PROJECT MANUAL
FOR
UNIVERSITY HALL
BUILDING ENVELOPE REPAIRS - 2024

Project ID: C.40.13087
Building Index No.: U-1

prepared for

PURDUE UNIVERSITY
WEST LAFAYETTE, INDIANA

prepared by

ARSEE ENGINEERS
9715 KINCAID DRIVE, SUITE 100
FISHERS, INDIANA 46038-9459

SEPTEMBER 20, 2024

FOR BID

Arsee Project No.: 24215

SPECIFICATIONS

for

University Hall Building Envelope Repairs- 2024

Purdue University
West Lafayette, Indiana

WBSE: C.40.13087

Building Index No: U-1

September 20, 2024

University Hall Building Envelope Repairs- 2024

Purdue University
West Lafayette, Indiana

September 20, 2024

Certified by:

Bryan R. Wilson
Professional Engineer # PE11500318

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University Hall Building Envelope Repairs- 2024

Purdue University, West Lafayette, Indiana

September 20, 2024

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ADVERTISEMENT FOR BIDS

The Trustees of Purdue University will receive sealed bids for the following project until 3:00 p.m. Eastern Daylight Time (EDT) on the 24th day of October 2024 in the offices of Capital Asset Management, 2550 Northwestern Avenue, Suite 1100, West Lafayette, IN 47906.

1. West Lafayette Campus – University Hall Building Envelope Repairs - 2024

Bids will then be publicly opened and read aloud in the offices of Capital Asset Management, 2550 Northwestern Avenue, Suite 1100, West Lafayette, IN 47906.

Bids received after such time will be returned unopened. Bids may be withdrawn prior to such time, but no bids shall be withdrawn for a period of sixty (60) days thereafter.

The Principal Subcontractor Questionnaire listing the names of the bidder's principal subcontractors shall be submitted with the bid. The remainder of the Questionnaires and Material Lists shall be submitted prior to 3:00 p.m. (EDT) on the 31st day of October 2024, to:

Capital Asset Management
2550 Northwestern Avenue, Suite 1100
West Lafayette, IN 47906
Phone (765) 494-0580

Bids shall be for complete construction only, properly executed and submitted on Form 96, accompanied by executed Form 96A (as prescribed by the State Board of Accounts) giving financial data as recent as possible, and a Non-Collusion Affidavit together with other documents as required by the Instructions to Bidders and addressed to The Trustees of Purdue University, clearly marked with the project and the bid opening date.

Each bid must be accompanied by the Contractor's written plan for a program to test the contractor's employees for drugs in accordance with IC 4-13-18.

Each bid must be accompanied by a Contractor's Combination Bid Bond and Bond for Construction in the form included in the specifications made payable to The Trustees of Purdue University in an amount equal to the maximum total of the base bid and any alternate bids, guaranteeing the execution and faithful performance of the contract for the work if awarded.

The Instructions to Bidders contained in the specifications for the projects are by this reference made a part hereof, and all bidders shall be deemed advised of the provisions thereof, and of the General Conditions of the contract, specifications, plans and drawings for the project.

A voluntary pre-bid meeting for Project No. 1 will be held on October 4, 2024 at 10:00 a.m. EDT. Please meet on Oval Drive across the street from entrance of University Hall (UNIV), located at 672 Oval Dr., West Lafayette, IN. All participants must have appropriate PPE for an active construction project. This includes long pants, hard hat, high viz vest, and hard sole shoes. If any participants plan to access the roof area, proper fall arrest systems must be utilized.

The architectural/engineering firm for this project is:

Project No. 1

Arsee Engineers, Inc.
9715 Kincaid Drive, Suite 100
Fishers, IN 46037
Phone (317) 594-5152

To view or obtain bid documents online:

Repro Graphix Inc.
437 N. Illinois St
Indianapolis, IN 46204

Web: PurduePlanroom.com
Phone**:** 1-800-718-0035
Email: Plans@Reprographix.com

A $300 deposit will be required for each hardcopy set of bidding documents. One compact disk or download is available at no charge. Postage and handling fee may apply.

All orders must be placed online but bidders may choose to pick up orders at:

Purdue Print & Digital Services delivered by Xerox:
698 Ahlers Drive
West Lafayette, IN 47907
Phone: 765-494-2006

Bidding Documents are on file in the office of:

Senior Vice President for Administrative Operations
2550 Northwestern Avenue, Suite 1100
West Lafayette, IN 47906
Phone (765) 494-0580

The Board of Trustees of The Trustees of Purdue University reserves the right to reject any and all bids and to waive, to the extent permitted by law, any of the terms, conditions and provisions contained in this Advertisement for Bids or the Instructions to Bidders or any informality, irregularity or omission in any bid, provided that such waiver shall, in the discretion of the Board of Trustees, be to the advantage of The Trustees of Purdue University.

THE TRUSTEES OF PURDUE UNIVERSITY
By

DocuSigned by:
James K Keefe
95F8C862C768449...

James K. Keefe
Senior Director for Capital Asset Management

Date: 9/9/2024

INSTRUCTIONS TO BIDDERS

IB1.01 GENERAL

These Instructions to Bidders are a part of the Advertisement for Bids for the complete construction of the project in strict accordance with the Specifications, Plans and Drawings.

IB1.02 BID INCLUDES ALL COSTS

The amount of each Bid shall be deemed to include the entire cost and expense of every item of labor and material necessary to complete the work bid upon, in full detail ready for use and occupancy; and the risk of all such costs and expenses shall be deemed assumed by the successful Bidder. Bidders will not be given extra payment for conditions which could have been determined by examining the site and Contract Documents.

IB1.03 INTERPRETATION OF DOCUMENTS

Bidders contemplating submitting a Bid for the proposed project who are in doubt as to the true meaning of any part of the Contract Documents shall submit to the Architect listed in the Advertisement for Bids,(Legal company name) at least 10 days prior to the date for opening Bids, a written request for an interpretation.

Requests for interpretation may include (but are not limited to) any ambiguity, inconsistency, discrepancy, error or omission which occurs in the Contract Documents or for materials, equipment, or methods which in the Bidder's opinion adversely affect the cost or quality of the project, or are unavailable.

A Bidder's failure to request a clarification, interpretation, or correction of any ambiguity, inconsistency or error will preclude that Bidder from thereafter claiming for any reason, including the withdrawal of the Bid or in connection with a claim for "extras", any ambiguity, inconsistency or error which was either discovered by the Bidder or which should have been discovered by a reasonably prudent Bidder.

Any interpretation of the Contract Documents and any modification of the Contract Documents will be made only by an Addendum duly issued. A copy of such Addendum will be mailed or delivered to each person receiving a set of the Contract Documents and to such other prospective Subcontractors and material suppliers as have requested that they be furnished with a copy of each Addendum.

IB1.04 QUANTITIES

Stated quantities, if any, in the Contract Documents are approximate only and each Bidder shall make its own estimate of quantities and calculate its Bid accordingly.

IB1.05 SITE CONDITIONS

Bidders shall inform themselves of all the conditions under which the work is to be performed, including the site of the proposed work, any obstacles which may be encountered thereon, and all other relevant matters concerning the proposed work. Each Bid shall be deemed to include all costs and expenses in connection with all such conditions, obstacles and matters.

INSTRUCTIONS TO BIDDERS

Bidders shall make arrangements with the Owner's Physical Facilities Office for site visit. The Bidder's attention is directed to the provisions of Article 10 of the General Conditions and the Supplementary Conditions, if any, relating to Hazardous Waste.

IB1.06 SUBMISSION OF BIDS AND QUESTIONNAIRES

The Bidder shall submit its Bid on Form 96 as required in the Advertisement for Bids. Alternate Proposals and Unit Prices (if included in the Specifications) and acknowledgment of each Addendum (including date of Addendum and signature) shall be entered on Bid Form 96.

A. In order for a Bid to be considered, each Bid shall be accompanied by the following documents:
    1. Non-collusion affidavit
    2. Form 96A (See Section IB1.06C)
    3. Combination Bid Bond and Bond for Construction, in the form as set forth in the Specifications. The successful Bidder's bonding company will be notified of a contract to a firm they are bonding. The Bidder will need to provide contact name, mailing address and phone number of the bonding company with the bid. Bonds of unsuccessful Bidders will only be returned on request.
    4. Principal Subcontractor Questionnaire (if included in the Specifications). Principal Subcontractors listed are not permitted to be changed without the permission and approval of the Architect/Engineer.
    5. Proof of status as licensed Plumbing Contractor (if required by IB1.11).
    6. Proof of minority business enterprises (MBE) participation in accordance with the requirements of IB1.12 MINORITY CONTRACTORS.
    7. Contractor’s written plan for a program to test the Contractor’s employees for drugs in accordance with IC 4-13-18 (see Section IB1.14).

B. Bid and accompanying documents shall be enclosed in a sealed opaque envelope. Envelope shall be addressed to the Trustees of Purdue University and clearly labeled with the following information:
    1. Contents
    2. Project Title
    3. Name and Address of the Bidder
    4. Date and Time of Bid Opening

C. Financial Information Form 96A:

    The financial information required by Form 96A shall be furnished as of the most recent date for which such information is available, and in no event shall such date be more than 12 months prior to the date of the Bid; furthermore, if such date is more than 90 days prior to the date of the Bid, the Bidder shall also furnish a written statement to the effect that as of the date of the Bid there have not been any changes which have materially and adversely affected the financial condition as set forth in Form 96A.

INSTRUCTIONS TO BIDDERS

D. Subcontractor Lists and Material Lists:

The low Bidder (and the second and third Bidders, if requested) shall execute and submit to the Owner within seven (7) days after the date and time for receiving Bids, in the forms included in the Specifications, the SUBCONTRACTOR LIST and MATERIAL LIST stating the names of the Bidder's Subcontractors and the various materials and appliances proposed to be furnished for the Project.

1. On these lists the Bidder shall submit only the names of the Subcontractors and manufacturers (or fabricators) of materials, appliances and specialties that the Bidder can, if required, fully demonstrate or prove they are capable of meeting the requirements of the Drawings and Specifications in all respects.
2. In such cases, the Architect shall give careful consideration to all matters submitted to the Architect by the Bidder. If in the Architect's opinion there is just cause for rejection, the Bidder shall submit substitute names for consideration until approved. The Bidder shall not be entitled to extra compensation for any such required substitute. Upon approval, the name submitted may not be changed by the Bidder without the permission and approval of the Architect.
3. Contractor shall submit evidence of all required certifications and other qualifications as detailed in the project specifications with these lists.

OWNER RESERVES THE RIGHT TO REJECT BID IF BIDDER FAILS TO SUBMIT DOCUMENTS PURSUANT TO THE INSTRUCTIONS SET FORTH ABOVE.

In order to effectively implement the objectives of the foregoing provisions and to assure the timely receipt of accurate Bids, the Bidder is requested to urge all Subcontractors intending to submit a proposal for work involved in the project to submit to all Bidders to whom they intend to bid, a written proposal (or written abstract) with or without price, outlining in detail the specific sections of the Specifications to be included in their work as well as any exceptions or exclusions there from. It is suggested that such written proposal be submitted to the Bidder at least 48 hours in advance of the Bid Opening.

E. Bid Signatures

Bids which are not signed by individuals making them shall have attached thereto a power-of-attorney evidencing authority to sign the Bid in the name of the person for whom it is signed.

Bids which are signed for a partnership shall be signed by all of the partners or by an attorney-in-fact. If signed by an attorney-in-fact, there shall be attached to the Bid a power-of-attorney evidencing authority to sign the Bid, executed by the partners.

Bids which are signed for a corporation shall have the correct corporate name thereof and the signature of the president or other authorized officer of the corporation, manually written below the corporate name following the word "By .....". If such a Bid is manually signed by an official other than the president of the corporation a certified copy of a resolution of the Board of Directors evidencing the authority of such official to sign the Bid shall be attached to the Bid. Such Bid shall also bear the attesting signature of the secretary of the corporation and the impression of the corporate seal.

F. Modification or Withdrawal of Bid:

Any Bidder may withdraw his Bid at any time prior to the scheduled time for the receipt of Bids.

Bids may be modified any time prior to the scheduled time for the receipt of Bids.

Any Bidder may modify its Bid by facsimile communication or by U.S. Mail at any time prior to the scheduled closing time for receipt of Bids, provided such communication is received by the Owner prior to the closing time, and provided further, the Owner is satisfied that a written confirmation of the telegraphic modification over the signature of the Bidder was mailed prior to the closing time. The modifying communication should not reveal the Bid price but should only provide the addition or subtraction or other modification(s) so that the final prices or terms will not be known by the Owner until the sealed Bid is opened.

If written confirmation of the facsimile communication is not received within two days after the closing time, no consideration will be given to facsimile communication.

IB1.07 TIME OF COMPLETION

The attention of each Bidder is directed to the provisions of § 8.3.3 of the General Conditions of the Contract and Division One pertaining to time of completion.

IB1.08 CONTRACT

The successful Bidder shall be required to execute and deliver two (2) original copies each of the Contract (and three (3) copies of the Escrow Agreement, if required) and to deliver the policies and/or Certificate of Insurance - all within 10 days after the Contract is awarded. The Contract shall be deemed awarded when written Notice of Award has been delivered to the successful Bidder by facsimile transmission, followed with the original delivered via U.S. Mail addressed to the address of the Bidder as shown on its Bid or accompanying documents.

IB1.09 FORM OF CONTRACT

The Contract to be executed by the successful Bidder shall be in the form entitled "The Standard Form of Agreement Between Owner and Contractor where the basis for payment is a Stipulated Sum" – published by the American Institute of Architects with such insertions, additions, and changes are required by the successful Bid and Specifications. (The Owner will provide form for execution.)

IB1.10 SPECIAL PROVISIONS REGARDING RETAINAGE, BONDS AND PAYMENT OF CONTRACTORS AND SUBCONTRACTORS

The laws of the State of Indiana (IC 5-16-5.5-3 as amended) contain certain special provisions regarding retainage, bonds and payment of Contractors and Subcontractors. The contracts and subcontracts entered into between a Contractor and the Trustees of Purdue University in excess of $200,000 will be governed by these provisions. The attention of the Bidder is called to the AIA A101 Exhibit A, Insurance and Bonds, regarding these provisions.

INSTRUCTIONS TO BIDDERS

IB1.11 LICENSED PLUMBING CONTRACTORS

To the extent that all or any portion of the work to be performed hereunder involves the installation of plumbing then each Bidder who submits a Bid must also submit, together with its Bid, evidence that the Bidder is a licensed Plumbing Contractor as defined in I.C. 25-28.5-1.

The following information will be acceptable as the required "evidence" (accompanying proof of license) for Complete Construction Bids.

Submit the proposed Subcontractor's License Number opposite the Subcontractor's Name on the PRINCIPAL SUBCONTRACTOR QUESTIONNAIRE.

At the time of submittal of the SUBCONTRACTOR LIST - MECHANICAL CONSTRUCTION include a photocopy of the Contractors License.

IB1.12 MINORITY CONTRACTORS

Bidders shall take all necessary and reasonable steps to ensure that minority business enterprises (MBE's) have the maximum opportunity to compete for and perform work included in the contract documents. For assistance in identifying MBE/WBE subcontractors and suppliers for your project, contact Purdue University's Office of Supplier Diversity Development at (765) 494-7270.

The award of the Contract will be made to the lowest and best Bidder when all other requirements have been met and good faith efforts have been taken towards meeting the stated MBE goal.

The Owner, at its discretion, may waive in part or in whole the minority business enterprise requirement if in the opinion of the Owner it would be impractical, or not in the best interest of the Owner.

MBE/WBE Program Forms:

A. With the Bid:
    1. **MBE/WBE Subcontractor Plan form** - Bidders shall indicate minority business enterprises accepted by completing this form and placing (MBE/WBE) after the name listed on the Principal Subcontractor Questionnaire submitted with the Bid.
    2. **MBE/WBE Program Documentation form** - Submit, on this form, an explanation of what positive efforts have been taken to achieve the stated MBE/WBE goal. Documentation of all outreach, contacts, and responses should be included. Reasons for acceptance or non- acceptance shall be so stated. Submission of incomplete explanations and documentation may result in the Bid being rejected.

B. By the date in the ADVERTISEMENT FOR BID (usually 7 days after bid opening):
    1. **MBE/WBE Letter of Intent to Perform form** – The low Bidder, and the second and third, if requested, shall complete and submit as per the instructions on the form. The low Bidder, and the second and third, if requested, shall indicate MBE/WBE participation by Subcontractors and material suppliers by placing MBE/WBE after the names listed on the Subcontractor and Material Questionnaire submitted in accordance with the ADVERTISEMENT FOR BID.
    2. Bidders shall also submit proof of MBE/WBE certification for each MBE/WBE listed. Certification shall be by: State of Indiana Department of Administration Minority Business Development; Indiana Regional Minority Development Council; or Indiana Department of Transportation.

C. During construction:
    1. **Monthly MBE/WBE Utilization form –** On the larger projects (as determined by the Owner), the Contractor must submit this form monthly with their pay application as per its instructions and the provisions of § 13.8 of the General Conditions of the Contract.

IB1.13 ORGANIZATION OF SPECIFICATIONS AND DRAWINGS

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 the work to be performed by any trade.

IB1.14 DRUG TESTING OF EMPLOYEES OF PUBLIC WORKS CONTRACTORS

The laws of the State of Indiana (IC 4-13-18 as amended) contain special provisions regarding drug testing of employees of public works Contractors and Subcontractors. As determined by the Owner, projects estimated to be in excess of $150,000.00 will be governed by these provisions. The attention of the Bidder is called to the General Conditions of the Contract, §13.6, regarding these provisions.

IB1.15 SUBSTITUTIONS

A. During Bidding, Architect will consider written requests from Prime Bidders for substitutions, received at least ten days prior to bid date; requests received after that time will not be considered.

B. Submit two copies of request for substitution. Include in request:
    1. Complete data substantiating compliance of proposed substitution with Contract Documents.
    2. Product Data:
        a. Product identification, including manufacturer’s name and address.
        b. Manufacturer’s literature:
            i. Product description.
            ii. Performance and test data.
            iii. Reference standards.
        c. Samples.

d. Name and address of similar projects on which product was used, and date of installation.

3. Construction Methods:
   a. Detailed description of proposed method.
   b. Drawings illustrating methods.
4. Itemized comparison of proposed substitution in comparison with product or method specified.
5. Data relating to changes in construction schedule.
6. Relation to other work.
7. Accurate cost data on proposed substitution in comparison with product or method specified.

C. In making request for substitution, Bidder/Contractor represents:
1. He has investigated proposed product or method, and determined that it is equal or superior in all respects to that specified.
2. He will provide the same guarantee for substitution as for product or method specified.
3. He will coordinate installation of accepted substitution into work, making such changes as may be required for work to be complete in all respects.
4. He waives all claims for additional costs related to substitution which consequently become apparent.
5. Cost data is complete and includes all related costs under this Contract.

IB1.16 (RESERVED)

IB1.17 OWNER SAFETY REQUIREMENTS

The Contractor performing work at the Project site shall, at no cost to the Owner, demonstrate commitment to workplace safety, safe work practices, and compliance with all applicable safety requirements. See Section 01 3523, Owner Safety Requirements.

The bidding contractor shall provide with the bid, their documentation in accordance with the requirements of Section 01 3523, unless the bidder is utilizing IOSHA's INSafe Program. If utilizing the INSafe Program, Contractor shall copy Purdue University with their request to INSafe for a consultation within 3 working days of being notified that they are the apparent low bidder.

IB1.18 CONTRACT AWARD AND SUBCONTRACTOR APPROVAL

Pursuant to I.C. 5-16-1-1.2 Purdue will award a contract for performance of the work to the "lowest and best bidder who submits a bid for the performance of the work." In determining the "lowest and best bidder" and the suitability of proposed subcontractors, Purdue reserves the right to consider all relevant factors including without limitation: ability and capacity, capital, character and reputation, competency and efficiency, energy, experience, facilities, faithfulness, fraud or unfairness in previous dealings, honesty, judgment, pending legal proceedings, promptness, quality of previous work, and suitability to the particular task. Information on pending litigation between Purdue and prospective bidders and subcontractors is available via the Court Records link at http://www.tippecanoe.in.gov/ .

INSTRUCTIONS TO BIDDERS

IB1.19 CONTRACTOR PRE-QUALIFICATIONS

Pursuant to I.C. 5-16-13-10(c), bidders must be pre-qualified under I.C. 4-13.6-4 or I.C. 8-23-10. The attention of the Bidder is called to the General Conditions of the contract, § 13.15 regarding these provisions.

IB1.20 CONTRIBUTION BY TIER 1 CONTRACTOR

Pursuant to I.C. 5-16-13-9 The Tier 1 Contractor must contribute in work, material, services, or any combination thereof, at least fifteen percent (15%) of the awarded contract price. The Contractor shall execute and submit the Contribution by Tier 1 Contractor Affidavit to the Owner with its Waiver of Lien. The attention of the Bidder is called to the General Conditions of the Contract, § 13.13 regarding these provisions.

IB1.21 E-VERIFY PROGRAM

The laws of the State of Indiana (I.C. 5-16-13-11(1) and 22-5-1.7 as amended) contain special provisions regarding contractors enrolling and participating in the E-Verify program. The low Bidder (and the second and third Bidders, if requested), within seven (7) days after the date and time for receiving Bids, shall execute and submit the E-Verify Program Affidavit to the Owner. The attention of the Bidder is called to the General Conditions of the Contract, § 13.14 regarding these provisions.

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CHECK LIST AND ASSEMBLY OF BID

Complete and assemble bids as listed below (one set to be submitted):

I. Bid Form Insert

a. Use Bid Form No. 96 as provided filling in all information applicable and required under PART I for a complete and correctly prepared Bid Submittal.

b. Use the Bid Form Insert, succeeding page(s), as a supplement to Bid Form No. 96.

   i. The Bid Form Insert as prepared for this Project has spaces for the Base Bid, Complete Construction amount, Alternate Bid Proposals requested, and Addendum acknowledgment.

c. This "Bid Form Insert" should be the fist page of the bid package submitted.

d. Do not use PART II of Bid Form 96. Use General Form No. 96A, Revised 1949, as issued with the Specifications to all Prime Bidders.

II. Bid Form No. 96

a. The Non-collusion Affidavit located on the last page of the Bid Form No. 96, is to be signed by an officer of the company or corporation and notarized.

b. The Bid Form No. 96 is to be signed on the lower half of the inside page, by an authorized individual or officer(s) of the company or corporation. If the Bid is signed by someone other than an officer of the company or corporation, a Board Resolution is to be submitted with the Bidding Documents giving said person signature authority.

III. Standard Questionnaire and Financial Statement for Bidders (Form 96a)

a. Page 8 of the Form 96a is to be signed, dated and notarized.

b. Page 9 of the Form 96a is to be dated. In no event shall the Financial Statement be dated more than 12 months prior to date of Bid. If the date is more than 90 days prior to the date of Bid, the Bidder shall submit a statement of their financial condition with their Bid as set forth in Section IB1.06(C) of the Instructions to Bidders.

c. Statement of True Financial Condition section on page 15 of the Form 96a is to be signed and sealed as instructed.

d. The appropriate Affidavit section on page 15 of the Form 96a is to be signed by an individual or officer of any company or corporation and notarized by a Notary Public.

IV. Combination Bid Bond & Bond for Construction

a. The penal sum of the Contractor's Combination Bid Bond and Bond for Construction is to be for the maximum amount of the Bid. The maximum amount of the Bid is the total of the base bid plus all add alternates.

b. The Combination Bid Bond and Bond for Construction as included in the Specifications is to be signed and dated on the second page by an officer of the company or corporation and the Bonding Company's representative. A copy of the power of attorney is to be attached to bond, authorizing said person to execute documents on behalf of the Bonding Company.

CHECK LIST AND ASSEMBLY OF BID

V. Principal Subcontractor Questionnaire

a. If a Principal Subcontractor Questionnaire is included in the Specifications, it is to be filled out complete with one Subcontractor's name and address for each subcontract requested, and for any subcontract greater than $150,000 (specifically requested or not) signed by an officer of the company or corporation, and submitted with the Bidding Documents.

VI. Minority Business Enterprise Program Forms

a. Submit proof of minority business enterprises (MBE) participation in accordance with the requirements of IB1.12 MINORITY CONTRACTORS.

VII. Contractor’s Written Drug Testing Program

a. Submit contractor’s written drug testing program in accordance with the requirements of IB1.14 DRUG TESTING OF EMPLOYEES OF PUBLIC WORKS CONTRACTORS. Requirement for the plan is determined by the owner’s estimate of the project cost (for applicability, see Advertisement for Bid).

VIII. Compliance with Owner’s Safety Requirements

a. Submit documentation in accordance with the requirements of IB1.17 OWNER SAFETY REQUIREMENTS.

IX. Other Project Specific Documents

a. If applicable, include any other remaining documentation required to be submitted with the bid.

University Hall Building Envelope Repairs- 2024

Purdue University, West Lafayette, Indiana

Following notices given and having carefully examined the Contract Documents as well as the premises and conditions affecting the work, the undersigned proposes to furnish all labor and materials, necessary tools, expendable equipment, and all utility and transportation services and to perform all work required by and in strict accordance with the above named documents, prepared by Arsee Engineers, Inc., now on file in the office of the Vice President for Physical Facilities, Purdue University, West Lafayette, Indiana, and Arsee Engineers, Inc. as stated below.

BID PROPOSALS

Bidder agrees to perform all items of work as shown on the Drawings and/or described in the Specifications or Addenda, for the amounts shown as follows: (Amount for Bids shall be shown in both words and figures. In case of discrepancy, the amount shown in words will govern).

SUBMITTED BY: _____

BASE BID: The complete construction as required by the Contract Documents for the sum of

_____

_____ ($ _____).

ALTERNATE PROPOSALS

No Alternates to the Bid.

ADDENDA

The Bidder acknowledges receipt of the following Addenda:

ADDENDUM # _____ DATED _____

ADDENDUM # _____ DATED _____

PERSON AUTHORIZED TO SIGN CONTRACT (please print):

Name and Title: _____

Email: _____

PRINCIPAL SUBCONTRACTOR QUESTIONNAIRE

University Hall Building Envelope Repairs- 2024

Purdue University, West Lafayette, Indiana

Principal Subcontractor Questionnaire

Submitted by _____

(To be submitted by each Bidder with his Bid)

Bidder to list subcontractors as requested below. **In addition to the requested subcontractors, Bidder to list all subcontractors that will have subcontracts greater than $150,000.**

If awarded the complete construction contract, I/WE propose to have the following Subcontractors.

	SUBCONTRACTOR - COMPLETE ADDRESS (List the Subcontractor firms only)	Indicate if MBE/WBE/DBE
Roofing	_____ NAME _____ ADDRESS	_____
Painting	_____ NAME _____ ADDRESS	_____
Traffic Coating	_____ NAME _____ ADDRESS	_____

These Subcontractors have been advised of the applicable labor provisions as set forth in the Contract Documents and these labor provisions will be included in all Subcontracts.

PRINTED NAME & TITLE	SIGNATURE	DATE
_____	_____	_____

SUBCONTRACTOR AND MATERIAL QUESTIONNAIRE

SUBMITTED BY: _____

University Hall Building Envelope Repairs- 2024

Each Bidder shall indicate under appropriate headings in the following form, the material, equipment, and specialties he proposes to incorporate in the work if awarded the Contract.

This form filled out in detail by the Bidder shall be submitted as required under "Instructions to Bidders".

The Bidder whose proposal is accepted will be required to furnish the materials, equipment and specialties he has listed herein unless such items do not, in the opinion of the Architect, comply with the requirements and intent of the Specifications and Plans. In the event that certain materials, equipment or specialties hereinafter listed by the successful Bidder do not, in the opinion of the Architect, comply with said requirements or intent, the successful Bidder will be required (as the Contractor) to furnish and substitute items which are in strict accordance with the Specifications and Plans and as approved by the Architect.

LIST OF SUBCONTRACTORS

If awarded the Construction Contract, I/We propose to employ the following listed Subcontractors:

BRANCH OF WORK	NAME OF SUBCONTRACTOR	Indicate if MBE/WBE

MATERIALS, EQUIPMENT, & SPECIALTIES	MANUFACTURERS (Not Subcontractors)

ALTERNATE PROPOSALS

No Alternates to the Bid.

SUBMITTED BY: _____

University Hall Building Envelope Repairs- 2024

The Bidder is required to complete the following schedule of Unit Prices to be listed on Form No. 96.

The Unit costs herein quoted are to apply to additions or deductions to the contract. The following unit prices are for the cost of the material installed, unless noted otherwise. The Unit Prices shall include all incidental items, such as use of tools, scaffolding, equipment, Contractor's overhead and profit, taxes, insurance, etc. All quantities will be determined by measurements in place.

The right is reserved to reject any and all Unit Prices if the cost is considered excessive.

1.	Tuckpointing in brick masonry	$	per	linear foot
2.	Tuckpointing in brick masonry	$	per	square foot
3.	Remove and replace damaged wood gutter liner decking	$	per	square foot
4.	Remove and replace missing, damaged or discolored roofing slate	$	per	each
5.	Individual glass lite removal and replacement (typical window – not oversized)	$	per	each

MINORITY BUSINESS ENTERPRISE PROGRAM FORM

MBE/WBE/VBE SUBCONTRACTOR PLAN

PROJECT TITLE University Hall Building Envelope Repairs- 2024

BIDDER _____ BID DATE _____

The following minority/women owned firms will be subcontracting on the project according to the following schedule:

Indicate MBE/WBE/VBE	MBE/WBE/VBE Firm	Trade	Amount	Contact Name	Phone

THIS DOCUMENT MUST BE INCLUDED IN YOUR SEALED BID PACKAGE

MINORITY BUSINESS ENTERPRISE PROGRAM FORM

DOCUMENTATION OF EFFORT TO MEET MBE/WBE/VBE PARTICIPATION GOAL

MBE/WBE Program Documentation is hereby submitted for the project listed below:

PROJECT TITLE University Hall Building Envelope Repairs- 2024

BIDDER _____ BID DATE _____

Describe the efforts made to achieve the minority/women's business enterprises participation goal for this project. Attach a copy of all solicitation efforts, e.g., ads that were published or networking events, etc.

_____

_____

_____

☐ Unable to locate MBE/WBE/VBE engaged in _____
(Trade)

☐ Unable to secure competitive price in _____
(Trade)

☐ Other (See attached description)

LIST BELOW THE MBE/WBE/VBE FIRMS CONTACTED INDIVIDUALLY FOR THIS PROJECT

Indicate **MBE/WBE/VBE**	**MBE/WBE/VBE Firms Contacted** (list company and commodity)	**Type of Attempt**	**Date(s) Attempted**	**Quote Rec'd – Not Low**	**No Response**

THIS DOCUMENT MUST BE INCLUDED IN YOUR SEALED BID PACKAGE

MINORITY BUSINESS ENTERPRISE PROGRAM FORM

University Hall Building Envelope Repairs- 2024

(project title)

MBE/WBE/VBE LETTER OF INTENT TO PERFORM

(To be completed by the MBE/WBE/VBE and submitted to pfpmc@purdue.edu by successful bidder prior to contract award.)

The MBE/WBE/VBE status of the undersigned must be confirmed prior to contract award. The undersigned intends to perform work in connection with the above project as a: ☐ contractor ☐ subcontractor ☐ supplier ☐ joint venture

The undersigned has agreed to provide the following work, trades, services or supplies:

_____

at the following price: $ _____

The following commencement and completion dates for subcontracted work is:

Commencement Date: _____ Completion Date: _____

The undersigned will enter into formal contract or purchase order agreement with _____ _____ for the above work, trades, services or supplies contingent upon prior execution of a contract between said company and

_____.

_____
Name of Minority/Women/Veteran Contractor (please print)

_____
Address

_____

_____
Phone No.

_____
Company Office Name & Title (please print)

_____
Signature

CONTRACTOR'S COMBINATION BID BOND AND BOND FOR CONSTRUCTION

Having submitted a bid or proposal ("Bid") dated _____ to enter into a binding contract ("Contract") with The Trustees of Purdue University ("Purdue") for the construction or demolition of the project known as University Hall Building Envelope Repairs- 2024 ("Project"), in West Lafayette, Indiana
the bidder/proposer _____ ("Principal") and
_____ ("Surety")
represent, warrant and guarantee to Purdue that:

1. The Principal and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, trustees, successors and assigns to the Owner for the performance of the Contract, which is completely incorporated by reference herein, in the penal sum of _____ _____Dollars ($_____).

2. If Purdue awards the Contract to the Principal and the Principal: a) enters into the Contract; b) performs the work required by the Contract; and c) promptly makes payment of all sums due and owing to persons making claim pursuant to the applicable provisions of I.C. 5-16-5, I.C. 5-16-5.5 or the equivalent provisions of I.C. 5-30, or I.C. 5-32, as the case may be, and defends, indemnifies and holds harmless Purdue from such claims or suits seeking payment for labor, material or equipment furnished for use in the performance of the Contract, then the Principal and Surety shall have no further obligation under this Bond.

3. If Purdue awards the Contract to the Principal pursuant to I.C. 5-16 and the Principal refuses, without substantial equitable justification, to enter into the Contract then the Principal and Surety shall be jointly and severally liable to Purdue in an amount equal to the difference between the Principal's Bid and that of the successful bidder/proposer.

4. If the Principal enters into the Contract and the Principal fails to perform in accordance with the requirements of the Contract, including without limitation the plans and specifications and any other documents identified in the Contract which establish the work to be performed by the Principal, Purdue shall give such notice to the Principal and Surety as may be required by the Contract or applicable statute and may thereafter declare the Principal to be in default and terminate the Contract. The Principal and Surety shall then be jointly and severally liable to Purdue for all costs reasonably and necessarily incurred by Purdue in completing the Project. If the Surety does not proceed to promptly make arrangements satisfactory to Purdue for completion of the Project then the Surety shall be in default of its obligations under this Bond and seven days after receipt of an additional notice from Purdue to this effect Purdue shall be entitled to enforce any remedy available to it under law.

CONTRACTOR'S COMBINATION BID BOND AND BOND FOR CONSTRUCTION

5. The Principal and Surety acknowledge Principal's obligations under the Contract and applicable statutes to make payment to subcontractors, laborers, material-men and those furnishing or supplying labor or material for and on account of the work called for by the Contract. This Bond shall inure directly to the benefit of all persons or entities entitled to make claim pursuant to I.C. 5-16-5, I.C. 5-16-5.5, or the equivalent provisions of I.C. 5-30 or I.C. 5-32 as the case may be.
6. If the Principal enters into the Contract and claims are made, or suits filed, by persons or entities against Purdue or Purdue's property seeking payment for labor, material or equipment furnished for use in the performance of the Contract then the Principal and Surety shall, defend, indemnify and hold harmless Purdue from and against any such claims or suits.
7. Purdue shall give Principal and Surety all notices required by the Contract or applicable statute; however, the failure of Purdue to give such notice shall not affect or invalidate the rights of the person, firm, limited liability company, or corporation to whom money may be due on account of having performed labor or service or having furnished material and shall not operate as a defense for the Surety on this Bond.
8. The Surety hereby waives notice of any change, including changes of time, to the Contract, any documents constituting a part of said Contract, or related subcontracts, purchase orders and other obligations of the Principal. No irregularity or defect in the Contract or in the letting, awarding, or execution of it or in any of the proceedings preliminary thereto shall in any way operate to release or discharge the Surety, whether or not the Surety has notice of it.

IN WITNESS THEREOF, we have hereunto set our hands and seals this _____ day of _____, 20____.

SURETY		PRINCIPAL
_____	Company Name	_____
_____	Signature	_____
_____	Printed Name, Title	_____

Bonding Agency: _____

Agent: _____

Email Address: _____

Address: _____

Phone: _____

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 _____.

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

The Trustees of Purdue University
2550 Northwestern Ave., Suite 1100
West Lafayette, IN 47906

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

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

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

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. A vertical line in the left margin of this document indicates where the author has added necessary information and where the author has added to or deleted from the original AIA text.

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.

Init.
/

TABLE OF ARTICLES

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.

[ ] 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.)

[ ] Not later than ( ) 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

§ 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.)

