submitted. If the Bid is sent by mail, the sealed envelope shall be enclosed in a separate mailing envelope with the notation "SEALED BID ENCLOSED" on the face thereof.

§ 4.3.3 Bids shall be submitted and received by the date and time and at the place indicated in the invitation to bid. **Bids RECEIVED after the date and time for receipt of Bids, or at an incorrect place, will not be accepted. It is suggested to email bids well before the due date and time, in case there are issues with sending the documents electronically. Bids RECEIVED after the due date and time will not be accepted or reviewed.**

§ 4.3.4 The Bidder shall assume full responsibility for timely delivery at the location designated for receipt of Bids.

§ 4.3.5 A Bid submitted by any method other than as provided in this Section 4.3 will not be accepted.

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§ 4.4 Modification or Withdrawal of Bid

§ 4.4.1 Prior to the date and time designated for receipt of Bids, a Bidder may submit a new Bid to replace a Bid previously submitted, or withdraw its Bid entirely, by notice to the party designated to receive the Bids. Such notice shall be received and duly recorded by the receiving party on or before the date and time set for receipt of Bids. The receiving party shall verify that replaced or withdrawn Bids are removed from the other submitted Bids and not considered. Notice of submission of a replacement Bid or withdrawal of a Bid shall be worded so as not to reveal the amount of the original Bid.

§ 4.4.2 Withdrawn Bids may be resubmitted up to the date and time designated for the receipt of Bids in the same format as that established in Section 4.3, provided they fully conform with these Instructions to Bidders. Bid security shall be in an amount sufficient for the Bid as resubmitted.

§ 4.4.3 After the date and time designated for receipt of Bids, a Bidder who discovers that it made a clerical error in its Bid shall notify the Architect of such error within two days, or pursuant to a timeframe specified by the law of the jurisdiction where the Project is located, requesting withdrawal of its Bid. Upon providing evidence of such error to the reasonable satisfaction of the Architect, the Bid shall be withdrawn and not resubmitted. If a Bid is withdrawn pursuant to this Section 4.4.3, the bid security will be attended to as follows:
(State the terms and conditions, such as Bid rank, for returning or retaining the bid security.)

N/A

ARTICLE 5 CONSIDERATION OF BIDS

§ 5.1 Opening of Bids

If stipulated in an advertisement or invitation to bid, or when otherwise required by law, Bids properly identified and received within the specified time limits will be publicly opened and read aloud. A summary of the Bids may be made available to Bidders.

§ 5.2 Rejection of Bids

Unless otherwise prohibited by law, the Owner shall have the right to reject any or all Bids.

§ 5.3 Acceptance of Bid (Award)

§ 5.3.1 It is the intent of the Owner to award a Contract to the lowest responsive and responsible Bidder, provided the Bid has been submitted in accordance with the requirements of the Bidding Documents. Unless otherwise prohibited by law, the Owner shall have the right to waive informalities and irregularities in a Bid received and to accept the Bid which, in the Owner's judgment, is in the Owner's best interests.

§ 5.3.2 Unless otherwise prohibited by law, the Owner shall have the right to accept Alternates in any order or combination, unless otherwise specifically provided in the Bidding Documents, and to determine the lowest responsive and responsible Bidder on the basis of the sum of the Base Bid and Alternates accepted.

ARTICLE 6 POST-BID INFORMATION

§ 6.1 Contractor's Qualification Statement

Bidders to whom award of a Contract is under consideration shall submit to the Architect, upon request and within the timeframe specified by the Architect, a properly executed AIA Document A305™, Contractor's Qualification Statement, unless such a Statement has been previously required and submitted for this Bid.

§ 6.2 Owner's Financial Capability

A Bidder to whom award of a Contract is under consideration may request in writing, fourteen days prior to the expiration of the time for withdrawal of Bids, that the Owner furnish to the Bidder reasonable evidence that financial arrangements have been made to fulfill the Owner's obligations under the Contract. The Owner shall then furnish such reasonable evidence to the Bidder no later than seven days prior to the expiration of the time for withdrawal of Bids. Unless such reasonable evidence is furnished within the allotted time, the Bidder will not be required to execute the Agreement between the Owner and Contractor.

§ 6.3 Submittals

§ 6.3.1 After notification of selection for the award of the Contract, the Bidder shall, as soon as practicable or as stipulated in the Bidding Documents, submit in writing to the Owner through the Architect:

.1 a designation of the Work to be performed with the Bidder's own forces;

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.2 names of the principal products and systems proposed for the Work and the manufacturers and suppliers of each; and

.3 names of persons or entities (including those who are to furnish materials or equipment fabricated to a special design) proposed for the principal portions of the Work.

§ 6.3.2 The Bidder will be required to establish to the satisfaction of the Architect and Owner the reliability and responsibility of the persons or entities proposed to furnish and perform the Work described in the Bidding Documents.

§ 6.3.3 Prior to the execution of the Contract, the Architect will notify the Bidder if either the Owner or Architect, after due investigation, has reasonable objection to a person or entity proposed by the Bidder. If the Owner or Architect has reasonable objection to a proposed person or entity, the Bidder may, at the Bidder's option, withdraw the Bid or submit an acceptable substitute person or entity. The Bidder may also submit any required adjustment in the Base Bid or Alternate Bid to account for the difference in cost occasioned by such substitution. The Owner may accept the adjusted bid price or disqualify the Bidder. In the event of either withdrawal or disqualification, bid security will not be forfeited.

§ 6.3.4 Persons and entities proposed by the Bidder and to whom the Owner and Architect have made no reasonable objection must be used on the Work for which they were proposed and shall not be changed except with the written consent of the Owner and Architect.

ARTICLE 7 PERFORMANCE BOND AND PAYMENT BOND

§ 7.1 Bond Requirements

§ 7.1.1 If stipulated in the Bidding Documents, the Bidder shall furnish bonds covering the faithful performance of the Contract and payment of all obligations arising thereunder.

§ 7.1.2 If the furnishing of such bonds is stipulated in the Bidding Documents, the cost shall be included in the Bid. If the furnishing of such bonds is required after receipt of bids and before execution of the Contract, the cost of such bonds shall be added to the Bid in determining the Contract Sum.

§ 7.1.3 The Bidder shall provide surety bonds from a company or companies lawfully authorized to issue surety bonds in the jurisdiction where the Project is located.

§ 7.1.4 Unless otherwise indicated below, the Penal Sum of the Payment and Performance Bonds shall be the amount of the Contract Sum.
(If Payment or Performance Bonds are to be in an amount other than 100% of the Contract Sum, indicate the dollar amount or percentage of the Contract Sum.)

Submit Payment and Performance Bonds for 100% of the Contract Sum.

§ 7.2 Time of Delivery and Form of Bonds

§ 7.2.1 The Bidder shall deliver the required bonds to the Owner not later than three days following the date of execution of the Contract. If the Work is to commence sooner in response to a letter of intent, the Bidder shall, prior to commencement of the Work, submit evidence satisfactory to the Owner that such bonds will be furnished and delivered in accordance with this Section 7.2.1.

§ 7.2.2 Unless otherwise provided, the bonds shall be written on AIA Document A312, Performance Bond and Payment Bond.

§ 7.2.3 The bonds shall be dated on or after the date of the Contract.

§ 7.2.4 The Bidder shall require the attorney-in-fact who executes the required bonds on behalf of the surety to affix to the bond a certified and current copy of the power of attorney.

ARTICLE 8 ENUMERATION OF THE PROPOSED CONTRACT DOCUMENTS

§ 8.1 Copies of the proposed Contract Documents have been made available to the Bidder and consist of the following documents:

.1 AIA Document A101™–2017, Standard Form of Agreement Between Owner and Contractor, unless otherwise stated below.

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.2 AIA Document A101™–2017, Exhibit A, Insurance and Bonds, unless otherwise stated below.

.3 AIA Document A201™–2017, General Conditions of the Contract for Construction, unless otherwise stated below.

.4 Other Exhibits:

[**X**] Supplementary and other Conditions of the Contract:

Document	Title	Date	Pages
Contractor Insurance Requirements	Attached to Draft A101 Contract		

.5 Other documents listed below:
(List here any additional documents that are intended to form part of the Proposed Contract Documents.)

Carver Birthplace Association – Tax Exempt Letter

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AIA® Document A101® – 2017

Standard Form of Agreement Between Owner and Contractor
where the basis of payment is a Stipulated Sum

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)

George Washington Carver Birthplace District Association, Inc.
(a registered 501(c)(3)
5646 Carver Rd
Diamond, MO 64840-8314

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

« »« »
« »
« »
« »

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

1872 Neosho Colored School Rehabilitation
639 Young Street
Neosho, MO 64850

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

STRATA Architecture Inc., a Missouri corporation
1701 Oak Street, Suite 100
Kansas City, MO 64108

The Owner and Contractor agree as follows.

ADDITIONS AND DELETIONS: The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes added information as well as revisions to the standard form text is available from the author and should be reviewed.

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

The parties should complete A101®-2017, Exhibit A, Insurance and Bonds, contemporaneously with this Agreement. AIA Document A201®-2017, General Conditions of the Contract for Construction, is adopted in this document by reference. Do not use with other general conditions unless this document is modified.

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TABLE OF ARTICLES

1 THE CONTRACT DOCUMENTS

2 THE WORK OF THIS CONTRACT

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4 CONTRACT SUM

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8 MISCELLANEOUS PROVISIONS

9 ENUMERATION OF CONTRACT DOCUMENTS

EXHIBIT A INSURANCE AND BONDS

ARTICLE 1 THE CONTRACT DOCUMENTS

The Contract Documents consist of this Agreement, Conditions of the Contract (General, Supplementary, and other Conditions), Drawings, Specifications, Addenda issued prior to execution of this Agreement, other documents listed in this Agreement, and Modifications issued after execution of this Agreement, all of which form the Contract, and are as fully a part of the Contract as if attached to this Agreement or repeated herein. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations, or agreements, either written or oral. An enumeration of the Contract Documents, other than a Modification, appears in Article 9.

ARTICLE 2 THE WORK OF THIS CONTRACT

The Contractor shall fully execute the Work described in the Contract Documents, except as specifically indicated in the Contract Documents to be the responsibility of others.

ARTICLE 3 DATE OF COMMENCEMENT AND SUBSTANTIAL COMPLETION

§ 3.1 The date of commencement of the Work shall be:
(Check one of the following boxes.)

[« »] The date of this Agreement.

[X] A date set forth in a notice to proceed issued by the Owner.

[« »] Established as follows:
(Insert a date or a means to determine the date of commencement of the Work.)

« »

If a date of commencement of the Work is not selected, then the date of commencement shall be the date of this Agreement.

§ 3.2 The Contract Time shall be measured from the date of commencement of the Work.

§ 3.3 Substantial Completion

§ 3.3.1 Subject to adjustments of the Contract Time as provided in the Contract Documents, the Contractor shall achieve Substantial Completion of the entire Work:
(Check one of the following boxes and complete the necessary information.)

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[X] Not later than six months (180 calendar days) from the date of commencement of the Work.

[« »] By the following date: « »

§ 3.3.2 Subject to adjustments of the Contract Time as provided in the Contract Documents, if portions of the Work are to be completed prior to Substantial Completion of the entire Work, the Contractor shall achieve Substantial Completion of such portions by the following dates:

Portion of Work	Substantial Completion Date
Ready for Final Punch List	Five months (150 calendar days)

§ 3.3.3 If the Contractor fails to achieve Substantial Completion as provided in this Section 3.3, liquidated damages, if any, shall be assessed as set forth in Section 4.5.

ARTICLE 4 CONTRACT SUM

§ 4.1 The Owner shall pay the Contractor the Contract Sum in current funds for the Contractor's performance of the Contract. The Contract Sum shall be « » ($ « »), subject to additions and deductions as provided in the Contract Documents.

§ 4.2 Alternates

§ 4.2.1 Alternates, if any, included in the Contract Sum:

Item	Price

§ 4.2.2 Subject to the conditions noted below, the following alternates may be accepted by the Owner following execution of this Agreement. Upon acceptance, the Owner shall issue a Modification to this Agreement.
(Insert below each alternate and the conditions that must be met for the Owner to accept the alternate.)

Item	Price	Conditions for Acceptance

§ 4.3 Allowances, if any, included in the Contract Sum:
(Identify each allowance.)

Item	Price

§ 4.4 Unit prices, if any:
(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)

§ 4.5 Liquidated damages, if any:
(Insert terms and conditions for liquidated damages, if any.)

$500/day

§ 4.6 Other:
(Insert provisions for bonus or other incentives, if any, that might result in a change to the Contract Sum.)

Contractor's Overhead and Profit for Change Orders is limited to 10% for each Change Order.

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ARTICLE 5 PAYMENTS

§ 5.1 Progress Payments

§ 5.1.1 Based upon Applications for Payment submitted to the Architect by the Contractor and Certificates for Payment issued by the Architect, the Owner shall make progress payments on account of the Contract Sum to the Contractor as provided below and elsewhere in the Contract Documents.

§ 5.1.2 The period covered by each Application for Payment shall be one calendar month ending on the last day of the month, or as follows:

« »

§ 5.1.3 Provided that an Application for Payment is received by the Architect not later than the 18th day of a month, the Owner shall make payment of the amount certified to the Contractor not later than the last day of the same month. If an Application for Payment is received by the Architect after the application date fixed above, payment of the amount certified shall be made by the Owner not later than thirty-five days after the Architect receives the Application for Payment.
(Federal, state or local laws may require payment within a certain period of time.)

§ 5.1.4 Each Application for Payment shall be based on the most recent schedule of values submitted by the Contractor in accordance with the Contract Documents. The schedule of values shall allocate the entire Contract Sum among the various portions of the Work. The schedule of values shall be prepared in such form, and supported by such data to substantiate its accuracy, as the Architect may require. This schedule of values shall be used as a basis for reviewing the Contractor's Applications for Payment.

§ 5.1.5 Applications for Payment shall show the percentage of completion of each portion of the Work as of the end of the period covered by the Application for Payment.

§ 5.1.6 In accordance with AIA Document A201™–2017, General Conditions of the Contract for Construction, and subject to other provisions of the Contract Documents, the amount of each progress payment shall be computed as follows:

§ 5.1.6.1 The amount of each progress payment shall first include:

- **.1** That portion of the Contract Sum properly allocable to completed Work;
- **.2** That portion of the Contract Sum properly allocable to materials and equipment delivered and suitably stored at the site for subsequent incorporation in the completed construction, or, if approved in advance by the Owner, suitably stored off the site at a location agreed upon in writing; and
- **.3** That portion of Construction Change Directives that the Architect determines, in the Architect's professional judgment, to be reasonably justified.

§ 5.1.6.2 The amount of each progress payment shall then be reduced by:

- **.1** The aggregate of any amounts previously paid by the Owner;
- **.2** The amount, if any, for Work that remains uncorrected and for which the Architect has previously withheld a Certificate for Payment as provided in Article 9 of AIA Document A201–2017;
- **.3** Any amount for which the Contractor does not intend to pay a Subcontractor or material supplier, unless the Work has been performed by others the Contractor intends to pay;
- **.4** For Work performed or defects discovered since the last payment application, any amount for which the Architect may withhold payment, or nullify a Certificate of Payment in whole or in part, as provided in Article 9 of AIA Document A201–2017; and
- **.5** Retainage withheld pursuant to Section 5.1.7.

§ 5.1.7 Retainage

§ 5.1.7.1 For each progress payment made prior to Substantial Completion of the Work, the Owner may withhold the following amount, as retainage, from the payment otherwise due:
(Insert a percentage or amount to be withheld as retainage from each Application for Payment. The amount of retainage may be limited by governing law.)

5%

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§ 5.1.7.1.1 The following items are not subject to retainage:
(Insert any items not subject to the withholding of retainage, such as general conditions, insurance, etc.)

General Conditions, Insurance

§ 5.1.7.2 Reduction or limitation of retainage, if any, shall be as follows:
(If the retainage established in Section 5.1.7.1 is to be modified prior to Substantial Completion of the entire Work, including modifications for Substantial Completion of portions of the Work as provided in Section 3.3.2, insert provisions for such modifications.)

« »

§ 5.1.7.3 Except as set forth in this Section 5.1.7.3, upon Substantial Completion of the Work, the Contractor may submit an Application for Payment that includes the retainage withheld from prior Applications for Payment pursuant to this Section 5.1.7. The Application for Payment submitted at Substantial Completion shall not include retainage as follows:
(Insert any other conditions for release of retainage upon Substantial Completion.)

« »

§ 5.1.8 If final completion of the Work is materially delayed through no fault of the Contractor, the Owner shall pay the Contractor any additional amounts in accordance with Article 9 of AIA Document A201–2017.

§ 5.1.9 Except with the Owner's prior approval, the Contractor shall not make advance payments to suppliers for materials or equipment which have not been delivered and stored at the site.

§ 5.2 Final Payment

§ 5.2.1 Final payment, constituting the entire unpaid balance of the Contract Sum, shall be made by the Owner to the Contractor when

- **.1** the Contractor has fully performed the Contract except for the Contractor's responsibility to correct Work as provided in Article 12 of AIA Document A201–2017, and to satisfy other requirements, if any, which extend beyond final payment; and
- **.2** a final Certificate for Payment has been issued by the Architect.

§ 5.2.2 The Owner's final payment to the Contractor shall be made no later than 30 days after the issuance of the Architect's final Certificate for Payment, or as follows:

« »

§ 5.3 Interest

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

« » % « »

ARTICLE 6 DISPUTE RESOLUTION

§ 6.1 Initial Decision Maker

The Architect will serve as the Initial Decision Maker pursuant to Article 15 of AIA Document A201–2017, unless the parties appoint below another individual, not a party to this Agreement, to serve as the Initial Decision Maker.
(If the parties mutually agree, insert the name, address and other contact information of the Initial Decision Maker, if other than the Architect.)

« »
« »

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« »
« »

§ 6.2 Binding Dispute Resolution
For any Claim subject to, but not resolved by, mediation pursuant to Article 15 of AIA Document A201–2017, the method of binding dispute resolution shall be as follows:
(Check the appropriate box.)

[X] Arbitration pursuant to Section 15.4 of AIA Document A201–2017

[« »] Litigation in a court of competent jurisdiction

[« »] Other *(Specify)*

« »

If the Owner and Contractor do not select a method of binding dispute resolution, or do not subsequently agree in writing to a binding dispute resolution method other than litigation, Claims will be resolved by litigation in a court of competent jurisdiction.

ARTICLE 7 TERMINATION OR SUSPENSION

§ 7.1 The Contract may be terminated by the Owner or the Contractor as provided in Article 14 of AIA Document A201–2017.

§ 7.1.1 If the Contract is terminated for the Owner's convenience in accordance with Article 14 of AIA Document A201–2017, then the Owner shall pay the Contractor a termination fee as follows:
(Insert the amount of, or method for determining, the fee, if any, payable to the Contractor following a termination for the Owner's convenience.)

Termination fee to cover work to date and materials ordered to date.

§ 7.2 The Work may be suspended by the Owner as provided in Article 14 of AIA Document A201–2017.

ARTICLE 8 MISCELLANEOUS PROVISIONS

§ 8.1 Where reference is made in this Agreement to a provision of AIA Document A201–2017 or another Contract Document, the reference refers to that provision as amended or supplemented by other provisions of the Contract Documents.

§ 8.2 The Owner's representative:
(Name, address, email address, and other information)

« »
« »
« »
« »
« »
« »

§ 8.3 The Contractor's representative:
(Name, address, email address, and other information)

« »
« »
« »
« »
« »
« »

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§ 8.4 Neither the Owner's nor the Contractor's representative shall be changed without ten days' prior notice to the other party.

§ 8.5 Insurance and Bonds

§ 8.5.1 The Owner and the Contractor shall purchase and maintain insurance as set forth in AIA Document A101™–2017, Standard Form of Agreement Between Owner and Contractor where the basis of payment is a Stipulated Sum, Exhibit A, Insurance and Bonds, and elsewhere in the Contract Documents.

§ 8.5.2 The Contractor shall provide bonds as set forth in AIA Document A101™–2017 Exhibit A, and elsewhere in the Contract Documents.

§ 8.6 Notice in electronic format, pursuant to Article 1 of AIA Document A201–2017, may be given in accordance with AIA Document E203™–2013, Building Information Modeling and Digital Data Exhibit, if completed, or as otherwise set forth below:
(If other than in accordance with AIA Document E203–2013, insert requirements for delivering notice in electronic format 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.)

« »

§ 8.7 Other provisions:

« »

ARTICLE 9 ENUMERATION OF CONTRACT DOCUMENTS

§ 9.1 This Agreement is comprised of the following documents:

.1 AIA Document A101™–2017, Standard Form of Agreement Between Owner and Contractor

.2 AIA Document A101™–2017, Exhibit A, Insurance and Bonds

.3 AIA Document A201™–2017, General Conditions of the Contract for Construction

.4 AIA Document E203™–2013, Building Information Modeling and Digital Data Exhibit, dated as indicated below:
(Insert the date of the E203-2013 incorporated into this Agreement.)

« »

.5 Drawings

Number	Title	Date

.6 Specifications

Section	Title	Date	Pages

.7 Addenda, if any:

Number	Date	Pages

Portions of Addenda relating to bidding or proposal requirements are not part of the Contract Documents unless the bidding or proposal requirements are also enumerated in this Article 9.

.8 Other Exhibits:
(Check all boxes that apply and include appropriate information identifying the exhibit where required.)

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[« »] AIA Document E204™–2017, Sustainable Projects Exhibit, dated as indicated below:
(Insert the date of the E204-2017 incorporated into this Agreement.)

« »

[« »] The Sustainability Plan:

Title	Date	Pages

[« »] Supplementary and other Conditions of the Contract:

Document	Title	Date	Pages

.9 Other documents, if any, listed below:
(List here any additional documents that are intended to form part of the Contract Documents. AIA Document A201™–2017 provides that the advertisement or invitation to bid, Instructions to Bidders, sample forms, the Contractor's bid or proposal, portions of Addenda relating to bidding or proposal requirements, and other information furnished by the Owner in anticipation of receiving bids or proposals, are not part of the Contract Documents unless enumerated in this Agreement. Any such documents should be listed here only if intended to be part of the Contract Documents.)

« »

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

OWNER *(Signature)*	**CONTRACTOR** *(Signature)*
« »« »	« »« »
(Printed name and title)	*(Printed name and title)*

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AIA® Document A101® – 2017 Exhibit A

Insurance and Bonds

This Insurance and Bonds Exhibit is part of the Agreement, between the Owner and the Contractor, dated the « » day of « » in the year « »
(In words, indicate day, month and year.)

for the following **PROJECT**:
(Name and location or address)

1872 Neosho Colored School Rehabilitation
639 Young Street
Neosho, MO 64850

THE OWNER:
(Name, legal status and address)

George Washington Carver Birthplace District Association, Inc.
5646 Carver Rd
Diamond, MO 64840
Chairperson, Lana Henry

THE CONTRACTOR:
(Name, legal status and address)

« »« »
« »

TABLE OF ARTICLES

A.1 GENERAL

A.2 OWNER'S INSURANCE

A.3 CONTRACTOR'S INSURANCE AND BONDS

A.4 SPECIAL TERMS AND CONDITIONS

ARTICLE A.1 GENERAL

The Owner and Contractor shall purchase and maintain insurance, and provide bonds, as set forth in this Exhibit. As used in this Exhibit, the term General Conditions refers to AIA Document A201™–2017, General Conditions of the Contract for Construction.

ARTICLE A.2 OWNER'S INSURANCE

§ A.2.1 General

Prior to commencement of the Work, the Owner shall secure the insurance, and provide evidence of the coverage, required under this Article A.2 and, upon the Contractor's request, provide a copy of the property insurance policy or policies required by Section A.2.3. The copy of the policy or policies provided shall contain all applicable conditions, definitions, exclusions, and endorsements.

ADDITIONS AND DELETIONS: The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes added information as well as revisions to the standard form text is available from the author and should be reviewed.

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

This document is intended to be used in conjunction with AIA Document A201®–2017, General Conditions of the Contract for Construction. Article 11 of A201®–2017 contains additional insurance provisions.

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§ A.2.2 Liability Insurance
The Owner shall be responsible for purchasing and maintaining the Owner's usual general liability insurance.

§ A.2.3 Required Property Insurance
§ A.2.3.1 Unless this obligation is placed on the Contractor pursuant to Section A.3.3.2.1, the Owner shall purchase and maintain, from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located, property insurance 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. The Owner's property insurance coverage shall be no less than the amount of the initial Contract Sum, plus the value of subsequent Modifications and labor performed and materials or equipment supplied by others. The property insurance shall be maintained until Substantial Completion and thereafter as provided in Section A.2.3.1.3, unless otherwise provided in the Contract Documents or otherwise agreed in writing by the parties to this Agreement. This insurance shall include the interests of the Owner, Contractor, Subcontractors, and Sub-subcontractors in the Project as insureds. This insurance shall include the interests of mortgagees as loss payees.

§ A.2.3.1.1 Causes of Loss. The insurance required by this Section A.2.3.1 shall provide coverage for direct physical loss or damage, and shall not exclude the risks of fire, explosion, theft, vandalism, malicious mischief, collapse, earthquake, flood, or windstorm. The insurance shall also provide coverage for ensuing loss or resulting damage from error, omission, or deficiency in construction methods, design, specifications, workmanship, or materials. Sub-limits, if any, are as follows:
(Indicate below the cause of loss and any applicable sub-limit.)

Causes of Loss	Sub-Limit

§ A.2.3.1.2 Specific Required Coverages. The insurance required by this Section A.2.3.1 shall provide coverage for loss or damage to falsework and other temporary structures, and to building systems from testing and startup. The insurance shall also cover debris removal, including demolition occasioned by enforcement of any applicable legal requirements, and reasonable compensation for the Architect's and Contractor's services and expenses required as a result of such insured loss, including claim preparation expenses. Sub-limits, if any, are as follows:
(Indicate below type of coverage and any applicable sub-limit for specific required coverages.)

Coverage	Sub-Limit

§ A.2.3.1.3 Unless the parties agree otherwise, upon Substantial Completion, the Owner shall continue the insurance required by Section A.2.3.1 or, if necessary, replace the insurance policy required under Section A.2.3.1 with property insurance written for the total value of the Project that shall remain in effect until expiration of the period for correction of the Work set forth in Section 12.2.2 of the General Conditions.

§ A.2.3.1.4 Deductibles and Self-Insured Retentions. If the insurance required by this Section A.2.3 is subject to deductibles or self-insured retentions, the Owner shall be responsible for all loss not covered because of such deductibles or retentions.

§ A.2.3.2 Occupancy or Use Prior to Substantial Completion. The Owner's occupancy or use of any completed or partially completed portion of the Work prior to Substantial Completion shall not commence until the insurance company or companies providing the insurance under Section A.2.3.1 have consented in writing to the continuance of coverage. The Owner and the Contractor shall take no action with respect to partial occupancy or use that would cause cancellation, lapse, or reduction of insurance, unless they agree otherwise in writing.

§ A.2.3.3 Insurance for Existing Structures
If the Work involves remodeling an existing structure or constructing an addition to an existing structure, the Owner shall purchase and maintain, until the expiration of the period for correction of Work as set forth in Section 12.2.2 of the General Conditions, "all-risks" property insurance, on a replacement cost basis, protecting the existing structure against direct physical loss or damage from the causes of loss identified in Section A.2.3.1, notwithstanding the undertaking of the Work. The Owner shall be responsible for all co-insurance penalties.

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§ A.2.4 Optional Extended Property Insurance.
The Owner shall purchase and maintain the insurance selected and described below.
(Select the types of insurance the Owner is required to purchase and maintain by placing an X in the box(es) next to the description(s) of selected insurance. For each type of insurance selected, indicate applicable limits of coverage or other conditions in the fill point below the selected item.)

[« »] **§ A.2.4.1 Loss of Use, Business Interruption, and Delay in Completion Insurance**, to reimburse the Owner for loss of use of the Owner's property, or the inability to conduct normal operations due to a covered cause of loss.

« »

[« »] **§ A.2.4.2 Ordinance or Law Insurance**, for the reasonable and necessary costs to satisfy the minimum requirements of the enforcement of any law or ordinance regulating the demolition, construction, repair, replacement or use of the Project.

« »

[« »] **§ A.2.4.3 Expediting Cost Insurance**, for the reasonable and necessary costs for the temporary repair of damage to insured property, and to expedite the permanent repair or replacement of the damaged property.

« »

[« »] **§ A.2.4.4 Extra Expense Insurance**, to provide reimbursement of the reasonable and necessary excess costs incurred during the period of restoration or repair of the damaged property that are over and above the total costs that would normally have been incurred during the same period of time had no loss or damage occurred.

« »

[« »] **§ A.2.4.5 Civil Authority Insurance**, for losses or costs arising from an order of a civil authority prohibiting access to the Project, provided such order is the direct result of physical damage covered under the required property insurance.

« »

[« »] **§ A.2.4.6 Ingress/Egress Insurance**, for loss due to the necessary interruption of the insured's business due to physical prevention of ingress to, or egress from, the Project as a direct result of physical damage.

« »

[« »] **§ A.2.4.7 Soft Costs Insurance**, to reimburse the Owner for costs due to the delay of completion of the Work, arising out of physical loss or damage covered by the required property insurance: including construction loan fees; leasing and marketing expenses; additional fees, including those of architects, engineers, consultants, attorneys and accountants, needed for the completion of the construction, repairs, or reconstruction; and carrying costs such as property taxes, building permits, additional interest on loans, realty taxes, and insurance premiums over and above normal expenses.

« »

§ A.2.5 Other Optional Insurance.
The Owner shall purchase and maintain the insurance selected below.

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(Select the types of insurance the Owner is required to purchase and maintain by placing an X in the box(es) next to the description(s) of selected insurance.)

[« »] **§ A.2.5.1 Cyber Security Insurance** for loss to the Owner due to data security and privacy breach, including costs of investigating a potential or actual breach of confidential or private information. *(Indicate applicable limits of coverage or other conditions in the fill point below.)*

« »

[« »] **§ A.2.5.2 Other Insurance**
(List below any other insurance coverage to be provided by the Owner and any applicable limits.)

Coverage	Limits

ARTICLE A.3 CONTRACTOR'S INSURANCE AND BONDS

§ A.3.1 General

§ A.3.1.1 Certificates of Insurance. The Contractor shall provide certificates of insurance acceptable to the Owner evidencing compliance with the requirements in this Article A.3 at the following times: (1) prior to commencement of the Work; (2) upon renewal or replacement of each required policy of insurance; and (3) upon the Owner's written request. An additional certificate evidencing continuation of commercial liability coverage, including coverage for completed operations, shall be submitted with the final Application for Payment and thereafter upon renewal or replacement of such coverage until the expiration of the periods required by Section A.3.2.1 and Section A.3.3.1. The certificates will show the Owner as an additional insured on the Contractor's Commercial General Liability and excess or umbrella liability policy or policies.

§ A.3.1.2 Deductibles and Self-Insured Retentions. The Contractor shall disclose to the Owner any deductible or self-insured retentions applicable to any insurance required to be provided by the Contractor.

§ A.3.1.3 Additional Insured Obligations. To the fullest extent permitted by law, the Contractor shall cause the commercial general liability coverage to include (1) the Owner, the Architect, and the Architect's consultants as additional insureds for claims caused in whole or in part by the Contractor's negligent acts or omissions during the Contractor's operations; and (2) the Owner as an additional insured for claims caused in whole or in part by the Contractor's negligent acts or omissions for which loss occurs during completed operations. The additional insured coverage shall be primary and non-contributory to any of the Owner's general liability insurance policies and shall apply to both ongoing and completed operations. To the extent commercially available, the additional insured coverage shall be no less than that provided by Insurance Services Office, Inc. (ISO) forms CG 20 10 07 04, CG 20 37 07 04, and, with respect to the Architect and the Architect's consultants, CG 20 32 07 04.

§ A.3.2 Contractor's Required Insurance Coverage

§ A.3.2.1 The Contractor shall purchase and maintain the following types and limits of insurance from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located. The Contractor shall maintain the required insurance until the expiration of the period for correction of Work as set forth in Section 12.2.2 of the General Conditions, unless a different duration is stated below:
(If the Contractor is required to maintain insurance for a duration other than the expiration of the period for correction of Work, state the duration.)

« »

§ A.3.2.2 Commercial General Liability

§ A.3.2.2.1 Commercial General Liability insurance for the Project written on an occurrence form with policy limits of not less than one million dollars ($ 1,000,000) each occurrence, two million dollars ($ 2,000,000) general aggregate, and two million ($ 2,000,000) aggregate for products-completed operations hazard, providing coverage for claims including

.1 damages because of bodily injury, sickness or disease, including occupational sickness or disease, and death of any person;

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.2 personal injury and advertising injury;
.3 damages because of physical damage to or destruction of tangible property, including the loss of use of such property;
.4 bodily injury or property damage arising out of completed operations; and
.5 the Contractor's indemnity obligations under Section 3.18 of the General Conditions.

§ A.3.2.2.2 The Contractor's Commercial General Liability shall contain a waiver of subrogation in favor of the Owner, Architect, and their officers, directors and employees. The policy under this Section A.3.2.2 shall not contain an exclusion or restriction of coverage for the following:

.1 Claims by one insured against another insured, if the exclusion or restriction is based solely on the fact that the claimant is an insured, and there would otherwise be coverage for the claim.
.2 Claims for property damage to the Contractor's Work arising out of the products-completed operations hazard where the damaged Work or the Work out of which the damage arises was performed by a Subcontractor.
.3 Claims for bodily injury other than to employees of the insured.
.4 Claims for indemnity under Section 3.18 of the General Conditions arising out of injury to employees of the insured.
.5 Claims or loss excluded under a prior work endorsement or other similar exclusionary language.
.6 Claims or loss due to physical damage under a prior injury endorsement or similar exclusionary language.
.7 Claims related to residential, multi-family, or other habitational projects, if the Work is to be performed on such a project.
.8 Claims related to roofing, if the Work involves roofing.
.9 Claims related to exterior insulation finish systems (EIFS), synthetic stucco or similar exterior coatings or surfaces, if the Work involves such coatings or surfaces.
.10 Claims related to earth subsidence or movement, where the Work involves such hazards.
.11 Claims related to explosion, collapse and underground hazards, where the Work involves such hazards.

§ A.3.2.3 Automobile Liability covering vehicles owned, and non-owned vehicles used, by the Contractor, with policy limits of not less than one million ($ 1,000,000) 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. The policy shall contain a waiver of subrogation in favor of the Owner, Architect, and their officers, directors and employees.

§ A.3.2.4 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 such primary and excess or umbrella insurance policies result in the same or greater coverage as the coverages required under Section A.3.2.2 and A.3.2.3, and in no event shall any excess or umbrella liability insurance provide narrower coverage than the primary policy. The excess policy shall not require the exhaustion of the underlying limits only through the actual payment by the underlying insurers.

§ A.3.2.5 Workers' Compensation at statutory limits.

§ A.3.2.6 Employers' Liability with policy limits not less than one million ($ 1,000,000) each accident, one million ($ 1,000,000) each employee, and 1,000,000 ($ 1,000,000) policy limit.

§ A.3.2.7 Jones Act, and the Longshore & Harbor Workers' Compensation Act, as required, if the Work involves hazards arising from work on or near navigable waterways, including vessels and docks

§ A.3.2.8 If the Contractor is required to furnish professional services as part of the Work, the Contractor shall procure Professional Liability insurance covering performance of the professional services, with policy limits of not less than « » ($ « ») per claim and « » ($ « ») in the aggregate. N/A

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§ A.3.2.9 If the Work involves the transport, dissemination, use, or release of pollutants, the Contractor shall procure Pollution Liability insurance, with policy limits of not less than « » ($ « ») per claim and « » ($ « ») in the aggregate. N/A

§ A.3.2.10 Coverage under Sections A.3.2.8 and A.3.2.9 may be procured through a Combined Professional Liability and Pollution Liability insurance policy, with combined policy limits of not less than « » ($ « ») per claim and « » ($ « ») in the aggregate. N/A

§ A.3.2.11 Insurance for maritime liability risks associated with the operation of a vessel, if the Work requires such activities, with policy limits of not less than « » ($ « ») per claim and « » ($ « ») in the aggregate. N/A

§ A.3.2.12 Insurance for the use or operation of manned or unmanned aircraft, if the Work requires such activities, with policy limits of not less than « » ($ « ») per claim and « » ($ « ») in the aggregate.N/A

§ A.3.3 Contractor's Other Insurance Coverage

§ A.3.3.1 Insurance selected and described in this Section A.3.3 shall be purchased from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located. The Contractor shall maintain the required insurance until the expiration of the period for correction of Work as set forth in Section 12.2.2 of the General Conditions, unless a different duration is stated below:
(If the Contractor is required to maintain any of the types of insurance selected below for a duration other than the expiration of the period for correction of Work, state the duration.)

« »

§ A.3.3.2 The Contractor shall purchase and maintain the following types and limits of insurance in accordance with Section A.3.3.1.
(Select the types of insurance the Contractor is required to purchase and maintain by placing an X in the box(es) next to the description(s) of selected insurance. Where policy limits are provided, include the policy limit in the appropriate fill point.)

[« »] **§ A.3.3.2.1** Property insurance of the same type and scope satisfying the requirements identified in Section A.2.3, which, if selected in this section A.3.3.2.1, relieves the Owner of the responsibility to purchase and maintain such insurance except insurance required by Section A.2.3.1.3 and Section A.2.3.3. The Contractor shall comply with all obligations of the Owner under Section A.2.3 except to the extent provided below. The Contractor shall disclose to the Owner the amount of any deductible, and the Owner shall be responsible for losses within the deductible. Upon request, the Contractor shall provide the Owner with a copy of the property insurance policy or policies required. The Owner shall adjust and settle the loss with the insurer and be the trustee of the proceeds of the property insurance in accordance with Article 11 of the General Conditions unless otherwise set forth below:
(Where the Contractor's obligation to provide property insurance differs from the Owner's obligations as described under Section A.2.3, indicate such differences in the space below. Additionally, if a party other than the Owner will be responsible for adjusting and settling a loss with the insurer and acting as the trustee of the proceeds of property insurance in accordance with Article 11 of the General Conditions, indicate the responsible party below.)

« »

[« »] **§ A.3.3.2.2 Railroad Protective Liability Insurance**, with policy limits of not less than « » ($ « ») per claim and « » ($ « ») in the aggregate, for Work within fifty (50) feet of railroad property.

[« »] **§ A.3.3.2.3 Asbestos Abatement Liability Insurance**, with policy limits of not less than « » ($ « ») per claim and « » ($ « ») in the aggregate, for liability arising from the encapsulation, removal, handling, storage, transportation, and disposal of asbestos-containing materials.

[« »] **§ A.3.3.2.4** Insurance for physical damage to property while it is in storage and in transit to the

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construction site on an "all-risks" completed value form.

[« »] **§ A.3.3.2.5** Property insurance on an "all-risks" completed value form, covering property owned by the Contractor and used on the Project, including scaffolding and other equipment.

[« »] **§ A.3.3.2.6 Other Insurance**
(List below any other insurance coverage to be provided by the Contractor and any applicable limits.)

Coverage	Limits
Umbrella Excess Liability	$1,000,000 per occurrence/$2,000,000 aggregate

§ A.3.4 Performance Bond and Payment Bond
The Contractor shall provide surety bonds, from a company or companies lawfully authorized to issue surety bonds in the jurisdiction where the Project is located, as follows:
(Specify type and penal sum of bonds.)

Type	Penal Sum ($0.00)
Payment Bond	Based on Bid and Contract
Performance Bond	Based on Bid and Contract

Payment and Performance Bonds shall be AIA Document A312™, Payment Bond and Performance Bond, or contain provisions identical to AIA Document A312™, current as of the date of this Agreement.

ARTICLE A.4 SPECIAL TERMS AND CONDITIONS
Special terms and conditions that modify this Insurance and Bonds Exhibit, if any, are as follows:

« »

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General Conditions of the Contract for Construction

for the following PROJECT:
(Name and location or address)

1872 Neosho Colored School Rehabilitation
639 Young Street
Neosho, MO 64850

THE OWNER:
(Name, legal status and address)

George Washington Carver Birthplace District Association, Inc.
5646 Carver Rd
Diamond, MO 64840
Chairperson, Lana Henry

THE ARCHITECT:
(Name, legal status and address)

STRATA Architecture Inc., a Missouri Corporation
1701 Oak Street, Suite 100
Kansas City, MO 64108
816-474-0900

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

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14 TERMINATION OR SUSPENSION OF THE CONTRACT

15 CLAIMS AND DISPUTES

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ARTICLE 1 GENERAL PROVISIONS

§ 1.1 Basic Definitions

§ 1.1.1 The Contract Documents

The Contract Documents are enumerated in the Agreement between the Owner and Contractor (hereinafter the Agreement) and consist of the Agreement, Conditions of the Contract (General, Supplementary and other Conditions), Drawings, Specifications, Addenda issued prior to execution of the Contract, other documents listed in the Agreement, and Modifications issued after execution of the Contract. A Modification is (1) a written amendment to the Contract signed by both parties, (2) a Change Order, (3) a Construction Change Directive, or (4) a written order for a minor change in the Work issued by the Architect. Unless specifically enumerated in the Agreement, the Contract Documents do not include the advertisement or invitation to bid, Instructions to Bidders, sample forms, other information furnished by the Owner in anticipation of receiving bids or proposals, the Contractor's bid or proposal, or portions of Addenda relating to bidding or proposal requirements.

§ 1.1.2 The Contract

The Contract Documents form the Contract for Construction. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations, or agreements, either written or oral. The Contract may be amended or modified only by a Modification. The Contract Documents shall not be construed to create a contractual relationship of any kind (1) between the Contractor and the Architect or the Architect's consultants, (2) between the Owner and a Subcontractor or a Sub-subcontractor, (3) between the Owner and the Architect or the Architect's consultants, or (4) between any persons or entities other than the Owner and the Contractor. The Architect shall, however, be entitled to performance and enforcement of obligations under the Contract intended to facilitate performance of the Architect's duties.

§ 1.1.3 The Work

The term "Work" means the construction and services required by the Contract Documents, whether completed or partially completed, and includes all other labor, materials, equipment, and services provided or to be provided by the Contractor to fulfill the Contractor's obligations. The Work may constitute the whole or a part of the Project.

§ 1.1.4 The Project

The Project is the total construction of which the Work performed under the Contract Documents may be the whole or a part and which may include construction by the Owner and by Separate Contractors.

§ 1.1.5 The Drawings

The Drawings are the graphic and pictorial portions of the Contract Documents showing the design, location and dimensions of the Work, generally including plans, elevations, sections, details, schedules, and diagrams.

§ 1.1.6 The Specifications

The Specifications are that portion of the Contract Documents consisting of the written requirements for materials, equipment, systems, standards and workmanship for the Work, and performance of related services.

§ 1.1.7 Instruments of Service

Instruments of Service are representations, in any medium of expression now known or later developed, of the tangible and intangible creative work performed by the Architect and the Architect's consultants under their respective professional services agreements. Instruments of Service may include, without limitation, studies, surveys, models, sketches, drawings, specifications, and other similar materials.

§ 1.1.8 Initial Decision Maker

The Initial Decision Maker is the person identified in the Agreement to render initial decisions on Claims in accordance with Section 15.2. The Initial Decision Maker shall not show partiality to the Owner or Contractor and shall not be liable for results of interpretations or decisions rendered in good faith.

§ 1.2 Correlation and Intent of the Contract Documents

§ 1.2.1 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; performance by the Contractor shall be required only to the extent consistent with the Contract Documents and reasonably inferable from them as being necessary to produce the indicated results.

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§ 1.2.1.1 The invalidity of any provision of the Contract Documents shall not invalidate the Contract or its remaining provisions. If it is determined that any provision of the Contract Documents violates any law, or is otherwise invalid or unenforceable, then that provision shall be revised to the extent necessary to make that provision legal and enforceable. In such case the Contract Documents shall be construed, to the fullest extent permitted by law, to give effect to the parties' intentions and purposes in executing the Contract.

§ 1.2.2 Organization of the Specifications into divisions, sections and articles, and arrangement of Drawings shall not control the Contractor in dividing the Work among Subcontractors or in establishing the extent of Work to be performed by any trade.

§ 1.2.3 Unless otherwise stated in the Contract Documents, words that have well-known technical or construction industry meanings are used in the Contract Documents in accordance with such recognized meanings.

§ 1.3 Capitalization

Terms capitalized in these General Conditions include those that are (1) specifically defined, (2) the titles of numbered articles, or (3) the titles of other documents published by the American Institute of Architects.

§ 1.4 Interpretation

In the interest of brevity the Contract Documents frequently omit modifying words such as "all" and "any" and articles such as "the" and "an," but the fact that a modifier or an article is absent from one statement and appears in another is not intended to affect the interpretation of either statement.

§ 1.5 Ownership and Use of Drawings, Specifications, and Other Instruments of Service

§ 1.5.1 The Architect and the Architect's consultants shall be deemed the authors and owners of their respective Instruments of Service, including the Drawings and Specifications, and retain all common law, statutory, and other reserved rights in their Instruments of Service, including copyrights. The Contractor, Subcontractors, Sub-subcontractors, and suppliers shall not own or claim a copyright in the Instruments of Service. Submittal or distribution to meet official regulatory requirements or for other purposes in connection with the Project is not to be construed as publication in derogation of the Architect's or Architect's consultants' reserved rights.

§ 1.5.2 The Contractor, Subcontractors, Sub-subcontractors, and suppliers are authorized to use and reproduce the Instruments of Service provided to them, subject to any protocols established pursuant to Sections 1.7 and 1.8, solely and exclusively for execution of the Work. All copies made under this authorization shall bear the copyright notice, if any, shown on the Instruments of Service. The Contractor, Subcontractors, Sub-subcontractors, and suppliers may not use the Instruments of Service on other projects or for additions to the Project outside the scope of the Work without the specific written consent of the Owner, Architect, and the Architect's consultants.

§ 1.6 Notice

§ 1.6.1 Except as otherwise provided in Section 1.6.2, where the Contract Documents require one party to notify or give notice to the other party, such notice shall be provided in writing to the designated representative of the party to whom the notice is addressed and shall be deemed to have been duly served if delivered in person, by mail, by courier, or by electronic transmission if a method for electronic transmission is set forth in the Agreement.

§ 1.6.2 Notice of Claims as provided in Section 15.1.3 shall be provided in writing and shall be deemed to have been duly served only if delivered to the designated representative of the party to whom the notice is addressed by certified or registered mail, or by courier providing proof of delivery.

§ 1.7 Digital Data Use and Transmission

The parties shall agree upon protocols governing the transmission and use of Instruments of Service or any other information or documentation in digital form. The parties will use AIA Document E203™–2013, Building Information Modeling and Digital Data Exhibit, to establish the protocols for the development, use, transmission, and exchange of digital data.

§ 1.8 Building Information Models Use and Reliance

Any use of, or reliance on, all or a portion of a building information model without agreement to protocols governing the use of, and reliance on, the information contained in the model and without having those protocols set

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forth in AIA Document E203™–2013, Building Information Modeling and Digital Data Exhibit, and the requisite AIA Document G202™–2013, Project Building Information Modeling Protocol Form, shall be at the using or relying party's sole risk and without liability to the other party and its contractors or consultants, the authors of, or contributors to, the building information model, and each of their agents and employees.

ARTICLE 2 OWNER

§ 2.1 General

§ 2.1.1 The Owner is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Owner shall designate in writing a representative who shall have express authority to bind the Owner with respect to all matters requiring the Owner's approval or authorization. Except as otherwise provided in Section 4.2.1, the Architect does not have such authority. The term "Owner" means the Owner or the Owner's authorized representative.

§ 2.1.2 The Owner shall furnish to the Contractor, within fifteen days after receipt of a written request, information necessary and relevant for the Contractor to evaluate, give notice of, or enforce mechanic's lien rights. Such information shall include a correct statement of the record legal title to the property on which the Project is located, usually referred to as the site, and the Owner's interest therein.

§ 2.2 Evidence of the Owner's Financial Arrangements

§ 2.2.1 Prior to commencement of the Work and upon written request by 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. If commencement of the Work is delayed under this Section 2.2.1, the Contract Time shall be extended appropriately.

§ 2.2.2 Following commencement of the Work and upon written request by 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 only if (1) the Owner fails to make payments to the Contractor as the Contract Documents require; (2) the Contractor identifies in writing a reasonable concern regarding the Owner's ability to make payment when due; or (3) a change in the Work materially changes the Contract Sum. If the Owner fails to provide such evidence, as required, within fourteen days of the Contractor's request, the Contractor may immediately stop the Work and, in that event, shall notify the Owner that the Work has stopped. However, if the request is made because a change in the Work materially changes the Contract Sum under (3) above, the Contractor may immediately stop only that portion of the Work affected by the change until reasonable evidence is provided. If the Work is stopped under this Section 2.2.2, the Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable costs of shutdown, delay and start-up, plus interest as provided in the Contract Documents.

§ 2.2.3 After the Owner furnishes evidence of financial arrangements under this Section 2.2, the Owner shall not materially vary such financial arrangements without prior notice to the Contractor.

§ 2.2.4 Where the Owner has designated information furnished under this Section 2.2 as "confidential," the Contractor shall keep the information confidential and shall not disclose it to any other person. However, the Contractor may disclose "confidential" information, after seven (7) days' notice to the Owner, where disclosure is required by law, including a subpoena or other form of compulsory legal process issued by a court or governmental entity, or by court or arbitrator(s) order. The Contractor may also disclose "confidential" information to its employees, consultants, sureties, Subcontractors and their employees, Sub-subcontractors, and others who need to know the content of such information solely and exclusively for the Project and who agree to maintain the confidentiality of such information.

§ 2.3 Information and Services Required of the Owner

§ 2.3.1 Except for permits and fees that are the responsibility of the Contractor under the Contract Documents, including those required under Section 3.7.1, the Owner shall secure and pay for necessary approvals, easements, assessments and charges required for construction, use or occupancy of permanent structures or for permanent changes in existing facilities.

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§ 2.3.2 The Owner shall retain an architect lawfully licensed to practice architecture, or an entity lawfully practicing architecture, in the jurisdiction where the Project is located. That person or entity is identified as the Architect in the Agreement and is referred to throughout the Contract Documents as if singular in number.

§ 2.3.3 If the employment of the Architect terminates, the Owner shall employ a successor to whom the Contractor has no reasonable objection and whose status under the Contract Documents shall be that of the Architect.

§ 2.3.4 The Owner shall furnish surveys describing physical characteristics, legal limitations and utility locations for the site of the Project, and a legal description of the site. The Contractor shall be entitled to rely on the accuracy of information furnished by the Owner but shall exercise proper precautions relating to the safe performance of the Work.

§ 2.3.5 The Owner shall furnish information or services required of the Owner by the Contract Documents with reasonable promptness. The Owner shall also furnish any other information or services under the Owner's control and relevant to the Contractor's performance of the Work with reasonable promptness after receiving the Contractor's written request for such information or services.

§ 2.3.6 Unless otherwise provided in the Contract Documents, the Owner shall furnish to the Contractor one copy of the Contract Documents for purposes of making reproductions pursuant to Section 1.5.2.

§ 2.4 Owner's Right to Stop the Work

If the Contractor fails to correct Work that is not in accordance with the requirements of the Contract Documents as required by Section 12.2 or repeatedly fails to carry out Work in accordance with the Contract Documents, the Owner may issue a written order to the Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, the right of the Owner to stop the Work shall not give rise to a duty on the part of the Owner to exercise this right for the benefit of the Contractor or any other person or entity, except to the extent required by Section 6.1.3.

§ 2.5 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 ten-day period after receipt of 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 the Owner may have, correct such default or neglect. Such action by the Owner and amounts charged to the Contractor are both subject to prior approval of the Architect and the Architect may, pursuant to Section 9.5.1, withhold or nullify a Certificate for Payment in whole or in part, to the extent reasonably necessary to reimburse the Owner for the reasonable cost of correcting such deficiencies, including Owner's expenses and compensation for the Architect's additional services made necessary by such default, neglect, or failure. If current and future payments are not sufficient to cover such amounts, the Contractor shall pay the difference to the Owner. If the Contractor disagrees with the actions of the Owner or the Architect, or the amounts claimed as costs to the Owner, the Contractor may file a Claim pursuant to Article 15.

ARTICLE 3 CONTRACTOR

§ 3.1 General

§ 3.1.1 The Contractor is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Contractor shall be lawfully licensed, if required in the jurisdiction where the Project is located. The Contractor shall designate in writing a representative who shall have express authority to bind the Contractor with respect to all matters under this Contract. The term "Contractor" means the Contractor or the Contractor's authorized representative.

§ 3.1.2 The Contractor shall perform the Work in accordance with the Contract Documents.

§ 3.1.3 The Contractor shall not be relieved of its obligations to perform the Work in accordance with the Contract Documents either by activities or duties of the Architect in the Architect's administration of the Contract, or by tests, inspections or approvals required or performed by persons or entities other than the Contractor.

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§ 3.2 Review of Contract Documents and Field Conditions by Contractor

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

§ 3.2.2 Because the Contract Documents are complementary, the Contractor shall, before starting each portion of the Work, carefully study and compare the various Contract Documents relative to that portion of the Work, as well as the information furnished by the Owner pursuant to Section 2.3.4, shall take field measurements of any existing conditions related to that portion of the Work, and shall observe any conditions at the site affecting it. These obligations are for the purpose of facilitating coordination and construction by the Contractor and are not for the purpose of discovering errors, omissions, or inconsistencies in the Contract Documents; however, the Contractor shall promptly report to the Architect any errors, inconsistencies or omissions discovered by or made known to the Contractor as a request for information in such form as the Architect may require. It is recognized that the Contractor's review is made in the Contractor's capacity as a contractor and not as a licensed design professional, unless otherwise specifically provided in the Contract Documents.

§ 3.2.3 The Contractor is not required to ascertain that the Contract Documents are in accordance with applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, but the Contractor shall promptly report to the Architect any nonconformity discovered by or made known to the Contractor as a request for information in such form as the Architect may require.

§ 3.2.4 If the Contractor believes that additional cost or time is involved because of clarifications or instructions the Architect issues in response to the Contractor's notices or requests for information pursuant to Sections 3.2.2 or 3.2.3, the Contractor shall submit Claims as provided in Article 15. If the Contractor fails to perform the obligations of Sections 3.2.2 or 3.2.3, the Contractor shall pay such costs and damages to the Owner, subject to Section 15.1.7, as would have been avoided if the Contractor had performed such obligations. If the Contractor performs those obligations, the Contractor shall not be liable to the Owner or Architect for damages resulting from errors, inconsistencies or omissions in the Contract Documents, for differences between field measurements or conditions and the Contract Documents, or for nonconformities of the Contract Documents to applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities.

§ 3.3 Supervision and Construction Procedures

§ 3.3.1 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 under the Contract. If the Contract Documents give specific instructions concerning construction means, methods, techniques, sequences, or procedures, the Contractor shall evaluate the jobsite safety thereof and shall be solely responsible for the jobsite safety of such means, methods, techniques, sequences, or procedures. If the Contractor determines that such means, methods, techniques, sequences or procedures may not be safe, the Contractor shall give timely notice to the Owner and Architect, and shall propose alternative means, methods, techniques, sequences, or procedures. The Architect shall evaluate the proposed alternative solely for conformance with the design intent for the completed construction. Unless the Architect objects to the Contractor's proposed alternative, the Contractor shall perform the Work using its alternative means, methods, techniques, sequences, or procedures.

§ 3.3.2 The Contractor shall be responsible to the Owner for acts and omissions of the Contractor's employees, Subcontractors and their agents and employees, and other persons or entities performing portions of the Work for, or on behalf of, the Contractor or any of its Subcontractors.

§ 3.3.3 The Contractor shall be responsible for inspection of portions of Work already performed to determine that such portions are in proper condition to receive subsequent Work.

§ 3.4 Labor and Materials

§ 3.4.1 Unless otherwise provided in the Contract Documents, the Contractor shall provide and pay for labor, materials, equipment, tools, construction equipment and machinery, water, heat, utilities, transportation, and other facilities and services necessary for proper execution and completion of the Work, whether temporary or permanent and whether or not incorporated or to be incorporated in the Work.

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§ 3.4.2 Except in the case of minor changes in the Work approved by the Architect in accordance with Section 3.12.8 or ordered by the Architect in accordance with Section 7.4, the Contractor may make substitutions only with the consent of the Owner, after evaluation by the Architect and in accordance with a Change Order or Construction Change Directive.

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

§ 3.5 Warranty

§ 3.5.1 The Contractor warrants to the Owner and Architect that materials and equipment furnished under the Contract will be of good quality and new unless the Contract Documents require or permit otherwise. The Contractor further warrants that the Work will conform to the requirements of the Contract Documents and will be free from defects, except for those inherent in the quality of the Work the Contract Documents require or permit. Work, materials, or equipment not conforming to these requirements may be considered defective. The Contractor's warranty excludes remedy for damage or defect caused by abuse, alterations to the Work not executed by the Contractor, improper or insufficient maintenance, improper operation, or normal wear and tear and normal usage. If required by the Architect, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment.

§ 3.5.2 All material, equipment, or other special 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 9.8.4.

§ 3.6 Taxes

The Contractor shall pay sales, consumer, use and similar taxes for the Work provided by the Contractor that are legally enacted when bids are received or negotiations concluded, whether or not yet effective or merely scheduled to go into effect.

§ 3.7 Permits, Fees, Notices and Compliance with Laws

§ 3.7.1 Unless otherwise provided in the Contract Documents, the Contractor shall secure and pay for the building permit as well as for other permits, fees, licenses, and inspections by government agencies necessary for proper execution and completion of the Work that are customarily secured after execution of the Contract and legally required at the time bids are received or negotiations concluded.

§ 3.7.2 The Contractor shall comply with and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities applicable to performance of the Work.

§ 3.7.3 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 appropriate responsibility for such Work and shall bear the costs attributable to correction.

§ 3.7.4 Concealed or Unknown Conditions

If the Contractor encounters conditions at the site that are (1) subsurface or otherwise concealed physical conditions that differ materially from those indicated in the Contract Documents or (2) unknown physical conditions of an unusual nature that differ materially from those ordinarily found to exist and generally recognized as inherent in construction activities of the character provided for in the Contract Documents, the Contractor shall promptly provide notice to the Owner and the Architect before conditions are disturbed and in no event later than 14 days after first observance of the conditions. The Architect will promptly investigate such conditions and, if the Architect determines that they differ materially and cause an increase or decrease in the Contractor's cost of, or time required for, performance of any part of the Work, will recommend that an equitable adjustment be made in the Contract Sum or Contract Time, or both. If the Architect determines that the conditions at the site are not materially different from those indicated in the Contract Documents and that no change in the terms of the Contract is justified, the Architect shall promptly notify the Owner and Contractor, stating the reasons. If either party disputes the Architect's determination or recommendation, that party may submit a Claim as provided in Article 15.

§ 3.7.5 If, in the course of the Work, the Contractor encounters human remains or recognizes the existence of burial markers, archaeological sites or wetlands not indicated in the Contract Documents, the Contractor shall immediately

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suspend any operations that would affect them and shall notify the Owner and Architect. Upon receipt of such notice, the Owner shall promptly take any action necessary to obtain governmental authorization required to resume the operations. The Contractor shall continue to suspend such operations until otherwise instructed by the Owner but shall continue with all other operations that do not affect those remains or features. Requests for adjustments in the Contract Sum and Contract Time arising from the existence of such remains or features may be made as provided in Article 15.

§ 3.8 Allowances

§ 3.8.1 The Contractor shall include in the Contract Sum all allowances stated in the Contract Documents. Items covered by allowances shall be supplied for such amounts and by such persons or entities as the Owner may direct, but the Contractor shall not be required to employ persons or entities to whom the Contractor has reasonable objection.