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

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:

Not later than ten (10) days following the end of the period covered by the Application for Payment ninety-five percent (95%) of the portion of the Contract Sum properly allocable to labor, materials and equipment incorporated in the Work and ninety-five percent (95%) of the portion of the Contract Sum properly allocable to materials and equipment suitable stored at the site or at some other location agreed upon in writing, for the period covered by the Application for Payment, less the aggregate of previous payments made by the Owner; and upon Substantial Completion of the entire Work, a sum sufficient to increase the total payments to ninety-five percent (95%) of the Contract Sum, less such amounts as the Owner shall determine for all incomplete Work and unsettled claims as provided in the Contract Documents.

§ 5.1.3 Deleted

§ 5.1.4 Deleted

§ 5.1.5 Deleted

§ 5.1.6 Deleted

(Paragraphs deleted)
§ 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.)

The Owner shall withhold five percent (5%) of the dollar value of all work satisfactorily completed until the public work is substantially complete.

§ 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.)

§ 5.1.7.2
(Paragraphs deleted)
Deleted

§ 5.1.7.3
(Paragraphs deleted)
Deleted

§ 5.1.8 Deleted

§ 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 modified AIA Document A201–2017, and to satisfy other requirements, if any, which extend beyond final payment; and

.2 such final payment shall be made by the Owner as follows:

Final payment by the Owner to the Contractor shall be made sixty-one (61) days after the established Substantial Completion Date, provided that all field work has been completed and all specified documents have been submitted and approved.

§ 5.2.2 Deleted

§ 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 modified 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.)

§ 6.2 Binding Dispute Resolution

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

[ ] 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 modified AIA Document A201–2017.

§ 7.1.1 If the Contract is terminated for the Owner's convenience in accordance with Article 14 of modified 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.)

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

ARTICLE 8 MISCELLANEOUS PROVISIONS

§ 8.1 Where reference is made in this Agreement to a provision of modified 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)

James K. Keefe, P.E.
Senior Director, Capital Asset Management
2550 Northwestern Ave., Suite 1100
West Lafayette, IN 47906

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

§ 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 modified 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 modified AIA Document A101™–2017 Exhibit A, and elsewhere in the Contract Documents.

§ 8.6 Notice in electronic format, pursuant to Article 1 of modified 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, as modified

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

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

.4

(Paragraphs deleted)
Deleted

.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.)

[ ] 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, as modified, 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.

The Trustees of Purdue University

OWNER *(Signature)*	**CONTRACTOR** *(Signature)*
Jason S. Wasson Vice President for Physical Facilities and Chief Public Safety Officer	

(Row deleted)

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 _____.

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

THE OWNER:
(Name, legal status and address)

The Trustees of Purdue University
2550 Northwestern Ave., Suite 1100
West Lafayette, IN 47906

THE CONTRACTOR:
(Name, legal status and address)

TABLE OF ARTICLES

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 modified 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 Certificate of Insurance evidencing coverage required under Article A.2.

§ A.2.2 Liability Insurance

The Owner shall be responsible for purchasing and maintaining the Owner's usual general liability insurance.

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. A vertical line in the left margin of this document indicates where the author has added necessary information and where the author has added to or deleted from the original AIA text.

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.

§ 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 broad-risk 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.

§ 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.

(Paragraphs deleted)

(Table deleted)

§ A.2.3.1.2

(Paragraphs deleted)

Deleted

(Table deleted)

§ 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. Owner shall be responsible for all losses with the Owner's selected retention or deductible, excepting that the Contractor shall be responsible for the first $25,000 of each and every property loss.

§ A.2.3.2 Occupancy or Use Prior to Substantial Completion. 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, broad-risk 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.

§ A.2.4

(Paragraphs deleted)

Deleted

(Paragraphs deleted)

§ A.2.5 Deleted

(Paragraphs deleted)

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.3.1.4 Owner shall not be liable to any person for the failure of Contractor or any Subcontractor to carry any insurance specified or to furnish proof of such coverage to Owner.

§ 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 as determined by Contract Sum:

Up to $9,999,999
- Each Occurrence $2,000,000 annual aggregate $2,000,000

from $10,000,000 to $19,999,999
- Each Occurrence $3,000,000 annual aggregate $3,000,000

from $20,000,000 to $40,000,000
- Each Occurrence $4,000,000 annual aggregate $4,000,000

over $40,000,000
- Each Occurrence $10,000,000 annual aggregate $10,000,000

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;
.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 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 Dollars ($1,000,000.00) 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.

§ 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 Five Hundred Thousand Dollars ($500,000.00) each accident, Five Hundred Thousand Dollars ($500,000.00) each employee, and Five Hundred Thousand Dollars ($500,000.00) policy limit.

§ A.3.2.7 Deleted

§ 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 as determined by Contract Sum:

Up to $9,999,999
- Each Occurrence $2,000,000 annual aggregate $2,000,000

from $10,000,000 to $19,999,999
- Each Occurrence $3,000,000 annual aggregate $3,000,000

from $20,000,000 to $40,000,000
- Each Occurrence $4,000,000 annual aggregate $4,000,000

over $40,000,000
- Each Occurrence $10,000,000 annual aggregate $10,000,000

§ 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 One Million Dollars ($1,000,000.00) per claim and One Million Dollars ($1,000,000.00) in the aggregate.

§ 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 One Million Dollars ($1,000,000.00) per claim and One Million Dollars ($1,000,000.00) in the aggregate.

§ A.3.2.11 Deleted

§ A.3.2.12 Deleted

§ 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; having an A.M. Best rating of "A" VII or better; and acceptable to Owner. 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.2.3.1, 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.2.3.1 except to the extent provided below. Upon request, the Contractor shall provide the Owner with a copy of the property insurance policy or policies required. The Owner shall be listed as an additional loss payee on said property insurance policy and 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.

[X] **§ A.3.3.2.4** Insurance for physical damage to property while it is in storage and in transit to the construction site on a "broad-risks" form.

[X] **§ A.3.3.2.5** Property insurance on a "broad-risks" 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

§ 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:

§ A.3.4.1 The laws of the State of Indiana (IC § 5-16-5.5-1 et seq.) contain certain special provisions regarding retainage, bonds and payment of Contractors and Subcontractors. Contracts in excess of $200,000 are governed by those provisions. For purposes of this Contract, the Owner has determined to withhold as statutory retainage no more than 5 percent of the dollar value of the work satisfactorily completed until the work is substantially completed.

§ A.3.4.2 The amounts retained by the Owner from the Contractor pursuant to retainage provisions shall be placed in an escrow account in accordance with a written escrow agreement with a bank or savings and loan institution as escrow agent, selected by mutual agreement between the Contractor and Owner. This escrow agreement shall have no application to payments withheld by the Owner pursuant to provisions of the Construction Contract intended to protect the Owner from loss on account of: Defective work not remedied; claims filed on reasonable evidence; failure of the Contractor to make payments when due to Subcontractors; or for material or labor; reasonable doubt that the Contract can be completed for the balance then unpaid; damage to another Contractor; failure or refusal of the Contractor to prosecute the work in strict compliance with the Contractor's construction schedule for the work; or similar provisions.

§ A.3.4.3 Contractor shall comply with all applicable provisions of I.C. § 5-16-5-1 with respect to its Subcontractors (as the term "Subcontractor" is defined therein).

(Table deleted)
§ A.3.4.4 Contractor shall furnish Owner with a performance bond and a payment bond in the form, manner and amount required by the Instructions to Bidders.

§ A.3.4.5 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.

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

ACORD™ CERTIFICATE OF LIABILITY INSURANCE | DATE (MM/DD/YYYY)

PRODUCER	THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW.	
	INSURERS AFFORDING COVERAGE	**NAIC #**
INSURED	INSURER A: Purdue University Insurance Services Enterprise	
	INSURER B:	
	INSURER C:	
	INSURER D:	
	INSURER E:	

COVERAGES

THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. AGGREGATE LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	ADD'L INSRD	TYPE OF INSURANCE	POLICY NUMBER	POLICY EFFECTIVE DATE (MM/DD/YY)	POLICY EXPIRATION DATE (MM/DD/YY)	LIMITS	
		GENERAL LIABILITY				EACH OCCURRENCE	$
		COMMERCIAL GENERAL LIABILITY				DAMAGE TO RENTED PREMISES (Ea occurence)	$
		CLAIMS MADE OCCUR				MED EXP (Any one person)	$
						PERSONAL & ADV INJURY	$
						GENERAL AGGREGATE	$
		GEN'L AGGREGATE LIMIT APPLIES PER:				PRODUCTS - COMP/OP AGG	$
		POLICY PRO-JECT LOC					
		AUTOMOBILE LIABILITY				COMBINED SINGLE LIMIT (Ea accident)	$
		ANY AUTO					
		ALL OWNED AUTOS				BODILY INJURY (Per person)	$
		SCHEDULED AUTOS					
		HIRED AUTOS				BODILY INJURY (Per accident)	$
		NON-OWNED AUTOS					
						PROPERTY DAMAGE (Per accident)	$
		GARAGE LIABILITY				AUTO ONLY - EA ACCIDENT	$
		ANY AUTO				OTHER THAN AUTO ONLY: EA ACC	$
						AGG	$
		EXCESS/UMBRELLA LIABILITY				EACH OCCURRENCE	$
		OCCUR CLAIMS MADE				AGGREGATE	$
							$
		DEDUCTIBLE					$
		RETENTION $					$
		WORKERS COMPENSATION AND EMPLOYERS' LIABILITY				WC STATU-TORY LIMITS OTH-ER	
		ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED?				E.L. EACH ACCIDENT	$
		If yes, describe under SPECIAL PROVISIONS below				E.L. DISEASE - EA EMPLOYEE	$
						E.L. DISEASE - POLICY LIMIT	$
		OTHER					

REFERENCE COPY ONLY

USE CURRENT EDITION

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES / EXCLUSIONS ADDED BY ENDORSEMENT / SPECIAL PROVISIONS

CERTIFICATE HOLDER	CANCELLATION
	SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, THE ISSUING INSURER WILL ENDEAVOR TO MAIL 30 DAYS WRITTEN NOTICE TO THE CERTIFICATE HOLDER NAMED TO THE LEFT, BUT FAILURE TO DO SO SHALL IMPOSE NO OBLIGATION OR LIABILITY OF ANY KIND UPON THE INSURER, ITS AGENTS OR REPRESENTATIVES.
	AUTHORIZED REPRESENTATIVE

ACORD 25 (2001/08)

Purdue University

Physical Facilities Construction Department
401 S. Grant Street
Wes Lafayette, IN 47907-2024

Phone (765) 494-0580
Fax (765) 494-0918

TITLE:

DATE:

PROJECT:

TO:

CONTRACT NO:

WBSE:

FUND:

FUNDS COMMITMENT:

You are hereby requested to proceed with the following changes from the contract plans and specifications:

RE:

PP90/PCO #:

REFERENCE COPY ONLY

The Original Contract Sum was .....

Net Change by Previously Authorized Requests and Changes .....

.....

The Contract Sum Will be Decreased .....

.....

The Contract Time Will be Decreased .....

...

This document shall become an amendment to the contract and all provisions of the contract shall apply hereto. In consideration of the change order agreed to herein as complete equitable adjustment, the Contractor hereby releases the Owner of and from any and all cost, expenses, damages, or claims attributable in whole or in part to (1) the facts and circumstances giving rise to this change order and (2) the execution of this change order.

Recommended by:	**Approved by:**	**Executed by:**
ARCHITECT/ENGINEERING FIRM		**THE TRUSTEES of PURDUE UNIVERSITY**
Signature	Signature	Signature - FOR THE TREASURER
Printed Name	Printed Name	Printed Name
Date	Date	Date

D-1

Business Services
Form: CIV

Construction Invoice Voucher

Purdue University

Vendor Number (Firm)	Vendor Number (Escrow)	PU Order Number

Vendor (Name and Address)	Date
Name:	
Remit Address:	Invoice #
City, State, Zip:	
Project Title:	Amount to Vendor
Payment Request Number:	
	Amount to Bank (for Escrow)

REFERENCE COPY ONLY

ORIGINAL FORMS WILL BE SENT TO SUCCESSFUL BIDDERS

Original Contract Sum		Total Installed To Date	
Change Orders Through No. _____		Materials Stored	
Total Additions		Total Installed and Stored	
Subtotal		Less _____% Retainage	
Total Deductions		Total Earned Less Retainage	
Total Contract Amount		Less Previous Payments	
		This Payment	

"This is to certify that in the performance of this Contract, neither the undersigned contractor nor (so far as the undersigned has knowledge) any of his subcontractors has violated the provisions of 'Nondiscrimination Provisions' of General Conditions of the Contract".

Signed_____

For Purdue University Use Only:

G/L Account	Amount	Cost Center	Order	WBS Element	Fund	Earmarked Funds

Held Chk?	Contact for Held Check	Campus	Phone	Audit

Department Head	Date	Dept/Building	Document #/Date
Recommended	Date	Dept/Building	
APPROVED	Date	Dept/Building	

Physical Facilities Form 25
Rev. Oct 24, 2018

Purdue University

COMPLIANCE AFFIDAVIT

(Submit this affidavit, signed and notarized, with each Construction Invoice Voucher)

Contractor: _____

Project Name: _____

Date: _____

This is to certify that in the performance of this contract, neither the undersigned Contractor nor (so far as the undersigned has knowledge) any of his Subcontractors has violated any of the following:

1. The "Nondiscrimination" (§ 13.9) provisions of the General Conditions of the Contract;
2. The "Occupational Safety and Health Act" (Article 10) provisions of the General Conditions of the contract;
3. The "Hazard Communication" (§ 10.1.2) provisions of the General Conditions of the Contract;
4. The "Drug Testing Program" (§ 13.6) provisions of the General Conditions of the Contract;
5. The "Background Checks and Security Clearance" (§ 13.7) provisions of the General Conditions of the Contract; and
6. The "Subcontractor Spend Data" (§ 13.8) provisions of the General Conditions of the Contract.
7. The "E-Verify Program" (§ 13.14) provisions of the General Conditions of the Contract.
8. The "Contribution by Tier 1 Contractor" (§ 13.13) provisions of the General Conditions of the Contract.
9. The "Contractor Pre-Qualifications" (§ 13.15) provisions of the General Conditions of the Contract.

Given under our hand and seal this

_____day of _____, 20___.

_____

By: _____

Title: _____

STATE OF_____)
) SS:
COUNTY OF_____)

Subscribed and sworn to before me this _____day of_____, 20_____.

_____
(Notary Public)

COUNTY OF RESIDENCE

_____

MY COMMISSION EXPIRES

_____

Physical Facilities
Form 87, Rev. 1-80

BREAKDOWN OF APPLICATION FOR PAYMENT

PROJECT TITLE :
CONTRACTOR :
DATE OF ESTIMATE : ESTIMATE NO:
FOR PERIOD FROM : TO:

Application is Made For Payment, As Hereinafter Shown, In Connection With The Subject Project.

Item No.	Description of Work	Contract Amount	Materials Stored at Job Site*	Labor/Material Installed This Estimate	Labor/Material Installed To Date	%
Subtotal or Total						

*Submit Itemized List In Accordance With Project Specifications

Physical Facilities Form 86
July 22, 2014

CONTRACTOR'S AFFIDAVIT, WAIVER OF LIEN, AND GUARANTEE

TO: _____

Job No: _____

Date: _____

TO WHOM IT MAY CONCERN:

We, the undersigned _____

having been employed by _____ to furnish and/or install

_____

for the _____,

do hereby affirm that we have paid all charges against us for labor, materials, equipment, rentals and all other items of expense under this contract, except as follows: (List all items of expense which you have not paid whether you have received invoice or not.) _____

_____

Also, we, the undersigned, for and in consideration of payments ($_____) made to _____, the receipt whereof is hereby acknowledged, do hereby waive and release any and every lien, or claim, or right of lien on said above descried building and premises on account of labor, skill, machinery, or materials, or all, furnished to

_____

by the undersigned for said building or premises.

The undersigned further guarantees that all work is executed in strict accordance with the specifications and contract drawings, including any changes or alterations authorized in writing, and that should any defect appear within the periods as specified due to faulty materials or workmanship furnished in the performance of the contract, for which payment is herein acknowledged, that the said undersigned will, in accordance with the Specifications, repair and remedy said defects without expense to the Owner or _____ _____ when notified to do so.

Given under our hand and seal this

_____ day of _____ 20____

_____

BY: _____

TITLE: _____

Subscribed and sworn to before me this _____ day of _____, 20 ____

State of _____ SS:

County of _____

My Commission Expires: _____ _____

(Notary Public)

E-VERIFY PROGRAM AFFIDAVIT

(Submit this affidavit, signed and notarized, seven days after the bid)

Contractor: _____

Project Name: _____

Date: _____

We, the undersigned, do hereby affirm that we are compliant with [IC 5-16-13-11 and 22-5-1.7]. The undersigned further affirms that the Contractor:

1. Has enrolled and is participating in the E-Verify program
2. Does not knowingly employ an unauthorized alien.

Given under our hand and seal this

_____day of _____, 20___.

_____

By: _____

Title: _____

STATE OF_____)

) SS:

COUNTY OF_____)

Subscribed and sworn to before me this _____day of_____, 20___.

_____

(Notary Public)

COUNTY OF RESIDENCE

_____

MY COMMISSION EXPIRES

_____

CONTRIBUTION BY TIER 1 CONTRACTOR AFFIDAVIT

(Submit this affidavit, signed and notarized, with Contractor's Waiver of Lien)

Contractor: _____

Project Name: _____

Date: _____

REFERENCE COPY ONLY

This is to certify that in the performance of this contract, the tier 1 Contractor contributed in work, material, or services at least fifteen percent (15%) of the awarded contract price in accordance with IC 5-16-13-9.

Given under our hand and seal this

_____ day of _____, 20___.

_____

By: _____

Title: _____

STATE OF _____)

) SS:

COUNTY OF _____)

Subscribed and sworn to before me this _____ day of _____, 20___.

_____

(Notary Public)

COUNTY OF RESIDENCE

_____

MY COMMISSION EXPIRES

_____

AIA® Document A201® – 2017

General Conditions of the Contract for Construction

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

THE OWNER:
(Name, legal status and address)

The Trustees of Purdue University
2550 Northwestern Ave., Suite 1100
West Lafayette, IN 47906

THE ARCHITECT:
(Name, legal status and address)

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. A vertical line in the left margin of this document indicates where the author has added necessary information and where the author has added to or deleted from the original AIA text.

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

For guidance in modifying this document to include supplementary conditions, see AIA Document A503™, Guide for Supplementary Conditions.

TABLE OF ARTICLES

Init.
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INDEX
(Topics and numbers in bold are Section headings.)

NOTICE: Substantive changes have been made to these A 201 General Conditions which are not reflected in the Index below.

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.

§ 1.1.9 Written Notice

Written notice shall mean a written instrument and shall be deemed to have been duly served if delivered in person to the individual, to a member of the firm or entity, or to an officer of the corporation for which it was intended; or if delivered at, or sent by registered or certified mail or by courier service providing proof of delivery to, the last business address known to the party giving notice.

Written Notice to the Owner shall be directed to the Project Manager identified in Division 1 of the Specifications.

Written Notice to the Contractor shall be directed to the Contractor's Project Manager.
Written Notice to the Architect shall be directed to the individual identified at the pre-construction meeting.

§ 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. In the case of an inconsistency between Drawings and Specifications and within either Contract Document not clarified by Addendum, the better quality or greater quantity of Work shall be provided in accordance with the Architect's/Engineer's interpretation.

§ 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 except as may otherwise be provided in the Agreement between Owner and Architect will retain all common law, statutory, and other reserved rights, 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 Owner's, 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

If the parties intend to transmit Instruments of Service or any other information or documentation in digital form, they shall endeavor to establish necessary protocols governing such transmissions, unless otherwise already provided in the Agreement or the Contract Documents.

§ 1.8 Building Information Models Use and Reliance

Any use of, or reliance on, all or a portion of a building information model 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 Deleted

§ 2.2 Deleted

(Paragraphs deleted)

§ 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.

§ 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 Deleted

§ 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 five-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 deficiencies. In such case an appropriate Change Order shall be issued deducting from payments then or thereafter due the Contractor 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 payments then or thereafter due the Contractor are not sufficient to cover such amounts, the Contractor shall pay the difference to the Owner.

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.

§ 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, 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.

§ 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. The Owner reserves the right to require the Contractor to remove from the Project any employee of the Contractor (including the General Superintendent), any Subcontractor or employee of any Subcontractor if the Owner deems such person to be unfit or otherwise unsatisfactory.

§ 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.

§ 3.6.1 The labor and materials furnished under this Contract will be used, when the Project is completed, by the Owner for its tax exempt purposes. Accordingly, the Indiana Gross Retail and Use Tax (sales and use tax) will not apply to the purchase of materials under this Contract by the Owner from the Contractor. The Owner will issue an appropriate exemption certificate to the Contractor to that 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 any permits, fees, licenses, and inspections by government agencies necessary for the means and methods employed by Contractor to complete the Work that are customarily secured after execution of the Contract.

§ 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 regardless of whether they are specifically identified in the Contract Documents. Contractor shall furnish Architect and Owner with copies of all notices given.

§ 3.7.3 If the Contractor performs Work knowing or suspecting it to be contrary to applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, the Contractor shall assume full responsibility for such Work and shall bear all 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 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 Within seven days after Contractor's bid is received and opened the Contractor shall furnish in writing to the Owner through the Architect the name and qualifications of a proposed superintendent. The Architect may reply within 14 days to the Contractor in writing stating (1) whether the Owner or the Architect has reasonable objection to the proposed superintendent or (2) that the Architect requires additional time to review. Failure of the Architect to reply 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. Once approved, the Contractor's superintendent may not be changed without the written permission of the Owner, which shall not be unreasonably withheld.

§ 3.9.4 Contractor's superintendent shall devote his full attention to the Project and shall not superintend any other projects for the Contractor without the written consent of the Owner, which shall not be unreasonably withheld.

§ 3.10 Contractor's Construction and Submittal Schedules

§ 3.10.1 The Contractor, immediately after being awarded the Contract, shall prepare and submit for the Owner's and Architect's information a Contractor's construction schedule for the Work in accordance with the requirements of Division One of the Specifications. The schedule shall not exceed time limits current under the Contract Documents, shall be revised at monthly intervals or more often as required by the Owner, shall be related to the entire Project to the extent required by the Contract Documents, and shall provide for expeditious and practicable execution of the Work.

§ 3.10.2 The Contractor shall prepare a submittal schedule, immediately after being awarded the Contract and thereafter as necessary to maintain a current submittal schedule, and shall submit the schedule(s) for the Architect's approval. The Architect's approval shall not unreasonably be 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.

§ 3.10.3 The Contractor shall perform the Work in general accordance with the most recent schedules submitted to the Owner and Architect. Contractor's failure to submit satisfactory information required by this § 3.10 shall be grounds for delaying or withholding payment to Contractor.

§ 3.10.4 The Contractor shall not interrupt, disrupt or in any way interfere with utility service to the Owner's existing buildings and structures unless required in order to properly perform the Work. Any necessary interruption, disruption or interference shall be specifically identified in Contractor's construction schedule for the Work and shall be closely coordinated with the Owner so as to minimize the impact to Owner's operations.

§ 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.

§ 3.12.5.1 Each Shop Drawing, Product Data, Sample or similar submittal shall bear the following wording typed or stamped thereon: "APPROVED TO BE IN ACCORDANCE WITH THE CONTRACT DOCUMENTS EXCEPT AS NOTED."

SIGNED: _____ DATED: _____

Any Shop Drawing, Product Data, Sample, or similar submittal submitted without the above wording shall be returned without review for resubmittal.

§ 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. Any work performed by the Contractor in violation of this section shall be at Contractor's sole risk.

§ 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.

§ 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 cause such services or certifications to be provided by a properly 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, accuracy and completeness of the services, certifications, and approvals performed or provided by such design professionals, provided the Owner and Architect have specified to the Contractor all performance and design criteria that such services must satisfy. Pursuant to this Section 3.12.10, the Architect will review, 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. The Contractor shall not be responsible for the adequacy of the performance and design criteria specified 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. Contractor's use of the site shall be limited to performance of the Work.

§ 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 at all times 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 and leave the Work "broom clean" and ready for use.

§ 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.

§ 3.15.3 The Contractor shall keep all public and Owner-owned drives and streets cleaned of spilled or tracked materials from trucking operations.

§ 3.16 Access to Work

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

§ 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 defend, indemnify and hold harmless the Owner, its related and affiliated foundations and entities, individually or collectively, and their respective consultants, agents and employees from and against any and all 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 the injury to or destruction of tangible property (other than the Work itself), including any loss of use therefrom. Contractor's obligation to defend, indemnify and hold harmless shall apply regardless of whether it is alleged that any person or entity to be indemnified hereunder, or their respective consultants, agents or employees contributed in any way to the alleged wrongdoing or are otherwise liable on account of the alleged breach of a non-delegable duty.

§ 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 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 materially 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 expressed in the Contract Documents. The Architect's action will be taken in accordance with the submittal schedule approved by the Architect 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, unless otherwise specifically stated by the Architect, 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.

§ 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 or the bidding requirements, 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.

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

§ 5.3.1 Contractor shall comply with all statutory provisions regarding the payment of Subcontractors, including but not limited to I.C. §5-16-5.5-6 or its equivalent.

§ 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 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. Except as permitted in Section 7.3, a change in the Contract Sum or the Contract Time shall be accomplished only by Change Order. Accordingly, no course of conduct or dealing between the parties, nor express or implied acceptance of alterations or addition to the Work, and no claim that the Owner has been unjustly enriched by any alteration of or addition to the Work, shall be the basis of any claim to an increase in any amounts due under the Contract Documents or a change in any time period provided for in the Contract Documents.

§ 7.1.4 A change in the Contract Sum or the Contract Time may only be accomplished through a Change Order or a Construction Change Directive. No course of dealing, express or implied acceptance of alterations or additions to the Work, or claim that the Owner has been unjustly enriched by an alteration or addition to the Work shall entitle the Contractor to an increase in the Contract Sum or the Contract Time.

§ 7.1.5 If the Contractor claims that any instructions, by drawings or otherwise, involve extra cost under this Contract, Contractor shall provide the Architect and Owner with Written Notice in accordance with the requirements of Article 15 before proceeding to execute the work. The timely giving of such Written Notice shall constitute a condition precedent to the Contractor's entitlement to compensation for such extra costs. Failure of the Contractor to give such Written Notice shall also constitute a waiver of any such claim for extra compensation.

§ 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.

§ 7.2.2 An executed Change Order shall become an amendment to the Contract Documents and all provisions of the Contract Documents shall apply thereto. In consideration of the Change Order as a complete equitable adjustment, the Contractor releases the Owner of and from any and all costs, expenses, damages or claims attributable in whole or in part to:

.1 The facts and circumstances giving rise to the Change Order; and
.2 The execution of the Change Order.

§ 7.2.3 For any adjustments in the Contract Sum, the Contractor overhead and profit shall be calculated as follows:

.1 Cost of labor payroll, not to exceed the actual wages paid on this project, plus applicable payroll taxes and insurance, plus 10%; Costs of the material, including rentals, plus 10%.

.2 For work by Subcontractors, or a lower tier Contractor, the Contractor performing the Work shall be permitted to mark up its costs in accordance with Section 7.2.3.1, and each succeeding Contractor, including the Prime Contractor, shall add 10%.

§ 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;

.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 Deleted

§ 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 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 an act or neglect of the Owner or Architect, or of an employee of either, or of a Separate Contractor employed by the Owner; or by changes ordered in the Work; or by labor disputes not caused by wrongful or unlawful acts of Contractor, fire, unusual delay in deliveries, unavoidable casualties or other causes beyond the Contractor's control ("Excusable Delay"), then the Contract Time shall be extended by Change Order for a period of time equal to the duration of the Excusable Delay.

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

§ 8.3.3 Except as provided in Sections 3.7.4 and 10.3.3, an extension of time for Excusable Delay, as defined above, shall be the Contractor's exclusive remedy in the event of such a delay, no matter how or by whom caused.

Contractor further specifically acknowledges that it shall have no claim for increase in the Contract Sum or damages of any kind because of any delays whatsoever to all or any part of the Work whether foreseen or unforeseen, and whether caused by any person's hindrance or active interference.

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 in a proposed Change Order or Construction Change Directive so that application of such unit prices to quantities of Work proposed will cause substantial inequity to the Owner or Contractor, the applicable unit prices shall be equitably adjusted. Unit prices include Contractor's overhead and profit.

§ 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.

§ 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 Deleted

§ 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.

§ 9.3.4 The Contractor's final Application for Payment shall contain evidence satisfactory to the Architect and the Owner that all payrolls, material bills, and other indebtedness connected with the Work has been paid. The final Application for Payment shall be accompanied by the Contractor's Compliance Affidavit, Contractor's Affidavit,

Waiver of Claims and Liens, and Guarantee in the form included in the Specifications properly completed and executed by the Contractor, each of the Contractor's Subcontractors, and by each of Contractor's major material suppliers.

§ 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.

§ 9.4.3 Upon receipt of Architect's Certificate for Payment the Owner will, within 14 days, either issue payment to the Contractor in the amount of the Certification or make such payment as is undisputed and offer explanation of the disputed items. When the reasons for withholding are removed, payment will be made for amounts withheld.

§ 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 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;
- **.7** repeated failure to carry out the Work in accordance with the Contract Documents; or
- **.8** failure to defend, indemnify or hold harmless the Owner and other required indemnitees as required by 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.

§ 9.6.7 Deleted

§ 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

§ 9.7.1 A final Certificate for Payment shall not be issued until all labor and materials required in the Contract Documents have been furnished, installed and completed, all claims have been disposed of and all claims for extra work materials and allowances for omissions have been rendered, considered and, if agreed to, made a part of such Certificate of Payment.

§ 9.7.2 If, pursuant to the Contract Documents, the Owner is entitled to any reimbursement or payment from the Contractor, Contractor shall make such payment within 14 days of demand by the Owner. Notwithstanding anything in the Contract Documents to the contrary, if Contractor fails to make any payment due the Owner, or if the Owner incurs any costs and expenses to cure any default of Contractor or to correct defective Work, the Owner shall have the right to either (1) deduct an amount equal to that which the Owner is entitled from any payment then or thereafter due Contractor from the Owner, or (2) issue a written notice to the Contractor reducing the Contract Sum by an amount equal to that which the Owner is entitled.

§ 9.8 Substantial Completion

§ 9.8.1 Substantial Completion is the stage in the progress of the Work when:

.1 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; and

.2 The Owner has received from any governmental authority having jurisdictional authority thereof all certificates of occupancy and all other permits, approvals, licenses or other documents necessary for the beneficial occupancy of the Project.

§ 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 and Owner will make an inspection to determine whether the Work or designated portion thereof is substantially complete. If the 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.

§ 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. 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, 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 or a waiver of any right under 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 and will not be canceled or allowed to expire until at least 30 days' prior written notice has been given to the Owner, (3) a written statement that the Contractor knows of no substantial reason that the insurance will not be renewable to cover the period required by the Contract Documents, (4) consent of surety to final payment (5), if required by the Owner, other data establishing payment or satisfaction of obligations, such as receipts, 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, and (6) all "As Built" drawings, complete operating instructions for equipment and accessories, maintenance manuals, documentation of any special warranties, such as manufacturers' warranties or specific subcontractor warranties, and bonds, certificates and guarantees required by the Contract Documents.

§ 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.

§ 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.

§ 10.1.1 The Contractor shall administer and comply with all the rules, standards, and regulations of the Construction Safety Act (40 U.S.C. 333) and the Williams-Stieger Occupational Safety and Health Act (OSHA) of 1970 (29 U.S.C. 650 et seq.) as administered and enforced by the Occupational Safety and Health Administration, Department of Labor. The Contractor shall further administer and comply with all the provisions, standards, rules and regulations of the Indiana Occupational Health and Safety Act (OSHA) of 1971 (I.C. § 22-8-1.1-1, et seq) including, but not limited to, 29 C.F.R. 1926, Subpart P (trench safety systems).

The Contractor shall not require or permit any laborer or mechanic, including apprentices and trainees, employed in the performance of this Contract to work in surroundings or under conditions which are unsanitary, hazardous or dangerous to health as determined under construction safety and health standards promulgated by the Secretary of Labor by regulation (29 CFR Part 1926, 36 FR 7340, April 17, 1971) pursuant to Section 107 of the Contract Work Hours and Safety Standards Act.

COMPLIANCE AFFIDAVIT

Each application for payment shall be accompanied by an affidavit, dated and signed by the Contractor, substantially as follows:

This is to certify that in the performance of this Contract, neither the undersigned Contractor nor (so far as the undersigned has knowledge) any of its Subcontractors, has violated the "Occupational Safety and Health Act" provisions of the General Conditions of the Contract.

§ 10.1.2 Contractor shall establish a program to coordinate the exchange of material safety data sheets or other hazard communication required to be made available to or exchanged between or among employers at the site in accordance with applicable laws or regulations. At all times during performance of the work, Contractor shall be responsible for administering the hazard communication program and coordinating the hazard communication. Contractor shall provide Superintendent with copies of all material safety data sheets or other hazard communication exchanged among or made available to employers at the site.

COMPLIANCE AFFIDAVIT

Each application for payment shall be accompanied by an affidavit, dated and signed by the Contractor, substantially as follows:

This is to certify that in the performance of this Contract, neither the undersigned Contractor, nor (so far as the undersigned has knowledge) any of its Subcontractors, has violated the "Hazard Communication" provision of the General Conditions 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, except damage or loss 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.

§ 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 48 hours 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.

§ 10.3.2 Owner shall be responsible for any hazardous materials, including asbestos, polychlorinated biphenyl ("PCBs"), petroleum (for example, oil, petroleum, fuel oil, oil sludge, oil refuse, gasoline, kerosene and oil mixed with other non-hazardous materials), Hazardous Waste (as defined in Section 1004 of the Solid Waste Disposal Act [42 U.S.C. Section 6903] as amended from time to time) or Radioactive Material (including source, special nuclear, or byproduct material as defined by the Atomic Energy Act of 1954 [52 U.S.C. Section 2011 et seq.] as amended from time to time) which are uncovered or revealed at the site and which were not shown or indicated in Drawings or Specifications or identified in the Contract Documents to be within the scope of the Work and which may present a substantial danger to persons or property exposed thereto in connection with the work at the site.

§ 10.3.3 To the extent that Hazardous Materials are shown or indicated in Drawings or Specifications or identified in the Contract Documents, but are not made the subject of supplementary conditions, then Contractor shall be responsible for the Hazardous Materials so shown, identified or indicated. In no event shall Owner be responsible for any Hazardous Materials brought to the site by Contractor, Subcontractors, Suppliers or anyone else for whom Contractor is responsible.

§ 10.3.4 To the extent that Contractor discovers Hazardous Materials (as described above) or that Contractor discovers materials which it either believes, or has reason to believe, may constitute Hazardous Materials, and which were not shown or indicated in the Drawings or Specifications or not identified in the Contract Documents then the Contractor shall:

.1 immediately report the same to the Owner by the most expedient means available and confirm the report in writing; and

.2 immediately cease all work in the vicinity of the materials believed to be hazardous.

The Owner shall then take measures, reasonable and appropriate under the circumstances, to ascertain the true character of the materials believed to be hazardous and the measures, if any, necessary to make the job site reasonably safe for the Contractor's completion of the work. Upon receiving notice from the Owner (which shall be confirmed in writing) to complete performance of the Work, Contractor shall immediately resume performance of the Work.

§ 10.3.5 The Owner shall not be responsible under this Section 10.3 for 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 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.

§ 10.3.6 The Contractor shall indemnify the Owner for the cost and expense the Owner incurs (1) for remediation of a material or substance 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 sole fault or negligence.

§ 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.

ARTICLE 11 INSURANCE AND BONDS

§ 11.1 Contractor's Insurance and Bonds

§ 11.1.1 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 be responsible for purchasing and maintaining the Owner's usual liability insurance.

§ 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 obtain insurance that will protect the interests of the Contractor, Subcontractors, and Sub Subcontractors in the Work. 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 Deleted

§ 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 Deleted

(Paragraphs deleted)

§ 11.4 Deleted

§11.5 Adjustment and Settlement of Insured Loss

§ 11.5.1 A loss insured under the property insurance required by this Agreement shall be adjusted by the Owner.

§ 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 5 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. 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.

§11.6 Refer to AIA Document A101™ - 2017 Exhibit A, as modified, for insurance requirements.

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 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. 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 State of Indiana. Any action by Contractor or Owner to enforce rights or obligations, or to assert Claims arising out of this Agreement (including cross-claims and third-party claims) shall be brought and maintained only in a court of competent jurisdiction in Tippecanoe County, Indiana.

§ 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. Contractor shall not assign, or permit the assignment of, any Claim arising out of this Agreement.

§ 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 retained by the Owner. The Contractor shall give the Architect and the Owner timely notice of when and where tests and inspections are to be made so that the Architect and Owner may be present for such procedures.

§ 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 retained by the Owner, and the Contractor shall give timely notice to the Architect and Owner of when and where tests and inspections are to be made so that the Architect and Owner 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 and Contractor.

§ 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.

§ 13.6 Drug Testing Program

The laws of the State of Indiana (IC 4-13-18 as amended) contain certain special provisions regarding drug testing of employees of public works Contractors and Subcontractors. As determined by the Owner, projects estimated to be in excess of $150,000.00 will be governed by these provisions. These provisions require, among other things, that the Contractor submit with the bid a written plan for a program to test the Contractor's employees for drugs. In addition, each successful Bidder will be required to comply with all applicable provisions of the statute referred to above with respect to each Bidder's Subcontractors, as the term "Subcontractor" is defined in the statute referred to above.

COMPLIANCE AFFIDAVIT

Each application for payment shall be accompanied by an affidavit, dated and signed by the Contractor, substantially as follows:

This is to certify that in the performance of this Contract, neither the undersigned Contractor, nor (so far as the undersigned has knowledge) any of its Subcontractors, has violated the "Drug Testing Program" provision of the General Conditions of the Contract.

§ 13.7 Background Checks and Security Clearance

Contractor shall perform security clearance background checks on all of its officers, agents, employees assigned to have access to Purdue's facilities to identify whether any such individual is a registered sex offender pursuant to Zachary's Law, Ind. Code § 11-8-8 et. seq. or the equivalent law of the individual's state of residence. Contractor shall either perform such checks on the officers, agents or employees of subcontractors of any tier or shall require that such subcontractors certify to the Contractor and the Owner that such checks have been performed. Neither Contractor nor any subcontractor (of any tier) shall assign an individual identified as a registered sex offender to perform work or services at Purdue's facilities. Purdue reserves the right to immediately remove any individuals identified as registered sex offenders from Purdue's facilities. Purdue reserves the right to require additional background checks be made on any of Contractor's and its subcontractor(s)'s officers, agents, employees or volunteers assigned to have access to Purdue's premises. Contractor shall indemnify Purdue and hold it harmless from and against all liability, losses,

damages, claims, liens, and expense (including reasonable legal fees) arising out of or connected with Contractor's failure to comply with the requirements of this Article of the General Conditions.

COMPLIANCE AFFIDAVIT

Each application for payment shall be accompanied by an affidavit, dated and signed by the Contractor, substantially as follows:

This is to certify that in the performance of this Contract, neither the undersigned Contractor, nor (so far as the undersigned has knowledge) any of its Subcontractors, has violated the "Background Checks and Security Clearance" provision of the General Conditions of the Contract**.**

§ 13.8 Subcontractor Spend Data

Contractor shall monitor its payments to its subcontractors and material suppliers and report, on a monthly basis, its disbursement of each Project payment received from the Owner.

COMPLIANCE AFFIDAVIT

Each pay application for payment shall be accompanied by an affidavit dated and signed by the Contractor, substantially as follows:

This is to certify that the Contractor has received the Owner's payment of its prior application for payment, subject to any disputed items, and has disbursed payment to its subcontractors and material suppliers as set forth below:

Subcontractor	Amount	Date
_____	_____	____

§ 13.9 Nondiscrimination

§ 13.9.1 The Contractor shall perform, observe and comply with all applicable State, Municipal and Federal laws, rules, regulations and Executive Orders pertaining to nondiscrimination against employees or applicants for employment because of race, color, religion, sex, handicap, disability, national origin or ancestry. During the performance of this Contract, the Contractor agrees to comply with all applicable requirements of the Americans with Disabilities Act of 1990 and the regulations promulgated thereunder. When required by such laws, rules, regulations and Executive Orders, the Contractor shall include nondiscrimination provisions in all contracts and purchase orders.

§ 13.9.2 The Contractor agrees that:

.1 In the hiring of employees for the performance of work under this Contract or any subcontract hereunder, neither the Contractor, any Subcontractor, nor any person acting on behalf of the Contractor or Subcontractor, shall, by reason of race, religion, color, sex, national origin or ancestry or handicap, discriminate against any citizen of the State of Indiana who is qualified and available to perform the work to which the employment relates;

.2 Neither the Contractor, Subcontractor, nor any person on their behalf shall, in any manner, discriminate against or intimidate any employee hired for the performance of work under this Contract on account of race, religion, color, sex, national origin or ancestry, or handicap;

.3 There may be deducted from the amount payable to the Contractor by the Owner, under this Contract, a penalty of five dollars ($5.00) for each person for each calendar day during which such person was discriminated against or intimidated in violation of these nondiscrimination provisions; and

.4 This Contract may be canceled or terminated by the Owner, and all money due or to become due hereunder may be forfeited, for a second or any subsequent violation of the terms or conditions of these nondiscrimination provisions.

§ 13.9.3 By the act of submitting a Bid, each Bidder shall be deemed to have certified to the Owner that it has at all times complied with the nondiscrimination provisions of Senate Enrolled Act No. 484 - Section 4 enacted by the First

Regular Session 99th General Assembly 1975, unless such Bidder states otherwise in a written statement submitted with the Bid. The Owner will refrain from entering into any contract with any Bidder who states that it has failed to comply with said nondiscrimination provisions of said Senate Enrolled Act. No. 484 - Section 4. The applicable portion of Senate Enrolled Act No. 484 - Section 4 is as follows:

"SECTION 4. IC1971, 22 0-10, as amended by Acts 1971, P.L. 347, SECTION 7, is amended to read as follows: Sec. 10. Every contract to which the state or any of its political or civil subdivisions is a party, including franchises granted to public utilities, shall contain a provision requiring the Contractor and his Subcontractors not to discriminate against any employee or applicant for employment, to be employed in the performance of such contract, with respect to his hire, tenure, terms, conditions or privileges of employment or any matter directly or indirectly related to employment, because of his race, religion, color, sex, handicap, national origin or ancestry. Breach of this covenant may be regarded as a material breach of the contract.

Each application for payment shall be accompanied by a nondiscrimination certificate.

COMPLIANCE AFFIDAVIT

Each application for payment shall be accompanied by a certificate, dated and signed by the Contractor, substantially as follows:

"This is to certify that in the performance of this Contract, neither the undersigned Contractor nor (so far as the undersigned has knowledge) any of its Subcontractors has violated the provisions of 'Nondiscrimination Provisions' of these General Conditions".

§ 13.10 American Steel

To the extent that the Contractor's performance of the Work entails the use of purchase of steel products (as defined in I.C. 5-16-8-1, as amended from time to time), then Contractor warrants that only steel products made in the United States shall be used and supplied in the performance of the Contract and in the performance of any subcontracts.

§ 13.11 Open Competition

Where in the Specifications one or more certain materials, trade names, or articles of certain manufacture are mentioned, it is done for the express purpose of establishing a basis of durability and efficiency and not for the purpose of limiting competition. Other names or materials can be used, if in the opinion of the Architect they are equal in durability and efficiency to those mentioned and of a design in harmony within the work as outlined and the Architect gives written approval of a substitution before the articles and material are ordered by the Contractor.

§ 13.12 Parking Regulations

The contractor and its employees are to conform to the University's Motor Vehicle and Traffic Regulations. See Division 1 of the Specifications.

§ 13.13 Contribution by Tier 1 Contractor

The laws of the State of Indiana (IC 5-16-13-9 as amended) contain certain special provisions regarding contribution by the Tier 1 Contractor on public works projects. The Tier 1 Contractor must contribute in work, material, services, or any combination thereof, at least fifteen percent (15%) of the awarded contract price.

COMPLIANCE AFFIDAVIT

Each application for payment shall be accompanied by an affidavit, dated and signed by the Contractor, substantially as follows:

This is to certify that in the performance of this Contract the undersigned Contractor has not violated the "Contribution by Tier 1 Contractor" provision of the General Conditions of the Contract.

§ 13.14 E-Verify Program

The laws of the State of Indiana (I.C. 22-5-1.7-11.1 as amended) contain certain special provisions regarding

enrollment and participation in the E-Verify program by public works Contractors and Subcontractors. These provisions require, among other things, that the Contractor signs an affidavit affirming that the contractor does not knowingly employ an unauthorized alien. In addition, each successful Bidder will be required to comply with all applicable provisions of the statute referred to above with respect to each Bidder's Subcontractors, as the term "Subcontractor" is defined in the statute referred to above. A Contractor is not required to verify the work eligibility status of all newly hired employees of the contractor through the E-verify program if E-verify no longer exists.

COMPLIANCE AFFIDAVIT

Each application for payment shall be accompanied by an affidavit, dated and signed by the Contractor, substantially as follows:

This is to certify that in the performance of this Contract, neither the undersigned Contractor, nor (so far as the undersigned has knowledge) any of its Subcontractors, has violated the "E-Verify Program" provision of the General Conditions of the Contract.

§ 13.15 Contractor Pre-Qualifications

The laws of the State of Indiana (I.C. 5-16-13-10(c) as amended) contain certain special provisions regarding pre-qualification of contractors on public works projects. Contractors must be pre-qualified under I.C. 4-13.6-4 or I.C. 8-23-10.

COMPLIANCE AFFIDAVIT

Each application for payment shall be accompanied by an affidavit, dated and signed by the Contractor, substantially as follows:

This is to certify that in the performance of this Contract the undersigned Contractor and its Subcontractors are in compliance with the "Contractor Pre-Qualifications" requirements set forth in I.C. 5-16-13-10(c).

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

(Paragraph deleted)

§ 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 above reasons described in Section 14.2.1 exist, 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, 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 Contractor shall be entitled to receive payment for Work properly executed and costs actually and reasonably incurred by reason of such termination.

§ 14.4.4 When the Owner terminates the Contractor's services pursuant to this Section, the termination shall not affect the rights or remedies of the Owner against the Contractor then existing or which may thereafter accrue.

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

Any litigation filed by the Contractor or its Subcontractors asserting any right, claim or cause of action against the Owner arising out of or related in any way to the Contract or Contractor's performance of the Work must be commenced within one year of Substantial Completion. The Owner shall be entitled to the immediate dismissal of any such litigation brought more than one year after Substantial Completion. Any such right, claim or cause of action asserted by the Contractor or its Subcontractors against the Owner more than one year after Substantial Completion is waived by the Contractor.

§ 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 the 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 must be initiated within the specific time period required by the Contract Documents and in the absence of a specific time period then no later than 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. The timely giving of Notice shall be a condition precedent to any entitlement to adjustment in the Contract Time or the Contract Sum. The failure to provide timely Notice of a Claim constitutes an irremovable waiver of such Claim.

§ 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. In the case of a continuing delay occurring on consecutive days, only one Claim is necessary; provided, however, that within ten days after the cessation of the cause of the continuing delay, the Contractor shall notify the Owner and Architect in writing that the cause of the delay has ceased. The failure to give timely notice of the cessation of the cause of the continuing delay will constitute an irrevocable waiver of any Claim based on the continuing delay.

§ 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. Notwithstanding any other provision of the Contract Documents to the contrary, the Contract Time will not be adjusted on account of the impact of any normal adverse weather on any of the Work or on account of the impact of any abnormal adverse weather on non-critical elements of the Work. The support for and evaluation of all adverse weather Claims shall be based upon average weather conditions during the 10 years immediately preceding the dates at issue in the Claim as such weather conditions were recorded at the government controlled weather-recording facility nearest to the project.

(Paragraphs deleted)

§ 15.1.7 Deleted

§ 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 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.

§ 15.2.6.1 Deleted

§ 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 or verified claim, 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, and 9.10.5, 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. 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.

§ 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.

§ 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 Deleted

(Paragraphs deleted)

West Lafayette Campus

BUILDING NAMES AND ABBREVIATIONS

MODIFICATION DATE: JANUARY, 2023

AACC Asian American and Asian Resource and Cultural Center **F6**
AAPF Ag Alumni Seed Phenotyping Facility **F8**
ABE Agricultural and Biological Engineering **F9**
ADDL Animal Disease Diagnostic Laboratory **G10**
ADM ADM Agricultural Innovation Center **E11**
■ Admissions, Office of (Stewart Center 102) **H7**
ADPA-C Aspire at Discovery Park **D8**
AERO Aerospace Science Laboratory **C11**
AGAD Agricultural Administration Building **G8**
AHF Animal Holding Facility **G10**
AQUA Burke (Morgan J.) Boilermaker Aquatic Center **D6**
AR Armory **F6**
ARMS Armstrong (Neil) Hall of Engineering **G5**
ASB Airport Service Building (Shop Services) **A11-12**
BALY Bailey (Ralph and Bettye) Hall **H6-7**
BCC Black Cultural Center **F6**
BCHM Biochemistry Building **F8**
BHEE Brown (Max W & Maileen) Family Hall **H6**
BIDC Bechtel Innovation Design Center **F6**
BIND Bindley Bioscience Center **D8**
BOWN Bowen (Robert L. & Terry L.) Laboratory **H12** (Inset)
BREQ Brunner (David and Bonnie) Equine Hospital **G10**
BRES Brees (Drew and Brittany) Student-Athlete Academic Center **F3**
BRFM Brunner (David and Bonnie) Farm Animal Hospital **H10**
BRUN Brunner (David and Bonnie) Small Animal Hospital **G10**
BRK Birck Nanotechnology Center **D8**
BRNG Beering (Steven C.) Hall of Liberal Arts and Education **G7**
BRWN Brown (Herbert C.) Laboratory of Chemistry **H7**
BTV Boiler Television Building **E3**
■ Car/Van Rentals and Charter Bus (MMDC) **F11**
† **CHAF** Chaffee Hall **A9**
CHAS Chaney-Hale Hall of Science **G6**
CL50 Class of 1950 Lecture Hall **G7**
COMP Composites Laboratory **C11**
CONV Convergence **C8**
CREC Córdova (France A.) Recreational Sports Center **E6**
CRTN Creighton (Hobart and Russell) Hall of Animal Sciences **F9**
‡ **DANL** Daniel (William H.) Turfgrass Research Center **B1**
DAUC Dauch (Dick and Sandy) Alumni Center **H9**
DLR Hall for Discovery and Learning Research **E9**
DMNT DeMent (Clayton W.) Fire Station **D6**
DOYL Doyle (Leo Philip) Laboratory **G10**
DRUG Drug Discovery **F9**
DSCB Data Science **G6**
DUDL Dudley Hall **H6**
DYE Pete Dye Clubhouse **C1**
ECEC Purdue University Early Care and Education Center **A7**
EEL Entomology Environmental Laboratory **G8**
EHSA Equine Health Sciences Annex **G10**
EHSB Equine Health Sciences Building **G10**
ELLT Elliott (Edward C.) Hall of Music **G6**
FLEX Flex Laboratories **D9**
FOPN Flight Operations Building **B11**
FORS Forestry Building **G8**
FPRD Forest Products Building **G8**
FRNY Forney Hall of Chemical Engineering **G5**
FWLR Fowler (Harriet O. and James M., Jr.) Memorial House **E7**
GCMB Golf Course Maintenance Barn **C2**
GMF Grounds Maintenance Facility **F11**
GMGF Grounds Maintenance Greenhouse Facilities **E11**
■ The Graduate School (Young Hall - first floor) **H8**
■ Grand Prix Track (see Northwest Athletic Complex Inset)
GRIS Grissom Hall **H7**
GRS Grounds Service Building **E8**
GSMB Golf Storage Maintenance Building **C2**
HAAS Haas (Felix) Hall **G7**
HAGL Hagle (Marc and Sharon) Hall **F6**
HAMP Hampton (Delon and Elizabeth) Hall of Civil Engineering **G5**
HANS Hansen (Arthur G.) Life Sciences Research Building **F9**
HEAV Heavilon Hall **H7**
HERL Herrick Acoustics **E8**
HGR4-7 Hangars, Numbers 4 through 7 **A11,12**
HGRH Horticultural Greenhouse **G9**
HIKS Hicks (John W.) Undergraduate Library **H8**
HLAB Herrick Laboratories **E8**
HMMT Hazardous Materials Management Trailer **H11**
HNLY Hanley (Bill and Sally) Hall **E7**
HOCK Hockmeyer (Wayne T. and Mary T.) Hall of Structural Biology **E9**
HORT Horticulture Building **G9**
HOVD Hovde (Frederick L.) Hall of Administration **G6**
HULL Hull All-American Marching Band **D6**
JNSN Johnson (Helen R.) Hall of Nursing **G6**
KCTR Krannert Center for Executive Education and Research **H8**
KFPC Kozuch Football Performance Complex **F3**
KNOY Knoy (Maurice G.) Hall of Technology **H6**
KRAN Krannert Building **H8**
KRCH Krach Leadership Center **E6**
LAMB Lambert (Ward L.) Fieldhouse and Gymnasium **G4**
LCCP Latino Cultural Center at Purdue **F6**
LG Lambert Green **G4**
■ Library, Main (see HIKS) **H8**
LILY Lilly Hall of Life Sciences **F8**
LMBS Lambertus Hall **H6**
LMSB Laboratory Materials Storage Building **H11**
LMST Laboratory Materials Storage Trailer **H11**
LOLC Land O'Lakes Center for Experiential Learning and Purina Pavilion **F9**
LSA Life Science Animal Building **F8**
LSPS Life Science Plant and Soils Laboratory **F8**
LSR Life Science Ranges (Greenhouse and Service Building) **F8**
LWSN Lawson (Richard and Patricia) Computer Science Building **F6**
LYLE Lyles-Porter Hall **F9**
LYNN Lynn (Charles J.) Hall of Veterinary Medicine **G10**
MACK Mackey (Guy J.) Arena **F, G4**
MANN Mann (Gerald D. and Edna E.) Hall **D8**
MATH Mathematical Sciences Building **G7**
ME Mechanical Engineering Building **H6**
MJIS Jischke (Martin C.) Hall of Biomedical Engineering **E9**
MMDC Materials Management and Distribution Center **F11**
MMS1 Materials Management Storage Building 1 **F12**
MOLL Mollenkopf Athletic Center **F3**
MRGN Morgan (Burton D.) Center for Entrepreneurship **D8**
MRRT Marriott Hall **F7,8**
MSEE Materials and Electrical Engineering Building **H5**
MTHW Matthews Hall **F8**
NACC Native American Educational and Cultural Center **F6**
NISW Niswonger Aviation Technology Building **B11**
NLSN Nelson (Philip E.) Hall of Food Science **G9**
OLMN Ollman (Melvin L.) Golfcart Barn **C1**
PAGE Page (Thomas A.) Pavilion **H12** (Inset)
■ Parking Facilities (MMDC) **F11**
PAO Pao (Yue-Kong) Hall of Visual and Performing Arts **H8**
PFEN Pfendler (David C.) Hall of Agriculture **G8**
PFSB Physical Facilities Service Building **F12**
PGSC Purdue Graduate Student Center **H5**
■ Pharmacy (Purdue University Retail Pharmacy - RHPH) **G5**
PHYS Physics Building **G5**
PJEC Jischke (Patty) Early Care and Education Center **C8**
PMRI Purdue Magnetic Resonance Imaging Facility **G9**
PMU Purdue Memorial Union **H7**
PMUC Purdue Memorial Union Club **H7**
POTR Potter (A.A.) Engineering Center **H6**
PRCE Peirce Hall **G7**
PRSV Printing Services Facility **F11**
PSYC Psychological Sciences Building **G6, 7**
PTCA Purdue Technology Center Aerospace **A8** (West Campus inset)
PUSH Purdue University Student Health Center **F, G5**
PVAB Purdue Village Administration Building **D9**
RAIL American Railway Building **H6**
RAWL Rawls (Jerry S.) Hall **H8**
RHPH Heine (Robert E.) Pharmacy Building **G5**
SC Stanley Coulter Hall **G7**
SCHM Helen B. Schleman Hall **G7**
SCHO Global Policy Research Institute (Schowe House) **F1**
SCPA Slayter Center of Performing Arts **E4**
SIML Holleman-Niswonger Simulator Center **A11**
SMLY Smalley (John C.) Center for Housing and Food Services Administration **D6**
SMTH Smith Hall **F8**
SOIL Soil Erosion Laboratory, National **E9**
SPUR Spurgeon (Tom) Golf Training Center **C1**
STDM Ross-Ade Stadium (includes Ross-Ade Pavilion [RAP]) **F3**
STEM See CHAS **G6**
STEW Stewart Center (includes Welcome Center) **H7**
STON Stone (Winthrop E.) Hall **G8**
■ Student Health Center (see PUSH) **G5**
TEL Telecommunications Building **F7**
TERM Terminal Building **B11**
TERY Terry (Oliver P.) House **E8, 9**
TREC Turf Recreation Exercise Center **D6**
TSWF Transportation Service Wash Facility **G12**
UC University Church **I7**
UNIV University Hall **G7**
UPOB Utility Plant Office Building **H11**
UPOF Utility Plant Office Facility **H10**
UPSB Utility Plant Storage Building **G11**
VA1 Veterinary Animal Isolation Building 1 **G10**
VA2 Veterinary Animal Isolation Building 2 **G10**
VCPR Veterinary Center for Paralysis Research **G10**
VLAB Veterinary Laboratory Animal Building **G10**
VMIF Veterinary Medicine Isolation Facility **G10**
VOIN Voinoff (Samuel) Golf Pavilion **C1**
VPRB Veterinary Pathobiology Research Building **F9, 10**
VPTH Veterinary Pathology Building **G9**
WADE Wade (Walter W.) Utility Plant **H11**
WALC Wilmeth (Thomas S. and Harvey D.) Active Learning Center **G6**
WANG Wang (Seng-Liang) Hall **H5**
■ Welcome Center (see STEW) **H7**
WEST Westwood (President's Home) **A5, 6**
WGLR Women's Golf Locker Room **D1**
WSLR Whistler (Roy L.) Hall of Agricultural Research **G8**
WTHR Wetherill (Richard Benbridge) Laboratory of Chemistry **G7**
YONG Young (Ernest C.) Hall **H8**
† **ZL1** Combustion Research Laboratory
† **ZL2** Gas Dynamics Research Laboratory
† **ZL3** High Pressure Research Laboratory
† **ZL4** Propulsion Research Laboratory
† **ZL5** Turbomachinery Fluid Dynamics Laboratory
† **ZL8** High Pressure Combustion Laboratory

Residence & Dining Facilities

CARY Cary (Franklin Levering) Quadrangle **F4**
* **DUHM** Duhme (Ophelia) Residence Hall **E7**
ERHT Earhart (Amelia) Residence Hall **D7**
FORD Ford (Fred and Mary) Dining Court **E4**
FST First Street Towers **D7**
HARR Harrison (Benjamin) Residence Hall **C7**
HAWK Hawkins (George A.) Hall **H8**
HCRN Honors College and Residences North **E7**
HCRS Honors College and Residences South **E7**
HILL Hillenbrand Residence Hall **C7**
HLTP Hilltop Apartments **E3**
MCUT McCutcheon (John T.) Residence Hall **C7**
MRDH Meredith (Virginia C.) Residence Hall **D7**
MRDS Meredith (Virginia C.) Residence Hall South **D7**
OWEN Owen (Richard) Residence Hall **E4**
PKRF Parker (Frieda) Residence Hall (formerly Griffin Residence Halls) **E6**
PKRW Parker (Winifred) Residence Hall (formerly Griffin Residence Halls) **E6**
PVAB Purdue Village Administration Building **D9**
PVCC Purdue Village Community Center **C8**
PVIL Purdue Village **C, D9, 10**
* **SHLY** Shealy (Frances M.) Residence Hall **E7**
SHRV Shreve (Eleanor B.) Residence Hall **D7**
SMLY Smalley (John C.) Center for Housing and Food Services Administration **D6**
TARK Tarkington (Newton Booth) Residence Hall **E5**
* **VAWT** Vawter (Everett B.) Residence Hall **E6**
* **WARN** Warren (Martha E. and Eugene K.) Residence Hall **E7**
WDCT Wiley Dining Court **E6**
WILY Wiley (Harvey W.) Residence Hall **E6**
* **WOOD** Wood (Elizabeth G. and William R.) Residence Hall **E7**

Northwest Athletic Complex (C2-3 inset)

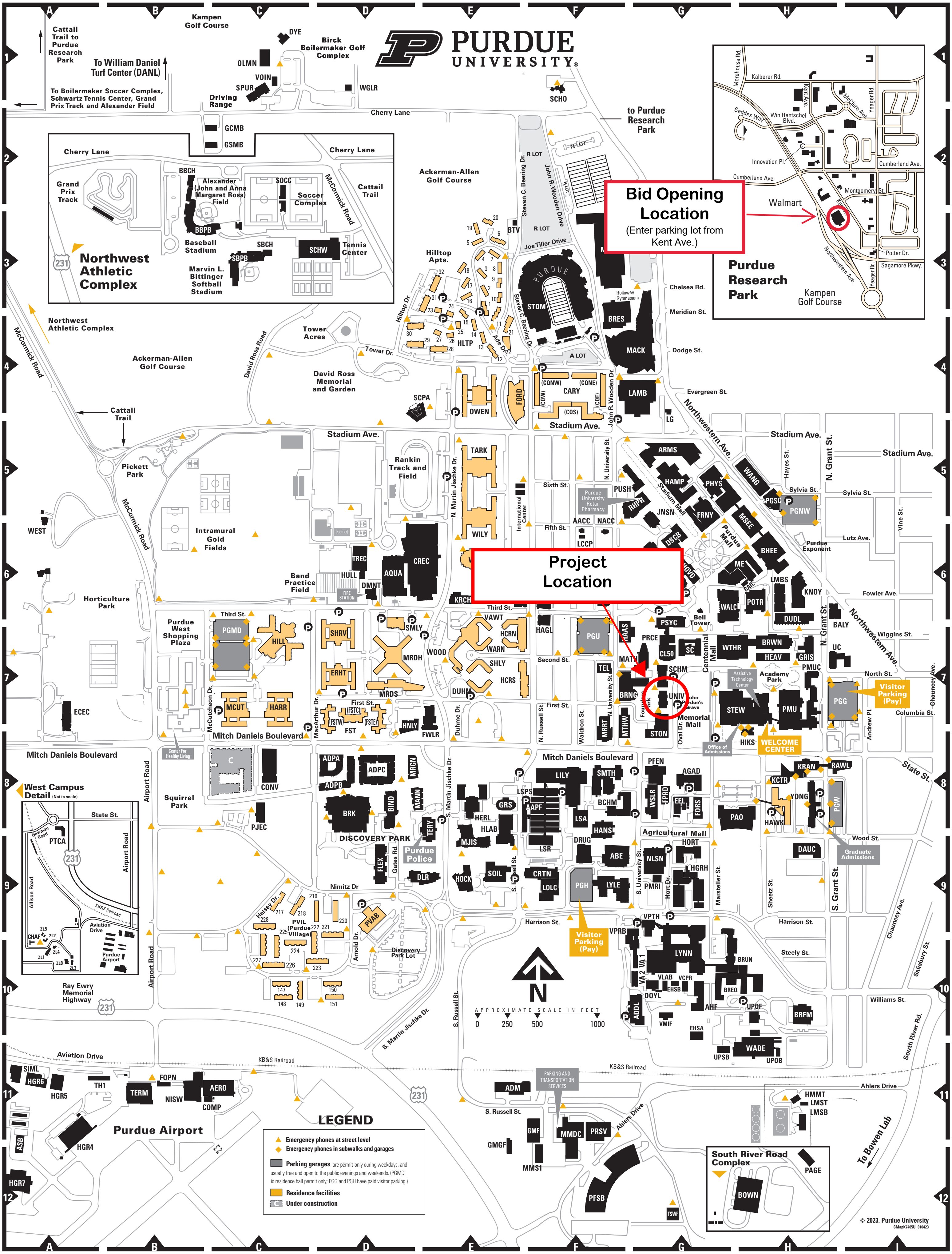
BBCH Purdue Baseball Clubhouse
BBPB Purdue Baseball Press Box
SBCH Purdue Softball Clubhouse
SBPB Purdue Softball Press Box
SCHW Schwartz (Dennis J. and Mary Lou) Tennis Center
SOCC Purdue Women's Soccer Building

Parking Garages

Parking garages are for permitted parking during weekdays. Parking becomes free and open to the public on most nights and weekends. The Grant Street garage (PGG) has paid visitor parking at all times. **Visitors may purchase day parking passes in advance at purdue.edu/parking. Visitor passes are not valid in the Grant Street garage.**

PGG Parking Garage, Grant Street **I7**
PGH Parking Garage, Harrison Street **F9**
PGMD Parking Garage, McCutcheon Drive **C7** (residence hall permit required)
PGNW Parking Garage, Northwestern Avenue **H5**
PGU Parking Garage, University Street **F7**
PGW Parking Garage, Wood Street **H8**

* Windsor Residence Halls
† Part of Maurice J. Zucrow Laboratories


PURDUE UNIVERSITY
Bid Opening Location
(Enter parking lot from Kent Ave.)
Project Location
Purdue Research Park
Kampen Golf Course
Walmart
Northwest Athletic Complex
Cherry Lane
Grand Prix Track
Alexander (John and Anna Margaret Ross) Field
Soccer Complex
Tennis Center
Baseball Stadium
Marvin L. Bittinger Softball Stadium
Cattail Trail
McCormick Road
Kampen Golf Course
Birck Boilermaker Golf Complex
To William Daniel Turf Center (DANL)
Cattail Trail to Purdue Research Park
To Boilermaker Soccer Complex, Schwartz Tennis Center, Grand Prix Track and Alexander Field
Driving Range
to Purdue Research Park
Ackerman-Allen Golf Course
Hilltop Apts.
Tower Acres
David Ross Memorial and Garden
Stadium Ave.
Rankin Track and Field
Pickett Park
Intramural Gold Fields
Band Practice Field
Horticulture Park
Purdue West Shopping Plaza
Mitch Daniels Boulevard
Northwestern Ave.
State St.
Memorial Mall
Centennial Mall
Academy Park
Visitor Parking (Pay)
WELCOME CENTER
Agricultural Mall
DISCOVERY PARK
Purdue Police
Squirrel Park
West Campus Detail (Not to scale)
Ray Ewry Memorial Highway
Aviation Drive
KB&S Railroad
Purdue Airport
PARKING AND TRANSPORTATION SERVICES
South River Road Complex
To Bowen Lab
Harrison St.
Williams St.
Ahlers Drive
APPROXIMATE SCALE IN FEET
0 250 500 1000
N
LEGEND
Emergency phones at street level
Emergency phones in subwalks and garages
Parking garages are permit-only during weekdays, and usually free and open to the public evenings and weekends. (PGMD is residence hall permit only; PGG and PGH have paid visitor parking.)
Residence facilities
Under construction
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CMapK7405U_010423

01 10 00
PROJECT REQUIREMENTS

PART 1 - GENERAL

1.1 SCOPE OF WORK

A. A Pre-Bid Meeting is scheduled for October 4, 2024 at 10:00 a.m. (local time). Bidders of the Project are encouraged to attend this pre-bid meeting. Attendees shall convene for this meeting on Oval Drive across the street from entrance of University Hall (UNIV), located at 672 Oval Drive, West Lafayette, IN 47906. This meeting is highly recommended for all bidders.

B. The Contractor shall furnish all labor, materials, equipment and services necessary or incidental to the completion of all work shown in accordance with the Contract Documents.

C. The Work consists of, but is not limited to:

1. Remove existing EPDM / copper gutter liner and replace with new copper gutter liner assembly.
2. Remove, salvage and reset slate roofing at the eaves as required to perform gutter liner replacement.
3. Remove and replace individual missing, broken or discolored roofing slates.
4. Rework slate roofing to install copper diverters around mansard roof transitions.
5. EPDM roof assembly overlay on existing copper flatlock roofs.
6. Standing seam copper roofing assembly overlay on existing copper flatlock roofs.
7. Clean and repaint exterior wood window frames, louvers, soffits and corbel brackets.
8. Isolated limestone and brick masonry repairs.
9. Remove and replace individual glass window lites.
10. Prepare substrate and apply traffic coating membrane on slab and stone sills within area wells.

D. See individual technical specification sections for greater detail.

E. All work shall be performed under a unified fixed price contract.

F. Project Location: University Hall (UNIV) is located at 672 Oval Drive on the main campus of Purdue University in West Lafayette, Indiana, 47907.

G. All applicable requirements of the Project Manual, including Bidding Requirements, General and Supplementary General Conditions, Special Conditions and General Requirements, apply to each section of the specifications.

H. Contractor shall comply with all applicable laws, ordinances, rules, regulations and lawful orders of any public authority having jurisdiction for the safety of persons or property or to protect them from injury or loss. He shall erect and maintain, as

required by existing conditions and progress of work, all reasonable safeguards for safety and protection including posting danger signs and other warnings against hazards. All requirements of the Occupational Safety and Health Act are to be followed explicitly and are the responsibility of the Contractor.

1.2 PROJECT MANAGER

A. Project Manager for this project is Cy Rangel, Physical Facilities, Purdue University, PHONE (312) 550-1267, EMAIL rangel7@purdue.edu. All questions during bidding regarding this project should be directed to the Project Manager via email.

1.3 COMMENCEMENT AND COMPLETION OF THE WORK

A. Refer to the General Conditions of the Contract, Article 8.

B. Except as otherwise provided in the General Conditions of the Contract, all of the work to be performed under the Contract Documents shall be started on upon receipt of Award of Contract and shall be completed on or before July 31, 2025.

1. In addition, the Project schedule shall conform to the following conditions:

a. **All shop drawing and product data submittals shall be due 30 days from the issuance of the notice of award.**
b. The Contractor shall not begin the work of any individual repair procedure until all shop drawings, product submittals and sample mock-ups have been approved.

C. Prior to the Owner's preparation of a Project Punch List, the Contractor shall prepare his own punch list and submit to the Owner.

1.4 JOBSITE VISITS

A. Any Bidder wishing to make onsite job visits to inspect and verify conditions shall contact Cy Rangel, Project Manager, (312) 550-1267 to make arrangements.

B. All questions regarding the Contract Documents shall be directed to the Engineer of Record.

1.5 PAYMENT

A. See General Conditions of the Contract, Article 9.

1.6 JOB CONDITIONS

A. The Contractor is responsible for inspecting the facility thoroughly prior to bidding to determine the quantity of materials, labor and other services which must be provided to safely complete the work as specified herein and as shown on the

Drawings. Failure to do so will not relieve the Contractor of responsibilities in connection with his work.

1. Contractor is encouraged to thoroughly review the jobsite with Owner's Project Manager prior to beginning the Work and document all visible evidence of damage to the building, grounds and surrounding elements. This should include but not be limited to cracks and spalls in concrete and paving elements that could potentially be damaged by equipment during the course of the Work.

B. The Contractor is responsible for coordinating all work with the Owner's Representatives to limit disruption to the Owner's daily operations.

C. All facility operations will continue during the period of the Work. The type of equipment and proposed usage of the equipment to access and complete the Work must be submitted to the Owner's Representative.

D. The Contractor will only be allowed access to the facility sufficient to perform the work.

E. Contractor shall purchase needed parking permits through the Purdue University Parking Facilities office. See www.purdue.edu/parking for details.

F. Contractor on-site parking, storage and staging areas are limited. Two spaces will be available within the proximity of the Project Site. These parking spaces require green "Contractor Parking Permits" and a location to be determined by the Purdue Project Manager. These permits shall be requested by the Contractor through the Purdue Project Manager. Contractor shall submit the approved request form to Parking Facilities to purchase the permit.

G. Contractor personnel shall park in the Contractor Parking Lot located east of the airport (see map). An orange "Contractor Personnel" parking permit is required for this lot. These permits may be purchased by the Contractor without Purdue Project Manager involvement.

H. The use of plastic "snow fence", "construction fence" or "caution tape" is not allowed on University property at any time.