§ 3.8.2 Unless otherwise provided in the Contract Documents,

- **.1** allowances shall cover the cost to the Contractor of materials and equipment delivered at the site and all required taxes, less applicable trade discounts;
- **.2** Contractor's costs for unloading and handling at the site, labor, installation costs, overhead, profit, and other expenses contemplated for stated allowance amounts shall be included in the Contract Sum but not in the allowances; and
- **.3** whenever costs are more than or less than allowances, the Contract Sum shall be adjusted accordingly by Change Order. The amount of the Change Order shall reflect (1) the difference between actual costs and the allowances under Section 3.8.2.1 and (2) changes in Contractor's costs under Section 3.8.2.2.

§ 3.8.3 Materials and equipment under an allowance shall be selected by the Owner with reasonable promptness.

§ 3.9 Superintendent

§ 3.9.1 The Contractor shall employ a competent superintendent and necessary assistants who shall be in attendance at the Project site during performance of the Work. The superintendent shall represent the Contractor, and communications given to the superintendent shall be as binding as if given to the Contractor.

§ 3.9.2 The Contractor, as soon as practicable after award of the Contract, shall notify the Owner and Architect of the name and qualifications of a proposed superintendent. Within 14 days of receipt of the information, the Architect may notify the Contractor, stating whether the Owner or the Architect (1) has reasonable objection to the proposed superintendent or (2) requires additional time for review. Failure of the Architect to provide notice within the 14-day period shall constitute notice of no reasonable objection.

§ 3.9.3 The Contractor shall not employ a proposed superintendent to whom the Owner or Architect has made reasonable and timely objection. The Contractor shall not change the superintendent without the Owner's consent, which shall not unreasonably be withheld or delayed.

§ 3.10 Contractor's Construction and Submittal Schedules

§ 3.10.1 The Contractor, promptly after being awarded the Contract, shall submit for the Owner's and Architect's information a Contractor's construction schedule for the Work. The schedule shall contain detail appropriate for the Project, including (1) the date of commencement of the Work, interim schedule milestone dates, and the date of Substantial Completion; (2) an apportionment of the Work by construction activity; and (3) the time required for completion of each portion of the Work. The schedule shall provide for the orderly progression of the Work to completion and shall not exceed time limits current under the Contract Documents. The schedule shall be revised at appropriate intervals as required by the conditions of the Work and Project.

§ 3.10.2 The Contractor, promptly after being awarded the Contract and thereafter as necessary to maintain a current submittal schedule, shall submit a submittal schedule for the Architect's approval. The Architect's approval shall not be unreasonably delayed or withheld. The submittal schedule shall (1) be coordinated with the Contractor's construction schedule, and (2) allow the Architect reasonable time to review submittals. If the Contractor fails to submit a submittal schedule, or fails to provide submittals in accordance with the approved submittal schedule, the Contractor shall not be entitled to any increase in Contract Sum or extension of Contract Time based on the time required for review of submittals.

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§ 3.10.3 The Contractor shall perform the Work in general accordance with the most recent schedules submitted to the Owner and Architect.

§ 3.11 Documents and Samples at the Site

The Contractor shall make available, at the Project site, the Contract Documents, including Change Orders, Construction Change Directives, and other Modifications, in good order and marked currently to indicate field changes and selections made during construction, and the approved Shop Drawings, Product Data, Samples, and similar required submittals. These shall be in electronic form or paper copy, available to the Architect and Owner, and delivered to the Architect for submittal to the Owner upon completion of the Work as a record of the Work as constructed.

§ 3.12 Shop Drawings, Product Data and Samples

§ 3.12.1 Shop Drawings are drawings, diagrams, schedules, and other data specially prepared for the Work by the Contractor or a Subcontractor, Sub-subcontractor, manufacturer, supplier, or distributor to illustrate some portion of the Work.

§ 3.12.2 Product Data are illustrations, standard schedules, performance charts, instructions, brochures, diagrams, and other information furnished by the Contractor to illustrate materials or equipment for some portion of the Work.

§ 3.12.3 Samples are physical examples that illustrate materials, equipment, or workmanship, and establish standards by which the Work will be judged.

§ 3.12.4 Shop Drawings, Product Data, Samples, and similar submittals are not Contract Documents. Their purpose is to demonstrate how the Contractor proposes to conform to the information given and the design concept expressed in the Contract Documents for those portions of the Work for which the Contract Documents require submittals. Review by the Architect is subject to the limitations of Section 4.2.7. Informational submittals upon which the Architect is not expected to take responsive action may be so identified in the Contract Documents. Submittals that are not required by the Contract Documents may be returned by the Architect without action.

§ 3.12.5 The Contractor shall review for compliance with the Contract Documents, approve, and submit to the Architect, Shop Drawings, Product Data, Samples, and similar submittals required by the Contract Documents, in accordance with the submittal schedule approved by the Architect or, in the absence of an approved submittal schedule, with reasonable promptness and in such sequence as to cause no delay in the Work or in the activities of the Owner or of Separate Contractors.

§ 3.12.6 By submitting Shop Drawings, Product Data, Samples, and similar submittals, the Contractor represents to the Owner and Architect that the Contractor has (1) reviewed and approved them, (2) determined and verified materials, field measurements and field construction criteria related thereto, or will do so, and (3) checked and coordinated the information contained within such submittals with the requirements of the Work and of the Contract Documents.

§ 3.12.7 The Contractor shall perform no portion of the Work for which the Contract Documents require submittal and review of Shop Drawings, Product Data, Samples, or similar submittals, until the respective submittal has been approved by the Architect.

§ 3.12.8 The Work shall be in accordance with approved submittals except that the Contractor shall not be relieved of responsibility for deviations from the requirements of the Contract Documents by the Architect's approval of Shop Drawings, Product Data, Samples, or similar submittals, unless the Contractor has specifically notified the Architect of such deviation at the time of submittal and (1) the Architect has given written approval to the specific deviation as a minor change in the Work, or (2) a Change Order or Construction Change Directive has been issued authorizing the deviation. The Contractor shall not be relieved of responsibility for errors or omissions in Shop Drawings, Product Data, Samples, or similar submittals, by the Architect's approval thereof.

§ 3.12.9 The Contractor shall direct specific attention, in writing or on resubmitted Shop Drawings, Product Data, Samples, or similar submittals, to revisions other than those requested by the Architect on previous submittals. In the absence of such notice, the Architect's approval of a resubmission shall not apply to such revisions.

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§ 3.12.10 The Contractor shall not be required to provide professional services that constitute the practice of architecture or engineering unless such services are specifically required by the Contract Documents for a portion of the Work or unless the Contractor needs to provide such services in order to carry out the Contractor's responsibilities for construction means, methods, techniques, sequences, and procedures. The Contractor shall not be required to provide professional services in violation of applicable law.

§ 3.12.10.1 If professional design services or certifications by a design professional related to systems, materials, or equipment are specifically required of the Contractor by the Contract Documents, the Owner and the Architect will specify all performance and design criteria that such services must satisfy. The Contractor shall be entitled to rely upon the adequacy and accuracy of the performance and design criteria provided in the Contract Documents. The Contractor shall cause such services or certifications to be provided by an appropriately licensed design professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, Shop Drawings, and other submittals prepared by such professional. Shop Drawings, and other submittals related to the Work, designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to the Architect. The Owner and the Architect shall be entitled to rely upon the adequacy and accuracy of the services, certifications, and approvals performed or provided by such design professionals, provided the Owner and Architect have specified to the Contractor the performance and design criteria that such services must satisfy. Pursuant to this Section 3.12.10, the Architect will review and approve or take other appropriate action on submittals only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents.

§ 3.12.10.2 If the Contract Documents require the Contractor's design professional to certify that the Work has been performed in accordance with the design criteria, the Contractor shall furnish such certifications to the Architect at the time and in the form specified by the Architect.

§ 3.13 Use of Site

The Contractor shall confine operations at the site to areas permitted by applicable laws, statutes, ordinances, codes, rules and regulations, lawful orders of public authorities, and the Contract Documents and shall not unreasonably encumber the site with materials or equipment.

§ 3.14 Cutting and Patching

§ 3.14.1 The Contractor shall be responsible for cutting, fitting, or patching required to complete the Work or to make its parts fit together properly. All areas requiring cutting, fitting, or patching shall be restored to the condition existing prior to the cutting, fitting, or patching, unless otherwise required by the Contract Documents.

§ 3.14.2 The Contractor shall not damage or endanger a portion of the Work or fully or partially completed construction of the Owner or Separate Contractors by cutting, patching, or otherwise altering such construction, or by excavation. The Contractor shall not cut or otherwise alter construction by the Owner or a Separate Contractor except with written consent of the Owner and of the Separate Contractor. Consent shall not be unreasonably withheld. The Contractor shall not unreasonably withhold, from the Owner or a Separate Contractor, its consent to cutting or otherwise altering the Work.

§ 3.15 Cleaning Up

§ 3.15.1 The Contractor shall keep the premises and surrounding area free from accumulation of waste materials and rubbish caused by operations under the Contract. At completion of the Work, the Contractor shall remove waste materials, rubbish, the Contractor's tools, construction equipment, machinery, and surplus materials from and about the Project.

§ 3.15.2 If the Contractor fails to clean up as provided in the Contract Documents, the Owner may do so and the Owner shall be entitled to reimbursement from the Contractor.

§ 3.16 Access to Work

The Contractor shall provide the Owner and Architect with access to the Work in preparation and progress wherever located.

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§ 3.17 Royalties, Patents and Copyrights

The Contractor shall pay all royalties and license fees. The Contractor shall defend suits or claims for infringement of copyrights and patent rights and shall hold the Owner and Architect harmless from loss on account thereof, but shall not be responsible for defense or loss when a particular design, process, or product of a particular manufacturer or manufacturers is required by the Contract Documents, or where the copyright violations are contained in Drawings, Specifications, or other documents prepared by the Owner or Architect. However, if an infringement of a copyright or patent is discovered by, or made known to, the Contractor, the Contractor shall be responsible for the loss unless the information is promptly furnished to the Architect.

§ 3.18 Indemnification

§ 3.18.1 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. Such obligation shall not be construed to negate, abridge, or reduce other rights or obligations of indemnity that would otherwise exist as to a party or person described in this Section 3.18.

§ 3.18.2 In claims against any person or entity indemnified under this Section 3.18 by an employee of the Contractor, a Subcontractor, anyone directly or indirectly employed by them, or anyone for whose acts they may be liable, the indemnification obligation under Section 3.18.1 shall not be limited by a limitation on amount or type of damages, compensation, or benefits payable by or for the Contractor or a Subcontractor under workers' compensation acts, disability benefit acts, or other employee benefit acts.

ARTICLE 4 ARCHITECT

§ 4.1 General

§ 4.1.1 The Architect is the person or entity retained by the Owner pursuant to Section 2.3.2 and identified as such in the Agreement.

§ 4.1.2 Duties, responsibilities, and limitations of authority of the Architect as set forth in the Contract Documents shall not be restricted, modified, or extended without written consent of the Owner, Contractor, and Architect. Consent shall not be unreasonably withheld.

§ 4.2 Administration of the Contract

§ 4.2.1 The Architect will provide administration of the Contract as described in the Contract Documents and will be an Owner's representative during construction until the date the Architect issues the final Certificate for Payment. The Architect will have authority to act on behalf of the Owner only to the extent provided in the Contract Documents.

§ 4.2.2 The Architect will visit the site at intervals appropriate to the stage of construction, or as otherwise agreed with the Owner, to become generally familiar with the progress and quality of the portion of the Work completed, and to determine in general if the Work observed is being performed in a manner indicating that the Work, when fully completed, will be in accordance with the Contract Documents. However, the Architect will not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the Work. The Architect will not have control over, charge of, or responsibility for the construction means, methods, techniques, sequences or procedures, or for the safety precautions and programs in connection with the Work, since these are solely the Contractor's rights and responsibilities under the Contract Documents.

§ 4.2.3 On the basis of the site visits, the Architect will keep the Owner reasonably informed about the progress and quality of the portion of the Work completed, and promptly report to the Owner (1) known deviations from the Contract Documents, (2) known deviations from the most recent construction schedule submitted by the Contractor, and (3) defects and deficiencies observed in the Work. The Architect will not be responsible for the Contractor's failure to perform the Work in accordance with the requirements of the Contract Documents. The Architect will not

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have control over or charge of, and will not be responsible for acts or omissions of, the Contractor, Subcontractors, or their agents or employees, or any other persons or entities performing portions of the Work.

§ 4.2.4 Communications

The Owner and Contractor shall include the Architect in all communications that relate to or affect the Architect's services or professional responsibilities. The Owner shall promptly notify the Architect of the substance of any direct communications between the Owner and the Contractor otherwise relating to the Project. Communications by and with the Architect's consultants shall be through the Architect. Communications by and with Subcontractors and suppliers shall be through the Contractor. Communications by and with Separate Contractors shall be through the Owner. The Contract Documents may specify other communication protocols.

§ 4.2.5 Based on the Architect's evaluations of the Contractor's Applications for Payment, the Architect will review and certify the amounts due the Contractor and will issue Certificates for Payment in such amounts.

§ 4.2.6 The Architect has authority to reject Work that does not conform to the Contract Documents. Whenever the Architect considers it necessary or advisable, the Architect will have authority to require inspection or testing of the Work in accordance with Sections 13.4.2 and 13.4.3, whether or not the Work is fabricated, installed or completed. However, neither this authority of the Architect nor a decision made in good faith either to exercise or not to exercise such authority shall give rise to a duty or responsibility of the Architect to the Contractor, Subcontractors, suppliers, their agents or employees, or other persons or entities performing portions of the Work.

§ 4.2.7 The Architect will review and approve, or take other appropriate action upon, the Contractor's submittals such as Shop Drawings, Product Data, and Samples, but only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. The Architect's action will be taken in accordance with the submittal schedule approved by the Architect or, in the absence of an approved submittal schedule, with reasonable promptness while allowing sufficient time in the Architect's professional judgment to permit adequate review. Review of such submittals is not conducted for the purpose of determining the accuracy and completeness of other details such as dimensions and quantities, or for substantiating instructions for installation or performance of equipment or systems, all of which remain the responsibility of the Contractor as required by the Contract Documents. The Architect's review of the Contractor's submittals shall not relieve the Contractor of the obligations under Sections 3.3, 3.5, and 3.12. The Architect's review shall not constitute approval of safety precautions or of any construction means, methods, techniques, sequences, or procedures. The Architect's approval of a specific item shall not indicate approval of an assembly of which the item is a component.

§ 4.2.8 The Architect will prepare Change Orders and Construction Change Directives, and may order minor changes in the Work as provided in Section 7.4. The Architect will investigate and make determinations and recommendations regarding concealed and unknown conditions as provided in Section 3.7.4.

§ 4.2.9 The Architect will conduct inspections to determine the date or dates of Substantial Completion and the date of final completion; issue Certificates of Substantial Completion pursuant to Section 9.8; receive and forward to the Owner, for the Owner's review and records, written warranties and related documents required by the Contract and assembled by the Contractor pursuant to Section 9.10; and issue a final Certificate for Payment pursuant to Section 9.10.

§ 4.2.10 If the Owner and Architect agree, the Architect will provide one or more Project representatives to assist in carrying out the Architect's responsibilities at the site. The Owner shall notify the Contractor of any change in the duties, responsibilities and limitations of authority of the Project representatives.

§ 4.2.11 The Architect will interpret and decide matters concerning performance under, and requirements of, the Contract Documents on written request of either the Owner or Contractor. The Architect's response to such requests will be made in writing within any time limits agreed upon or otherwise with reasonable promptness.

§ 4.2.12 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.

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§ 4.2.13 The Architect's decisions on matters relating to aesthetic effect will be final if consistent with the intent expressed in the Contract Documents.

§ 4.2.14 The Architect will review and respond to requests for information about the Contract Documents. The Architect's response to such requests will be made in writing within any time limits agreed upon or otherwise with reasonable promptness. If appropriate, the Architect will prepare and issue supplemental Drawings and Specifications in response to the requests for information.

ARTICLE 5 SUBCONTRACTORS

§ 5.1 Definitions

§ 5.1.1 A Subcontractor is a person or entity who has a direct contract with the Contractor to perform a portion of the Work at the site. The term "Subcontractor" is referred to throughout the Contract Documents as if singular in number and means a Subcontractor or an authorized representative of the Subcontractor. The term "Subcontractor" does not include a Separate Contractor or the subcontractors of a Separate Contractor.

§ 5.1.2 A Sub-subcontractor is a person or entity who has a direct or indirect contract with a Subcontractor to perform a portion of the Work at the site. The term "Sub-subcontractor" is referred to throughout the Contract Documents as if singular in number and means a Sub-subcontractor or an authorized representative of the Sub-subcontractor.

§ 5.2 Award of Subcontracts and Other Contracts for Portions of the Work

§ 5.2.1 Unless otherwise stated in the Contract Documents, the Contractor, as soon as practicable after award of the Contract, shall notify the Owner and Architect of the persons or entities proposed for each principal portion of the Work, including those who are to furnish materials or equipment fabricated to a special design. Within 14 days of receipt of the information, the Architect may notify the Contractor whether the Owner or the Architect (1) has reasonable objection to any such proposed person or entity or (2) requires additional time for review. Failure of the Architect to provide notice within the 14-day period shall constitute notice of no reasonable objection.

§ 5.2.2 The Contractor shall not contract with a proposed person or entity to whom the Owner or Architect has made reasonable and timely objection. The Contractor shall not be required to contract with anyone to whom the Contractor has made reasonable objection.

§ 5.2.3 If the Owner or Architect has reasonable objection to a person or entity proposed by the Contractor, the Contractor shall propose another to whom the Owner or Architect has no reasonable objection. If the proposed but rejected Subcontractor was reasonably capable of performing the Work, the Contract Sum and Contract Time shall be increased or decreased by the difference, if any, occasioned by such change, and an appropriate Change Order shall be issued before commencement of the substitute Subcontractor's Work. However, no increase in the Contract Sum or Contract Time shall be allowed for such change unless the Contractor has acted promptly and responsively in submitting names as required.

§ 5.2.4 The Contractor shall not substitute a Subcontractor, person, or entity for one previously selected if the Owner or Architect makes reasonable objection to such substitution.

§ 5.3 Subcontractual Relations

By appropriate written agreement, the Contractor shall require each Subcontractor, to the extent of the Work to be performed by the Subcontractor, to be bound to the Contractor by terms of the Contract Documents, and to assume toward the Contractor all the obligations and responsibilities, including the responsibility for safety of the Subcontractor's Work that the Contractor, by these Contract Documents, assumes toward the Owner and Architect. Each subcontract agreement shall preserve and protect the rights of the Owner and Architect under the Contract Documents with respect to the Work to be performed by the Subcontractor so that subcontracting thereof will not prejudice such rights, and shall allow to the Subcontractor, unless specifically provided otherwise in the subcontract agreement, the benefit of all rights, remedies, and redress against the Contractor that the Contractor, by the Contract Documents, has against the Owner. Where appropriate, the Contractor shall require each Subcontractor to enter into similar agreements with Sub-subcontractors. The Contractor shall make available to each proposed Subcontractor, prior to the execution of the subcontract agreement, copies of the Contract Documents to which the Subcontractor will be bound, and, upon written request of the Subcontractor, identify to the Subcontractor terms and conditions of the proposed subcontract agreement that may be at variance with the Contract Documents. Subcontractors will

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similarly make copies of applicable portions of such documents available to their respective proposed Sub-subcontractors.

§ 5.4 Contingent Assignment of Subcontracts

§ 5.4.1 Each subcontract agreement for a portion of the Work is assigned by the Contractor to the Owner, provided that

- **.1** assignment is effective only after termination of the Contract by the Owner for cause pursuant to Section 14.2 and only for those subcontract agreements that the Owner accepts by notifying the Subcontractor and Contractor; and
- **.2** assignment is subject to the prior rights of the surety, if any, obligated under bond relating to the Contract.

When the Owner accepts the assignment of a subcontract agreement, the Owner assumes the Contractor's rights and obligations under the subcontract.

§ 5.4.2 Upon such assignment, if the Work has been suspended for more than 30 days, the Subcontractor's compensation shall be equitably adjusted for increases in cost resulting from the suspension.

§ 5.4.3 Upon assignment to the Owner under this Section 5.4, the Owner may further assign the subcontract to a successor contractor or other entity. If the Owner assigns the subcontract to a successor contractor or other entity, the Owner shall nevertheless remain legally responsible for all of the successor contractor's obligations under the subcontract.

ARTICLE 6 CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS

§ 6.1 Owner's Right to Perform Construction and to Award Separate Contracts

§ 6.1.1 The term "Separate Contractor(s)" shall mean other contractors retained by the Owner under separate agreements. The Owner reserves the right to perform construction or operations related to the Project with the Owner's own forces, and with Separate Contractors retained under Conditions of the Contract substantially similar to those of this Contract, including those provisions of the Conditions of the Contract related to insurance and waiver of subrogation.

§ 6.1.2 When separate contracts are awarded for different portions of the Project or other construction or operations on the site, the term "Contractor" in the Contract Documents in each case shall mean the Contractor who executes each separate Owner-Contractor Agreement.

§ 6.1.3 The Owner shall provide for coordination of the activities of the Owner's own forces and of each Separate Contractor with the Work of the Contractor, who shall cooperate with them. The Contractor shall participate with any Separate Contractors and the Owner in reviewing their construction schedules. The Contractor shall make any revisions to its construction schedule deemed necessary after a joint review and mutual agreement. The construction schedules shall then constitute the schedules to be used by the Contractor, Separate Contractors, and the Owner until subsequently revised.

§ 6.1.4 Unless otherwise provided in the Contract Documents, when the Owner performs construction or operations related to the Project with the Owner's own forces or with Separate Contractors, the Owner or its Separate Contractors shall have the same obligations and rights that the Contractor has under the Conditions of the Contract, including, without excluding others, those stated in Article 3, this Article 6, and Articles 10, 11, and 12.

§ 6.2 Mutual Responsibility

§ 6.2.1 The Contractor shall afford the Owner and Separate Contractors reasonable opportunity for introduction and storage of their materials and equipment and performance of their activities, and shall connect and coordinate the Contractor's construction and operations with theirs as required by the Contract Documents.

§ 6.2.2 If part of the Contractor's Work depends for proper execution or results upon construction or operations by the Owner or a Separate Contractor, the Contractor shall, prior to proceeding with that portion of the Work, promptly notify the Architect of apparent discrepancies or defects in the construction or operations by the Owner or Separate Contractor that would render it unsuitable for proper execution and results of the Contractor's Work. Failure of the Contractor to notify the Architect of apparent discrepancies or defects prior to proceeding with the

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Work shall constitute an acknowledgment that the Owner's or Separate Contractor's completed or partially completed construction is fit and proper to receive the Contractor's Work. The Contractor shall not be responsible for discrepancies or defects in the construction or operations by the Owner or Separate Contractor that are not apparent.

§ 6.2.3 The Contractor shall reimburse the Owner for costs the Owner incurs that are payable to a Separate Contractor because of the Contractor's delays, improperly timed activities or defective construction. The Owner shall be responsible to the Contractor for costs the Contractor incurs because of a Separate Contractor's delays, improperly timed activities, damage to the Work or defective construction.

§ 6.2.4 The Contractor shall promptly remedy damage that the Contractor wrongfully causes to completed or partially completed construction or to property of the Owner or Separate Contractor as provided in Section 10.2.5.

§ 6.2.5 The Owner and each Separate Contractor shall have the same responsibilities for cutting and patching as are described for the Contractor in Section 3.14.

§ 6.3 Owner's Right to Clean Up

If a dispute arises among the Contractor, Separate Contractors, and the Owner as to the responsibility under their respective contracts for maintaining the premises and surrounding area free from waste materials and rubbish, the Owner may clean up and the Architect will allocate the cost among those responsible.

ARTICLE 7 CHANGES IN THE WORK

§ 7.1 General

§ 7.1.1 Changes in the Work may be accomplished after execution of the Contract, and without invalidating the Contract, by Change Order, Construction Change Directive or order for a minor change in the Work, subject to the limitations stated in this Article 7 and elsewhere in the Contract Documents.

§ 7.1.2 A Change Order shall be based upon agreement among the Owner, Contractor, and Architect. A Construction Change Directive requires agreement by the Owner and Architect and may or may not be agreed to by the Contractor. An order for a minor change in the Work may be issued by the Architect alone.

§ 7.1.3 Changes in the Work shall be performed under applicable provisions of the Contract Documents. The Contractor shall proceed promptly with changes in the Work, unless otherwise provided in the Change Order, Construction Change Directive, or order for a minor change in the Work.

§ 7.2 Change Orders

§ 7.2.1 A Change Order is a written instrument prepared by the Architect and signed by the Owner, Contractor, and Architect stating their agreement upon all of the following:

- **.1** The change in the Work;
- **.2** The amount of the adjustment, if any, in the Contract Sum; and
- **.3** The extent of the adjustment, if any, in the Contract Time.

§ 7.3 Construction Change Directives

§ 7.3.1 A Construction Change Directive is a written order prepared by the Architect and signed by the Owner and Architect, directing a change in the Work prior to agreement on adjustment, if any, in the Contract Sum or Contract Time, or both. The Owner may by Construction Change Directive, without invalidating the Contract, order changes in the Work within the general scope of the Contract consisting of additions, deletions, or other revisions, the Contract Sum and Contract Time being adjusted accordingly.

§ 7.3.2 A Construction Change Directive shall be used in the absence of total agreement on the terms of a Change Order.

§ 7.3.3 If the Construction Change Directive provides for an adjustment to the Contract Sum, the adjustment shall be based on one of the following methods:

- **.1** Mutual acceptance of a lump sum properly itemized and supported by sufficient substantiating data to permit evaluation;
- **.2** Unit prices stated in the Contract Documents or subsequently agreed upon;

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.3 Cost to be determined in a manner agreed upon by the parties and a mutually acceptable fixed or percentage fee; or

.4 As provided in Section 7.3.4.

§ 7.3.4 If the Contractor does not respond promptly or disagrees with the method for adjustment in the Contract Sum, the Architect shall determine the adjustment on the basis of reasonable expenditures and savings of those performing the Work attributable to the change, including, in case of an increase in the Contract Sum, an amount for overhead and profit as set forth in the Agreement, or if no such amount is set forth in the Agreement, a reasonable amount. In such case, and also under Section 7.3.3.3, the Contractor shall keep and present, in such form as the Architect may prescribe, an itemized accounting together with appropriate supporting data. Unless otherwise provided in the Contract Documents, costs for the purposes of this Section 7.3.4 shall be limited to the following:

.1 Costs of labor, including applicable payroll taxes, fringe benefits required by agreement or custom, workers' compensation insurance, and other employee costs approved by the Architect;

.2 Costs of materials, supplies, and equipment, including cost of transportation, whether incorporated or consumed;

.3 Rental costs of machinery and equipment, exclusive of hand tools, whether rented from the Contractor or others;

.4 Costs of premiums for all bonds and insurance, permit fees, and sales, use, or similar taxes, directly related to the change; and

.5 Costs of supervision and field office personnel directly attributable to the change.

§ 7.3.5 If the Contractor disagrees with the adjustment in the Contract Time, the Contractor may make a Claim in accordance with applicable provisions of Article 15.

§ 7.3.6 Upon receipt of a Construction Change Directive, the Contractor shall promptly proceed with the change in the Work involved and advise the Architect of the Contractor's agreement or disagreement with the method, if any, provided in the Construction Change Directive for determining the proposed adjustment in the Contract Sum or Contract Time.

§ 7.3.7 A Construction Change Directive signed by the Contractor indicates the Contractor's agreement therewith, including adjustment in Contract Sum and Contract Time or the method for determining them. Such agreement shall be effective immediately and shall be recorded as a Change Order.

§ 7.3.8 The amount of credit to be allowed by the Contractor to the Owner for a deletion or change that results in a net decrease in the Contract Sum shall be actual net cost as confirmed by the Architect. When both additions and credits covering related Work or substitutions are involved in a change, the allowance for overhead and profit shall be figured on the basis of net increase, if any, with respect to that change.

§ 7.3.9 Pending final determination of the total cost of a Construction Change Directive to the Owner, the Contractor may request payment for Work completed under the Construction Change Directive in Applications for Payment. The Architect will make an interim determination for purposes of monthly certification for payment for those costs and certify for payment the amount that the Architect determines, in the Architect's professional judgment, to be reasonably justified. The Architect's interim determination of cost shall adjust the Contract Sum on the same basis as a Change Order, subject to the right of either party to disagree and assert a Claim in accordance with Article 15.

§ 7.3.10 When the Owner and Contractor agree with a determination made by the Architect concerning the adjustments in the Contract Sum and Contract Time, or otherwise reach agreement upon the adjustments, such agreement shall be effective immediately and the Architect will prepare a Change Order. Change Orders may be issued for all or any part of a Construction Change Directive.

§ 7.4 Minor Changes in the Work

The Architect may 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. The Architect's order for minor changes shall be in writing. If the Contractor believes that the proposed minor change in the Work will affect the Contract Sum or Contract Time, the Contractor shall notify the Architect and shall not proceed to implement the change in the Work. If the Contractor performs the Work set forth in the Architect's order for a minor

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change without prior notice to the Architect that such change will affect the Contract Sum or Contract Time, the Contractor waives any adjustment to the Contract Sum or extension of the Contract Time.

ARTICLE 8 TIME

§ 8.1 Definitions

§ 8.1.1 Unless otherwise provided, Contract Time is the period of time, including authorized adjustments, allotted in the Contract Documents for Substantial Completion of the Work.

§ 8.1.2 The date of commencement of the Work is the date established in the Agreement.

§ 8.1.3 The date of Substantial Completion is the date certified by the Architect in accordance with Section 9.8.

§ 8.1.4 The term "day" as used in the Contract Documents shall mean calendar day unless otherwise specifically defined.

§ 8.2 Progress and Completion

§ 8.2.1 Time limits stated in the Contract Documents are of the essence of the Contract. By executing the Agreement, the Contractor confirms that the Contract Time is a reasonable period for performing the Work.

§ 8.2.2 The Contractor shall not knowingly, except by agreement or instruction of the Owner in writing, commence the Work prior to the effective date of insurance required to be furnished by the Contractor and Owner.

§ 8.2.3 The Contractor shall proceed expeditiously with adequate forces and shall achieve Substantial Completion within the Contract Time.

§ 8.3 Delays and Extensions of Time

§ 8.3.1 If the Contractor is delayed at any time in the commencement or progress of the Work by (1) an act or neglect of the Owner or Architect, of an employee of either, or of a Separate Contractor; (2) by changes ordered in the Work; (3) by labor disputes, fire, unusual delay in deliveries, unavoidable casualties, adverse weather conditions documented in accordance with Section 15.1.6.2, or other causes beyond the Contractor's control; (4) by delay authorized by the Owner pending mediation and binding dispute resolution; or (5) by other causes that the Contractor asserts, and the Architect determines, justify delay, then the Contract Time shall be extended for such reasonable time as the Architect may determine.

§ 8.3.2 Claims relating to time shall be made in accordance with applicable provisions of Article 15.

§ 8.3.3 This Section 8.3 does not preclude recovery of damages for delay by either party under other provisions of the Contract Documents.

ARTICLE 9 PAYMENTS AND COMPLETION

§ 9.1 Contract Sum

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

§ 9.1.2 If unit prices are stated in the Contract Documents or subsequently agreed upon, and if quantities originally contemplated are materially changed so that application of such unit prices to the actual quantities causes substantial inequity to the Owner or Contractor, the applicable unit prices shall be equitably adjusted.

§ 9.2 Schedule of Values

Where the Contract is based on a stipulated sum or Guaranteed Maximum Price, the Contractor shall submit a schedule of values to the Architect before the first Application for Payment, allocating the entire Contract Sum to the various portions of the Work. The schedule of values shall be prepared in the form, and supported by the data to substantiate its accuracy, required by the Architect. This schedule, unless objected to by the Architect, shall be used as a basis for reviewing the Contractor's Applications for Payment. Any changes to the schedule of values shall be submitted to the Architect and supported by such data to substantiate its accuracy as the Architect may require, and unless objected to by the Architect, shall be used as a basis for reviewing the Contractor's subsequent Applications for Payment.

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§ 9.3 Applications for Payment

§ 9.3.1 At least ten days before the date established for each progress payment, the Contractor shall submit to the Architect an itemized Application for Payment prepared in accordance with the schedule of values, if required under Section 9.2, for completed portions of the Work. The application shall be notarized, if required, and supported by all data substantiating the Contractor's right to payment that the Owner or Architect require, such as copies of requisitions, and releases and waivers of liens from Subcontractors and suppliers, and shall reflect retainage if provided for in the Contract Documents.

§ 9.3.1.1 As provided in Section 7.3.9, such applications may include requests for payment on account of changes in the Work that have been properly authorized by Construction Change Directives, or by interim determinations of the Architect, but not yet included in Change Orders.

§ 9.3.1.2 Applications for Payment shall not include requests for payment for portions of the Work for which the Contractor does not intend to pay a Subcontractor or supplier, unless such Work has been performed by others whom the Contractor intends to pay.

§ 9.3.2 Unless otherwise provided in the Contract Documents, 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 suitably stored off the site at a location agreed upon in writing. Payment for materials and equipment stored on or off the site shall be conditioned upon compliance by the Contractor with procedures satisfactory to the Owner to establish the Owner's title to such materials and equipment or otherwise protect the Owner's interest, and shall include the costs of applicable insurance, storage, and transportation to the site, for such materials and equipment stored off the site.

§ 9.3.3 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 encumbrances, in favor of the Contractor, Subcontractors, suppliers, or other persons or entities that provided labor, materials, and equipment relating to the Work.

§ 9.4 Certificates for Payment

§ 9.4.1 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; or (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 of the Architect's reasons for withholding certification in part as provided in Section 9.5.1; 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 as provided in Section 9.5.1.

§ 9.4.2 The issuance of a Certificate for Payment will constitute a representation by the Architect to the Owner, based on the Architect's evaluation of the Work and the data in the Application for Payment, that, to the best of the Architect's knowledge, information, and belief, the Work has progressed to the point indicated, the quality of the Work is in accordance with the Contract Documents, and that the Contractor is entitled to payment in the amount certified. The foregoing representations are subject to an evaluation of the Work for conformance with the Contract Documents upon Substantial Completion, to results of subsequent tests and inspections, to correction of minor deviations from the Contract Documents prior to completion, and to specific qualifications expressed by the Architect. However, the issuance of a Certificate for Payment will not be a representation that the Architect has (1) made exhaustive or continuous on-site inspections to check the quality or quantity of the Work; (2) reviewed construction means, methods, techniques, sequences, or procedures; (3) reviewed copies of requisitions received from Subcontractors and suppliers and other data requested by the Owner to substantiate the Contractor's right to payment; or (4) made examination to ascertain how or for what purpose the Contractor has used money previously paid on account of the Contract Sum.

§ 9.5 Decisions to Withhold Certification

§ 9.5.1 The Architect may withhold a Certificate for Payment in whole or in part, to the extent reasonably necessary to protect the Owner, if in the Architect's opinion the representations to the Owner required by Section 9.4.2 cannot

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be made. If the Architect is unable to certify payment in the amount of the Application, the Architect will notify the Contractor and Owner as provided in Section 9.4.1. If the Contractor and Architect cannot agree on a revised amount, the Architect will promptly issue a Certificate for Payment for the amount for which the Architect is able to make such representations to the Owner. The Architect may also withhold a Certificate for Payment or, because of subsequently discovered evidence, may nullify the whole or a part of a Certificate for Payment previously issued, to such extent as may be necessary in the Architect's opinion to protect the Owner from loss for which the Contractor is responsible, including loss resulting from acts and omissions described in Section 3.3.2, because of

- **.1** defective Work not remedied;
- **.2** third party claims filed or reasonable evidence indicating probable filing of such claims, unless security acceptable to the Owner is provided by the Contractor;
- **.3** failure of the Contractor to make payments properly to Subcontractors or suppliers for labor, materials or equipment;
- **.4** reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Sum;
- **.5** damage to the Owner or a Separate Contractor;
- **.6** reasonable evidence that the Work will not be completed within the Contract Time, and that the unpaid balance would not be adequate to cover actual or liquidated damages for the anticipated delay; or
- **.7** repeated failure to carry out the Work in accordance with the Contract Documents.

§ 9.5.2 When either party disputes the Architect's decision regarding a Certificate for Payment under Section 9.5.1, in whole or in part, that party may submit a Claim in accordance with Article 15.

§ 9.5.3 When the reasons for withholding certification are removed, certification will be made for amounts previously withheld.

§ 9.5.4 If the Architect withholds certification for payment under Section 9.5.1.3, the Owner may, at its sole option, issue joint checks to the Contractor and to any Subcontractor or supplier to whom the Contractor failed to make payment for Work properly performed or material or equipment suitably delivered. If the Owner makes payments by joint check, the Owner shall notify the Architect and the Contractor shall reflect such payment on its next Application for Payment.

§ 9.6 Progress Payments

§ 9.6.1 After the Architect has issued a Certificate for Payment, the Owner shall make payment in the manner and within the time provided in the Contract Documents, and shall so notify the Architect.

§ 9.6.2 The Contractor shall pay each Subcontractor, no later than seven days after receipt of payment from the Owner, the amount to which the Subcontractor is entitled, reflecting percentages actually retained from payments to the Contractor on account of the Subcontractor's portion of the Work. The Contractor shall, by appropriate agreement with each Subcontractor, require each Subcontractor to make payments to Sub-subcontractors in a similar manner.

§ 9.6.3 The Architect will, on request, furnish to a Subcontractor, if practicable, information regarding percentages of completion or amounts applied for by the Contractor and action taken thereon by the Architect and Owner on account of portions of the Work done by such Subcontractor.

§ 9.6.4 The Owner has the right to request written evidence from the Contractor that the Contractor has properly paid Subcontractors and suppliers amounts paid by the Owner to the Contractor for subcontracted Work. If the Contractor fails to furnish such evidence within seven days, the Owner shall have the right to contact Subcontractors and suppliers to ascertain whether they have been properly paid. Neither the Owner nor Architect shall have an obligation to pay, or to see to the payment of money to, a Subcontractor or supplier, except as may otherwise be required by law.

§ 9.6.5 The Contractor's payments to suppliers shall be treated in a manner similar to that provided in Sections 9.6.2, 9.6.3 and 9.6.4.

§ 9.6.6 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 Contract Documents.

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§ 9.6.7 Unless the Contractor provides the Owner with a payment bond in the full penal sum of the Contract Sum, payments received by the Contractor for Work properly performed by Subcontractors or provided by suppliers shall be held by the Contractor for those Subcontractors or suppliers who performed Work or furnished materials, or both, under contract with the Contractor for which payment was made by the Owner. Nothing contained herein shall require money to be placed in a separate account and not commingled with money of the Contractor, create any fiduciary liability or tort liability on the part of the Contractor for breach of trust, or entitle any person or entity to an award of punitive damages against the Contractor for breach of the requirements of this provision.

§ 9.6.8 Provided the Owner has fulfilled its payment obligations under the Contract Documents, the Contractor shall defend and indemnify the Owner from all loss, liability, damage or expense, including reasonable attorney's fees and litigation expenses, arising out of any lien claim or other claim for payment by any Subcontractor or supplier of any tier. Upon receipt of notice of a lien claim or other claim for payment, the Owner shall notify the Contractor. If approved by the applicable court, when required, the Contractor may substitute a surety bond for the property against which the lien or other claim for payment has been asserted.

§ 9.7 Failure of Payment

If the Architect does not issue a Certificate for Payment, through no fault of the Contractor, within seven days after receipt of the Contractor's Application for Payment, or if the Owner does not pay the Contractor within seven days after the date established in the Contract Documents, the amount certified by the Architect or awarded by binding dispute resolution, then the Contractor may, upon seven additional days' notice to the Owner and Architect, stop the Work until payment of the amount owing has been received. The Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable costs of shutdown, delay and start-up, plus interest as provided for in the Contract Documents.

§ 9.8 Substantial Completion

§ 9.8.1 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 that the Owner can occupy or utilize the Work for its intended use.

§ 9.8.2 When the Contractor considers that the Work, or a portion thereof which the Owner agrees to accept separately, is substantially complete, the Contractor shall prepare and submit to the Architect a comprehensive list of items to be completed or corrected prior to final payment. Failure to include an item on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents.

§ 9.8.3 Upon receipt of the Contractor's list, the Architect will make an inspection to determine whether the Work or designated portion thereof is substantially complete. If the Architect's inspection discloses any item, whether or not included on the Contractor's list, which is not sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work or designated portion thereof for its intended use, the Contractor shall, before issuance of the Certificate of Substantial Completion, complete or correct such item upon notification by the Architect. In such case, the Contractor shall then submit a request for another inspection by the Architect to determine Substantial Completion.

§ 9.8.4 When the Work or designated portion thereof is substantially complete, the Architect will prepare a Certificate of Substantial Completion that shall establish the date of Substantial Completion; establish responsibilities of the Owner and Contractor for security, maintenance, heat, utilities, damage to the Work and insurance; 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.

§ 9.8.5 The Certificate of Substantial Completion shall be submitted to the Owner and Contractor for their written acceptance of responsibilities assigned to them in the Certificate. Upon such acceptance, and consent of surety if any, the Owner shall make payment of retainage applying to the Work or designated portion thereof. Such payment shall be adjusted for Work that is incomplete or not in accordance with the requirements of the Contract Documents.

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§ 9.9 Partial Occupancy or Use

§ 9.9.1 The Owner may occupy or use any completed or partially completed portion of the Work at any stage when such portion is designated by separate agreement with the Contractor, provided such occupancy or use is consented to by the insurer and authorized by public authorities having jurisdiction over the Project. Such partial occupancy or use may commence whether or not the portion is substantially complete, provided the Owner and Contractor have accepted in writing the responsibilities assigned to each of them for payments, retainage, if any, security, maintenance, heat, utilities, damage to the Work and insurance, and have agreed in writing concerning the period for correction of the Work and commencement of warranties required by the Contract Documents. When the Contractor considers a portion substantially complete, the Contractor shall prepare and submit a list to the Architect as provided under Section 9.8.2. Consent of the Contractor to partial occupancy or use shall not be unreasonably withheld. The stage of the progress of the Work shall be determined by written agreement between the Owner and Contractor or, if no agreement is reached, by decision of the Architect.

§ 9.9.2 Immediately prior to such partial occupancy or use, the Owner, Contractor, and Architect shall jointly inspect the area to be occupied or portion of the Work to be used in order to determine and record the condition of the Work.

§ 9.9.3 Unless otherwise agreed upon, partial occupancy or use of a portion or portions of the Work shall not constitute acceptance of Work not complying with the requirements of the Contract Documents.

§ 9.10 Final Completion and Final Payment

§ 9.10.1 Upon receipt of the Contractor's notice that the Work is ready for final inspection and acceptance and upon receipt of a final Application for Payment, the Architect will promptly make such inspection. When the Architect finds the Work acceptable under the Contract Documents and the Contract fully performed, the Architect will promptly issue a final Certificate for Payment stating that to the best of the Architect's knowledge, information and belief, and on the basis of the Architect's on-site visits and inspections, the Work has been completed in accordance with the Contract Documents and that the entire balance found to be due the Contractor and noted in the final Certificate is due and payable. The Architect's final Certificate for Payment will constitute a further representation that conditions listed in Section 9.10.2 as precedent to the Contractor's being entitled to final payment have been fulfilled.

§ 9.10.2 Neither final payment nor any remaining retained percentage shall become due until the Contractor submits to the Architect (1) an affidavit that payrolls, bills for materials and equipment, and other indebtedness connected with the Work for which the Owner or the Owner's property might be responsible or encumbered (less amounts withheld by Owner) have been paid or otherwise satisfied, (2) a certificate evidencing that insurance required by the Contract Documents to remain in force after final payment is currently in effect, (3) a written statement that the Contractor knows of no reason that the insurance will not be renewable to cover the period required by the Contract Documents, (4) consent of surety, if any, to final payment, (5) documentation of any special warranties, such as manufacturers' warranties or specific Subcontractor warranties, and (6) if required by the Owner, other data establishing payment or satisfaction of obligations, such as receipts and releases and waivers of liens, claims, security interests, or encumbrances arising out of the Contract, to the extent and in such form as may be designated by the Owner. If a Subcontractor refuses to furnish a release or waiver required by the Owner, the Contractor may furnish a bond satisfactory to the Owner to indemnify the Owner against such lien, claim, security interest, or encumbrance. If a lien, claim, security interest, or encumbrance remains unsatisfied after payments are made, the Contractor shall refund to the Owner all money that the Owner may be compelled to pay in discharging the lien, claim, security interest, or encumbrance, including all costs and reasonable attorneys' fees.

§ 9.10.3 If, after Substantial Completion of the Work, final completion thereof is materially delayed through no fault of the Contractor or by issuance of Change Orders affecting final completion, and the Architect so confirms, the Owner shall, upon application by the Contractor and certification by the Architect, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed, corrected, and accepted. If the remaining balance for Work not fully completed or corrected is less than retainage stipulated in the Contract Documents, and if bonds have been furnished, the written consent of the surety to payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by the Contractor to the Architect prior to certification of such payment. Such payment shall be made under terms and conditions governing final payment, except that it shall not constitute a waiver of Claims.

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§ 9.10.4 The making of final payment shall constitute a waiver of Claims by the Owner except those arising from

- **.1** liens, Claims, security interests, or encumbrances arising out of the Contract and unsettled;
- **.2** failure of the Work to comply with the requirements of the Contract Documents;
- **.3** terms of special warranties required by the Contract Documents; or
- **.4** audits performed by the Owner, if permitted by the Contract Documents, after final payment.

§ 9.10.5 Acceptance of final payment by the Contractor, a Subcontractor, or a 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 10 PROTECTION OF PERSONS AND PROPERTY

§ 10.1 Safety Precautions and Programs

The Contractor shall be responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the performance of the Contract.

§ 10.2 Safety of Persons and Property

§ 10.2.1 The Contractor shall take reasonable precautions for safety of, and shall provide reasonable protection to prevent damage, injury, or loss to

- **.1** employees on the Work and other persons who may be affected thereby;
- **.2** the Work and materials and equipment to be incorporated therein, whether in storage on or off the site, under care, custody, or control of the Contractor, a Subcontractor, or a Sub-subcontractor; and
- **.3** other property at the site or adjacent thereto, such as trees, shrubs, lawns, walks, pavements, roadways, structures, and utilities not designated for removal, relocation, or replacement in the course of construction.

§ 10.2.2 The Contractor shall comply with, and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities, bearing on safety of persons or property or their protection from damage, injury, or loss.

§ 10.2.3 The Contractor shall implement, erect, and maintain, as required by existing conditions and performance of the Contract, reasonable safeguards for safety and protection, including posting danger signs and other warnings against hazards; promulgating safety regulations; and notifying the owners and users of adjacent sites and utilities of the safeguards.

§ 10.2.4 When use or storage of explosives or other hazardous materials or equipment, or unusual methods are necessary for execution of the Work, the Contractor shall exercise utmost care and carry on such activities under supervision of properly qualified personnel.

§ 10.2.5 The Contractor shall promptly remedy damage and loss (other than damage or loss insured under property insurance required by the Contract Documents) to property referred to in Sections 10.2.1.2 and 10.2.1.3 caused in whole or in part by the Contractor, a Subcontractor, a Sub-subcontractor, or anyone directly or indirectly employed by any of them, or by anyone for whose acts they may be liable and for which the Contractor is responsible under Sections 10.2.1.2 and 10.2.1.3. The Contractor may make a Claim for the cost to remedy the damage or loss to the extent such damage or loss is attributable to acts or omissions of the Owner or Architect or anyone directly or indirectly employed by either of them, or by anyone for whose acts either of them may be liable, and not attributable to the fault or negligence of the Contractor. The foregoing obligations of the Contractor are in addition to the Contractor's obligations under Section 3.18.

§ 10.2.6 The Contractor shall designate a responsible member of the Contractor's organization at the site whose duty shall be the prevention of accidents. This person shall be the Contractor's superintendent unless otherwise designated by the Contractor in writing to the Owner and Architect.

§ 10.2.7 The Contractor shall not permit any part of the construction or site to be loaded so as to cause damage or create an unsafe condition.

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§ 10.2.8 Injury or Damage to Person or Property
If either party suffers injury or damage to person or property because of an act or omission of the other party, or of others for whose acts such party is legally responsible, notice of the injury or damage, whether or not insured, shall be given to the other party within a reasonable time not exceeding 21 days after discovery. The notice shall provide sufficient detail to enable the other party to investigate the matter.

§ 10.3 Hazardous Materials and Substances
§ 10.3.1 The Contractor is responsible for compliance with any requirements included in the Contract Documents regarding hazardous materials or substances. If the Contractor encounters a hazardous material or substance not addressed in the Contract Documents and if reasonable precautions will be inadequate to prevent foreseeable bodily injury or death to persons resulting from a material or substance, including but not limited to asbestos or polychlorinated biphenyl (PCB), encountered on the site by the Contractor, the Contractor shall, upon recognizing the condition, immediately stop Work in the affected area and notify the Owner and Architect of the condition.

§ 10.3.2 Upon receipt of the Contractor's notice, the Owner shall obtain the services of a licensed laboratory to verify the presence or absence of the material or substance reported by the Contractor and, in the event such material or substance is found to be present, to cause it to be rendered harmless. Unless otherwise required by the Contract Documents, the Owner shall furnish in writing to the Contractor and Architect the names and qualifications of persons or entities who are to perform tests verifying the presence or absence of the material or substance or who are to perform the task of removal or safe containment of the material or substance. The Contractor and the Architect will promptly reply to the Owner in writing stating whether or not either has reasonable objection to the persons or entities proposed by the Owner. If either the Contractor or Architect has an objection to a person or entity proposed by the Owner, the Owner shall propose another to whom the Contractor and the Architect have no reasonable objection. When the material or substance has been rendered harmless, Work in the affected area shall resume upon written agreement of the Owner and Contractor. By Change Order, the Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable additional costs of shutdown, delay, and start-up.

§ 10.3.3 To the fullest extent permitted by law, the Owner shall indemnify and hold harmless the Contractor, Subcontractors, 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 in the affected area if in fact the material or substance presents the risk of bodily injury or death as described in Section 10.3.1 and has not been rendered harmless, 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), except to the extent that such damage, loss, or expense is due to the fault or negligence of the party seeking indemnity.

§ 10.3.4 The Owner shall not be responsible under this Section 10.3 for hazardous materials or substances the Contractor brings to the site unless such materials or substances are required by the Contract Documents. The Owner shall be responsible for hazardous materials or substances required by the Contract Documents, except to the extent of the Contractor's fault or negligence in the use and handling of such materials or substances.

§ 10.3.5 The Contractor shall reimburse the Owner for the cost and expense the Owner incurs (1) for remediation of hazardous materials or substances the Contractor brings to the site and negligently handles, or (2) where the Contractor fails to perform its obligations under Section 10.3.1, except to the extent that the cost and expense are due to the Owner's fault or negligence.

§ 10.3.6 If, without negligence on the part of the Contractor, the Contractor is held liable by a government agency for the cost of remediation of a hazardous material or substance solely by reason of performing Work as required by the Contract Documents, the Owner shall reimburse the Contractor for all cost and expense thereby incurred.

§ 10.4 Emergencies
In an emergency affecting safety of persons or property, the Contractor shall act, at the Contractor's discretion, to prevent threatened damage, injury, or loss. Additional compensation or extension of time claimed by the Contractor on account of an emergency shall be determined as provided in Article 15 and Article 7.

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ARTICLE 11 INSURANCE AND BONDS

§ 11.1 Contractor's Insurance and Bonds

§ 11.1.1 The Contractor shall purchase and maintain insurance of the types and limits of liability, containing the endorsements, and subject to the terms and conditions, as described in the Agreement or elsewhere in the Contract Documents. The Contractor shall purchase and maintain the required insurance from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located. The Owner, Architect, and Architect's consultants shall be named as additional insureds under the Contractor's commercial general liability policy or as otherwise described in the Contract Documents.

§ 11.1.2 The Contractor shall provide surety bonds of the types, for such penal sums, and subject to such terms and conditions as required by the Contract Documents. The Contractor shall purchase and maintain the required bonds from a company or companies lawfully authorized to issue surety bonds in the jurisdiction where the Project is located.

§ 11.1.3 Upon the request of any person or entity appearing to be a potential beneficiary of bonds covering payment of obligations arising under the Contract, the Contractor shall promptly furnish a copy of the bonds or shall authorize a copy to be furnished.

§ 11.1.4 Notice of Cancellation or Expiration of Contractor's Required Insurance. Within three (3) business days of the date the Contractor becomes aware of an impending or actual cancellation or expiration of any insurance required by the Contract Documents, the Contractor shall provide notice to the Owner of such impending or actual cancellation or expiration. Upon receipt of notice from the Contractor, the Owner shall, unless the lapse in coverage arises from an act or omission of the Owner, have the right to stop the Work until the lapse in coverage has been cured by the procurement of replacement coverage by the Contractor. The furnishing of notice by the Contractor shall not relieve the Contractor of any contractual obligation to provide any required coverage.

§ 11.2 Owner's Insurance

§ 11.2.1 The Owner shall purchase and maintain insurance of the types and limits of liability, containing the endorsements, and subject to the terms and conditions, as described in the Agreement or elsewhere in the Contract Documents. The Owner shall purchase and maintain the required insurance from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located.

§ 11.2.2 Failure to Purchase Required Property Insurance. If the Owner fails to purchase and maintain the required property insurance, with all of the coverages and in the amounts described in the Agreement or elsewhere in the Contract Documents, the Owner shall inform the Contractor in writing prior to commencement of the Work. Upon receipt of notice from the Owner, the Contractor may delay commencement of the Work and may obtain insurance that will protect the interests of the Contractor, Subcontractors, and Sub-Subcontractors in the Work. When the failure to provide coverage has been cured or resolved, the Contract Sum and Contract Time shall be equitably adjusted. In the event the Owner fails to procure coverage, the Owner waives all rights against the Contractor, Subcontractors, and Sub-subcontractors to the extent the loss to the Owner would have been covered by the insurance to have been procured by the Owner. The cost of the insurance shall be charged to the Owner by a Change Order. If the Owner does not provide written notice, and the Contractor is damaged by the failure or neglect of the Owner to purchase or maintain the required insurance, the Owner shall reimburse the Contractor for all reasonable costs and damages attributable thereto.

§ 11.2.3 Notice of Cancellation or Expiration of Owner's Required Property Insurance. Within three (3) business days of the date the Owner becomes aware of an impending or actual cancellation or expiration of any property insurance required by the Contract Documents, the Owner shall provide notice to the Contractor of such impending or actual cancellation or expiration. Unless the lapse in coverage arises from an act or omission of the Contractor: (1) the Contractor, upon receipt of notice from the Owner, shall have the right to stop the Work until the lapse in coverage has been cured by the procurement of replacement coverage by either the Owner or the Contractor; (2) the Contract Time and Contract Sum shall be equitably adjusted; and (3) the Owner waives all rights against the Contractor, Subcontractors, and Sub-subcontractors to the extent any loss to the Owner would have been covered by the insurance had it not expired or been cancelled. If the Contractor purchases replacement coverage, the cost of the insurance shall be charged to the Owner by an appropriate Change Order. The furnishing of notice by the Owner shall not relieve the Owner of any contractual obligation to provide required insurance.

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§ 11.3 Waivers of Subrogation

§ 11.3.1 The Owner and Contractor waive all rights against (1) each other and any of their subcontractors, sub-subcontractors, agents, and employees, each of the other; (2) the Architect and Architect's consultants; and (3) Separate Contractors, if any, and any of their subcontractors, sub-subcontractors, agents, and employees, for damages caused by fire, or other causes of loss, to the extent those losses are covered by property insurance required by the Agreement or other property insurance applicable to the Project, except such rights as they have to proceeds of such insurance. The Owner or Contractor, as appropriate, shall require similar written waivers in favor of the individuals and entities identified above from the Architect, Architect's consultants, Separate Contractors, subcontractors, and sub-subcontractors. The policies of insurance purchased and maintained by each person or entity agreeing to waive claims pursuant to this section 11.3.1 shall not prohibit this waiver of subrogation. This waiver of subrogation shall be effective as to a person or entity (1) even though that person or entity would otherwise have a duty of indemnification, contractual or otherwise, (2) even though that person or entity did not pay the insurance premium directly or indirectly, or (3) whether or not the person or entity had an insurable interest in the damaged property.

§ 11.3.2 If during the Project construction period the Owner insures properties, real or personal or both, at or adjacent to the site by property insurance under policies separate from those insuring the Project, or if after final payment property insurance is to be provided on the completed Project through a policy or policies other than those insuring the Project during the construction period, to the extent permissible by such policies, the Owner waives all rights in accordance with the terms of Section 11.3.1 for damages caused by fire or other causes of loss covered by this separate property insurance.

§ 11.4 Loss of Use, Business Interruption, and Delay in Completion Insurance

The Owner, at the Owner's option, may purchase and maintain insurance that will protect the Owner against loss of use of the Owner's property, or the inability to conduct normal operations, due to fire or other causes of loss. The Owner waives all rights of action against the Contractor and Architect for loss of use of the Owner's property, due to fire or other hazards however caused.

§11.5 Adjustment and Settlement of Insured Loss

§ 11.5.1 A loss insured under the property insurance required by the Agreement shall be adjusted by the Owner as fiduciary and made payable to the Owner as fiduciary for the insureds, as their interests may appear, subject to requirements of any applicable mortgagee clause and of Section 11.5.2. The Owner shall pay the Architect and Contractor their just shares of insurance proceeds received by the Owner, and by appropriate agreements the Architect and Contractor shall make payments to their consultants and Subcontractors in similar manner.

§ 11.5.2 Prior to settlement of an insured loss, the Owner shall notify the Contractor of the terms of the proposed settlement as well as the proposed allocation of the insurance proceeds. The Contractor shall have 14 days from receipt of notice to object to the proposed settlement or allocation of the proceeds. If the Contractor does not object, the Owner shall settle the loss and the Contractor shall be bound by the settlement and allocation. Upon receipt, the Owner shall deposit the insurance proceeds in a separate account and make the appropriate distributions. Thereafter, if no other agreement is made or the Owner does not terminate the Contract for convenience, the Owner and Contractor shall execute a Change Order for reconstruction of the damaged or destroyed Work in the amount allocated for that purpose. If the Contractor timely objects to either the terms of the proposed settlement or the allocation of the proceeds, the Owner may proceed to settle the insured loss, and any dispute between the Owner and Contractor arising out of the settlement or allocation of the proceeds shall be resolved pursuant to Article 15. Pending resolution of any dispute, the Owner may issue a Construction Change Directive for the reconstruction of the damaged or destroyed Work.

ARTICLE 12 UNCOVERING AND CORRECTION OF WORK

§ 12.1 Uncovering of Work

§ 12.1.1 If a portion of the Work is covered contrary to the Architect's request or to requirements specifically expressed in the Contract Documents, it must, if requested in writing by the Architect, be uncovered for the Architect's examination and be replaced at the Contractor's expense without change in the Contract Time.

§ 12.1.2 If a portion of the Work has been covered that the Architect has not specifically requested to examine prior to its being covered, the Architect may request to see such Work and it shall be uncovered by the Contractor. If such Work is in accordance with the Contract Documents, the Contractor shall be entitled to an equitable adjustment to

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the Contract Sum and Contract Time as may be appropriate. If such Work is not in accordance with the Contract Documents, the costs of uncovering the Work, and the cost of correction, shall be at the Contractor's expense.

§ 12.2 Correction of Work

§ 12.2.1 Before Substantial Completion

The Contractor shall promptly correct Work rejected by the Architect or failing to conform to the requirements of the Contract Documents, discovered before Substantial Completion and whether or not fabricated, installed or completed. Costs of correcting such rejected Work, including additional testing and inspections, the cost of uncovering and replacement, and compensation for the Architect's services and expenses made necessary thereby, shall be at the Contractor's expense.

§ 12.2.2 After Substantial Completion

§ 12.2.2.1 In addition to the Contractor's obligations under Section 3.5, if, within one year after the date of Substantial Completion of the Work or designated portion thereof or after the date for commencement of warranties established under Section 9.9.1, or by terms of any applicable special warranty required by the Contract Documents, any of the Work is found to be not in accordance with the requirements of the Contract Documents, the Contractor shall correct it promptly after receipt of notice from the Owner to do so, unless the Owner has previously given the Contractor a written acceptance of such condition. The Owner shall give such notice promptly after discovery of the condition. During the one-year period for correction of Work, if the Owner fails to notify the Contractor and give the Contractor an opportunity to make the correction, the Owner waives the rights to require correction by the Contractor and to make a claim for breach of warranty. If the Contractor fails to correct nonconforming Work within a reasonable time during that period after receipt of notice from the Owner or Architect, the Owner may correct it in accordance with Section 2.5.

§ 12.2.2.2 The one-year period for correction of Work shall be extended with respect to portions of Work first performed after Substantial Completion by the period of time between Substantial Completion and the actual completion of that portion of the Work.

§ 12.2.2.3 The one-year period for correction of Work shall not be extended by corrective Work performed by the Contractor pursuant to this Section 12.2.

§ 12.2.3 The Contractor shall remove from the site portions of the Work that are not in accordance with the requirements of the Contract Documents and are neither corrected by the Contractor nor accepted by the Owner.

§ 12.2.4 The Contractor shall bear the cost of correcting destroyed or damaged construction of the Owner or Separate Contractors, whether completed or partially completed, caused by the Contractor's correction or removal of Work that is not in accordance with the requirements of the Contract Documents.

§ 12.2.5 Nothing contained in this Section 12.2 shall be construed to establish a period of limitation with respect to other obligations the Contractor has under the Contract Documents. Establishment of the one-year period for correction of Work as described in Section 12.2.2 relates only to the specific obligation of the Contractor to correct the Work, and has no relationship to the time within which the obligation to comply with the Contract Documents may be sought to be enforced, nor to the time within which proceedings may be commenced to establish the Contractor's liability with respect to the Contractor's obligations other than specifically to correct the Work.

§ 12.3 Acceptance of Nonconforming Work

If the Owner prefers to accept Work that is not in accordance with the requirements of the Contract Documents, the Owner may do so instead of requiring its removal and correction, in which case the Contract Sum will be reduced as appropriate and equitable. Such adjustment shall be effected whether or not final payment has been made.

ARTICLE 13 MISCELLANEOUS PROVISIONS

§ 13.1 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. If the parties have selected arbitration as the method of binding dispute resolution, the Federal Arbitration Act shall govern Section 15.4.

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§ 13.2 Successors and Assigns

§ 13.2.1 The Owner and Contractor respectively bind themselves, their partners, successors, assigns, and legal representatives to covenants, agreements, and obligations contained in the Contract Documents. Except as provided in Section 13.2.2, neither party to the Contract shall assign the Contract as a whole without written consent of the other. If either party attempts to make an assignment without such consent, that party shall nevertheless remain legally responsible for all obligations under the Contract.

§ 13.2.2 The Owner may, without consent of the Contractor, assign the Contract to a lender providing construction financing for the Project, if the lender assumes the Owner's rights and obligations under the Contract Documents. The Contractor shall execute all consents reasonably required to facilitate the assignment.

§ 13.3 Rights and Remedies

§ 13.3.1 Duties and obligations imposed by the Contract Documents and rights and remedies available thereunder shall be in addition to and not a limitation of duties, obligations, rights, and remedies otherwise imposed or available by law.

§ 13.3.2 No action or failure to act by the Owner, Architect, or Contractor shall constitute a waiver of a right or duty afforded them under the Contract, nor shall such action or failure to act constitute approval of or acquiescence in a breach thereunder, except as may be specifically agreed upon in writing.

§ 13.4 Tests and Inspections

§ 13.4.1 Tests, inspections, and approvals of portions of the Work shall be made as required by the Contract Documents and by applicable laws, statutes, ordinances, codes, rules, and regulations or lawful orders of public authorities. Unless otherwise provided, the Contractor shall make arrangements for such tests, inspections, and approvals with an independent testing laboratory or entity acceptable to the Owner, or with the appropriate public authority, and shall bear all related costs of tests, inspections, and approvals. The Contractor shall give the Architect timely notice of when and where tests and inspections are to be made so that the Architect may be present for such procedures. The Owner shall bear costs of tests, inspections, or approvals that do not become requirements until after bids are received or negotiations concluded. The Owner shall directly arrange and pay for tests, inspections, or approvals where building codes or applicable laws or regulations so require.

§ 13.4.2 If the Architect, Owner, or public authorities having jurisdiction determine that portions of the Work require additional testing, inspection, or approval not included under Section 13.4.1, the Architect will, upon written authorization from the Owner, instruct the Contractor to make arrangements for such additional testing, inspection, or approval, by an entity acceptable to the Owner, and the Contractor shall give timely notice to the Architect of when and where tests and inspections are to be made so that the Architect may be present for such procedures. Such costs, except as provided in Section 13.4.3, shall be at the Owner's expense.

§ 13.4.3 If procedures for testing, inspection, or approval under Sections 13.4.1 and 13.4.2 reveal failure of the portions of the Work to comply with requirements established by the Contract Documents, all costs made necessary by such failure, including those of repeated procedures and compensation for the Architect's services and expenses, shall be at the Contractor's expense.

§ 13.4.4 Required certificates of testing, inspection, or approval shall, unless otherwise required by the Contract Documents, be secured by the Contractor and promptly delivered to the Architect.

§ 13.4.5 If the Architect is to observe tests, inspections, or approvals required by the Contract Documents, the Architect will do so promptly and, where practicable, at the normal place of testing.

§ 13.4.6 Tests or inspections conducted pursuant to the Contract Documents shall be made promptly to avoid unreasonable delay in the Work.

§ 13.5 Interest

Payments due and unpaid under the Contract Documents shall bear interest from the date payment is due at the rate the parties agree upon in writing or, in the absence thereof, at the legal rate prevailing from time to time at the place where the Project is located.

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ARTICLE 14 TERMINATION OR SUSPENSION OF THE CONTRACT

§ 14.1 Termination by the Contractor

§ 14.1.1 The Contractor may terminate the Contract if the Work is stopped for a period of 30 consecutive days through no act or fault of the Contractor, a Subcontractor, a Sub-subcontractor, their agents or employees, or any other persons or entities performing portions of the Work, for any of the following reasons:

- **.1** Issuance of an order of a court or other public authority having jurisdiction that requires all Work to be stopped;
- **.2** An act of government, such as a declaration of national emergency, that requires all Work to be stopped;
- **.3** Because the Architect has not issued a Certificate for Payment and has not notified the Contractor of the reason for withholding certification as provided in Section 9.4.1, or because the Owner has not made payment on a Certificate for Payment within the time stated in the Contract Documents; or
- **.4** The Owner has failed to furnish to the Contractor reasonable evidence as required by Section 2.2.

§ 14.1.2 The Contractor may terminate the Contract if, through no act or fault of the Contractor, a Subcontractor, a Sub-subcontractor, their agents or employees, or any other persons or entities performing portions of the Work, repeated suspensions, delays, or interruptions of the entire Work by the Owner as described in Section 14.3, constitute in the aggregate more than 100 percent of the total number of days scheduled for completion, or 120 days in any 365-day period, whichever is less.

§ 14.1.3 If one of the reasons described in Section 14.1.1 or 14.1.2 exists, the Contractor may, upon seven days' notice to the Owner and Architect, terminate the Contract and recover from the Owner payment for Work executed, as well as reasonable overhead and profit on Work not executed, and costs incurred by reason of such termination.

§ 14.1.4 If the Work is stopped for a period of 60 consecutive days through no act or fault of the Contractor, a Subcontractor, a Sub-subcontractor, or their agents or employees or any other persons or entities performing portions of the Work because the Owner has repeatedly failed to fulfill the Owner's obligations under the Contract Documents with respect to matters important to the progress of the Work, the Contractor may, upon seven additional days' notice to the Owner and the Architect, terminate the Contract and recover from the Owner as provided in Section 14.1.3.

§ 14.2 Termination by the Owner for Cause

§ 14.2.1 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 or suppliers in accordance with the respective agreements between the Contractor and the Subcontractors or suppliers;
- **.3** repeatedly disregards applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of a public authority; or
- **.4** otherwise is guilty of substantial breach of a provision of the Contract Documents.

§ 14.2.2 When any of the reasons described in Section 14.2.1 exist, and upon certification by the Architect that sufficient cause exists to justify such action, the Owner 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' notice, terminate employment of the Contractor and may, subject to any prior rights of the surety:

- **.1** Exclude the Contractor from the site and take possession of all materials, equipment, tools, and construction equipment and machinery thereon owned by the Contractor;
- **.2** Accept assignment of subcontracts pursuant to Section 5.4; and
- **.3** Finish the Work by whatever reasonable method the Owner may deem expedient. Upon written request of the Contractor, the Owner shall furnish to the Contractor a detailed accounting of the costs incurred by the Owner in finishing the Work.

§ 14.2.3 When the Owner terminates the Contract for one of the reasons stated in Section 14.2.1, the Contractor shall not be entitled to receive further payment until the Work is finished.

§ 14.2.4 If the unpaid balance of the Contract Sum exceeds costs of finishing the Work, including compensation for the Architect's services and expenses made necessary thereby, and other damages incurred by the Owner and not expressly waived, such excess shall be paid to the Contractor. If such costs and damages exceed the unpaid balance,

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the Contractor shall pay the difference to the Owner. The amount to be paid to the Contractor or Owner, as the case may be, shall be certified by the Initial Decision Maker, upon application, and this obligation for payment shall survive termination of the Contract.

§ 14.3 Suspension by the Owner for Convenience

§ 14.3.1 The Owner may, without cause, order the Contractor in writing to suspend, delay or interrupt the Work, in whole or in part for such period of time as the Owner may determine.

§ 14.3.2 The Contract Sum and Contract Time shall be adjusted for increases in the cost and time caused by suspension, delay, or interruption under Section 14.3.1. Adjustment of the Contract Sum shall include profit. No adjustment shall be made to the extent

- **.1** that performance is, was, or would have been, so suspended, delayed, or interrupted, by another cause for which the Contractor is responsible; or
- **.2** that an equitable adjustment is made or denied under another provision of the Contract.

§ 14.4 Termination by the Owner for Convenience

§ 14.4.1 The Owner may, at any time, terminate the Contract for the Owner's convenience and without cause.

§ 14.4.2 Upon receipt of notice from the Owner of such termination for the Owner's convenience, the Contractor shall

- **.1** cease operations as directed by the Owner in the notice;
- **.2** take actions necessary, or that the Owner may direct, for the protection and preservation of the Work; and
- **.3** except for Work directed to be performed prior to the effective date of termination stated in the notice, terminate all existing subcontracts and purchase orders and enter into no further subcontracts and purchase orders.

§ 14.4.3 In case of such termination for the Owner's convenience, the Owner shall pay the Contractor for Work properly executed; costs incurred by reason of the termination, including costs attributable to termination of Subcontracts; and the termination fee, if any, set forth in the Agreement.

ARTICLE 15 CLAIMS AND DISPUTES

§ 15.1 Claims

§ 15.1.1 Definition

A Claim is a demand or assertion by one of the parties seeking, as a matter of right, payment of money, a change in the Contract Time, or other relief with respect to the terms of the Contract. The term "Claim" also includes other disputes and matters in question between the Owner and Contractor arising out of or relating to the Contract. The responsibility to substantiate Claims shall rest with the party making the Claim. This Section 15.1.1 does not require the Owner to file a Claim in order to impose liquidated damages in accordance with the Contract Documents.

§ 15.1.2 Time Limits on Claims

The Owner and Contractor shall commence all Claims and causes of action against the other and arising out of or related to the Contract, whether in contract, tort, breach of warranty or otherwise, in accordance with the requirements of the binding dispute resolution method selected in the Agreement and within the period specified by applicable law, but in any case not more than 10 years after the date of Substantial Completion of the Work. The Owner and Contractor waive all Claims and causes of action not commenced in accordance with this Section 15.1.2.

§ 15.1.3 Notice of Claims

§ 15.1.3.1 Claims by either the Owner or Contractor, where the condition giving rise to the Claim is first discovered prior to expiration of the period for correction of the Work set forth in Section 12.2.2, shall be initiated by notice to the other party and to the Initial Decision Maker with a copy sent to the Architect, if the Architect is not serving as the Initial Decision Maker. Claims by either party under this Section 15.1.3.1 shall be initiated within 21 days after occurrence of the event giving rise to such Claim or within 21 days after the claimant first recognizes the condition giving rise to the Claim, whichever is later.

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§ 15.1.3.2 Claims by either the Owner or Contractor, where the condition giving rise to the Claim is first discovered after expiration of the period for correction of the Work set forth in Section 12.2.2, shall be initiated by notice to the other party. In such event, no decision by the Initial Decision Maker is required.

§ 15.1.4 Continuing Contract Performance

§ 15.1.4.1 Pending final resolution of a Claim, except as otherwise agreed in writing or as provided in Section 9.7 and Article 14, the Contractor shall proceed diligently with performance of the Contract and the Owner shall continue to make payments in accordance with the Contract Documents.

§ 15.1.4.2 The Contract Sum and Contract Time shall be adjusted in accordance with the Initial Decision Maker's decision, subject to the right of either party to proceed in accordance with this Article 15. The Architect will issue Certificates for Payment in accordance with the decision of the Initial Decision Maker.

§ 15.1.5 Claims for Additional Cost

If the Contractor wishes to make a Claim for an increase in the Contract Sum, notice as provided in Section 15.1.3 shall be given before proceeding to execute the portion of the Work that is the subject of the Claim. Prior notice is not required for Claims relating to an emergency endangering life or property arising under Section 10.4.

§ 15.1.6 Claims for Additional Time

§ 15.1.6.1 If the Contractor wishes to make a Claim for an increase in the Contract Time, notice as provided in Section 15.1.3 shall be given. The Contractor's Claim shall include an estimate of cost and of probable effect of delay on progress of the Work. In the case of a continuing delay, only one Claim is necessary.

§ 15.1.6.2 If adverse weather conditions are the basis for a Claim for additional time, such Claim shall be documented by data substantiating that weather conditions were abnormal for the period of time, could not have been reasonably anticipated, and had an adverse effect on the scheduled construction.

§ 15.1.7 Waiver of Claims for Consequential Damages

The Contractor and Owner waive Claims against each other for consequential damages arising out of or relating to this Contract. This mutual waiver includes

- **.1** damages incurred by the Owner for rental expenses, for losses of use, income, profit, financing, business and reputation, and for loss of management or employee productivity or of the services of such persons; and
- **.2** damages incurred by the Contractor for principal office expenses including the compensation of personnel stationed there, for losses of financing, business and reputation, and for loss of profit, except anticipated profit arising directly from the Work.

This mutual waiver is applicable, without limitation, to all consequential damages due to either party's termination in accordance with Article 14. Nothing contained in this Section 15.1.7 shall be deemed to preclude assessment of liquidated damages, when applicable, in accordance with the requirements of the Contract Documents.

§ 15.2 Initial Decision

§ 15.2.1 Claims, excluding those where the condition giving rise to the Claim is first discovered after expiration of the period for correction of the Work set forth in Section 12.2.2 or arising under Sections 10.3, 10.4, and 11.5, shall be referred to the Initial Decision Maker for initial decision. The Architect will serve as the Initial Decision Maker, unless otherwise indicated in the Agreement. Except for those Claims excluded by this Section 15.2.1, an initial decision shall be required as a condition precedent to mediation of any Claim. If an initial decision has not been rendered within 30 days after the Claim has been referred to the Initial Decision Maker, the party asserting the Claim may demand mediation and binding dispute resolution without a decision having been rendered. Unless the Initial Decision Maker and all affected parties agree, the Initial Decision Maker will not decide disputes between the Contractor and persons or entities other than the Owner.

§ 15.2.2 The Initial Decision Maker will review Claims and within ten days of the receipt of a Claim take one or more of the following actions: (1) request additional supporting data from the claimant or a response with supporting data from the other party, (2) reject the Claim in whole or in part, (3) approve the Claim, (4) suggest a compromise, or (5) advise the parties that the Initial Decision Maker is unable to resolve the Claim if the Initial Decision Maker lacks sufficient information to evaluate the merits of the Claim or if the Initial Decision Maker concludes that, in the

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Initial Decision Maker's sole discretion, it would be inappropriate for the Initial Decision Maker to resolve the Claim.

§ 15.2.3 In evaluating Claims, the Initial Decision Maker may, but shall not be obligated to, consult with or seek information from either party or from persons with special knowledge or expertise who may assist the Initial Decision Maker in rendering a decision. The Initial Decision Maker may request the Owner to authorize retention of such persons at the Owner's expense.

§ 15.2.4 If the Initial Decision Maker requests a party to provide a response to a Claim or to furnish additional supporting data, such party shall respond, within ten days after receipt of the request, and shall either (1) provide a response on the requested supporting data, (2) advise the Initial Decision Maker when the response or supporting data will be furnished, or (3) advise the Initial Decision Maker that no supporting data will be furnished. Upon receipt of the response or supporting data, if any, the Initial Decision Maker will either reject or approve the Claim in whole or in part.

§ 15.2.5 The Initial Decision Maker will render an initial decision approving or rejecting the Claim, or indicating that the Initial Decision Maker is unable to resolve the Claim. This initial decision shall (1) be in writing; (2) state the reasons therefor; and (3) notify the parties and the Architect, if the Architect is not serving as the Initial Decision Maker, of any change in the Contract Sum or Contract Time or both. The initial decision shall be final and binding on the parties but subject to mediation and, if the parties fail to resolve their dispute through mediation, to binding dispute resolution.

§ 15.2.6 Either party may file for mediation of an initial decision at any time, subject to the terms of Section 15.2.6.1.

§ 15.2.6.1 Either party may, within 30 days from the date of receipt of an initial decision, demand in writing that the other party file for mediation. If such a demand is made and the party receiving the demand fails to file for mediation within 30 days after receipt thereof, then both parties waive their rights to mediate or pursue binding dispute resolution proceedings with respect to the initial decision.

§ 15.2.7 In the event of a Claim against the Contractor, the Owner may, but is not obligated to, notify the surety, if any, of the nature and amount of the Claim. If the Claim relates to a possibility of a Contractor's default, the Owner may, but is not obligated to, notify the surety and request the surety's assistance in resolving the controversy.

§ 15.2.8 If a Claim relates to or is the subject of a mechanic's lien, the party asserting such Claim may proceed in accordance with applicable law to comply with the lien notice or filing deadlines.

§ 15.3 Mediation

§ 15.3.1 Claims, disputes, or other matters in controversy arising out of or related to the Contract, except those waived as provided for in Sections 9.10.4, 9.10.5, and 15.1.7, shall be subject to mediation as a condition precedent to binding dispute resolution.

§ 15.3.2 The parties shall endeavor to resolve their Claims by mediation which, unless the parties mutually agree otherwise, shall be administered by the American Arbitration Association in accordance with its Construction Industry Mediation Procedures in effect on the date of the Agreement. A request for mediation shall be made in writing, delivered to the other party to the Contract, and filed with the person or entity administering the mediation. The request may be made concurrently with the filing of binding dispute resolution proceedings but, in such event, mediation shall proceed in advance of binding dispute resolution proceedings, which shall be stayed pending mediation for a period of 60 days from the date of filing, unless stayed for a longer period by agreement of the parties or court order. If an arbitration is stayed pursuant to this Section 15.3.2, the parties may nonetheless proceed to the selection of the arbitrator(s) and agree upon a schedule for later proceedings.

§ 15.3.3 Either party may, within 30 days from the date that mediation has been concluded without resolution of the dispute or 60 days after mediation has been demanded without resolution of the dispute, demand in writing that the other party file for binding dispute resolution. If such a demand is made and the party receiving the demand fails to file for binding dispute resolution within 60 days after receipt thereof, then both parties waive their rights to binding dispute resolution proceedings with respect to the initial decision.

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§ 15.3.4 The parties shall share the mediator's fee and any filing fees equally. The mediation shall be held in the place where the Project is located, unless another location is mutually agreed upon. Agreements reached in mediation shall be enforceable as settlement agreements in any court having jurisdiction thereof.

§ 15.4 Arbitration

§ 15.4.1 If the parties have selected arbitration as the method for binding dispute resolution in the Agreement, any Claim subject to, but not resolved by, mediation shall be subject to arbitration which, unless the parties mutually agree otherwise, shall be administered by the American Arbitration Association in accordance with its Construction Industry Arbitration Rules in effect on the date of the Agreement. The Arbitration shall be conducted in the place where the Project is located, unless another location is mutually agreed upon. A demand for arbitration shall be made in writing, delivered to the other party to the Contract, and filed with the person or entity administering the arbitration. The party filing a notice of demand for arbitration must assert in the demand all Claims then known to that party on which arbitration is permitted to be demanded.

§ 15.4.1.1 A demand for arbitration shall be made no earlier than concurrently with the filing of a request for mediation, but in no event shall it be made after the date when the institution of legal or equitable proceedings based on the Claim would be barred by the applicable statute of limitations. For statute of limitations purposes, receipt of a written demand for arbitration by the person or entity administering the arbitration shall constitute the institution of legal or equitable proceedings based on the Claim.

§ 15.4.2 The award rendered by the arbitrator or arbitrators shall be final, and judgment may be entered upon it in accordance with applicable law in any court having jurisdiction thereof.

§ 15.4.3 The foregoing agreement to arbitrate and other agreements to arbitrate with an additional person or entity duly consented to by parties to the Agreement, shall be specifically enforceable under applicable law in any court having jurisdiction thereof.

§ 15.4.4 Consolidation or Joinder

§ 15.4.4.1 Subject to the rules of the American Arbitration Association or other applicable arbitration rules, either party may consolidate an arbitration conducted under this Agreement with any other arbitration to which it is a party provided that (1) the arbitration agreement governing the other arbitration permits consolidation, (2) the arbitrations to be consolidated substantially involve common questions of law or fact, and (3) the arbitrations employ materially similar procedural rules and methods for selecting arbitrator(s).

§ 15.4.4.2 Subject to the rules of the American Arbitration Association or other applicable arbitration rules, either party may include by joinder persons or entities substantially involved in a common question of law or fact whose presence is required if complete relief is to be accorded in arbitration, provided that the party sought to be joined consents in writing to such joinder. Consent to arbitration involving an additional person or entity shall not constitute consent to arbitration of any claim, dispute or other matter in question not described in the written consent.

§ 15.4.4.3 The Owner and Contractor grant to any person or entity made a party to an arbitration conducted under this Section 15.4, whether by joinder or consolidation, the same rights of joinder and consolidation as those of the Owner and Contractor under this Agreement.

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SECTION 004100 – BID FORM AND BID BOND FORM

To: Bids may be submitted by email or in person and must be **received** by the time noted in the Invitation for Bid or Contract Bid Addenda, to be valid. We suggest sending early to ensure receipt, if using email, as technical issues will not be excused for a late submittal. Bids will not be accepted or opened if received after the time.

EMAIL ADDRESS FOR BID SUBMITTAL:
Include in Subject Line –
'Bid - 1872 Neosho Colored School Rehabilitation Project'
bids@strata-arch.com

MAILING OR DROP-OFF ADDRESS AND LABEL FOR PAPER BID SUBMISSION:
Label Sealed Envelope with the Following Subject Line –
'Bid - 1872 Neosho Colored School Rehabilitation Project
Attention: Carver Birthplace Association'
George Washington Carver Birthplace National Monument
5646 Carver Rd.
Diamond, Missouri 64840

PHYSICAL ADDRESS OF PROJECT (***DO NOT SUBMIT BIDS HERE***):
639 Young Street
Neosho, Missouri 64850

Today's Date: _____, 2026.

From: _____ hereinafter called the Bidder.

Submittal of Bid:

Each bidder must complete the Bid Form by signing in the proper signature line and supplying all required information called for in connection with the signature. Failure to complete the Bid Form in its entirety and submit the required attachments may result in the rejection of this bid.

Submit the Bid Form in compliance with the Instructions for Bidders. Line Items costs must be standalone and include general conditions

1. The undersigned, having examined the proposed Contract Documents titled: **'Bid - 1872 Neosho Colored School Rehabilitation Project,'** dated October 24, 2025, and having visited the site and examined the conditions affecting the work, hereby proposes and agrees to furnish all labor, materials, equipment and everything which may be necessary or incidental thereto, as proposed by said Contract Documents (Drawings, Specifications, Addenda and including this Bid Form), all to the satisfaction of the Carver Birthplace Association or designated Owner's Representative. Contractor to assume all work to be completed as a single contract. Owner may choose to perform all work or may select specific line items. All work to be performed for the stipulated sum of:

   LINE ITEM 1: Interior Scope of Work Includes, but is not limited to:
   - Contractor to pay for building permit. Architect will submit to the City for review during bidding.

- Contractor to perform all labor and provide all materials for all work required for the interior of the building as shown on the drawings and in the specifications to complete the scope in its entirety as a finished space, ready to receive visitors, including all interior finishes, structural stabilization, hardware, new mechanical, electrical, plumbing, and alarm systems, life safety upgrades, and final cleaning.
- All required interior selective demolition as shown on the drawings on the first and second floors, including removal of the interior stairs, old framing repairs, interior non-historic partition wall, contemporary heating stove flue, dropped ceiling structure and lath and plaster ceiling at first floor, all interior electrical distribution (wiring, receptacles, etc.), trash removal, and all other work indicated.
- Salvaging interior historic millwork and labeling for reinstallation in original locations. Ensure secured storage for all historic materials.
- Structural stabilization of second floor (first floor ceiling) and framing for new attic access hatch.
- Plaster Walls: Interior historic lime and gypsum plaster repairs, stabilization, and skim coating. Protect and preserve historic lime plaster on north wall as indicated in specifications. Work includes crack repairs, infill of missing or damaged/loose sections of plaster, and skim coating gypsum plaster throughout.
- Blueboard and Plaster Skim Coat Ceiling: First floor ceiling - new blueboard and plaster skim coat finish for the new ceiling.
- Wood Flooring: Selective Demolition of upper layer (south side of first floor) and non historic (north side of first floor) wood flooring. Carefully salvage historic wood flooring from south side of first floor. Install new subfloor. Provide and install replica tongue and groove wood flooring of species and cut to match historic first-floor wide plank wood flooring, interleave new and old flooring, and install throughout the first floor to provide a seamless blending of new and old wood flooring planks. Refinish wood flooring, per drawings. Patch holes in second floor wood flooring.
- Widen Door: Structurally and physically widen Door 2-100 opening to accommodate new wider door for ADA-compliant accessible entrance. Work includes structural reframing, new replica interior and exterior trim (painted), and a new reproduction door, wood threshold, weatherstripping, hardware, and metal transition. Install galvanized drip flashing above door trim.
- Millwork: Interior historic millwork repair, restoration, and replication.
    - Millwork includes all interior wood trim, casings, wainscotting, chair rail, beaded board walls, and all other miscellaneous wood materials.
    - Strip paint from interior millwork, as outlined in the drawings and specifications.
    - Refinish wood interior millwork as outline in the drawings and specifications.
    - Replicate historic wood chair rail and install where missing.
    - Dutchman repair old wall outlet locations in historic wood wainscotting.
    - Provide new interior wood trim as shown in drawings.
    - Construct custom wood access hatch with trim and cover to second floor.
    - Construct custom wood closet and cabinet as shown in the drawings.
    - Repair historic beaded board walls and ceiling on second floor.
    - And all related miscellaneous millwork not specifically called for to provide a complete interior finish.
- Painting and Refinishing: Interior historic millwork refinishing and interior plaster walls, blueboard plastered ceiling, and wood walls, doors, windows (jambs, trim, and sashes), and trim painting as outlined in the drawings on both floors.
- Joint Sealants

- Heating Stove: Contractor to install antique interior heating stove, stovepipe, and collar to be provided by the Owner. See Drawings.
- Provide and install all new mechanical systems and distribution, electrical systems and distribution, new lighting, and plumbing, as required.
- Provide and install new security/smoke alarm system, per the drawings.
- Provide and install new fire extinguishers (2) – first and second floors.

COST FOR LINE ITEM 1: _____DOLLARS

($ _____)

LINE ITEM 2: Building and Site Utilities: Complete all work related to the site and building utilities.

- Relocate exterior electrical meter, service entrance, and interior panel as indicated on the drawings. Provide new wiring and mounting, as required.
- Patch holes remaining from removal of electrical to match surrounding material.
- Provide new yard hydrant.
- Restore yard with new grass seeding with matting.

COST FOR LINE ITEM 2: _____DOLLARS

($ _____)

LINE ITEM 3: Improve ADA site Accessibility and Building Access: Provide all work required to allow for site access – walkways and ramp.

- Provide tree protection.
- Construct a new accessible concrete and stone-clad ramp with steel railings to the back (east) entrance door. Replace siding with cement board where in contact with ramp.
- Construct new ADA accessible-compliant walkways from the street right-of-way to the new ramp and front steps.
- Repair and refinish the front wood stoop and stairs, and install new railings to meet building code.
- Restore the site and re-seed with matting.
- Work includes re-grading and new site drainage shown in drawings, and as needed to move water away from the building perimeter.

COST FOR LINE ITEM 3: _____DOLLARS

($ _____)

LINE ITEM 4: Exterior Building Maintenance and Repairs:

- Front door is to be repaired by others and reinstalled by the General Contractor as part of this scope of work.

- General Contractor to provide temporary weatherproof enclosures for all windows/doors removed during construction, including the front door, to be repaired by others.
- Install new ADA-compliant wood threshold and metal transition at front door.
- Install new weatherstripping at front door.
- Install new galvanized drip over front door trim behind wood siding.
- Install new exterior door trim and jambs, as indicated on the drawings.
- Install new interior door trim, as indicated on the drawings.
- Repair deteriorated or offset wood siding, in kind.
- Paint repaired exterior door (inside and outside).
- Replace cupped window exterior sill at Window 103. Prep, prime, and paint.
- Demolish existing and install new Crawlspace Access louvered hatch. Prep, prime, and paint.

COST FOR LINE ITEM 4: _____DOLLARS

($ _____)

LINE ITEM 5: Exterior Painting: Contractor to prep, prime, and paint the entire exterior of the building. Remove all loose paint and prime exposed areas. Work includes all exterior painted surfaces (siding, trim, fascia, soffits, and windows).

COST FOR LINE ITEM 5: _____DOLLARS

($ _____)

LINE ITEM 6: Exterior Roof Drainage: Contractor to provide and install new roof drip edge, gutters, downspouts, extensions, and splash blocks. Repair wood roofing, as required, to install roof drip edges at base and sides.

COST FOR LINE ITEM 6: _____DOLLARS

($ _____)

LINE ITEM 7: ALLOWANCE: Contractor to pay for special inspections and testing for exterior reinforcing inspections, and concrete testing).

COST FOR LINE ITEM 7: Two thousand five hundred dollars ($ 2,500.00)

2. The undersigned, acknowledges having examined and being familiar with the contract documents including the drawings, the Instructions to Bidders, General Conditions, and the body of technical specifications.

3. The undersigned acknowledges receipt of Addenda No's._____ through _____ inclusive.

4. The undersigned acknowledges that the George Washington Carver Birthplace District Association, Inc. (CBA) is sales/use tax exempt, pursuant to Section 144.030.2(20), RSMo. A letter of exempt status will be issued with the Contract. A Contractor may purchase and pay for construction materials exempt from sales tax when fulfilling a contract with the CBA.

5. The undersigned acknowledges that Overhead and Profit for Contract Changes will be limited to 10% and will be outlined in the final Contract.

6. Enclosed with this bid is bid security in the amount of not less than 5% of the bidder's proposed

   Contract Sum of all Line Items above (including the stated Allowance and Estimated Bid Quantities Provided by the Design Team), the amount being

   _____

   _____DOLLARS

   ($_____)

7. The Contractor shall issue a Performance and Payment Bond for 100% of the Contract.

8. Bidder to provide the following additional sheets (Refer to Attachment A to be submitted with Bid Form – Form must be completed in full):
   a. General Contractor's Qualifications: Provide a minimum of three (3) relevant projects, similar in scope and cost as this project, completed in the last 10 years. Provide brief description of the services provided for the project, project location, project cost, and reference with current contact information for each project. Contact to include Owner with phone number and email address.
      i. Project Manager Qualifications: Bidder's Project Manager to be assigned to the project (name and brief summary of relevant project experience of the same magnitude, scope, and cost as this project).
      ii. Project Superintendent Qualifications (If different person than Project Manager): Bidder's Project Superintendent to be assigned to the project and be in the field during all work (name and brief summary of relevant project experience of the same magnitude, scope, and cost as this project).
      iii. Project Manager and Superintendent cannot be removed and replaced during construction without approval of the Owner. All qualifications for recommended replacement must be met.
   b. Subcontractors List: Bidder's List of Proposed Major Subcontractors. Including, but not limited to:
      i. Historic Carpenter for millwork replication, millwork and cabinetry fabrication, millwork refinishing (stripping and new finishes), and all related work indicated on the drawings
      ii. Historic Plaster Restoration Contractor
      iii. Concrete Contractor for ramp and sidewalks
      iv. Masonry Contractor for stone veneer
      v. Custom Railing Fabricator(s) and Installer(s) for new ramp railing
      vi. Custom Wood Entry Door Fabricator and Installer
      vii. Wood Window Repair Contractor for sill replacement
      viii. Electrician

ix. Mechanical Contractor
x. Additional Subcontractors

IN SUBMITTING THIS BID, THE BIDDER AGREES:

- To hold open the Bid for thirty (30) days from the date shown above;
- To accept and accomplish the Work in accordance with the Contract Documents, including the Specifications, Drawings, and all Addenda;
- To enter into and execute an Agreement, if awarded, on the basis of this Bid and to furnish required Bonds (as requested by the Owner);
- To commence construction Work immediately after receipt of the Notice to Proceed and complete work within 180 days, with Substantial Completion at 150 days. The designated time to complete the work incorporates an allowance of fifteen (15) inclement weather days.
- The Contractor agrees to pay to, or allow the Owner as liquidated damages, the sum of One Thousand Dollars ($500) for each day thereafter the above-identified completion date that the work is not substantially complete.

BIDDER INFORMATION

Name of Bidder _____

Incorporated under the laws of the State of _____

Corporate License No. _____
(If incorporated in state other than Missouri, attach Certificate of Authority to do business in the State of Missouri)

Name and Title of Officer _____

Signature of Officer _____

Federal Tax ID _____

Address for Communications _____

Phone Number for Communications _____

Email for Communications _____

_____

(ATTEST) Corporate Secretary Name and Signature

(SEAL) Corporate Seal

BID BOND

(5% of the Bid)

KNOW ALL THOSE BY THESE PRESENTS, that we _____,

as Principal, and _____,
as Surety, are held firmly bound unto the George Washington Carver Birthplace District Association, Inc. (Owner) in the penal sum of Dollars ($_____), to be paid to the George Washington Carver Birthplace District Association, Inc., Principal and Surety binding themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

Sealed with our seals and dated this _____ day of _____, 2023

THE CONDITION OF THIS OBLIGATION is such that:

WHEREAS, the Principal is submitting herewith a bid to George Washington Carver Birthplace District Association, Inc. (Owner) for the 1872 Neosho Colored School Project at 639 Young Street, Neosho, MO 64850, for construction or improvement as set out in said bid.

NOW THEREFORE, the Owner shall accept the bid of the Principal, said Principal shall properly execute and deliver to the Owner the Contract, Contract Bond, Specifications and evidence of insurance coverage in compliance with the requirements of Bid, to the satisfaction of the Owner, then this obligation shall be void and of no effect, otherwise to remain in full force and effect.

In the event the said Principal shall, in the judgment of the Owner, fail to comply with any requirement as set forth in the preceding paragraph, then the Owner shall immediately and forthwith be entitled to recover the fees, and any other expense of recovery.

_____	_____
Principal	Surety
_____	_____
By	Attorney in Fact (SEAL)

Attest: (CORPORATE SEAL)

_____
Corporate Secretary

Note: This bond must be executed by the Principal and by a Corporate Surety authorized to conduct surety business in the State of Missouri.

BID SUBMISSION CHECKLIST

Bidder to initial each item:

____ I have read all Terms and Conditions and Proposal documents closely.

____ Bid Submission Checklist

THE ITEMS LISTED BELOW ARE REQUIRED FOR A COMPLETE BID SUBMITTAL

____ Sealed Envelope and Label Attached (See Bid Form Instructions)

____ Bid Form and Bid Bond Form – All items on Bid Form completed in their entirety.

Bid Form Additional Sheets:

_____ General Contractor's Qualifications

_____ Project Manager Qualifications

_____ Subcontractors List

_____ Acknowledge Bidder has received all Addenda during bidding and incorporated the information into the Bid.

INCORRECT COPY OF ATTACHMENT 'A' REMOVED FROM PROJECT MANUAL - STRATA Architecture, 2/6/2026.
Attachment A after this section to be included in Bid.

ATTACHMENT 'A' –

CONTRACTOR AND SUBCONTRACTOR QUALIFICATIONS FORM

Form must be completed in full and submitted with the Bid Form.

1. **General Contractor's Qualifications:** Provide a minimum of three (3) relevant projects, similar in scope and cost to this project, completed in the last 10 years. Provide a brief description of the services provided for the project, project location, project cost, reference with current contact information for each project, and the name of the General Contractor business that performed the work. Contact to include the Owner, including phone number, and email address.

   Project 1 – (Title and Project Type) _____
   _____
   (Relevant Scope of Work Description – Describe Self-Performed and Contracted Work)
   _____
   _____
   _____
   _____
   _____
   (Construction Contract Cost) _____
   (Project Contact – Name, Email and Phone) _____
   _____

   Project 2 – (Title and Project Type) _____
   _____
   (Relevant Scope of Work Description – Describe Self-Performed and Contracted Work)
   _____
   _____
   _____
   _____
   (Construction Contract Cost) _____
   (Project Contact – Name, Email and Phone) _____
   _____

   Project 3 – (Title and Project Type) _____
   _____
   (Relevant Scope of Work Description – Describe Self-Performed and Contracted Work)
   _____
   _____
   _____
   _____
   (Construction Contract Cost) _____
   (Project Contact – Name, Email and Phone) _____
   _____

2. Project Manager Qualifications: Bidder's Project Manager to be assigned to the project (name and brief summary of relevant project experience of the same magnitude, scope, and cost as this project). Project Manager must have a minimum of 8 years of project management experience. Project Manager and Superintendent cannot be removed and replaced during construction without approval of the Owner. All qualifications for recommended replacement must be met.

Name of Proposed Project Manager _____
Years Employed with General Contractor _____
Years of Construction Experience _____

Project 1 – (Title and Project Type) _____
_____
(Relevant Scope of Work Description and Performed Project Manager Duties)
_____
_____
_____
_____
_____
_____
(Construction Contract Cost) _____
(Project Contact – Name, Email and Phone) _____
_____

Project 2 – (Title and Project Type) _____
_____
(Relevant Scope of Work Description and Performed Project Manager Duties)
_____
_____
_____
_____
_____
(Construction Contract Cost) _____
(Project Contact – Name, Email and Phone) _____
_____

Project 3 – (Title and Project Type) _____
_____
(Relevant Scope of Work Description and Performed Project Manager Duties)
_____
_____
_____
_____
_____
(Construction Contract Cost) _____
(Project Contact – Name, Email and Phone) _____
_____

3. Project Superintendent Qualifications *(If different person than Project Manager*): Bidder's Project Superintendent to be assigned to the project and be in the field during all work (name and brief summary of relevant project experience of the same magnitude, scope, and cost as this project). Project Superintendent must have a minimum of 5 years of onsite construction experience. Project Manager and Superintendent cannot be removed and replaced during construction without approval of the Owner. All qualifications for recommended replacement must be met.

   Name of Proposed Project Superintendent _____
   Years Employed with General Contractor _____
   Years of Construction Experience _____

   Project 1 – (Title and Project Type) _____
   _____
   (Relevant Scope of Work Description and Superintendent Duties Performed)
   _____
   _____
   _____
   _____
   _____
   _____
   (Project Contact – Name, Email and Phone) _____
   _____

   Project 2 – (Title and Project Type) _____
   _____
   (Relevant Scope of Work Description and Superintendent Duties Performed)
   _____
   _____
   _____
   _____
   _____
   (Project Contact – Name, Email and Phone) _____
   _____

   Project 3 – (Title and Project Type) _____
   _____
   (Relevant Scope of Work Description and Superintendent Duties Performed)
   _____
   _____
   _____
   _____
   _____
   (Project Contact – Name, Email and Phone) _____
   _____

4. Subcontractors List: Bidder's List of Proposed Major Subcontractors. Including, but not limited to:

4.A – Plaster Restoration (Must meet qualifications in specifications).

- Installer qualified to repair and install historic lime and gypsum plasters
- Minimum five (5) years' experience in similar scope and scale of projects to this project. Experience must include installation and repairs to historic plaster installed over wood lath.

Name of Proposed Plaster Restoration Contractor and Company

_____

_____

Project 1 – (Title and Project Type) _____

_____

(Relevant Scope of Work Description) _____

_____

_____

(Construction Contract Cost) _____

(Project Contact – Name, Email and Phone) _____

_____

Project 2 – (Title and Project Type) _____

_____

(Relevant Scope of Work Description) _____

_____

_____

(Construction Contract Cost) _____

(Project Contact – Name, Email and Phone) _____

_____

Project 3 – (Title and Project Type) _____

_____

(Relevant Scope of Work Description) _____

_____

_____

(Construction Contract Cost) _____

(Project Contact – Name, Email and Phone) _____

_____

4.B – Historic Carpenter (Interior and exterior wood door, trim, cabinetry, millwork, and wood flooring repairs, fabrication, and refinishing)

- Provide projects requiring fabrication, repair, and installation similar to scope and scale of proposed interior work.
- Minimum five (5) years experience in similar scope and scale of projects to this project.

Name of Proposed Historic Carpentry Contractor
_____
_____
Years in Business _____

Project 1 – (Title and Project Type) _____
_____
(Relevant Scope of Work Description) _____
_____
_____
(Construction Contract Cost) _____
(Project Contact – Name, Email and Phone) _____
_____

Project 2 – (Title and Project Type) _____
_____
(Relevant Scope of Work Description) _____
_____
_____
(Construction Contract Cost) _____
(Project Contact – Name, Email and Phone) _____
_____

4.C – Masonry Contractor (new ramp stone veneer)

- Experience installing new stone masonry veneer.

Name of Proposed Masonry Contractor _____
_____
Years in Business (Minimum 5) _____

Project 1 – (Title and Project Type) _____
_____
(Relevant Scope of Work Description) _____
_____
_____
_____
_____
(Construction Contract Cost) _____
(Project Contact – Name, Email and Phone) _____
_____

Project 2 – (Title and Project Type) _____
_____
(Relevant Scope of Work Description) _____
_____
_____
_____
(Construction Contract Cost) _____
(Project Contact – Name, Email and Phone) _____
_____

Project 3 – (Title and Project Type) _____
_____
(Relevant Scope of Work Description) _____
_____
_____
_____
(Construction Contract Cost) _____
(Project Contact – Name, Email and Phone) _____
_____

4.D – Electrician – Must have experience with projects similar in scope and scale to this project.

Electrician Company Name and Contact Information_____
_____
Years in Business _____

4.E – Mechanical Contractor – Must have experience with projects similar in scope and scale to this project.

Mechanical Contractor Company Name and Contact Information_____
_____
Years in Business _____

4.F – Additional Subcontractors (Painter, Concrete Ramp and Walks, Exterior Railings, Etc.)
Name and Contact Information _____
_____

Name and Contact Information _____
_____

Name and Contact Information _____
_____

Name and Contact Information _____
_____

Name and Contact Information _____
_____

Name and Contact Information _____
_____

Name and Contact Information _____
_____

Name and Contact Information _____
_____

END OF ATTACHMENT A – CONTRACTOR LIST

SECTION 011100 - SUMMARY OF WORK

PART 1 - GENERAL

1.1 FUNDING

A. This project is partially funded by a grant from the African American Cultural Heritage Action Fund of the National Trust for Historic Preservation with Support from the JPB Foundation.

B. This material was produced with assistance from the Historic Preservation Fund, administered by the National Park Service, Department of the Interior, of the U.S. Government, and the Missouri Department of Natural Resources, State Historic Preservation Office. Any opinions, findings, and conclusions or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the views of the Department of the Interior or the Department of Natural Resources, State Historic Preservation Office, nor does the mention of the trade names or commercial products constitute endorsement or recommendation.

C. This material was produced with assistance from the Historic Preservation Fund, administered by the National Park Service, Department of the Interior, under Grand Number P24AP00770-00. Any opinions, findings, and conclusions or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the views of the Department of the Interior.

1.2 SUMMARY

A. Section includes the following:

1. Work Covered by Contract Documents
2. Work Phases
3. Contractor Use of Site
4. Public Use of Site
5. Occupancy Requirements for Buildings
6. Conduct of Operations
7. Work Restrictions

1.3 WORK COVERED BY CONTRACT DOCUMENTS

A. Project Location: 1872 Neosho Colored School, 639 Young Street, Neosho, Missouri.

B. The Work consists of:

1. Exterior and interior rehabilitation and repairs to the historic Neosho Colored School.

2. The 981-square-foot building was constructed in 1872, with modifications made throughout the 20th century.

3. The historic school was listed in the National Register of Historic Places in 2017, following an extensive Phase I rehabilitation project.

4. The school is important for its association with George Washington Carver, its important early role in African American education in Neosho, and its significance in African

American ethnic heritage. The school building retains its historical significance as a Reconstruction-Era African American school and the first public documented educational institution of learning at any length by George Washington Carver.

5. The project includes the final rehabilitation of the interior and exterior to open the building for interpretation for visitors to experience.

6. Major work includes, but is ot limited to the following:
   a. Minor re-grading and site drainage
   b. Construction of new ADA-accessible ramp and walkways
   c. Replacement of select exterior deteriorated cedar lap siding and trim
   d. Replacement of wood window sill
   e. Replacement of wood front door sill, jambs, and trim
   f. Widening back door opening and providing replica historic wood jambs, trim, and sill.
   g. New louvered crawlspace access hatch
   h. Selective demolition of non-original interior features (stair, lowered ceiling framing, partition wall, finishes, etc.)
   i. Restoration and repairs to wood flooring
   j. Preservation, repairs, and limited replacement of historic wood lath and gypsum and lime plasters.
   k. Installation of new blueboard and skim coat plaster ceiling
   l. Structural stabilization and attic opening framing.
   m. Stripping paint and wallpaper from wood and plaster surfaces
   n. Restoration and replication of historic wood interior trim and finishes throughout the first floor and attic.
   o. Integration of new mechanical systems for heating and cooling
   p. Relocation of interior electrical panel and integration of new electrical distribution, including lighting and receptacles on exterior and interior
   q. Installation of new exterior water hydrant
   r. New security system (alarm and fire)
   s. New telephone service
   t. Installation of new attic door hatch to attic
   u. Replica beaded board cabinets with doors
   v. Interior painting
   w. Install an antique potbelly heating stove (provided by Owner)
   x. All interior and exterior painted surfaces are assumed to contain lead. A very small amount of asbestos-containing flooring material is to be abated is within the scope of services. Contractor to follow all local, state, and federal environmental laws with regard to removal (abatement) of asbestos and hold all required RRP certifications for working with lead paint.
   y. And all work not listed above that is associated with the drawings and specifications for a complete project.

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

1.4 WORK PHASES

A. The Work shall be conducted in a single phase.

1.5 CONTRACTOR USE OF SITE

A. General: Contractor shall have limited use of site for construction operations. Do not disturb portions of Project site beyond areas in which the Work is indicated. Provide tree protection.

1. The Owner shall be notified immediately of ALL artifacts found during excavations. All artifacts found on site remain in the ownership of the Carver Birthplace Association and shall be turned over to the organization.

2. Contractor may not remove any items from the site that are not specifically addressed in the construction documents to be demolished without approval from the Owner.

B. Storage of Materials: Confine storage of materials to staging to site and no closer than 15' from side and rear yard property lines.

C. Parking: Use street parking. Parking is not allowed on the project site. Do not block neighboring driveways.

D. Fencing and Signage: Contractor to provide fencing to protect visitors from the work area. Contractor to provide signage that the area immediately surrounding the building is closed during construction.

E. Preservation of Natural Features:

1. Prevent damage to natural surroundings. Restore damaged areas, repairing or replacing damaged grass, trees, and plants, at no additional expense to the Government.
2. Provide temporary barriers to protect existing trees and plants and root zones.
3. Do not remove, injure, or destroy trees or other plants without prior approval. Consult with Owne and remove agreed-on roots and branches that interfere with construction.
4. Do not fasten ropes, cables, or guys to existing trees.
5. Carefully supervise excavating, grading, filling, and other construction operations near trees to prevent damage.

F. Construction Camp: Establishment of a camp on site is not permitted.

G. Hauling Restrictions: Comply with legal load restrictions in hauling of materials. Load restrictions on park roads are identical to state load restrictions with such additional regulations as may be imposed by the Park Superintendent. Information regarding rules and regulations for vehicular traffic on park roads may be obtained from the Office of the Park Superintendent. A special permit will not relieve Contractor of liability for damage which may result from moving of equipment.

H. Bridge Restrictions: Identify jurisdictions, load restrictions, permit requirements, time and calendar restrictions as outlined.

1.6 PUBLIC USE OF SITE

A. The building will be closed to the public during construction.

B. CThe contractor shall conduct his operations to ensure the least inconvenience to the public and neighbors.

1.7 OCCUPANCY REQUIREMENTS FOR BUILDINGS

A. Existing Buildings

1. The building will not be occupied.

1.8 CONDUCT OF OPERATIONS

A. Contractor shall conduct his operations in conformance with rules and regulations promulgated by the City of Neosho.

B. Work on Saturdays, Sundays, Federal holidays or at night may not be performed unless approved by the Owner. This is to protect neighboring properties from disruption on holidays and weekends.

C. No signs or advertisements shall be displayed on the construction site unless approved by the Owner. Contractor may erect sign about the project and the contractor's company, as approved by the Owner only.

1.9 WORK RESTRICTIONS

A. On-Site Work Hours: Work shall be generally performed during normal business working hours of 8:00 a.m. to 5:00 p.m., Monday through Friday, except when otherwise indicated.

1. Weekend Hours: Submit requests for weekend work hours to the Owner at least 72 hours prior to work day.
2. Early Morning Hours: No allowed due to adjacent neighbors.
3. Hours for noisy activities: 8:00 am to 5:00 pm.

B. Existing Utilities

1. Existing Utilities: Limited utilities exist in the building.
2. Notify utility companies of proposed locations and times for excavation.
3. Contractor shall be responsible for locating and preventing damage to known utilities. If damage occurs, repair utility at no cost to the Owner.
4. If damage occurs to an unknown utility, repair utility at no cost to the Owner.

C. Existing Utility Interruptions: Do not interrupt utilities serving facilities to neighboring properties, or others unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:

1. Notify Owners, as outlined in the Construction Document General Notes.
2. Do not proceed with utility interruptions without proper neighboring property notification and without Owner's permission.
3. Hours and length of Utility Shutdowns: As minimal as possible to complete work, but no longer than 2 hours.

D. Nonsmoking Building/Tobacco Use/Vaping: Smoking is not permitted on the project site. Smoking is not permitted within 25 feet of neighboring properties.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 11 00

SECTION 013100 – 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 Projects including, but not limited to, the following:

1. Coordination Drawings.
2. Administrative and supervisory personnel.
3. Project meetings.

B. Each Contractor shall participate in coordination requirements. Certain areas of responsibility will be assigned to a specific Contractor.

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: Owner may have additional contractors working on site outside of this contract. It is the responsibility of the General Contractor to coordinate with the other contractors to ensure all trades and scopes of work may be accomplished. All coordination should be through the Construction Representative.

C. Coordination: Each Contractor and Sub Contractor shall coordinate its construction operations with those of other contractors and entities to ensure efficient and orderly installation of each part of the Work. Each Contractor and Sub Contractor shall coordinate its 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.

D. 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.

E. 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. Startup and adjustment of systems.
8. Project Closeout activities.

F. Conservation: Coordinate construction activities to ensure that operations are carried out with consideration given to conservation of energy, water, and materials.

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

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.

B. Key Personnel Names: Within five (5) working days of starting construction operations, submit a list of key personnel assignments including superintendent and other personnel in attendance at Project site. Identify individuals and their duties and responsibilities; list addresses and telephone numbers including home 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.
2. Include cell phone numbers for critical project managers and sub-contractors.

1.5 PROJECT MEETINGS

A. The Owner’s Representative will schedule a Pre-Construction Meeting prior to beginning of construction. The date, time, and exact place of this meeting will be determined after Contract Award and notification of all interested parties. The Contractor shall arrange to have the Job Superintendent and all prime Subcontractors present at the meeting. During the Pre-Construction Meeting, the construction procedures and information necessary for submitting payment requests will be discussed and materials distributed along with any other pertinent information.

1. Minutes: Designer will record and distribute meeting minutes.

B. Progress Meetings: The Owner's Representative will conduct Monthly Progress Meetings.

1. Minutes: General Contractor will record and distribute the meeting minutes to Owner's Representative.

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

1. Attendees: Installer and representatives of Manufacturers and Fabricators involved in or affected by the installation and its coordination or integration with other materials and installations that have preceded or will follow, shall attend the meeting. Advise Designer and Owner's Representativbe 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. Contract Documents

b. Options

c. Related RFIs

d. Related Contract Changes

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. Contractor shall 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.
5. Do not proceed with installation if the conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of the Work and reconvene the conference at earliest feasible date.
6. Project name
7. Name and address of Contractor
8. Name and address of Designer
9. RFI number including RFIs that were dropped and not submitted
10. RFI description
11. Date the RFI was submitted
12. Date Designer's response was received
13. Identification of related DSI or Proposal Request, as appropriate

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 013100

SECTION 013200 – SCHEDULE – BAR CHART

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes requirements for a Bar Chart Schedule for the project construction activities, schedule of submittals, and schedule for testing.

PART 2 - PRODUCTS – (Not Applicable)

PART 3 - EXECUTION

3.1 SUBMITTAL PROCEDURES

A. The Contractor shall submit to the Designer, within ten (10) working days following the Notice to Proceed, a Progress Schedule including Schedule of Values showing the rate of progress the Contractor agrees to maintain and the order in which he proposed to carry out the various phases of Work. No payments shall be made to the Contractor until the Progress Schedule has been approved by the Owner's Representative.

B. The Contractor shall submit an updated Schedule for presentation at each Monthly Progress Meeting. The Schedule shall be updated by the Contractor as necessary to reflect the current Schedule and its relationship to the original Schedule. The updated Schedule shall reflect any changes in the logic, sequence, durations, or completion date. Payments to the Contractor shall be suspended if the Progress Schedule is not adequately updated to reflect actual conditions.

C. The Contractor shall submit Progress Schedules to Subcontractors to permit coordinating their Progress Schedules to the general construction Work. The Contractor shall coordinate preparation and processing of Schedules and reports with performance of other construction activities.

3.2 CONSTRUCTION PROGRESS SCHEDULE – BAR CHART SCHEDULE

A. Bar-Chart Schedule: The Contractor shall prepare a comprehensive, fully developed, horizontal bar chart-type Contractor's Construction Schedule. The Contractor for general construction shall prepare the Construction Schedule for the entire Project. The Schedule shall show significant dates (such as completion of excavation, concrete foundation work, underground lines, rough-ins, enclosure, hanging of fixtures, etc.) which shall serve as check points to determine compliance with the approved Schedule.

1. The Contractor shall provide a separate time bar for each significant construction activity. Provide a continuous vertical line to identify the first working day of each week.

    a. If practical, use the same Schedule of Values breakdown for schedule time bars.

2. .

3. The Contractor shall prepare the Schedule on a minimal number of separate sheets to readily show the data for the entire construction period.

4. Secure time commitments for performing critical elements of the Work from parties involved. Coordinate each element on schedule with other construction activities. Include minor elements involved in the overall sequence of the Work. Show each activity in proper sequence. Indicate graphically the sequences necessary for completion of related portions of the Work.

5. Coordinate the Contractor's Construction Schedule with the Schedule of Values, list of subcontracts, Submittal Schedule, progress reports, payment requests, and other required schedules and reports.

6. Indicate the Intent to Award and the Contract Substantial Completion dates on the schedule.

B. Phasing: Provide notations on the schedule to show how the sequence of the Work is affected by the following:

1. Requirement for Phased completion
2. Work by separate Contractors
3. Pre-purchased materials
4. Coordination with existing construction
5. Limitations of continued occupancies
6. Un-interruptible services
7. Partial Occupancy prior to Substantial Completion
8. Site restrictions
9. Provisions for future construction
10. Seasonal variations
11. Environmental control

C. Work Stages: Use crosshatched bars to indicate important stages of construction for each major portion of the Work. Such stages include, but are not necessarily limited to, the following:

1. Subcontract awards
2. Submittals
3. Purchases
4. Mockups
5. Fabrication
6. Sample testing
7. Deliveries
8. Installation
9. Testing
10. Adjusting
11. Curing
12. Startup and placement into final use and operation

D. Area Separations: Provide a separate time bar to identify each major area of construction for each major portion of the Work. For the purposes of this Article, a “major area” is a story of construction, a separate building, or a similar significant construction element.

1. 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 the electrical portion of the Work

e. Substantial Completion

3.3 SCHEDULE OF INSPECTIONS AND TESTS

A. Prepare a schedule of inspections, tests, and similar services required by the Contract Documents. Submit the schedule with (15) days of the date established for commencement of the Contract Work. The Contractor is to notify the testing agency at least (5) working days in advance of the required tests unless otherwise specified.

B. Form: This schedule shall be in tabular form and shall include, but not be limited to, the following:

1. Specification Section number

2. Description of the test

3. Identification of applicable standards

4. Identification of test methods

5. Number of tests required

6. Time schedule or time span for tests

7. Entity responsible for performing tests

8. Requirements for taking samples

9. Unique characteristics of each service

C. Distribution: Distribute the schedule to the Owner’s Representative, Architect, and each party involved in performance of portions of the Work where inspections and tests are required.

END OF SECTION 013200

SECTION 013233 – PHOTO DOCUMENTATION

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes administrative and procedural requirements for:

1. Existing condition images
2. Periodic construction images

B. See Section 017700 "Closeout Procedures" for a complete listing of closeout documents.

C. See Section 01 79 00 "Demonstration and Training" for submitting videotapes of demonstration of equipment and training of Owner personnel.

1.2 SUBMITTALS

A. Construction Images: Submit images electronically within seven days of taking the image. Include:

1. Date, time and number (sequentially number all images) in filename.
2. Description of vantage point, indicating location, direction (by compass point), and elevation or story of construction.
3. Submit digital images exactly as originally recorded in digital camera, without alteration, or modifications using image-editing software.

B. Closeout: Submit complete set of digital image electronic files as a Project Record Document. Submit on digital sharing file site as a zipped file.
1. Submit images that have the same aspect ratio as the sensor, un-cropped.

PART 2 - PRODUCTS

2.1 FORMAT REQUIREMENTS

A. Media: Online File Sharing.

B. Images: Provide sRGB (standard Red Green Blue) color images in JPEG (Joint Photographic Experts Group) format. Minimum sensor size of 8 megapixels, and at image resolution of not less than 1600 by 1200, and 300 dpi (dots per inch).

PART 3 - EXECUTION

3.1 CONSTRUCTION IMAGES

A. General: Take digital images using the maximum range of depth of field, in-focus, to clearly show the Work. No blurry or out-of-focus areas accepted.

1. Maintain index with each set of Construction images and identify the number, date, time, and description for each.
2. Maintain one set of images accessible in field office at Project site available for reference.
3. All images to be uploaded to the project website.