I. **If the Contractor anticipates the use of cranes on the project, Contractor is advised that the building is located within the flight path of the nearby airport. Contractor shall be responsible for applying through the FAA for any permits necessary for cranes he proposes to use on the project. It is the University's understanding this permitting process can take a significant amount of time to complete and the Contractor is responsible to submit and obtain all necessary permits so that the work is not delayed.**

1.7 OWNER'S OCCUPANCY

A. It shall be understood that all occupied buildings in the project area shall operate in a normal manner, without disruption of essential services to the satisfaction of the Owner during construction operations.

B. Suitable means of ingress and egress shall be maintained to these areas at all times.

C. Cooperate with Owner in all construction operations to minimize conflict and to facilitate Owner's usage.

D. If a dispute over time of use or interruption of use of the facilities develops, the Owner's requirements shall take precedence.

1.8 CONTRACTOR'S USE OF PREMISES

A. The Contractor shall have a Project Superintendent present each and every day while work is taking place. The Owner's Project Manager must approve such individual prior to the start of work. This Project Superintendent will be responsible for communicating to the facility users (through a single representative) the daily progress of work.

1. Contractor(s) shall confine his use of the premises to the limits of construction shown on the Drawings or as directed by the Owner's Project Manager.
2. Use of premises for work and storage shall be limited to allow for Owner's occupancy.
3. Access to the project area shall be coordinated with the Owner's Project Manager.

B. The Contractor may <u>not</u> use the existing electric service for the performance of the Work.

C. Contractor shall provide adequate protection from his work for portions of existing building where no new work occurs. Contractor shall assume all costs resulting from any damages.

D. Maintain exit access to stairs and exit egress from adjacent buildings during construction activities. Do not block exit or close any exit without authorization from Owner's representative.

E. Contractor's vehicles shall be plainly marked on sides.

F. Storage and staging areas will be designated during the pre-construction meeting. Such areas shall not be in "green space" areas without the approval of the University Landscape Architect.

G. Owner will designate a location for placing a dumpster, if necessary.

H. While the Owner may designate storage areas for temporary storage of materials, the Owner cannot guarantee the security of items placed there by the Contractor. Contractor shall assume full responsibility for protection and safe keeping of products stored on premises.

1. See Section "Temporary Facilities and Controls" for storage within existing buildings.

I. Remove all debris, rubbish, broken glass and unused materials in a legal manner. Repair all damaged surfaces.

1. Trash shall be picked up on a periodic basis such that debris, paper, etc. is not allowed to blow around and off the site. Owner's Project Manager may require daily pick-up at no additional cost to the Owner if this becomes a problem.

J. Possession and use of alcoholic beverages on Purdue University property and the Project Site are prohibited.

1.9 UTILITIES

A. Sanitary facilities: Owner's existing restroom facilities are not available for use. Contractor shall furnish and maintain temporary restroom facilities throughout the duration of the project.

B. Electric power: The Contractor shall be responsible for providing all electric power necessary for the performance of the Work. Contractor shall not be allowed to access power from the building. Portable generators shall be located in a manner so that they do not generate noise or exhaust fumes objectionable to the Owner as determined by the Owner's Project Manager.

C. Temporary water: Temporary water necessary for the construction work will be available from the existing water system. Arrangements shall be made with the Owner's Project Manager for the point of source. Contractor shall install a State Approved Back Flow Preventer (BFP) any time a hose is connected to the existing building system.

D. Telephone service: Arrangements for telephone service shall be the responsibility of the Contractor and each of his Subcontractors. Owner's existing service is not available for use, except for emergencies.

E. If a dispute over time of use or interruption of use of the facilities develops, the Owner's requirements shall take precedence.

1.10 PROTECTION

A. Existing Property:

1. Protect existing property from damage during the work required by these Contract Documents. Any damage done to existing property shall be repaired satisfactorily to the approval of the Owner.
2. Existing property includes, but shall not be limited to, buildings, sidewalks, irrigation systems, utilities, curbs, lawns, grass, shrubs and trees.
3. The adjacent buildings will be occupied throughout the course of the Work. Contractor shall take steps to minimize noise and disruption to building occupants. Contractor shall also insure odors from solvents, cleaners and sealants do not enter the adjacent buildings. All vehicles used on site which emit exhaust fumes shall be fitted with carbon dioxide scrubbers.
4. Contractor shall coordinate and schedule all work activities which produce noise with the Owner's Representative. Noise must be kept to a minimum so as to not adversely affect student activities. The Owner's Project Manager may require the Contractor to temporarily suspend operations in a given area because of problems with noise.
5. All manlifts or other equipment which generate exhaust containing carbon dioxide shall be fitted with scrubbers to reduce the amount of carbon dioxide emissions.
6. All grinders are required to have vacuum dust collection units attached to them.
7. Contractor shall take any and all precautions necessary to prevent dust, debris and other materials from entering the air intake systems into the building as a result of this Work. This will require installation of filter media over all intakes potentially affected by the Work.

    a. Approved filter pre-approved by the Owner can be purchased from CPP Filter Corporation, 730 Farabee Court, Lafayette, IN 47905, (765) 446-8416, ask for Milo.

        1) Carbon media filter – Item #ORB30048 sold by the yard.
        2) Dust media filter – Item #412100150 FP 100 MEDIA FILTER sold per 50" x 90'0" roll.

    b. Coordinate placement of all such materials with Owner's Project Manager **PRIOR** to the start of work.

B. Work in Progress:

1. In the event of temporary suspension of work for inclement weather or for any other reasons, the Contractor shall protect all work and materials against damage or injury. If damage or injury results from failure to protect, such work and materials shall be removed and replaced at no additional cost to the Owner.

C. Utilities:

1. All existing water and gas pipe, sewers, drains, electrical ducts, telecom ducts and other duly authorized structures shall be properly supported and protected by and at the expense of the Contractor during the construction of work under or near them and so as not to interfere with their use. They shall be left in as good condition on completion of the work as when found by the Contractor.

1.11 LANDSCAPING

A. Before any work is begun, or any equipment is moved on the site, the Owner's representative and Contractor will inspect and document the site to verify trees, shrubs and bushes which are to be protected, pruned, relocated or removed.

B. Preserve and protect existing trees and plants at site which are designated to remain, and those adjacent to site.

C. Any repair to lawn areas, trees and shrubs will be performed by the Contractor to the satisfaction of the Owner. This shall include finish grading so that all rocks and large clods of soil are raked out.

D. Existing trees and shrubs that are damaged or die as a result of construction shall be suitably repaired or replaced with plant material of same kind and size or as approved by Owner's representative. Low hanging branches and unsound or unsightly branches on trees and shrubs designated to remain shall be pruned as directed by Owner's representative.

1.12 SCHEDULING

A. Contractor shall prepare and submit all schedules as required elsewhere in these Specifications.

B. The Contractor shall inform the Owner immediately of any delays in the schedule of the work.

C. The schedule of work shall be adhered to by the Contractor. Failure to achieve completion of the work by the dates indicated, without prior notification to the Owner, may result in the work being delayed to a later date at the Owner's convenience. The Owner will assume no responsibility for increased costs due to rescheduling caused by the Contractor's failure to adhere to the schedule.

1.13 SUMMARY OF WORK AND CONTRACTS

A. Requirements:

1. This Section provides specific information which may be also included in the General Conditions. Any conflict between this section and the General Conditions shall be resolved in favor of the General Conditions.

B. Bidding:

1. Bidder's proposal shall contemplate a complete, operable, and acceptable installation as indicated or implied by the Contract Documents.
2. Bid shall include the entire cost and expense of each and every item of labor and material/equipment necessary to complete the work in accordance with the Contract Documents and ready for occupancy and/or use. The risk of all such costs and expenses shall be assumed by the successful Bidder.
3. Stated quantities, if any, in the Contract Documents are approximate only, and each Bidder shall be required to make his own estimate of quantities and calculate his Bid accordingly.
4. Bidder shall thoroughly examine the drawings and specifications of all other trades and include all such additional costs for same insofar as they affect his proposal.
5. Bidder must submit, with his proposal, a list of the subcontractors he proposes for the work. This list shall be furnished before his Bid can be accepted.
6. Any addenda issued during the time of bidding become a part of the Contract Documents and shall be included in the Contractor's proposal. Receipt of each Addendum shall be acknowledged in the Contractor's proposal.
7. Before submitting proposals, each Bidder shall thoroughly examine the site, premises, existing structures, utilities, and all existing architectural, structural, mechanical, and electrical installations and all conditions thereof and inform himself fully regarding conditions under which he will be obliged to operate or that in any way may affect the work under his contract. Proposals shall take into consideration all such conditions as may affect contract work and/or cost.
8. Should bidder find, during examination of the Contract Documents, or after visit to the site, any discrepancies, omissions, ambiguities, or conflicts in or among the Contract Documents, or be in doubt as to their meaning, he shall submit questions to the Engineer in writing. The Engineer will review question and, where information sought is not clearly indicated or specified, will issue a clarifying Addendum to all Bidders or Record and said Addendum shall become a part of the Contract Documents.
9. The Engineer will not be responsible for any other explanation or interpretation. Failure to submit questions as required, and/or starting work will be considered as acceptance by the Contractor of all existing conditions.
10. Where variances occur in the Contract Documents, the item in questions shall be of the better quality, higher cost, or greater capacity.

C. Contract Documents:

1. The Drawings and Specifications shall be considered to be cooperative and anything appearing in the specifications which may not be indicated on the

drawings or visa-versa, shall be considered as part of the Contract and must be executed by the Contractor the same as though indicated by both.

2. Contractor shall make all his own measurements in the field and shall be responsible for correct fitting.
3. All Contract Documents, except the Contractor's executed set, are and remain the property of the Engineer. Such Contract Documents shall not be used on other work and those sets in usable condition shall be returned to the Engineer, upon request, at the completion of or cessation of the work or termination of the Contract.

D. Permits and Regulations:

1. Unless provided otherwise by the Owner, Contractor shall give all necessary notices, obtain all permits and pay all governmental taxes and fees and other costs in connection with his work. Contractor shall file all necessary drawings, prepare all documents and obtain all necessary approvals of all governmental departments and agencies having jurisdiction and obtain all required Certificates of Inspection for his work and deliver same to the Engineer before request for acceptance and final payment for the work.
2. Contractor shall include in the work without extra additional cost, any labor, materials, services, apparatus, drawings (in addition to the Contract Documents) in order to comply with all applicable Laws, Ordinances, Rules and Regulations, whether or not shown on the Contract Documents.
3. All work for the project must be performed in accordance with all Federal, State, Local Laws, Ordinances, and Rules and Regulations relating to the work. Where the Contract Documents exceed these requirements, the Contract Documents shall govern. In no case shall work be installed contrary to or below minimum legal standards.

E. Communications:

1. All notices, demands, requests, instructions, approvals, proposals, and claims must be in writing.
2. Any notice to or demand upon the Contractor shall be deemed sufficiently given if delivered at the office of the Contractor stated on the signature page of the Contract or at such other office as he may from time to time designate in writing to the Owner and Engineer, or deposited in the United States mail in a sealed, postage-prepaid envelope, or delivered with charges prepaid by any recognized courier service, to such other representatives of the Contractor or to such other address as the Contractor may subsequently specify in writing to the Owner for such purpose.
3. All papers required to be delivered to the Owner shall, unless otherwise specified in writing to the Contractor, be delivered to the address stated in the Notice or Invitation to Bidders, and any notice to or demand upon the Owner shall be sufficiently given if so delivered, or deposited in the United States mail in a sealed, postage-prepaid envelope, or delivered with charges

prepaid by any recognized courier service, to such other representatives of the Owner or to such other address as the Owner may subsequently specify in writing to the Contractor for such purpose.

F. Maintenance of Services:

1. All work shall be so planned and executed as to provide continuous service of all main and branch line utilities throughout the construction period.
2. Where necessary to disrupt services for short periods to complete connections, these shall be arranged to be made at the Owner's convenience and the Owner shall be notified in advance. Such disruptions to service shall be planned to be accomplished at periods other than regular working hours, if necessary, and all proposals shall be prepared accordingly to include all premium and overtime allowances and any other expenses as required.

G. Ingress and Egress:

1. All deliveries of materials, tools and equipment must be coordinated with the Owner. In all cases, the Owner's use of facilities, such as loading docks and lifts, takes precedence over the needs of the Contractor.

H. Cold Weather Construction:

1. Contractor shall take special precaution against damage to his materials and work installed in freezing weather to provide adequate special heat and coverings to prevent damage by the elements, in a manner as approved by the Engineer.
2. Contractor shall remove all snow and ice as may be required for the proper protection and performance of his work.

I. Fire Protection:

1. Wherever and whenever any cutting or soldering operations are in process, or welding equipment is in use, or any work involving a fire hazard is performed, the Contractor responsible for such operation shall have at all times acceptable fire extinguishers or other protection equipment within easy reach of the operation. There shall be no open or uncontrolled fires permitted on the site.

1.14 ASBESTOS AFFIDAVIT

A. As a part of the project close-out documentation, the Contractor, each of his Subcontractors and each of the material suppliers shall sign an affidavit stating that no materials containing asbestos have been used and/or installed on this project.

1.15 SMOKE-FREE CAMPUS POLICY

A. As per Purdue University's Smoke-Free Campus Policy effective July 1, 2010, smoking is prohibited on campus except in designated smoking areas. Construction job sites must comply with this policy.

B. A map of the designated smoking areas on campus may be requested at the pre-construction meeting.

C. Smoking is only permitted in the designated areas or inside privately owned, closed vehicles.

1.16 UTILITY TUNNELS AND BUILDING LATERALS

A. The utility tunnels and building laterals are classified as a confined space (not a permit required confined space) under normal operating conditions. Prior to commencing its work, Contractor shall determine whether the area should be reclassified to a permit required confined space due to the Contractor's performance of hot work, painting or any other action. Contractor shall communicate any such determination in writing to the Project Manager and take all action necessary to ensure worker health and safety including compliance with any applicable safety regulation and the Contractor's own safety guidelines.

PART 2 - PRODUCTS

Not used.

PART 3 - EXECUTION

Not used.

END OF SECTION

01 22 00
UNIT PRICES

SECTION 01 22 00
UNIT PRICES

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Unit prices for individual repairs for use in adding/deleting work to/from the Contract as may become necessary during the course of the Work.

1.2 UNIT PRICES

A. The following Unit Prices shall include all costs necessary for the complete installation of the materials or items indicated, including materials, labor, equipment, operations, administration, overhead, profit and taxes.

1. Tuckpointing in brick masonry per linear foot.
2. Tuckpointing in brick masonry per square foot.
3. Remove and replace damaged gutter liner decking per square foot.
4. Remove and replace missing, damaged or discolored roof slate per each
5. Individual glass lite removal and replacement (typical window – not oversized) per each.

B. These Unit Prices shall be used to determine the costs for changes in the work during the construction period, when agreed upon by the Owner.

C. The Bidder shall submit Unit Prices as called for on Page I-1 of these Specifications, plus any other Unit Prices requested in the Bidding Documents, in the manner indicated. Unit Prices shall be the same whether the work is added or deducted from the Contract.

END OF SECTION

01 24 00
ALLOWANCES

SECTION 01 24 00
ALLOWANCES

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Procedures for determining scope and payment of Allowance Work. Allowances shall be used to provide for Work not precisely determined prior to bidding.

B. Contingency Allowance.

C. Value of Work.

1.2 RELATED SECTIONS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections.

1.3 ALLOWANCE

A. The Contractor shall include in his Base Bid the following allowances above and beyond the repairs indicated on the Drawings:

1. One hundred (100) square feet of removal and replacement of deteriorated wood gutter decking as directed by the Engineer and/or the University Project Manager in the field.

B. All allowance work shall be proposed to and authorized in writing by the Owner prior to execution, jointly documented by the Contractor and Engineer, and recorded in the Contractor's as-builts and Engineer's project record documents.

C. Unused amounts of monies included in this allowance shall be credited to the Owner by deduct change prior to approval of Final Application for Payment.

D. Allowance work shall be accompanied by a complete itemization of costs including labor, materials, equipment, subcontracts and combined overhead and profit. This itemization shall be submitted with the Contractor's Payment Application.

1.4 VALUE OF WORK

A. Unless specifically stated otherwise in the Contract Documents, the value of any Allowance Work shall be determined as follows:

1. By Unit Prices (which include overhead and profit) included in the Contractor's Bid Documents.
2. By Labor and Materials where no applicable unit prices are included in the Contractor's Bid Documents.

PART 2 - PRODUCTS

Not Used.

PART 3 - EXECUTION

Not Used.

END OF SECTION

01 25 00
SUBSTITUTIONS

SECTION 01 25 00
SUBSTITUTIONS

PART 1 - GENERAL

1.1 REQUIREMENTS

A. The products, materials, and equipment of manufacturers referred to in the Specifications and on the Drawings are intended to establish the standard of quality and design required by the Engineer. Products, materials, and equipment of manufacturers other than those specified, may be used, if equivalent and approved by the Engineer.

B. The Engineer will be the sole judge of equivalency of proposed substitute products, materials, and equipment.

C. If the Bidder or Contractor desires to use a substitute item, he shall make application to the Engineer in writing stating and fully identifying the proposed substitute, cost changes (if any) and submitting substantiating data, samples, brochures, etc., of item proposed. It is the Contractor's responsibility to provide sufficient evidence by tests or other means to support any request for approval of substitutions.

D. Prior to proposing any substitute item, the Contractor shall satisfy himself that the item he proposed is, in fact, equal to that specified, that it will fit into the space allocated, that it affords comparable ease of operation, maintenance and service, that its appearance, longevity, and suitability for the climate and use are comparable to that specified, and that the substitution is in the Owner's interest.

E. The burden of proof that a proposed substitution is equal to a specified item shall be upon the Contractor, who shall support his request with sufficient test data and other means to permit the Engineer to make a fair and equitable decision on the merits of the proposal. Any item by a manufacturer other than those cited in the Contract Documents, or of brand name or model number or of generic species other than those cited in the Contract Documents will be considered a substitution.

F. Materials and methods proposed as substitutions for specified items shall be supported by certification of their acceptance for use by any authority, person or persons having jurisdiction over the use of specified material or method.

G. Acceptance of substitutions shall not relieve the Contractor from responsibility for compliance with all the requirements of Contract Documents. The Contractor shall be responsible at his own expense for any changes in other parts of the work of his Contract or the work of other Contractors caused by his substitutions, including cost of all design and redesign services related thereto incurred by the Engineer and his Consultants.

H. The Contract completion time shall not be extended by any circumstances resulting from proposed substitution, nor shall the Contractor be entitled to any compensation for any delay caused thereby or related thereto.

I. All costs for the evaluation or proposed substitutions, whether approved or not, shall be borne by the Contractors.

PART 2 - PRODUCTS

Not Used.

PART 3 - EXECUTION

Not Used.

END OF SECTION

01 29 00
PAYMENT PROCEDURES

SECTION 01 29 00
PAYMENT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SCHEDULE OF VALUES

A. Coordination: Coordinate preparation of the Schedule of Values with preparation of Contractor's Construction Schedule.

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

1. Breakdown shall include separate line items for material and labor for Divisions 2 through 48.
2. Round amounts to nearest whole dollar.
3. O&M and As Built Drawings shall be listed as a separate item in the Schedule of Values with a value of 3% of the contract sum but not less than $1,000 or more than $250,000.
4. Provide a separate line item in the Schedule of Values for each Allowance, if applicable.

1.3 APPLICATIONS FOR PAYMENT

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

B. Pencil copies of Application for Payment shall be submitted to the Owner’s Representative and Purdue Project Manager for approval (5) days prior to formal submission.

C. Payment Application Forms: use forms provided by Owner for Applications for Payment.

1. Include amounts of Change Orders approved before last day of construction period covered by application.

D. Transmittal: Submit a signed and notarized original copy of each Application for Payment to Purdue University. Include all required attachments described or prescribed elsewhere in the Contract Documents.

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

1. Schedule of Subcontractors, Manufacturers and Products.
2. Schedule of Values
3. Contractor's Construction Schedule.
4. Submittal Schedule.
5. List of Contractor's staff and principal assignments.
6. Copies of building permits and other authorizations for performance of the Work.
7. Certificates of insurance and insurance policies.
8. Certified Schedule of Wages or Certified Payroll, if required.

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

1. This application shall reflect Certificates of Partial Substantial Completion issued previously for Owner occupancy of designated portions of the Work.

G. Final Payment Application: Submit final Application for Payment with releases and supporting documentation not previously submitted and accepted, including, but not limited, to the following:

1. Evidence of completion of Project closeout requirements.
2. Insurance certificates for products and completed operations where required and proof that taxes, fees, and similar obligations were paid.
3. Final statement, accounting for final changes to the Contract Sum.
4. Contractor's Affidavit, Waiver of Lien, and Guarantee.
5. Evidence that claims have been settled.
6. Final, liquidated damages settlement statement.

PART 2 - PRODUCTS

Not Used.

PART 3 - EXECUTION

Not Used.

END OF SECTION

01 31 00
PROJECT MANAGEMENT AND COORDINATION

SECTION 01 31 00
PROJECT MANAGEMENT AND COORDINATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes administrative provisions for coordinating construction operations on Project.

1.3 COORDINATION

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

1. The layout of fire protection, plumbing, mechanical, and electrical systems, equipment, fixtures, piping, ductwork, conduit, specialty items, accessories shown on the drawings and in diagrammatic form, and all variations in alignment, elevation and details required to avoid interferences and satisfy all architectural and structural limitations are not necessarily shown.
2. Actual layout of the Work shall be carried out without affecting the architectural or structural integrity and limitations of the Work and shall be performed in such sequence and manner as to avoid conflicts, provide clear access to all control points, including valves, strainers, control devices and specialty items of every nature related to such systems and equipment, obtain maximum headroom, and provide clearances as required for operation and maintenance.

B. 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. Pre-installation conferences.
7. Project closeout activities.

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

1.4 SUBMITTALS

A. Construction Schedule: Submit a comprehensive, horizontal bar chart or CPM construction schedule within 10 days of the Notice to Proceed.

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

1.5 PROJECT MEETINGS

A. General: Schedule and conduct meetings and conferences at Project site, unless otherwise indicated.

1. Attendees: Inform participants and others whose presence is required, of date and time of each meeting. Notify Owner and Architect of dates and times.
2. Minutes: Record and distribute the meeting minutes to everyone concerned within five days of the meeting.

B. Preconstruction Conference: Architect/Engineer will schedule a preconstruction conference before starting construction, at a time convenient to Owner and A/E, at Project site or another convenient location.

1. Agenda: Discuss items of significance that could affect progress, including the following:

a. Tentative construction schedule.
b. Phasing/Critical work sequencing.
c. Designation of responsible personnel.
d. Procedures for processing field decisions and Change Orders.
e. Procedures for processing Applications for Payment.
f. Submittal procedures.
g. Preparation of Record Documents.
h. Use of the premises.
i. Responsibility for temporary facilities and controls.
j. Parking availability.
k. Office, work, and storage areas.
l. Equipment deliveries and priorities.
m. Security.
n. Progress cleaning.
o. Working hours.

C. Pre-installation Conferences: Conduct a pre-installation 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.
2. Agenda: Review progress of other construction activities and preparations for the particular activity under consideration, including requirements for the following:

    a. Deliveries.
    b. Submittals and mockups.
    c. Possible conflicts, substrate acceptability and compatibility problems.
    d. Time and weather limitations.
    e. Manufacturer's written recommendations.
    f. Warranty requirements.
    g. Space and access limitations.
    h. Regulations of authorities having jurisdiction.
    i. Testing and inspecting requirements and required performance results.

3. Record significant conference discussions, agreements, and disagreements.
4. 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.

D. Progress Meetings: Contractor will conduct progress meetings at bi-weekly intervals.

1. Attendees: In addition to representatives of Owner and Architect/Engineer, each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
2. Agenda: Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. Review the present and future needs of each entity present, including such items as:

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

to ensure that current and subsequent activities will be completed within the Contract Time.

b. Interface requirements
c. Time and sequences
d. Access and Site utilization
e. RFI's, Submittals, Change Orders
f. Off-site fabrication problems
g. Housekeeping
h. Quality and Work Standards
i. Documentation of information for payment requests
j. Hours of work
k. Schedule Updating: Contractor shall revise its Construction Schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue revised schedule at the next meeting. The schedule baseline shall be maintained throughout the life of the project and be used to compare against the actual progress of the work.

E. Contractor Coordination Meetings: Conduct Project coordination meetings at weekly intervals and as needed for the resolution of unanticipated issues. Project coordination meetings are in addition to specific meetings held for other purposes, such as progress meetings and pre-installation conferences.

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

PART 2 - PRODUCTS

Not Used.

PART 3 - EXECUTION

Not Used.

END OF SECTION

01 31 19
MEETINGS AND SCHEDULES

SECTION 01 31 19
MEETINGS AND SCHEDULES

PART 1 - GENERAL

1.1 PRE-CONSTRUCTION MEETING

A. Prior to beginning the Work, the Contractor shall be required to attend a Pre-Construction Meeting with the Owner. He shall require his principal Subcontractors to attend with him. The Engineer will also attend. Notice of said meeting will originate from the Owner. This meeting shall consist of, but not be limited to, the following agenda:

1. Designation of responsible personnel.
2. Labor availability.
3. Material and equipment availability and deliveries.
4. Subcontractors and material suppliers.
5. Bid breakdown.
6. Construction scheduling information.
7. Critical work sequencing and timing.
8. Procedures for shop drawings, product data, and samples.
9. Procedures for changes in work.
10. Progress meetings, schedule and quality control.
11. Temporary facility and use of site.
12. Clean-up, safety, and security responsibilities.
13. Insurance certification.
14. Other general requirements and/or special conditions.

1.2 PROGRESS MEETINGS

A. Contractors shall attend progress meetings as directed by the Owner. Typically, these are scheduled at least bi-weekly. The agenda would likely include discussion of procedure progress, scheduling, problems, and other matters pertaining to the Project. Contractors shall require their principal Subcontractors to attend, if requested. The Engineer may also attend. Contractor shall take notes and distribute minutes of these meetings to all attendees within 48 hours. This meeting shall typically include, but not be limited to, the following agenda:

1. RFI’s.
2. PP90’s.
3. Submittals.
4. Schedule review – address each activity, specifically those behind schedule and how they are going to get back on schedule.
5. Review of work performed since the last meeting and the work scheduled before the next meeting.
6. Any other items of interest.

PART 2 - PRODUCTS

Not Used.

PART 3 - EXECUTION

Not Used.

END OF SECTION

01 32 16
CONSTRUCTION PROGRESS SCHEDULES

SECTION 01 32 16
CONSTRUCTION PROGRESS SCHEDULES

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. The contractor will create a construction schedule of the Critical Path Method (CPM) type to monitor the project. The contractor will be responsible for providing all information concerning the sequencing and durations of all activities as well as providing the initial CPM logic diagram. Once the initial logic diagram is accepted by Purdue University, the contractor will be responsible for maintaining and providing periodic updates.

B. If the scope is on multiple levels of a building, each level will be broken out. The electrical, mechanical and general scope will be detailed separately.

C. This schedule shall be the Contractor's working schedule and used to plan, organize and execute the work, record and report actual performance and progress and outlines how the Contractor plans to complete all remaining work.

1.3 SUBMITTALS

A. Within ten (10) days after notice of award of contract, the Contractor shall submit for review and approval a framework schedule, along with a work breakdown structure and activity code breakdown structure, and a 60 day detailed schedule. The schedule will be reviewed by Purdue University and returned to the Contractor within fourteen (14) days. Receipt and review of the schedule is a requirement for issuance of the first progress payment.

B. Within forty-five (45) days after notice of award of the contract, the Contractor shall submit for review and approval the completed schedule, incorporating the 60 day schedule. Progress payments are contingent upon approval of the completed schedule.

C. Updates of the schedule and the Excel spreadsheet will be sent to Purdue University on the last Friday of every month. Once Red-Zone is reached, updates become required every Friday. Updates are to be delivered in electronic format. Updates are required in electronic schedule software format.

PART 2 - PRODUCTS

2.1 SOFTWARE

A. The following software packages are acceptable:

1. Primavera Project Planner (P6 XER format)
2. Primavera Suretrack
3. Microsoft Project

B. Owner supported activities shall be updated in Microsoft Excel format matching the spreadsheet format given to the Contractor.

PART 3 - EXECUTION

3.1 NETWORK DETAILS

A. Detailed Network Diagram: The detailed network diagram shall show all activities required to complete the project and their dependency relationships. Include intermediate milestones as necessary to track important events such as phased completion dates, permanent power, outages, owner furnished equipment delivery, etc., and all items specified in the “Other Conditions" of the contract. Each activity should have an associated activity identification, activity description, duration, early and late start and finish dates, and total float. Logic relationships may include start-to-start, start-to-finish, and finish-to-finish with lags times as required. Finish-to-start lags are not allowed. Start-to-start lags shall be no longer than ten (10) days. Each activity shall have at least one precedent and/or successor activity.

B. Calendar: List all non-work days to include weekends and holidays. Include other days that university personnel will not be available (refer to current University Academic calendar).

C. Required Activities: Activities to be included in the network shall be: construction activities; submittal/shop drawing preparation activities; submittal/shop drawing review activities; purchase, manufacture/fabricate, and delivery for major equipment and materials activities; critical inspection activities; utility shutdown activities; and close-out activities.

1. The Contractor will be given a disk with a Microsoft Excel file containing a list of the required milestones. This list of the required milestones is attached in this Specification Section as Attachment “A”. The Contractor may add to this list, but may not delete any milestones from it.

D. Activity Detail: The activities shall meet the following criteria:

1. Unique numbering system to include project number and CSI coding. Include coding for building, phase, area, sub-area, floor, contractor, subcontractor as applicable. Coordinate coding with schedule of values.

2. Whole day units.
3. Construction activities shall have a maximum duration of 15 days.
4. Resource loading in man-hours for each activity. Include proposed resource flow of subcontractors through the building.

3.2 UPDATING

A. The updates will cover the project schedule and the milestones. Update will be compared to the baseline schedule (or accepted revised baseline schedule). Previous months' schedule update will not be used. Update will include as a minimum the following:

1. Actual start/finish dates
2. Projected remaining durations for activities in progress
3. Logic changes to correct out-of-sequence progress only
4. Narrative to include: reasons for changes and associated impact, progress on the critical path and critical path shifting, total float usage, average number of days activities started early/late, activities which did not start but should have, added/deleted activities.
5. If schedule has slipped, a recovery schedule indicating the logic changes and duration changes required to recover the schedule.

3.3 CHANGE ORDERS

A. If a change in scope influences the project schedule, then a revised project schedule will be submitted with the request for change in contract amount. This revised project schedule will show the change or delay on the current contract schedule completion date. This revised project schedule shall be submitted by the Contractor for review by Purdue University.

END OF SECTION

01 33 00
SUBMITTALS

SECTION 01 33 00
SUBMITTALS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. The Contractor shall submit all Shop Drawings, Product Data, and Samples to the Engineer at the earliest practical time and in the order of priority in which materials are required at the Project to maintain schedule. He shall submit all required information with such promptness so as to cause no delay in his work or in that of any Subcontractor.

B. Failure to submit Shop Drawings, Product Data, and Samples in ample time to allow for proper review, approval, return, and distribution will not justify delays or extension of time for fabrication, deliveries, and installation of the Work.

C. The Contractor shall thoroughly and accurately prepare and/or review all Shop Drawings, Product Data, and Samples for completeness and compliance with the Contract Documents before submitting them to the Engineer.

D. Each Subcontractor shall submit his Shop Drawings, Product Data, and Samples to the Contractor. All information shall be thoroughly checked and approved by the Contractor for completeness and compliance with the Contract Documents before submission to the Engineer.

1.2 CONTRACTOR'S SUBMISSION REQUIREMENTS

A. Time for Engineer's review:

1. The Contractor shall submit a minimum of three (3), unless noted otherwise, Shop Drawings and Samples to the Engineer in ample time to allow two (2) weeks for the Engineer's review. The Owner will take an additional one (1) week to review all approved submittals.
2. The Contractor shall submit Product Data electronically to the Engineer in ample time to allow two (2) weeks for the Engineer's review. The Owner will take an additional one (1) week to review all approved submittals.

B. Transmittal Letter:

1. Contractor shall accompany all submittals with a transmittal letter containing the following information:

a. Date.
b. Project Name and Project Number.
c. Contractor's Name and Address.
d. The quantity of each type of information submitted.
e. Specification section and description of information submitted.
f. Notification of any deviations from the Contract Documents.

g. Notification of any other pertinent information such as questions, clarifications, etc.

C. Quantity Requirements.

1. All Shop Drawings shall bear the following identification and information:

a. Date (use same date on each sheet in set).
b. Project Name and Project Number.
c. Name of Contractor, Subcontractor, and/or Supplier.
d. Number sheets in a set consecutively and retain same numbering system throughout all revisions.
e. Revision dates.
f. Shop drawings shall be submitted on sheet sizes as follows:

1) Minimum size: 8½”x11”.
2) Preferred size: 24”x36”, or 30”x42”.

g. Leave adequate clear space on each drawing for Engineer’s stamp.
h. Reference to Specification Section, Paragraph, Details and/or Drawing Number, if applicable and practical.
i. Reference to applicable standards, such as ASTM or Federal Specification numbers.
j. Show complete and thorough identification, layout, details, and all pertinent information in order to fully describe and illustrate the Work. Show all dimensions (lengths, widths, thicknesses, clearances, etc.).
k. Field measurements shall be made, as required, and noted on the Shop Drawings as such.
l. Details and/or other information to show the relationship of materials to adjoining and/or adjacent materials and structures.
m. Show or note any qualifications, departure, or deviation from the requirements of the Contract Documents.
n. Show all additional information as may be required by the Specifications.

D. Product Data:

1. All product data shall bear the following identification:

a. Date of submittal.
b. Project Name and Project Number.
c. Name of Contractor, Subcontractor, and/or Supplier/Manufacturer.
d. Contractor’s approval stamp.

2. Product Data shall include the following:

a. Modify drawings to delete information which is not applicable.

b. Supplement standard information to provide additional information applicable.
c. Clearly mark each copy to identify pertinent materials, products or models applicable.
d. Show performance characteristics and capacities.
e. Show dimensions and clearances required.
f. Show wiring diagrams and controls.

1.3 RESUBMISSION REQUIREMENTS

A. Shop Drawings: Revise original drawings as required and resubmit as specified for initial submission. Clearly indicate on revised drawings any changes which have been made, other than those requested by the Engineer.

B. Product Data and Samples: Submit revised or new product data and/or new samples as required.

C. Shop drawings marked "Furnish as Corrected" by the Engineer indicate approval to proceed with fabrication, shipment, or installation on the condition that corrections or modifications marked on the shop drawings will be incorporated into the items in question. Submittals so marked need not be resubmitted unless specifically noted.

1.4 ENGINEER'S RESPONSIBILITIES

A. The Engineer shall review Shop Drawings, Product Data, and Samples, in a timely manner typically within 5 working days, for conformance with the design concept of the Project as outlined in the General Conditions.

PART 2 - PRODUCTS

Not used.

PART 3 - EXECUTION

Not used.

END OF SECTION

01 35 23
OWNER SAFETY REQUIREMENTS

SECTION 01 35 23
OWNER SAFETY REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

A. Contractor and all its subcontractors performing work at the Project site shall, at no cost to the Owner, demonstrate commitment to workplace safety, safe work practices, and compliance with all applicable safety requirements by one or more of the following methods while working on this project and shall be participating members in one of the following programs:

1. Engaged in an active consultation with IOSHA's INSafe Program for this Project;
2. Establish and maintain a level of "participating" or better in the Coalition for Construction Safety (CCS) Certification Program; or
3. Establish and maintain a "participating" membership status in IDOL/ICA's or IDOL/ABC's Safety Partnership Program.

1.2 SUBMITTALS

A. Contractor will provide documentation of participation to owner prior to award of contract.

B. Documentation of participation in a safety program shall be in such form as follows for each program:

1. INSafe Program – employer's INSafe consultation confirmation for the project specifically stated in this contract. Contractor shall provide a copy of the conformation from INSafe that a consultation has been requested, copies of the conformation of the visit, and any findings by INSafe.
2. Coalition for Construction Safety (CCS) – participating level will be obtained from the CCS database.
3. IDOL Safety Partnership Programs – letter from the Directors of ICA/ABC attesting to the contractor's participation in the IDOL Safety Partnership Program.