B. Existing Condition Images: Before commencement of excavation, commencement of demolition, or starting construction, take color digital images and videos of Building Interior, Project sit,e and surrounding properties, including existing items to remain during construction, from different vantage points.

1. Flag excavation areas and construction limits before recording construction images.
2. Take a minimum of 20 (twenty) separate images to show existing conditions adjacent to property before starting Work, but enough to show the entire site and details.
3. Take a minimum of 6 separate images of each interior room or space (each wall, ceiling, and floor) and overall exterior elevations and details of each side of the building, including the roof, of existing buildings either on or adjoining property to accurately record physical conditions at start of construction. It is the Contractor's responsibility to record the existing conditions prior to construction photographically.

C. Periodic Construction Images: Take a minimum of 20 color, digital images coinciding with bi-weekly meetings and a minimum of 40 overall per month with cutoff date associated with each Application for Payment. Select vantage points to show status of construction and progress since last images were taken.

D. Additional Images: Owner's Representative or Architect/Engineering Team may issue requests for additional images.

1. Two days advance, where feasible.
2. In emergency situations, take additional images within 24 hours of request.
3. Additional images include, but are not limited to:

a. Immediate follow-up when on-site events result in construction damage or losses.
b. Fabrication locations away from Project site.
c. Substantial Completion of a major phase or component of Work.
d. Extra record images at time of final acceptance.

END OF SECTION 013233

SECTION 013300 – SUBMITTALS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes administrative and procedural requirements for submittals required for performance of the Work including the following:

1. Online Submittal Procedures and Software
2. Shop Drawings
3. Product Data
4. Samples
5. Quality Assurance Submittals
6. Construction Photographs
7. Operating and Maintenance Manuals
8. Warranties
9. Training

B. Administrative Submittals: Refer to General and Supplementary Conditions other applicable Division 1 Sections and other Contract Documents for requirements for administrative submittals. Such submittals include, but are not limited to, the following:

1. Construction Progress Schedule including Schedule of Values
2. Performance and Payment Bonds
3. Insurance Certificates
4. Applications for Payment
5. Partial and Final Receipt of Payment and Release Forms
6. Record Drawings
7. Notifications, Permits, etc.
8. Test Reports

C. The Contractor is obliged and responsible to check all shop drawings and schedules to assure compliance with contract plans and specifications. The Contractor is responsible for the content of the shop drawings and coordination with other contract work. Shop drawings and schedules shall indicate, in detail, all parts of an Item or Work including erection and setting instructions and integration with the Work of other trades.

D. The Contractor shall at all times make a copy, of all approved submittals, available on site to the Construction Representative.

1.3 SUBMITTAL PROCEDURES

A. The Contractor shall comply with the General and Supplementary Conditions and other applicable sections of the Contract Documents. The Contractor shall submit, with such promptness as to cause no delay in his work or in that of any other contractors, all required submittals indicated in Part 3.1 of this section and elsewhere in the Contract Documents. Coordinate preparation and processing of submittals with performance of construction activities. Transmit each submittal sufficiently in advance of performance of related construction activities to avoid delay. Submittals may be made electronically, as established at the Pre-Construction Meeting.

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

2. Coordinate transmittal of different types of submittals for related elements of the Work so processing will not be delayed by the need to review submittals concurrently for coordination.

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

B. Each drawing and/or series of drawings submitted must be accompanied by a letter of transmittal giving a list of the titles and numbers of the drawings. Each series shall be numbered consecutively for ready reference and each drawing shall be marked with the following information:

1. Date of Submission

2. Name of Project

3. Location

4. Section Number of Specification

5. Name of Submitting Contractor

6. Name of Subcontractor

7. Indicate if Item is submitted as specified or as a substitution

8. Indicate General Contractor reviewer (person who reviewed submittal prior to forwarding to the Design Team). This must be completed, or the submittal will be rejected.

C. ONLINE SUBMITTAL PROCEDURES AND SOFTWARE

The Contractor shall provide a cloud-based online construction software application to provide a centralized platform for the project management and submittals for this project. Software must be able to provide file structures to download project photographs by date, and provide system to download and upload submittals, RFIs, and project correspondence. The system is intended to be utilized by the contractor(s), Owner, and the Design Team.

1. Upon completion of the project, the Contractor shall provide a thumb drive or hard drive with all information from the online resource in the applicable resource files with dates. For example:
   a. Shop Drawings
      1) Submittals – including Samples - (# and Date)
      2) Approved Submittals (# and Date)
   b. RFIs

1) RFI Submittals (# and Date)
2) RFI Responses (# and Date)

c. DSIs
1) DSI Submittal (# and Date)
2) DSI Responses (# and Date)

d. RFPs
1) RFP Submittals (# and Date)
2) RFP Responses (# and Date)

e. Correspondence (subject folders)

f. Photographs
1) Existing Conditions Photographs / Video
2) Construction Progress Photographs by Date
3) Requested Supplemental Photographs by Date
4) Close-out Photographs by Date

g. Pay Applications
1) Submittals by # and Date
2) Approved by # and Date

1.4 SHOP DRAWINGS

A. Comply with the General Conditions, Article 3.2.

B. The Contractor shall submit newly prepared information drawn accurately to scale. Highlight, encircle, or otherwise indicate deviations from the Contract Documents. Do not reproduce Contract Documents or copy standard information as the basis of Shop Drawings. Standard information prepared without specific reference to the Project is not a Shop Drawing.

C. Shop Drawings, where appropriate, may be submitted electronically.

D. Shop Drawings include fabrication and installation drawings, setting diagrams, schedules, patterns, templates, and similar drawings including the following information:

1. Dimensions
2. Identification of products and materials included by sheet and detail number
3. Compliance with specified standards
4. Notation of coordination requirements
5. Notation of dimensions established by field measurement
6. Sheet Size: Except for templates, patterns and similar full-size Drawings, submit Shop Drawings on sheets at least 8½”x11” but no larger than 36”x48”.

1.5 PRODUCT DATA

A. The Contractor shall comply with the General Conditions, Article 3.2.

B. The Contractor shall collect Product Data into a single electronic submittal for each element of construction or system. Product Data includes printed information, such as manufacturer’s installation instructions, catalog cuts, standard color charts, roughing-in diagrams and templates, standard wiring diagrams, and performance curves. Do not combine submittals from differing specification sections.

1. Mark submittal to show applicable choices and options. Where printed Product Data includes information on several products that are not required, mark submittal to indicate the applicable information including the following information:

    a. Manufacturer's printed recommendations

    b. Compliance with Trade Association standards

    c. Compliance with recognized Testing Agency standards

    d. Application of Testing Agency labels and seals

    e. Notation of dimensions verified by field measurement

    f. Notation of coordination requirements

2. Do not submit Product Data until compliance with requirements of the Contract Documents has been confirmed.

1.6 SAMPLES

A. The Contractor shall comply with the General Conditions, Article 3.2.

B. The Contractor shall submit full-size, fully fabricated samples, cured and finished as specified, and physically identical with the material or product proposed. Samples include partial sections of manufactured or fabricated components, cuts or containers of materials, color range sets, and swatches showing color, texture, and pattern.

1. The Contractor shall mount or display samples in the manner to facilitate review of qualities indicated. Prepare samples to match the Designer's sample including the following:

    a. Specification Section number and reference

    b. Generic description of the Sample

    c. Sample source

    d. Product name or name of the Manufacturer

    e. Compliance with recognized standards

    f. Availability and delivery time

2. The Contractor shall submit samples for review of size, kind, color, pattern, and texture. Submit samples for a final check of these characteristics with other elements and a comparison of these characteristics between the final submittal and the actual component as delivered and installed.

    a. Where variation in color, pattern, texture, or other characteristic is inherent in the material or product represented, submit at least three (3) multiple units that show approximate limits of the variations.

    b. Refer to other Specification Sections for requirements for samples that illustrate workmanship, fabrication techniques, details of assembly, connections, operation, and similar construction characteristics.

    c. Refer to other Sections for samples to be returned to the Contractor for incorporation in the Work. Such samples must be undamaged at time of use. On the transmittal, indicate special requests regarding disposition of sample submittals.

d. Samples not incorporated into the Work, or otherwise designated as the Owner's property, are the property of the Contractor and shall be removed from the site prior to Substantial Completion.

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

a. The Contractor shall comply with submittal requirements to the fullest extent possible. The Contractor shall process transmittal forms to provide a record of activity.

1.7 QUALITY ASSURANCE DOCUMENTS

A. The Contractor shall comply with the General Conditions, Article 3.2

B. The Contractor shall submit quality control submittals including design data, certifications, manufacturer's instructions, manufacturer's field reports, and other quality-control submittals as required under other Sections of the Specifications.

C. Certifications: Where other Sections of the Specifications require certification that a product, material, or installation complies with specified requirements, submit a notarized certification from the Manufacturer certifying compliance with specified requirements.

1. Signature: Certification shall be signed by an officer of the Manufacturer or other individual authorized to contractually bind the Company.

D. Inspection and Test Reports: The Contractor shall submit the required inspection and test reports from independent testing agencies as specified in this Section and in other Sections of the Contract Documents.

E. Construction Photographs: The Contractor shall submit record construction photographs as specified in this Section and in other Sections of the Contract Documents.

1. The Contractor shall submit pre-construction photographs and documentation of existing conditions prior to the start of the project.

2. The Contractor shall submit progress photographs weekly, unless specified otherwise, showing the progress of the work.

3. Photographs shall be sent to the Architect.

4. The Owner or the Designer may request photographs be taken at specific times to document existing conditions, for clarification, or for answering questions. These photographs shall be sent to the Architect within 24 hours.

5. Photographs may be uploaded to a file sharing platform accessible to the Owner and the Designer. Notice of file uploads must be sent to the Architect and the Owner immediately upon uploading.

1.8 OPERATING AND MAINTENANCE MANUALS AND WARRANTIES

A. The Contractor shall submit all required manufacturer's operating instructions, maintenance/service manuals, and warranties in accordance with the General Conditions, Article 3.5, and Supplementary Conditions along with this and other Sections of the Contract Documents.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION 013300

SECTION 013523 - SAFETY REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes establishing an effective accident prevention program and providing a safe working environment for personnel and visitors.

1.2 CONDITIONS PRESENT FOR PROJECT

A. Scaffolding and/or lift equipment may be required for exterior rehabilitation project. Trenching and excavations for utilities and ramp/walkways will be required. Demolition of existing and installation of new electrical services and fixtures will be required throughout the exterior and interior of the building and site. Contractor responsible for providing independent utility locates prior to all work requiring trenching, demolition, coring, cutting, grading, and other similar work. Contractor responsible for providing safety precautions related to locating electrical, gas, water, mechanical, and drainage systems while conducting selective demolition, coring, cutting, and other similar work on the building interior to prevent accidents and damage.

1.3 SUBMITTALS

A. Accident Prevention Plan (APP): Submit APP after contract award and before Pre-Construction conference. Owner's Representative will review proposed APP. If APP requires any revisions or corrections, Contractor shall resubmit Plan within 10 days. No progress payments will be made until the APP is accepted.

1.4 QUALITY ASSURANCE

A. Comply with contract clauses "Accident Prevention" and "Permits and Responsibilities." In case of conflicts between Federal, State, and local safety and health requirements, the most stringent shall apply. Onsite equipment shall meet 29 CFR 1926 (Code of Federal Regulations) (Occupational Safety and Health Administration (OSHA)) requirements. Failure to comply with requirements of this section and related sections may result in suspension of work.

B. Site Safety Supervisor:

1. Designate authorized onsite representative for preparation and maintenance of the APP.
2. Shall be responsible for:

    a. Implementation and enforcement of the APP
    b. Daily safety inspections
    c. Conducting and documenting weekly and monthly safety meetings
    d. Review of safety requirements at progress meetings
    e. Compilation and maintenance of Safety Data Sheets (SDS) and safety reference materials
    f. Tracking and resolution of safety violations
    g. Site personnel and visitor compliance with site safety and health requirements and APP

h. Investigation and reporting of accidents and injuries

C. Qualifications of Employees:

1. Physically and able to perform their assigned duties in a safe manner.
2. Do not allow employees whose ability or alertness is impaired because of prescription or illegal drug use, fatigue, illness, intoxication, or other conditions that may expose themselves or others to injury to perform work.
3. Provide operating instructions for equipment. Operators of vehicles, hoisting equipment, and hazardous plant equipment shall be able to understand signs, signals, operating instructions, and be fully capable of operating such equipment. Retain copies of operator licenses and certifications onsite.

1.5 ACCIDENT REPORTING

A. Reportable Accidents: Defined as: death, occupational disease, and/or traumatic injury to employees or the public; fires; and/or property damage by accident in excess of $100.

1. Notify Owner's Representative immediately in the event of a reportable accident.
2. Fill out and forward an Accident/Property Damage Report Form to Owner's Representative within 7 days of a reportable accident.

PART 2 - PRODUCTS

2.1 ACCIDENT PREVENTION PLAN (APP)

A. APP shall be written to comply with OSHA and project requirements (generic plan is not acceptable) including but not limited to:

1. Name and qualifications of supervisor responsible to carry out program.
2. Weekly and monthly safety meetings shall be documented with topics and attendees.
3. First aid and rescue procedures.
4. Job Hazard Analysis (JHA) for each major phase. List of hazards associated and methods proposed to provide for property protection and safety of the public, National Park Service personnel, and Contractor's employees. Include initial and continuing training.
5. Planning for possible emergency situations, as detailed in Article 1.2. Such planning shall take nature of construction, site conditions, and degree of exposure of persons and property into consideration.
6. Infectious Disease Preparedness:

a. Contractors are responsible for their employees' safety and the safety of job site visitors during the performance of this contract. We encourage Contractors to follow guidance from the Department of Labor (DOL), Occupational Safety and Health Administration (OSHA), the Centers for Disease Control and Prevention (CDC), and all other applicable local, city, and state mandates. We encourage Contractors to develop policies for infection prevention and an Infectious Disease Preparedness and Response Plan.
b. To the extent appropriate, Contractors should include the protective health and safety measures they intend to implement in any accident prevention or safety submittals required under this contract. These plans should contain preventive measures the Contractor intends to follow while performing work on government

property as well as responsive and corrective actions to be taken if an employee exhibits symptoms or tests positive for contagion.

c. Upon contract award, Contractors should communicate with Owner's Representative regarding Contractor decisions and actions to protect the health and safety of workers for the duration of contract performance under which pandemic conditions exist.

2.2 FIRST AID FACILITIES

A. Provide adequate facilities for number of employees and appropriate to construction hazards.

2.3 PERSONNEL PROTECTIVE EQUIPMENT (PPE)

A. Selection shall conform to OSHA Subpart E.

PART 3 - EXECUTION

3.1 DAILY SAFETY INSPECTIONS

A. Conduct daily safety inspections and maintain daily safety reports which include:
1. Area/operation inspected
2. Date of inspection
3. Identified hazards
4. Corrective actions taken

3.2 EMERGENCY INSTRUCTIONS

A. Post telephone numbers and reporting instructions for ambulance, physician, hospital, fire department, and police in conspicuous locations at work site.

3.3 FIRE AND LIFE SAFETY

A. Comply with requirements of National Fire Protection Association (NFPA) 241 (Standard for Safeguarding Construction, Alteration, and Demolition Operations).

3.4 HAZARDOUS MATERIALS

A. Hazardous materials: Explosive, flammable, poisonous, corrosive, oxidizing, irritating, or otherwise harmful substances that could cause death or injury.

B. Store hazardous materials in accordance with manufacturer's and OSHA Subpart D requirements. Maintain Safety Data Sheets (SDS) for each chemical readily available on site.

1. Immediately report spills of hazardous materials to the Park.
2. Maintain a spill emergency response kit.
3. Train employees how to respond to a spill and use emergency response kit.

3.5 PROTECTIVE EQUIPMENT

A. Inspect personal protective equipment daily and maintain in a serviceable condition. Clean, sanitize, and repair personal items as appropriate before issuing to another individual.

3.6 SAFETY MEETINGS

A. As a minimum, conduct one weekly 15-minute "toolbox" safety meeting conducted by a foreman or supervisor and attended by construction personnel at worksite. Topics shall coincide with work scheduled for following week. Document and submit meeting minutes to Owner’s Representative within one day after meeting.

3.7 HARD HATS AND PROTECTIVE EQUIPMENT AREAS

A. A hard hat use area shall be designated by Contractor. Hard hat area shall be posted by Contractor in a manner satisfactory to Owner’s Representative.

B. It is Contractor's responsibility to require persons working on or visiting site to wear hard hats and PPE in good repair at all times. As a minimum, maintain **six** hard hats and other APP required equipment.

3.8 TRAINING

A. First Aid: Provide training to personnel to ensure prompt and efficient first aid.

B. Hazardous Material: Train and instruct each employee exposed to hazardous material in safe and approved methods of handling and storage.

END OF SECTION 013523

SECTION 013591 - HISTORIC TREATMENT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section includes general protection and treatment procedures for historic spaces, areas, rooms, and surfaces in Project.

B. The 1872 Neosho Colored School is listed in the National Register of Historic Places. All work must meet the *Secretary of the Interior's Standards for the Treatment of Historic Properties*. The standards may be found here https://www.nps.gov/tps/standards.htm

C. Great care shall be taken to preserve all existing historic materials and finishes. It should be assumed that all finishes, millwork, flooring, decorative painting, and other finishes are historic or important to presenting the historic story of the building and are to be protected throughout construction.

D. The removal of historic materials or alteration of historic finishes or features and spaces will not be permitted. 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 deteriorated features must be approved by the Architect.

E. Related Requirements:

1. Section 024296 "Historic Removal and Dismantling" for selective demolition for historic spaces.

1.3 DEFINITIONS

A. Consolidate: To strengthen loose or deteriorated materials in place.

B. Design Reference Sample: A sample that represents Architect's prebid selection of work to be matched; it may be existing work or work specially produced for Project.

C. Dismantle: To disassemble or detach a historic item from a surface, or a nonhistoric item from a historic surface, using gentle methods and equipment to prevent damage to historic items and surfaces; disposing of items unless indicated to be salvaged or reinstalled.

D. Historic: Spaces, areas, rooms, surfaces, materials, finishes, and overall appearance that are important to the successful preservation, rehabilitation, restoration, and reconstruction as determined by Architect. Designated historic areas and surfaces are indicated on Drawings.

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

F. Preserve: Act or process of applying measures necessary to sustain the existing form, integrity, and materials of an historic property.

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

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

I. Remove: To take down or detach a nonhistoric item located within a historic space, area, or room, using methods and equipment to prevent damage to historic items and surfaces; disposing of items unless indicated to be salvaged or reinstalled.

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

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

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

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

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

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

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

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

R. Stabilize: To provide structural reinforcement of unsafe or deteriorated items while maintaining the essential form as it exists at present; also, to reestablish a weather-resistant enclosure.

S. Strip: To remove existing finish down to base material unless otherwise indicated.

1.4 PROJECT MEETINGS FOR HISTORIC TREATMENT

A. Preliminary Historic Treatment Conference: Before starting historic treatment work, conduct conference at Project site.

1. Attendees: In addition to representatives of Owner’s Representative, Architect, and Contractor, historic treatment specialists (plaster, painting/refinishing, wood flooring, millwork, etc.), specialty manufacturer(s) (alarm), and installers whose work interfaces with or affects historic treatment (mechanical and electrical) shall be represented at the meeting.

2. Agenda: Discuss items of significance that could affect progress of historic treatment work, including review of the following:

    a. Historic Treatment Subschedule: Discuss and finalize; verify availability of materials, historic treatment specialists' personnel, equipment, and facilities needed to make progress and avoid delays.
    b. Fire-prevention plan.
    c. Governing regulations.
    d. Areas where existing construction is to remain and the required protection.
    e. Hauling routes.
    f. Sequence of historic treatment work operations.
    g. Storage, protection, and accounting for salvaged and specially fabricated items.
    h. Existing conditions, staging, and structural loading limitations of areas where materials are stored.
    i. Qualifications of personnel assigned to historic treatment work and assigned duties.
    j. Requirements for extent and quality of work, tolerances, and required clearances.
    k. Methods and procedures related to historic treatments, including product manufacturers' written instructions and precautions regarding historic treatment procedures and their effects on materials, components, and vegetation.
    l. Embedded work such as flashings and lintels, special details, collection of wastes, protection of occupants and the public, and condition of other construction that affect the Work or will affect the work.

1.5 MATERIALS OWNERSHIP

A. Historic items, relics, and similar objects including, but not limited to, cornerstones and their contents, commemorative plaques and tablets, antiques, and other items of interest or value to Owner that may be encountered or uncovered during the Work, regardless of whether they were previously documented, remain Owner's property.

    1. Dismantle and salvage each item or object and protect it from damage, then promptly deliver it to Owner where directed at Project site.
    2. Coordinate with Owner's Construction Representative who will establish special procedures for dismantling and salvaging.

1.6 INFORMATIONAL SUBMITTALS

A. Fire-Prevention Plan: Submit 30 days before work begins.

1.7 QUALITY ASSURANCE

A. Fire-Prevention Plan: Prepare a written plan for preventing fires during the Work, including placement of fire extinguishers, fire blankets, rag buckets, and other fire-control devices during each phase or process. Coordinate plan with Owner's fire-protection equipment and requirements. Include fire-watch personnel's training, duties, and authority to enforce fire safety.

B. Safety and Health Standard: ANSI/ASSE A10.6.

1.8 STORAGE AND HANDLING OF HISTORIC MATERIALS

A. Salvaged Historic Materials:

1. Clean loose dirt and debris from salvaged historic items unless more extensive cleaning is indicated.
2. Pack or crate items after cleaning; cushion against damage during handling. Label contents of containers.
3. Store items in a secure area until delivery to Owner.
4. Transport items to Owner's storage area designated by Owner.
5. Protect items from damage during transport and storage.

B. Historic Materials for Reinstallation:

1. Repair and clean historic items for reuse as indicated.
2. Pack or crate items after cleaning and repairing; cushion against damage during handling. Label contents of containers.
3. Protect items from damage during transport and storage.
4. Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment unless otherwise indicated. Provide connections, supports, and miscellaneous materials to make items functional for use indicated.

C. Existing Historic Materials to Remain: Protect construction indicated to remain against damage and soiling from construction work. Where permitted by Architect, items may be dismantled and taken to a suitable, protected storage location during construction work and reinstalled in their original locations after historic treatment and construction work in the vicinity is complete.

D. Storage: Catalog and store historic items within a weathertight enclosure where they are protected from moisture, weather, condensation, and freezing temperatures.

1. Identify each item with a nonpermanent mark to document its original location. Indicate original locations on plans, elevations, sections, or photographs by annotating the identifying marks.
2. Secure stored materials to protect from theft.
3. Control humidity so that it does not exceed 85 percent. Maintain temperatures 5 deg F (3 deg C) or more above the dew point.

1.9 FIELD CONDITIONS

A. Size Limitations in Historic Spaces: Materials, products, and equipment used for performing the Work and for transporting debris, materials, and products shall be of sizes that clear surfaces within historic spaces, areas, rooms, and openings, including temporary protection, by 12 inches (300 mm) or more.

PART 2 - PRODUCTS - (Not Used)

PART 3 - EXECUTION

3.1 PROTECTION

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

1. Use only proven protection methods, appropriate to each area and surface being protected.
2. Provide temporary barricades, barriers, and directional signage to exclude the public from areas where historic treatment work is being performed.
3. Erect temporary barriers to form and maintain fire-egress routes.
4. Erect temporary protective covers over walkways and at points of pedestrian and vehicular entrance and exit that must remain in service during historic treatment work.
5. Contain dust and debris generated by historic treatment work and prevent it from reaching the public or adjacent surfaces.
6. Provide shoring, bracing, and supports as necessary. Do not overload structural elements.
7. Protect floors and other surfaces along hauling routes from damage, wear, and staining.
8. Provide supplemental sound-control treatment to isolate removal and dismantling work from other areas of the building.

B. Temporary Protection of Historic Materials:

1. Protect existing historic materials with temporary protections and construction. Do not remove existing materials unless otherwise indicated.
2. Do not attach temporary protection to historic surfaces except as indicated as part of the historic treatment program and approved by Architect.

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

D. Utility and Communications Services:

1. Notify Owner’s Representative, Architect, authorities having jurisdiction, and entities owning or controlling wires, conduits, pipes, and other services affected by historic treatment work before commencing operations.
2. Disconnect and cap pipes and services as required by authorities having jurisdiction, as required for historic treatment work.
3. Maintain existing services unless otherwise indicated; keep in service and protect against damage during operations. Provide temporary services during interruptions to existing utilities.

E. Existing Drains: Prior to the start of work in an area, test drainage system to ensure that it is functioning properly. Notify Owner’s Representative immediately of inadequate drainage or blockage. Do not begin work in an area until the drainage system is functioning properly.

1. Prevent solids such as stone or mortar residue or other debris from entering the drainage system. Clean out drains and drain lines that become sluggish or blocked by sand or other materials resulting from historic treatment work.

2. Protect drains from pollutants. Block drains or filter out sediments, allowing only clean water to pass.

F. Existing Roofing: Prior to the start of work in an area, install roofing protection.

G. Protection of Historic Finishes: Throughout the project, take precautions to protect historic finishes on the exterior and interior of the building. Contractor is fully responsible for protection and must repair the materials to their original pre-construction condition upon completion of the project.

3.2 PROTECTION FROM FIRE

A. Follow fire-prevention plan and the following:

1. Comply with NFPA 241 requirements unless otherwise indicated. Perform duties titled "Owner's Responsibility for Fire Protection."
2. Remove and keep area free of combustibles, including rubbish, paper, waste, and chemicals, unless necessary for the immediate work.

    a. If combustible material cannot be removed, provide fire blankets to cover such materials.

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

B. Heat-Generating Equipment and Combustible Materials: Comply with the following procedures while performing work with heat-generating equipment or combustible materials, including welding, torch-cutting, soldering, brazing, removing paint with heat, or other operations where open flames or implements using high heat or combustible solvents and chemicals are anticipated:

1. Obtain Owner's approval for operations involving use of open-flame or welding or other high-heat equipment. Notify Owner at least 24 hours before each occurrence, indicating location of such work.
2. As far as practicable, restrict heat-generating equipment to shop areas or outside the building.
3. 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 area is safe.
4. Use fireproof baffles to prevent flames, sparks, hot gases, or other high-temperature material from reaching surrounding combustible material.
5. Prevent the spread of sparks and particles of hot metal through open windows, doors, holes, and cracks in floors, walls, ceilings, roofs, and other openings.
6. Fire Watch: Before working with heat-generating equipment or combustible materials, station personnel to serve as a fire watch at each location where such work is performed. Fire-watch personnel shall have the authority to enforce fire safety. Station fire watch according to NFPA 51B, NFPA 241, and as follows:

    a. Train each fire watch in proper operation of fire-control equipment and alarms.
    b. Prohibit fire-watch personnel from other work that would distract from fire-watch duties.
    c. Cease work with heat-generating equipment whenever fire-watch personnel are not present.

d. Have fire-watch personnel perform final fire-safety inspection each day beginning no sooner than 30 minutes after conclusion of work in each area to detect hidden or smoldering fires and to ensure that proper fire prevention is maintained.
e. Maintain fire-watch personnel at each area of Project site until two hours after conclusion of daily work.

C. Fire-Control Devices: Provide and maintain fire extinguishers, fire blankets, and rag buckets for disposal of rags with combustible liquids. Maintain each as suitable for type of fire risk in each work area. Ensure that nearby personnel and fire-watch personnel are trained in fire-extinguisher and blanket use.

3.3 PROTECTION DURING APPLICATION OF CHEMICALS

A. Protect motor vehicles, surrounding surfaces of building being restored, building site, plants, and surrounding buildings from harm or spillage resulting from applications of chemicals and adhesives.

B. Cover adjacent surfaces with protective materials that are proven to resist chemicals selected for Project unless chemicals being used will not damage adjacent surfaces as indicated in historic treatment program. Use covering materials and masking agents that are waterproof and UV resistant and that will not stain or leave residue on surfaces to which they are applied. Apply protective materials according to manufacturer's written instructions. Do not apply liquid masking agents or adhesives to painted or porous surfaces. When no longer needed, promptly remove protective materials.

C. Do not apply chemicals during winds of sufficient force to spread them to unprotected surfaces.

D. Neutralize alkaline and acid wastes and legally dispose of off Owner's property.

E. Collect and dispose of runoff from chemical operations by legal means and in a manner that prevents soil contamination, soil erosion, undermining of paving and foundations, damage to landscaping, or water penetration into building interior.

3.4 GENERAL HISTORIC TREATMENT

A. Have historic treatment work performed only by qualified historic treatment specialists.

B. Ensure that supervisory personnel are present when historic treatment work begins and during its progress.

C. Record existing work before each procedure (preconstruction), and record progress during the work. Use digital preconstruction documentation photographs or video recordings.

D. Perform regular, but no less than daily, inspections of Project site as the Work progresses to detect hazards resulting from historic treatment procedures.

E. Follow the procedures in subparagraphs below and procedures approved in historic treatment program unless otherwise indicated:

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 historically accurate repair and replacement materials and techniques unless otherwise indicated.
5. Record existing work before each procedure (preconstruction) and progress during the work with digital preconstruction documentation photographs or video recordings.

F. Notify Architect of visible changes in the integrity of material or components whether from environmental causes including biological attack, UV degradation, freezing, or thawing or from structural defects including cracks, movement, or distortion.

1. Do not proceed with the work in question until directed by Architect.

G. Where missing features are indicated to be repaired or replaced, provide work with appearance based on accurate duplications rather than on conjecture, subject to approval of Architect.

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

I. Identify new and replacement materials and features with permanent marks hidden in the completed Work to distinguish them from original materials. Record a legend of identification marks and the locations of the items on record Drawings.

END OF SECTION 013591

SECTION 014000 - QUALITY REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

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

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

1. Specified tests, inspections, and related actions do not limit Contractor's other quality assurance and control procedures that facilitate compliance with Contract Document requirements.

C. See Divisions 2 through 49 Sections for specific test and inspection requirements.

1.2 DEFINITIONS

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

B. Quality Control Services: Tests, inspections, procedures, and related actions during and after execution of the work to evaluate actual products incorporated into the work and completed construction comply with requirements.

C. Mockups: Full-size physical assemblies constructed on-site. Mockups are constructed from selections made under Sample submittals; to demonstrate aesthetic effects and, where indicated, qualities of materials and execution; to review coordination, testing, or operation; to show interface between dissimilar materials; and to demonstrate compliance with specified installation tolerances. Mockups are not Samples. Approved mockups establish the standard by which the Work will be judged, unless otherwise indicated.

D. Preconstruction Testing: Tests and inspections performed specifically for project before products and materials are incorporated into work to verify performance or compliance with specified criteria.

E. Source Quality Control Testing: Tests and inspections performed at the source, i.e., plant, mill, factory, or shop.

F. Field Quality Control Testing: Tests and inspections performed on-site for installation of work and for completed work.

G. Testing Agency or Laboratory: Entity engaged to perform specific tests, inspections, or both. Testing laboratory shall mean the same as testing agency.

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

1. Using a term such as "carpentry" does not imply certain construction activities must be performed by accredited or unionized individuals of a corresponding generic name, such as "carpenter." It also does not imply that requirements specified apply exclusively to trades people of corresponding generic name.

1.3 CONFLICTING REQUIREMENTS

A. Reference Standards: If compliance with two or more standards is specified and standards establish different or conflicting requirements for minimum quality levels, comply with most stringent requirement. Refer uncertainties and requirements that are different, but apparently equal, to Owner’s Representative before proceeding.

B. Minimum Quality Levels: Quality level shown or specified shall be minimum provided or performed. Actual installation may comply exactly with minimum quality specified, or it may exceed minimum within reasonable limits. To comply with requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to Owner’s Representative before proceeding.

1.4 SUBMITTALS

A. Test Reports

1. Test reports shall be completed by person performing test.
2. Submit failing test results and proposed remedial actions within four hours of noted deficiency.
3. Submit complete test results no later than one calendar day after test was performed.

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

1.5 QUALITY ASSURANCE

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

B. Contractors Quality Control Staff:

1. Contractor's Quality Control Supervisor may also perform other duties.
2. Contractor's designated Quality Control Supervisor shall be on the project site whenever contract work is in progress.
3. Contractor's job supervisory staff may be used to assist Quality Control Supervisor supplemented, as necessary, by additional certified testing technicians.

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

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

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

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

1. Requirement for specialists shall not supersede building codes and regulations governing Work.

G. Testing Agency Qualifications: A Nationally Recognized Testing Laboratory (NRTL), a National Voluntary Laboratory Accreditation Program (NVLAP), or an independent agency with experience and capability to conduct testing and inspecting indicated, according to ASTM E 329; and with additional qualifications specified in individual Sections; and where required by Contract, is acceptable to Owner’s Representative.

1. Nationally Recognized Testing Laboratory (NRTL): Nationally recognized testing laboratory according to 29 CFR 1910.7 (Code of Federal Regulations).
2. National Voluntary Laboratory Accreditation Program (NVLAP): Testing agency accredited according to National Institute of Standards and Technology’s (NIST) National Voluntary Laboratory Accreditation Program.
3. Measuring devices, laboratory equipment, and instruments shall be calibrated at established intervals against certified standards in accordance with NIST requirements. Measuring and testing devices shall be made available for use by Government for verification tests.

H. Factory-Authorized Service Representative Qualifications: Authorized representative of manufacturer who is trained and approved by manufacturer to inspect installation of manufacturer's products similar in material, design, and extent to those indicated for Project.

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

1. Build mockups in location and of size indicated; if not indicated, as directed by Owner’s Representative.
2. Notify Owner’s Representative seven days in advance of dates and times when mockups will be constructed.
3. Demonstrate proposed range of aesthetic effects and workmanship.
4. Obtain Owner’s Representative approval of mockups before starting work, fabrication, or construction.
5. Maintain mockups in an undisturbed condition as a standard for judging the completed work.
6. Demolish and remove mockups when directed, unless otherwise indicated.

1.6 QUALITY CONTROL

A. Contractor is responsible for testing and inspections, including Structural Tests and Special Inspections (STSI). Inspect and test work as needed to ensure quality of materials, workmanship,

construction, finish, and functional performance are in compliance with applicable specifications, drawings, and those required by the Building Code.

1. Engage qualified testing agency to perform quality-control services.
2. Submit appropriate report for each quality-control service.
3. Testing and inspecting requested by Contractor and not required by Contract Documents are Contractor's responsibility.
4. Owner’s Representative may designate test locations.

B. Manufacturer's Field Services: Where indicated, engage factory-authorized service representative to inspect field-assembled components and equipment installation, including service connections. Report results in writing.

C. Re-testing/Re-inspecting: Regardless of whether original tests or inspections were Contractor's responsibility, provide quality-control services, including retesting and re-inspecting, for construction of replaced work that failed to comply with Contract Documents.

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

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

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

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

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

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

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 OFF-SITE CONTROL

A. Items fabricated or assembled off-site shall be inspected for quality control at place of fabrication.

3.2 ON-SITE CONTROL

A. Preparatory Phase: Perform before beginning each feature of work.

1. Review control submittal requirements with personnel directly responsible for quality assurance and quantity control of the work. As a minimum, Contractor's Quality Control Supervisor and foreman responsible for feature of work shall be in attendance.
2. Review applicable specifications sections and drawings related to feature of work.
3. Ensure copies of referenced standards related to sampling, testing, and execution for feature of work are available on site.
4. Ensure provisions have been made for field control testing.
5. Examine work area to ensure preliminary work has been completed.
6. Verify field dimensions and advise Owner’s Representative of discrepancies with contract documents.
7. Ensure necessary equipment and materials are at project site and they comply with approved shop drawings and submittals.

B. Initial Phase:

1. As soon as work begins, inspect and test representative portion of particular feature of work for quality of workmanship.
2. Review control testing procedures to ensure compliance with contract requirements.

C. Follow-Up Phase: Inspect and test as work progresses to ensure compliance with contract requirements until completion of work.

D. Additional Preparatory and Initial Phases: Additional preparatory and initial phases may be required on same feature of work for following reasons:

1. Quality of on-going work is unacceptable.
2. Changes in quality control staff, on-site production supervision, or work crew.
3. Work on particular feature of work is resumed after substantial period of inactivity.

3.3 DOCUMENTATION

A. Shall quality control issues arise, alert Architect and Owner immediately of concerns of existing work or work to be performed.

3.4 ENFORCEMENT

A. Contractor shall stop work on any item or feature pending satisfactory correction of deficiency noted by quality Contractor’s staff, Owner, or Owner’s Representative.

3.5 REPAIR AND PROTECTION

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

1. Provide materials and comply with installation requirements specified in other Specification Sections. Restore patched areas and extend restoration into adjoining areas with durable seams as invisible as possible.
2. Comply with Contract Document requirements for Section 01 73 29 "Cutting and Patching."

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

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

END OF SECTION 014000

SECTION 015000 - TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 SUMMARY

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

1.2 DEFINITIONS

A. Permanent Enclosure: As determined by the Architect and Owner, permanent or temporary building is weathertight; exterior walls are weathertight; and openings are closed with permanent construction or substantial temporary closures.

1.3 USE CHARGES

A. General: Cost or use charges for temporary facilities shall be included in Contract Sum as required.

B. Water Service: Water is not currently available at the site. However, water is a bid option to be installed at a yard hydrant. If this option is taken by the Owner, the Contractor may use water at the site that is related only to construction activities and may not be used to fill tanks or take off site. If the water service installation is not taken, no water will be available, and the Contractor wil be responsible for providing potable and nonpotable water to meet the construction and labor needs.

C. Electric Power Service: Electrical service is currently available in the building. Electric power from existing system may be availalable without metering and without payment of use charges. Contractor may provide temporary connections and extensions of services as required for construction operations. Contractor responsible for contacting utility for coordination and for all distribution. Contractor must ensure electrical use is only for construction operations and not for maintaining temporary facilities outside of the house or other unnecessary use after hours.

1.4 QUALITY ASSURANCE

A. Electric Service: Comply with National Electrical Contractors Association (NECA), National Electrical Manufacturers Association (NEMA), and Underwriter Laboratories (UL) standards and regulations for temporary electric service. Install service to comply with National Fire Protection Association (NFPA) 70.

B. Environmental Protection: Provide environmental protection as required by agency(ies) with jurisdiction and as indicated in Contract Documents. Coordinate with requirements of the following:

1. Regulatory Requirements
2. Indoor Air Quality (IAQ) Management
3. Noise and Acoustics Management
4. Environmental Management

5. Construction Waste Management

1.5 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 acceptance, regardless of previously assigned responsibilities.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Temporary materials may be new or used, but must be adequate in capacity for required usage, must not create unsafe conditions, and must not violate requirements of applicable codes and standards.

B. Chain-Link Fencing: Minimum 2 inch (50 millimeters), 0.148 inch (3.76 millimeters) thick, galvanized steel, chain-link fabric fencing; minimum 6 feet (1.8 millimeter) high with galvanized steel pipe posts; minimum 2-3/8 inch (60 millimeters) OD (outside diameter) line posts and 2-7/8 inch (73 millimeters) OD corner and pull posts, with 1-5/8 inch (42 millimeters) OD top rails.

C. Portable Chain-Link Fencing: Minimum 2 inch (50 millimeters), 9-gage, galvanized steel, chain-link fabric fencing; minimum 6 feet (1.8 millimeters) high with galvanized steel pipe posts; minimum 2-3/8 inch (60 millimeters) OD line posts and 2-7/8 inch (73 millimeters) OD corner and pull posts, with 1-5/8 inch (42 millimeters) OD top and bottom rails. Provide galvanized steel bases for supporting posts.

D. Safety Barrier Fence: Orange plastic fence, minimum height, 4 feet.

E. Barrier Tape: Yellow tape Imprinted with "CAUTION: CONSTRUCTION AREA," manufactured by Reef Industries, Inc., Houston, Texas, or approved equal.

F. Wood Enclosure Fence: Plywood, 6 feet (1.8 millimeters) high, framed with four 2 by 4 inch (50 by 100 millimeters) rails, with preservative-treated wood posts spaced not more than 8 feet (2.4 millimeters) apart.

G. Lumber and Plywood: Comply with requirements in Division 06 Section "Rough Carpentry."

H. Gypsum Board: Minimum 1/2 inch (12.7 millimeters) thick by 48 inches (1219 millimeters) wide by maximum available lengths; regular-type panels with tapered edges. Comply with ASTM C 36/C 36M.

I. Insulation: Unfaced mineral-fiber blanket, manufactured from glass, slag wool, or rock wool; with maximum flame-spread and smoke-developed indexes of 25 and 50, respectively.

J. Polyethylene Sheet: Reinforced, fire-resistive sheet, 10 mil (0.25-millimeter) minimum thickness, with flame-spread rating of 15 or less per ASTM E 84 and passing NFPA 701 Test Method 2.

K. Dust-Control Adhesive-Surface Walk-off Mats: Provide mats minimum 36 by 60 inches (914 by 1624 millimeters).

2.2 TEMPORARY FACILITIES

A. Storage and Fabrication Sheds: Temporary weather tight sheds or other covered facilities for storage of materials subject to weather damage. Number and size of structures shall be subject to Owner's approval.

B. Toilets: Sufficiently lighted and ventilated toilet facilities in weatherproof, sight proof, handicap accessible, sturdy enclosures with privacy locks. Provide hand sanitizer, toilet paper, and contract for servicing and cleaning at least every week.

1. Provide lockable toilet facilities for use by men and women.
2. Facilities must be secured at the end of each construction day to prevent vandalism.
3. Location of temporary facilities must be approved by the Owner and must not be in the front (west) side of the house.

2.3 EQUIPMENT

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

B. Heating, Ventilation, and Air Conditioning (HVAC) Equipment: No HVAC Equipment is to remain or be used.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

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

1. Locate facilities to limit site disturbance and as directed by the Owner.

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

3.2 TEMPORARY UTILITY INSTALLATION

A. General: Install temporary service or connect to existing service.

1. Arrange with utility company, Owner, and existing users for time when service can be interrupted, if necessary, to make connections for temporary services. Acquire necessary permits.

B. Storm Sewers and Drainage: No existing sewer exists.

C. Non-potable water for construction is not currently available on site. Contractor shall furnish non-potable water from an outside source.

D. Potable water is not available on site. Furnish cool, potable water for construction personnel in locations convenient to work stations.

E. Sanitary Facilities: Provide temporary toilets, and wash facilities for use by construction personnel.

1. Place in approved locations secluded from public observation and convenient to work stations. Relocate as work progress requires.
2. Maintain and clean toilet facilities at least weekly.
3. Completely remove sanitary facilities on completion of work.

F. 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.

G. Electric Power Service: Use of existing electric power service will be permitted from the existing transformer, as long as equipment is maintained in a condition acceptable to Owner.

1. When temporary connections are removed, restore existing utility services to original condition.

H. Electric Power Service: Provide electric power service and distribution system of sufficient size, capacity, and power characteristics required for construction operations.

1. Install temporary electric power service overhead unless otherwise indicated.

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: No telephone service is available on site for Contractor's use. Contractor shall provide cell service for on-site Superintendent.

3.3 SUPPORT FACILITIES INSTALLATION

A. General: Comply with the following:

1. If desired to provide temporary construction office, Contractor must provide incombustible construction for offices, shops, and sheds located within construction area or within 50 feet of building lines. Comply with NFPA 241.
2. Maintain support facilities until near Substantial Completion. Remove structures, equipment, and furnishings, and terminate services after punch list is 100 percent completed.

B. Traffic Controls: Erect and maintain barricades, lights, danger signals, and warning signs in accordance with Manual on Uniform Traffic Control Devices (MUTCD), Part IV, latest edition.

1. Protect existing site improvements to remain including curbs, pavement, and utilities.
2. Maintain access for fire-fighting equipment and access to fire hydrants.
3. Illuminate barricades and obstructions at night; keep safety lights burning from sunset to sunrise.
4. Adequately barricade and post open cuts in or adjacent to thoroughfares.
5. Protect pedestrian traffic by guardrails or fences.

6. When pedestrian traffic is detoured onto a roadway, provide temporary walkways with protection as required at ends and overhead. For walkways, use lumber running parallel to direction of traffic movement and provide ramps at changes of elevation.
7. Cover pipes, hoses, and power lines crossing sidewalks and walkways with troughs using beveled edge boards.
8. Install Barrier Tape. Keep a minimum of two rolls on site.

C. Dewatering Facilities and Drains: Comply with requirements of the agency(ies) with jurisdiction. Maintain Project site, excavations, and construction free of water.

1. Dispose of rainwater in 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.

D. Project Identification and Temporary Signs: Provide Project identification and other signs as indicated on Drawings. Fence, barricade, or otherwise block off the immediate work area to prevent unauthorized entry.

1. Provide temporary, directional signs for construction personnel and visitors.
2. Maintain and touchup signs so they are legible at all times.
3. Erect and maintain sufficient detour signs at road closures and along detour routes.

E. Waste Disposal Facilities: Provide waste-collection containers in sizes adequate to handle waste from construction operations. Comply with requirements of agency(ies) with jurisdiction.

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

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

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 minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.

B. Cleaning of Equipment: Contractor shall ensure prior to moving on to Project Area, equipment, is free of soil, seeds, vegetative matter, or other debris that could contain or hold seeds. Ensure equipment has been pressure washed and is free of exotic species. Equipment shall be considered free of soil, seeds, and other debris when visual inspection does not disclose such material. Disassembly of equipment components or specialized inspection tools are not required.

C. Tree and Plant Protection: Refer to Section 01 11 00 "Summary of Work".

D. Pest Control: Contractor shall minimize attraction and harboring of rodents, roaches, and other pests and perform extermination and control procedures at regular intervals so Project will be free of pests and residues at Substantial Completion. Perform control operations lawfully, using environmentally safe materials.

E. Site Enclosure Fence: **Before construction operations begin and before excavation begins**, furnish and install portable chain link fencing to prevent people and animals from easily entering site except by entrance gates.

1. Extent of Fence: As required to enclose entire Project site or portion determined sufficient to accommodate construction operations.
2. Locate vehicular loading gates to avoid interference with traffic on public thoroughfares.
3. Locate pedestrian entrance gates as required to provide controlled personnel entry.
4. Maintain security by limiting number of keys and restricting distribution to authorized personnel. Provide Owner with one set of keys.

F. Security Enclosure and Lockup: Install substantial temporary enclosure around partially completed areas of construction. Provide lockable entrances to prevent unauthorized entrance, vandalism, theft, and similar violations of security.

G. Barricades, Warning Signs, and Lights: Comply with requirements of Manual on Uniform Traffic Control Devices (MUTCD), part IV, 2003 edition for erecting structurally adequate barricades, including warning signs and lighting.

H. 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.

I. Temporary Partitions: Provide floor-to-ceiling dustproof partitions to limit dust and dirt migration and to separate areas of the building from construction debris.
1. Construct dustproof partitions with 2 layers of 3-mil (0.07-millimeters) polyethylene sheet on each side. Cover floor with 2 layers of 3-mil (0.07-millimeters) polyethylene sheet, extending sheets 18-inches (460 millimeters) up the sidewalls. Overlap and tape full length of joints. Cover floor with fire-retardant plywood.
2. Provide walk-off mats at each entrance through temporary partition.

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

1. Responsible Person: Capable and qualified person shall be placed in charge of fire protection. Responsibilities shall include locating and maintaining fire protective equipment and establishing and maintaining safe torch cutting and welding procedures.
2. Tobacco Use, Smoking, and Vaping: Smoking within buildings or temporary storage sheds is prohibited.
3. Supervise welding operations, combustion-type temporary heating units, and similar sources of fire ignition according to NFPA requirements.
4. Develop and supervise 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.
5. Provide temporary hoses for fire protection. Hang hoses with warning sign stating hoses are for fire-protection purposes only and are not to be removed. Match hose size with outlet size and equip with suitable nozzles.
6. Hazard Control: Take necessary precautions to prevent fire during construction. Do not store flammable or combustible liquids in historic structures. Provide adequate ventilation during use of volatile or noxious substances. Ensure cleanup procedures and storage requirements are followed at close of every work session.
7. Buildings: Furnish a minimum of one extinguisher for each 1,500 square feet of area or major fraction thereof.
   a. Travel distance from any work station to nearest extinguisher shall not exceed 75 feet.
8. Vehicles and Equipment: Provide one extinguisher on each vehicle or piece of equipment.
9. Service and Refueling Areas: Do not refuel equipment on site.

3.5 OPERATION, TERMINATION, AND REMOVAL

A. Supervision: Enforce strict discipline in use of temporary facilities. 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 24-hour basis where required to achieve indicated results and avoid possibility of damage.

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

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

1. At Substantial Completion, clean and renovate permanent facilities used during construction period.

END OF SECTION 015000

SECTION 015719 – NOISE AND ACOUSTICS MANAGEMENT

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes:

1. Special requirements for noise and acoustics management during deconstruction and construction operations.

1.2 DEFINITIONS

A. Ambient noise level: The total noise associated with a given environment, being usually a composite of normal or existing sounds from all sources near and far, excluding the noise source at issue.

B. Daytime: The hours from 8 A.M. to 5 P.M. on weekdays.

C. Nighttime: All non-daytime hours.

D. Property line: The real or imaginary line along the ground surface and its vertical extension, which separates real property owned or controlled by one person from contiguous real property owned or controlled by another person or from any public right-of-way or from any public space.

E. Receiving noise area: Any real property where people live or work and where noise is heard, excluding the project or source area.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 NOISE MANAGEMENT

A. Noise Control: Perform deconstruction and construction operations to minimize noise. Perform noise-producing work in less sensitive hours of the day or week as directed by the Contracting Officer CO).

B. Repetitive and/or intermittent, high-level noise: Permitted only during Daytime.

1. Do not exceed the following dB(A) limitations at 50 feet:

Sound Level in dB(A)	Time Duration of Impact Noise
70	More than 12 minutes in any hour
80	More than 3 minutes in any hour

2. Maximum permissible construction equipment noise levels at 50 feet:

EARTHMOVING	dB(A)	MATERIALS HANDLING	dB(A)
Front Loaders	75	Concrete Mixers	75
Backhoes	75	Concrete Pumps	75
Dozers	75	Cranes	75
Tractors	75	Derricks Impact	75
Scrapers	80	Pile Drivers	95
Graders	75	Jack Hammers	75
Trucks	75	Rock Drills	80
Pavers, Stationary	80	Pneumatic Tools	80
Pumps	75	Saws	75
Generators	75	Vibrators	75
Compressors	75		

C. Ambient Noise:

1. Maximum noise levels (dB (decibel)) for receiving noise area at property line shall be as follows:

a. Residential receiving area
Daytime: 65 dB
Nighttime: 45 dB

b. Commercial/Industrial receiving area
Daytime: 67 dB
Nighttime: 65 dB

c. In the event the existing local ambient noise level exceeds the maximum allowable receiving noise level (dB), the receiving noise level maximum for construction operations shall be adjusted as follows:

d. Residential receiving area: Maximum 3 additional dB above the local ambient as measured at property line.

3.2 FIELD QUALITY CONTROL

A. Assess potential effects of construction noise on park visitors in accordance with ASTM E1686 and as follows:

1. Ambient noise measurement: Measure at property line at a height of at least four (4) feet above the immediate surrounding surface. Average the ambient noise level over a period of at least 15 minutes.
2. Ambient noise measurement at urban sites: Conduct during morning peak traffic hour between 7 A.M. and 9 A.M. and afternoon peak traffic hour between 4 P.M. and 6 P.M. In addition, conduct a 24-hour measurement at the proposed project site to document the noise pattern throughout the day. Adjust and weight for seasonal and climatic variations.

B. Monitor noise produced from construction operations in accordance with ASTM E1780.

END OF SECTION 015719

SECTION 015720 – INDOOR AIR QUALITY MANAGEMENT

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes:

1. Special requirements for Indoor Air Quality (IAQ) management during construction operations.

a. Control of emissions during construction.
b. Moisture control during construction.

1.2 DEFINITIONS

A. Definitions pertaining to sustainable development: As defined in ASTM E2114.

B. Adequate ventilation: Ventilation, including air circulation and air changes, required to cure materials, dissipate humidity, and prevent accumulation of particulates, dust, fumes, vapors, or gases.

C. Hazardous Materials: Any material regulated as a hazardous material in accordance with 49 CFR 173 (Code of Federal Regulations), requires a Material Safety Data Sheet (MSDS) in accordance with 29 CFR 1910.1200, or which during end use, treatment, handling, storage, transportation or disposal meets or has components which meet or have the potential to meet the definition of a Hazardous Waste in accordance with 40 CFR 261. Throughout this specification, hazardous material includes hazardous chemicals.

1. Hazardous materials include pesticides, biocides, and carcinogens as listed by recognized authorities, such as the Environmental Protection Agency (EPA) and the International Agency for Research on Cancer (IARC).

D. Indoor Air Quality (IAQ): Composition and characteristics of air in an enclosed space that affect occupants of that space. Indoor air quality of a space refers to relative quality of air in a building with respect to contaminants and hazards and is determined by the level of indoor air pollution and other characteristics of the air, including impact on thermal comfort such as air temperature, relative humidity and air speed.

E. Interior final finishes: Materials and products exposed to interior occupied spaces; including flooring, wall covering, finish carpentry, and ceilings.

F. Packaged dry products: Materials and products installed in dry form delivered in manufacturer's packaging; including carpets, resilient flooring, ceiling tiles, and insulation.

G. Wet products: Materials and products installed in wet form, including paints, sealants, adhesives, special coatings, and materials which require curing.

1.3 QUALITY ASSURANCE

A. Inspection and Testing Lab Qualifications: Minimum of 5 years of experience in performing types of testing specified herein.

1.4 SUBMITTALS

A. Indoor Air Quality (IAQ) Management Plan: After award and before Pre-construction conference, prepare and submit IAQ Management Plan, including:

1. Procedures for control of emissions during construction.

    a. Identify schedule for application of interior finishes: Identify each interior finish that generates odors, moisture, or vapors or is susceptible to adsorption of odors and vapors. Indicate air handling zone, sequence of application, and curing times.
    b. Identify potential sources of odor and dust.
    c. Identify construction activities likely to produce odor or dust.
    d. Identify areas of project potentially affected, especially occupied areas.
    e. Evaluate potential problems by severity and describe methods of control.
    f. Describe construction ventilation to be provided, including type and duration of ventilation, use of permanent Heating HVAC systems, types of filters and schedule for replacement of filters.
    g. Describe cleaning and dust control procedures.
    h. Describe coordination with commissioning procedures.

2. Procedures for moisture control during construction.

    a. Identify porous materials and absorptive materials.
    b. Identify schedule for inspection of stored and installed porous and absorptive materials.

3. Revise and resubmit Plan as required by Owner's Representative.

    a. Approval of Contractor's Plan will not relieve the Contractor of responsibility for compliance with applicable environmental regulations.

B. Product Data:

1. Submit product data for filtration media used during construction and during operation. Include Minimum Efficiency Reporting Value (MERV).
2. Material Safety Data Sheets (MSDS): Submit MSDSs for inclusion in Operation and Maintenance Manual for:

    a. Adhesives
    b. Floor and wall patching/leveling materials
    c. Caulking and sealants
    d. Insulating materials
    e. Fireproofing and firestopping
    f. Paint
    g. Clear finish for wood surfaces
    h. Lubricants
    i. Cleaning products

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 IAQ MANAGEMENT - EMISSIONS CONTROL

A. During construction operations, follow the recommendations in SMACNA IAQ Guidelines for Occupied Buildings under Construction.

B. Source Control: Provide low and zero VOC materials as specified.

C. Pathway Interruption: Isolate areas of work to prevent contamination of clean or occupied spaces. Provide pressure differentials and/or physical barriers to protect clean or occupied spaces.

D. Housekeeping: During construction, maintain project and building products and systems to prevent contamination of building spaces.

E. Temporary Ventilation: For materials/products that generally require ventilation for off gassing, provide an ACH (air changes per hour) of 1.5 times or more per hour for workers.

F. Scheduling: Schedule construction operations involving wet products prior to packaged dry products to the greatest extent possible.

3.2 IAQ MANAGEMENT - MOISTURE CONTROL

A. Housekeeping:

1. Keep materials dry. Protect stored on-site and installed absorptive materials from moisture damage.
2. Verify installed materials and products are dry prior to sealing and weatherproofing building envelope.
3. Store interior absorptive materials only after building envelope is sealed and weatherproofed.

B. Inspections: Document and report results of inspections; state whether or not inspections indicate satisfactory conditions.

1. Examine materials for dampness as they arrive. If acceptable to Owner's Representative, dry damp materials completely prior to installation; otherwise, reject materials that arrive damp.
2. Examine materials for mold as they arrive and reject materials that arrive contaminated with mold.
3. Inspect stored and installed absorptive materials regularly for dampness and mold growth. Inspect weekly, and after each rain event.

    a. If stored or installed absorptive materials become wet, notify Owner's Representative. Inspect for damage. If acceptable to the Owner's Representative, dry completely prior to closing in assemblies; otherwise, remove (in accordance with the Waste Management Plan) and replace with new materials.

4. Basement: Monitor basement and crawlspace humidity and dehumidify when relative humidity is greater than 70 percent for more than 2 weeks or at first sign of mold growth.

5. Site drainage: Verify final grades of site work and landscaping drain surface water and ground water away from building.
6. Weatherproofing: Inspect moisture control materials to provide complete weather barriers.

7. Plumbing: Verify satisfactory pressure test of pipes and drains is performed before closing in and insulating lines.

C. Schedule:

1. Schedule work such that absorptive materials, such as porous insulations, paper-faced gypsum board, ceiling tile, and finish flooring, are not installed until they can be protected from rain and construction-related water.
2. Weather-proof as quickly as possible. Schedule installation of moisture-control materials, including but not limited to air barriers, flashing, exterior sealants and roofing, at earliest possible time.

D. Testing for Moisture Content: Test moisture content of porous materials and absorptive materials to ensure they are dry before sealing them into an assembly. Document and report results of testing. Where tests are not satisfactory, dry materials and retest. If satisfactory results cannot be obtained with retest, remove and replace with new materials.

1. Concrete: Moisture test as per one or more of the following; unless otherwise indicated, acceptable upper limits for concrete are < 4% top inch; < 85% headspace relative humidity (RH); <3 pounds per 1000 square feet per day:

   a. ASTM D4263 Test Method for Indicating Moisture in Concrete by the Plastic Sheet Method
   b. ASTM F1869 Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride
   c. ASTM F2170 Test Method for Determining Relative Humidity in Concrete Floor Slabs Using In Situ Probes

2. Wood: Moisture test as per ASTM D4444 - Standard Test Methods for Use and Calibration of Hand-Held Moisture Meters; unless otherwise indicated acceptable upper limits for wood products are less than 20% at center of piece; less than 15% at surface.

END OF SECTION 015720

SECTION 016700 - PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

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

1.2 DEFINITIONS

A. Products: Items purchased for incorporating into Work, whether purchased for Project or taken from previously purchased stock. The term "product" includes "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, current as of date of Contract Documents.
2. New Products: Items that have not previously been incorporated into another project or facility, except that products consisting of recycled-content materials are allowed, unless explicitly stated otherwise. Products salvaged or recycled from other projects are not considered new products.
3. Comparable Product: Product demonstrated and approved through submittal process, or where indicated as a product substitution, to have 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. Definitions pertaining to sustainable development: As defined in ASTM E2114.

C. Chain-of-Custody: Process whereby a product or material is maintained under physical possession or control during its entire life cycle.

D. Stewardship: Responsible use and management of resources in support of sustainability.

E. Sustainability: Maintenance of ecosystem components and functions for future generations.

1.3 SUBMITTALS

1. Safety Data Sheets (SDS): For each product required by OSHA to have a SDS, submit an SDS. SDS shall be prepared within the previous five years. Include information for SDS Sections 1 to 16 in accordance with ANSI Z400.1 and as follows:

a. Section 1: Chemical Product and Company Identification
b. Section 2: Composition/Information on Ingredients
c. Section 3: Hazards Identification
d. Section 4: First Aid Measures
e. Section 5: Fire Fighting Measures
f. Section 6: Accidental Release Measures
g. Section 7: Handling and Storage
h. Section 8: Exposure Controls/Person Protection

i. Section 9: Physical and Chemical Properties
j. Section 10: Stability and Reactivity Data
k. Section 11: Toxicological Information. Include data used to determine the hazards cited in Section 3. Identify acute data, carcinogenicity, reproductive effects, and target organ effects.
l. Section 12: Ecological Information. Include data regarding environmental impacts during raw materials acquisition, manufacture, and use. Include data regarding environmental impacts in event of accidental release.
m. Section 13: Disposal Considerations. Include data regarding proper disposal of the chemical. Include information regarding recycling and reuse. Indicate whether or not product is considered to be "hazardous waste" according to United States EPA Hazardous Waste Regulations 40 CFR 261 (Code of Federal Regulations).
n. Section 14: Transportation Information. Identify hazard class for shipping.
o. Section 15: Regulatory Information. Identify federal, state, and local regulations applicable to the material.
p. Section 16: Other Information. Include additional information relative to recycled content, biobased content, and other information regarding environmental and health impacts. Identify the date SDS was prepared.

1.4 QUALITY ASSURANCE

A. Compatibility of Options: If Contractor is given 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.

1.5 PRODUCT DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, and handle products using means and methods that 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 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 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 Contract Documents. Ensure products are undamaged and properly protected.

C. Storage:

1. Allow for inspection and measurement of quantity or counting of units.
2. Store materials in manner to not endanger Project structure.
3. Store products subject to damage by the elements, under cover in weather tight 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. Store loose granular materials in well-drained area on solid surfaces to prevent mixing with foreign matter.
9. DO NOT STORE RAGS FROM TURPENTINE OR BOILED LINSEED OIL OR ANY SIMILAR CHEMICALS ON SITE AT ANY TIME. THESE ARE FLAMMABLE AND CAN SPONTANEOUSLY COMBUST. STORE RAGS FULLY IMMERSED IN WATER OUTSIDE OF THE BUILDING AND REMOVE FROM PROJECT SITE COMPLETELY EVERY DAY.

1.6 PACKAGING

A. Where Contractor has option to provide one of listed products or equal, preference shall be given to products with minimal packaging and easily recyclable packaging as defined in ASTM D5834.

1.7 PRODUCT WARRANTIES

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

1. Manufacturer's Warranty: Preprinted written warranty published by individual manufacturer for product specifically endorsed by manufacturer to Owner.
2. Special Warranty: Written warranty required by or incorporated into Contract Documents, either to extend time limit provided by manufacturer's warranty or to provide more rights for Owner.

B. Special Warranties: Prepare written document containing appropriate terms and identification, ready for execution. Submit 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 Specifications, prepare written document using appropriate form properly executed.
3. Refer to Divisions 2 through 49 Sections for specific content requirements and particular requirements for submitting special warranties.

C. Submittal Time: Comply with requirements in Section 01 77 00 "Closeout Procedures."

PART 2 - PRODUCTS

2.1 PRODUCT SELECTION PROCEDURES

A. General Product Requirements: Provide products to comply with Contract Documents, undamaged and, unless otherwise indicated, 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 produced and used successfully in similar situations on other projects.
3. Owner reserves right to limit selection to products with warranties not in conflict with requirements of Contract Documents.
4. Where products are accompanied by term "as selected," Architect or Engineer will make selection.
5. Where products are accompanied by term "match sample," sample to be matched is Architect or Engineer.
6. Descriptive, performance, and reference standard requirements in Specifications establish "salient characteristics" of products.

B. Product Selection Procedures:

1. Product: Where Specifications name single product and manufacturer, provide named product that complies with requirements or approved equal.
2. Manufacturer/Source: Where Specifications name single manufacturer or source, provide product by named manufacturer or source that complies with requirements or approved equal.
3. Products: Where Specifications include list of names of both products and manufacturers, provide one of the products listed that complies with requirements or approved equal.
4. Manufacturers: Where Specifications include list of manufacturers' names, provide a product by one of the manufacturers listed that complies with requirements or approved equal.
5. Available Products: Where Specifications include list of names of both products and manufacturers, provide one of the products listed, or an unnamed product, that complies with requirements. Comply with provisions in Part 2 "Comparable Products" Article for consideration of an unnamed product.
6. Available Manufacturers: Where Specifications include list of manufacturers, provide a product by one of the manufacturers listed, or an unnamed manufacturer, that complies with requirements. Comply with provisions in Part 2 "Comparable Products" Article for consideration of an unnamed product.
7. Product Options: Where Specifications indicate sizes, profiles, and dimensional requirements on Drawings are based on a specific product or system, provide specified product, system, or approved equal.
8. Basis-of-Design Product: Where Specifications name product and include a list of manufacturers, provide specified product or a comparable product by one of the other named manufacturers, or approved equal. Drawings and Specifications indicate sizes, profiles, dimensions, and other characteristics based on the product named.
9. Visual Matching Specification: Where Specifications require matching an established Sample, select product that complies with requirements and matches Architect's sample. Owner Representative decision will be final on whether a proposed product matches.

    a. If no product available within specified category matches and complies with other specified requirements, comply with provisions in Part 2 "Product Substitutions" Article for proposal of product.

10. Visual Selection Specification: Where Specifications include 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 phrase "standard range of colors, patterns, textures" or similar phrase, Architect or Engineer will select color, pattern, density, or texture from manufacturer's product line that does not include premium items.

b. Full Range: Where Specifications include phrase "full range of colors, patterns, textures" or similar phrase, Architect or Engineer will select color, pattern, density, or texture from manufacturer's product line that includes both standard and premium items.

2.2 COMPARABLE PRODUCTS

A. Conditions: Owner Representative will consider Contractor's request for comparable product when the following conditions are satisfied. If following conditions are not satisfied, Owner Representative will return requests without action, except to record noncompliance with these requirements:

1. Evidence proposed product does not require revisions to Contract Documents, that it is consistent with Contract Documents and will produce indicated results and is compatible with other portions of Work.
2. Detailed comparison of significant qualities of proposed product with those named in Specifications. Significant qualities include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated.
3. Evidence proposed product provides specified warranty.
4. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners, if requested.
5. Samples, if requested.

PART 3 - EXECUTION

3.1 PROTECTION AFTER INSTALLATION

A. Provide adequate coverings as necessary to protect installed materials from damage resulting from natural elements, traffic, and subsequent construction. Remove when no longer needed.

END OF SECTION 016700

SECTION 017329 - CUTTING AND PATCHING

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes procedural requirements for cutting and patching on buildings that do not contain Historic Fabric.

1.2 SUBMITTALS

A. Cutting and Patching Plan: Submit Plan describing procedures at least 15 days before cutting and patching will be performed, requesting approval to proceed. Include:

1. Purpose of this plan is to avoid damage to the existing historic fabric of the building.
2. Extent: Describe cutting and patching, show how performed, and indicate why they cannot be avoided.
3. 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.
4. Products: List products to be used and firms or entities that will perform Work.
5. Dates: Indicate when cutting and patching will be performed.
6. 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.
7. Structural Elements: Where cutting and patching involve adding reinforcement to structural elements, submit details and engineering calculations showing integration of reinforcement with original structure. Do not cut and patch structural elements in a manner that could change their load carrying capacity or increase deflection.
8. Owner’s Representative and Architect/Engineer Approval: Obtain approval of cutting and patching plan before cutting and patching. Approval does not waive right to later require removal and replacement of unsatisfactory work.

1.3 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.

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.

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.

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 exterior or in

occupied spaces in a manner that would, in Architect or Engineer's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.

1.4 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 will match the visual and functional performance of in-place materials when installed.

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.

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.

D. Existing Utility Services and Mechanical/Electrical Systems: Where existing services/systems are required to be removed, relocated, or abandoned, bypass such services/systems before cutting to minimize and/or prevent interruption to occupied areas.

3.3 PERFORMANCE

A. General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at earliest feasible time. Complete without delay.

1. Cut in-place construction to provide for installation of other components or performance of other construction subsequently. Patch as required to restore surfaces to 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 and 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 exposed or finished side into concealed surfaces.
3. Concrete or Masonry: Cut using an abrasive saw or a diamond-core drill.
4. Excavating and Backfilling: Comply with requirements in applicable Division 31 Sections where required by cutting and patching operations.
5. 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.
6. Proceed with patching after construction operations 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 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.
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 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.
4. Ceilings: Patch, repair, or re-hang 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 weather tight condition.

D. Cleaning: Clean areas and spaces where cutting and patching are performed. Remove paint, mortar, oils, putty, and similar materials.

END OF SECTION 017329

SECTION 017340 - EXECUTION

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes general procedural requirements governing execution of Work including:

1. Coordination with utility service providers
2. Construction layout – New Ramps and Walkways
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

1.2 SUBMITTALS

A. Landfill Receipts: Submit copy of receipts issued by landfill facility.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 EXAMINATION

A. Existing Conditions: Existence and location of site improvements and other construction indicated as existing are not guaranteed.

1. Before beginning work, investigate and verify the existence and location of mechanical and electrical systems and other construction affecting the Work.

2. Before construction, verify the location and points of connection of utility services.

B. Existing Utilities: Existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Before beginning sitework, investigate and verify existence and location of underground utilities and other construction affecting Work.

1. Before construction, verify location and invert elevation at points of connection of sanitary sewer, storm sewer, and water-service piping; and underground electrical, gas and communications 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. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
2. Examine roughing-in for mechanical and electrical systems to verify actual locations of connections before equipment and fixture installation.
3. Examine walls, floors, and roofs for suitable conditions where products and systems are to be installed.
4. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

3.2 COORDINATION WITH UTILITY SERVICE PROVIDERS

A. Coordination with Utility Service Providers: Contact following Utility Service providers, sufficiently in advance to avoid delaying the work, to coordinate Contractor's portion of Work, utility locating, testing requirements, inspections, etc.

1. Electrical Service Contact:

   a. Construction Contractor Responsibilities: Contractor is responsible for installation of electric service lines, house connections, exterior electric service and distribution, interior electric service and distribution, and all appurtenances.

2. Water Service Contact:

   a. Construction Contractor Responsibilities: Contractor is responsible for installation of water service line and distribution to the new yard hydrant.

3. Wastewater Service Contact: n/a

4. Telephone and Data Service Contacts:

   a. Construction Contractor Responsibilities: Contractor is responsible for repair of relocated or moved telephone and/or data distribution lines as part of the interior and exterior wok.

5. Security and Fire Alarm and Detection System:

   a. Construction Contractor Responsibilities: Contractor is responsible for providing and installing new security alarm with fire detection equipment. Security alarm should include glass breakage sensor, motion sensor, and three smoke detectors (one on each level. All devices must be hard-wired and not require use of batteries.

3.3 PREPARATION

A. Field Measurements: Take field measurements as required to fit Work properly. Recheck measurements before installing each product. Where portions of Work are indicated fit to other construction, verify dimensions of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying Work.

B. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.

C. Review of Contract Documents and Field Conditions: Immediately on discovery of need for clarification of the Contract Documents caused by differing field conditions outside control of Contractor, submit request for information in accordance with Section 01 31 00 "Project Management and Coordination."

3.4 CONSTRUCTION LAYOUT

A. Verification: Verify layout information shown on Drawings, in relation to the existing benchmarks before proceeding to lay out Work. Notify Owner's Representative promptly if discrepancies are discovered.

B. General: Engage a land surveyor licensed in the State of Missouri to lay out Work using accepted surveying practices.

1. Establish benchmarks and control points to set lines and levels 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 location, level and plumb, of every major element as Work progresses.
5. Notify Owner's Representative 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 established standard.

C. Site Improvements: Locate and lay out site improvements, including pavements, grading, and fill and topsoil placement.

D. Record Log: Maintain 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 log available for review by Owner's Representative or A/E Team.

3.5 INSTALLATION

A. General: Locate Work and components of 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 for 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 parties involved templates for work specified to be factory prepared and field installed. Check Shop Drawings of other work to confirm 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 Work.

1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by Architect.
2. Allow for building movement, 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 to be embedded in concrete or masonry. Deliver 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 best visual effect. Fit exposed connections together to form hairline joints.

I. Hazardous Materials: Use products, cleaners, and installation materials not considered hazardous.

3.6 PROGRESS CLEANING

A. General: Clean Project site, work areas, and common areas daily. 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 National Fire Protection Association (NFPA) 241 for removal of combustible waste materials and debris at the end of every work session.
2. Do not hold materials more than 7 days during normal weather or 3 days if the temperature is expected to rise above 80 degrees Fahrenheit (27 degrees Celsius).
3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.
4. DO NOT STORE RAGS OR CHEMICAL WITHIN THE BUILDING. ALL CHEMICALS AND RAGS OR ACCESSORIES USED TO APPLY CHEMICALS MUST BE REMOVED AT THE END OF CONSTRUCTION EVERY DAY.

B. Site: Maintain Project site free of waste materials and debris.

C. Work Areas: Clean areas where work is in progress to level of cleanliness necessary for proper execution of Work.

1. Remove liquid spills promptly.
2. Where dust would impair proper execution of Work, broom-clean or vacuum entire work area, as appropriate.
3. Contractor shall provide progress cleaning that minimizes sources of food, water, and harborage available to pests.

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 not hazardous to health or property and 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 from damage and deterioration at time of Substantial Completion.

G. Waste Disposal: Do not bury or burn waste materials on-site. Do not wash waste materials down sewers or into waterways.

H. Clean and protect construction in progress and adjoining materials already in place during handling and installation. 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 remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.

J. Limiting Exposures: Supervise construction operations so that no part of construction completed or in progress, is subject to harmful, dangerous, damaging, or deleterious exposure during construction period.

K. Final Cleaning: At completion of Work, remove remaining waste materials, rubbish, tools, equipment, machinery and surplus materials. Clean exposed surfaces and leave Project clean and ready for occupancy.

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. Train Owner to use equipment.

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 Section 017329 "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 specified condition.

C. Remove and replace damaged surfaces 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 01 73 40

SECTION 017400 – CLEANING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes administrative and procedural requirements for cleaning during the Project.

B. Environmental Requirements: Conduct cleaning and waste-disposal operations in compliance with local laws and ordinances. Comply fully with federal and local environmental and anti-pollution regulations.

1. Do not dispose of volatile wastes such as mineral spirits, oil, or paint thinner in storm or sanitary drains.

2. Burning or burying of debris, rubbish, or other waste material on the premises is not permitted.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Cleaning Agents: Use cleaning materials and agents recommended by the manufacturer or fabricator for the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces. Pay specific attention to historic and decorative finishes.

PART 3 - EXECUTION

3.1 PROGRESS CLEANING

A. General

1. Retain all stored items in an orderly arrangement allowing maximum access, not impending drainage or traffic, and providing the required protection of materials.

2. Do not allow the accumulation of scrap, debris, waste material, and other items not required for construction of this Work.

3. Daily, completely remove all scrap, debris, and waste material from the jobsite.

4. Provide adequate storage for all items awaiting removal from the jobsite, observing all requirements for fire protection and protection of the ecology.

B. Site

1. Daily, inspect the site and pick up all scrap, debris, and waste material. Remove all such items to the place designated for their storage.

2. Weekly, inspect all arrangements of materials stored onsite. Re-stack, tidy, or otherwise service all material arrangements.

3. Maintain the site in a neat and orderly condition at all times.

C. Structures

1. Daily, inspect the structure and site and pick up all scrap, debris, and waste material. Remove all such items to the place designated for their storage.

2. Weekly, sweep all interior spaces clean. “Clean” for the purposes of this paragraph, shall be interpreted as meaning free from dust and other material capable of being removed by use of reasonable effort and handheld broom.

3. In preparation for installation of succeeding materials, clean the structures or pertinent portions thereof to the degree of cleanliness recommended by the manufacturer of the succeeding material, using all equipment and materials required to achieve the required cleanliness.

4. Following the installation of finish floor materials, clean the finish floor daily while work is being performed in the space in which finish materials have been installed. “Clean” for the purposes of this subparagraph, shall be interpreted as meaning free from all foreign material which, in the opinion of the Construction Representative, may be injurious to the finish of the finish floor material.

3.2 FINAL CLEANING

A. General: Provide final cleaning operations when indicated. Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit of Work to the condition expected from a commercial building cleaning and maintenance program. Comply with manufacturer’s instructions.

B. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for the entire Project or a portion of the Project.

1. Clean the Project Site, yard and grounds, in areas disturbed by construction activities including landscape development areas, of rubbish, waste material, litter, and foreign substances.

2. Sweep paved areas broom clean. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.

3. Remove petrochemical spills, stains, and other foreign deposits.

4. Remove tools, construction equipment, machinery, and surplus material from the site.

5. Remove snow and ice to provide safe access to the building.

6. 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.

7. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.

8. Broom clean concrete floors in unoccupied spaces.

9. Vacuum clean carpet and similar soft surfaces removing debris and excess nap. Shampoo, if required.

10. Clean transparent material, including mirrors and glass in doors and windows. Remove glazing compounds and other substances that are noticeable vision-

obscuring materials. Replace chipped or broken glass and other damaged transparent materials. Polish mirrors and glass, taking care not to scratch surfaces.

11. Remove labels that are not permanent labels.

12. 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.

    a. Do not paint over “UL” and similar labels, including mechanical and electrical nameplates.

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

14. Clean plumbing fixtures to a sanitary condition free of stains, including stains resulting from water exposure.

15. Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills.

16. Clean ducts, blowers, and coils if units were operated without filters during construction

17. Clean light fixtures, lamps, globes, and reflectors to function with full efficiency. Replace burned-out bulbs and defective and noisy starters in fluorescent and mercury vapor fixtures.

18. Leave the Project clean and ready for occupancy.

C. Removal of Protection: Remove temporary protection and facilities installed during construction to protect previously completed installations during the remainder of the construction period.

D. Compliances: Comply with governing regulations and safety standards for cleaning operations. Remove waste materials from the site and dispose of lawfully.

    1. Where extra materials of value remain after Final Acceptance by the Owner, they become the Owner’s property.

END OF SECTION 017400

SECTION 017419 - CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes administrative and procedural requirements for:

1. Salvaging nonhazardous demolition and construction waste.
2. Recycling nonhazardous demolition and construction waste.
3. Disposing of nonhazardous demolition and construction waste.

1.2 DEFINITIONS

A. Construction Waste: Building and site improvement materials and other solid waste resulting from construction, remodeling, renovation, or repair operations. Construction waste includes packaging.

B. Demolition Waste: Building and site improvement materials resulting from demolition or selective demolition operations.

C. Solid Waste: Garbage, debris, sludge, or other discharged material (except hazardous waste) including solid, liquid, semisolid, or contained gaseous materials resulting from domestic, industrial, commercial, mining, or agricultural operations.

D. Debris: Non-hazardous solid waste generated during construction, demolition, or renovation of a structure which exceeds 2.5 inch (60 millimeter) particle size that is: a manufactured object; plant or animal matter; or natural geologic material (e.g. cobbles and boulders). A mixture of debris and other material such as soil or sludge is also subject to regulation as debris if mixture is comprised primarily of debris by volume, based on visual inspection.

E. Disposal: Removal off-site of demolition and construction waste and subsequent sale, recycling, reuse, or deposit in landfill or incinerator acceptable to authorities having jurisdiction.

F. Environmental Pollution and Damage: Presence of chemical, physical, or biological elements or agents which adversely affect human health or welfare; unfavorably alter ecological balances; or degrade utility of environment for aesthetic, cultural, or historical purposes.

G. Garbage: Refuse and scraps resulting from preparation, cooking, dispensing, and consumption of food.

H. Hazardous Materials: Material regulated as a hazardous material in accordance with 49 CFR 173 (Code of Federal Regulations), requires a Material Safety Data Sheet (MSDS) in accordance with 29 CFR 1910.1200, or which during end use, treatment, handling, storage, transportation or disposal meets or has components which meet or have potential to meet the definition of Hazardous Waste in accordance with 40 CFR 261.

I. Recycle: Recovery of demolition or construction waste for subsequent processing in preparation for reuse.

J. Salvage: Recovery of demolition or construction waste and subsequent sale or reuse in another facility.

K. Single-use plastic products: Plastic items intended to be disposed of immediately after use, including plastic and polystyrene food and beverage containers, bottles, straws, cups, cutlery, and disposable plastic bags.

1.3 PERFORMANCE REQUIREMENTS

A. General: Project shall minimize creation of construction, deconstruction, and demolition waste to protect and restore natural habitat and resources.

B. Salvage /Recycle Requirements: Contractor is encouraged to recycle as much building material wste as possible.

C. If waste materials encountered during deconstruction/demolition or construction phase are found to contain lead, asbestos, polychlorinated biphenyls (PCBs), (such as fluorescent lamp ballasts), or other harmful substances, they are to be handled and removed in accordance with local, state, and federal laws and requirements concerning hazardous waste.

D. Existing items and material to be removed during deconstruction/demolition phase shall be reused in construction phase of the Project. Items that cannot be reused may be recycled. Items considered for reuse must be in refurbishable condition and must meet quality standards set forth in these specifications. Contractor shall ensure quality of the item(s) in question will meet or exceed accepted industry or trade standards for first quality commercial grade application. During construction, deconstruction, or demolition Owner's Representative may designate other objects or materials for reuse.

1.4 SUBMITTALS

A. Waste Management Plan: After award of contract and prior to scheduled Pre-Construction Conference, Contractor shall submit a draft Waste Management Plan to Owner's Representative for approval.

B. Landfill and Incinerator Disposal Records: Indicate receipt and acceptance of waste by landfills and incinerator facilities licensed to accept them. Include manifests, weight tickets, receipts, and invoices.

1.5 QUALITY ASSURANCE

A. Regulatory Requirements: Comply with hauling and disposal regulations of authorities having jurisdiction.

B. Waste Management Meeting: As part of kickoff meeting, review methods and procedures related to waste management including:

1. Review waste dumpster location on site and how dumpster will be accessed for pickup.
2. Review and discuss waste management plan.
3. Review procedures for periodic waste collection or transportation to recycling and disposal facilities.

PART 2 - PRODUCTS

PART 3 - EXECUTION

3.1 PLAN IMPLEMENTATION

A. General: Implement waste management plan as approved by Owner's Representative.

B. Site Access and Temporary Controls: Conduct waste management operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.

3.2 DISPOSAL OF WASTE

A. General: Except for items or materials to be salvaged, recycled, or otherwise reused, remove waste materials from Project site and legally dispose in landfill or incinerator acceptable to authorities having jurisdiction.

1. Except as otherwise specified, do not allow waste materials to accumulate on-site.
2. Remove and transport debris in manner preventing spillage on adjacent surfaces and areas.

B. Burning: Do not burn waste materials.

C. Disposal: Transport waste materials off Owner's property and legally dispose of them.

END OF SECTION 017419

SECTION 017700 - CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes administrative and procedural requirements for contract closeout, including:

1. Project Record Drawings
2. Closeout Submittals
3. Substantial Completion and Final Inspection
4. Permit Closure and Transfer
5. Final Acceptance of the Work
6. Warranties

1.2 PROJECT RECORD DRAWINGS

A. Maintain one complete full-size set of contract drawings and one full-size set of vendor-supplied drawings. Clearly mark changes, deletions, and additions using standard AIA drafting standards to show actual construction conditions. Show additions in red, deletions in green and special instructions in blue.

B. Keep record drawings current. Make record drawings available to Owner's Representative and A/E Team for inspection at the time of monthly progress payment requests. If project record drawings are not current, Owner may retain an appropriate amount of progress payment.

C. Submit complete record drawings on completion of total project. Include shop drawings, sketches, and additional drawings to be included in final set, with clear instructions showing the location of these drawings.

1.3 CLOSEOUT SUBMITTALS

A. The intent is to provide an overall summary of requirements and not a comprehensive list. Terms and conditions of the contract require satisfaction of requirements of individual specification sections regardless of what is shown on the list. Submit the following before requesting final inspection:

1. Specific warranties, guarantees, workmanship bonds, final certifications, and similar documents.
2. City of Neosho's required forms for occupancy, Security Alarm acceptance, and other similar forms or certificates.
3. Project Record Documents, operation and maintenance manuals, final completion construction digital images recorded and uloaded to a file sharing drive with index and descriptions, and similar final record information.
4. Posted Operating Instructions: As specified in individual sections. Furnish operating instructions attached to or posted adjacent to equipment. Include wiring diagrams, control diagrams, control sequence, start-up, adjustment, operation, lubrication, shut-down, safety precautions, procedures in the event of equipment failure, and other items of instruction recommended by manufacturer.

5. Deliver tools, spare parts, extra materials, and similar items to location designated by Owner's Representative. Label with manufacturer's name and model number where applicable.

    a. Special Tools: One set of special tools required to operate, adjust, dismantle, or repair equipment. Special tools are those not normally found in possession of mechanics or maintenance personnel.

6. Keys and Keying Schedule: Submit keys including duplicates. Wire keys for each lock securely together. Tag and plainly mark with lock number, equipment identification, or panel or switch number, and indicate location, building, and room name or number.
7. Make final changeover of permanent locks and deliver keys to Owner's Representative.
8. Approved pre-functional checklists and functional performance testing reports from commissioning documentation.
9. Test and balance report.
10. Terminate and remove temporary facilities, mockups, construction tools, and similar elements from Project site, complete final cleaning requirements, including touchup painting.
11. Touch up and repair and restore marred exposed finishes to eliminate visual defects.
12. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems. Submit demonstration and training videos.

1.4 FINAL INSPECTION, SUBSTANTIAL COMPLETION AND ACCEPTANCE PROCEDURES

A. Request final inspection in writing when project or designated portion of project is substantially complete. Owner's Representative will proceed with inspection within 10 days of receipt of written request or will advise Contractor of items that prevent project from being substantially complete.

B. If work is determined substantially complete, following final inspection, Architect and Engineering Team will prepare Punch List and issue a Letter of Substantial Completion.

C. If work is not determined substantially complete following final inspection, Owner's Representative will notify Contractor in writing. Contractor shall request new final inspection after completing work. Re-inspection costs may be charged against Contractor in accordance with Inspection of Construction contract clause.

D. Contractor shall complete Punch List within 30 calendar days, documented weather permitting.

E. If Contractor completes items of work on Punch List and contractually required items, Architect or Owner's Representative will issue Letter of final acceptance of work.

F. If Contractor fails to complete work within the time frame, Owner may correct work with an appropriate reduction in contract price or charge for re-inspection costs in accordance with Inspection of Construction contract clause.

1.5 PERMIT CLOSURE AND TRANSFER

A. When work covered by the permits is complete, create list of tasks required to close or transfer permits to Owner. Submit to Owner's Representative for approval.

B. After substantial completion and Punch List completion, permits shall be closed and documented by Agency(ies) with Jurisdiction for the permit.

C. If responsibility for permits is to be transferred to Owner, Owner shall be informed of permit provisions completed and responsibilities transferring to Owner.

1.6 WARRANTIES

A. Submittal Time: Submit written warranties on request of Architect / Engineering Team for designated portions of Work where commencement of warranties other than date of Substantial Completion is indicated.

B. Organize warranty documents into an orderly sequence based on table of contents of 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 millimeters) paper.
2. Provide heavy paper dividers with plastic-covered tabs for each separate warranty. Mark tab to identify product or installation. Provide typed description of product or installation, including name of product and name, address, and telephone number of Installer.
3. Identify each binder on front and spine with typed or printed title "WARRANTIES," Project name, and name of Contractor.
4. Warranty Electronic File: Scan warranties and bonds and assemble complete warranty and bond submittal package into a single indexed electronic PDF (portable document format) file with links enabling navigation to each item. Provide bookmarked table of contents at beginning of document.

C. Provide additional copies of each warranty in operation and maintenance manuals.

PART 2 - PRODUCTS

2.1 MATERIALS

A. See Division 1 Specification Section "Execution" for information on cleaning agents.

PART 3 - EXECUTION

3.1 FINAL CLEANING

A. General: Conduct final 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 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 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 dirt-free condition, free of stains, films, and foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to 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 concrete floors broom clean in unoccupied spaces.
i. Vacuum carpet and similar soft surfaces, removing debris and excess nap; shampoo, soil or stains remain.
j. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and vision-obscuring materials. Replace chipped or broken glass and transparent materials. Polish mirrors and glass.
k. Remove labels that are not permanent.
l. Touch up, 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" (Underwriters Laboratories) and similar labels, including mechanical and electrical nameplates.

m. Wipe surfaces of mechanical and electrical equipment, elevator 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 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 light fixtures, lamps, globes, and reflectors to function with full efficiency. Replace burned-out and noticeably dimmed bulbs, and defective or noisy starters in fluorescent and mercury vapor fixtures to comply with requirements for new fixtures.
r. Leave Project clean and ready for occupancy.

C. Waste Disposal: Comply with requirements of Section 017419 "Construction Waste Management and Disposal."

END OF SECTION 017700

SECTION 017823 - OPERATION AND MAINTENANCE DATA

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes administrative and procedural requirements for preparing operation and maintenance manuals, including:

1. Manuals, general
2. Emergency manuals
3. Operation manuals for systems, subsystems, and equipment
4. Maintenance manuals for care and maintenance of products, materials, and finishes and systems and equipment.

B. See Divisions 2 through 49 Sections for additional operation and maintenance manual requirements for Work in those Sections.

1.2 SUBMITTALS

A. Manual: Submit one electronic copy at least 15 days before final inspection. A/E Team will return copy or edit version with comments within 15 days of receipt.

B. Format: Submit operations and maintenance manuals in following format:

1. PDF (portable document format) electronic file. Assemble each manual into composite electronically indexed file. Submit on digital media acceptable to A/E Team.

   a. Name each indexed document file in composite electronic index with applicable item name. Include a complete electronically linked operation and maintenance directory.
   b. Enable inserted reviewer comments on draft submittals.

2. Hard copy manual: In accordance with Part 2 of this Section.

3. Correct or modify each manual to comply with A/E comments. Submit 4 copies of each corrected manual within 15 days of receipt of A/E comments.

PART 2 - PRODUCTS

2.1 MANUALS, GENERAL

A. Organization: Unless otherwise indicated, organize manual into separate sections for each system and subsystem, and separate sections for each piece of equipment not part of a system. Manual shall contain title page, table of contents, and manual contents.

B. Title Page: Enclose title page in transparent plastic sleeve. Include:

1. Project Title
2. Location

3. Contract Number
4. Prime Contractors Name and Address
5. Date of Substantial Completion
6. Binder Volume Number

C. Table of Contents: List each product included in manual, identified by product name, indexed to content of the volume, and cross-referenced to Specification Section number in Project Manual.

D. Manual Contents: Organize into sets of manageable size. Arrange contents alphabetically by system, subsystem, and equipment. Assemble instructions for subsystems, equipment, and components of one system into a single binder if needed.

1. Binders: White, commercial quality, hard back, 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 millimeter) paper; with clear plastic window sleeve on front and spine to hold label describing contents and pockets inside covers to hold folded oversize sheets.

   a. Cover Sheet: Identify binders on front and spine, with project title, location, contract number, prime contractor's name and address, date of substantial completion, and binder volume number. Insert cover sheet into clear plastic view pocket on front of binder. Insert sheet into clear plastic view pocket on spine with title "OPERATION AND MAINTENANCE MANUAL," Project title or name, and subject matter of contents. Indicate volume number for multiple-volume sets.

2. Data: Fill binders to no more than 75 percent of capacity. Punch holes shall not obscure any data. When contents of a single tabbed section cover more than one item, provide colored paper sheets to separate the data for each item.

   a. Manufacturers' Data: Provide originals for color or copyrighted data. Black and white data may be originals or clean, good quality reproductions. No copies produced by facsimile transmission and sheets with stamps, such as submittal approval stamps. Include only sheets that apply to items installed; cross out inapplicable data.
   b. Vendor Furnished As-Built Drawings: Maximum 24 inch by 36 inch sheets with minimum character or lettering size of 1/8 inch. Reduced-size reproductions may be provided instead of full-size drawings if reproductions are clear and legible. If reduced-size drawings are used, identify as "REDUCED SIZE" and provide graphic scales, if applicable.
   c. Custom Data: Data supplemented by drawings and schematics necessary to describe systems adequately.
   d. Equipment Data Sheet: Data, using form at end of this section.
   e. Schedules: Schedules reflecting final, as-installed conditions.
   f. Poorly reproduced or illegible data will be rejected.

3. Dividers: Divider sheets with Mylar reinforced edges and pre-printed numbered tabs aligned with numbers and title lines on index sheet. Include typed list of products and major components of equipment included in section on each divider, cross-referenced to Specification Section number and title of Project Manual.
4. Protective Plastic Sleeves: Transparent plastic sleeves designed to enclose diagnostic software diskettes for computerized electronic equipment.
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.

2.2 EMERGENCY MANUALS

A. Content: Organize manual into separate section for type of emergency, emergency instructions, and 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 for fire, flood, gas leak, water leak, power failure, water outage, equipment failure, and 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 instructions on stopping, shutdown instructions for each type of emergency, operating instructions for conditions outside normal operating limits, and required sequences for electric or electronic systems.

2.3 OPERATION AND MAINTENANCE MANUALS

A. Operation Requirements

1. Content: In addition to requirements in Section, include operation data required in individual Specification Sections and equipment descriptions, operating standards, operating procedures, operating logs, wiring and control diagrams, and license requirements.
2. Descriptions: Include:

    a. Product name and model number
    b. Manufacturer's name
    c. Equipment identification with serial number of each component
    d. Equipment function
    e. Operating characteristics
    f. Limiting conditions
    g. Performance curves
    h. Engineering data and tests
    i. Complete nomenclature and number of replacement parts

3. Operating Procedures: Include start-up, break-in, and control procedures; stopping and normal shutdown instructions; routine, normal, seasonal, and weekend operating instructions; and required sequences for electric or electronic systems.
4. Systems and Equipment Controls: Describe sequence of operation, and diagram controls as installed.
5. Piped Systems: Diagram piping as installed and identify color-coding where required for identification.

B. Maintenance Requirements for Systems and Equipment

1. 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, and equipment data sheets as described below.

2. 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.
3. Manufacturers' Maintenance Documentation: Manufacturers' maintenance documentation including maintenance instructions, drawings and diagrams for maintenance, nomenclature of parts and components, and recommended spare parts for each component part or piece of equipment:
4. Maintenance Procedures: Test and inspection instructions, troubleshooting guide, disassembly instructions, and adjusting instructions, and demonstration and training videotape if available, detailing essential maintenance and environmental procedures.
5. Maintenance and Service Schedules: Service and lubrication requirements, list of required lubricants for equipment, and separate schedules for preventive and routine maintenance and service with standard time allotment.
6. Spare Parts List and Source Information: 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.
7. Warranties and Bonds: Copies of warranties and bonds and lists of circumstances and conditions that affect validity of warranties or bonds.

2.4 PRODUCT MAINTENANCE MANUAL

A. Content: Organize manual into 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:

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 inspection procedures, types of cleaning agents, methods of cleaning, schedule for cleaning and maintenance, and 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 affect validity of warranties or bonds.

2.5 SYSTEMS AND EQUIPMENT MAINTENANCE MANUALS

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 and drawing or schedule designation or identifier where applicable.

C. Manufacturers' Maintenance Documentation: Manufacturers' maintenance documentation including the following information for each component part or piece of equipment:

1. Standard 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 and items detailing 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 video recording

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 affect validity of warranties or bonds.

1. Include procedures and required notifications for warranty claims.

PART 3 - EXECUTION

3.1 GENERAL

A. At start of project, begin accumulating operation and maintenance data and initiate index. Install and index data in binders within 30 days after delivery of items. As custom written data and test results are produced, add to operation and maintenance data file.

B. List of Operation and Maintenance requirements has been attached at end of the Division 1 Specifications for your convenience. Intent is to provide an overall summary of requirements and not a comprehensive list. Terms and conditions of the contract require satisfaction of requirements of individual specification sections regardless of what is shown on the list.

C. Keep operation and maintenance data current. Make operation and maintenance binders available to Owner's Representative and A/E Team for inspection at time of monthly progress payment requests. If operation and maintenance binders are not current, Owner may retain an appropriate amount of the progress payment.

3.2 MANUAL PREPARATION

A. Manual Types

1. Emergency Manual: Assemble complete set of emergency information indicating procedures for use by emergency personnel and by Owner's operating personnel for types of emergencies indicated.
2. Product Maintenance Manual: Assemble complete set of maintenance data indicating care and maintenance of each product, material, and finish incorporated into Work.
3. Operation and Maintenance Manuals: Assemble complete set of operation and maintenance data indicating operation and maintenance of each system, subsystem, and piece of equipment not part of a system.

B. Manual Contents: Including:

1. Manufacturers' Data: Where manuals contain manufacturers' standard printed data, include only sheets pertinent to product or component installed. Mark sheet to identify product or component incorporated into Work. If data include more than one item in a tabular format, identify each item using appropriate references from Contract Documents. Identify data applicable to Work and delete references to information not applicable.
2. Custom Written Data: For data not in manufacturer's standard literature, provide text, drawings, and schematics specifically applicable to installed systems. Include step-by-step descriptions of operating procedures; identification of individual components and their functions; descriptions of how system components relate to one another and operate together to accomplish a common process or function; and sequence of operation for system control circuits. For seasonally operated systems, provide start-up and shutdown instructions.
3. Equipment Data Sheets: For each item of equipment included in operation and maintenance data, provide Equipment Data Sheet using form at the end of this section. For equipment consisting of a driven machine and a driver (for example, a pump and a motor), equipment data shall cover both the driven machine and the driver. For similar type equipment (for example, multiple exhaust fans of the same model and type), provide a single equipment data sheet with an attached schedule listing individual equipment items.
4. Vendor Furnished As-Built Drawings: Provide for each electrical and each mechanical control system.

a. For each control system, provide control circuit schematic drawings. Identify each wire and terminal block number. Show terminal numbers on control devices. Show control wires and devices remote from control panel.
b. For each control panel, provide general arrangement drawing showing location of each control component and terminal block on the panel front and interior. Include materials list of panel-mounted control components as well as field-installed control components remote from the panel, identifying components, manufacturer, model number, and initial set points or sensing ranges of devices where applicable.
c. For packaged equipment systems, provide general arrangement drawings showing interrelationships of the various items of equipment and components.
d. In addition to control wiring schematic, provide power wiring schematic drawing showing power flow to each motor. Identify each power conductor. Show over-current protection and motor starting devices.

C. Comply with Section 017700 "Closeout Procedures" for schedule for submitting operation and maintenance documentation.

END OF SECTION 017823

EQUIPMENT DATA SHEET	
Equipment Item: _____ Designation: _____ Function: _____ Location: _____ Project: _____ Model Number: _____ Serial Number: _____	
Manufacturer Address and Phone:	Supplier Address and Phone:
Preventive Maintenance Tasks:	
Nameplate Data:	
Spare Parts Furnished and Other Information:	

SECTION 024119 - SELECTIVE DEMOLITION

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Demolition and removal of selected portions of building or structure.
2. Demolition and removal of selected site elements.
3. Salvage of existing items to be reused or recycled.

B. Related Requirements:

1. All of Division 1 Specifications and Section 011000 "Summary" for restrictions on use of the premises, Owner-occupancy requirements, and phasing requirements.
2. Sections 017329 "Cutting and Patching" and 017340 "Execution" for cutting and patching procedures.

1.2 DEFINITIONS

A. Remove: Detach items from existing construction and dispose of them off-site unless indicated to be salvaged or reinstalled.

B. Remove and Salvage: Detach items from existing construction, in a manner to prevent damage, and deliver to Owner.

C. Remove and Reinstall: Detach items from existing construction, in a manner to prevent damage, prepare for reuse, and reinstall where indicated.

D. Existing to Remain: Leave existing items that are not to be removed and that are not otherwise indicated to be salvaged or reinstalled.

E. Dismantle: To remove by disassembling or detaching an item from a surface, using gentle methods and equipment to prevent damage to the item and surfaces; disposing of items unless indicated to be salvaged or reinstalled.

1.3 MATERIALS OWNERSHIP

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

B. Historic items, relics, antiques, and similar objects including, but not limited to, millwork, artifacts, items stored on site in the buildings (architectural and building components) and other items of interest or value to Owner that may be uncovered during demolition remain the property of the Owner.

1. Carefully salvage in a manner to prevent damage and promptly return to Owner.

1.4 PREINSTALLATION MEETINGS

A. Predemolition Conference: Conduct conference at Project site.

1. Inspect and discuss condition of construction to be selectively demolished.
2. Review structural load limitations of existing structure.
3. Review and finalize selective demolition schedule and verify availability of materials, demolition personnel, equipment, and facilities needed to make progress and avoid

delays.
4. Review requirements of work performed by other trades that rely on substrates exposed by selective demolition operations.
5. Review areas where existing construction is to remain and requires protection.

1.5 INFORMATIONAL SUBMITTALS

A. 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.

B. Predemolition Photographs or Video: Show existing conditions of adjoining construction, including finish surfaces, that might be misconstrued as damage caused by salvage and demolition operations. Comply with Section 013233 "Photographic Documentation." Submit before Work begins.

C. Warranties: Documentation indicating that existing warranties are still in effect after completion of selective demolition.

1.6 CLOSEOUT SUBMITTALS

A. Inventory: Submit a list of items that have been removed and salvaged.

1.7 FIELD CONDITIONS

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

B. Notify Owner’s Representative of discrepancies between existing conditions and Drawings before proceeding with selective demolition.

C. Hazardous Materials:

1. Lead paint is present in the building to be selectively demolished or stripped and refinished. A report on the presence of hazardous materials is on file for review and use and will be available to the Contractor. Examine report to become aware of locations where hazardous materials are present.

a. Hazardous material remediation is specified elsewhere in the Contract Documents.
b. Do not disturb hazardous materials or items suspected of containing hazardous materials except under procedures specified elsewhere in the Contract Documents.
c. Contractor is responsible for worker safety and conducting all abatement, construction, and maintenance work in keeping with local, state, and federal laws and ordinances.

D. Historic Areas: Demolition and hauling equipment and other materials shall be of sizes that clear surfaces within historic spaces, areas, rooms, and openings, including temporary protection, by 12 inches or more.

E. Storage or sale of removed items or materials on-site is not permitted.

F. Utility Service: Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.

1. Maintain fire-protection facilities in service during selective demolition operations.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

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

B. Standards: Comply with ANSI/ASSP A10.6 and NFPA 241.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify that utilities have been disconnected and capped before starting selective demolition operations.

B. Review Project Record Documents of existing construction or other existing condition and hazardous material information provided in these Construction Documents. Owner and A/E Team do not guarantee that existing conditions are same as those indicated in Project Record Documents.

C. Verify that hazardous materials have been remediated before proceeding with building demolition operations.

D. Survey of Existing Conditions: Record existing conditions by use of preconstruction photographs or video.

1. Inventory and record the condition of items to be removed and salvaged.
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 required to make exact reproduction.

3.2 UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS

A. Existing Services/Systems to Remain: Maintain services/systems indicated to remain and protect them against damage.

B. Existing Services/Systems to Be Removed, Relocated, or Abandoned: Locate, identify, disconnect, and seal or cap off utility services and mechanical/electrical systems serving areas to be selectively demolished.

1. Arrange to shut off utilities with utility companies.
2. If services/systems are required to be removed, relocated, or abandoned, provide temporary services/systems that bypass area of selective demolition and that maintain continuity of services/systems to other parts of building.
3. Disconnect, demolish, and remove fire-suppression systems, plumbing, and HVAC systems, equipment, and components indicated on Drawings to be removed. In most instances, remove all piping and wiring to source.

    a. Piping to Be Removed: Remove portion of piping indicated to be removed and cap or plug remaining piping with same or compatible piping material.
    b. Piping to Be Abandoned in Place: Drain piping and cap or plug piping with same or compatible piping material and leave in place.
    c. Equipment to Be Removed: Disconnect and cap services and remove equipment.

d. Equipment to Be Removed and Reinstalled: Disconnect and cap services and remove, clean, and store equipment; when appropriate, reinstall, reconnect, and make equipment operational.
e. Equipment to Be Removed and Salvaged: Disconnect and cap services and remove equipment and deliver to Owner.
f. Ducts to Be Removed: Remove portion of ducts indicated to be removed and plug remaining ducts with same or compatible ductwork material.
g. Ducts to Be Abandoned in Place: Cap or plug ducts with same or compatible ductwork material and leave in place.

3.3 PROTECTION

A. Temporary Shoring: Design, provide, and maintain shoring, bracing, and structural supports as required to preserve stability and prevent movement, settlement, or collapse of construction and finishes to remain, and to prevent unexpected or uncontrolled movement or collapse of construction being demolished.

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

B. Remove temporary barricades and protections where hazards no longer exist.

3.4 SELECTIVE DEMOLITION, GENERAL

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

1. Proceed with selective demolition systematically, from higher to lower level. Complete selective demolition operations above each floor or tier before disturbing supporting members on the next lower level.
2. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping. Temporarily cover openings to remain.
3. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
4. Do not use cutting torches.
5. Remove decayed, vermin-infested, or otherwise dangerous or unsuitable materials and promptly dispose of off-site.
6. Remove structural framing members and lower to ground by method suitable to avoid free fall and to prevent ground impact or dust generation.
7. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
8. Dispose of demolished items and materials promptly. Comply with requirements in Section 017419 "Construction Waste Management and Disposal."

B. Site Access and Temporary Controls: Conduct selective demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.

C. Work in Historic Areas: Selective demolition may be performed only in areas of Project that are not designated as historic. In historic spaces, areas, and rooms, or on historic surfaces, the terms "demolish" or "remove" shall mean historic "removal" or "dismantling" as specified in Section 024296 "Historic Removal and Dismantling."

D. Removed and Salvaged Items:

1. Clean salvaged items.
2. Pack or crate items after cleaning. Identify contents of containers.
3. Store items in a secure area until delivery to Owner.
4. Transport items to Owner's storage area in town.
5. Protect items from damage during transport and storage.

E. Removed and Reinstalled Items:

1. Clean and repair items to functional condition adequate for intended reuse.
2. Pack or crate items after cleaning and repairing. Identify contents of containers.
3. Protect items from damage during transport and storage.
4. Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make item functional for use indicated.

F. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by Owner’s Representative, items may be removed to a suitable, protected storage location during selective demolition, cleaned, and reinstalled in their original locations after selective demolition operations are complete.

3.5 DISPOSAL OF DEMOLISHED MATERIALS

A. Remove demolition waste materials from Project site and dispose of them in an EPA-approved construction and demolition waste landfill acceptable to authorities having jurisdiction., and recycle or dispose of them according to Section 017419 "Construction Waste Management and Disposal."

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. Comply with requirements specified in Section 017419 "Construction Waste Management and Disposal."

B. Burning: Do not burn demolished materials.

3.6 CLEANING

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

END OF SECTION 024119

SECTION 024296 - HISTORIC REMOVAL AND DISMANTLING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section includes historic treatment procedures in the form of special types of selective demolition work for historic spaces, areas, rooms, and surfaces and the following specific work:

1. Removal and dismantling of indicated portions of building or structure and debris hauling.
2. Removal and dismantling of indicated site elements and debris hauling.
3. Salvage of existing items to be reused or recycled.

B. Related Requirements:

1. Section 013591 "Historic Treatment Procedures" for general historic treatment requirements.

1.3 DEFINITIONS

A. Dismantle: To disassemble or detach a historic item from a surface, or a nonhistoric item from a historic surface, using gentle methods and equipment to prevent damage to historic items and surfaces; disposing of items unless indicated to be salvaged or reinstalled.

B. Existing to Remain: Existing items that are not to be removed or dismantled, except to the degree indicated for performing required Work.

C. Remove: To take down or detach a nonhistoric item located within a historic space, area, or room, using methods and equipment to prevent damage to historic items and surfaces; disposing of items unless indicated to be salvaged or reinstalled.

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

E. Salvage: To protect removed or dismantled items and deliver them to Owner ready for reuse.

1.4 PRECONSTRUCTION MEETINGS

A. Preconstruction Conference(s): Conduct conference(s) at Project site or online with Architect.

1. Review minutes of Preliminary Historic Treatment Conference that pertain to removal and dismantling procedures and protection of historic areas and surfaces.
2. Review list of items indicated to be salvaged.
3. Verify qualifications of personnel assigned to perform removal and dismantling.
4. Inspect and discuss condition of each construction type to be removed or dismantled.

5. Review requirements of other work that depends on condition of substrates exposed by removal and dismantling work.
6. Review methods and procedures related to removal and dismantling work, including, but not limited to, the following:

    a. Historic removal and dismantling specialist's personnel, equipment, and facilities needed to make progress and avoid delays.
    b. Materials, material application, sequencing, tolerances, and required clearances.
    c. Fire prevention.
    d. Coordination with building occupants.

1.5 INFORMATIONAL SUBMITTALS

A. Qualification Data: For historic removal and dismantling specialist and historic removal and dismantling specialist's field supervisors.

B. Preconstruction Documentation: Show preexisting conditions of adjoining construction and site improvements, including finish surfaces, that might be misconstrued as damage caused by Contractor's removal and dismantling operations.

C. Removal and Dismantling Historic Treatment Program: Submit 15 days before work begins.

D. List of Items Indicated to Be Salvaged: Prepare a list of items indicated on Drawings to be salvaged for Owner's use or for reinstallation. Submit 15 days before preconstruction conference.

E. Inventory of Salvaged Items: After removal or dismantling work is complete, submit a list of items that have been salvaged.

    1. Include item description, item condition, number of items if more than one of a type, and tag number. Include photo of item in original location.
    2. As work proceeds, include on the inventory items that were indicated to be salvaged and items of historic importance discovered during the work. Document reasons, if any, why an item indicated to be salvaged was not salvaged.

1.6 QUALITY ASSURANCE

A. Historic Removal and Dismantling Specialist Qualifications: A qualified historic treatment specialist. General selective demolition experience is insufficient experience for historic removal and dismantling work.

B. Removal and Dismantling Historic Treatment Program: Prepare a written, detailed description of materials, methods, equipment, and sequence of operations to be used for each phase of removal and dismantling work, including protection of surrounding and substrate materials and Project site.

    1. Dust and Noise Control: Include locations of proposed temporary dust- and noise-control partitions and means of egress from occupied areas coordinated with continuing on-site operations and other known work in progress.
    2. Debris Hauling: Include plans clearly marked to show debris hauling routes, turning radii, and locations and details of temporary protective barriers.

C. Mockups: Prepare mockups of specific historic removal and dismantling procedures specified in this Section to demonstrate aesthetic effects and to set quality standards for materials and execution.

1. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.

D. Regulatory Requirements: Comply with notification regulations of authorities having jurisdiction before beginning removal and dismantling work. Comply with hauling and disposal regulations of authorities having jurisdiction.

1.7 FIELD CONDITIONS

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

B. Notify Architect of discrepancies between existing conditions and Drawings before proceeding with removal and dismantling work.

C. Hazardous Materials: Hazardous materials may be encountered in the work area, including lead paint. If suspect materials are uncovered, contact the Owner's Representative immediately and close and secure the work area. Recent materials testing by the Owner is available for review by the Contractor.

D. Storage or sale of removed or dismantled items on-site is not permitted unless otherwise indicated.

PART 2 - PRODUCTS - (Not Used)

PART 3 - EXECUTION

3.1 HISTORIC REMOVAL AND DISMANTLING EQUIPMENT

A. Dismantling Equipment: Use manual, hand-held tools, except as follows or otherwise approved by Architect on a case-by-case basis:

1. Hand-held power tools and cutting torches are permitted only as submitted in the historic treatment program. They must be adjustable so as to penetrate or cut only the thickness of material being removed.
2. Pry bars more than 18 inches (450 mm) long and hammers weighing more than 2 lb (0.9 kg) are not permitted for dismantling work.

3.2 EXAMINATION

A. Preparation for Removal and Dismantling: Examine construction to be removed or dismantled to determine best methods to safely and effectively perform removal and dismantling work. Examine adjacent work to determine what protective measures are necessary. Make explorations, probes, and inquiries as necessary to determine condition of construction to be

removed or dismantled and location of utilities and services to remain that may be hidden by construction that is to be removed or dismantled.

1. Verify that affected utilities are disconnected and capped.
2. Inventory and record the condition of items to be removed and dismantled for reinstallation or salvage. Enter this information on the submittal of inventory of salvaged items.
3. Before removal or dismantling of existing building elements that will be reproduced or duplicated in final Work, make permanent record of measurements, materials, and construction details required to make exact reproduction.

B. Survey of Existing Conditions: Record existing conditions by use of preconstruction photographs and preconstruction video recordings.

C. Perform surveys as the Work progresses to detect hazards resulting from historic removal and dismantling procedures.

3.3 HISTORIC REMOVAL AND DISMANTLING

A. General: Have removal and dismantling work performed by a qualified historic removal and dismantling specialist. Ensure that historic removal and dismantling specialist's field supervisors are present when removal and dismantling work begins and during its progress.

B. Perform work according to the historic treatment program and approved mockup(s).

1. Protect all historic finishes to remain from gouging, scratching, impacts, or other wearing media throughout construction.
2. Perform removal and dismantling to the limits indicated.
3. Provide supports or reinforcement for existing construction that becomes temporarily weakened by removal and dismantling work, until the Project Work is completed unless otherwise indicated.
4. Perform cutting by hand or with small power tools wherever possible. Cut holes and slots neatly to size required, with minimum disturbance of adjacent work.
5. Do not operate air compressors inside building unless approved by Architect in each case.
6. Do not drill or cut columns, beams, joints, girders, structural slabs, or other structural supporting elements, without having Contractor's professional engineer's written approval for each location before such work is begun.
7. Dispose of removed and dismantled items off-site unless indicated to be salvaged or reinstalled.

C. Unacceptable Equipment: Keep equipment that is not permitted for historic removal or dismantling work away from the vicinity where such work is being performed.

D. Removing and Dismantling Items on or Near Historic Surfaces:

1. Use only dismantling equipment and procedures within 12 inches (300 mm) of historic surface. Do not use pry bars. Protect historic surface from contact with or damage by tools.
2. Unfasten items in the opposite order from which they were installed.
3. Support each item as it becomes loosened to prevent stress and damage to the historic surface.
4. Dismantle anchorages.

E. Loose Plaster: Leave sound, firmly adhered plaster in place. Do not damage, remove, or dismantle historic plasterwork, except where indicated or where it is an immediate hazard to personnel and as approved by Architect.

F. Floor Surface Removal: Remove floor surfaces, as indicated on Drawings. Use dismantling methods when removing floor surfaces 12 inches (300 mm) or less away from historic walls. Take away material to a uniform surface at the indicated level.

G. Anchorages:

1. Remove anchorages associated with removed items.
2. Dismantle anchorages associated with dismantled items.
3. In nonhistoric surfaces, patch holes created by anchorage removal or dismantling according to the requirements for new work.
4. In historic surfaces, patch or repair holes created by anchorage removal or dismantling according to Section that is specific to the historic surface being patched.

END OF SECTION 024296

SECTION 044313 - LIMESTONE MASONRY VENEER

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section Includes:

1. Stone masonry adhered to concrete backup.

1.3 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1.4 ACTION SUBMITTALS

A. Product Data: For each variety of stone, stone accessory, and manufactured product.

B. Samples for Initial Selection: For colored mortar and other items involving color selection.

C. Samples for Verification:

1. For each stone type indicated. Include at least 5 samples in each set, and show the full range of color and other visual characteristics in completed Work.
2. For each color of mortar required.

1.5 INFORMATIONAL SUBMITTALS

A. Qualification Data: For Installer.

B. List of Materials Used in Constructing Mockups: List generic product names together with manufacturers, manufacturers' product names, supply sources, and other information as required to identify materials used. Include mix proportions for mortar and source of aggregates.

1. Neither receipt of list nor approval of mockups constitutes approval of deviations from the Contract Documents contained in mockups unless Architect approves such deviations in writing.

1.6 QUALITY ASSURANCE

A. Installer Qualifications: A qualified installer who employs experienced stonemasons and stone fitters.

B. Mockups: Build mockups to demonstrate aesthetic effects and to set quality standards for materials and execution.

1. Build mockup of typical wall area as shown on Drawings.
2. Build mockups for each type of stone masonry] in sizes approximately 48 inches long by 48 inches high by full thickness, including face and backup construction and accessories.
   a. Include a sealant-filled joint at least 16 inches (400 mm) long in mockup.

3. Protect accepted mockups from the elements with weather-resistant membrane.
4. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
5. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Store cementitious materials on elevated platforms, under cover, and in a dry location. Do not use cementitious materials that have become damp.

B. Store aggregates where grading and other required characteristics can be maintained and contamination avoided.

C. Deliver preblended, dry mortar mix in moisture-resistant containers designed for use with dispensing silos. Store preblended, dry mortar mix in delivery containers on elevated platforms, under cover, in a dry location, or in covered weatherproof dispensing silos.

1.8 FIELD CONDITIONS

A. Protection of Stone Masonry: During construction, cover tops of walls, projections, and sills with waterproof sheeting at end of each day's work. Cover partially completed stone masonry when construction is not in progress.

1. Extend cover a minimum of 24 inches (600 mm) down both sides, and hold cover securely in place.

B. Stain Prevention: Immediately remove mortar and soil to prevent them from staining stone masonry face.

1. Protect base of walls from rain-splashed mud and mortar splatter, using coverings spread on the ground and over the wall surface.
2. Protect sills, ledges, 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 end of each day to prevent rain from splashing mortar and dirt on completed stone masonry.

C. 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 stone masonry damaged by frost or freezing conditions. Comply with cold-weather construction requirements contained in TMS 602/ACI 530.1/ASCE 6.

1. Cold-Weather Cleaning: Use liquid cleaning methods only when air temperature is 40 deg F (4 deg C) and above and will remain so until masonry has dried, but not less than seven days after completing cleaning.

D. Hot-Weather Requirements: Comply with hot-weather construction requirements contained in TMS 602/ACI 530.1/ASCE 6.

1.9 COORDINATION

A. Advise installers of other work about specific requirements for placement of flashing and similar items to be built into stone masonry.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Source Limitations for Stone: Obtain each variety of stone, regardless of finish, from single quarry with resources to provide materials of consistent quality in appearance and physical properties.

B. Source Limitations for Mortar Materials: Obtain mortar ingredients of uniform quality for each cementitious component from single manufacturer and each aggregate from single source or producer.

C. Varieties and Sources: Subject to compliance with requirements, provide stone of varieties and from sources complying with Section 044200 "Exterior Stone Cladding."

2.2 LIMESTONE

A. Material Standard: Comply with ASTM C568/C568M.

1. Match the existing (new) limestone used on adjacent house foundation.

2.3 MORTAR MATERIALS

A. Portland Cement: ASTM C150/C150M, Type I or Type II, except Type III may be used for cold-weather construction; natural color or white cement may be used as required to produce mortar color indicated.

1. Low-Alkali Cement: Not more than 0.60 percent total alkali when tested according to ASTM C114.

B. Hydrated Lime: ASTM C207, Type S.

C. Portland Cement-Lime Mix: Packaged blend of portland cement and hydrated lime containing no other ingredients.

D. Mortar Cement: ASTM C1329/C1329M.

E. Masonry Cement: ASTM C91/C91M.

F. Mortar Pigments: Natural and synthetic iron oxides and chromium oxides, compounded for use in mortar mixes and complying with ASTM C979/C979M. Use only pigments with a record of satisfactory performance in stone masonry mortar.

G. Aggregate: ASTM C144 and as follows:

1. For pointing mortar, use aggregate graded with 100 percent passing No. 16 (1.18-mm) sieve.
2. White Aggregates: Natural white sand or ground white stone.
3. Colored Aggregates: Natural-colored sand or ground marble, granite, or other sound stone; of color necessary to produce required mortar color.

a. Match Architect's sample.

H. Water: Potable.

2.4 STONE TRIM ANCHORS

A. Stone Trim Anchors: Units fabricated with tabs or dowels designed to engage kerfs or holes in stone trim units and holes for fasteners or postinstalled anchor bolts for fastening to substrates or framing as indicated.