PART 2 - PRODUCTS

Not used.

PART 3 - EXECUTION

Not used.

END OF SECTION

01 50 00
TEMPORARY FACILITIES AND CONTROLS

SECTION 01 50 00
TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes requirements for temporary facilities and controls, including temporary utilities, support facilities, and security and protection facilities as may be indicated on the Drawings and as specified herein.

1.3 DESCRIPTION

A. Temporary Electrical Power:

1. The Contractor shall be responsible for providing all electric power necessary for the performance of the Work. Contractor shall not be allowed to access power from the building. Portable generators shall be located in a manner so that they do not generate noise or exhaust fumes objectionable to the Owner as determined by the Owner's Project Manager.

B. Temporary Heat and Ventilation:

1. Protect work and products against dampness and cold.
2. Provide suitable ambient temperatures for installation and curing of materials.
3. Provide adequate ventilation for safe working environment health regulations.

C. Temporary Water:

1. Owner's existing service.
2. Coordinate with Owner's Project Manager for point of source.
3. Provide a testable Reduced Pressure backflow preventer.

a. Owner will test the backflow preventers before they are connected to a potable water source to ensure correct type, lead-free, and correct installation.
b. Contractor shall retest backflow preventers after any relocation. Testing reports shall be submitted to Project manager.

D. Temporary Telephone:

1. General Contractor provides service of desired.
2. Subcontractors provide service they require.

3. Owner’s telephone shall not be available for use, except for emergencies.

E. Sanitary Facilities:

1. Owner’s existing restroom facilities are not available for use. Contractor shall furnish and maintain temporary restroom facilities throughout the duration of the project.

1.4 COSTS OF TEMPORARY UTILITIES

A. Temporary Electric Power:

1. Make all necessary arrangements.
2. Pay for setting, distributing, maintaining, and removing temporary facilities.
3. Contractor shall furnish and pay cost of power.

B. Temporary Heat and Ventilation:

1. Pay costs of installation, operation, maintenance, and removal.
2. Pay costs of filter replacement.
3. Contractor shall furnish and pay cost of fuels.

C. Temporary Water:

1. Pay costs for installing, maintaining, and removing pipe and equipment.
2. Water will be supplied by the Owner.
3. Owner will pay cost of initial testing of backflow preventers.
4. Pay costs for retesting of relocated backflow preventers.

D. Temporary Telephone:

1. Pay costs of installation, maintaining, and removing temporary service.
2. Pay for local telephone service.
3. Persons making toll calls pay charges.

1.5 PROJECT CONDITIONS

A. Temporary Utilities: At earliest feasible time, when acceptable to Owner, change over from use of temporary service to use of permanent service.

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

B. Conditions of Use: The following conditions apply to use of temporary services and facilities by all parties engaged in the Work:

1. Keep temporary services and facilities clean and neat.
2. Relocate temporary services and facilities as required by progress of the Work.

1.6 GENERAL PROVISIONS

A. Furnish and maintain during the construction period temporary requirements and facilities and perform temporary Work as required in the performance of this Contract. Upon completion of the Work, all temporary facilities shall be removed and the premises left clean.

B. General: Provide new materials. Undamaged, previously used materials in serviceable condition may be used if approved by Owner's Project Manager. Provide materials suitable for use intended.

C. Ingress and Egress:

1. Ingress and egress to the Project construction areas shall be determined by the Owner's Project Manager.
2. Contractors shall not damage any drives, curbs, sidewalks and other site improvements that remain in place.

    a. Materials and items which are not designated to be removed and are damaged shall be removed and replaced with new materials which match existing.

3. Such means of ingress and egress must take into account that the entrances to existing and adjacent buildings and related access ways must remain open, in operation, unobstructed and available for normal daily operations (and possible emergency exit).
4. Obtain permission from the Owner's Project Manager where necessary to drive a vehicle of any sort over a curb and gutter and onto a sidewalk and on or across a utility tunnel. Such permission will only be granted after an inspection of the areas involved is made. Any damages resulting from passage of vehicles of any sort over curbs, gutters and sidewalks shall be repaired by the contractor at his own expense. Driving of any vehicle over curbs and gutters onto sidewalks without permission will be considered to have been the cause of any flaws found and the contractor shall repair them at his expense.

D. Access to Existing Adjacent Buildings:

1. The Contractor shall caution all workmen regarding blocking of roadways, illegal parking, blocking of loading docks and blocking of existing facilities from buildings.
2. Throughout the construction period, emergency vehicles routes and access to service entrances of adjacent buildings must be maintained.
3. Coordinate any temporary shutdown of drives or entrances with the Owner.

E. Maintaining the Use of Existing Adjacent Buildings:

1. It shall be understood that all existing adjacent buildings shall operate in a normal manner, without disruption of essential services to the satisfaction of the Owner during construction operations.

F. Maintaining Existing Building Security

1. Secure the Project against the entrance of unauthorized persons through construction areas.
2. Maintain proper closures at any openings required in the present exterior walls accommodate construction operations and the sequence of work.

G. Protecting Existing Materials, Finishes and Mechanical and Electrical

1. All existing materials and finishes designated to remain shall be protected from damage by construction operations and from the elements during the entire period of construction operations. Any existing materials, finishes, mechanical and electrical installations damaged by construction operations or by the elements shall be repaired or replaced as necessary, at no cost to the Owner and to the approval of the Owner's Project Manager.

H. Storage of Materials:

1. The Contractor shall confine storage of materials within the contract work area (or other location) as directed by the Owner's Project Manager.
2. Contractor shall be responsible for assigning locations and space for each subcontractor's storage and staging area.
3. Make arrangements for use of all storage areas with Owner's Project Manager.

I. Signs: The use of signs on the project shall be as approved by the Owner's Project Manager.

J. Demolition Dust Control: Where directed by the Owner's Project Manager, the Contractor shall utilize appropriate dust containment and barriers during demolition activities. The Owner will provide a negative air unit for the Contractor's use during demolition as directed by the Owner's Project Manager.

K. Chain-Link Fencing: Minimum 2-inch 9-gage, galvanized steel, chain-link fabric fencing; minimum 6 feet high with galvanized steel pipe posts; minimum 2-3/8-inch- OD line posts and 2-7/8-inch- OD corner and pull posts. (Plastic fence is prohibited from being used on campus.)

L. Tarpaulins: Fire-resistive labeled with flame-spread rating of 15 or less.

M. Water: Potable

PART 2 - PRODUCTS

2.1 EQUIPMENT

A. Fire Extinguishers: Hand carried, portable, UL rated. Comply with NFPA 10 and NFPA 241 for classification, extinguishing agent, and size required by location and class of fire exposure.

B. Drinking-Water Fixtures: Containerized, tap-dispenser, bottled-water drinking-water units, including paper cup supply.

C. Heating Equipment: Unless Owner authorizes use of permanent heating system, provide vented, self-contained, liquid-propane-gas or fuel-oil heaters with individual space thermostatic control.

1. Use of gasoline-burning space heaters, open-flame heaters, or salamander-type heating units is prohibited.
2. Heating Units: Listed and labeled, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use for type of fuel being consumed.

D. Electrical Outlets: Properly configured, NEMA-polarized outlets to prevent insertion of 110- to 120-V plugs into higher-voltage outlets; equipped with ground-fault circuit interrupters, reset button, and pilot light.

E. Power Distribution System Circuits: Where permitted and overhead and exposed for surveillance, wiring circuits, not exceeding 125-V ac, 20-A rating, and lighting circuits may be nonmetallic sheathed cable.

F. Roof Harness and Tie-Off Line: Provide harness and tie-off line in accordance with Contractor's sole responsibility for conformance with OSHA requirements for construction.

2.2 SECURITY AND PROTECTION FACILITIES INSTALLATION

A. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction in ways and by methods that comply with environmental regulations and that minimize possible air, waterway and subsoil contamination or pollution or other undesirable effects. Avoid using tools and equipment that produce harmful noise.

B. Site Enclosure Fence: Before construction operations begin, install chain-link enclosure fence with lockable entrance gates. Locate where indicated, or if not indicated, enclose entire Project site or portion determined sufficient to accommodate construction operations. Install in a manner that will prevent people, dogs, and other animals from easily entering site except by entrance gates.

1. Set fence posts in compacted mixture of gravel and earth.

C. 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.

D. Barricades, Warning Signs and Lights: Comply with standards and code requirements for erecting structurally adequate barricades. Paint with appropriate colors, graphics and warning signs to inform personnel and public of possible hazard. Where appropriate and needed, provide lighting, including flashing red or amber lights.

E. Fire Protection: Until fire protection is supplied by permanent facilities, the Contractor shall install and maintain temporary fire protection to types needed to protect against predictable and controllable fire losses.

F. Rodent and Pest Control: Retain an exterminator or pest control company to perform extermination and control procedures so the project will be free of pests at Substantial Completion. Perform operations in a lawful manner using environmentally safe materials.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Install work in neat orderly manner, structurally sound.

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

C. Provide each facility ready for use when needed to avoid delay. Maintain and modify as required. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.

D. 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 weather tight enclosure for building exterior.

E. Temporary Partitions: Erect and maintain dustproof partitions and temporary enclosures to limit dust and dirt migration and to separate areas from fumes and noise.

1. Construction dustproof partitions of not less than nominal 4-inch studs, 2 layers of 3-mil polyethylene sheets, inside and outside temporary enclosure and sealed to floor with tape. Overlap and tape full length of joints.

a. Construct a vestibule and airlock at each entrance to temporary enclosure with not less than 48 inches between doors. Maintain water-dampened foot mats in vestibule.

F. Burning of trash on the site is prohibited.

3.2 TEMPORARY UTILITY INSTALLATION

A. General: Engage appropriate local utility company to install temporary service or connect to existing service. Where utility company provides only part of the service, provide the remainder with matching, compatible materials and equipment. Comply with utility company recommendations.

B. Arrange with utility company, Owner, and existing users for time when service can be interrupted, if necessary, to make connections for temporary services.

1. Provide adequate capacity at each stage of construction. Before temporary utility is available, provide trucked-in services.
2. Obtain easements to bring temporary utilities to Project site where Owner's easements cannot be used for that purpose.

C. Sewers and Drainage: If sewers are available, provide temporary connections to remove effluent that can be discharged lawfully. If sewers are not available or cannot be used, provide drainage ditches, dry wells, stabilization ponds, and similar facilities. If neither sewers nor drainage facilities can be lawfully used for discharge of effluent, provide containers to remove and dispose of effluent off-site in a lawful manner.

1. Filter out excessive soil, construction debris, chemicals, oils, and similar contaminants that might clog sewers or pollute waterways before discharge.
2. Connect temporary sewers to municipal or private system designated by Owner as directed by sewer department officials.
3. Maintain temporary sewers and drainage facilities in a clean, sanitary condition. After heavy use, restore normal conditions promptly.
4. Provide temporary filter beds, settlement tanks, separators, and similar devices to purify effluent to levels acceptable to authorities having jurisdiction.
5. Water Service: Install water service and distribution piping in sizes and pressures adequate for construction until permanent water service is in use. Sterilize temporary water piping before use.
6. Provide rubber hoses as necessary to serve Project site.
7. As soon as water is required at each level, extend service to form a temporary water- and fire-protection standpipe. Comply with Owner’s requirements, if any, for spacing and characteristics of standpipes. Provide distribution piping. Space outlets so water can be reached with a 100-foot hose.

8. Where installations below or adjacent to an outlet might be damaged by spillage or leakage, provide a drip pan of suitable size to minimize water damage. Drain accumulated water promptly from pans.
9. Provide pumps to supply a minimum of 30-psi static pressure at highest point. Equip pumps with surge and storage tanks and automatic controls to supply water uniformly at reasonable pressures.

D. Sanitary Facilities: (Only required on new buildings) Provide temporary toilets, wash facilities, and drinking-water fixtures. Comply with regulations and health codes for type, number, location, operation, and maintenance of fixtures and facilities.

1. Disposable Supplies: Provide and maintain toilet tissue, paper towels, paper cups, and similar disposable materials for each facility.
2. Toilets: Install self-contained toilet units.
3. Wash Facilities: Install wash facilities supplied with potable water at convenient locations for personnel who handle materials that require wash up. Dispose of drainage properly. Supply cleaning compounds appropriate for each type of material handled.
4. Drinking-Water Facilities: Provide bottled-water, drinking-water units.

E. Heating and Cooling: Provide temporary heating and cooling required by construction activities for curing or drying of completed installations or for protecting installed construction from adverse effects of low temperatures or high humidity.

1. Maintain a minimum temperature of 50 deg F in permanently enclosed portions of building for normal construction activities, and 65 deg F for finishing activities and areas where finished Work has been installed.

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 from that specified 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: Provide weatherproof, grounded electric power service and distribution system of sufficient size, capacity, and power characteristics during construction period. Include meters, transformers, overload-protected disconnecting means, automatic ground-fault interrupters, and main distribution switchgear.

H. Electric Distribution: Provide receptacle outlets adequate for connection of power tools and equipment.

1. Provide metal conduit, tubing, or metallic cable for wiring exposed to possible damage. Provide rigid steel conduits for wiring exposed on grades, floors, decks, or other traffic areas.
2. Provide metal conduit enclosures or boxes for wiring devices.
3. Provide 4-gang outlets, spaced so 100-foot extension cord can reach each area for power hand tools and task lighting. Provide a separate 125-V ac, 20-A circuit for each outlet.

I. Lighting: Provide temporary lighting with local switching that provides adequate illumination for construction operations and traffic conditions.

1. Install and operate temporary lighting that fulfills security and protection requirements without operating entire system.

J. Telephone Service: Provide temporary telephone service throughout construction period for common-use facilities used by all personnel engaged in construction activities.

3.3 SUPPORT FACILITIES INSTALLATION

A. Traffic Controls: Provide temporary traffic controls at junction of temporary roads with public roads. Include warning signs for public traffic and "STOP" signs for entrance onto public roads. Comply with requirements of authorities having jurisdiction.

B. Street Cleaning: Provide regular street cleaning during course of construction for public streets subject to construction dirt and debris.

C. Dewatering Facilities and Drains: Comply with requirements in applicable Division 2 Sections for temporary drainage and dewatering facilities and operations not directly associated with construction activities included in individual Sections. Where feasible, use same facilities. Maintain Project site, excavations, and construction free of water.

1. Dispose of rainwater in a lawful manner that will not result in flooding Project or adjoining property nor endanger permanent Work or temporary facilities.
2. Before connection and operation of permanent drainage piping system, provide temporary drainage where roofing or similar waterproof deck construction is completed.
3. Remove snow and ice as required to minimize accumulations.

D. Waste Disposal Facilities: Provide waste-collection containers in sizes adequate to handle waste from construction operations. Containerize and clearly label hazardous, dangerous, or unsanitary waste materials separately from other waste.

1. If required by authorities having jurisdiction, provide separate containers, clearly labeled, for each type of waste material to be deposited.

E. Janitorial Services: Provide janitorial services on a daily basis for temporary offices, first-aid stations, toilets, wash facilities, lunchrooms, and similar areas.

F. Common-Use Field Office: Provide an insulated, weather tight, air-conditioned field office for use as a common facility by all personnel engaged in construction activities; of sufficient size to accommodate required office personnel and meetings of 10 persons at Project site. Keep office clean and orderly.

G. Storage and Fabrication Sheds: Provide sheds sized, furnished, and equipped to accommodate materials and equipment involved, including temporary utility services. Sheds may be open shelters or fully enclosed spaces within building or elsewhere on-site.

H. Lifts and Hoists: Provide facilities for hoisting materials and personnel. Truck cranes and similar devices used for hoisting materials are considered "tools and equipment" and not temporary facilities.

I. Temporary Stairs: Until permanent stairs are available, provide temporary stairs where ladders are not adequate. Cover finished permanent stairs with protective covering of plywood or similar material so finishes will be undamaged at time of acceptance.

J. Site Enclosure Fence: Before construction operations begin, install chain-link enclosure fence with lockable entrance gates. Locate where indicated, or if not indicated, enclose entire Project site or portion determined sufficient to accommodate construction operations. Install in a manner that will prevent people, dogs, and other animals from easily entering site except by entrance gates.

1. Set fence posts in compacted mixture of gravel and earth.

K. 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.

L. Temporary Fire Protection: Until fire-protection needs are supplied by permanent facilities, install and maintain temporary fire-protection facilities of types needed to protect against reasonably predictable and controllable fire losses. Comply with NFPA 241.

1. Provide fire extinguishers, installed on walls on mounting brackets, visible and accessible from space being served, with sign mounted above.

a. Field Offices: Class A stored-pressure water-type extinguishers.
b. Other Locations: Class ABC dry-chemical extinguishers or a combination of extinguishers of NFPA-recommended classes for exposures.

c. Locate fire extinguishers where convenient and effective for their intended purpose; provide not less than one extinguisher on each floor at or near each usable stairwell.

2. Provide temporary standpipes and hoses for fire protection. Hang hoses with a warning sign stating that hoses are for fire-protection purposes only and are not to be removed. Match hose size with outlet size and equip with suitable nozzles.

3.4 OPERATION, TERMINATION, AND REMOVAL

A. Maintenance: Maintain facilities in good operating condition until removal. Protect from damage caused by freezing temperatures and similar elements.

B. Operation: Enforce strict discipline in use of temporary facilities. Limit availability to intended use to minimize abuse. Maintain facilities in good operating condition until removal. Protect from damage by freezing temperatures and the elements.

C. Temporary Facility Changeover: Except for using permanent fire protection as soon as available, do not change over from using temporary security and protection facilities to permanent facilities until Substantial Completion without written consent of Owner.

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.

1. Materials and facilities that constitute temporary facilities are the property of Contractor except for Project identification signs.
2. Remove temporary paving not intended for or acceptable for integration into permanent paving. Where area is intended for landscape development, remove soil and aggregate fill that do not comply with requirements for fill or subsoil. Remove materials contaminated with road oil, asphalt and other petrochemical compounds, and other substances that might impair growth of plant materials or lawns. Repair or replace street paving, curbs, and sidewalks at temporary entrances, as required by authorities having jurisdiction.
3. At Substantial Completion, clean and renovate permanent facilities used during construction period.

3.5 REPAIR OF DAMAGED AREAS

A. All landscaping, driveways and parking lot areas, etc., which have been occupied and/or damaged by construction operations or material storage, shall be repaired

and restored to their original condition to the approval of the Owner's Project Manager before Substantial Completion will be issued.

END OF SECTION

01 56 36
TREE PROTECTION AND TRIMMING

SECTION 01 56 36
TREE PROTECTION AND TRIMMING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This section includes the protection and trimming of existing trees that interfere with, or are affected by, execution of the Work, whether temporary or permanent construction.

1.3 DESCRIPTIONS

A. Protected Tree: Any tree that the Campus Arborist, in agreement with the site Construction Superintendent, has designated to be of high value because of its type, age, or other professional criteria.

B. Root Zone: The ground area surrounding each tree containing its root system, defined by a radius equal to the trunk diameter at breast height (dbh) in inches multiplied by 1.5 feet per inch. For example, a 10 inch dbh tree would have root zone extending 15 feet from the trunk in all directions.

C. Protected Root Zone (PRZ): The part of the Root Zone of a Protected Tree which must be protected from construction damage. The Protected Root Zone for other existing plants may be indicated on the Landscape Protection Plan.

D. Landscape Protection Plan: A plan that identifies areas of plant preservation and methods of protection within the Protected Root Zones. The methods may consist of fencing, mulching, etc.

E. Compaction: Increased soil density. This results in death of existing roots and/or greater difficulty for new roots to develop. Damage may be caused by many agents, including the use of heavy equipment, concentrated foot traffic, and storage of heavy materials under or around trees.

F. Damage: Shall include any of the prohibited practices listed below and as determined solely by the Owner.

G. Prohibited Practices: Shall include, but are not limited to:

1. Breaking of branches, scraping of bark, or unauthorized cutting.
2. Nailing or bolting into trees or using trees as temporary support in any way (including cabling around any part of the tree).
3. Unauthorized filling, excavating, trenching, or use of augers within Protected Root Zones.

4. Compaction of or driving over Protected Root Zones.
5. Storage of any materials or vehicles within Protected Root Zones.
6. Dumping of construction waste or materials within Protected Root Zones.
7. Disposal of liquid waste or contaminants in an area which may impact protected trees or their Protected Root Zones.
8. Unauthorized removal or relocation of Protected Trees.
9. Removal of tree protection barricades or construction fencing prior to completion of project.
10. Any other practices listed on the Landscape Protection Plan.

1.4 SUBMITTALS

A. Product Data: for each type of product indicated.

1.5 QUALITY ASSURANCE

A. Preconstruction Conference: Project Manager may call a preconstruction conference to review project requirements, including tree protection and trimming, prior to start of construction.

B. Before tree protection and trimming operations begin, Contractor will meet with Owner's representative to review tree protection and trimming procedures and responsibilities.

C. On-going Site Inspection

1. The Campus Arborist will monitor the construction site throughout the construction process. Violations and damages will be handled according to construction department guidelines and specifications stated in the contract or Landscape Protection Plan.
2. The Campus Arborist will notify the Project Manager of any breach of the contract or Landscape Protection Plan. At this time, the Contractor will stop and/or correct whatever practice led to the breach.
3. If a breach of contract occurs, damages will be assessed according to the Tree Appraisal Schedule listed in the landscape protection plan. (Damages are established based on the pre-established value of the affected tree and the amount of both short and long term damage done to that tree. The Campus Arborist shall perform the damage assessment.)
4. The Contractor shall immediately contact the Owner's representative should protected trees be compromised in violation of agreed upon specifications. Failure to communicate promptly could result in damages of up to 100% of the appraised value.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Chain-Link Fence: Metallic-coated steel chain-link fence fabric of 0.120-inch-(3-mm-) diameter wire; a minimum of 72 inches (1200 mm) high; with 1.9-inch-(48-mm-) diameter line posts; 2-3/8-inch- (60-mm-) diameter terminal and corner posts; 1-5/8-inch- (41-mm-) diameter top rail; and 0.177-inch- (4.5-mm-) diameter bottom tension wire; with tie wires, hog ring ties, and other accessories for a complete fence system.

B. Organic Mulch: Shredded hardwood bark, free of deleterious materials.

PART 3 - EXECUTION

3.1 PREPARATION

A. Temporary Fencing, Install 6-foot high, non-moveable, temporary, chain link fencing around Protected Root Zones where indicated on plans to protect remaining trees and vegetation from construction damage. Maintain temporary fence and remove when construction is complete.

1. Provide access for landscape maintenance equipment.

B. Protect tree root systems from damage caused by runoff or spillage or noxious materials while mixing, placing, or storing construction materials. Keep Protected Root Zones free of ponding, eroding, or excessive wetting caused by dewatering operations.

C. Mulch Protected Root Zones where indicated on plans to minimize compaction.

1. Apply 12-inch (300-mm) average thickness of organic mulch. Do not place mulch within 6 inches (150 mm) of tree trunks.
2. Mechanical equipment can be used to place and remove mulch as long as it operates only on previously placed mulch.

D. Do not store construction materials, debris, or excavated material inside Protected Root Zones. Do not permit vehicles or persistent foot traffic within Protected Root Zones; prevent soil compaction over root systems.

E. Maintain fence enclosed Protected Root Zones in pre-construction condition and free of weeds and trash.

F. Do not allow fires within Protected Root Zones.

3.2 EXCAVATION

A. Install shoring or other protective support systems to minimize sloping or benching of excavations adjacent to Protected Root Zones.

B. Do not excavate within Protected Root Zones, unless otherwise indicated.

C. Where utility trenches are required within Protected Root Zones, the Owner should be consulted. Tunneling under or around roots by drilling, auger boring, pipe jacking, or digging by hand may be required.

1. Root Pruning: Cut roots with sharp pruning instruments; do not break or chop.

3.3 REGRADING

A. Grade Changes: Where new finish grade is indicated below or above existing grade around trees, slope grade beyond Protected Root Zones. Maintain existing grades within Protected Root Zones.

3.4 TREE PRUNING

A. All tree pruning before, during, and after construction activity, will be performed by Owner.

3.5 TREE DAMAGE, REPAIR, AND REPLACEMENT

A. Immediately notify Owner of trees damaged by construction operations.

B. Repairs and replacements will be handled by Owner.

3.6 DISPOSAL OF WASTE MATERIALS

A. Burning is not permitted.

B. Disposal: Remove excess excavated material and displaced trees per Owner's direction.

END OF SECTION

01 66 00
PRODUCT HANDLING

SECTION 01 66 00
PRODUCT HANDLING

PART 1 - GENERAL

1.1 DEFINITION

A. Product Handling shall mean the complete process of delivery, handling, unloading, and storage of all materials, including equipment, tools, and supplies shipped to the Project site.

1.2 DELIVERY

A. Deliver material, supplies, or equipment to Project site during working hours. Coordinate all deliveries with Owner.

B. Deliveries made during other than normal working hours must be received by an authorized agent of Contractor involved or be received by other means which shall be the sole responsibility of that Contractor.

C. The Owner will under no circumstances receive any materials/equipment for the Contractor. The Owner will refuse such deliveries, and said deliveries will be returned to the supplier with any charges resulting from such being refused the responsibility of the Contractor.

D. Under no circumstances shall shipments be directed to, or in care of, the Owner.

E. Each Contractor, Subcontractor, Manufacturer, or Supplier furnishing materials/equipment to the site, shall identify, ship, address, consign, etc., all such materials/equipment to the Contractor who may be charged therewith by giving the name of the Contractor, the name and address of the Project.

1.3 HANDLING AND UNLOADING

A. Immediately upon delivery, the Contractor shall check for any damage to materials/equipment that occurred prior to, or during shipment. Damaged material/equipment shall be replaced or repaired to a “like new” condition and must be approved and/or acceptable to the Owner and/or the Engineer.

B. Handling and/or unloading shall be performed so as to not cause any damage to materials/equipment permanently incorporated in the Work.

C. Unload materials/equipment only where it will not interfere with the Owner’s and other Contractor’s operations.

D. Owner may require that Contractor use dummy load as test for rigging of major equipment or material items.

1.4 STORAGE

A. The Contractor shall provide suitable storage facilities at the site for the proper protection and safe storage of his materials/equipment. Contractor shall provide storage at a suitable location other than at the site for materials/equipment until required for rigging. Contractor is responsible for the safe storage of the materials/equipment. Consult the Owner's representative before storing any materials/equipment.

B. All materials/equipment delivered to the site that are permanent parts of the Work are to be considered the property of the Owner and shall not be removed without the Owner's consent. The Contractor shall remove all surplus materials upon completion of each phase of the Work and as directed by the Owner.

C. Confine storage at the site areas permitted by laws, ordinances, permits, the Contract Documents, and/or otherwise required by the Owner. Do not unreasonably encumber the site with materials/equipment.

D. Contractor shall obtain and pay for use of any additional storage or work areas that he requires for the satisfactory performance of his Work.

E. Contractor shall be cautious and not load the structure with weight that might cause damage or endanger the structure. Verify construction loading limits with the Engineer prior to any loading of the structure.

F. Contractor shall remove or relocate stored materials/ equipment that encumbers other Contractor's Work or the Owners operations.

1.5 RIGGING

A. If rigging of materials/equipment require the use of a crane, or any other major piece of rigging equipment, the Contractor shall notify the Owner seven (7) days in advance of the date of rigging. The Contractor shall coordinate the time, place, and traffic effects with the Owner in order to minimize the safety and traffic hazards created.

B. The Contractor is responsible for any/all costs required for traffic control.

PART 2 - PRODUCTS

Not used.

PART 3 - EXECUTION

Not used.

END OF SECTION

01 73 29
CUTTING AND PATCHING

SECTION 01 73 29
CUTTING AND PATCHING

PART 1 - GENERAL

1.1 REQUIREMENTS INCLUDED

A. Contractor shall be responsible for all cutting, fitting and patching as required to complete the work.

1.2 PREPARATION

A. Provide devices and methods to protect other portions of project from damage.

1.3 PERFORMANCE

A. Execute cutting and demolition by methods which will prevent damage to other work, and will provide surfaces to receive installation of repairs.

B. Execute fitting and adjustment of products to provide a finished installation to comply with specified products, functions, tolerances and finishes.

C. Restore work which has been cut or removed; install new products to provide completed work in accordance with requirements of Contract Documents.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Unless otherwise noted on plans, use materials of similar quality, color and finish to compliment or match existing.

PART 3 - EXECUTION

3.1 PREPARATION

A. Prepare existing surfaces to receive new materials.

3.2 INSTALLATION

A. Install materials plumb, level, flush and true to line.

B. Finish surfaces to blend in with existing to fully finished appearance.

END OF SECTION

01 74 00
CLEANING

SECTION 01 74 00
CLEANING

PART 1 - GENERAL

1.1 REQUIREMENTS

A. In general, each Contractor shall be responsible for all clean-up and cleaning of his Work.

B. It is the specific intent of this Section to convey to the Contractor the requirements relative to clean-up and cleaning.

C. Conduct all clean-up operations to comply with local ordinances and anti-pollution laws.

1. Do not burn or bury rubbish and waste materials on project site.
2. Do not dispose of volatile wastes such as mineral spirits, oil, or paint thinner in storm or sanitary sewers.
3. Do not dispose of wastes into streams or waterways.

D. Conduct all clean-up operations to maintain safety and hazard control.

1. Store volatile wastes in covered metal containers, and remove from premises daily.
2. Prevent accumulation of wastes which create hazardous condition.
3. Provide adequate ventilation during use of volatile or noxious substances.

1.2 CLEAN UP DURING CONSTRUCTION

A. As a result of, or during the performance of his Work, each Contractor shall perform clean-up on a continuing basis, or as required.

B. Perform clean-up to ensure that the building, site, and all adjacent properties are maintained free from accumulations of waste, debris, and rubbish.

C. At reasonable intervals or as conditions require, perform site clean-up of waste and surplus materials. Maintain and clean public and private streets and roadways, as required.

D. The Contractor shall provide at a convenient location on the project site trash container(s) of appropriate size and shall be responsible for periodic servicing of same.

E. Each Contractor shall be responsible to collect and deposit in the trash container all waste, debris, and rubbish caused by his operations, on a daily basis. Each Contractor shall collect daily and remove from the job site any liquid or solid waste requiring special handling for disposal.

F. Perform clean-up without causing damage to the Work. Schedule clean-up so that dust, etc., will not fall on wet, newly painted surfaces.

G. At completion of Work, remove all waste materials, debris, rubbish, tools, equipment, and surplus materials and supplies from the project.

1.3 FINAL CLEANING

A. As a result of, and following the performance of his Work, each Contractor shall perform cleaning of his finished Work, in the preparation for Punch Lists, inspections, substantial completion, and/or occupancy by the Owner.

B. Use experienced workmen or professional cleaners for final cleaning.

C. Remove grease, dust, dirt, stains, labels, fingerprints, and other foreign materials incurred as a result of the Work, from sight-exposed interior and exterior finished surfaces.

D. Repair, replace, patch, and touch-up marred surfaces to specified finish to match the finish of the product. No razor blades shall be used on any glass surface.

E. Remove all foreign materials from roofs.

F. Broom clean concrete surfaces soiled as a result of this work.

G. Clean all equipment, and other products and materials, as normally required and acceptable.

H. Following the substantial completion and final cleaning of the Work by the Contractor, should additional cleaning be required as determined by the Owner, the Contractor responsible for such additional cleaning shall bear the costs thereof.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Use only cleaning materials recommended by the manufacturer of surface to be cleaned.

B. Use cleaning materials only on surfaces recommended by cleaning material manufacturer.

END OF SECTION

01 77 00
CONTRACT CLOSE-OUT

PART 1 - GENERAL

1.1 SUMMARY

A. This Section specifies administrative and procedural requirements for project closeout, including but not limited to:

1. Inspection procedures for Substantial Completion and Final Completion.
2. Project record document submittal.
3. Operating and maintenance manual submittal.
4. Submittal of warranties.
5. Final cleaning.
6. Post Construction Review Meeting.

B. Closeout requirements for specific construction activities are included in the appropriate Sections in Divisions 2 through 45.

1.2 SUBSTANTIAL COMPLETION

A. Preliminary Procedures: Before requesting an inspection for certification of Substantial Completion (for either entire Work or portions thereof), complete the following. List exceptions in the request.

1. Submit written notice that the project is substantially complete to the Architect and Owner. Provide a list of items not yet in conformance with the contract documents which require attention.
2. Submit one (1) electronic copy of the Operation and Maintenance Manuals to the Architect through Procore.
3. Submit Record Drawings to the Architect through Procore. If only a portion of the work is substantially complete, submit a copy of the Record Drawings covering the completed work.
4. Submit specific warranties, workmanship bonds, maintenance agreements, final certifications, and similar documents to the Architect.
5. Obtain and submit releases enabling the Owner unrestricted use of the Work and access to services and utilities; operating certificates, and similar releases.
6. Deliver tools, spare parts, extra stock, and similar items with appropriate transmittal to the Owner.
7. Complete start-up testing of systems, and instruction of the Owner's operating and maintenance personnel. Discontinue or change over and remove temporary facilities from the site, along with construction tolls, mock-ups, and similar elements.
8. Complete final clean up requirements, including touch-up painting.

B. Inspection Procedures: Upon receipt of a request for inspection, the Architect will either proceed with inspection or advise the Contractor on unfilled requirements. The Architect will prepare the Certificate of Substantial Completion following

inspection, or the Architect will advise the Contractor of construction that must be completed or corrected before the certificate will be issued.

1. The Architect will repeat inspection when requested and assured that the Work has been substantially completed.
2. Results of the completed inspection will form the basis of requirements for final completion.

C. Issuance of Certificate:

1. Upon a satisfactory inspection and Contractor completion of the items of substantial completion, the Architect will issue Certificate of Substantial Completion and forward to Contractor.

1.3 FINAL COMPLETION

A. Preliminary Procedures: Before requesting final inspection for the certification of final Completion and final billing, complete the following. List exceptions in the request.

1. Submit "Consent of Surety to Final Payment." This consent shall be completed by the Surety and mailed to the University.
2. Submit final billing request with final releases and supporting documentation not previously submitted or accepted to Owner.
3. Submit a signed copy of the Architect's final inspection list of items to be completed or corrected, stating that each item has been completed or otherwise resolved for completion to the Architect.
4. Deliver tools, spare parts, extra stock of materials, and similar physical items to the Owner.
5. Return loaned construction keys to Purdue University Lock Shop, and advise Owner's personnel of change-over in security provisions.
6. Complete start-up testing of systems, and instruction of Owner's Operating/maintenance personnel. Discontinue or change-over and remove from project site temporary facilities and services, along with construction tools and facilities, mock-ups, and similar elements.
7. Complete final cleaning requirements, including touch-up of marred surfaces. Touch-up, repair, and restore marred exposed finishes.

B. Reinspection Procedure: The Architect will reinspect the Work upon receipt of notice that the Work, including inspection list items from earlier inspections, has been completed, except items whose completion has been delayed because of circumstances acceptable to the Architect.

1. Upon completion of reinspection, the Architect will prepare a certificate of final completion, or advise the Contractor of Work that is incomplete or of obligations that have not been fulfilled but are required for final completion.
2. If necessary, reinspection will be repeated.

1.4 REINSPECTION FEES

A. Should the Architect be required to perform reinspections due to failure of the work to comply with the status of completion claimed by the Contractor, Owner will:

1. Compensate the Architect for such additional or "extra" services; and
2. Deduct the amount of such compensation from the final payment to the Contractor.

1.5 RECORD DOCUMENT SUBMITTALS

A. General: Do not use record documents for construction purposes; protect from deterioration and loss in a secure location; provide access to record documents for the Architect's reference during normal working hours.

B. The Contractor shall update the Record Documents regularly, and in no event less than once per week. As part of the weekly project meeting, the Contractor shall inform the Project Manager of the status of the updating of Record Documents and, if requested by the Project Manager or Architect, demonstrate that the Record Documents have been recently updated to show current conditions. Failure on the part of the Contractor to update the Record Documents as provided herein shall be cause for withholding a portion of monthly payment until such failure is corrected.

C. Do not permanently conceal any work until required information has been recorded.

D. Record Drawings: Maintain a clean, undamaged set of blue or black line prints of Contract Drawings, Shop Drawings, and Coordination Drawings. Mark the set to show the actual installation where the installation varies substantially from the Work as originally shown. Mark whichever drawing is the most capable of showing conditions fully and accurately; where Shop Drawings or Coordination Drawings are used, record a cross-reference at the corresponding location on the Contract Drawings. Give particular attention to concealed elements that would be difficult to measure and record at a later date. Submit record drawings at Substantial Completion to the Architect.