B. Materials: Fabricate anchors from stainless steel, ASTM A240/A240M or ASTM A666, Type 316. Fabricate dowels from stainless steel, ASTM A276, Type 304.

C. Fasteners for Stone Trim Anchors: Annealed stainless steel bolts, nuts, and washers; ASTM F593 (ASTM F738M) for bolts and ASTM F594 (ASTM F836M) for nuts, Alloy Group 1 (A1).

2.5 MISCELLANEOUS MASONRY ACCESSORIES

A. Compressible Filler: Premolded filler strips complying with ASTM D1056, Grade 2A1; compressible up to 35 percent; of width and thickness indicated; formulated from neoprene, urethane, or PVC.

B. Weep Products: Use one of the following unless otherwise indicated:
1. Mesh Weep Holes: Free-draining mesh; made from polyethylene strands, full width of head joint and 2 inches (50 mm) high by thickness of stone masonry; in color selected from manufacturer's standard.

2.6 MASONRY CLEANERS

A. Proprietary Acidic Cleaner: Manufacturer's standard-strength cleaner designed for removing mortar and grout stains, efflorescence, and other new construction stains from stone masonry surfaces without discoloring or damaging masonry surfaces; expressly approved for intended use by cleaner manufacturer and stone producer.

2.7 FABRICATION

A. General: Fabricate stone units in sizes and shapes required to comply with requirements indicated.

1. For limestone, comply with recommendations in ILI's "Indiana Limestone Handbook."

B. Cut, Split, and Select stone to produce pieces of thickness, size, and shape indicated, including details on Drawings and pattern specified in "Setting Stone Masonry" Article.

1. Shape stone specified to be laid in random layout to match foundation.

C. Dress joints (bed and vertical) straight and at right angle to face unless otherwise indicated. Shape beds to fit supports.

D. Cut and drill sinkages and holes in stone for anchors and supports.

E. Carefully inspect stone at quarry or fabrication plant for compliance with requirements for appearance, material, and fabrication. Replace defective units before shipment.

1. Clean sawed backs of stone to remove rust stains and iron particles.

F. Gage backs of stones for adhered veneer if more than 81 sq. in. (522 sq. cm) in area.

G. Thickness of Stone: Provide thickness indicated, but not less than the following:

1. Thickness: 3.5 inch plus or minus 1/2 inch.

2. Provide full corner units

H. Finish exposed stone faces and edges to comply with requirements indicated for finish and to match approved samples and mockups.

1. Finish: match existing foundation

2.8 MORTAR 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.
2. Use Portland cement-lime mortar unless otherwise indicated.
3. Add cold-weather admixture (if used) at same rate for all mortar that will be exposed to view, regardless of weather conditions, to ensure that mortar color is consistent.
4. Mixing Pointing Mortar: Thoroughly mix cementitious and aggregate materials together before adding 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 one to two hours. Add remaining water in small portions until mortar reaches required consistency. Use mortar within 30 minutes of final mixing; do not retemper or use partially hardened material.

B. Mortar for Stone Masonry: Comply with ASTM C270, Property Specification.

1. Mortar for Setting Stone: Type N.
2. Mortar for Pointing Stone: Type O.

C. Cement-Paste Bond Coat: Mix either neat cement and water or cement, sand, and water to a consistency similar to that of thick cream.

1. For latex-modified Portland cement, setting-bed mortar, substitute latex admixture for part or all of water, according to latex-additive manufacturer's written instructions.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine surfaces indicated to receive stone masonry, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of stone masonry.

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

3.2 PREPARATION

A. Clean dirty or stained stone surfaces by removing soil, stains, and foreign materials before setting. Clean stone by thoroughly scrubbing with fiber brushes and then drenching with clear water. Use only mild cleaning compounds that contain no caustic or harsh materials or abrasives.

3.3 SETTING STONE MASONRY

A. Perform necessary field cutting and trimming as stone is set.

1. Use power saws to cut stone that is fabricated with saw-cut surfaces. Cut lines straight and true, with edges eased slightly to prevent snipping.
2. Use hammer and chisel to split stone that is fabricated with split surfaces. Make edges straight and true, matching similar surfaces that were shop or quarry fabricated.
3. Pitch face at field-split edges as needed to match stones that are not field split.

B. Sort stone before it is placed in wall to remove stone that does not comply with requirements relating to aesthetic effects, physical properties, or fabrication, or that is otherwise unsuitable for intended use.

C. Arrange stones in random pattern to match adjacent foundation with uniform course heights, random lengths, and uniform joint widths.

D. Arrange stones with color and size variations uniformly dispersed for an evenly blended appearance.

E. Set stone to comply with requirements indicated on Drawings. Install supports, fasteners, and other attachments indicated or necessary to secure stone masonry in place. Set stone accurately in locations indicated, with edges and faces aligned according to established relationships and indicated tolerances.

F. Maintain uniform joint widths, except for variations due to different stone sizes and where minor variations are required to maintain bond alignment if any. Lay walls with joints not less than 3/8 inch at narrowest points or more than 1/2 inch at widest points.

G. Provide sealant joints of widths and at locations indicated.

1. Keep sealant joints free of mortar and other rigid materials.
2. Sealing joints are specified in Section 079200 "Joint Sealants."

H. Install metal expansion strips in sealant joints at locations indicated. Build flanges of expansion strips into masonry by embedding in mortar between stone masonry and backup wythe. Lap each joint 4 inches (100 mm) in direction of water flow. Seal joints below grade and at junctures with horizontal expansion joints if any.

I. Place weep holes in joints just above grade.

1. Use mesh weep holes or open head joints to form weep holes.

3.4 CONSTRUCTION TOLERANCES

A. Variation from Plumb: For vertical lines and surfaces, do not exceed 1/4 inch in 10 feet (6 mm in 3 m), 3/8 inch in 20 feet (10 mm in 6 m), or 1/2 inch in 40 feet (13 mm in 12 m) or more. For external corners, expansion joints, control joints, and other conspicuous lines, do not exceed 1/4 inch in 20 feet (6 mm in 6 m) or 1/2 inch in 40 feet (13 mm in 12 m) or more.

B. Variation from Level: For bed joints and lines of exposed lintels, sills, parapets, horizontal grooves, and other conspicuous lines, do not exceed 1/4 inch in 20 feet (6 mm in 6 m) or 1/2 inch in 40 feet (13 mm in 12 m) or more.

C. Variation of Linear Building Line: For position shown in plan, do not exceed 1/2 inch in 20 feet (13 mm in 6 m) or 3/4 inch in 40 feet (19 mm in 12 m) or more.

D. Measure variation from level, plumb, and position shown in plan as a variation of the average plane of each stone face from level, plumb, or dimensioned plane.

E. Variation in Mortar-Joint Thickness: Do not vary from joint size range indicated.

F. Variation in Plane between Adjacent Stones: Do not exceed one-half of tolerance specified for thickness of stone.

3.5 POINTING

A. Prepare stone-joint surfaces for pointing with mortar by removing dust and mortar particles. Where setting mortar was removed to depths greater than surrounding areas, apply pointing mortar in layers not more than 3/8 inch (10 mm) deep until a uniform depth is formed.

B. Point stone joints by placing and compacting pointing mortar in layers of not more than 3/8 inch (10 mm) deep. Compact each layer thoroughly, and allow to it become thumbprint hard before applying next layer.

C. Tool joints, when pointing mortar is thumbprint hard, with a smooth jointing tool to produce the following joint profile:

1. Joint Profile: match adjacent foundation.

3.6 ADJUSTING AND CLEANING

A. Remove and replace stone masonry of the following description:

1. Broken, chipped, stained, or otherwise damaged stone. Stone may be repaired if methods and results are approved by Architect.
2. Defective joints.
3. Stone masonry not matching approved samples and mockups.
4. Stone masonry not complying with other requirements indicated.

B. Replace in a manner that results in stone masonry matching approved samples and mockups, complying with other requirements, and showing no evidence of replacement.

C. In-Progress Cleaning: Clean stone masonry as work progresses. Remove mortar fins and smears before tooling joints.

D. Final Cleaning: After mortar is thoroughly set and cured, clean stone masonry as follows:

1. Remove large mortar particles by hand with wooden paddles and nonmetallic scrape hoes or chisels.
2. Test cleaning methods on mockup; leave one-half of panel uncleaned for comparison purposes. Obtain Architect's approval of sample cleaning before cleaning stone masonry.
3. Protect adjacent stone and nonmasonry surfaces from contact with cleaner by covering them with liquid strippable masking agent, polyethylene film, or waterproof masking tape.
4. Wet wall surfaces with water before applying cleaner; remove cleaner promptly by rinsing thoroughly with clear water.
5. Clean stone masonry by bucket and brush hand-cleaning method described in BIA Technical Note No. 20, Revised II, using job-mixed detergent solution.
6. Clean stone masonry with proprietary acidic cleaner applied according to manufacturer's written instructions.
7. Clean limestone masonry to comply with recommendations in ILI's "Indiana Limestone Handbook."

3.7 EXCESS MATERIALS AND WASTE

A. Excess Stone: Dispose of excess stone off site.

END OF SECTION 044313

SECTION 055213 - PIPE AND TUBE RAILINGS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Galvanized Steel railings.

1.2 COORDINATION

A. Coordinate installation of anchorages for railings. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.

1.3 ACTION SUBMITTALS

A. Product Data:

1. Fasteners.
2. Post-installed anchors.
3. Handrail brackets.
4. Metal finishes.

B. Shop Drawings: Include plans, elevations, sections, details, and attachments to other work.

C. Samples for Initial Selection: For products involving selection of color, texture, or design, including mechanical finishes.

D. Samples for Verification: For each type of exposed finish required.

1. Sections of each distinctly different linear railing member, including handrails, top rails, posts, and balusters, including finish.

1.4 INFORMATIONAL SUBMITTALS

A. Welding certificates.

B. Mill Certificates: Signed by manufacturers of stainless steel products, certifying that products furnished comply with requirements.

1.5 QUALITY ASSURANCE

A. Welding Qualifications: Qualify procedures and personnel in accordance with the following:

1. AWS D1.1/D1.1M, "Structural Welding Code - Steel."

1.6 DELIVERY, STORAGE, AND HANDLING

A. Protect mechanical finishes on exposed surfaces of railings from damage by applying a strippable, temporary protective covering before shipping.

1.7 FIELD CONDITIONS

A. Field Measurements: Verify actual locations of walls and other construction contiguous with

railings by field measurements before fabrication.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Structural Performance: Railings, including attachment to building construction, withstand the effects of gravity loads and the following loads and stresses within limits and under conditions indicated:

1. Handrails and Top Rails of Guards:

a. Uniform load of 50 lbf/ ft. applied in any direction.
b. Concentrated load of 200 lbf applied in any direction.
c. Uniform and concentrated loads need not be assumed to act concurrently.

B. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes.

1. Temperature Change: 120 deg F, ambient; 180 deg F, material surfaces.

2.2 METALS, GENERAL

A. Metal Surfaces, General: Provide materials with smooth surfaces, without seam marks, roller marks, rolled trade names, stains, discolorations, or blemishes.

B. Brackets, Flanges, and Anchors: Cast or formed metal of same type of material and finish as supported rails unless otherwise indicated.

1. Provide type of bracket with predrilled hole for exposed bolt anchorage and that provides 1-1/2-inch clearance from inside face of handrail to finished wall surface.

2.3 STEEL RAILINGS

A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

1. Hollaender Mfg. Co.
2. Kee Safety, Inc.
3. Trex Commercial Products, Inc.
4. TrueNorth Steel
5. Tuttle, a Dant Clayton Division
6. VIVA Railings, LLC
7. Wagner Companies (The); R&B Wagner, Inc.
8. Or approved regional manufacturer.

B. Source Limitations: Obtain each type of railing from single source from single manufacturer.

C. Tubing: ASTM A500/A500M (cold formed)] or ASTM A513/A513M, Type 5.

D. Pipe: ASTM A53/A53M, Type F or Type S, Grade A, Standard Weight (Schedule 40), unless another grade and weight are required by structural loads.

E. Plates, Shapes, and Bars: ASTM A36/A36M.

F. Galvanize after fabrication.

2.4 FASTENERS

A. Fastener Materials:

1. Hot-Dip Galvanized Railing Components: Type 304 stainless steel or hot-dip zinc-coated steel fasteners complying with ASTM A153/A153M or ASTM F2329/F2329M for zinc coating.
2. Finish exposed fasteners to match appearance, including color and texture, of railings.

B. Fasteners for Anchoring Railings to Other Construction: Select fasteners of type, grade, and class required to produce connections suitable for anchoring railings to other types of construction and capable of withstanding design loads.

C. Fasteners for Interconnecting Railing Components:

1. Provide concealed fasteners for interconnecting railing components and for attaching them to other work, unless exposed fasteners are unavoidable or are the standard fastening method for railings indicated.
2. Provide tamper-resistant machine screws for exposed fasteners unless otherwise indicated.

D. Post-Installed Anchors: Fastener systems with working capacity greater than or equal to the design load, according to an evaluation report acceptable to authorities having jurisdiction, based on ICC-ES AC193 or ICC-ES AC308.

1. Material for Interior Locations: Carbon-steel components zinc-plated to comply with ASTM B633 or ASTM F1941/F1941M, Class Fe/Zn 5, unless otherwise indicated.
2. Material for Exterior Locations and Where Stainless Steel Is Indicated: Alloy Group 1 stainless steel bolts, ASTM F593, and nuts, ASTM F594.

2.5 MISCELLANEOUS MATERIALS

A. Handrail Brackets: Cast iron center of handrail 2-1/2 inches from wall.

B. Welding Rods and Bare Electrodes: Select in accordance with AWS specifications for metal alloy welded.

2.6 FABRICATION

A. General: Fabricate railings to comply with requirements indicated for design, dimensions, member sizes and spacing, details, finish, and anchorage, but not less than that required to support structural loads.

B. Shop assemble railings to greatest extent possible to minimize field splicing and assembly. Disassemble units only as necessary for shipping and handling limitations.

1. Clearly mark units for reassembly and coordinated installation.
2. Use connections that maintain structural value of joined pieces.

C. Cut, drill, and punch metals cleanly and accurately.

1. Remove burrs and ease edges to a radius of approximately **1/32 inch** unless otherwise indicated.
2. Remove sharp or rough areas on exposed surfaces.

D. Form work true to line and level with accurate angles and surfaces.

E. Fabricate connections that are exposed to weather in a manner that excludes water.

1. Provide weep holes where water may accumulate.
2. Locate weep holes in inconspicuous locations.

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

G. Connections: Fabricate railings with welded connections unless otherwise indicated.

H. Welded Connections: Cope components at connections to provide close fit, or use fittings designed for this purpose. Weld all around at connections, including at fittings.

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 flux immediately.
4. At exposed connections, finish exposed welds to comply with NOMMA's "Voluntary Joint Finish Standards" for Finish #2 welds; good appearance, completely sanded joint, some undercutting and pinholes okay.

I. Nonwelded Connections: Connect members with concealed mechanical fasteners and fittings. Fabricate members and fittings to produce flush, smooth, rigid, hairline joints.

1. Fabricate splice joints for field connection, using an epoxy structural adhesive, if this is manufacturer's standard splicing method.

J. Form changes in direction as follows:

1. As detailed.
2. By bending, or, by inserting prefabricated elbow fittings.
3. By flush bends, or, by inserting prefabricated flush-elbow fittings.
4. By radius bends of radius indicated, or, by inserting prefabricated elbow fittings of radius indicated.
5. By bending to smallest radius that will not result in distortion of railing member.

K. Bend members in jigs to produce uniform curvature for each configuration required. Maintain cross section of member throughout entire bend without buckling, twisting, cracking, or otherwise deforming exposed surfaces of components.

L. Close exposed ends of hollow railing members with prefabricated cap and end fittings of same metal and finish as railings.

M. Provide wall returns at ends of wall-mounted handrails unless otherwise indicated. Close ends of returns unless clearance between end of rail and wall is 1/4 inch or less.

N. Brackets, Flanges, Fittings, and Anchors: Provide wall brackets, flanges, miscellaneous fittings, and anchors to interconnect railing members to other work unless otherwise indicated.

1. At brackets and fittings fastened to plaster or gypsum board partitions, provide crush-resistant fillers or other means to transfer loads through wall finishes to structural supports and prevent bracket or fitting rotation and crushing of substrate.

O. Provide inserts and other anchorage devices for connecting railings to concrete or masonry work.

1. Fabricate anchorage devices capable of withstanding loads imposed by railings.
2. Coordinate anchorage devices with supporting structure.

P. Toe Boards: Where indicated, provide toe boards at railings around openings and at edge of open-sided floors and platforms. Fabricate to dimensions and details indicated.

2.7 MISCELLANEOUS MATERIALS

A. Galvanizing Repair Paint: High-zinc-dust-content paint, complying with SSPC-Paint 20 and compatible with paints specified to be used over it.

B. Galvanized Railings:

1. Hot-dip galvanize exterior steel railings, including hardware, after fabrication.
2. Comply with ASTM A123/A123M for hot-dip galvanized railings.
3. Comply with ASTM A153/A153M for hot-dip galvanized hardware.
4. Fill vent and drain holes that are exposed in the finished Work, unless indicated to remain as weep holes, by plugging with zinc solder and filing off smooth.

C. For galvanized railings, provide hot-dip galvanized fittings, brackets, fasteners, sleeves, and other ferrous components.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine plaster and gypsum board assemblies, where reinforced to receive anchors, to verify that locations of concealed reinforcements are clearly marked for Installer. Locate reinforcements and mark locations if not already done.

3.2 INSTALLATION, GENERAL

A. Perform cutting, drilling, and fitting required for installing railings.

1. Fit exposed connections together to form tight, hairline joints.
2. Install railings level, plumb, square, true to line; without distortion, warp, or rack.
3. Set railings accurately in location, alignment, and elevation; measured from established lines and levels.
4. Do not weld, cut, or abrade surfaces of railing components that are coated or finished after fabrication and that are intended for field connection by mechanical or other means without further cutting or fitting.
5. Set posts plumb within a tolerance of 1/16 inch in 3 feet.
6. Align rails so variations from level for horizontal members and variations from parallel with rake of steps and ramps for sloping members do not exceed 1/4 inch in 12 feet.

B. Control of Corrosion: Prevent galvanic action and other forms of corrosion by insulating metals and other materials from direct contact with incompatible materials.

1. Coat concealed surfaces of aluminum that will be in contact with grout, concrete, masonry, wood, or dissimilar metals, with a heavy coat of bituminous paint.

C. Adjust railings before anchoring to ensure matching alignment at abutting joints.

D. Fastening to In-Place Construction: Use anchorage devices and fasteners where necessary for securing railings and for properly transferring loads to in-place construction.

3.3 RAILING CONNECTIONS

A. Nonwelded Connections: Use mechanical or adhesive joints for permanently connecting railing components. Use wood blocks and padding to prevent damage to railing members and fittings. Seal recessed holes of exposed locking screws, using plastic cement filler colored to match finish of railings.

B. Welded Connections: Use fully welded joints for permanently connecting railing components.

Comply with requirements for welded connections in "Fabrication" Article, whether welding is performed in the shop or in the field.

C. Expansion Joints: Install expansion joints at locations indicated but not farther apart than required to accommodate thermal movement. Provide slip-joint internal sleeve, extending 2 inches beyond joint on either side; fasten internal sleeve securely to one side; and locate joint within 6 inches of post.

3.4 ANCHORING POSTS

A. Use stainless steel pipe sleeves preset and anchored into concrete for installing posts. After posts are inserted into sleeves, fill annular space between post and sleeve with nonshrink, nonmetallic grout, or anchoring cement, mixed and placed to comply with anchoring material manufacturer's written instructions.

B. Form or core-drill holes not less than 5 inches deep and 3/4 inch larger than OD of post for installing posts in concrete. Clean holes of loose material, insert posts, and fill annular space between post and concrete with nonshrink, nonmetallic grout,anchoring cement, mixed and placed to comply with anchoring material manufacturer's written instructions.

C. Cover anchorage joint with flange of same metal as post, attached to post with setscrews.

D. Anchor posts to metal surfaces with flanges, angle type, or floor type, as required by conditions, connected to posts and to metal supporting members as follows:

1. For steel railings, weld flanges to post and bolt to metal supporting surfaces.

E. Install removable railing sections, where indicated, in slip-fit stainless steel sockets cast in concrete.

3.5 ATTACHING RAILINGS

A. Anchor railing ends to concrete and masonry with brackets on underside of rails connected to railing ends and anchored to wall construction with anchors and bolts.

B. Anchor railing ends to metal surfaces with flanges bolted to metal surfaces and connected to railing ends, using nonwelded connections.

3.6 CLEANING

A. Clean by washing thoroughly with clean water and soap and rinsing with clean water.

Galvanized Surfaces: Clean field welds, bolted connections, and abraded areas, and repair galvanizing to comply with ASTM A780/A780M.

3.7 PROTECTION

A. Protect finishes of railings from damage during construction period with temporary protective coverings approved by railing manufacturer. Remove protective coverings at time of Substantial Completion.

B. Restore finishes damaged during installation and construction period, so no evidence remains of correction work. Return items that cannot be refinished in the field to the shop; make required alterations and refinish entire unit, or provide new units.

END OF SECTION 055213

SECTION 060312 - HISTORIC WOOD REPAIR

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section includes historic treatment of wood in the form of repairing wood features as follows:

1. Repairing wood wainscotting and trim.
2. Replacing wood wainscotting, interior window sills, and trim.
3. Repairing and refinishing wood wainscotting and trim.
4. Exterior wood siding and trim replacement.
5. Exterior window sill replacement.
6. Exterior door thresholds.

B. Related Requirements:

1. Section 013591 "Historic Treatment Procedures" for general historic treatment requirements.
2. Section 024296 "Historic Removal and Dismantling" for historic removal and dismantling work.
3. Section 064023 “Interior Architectural Woodwork”
4. Section 0090391 “Historic Treatment of Plain Painting” for paint and clear finishes.

1.3 SCOPE

A. Coordinate all work with Section 064023 “Interior Architectural Woodwork”

B. Dutchman repair wood wainscotting where receptacles or areas have been cut out with same species and cut of wood as the historic wainscotting.

C. Replicate historic wainscotting cap. Remove damaged portions and replace where damaged or missing.

D. Repair historic interior trim.

E. Refinish existing historic wainscotting and interior trim to remain.

F. Provide new wood shoe molding.

G. Provide new wood wall trim and interior window sills (stools) to match historic wood species and cut.

H. Provide new wood horizontal chalkboard trim.

I. Provide infill beaded board in attic at walls and ceiling to match existing.

J. Exterior cedar lap siding replacement.

K. Exterior trim and sill replacement.

1.4 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project Site

1. Review minutes of Preliminary Historic Treatment Conference that pertain to historic wood repair.
2. Review methods and procedures related to historic wood repair, including, but not limited to, the following:

    a. Historic treatment specialist's personnel, equipment, and facilities needed to make progress and avoid delays.
    b. Materials, material application, sequencing, tolerances, and required clearances.
    c. Fire-protection plan.
    d. Wood historic treatment program.
    e. Coordination with building occupants.

1.5 SEQUENCING AND SCHEDULING

A. Perform historic wood repair in the following sequence, which includes work specified in this and other Sections:

1. Before removing wood components for on-site or off-site repair, tag each component with location-identification numbers. Indicate on tags and building plans the locations of each component, such as "Baseboard on North Side of Room 101."
2. In the shop, label each repaired component and whole or partial replacement with permanent location-identification number in inconspicuous location and remove site-applied tags.
3. Sort units by condition, separating those that need extensive repair.
4. Clean surfaces.
5. General Wood-Repair Sequence (interior wainscotting and trim to remain):
    a. Remove paint and wainscotting and interior trim components to bare wood. Assume all painted surfaces contain lead, unless tested by Contractor. Use chemical stripper, Minwax Antique Furniture Refinisher, or as approved by Architect, to retain/preserve historic wood patina below paint.
    b. Repair wood by Dutchman replacement and partial replacement with like wood species. Wood filler is not acceptable.
    c. Do not sand historic patina from wood surfaces. Use only 00 steel wool with commercial refinisher, Minwas Antique Furniture Refinisher, or as approved by Architect, as final cleaning and prep for new finishing.
6. Refinish historic trim to remain. Provide and install replica interior sills and missing trim to match.
7. Reinstall components.
8. Install wood stain, as needed, to blend replacement wood with historic wood. Mockup to be approved by Architect.
9. Apply finish coats.
    a. Finish coats to be 50% Boiled Linseed Oil and 50% Turpentine. Apply with 00 steel wool and wipe clean. Let dry, and apply a second coat, wipe clean, and let dry.

B. Exterior Siding and Trim Replacement
   1. Replace cedar lap siding and trim on exterior, as noted on the drawings.
      a. Match existing dimensions and profile.
      b. Prime all sides and cuts prior to installation all around.
      c. Install, matching historic means and methods.
      d. Finish paint, along with exterior painting.
   2. Replace Exterior Window Sill
      a. Carefully remove existing deteriorated window sill
      b. Replicate and install new sill with exterior grade wood (white oak, or as approved by Architect).
      c. Treat entire sill with CopperCoat wood preservative
      d. Prep, prime, and paint all sides.
   3. Provide and Install New Exterior Door Custom Wood Tresholds
      a. Carefully remove existing deteriorated window sill / threshold
      b. Replicate and install new sill with exterior grade wood (white oak, or as approved by Architect).
      c. Treat entire sill with CopperCoat wood preservative
      d. Prep, prime, and paint all sides.

1.6 ACTION SUBMITTALS

A. Product Data: For each type of product.

   1. Include recommendations for product application and use. Include test data substantiating that products comply with requirements.

B. Shop Drawings:

   1. Include plans, elevations, and sections showing locations and extent of repair and replacement work, with enlarged details of replacement parts indicating materials, profiles, joinery, reinforcing, method of splicing or attaching wood members to other surfaces, accessory items, and finishes.
   2. Include field-verified dimensions and the following:

      a. Full-size shapes and profiles with complete dimensions for replacement components and their jointing, showing relationship of existing components to new components.
      b. Templates and directions for installing hardware and anchorages.
      c. Identification of each new unit and its corresponding location in the building on annotated plans and elevations.

C. Samples for Initial Selection: For each type of exposed wood and finish.

   1. Identify wood species, cut, and other features.
   2. Include Samples of hardware and accessories involving color selection.

D. Samples for Verification: For the following products in manufacturer's standard sizes unless otherwise indicated, finished as required for use in the Work:

   1. Replacement Wood: 12-inch long, full-size molding sections with applied finish.

      a. Additional Samples of replacement members that show fabrication techniques, materials, and finishes as requested by Architect.

2. Repaired Wood: Prepare Samples using existing wood removed from site, repaired, and prepared for refinishing.
3. Refinished Wood: Prepare Samples using existing wood removed from site, repaired, and refinished.

1.7 INFORMATIONAL SUBMITTALS

A. Wood Historic Treatment Program: Submit before work begins.

1.8 QUALITY ASSURANCE

A. Historic Treatment Specialist Qualifications: A qualified historic wood-repair specialist, experienced in repairing, refinishing, and replacing wood in whole and in part. Experience only in fabricating and installing new woodwork is insufficient experience for wood historic treatment work.

B. Wood Historic Treatment Program: Prepare a written, detailed description of materials, methods, equipment, and sequence of operations to be used for historic treatment work, including protection of surrounding materials and Project site.

1. If materials and methods other than those indicated are proposed for any phase of historic treatment work, add a written description of such materials and methods, including evidence of successful use on comparable projects, and demonstrations to show their effectiveness for this Project.

C. Mockups: Prepare mockups of historic treatment repair processes to demonstrate aesthetic effects and to set quality standards for materials and execution, and for fabrication and installation. Prepare mockups so they are as inconspicuous as practicable.

1. Locate mockups on existing surfaces where directed by Architect or in locations that enable viewing under same conditions as the completed Work.
2. Wood Wainscotting Repair: Prepare an approximately 8 square inches Dutchman patch to serve as mockup to demonstrate samples of each type of wood repair.
3. Wood Wainscotting Refinishing: Prepare approximately 12 square inches to be stripped and refinished.
4. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
5. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.9 DELIVERY, STORAGE, AND HANDLING

A. Pack, deliver, and store products in suitable packs, heavy-duty cartons, or wooden crates; surround with sufficient packing material to ensure that products will not be deformed, broken, or otherwise damaged.

B. Until installed, store products inside a well-ventilated area and protect from weather, moisture, soiling, abrasion, extreme temperatures, and humidity, and where environmental conditions comply with manufacturer's requirements.

1.10 FIELD CONDITIONS

A. Weather Limitations: Proceed with historic wood repair only when existing and forecasted weather conditions are within the environmental limits set by each manufacturer's written instructions and specified requirements.

PART 2 - PRODUCTS

2.1 HISTORIC WOOD REPAIR, GENERAL

A. Quality Standard: Comply with applicable requirements in Section 12, "Historic Restoration Work," and related requirements in AWI/AWMAC/WI's "Architectural Woodwork Standards" for construction, finishes, grade rules, and other requirements unless otherwise indicated.

1. Exception: Industry practices cited in Section 12, Article 1.5, "Industry Practices," of the Architectural Woodwork Standards do not apply to the work of this Section.

2.2 REPLICATED WOOD ITEMS

A. Replicated Wood Wainscotting Chair Rail and Widnow and Door Trim - Custom-fabricated replacement wood units and components.

1. Joint Construction: Joints matching existing joints
2. Wood Species: Match species of existing wood. Old growth required for matching existing.
3. Wood Cut: Match cut of existing wood
4. Wood Member and Trim Profiles: Match profiles and detail of existing.
5. Date Identification: Emboss on a concealed surface of each replaced item, in easily read characters, "TRIM MADE 2025."

B. Replicated Exterior Wood Lap Siding and Exterior Door **Trim**: Custom-fabricated replacement wood units and components.

1. Joint Construction: Joints matching existing joints.
2. Wood Species: Match species of existing wood (siding cedar, trim western red cedar or white oat), unless approved by Architect.
3. Wood Cut: Match cut of existing wood.
4. Wood Member and Trim Profiles: Match profiles and detail of existing.
5. Date Identification: Emboss on a concealed surface of each replaced item, in easily read characters, "TRIM MADE 2025."

2.3 WOOD-REPLACEMENT MATERIALS

A. Wood, General: Clear fine-grained lumber; kiln dried to a moisture content of 6 to 12 percent at time of fabrication; free of visible finger joints, blue stain, knots, pitch pockets, and surface checks larger than 1/32 inch (0.8 mm) deep by 2 inches (51 mm) wide.

1. Species: Match species of each existing type of wood component or assembly unless otherwise indicated.

B. Exterior Trim: Siding - Cedar or All-heart vertical grain redwood, Trim – all-heart vertical grain redwood or white oak.

C. Interior Trim: Old growth required and match existing species.

2.4 MISCELLANEOUS MATERIALS

A. Cleaning Materials:

1. Detergent Solution: Solution prepared by mixing 2 cups (0.5 L) of tetrasodium pyrophosphate (TSPP), 1/2 cup (125 mL) of laundry detergent that contains no ammonia, 5 quarts (5 L) of 5 percent sodium hypochlorite bleach, and 15 quarts (15 L) of warm water for each 5 gal. (20 L) of solution required.
2. Mildewcide: Commercial, proprietary mildewcide or a solution prepared by mixing 1/3 cup (80 mL) of household detergent that contains no ammonia, 1 quart (1 L) of 5 percent sodium hypochlorite bleach, and 3 quarts (3 L) of warm water.

B. Adhesives: Wood adhesives with minimum 15- to 45-minute cure at 70 deg F (21 deg C), in gunnable and liquid formulations as recommended in writing by adhesive manufacturer for each type of repair and exposure condition.

C. Fasteners: Use fastener metals that are noncorrosive and compatible with each material joined.

1. Match existing fasteners in material and type of fastener unless otherwise indicated.
2. Use concealed fasteners for interconnecting wood components.
3. Use concealed fasteners for attaching items to other work unless exposed fasteners are unavoidable or the existing fastening method.
4. For fastening metals, use fasteners of same basic metal as fastened metal unless otherwise indicated.
5. For exposed fasteners, use standard-type screws of head profile flush with metal surface unless otherwise indicated (no Phillips).
6. Finish exposed fasteners to match finish of metal fastened unless otherwise indicated.

2.5 WOOD FINISHES

A. Unfinished Replacement Units: Provide exposed **exterior and interior** wood surfaces of replacement units unfinished; smooth, filled, and suitably prepared for on-site priming and finishing.

PART 3 - EXECUTION

3.1 PREPARATION

A. Protect adjacent materials from damage by historic wood repair.

B. Exterior - Clean wood of mildew, algae, moss, plant material, loose paint, grease, dirt, and other debris by scrubbing with bristle brush or sponge and detergent solution. Scrub mildewed areas with mildewcide. After cleaning, rinse thoroughly with fresh water. Allow to dry before repairing or painting.

C. Interior – Clean wood of mildew, loose paint, dirt, and other debris by scrubbing with a soft brush or sponge and light detergent solution. After cleaning, rinse thoroughly with fresh water. Allow to dry before repairing or painting.

D. Condition replacement wood members and replacement units to prevailing conditions at installation areas before installing.

3.2 HISTORIC WOOD REPAIR, GENERAL

A. Historic Treatment Appearance Standard: Completed work is to have a uniform appearance as viewed by Architect from **5 feet** away for interior work and from **20 feet** away for exterior work.

B. General: In treating historic items, disturb them as minimally as possible and as follows:

1. Exterior Preparation:
   a. Install wood preservative on all surfaces of exterior wood prior to painting. Prime all surfaces before final painting.

2. Interior Preparation:
   a. Remove paint. Remove coatings according to Section 090391 "Historic Treatment of Plain Painting" unless otherwise indicated.
   b. Repair items in place where possible.
   c. Install temporary protective measures to protect wood-treatment work that is indicated to be completed later.
   d. Refinish historic wood according to Section 090391 "Historic Treatment of Plain Painting" unless otherwise indicated.

C. Mechanical Abrasion: Where mechanical abrasion is needed for the work, use only the gentlest mechanical methods, such as scraping and natural-fiber bristle brushing, that will not abrade wood substrate, reducing clarity of detail. Do not use abrasive methods, such as sanding, wire brushing, or power tools, as the goal is to retain the historic wood patina and color below the paint.

D. Repair Wood: Match existing materials and features, retaining as much original material as possible to perform repairs.

1. Unless otherwise indicated, repair wood by Dutchman patching, splicing, or otherwise reinforcing wood with new wood matching existing wood or with salvaged, old growth, sound, wood.
2. Where indicated, repair wood by limited replacement matching existing material.

E. Replace Wood: Where indicated, duplicate and replace units with units made from salvaged, old growth, sound wood. Use surviving prototypes to create patterns for duplicate replacements.

1. Do not use substitute materials unless otherwise indicated.
2. Compatible substitute materials may be used.

F. Identify removed items with numbering system corresponding to item locations, to ensure reinstallation in same location. Key items to Drawings showing location of each removed unit. Permanently label units in a location that will be concealed after reinstallation.

G. DO NOT STORE RAGS WITH BOILED LINSEED OIL OR TURPENTINE IN THE BUILDING. RAGS NEED TO BE STORED IN A BUCKET FULL OF WATER AND REMOVED FROM THE SITE EVERY DAY. THESE RAGS CAN EASILY SPONTANEOUSLY COMBUST AND ARE A FIRE HAZARD.

3.3 WOOD-REPLACEMENT REPAIR

A. General: Replace parts of or entire wood items at locations indicated on Drawings and where needed for a complete project.

1. Remove surface-attached items from wood surface before performing wood-replacement repairs unless otherwise indicated.
2. Verify that surfaces are sufficiently clean and free of paint residue prior to repair.
3. Remove broken, rotted, and decayed wood down to sound wood.
4. Custom fabricate new wood to replace missing wood; either replace entire wood member or splice new wood part into existing member.
5. Secure new wood using finger joints, multiple dowels, or splines with adhesive and nailing to ensure maximum structural integrity at each splice. Use only concealed fasteners. Fill nail holes and patch surface to match surrounding sound wood.

B. Clean spilled materials from adjacent surfaces immediately.

C. Reinstall items removed for repair into original locations.

3.4 ADJUSTMENT

A. Adjust existing and replacement operating items, hardware, and accessories for a tight fit at contact points and for smooth operation and tight closure. Lubricate hardware and moving parts.

3.5 CLEANING AND PROTECTION

A. Protect wood surfaces from contact with contaminating substances resulting from construction operations. Monitor wood surfaces adjacent to and below exterior concrete and masonry during construction for presence of dirt, scum, alkaline deposits, stains, or other contaminants. If contaminating substances contact wood surfaces, remove contaminants immediately.

B. Clean exposed surfaces immediately after historic wood repair. Avoid damage to coatings and finishes. Remove excess sealants, patching materials, dirt, and other substances.

END OF SECTION 060312

SECTION 061000 - MISCELLANEOUS ROUGH CARPENTRY

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes the following:

1. Framing with dimension lumber.
2. Wood blocking and nailers.
3. Wood furring.

1.2 SUBMITTALS

A. Product Data: For each type of process and factory-fabricated product.

B. Research/Evaluation Reports: For the following, showing compliance with building code in effect for Project:

1. Preservative-treated wood.
2. Power-driven fasteners.

1.3 DELIVERY, STORAGE, AND HANDLING

A. Keep materials under cover and dry. Protect from 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.

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

2.2 WOOD-PRESERVATIVE-TREATED MATERIALS

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.
3. Use treatment that does not promote corrosion of metal fasteners.

B. Kiln-dry lumber after treatment to a maximum moisture content of 19 percent. Do not use material that is warped or does not comply with requirements for untreated material.

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

D. Application: Treat all miscellaneous carpentry, unless otherwise indicated, and the following:

1. Wood nailers, blocking, stripping, and similar members in connection with flashing, vapor barriers, and waterproofing.
2. Wood sills, blocking, furring, and similar concealed members in contact with masonry or concrete.

2.3 DIMENSION LUMBER FRAMING

A. Maximum Moisture Content: 19 percent.

B. Other Framing: No. 2 grade and any of the following species:

1. Douglas fir-larch; WCLIB or WWPA.
2. Douglas fir-south; WWPA.
3. Douglas fir-larch (north); NLGA.

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.

B. For items of dimension lumber size, provide Construction or No. 2 grade lumber with 19 percent maximum moisture content of any species.

C. For exposed boards, provide lumber with 19 percent maximum moisture content of eastern white pine, Idaho white, lodgepole, or ponderosa; Premium or 2 Common (Sterling) grade; NeLMA, NLGA, WCLIB, or WWPA.

D. For concealed boards, provide lumber with 19 percent maximum moisture content and any of the following species and grades:

1. Mixed southern pine, No. 2 grade; SPIB.
2. Northern species, No. 2 Common grade; NLGA.
3. Western woods, Construction grade; WCLIB or WWPA.

2.5 FASTENERS

A. General: Where carpentry is exposed to weather, in ground contact, pressure-preservative treated, or in area of high relative humidity, provide fasteners of 316 Stainless Steel. Metal framing anchors (joist hangers, post basses, straps, etc.) shall be Type 316 Stainless Steel.

B. Power-Driven Fasteners: NES NER-272.

C. Screws for Fastening to Cold-Formed Metal Framing: ASTM C 954, except with wafer heads and reamer wings, length as recommended by screw manufacturer for material being fastened.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Set carpentry to required levels and lines, with members plumb, true to line, cut, and fitted. Fit carpentry to other construction; scribe and cope as needed for accurate fit. Locate furring, nailers, blocking, and similar supports to comply with requirements for attaching other construction.

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

C. Provide fire blocking in furred spaces, stud spaces, and other concealed cavities as required.

D. Framing Standard: Comply with AF&PA's "Details for Conventional Wood Frame Construction," unless otherwise indicated.

E. Do not splice structural members between supports, unless otherwise indicated.

F. Comply with AWPA M4 for applying field treatment to cut surfaces of preservative-treated lumber.

G. Securely attach carpentry work to substrate by anchoring and fastening as indicated, complying with the following:

1. NES NER-272 for power-driven fasteners.
2. Table 2304.9.1, "Fastening Schedule," in ICC's International Building Code.
3. Table 23-II-B-1, "Nailing Schedule," and Table 23-II-B-2, "Wood Structural Panel Roof Sheathing Nailing Schedule," in ICBO's Uniform Building Code.
4. Table 2305.2, "Fastening Schedule," in BOCA's BOCA National Building Code.
5. Table 2306.1, "Fastening Schedule," in SBCCI's Standard Building Code.
6. Table R602.3(1), "Fastener Schedule for Structural Members," and Table R602.3(2), "Alternate Attachments," in ICC's International Residential Code for One- and Two-Family Dwellings.

7. Table 602.3(1), "Fastener Schedule for Structural Members," and Table 602.3(2), "Alternate Attachments," in ICC's International One- and Two-Family Dwelling Code.

H. Wood Trim Installation: Install with minimum number of joints practical, using full-length pieces from maximum lengths of lumber available. 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.

1. Match color and grain pattern across joints.
2. Install trim after gypsum board joint-finishing operations are completed.
3. Install to tolerance of 1/8 inch in 96 inches for level and plumb. Install adjoining finish carpentry with 1/32-inch maximum offset for flush installation and 1/16-inch maximum offset for reveal installation.

3.2 WOOD BLOCKING, AND NAILER INSTALLATION

A. Install where indicated and where required for attaching other work. Form to shapes indicated and cut as required for true line and level of attached work. Coordinate locations with other work involved.

B. Attach items to substrates to support applied loading. Recess bolts and nuts flush with surfaces, unless otherwise indicated.

END OF SECTION 061000

SECTION 061600 - SHEATHING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Subflooring.

1.2 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site or online with Architect and Engineer.

1.3 ACTION SUBMITTALS

A. Product Data:

1. Subflooring.

B. Product Data Submittals: 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 panels flat with spacers beneath and between each bundle to provide air circulation. Protect sheathing from weather by covering with waterproof sheeting, securely anchored. Provide for air circulation around stacks and under coverings.

PART 2 - PRODUCTS

2.1 PRESERVATIVE-TREATED PLYWOOD

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

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

B. Mark plywood with appropriate classification marking of an inspection agency acceptable to authorities having jurisdiction.

C. Application: Treat items indicated on Drawings, and plywood in contact with masonry or concrete or used with roofing, flashing, vapor barriers, and waterproofing.

2.2 SUBFLOORING AND UNDERLAYMENT

A. Plywood Subflooring: DOC PS 1, Exterior Exposure, single-floor panels or sheathing.

1. Span Rating: Not less than 24.
2. Nominal Thickness: Not less than 7/8 inch, but match existing adjacent flooring or thickness of subflooring being replaced.

2.3 FASTENERS

A. General: Provide fasteners of size and type indicated that comply with requirements specified in this article for material and manufacture.

1. For roof, wall sheathing, provide fasteners with hot-dip zinc coating complying with ASTM A153/A153M.

B. Nails, Brads, and Staples: ASTM F1667.

C. Power-Driven Fasteners: Fastener systems with an evaluation report acceptable to authorities having jurisdiction, based on ICC-ES AC70.

D. Screws for Fastening Sheathing to Wood Framing: ASTM C1002.

2.4 MISCELLANEOUS MATERIALS

A. Adhesives for Field Gluing Panels to Wood Framing: Formulation complying with ASTM D3498 that is approved for use with type of construction panel indicated by manufacturers of both adhesives and panels.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Do not use materials with defects that impair quality of sheathing or pieces that are too small to use with minimum number of joints or optimum joint arrangement. Arrange joints so that pieces do not span between fewer than three support members.

B. Cut panels at penetrations, edges, and other obstructions of work; fit tightly against abutting construction unless otherwise indicated.

C. Securely attach to substrate by fastening as indicated, complying with the following:

1. Table 2304.10.1, "Fastening Schedule," in the ICC's International Building Code.

D. Use common wire nails unless otherwise indicated. Select fasteners of size that will not fully penetrate members where opposite side will be exposed to view or will receive finish materials. Make tight connections. Install fasteners without splitting wood.

E. Coordinate wall, and roof sheathing installation with flashing and joint-sealant installation so these materials are installed in sequence and manner that prevent exterior moisture from passing through completed assembly. Do not bridge building expansion joints; cut and space edges of panels to match spacing of structural support elements.

F. Coordinate sheathing installation with installation of materials installed over sheathing so sheathing is not exposed to precipitation or left exposed at end of the workday when rain is forecast.

END OF SECTION 061600

SECTION 064023 - INTERIOR ARCHITECTURAL WOODWORK

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Interior standing and running trim for transparent finish.
2. Interior standing and running trim for opaque finish.
3. Cabinetry.
4. Interior frames and jambs for transparent finish.
5. Interior frames and jambs for opaque finish.
6. Miscellaneous materials.

1.2 RELATED SECTIONS

A. Section 060312 “Historic Wood Repair”

B. Section 090391 “Historic Treatment of Plain Painting”

1.3 COORDINATION

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

1.4 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1.5 ACTION SUBMITTALS

A. Product Data:

1. Anchors.
2. Adhesives.
3. Shop finishing materials.

B. Shop Drawings:

1. Include the following:

a. Dimensioned plans, elevations, and sections.
b. Attachment details.

2. Show large-scale and full-size details, as appropriate.
3. Show locations and sizes of furring, blocking, and hanging strips, including blocking and reinforcement concealed by construction and specified in other Sections.

C. Samples: For each exposed product and for each shop-applied color and finish specified.

1. Size:

a. Lumber Products: Not less than 5 inches wide by 12 inches long, for each species and cut, finished on one side and one edge.

D. Samples for Initial Selection: For each type of shop-applied exposed finish.

1. Size:

a. Lumber Products: Not less than 5 inches wide by 12 inches long, for each species and cut, finished on one side and one edge.

E. Samples for Verification: For the following:

1. Lumber for Transparent Finish: Not less than 5 inches wide by 12 inches long, for each species and cut, finished on one side and one edge.

1.6 INFORMATIONAL SUBMITTALS

A. Qualification Data: For architectural woodwork Installer.

1.7 QUALITY ASSURANCE

A. Manufacturer's Qualifications: Employs skilled workers who custom fabricate products similar to those required for this Project and whose products have a record of successful in-service performance.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Comply with the Architectural Woodwork Standards, Section 2.

B. Do not deliver interior architectural woodwork until painting and similar finish operations that might damage woodwork have been completed in installation areas.

C. Store woodwork in installation areas or in areas where environmental conditions comply with requirements specified in "Field Conditions" Article.

1. Handle and store fire-retardant-treated wood to comply with chemical treatment manufacturer's written instructions.

1.9 FIELD CONDITIONS

A. Environmental Limitations without Humidity Control: Do not deliver or install interior architectural woodwork until building is enclosed, wet-work is complete, and HVAC system is operating and maintaining temperature and relative humidity at levels designed for building occupants for the remainder of the construction period.

B. Environmental Limitations with Humidity Control: Do not deliver or install interior architectural woodwork until building is enclosed, wet-work is complete, and HVAC system is operating and maintaining temperature between 60 and 90 deg F and relative humidity between 25 and 55 percent during the remainder of the construction period.

C. Field Measurements: Where interior architectural woodwork is indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication, and indicate measurements on Shop Drawings.

1. Locate concealed framing, blocking, and reinforcements that support woodwork by field measurements before being concealed by construction, and indicate measurements on Shop Drawings.

D. Established Dimensions: Where interior architectural woodwork is indicated to fit to other construction, establish dimensions for areas where woodwork is to fit. Provide allowance for trimming at site, and coordinate construction to ensure that actual dimensions correspond to established dimensions.

PART 2 - PRODUCTS

2.1 ARCHITECTURAL WOODWORK

A. Manufacturers: All woodwork to be custom-made to match existing, historic profiles and dimensions.

2.2 WOODWORK, GENERAL

A. Quality Standard: Unless otherwise indicated, comply with the Architectural Woodwork Standards for grades of interior architectural woodwork indicated for construction, finishes, installation, and other requirements.

2.3 INTERIOR STANDING AND RUNNING TRIM FOR TRANSPARENT FINISH

A. Architectural Woodwork Standards Grade: Premium.

B. Hardwood Lumber:

1. Wood Species and Cut: Match species and cut indicated for other types of transparent-finished architectural woodwork located in same area of building unless otherwise indicated.
2. Species: Match existing historic.
3. Cut: Match existing historic.
4. Wood Moisture Content: 8 to 13 percent.
5. Provide split species on trim that faces areas with different wood species, matching each face of woodwork to species and cut of finish wood surfaces in areas finished.
6. For trim items other than base wider than available lumber, use veneered construction. Do not glue for width.
7. For base wider than available lumber, glue for width. Do not use veneered construction.
8. For rails thicker than available lumber, use veneered construction. Do not glue for thickness.

C. Softwood Lumber:

1. Wood Species and Cut: Match species and cut indicated for other types of transparent-finished architectural woodwork located in same area of building unless otherwise indicated.
2. Species: match existing.
3. Cut: match existing
4. Wood Moisture Content: 5 to 10 percent.
5. Provide split species on trim that faces areas with different wood species, matching each face of woodwork to species and cut of finish wood surfaces in areas finished.
6. For trim items wider than available lumber, use veneered construction. Do not glue for width.
7. For base wider than available lumber, glue for width. Do not use veneered construction.
8. For rails thicker than available lumber, use veneered construction. Do not glue for thickness.
9. Do not use plain-sawn softwood lumber with exposed, flat surfaces more than 3 inches wide.

2.4 INTERIOR STANDING AND RUNNING TRIM FOR OPAQUE FINISH

A. Architectural Woodwork Standards Grade: Premium.

1. Wood Species: Any closed-grain hardwood, or Eastern white pine, sugar pine, or western white pine. Every attempt to match the historic millwork species and cut is required.

2. Wood Moisture Content: 5 to 10 percent.

2.5 MISCELLANEOUS MATERIALS

A. Furring, Blocking, Shims, and Nailers: Softwood or hardwood lumber, kiln-dried to less than 15 percent moisture content.

1. Preservative Treatment: Provide softwood lumber treated by pressure process, AWPA U1; Use Category UC3b.

a. Provide where indicated and where in contact with concrete or masonry.
b. Kiln-dry lumber after treatment to a maximum moisture content of 19 percent.
c. Preservative Chemicals: Acceptable to authorities having jurisdiction and containing no arsenic or chromium.
d. Mark lumber with treatment quality mark of an inspection agency approved by the American Lumber Standards Committee's (ALSC) Board of Review.

B. Provide self-drilling screws for metal-framing supports, as recommended by metal-framing manufacturer.

C. Anchors: Select material, type, size, and finish required for each substrate for secure anchorage.

1. Provide metal expansion sleeves or expansion bolts for post-installed anchors.
2. Use nonferrous-metal or hot-dip galvanized anchors and inserts at inside face of exterior walls and at floors.

D. Installation Adhesive: Product recommended by fabricator for each substrate for secure anchorage.

2.6 FABRICATION

A. Sand fire-retardant-treated wood lightly to remove raised grain on exposed surfaces before fabrication.

B. Fabricate interior architectural woodwork to dimensions, profiles, and details indicated.

1. Ease edges to radius indicated for the following:

a. Edges of Solid-Wood (Lumber) Members: 1/16 inch unless otherwise indicated.
b. Edges of Rails and Similar Members More Than 3/4 Inch (19 mm) Thick: 1/8 inch.

C. Complete fabrication, including assembly, to maximum extent possible before shipment to Project site.

1. Disassemble components only as necessary for shipment and installation.
2. Where necessary for fitting at site, provide allowance for scribing, trimming, and fitting.
3. Notify Contracting Officer seven days in advance of the dates and times interior architectural woodwork fabrication will be complete.
4. Trial fit assemblies at fabrication shop that cannot be shipped completely assembled.

a. Install dowels, screws, bolted connectors, and other fastening devices that can be removed after trial fitting.
b. Verify that parts fit as intended, and check measurements of assemblies against field measurements indicated on approved Shop Drawings before disassembling for shipment.

2.7 SHOP PRIMING

A. Preparations for Finishing: Comply with the Architectural Woodwork Standards for sanding, filling countersunk fasteners, sealing concealed surfaces, and similar preparations for finishing interior architectural woodwork, as applicable to each unit of work.

B. Interior Architectural Woodwork for Opaque Finish: Shop prime with one coat of wood primer as specified.

1. Backpriming: Apply one coat of primer, compatible with finish coats, to concealed surfaces of woodwork. Apply two coats to surfaces installed in contact with concrete or masonry and to end-grain surfaces.

C. Interior Architectural Woodwork for Transparent Finish: wood to be left natural for refinishing.

PART 3 - EXECUTION

3.1 PREPARATION

A. Before installation, condition interior architectural woodwork to humidity conditions in installation areas for not less than 72 hours prior to beginning of installation.

B. Before installing interior architectural woodwork, examine shop-fabricated work for completion and complete work as required, including removal of packing and backpriming of concealed surfaces.

3.2 INSTALLATION

A. Grade: Install interior architectural woodwork to comply with same grade as item to be installed.

B. Assemble interior architectural woodwork and complete fabrication at Project site to the extent that it was not completed during shop fabrication.

C. Install interior architectural woodwork level, plumb, true in line, and without distortion.

1. Shim as required with concealed shims.
2. Install level and plumb to a tolerance of 1/8 inch in 96 inches.

D. Scribe and cut interior architectural woodwork to fit adjoining work, refinish cut surfaces, and repair damaged finish at cuts.

E. Anchor interior architectural woodwork to anchors or blocking built in or directly attached to substrates.

1. Secure with countersunk, concealed fasteners and blind nailing.
2. Use fine finishing nails for exposed fastening, countersunk and filled flush with interior architectural woodwork.
3. For shop-finished items, use filler matching finish of items being installed.

F. Standing and Running Trim:

1. Install with minimum number of joints possible, using full-length pieces (from maximum length of lumber available) to greatest extent possible.
2. Do not use pieces less than 60 inches long, except where shorter single-length pieces are necessary.
3. Scarf running joints and stagger in adjacent and related members.
4. Install standing and running trim with no more variation from a straight line than 1/8 inch in 96 inches.

3.3 REPAIR

A. Repair damaged and defective interior architectural woodwork, where possible, to eliminate functional and visual defects and to result in interior architectural woodwork being in compliance with requirements of Architectural Woodwork Standards for the specified grade.

B. Where not possible to repair, replace defective woodwork.

C. Shop Finish: Touch up finishing work specified in this Section after installation of interior architectural woodwork.

1. Fill nail holes with matching filler where exposed.
2. Apply specified finish coats, including stains and paste fillers if any, to exposed surfaces where only sealer/prime coats are shop applied.

D. Field Finish: See Section 090391 "Historic Treatment of Plain Painting" for final finishing of installed interior architectural woodwork not indicated to be shop finished.

3.4 CLEANING

A. Clean interior architectural woodwork on exposed and semiexposed surfaces.

END OF SECTION 064023

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:

a. Joints as indicated.

1.3 PERFORMANCE REQUIREMENTS

A. Provide elastomeric joint sealants that establish and maintain watertight and airtight continuous joint seals without staining or deteriorating joint substrates.

1.4 SUBMITTALS

A. Product Data: For each joint-sealant product indicated.
1. Joint sealants.
2. Joint-sealant backing materials.

B. Samples for Initial Selection: Manufacturer's color charts consisting of strips of cured sealants showing the full range of colors available for each product exposed to view.

C. Product Certificates: For each type of joint sealant and accessory, signed by product manufacturer.

D. Qualification Data: For Installer.

E. Compatibility and Adhesion Test Reports: From sealant manufacturer, indicating the following:

1. Materials forming joint substrates and joint-sealant backings have been tested for compatibility and adhesion with joint sealants.
2. Interpretation of test results and written recommendations for primers and substrate preparation needed for adhesion.

F. Test Report Log: For each elastomeric sealant application.

G. Product Test Reports: Based on comprehensive testing of product formulations performed by a qualified testing agency, indicating that sealants comply with requirements.

H. 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 elastomeric sealants required for this Project.

B. Source Limitations: Obtain each type of joint sealant through one source from a single manufacturer.

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 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:

a. 7 years from date of completion.

B. 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.

2.3 ELASTOMERIC JOINT SEALANTS

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

B. 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. Urethane, S, NS, 100/50, T, NT: Single-component, nonsag, plus 100 percent and minus 50 percent movement capability, traffic- and nontraffic-use, urethane joint sealant; ASTM C 920, Type S, Grade NS, Class 100/50, Uses T and NT.

1. Products: Subject to compliance with requirements, provide the following, or equal:

a. Sika Corporation U.S.; Sikaflex 15LM.

D. Polyether, S, NS, 100/50, T, NT: Single-component, nonsag, plus 100 percent and minus 50 percent movement capability, nontraffic-use, polyether joint sealant; ASTM C 920, Type S, Grade NS, Class 100/50, Uses T and NT.

1. Products: Subject to compliance with requirements, provide the following, or equal:

a. BASF Master Seal NP 150.

E. Silicone, S, NS, 50/50, NT: Single-component, nonsag, plus 50 percent and minus 50 percent movement capability, nontraffic-use, neutral-curing silicone joint sealant; ASTM C920, Type S, Grade NS, Class 50/50, Use NT. Indoor and outdoor applications that require a waterproof seal.

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated in the Work include, but are not limited to, the following:

a. DAP Global Inc.
b. GE Advanced Materials – Silicones.
c. Sika USA
d. Dow Corning Corporation.
e. Tremco Incorporated.

F. Mildew-Resistant Joint Sealants: Formulated for prolonged exposure to humidity with fungicide to prevent mold and mildew growth.

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated in the Work include, but are not limited to, the following:

a. DAP Global Inc.
b. GE Advanced Materials
c. Sika USA
d. Dow Corning Corporation

G. Acrylic Latex: Acrylic latex or siliconized acrylic latex, ASTM C834, Type OP, Grade NF used for sealing joints in building construction.

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated in the Work include, but are not limited to, the following:

a. DAP Global Inc.
b. GE Advanced Materials
c. Titebond
d. Pecora Corporation Sealant

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), and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance:

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

2.5 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. Mortar.
   b. Masonry.
   c. Concrete.
   d. Wood.

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. 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.

D. Install bond-breaker tape behind sealants where sealant backings are not used between sealants and backs of joints.

E. Install sealants using proven techniques that comply with the following and at the same time backings are installed:

1. Place sealants so they directly contact and fully wet joint substrates.
2. Completely fill recesses in each joint configuration.
3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.

F. Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants according to requirements specified 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 details in contract document.

a. Use masking tape to protect surfaces adjacent to recessed tooled joints.

3.4 FIELD QUALITY CONTROL

A. Field-Adhesion Testing – Perform field test joint-sealant adhesion to joint substrates as follows:

1. Extent of Testing: Test completed elastomeric sealant joints as follows:

a. Perform 1 test for every 100 lineal feet of joint sealant installation.

2. Test Method: Test joint sealants according to Method A, Field-Applied Sealant Joint Hand Pull Tab in Appendix X1 in ASTM C 1193, as appropriate for type of joint-sealant application indicated.

a. For joints with dissimilar substrates, verify adhesion to each substrate separately; do this by extending cut along one side, verifying adhesion to opposite side. Repeat procedure for opposite side.

3. Inspect joints for complete fill, for absence of voids, and for joint configuration complying with specified requirements. Record results in a field-adhesion-test log.
4. Inspect tested joints and report on the following:

a. Whether sealants in joints connected to pulled-out portion failed to adhere to joint substrates or tore cohesively. Include data on pull distance used to test each type of product and joint substrate. Compare these results to determine if adhesion passes sealant manufacturer's field-adhesion hand-pull test criteria.
b. Whether sealants filled joint cavities and are free of voids.

c. Whether sealant dimensions and configurations comply with specified requirements.

5. Record test results in a field-adhesion-test log. Include dates when sealants were installed, names of persons who installed sealants, test dates, test locations, whether joints were primed, adhesion results and percent elongations, sealant fill, sealant configuration, and sealant dimensions.
6. Repair sealants pulled from test area by applying new sealants following same procedures used originally to seal joints. Ensure that original sealant surfaces are clean and that new sealant contacts original sealant.