1. Mark record sets with red erasable pencil; use other colors to distinguish between variations in separate categories of the Work.
2. Mark new information that is important to the Owner, but was not shown on Contract Drawings, Shop Drawings, or Coordination Drawings.
3. Note related Request for Information (RFI) numbers and Change Order numbers where applicable.
4. Keep accurate measurements of underground services and utilities referenced to the building or other permanent construction.
5. Note changes of directions and locations, by dimensions and elevations, as utilities are actually installed. Show mechanical dampers, valves, reheat boxes, cleanouts, and other items that require maintenance.
6. Show location of construction-concealed internal utilities and appurtenances referenced to visible and accessible features of the structure.

7. Record accurate locations of piping, valves, traps, dampers, duct work, equipment, and the like.
8. Indicate field changes of dimension and detail.
9. "X-out" and appropriately annotate "not constructed" - whichever condition most clearly conveys the actual "as constructed" condition.
10. Show addenda items.
11. Organize record drawing sheets into bound manageable sets
12. Every page needs a red stamp or label on the lower right hand corner near the title block stating “AS-BUILTS”

E. Miscellaneous Record Submittals: Refer to other Specification Sections for requirements of miscellaneous record-keeping and submittals in connection with actual performance of the Work. Immediately prior to date or dates of Substantial Completion, complete miscellaneous records and place in good order, properly identified and bound or filed, read with continued use and reference. Submit to the Architect.

1.6 OPERATING AND MAINTENANCE MANUALS

A. Renovations - Provide one (1) electronic copy through Procore. New Buildings – Provide one (1) electronic copy through Procore and two (2) original hard copies of Maintenance Manual(s). Deliver the preliminary manual to the Architect for review prior to Substantial Completion or starting of major equipment, whichever is sooner. The preliminary copy shall comply with all of these requirements except the covers (although the intended layout for same shall be provided). Deliver final manuals and PDF files to Architect for final review. Architect to forward final sets prior to final completion to Owner.

B. General Construction Work:

1. All materials and equipment will be listed by corresponding specification section.
2. Final paint and color schedule, manufacturer of paint used, number, location, matching Sherwin Williams paint formula or number; final carpet selection and color, locations; final plastic laminate selections and color, locations; and all other finishes. Recommended maintenance and cleaning procedures for all exposed interior and exterior materials.
3. Copies of Warranties and Guaranties, with names of servicing agencies.

    a. All executed certificates, warranties, bonds, and any required service and maintenance contracts from the respective manufacturers, suppliers, and subcontractors.
    b. Provide complete information for each of the following:

        1) Product or work item;
        2) Firm, with name of principal, address, and telephone number;

3) Scope;
4) Substantial Completion Letter;
5) Date of beginning of warranty or service and maintenance contract (unless approved otherwise, the warranty begins on the date of Substantial Completion);
6) Duration of warranty or service maintenance contract;
7) Proper procedure in case of failure;
8) Insurances which might affect validity of warranty or bond;
9) Contractor's name or responsible principal, address, and telephone number.

4. Emergency Instructions.
5. Spare parts list.
6. Recommended “turn around” cycles of equipment, maintenance, and surface treatments or finishes.
7. Shop drawings and product data of actual installed items.
8. Original warranties – to be submitted under separate cover.
9. General custodial cleaning instructions for interior finish materials utilized.

C. Work of Divisions 21, 22, & 23 (Mechanical) and Divisions 25, 26, 27, & 28 (Electrical):

1. Copies of approved equipment submittals including equipment manufacturer, make, model number, size, unique equipment ID, serial number, installed location, etc.
2. Supplier's name, address, phone, and reference order numbers.
3. Equipment nameplate and data of major items.
4. Description of system configuration and operation including component identification and interrelations. A master control schematic drawing(s) will normally be required for this purpose.
5. Dimensional and performance data for specific unit provided. Extraneous catalog data must be eliminated.
6. Manufacturers' recommended operation instructions as appropriate.
7. Manufacturers' recommended lubrication and servicing data.
8. Complete parts list including recording information, recommended spares, and anticipated useful life.
9. Fan and pump curves.
10. Fixture lamping schedule.
11. Wiring diagrams.
12. Inspection Procedures.
13. Recommended "tum around" cycles of all equipment and maintenance.
14. Single-Line Diagrams, Flow Diagrams of systems.
15. Final Testing and Balancing Report – to be submitted under separate cover.
16. As-built sequences of operations, control drawings, and original set points.
17. Recommended schedule of calibrating sensors and actuators.

D. Binders:

1. Copies shall be properly indexed and three-hole punched in locking three-ring binders. Provide pocket folders for folded sheet information.
2. Imprint covers with "OPERATING AND MAINTENANCE MANUAL," "PROJECT TITLE," "Purdue University," Prime Architect/Engineer, and Prime General Contractor, and year of completion.
3. Imprint the back edge with "OPERATING AND MAINTENANCE MANUAL," "PROJECT TITLE," and the year of completion.
4. Each copy shall have a type written index and tabbed dividers between categories or sections.
5. Each copy or volume of manual shall not exceed 3-1/2 inch width when three inch binders are used. Label volumes successively by volume # (Ex. Vol. 1 of 3).
6. Each Volume will contain a Table of Contents and Tabs 1-3 noted below.
7. These manuals shall contain all the information needed to operate and maintain all systems and equipment provided in the project. Present and arrange logically for efficient use by the Owner's operating personnel As a minimum the information provided shall include the following:

    a. Table of Contents
    b. Tab 1 – Substantial Completion Letter
    c. Tab 2 – Contact list and corresponding scope of work containing phone, fax, email, and address of the prime contractor, subcontractors, and major manufacturers.
    d. Tab 3 – Prime contractor’s 1 yr. standard warranty on labor and material.
    e. Remaining tabs contain CSI Divisions 2-45.

1.7 CORRECTION OF WORK DURING GUARANTEE PERIOD

A. Corrections: Where items on the Architect's "Punch List" have not been corrected prior to expiration of the specified guarantee period, it shall nevertheless be the responsibility of the Contractor to permanently correct said items after the specified guarantee period, and the contract corrections are made.

B. Guarantee Period: All corrective work performed by the Contractor, in remedying defective work during the guarantee period following the Owner's acceptance of the project, shall be subject to the same guarantee requirements of the original work for a period as specified from the date of completion of the corrective work.

PART 2 - PRODUCTS

Not used.

PART 3 - EXECUTION

3.1 SYSTEMS DEMONSTRATIONS

A. Operating and Maintenance Instructions:

1. After substantial completion and prior to final inspection or full acceptance of the Project, Contractor shall provide qualified personnel for conducting full operation and maintenance training and instructions in the operation, adjustment and maintenance of all operating equipment and systems to Owner's designated personnel; include all general, mechanical and electrical operating systems and equipment.
2. Except as otherwise specified, arrange for each installer of work requiring continuing maintenance or operation to meet with Owner's personnel, at project site, to provide basic instructions needed for proper operation and maintenance of entire work. Include instructions by manufacturer's representatives where installers are not expert in the required procedures.
3. If installers are not experienced in procedures (in the opinion of the Architect; submit list of experience for each instructor), provide instruction by manufacturer's representatives.

B. Use operating and maintenance manuals as the basis for instruction. Review contents of Manual with personnel in full detail to explain all aspect of operations and maintenance to include but not limited to:

1. Maintenance Manuals.
2. Record documents.
3. Spare parts and materials.
4. Tools.
5. Lubricants.
6. Fuels.
7. Identification systems.
8. Control sequences.
9. Hazards.
10. Cleaning.
11. Warranties and bonds.
12. Maintenance agreements and similar continuing commitments.

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

1. Start-up.
2. Shut down.
3. Emergency operations.
4. Noise and vibration adjustments.
5. Safety procedures.
6. Economy and efficiency adjustments.

7. Effective energy utilization.

D. For additional requirements for operations instruction, see respective Specification Sections.

3.2 FINAL CLEANING

A. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to the condition expected in a normal, commercial building cleaning and maintenance program. Comply with manufacturer's instructions.

B. Complete the following cleaning operations before requesting inspection for Certification of Substantial Completion.

1. Remove labels that are not permanent labels.
2. Do not use razor blades to clean any glazing or mirrors.
3. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compound and other substances that are noticeable vision obscuring materials. Replace chipped or broken glass and other damaged transparent materials.
4. Clean exposed exterior and interior hard-surfaced finishes to a dust-free condition, free of stains, films, and similar foreign substances. Restore reflective surfaces to their original reflective condition. Leave concrete floors broom clean. Vacuum carpeted surfaces.
5. Wipe surfaces of mechanical and electrical equipment. Remove excess lubrication and other substances. Clean plumbing fixtures to a sanitary condition. Clean light fixtures and lamps.
6. Clean the site, including landscape development areas, of rubbish, litter and foreign substances. Sweep paved areas broom clean; remove stains, spills and other foreign deposits. Rake grounds that are neither paved nor planted, to a smooth even-textured surface.
7. Leave spaces clean enough so that routine "Daily" maintenance will make them ready for occupancy.

C. Removal of Protection: Remove temporary protection and facilities installed for protection of the Work during construction.

D. Compliance: Comply with regulations of authorities having jurisdiction and safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on the Owner's property. Do not discharge volatile, harmful, or dangerous materials into drainage systems.

1. Remove waste materials from the site and dispose of in a lawful manner.
2. Where extra materials of value remaining after completion of associated Work have become the Owner's property, arrange for disposition of these materials as directed.

3.3 POST CONSTRUCTION REVIEW MEETING

A. This will be a final analysis by the Project Team of the overall Project from Design to Post-Construction. Participants will include but not limited to: Project Manager, Architect/Engineer, General Contractor and prime subcontractors, PM&C Clerical Staff and University Clients.

B. Items to be discussed include but not limited to the following:

1. Project Communication and Processes
2. Quality of Meetings
3. Customer Satisfaction
4. Product / Service Acceptance
5. Project on Time
6. Project within Budget
7. Architect/ Engineer, Contractor Interactions
8. Management

END OF SECTION

01 78 36
WARRANTIES

SECTION 01 78 36
WARRANTIES

PART 1 - GENERAL

1.1 REQUIREMENTS

A. Contractor warranty shall be in accordance with General Conditions except as follows:

1. A special ten (10) year warranty for workmanship and materials as described in Section 07 14 16 – COLD FLUID-APPLIED MEMBRANE WATERPROOFING.
2. A special twenty (20) year warranty for workmanship and materials as described in Section 07 53 23 – EPDM ADHERED MEMBRANE ROOFING.

B. Except for abuse, neglect by the Owner, or normal wear, the Contractor shall promptly correct defective materials, equipment and/or workmanship, including any other work which may be displaced or damaged in so doing, at no cost to the Owner.

C. In the event the Contractor fails to remedy such defects after reasonable time to make corrections, the Owner may correct the Work and the Contractor thereby shall fully and promptly reimburse the Owner.

D. The Contractor shall comply with the applicable Local, State, and Federal Codes.

PART 2 - PRODUCTS

Not used.

PART 3 - EXECUTION

Not used.

END OF SECTION

04 01 20.64
MASONRY REPOINTING

SECTION 04 01 20.64
MASONRY REPOINTING

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. Repointing joints with mortar.

1.3 DEFINITIONS

A. Low-Pressure Spray: 100 to 400 psi (690 to 2750 kPa); 4 to 6 gpm (0.25 to 0.4 L/s)

1.4 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1. Review methods and procedures related to repointing masonry including, but not limited to, the following:

a. Verify masonry repointing specialist's personnel, equipment, and facilities needed to make progress and avoid delays.
b. Materials, material application, sequencing, tolerances, and required clearances.
c. Quality-control program.

1.5 SEQUENCING AND SCHEDULING

A. Order sand and portland cement for pointing mortar immediately after approval of mockups. Take delivery of and store at Project site enough quantity to complete Project.

B. Work Sequence: Perform masonry repointing work in the following sequence, which includes work specified in this and other Sections:

1. Remove plant growth.
2. Inspect masonry for open mortar joints and permanently or temporarily point them before cleaning to prevent the intrusion of water and other cleaning materials into the wall.
3. Clean masonry.
4. Rake out mortar from joints surrounding masonry to be replaced and from joints adjacent to masonry repairs along joints.
5. Repair masonry, including replacing existing masonry with new masonry materials.
6. Rake out mortar from joints to be repointed.
7. Point mortar joints.

8. After repairs and repointing have been completed and cured, perform a final cleaning to remove residues from this work.

1.6 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes.
2. Include recommendations for product application and use.
3. Include test data substantiating that products comply with requirements.

B. Shop Drawings:

1. Include plans, elevations, sections, and locations of repointing work on the structure.
2. Show provisions for expansion joints or other sealant joints.
3. Show locations of scaffolding and points of scaffolding in contact with masonry. Include details of each point of contact or anchorage.

C. Samples for Initial Selection: For the following:

1. Pointing Mortar: Submit sets of mortar for pointing in the form of sample mortar strips, 6 inches (150 mm) long by 1/4 inch (6 mm) wide, set in aluminum or plastic channels.

    a. Have each set contain a close color range of at least three samples of different mixes of colored sands and cements that produce a mortar matching existing, cleaned mortar when cured and dry.
    b. Submit with precise measurements on ingredients, proportions, gradations, and source of colored sands from which each Sample was made.

2. Sand Type Used for Pointing Mortar: Minimum 8 oz. (240 mL) of each in plastic screw-top jars.
3. Sealant materials.
4. Include similar samples of accessories involving color selection.

1.7 INFORMATIONAL SUBMITTALS

A. Qualification Data: For masonry repointing specialist.

B. Quality-control program.

1.8 QUALITY ASSURANCE

A. Masonry Repointing Specialist Qualifications: Engage an experienced masonry repointing firm to perform work of this Section. Firm shall have completed work similar in material, design, and extent to that indicated for this Project with a record of successful in-service performance. Experience in only installing masonry is insufficient experience for masonry repointing work.

1. Field Supervision: Masonry repointing specialist firms shall maintain experienced full-time supervisors on Project site during times that masonry repointing work is in progress.

B. Quality-Control Program: Prepare a written quality-control program for this Project to systematically demonstrate the ability of personnel to properly follow methods and use materials and tools without damaging masonry. Include provisions for supervising performance and preventing damage.

C. Mockups: Prepare mockups of masonry repointing to demonstrate aesthetic effects and to set quality standards for materials and execution.

1. Repointing: Rake out joints in two separate areas**,** each approximately 24 inches (900 mm) high by 24 inches (1200 mm) wide for each type of repointing required, and repoint one of the areas.
2. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
3. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.9 DELIVERY, STORAGE, AND HANDLING

A. Deliver packaged materials to Project site in manufacturer's original and unopened containers, labeled with manufacturer's name and type of products.

B. Store cementitious materials on elevated platforms, under cover, and in a dry location. Do not use cementitious materials that have become damp.

C. Store hydrated lime in manufacturer's original and unopened containers. Discard lime if containers have been damaged or have been opened for more than two days.

D. Store sand where grading and other required characteristics can be maintained and contamination avoided.

1.10 FIELD CONDITIONS

A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit repointing work to be performed according to product manufacturers' written instructions and specified requirements.

B. Temperature Limits: Repoint mortar joints only when air temperature is between 40 and 90 deg F (4 and 32 deg C) and is predicted to remain so for at least seven days after completion of the Work unless otherwise indicated.

C. Cold-Weather Requirements: Comply with the following procedures for mortar-joint pointing unless otherwise indicated:

1. When air temperature is below 40 deg F (4 deg C), heat mortar ingredients and existing masonry walls to produce temperatures between 40 and 120 deg F (4 and 49 deg C).

2. When mean daily air temperature is below 40 deg F (4 deg C), provide enclosure and heat to maintain temperatures above 32 deg F (0 deg C) within the enclosure for seven days after pointing.

D. Hot-Weather Requirements: Protect mortar-joint pointing when temperature and humidity conditions produce excessive evaporation of water from mortar materials. Provide artificial shade and wind breaks, and use cooled materials as required to minimize evaporation. Do not apply mortar to substrates with temperatures of 90 deg F (32 deg C) and above unless otherwise indicated.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Source Limitations: Obtain each type of material for repointing brick masonry (cement, sand, etc.) from single source with resources to provide materials of consistent quality in appearance and physical properties.

2.2 MORTAR MATERIALS

A. Portland Cement: ASTM C150/C150M, Type I or Type II, except Type III may be used for cold-weather construction; white or gray, or both where required for color matching of mortar.

1. Provide cement containing not more than 0.60 percent total alkali when tested according to ASTM C114.

B. Hydrated Lime: ASTM C207, Type S.

C. Mortar Sand: ASTM C144.

1. Match size, texture, and gradation of existing mortar sand as closely as possible. Blend several sands if necessary to achieve suitable match.
2. Color: Natural sand or ground marble, granite, or other sound stone of color necessary to produce required mortar color.

D. Water: Potable.

2.3 ACCESSORY MATERIALS

A. 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. Minimal possibility of damaging exposed surfaces.
3. Consistency of each application.
4. Uniformity of the resulting overall appearance.
5. Do not use products or tools that could leave residue on surfaces.

2.4 MORTAR MIXES

A. Measurement and Mixing: Measure cementitious materials and sand in a dry condition by volume or equivalent weight. Do not measure by shovel; use known measure. Mix materials in a clean, mechanical batch mixer.

1. Mixing Pointing Mortar: Thoroughly mix cementitious materials and sand together before adding any water. Then mix again, adding only enough water to produce a damp, unworkable mix that retains its form when pressed into a ball. Maintain mortar in this dampened condition for 15 to 30 minutes. Add remaining water in small portions until mortar reaches desired consistency. Use mortar within one hour of final mixing; do not retemper or use partially hardened material.

B. Do not use admixtures in mortar unless otherwise indicated.

C. Mixes: Mix mortar materials in the following proportions:

1. Pointing Mortar by Volume: ASTM C270, Proportion Specification, 1 part portland cement, 1 part lime, and 6 parts sand.
2. Pointing Mortar by Type: ASTM C270, Proportion Specification, Type N unless otherwise indicated; with cementitious material limited to portland cement and lime.

PART 3 - EXECUTION

3.1 PROTECTION

A. Prevent mortar from staining face of surrounding masonry and other surfaces.

1. Cover sills, ledges, and other projecting items to protect them from mortar droppings.
2. Keep wall area wet below pointing work to discourage mortar from adhering.
3. Immediately remove mortar splatters in contact with exposed masonry and other surfaces.

B. Remove gutters and downspouts and associated hardware adjacent to masonry and store during masonry repointing. Reinstall when repointing is complete.

1. Provide temporary rain drainage during work to direct water away from building.

3.2 MASONRY REPOINTING, GENERAL

A. Appearance Standard: Repointed surfaces are to have a uniform appearance as viewed from 20 feet (6 m) away by Architect.

3.3 REPOINTING

A. Rake out and repoint joints to the following extent:

1. All joints in areas indicated.
2. Joints at locations of the following defects:

a. Holes and missing mortar.
b. Cracks that can be penetrated 1/4 inch (6 mm) or more by a knife blade 0.027 inch (0.7 mm) thick.
c. Cracks 1/16 inch (1.6 mm) or more in width and of any depth.
d. Hollow-sounding joints when tapped by metal object.
e. Eroded surfaces 1/4 inch (6 mm) or more deep.
f. Deterioration to point that mortar can be easily removed by hand, without tools.
g. Joints filled with substances other than mortar.

B. Do not rake out and repoint joints where not required.

C. Rake out joints as follows, according to procedures demonstrated in approved mockup:

1. Remove mortar from joints to depth of to the greater of 2-1/2 times joint width or not less than 3/4 inch (20 mm) and not less than that required to expose sound, unweathered mortar. Do not remove unsound mortar more than 2 inches (50 mm) deep; consult Architect for direction.
2. Remove mortar from masonry surfaces within raked-out joints to provide reveals with square backs and to expose masonry for contact with pointing mortar. Brush, vacuum, or flush joints to remove dirt and loose debris.
3. Do not spall edges of masonry units or widen joints. Replace or patch damaged masonry units as directed by Architect.

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

E. Pointing with Mortar:

1. Rinse joint surfaces with water to remove dust and mortar particles. Time rinsing application so, at time of pointing, joint surfaces are damp but free of standing water. If rinse water dries, dampen joint surfaces before pointing.
2. Apply pointing mortar first to areas where existing mortar was removed to depths greater than surrounding areas. Apply in layers not greater than 3/8 inch (9 mm) until a uniform depth is formed. Fully compact each layer, and allow it to become thumbprint hard before applying next layer.
3. After deep areas have been filled to same depth as remaining joints, point joints by placing mortar in layers not greater than 3/8 inch (9 mm). Fully compact each layer and allow to become thumbprint hard before applying next layer. Where existing masonry units have worn or rounded edges, slightly recess finished mortar surface below face of masonry to avoid widened joint faces. Take care not to spread mortar beyond joint edges onto exposed masonry surfaces or to featheredge the mortar.
4. When mortar is thumbprint hard, tool joints to match original appearance of joints as demonstrated in approved mockup. Remove excess mortar from edge of joint by brushing.
5. Cure mortar by maintaining in thoroughly damp condition for at least 72 consecutive hours, including weekends and holidays.
6. Hairline cracking within mortar or mortar separation at edge of a joint is unacceptable. Completely remove such mortar and repoint.

F. Where repointing work precedes cleaning of existing masonry, allow mortar to harden at least 30 days before beginning cleaning work.

3.4 FINAL CLEANING

A. After mortar has fully hardened, thoroughly clean exposed masonry surfaces of excess mortar and foreign matter; use wood scrapers, stiff-nylon or -fiber brushes, and clean water applied by low-pressure spray.

1. Do not use metal scrapers or brushes.
2. Do not use acidic or alkaline cleaners.

B. Clean adjacent nonmasonry surfaces. Use detergent and soft brushes or cloths.

C. Clean mortar and debris from roof; remove debris from gutters and downspouts. Rinse off roof and flush gutters and downspouts.

D. Remove masking materials, leaving no residues that could trap dirt.

3.5 FIELD QUALITY CONTROL

A. Architect's Project Representatives: Architect will assign Project representatives to help carry out Architect's responsibilities at the site, including observing progress and quality of portion of the Work completed. Allow Architect's Project representatives use of lift devices and scaffolding, as needed, to observe progress and quality of portion of the Work completed.

B. Notify Architect's Project representatives in advance of times when lift devices and scaffolding will be relocated. Do not relocate lift devices and scaffolding until Architect's Project representatives have had reasonable opportunity to make inspections and observations of work areas at lift device or scaffold location.

END OF SECTION 040120.64

04 01 40.61
STONE REPAIR

SECTION 04 01 40.61
STONE 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:

1. Repairing stone masonry.
2. Removing abandoned anchors.
3. Painting steel uncovered during the work.

1.3 DEFINITIONS

A. Low-Pressure Spray: 100 to 400 psi (690 to 2750 kPa); 4 to 6 gpm (0.25 to 0.4 L/s)

B. Rebuilding (Setting) Mortar: Mortar used to set and anchor masonry in a structure, distinct from pointing mortar installed after masonry is set in place.

C. Rift: The most pronounced direction of splitting or cleavage of a stone.

D. Stone Terminology: ASTM C119.

1.4 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1. Review methods and procedures related to stone repair including, but not limited to, the following:

a. Verify stone repair specialist's personnel, equipment, and facilities needed to make progress and avoid delays.
b. Materials, material application, sequencing, tolerances, and required clearances.
c. Quality-control program.

1.5 SEQUENCING AND SCHEDULING

A. Order sand and portland cement mortar immediately after approval of mockups. Take delivery of and store at Project site enough quantity to complete Project.

B. Work Sequence: Perform stone repair work in the following sequence, which includes work specified in this and other Sections:

1. Remove plant growth.
2. Inspect masonry for open mortar joints and permanently or temporarily point them before cleaning to prevent the intrusion of water and other cleaning materials into the wall.
3. Clean stone.
4. Rake out mortar from joints surrounding stone to be replaced and from joints adjacent to stone repairs along joints.
5. Repair stonework.
6. Rake out mortar from joints to be repointed.
7. Point mortar joints.
8. After repairs and repointing have been completed and cured, perform a final cleaning to remove residues from this work.

1.6 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes.
2. Include recommendations for product application and use.
3. Include test data substantiating that products comply with requirements.

B. Shop Drawings:

1. Include plans, elevations, sections, and locations of replacement stone units on the structure and their jointing, showing relation of existing and new or relocated units.
2. Show partial replacement stone units (dutchmen).
3. Indicate setting number of each new stone unit and its location on the structure in annotated plans and elevations.
4. Show provisions for expansion joints or other sealant joints.
5. Show provisions for flashing, lighting fixtures, conduits, and weep holes as required.
6. Show replacement and repair anchors, including drilled-in pins. Include details of anchors within individual stone units, with locations of anchors and dimensions of holes and recesses in stone required for anchors, including direction and angle of holes for pins.
7. Show locations of scaffolding and points of scaffolding in contact with masonry. Include details of each point of contact or anchorage.

C. Samples for Initial Selection: For the following:

1. Mortar: Submit sets of mortar that will be left exposed in the form of sample mortar strips, 6 inches (150 mm) long by 1/4 inch (6 mm) wide, set in aluminum or plastic channels.

a. Have each set contain a close color range of at least three Samples of different mixes of colored sands and cements that produce a mortar matching the existing, cleaned mortar when cured and dry.
b. Submit with precise measurements on ingredients, proportions, gradations, and source of colored sands from which each Sample was made.

2. Sand Types Used for Mortar: Minimum 8 oz. (240 mL) of each in plastic screw-top jars.
3. Patching Compound: Submit sets of patching compound Samples in the form of plugs (patches in drilled holes) in sample units of stone representative of the range of stone colors on the building.

a. Have each set contain a close color range of at least three Samples of different mixes of patching compound that matches the variations in existing stone when cured and dry.

4. Include similar Samples of accessories involving color selection.

D. Samples for Verification: For the following:

1. Each type of replacement stone. Include sets of Samples to show full range of color, texture, grain, veining, and finish to be expected. Provide sets of at least three 12-by-12-inch (300-by-300-mm) Samples for each type, but no fewer than necessary to indicate full range and proportion of variations within range.
2. Each type of patching compound in form of briquettes, at least 3 inches (75 mm) long by 1-1/2 inches (38 mm) wide. Document each Sample with manufacturer and stock number or other information necessary to order additional material.
3. Each type of adhesive.
4. Accessories: Each type of anchor, accessory, and miscellaneous support.

1.7 INFORMATIONAL SUBMITTALS

A. Qualification Data: For stone repair specialist.

B. Quality-control program.

1.8 QUALITY ASSURANCE

A. Stone Repair Specialist Qualifications: Engage an experienced stone repair firm to perform work of this Section. Firm shall have completed work similar in material, design, and extent to that indicated for this Project with a record of successful in-service performance. Experience in only installing standard unit masonry or new stone masonry is insufficient experience for stone repair work.

1. Field Supervision: Stone repair specialist firms shall maintain experienced full-time supervisors on Project site during times that stone repair work is in progress.
2. Stone Repair Worker Qualifications: When stone units are being patched, assign at least one worker per crew who is trained and certified by manufacturer of patching compound to apply its products.

B. Quality-Control Program: Prepare a written quality-control program for this Project to systematically demonstrate the ability of personnel to properly follow methods and use materials and tools without damaging stonework. Include provisions for supervising performance and preventing damage.

C. Mockups: Prepare mockups of stone repair to demonstrate aesthetic effects and to set quality standards for materials and execution and for fabrication and installation.

1. Stone Repair: Prepare sample areas for each type of stone indicated to have repair work performed. If not otherwise indicated, size each mockup not smaller than two adjacent whole units or approximately 48 inches (1200 mm) in least dimension. Construct sample areas in locations in existing walls where directed by Architect unless otherwise indicated. Demonstrate quality of materials, workmanship, and blending with existing work. Include the following as a minimum:

a. Replacement: Two stone units replaced.
b. Partial Stone Replacement: Two partial stone replacements (dutchman repairs).
c. Stone Plug Repair: Two stone plug repairs for each type of stone indicated to be plugged.
d. Crack Injection: Apply crack injection in two separate areas, each approximately 18 inches (460 mm) long
e. Patching: Three small holes at least 1 inch (25 mm) in diameter.

2. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
3. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.9 DELIVERY, STORAGE, AND HANDLING

A. Deliver stone units to Project site strapped together in suitable packs or pallets or in heavy-duty crates and protected against impact and chipping.

B. Deliver each piece of stone with code mark or setting number on unexposed face, corresponding to Shop Drawings, using nonstaining paint.

C. Deliver packaged materials to Project site in manufacturer's original and unopened containers, labeled with manufacturer's name and type of products.

D. Store cementitious materials on elevated platforms, under cover, and in a dry location. Do not use cementitious materials that have become damp.

E. Store hydrated lime in manufacturer's original and unopened containers. Discard lime if containers have been damaged or have been opened for more than two days.

F. Store sand where grading and other required characteristics can be maintained and contamination avoided.

G. Handle stone to prevent overstressing, chipping, defacement, and other damage.

1.10 FIELD CONDITIONS

A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit stone repair work to be performed according to product manufacturers' written instructions and specified requirements.

B. Temperature Limits, General: Repair stone units only when air temperature is between 40 and 90 deg F (4 and 32 deg C) and is predicted to remain so for at least seven days after completion of the Work unless otherwise indicated.

C. Cold-Weather Requirements: Comply with the following procedures for stone repair unless otherwise indicated:

1. When air temperature is below 40 deg F (4 deg C), heat mortar ingredients, repair materials, and existing stone to produce temperatures between 40 and 120 deg F (4 and 49 deg C).
2. When mean daily air temperature is below 40 deg F (4 deg C), provide enclosure and heat to maintain temperatures above 32 deg F (0 deg C) within the enclosure for seven days after repair.

D. Hot-Weather Requirements: Protect stone repairs when temperature and humidity conditions produce excessive evaporation of water from mortar and patching materials. Provide artificial shade and wind breaks, and use cooled materials as required to minimize evaporation. Do not apply mortar to substrates with temperatures of 90 deg F (32 deg C) and above unless otherwise indicated.

E. For manufactured repair materials, perform work within the environmental limits set by each manufacturer.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Source Limitations: Obtain each type of material for repairing stone (stone, cement, sand, etc.) from single source with resources to provide materials of consistent quality in appearance and physical properties.

2.2 STONE MATERIALS

A. Stone Matching Existing: Natural building stone of variety, color, texture, grain, veining, finish, size, and shape that match existing stone.

1. For existing stone that exhibits a range of colors, texture, grain, veining, finishes, sizes, or shapes, provide stone that proportionally matches that range rather than stone that matches an individual color, texture, grain, veining, finish, size, or shape within that range.

B. Cutting New Stone: Cut each new stone so that, when it is set in final position, the rift or natural bedding planes will match the rift orientation of existing stones.

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; white or gray, or both where required for color matching of mortar.

1. Provide cement containing not more than 0.60 percent total alkali when tested according to ASTM C114.

B. Hydrated Lime: ASTM C207, Type S.

C. Mortar Sand: ASTM C144.

1. Exposed Mortar: Match size, texture, and gradation of existing mortar sand as closely as possible. Blend several sands if necessary to achieve suitable match.

D. Repair Mortar: premixed cementitious repair materials formulated to match the color and texture of the existing masonry, and which do not contain any acrylic, latex, or other synthetic polymer additives.

1. Matrix repair mortar as manufactured by Conproco.
2. Approved equal.

E. Cementitious Crack Filler: Ultrafine superplasticized grout that can be injected into cracks, is suitable for application to wet or dry cracks, exhibits low shrinkage, and develops high bond strength to all types of stone.

F. Stone-to-Stone Adhesive: Two-part polyester or epoxy-resin stone adhesive with a 15- to 45-minute cure at 70 deg F (21 deg C), recommended in writing by adhesive manufacturer for type of stone repair indicated, and matching stone color.

2.4 ACCESSORY MATERIALS

A. Stone Repair Anchors and Pins: Mechanical fasteners and pins of Type 304 stainless steel where more than two feet above grade and Type 316 stainless steel within two feet or less of finish grade; designed for stone stabilization and pinning stone pieces; matching shape and size of existing anchors unless otherwise indicated.

B. Setting Buttons and Shims: Resilient plastic, nonstaining to stone, sized to suit joint thicknesses and bed depths of stone units, less the required depth of pointing materials unless removed before pointing.

C. Masking Tape: Nonstaining, nonabsorbent material; compatible with mortar, joint primers, sealants, and surfaces adjacent to joints; and that easily comes off entirely, including adhesive.

D. Antirust Coating: Fast-curing, lead- and chromate-free, self-curing, universal modified-alkyd primer according to MPI #23 (surface-tolerant, anticorrosive metal primer) or SSPC-Paint 20 or SSPC-Paint 29 zinc-rich coating.

1. Surface Preparation: Use coating requiring no better than SSPC-SP 3, "Power Tool Cleaning" surface preparation according to manufacturer's literature or certified statement.

E. 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. Minimal possibility of damaging exposed surfaces.
3. Consistency of each application.
4. Uniformity of the resulting overall appearance.
5. Do not use products or tools that could leave residue on surfaces.

2.5 MORTAR MIXES

A. Measurement and Mixing: Measure cementitious materials and sand in a dry condition by volume or equivalent weight. Do not measure by shovel; use known measure. Mix materials in a clean, mechanical batch mixer.

B. Do not use admixtures in mortar unless otherwise indicated.

C. Mixes: Mix mortar materials in the following proportions:

1. Rebuilding (Setting) Mortar by Volume: 1 part portland cement, 1 part lime, and 6 parts sand
2. Rebuilding (Setting) Mortar by Type: ASTM C270, Proportion Specification, Type N unless otherwise indicated, with cementitious material limited to portland cement and lime.

PART 3 - EXECUTION

3.1 PROTECTION

A. Prevent mortar from staining face of surrounding stone and other surfaces.

1. Cover sills, ledges, and other projecting items to protect them from mortar droppings.
2. Keep wall area wet below rebuilding and repair work to discourage mortar from adhering.
3. Immediately remove mortar splatters in contact with exposed stone and other surfaces.

B. Remove gutters and downspouts and associated hardware adjacent to stone and store during stone repair. Reinstall when repairs are complete.

1. Provide temporary rain drainage during work to direct water away from building.

3.2 STONE REPAIR, GENERAL

A. Appearance Standard: Repaired surfaces are to have a uniform appearance as viewed from 20 feet (6 m) away by Architect.

3.3 ABANDONED ANCHOR REMOVAL

A. Remove abandoned anchors, brackets, wood nailers, and other extraneous items no longer in use unless indicated to remain.

1. Remove items carefully to avoid spalling or cracking stone.
2. Notify Architect before proceeding if an item cannot be removed without damaging surrounding stone. Do the following where directed:

a. Cut or grind off item approximately 3/4 inch (20 mm) beneath surface and core drill a recess of same depth in surrounding stone as close around item as practical.
b. Immediately paint exposed end of item with two coats of antirust coating, following coating manufacturer's written instructions and without exceeding manufacturer's recommended dry film thickness per coat. Keep paint off sides of recess.

3. Patch or Plug hole where each item was removed unless directed to remove and replace stone unit.

3.4 STONE REMOVAL AND REPLACEMENT

A. At locations indicated, remove stone that has deteriorated or is damaged beyond repair or is to be reused. Carefully remove entire units from joint to joint, without damaging surrounding stone, in a manner that permits replacement with full-size units.

B. Support and protect remaining stonework that surrounds removal area.

C. Maintain flashing, reinforcement, lintels, and adjoining construction in an undamaged condition. Coordinate with new flashing, reinforcement, and lintels, which are specified in other Sections.

D. Notify Architect of unforeseen detrimental conditions including voids, cracks, bulges, and loose units in existing stone or unit masonry backup, rotted wood, rusted metal, and other deteriorated items.

E. Remove in an undamaged condition as many whole stone units as possible.

1. Remove mortar, loose particles, and soil from stone by cleaning with hand chisels, brushes, and water.
2. Remove sealants by cutting close to stone with utility knife and cleaning with solvents.
3. Store stone for reuse. Store off ground, on skids, and protected from weather.
4. Deliver cleaned stone not required for reuse to Owner unless otherwise indicated.