B. Evaluation of Field Test Results: Sealants not evidencing adhesive failure from testing or noncompliance with other indicated requirements will be considered satisfactory. Remove sealants that fail to adhere to joint substrates during testing or to comply with other requirements. Retest failed applications until test results prove sealants comply with indicated requirements.

C. The Contractor may employ the services of a testing agency. Notify Owner's Representative prior to pull testing of sealant joints. Provide access as needed for Owner's Representative to observe tests.

3.5 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.

3.6 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

SECTION 081433 - STILE AND RAIL WOOD DOORS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Fabrication and Installation of new custom exterior stile and rail wood doors and wood jambs.
2. New cabinet doors are considered part of the cabinetry and are not included in this section.

1.2 DEFINITIONS

A. Door: Generally, this term includes door frame, leaves, hardware, side panels or lights, fan light, transom, storm and screen doors, and storm vestibule unless otherwise indicated by context.

B. Wood Door Component Terminology: Wood door components for historic treatment work include the following classifications:

1. Frame Components: Head, jambs, stop, and threshold or sill
2. Leaf Components: Stiles, rails, ad muntins.
3. Exterior Trim: Exterior casing, brick mold, and cornice or drip cap.
4. Interior Trim: Casing
5. Door Frame: All components to provide framing to support the operation of the door(s) and trim.

1.3 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct a conference at the project site or online with the architect.

1. Review methods and procedures related to removal and preparation of the door opening.

a. Millwork Shop personnel, equipment, and facilities needed to make progress and avoid delays.
b. Materials, material application, sequencing, tolerances, and required clearances.
c. Fire-protection plan
d. Salvaging and removal of existing historic doors and hardware and delivery to Owner.
e. Security plan to protect opening and temporary protection at door opening – weathertight and secure.

1.4 ACTION SUBMITTALS

A. Product Data:

1. Exterior stile and rail wood doors.

B. Shop Drawings: Indicate location, size, and hand of each door; elevation of each type of door; construction details not covered in Product Data, including those for stiles, rails, panels, and moldings (sticking); and other pertinent data, including the following:

1. Door schedule indicating door and frame location, type, size, fire protection rating, and swing.
2. Door elevations, dimensions and location of hardware, lite locations, and glazing thickness.
3. Details of frame for each frame type, including dimensions and profile.
4. Dimensions and locations of mortises and holes for hardware.
5. Clearances
6. Coordination of door finishes for factory finish or on site finish.

C. Samples for Initial Selection: For factory-finished doors.

D. Samples for Verification:

1. Factory finishes applied to actual door face materials, approximately 8 by 10 inches, for each material and finish. For each wood species and transparent finish, provide set of three Samples showing typical range of color and grain to be expected in finished Work.
2. Corner sections of doors, approximately 8 by 10 inches, with door faces and edges representing actual materials to be used.

1.5 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.

1.6 WARRANTY

A. Special Warranty: Manufacturer agrees to repair or replace doors and frames that fail in materials or workmanship within specified warranty period.

1. Failures include, but are not limited to, the following:

a. Warping (bow, cup, or twist) more than 1/4 inch in a 42-by-84-inch section.

2. Warranty must also include installation and finishing that may be required due to repair or replacement of defective doors and frames.
3. Warranty must be in effect during specified period of time from date of Substantial Completion.
4. Warranty Period for Exterior Doors: Five years.

PART 2 - PRODUCTS

2.1 SOURCE LIMITATIONS

A. Obtain custom stile and rail wood doors from single manufacturer.

2.2 MATERIALS

A. Use only materials that comply with referenced standards and other requirements specified.

1. Assemble exterior doors, including components, with wet-use adhesives complying with ASTM D5751 for.
2. Assemble interior doors, including components, with either dry-use or wet-use adhesives complying with ASTM D5751 for joints.

B. Panel Products: Any of the following unless otherwise indicated:

1. Hardboard complying with ANSI A135.4.

2.3 EXTERIOR STILE AND RAIL WOOD DOORS

A. Exterior Stile and Rail Wood Doors: Exterior custom doors complying with the AWI, AWMAC, and WI's Architectural Woodwork Standards, and with other requirements specified. Exception: Industry practiced cited in Section 12, Paragraph 6, “Industry Practices,” under Article 12.1, “Basic Considerations,” of AW<AC/WI’s “North American Architectural Woodwork Standards” do not apply to the Work of this Section.

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

   a. Denefrio Building, Todd Denefrio (local contractor with experience at the building)
   b. Adams Architectural Millwork Co.
   c. Allegheny Restoration & Builders, Inc.
   d. Architectural Components, Inc.
   e. Grabill Windows and Doors, LLC
   f. H. Hischmann LTD
   g. Kingsland Architectural Millwork
   h. Parrett Manufacturing, Inc.
   i. Wood Window Workshop
   j. Woodstone Company
   k. Or Approved Regional Carpenter Equal.

2. Performance Grade: Commercial Duty
3. Wood Door Components: Construct and install new wood jambs and sill/thresholds.
4. Architectural Woodwork Standards Quality Grade: Premium.
5. Panel Designs: Match existing panel design and construction methodology from existing paneled doors.

   a. Do not modify intended aesthetic effects, as judged solely by Architect, except with Architect's approval.
   b. If modifications are proposed, submit comprehensive explanatory data to Architect for review.

6. Finish: Opaque/Painted.
7. Joint Construction: Joints matching existing mortise and tenon joints.
8. Wood Species: White Oak, Mahogany, or other approved exterior hardwood.
9. Hardware: See Door Schedule and prepare doors, as required, to receive hardware.
10. Weatherstripping: Full perimeter weather stripping. See Door Schedule.
11. Threshold: Custom Wood to meet ADA.

12. Door Construction for Painted :

    a. Stile and Rail Construction (no veneer or finger-jointed lumber):

        1) Select lumber; no veneer or finger-jointed lumber.

    b. Raised-Panel Construction:

        1) Clear lumber; edge glued for width. Select lumber for similarity of grain and color, and arrange for optimum match between adjacent pieces.
        2) Edge-glued, select lumber; glued to both sides of a wood-based panel product.

13. Stile and Rail Widths: Match existing historic doors.

    a. Stiles, Top and Intermediate Rails: Match existing historic doors.
    b. Bottom Rails: Match existing historic doors.

14. Flat Panel Thickness: ¾”
15. Molding Profile (Sticking): Match Drawings

2.4 STILE AND RAIL WOOD DOOR FABRICATION

A. Field fit doors to suit frame-opening sizes indicated, with the following uniform clearances and bevels unless otherwise indicated:

    1. Clearances:

        a. Provide 1/8 inch at heads, jambs, and between pairs of doors.
        b. Provide 1/2 inch from bottom of door to top of decorative floor finish or covering.
        c. Where threshold is shown on Drawings or scheduled, provide not more than 3/8 inch from bottom of door to top of threshold.
        d. Comply with NFPA 80 requirements for fire-rated doors.

    2. Bevel non-fire-rated doors 1/8 inch in 2 inches at lock and hinge edges.

B. Fabricate stile and rail wood doors in sizes indicated for field fitting.

C. Factory machine doors for hardware that is not surface applied.

    1. Locate hardware to comply with DHI-WDHS-3.

D. Exterior Doors: Factory treat exterior doors with CopperCoat Wood Preservative after fabrication has been completed but before **painting**.

    1. Comply with WDMA I.S. 4.
    2. Flash top of outswinging doors with galvanized standard metal flashing.

2.5 FINISHING

A. Comply with referenced quality standard for factory finishing.

1. Complete fabrication, including fitting doors for openings and machining for hardware that is not surface applied, before finishing.
2. Finish faces, all four edges, edges of cutouts, and mortises.
3. Stains and fillers may be omitted on [**top and**] bottom edges, edges of cutouts, and mortises.

B. Doors shall be factory-primed.

C. Doors may be final-painted in the factory or in the field.

D. Finish per the door schedule.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine doors and installed door frames, with Installer present, before hanging doors.

1. Verify that installed frames comply with indicated requirements for type, size, location, and swing characteristics and have been installed with level heads and plumb jambs.
2. Reject doors with defects.

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

3.2 INSTALLATION

A. Install doors and frames to comply with manufacturer's written instructions and referenced quality standard, and as indicated.

B. Job-Fitted Doors:

1. Align and fit doors in frames with uniform clearances and bevels as indicated below.

a. Do not trim stiles and rails in excess of limits set by manufacturer or permitted for fire-rated doors.

2. Machine doors for hardware.
3. Seal edges of doors, edges of cutouts, and mortises after fitting and machining.
4. Clearances:

a. Provide 1/8 inch at heads, jambs, and between pairs of doors.
b. Provide 1/8 inch from bottom of door to top of decorative floor finish or covering unless otherwise indicated on Drawings.
c. Where threshold is shown on Drawings or scheduled, provide 1/4 inch from bottom of door to top of threshold unless otherwise indicated.

3.3 ADJUSTING

A. Operation: Rehang or replace doors that do not swing or operate freely.

B. Finished Doors: Replace doors that are damaged or do not comply with requirements. Doors may be repaired or refinished if Work complies with requirements and shows no evidence of repair or refinishing.

END OF SECTION 081433

SECTION 090320 - HISTORIC TREATMENT OF PLASTER

PART 1 - GENERAL

1.1 SCOPE

A. Restoration and repairs to historic lime plaster and gypsum plaster on the first floor interior.

B. Work includes conservation and repairs to a small section of the historic lime plaster on the north wall. This is the only remaining section of historic plaster with historic chalkboard paint. It is currently concealed with wallpaper. This plaster is extremely thin and brittle. This will include preservation in situ and protection with a new Contractor-supplied lexan panel to be designed in the field with the Architect once the staircase is removed. The Contractor shall protect the remaining section of historic plaster during all building demolition and work.

C. Gypsum-based plaster was installed during a 19th century renovation of the building after the school moved out. This plaster consists of a base / rough coat only, with no finish coat. It was then covered with wallpaper. Work includes the crack repair and infill of missing sections of the 19th century gypsum plaster that was installed during a renovation of the interior. A new skim (finish) coat will be installed throughout the entire first floor to provide a smooth, paintable finish for chalkboard paint and regular paint.

1.2 RELATED DOCUMENTS

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

1.3 SUMMARY

A. Section Includes:

1. Repair of historic interior lime plaster.
2. Repair and replacement]of interior gypsum plaster.

B. Related Requirements:

1. Section 013591 "Historic Treatment Procedures" for general historic treatment requirements.
2. Section 061000 "Rough Carpentry" for wood framing, grounds, and furring that support lath and plaster.
3. Section 090391 "Historic Treatment of Plain Painting" for paint removal, surface preparation for refinishing, and refinishing of historic plaster surfaces.

1.4 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site with Architect, Plaster Restoration Subcontractor and General Contractor.

1. Review minutes of Preliminary Historic Treatment Conference that pertain to historic treatment of plaster.
2. Review methods and procedures related to historic treatment of plaster including, but not limited to, the following:

    a. Verify historic treatment specialist's personnel, equipment, and facilities needed to make progress and avoid delays.
    b. Materials, material application, colors, patterns, and sequencing.
    c. Fire-protection plan.
    d. Plasterwork historic treatment program.
    e. Coordination with building occupants.

1.5 SEQUENCING AND SCHEDULING

A. Perform historic treatment of plaster in the following sequence, which includes work specified in this and other Sections:

1. Dismantle existing surface-mounted objects and hardware that overlie plaster surfaces except items indicated to remain in place. Tag items with location identification and protect.

2. Remove all interior wallpaper.
3. Verify that temporary protections have been installed.
4. Examine condition of plaster surfaces.
5. Clean plaster surface and remove paint and other finishes to the extent required.
6. Repair and replace existing plaster and supports to the degree required for a uniform, tightly adhered surface on which to paint or apply other finishes.
7. Cure repaired surfaces and allow them to dry for proper finishing.
8. Paint and apply other finishes.
9. Reinstall dismantled surface-mounted objects and hardware unless otherwise indicated.

1.6 ACTION SUBMITTALS

A. Product Data: For each type of product.
1. Wood Lath: 18-inch- (450-mm-)long section.
2. Metal Lath: 18 inches (450 mm)square.
3. Accessories: Each type in manufacturer's standard size.

1.7 INFORMATIONAL SUBMITTALS

A. Qualification Data: For qualified historic plaster subcontractor to be submitted with bid.

B. Plasterwork Historic Treatment Program: Submit before work begins.

1.8 QUALITY ASSURANCE

A. Historic Treatment Specialist Qualifications: A qualified historic plastering specialist with expertise in matching and performing the types of historic plasterwork repairs required. Experience only in installing and repairing new plasterwork, veneer plaster, or gypsum board is insufficient experience for historic treatment work.

B. Plasterwork Historic Treatment Program: Prepare a written, detailed description of materials, methods, equipment, and sequence of operations to be used for historic treatment work and protection of surrounding materials and Project site.

1. Include methods and procedures to protect plastered surfaces from damage caused by construction operations, including, but not limited to, exposure to moisture, vibration, mechanical damage, and soiling.
2. If materials and methods other than those indicated are proposed for any phase of historic treatment work, add a written description of such materials and methods, including evidence of successful use on comparable projects, and demonstrations to show their effectiveness for this Project.

C. Mockups: Prepare mockups of historic treatment processes for each type of plaster repair and reconstruction work to demonstrate aesthetic effects and to set quality standards for materials and execution and for fabrication and installation.

1. Locate mockups on existing surfaces where directed by Architect.
2. Number and Size: Two wall surfaces, with sizes to be determined during the preinstallation meeting to represent surfaces and conditions for application of each type of plaster repair and reconstruction under same conditions as the completed Work. If plaster has integral color or a special finish, insert mockup requirements here.

3. Simulate finished lighting conditions for review of mockups.
4. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
5. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.9 DELIVERY, STORAGE, AND HANDLING

A. Deliver packaged materials to Project site in manufacturer's original and unopened containers, labeled with manufacturer's name and type of products.

B. Store materials on elevated platforms, under cover, and in a dry location with ambient temperatures continuously maintained at not less than 45 deg F (7 deg C).

C. Store hydrated lime and factory-prepared lime putty 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 materials not in use in tightly covered containers.

E. Store lime putty covered with water in sealed containers.

F. Store sand where grading and other required characteristics can be maintained and contamination avoided.

1.10 FIELD CONDITIONS

A. Comply with plaster-material manufacturers' written instructions. For gypsum plaster, also comply with ASTM C 842 requirements.

B. Temperatures: Maintain temperatures in work areas at not less than 55 deg F (13 deg C) or greater than 80 deg F (27 deg C) for at least seven days before application of plaster, continuously during application, and for seven days after plaster has set or until plaster has dried.

C. Conditioning: Acclimatize cast-plaster fabrications to ambient temperature and humidity of spaces in which they are installed. Remove packaging and move units into installation spaces not less than 48 hours before installing them.

D. Field Measurements: Where cast-plaster fabrications are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication and indicate measurements on Shop Drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

E. Avoid conditions that result in plaster drying out too quickly.

1. Distribute heat evenly; prevent concentrated or uneven heat on plaster.
2. Maintain relative humidity levels for prevailing ambient temperature that produce normal drying conditions.
3. Ventilate work areas in a manner that prevents drafts of air from contacting surfaces during plaster application and until plaster is dry.

PART 2 - PRODUCTS

2.1 LIME-PLASTER MATERIALS

A. Hydrated Lime: ASTM C 206, Type S or Type N.

B. Lime Putty: Slaked hydrated lime or factory-prepared lime putty according to ASTM C 1489.

C. Sand Aggregates: ASTM C 897.

1. Finish-Coat Sand: Match size, texture, and gradation of existing sand as closely as possible. Blend several sands if necessary to achieve suitable match to existing historic aggregate.

D. Fiber: Not required for the small repair area.

2.2 GYPSUM PLASTER MATERIALS

A. Gypsum Materials:
1. High-Strength Gypsum Neat Plaster: ASTM C 28/C 28M; with a minimum, average, dry compressive strength of 2800 psi (19 MPa) per ASTM C 472 for a mix of 100 lb (45 kg) of plaster and 2 cu. ft. (0.06 cu. m) of sand.
2. Gypsum Gaging Plaster. ASTM C 28/C 28M.

B. Hydrated Lime: ASTM C 206, Type S or Type N.

C. Aggregates:

1. Aggregate for Base-Coat Plasters: ASTM C 35, sand.
2. Aggregate for Float Finishes: ASTM C 35, sand; graded per ASTM C 842.

D. Fiber: 1/2 to 1 inch (13 to 25 mm) in length; composed of natural linen, cotton, hemp, or jute fiber; free of grease, waxes, and oils; and beaten well to separate fibers before blending into unfibered plaster material.

1. Proportion of Fiber to Unfibered Plaster Material: match historic conditions.

E. Bonding Compound: ASTM C 631.

2.3 LATH

A. Wood Lath: It is anticipated that only a few areas will require new wood lath for patching holes. Match existing wood lath dimensions and thickness, to be sound, straight-grained, wood strips

2.4 TRIM ACCESSORIES

A. General: According to ASTM C 1063 for lime plaster and ASTM C 841 for gypsum plaster; coordinate depth of trim and accessories with thicknesses and number of plaster coats required.

B. Metal Accessories: Provide, only if required.

2.5 MISCELLANEOUS MATERIALS

A. Water for Mixing and Finishing Plaster: Potable and free of substances capable of affecting plaster set or of damaging plaster, lath, or accessories.

B. Fasteners for Attaching Lath to Substrates:

1. For Lime Plaster: ASTM C 1063.
2. For Gypsum Plaster: ASTM C 841.
3. For Wood Lath: ASTM C 841 requirements for wood-floor-runner or wood-furring fasteners unless otherwise indicated on Drawings.

C. Plaster-Stabilization Materials: Acrylic emulsion(s) and related installation products shall have proven effectiveness in reattaching delaminated plaster and shall have been used previously by historic treatment specialist with successful results.

1. Acrylic Emulsion(s), General: Aqueous emulsion(s) of acrylic polymer, adhesive to plaster and plaster substrates, nontoxic, and non-reemulsifiable after curing.
2. Prewet Solution: Low-viscosity acrylic emulsion.
3. Adhesive: Thickened acrylic emulsion; thickener as recommended in writing by resin manufacturer and historic treatment specialist.

D. Other Products: Select materials and methods of use based on the following, subject to approval of a mockup:

1. Previous effectiveness in performing the work involved.
2. Little possibility of damaging exposed surfaces.
3. Consistency of each application.
4. Uniformity of the resulting overall appearance.
5. Do not use products or tools that could do the following:

a. Remove, alter, or in any way harm the present condition or future preservation of existing surfaces, including surrounding surfaces not in contract.
b. Leave an unintended residue on surfaces.

PART 3 - EXECUTION

3.1 HISTORIC TREATMENT SPECIALIST

A. Historic Treatment Specialist Firms: Only the approved qualified historic plaster subcontractor submitted with the bid may be used.

3.2 HISTORIC TREATMENT OF PLASTER, GENERAL

A. Historic Treatment Appearance Standard: Completed work is to have a uniform appearance as viewed by Architect from building interior at 5 feet away from surface.

B. General: In treating historic plaster, disturb it as minimally as possible and as follows unless otherwise indicated:

1. Dismantle loose, damaged, or deteriorated plaster, lath, and support systems that cannot be repaired.
2. Verify extent of plaster deterioration against that indicated on Drawings. Consult Architect on types and extent of required work.
3. Verify that substrate surface conditions are suitable for repairs.
4. Provide lath, furring, and support systems for plaster included in the work of this Section.
5. Replace lost details in new, wet-applied and cast plaster that replicate existing or indicated plaster configurations.
6. Leave repaired plasterwork in proper condition for painting or applying other finishes as indicated.
7. Install temporary protective measures to protect historic surfaces that shall be treated later.

C. Illumination: Perform plastering work with adequate, uniform illumination that does not distort the flatness or curvature of surfaces.

3.3 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for substrate and environmental conditions, installation tolerances, and other conditions affecting performance of the Work.

1. If existing substrates cannot be prepared to an acceptable condition for plastering work, notify Architect in writing.
2. Notify Architect of undocumented detrimental conditions including cracks, bulges, loose backup, rotted wood, rusted metal, and other deteriorated items.

B. Begin historic plastering work only after unsatisfactory conditions have been corrected.

3.4 PREPARATION FOR PLASTERING

A. Substrates: Prepare according to plaster manufacturer's written instructions and as follows:

1. Remove all wallpaper and wallpaper paste.

2. Clean surfaces to remove dust, loose particles, grease, oil, incompatible curing compounds, form-release agents, and other foreign matter and deposits that could impair bond with plaster.
3. Remove ridges and protrusions greater than 1/8 inch (3 mm) and fill depressions greater than 1/4 inch (6 mm) with patching material. Allow to set and dry.

3.5 PLASTER REMOVAL AND REPLACEMENT, GENERAL

A. Dismantle plaster that is damaged or deteriorated to the limits indicated. Carefully dismantle areas along straight edges that lie over supports, without damaging surrounding plasterwork.

B. Maintain lath and supporting members in an undamaged condition so far as practicable. Dismantle damaged lath and supports that cannot be repaired or resecured and replace with new work of same type.

C. Notify Architect of undocumented detrimental conditions including cracks, bulges, loose backup, rotted wood, rusted metal, and other deteriorated items.

D. Do not deviate more than plus or minus 1/8 inch in 10 feet (3 mm in 3 m) from a true plane in finished plaster surfaces, as measured by a 10-foot (3-m) straightedge placed on surface.

E. Clean substrate surfaces to remove grease, waxes, oils, waterborne staining, debris, and other foreign matter and deposits that could impair bond with repair material.

F. Wet wood lath bases before plaster application. Keep substrate damp to the touch but without visible water droplets.

G. Wet remaining plaster abutting the replacement plaster before installing new plasterwork.

H. Finish plaster flush with metal frames and other built-in metal items or accessories that act as a plaster ground unless otherwise indicated. Where casing bead does not terminate plaster at metal frame, cut base coat free from metal frame before plaster sets and groove finish coat at junctures with metal.

I. Provide plaster surfaces that are ready to receive field-applied finishes indicated.

3.6 FLAT LIME-PLASTER REMOVAL AND REPLACEMENT

A. General: No overall replacement work will occur with the small section of the historic lime plaster. Once the wallpaper is removed, the Architect will work with the plaster subcontractor to determine if repairs will be made and how to treat the edges of the historic lime plaster where it will meet the historic gypsum plaster.

3.7 FLAT GYPSUM-PLASTER REMOVAL AND REPLACEMENT

A. General: Dismantle deteriorated plaster to existing sound plaster at locations indicated on Drawings. Use replacement plaster mixes of gypsum, lime, and aggregate; and application according to ASTM C 842 unless otherwise indicated.

1. Inspect for lath deterioration. If any, replace lath.
2. Sand bonding surfaces of repair area, and clean the surface with a nonmetallic bristle brush.
3. Wet substrate to damp condition, but without visible water droplets, then install new plaster to original profiles.

B. Bonding Compound: Apply on plaster bases.

C. Gypsum-Plaster Base Coats:

1. Base Coats over Wood Lath: Gypsum neat plaster with job-mixed sand and fiber for patches.

D. Gypsum-Plaster Finish Coats:

1. Finish-Coat Mix for Smooth-Troweled Finishes: Gypsum gaging plaster.

E. Gypsum-Plaster Finishes: .
1. Provide very smooth, level 5 float finish to receive chalkboard paint and regular interior wall paint.

3.8 REMOVING AND INSTALLING LATH AND ACCESSORIES

A. General: Dismantle existing plaster as necessary to expose deteriorated or rusted lath, wire ties, and support system, back to firm substrates and supports. Repair with new materials, well secured to existing lath in good condition and to building structure.

1. Cutting: Cut lath so it can be taken out completely from one support to the next. Cut to avoid cracking surrounding plaster.
2. Cut out existing base-coat plaster beyond the edges of the new lath to permit new plaster to extend onto the old lath. Then step subsequent plaster coats to permit new plaster to extend over the old material.
3. Fasten new lath to support system and to good existing lath. Install new lath according to ASTM C 1063 for lime plaster and ASTM C 841 for gypsum plaster.

B. Notify Architect of undocumented detrimental conditions including cracks, bulges, loose backup, rotted wood, rusted metal, and other deteriorated items.

C. Wood Lath: Install wood lath in same orientation and spacing as remaining wood lath and with lath ends supported by furring or framing. Stagger ends of adjacent laths over different supports, not aligned, and secure with fasteners at each end and spaced a maximum of 24 inches (610 mm) o.c. into supports.

3.9 PATCH-TYPE REPAIR <Insert drawing designation>

A. General: Patch voids, fractured surfaces, and crushed areas in otherwise sound plaster that are larger than cracks at all locations where needed.

1. Notify Architect of undocumented detrimental conditions including cracks, bulges, loose backup, rotted wood, rusted metal, and other deteriorated items.
2. Inspect for deterioration of supporting plaster and lath, and repair or replace deteriorated material as required for a sound substrate.
3. Rake perimeter of hole to sound plaster, and slightly undercut existing plaster to enable replacement plaster to tuck behind existing plaster.
4. Replace missing lath in kind. Bridge gaps in wood lath with expanded-metal lath, overlapping wood by 6 inches (150 mm) and fastening them together.
5. Clean hole to remove loose materials and other foreign matter and deposits that could impair bond with repair material. Where grease, waxes, oils, waterborne staining, or other foreign matter and deposits that could impair bond with repair material have penetrated into the plaster, enlarge the hole to remove these deposits.
6. Wet substrate to damp condition, but without visible water droplets, then install patch material to original profiles.
7. Maintain adjacent plasterwork in an undamaged condition so far as practicable.

B. Lime-Plaster Mix: Repair mix demonstrated in mockup.

C. Gypsum-Plaster Mix: Gypsum gaging plaster, or as demonstrated in mockup.

D. Finishing: Finish flat surfaces flush and completely smooth and plumb with no apparent rolling, indentations, or offsets. Provide a smooth finish to receive chalkboard paint.

E. Hairline cracking within the plaster or plaster separation at edge of a patch is unacceptable. Completely dismantle such work and reinstall or repair.

3.10 HAIRLINE CRACK

A. General: Repair cracks 1/32 inch in width or narrower in otherwise sound plaster at locations where needed on all wall surfaces.

1. Notify Architect of undocumented detrimental conditions including cracks, bulges, loose backup, rotted wood, rusted metal, and other deteriorated items.
2. Maintain adjacent plasterwork in an undamaged condition so far as practicable.

B. Existing Topcoat: No existing topcoat exists.

C. Existing Base Coats: Do not open crack wider in existing base coats unless inspection or other indication shows that the fiber reinforcement has broken. Where inspections indicate failure of fiber reinforcement, proceed as for a large crack repair, but only for length of crack with broken fiber reinforcement.

D. Clean out crack to remove loose materials and other foreign matter and deposits that could impair bond with repair material. Where grease, waxes, oils, waterborne staining, or other foreign matter and deposits that could impair bond with repair material have penetrated into the topcoat plaster, widen the crack and sand surface of the exposed basecoat to remove these deposits.

E. Wet substrate to damp condition, but without visible water droplets.

F. Force repair material demonstrated in mockup into crack, filling crack to original plaster profile.

G. Finishing: Finish flat surfaces flush and completely smooth and plumb with no apparent rolling, indentations, or offsets. Provide a smooth finish to receive chalkboard paint.

3.11 LARGE CRACK REPAIR

A. General: Repair cracks over 1/32 inch in width in otherwise sound plaster at locations where needed.

1. Notify Architect of undocumented detrimental conditions including cracks, bulges, loose backup, rotted wood, rusted metal, and other deteriorated items.
2. Maintain adjacent plasterwork in an undamaged condition so far as practicable.

B. Open crack to at least 1/8 inch (3 mm) in width and full depth with V-groove tool, and check for bond separation or lath deterioration.

C. Abrade side surfaces of crack and remove inner crack debris by gouging (keying) the inside area of the crack.

D. Clean out crack to remove loose materials and other foreign matter and deposits that could impair bond with repair material. Where grease, waxes, oils, waterborne staining, or other foreign matter and deposits that could impair bond with repair material have penetrated into the plaster, widen the crack to remove these deposits.

E. Wet substrate to damp condition, but without visible water droplets.

F. Install finish-coat plaster to fill crack to original plaster profile.

G. Finishing: Finish flat surfaces flush and with same texture as adjacent existing plaster. For molded plaster shapes, tool surface to restore the sharp edges and the shape of the molded shape to original contours.

3.12 REATTACHMENT OF DELAMINATED PLASTER

A. General: Reattach plaster that has detached from its wooden lath at locations where needed.

1. Notify Architect of undocumented detrimental conditions including cracks, bulges, loose backup, rotted wood, rusted metal, and other deteriorated items.
2. Maintain adjacent plasterwork in an undamaged condition so far as practicable.

B. Verify extent of detachment of plaster that has not yet fallen by tapping on plaster surface and evaluating the hollow or solid resonance.

C. Protect floors from spillage and debris in the vicinity of work. Use materials resistant to the passage of fluids used in work.

D. Drill 1/4-inch (6-mm) injection ports (holes) through the plaster spaced 3 to 6 inches (75 to 150 mm) apart over surface of detached plaster. Dislodge loose plaster particles, and vacuum debris from holes.

E. Prewet injection ports, gaps at edges of lost plaster, back of plaster, and wooden lath with prewet solution.

F. Inject adhesive into ports, enough to fill gaps between detached plaster and lath, and inject into gaps at edges of lost plaster.

G. Clean off excess and smeared adhesive while wet.

H. Apply temporary battens over surface of treated plaster to prevent further separation during repair work. Secure battens in place against plaster.

I. Maintain temporary battens in place for a week or more, allowing adhesive to coalesce and dry.

J. Remove battens, patch holes and missing plaster, and repair cracks.

3.13 INSTALLATION TOLERANCES

A. Completed plaster installation shall not deviate from a true plane by more than 1/16 inch as measured by a 5-foot straightedge placed at any location on a surface, except where existing plaster is retained as a substrate for new plasterwork.

3.14 CLEANING AND PROTECTION

A. Protect work of other trades against damage. Promptly remove plaster from surfaces not indicated to be repaired or plastered. Do not scratch or damage finished surfaces.

B. Repair floors, walls, and other surfaces stained, marred, or otherwise damaged during plastering.

C. Correct damage to other historic surfaces and to new work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.

D. Remove temporary protection and enclosure of other work.

END OF SECTION 090320

SECTION 090391 - HISTORIC TREATMENT OF PLAIN PAINTING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section includes historic treatment of plain painting as follows:

1. Removing existing paint.
2. Repairing substrates.
3. Plain painting of historic surfaces**,** including staining and finishing of historic wood.

B. Related Requirements:

1. Section 013591 "Historic Treatment Procedures" for general historic treatment requirements.
2. Section 060312 " Historic Wood Repair" for general wood requirements.

1.3 DEFINITIONS

A. Gloss Level 1: Not more than 5 units at 60 degrees and 10 units at 85 degrees, according to ASTM D 523.

B. Gloss Level 2: Not more than 10 units at 60 degrees and 10 to 35 units at 85 degrees, according to ASTM D 523.

C. Gloss Level 3: 10 to 25 units at 60 degrees and 10 to 35 units at 85 degrees, according to ASTM D 523.

D. Gloss Level 4: 20 to 35 units at 60 degrees and not less than 35 units at 85 degrees, according to ASTM D 523.

E. Gloss Level 5: 35 to 70 units at 60 degrees, according to ASTM D 523.

F. Gloss Level 6: 70 to 85 units at 60 degrees, according to ASTM D 523.

G. Gloss Level 7: More than 85 units at 60 degrees, according to ASTM D 523.

H. Historic Paint Materials: Paint materials manufactured to match historic paint formulations; either custom-formulated products or standard products of manufacturers of historic paint materials.

I. Modern Paint Materials: Paint materials not designed to match historic paint formulations, but that may be required to match historic paint colors.

J. Plain Painting: For historic treatment, this means painting that requires attention to historic treatment requirements, but no special, decorative or artistic painting skill.

K. Low-Pressure Spray: 100 to 400 psi (690 to 2750 kPa); 4 to 6 gpm (0.25 to 0.4 L/s).

L. Medium-Pressure Spray: 400 to 800 psi (2750 to 5510 kPa); 4 to 6 gpm (0.25 to 0.4 L/s).

1.4 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1. Review minutes of Preliminary Historic Treatment Conference that pertain to historic treatment of painting.
2. Review methods and procedures related to historic treatment of painting including, but not limited to, the following:

    a. Verify historic treatment specialist's personnel, equipment, and facilities needed to make progress and avoid delays.
    b. Materials, material application, colors, patterns, and sequencing.
    c. Fire-protection plan.
    d. Plain painting historic treatment program.
    e. Coordination with building occupants.

1.5 SEQUENCING AND SCHEDULING

A. Perform historic treatment of painting in the following sequence, which includes work specified in this and other Sections:

1. Dismantle existing surface-mounted objects and hardware except items indicated to remain in place. Tag items with location identification and protect.
2. Verify that temporary protections have been installed.
3. Examine condition of surfaces to be painted.
4. Remove existing paint to the degree required for each substrate and surface condition of existing paint.
5. For replacement (new) wood on the exterior, install full coverage of CopperCoat wood preservative before priming.
6. Apply paint system.
7. Reinstall dismantled surface-mounted objects and hardware unless otherwise indicated.

1.6 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. Include recommendations for product application and use. Include test data substantiating that products comply with requirements.

B. Samples: For each type of paint system and each pattern, color, and gloss; 6 inches (150 mm) long in least dimension.

1. Include stepped Samples defining each separate coat, including fillers and primers. Resubmit until each required sheen, color, and texture is achieved.

2. For each painted color being matched to a standardized color-coding system, include the color chips from the color-coding-system company with Samples.
3. Include a list of materials for each coat of each Sample.
4. Label each Sample for location and application.
5. Sample Size:

    a. Plain Painted Surfaces: 4-by-8-inch. Samples for each color and material, on hardboard.
    b. Stained or Natural Wood: 12-by-12-inch. Samples of natural- or stained-wood finish, on representative wood surfaces.

C. Product List: For each paint 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. VOC content.

1.7 MAINTENANCE MATERIAL SUBMITTALS

A. Furnish extra paint materials, from the same production run, that match products applied and that are packaged with protective covering for storage and identified with labels describing contents, including material, finish, source, and location on building.

1. Quantity: Furnish Owner with an additional 1 gal. (3.8 L) or one case, as appropriate, of each material and color applied (for paint only, not for wood finish).

1.8 QUALITY ASSURANCE

A. Historic Treatment Specialist Qualifications: A qualified historic painting specialist with expertise in matching and touching up existing painting. Experience only in new painting work is insufficient experience for historic treatment work.

B. Mockups: Prepare mockups of historic treatment processes for each type of coating system and substrate indicated and each color and finish required to demonstrate aesthetic effects and to set quality standards for materials and execution. Duplicate appearance of approved Sample submittals.

1. Locate mockups on existing surfaces where directed by Architect.
2. Surface-Preparation Mockups: On existing surfaces using applicable specified methods of cleaning and other surface preparation, provide mockup sample of at least 1 square foot.
3. Coating Mockups: One wall surfaces of at least 1 square foot to represent surfaces and conditions for application of each type of coating system under same conditions as the completed Work.

    a. Plain painted surfaces.
    b. Stained or natural wood.

4. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
5. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.9 DELIVERY, STORAGE, AND HANDLING

A. Store 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 daily.

1.10 FIELD CONDITIONS

A. Weather Limitations: Proceed with historic treatment of painting only when existing and forecasted weather conditions are within the environmental limits set by each manufacturer's written instructions and specified requirements.

B. 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).

C. Do not apply paint 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. Painting may continue during inclement weather if surfaces and areas to be painted are enclosed and heated within temperature limits specified by manufacturer for surface preparation and during paint application and drying periods.

D. Concealed and undocumented historic items, murals, and similar objects encountered during historic treatment remain Owner's property. Carefully protect each item or object.

PART 2 - PRODUCTS

2.1 PREPARATORY CLEANING MATERIALS

A. Water: Potable.

B. Hot Water: Water heated to a temperature of 140 to 160 deg F.

C. Detergent Solution: Solution prepared by mixing 2 cups (0.5 L) of tetrasodium pyrophosphate (TSPP), 1/2 cup (125 mL) of laundry detergent that contains no ammonia, 5 quarts (5 L) of 5 percent sodium hypochlorite bleach, and 15 quarts (15 L) of warm water for every 5 gal. (20 L) of solution required.

D. Mildewcide: Commercial proprietary mildewcide or a job-mixed solution prepared by mixing 1/3 cup (80 mL) of household detergent that contains no ammonia, 1 quart (1 L) of 5 percent sodium hypochlorite bleach, and 3 quarts (3 L) of warm water.

2.2 WOOD PRESERVATIVE

A. For replacement exeterior wood (doors, sills, thresholds, siding, trim, louver, etc.), first install CopperCoat Wood Preservative by Wood Life, or equal, as approved by the Architect.

2.3 PAINT REMOVERS

A. Solvent-Type Paste Paint Remover: Manufacturer's standard water-rinsable, solvent-type paste or gel formulation for removing paint from masonry, stone, wood, plaster, or metal as required to suit Project.

1. Circa 1850 180001 Paint and Varnish Remover, followed by Minwax Antique Furniture Refinisher to even out the historic wood finish, or as approved by Architect.

2.4 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: Match Architect's samples.

2.5 HISTORIC PAINT AND FINISH MATERIALS, REPLICATION

A. Chalkboard Paint:
1. Contractor to provide and install custom chalkboard paint for walls, based on historic chalkboard paint recipe.
   a. Ingredients (replicate for quantity needed):
      1) Shellac – 1 pound
      2) Alcohol – 1 gallon
      3) Lampblack (fine quality) – 4 ounces
      4) Powdered emery - 4 ounces
      5) Ultramarine blue – 4 ounces
   b. Dissolve the shellac in the alcohol. Place the lampblack, emery, and ultra-marine blue on a cheese-cloth strainer. Pour on part of the shellac solution, stirring constantly and gradually adding the solution until all of the powders have passed through the strainer.
   c. Apply with a large, stiff brush and after an hour, coat with a second coat. After 24 to 48 hours, smoothe the surface with a felt cloth to render the surface rich and velvety. The shade must be a deep black.

B. Floor and Millwork Clear Finish:
1. Contractor to provide and install custom mix of 50/50 boiled linseed oil and turpentine to treat wood flooring and all interior millwork that is not painted.
2. DO NOT STORE RAGS WITH BOILED LINSEED OIL AND/OR TURPENTINE IN THE BUILDING. RAGS MUST BE DOUSED IN WATER AFTER USE AND REMOVED FROM THE BUILDING AFTER TREATMENT. DO NOT STORE CHEMICALS IN THE BUILDING.

2.6 MODERN PAINT MATERIALS, GENERAL

A. MPI Standards: Provide products that comply with MPI standards indicated and that are listed in its "MPI Approved Products List."

B. Transition Coat: Paint manufacturer's recommended coating for use where a residual existing coating is incompatible with the paint system.

2.7 MODERN PAINT MATERIAL MANUFACTURERS

A. Sherwin Williams, or as approved by Architect. Contractor must use premium grade for interior and exterior paint. For example, Sherwin Williams paint for exterior to be Emerald with moisture resistance and mildew resistance. Sherwin Williams paint for interior to be Emerald.

2.8 MODERN PAINT MATERIALS

A. Primers and Sealers:

1. Primer Sealer, Latex, Interior: MPI #50.

2. Primer, Latex, for Interior Wood: MPI #39.

3. Primer Sealer, Alkyd, Interior: MPI #45.

4. Primer, Stain Blocking, Water Based: MPI #137.

5. Stain, Semi-Transparent, for Interior Wood: MPI #90. – Must be stain only, with no polyurethane.

B. Wood Primers:

1. Primer, Latex for Exterior Wood: MPI #6.

2. Primer, Alkyd for Exterior Wood: MPI #5.

C. Water-Based Paints:

1. Latex, Exterior Low Sheen (Gloss Levels 3-4): MPI #15.

2. Latex, Exterior Semigloss (Gloss Level 5): MPI #11.

3. Latex, Interior, Flat, (Gloss Level 1): MPI #53.

4. Latex, Interior, (Gloss Level 2): MPI #44.

2.9 PATCHING MATERIALS

A. Gypsum-Plaster Patching Compound: Finish coat plaster and bonding compound according to ASTM C 842 and manufacturer's written instructions.

PART 3 - EXECUTION

3.1 PROTECTION

A. Comply with each manufacturer's written instructions for protecting building and other surfaces against damage from exposure to its products. Prevent chemical solutions from coming into contact with people, 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 solutions being used unless the solutions will not damage adjacent surfaces. Use protective materials that are UV resistant and waterproof. 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. Do not apply chemical solutions during winds of sufficient force to spread them to unprotected surfaces.
3. Neutralize and collect alkaline and acid wastes before disposal.
4. Dispose of runoff from 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.

3.2 HISTORIC TREATMENT OF PAINTING, GENERAL

A. Historic Treatment Appearance Standard: Completed work is to have a uniform appearance as viewed by Architect from building interior at 5 feet away from painted surface and from building exterior at 20 feet away from painted surface.

B. Execution of the Work: In treating historic items, disturb them as minimally as possible and as follows:

1. Remove failed coatings and corrosion and repaint.
2. Verify that substrate surface conditions are suitable for painting.
3. Allow other trades to repair items in place and retain as much original material as possible before repainting.
4. Reproduce original, historic paint systems where indicated or scheduled.
5. Install temporary protective measures to protect historic painted surfaces that shall be treated later.

C. Mechanical Abrasion: Where mechanical abrasion is needed for the work, use only the gentlest mechanical methods, such as scraping and lightly hand sanding, that will not abrade softer substrates, reducing clarity of detail. Do not use abrasive methods such as rotary sanding, rotary wire brushing, or power tools except as indicated as part of the historic treatment program and as approved by Architect.

D. Heat Processes: Do not use torches, heat guns, or heat plates.

3.3 EXAMINATION

A. Examine substrates and conditions, with historic treatment specialist present, for compliance with requirements for maximum moisture content and other conditions affecting performance of painting work. Comply with paint manufacturer's written instructions for inspection.

B. Maximum Moisture Content of Substrates: Do not begin application of coatings unless moisture content of exposed surface is below the maximum value recommended in writing by paint manufacturer and not greater than the following maximum values when measured with an electronic moisture meter appropriate to the substrate material:
   1. Gypsum Plaster: 12 percent.
   2. Portland Cement Plaster: 12 percent.
   3. Wood: 15 percent.

C. Alkalinity: Do not begin application of coatings unless surface alkalinity is within range recommended in writing by paint manufacturer. Conduct alkali testing with litmus paper on exposed plaster, cementitious, and masonry surfaces.

D. Verify suitability of substrates, including surface conditions and compatibility with existing finishes and primers.

   1. If existing surfaces cannot be prepared to an acceptable condition for proper finishing by using specified surface-preparation methods, notify Architect in writing.

E. 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.

3.4 PREPARATORY CLEANING

A. General: Use only the gentlest, appropriate method necessary to clean surfaces in preparation for painting. Clean all surfaces, corners, contours, and interstices.

B. Detergent Cleaning: Wash surfaces by hand using clean rags, sponges, and bristle brushes. Scrub surface with detergent solution and bristle brush until soil is thoroughly dislodged and can be removed by rinsing. Use small brushes to remove soil from joints and crevices. Dip brush in solution often to ensure that adequate fresh detergent is used and that surface remains wet. Rinse with water applied by clean rags or sponges.

C. Solvent Cleaning: Use solvent cleaning to remove oil, grease, smoke, tar, and asphalt from painted or unpainted surfaces before other preparation work. Wipe surfaces with solvent using clean rags and sponges. If necessary, spot-solvent cleaning may be employed just prior to commencement of paint application, provided enough time is allowed for complete evaporation. Use clean solvent and clean rags for the final wash to ensure that all foreign materials have been removed. Do not use solvents, including primer thinner and turpentine, that leave residue.

D. Mildew: Clean off existing mildew, algae, moss, plant material, loose paint, grease, dirt, and other debris by scrubbing with bristle brush or sponge and detergent solution. Scrub mildewed areas with mildewcide. Rinse with water applied by clean rags or sponges.

3.5 PAINT REMOVAL

A. General: Remove paint where indicated. Where cleaning methods have been attempted and further removal of the paint is required because of incompatible or unsatisfactory surfaces for repainting, remove paint to extent required by conditions.

1. Application: Apply paint removers according to paint-remover manufacturer's written instructions. Do not allow paint removers to remain on surface for periods longer than those indicated or recommended in writing by manufacturer.

    a. Apply materials to all surfaces, corners, contours, and interstices, to provide a uniform final appearance without streaks.
    b. After work is complete, remove protection no longer required. Remove tape and adhesive marks.

2. Brushes: Use brushes that are resistant to chemicals being used.

    a. Metal Substrates: If using wire brushes on metal , use brushes of same metal composition as metal being treated.
    b. Wood Substrates: Do not use wire brushes.

3. Spray Equipment: Do not use spray equipment.

B. Paint Removal with Hand Tools: Remove paint manually using hand-held scrapers, wire brushes, sandpaper, and metallic wool as appropriate for the substrate material. Do not use other methods except as indicated as part of the historic treatment program and as approved by Architect.

C. Paint Removal with Solvent-Type Paste Paint Remover:

1. Solvent paint remover selected to retain the original wood patina. Do not sand or gouge the historic wood surfaces below the paint. Use only 00 steel wool.
2. Remove loose and peeling paint using water, scrapers, stiff brushes, or a combination of these. Let surface dry thoroughly.
3. Apply thick coating of paint remover to dry, painted surface with natural-fiber cleaning brush, deep-nap roller, or large paintbrush. Apply in one or two coats according to manufacturer's written instructions.
4. Allow paint remover to remain on surface for period recommended in writing by manufacturer or as determined by preconstruction testing.
5. Rinse as required by manufacturer to remove chemicals and paint residue. **Do not use copious amounts of water, which will raise the wood grain.**
6. Use mechanical methods recommended in writing by manufacturer to remove chemicals and paint residue.
7. Repeat process if necessary to remove all paint.

3.6 SUBSTRATE REPAIR

A. General: Repair substrate surface defects that are inconsistent with the surface appearance of adjacent materials and finishes.

B. Gypsum-Plaster Substrates:

1. Repair defects including dents and chips more than 1/8 inch in size and all holes and cracks by filling with gypsum-plaster patching compound and sanding smooth. Remove protruding fasteners.
2. Rout out surface cracks to remove loose, unsound material; fill with patching compound and sand smooth.

3.7 PAINT APPLICATION, GENERAL

A. Comply with manufacturers' written instructions for application methods unless otherwise indicated in this Section.

B. Prepare surfaces to be painted according to the Surface-Preparation Schedule and with manufacturer's written instructions for each substrate condition.

C. Apply a transition coat over incompatible existing coatings.

D. Metal Substrate: Stripe paint corners, crevices, bolts, welds, and sharp edges before applying full coat. Apply two coats to surfaces that are inaccessible after completion of the Work. Tint stripe coat different than the main coating and apply with brush.

E. Blending Plain Painted Surfaces: When painting new substrates patched into existing surfaces or touching up missing or damaged finishes, apply coating system specified for the specific substrate. Apply final finish coat over entire surface from edge to edge and corner to corner.

3.8 FIELD QUALITY CONTROL

A. Testing Agency: Owner will engage a testing agency to perform tests and inspections. Allow inspectors use of lift devices and scaffolding, as needed, to perform inspections.

B. Notify testing agency in advance of times when lift devices and scaffolding will be relocated. Do not relocate lift devices and scaffolding until testing agency has had reasonable opportunity to inspect work areas at lift device or scaffold location.

1. Dry Film Thickness:

a. Contractor shall touch up and restore painted surfaces damaged by testing.
b. If test results show that dry film thickness of applied paint does not comply with paint manufacturer's written instructions, Contractor shall pay for testing and apply additional coats as needed to provide dry film thickness that complies with paint manufacturer's written instructions.

3.9 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.

3.10 SURFACE-PREPARATION SCHEDULE

A. General: Before painting, prepare surfaces where indicated on Drawings for painting according to applicable requirements specified in this schedule.

1. Examine surfaces to evaluate each surface condition according to paragraphs below.
2. Where existing degree of soiling prevents examination, preclean surface and allow it to dry before making an evaluation.
3. Repair substrate defects according to "Substrate Repair" Article.

B. Surface Preparation for Existing Paint in Good Condition and Well Adhered:

1. Surface Condition: Existing paint film in good condition and tightly adhered.
2. Paint Removal: Not required.
3. Preparation for Painting: Wash surface by detergent cleaning; use solvent cleaning where needed. Roughen or degloss cleaned surfaces to ensure paint adhesion according to paint manufacturer's written instructions.

C. Surface Preparation for Existing Paint Film Cracked or Broken but Adhered:

1. Surface Condition: Paint film cracked or broken but adhered.
2. Paint Removal: Scrape by hand-tool cleaning methods to remove loose paint until only tightly adhered paint remains.
3. Preparation for Painting: Wash surface by detergent cleaning; use other cleaning methods for small areas of bare substrate if required. Roughen, degloss, and sand the cleaned surfaces to ensure paint adhesion and a smooth finish according to paint manufacturer's written instructions.

D. Surface Preparation for Paint Film Loose, Flaking, or Peeling:

1. Surface Condition: Paint film loose, flaking, or peeling.
2. Paint Removal: Remove loose, flaking, or peeling paint film by hand-tool or chemical paint-removal methods.
3. Preparation for Painting: Wash surface by detergent cleaning; use solvent cleaning where needed. Use other cleaning methods for small areas of bare substrate if required. Sand surfaces to smooth remaining paint film edges. Prepare bare cleaned surface to be painted according to paint manufacturer's written instructions for substrate construction materials.

E. Surface Preparation for Paint Film Severely Deteriorated:

1. Surface Condition: Paint film severely deteriorated and surface indicated to have paint completely removed.
2. Paint Removal: Completely remove paint film by hand-tool or chemical paint-removal methods. Remove rust.
3. Preparation for Painting: Prepare bare cleaned surface according to paint manufacturer's written instructions for substrate construction materials.

F. Surface Preparation for Missing Paint:

1. Surface Condition: Missing material, small holes and openings, and deteriorated or corroded substrate.
2. Substrate Preparation: Repair, replace, and treat substrate according to "Substrate Repair" Article and requirements in other Specification Sections.
3. Preparation for Painting: Sand substrate surfaces to smooth remaining paint film edges and prepare according to paint manufacturer's written instructions for substrate construction materials. Remove rust.

4. Painting: Paint as required for “Existing Paint in Good Condition and Well Adhered” degree of surface degradation above.

3.11 EXTERIOR HISTORIC PAINTING SCHEDULE

A. Wood Siding, Trim, Window Sill, and Louver:

1. Latex System:

a. Prime Coat: Latex for Exterior Wood
b. Intermediate and Topcoat: Latex, exterior – Match Existing sheen
c. Color: Match Existing Color.

3.12 INTERIOR HISTORIC PAINTING SCHEDULE

A. Plaster Ceiling and Plaster Walls:

1. Latex System over Latex Primer:

a. Prime Coat: Latex for Interior Wood
b. Intermediate and Topcoat: Latex, interior, eggshell or flat.

B. Wood Doors, Windows, Frames, Trim, and Cabinet:

1. Latex System over Latex Primer:

a. Prime Coat: Latex for Interior Wood
b. Intermediate and Topcoat: Latex, eggshell.

END OF SECTION 090391

SECTION 096400 - WOOD FLOORING

PART 1 - GENERAL

1.1 SUMMARY

A. Section and Scope Includes:

1. Field-finished wood flooring and patching existing wood flooring.
2. Contractor to provide and install replacement flooring milled from historic old-growth wood to match the existing flooring species, cut, and overall dimensions.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Shop Drawings: For each type of floor assembly and accessory. Include plans, sections, and attachment details. Include expansion provisions and trim details.

C. Samples: For each exposed product and for each color and texture specified, approximately 12 inches long and of same thickness and material indicated for the Work and showing the full range of normal color and texture variations expected.

D. Samples for Initial Selection: Manufacturer's color charts showing the full range of colors and finishes available for wood flooring.

1. Include Samples of accessories involving color and finish selection.

E. Samples for Verification: For each type of wood flooring and accessory, with stain color and finish required, approximately 12 inches long and of same thickness and material indicated for the Work and showing the full range of normal color and texture variations expected.

1.3 MOCKUPS

A. Build mockups to verify selections made under Sample submittals, to demonstrate aesthetic effects, and to set quality standards for materials and execution.

1. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
2. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.4 DELIVERY, STORAGE, AND HANDLING

A. Deliver wood flooring materials in unopened cartons or bundles.

B. Protect wood flooring from exposure to moisture. Do not deliver wood flooring until after concrete, masonry, plaster, ceramic tile, and similar wet-work is complete and dry.

C. Store wood flooring materials in a dry, warm, ventilated, weathertight location.

1.5 FIELD CONDITIONS

A. Conditioning period begins not less than seven days before wood flooring installation, is continuous through installation, and continues not less than seven days after wood flooring installation.

1. Environmental Conditioning: Maintain ambient temperature between **65 and 75 deg F** and relative humidity planned for building occupants in spaces to receive wood flooring during the conditioning period.
2. Wood Flooring Conditioning: Move wood flooring into spaces where it will be installed, no later than the beginning of the conditioning period.
    a. Do not install flooring until it adjusts to relative humidity of, and is at same temperature as, space where it is to be installed.
    b. Open sealed packages to allow wood flooring to acclimatize immediately on moving flooring into spaces in which it will be installed.

B. After conditioning period, maintain relative humidity and ambient temperature planned for building occupants.

C. Install factory-finished wood flooring after other finishing operations, including painting, have been completed.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Contractor to provide replica hardwood flooring custom milled from old-growth lumber to match the existing historic wood flooring.

2.2 FIELD-FINISHED WOOD FLOORING

A. Solid-Wood Flooring, Field-Finished: Kiln dried to 6 to 9 percent maximum moisture content; tongue and groove and end matched; with backs channeled.
    1. Grade and Species: match existing
    2. Cut: match existing.
    3. Thickness: match existing.
    4. Face Width: match existing.
    5. Lengths: Random-length strips complying with applicable grading rules,match existing.

B. Wood Floor Finishing Components
    1. Boiled Linseed Oil and Turpentine Finish System
    2. Contractor to provide custom finish comprised of 50% Boiled Linseed Oil and 50% Turpentine.
    3. Stain: Penetrating and nonfading type.
        a. Color: Replacement flooring only to simulate patina, if needed to blend with historic flooring

C. Wood Filler: 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. Wood Sleepers and Subfloor: As specified in Section 061000 "Rough Carpentry" and Section 061600 "Sheathing."

B. Wood Underlayment: As specified in Section 061600 "Sheathing."

C. Asphalt-Saturated Felt: ASTM D4869/D4869M, Type II.

D. Fasteners: Match existing installation methodology of the lower level of historic flooring, but not

less than that recommended in NWFA's "Installation Guidelines."

E. Thresholds and Saddles: To match wood flooring. Tapered on each side.

F. Reducer Strips: To match wood flooring. 2 inches, (transitions must meet ABA slope requirements) wide, tapered, and in thickness required to match height of flooring.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for maximum moisture content, installation tolerances, and other conditions affecting performance of wood flooring.

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

3.2 PREPARATION

A. Broom or vacuum clean substrates to be covered immediately before product installation. After cleaning, examine substrates for moisture, alkaline salts, carbonation, or dust. Proceed with installation only after unsatisfactory conditions have been corrected.

3.3 INSTALLATION

A. Comply with flooring manufacturer's written installation instructions, but not less than applicable recommendations in NWFA's "Installation Guidelines."

B. Wood Sleepers and Subfloor: Install according to requirements in Section 061000 "Rough Carpentry" and Section 061600 "Sheathing.", , and match existing installation methodology and layout.

C. Wood Underlayment: Match existing installation methodology, dimensions, thickness of underlayment, and layout.

D. Provide expansion space at walls and other obstructions and terminations of flooring of not less than 1/2 inch, only where covered with shoe molding.

E. Installation:

1. Tongue and Groove Flooring: blind nail in tongues

3.4 FIELD FINISHING

A. Hand-sand flooring to remove offsets, ridges, cups, and sanding-machine marks that are noticeable after finishing. Vacuum and tack with a clean cloth immediately before applying finish.

1. Comply with applicable recommendations in NWFA's "Installation Guidelines."

B. Fill open-grained hardwood.

C. Fill and repair wood flooring defects.

D. Finishing

1. Apply stains to achieve an even color distribution matching approved Samples.
2. Apply minimum of 2 coats of BLO/Turpentine finish.

E. Cover wood flooring before finishing.

F. Do not cover wood flooring after finishing until finish reaches full cure, and not before it is fully cured.

3.5 PROTECTION

A. Protect installed wood flooring during remainder of construction period with covering of heavy kraft paper or other suitable material. Do not use plastic sheet or film that might cause condensation.

1. Do not move heavy and sharp objects directly over kraft-paper-covered wood flooring. Protect flooring with plywood or hardboard panels to prevent damage from storing or moving objects over flooring.

END OF SECTION 096400

APPENDIX - A

HAZARDOUS MATERIALS SURVEY 2012

NOTE: THIS SURVEY DATES TO 2012 AND WAS COMPLETED BY TERRACON. PHASE I REHABILITATION BY HISTORICORPS INCLUDED REMOVAL OF THE ADDITION AND EXTERIOR SIDING. THEREFORE, THIS REPORT NOTES ROOMS AND BUILDING MATERIALS THAT ARE NO LONGER PRESENT IN THE BUILDING.

CURRENT ACM MATERIALS MAY INCLUDE THE MASTIC IN THE ATTIC AND POTENTIALLY A SMALL STRIP OF BLUE LINOLEUM FLOORING UNDER THE CONTEMPORARY WALL ON THE FIRST FLOOR.

CONTRACTOR TO ASSUME ALL PAINTED SURFACES CONTAIN LEAD INSIDE AND OUTSIDE.

Hazardous Materials Survey

1872 Colored School
639 Young Street
Neosho, Missouri

January 4, 2012

Terracon Project No.: 02117107

Prepared for:

Susan Richards Johnson & Associates, Inc.
818 Grand Blvd, Suite 1150
Kansas City, MO 64106

Prepared by:

Terracon Consultants, Inc.
Lenexa, Kansas

Offices Nationwide
Employee-Owned
Established in 1965
terracon.com
Terracon
Geotechnical ■ Environmental ■ Construction Materials ■ Facilities

January 4, 2012

Terracon

Ms. Angie Gaebler
Susan Richards Johnson & Associates, Inc.
818 Grand Blvd., Suite 1150
Kansas City, MO 64106

Re: **Asbestos, Lead Paint and Hazardous Materials Survey**
1872 Colored School
639 Young Street
Neosho, MO
Terracon Project No.: 02117107

Dear Ms. Gaebler:

Terracon Consultants, Inc. (Terracon) is pleased to submit the attached, Asbestos-Containing Materials (ACM), Lead Based Paint (LBP), and Hazardous Materials Survey report for the above-referenced site according to Terracon proposal number P02110833 dated October 4, 2011.

This survey was conducted as part of the National Park Service, 1872 Neosho Colored School Historic Structures Report. This site is not included in the George Washington Carver National Monument site, but is privately owned by the nonprofit George Washington Carver Birthplace Association and is located in Neosho, Missouri. This report includes the procedures and methodologies, analytical and laboratory results, and applicable conclusions and recommendations.

Terracon appreciates the opportunity to perform this service to Susan Richards Johnson & Associates, Inc. If you have questions or comments regarding this report or if we can be of further assistance please do not hesitate to contact the Terracon Lenexa, Kansas office at (913) 492-7777.

Sincerely,
Terracon Consultants, Inc.

Timothy Easley
Senior Technician
Asbestos Services

Allen R. Bartels, MBA
Department Manager
Asbestos Services

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ASBESTOS, LEAD PAINT AND HAZARDOUS MATERIALS SURVEY
1872 Colored School
639 Young Street
Neosho, Missouri

Terracon Project No.: 02117107
January 4, 2012

1.0 INTRODUCTION

Terracon conducted an asbestos, lead paint and hazardous materials survey of the 1872 Colored School located at 639 Young Street in Neosho, Missouri. The survey was conducted on October 18 and 19, 2011 by a State of Missouri certified asbestos and lead licensed inspector in general accordance with Terracon's proposal dated August 17, 2010. The interior and exterior of the building was visually assessed for hazardous materials including asbestos-containing materials (ACM), lead-based paint (LBP), and equipment potentially containing mercury, chlorofluorocarbons (CFCs), polychlorinated biphenyls (PCBs), and stored chemicals. Although reasonable effort was made to survey accessible areas and suspect materials, additional suspect but un-sampled materials or hidden conditions could be located in walls, in voids or in other concealed areas.

2.0 BUILDING DESCRIPTION

This is a two story wood framed house covering approximately 1150 square feet. The building is on a stone foundation and has a dirt floor crawlspace. Interior floors are hardwood and plywood. Kitchen floors are partially covered with several layers of linoleum and carpet. Remnants of linoleum flooring are also present in portions of the first floor north room (room 102) and second floor. Original building first floor ceilings and upper walls are hard plaster on wood lath. Original building first floor lower walls and second floor ceilings and walls are wood. The original building first floor has a gypsum board partition wall and gypsum board beneath hard plaster ceilings. East addition walls and ceilings are a combination of particle board, wood panel and gypsum board. Some hard plaster is also present on kitchen walls. Exterior walls have a layer of wood lap siding covered by pressed board lap siding covered by aluminum and vinyl siding. The original building has a wood shingle roof covered with asphalt shingles. The east addition has a plywood roof covered with asphalt shingles.

3.0 ASBESTOS-CONTAINING MATERIAL SURVEY

The survey was conducted by Timothy Easley, a State of Missouri certified asbestos inspector. A copy of Timothy Easley's asbestos inspector certificate is attached in Appendix C. The survey

was conducted in general accordance with the sample collection protocols established in EPA regulation 40 CFR 763, the AHERA. A summary of survey activities is provided below.

3.1 Visual Assessment

Our survey activities began with visual observation of the interior and exterior of the existing building to identify homogeneous areas of suspect ACM. A homogeneous area consists of building materials that appear similar throughout in terms of color, texture and date of application. Our assessment was conducted throughout visually accessible areas of the building and roof.

The survey included the observation and sampling of the building roof system. Building materials identified as concrete, glass, wood, masonry, metal or rubber were not considered suspect ACM.

3.2 Physical Assessment

A physical assessment of each homogeneous area of suspect ACM was conducted to assess the friability and condition of the materials. A friable material is defined by the EPA as a material which can be crumbled, pulverized or reduced to powder by hand pressure when dry. Friability was assessed by physically touching suspect materials.

3.3 Sample Collection

Bulk samples of suspect ACM were collected in general accordance with AHERA sampling protocols, based on the results of the visual observation. Random samples of suspect materials were collected of each homogeneous material. Samples were placed in sealable containers and labeled with unique sample numbers using an indelible marker.

A total of sixty three (63) bulk samples were collected from twenty one (21) homogeneous areas of suspect ACM from the building. A summary of suspect ACM samples collected during the survey is included in Appendix A.

3.4 Sample Analysis

Bulk samples were submitted under chain of custody to Steve Moody Micro Services, LLC in Farmers Branch, Texas for analysis by polarized light microscopy with dispersion staining techniques per EPA methodology 600/R-93/116. The percentage of asbestos, where applicable, was determined by microscopic visual estimation. Steve Moody Micro Services, LLC is accredited under the National Voluntary Laboratory Accreditation Program (NVLAP Accreditation No. 102056).

3.5 Regulatory Overview

The State of Missouri Department of Natural Resources enforces the Asbestos NESHAP.

The Asbestos NESHAP (40 CFR Part 61, Subpart M) regulates asbestos fiber emissions and asbestos waste disposal practices. It also requires the identification and classification according to friability of existing asbestos-containing material (ACM) prior to demolition or renovation activity. The NESHAP regulation classifies ACM as either regulated asbestos-containing material (RACM), Category I nonfriable ACM or Category II nonfriable ACM. RACM includes friable ACM, Category I nonfriable ACM that has become friable or will be or has been subjected to sanding, grinding, cutting or abrading, and Category II nonfriable ACM that has a high probability of becoming or has become crumbled, pulverized, or reduced to powder in the course of renovation or demolition activity. Friable ACM is a material containing more than 1% asbestos that, when dry, may be crumbled, pulverized or reduced to powder by hand pressure. All friable ACM is RACM. Category I nonfriable ACM are exclusively asbestos-containing packings, gaskets, resilient floor coverings, resilient floor covering mastics and asphalt roofing products that contain more than 1% asbestos. Category II nonfriable ACM are all other nonfriable materials other than Category I nonfriable ACM that contain more than 1% asbestos.

Terracon recommends that at any time RACM is to be removed, regardless of quantity, that the removal be completed by a Missouri registered asbestos abatement contractor.

The owner or operator must provide the State of Missouri Department of Natural Resources with written notification at least 10 working days prior to the commencement of asbestos abatement activities that will disturb RACM in amounts greater than or equal to 160 square feet, 260 linear feet or 35 cubic feet.

The Occupational Safety and Health Administration (OSHA) standards at 29 CFR 1910.1001 and 29 CFR 1926.1101, regulates employee exposure to asbestos. These OSHA standards require employee exposure to airborne asbestos fibers be maintained below 0.1 asbestos fibers per cubic centimeter of air (0.1 f/cc) as an 8-hour time weighted average (TWA) and not exceed 1.0 asbestos fibers per cubic centimeter of air (1. f/cc) over a 30 minute time period, the excursion limit. The TWA and excursion limit together are known as the OSHA permissible exposure limits or PELs. The OSHA standard 29 CFR 1926.1101 categorizes activities that will disturb ACM into four classes and specifies work practices that must be followed when performing in each class of work.

The above overview is not intended to be inclusive of all potentially pertinent regulatory information. The relevant state, EPA and OSHA standards should be consulted prior to undertaking renovation, demolition, removal or maintenance activities involving of ACM.

3.6 Findings and Recommendations

Laboratory analysis confirmed the presence of friable and non-friable asbestos-containing materials.

Regulated Asbestos Containing Materials (RACM) identified includes:

- Approximately 200 square feet of ceiling texture in the living room. This material is on the lower gypsum board ceiling and is damaged.
- Approximately 100 square feet of linoleum flooring (brown and green pattern) in the kitchen. This material is beneath carpet and plywood.
- Approximately I square foot of linoleum flooring (blue) in the first floor bedroom. This material is damaged.

Regulated asbestos containing materials must be removed prior to renovation or demolition activities that may disturb them according to local and federal regulations.

Category I non-friable ACM identified include:

- Approximately 5 square feet of tar based mastic on second floor east and south walls and on the kitchen ceiling.
- Approximately 6 square feet of flashing tar on roof pipe and vent penetrations.

Category I non-friable materials that are damaged to the extent that they could be crumbled, pulverized or reduced to powder by hand pressure when dry must be removed prior to renovation or demolition activities in accordance with applicable federal, state and local regulations.

A summary ACM sampling is presented in Appendix A. Asbestos laboratory analytical reports are also included in Appendix A.

4.0 LEAD-BASED PAINT SURVEY

Mr. Timothy Easley, a State of Missouri licensed Lead Inspector, conducted lead-based paint (LBP) testing using a RMD, LPA-1 XRF instrument to determine if a surface coating contained lead. A copy of the inspector's certificate is included in Appendix C.

4.1 Visual Assessment

The LBP survey began by visually surveying accessible interior building components such as walls, ceilings, floors, doors, windows, stairs, and trim. Exterior surfaces included the walls, doors, windows, soffits and trim. Various colors and layers of paint were found on interior and

exterior surfaces. All of these components have the potential to be disturbed during renovation activities.

4.2 Sample Collection

A total of one hundred and fifteen (115) XRF readings were taken from testing combinations associated with the various components listed in Section 4.1. XRF readings are measured in milligrams per square centimeter (mg/cm^2). Surface coatings containing $\geq$ 1.0 mg/cm^2 of lead are considered lead containing. Of the total readings collected, twelve (12) were calibration check readings and fifty four (54) readings were positive for lead with readings at or above 1.0 mg/cm^2.

4.3 Sample Analysis

A RMD, LPA-1 XRF instrument was used to determine if a surface coating contained LBP. The RMD, LPA-1 XRF (Serial Number 1694) instrument was operated in the Quick Mode for this project. The instrument was used in accordance with guidelines and the procedures detailed in the manufacturer's XRF Performance Characteristics Sheet (PCS). A lead measurement with an XRF instrument requires that a reading be taken with a 95% confidence level. This means that the actual measured lead value must exceed the regulatory action level by at least twice the uncertainty value to be considered valid. Uncertainty is not a constant value; it depends on time, measurement, substrate, and the actual lead concentration. The LPA-1 XRF in Quick Mode automatically, incorporates all of these factors to yield 95% confidence readings. However there is an inclusive range for this instrument. If readings are in the inconclusive range (+or- 0.3 mg/cm^2), then the paint or component can either be assumed to be lead containing (an instrument reading $\geq$ 1.0 mg/cm^2), or a sample of the paint can be collected for laboratory analysis to determine if it is lead-containing paint. Of the positive XRF readings recorded six (6) were in the inconclusive range for this instrument. Five (5) of the inconclusive readings were from components that had other positive readings. Silver paint on the bathroom drain vent pipe had an instrument reading of 1.0 mg/cm^2 and should be treated as lead containing.

No substrate correction is recommended for brick, concrete, drywall, metal, plaster, or wood when the LPA-1 is operated in the Quick Mode. Calibration checks were performed prior to and after sampling, using protocols provided by the instrument manufacturer.

4.4 Findings and Recommendations

Based on the results of the LBP survey, LBP was identified in the following locations: First floor original building lower walls; Original building interior window and door frames, baseboards and stairs; Second floor original building walls, ceilings and stairs; East addition windows and frames, north baseboard and a drain vent pipe; Original building exterior siding, trim, soffits, facia boards, and window trim; and East addition exterior siding, trim, soffits, facia boards, windows and trim.

Refer to LBP Field Worksheets in Appendix B, for a complete list of surfaces tested with the XRF instrument.

- Approximately 800 square feet of interior surfaces are covered with lead paint.
- Approximately 1400 square feet of exterior surfaces are covered with lead paint.

Interior surfaces covered with lead paint have scattered contact damage and some areas of peeling. Paint on exterior siding is almost entirely covered by two layers of newer siding. Removal of outer layers of siding could potentially disturb lead containing paint on original lap siding. Renovation activities that could potentially create lead dust should be avoided. At minimum, areas of peeling and damaged paint should be properly removed and any remaining paint stabilized in-place.

Lead abatement activities should be conducted by persons authorized by and using proper work practices required by the State of Missouri Department of Health, Lead Program Regulations.

The US Occupational Safety and Health Administration (OSHA) construction rules do not specify any "safe" or acceptable levels of lead within LBP for the purposes of occupational exposures during demolition/renovation activities. Contractors completing work in areas found to contain lead, or where it is reasonable to assume lead may be present, should be notified of the presence (and potential presence) of lead and proper work protocols should be followed.

Proper waste testing (TCLP for lead) should be completed prior to disposal of any waste generated in accordance with current EPA requirements. It is recommended that pre-demolition TCLP testing be completed to determine if the construction debris contains greater or equal to 5.0 milligrams per liter (mg/L), to enable waste segregation during demolition activity. Construction/demolition waste that is found to contain greater or equal to 5.0 milligrams per liter (mg/L) by TCLP analysis must be handled and treated as hazardous waste.

5.0 HAZARDOUS MATERIALS SURVEY

A visual survey was conducted for evidence of electrical components that may contain polychlorinated biphenyls (PCBs), fluorescent bulbs, chlorofluorohydrocarbons (CFCs) in heating and cooling systems, mercury switches/thermostats, and stored chemicals.

Most interior electrical fixtures including lights and switches have been removed. No fluorescent light fixtures were found. No electrical transformers were found on the property. No air conditioning or refrigeration equipment was found on the property. There were no stored chemicals including paints, solvents, pesticides, herbicides or compressed gasses found on the property.

6.0 GENERAL COMMENTS

This survey was conducted in a manner consistent with the level of care and skill ordinarily exercised by members of the profession currently practicing under similar conditions in the same locale. The results, findings, conclusions and recommendations expressed in this report are based on conditions observed during Terracon's Hazardous Building Materials survey of the building. The information contained in this report is relevant to the date on which this survey was performed, and should not be relied upon to represent conditions at a later date. This report has been prepared on behalf of and exclusively for use by Susan Richards Johnson & Associates Inc. for specific application to their renovation project. This report is not a bidding document. Contractors or consultants reviewing this report must draw their own conclusions regarding further investigation or remediation deemed necessary. Terracon does not warrant the work of regulatory agencies, laboratories or other third parties supplying information that may have been used in the preparation of this report. No warranty, express or implied is made.

APPENDIX A

ASBESTOS SURVEY SAMPLE RESULTS

APPENDIX A

ASBESTOS SURVEY SAMPLE SUMMARY
1872 Colored School
639 Young Street
Neosho, Missouri
Terracon Project No. 02117107

Homogeneous Area	Sample No.	Description	Sample Location
1	01	Plaster	Hard Plaster, Living Room, Center Ceiling
	02	Plaster	Hard Plaster, Living Room, East Wall
	03	Base Plaster	Hard Plaster, Bedroom, North Wall
2	04	Base Plaster	Hard Plaster, Kitchen, Northwest Corner Below Window
	05	Base Plaster	Hard Plaster, Kitchen, West Wall, Center
	06	Base Plaster	Hard Plaster, Kitchen, West Wall, Center
3	07	Texture	Ceiling Texture on Sheetrock, Living Room, Center Ceiling
	08	Texture	Ceiling Texture on Sheetrock, Living Room, East Center
	09	Texture	Ceiling Texture on Sheetrock, Living Room, Northwest Corner
4	10	Drywall Material	Sheetrock, Living Room, Center Ceiling
	11	Drywall Material	Sheetrock, Living Room, North Wall Center
	12	Drywall Material	Sheetrock, Bedroom, South Wall Center
5	13	Drywall Material	Sheetrock, Bathroom, Ceiling, East Side
	14	Drywall Material	Sheetrock, Bathroom, Northeast Corner Wall
	15	Drywall Material	Sheetrock, Bathroom, South Wall Center
6	16	Floor Tile	12" x 12" Floor Tile, Kitchen, Southwest Corner
	17	Floor Tile	12" x 12" Floor Tile, Kitchen, Southeast Corner
	18	Floor Tile	12" x 12" Floor Tile, Kitchen, North Center
7	19	Sheet Flooring	Linoleum (Brown with Green Pattern), Kitchen, North Center
	20	Sheet Flooring	Linoleum (Brown with Green Pattern), Kitchen, North Center
	21	Sheet Flooring	Linoleum (Brown with Green Pattern), Kitchen, North Center
8	22	Sheet Flooring	Linoleum (Yellow Pattern), Kitchen, North Center
	23	Sheet Flooring	Linoleum (Yellow Pattern), Kitchen, South Center
	24	Sheet Flooring	Linoleum (Yellow Pattern), Kitchen, Southwest at Bath Door

APPENDIX A

ASBESTOS SURVEY SAMPLE SUMMARY
1872 Colored School
639 Young Street
Neosho, Missouri
Terracon Project No. 02117107

Homogeneous Area	Sample No.	Description	Sample Location
9	25	Sheet Flooring	Linoleum (Green Mottled), Kitchen, South Center
	26	Sheet Flooring	Linoleum (Green Mottled), Kitchen, South Center
	27	Sheet Flooring	Linoleum (Green Mottled), Kitchen, South Center
10	28	Sheet Flooring	Linoleum (White, Black, and Red Pattern), Kitchen, South Center
	29	Sheet Flooring	Linoleum (White, Black, and Red Pattern), Kitchen, South Center
	30	Sheet Flooring	Linoleum (White, Black, and Red Pattern), Kitchen, South Center
11	31	Sheet Flooring	Linoleum (Pebble Pattern), Bedroom, Southeast Corner at Door
	32	Sheet Flooring	Linoleum (Pebble Pattern), Bedroom, South Center
	33	Sheet Flooring	Linoleum (Pebble Pattern), Bedroom, Southwest Corner
12	34	Sheet Flooring	Linoleum (Blue), Bedroom, South Center
	35	Sheet Flooring	Linoleum (Blue), Bedroom, South Center
	36	Sheet Flooring	Linoleum (Blue), Bedroom, South Center
13	37	Sheet Flooring	Linoleum (White, Red, Green Pattern), Attic, North Center
	38	Sheet Flooring	Linoleum (White, Red, Green Pattern), Attic, North Center
	39	Sheet Flooring	Linoleum (White, Red, Green Pattern), Attic, North Center
14	40	Insulation	Blown-in Insulation, Attic, Above Ceiling
	41	Insulation	Blown-in Insulation, Attic, Above Ceiling
	42	Insulation	Blown-in Insulation, Attic, Above Ceiling
15	43	Black Mastic	Mastic (Black), Attic, East Wall
	44	Black Mastic	Mastic (Black), Attic, Southeast Corner
	45	Black Mastic	Mastic (Black), Kitchen, Ceiling
16	46	Mastic	Mastic (Brown), Attic, West Wall
	47	Mastic	Mastic (Brown), Attic, West Wall
	48	Mastic	Mastic (Brown), Attic, Southwest Corner

APPENDIX A

ASBESTOS SURVEY SAMPLE SUMMARY
1872 Colored School
639 Young Street
Neosho, Missouri
Terracon Project No. 02117107

Homogeneous Area	Sample No.	Description	Sample Location
17	49	Roofing Shingle	Shingle (Old, Brown), Roof, Original Building, Northeast Corner
	50	Roofing Shingle	Shingle (Old, Brown), Roof, Original Building, East Center
	51	Roofing Shingle	Shingle (Old, Brown), Roof, Original Building, Southeast Corner
18	52	Roofing Shingle	Shingle (Green), Roof, Original Building, Northeast Corner
	53	Roofing Shingle	Shingle (Green), Roof, Original Building, East Center
	54	Roofing Shingle	Shingle (Green), Roof, Original Building, Southeast Corner
19	55	Roofing Shingle	Shingle (Gray / Brown), Roof, Original Building, Northwest Corner
	56	Roofing Shingle	Shingle (Gray / Brown), Roof, Original Building, West Center
	57	Roofing Shingle	Shingle (Gray / Brown), Roof, Original Building, Southwest Corner
20	58	Roofing Shingle	Shingle (New, Brown), Roof, Original Building, Northwest Corner
	59	Roofing Shingle	Shingle (New, Brown), Roof, Original Building, Southwest Corner
	60	Roofing Shingle	Shingle (New, Brown), Roof, East Addition, Southeast Corner
21	61	Flashing Material	Flashing Tar, Roof, East Side Original Building at Attic Vent
	62	Flashing Material	Flashing Tar, Roof, East Side Addition at Restroom Vent Pipe
	63	Flashing Material	Flashing Tar, Roof, West Side Original Building at Vent Pipe

APPENDIX A

CONFIRMED ASBESTOS-CONTAINING MATERIALS

1872 Colored School
639 Young Street
Neosho, Missouri
Terracon Project No. 02117107

Homogeneous Area	Description	Material Location	NESHAP Classification	Condition	Estimated Quantity
12	Blue sheet flooring/paper (Linoleum)	bedroom (102) south center	RACM-Friable	Damaged	1 Sq. Ft.
15	Black tar based mastic	second floor (201) on east and south walls, kitchen (103) ceiling	Category 1 Non Friable	Not Damaged	5 Sq. Ft.
21	Roofing Flashing Tar	roof at pipe and vent penetrations and along east side of original building	Category 1 Non Friable	Damaged	6 Sq. Ft.
3	Decorative ceiling texture	living room (101) on gypsum board ceiling	RACM-Friable	Damaged	200 Sq. Ft.
7	Brown with green pattern Sheet flooring/paper (linoleum)	kitchen (103) beneath plywood and carpet	RACM-Friable	Not Damaged	100 Sq. Ft.

RACM – Regulated asbestos containing material

PLM Summary Report

Steve Moody Micro Services, LLC
2051 Valley View Lane
Farmers Branch, TX 75234 Phone: (972) 241-8460

NVLAP Lab No. 102056
TDSHS License No. 30-0084

Client : Terracon - Lenexa, KS
Project : 1872 Colored School, Neosho, Missouri
Project # : 02117107 Sample Date : 10/18/2011
Identification : Asbestos, Bulk Sample Analysis
Test Method : Polarized Light Microscopy / Dispersion Staining (PLM/DS)
EPA Method 600 / R-93 / 116

Lab Job No. : 11B-12089
Report Date : 10/27/2011

On 10/21/2011, sixty three (63) bulk material samples were submitted by Tim Easley of Terracon - Lenexa, KS for asbestos analysis by PLM/DS. The PLM Detail Report is attached; additional information may be found therein. The results are summarized below:

Sample Number	Client Sample Description / Location	Asbestos Content
01	Hard Plaster, Living Room, Center Ceiling	None Detected - Plaster
02	Hard Plaster, Living Room, East Wall	None Detected - Plaster
03	Hard Plaster, Bedroom, North Wall	None Detected - Base Plaster None Detected - Top Plaster
04	Hard Plaster, Kitchen, Northwest Corner Below Window	None Detected - Base Plaster None Detected - Top Plaster
05	Hard Plaster, Kitchen, West Wall, Center	None Detected - Base Plaster None Detected - Top Plaster
06	Hard Plaster, Kitchen, West Wall, Center	None Detected - Base Plaster None Detected - Top Plaster
07	Ceiling Texture on Sheetrock, Living Room, Center Ceiling	None Detected - Texture
08	Ceiling Texture on Sheetrock, Living Room, East Center	None Detected - Texture
09	Ceiling Texture on Sheetrock, Living Room, Northwest Corner	2% Chrysotile - Texture
10	Sheetrock, Living Room, Center Ceiling	None Detected - Drywall Material None Detected - Joint Compound
11	Sheetrock, Living Room, North Wall Center	None Detected - Drywall Material
12	Sheetrock, Bedroom, South Wall Center	None Detected - Drywall Material None Detected - Joint Compound
13	Sheetrock, Bathroom, Ceiling, East Side	None Detected - Drywall Material None Detected - Joint Compound
14	Sheetrock, Bathroom, Northeast Corner Wall	None Detected - Drywall Material None Detected - Joint Compound
15	Sheetrock, Bathroom, South Wall Center	None Detected - Drywall Material None Detected - Joint Compound
16	12" x 12" Floor Tile, Kitchen, Southwest Corner	None Detected - Floor Tile None Detected - Clear Mastic

PLM Summary Report

Steve Moody Micro Services, LLC
2051 Valley View Lane
Farmers Branch, TX 75234 Phone: (972) 241-8460

NVLAP Lab No. 102056
TDSHS License No. 30-0084

Client : Terracon - Lenexa, KS
Project : 1872 Colored School, Neosho, Missouri
Project # : 02117107 Sample Date : 10/18/2011
Identification : Asbestos, Bulk Sample Analysis
Test Method : Polarized Light Microscopy / Dispersion Staining (PLM/DS)
EPA Method 600 / R-93 / 116

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Sample Number	Client Sample Description / Location	Asbestos Content
17	12" x 12" Floor Tile, Kitchen, Southeast Corner	None Detected - Floor Tile None Detected - Clear Mastic
18	12" x 12" Floor Tile, Kitchen, North Center	None Detected - Floor Tile None Detected - Clear Mastic
19	Linoleum (Brown with Green Pattern), Kitchen, North Center	None Detected - Sheet Flooring 45% Chrysotile - Fiber Backing
20	Linoleum (Brown with Green Pattern), Kitchen, North Center	None Detected - Sheet Flooring 45% Chrysotile - Fiber Backing
21	Linoleum (Brown with Green Pattern), Kitchen, North Center	None Detected - Sheet Flooring 45% Chrysotile - Fiber Backing
22	Linoleum (Yellow Pattern), Kitchen, North Center	None Detected - Sheet Flooring None Detected - Fiber Backing
23	Linoleum (Yellow Pattern), Kitchen, South Center	None Detected - Sheet Flooring None Detected - Fiber Backing
24	Linoleum (Yellow Pattern), Kitchen, Southwest at Bath Door	None Detected - Sheet Flooring None Detected - Fiber Backing
25	Linoleum (Green Mottled), Kitchen, South Center	None Detected - Sheet Flooring None Detected - Fiber Backing
26	Linoleum (Green Mottled), Kitchen, South Center	None Detected - Sheet Flooring None Detected - Fiber Backing
27	Linoleum (Green Mottled), Kitchen, South Center	None Detected - Sheet Flooring None Detected - Fiber Backing
28	Linoleum (White, Black, and Red Pattern), Kitchen, South Center	None Detected - Sheet Flooring None Detected - Fiber Backing
29	Linoleum (White, Black, and Red Pattern), Kitchen, South Center	None Detected - Sheet Flooring None Detected - Fiber Backing
30	Linoleum (White, Black, and Red Pattern), Kitchen, South Center	None Detected - Sheet Flooring None Detected - Fiber Backing

PLM Summary Report

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2051 Valley View Lane
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NVLAP Lab No. 102056
TDSHS License No. 30-0084

Client : Terracon - Lenexa, KS
Project : 1872 Colored School, Neosho, Missouri
Project # : 02117107 Sample Date : 10/18/2011
Identification : Asbestos, Bulk Sample Analysis
Test Method : Polarized Light Microscopy / Dispersion Staining (PLM/DS)
EPA Method 600 / R-93 / 116

Lab Job No. : 11B-12089
Report Date : 10/27/2011

On 10/21/2011, sixty three (63) bulk material samples were submitted by Tim Easley of Terracon - Lenexa, KS for asbestos analysis by PLM/DS. The PLM Detail Report is attached; additional information may be found therein. The results are summarized below:

Sample Number	Client Sample Description / Location	Asbestos Content
31	Linoleum (Pebble Pattern), Bedroom, Southeast Corner at Door	None Detected - Sheet Flooring None Detected - Fiber Backing
32	Linoleum (Pebble Pattern), Bedroom, South Center	None Detected - Sheet Flooring None Detected - Fiber Backing
33	Linoleum (Pebble Pattern), Bedroom, Southwest Corner	None Detected - Sheet Flooring None Detected - Fiber Backing
34	Linoleum (Blue), Bedroom, South Center	None Detected - Sheet Flooring 45% Chrysotile - Fiber Backing
35	Linoleum (Blue), Bedroom, South Center	None Detected - Sheet Flooring 45% Chrysotile - Fiber Backing
36	Linoleum (Blue), Bedroom, South Center	None Detected - Sheet Flooring 45% Chrysotile - Fiber Backing
37	Linoleum (White, Red, Green Pattern), Attic, North Center	None Detected - Sheet Flooring None Detected - Fiber Backing
38	Linoleum (White, Red, Green Pattern), Attic, North Center	None Detected - Sheet Flooring None Detected - Fiber Backing
39	Linoleum (White, Red, Green Pattern), Attic, North Center	None Detected - Sheet Flooring None Detected - Fiber Backing
40	Blown-in Insulation, Attic, Above Ceiling	None Detected - Insulation
41	Blown-in Insulation, Attic, Above Ceiling	None Detected - Insulation
42	Blown-in Insulation, Attic, Above Ceiling	None Detected - Insulation
43	Mastic (Black), Attic, East Wall	5% Chrysotile - Black Mastic
44	Mastic (Black), Attic, Southeast Corner	5% Chrysotile - Black Mastic
45	Mastic (Black), Kitchen, Ceiling	5% Chrysotile - Black Mastic
46	Mastic (Brown), Attic, West Wall	None Detected - Mastic
47	Mastic (Brown), Attic, West Wall	None Detected - Mastic

PLM Summary Report

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Client : Terracon - Lenexa, KS
Project : 1872 Colored School, Neosho, Missouri
Project # : 02117107 Sample Date : 10/18/2011
Identification : Asbestos, Bulk Sample Analysis
Test Method : Polarized Light Microscopy / Dispersion Staining (PLM/DS)
EPA Method 600 / R-93 / 116

Lab Job No. : 11B-12089
Report Date : 10/27/2011

On 10/21/2011, sixty three (63) bulk material samples were submitted by Tim Easley of Terracon - Lenexa, KS for asbestos analysis by PLM/DS. The PLM Detail Report is attached; additional information may be found therein. The results are summarized below:

Sample Number	Client Sample Description / Location	Asbestos Content
48	Mastic (Brown), Attic, Southwest Corner	None Detected - Mastic
49	Shingle (Old, Brown), Roof, Original Building, Northeast Corner	None Detected - Roofing Shingle
50	Shingle (Old, Brown), Roof, Original Building, East Center	None Detected - Roofing Shingle
51	Shingle (Old, Brown), Roof, Original Building, Southeast Corner	None Detected - Roofing Shingle
52	Shingle (Green), Roof, Original Building, Northeast Corner	None Detected - Roofing Shingle
53	Shingle (Green), Roof, Original Building, East Center	None Detected - Roofing Shingle
54	Shingle (Green), Roof, Original Building, Southeast Corner	None Detected - Roofing Shingle
55	Shingle (Gray / Brown), Roof, Original Building, Northwest Corner	None Detected - Roofing Shingle
56	Shingle (Gray / Brown), Roof, Original Building, West Center	None Detected - Roofing Shingle
57	Shingle (Gray / Brown), Roof, Original Building, Southwest Corner	None Detected - Roofing Shingle
58	Shingle (New, Brown), Roof, Original Building, Northwest Corner	None Detected - Roofing Shingle
59	Shingle (New, Brown), Roof, Original Building, Southwest Corner	None Detected - Roofing Shingle
60	Shingle (New, Brown), Roof, East Addition, Southeast Corner	None Detected - Roofing Shingle
61	Flashing Tar, Roof, East Side Original Building at Attic Vent	5% Chrysotile - Flashing Material
62	Flashing Tar, Roof, East Side Addition at Restroom Vent Pipe	5% Chrysotile - Flashing Material

PLM Summary Report

Steve Moody Micro Services, LLC
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Farmers Branch, TX 75234 Phone: (972) 241-8460

NVLAP Lab No. 102056
TDSHS License No. 30-0084

Client : Terracon - Lenexa, KS
Project : 1872 Colored School, Neosho, Missouri
Project # : 02117107 Sample Date : 10/18/2011
Identification : Asbestos, Bulk Sample Analysis
Test Method : Polarized Light Microscopy / Dispersion Staining (PLM/DS)
EPA Method 600 / R-93 / 116

Lab Job No. : 11B-12089
Report Date : 10/27/2011

On 10/21/2011, sixty three (63) bulk material samples were submitted by Tim Easley of Terracon - Lenexa, KS for asbestos analysis by PLM/DS. The PLM Detail Report is attached; additional information may be found therein. The results are summarized below:

Sample Number	Client Sample Description / Location	Asbestos Content
63	Flashing Tar, Roof, West Side Original Building at Vent Pipe	5% Chrysotile - Flashing Material

These samples were analyzed by layers. Quantification, unless otherwise noted, is performed by calibrated visual estimate. Results may not be reproduced except in full. This test report relates only to the samples tested. These test results do not imply endorsement by NVLAP or any agency of the U.S. Government. Accredited by the National Voluntary Laboratory Accreditation Program for Bulk Asbestos Fiber Analysis under Lab Code 102056.

NVLAP LAB #102056

Analyst(s): Shaun Wilkerson
Lab Manager : Bruce Crabb
Lab Director : Steve Moody

Approved Signatory : Bruce Crabb
Approved Signatory : Steve Moody

Thank you for choosing Steve Moody Micro Services

Steve Moody Micro Services, LLC
2051 Valley View Lane
Farmers Branch, TX 75234 Phone: (972) 241-8460

PLM Detail Report

Supplement to PLM Summary Report

NVLAP Lab No. 102056
TDSHS License No. 30-0084

Client : Terracon - Lenexa, KS
Project : 1872 Colored School, Neosho, Missouri
Project # : 02117107

Lab Job No. : 11B-12089
Report Date : 10/27/2011

Sample Number	Layer	% Of Sample	Components	% of Layer	Analysis Date	Analyst
01	Plaster (Grey)	100%	Aggregate	65%	10/24	SW
			Calcite / Binders	35%		
02	Plaster (Grey)	100%	Aggregate	65%	10/24	SW
			Calcite / Binders	35%		
03	Base Plaster (White)	80%	Vermiculite	15%	10/24	SW
			Calcite / Binders	85%		
	Top Plaster (White)	20%	Calcite / Binders	100%		
04	Base Plaster (Tan)	80%	Aggregate	65%	10/24	SW
			Calcite / Binders	35%		
	Top Plaster (White)	20%	Calcite / Binders	100%		
05	Base Plaster (Tan)	80%	Aggregate	65%	10/24	SW
			Calcite / Binders	35%		
	Top Plaster (White)	20%	Calcite / Binders	100%		
06	Base Plaster (Tan)	80%	Aggregate	65%	10/24	SW
			Calcite / Binders	35%		
	Top Plaster (White)	20%	Calcite / Binders	100%		
07	Texture (Tan)	100%	Calcite / Talc / Binders	100%	10/24	SW
08	Texture (Tan)	100%	Calcite / Talc / Binders	100%	10/24	SW
09	DW Paper Facing (Tan)	10%	Cellulose Fibers	100%	10/24	SW
	Texture (Tan)	90%	Chrysotile	2%		
			Calcite / Talc / Binders	98%		
10	Drywall Material (White)	85%	Glass Wool Fibers	2%	10/24	SW
			Cellulose Fibers	1%		
			Gypsum / Binders	97%		
	DW Paper Facing (Tan)	10%	Cellulose Fibers	100%		
	Joint Compound (White)	5%	Calcite / Talc / Binders	100%		

Steve Moody Micro Services, LLC
2051 Valley View Lane
Farmers Branch, TX 75234 Phone: (972) 241-8460

PLM Detail Report

Supplement to PLM Summary Report

NVLAP Lab No. 102056
TDSHS License No. 30-0084

Client : Terracon - Lenexa, KS
Project : 1872 Colored School, Neosho, Missouri
Project # : 02117107

Lab Job No. : 11B-12089
Report Date : 10/27/2011

Sample Number	Layer	% Of Sample	Components	% of Layer	Analysis Date	Analyst
11	Drywall Material (White)	95%	Cellulose Fibers	3%	10/24	SW
			Glass Wool Fibers	1%		
			Gypsum / Binders	96%		
	DW Paper Facing (Tan)	5%	Cellulose Fibers	100%		
12	Drywall Material (White)	70%	Glass Wool Fibers	2%	10/24	SW
			Cellulose Fibers	1%		
			Gypsum / Binders	97%		
	DW Paper / Tape (Tan / White)	10%	Cellulose Fibers	100%		
	Joint Compound (White)	20%	Calcite / Talc / Binders	100%		
13	Drywall Material (White)	75%	Glass Wool Fibers	2%	10/24	SW
			Cellulose Fibers	1%		
			Gypsum / Binders	97%		
	DW Paper Facing (Tan)	10%	Cellulose Fibers	100%		
	Joint Compound (White)	15%	Calcite / Talc / Binders	100%		
14	Drywall Material (White)	75%	Glass Wool Fibers	2%	10/24	SW
			Cellulose Fibers	1%		
			Gypsum / Binders	97%		
	DW Paper Facing (Tan)	10%	Cellulose Fibers	100%		
	Joint Compound (White)	15%	Calcite / Talc / Binders	100%		
15	Drywall Material (White)	75%	Glass Wool Fibers	2%	10/24	SW
			Cellulose Fibers	1%		
			Gypsum / Binders	97%		
	DW Paper Facing (Tan)	10%	Cellulose Fibers	100%		
	Joint Compound (White)	15%	Calcite / Talc / Binders	100%		
16	Floor Tile (Light Tan)	99%	Calcite / Vinyl Binders	100%	10/24	SW
	Clear Mastic (Clear)	1%	Glue Binders	100%		
17	Floor Tile (Light Tan)	99%	Calcite / Vinyl Binders	100%	10/24	SW
	Clear Mastic (Clear)	1%	Glue Binders	100%		
18	Floor Tile (Light Tan)	99%	Calcite / Vinyl Binders	100%	10/24	SW
	Clear Mastic (Clear)	1%	Glue Binders	100%		

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Project : 1872 Colored School, Neosho, Missouri
Project # : 02117107

Lab Job No. : 11B-12089
Report Date : 10/27/2011

Sample Number	Layer	% Of Sample	Components	% of Layer	Analysis Date	Analyst
19	Sheet Flooring (Light Tan)	50%	Calcite / Vinyl Binders	100%	10/24	SW
	Fiber Backing (Tan)	50%	Chrysotile	45%		
			Cellulose Fibers	30%		
			Binders / Fillers	25%		
20	Sheet Flooring (Light Tan)	50%	Calcite / Vinyl Binders	100%	10/24	SW
	Fiber Backing (Tan)	50%	Chrysotile	45%		
			Cellulose Fibers	30%		
			Binders / Fillers	25%		
21	Sheet Flooring (Light Tan)	50%	Calcite / Vinyl Binders	100%	10/24	SW
	Fiber Backing (Tan)	50%	Chrysotile	45%		
			Cellulose Fibers	30%		
			Binders / Fillers	25%		
22	Sheet Flooring (Yellow)	20%	Calcite / Vinyl Binders	100%	10/24	SW
	Fiber Backing (Light Grey)	80%	Synthetic Fibers	55%		
			Cellulose Fibers	5%		
			Binders / Fillers	40%		
23	Sheet Flooring (Yellow)	20%	Calcite / Vinyl Binders	100%	10/24	SW
	Fiber Backing (Light Grey)	80%	Synthetic Fibers	55%		
			Cellulose Fibers	5%		
			Binders / Fillers	40%		
24	Sheet Flooring (Yellow)	20%	Calcite / Vinyl Binders	100%	10/24	SW
	Fiber Backing (Light Grey)	80%	Synthetic Fibers	55%		
			Cellulose Fibers	5%		
			Binders / Fillers	40%		
25	Sheet Flooring (Yellow)	50%	Calcite / Vinyl Binders	100%	10/24	SW
	Fiber Backing (Black)	50%	Cellulose Fibers	85%		
			Tar Binders	15%		
26	Sheet Flooring (Yellow)	50%	Calcite / Vinyl Binders	100%	10/24	SW
	Fiber Backing (Black)	50%	Cellulose Fibers	85%		
			Tar Binders	15%		

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Project : 1872 Colored School, Neosho, Missouri
Project # : 02117107

Lab Job No. : 11B-12089
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Sample Number	Layer	% Of Sample	Components	% of Layer	Analysis Date	Analyst
27	Sheet Flooring (Yellow)	50%	Calcite / Vinyl Binders	100%	10/24	SW
	Fiber Backing (Black)	50%	Cellulose Fibers	85%		
			Tar Binders	15%		
28	Sheet Flooring (White)	50%	Calcite / Vinyl Binders	100%	10/24	SW
	Fiber Backing (Black)	50%	Cellulose Fibers	85%		
			Tar Binders	15%		
29	Sheet Flooring (White)	50%	Calcite / Vinyl Binders	100%	10/24	SW
	Fiber Backing (Black)	50%	Cellulose Fibers	85%		
			Tar Binders	15%		
30	Sheet Flooring (White)	50%	Calcite / Vinyl Binders	100%	10/24	SW
	Fiber Backing (Black)	50%	Cellulose Fibers	85%		
			Tar Binders	15%		
31	Sheet Flooring (White)	50%	Calcite / Vinyl Binders	100%	10/24	SW
	Fiber Backing (Black)	50%	Cellulose Fibers	85%		
			Tar Binders	15%		
32	Sheet Flooring (White)	50%	Calcite / Vinyl Binders	100%	10/24	SW
	Fiber Backing (Black)	50%	Cellulose Fibers	85%		
			Tar Binders	15%		
33	Sheet Flooring (White)	50%	Calcite / Vinyl Binders	100%	10/24	SW
	Fiber Backing (Black)	50%	Cellulose Fibers	85%		
			Tar Binders	15%		
34	Sheet Flooring (Blue)	50%	Calcite / Vinyl Binders	100%	10/24	SW
	Fiber Backing (White)	50%	Chrysotile	45%		
			Cellulose Fibers	30%		
			Binders / Fillers	25%		
35	Sheet Flooring (Blue)	50%	Calcite / Vinyl Binders	100%	10/24	SW
	Fiber Backing (White)	50%	Chrysotile	45%		
			Cellulose Fibers	30%		
			Binders / Fillers	25%		

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Project : 1872 Colored School, Neosho, Missouri
Project # : 02117107

Lab Job No. : 11B-12089
Report Date : 10/27/2011

Sample Number	Layer	% Of Sample	Components	% of Layer	Analysis Date	Analyst
36	Sheet Flooring (Blue)	50%	Calcite / Vinyl Binders	100%	10/24	SW
	Fiber Backing (White)	50%	Chrysotile	45%		
			Cellulose Fibers	30%		
			Binders / Fillers	25%		
37	Sheet Flooring (White)	50%	Calcite / Vinyl Binders	100%	10/24	SW
	Fiber Backing (Black)	50%	Cellulose Fibers	85%		
			Tar Binders	15%		
38	Sheet Flooring (White)	50%	Calcite / Vinyl Binders	100%	10/24	SW
	Fiber Backing (Black)	50%	Cellulose Fibers	85%		
			Tar Binders	15%		
39	Sheet Flooring (White)	50%	Calcite / Vinyl Binders	100%	10/24	SW
	Fiber Backing (Black)	50%	Cellulose Fibers	85%		
			Tar Binders	15%		
40	Insulation (Greenish-Grey)	100%	Mineral Wool Fibers	100%	10/24	SW
41	Insulation (Greenish-Grey)	100%	Mineral Wool Fibers	100%	10/24	SW
42	Insulation (Greenish-Grey)	100%	Mineral Wool Fibers	100%	10/24	SW
43	Black Mastic (Black)	100%	Chrysotile	5%	10/24	SW
			Tar Binders	95%		
44	Black Mastic (Black)	100%	Chrysotile	5%	10/24	SW
			Tar Binders	95%		
45	Black Mastic (Black)	100%	Chrysotile	5%	10/24	SW
			Tar Binders	95%		
46	Mastic (Brown)	100%	Calcite	40%	10/24	SW
			Glue Binders	60%		
47	Mastic (Brown)	100%	Calcite	40%	10/24	SW
			Glue Binders	60%		
48	Mastic (Brown)	100%	Calcite	40%	10/24	SW
			Glue Binders	60%		

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Client : Terracon - Lenexa, KS
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Project # : 02117107

Lab Job No. : 11B-12089
Report Date : 10/27/2011

Sample Number	Layer	% Of Sample	Components	% of Layer	Analysis Date	Analyst
49	Sand Layer (Brown)	25%	Aggregate	100%	10/24	SW
	Roofing Shingle (Black)	75%	Cellulose Fibers	25%		
			Calcite	30%		
			Tar Binders	45%		
50	Sand Layer (Brown)	25%	Aggregate	100%	10/24	SW
	Roofing Shingle (Black)	75%	Cellulose Fibers	25%		
			Calcite	30%		
			Tar Binders	45%		
51	Sand Layer (Brown)	25%	Aggregate	100%	10/24	SW
	Roofing Shingle (Black)	75%	Cellulose Fibers	25%		
			Calcite	30%		
			Tar Binders	45%		
52	Sand Layer (Green)	25%	Aggregate	100%	10/24	SW
	Roofing Shingle (Black)	75%	Cellulose Fibers	25%		
			Calcite	30%		
			Tar Binders	45%		
53	Sand Layer (Green)	25%	Aggregate	100%	10/24	SW
	Roofing Shingle (Black)	75%	Cellulose Fibers	25%		
			Calcite	30%		
			Tar Binders	45%		
54	Sand Layer (Green)	25%	Aggregate	100%	10/24	SW
	Roofing Shingle (Black)	75%	Cellulose Fibers	25%		
			Calcite	30%		
			Tar Binders	45%		
55	Sand Layer (Grey)	25%	Aggregate	100%	10/24	SW
	Roofing Shingle (Black)	75%	Cellulose Fibers	25%		
			Calcite	30%		
			Tar Binders	45%		

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Client : Terracon - Lenexa, KS
Project : 1872 Colored School, Neosho, Missouri
Project # : 02117107

Lab Job No. : 11B-12089
Report Date : 10/27/2011

Sample Number	Layer	% Of Sample	Components	% of Layer	Analysis Date	Analyst
56	Sand Layer (Grey)	25%	Aggregate	100%	10/24	SW
	Roofing Shingle (Black)	75%	Cellulose Fibers	25%		
			Calcite	30%		
			Tar Binders	45%		
57	Sand Layer (Grey)	25%	Aggregate	100%	10/24	SW
	Roofing Shingle (Black)	75%	Cellulose Fibers	25%		
			Calcite	30%		
			Tar Binders	45%		
58	Sand Layer (Grey)	25%	Aggregate	100%	10/24	SW
	Roofing Shingle (Black)	75%	Cellulose Fibers	25%		
			Calcite	30%		
			Tar Binders	45%		
59	Sand Layer (Grey)	25%	Aggregate	100%	10/24	SW
	Roofing Shingle (Black)	75%	Cellulose Fibers	25%		
			Calcite	30%		
			Tar Binders	45%		
60	Sand Layer (Grey)	25%	Aggregate	100%	10/24	SW
	Roofing Shingle (Black)	75%	Cellulose Fibers	25%		
			Calcite	30%		
			Tar Binders	45%		
61	Flashing Material (Black)	100%	Chrysotile	5%	10/24	SW
			Calcite	30%		
			Tar Binders	65%		
62	Flashing Material (Black)	100%	Chrysotile	5%	10/24	SW
			Calcite	30%		
			Tar Binders	65%		
63	Flashing Material (Black)	100%	Chrysotile	5%	10/24	SW
			Calcite	30%		
			Tar Binders	65%		

Chain of Custody

Page ____ of ____

SMMS LABS

Please call in advance for immediate, after-hour, & weekend pricing & availability

Lab Job # 11B-12089 PLM: 63
Lab Job # ____
Lab Job # ____

ASBESTOS PLM
Bulk ☐1 day ☐2 day ☐3 day ☒5 day ☐Immediate
☒Analyze All ☐Positive Stop

LEAD Paint / Soil / Wipe ☐1 day ☐2 day ☐3 day ☐5 day ☐Immediate
PCM Air (7400) ☐1 day ☐2 day ☐3 day ☐5 day ☐Immediate
TOTAL DUST (0500/0600) ☐1 day ☐2 day

MOLD
Non-culture (Tape / Bulk / Air) ☐1 day ☐2 day ☐Immediate
☐ Air Standard Profile ☐Air Expanded Profile
Analyze Blanks ☐Yes ☐No
Culture (Swab / Bulk / Plate) ☐7-14 day

ASBESTOS TEM
Air AHERA Method ☐6 hr ☐12hr ☐24 hr
Air 7402 (Modified) ☐1 day ☐2 day ☐3 day
Bulk/Wipe/Micro Vac ☐1 day ☐2 day ☐3 day
Water ☐1 day ☐2 day ☐3 day
Analyze Blanks ☐Yes ☐No

BACTERIA
Heterotrophic Plate Count (HPC) ☐3 day
HPC + Gram Stain ☐3 day ☐5 day
HPC + 3 Gram Neg ID ☐6-8 day
HPC + 5 Gram Neg ID ☐6-8 day
Fecal Coliform (MPN) ☐3 day
Total Coliform & E Coli (P/A) ☐2 day

Billing Company / City: Terracon Consultants
Submitter / Company: Tim Easley
Project: 1872 Colored School - Neosho MO
Contact Information: Name: Allen Bartels
E-mail Results to: arbartels@terracon.com teeasley@terracon.com
Invoice Address: 13910 W 96th Terr Lenexa Ks. 66215

# of Samples: 63
Sample Date: 10-18-11
Project #: 02117107
Phone #: 913-492-7777
Mobile #: ____
P.O. #: ____

*** Please review paperwork and samples before submitting to lab. Uncontained / Improperly packaged samples or excessive administrative requests may incur additional fees. ***

Notes: composite results for sheetrock samples 10-15

Sample #	Sample Description	Vol. / Area if applicable	Location / Notes
	see attached		

Released By:	Date / Time:	Received By:	Date / Time:
T Easley	10-20-11 12:00p	Chuhea Rhea via Fed-Ex	10-21-11 8:40AM
Released By:	Date / Time:	Received By:	Date / Time:

APPENDIX B

LEAD SURVEY SAMPLE RESULTS

Project: 1872 Colored School - Neosho, MO
Facility Location: 639 Young Street - Neohso, MO
Inspector's Name: Tim Easley
Readings Taken: 115
Project No.: 2117107
XRF Serial No. 1520
Inspector Signature:

Sample Nos.	Reading	Room ID	Wall Direction	Component	Member	Substrate	Color	Comments
1	1.0	Calibrate						
2	1.0	Calibrate						
3	1.0	Calibrate						
4	1.0	Calibrate						
5	1.0	Calibrate						
6	1.1	Calibrate						
7	6.3	Living Room (101)	W	wall	lower wall	wood	tan	
8	5.3	Living Room (101)	S	wall	lower wall	wood	tan	
9	6.6	Living Room (101)	E	wall	lower wall	wood	orange	
10	-0.1	Living Room (101)	N	wall		sheetrock	white	
11	-0.0	Living Room (101)	W	wall	upper wall	plaster	white	
12	0.3	Living Room (101)	S	wall	upper wall	plaster	white	
13	0.2	Living Room (101)	E	wall	upper wall	plaster	white	
14	-0.0	Living Room (101)		ceiling		sheetrock	tan	
15	8.8	Living Room (101)	W	window	casing	wood	tan	
16	4.7	Living Room (101)	W	window	jamb/stop	wood	gray	
17	0.0	Living Room (101)	W	window	sill	wood	brown	new sill
18	-0.0	Living Room (101)	S	window	casing	wood	brown	new casing over old casing
19	0.1	Living Room (101)	S	window	jamb/stop	wood	brown	new jamb over old jamb
20	-0.1	Living Room (101)	S	window	sill	wood	brown	new sill
21	-0.2	Living Room (101)	W	door		wood	brown stained	front entrance door
22	0.1	Living Room (101)	W	door	casing	wood	brown	front entrance door
23	6.4	Living Room (101)	E	door	casing	wood	tan	door to kitchen
24	5.5	Living Room (101)	E	door	jamb	wood	tan	door to kitchen
25	0.1	Living Room (101)	N	door	casing	wood	brown	door to bedroom

Project: 1872 Colored School - Neosho, MO
Facility Location: 639 Young Street - Neosho, MO
Inspector's Name: Tim Easley
Readings Taken: 115
Project No.: 2117107
XRF Serial No. 1520
Inspector Signature:

Sample Nos.	Reading	Room ID	Wall Direction	Component	Member	Substrate	Color	Comments
26	3.8	Bedroom (102)	W	wall	lower wall	wood	green	
27	3.2	Bedroom (102)	N	wall	lower wall	wood	green	
28	4.9	Bedroom (102)	E	wall	lower wall	wood	green	
29	0.0	Bedroom (102)	S	wall		sheetrock	tan	
30	0.3	Bedroom (102)	W	wall	upper wall	plaster	blue	
31	0.0	Bedroom (102)	N	wall	upper wall	plaster	blue	
32	-0.0	Bedroom (102)	N	stair		wood	dark brown	beneath stair
33	0.3	Bedroom (102)		ceiling	lower ceiling	sheetrock	tan	
34	0.3	Bedroom (102)		ceiling	upper ceiling	plaster	blue	
35	1.4	Bedroom (102)	W	baseboard		wood	tan	
36	1.6	Bedroom (102)	N	baseboard		wood	tan	
37	0.1	Bedroom (102)	N	baseboard		wood	tan	north wall below stair
38	-0.3	Bedroom (102)	S	door	jamb	wood	brown	
39	5.3	Bedroom (102)	N	stair	riser	wood	white	
40	2.1	Bedroom (102)	N	stair	riser	wood	dark brown	
41	1.0	Bedroom (102)	N	stair	wall	wood	dark brown	wall at stair stringer
42	-0.1	Closet (105)	N	wall		plaster	white	
43	-0.1	Closet (105)	W	wall		plaster	white	
44	2.8	Closet (105)	W	door	jamb	wood	white	
45	1.5	Closet (105)	W	baseboard		wood	brown	
46	5.4	Kitchen (103)	W	wall		wood	dark brown	lap siding
47	0.0	Kitchen (103)	W	wall		plaster	white	
48	-0.1	Kitchen (103)	W	wall		wood panel	blue	
49	-0.1	Kitchen (103)	N	wall		plaster	blue	
50	-0.2	Kitchen (103)	N	wall		wood	blue	particle board wall

Project: 1872 Colored School - Neosho, MO
Facility Location: 639 Young Street - Neosho, MO
Inspector's Name: Tim Easley
Readings Taken: 115
Project No.: 2117107
XRF Serial No. 1520
Inspector Signature:

Sample Nos.	Reading	Room ID	Wall Direction	Component	Member	Substrate	Color	Comments
51	-0.3	Kitchen (103)	E	wall		wood	blue	particle board wall
52	-0.2	Kitchen (103)	S	wall		wood	blue	particle board wall
53	9.4	Kitchen (103)	W	docr	casing	wood	tan	
54	5.5	Kitchen (103)	W	door	jamb	wood	tan	
55	1.9	Kitchen (103)	N	window	casing	wood	white	
56	1.3	Kitchen (103)	N	window	jamb/stop	wood	white	
57	2.0	Kitchen (103)	N	window	sash	wood	white	
58	1.0	Kitchen (103)	E	window	casing	wood	white	
59	1.3	Kitchen (103)	E	window	sash	wood	white	
60	-0.2	Kitchen (103)	E	door		wood	white	
61	1.3	Kitchen (103)	N	baseboard		wood	white	
62	-0.2	Kitchen (103)	W	baseboard		wood	white	
63	-0.2	Kitchen (103)	S	door	casing	wood	white	door to bathroom
64	-0.0	Kitchen (103)	S	door	jamb	wood	white	door to bathroom
65	-0.2	Kitchen (103)	W	door	threshold	wood	brown	
66	-0.2	Bathroom (104)		ceiling		sheetrock	tan	
67	1.0	Bathroom (104)		drain vent pipe		metal	silver	
68	1.7	Second floor (201)	N	wall		wood	gray	
69	3.4	Second floor (201)	W	wall	lower wall	wood	green	
70	2.0	Second floor (201)	W	wall	upper wall	wood	blue	
71	1.7	Second floor (201)	S	wall		wood	green	
72	3.0	Second floor (201)	E	wall	lower wall	wood	green	
73	2.0	Second floor (201)	E	wall	upper wall	wood	green	
74	2.6	Second floor (201)		ceiling		wood	gray	
75	1.9	Second floor (201)	N	stair	trim	wood	gray	at rim board

Project: 1872 Colored School - Neosho, MO
Facility Location: 639 Young Street - Neosho, MO
Inspector's Name: Tim Easley
Readings Taken: 115
Project No.: 2117107
XRF Serial No. 1520
Inspector Signature:

Sample Nos.	Reading	Room ID	Wall Direction	Component	Member	Substrate	Color	Comments
76	1.8	Second floor (201)		stair	riser	wood	dark brown	
77	1.0	Second floor (201)		stair	tread	wood	dark brown	
78	2.5	Second floor (201)	S	stair	wall	wood	dark brown	
79	-0.2	Exterior	W	wall		aluminum	tan	top layer siding
80	-0.1	Exterior	W	wall		wood	white	middle layer pressed board siding
81	0.5	Exterior	W	wall		wood	white	bottom layer wood lap siding
82	0.0	Exterior	W	wall	corner board	wood	white	SW corner
83	>9.9	Exterior	W	wall		wood	white	bottom layer wood lap siding
84	-0.1	Exterior	S	wall		aluminum	tan	top layer siding
85	-0.1	Exterior	S	wall		wood	white	middle layer pressed board siding
86	0.1	Exterior	S	wall		wood	white	bottom layer wood lap siding
87	1.0	Exterior	S	wall		wood	white	bottom layer wood lap siding
88	5.6	Exterior	E	wall		wood	white	bottom layer wood lap siding
89	3.8	Exterior	E	wall	corner board	wood	white	SE corner
90	-0.0	Exterior	E	wall		vinyl	tan	top layer siding
91	-0.0	Exterior	E	wall		wood	white	addition at back door
92	-0.0	Exterior	N	wall		wood	white	middle layer pressed board siding
93	3.6	Exterior	N	wall		wood	white	bottom layer wood lap siding
94	4.7	Exterior	N	wall	corner board	wood	white	NE corner
95	4.8	Exterior	W	window	bottom trim	wood	white	bedroom window
96	8.0	Exterior	W	window	jamb/stop	wood	white	living room window
97	2.4	Exterior	E	window	sash	wood	white	kitchen window
98	0.0	Exterior	N	window	jamb/stop	wood	white	bedroom window
99	1.0	Exterior	W	soffit		wood	brown	
100	0.0	Exterior	W	facia board		wood	brown	above porch

Project:
Facility Location: 1872 Colored School - Neosho, MO
Inspector's Name: 639 Young Street _ Neosho, MO
Readings Taken: 115
Project No.: 2117107
XRF Serial No. 1520
Inspector Signature:

Sample Nos.	Reading	Room ID	Wall Direction	Component	Member	Substrate	Color	Comments
101	-0.1	Exterior	W	porch	ceiling	wood	brown	
102	7.1	Exterior	W	porch	header	wood	white	support header above columns
103	-0.1	Exterior	W	porch	facia board	wood	brown	
104	0.1	Exterior	W	porch	rafter	wood	brown	
105	>9.9	Exterior	S	soffit		wood	brown	
106	2.9	Exterior	E	soffit		wood	brown	outside bathroom
107	4.1	Exterior	N	soffit		wood	brown	outside kitchen
108	3.2	Exterior	N	facia board		wood	white	outside kitchen
109	>9.9	Exterior	N	soffit		wood	brown	original building
110	1.0	Calibrate						
111	1.0	Calibrate						
112	1.0	Calibrate						
113	1.0	Calibrate						
114	0.9	Calibrate						
115	0.9	Calibrate						
116								
117								
118								
119								
120								
121								
122								
123								
124								
125								

APPENDIX C

CERTIFICATIONS

Expiration Date: **5/23/2012** Certificate Number: 7113051311MOIR3337

Training Date: **5/13/2011**

Missouri State Certificate for Asbestos Related Occupations

issued by Department of Natural Resources
P.O. Box 176
Jefferson City, MO 65102
Phone (573) 751-4817

Timothy E. Easley

has successfully completed the requirements for certification as a INSPECTOR. This Missouri State Certification is subject to review and the director may deny, suspend or revoke the certification per RSMo chapter 643.230.

5/23/2011
Date

James L. Kavanaugh
Director of Air Pollution Control Program

STATE OF MISSOURI
DEPARTMENT OF HEALTH AND SENIOR SERVICES

LEAD OCCUPATION LICENSE REGISTRATION

Issued to:

TIMOTHY EASLEY

The person, firm or corporation whose name appears on this certificate has fulfilled the requirements for licensure as set forth in the Missouri Revised Statutes 701.300-701.338, as long as not suspended or revoked, and is hereby authorized to engage in the activity listed below.

Lead Inspector
Category of License

Issuance Date:	**10/1/2010**
Expiration Date:	**10/1/2012**
License Number:	**101001-001794**

Margaret T. Donnelly
Director
Department of Health and Senior Services

Lead Licensing Program, PO Box 570, Jefferson City, MO 65102