F. Clean stone surrounding removal areas by removing mortar, dust, and loose particles in preparation for stone replacement.

G. Replace removed damaged stone with other removed stone in good condition, where possible, or with new stone matching existing stone, including direction of rift or natural bedding planes. Do not use broken units unless they can be cut to usable size.

H. Install replacement stone into bonding and coursing pattern of existing stone. If cutting is required, use a motor-driven saw designed to cut stone with clean, sharp, unchipped edges. Finish edges to blend with appearance of edges of existing stone.

1. Maintain joint width for replacement stone to match existing joints.
2. Use setting buttons or shims to set stone accurately spaced with uniform joints.

I. Set replacement stone with rebuilding (setting) mortar and with completely filled bed, head, and collar joints. Butter vertical joints for full width before setting, and set units in full bed of mortar unless otherwise indicated. Replace existing anchors with new anchors of size and type indicated or matching existing configuration.

1. Tool exposed mortar joints in repaired areas to match joints of surrounding existing stonework.
2. Rake out mortar used for laying stone before mortar sets according to Section 040140.64 "Masonry Repointing." Point at same time as repointing of surrounding area.
3. When mortar is hard enough to support units, remove shims and other devices interfering with pointing of joints.

J. Curing: Cure mortar by maintaining in thoroughly damp condition for at least 72 consecutive hours, including weekends and holidays.

1. Hairline cracking within the mortar or mortar separation at edge of a joint is unacceptable. Completely remove such mortar and repoint.

3.5 PAINTING STEEL UNCOVERED DURING THE WORK

A. Notify Architect if steel is exposed during stone removal. Where Architect determines that steel is structural, or for other reasons cannot be totally removed, prepare and paint it as follows:

1. Surface Preparation: Remove paint, rust, and other contaminants according to SSPC-SP 3, "Power Tool Cleaning" as applicable to comply with paint manufacturer's recommended preparation.
2. Antirust Coating: Immediately paint exposed steel with two coats of antirust coating, following coating manufacturer's written instructions and without exceeding manufacturer's recommended rate of application (dry film thickness per coat).

B. If on inspection and rust removal, the thickness of a steel member is found to be reduced from rust by more than 25%, notify Architect before proceeding.

3.6 PARTIAL STONE REPLACEMENT

A. Remove defective portion of existing stone unit (backing stone). Carefully remove defective portion of stone by making vertical and horizontal saw cuts at face of backing stone and removing defective material to depth required for fitting partial replacement (dutchman).

1. Make edges of backing stone at cuts smooth and square to each other and to finished surface; essentially rectangular. Make back of removal area flat and parallel to stone face.
2. Do not overcut at corners and intersections. Hand trim to produce clean sharp corners with no rounding and no damage to existing work to remain.

3. If backing stone becomes further damaged, remove damaged area and enlarge partial replacement as required.

B. Remove mortar from joints that abut area of stone removal to same depth as stone was removed. Remove loose mortar particles and other debris from surfaces to be bonded and surfaces of adjacent stone units that will receive mortar by cleaning with stiff-fiber brush.

C. Cut and trim partial replacement to accurately fit area where material was removed from backing stone. Fabricate to size required to produce joints between partial replacement and backing stone of no more than 1/16 inch (1.6 mm) in width, and to produce joints between partial replacement and other stones that match existing joints between stones. Cut partial replacement so that, when it is set in final position, natural bedding planes will match the orientation of bedding planes of the backing stone unless otherwise indicated.

D. Concealed Pinning: Before applying adhesive, prepare for concealed mechanical anchorage consisting of 1/4-inch- (6-mm-) diameter, threaded stainless-steel pins set into 1/4-inch- (6-mm-) diameter holes drilled into backing stone and into, but not through, the partial replacement. Center and space pins 3 to 5 inches (75 to 125 mm) apart and at least 2 inches (50 mm) from any edge. Insert pins at least 2 inches (50 mm) into backing stone and 2 inches (50 mm) into partial replacement, but no closer than 3/4 inch (19 mm) from exposed face of partial replacement.

E. Apply stone-to-stone adhesive according to adhesive manufacturer's written instructions. Coat bonding surfaces of backing stone and partial replacement, completely filling all crevices and voids.

F. Apply partial replacement while adhesive is still tacky and hold securely in place until adhesive has cured. Use temporary shims, clamps, wedges, or other devices as necessary to align face of partial replacement with face of backing stone.

G. Clean adhesive residue from exposed surfaces and patch chipped areas and exposed drill holes as specified in "Stone Patching" Article.

3.7 STONE PLUG REPAIR

A. Remove cylindrical piece of damaged stone by core-drilling perpendicular to stone surface.

B. Prepare a replacement plug by core-drilling replacement stone. Use a drill sized to produce a core that will fit into hole drilled in damaged stone with only minimum gap necessary for adhesive. Cut and install plug so that, when it is set in final position, natural bedding planes will match the orientation of bedding planes of the backing stone unless otherwise indicated.

C. Apply stone-to-stone adhesive according to adhesive manufacturer's written instructions. Coat bonding surfaces of existing stone and plug, completely filling all crevices and voids.

D. Apply plug while adhesive is still tacky and hold securely in place until adhesive has cured.

E. Clean adhesive residue from exposed surfaces.

3.8 STONE-FRAGMENT REPAIR

A. Carefully remove cracked or fallen stone fragment indicated to be repaired. Reuse only stone fragment that is in sound condition.

B. Remove soil, loose particles, mortar, and other debris or foreign material from fragment surfaces to be bonded and from parent stone where fragment had broken off, by cleaning with stiff-fiber brush.

C. Concealed Pinning: Before applying adhesive, prepare for concealed mechanical anchorage consisting of 1/4-inch- (6-mm-) diameter, threaded stainless-steel pins set into 1/4-inch- (6-mm-) diameter holes drilled into parent stone and into, but not through, the fragment. Center and space pins between 3 and 5 inches (75 and 125 mm) apart and at least 2 inches (50 mm) from any edge. Insert pins at least 2 inches (50 mm) into parent stone and 2 inches (50 mm) into fragment, but no closer than 3/4 inch (19 mm) from exposed face of fragment.

D. Apply stone-to-stone adhesive according to adhesive manufacturer's written instructions. Coat bonding surfaces of fragment and parent stone, completely filling all crevices and voids.

E. Fit stone fragment onto parent stone while adhesive is still tacky and hold fragment securely in place until adhesive has cured. Use shims, clamps, wedges, or other devices as necessary to align face of fragment with face of parent stone.

F. Clean adhesive residue from exposed surfaces and patch chipped areas and exposed drill holes as specified in "Stone Patching" Article.

3.9 CRACK INJECTION

A. General: Comply with cementitious crack-filler manufacturer's written instructions.

B. Drill 1/4-inch- (6-mm-) diameter injection holes as follows:

1. Transverse Cracks Less Than 3/8 inch (9 mm) Wide: Drill holes through center of crack at 12 to 18 inches (300 to 500 mm) o.c.
2. Transverse Cracks More Than 3/8 inch (9 mm) Wide: Drill holes through center of crack at 18 to 36 inches (500 to 900 mm) o.c.

3. Delaminations: Drill holes at approximately 18 inches (500 mm) o.c. both vertically and horizontally.
4. Drill holes 2 inches (50 mm) deep.

C. Clean out drill holes and cracks with compressed air and water. Remove dirt and organic matter, loose material, sealants, and failed crack repair materials.

D. Place plastic injection ports in drilled holes and seal face of cracks between injection ports with clay or other nonstaining, removable plugging material. Leave openings at upper ends of cracks for air release.

E. Inject cementitious crack filler through ports sequentially, beginning at one end of area and working to opposite end; where possible, begin at lower end of injection area and work upward. Inject filler until it extrudes from adjacent ports. After port has been injected, plug with clay or other suitable material and begin injecting filler at adjacent port, repeating process until all ports have been injected.

F. Clean cementitious crack filler from face of stone before it sets by scrubbing with water.

G. After cementitious crack filler has set, remove injection ports, plugging material, and excess filler. Patch injection holes and surface of cracks as specified in "Stone Patching" Article.

3.10 STONE PATCHING

A. Patch the following stone units unless another type of repair or replacement is indicated:

1. Units indicated to be patched.
2. Units with holes.
3. Units with chipped edges or corners. Patch chipped edges or corners measuring more than 3/4 inch (19 mm) in least dimension.
4. Units with small areas of deep deterioration. Patch deep deteriorations measuring more than 3/4 inch (19 mm) in least dimension and more than 1/4 inch (6 mm) deep.

B. Remove and replace existing patches unless otherwise indicated or approved by Architect.

C. Remove deteriorated material and remove adjacent material that has begun to deteriorate. Carefully remove additional material so patch does not have feathered edges but has square or slightly undercut edges on area to be patched and is at least 1/4 inch (6 mm) thick, but not less than recommended in writing by patching compound manufacturer.

D. Mask adjacent mortar joint or rake out for repointing if patch extends to edge of stone unit.

E. Mix patching compound in individual batches to match each stone unit being patched. Combine one or more colors of patching compound, as needed, to produce exact match.

F. Brush-coat stone surfaces with slurry coat of patching compound according to manufacturer's written instructions.

G. Place patching compound in layers as recommended in writing by patching compound manufacturer, but not less than 1/4 inch (6 mm) or more than 2 inches (50 mm) thick. Roughen surface of each layer to provide a key for next layer.

1. Simple Details: Trowel, scrape, or carve surface of patch to match texture and surrounding surface plane or contour of the stone. Shape and finish surface before or after curing, as determined by testing, to best match existing stone.
2. Carved Details: Build patch up 1/4 inch (6 mm) above surrounding stone, and carve surface to match adjoining stone after patching compound has hardened.

H. Keep each layer damp for 72 hours or until patching compound has set.

I. Remove and replace patches with hairline cracks or that show separation from stone at edges, and those that do not match adjoining stone in color or texture.

3.11 FINAL CLEANING

A. After mortar has fully hardened, thoroughly clean exposed stone surfaces of excess mortar and foreign matter; use wood scrapers, stiff-nylon or -fiber brushes, and clean water, applied by low-pressure spray.

1. Do not use metal scrapers or brushes.
2. Do not use acidic or alkaline cleaners.

B. Clean adjacent nonstone surfaces. Use detergent and soft brushes or cloths.

C. Clean mortar and debris from roof; remove debris from gutters and downspouts. Rinse off roof and flush gutters and downspouts.

D. Remove masking materials, leaving no residues that could trap dirt.

3.12 FIELD QUALITY CONTROL

A. Architect's Project Representatives: Architect will assign Project representatives to help carry out Architect's responsibilities at the site, including observing progress and quality of portion of the Work completed. Allow Architect's Project representatives use of lift devices and scaffolding, as needed, to observe progress and quality of portion of the Work completed.

B. Notify Architect's Project representatives in advance of times when lift devices and scaffolding will be relocated. Do not relocate lift devices and scaffolding until Architect's Project representatives have had reasonable opportunity to make inspections and observations of work areas at lift device or scaffold location.

3.13 STONE WASTE DISPOSAL

A. Salvageable Materials: Unless otherwise indicated, excess stone materials are Contractor's property.

B. Stone Waste: Remove stone waste and legally dispose of off Owner's property.

END OF SECTION

06 10 00
ROUGH CARPENTRY

SECTION 06 10 00
ROUGH CARPENTRY

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Wood blocking, cants, and nailers.
2. Solid-sawn wood roof decking.

1.2 DEFINITIONS

A. Boards or Strips: Lumber of less than 2 inches nominal size in least dimension.

B. Dimension Lumber: Lumber of 2 inches nominal size or greater but less than 5 inches nominal size in least dimension.

C. Exposed Framing: Framing not concealed by other construction.

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

1. AITC: American Institute of Wood Construction.
2. AWPA: American Wood Protection Association.
3. NeLMA: Northeastern Lumber Manufacturers' Association.
4. NLGA: National Lumber Grades Authority.
5. SPIB: The Southern Pine Inspection Bureau.
6. WCLIB: West Coast Lumber Inspection Bureau.
7. WWPA: Western Wood Products Association.

1.3 ACTION SUBMITTALS

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

1. Include data for wood-preservative treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements. Indicate type of preservative used and net amount of preservative retained.
2. For products receiving a waterborne treatment, include statement that moisture content of treated materials was reduced to levels specified before shipment to Project site.

1.4 DELIVERY, STORAGE, AND HANDLING

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

PART 2 - PRODUCTS

2.1 WOOD PRODUCTS, GENERAL

A. Lumber: Comply with DOC PS 20 and applicable rules of grading agencies indicated. If no grading agency is indicated, comply with the applicable rules of any rules-writing agency certified by the ALSC Board of Review. Grade lumber by an agency certified by the ALSC Board of Review to inspect and grade lumber under the rules indicated.

1. Factory mark each piece of lumber with grade stamp of grading agency.
2. Where nominal sizes are indicated, provide actual sizes required by DOC PS 20 for moisture content specified. Where actual sizes are indicated, they are minimum dressed sizes for dry wood products.
3. Dress lumber, S4S, unless otherwise indicated.

B. Maximum Moisture Content of Lumber:

1. Boards: 19 percent.
2. Dimension Lumber: 19 percent unless otherwise indicated.

2.2 PRESERVATIVE TREATMENT

A. Preservative Treatment by Pressure Process: AWPA U1; Use Category UC2 for solid-sawn roof decking, Use Category UC3b for blocking, cants and nailers.

1. Preservative Chemicals: Waterborne, acceptable to authorities having jurisdiction and containing no arsenic or chromium.

B. Kiln-dry lumber after treatment to a maximum moisture content of 19 percent. Do not use material that is warped or that does not comply with requirements for untreated material.

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

D. Application: Treat all rough carpentry unless otherwise indicated.

2.3 MISCELLANEOUS LUMBER

A. Provide miscellaneous lumber indicated and lumber for support or attachment of other construction, including the following:

1. Blocking.
2. Nailers.
3. Cants.

B. Dimension Lumber Items: Standard, Stud, or No. 3 grade lumber of any of the following species:

1. Hem-fir (north); NLGA.
2. Mixed southern pine or southern pine; SPIB.
3. Spruce-pine-fir; NLGA.
4. Hem-fir; WCLIB or WWPA.
5. Spruce-pine-fir (south); NeLMA, WCLIB, or WWPA.

C. Concealed Boards: 19percent maximum moisture content and any of the following species and grades:

1. Mixed southern pine or southern pine; No. 3 grade; SPIB.
2. Hem-fir or hem-fir (north); Standard or No. 3 Common grade; NLGA, WCLIB, or WWPA.
3. Spruce-pine-fir (south) or spruce-pine-fir; Standard or No. 3 Common grade; NeLMA, NLGA, WCLIB, or WWPA.

D. For blocking not used for attachment of other construction, Utility, Stud, or No. 3 grade lumber of any species may be used provided that it is cut and selected to eliminate defects that will interfere with its attachment and purpose.

E. For blocking and nailers used for attachment of other construction, select and cut lumber to eliminate knots and other defects that will interfere with attachment of other work.

2.4 SOLID-SAWN WOOD ROOF DECKING

A. Standard for Solid-Sawn Wood Roof Decking: Comply with AITC 112.

B. Roof Decking Species:

1. Balsam fir, Douglas fir-larch, Douglas fir-larch (North), hem-fir, hem-fir (North), southern pine, spruce pine-fir (North), western hemlock, or western hemlock (North).

C. Roof Decking Nominal Size: Match existing.

D. Roof Decking Grade:

1. Commercial Decking.
2. Dense Commercial Decking.

E. Grade Stamps: Factory mark each item with grade stamp of grading agency. Apply grade stamp to surfaces that are not exposed to view.

F. Moisture Content: Provide wood roof decking with 19 percent maximum moisture content at time of dressing.

G. Face Surface: Saw textured.

H. Edge Pattern: Channel grooved.

2.5 FASTENERS

A. General: Fasteners shall be of size and type indicated and shall comply with requirements specified in this article for material and manufacture. Provide nails or screws, in sufficient length, to penetrate not less than 1-1/2 inches into wood substrate.

1. Where rough carpentry is exposed to weather, in ground contact, pressure-preservative treated, or in area of high relative humidity, provide fasteners of Type 304 stainless steel.
2. For pressure-preservative-treated wood, use stainless steel fasteners.

B. Fasteners for Solid-Sawn Roof Decking: Provide fastener size and type complying with AITC 112 for thickness of deck used.

1. Fastener Material: Hot-dip galvanized steel.

C. Nails, Brads, and Staples: Common; complying with ASTM F1667.

1. For Solid-Sawn Roof Decking: Type I, Style 10.

D. Power-Driven Fasteners: Fastener systems with an evaluation report acceptable to authorities having jurisdiction, based on ICC-ES AC70.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Framing Standard: Comply with AF&PA's WCD 1, "Details for Conventional Wood Frame Construction," unless otherwise indicated.

B. Set work to required levels and lines, with members plumb, true to line, cut, and fitted. Fit rough carpentry accurately to other construction. Locate nailers, blocking, and similar supports to comply with requirements for attaching other construction.

C. Do not splice structural members between supports unless otherwise indicated.

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

E. Sort and select lumber so that natural characteristics do not interfere with installation or with fastening other materials to lumber. Do not use materials with defects that interfere with function of member or pieces that are too small to use with minimum number of joints or optimum joint arrangement.

F. Comply with AWPA M4 for applying field treatment to cut surfaces of preservative-treated lumber.

1. Use inorganic boron for items that are continuously protected from liquid water.
2. Use copper naphthenate for items not continuously protected from liquid water.

G. Securely attach rough carpentry work to substrate by anchoring and fastening as indicated, complying with the following:

1. Table 2304.9.1, "Fastening Schedule," in ICC's International Building Code (IBC).

H. Use steel common nails unless otherwise indicated. Select fasteners of size that will not fully penetrate members where opposite side will be exposed to view or will receive finish materials. Make tight connections between members. Install fasteners without splitting wood. Drive nails snug but do not countersink nail heads unless otherwise indicated.

I. For exposed work, arrange fasteners in straight rows parallel with edges of members, with fasteners evenly spaced, and with adjacent rows staggered.

3.2 INSTALLATION OF WOOD BLOCKING, CANTS AND NAILERS

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.

3.3 INSTALLATION OF SOLID-SAWN ROOF DECKING

A. Install solid-sawn wood roof decking to comply with AITC 112.

1. Locate end joints at existing wood framing supports.

B. Where preservative-treated roof decking must be cut during erection, apply a field-treatment preservative to comply with AWPA M4.

1. For solid-sawn roof decking, use inorganic boron (SBX).

C. Repair damaged surfaces and finishes after completing erection. Replace damaged roof decking if repairs are not approved by Engineer.

3.4 PROTECTION

A. Protect rough carpentry from weather.

END OF SECTION 061000

06 16 00
SHEATHING

SECTION 06 16 00
SHEATHING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Roof sheathing.

1.2 ACTION SUBMITTALS

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

1. Include data for wood-preservative treatment from chemical treatment manufacturer and certification by treating plant that treated plywood complies with requirements. Indicate type of preservative used and net amount of preservative retained.
2. Include data for fire-retardant treatment from chemical treatment manufacturer and certification by treating plant that treated plywood complies with requirements. Include physical properties of treated materials.
3. For fire-retardant treatments, include physical properties of treated plywood both before and after exposure to elevated temperatures, based on testing by a qualified independent testing agency in accordance with ASTM D5516.
4. For products receiving waterborne treatment, include statement that moisture content of treated materials was reduced to levels specified before shipment to Project site.
5. For air-barrier and water-resistant glass-mat gypsum sheathing, include manufacturer's technical data and tested physical and performance properties of products.

1.3 INFORMATIONAL SUBMITTALS

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

1. Wood-preservative-treated plywood.

1.4 QUALITY ASSURANCE

A. Installer Qualifications: An entity that employs installers and supervisors who are trained and approved by manufacturer of air-barrier and water-resistant glass-mat gypsum sheathing.

1.5 DELIVERY, STORAGE, AND HANDLING

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

PART 2 - PRODUCTS

2.1 WOOD PANEL PRODUCTS

A. Thickness: As needed to comply with requirements specified, but not less than thickness indicated.

B. Factory mark panels to indicate compliance with applicable standard.

2.2 PRESERVATIVE-TREATED PLYWOOD

A. Preservative Treatment by Pressure Process: AWPA U1; Use Category UC3b for exterior construction not 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 all plywood unless otherwise indicated

2.3 ROOF SHEATHING

A. Plywood Sheathing: Exposure 1 sheathing.

1. Span Rating: Not less than 32/16.
2. Nominal Thickness: Not less than 1/2 inch (13 mm).

B. Oriented-Strand-Board Sheathing: DOC PS 2, Exposure 1 sheathing.

1. Span Rating: Not less than 32/16.
2. Nominal Thickness: Not less than 1/2 inch (13 mm).

2.4 FASTENERS

A. General: Provide fasteners of size and type indicated that comply with requirements specified in this article for material and manufacture.

1. For roof sheathing, provide fasteners with hot-dip zinc coating complying with ASTM A153/A153M, or with organic-polymer or other corrosion-protective coating having a salt-spray resistance of more than 800 hours in accordance with ASTM B117.

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.

2.5 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.
2. ICC-ES evaluation report for fastener.

D. Use common wire nails unless otherwise indicated. Select fasteners of size that will not fully penetrate members where opposite side will be exposed to view or will receive finish materials. Make tight connections. Install fasteners without splitting wood.

E. Coordinate roof sheathing installation with flashing and joint-sealant installation so these materials are installed in sequence and manner that prevent exterior moisture from passing through completed assembly.

F. Do not bridge building expansion joints; cut and space edges of panels to match spacing of structural support elements.

G. Coordinate sheathing installation with installation of materials installed over sheathing so sheathing is not exposed to precipitation or left exposed at end of the workday when rain is forecast.

3.2 INSTALLATION OF ROOF SHEATHING

A. General: Comply with applicable recommendations in APA Form No. E30, "Engineered Wood Construction Guide," for types of structural-use panels and applications indicated.

B. Fastening Methods: Fasten panels as indicated below:

1. Wall and Roof Sheathing:

a. Nail to wood framing.
b. Space panels 1/8 inch (3 mm) apart at edges and ends.

END OF SECTION 06 16 00

07 01 50.19
REROOFING PREPARATION

SECTION 07 01 50.19
REROOFING PREPARATION

PART 1 - GENERAL

1.1 SUMMARY

A. The Work of This Section Includes:

1. Partial roof tear-off.
2. Temporary roofing.
3. Roof re-cover preparation.
4. Base flashing removal.
5. Disposal.

1.2 ALLOWANCES

A. Allowance for removal of existing deteriorated wood roof deck, and replacement with new wood deck, is specified under Section 012100 "Allowances."

1.3 UNIT PRICES

A. Work of this Section is affected by roof sheathing removal and replacement unit price.

1.4 DEFINITIONS

A. Partial Roof Tear-off: Removal of selected components and accessories from existing roofing system.

B. Roofing Terminology: Definitions in ASTM D1079 and glossary of NRCA's "The NRCA Roofing Manual: Membrane Roof Systems" apply to work of this Section.

C. Roof Re-Cover Preparation: Existing roofing system is to remain and be prepared for new roof installed over it.

1.5 PREINSTALLATION MEETINGS

A. Preliminary Roofing Conference: Before starting removal Work, conduct conference at Project site.

1. Meet with Owner, Architect, roofing Installer, and installers whose work interfaces with or affects roofing, including installers of roof accessories and roof-mounted equipment.
2. Review methods and procedures related to roofing tear-off, including, but not limited to, the following:

a. Reroofing preparation, including roofing system manufacturer's written instructions.
b. Temporary protection requirements for existing roofing system components that are to remain.
c. Existing roof drains and roof drainage during each stage of reroofing, and roof-drain plugging and plug removal.
d. Construction schedule and availability of materials, Installer's personnel, equipment, and facilities needed to avoid delays.
e. Existing roof deck conditions requiring Architect notification.
f. Existing roof deck removal procedures and Owner notifications.
g. Condition and acceptance of existing roof deck and base flashing substrate for reuse.
h. Structural loading limitations of roof deck during reroofing.
i. Base flashings, special roofing details, drainage, penetrations, equipment curbs, and condition of other construction that affect reroofing.
j. HVAC shutdown and sealing of air intakes.
k. Shutdown of fire-suppression, -protection, and -alarm and -detection systems.
l. Asbestos removal and discovery of asbestos-containing materials.
m. Governing regulations and requirements for insurance and certificates if applicable.
n. Existing conditions that may require Architect notification before proceeding.

1.6 INFORMATIONAL SUBMITTALS

A. Photographs or Video: Show existing conditions of adjoining construction and site improvements, including exterior and interior finish surfaces, that might be misconstrued as having been damaged by reroofing operations.

1. Submit before Work begins.

1.7 FIELD CONDITIONS

A. Owner will not occupy portions of building immediately below reroofing area.

1. Conduct reroofing so Owner's operations are not disrupted.
2. Provide Owner with not less than 72 hours' written notice of activities that may affect Owner's operations.
3. Coordinate work activities daily with Owner so Owner has adequate advance notice to place protective dust and water-leakage covers over sensitive equipment and furnishings, shut down HVAC and fire-alarm or -detection equipment if needed, and evacuate occupants from below work area.
4. Before working over structurally impaired areas of deck, notify Owner to evacuate occupants from below affected area.

a. Verify that occupants below work area have been evacuated before proceeding with work over impaired deck area.

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

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

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

E. Limit construction loads on existing roof areas to remain, and existing roof areas scheduled to be reroofed to 20 pounds per square foot for uniformly distributed loads.

F. Weather Limitations: Proceed with reroofing preparation only when existing and forecasted weather conditions permit Work to proceed without water entering existing roofing system or building.

1. Remove only as much roofing in one day as can be made watertight in the same day.

G. Hazardous Materials:

1. If materials suspected of containing hazardous materials are encountered, do not disturb; immediately notify Architect and Owner.

a. Hazardous materials will be removed by Owner under a separate contract.

PART 2 - PRODUCTS

2.1 TEMPORARY PROTECTION MATERIALS

A. EPS Insulation: ASTM C578.

B. Plywood: DOC PS 1, Grade CD, Exposure 1.

C. OSB: DOC PS 2, Exposure 1.

2.2 TEMPORARY ROOFING MATERIALS

A. Design and selection of materials for temporary roofing are Contractor's responsibilities.

2.3 INFILL AND REPLACEMENT MATERIALS

A. Use infill materials matching existing roofing system materials unless otherwise indicated.

B. Wood blocking, curbs, and nailers are specified in Section 061000 "Rough Carpentry."

C. Plywood roof sheathing is specified in Section 061600 "Sheathing."

D. Fasteners: Factory-coated steel fasteners with metal or plastic plates listed in FM Approvals' RoofNav, and acceptable to new roofing system manufacturer.

2.4 AUXILIARY REROOFING MATERIALS

A. General: Use auxiliary reroofing preparation materials recommended by roofing system manufacturer for intended use and compatible with components of existing and new roofing system.

PART 3 - EXECUTION

3.1 PREPARATION

A. Protection of In-Place Conditions:

1. Protect existing roofing system that is not to be reroofed.
2. Loosely lay 1-inch- (25-mm-) minimum thick, EPS insulation over existing roofing in areas not to be reroofed.

    a. Loosely lay 15/32-inch (12-mm) plywood or OSB panels over EPS. Extend EPS past edges of plywood or OSB panels a minimum of 1 inch (25 mm).

3. Limit traffic and material storage to areas of existing roofing that have been protected.
4. Maintain temporary protection and leave in place until replacement roofing has been completed. Remove temporary protection on completion of reroofing.
5. Comply with requirements of existing roof system manufacturer's warranty requirements.

B. Seal or isolate windows that may be exposed to airborne substances created in removal of existing materials.

C. Shut off rooftop utilities and service piping before beginning the Work.

D. Test existing roof drains to verify that they are not blocked or restricted.

1. Immediately notify Architect of any blockages or restrictions.

E. Coordinate with Owner to shut down air-intake equipment in the vicinity of the Work.

1. Cover air-intake louvers before proceeding with reroofing work that could affect indoor air quality or activate smoke detectors in the ductwork.

F. During removal operations, have sufficient and suitable materials on-site to facilitate rapid installation of temporary protection in the event of unexpected rain.

G. Maintain roof drains in functioning condition to ensure roof drainage at end of each workday.

1. Prevent debris from entering or blocking roof drains and conductors.

a. Use roof-drain plugs specifically designed for this purpose.
b. Remove roof-drain plugs at end of each workday, when no work is taking place, or when rain is forecast.

2. If roof drains are temporarily blocked or unserviceable due to roofing system removal or partial installation of new roofing system, provide alternative drainage method to remove water and eliminate ponding.

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

3.2 ROOF TEAR-OFF

A. Notify Owner each day of extent of roof tear-off proposed for that day and obtain authorization to proceed.

B. Lower removed roofing materials to ground and onto lower roof levels, using dust-tight chutes or other acceptable means of removing materials from roof areas.

C. Partial Roof Tear-off: Remove existing roofing down to the structural deck where indicated or to the extent required to properly furnish and install proposed roofing assemblies and immediately check for presence of moisture.

1. Inspect wood deck, blocking, curbs, and nailers for deterioration and damage.

a. If wood deck, blocking, curbs, or nailers have deteriorated, immediately notify Architect.

2. Remove fasteners from deck or cut fasteners off flush with deck surface.

3.3 DECK PREPARATION

A. Inspect deck after tear-off of roofing system.

B. If broken or loose fasteners that secure deck panels to one another or to structure are observed, or if deck appears or feels inadequately attached, immediately notify Architect.

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

C. If deck surface is unsuitable for receiving new roofing or if structural integrity of deck is suspect, immediately notify Architect.

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

D. Replace wood decking / sheathing, blocking, curbs and nailers as directed by Architect.

3.4 INFILL MATERIALS INSTALLATION

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

1. Installation of wood blocking, curbs, and nailers is specified in Section 061000 "Rough Carpentry."

B. Install new roofing patch over roof infill area.

1. If new roofing is installed the same day tear-off is made, roofing patch is not required.

3.5 TEMPORARY ROOFING

A. Install approved temporary roofing over area to be reroofed.

B. Remove temporary roofing before installing new roofing.

3.6 ROOF RE-COVER PREPARATION

A. Remove blisters, ridges, buckles, and other substrate irregularities from existing roofing that inhibit new recover boards from conforming to substrate.

1. Broom clean existing substrate.
2. Verify that existing substrate is dry, clean and sound.

3.7 BASE FLASHING REMOVAL

A. Remove existing base flashings.

1. Clean substrates of contaminants, such as asphalt, sheet materials, dirt, and debris.

B. Do not damage metal counterflashings that are to remain.

1. Replace metal counterflashings damaged during removal with counterflashings of same metal, weight or thickness, and finish as existing.

3.8 DISPOSAL

A. Collect demolished materials and place in containers.

1. Promptly dispose of demolished materials.
2. Do not allow demolished materials to accumulate on-site.
3. Storage or sale of demolished items or materials on-site is not permitted.

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

END OF SECTION 070150.19

07 14 16
COLD FLUID-APPLIED WATERPROOFING

SECTION 07 14 16
COLD FLUID-APPLIED WATERPROOFING

PART 1: GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section Includes:

1. Preparation of existing substrates.
2. Fluid-applied membrane and accessory products.

1.3 ACTION SUBMITTALS

A. Product Data: For each product.

B. Samples for Verification: Color finish samples as requested by Architect.

1.4 INFORMATION SUBMITTALS

A. Submittals prior to Contract Award:

1. Letter from the proposed primary system manufacturer confirming that the proposed Applicator is an Approved Applicator authorized to install the specified system.
2. Letter from the primary system manufacturer stating that the proposed application will comply with the manufacturer's requirements in order to qualify the project for the specified warranty.

B. Product Installation/Application Instructions: For each product.

1.5 CLOSEOUT SUBMITTALS

A. Maintenance Data: For membrane system to include in maintenance manuals.

B. Warranties: Special warranties specified in this Section.

C. Inspection Report: Copy of membrane system manufacturer's inspection report of completed installation.

1.6 QUALITY ASSURANCE

A. Acceptable Contractor: Applicator shall be certified in writing by the manufacturer to install the primary traffic coating products.

B. Project Acceptance: Submit a completed manufacturer's application for membrane warranty form along with shop drawings of areas to receive membrane, showing all dimensions, penetrations, and details. The form shall contain all the technical information

applicable to the project. The project must receive approval by the membrane manufacturer, through this process, prior to shipment of materials to the project site.

C. Scope of Work: The work to be performed under this specification section shall include, but is not limited to, the following: Attend necessary job meetings and furnish competent and full-time supervision, experienced mechanics, all materials, tools, and equipment necessary to complete, in an acceptable manner, the waterproofing system installation in accordance with this specification. Comply with the latest written application instructions of the manufacturer of the specific waterproofing products.

D. Local Regulations: Conform to regulations of public agencies, including any specific requirements of the city and/or state of jurisdiction.

E. Manufacturer Requirements: The primary materials manufacturer shall provide trained company personnel to attend necessary job meetings, perform periodic inspections as necessary, and conduct a final inspection upon successful completion of the project.

F. Substrate Evaluation: Contractor shall evaluate substrate moisture content and adhesion of waterproofing materials to substrate throughout the work and record with daily inspection reports or other form of reporting acceptable to the Owner and the waterproofing manufacturer.

1. Moisture content: Evaluate substrate moisture content to determine acceptability for application of the specified liquid applied waterproofing materials. Moisture testing shall be performed by means suitable to the project application, or by testing substrate relative humidity (RH) in accordance with ASTM F 2170 when needed, required, or if substrate moisture content is in question.
2. Adhesion: Evaluate soundness and surface preparation of concrete and/or masonry substrates. Prepare representative areas using specified methods complete with applied primer. Test for minimum acceptable tensile bond strength values as required in accordance with ASTM D 4541. Evaluate all areas where concrete appears to differ in appearance or consistency, if multiple areas are involved in the scope of work, evaluate each area with a minimum of (3) tests for every 5,000 ft^2 or as required by project conditions.

1.7 PRODUCT DELIVERY STORAGE AND HANDLING

A. Delivery: Deliver materials in the manufacturer's original sealed and labeled containers and in quantities required to allow continuity of application.

B. Storage: Store closed containers in a cool, dry, well ventilated area away from heat, direct sunlight, oxidizing agents, strong acids, and strong alkalis. Keep products away from open fire, flame or any ignition source. Store temperature sensitive products at temperatures recommended by the manufacturer.

C. Damaged Material: Any materials that are found to be damaged or stored in any manner other than stated above will be rejected, removed and replaced at the Contractor's expense.

D. Handling: Handle all materials in such a manner as to preclude damage and contamination with moisture or foreign matter. Keep away from open fire, flame, or any ignition source.

1.8 PROJECT/SITE CONDITIONS

A. Requirements Prior to Job Start

1. Notification: Give a minimum of 5 days notice to the Owner and manufacturer prior to commencing any work and notify both parties on a daily basis of any change in work schedule.
2. Permits: Obtain all permits required by local agencies and pay all fees which may be required for the performance of the work.
3. Safety: Familiarize every member of the application crew with safety regulations recommended by OSHA and other industry or local governmental groups.

B. Environmental Requirements

1. Precipitation: Do not apply materials during precipitation or in the event there is a probability of precipitation during application. Take adequate precautions to ensure that materials, applied membrane, and building interiors are protected from possible moisture damage or contamination.
2. Temperature Restrictions – Follow the membrane manufacturer's specifications for minimum and maximum ambient, material, and substrate temperatures. Do not apply materials unless ambient and substrate surface temperatures fall within the manufacturer's published range.

C. Protection Requirements

1. Protection: Provide protection against staining and mechanical damage for newly applied membrane and adjacent surfaces throughout this project. Protect adjacent surfaces from damage. If necessary, mask and/or cover adjacent surfaces, fixtures, equipment, etc. by suitable means.
2. Limited Access: Prevent access by the public to materials, tools, and equipment during the course of the project. Surfaces shall be kept free of traffic once surface preparation has begun, and no trades shall be permitted in areas during the application and curing of the coating.
3. Debris Removal: Remove all debris daily from the project site and take to a legal dumping area authorized to receive such materials.
4. Site Condition: Complete, to the Owner's satisfaction, all job site clean-up including building interior, exterior, and landscaping where affected by the construction.

1.9 WARRANTY

A. Special Warranty for Reinforced Systems: Manufacturer agrees to repair or replace components of pedestrian traffic waterproofing system that fail in materials or workmanship within specified warranty period.

1. Warranty Period: 10 years from Date of Substantial Completion.

PART 2: PRODUCTS

2.1 FLUID-APPLIED WATERPROOFING

A. Low odor, rapid curing, polymethacrylate (PMA) liquid resin with an embedded polyester reinforcement fabric used for monolithic waterproofing field membranes.

1. Field and Flashing Primer: Subject to compliance with requirements, provide one of the following products:
   a. Soprema ALSAN RS 222 Primer.
   b. Approved Equal.

2. Field Membrane: Subject to compliance with requirements, provide one of the following products:

   a. Soprema Alsan RS 230 Field.
   b. Approved Equal.

3. Flashing Membrane: Subject to compliance with requirements, provide one or more of the following products as required by the membrane manufacturer:

   a. Soprema Alsan RS 230 Flash.
   b. Soprema Alsan RS Detailer.
   c. Approved Equal.

4. Aesthetic Smooth Finish: Subject to compliance with requirements, provide one or more of the following products as required by the membrane manufacturer:

   a. Sopreman Alsan RS 285 CF.

      1) Soprema Alsan RS Color Additive pouches

         a) Color: to be selected by owner from manufacturer's full range.

   b. Approved equal.

2.2 AUXILIARY MATERIALS

A. General: Auxiliary membrane materials recommended by system manufacturer for intended use, and compatible with membranE.

1. Liquid-type auxiliary materials shall comply with VOC limits of the Owner and all authorities having jurisdiction.

B. Primer: Manufacturer's standard primer compatible with existing substrate materials and proposed fluid-applied membrane system.

C. Catalyst: Manufacturer's standard reactive agent used to cure PMMA/PMA liquid resins.

D. Reinforcing Fabric: Manufacturer's standard reinforcing fabric material for use PMMA/PMA liquid applied membrane and flashing applications.

E. Substrate Patching and Repair:

1. Polymethyl Methacrylate Paste: Manufacturer's standard polymethyl methacrylate paste used to fill small cracks and voids in substrates prior to the application of PMMA/PMA membranes.
2. Polymethacrylate / Polymethyl Methacrylate Mortar: Manufacturer's standard mortar products used for patching, repairs and leveling of substrates prior to the application of PMMA/PMA membranes.

F. Miscellaneous Accessories: Provide all cleaners, pourable sealers, mastics, reinforcing fabrics, fasteners and other accessories as required for a fully warrantable and complete system installation.

PART 3: EXECUTION

3.1 SUBSTRATE EXAMINATION

A. General: Verify that the substrate is suitable to receive work. Notify the general contractor and/or specifier in writing of conditions detrimental to the proper and timely completion of work. Bring substrate deficiencies into an acceptable condition prior to commencing work.

B. Concrete Substrate Requirements: Structural concrete shall be cured a minimum of 28 days in accordance with ACI-308, have a minimum compressive strength of 3,500 psi (24 N/mm2) and have a moisture content that conforms with the waterproofing system manufacturer's requirements prior to commencement of work.

C. Moisture Content Evaluation: Evaluate the level of moisture in the substrate to determine that the moisture content is acceptable for application of the specified waterproofing system. Concrete substrates shall have a maximum moisture content of 6% by weight and a maximum internal relative humidity of 75%.

D. Adhesion Testing for Concrete Substrates to Receive Resin Materials: Test the concrete substrate using a device conforming to ASTM D 4541 (50 mm dolly) adhered with the specified catalyzed primer. Utilize the same concrete preparation methods as that which will be used prior to application of the waterproofing for areas to be evaluated for adhesion. Ensure that a minimum adhesion value of 220 psi is obtained before application of the PMMA-based primer. If multiple areas or substrates are involved in the scope of work, evaluate each to determine suitability. Maintain testing/evaluation records.

3.2 SURFACE PREPARATION

A. Protection: Provide protection to prevent dust/debris accumulation, spillage and resin overruns.

B. Taping: Utilize masking tape at perimeters and joints of the area to be waterproofed to provide neat terminations.

C. Preparation of Existing Concrete/Masonry Substrates to Receive Resin Materials: Following evaluation for moisture content and confirmation that the moisture content is at an acceptable level, shot blast or scarify/shot-blast concrete or masonry surfaces to provide a sound substrate free from laitance, carbonated concrete, residue from bitumen, coal tar, primer, coatings, adhesives, sealer or any material that may inhibit adhesion of the specified primer. Generate a concrete surface profile of CSP-3 to CSP-5 as defined by the ICRI. Grinding may be used as a preparation method for localized areas that cannot be reached by a shot blasting equipment provided that a surface profile of CSP-3 to CSP 5 can be generated. Repair spalls and voids on vertical or horizontal surfaces using the specified primer and preparation paste.

D. Repair and Leveling of Concrete to Receive Resin Materials: Before application of the waterproofing membrane, and after priming, fill all joints, cracks, voids, fractures, depressions, small indentations, and low areas in the substrate using the specified paste or repair mortar.

E. Concrete Substrate Repair: Prime areas of the prepared concrete substrate intended for repair using the specified primer. FiIl the areas using the specified paste or repair mortar and allow to cure. Follow the paste or repair mortar manufacturer's published minimum and maximum product thickness limitations per lift.

F. Crack Preparation: Follow manufacturer’s details for crack preparation prior to waterproofing system application.

3.3 LIQUID-APPLIED WATERPROOFING INSTALLATION

A. Do not apply coating if weather conditions will not permit complete cure (24-hour period) before rain, dew, fog or freezing temperatures occur.

B. Using a high-pressure compressed air or an air blower, blow all dust, dirt and other contaminants off the treated roof surfaces.

C. Prepare and install fluid-applied membrane and all accessory products in strict accordance with the manufacturer’s written instructions.

D. Allow coating to dry before subjecting the surface to traffic. Drying conditions will vary depending on temperature and humidity levels. Consult manufacturers product data sheets for estimated cure times.

3.4 FIELD QUALITY CONTROL

A. Site Condition. All areas around job site shall be free of debris, waterproofing materials, equipment, and related items after completion of job.

B. Notification of Completion: Contractor shall notify manufacturer by means of manufacturer's printed Notification of Completion form of job completion in order to schedule a final inspection date.

C. Final Inspection: Hold a meeting at the completion of the membrane application attended by the Contractor, installer, manufacturer's representative, Architect/Engineer and Owner. A punch list of items required for completion shall be compiled by the Contractor and the manufacturer's representative. Complete, sign, and mail the punch list form to the manufacturer's headquarters.

D. Issuance of the Warranty. Complete all post installation procedures and meet the manufacturer's final endorsement for issuance of the specified warranty.

3.5 PROTECTING AND CLEANING

A. Protect membrane roofing system from damage and wear during remainder of construction period. When remaining construction will not affect or endanger roofing, inspect roofing for deterioration and damage, describing its nature and extent in a written report, with copies to Engineer and Owner.

B. Correct deficiencies in or remove membrane roofing system that does not comply with requirements; repair substrates; and repair or reinstall membrane roofing system to a condition free of damage and deterioration at time of Substantial Completion and according to warranty requirements.

C. Clean overspray and spillage from adjacent construction using cleaning agents and procedures recommended by manufacturer of affected construction.

PART 4: END OF SECTION 07 14 16

07 31 26
SLATE ROOFING

SECTION 07 31 26
SLATE ROOFING

PART 1 - GENERAL

1.1 WORK INCLUDED

A. Furnish all labor, materials, equipment and services necessary or incidental to the completion of the slate roofing work as shown on the Drawings, as specified herein, and as needed for a complete and proper installation.

B. This section includes slate roofing work in the following categories:

1. Natural slate roof shingles.
2. Moisture shedding underlayment.
3. Ice dam protection membrane.
4. Metal roof flashing.
5. Roofing cant and nailing strips.
6. Roofing nails.
7. Ridge cap.

1.2 RELATED DOCUMENTS

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

B. Section 07 01 50.19 – REROOFING PREPARATION.

C. Section 07 62 00 – SHEET METAL WORK.

1.3 REFERENCE STANDARDS

A. ASTM B370 – Standard Specification for Copper Sheet and Strip for Building Construction.

B. ASTM C406 – Standard Specification for Roofing Slate.

C. ASTM C920 – Standard Specification for Elastomeric Joint Sealants.

D. ASTM C1311 – Standard Specification for Solvent Release Sealants.

E. ASTM D226 – Standard Specification for Asphalt-Saturated Organic Felt Used in Roofing and Waterproofing.

F. ASTM D312 – Standard Specification for Asphalt Used in Roofing.

G. ASTMD1079 – Standard Terminology Relating to Roofing and Waterproofing.

H. ASTM D1970 – Standard Specification for Self-Adhering Polymer Modified Bituminous Sheet Materials Used as Steep Roofing Underlayment for Ice Dam Protection.

I. ASTM D2626 – Standard Specification for Asphalt-Saturated and Coated Organic Felt Base Sheet Used in Roofing.

J. ASTM D3019 – Standard Specification for Lap Cement Used with Asphalt Roll Roofing, Non-Fibered, Asbestos-Fibered, and Non-Asbestos-Fibered

K. ASTM D4586 – Standard Specification for Asphalt Roof Cement, Asbestos-Free.

L. ASTM D4689 – Standard Specification for Asphalt-Saturated Organic Felt Underlayment Used in Steep Slope Roofing.

M. “Slate Roofs Design and Installation Manual” published by the National Slate Association (NSA).

N. “The NRCA Roofing and Waterproofing Manual” published by the National Roofing Contractors Association.

O. "Architectural Sheet Metal Manual" published by the Sheet Metal and Air Conditioning Contractors National Association, Inc. (SMACNA)

P. “Copper and Common Sense” published by Revere Copper Products.

Q. The latest edition of all references shall be used.

1.4 PERFORMANCE REQUIREMENTS

A. Install slate roofing, accessories and trim to withstand wind loads, structural movement, thermally induced movement, and exposure to weather without failing.

1.5 SUBMITTALS

A. Submit in accordance with the relevant Division 1 Specifications Section.

B. Product Data: For each type of product indicated. Include physical properties, chemical properties, material descriptions, material origins, dimensions of individual components, manufacturer’s printed installation instructions, colors and finishes as applicable.

C. Shop Drawings

1. Provide all tile length, gauge, headlap, width, butt jointing, thickness and fastening patterns.
2. Indicate all locations, configurations and methods of attachment for ice & water shield membrane and underlayments. Include layering and lap joint

dimensions as well as interfaces with adjacent existing and proposed construction.

3. Indicate all locations, configurations and methods of joining and attachment for sheet metal guttering, flashings, and trim. Include dimensions of all profiles, provisions for prevention of electrolytic action between dissimilar metals and interface with adjacent existing and proposed construction.

D. Selection Samples: Submit pieces of actual slate shingles, illustrating full range of available colors of slate that meet the specified grading requirements.

E. Verification Samples: Submit a minimum of three full-sized slate shingles of each color selected, illustrating the full range of color variation to be expected in finished work.

F. Material Test Reports: For each slate type, performed by a qualified testing laboratory per ASTM C406.

G. Certificate of Compliance: For each product specified, to certify compliance with reference standards.

H. Installer's Qualifications: Installers natural roofing slate project references; not fewer than four.

I. Distributor's Warranties: Distributors warranty for slate shingles and accessory products specified.

J. Installer's Warranties: Installers warranty for work specified.

K. Maintenance Manual: All relevant manufacturer's / distributors data and instructions for maintenance of completed slate roofing and accessories.

1.6 QUALITY ASSURANCE

A. Comply with all federal, state and local building codes and regulations as well as contractual obligations regarding specified installations as well as health codes related to construction practices and use of equipment.

B. Obtain components for slate roofing from a single primary manufacturer / distributor. Secondary products and accessories must be acceptable to the primary manufacturer / distributor.

C. Manufacturer / Distributor Qualifications: Minimum of 10 years of experience producing / distributing slate systems of the size and complexity of this project. Production facilities must be capable of meeting the project schedule.

D. Installer Qualifications: Company experienced in installing natural slate roofing of the type and scope specified in this section and employing persons with five years or greater of documented experience. Company shall provide skilled workers,

thoroughly trained and experienced in the necessary crafts of natural slate roof systems and who are familiar with this specification and methods required.

E. Mockups: Prior to proceeding with slate roofing work, prepare in-situ mockups for each type of work included in this section. Incorporate materials and methods of fabrication and installation that conform to the project requirements. Mockups shall demonstrate the proposed work procedures, roofing components, quality of workmanship and aesthetic effects of the completed work. Provide mockups of sufficient size and scope to show typical patterns of color blending, fastening details, edge construction and interfaces with adjacent construction. Any mockups that are rejected shall be completely demolished and reconstructed at the installer's sole expense. Approved mockups shall remain in place through the duration of the project and shall be used to establish the standard of quality for acceptance of completed roofing work. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups, unless such deviations are specifically approved in writing. Do not proceed with remaining work until an approved mockup has been completed.

F. Fastener Withdrawal Resistance Testing: Contractor shall hire a 3rd party testing agency to conduct fastener pullout resistance testing in accordance with ANSI/SPRI FX-1 standard testing procedure to determine the withdrawal resistance of the proposed fasteners into the gypsum decking. The minimum acceptable average withdrawal resistance is 180 lbs. with no single value less than 170 lbs. Contractor shall submit test results to the Owner and Engineer prior to commencement of clay tile installation.

1.7 DELIVERY, STORAGE AND HANDLING

A. Deliver shingles to project site in distributor's crates / pallets, labeled with data indicating source. Coordinate deliveries with the project schedule to minimize on site storage. On site storage locations to be selected by the Owner's Representative.

B. Handle shingles to prevent chipping, breakage, soiling or other damage. Protect edges with wood or other rigid material.

C. Place and stack crates / pallets to distribute weight evenly and to prevent breakage or cracking.

D. Store underlayment rolls on end, on pallets or other raised surfaces. Do not double stack rolls.

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

F. Stage roofing materials on the building in a manner to avoid damage to the roof deck or structural supporting members by materials, workers and/or equipment

G. Protect existing tiles and underlayment to remain throughout the duration of the project. Protect new materials during placement.

1.8 PROJECT CONDITIONS

A. Coordinate Work of this Section with interfacing and adjoining Work for proper sequencing of each installation. Ensure best possible weather resistance, durability of Work and protection of materials and finishes. Prevent contact with materials which may cause discoloration.

B. Maintain environmental conditions (temperature, humidity and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.

C. Workers are to avoid walking on the slate surfaces during installation.

D. The roof is to be properly staged to allow safe work surfaces, such as planks, that prevent unnecessary foot traffic on the slates.

E. Where foot traffic is unavoidable; roof ladders, hook ladders, chicken ladders, foam pads or other such devices should be used to protect the slates.

F. Furnish, install and maintain temporary roofing and drainage systems as required to ensure that the building remains watertight throughout the duration of the project. Contractor shall be held responsible for all cleanup, repair and replacement costs attributed to leaks in the vicinity of this Work. Temporary roof coverings, tarps or other materials are to remain available onsite in the event that the work must cease suddenly due to weather conditions and the roof needs to be weathered in until such time as the work may be continued.

1.9 WARRANTY

A. Slate Shingle Distributors Warranty: Submit slate shingle distributors warranty, signed by the distributor and covering the slate shingles described in this section, in which the distributor agrees to replace slate shingles that fail in materials. The duration of this warranty shall be established by ASTM C406 and grade indicated in this specification.

B. Installer's Warranty: Submit slate shingle installers warranty, signed by the installer and covering the Work described in this section, in which the installer agrees to provide all labor and materials necessary to address any leaks or other failures attributed to this Work, up to and including total replacement. The duration of this warranty shall be two (2) years from the date of substantial completion.

PART 2 - PRODUCTS

2.1 SHINGLES

A. Slate Shingles: Hard, dense, sound rock with chamfered edges, punched or drilled for two nails each in shingles less than 3/4 inches thick. Use four nails per slates measuring greater than or equal to 3/4 inches thick. Slate shingles shall be punched or drilled back to front, and on the thinner end where there is variation in thickness along the length of the shingle. Holes shall be located typically 1-1/4 inches to 1-1/2 inches from butt ends and the lowest holes are typically 1/4 to 1/3 the distance down from the head of the shingles. Nail holes shall be of the correct diameter to provide a snug fit for the shank of the roofing nails. Nail holes must be positioned far enough from the bottom of the slates that the top of the underlying slates will not be penetrated by the slating nails.

B. No slate shingles with broken corners shall be installed when either the base or leg of the right triangle piece broken off is greater than 1-1/2 inches. No broken corners on covered ends which sacrifice nailing strength or laying a watertight roof. Broken corners are acceptable for cutting stock. Not more than 2 percent of broken slates, including those having cracks materially precluding ringing when sounded, shall be accepted.

C. Slate shall be free from any visible inclusions of oxidizable iron pyrite.

D. Slates shall not have carbon-bearing bands known as “ribbons” as these are considered defects that undermine the longevity of the slate.

E. Curvature or twist in slate shingles shall not exceed 1/8 inch in 12 inches. Curved slate shingles shall be trimmed and punched to permit them to be laid with convex side up. Knots, knurls and cramps are acceptable on the exposed slate shingle face. Knots, knurls and cramps on the back or covered portion of slate shingles, which prevents close contact of slate shingles or the laying of a watertight roof, will not be accepted.

F. Slate shingles shall be trimmed with 90-degree square corners. Face dimensions of slate shingles shall not differ from those specified by more than 1/8 inch.

1. Source: Obtain slate required for the project from a single quarry, with consistent color range, physical properties and texture throughout.
2. Grade: ASTM C406 Grade S2: Expected service life of 40-75 years.
3. Profile: Rectangular.
4. Thickness: To match existing.
5. Size: To match existing.
6. Headlap: To match existing. Notify Engineer if existing headlaps are less than three (3) inches.
7. Exposure: To match existing.
8. Cut Butt Shape: To match existing.
9. Installation Style: To match existing.

10. Starter Slate Size: Length of starter slates to be the exposure of the field slates plus the specified headlap and rounded up to the nearest full inch. Starter slates are to be front-side punched and installed chamfered edge down.
11. Color: Color pallet and color distribution shall match the existing slate roofing.
12. Natural Cleft: To match existing.
13. Installation Method: Typically nailed. Nailed and wire tied / hung slate shall be used where required to prevent fastener penetrations through sheet metal flashings. Slate hooks or nail-and-bib fasteners shall be used as required for individual tile replacement and as required at upper course of eave replacement work. The number of slate hook / nail-and-bib fasteners shall be minimized at the eaves transition by utilizing the NSA recommended sawtooth or alternative tile replacement methods. Sheet metal hooks are not an acceptable means of shingle attachment.

2.2 UNDERLAYMENT

A. Coated Felt Underlayment: Two layers of ASTM D2626, Type I, No. 43# asphalt-saturated and coated organic felt, mineral surfaced, unperforated.

B. Self-Adhering Membrane: ASTM D1970 high-temperature self-adhering polymer modified bitumen membrane. Install at all eave, flashing, rake, transition and penetration conditions in accordance with the Drawings.

C. Self-Adhering Membrane Deck Primer: As recommended by the self-adhering membrane product manufacturer for membrane adhesion to roof decking.

D. Slip Sheet: Apply between underside of copper flashings and underlayment. Rosin sized building paper, weighing approximately 4 lbs per 100 square feet, minimum.

2.3 SHEET METAL FLASHINGS

A. Flashing: ATSM B370 copper, cold rolled, natural finish. Minimum weight is 16 oz/sq ft for typical step flashings, counterflashings, downspouts and trim. Minimum weight for exposed flat seams roofs, washes and ridge cap is 20 oz/sq ft. Minimum weight for exposed valleys and gutters is 24 oz/sq ft except as noted on the Drawings.

B. Gutter, collector head and downspout profiles shall match existing including all ornamentation.

2.4 ACCESSORIES

A. Slating Nails for Solid Gypsum Deck: Corrosion resistant stainless steel or silicon bronze; minimum 10D, 3/8 inch head, not less than twice the nominal slate thickness plus 1 inch in length or as required to achieve acceptable fastener

withdrawal resistance values. Fasteners shall not damage / spall the underside of the gypsum decking.

B. Slating Nails for Non-Preservative, or Preservative Treated Plank or Plywood Deck and Nailers: Slater's stainless steel smooth shank nails, 0.120 inch or No. 11 gauge Stubs, not less than twice the nominal slate thickness plus 1 inch in length, with 3/8 inch head. Point should penetrate through underside of deck except where the underside of roof deck is exposed to view, where shorter nails are acceptable. Nails 1/2 inch or longer than field slate nails for slate hip and ridge installation.

C. Copper Wire: 10 gauge minimum with or without insulation.

D. Slate Hooks: Slate hooks shall be minimum three inches long, solid copper or stainless steel. Standard slate hooks are for use with slate of commercial standard thickness only. Custom slate hooks may be fabricated by the Contractor for use with slates up to 1/2 inch in thickness.

E. Nail-And-Bib: A minimum of two fasteners per slate are required for this method. Sheet metal bibs shall be fabricated from Series 300 stainless steel sheet or 16 oz/sq ft copper to match the underlying repair nail. Nail-and-bib method shall be used for slates greater than 3/8 inch in thickness unless approved custom slate hooks are fabricated by the Contractor for use with slates up to 1/2 inch in thickness. Bib shall be a minimum of 3 inches wide and shall be fabricated with a hook at the top side to engage the top of the repair slate. The bottom edge of the bib shall be held 1-1/2 above the bottom edge of the overlying tile.

F. Snow Guards: 16 oz. cold-rolled, natural finish, gusseted support design, half-round profile. Horizontal spacing not to exceed 24 inches. Vertical spacing not to exceed two tile courses. Install three rows of snow guards adjacent to south eaves where shown on the Drawings. Minimum of two fasteners per snow guard. Fasteners shall be secured into the roof deck and strap must be long enough to accommodate this attachment method. Minimum height of snow retainage pad is 1-1/2 inches. No wire-loop snow guards and no friction-supported or tile-hung snow guards will be accepted.

G. Copper Fasteners: All fasteners in contact with copper shall be copper, brass, or series 300 stainless steel. Fasteners for concealed cleats shall be stainless steel screws – nails are not acceptable.

H. Felt Underlayment Nails: Series 300 stainless steel or electro-galvanized wire nails with low-profile capped heads or disc caps, 1 inch minimum diameter.

I. Wood Nailers, Ridge Poles and Cant Strips: Foundation grade, S4S, maximum 19 percent moisture content, attached with Type 304 or 316 stainless steel nails.

J. Butyl Rubber Sealant: ASTM C1311, single-component, solvent-release; polyisobutylene plasticized; heavy bodied

K. Roof Cement: ASTM D4586, Type I or Type II non-running, heavy body plastic cement composed of asphalt and other mineral ingredients as recommended by underlayment manufacturer and/or slate distributor.

L. Polymer Sealant: ASCM C920 non-bleeding silicone sealant of type, grade, class and use classification required to seal joints in slate roofing and remain watertight.

M. Other Materials: Provide other materials, not specifically described herein but required for a complete and proper installation, as selected by the Installer and subject to approval by the Engineer and the slate roofing distributor.

PART 3 - EXECUTION

3.1 PREPARATION AND REMOVAL OF EXISTING ROOFING

A. Preinstallation Meeting: Convene at the Project site a minimum of two weeks prior to the beginning of slate roofing work. Notify the Architect, Engineer, Owner's Representative and manufacturer's / distributor's technical representatives a minimum of five (5) working days in advance of this meeting. The intent of the meeting will be to discuss the project requirements, site logistics, submittal status, mockup location(s), trade coordination, installation instructions and warranty requirements.

B. Carefully remove existing roofing and substrate layers down to structural deck taking care not to damage the decking, underlayment or slate roofing to remain. Maintain a selvage edge of existing underlayment to create water shedding lap joints at interfaces with new underlayment. Slate roofing shall be removed at eaves by utilizing the NCR recommended sawtooth or alternative tile replacement methods to minimize the number of tiles that must be installed using slate hooks and/or the nail-and-bib method.

C. Owner reserves the right of first refusal for salvage of all copper removed from the building. Dispose of copper roofing components in a separate dumpster as directed by the Owner' Representative.

D. Verify that roofing penetrations within the area of Work are in place and properly flashed to deck surface.

E. Verify that roof openings are framed correctly.

F. Verify that deck surfaces are sound, smooth, properly secured and free of ridges, depressions and voids and properly sloped and dry.

G. Notify the Engineer of any defects in the roof deck that would preclude the proper installation and long-term performance of the slate roofing system. Do not proceed with the Work of this section until unsatisfactory conditions have been corrected.

H. Notify the Engineer of any damaged gypsum plank decking conditions that make the substrate unstable or otherwise unsuitable for reroofing. Patch or replace segments of gypsum plank as directed by the Engineer in the field, or in accordance with the most recent publication of NRDCA 500 by the National Roof Deck Contractors Association and/or as described in Section 07 01 50.19.

I. Broom clean deck surfaces prior to installation of underlayment.

3.2 UNDERLAYMENT APPLICATION

A. Self-Adhering Underlayment: Prime substrate as recommended by the underlayment manufacturer and install membrane over exterior surfaces where indicated on the Drawings in wrinkle-free fashion. Install membrane laps down slope to shed water. Lap sides not less than 3-1/2 inches. Lap ends not less than 6 inches staggered 24 inches between courses. Roll laps with a roller. Proceed with installation only within the range of ambient and substrate temperatures recommended by manufacturer.

B. When self-adhering membrane is used it is to be subsequently covered with felt.

C. Coated Felt Underlayment: Felt shall be installed in two layers horizontally with sections overlapped toward eaves by a minimum of two inches and at ends by a minimum of six inches. Felt shall be secured with cap nails along laps, ends and in the field as necessary to properly hold the felt in place and to protect the building from water infiltration until covered with slate.

D. The maximum duration of exposure for felts prior to slating shall be one month. When the felt must be left for long periods before the slates can be installed, the exposed nail heads are to be skimmed over with a thin layer of trowel grade roof mastic to prevent leakage around the nail heads.

3.3 WOOD NAILER AND CANT STRIP APPLICATION

A. Nailers: Install wood nailers as shown at the ridge on the Drawings. Protect with underlayment prior to installing sheet metal trim.

B. Cants: Install cant strips where shown on the Drawings and as required to install slate at the proper angle. Nominal thickness of cant strip shall be equal to the slate thickness. Attach with stainless steel nails. Protect underlayment with underlayment and flashings prior to slate installation. Alternatively, minimum 16 oz/sq ft copper edging with a built-in cant may be used in lieu of wood cant strips.

3.4 GUTTER AND FLASHING APPLICATION

A. Install gutters and flashings to shed water and prevent water penetration at all eaves, ridges, rakes and as indicated on the Drawings.

B. Flashings shall be installed where there are roof plane intersections, where the roof abuts walls, parapets, dormers and chimneys or where there are roof penetrations with the areas of Work shown on the Drawings.

C. Gutter profiles anchorages and straps / hangers shall match the existing configurations.

D. All flashing components and fasteners are to be galvanically compatible.

E. Fabricate and install flashings in accordance with the Drawings and as recommended in the SMACNA "Architectural Sheet Metal Manual" and the Revere Copper Products "Copper and Common Sense".

F. Valley flashings shall be installed over full-width underlayment. Fasten to deck with cleats. Overlap end joints a minimum of 12 inches and do not solder. Lap self-adhering membrane material over edges of copper flashing and cleats 4 inches minimum. Lap felt underlayment fully over membrane strip.

3.5 SLATE SHINGLE ROOFING INSTALLATION

A. Unpackage, visually inspect and sound slates. Dispose of any slate that do not conform to the project requirements.

B. Blend slates from all crates/pallets together to achieve a uniform color and texture to the roof to match the adjacent existing look.

C. All standard slates shall be fastened with minimum two roofing nails fastened above the head of the underlying slate and as far from the center of the slate as is practical. Larger, heavier slates may require four nails per slate. Screws are not to be used when fastening slates.

D. Slates overlapping sheet metal shall have the nails placed so as to minimize puncturing the metal. Use copper wire ties where feasible to avoid puncturing the flashings.

E. Exposed nail heads are not permissible except where unavoidable. Any exposed nail heads shall be sealed with gaskets or approved sealants. This application of slate dust to cover exposed sealants is recommended.

F. Nails shall not be driven in so far as to product an excessive strain on the slates, and shall instead be driven to a depth such that the nail heads lie within the counter-sunk nail hole and do not rub excessively against the overlying slates.

G. Use of pneumatic or electric nail guns to install slate shingles shall not be permitted.

H. Slates are not to be bedded in roof mastic or other adhesives except where absolutely necessary such as at exposed edges in high-wind areas where sufficient number of fasteners cannot be installed.

I. Ridges and hips shall be installed without exposed fasteners.

J. If a slating nail is installed in a crack or void in the decking, it shall be relocated and renailed properly.

K. All standard field slates shall be installed with a minimum 3 inch headlap unless the existing slate conditions preclude this standard. Notify the Engineer prior to proceeding with slate installation if this condition is encountered.

L. Slate shall be installed starting at the bottom of the Work area or eaves and proceeding toward the ridge.

M. Eave slates shall be laid to provide a 1-1/2 inch projection beyond the furthest extent of the fascia, cornice, crown molding, metal drip edge, trim or other construction material at the eaves.

N. Rake edge (gable end) slates shall extend 1 inch beyond the furthest extent of the gable trim, fascia, drip edge or verge board where applicable.

O. Slates at the eaves shall be doubled by first installing a slate starter or under-eave course installed back side up (chamfered side down). This first course of slate shall be laid over the starter course so that the drip edges of both courses align flush. This first course of slates shall break side-butt joints with the starter course by not less than 3 inches. The second course of slates must overlap the starter course by a minimum of 3 inches and not less than the general headlap of the field slates along the eaves.

P. All slates shall be installed following straight chalk lines marking the top edge of each course of slates wherever possible. Coursing line deviations will be acceptable and required to match the lines and coursing patterns of the adjacent existing slates to remain.

Q. Slate side-butt joints shall be positioned as near the mid-point of the underlying slates as possible, and not less than 3 inches from the underlying side-butts. Each slate course shall break butt-joints laterally by a minimum of 3 inches, if possible, with the underlying or overlying courses.

R. When installed, slates shall be butted side-to-side touching, or with a maximum 1/8 inch gap between slates on average to match the existing slate butts to remain.

S. Slates will be neatly fitted around pipes, ventilators, and other roof penetrations.

T. Slates are to be cut from the backside in order to preserve the chamfered edge on the front exposed surface. Use of grinders, saws or other mechanical means to cut and trim roofing slates shall not be permitted unless the slates maintain a chamfered appearance along the exposed sawn edges.

U. Slates along valley shall be cut in neat and straight lines.

V. Individual slates that are damaged and at interfaces of new lower slate to existing upper slate shall be installed using stainless steel or copper slate hooks or the nail-and-bib installation method where standard nailing is not possible. Utilize NSA sawtooth method or alternative method for reroofing slate at eaves to minimize the number of tiles that may not be secured with standard nailing.

W. Contractor shall visually and manually inspect the slates when roof brackets and/or roof protection are removed to make sure no slates are broken. Upon completion, all slate shall be sound, unbroken, un-cracked, whole and clean, showing no exposed roof cement.

3.6 CLEANUP AND PROTECTION

A. Sweep or brush slate shingles clean.

B. Do not permit traffic over finished roof surface unless absolutely necessary. If necessary, wear soft-soled shoes and walk on the butt-edges of the slate in order to avoid breakage.

C. Remove excess materials and debris from the Project site.

D. Protect installed products until completion of Project.

E. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION

07 53 23
EPDM ADHERED MEMBRANE ROOFING

SECTION 07 53 23
EPDM ADHERED MEMBRANE ROOFING

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes the following:

1. EPDM adhered membrane roofing system.
2. Roof insulation.
3. Perimeter flashings.

B. Related Sections include the following:

1. Division 7 Section "Reroofing Preparation" for preparation of existing roof decking to receive new membrane roofing system.
2. Division 7 Section "Sheet Metal Work" for flashings, counter flashings, roof edge treatment, and sheet metal drip edge.

1.2 DEFINITIONS

A. Roofing Terminology: Refer to ASTM D 1079 and glossary of NRCA's "The NRCA Roofing and Waterproofing Manual" for definition of terms related to roofing work in this Section.

B. Design Uplift Pressure: The uplift pressure, calculated according to procedures in SPRI's "Wind Load Design Guide for Fully Adhered and Mechanically Fastened Roofing Systems," before multiplication by a safety factor.

1.3 PERFORMANCE REQUIREMENTS

A. General: Provide installed roofing membrane and base flashings that remain watertight; do not permit the passage of water; and resist specified uplift pressures, thermally induced movement, and exposure to weather without failure.

B. Material Compatibility: Provide roofing materials that are compatible with one another under conditions of service and application required, as demonstrated by roofing membrane manufacturer based on testing and field experience.

C. Roofing System Design: Provide a membrane roofing system that is identical to systems that have been successfully tested by a qualified testing and inspecting agency to resist uplift pressure calculated according to ASCE 7.

D. FMG Listing: Provide roofing membrane, base flashings, and component materials that comply with requirements in FMG 4450 and FMG 4470 as part of a membrane roofing system and that are listed in FMG's "Approval Guide" for Class 1 noncombustible construction, as applicable. Identify materials with FMG markings.

1. Fire/Windstorm Classification: Class 1-90.

2. Exterior Fire Test Exposure: UL Class B in accordance with ASTM E108.

E. Roofing System Design: Provide a membrane roofing system that is identical to systems that have been successfully tested by a qualified testing and inspecting agency to resist the factored design uplift pressures calculated according to SPRI's "Wind Load Design Guide for Fully Adhered and Mechanically Fastened Roofing Systems."

1.4 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Shop Drawings: For roofing system. Include plans, elevations, sections, details, and attachments to other Work.

1. Roof plan showing insulation thicknesses, drainage patterns, tapered insulation locations, and roof slopes.
2. Membrane flashings and membrane terminations.
3. Insulation fastening patterns.

C. Samples for Verification: For the following products:

1. 12-by-12-inch square of sheet roofing, including T-shaped side and end lap seam.
2. 12-by-12-inch square of roof insulation.
3. 12-inch length of metal termination bars.
4. 12-inch length of battens. Six fasteners of each type and finish.

D. Installer Certificates: Signed by roofing system manufacturer certifying that Installer is approved, authorized, or licensed by manufacturer to install roofing system.

E. Manufacturer Certificates: Signed by roofing manufacturer certifying that roofing system complies with requirements specified in "Performance Requirements" Article.

F. Research/Evaluation Reports: For components of membrane roofing system.

G. Maintenance Data: For roofing system to include in maintenance manuals.

H. Warranties: Special warranties specified in this Section.

I. Inspection Report: Copy of roofing system manufacturer's inspection report of completed roofing installation.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: A qualified firm with a minimum of 10 years experience to perform work of this Section, who has specialized in installing roofing similar to that required for this Project, and who is approved, authorized, or licensed by roofing system manufacturer to install manufacturer's product and that is eligible to receive manufacturer's warranty.

B. Source Limitations: Obtain components for membrane roofing system that are approved by roofing membrane manufacturer.

C. Fire-Test-Response Characteristics: Provide membrane roofing materials with the fire-test-response characteristics indicated as determined by testing identical products per test method below by UL, FMG, or another testing and inspecting agency acceptable to authorities having jurisdiction. Materials shall be identified with appropriate markings of applicable testing and inspecting agency.

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

D. Preinstallation Conference: Conduct conference at Project site. Notify participants at least five (5) working days prior to conference. Review methods and procedures related to roofing system including, but not limited to, the following:

1. Meet with Owner; roofing system manufacturer's representative; reroofing preparation subcontractor (if any); and other installers whose work interfaces with or affects roofing.
2. Review methods and procedures related to roofing installation, including manufacturer's written instructions.
3. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
4. Review deck substrate conditions and finishes for compliance with requirements, including flatness and fastening.
5. Review structural loading limitations of roof deck during and after roofing.
6. Review flashings, special roofing details, roof drainage, roof penetrations, equipment curbs, and condition of other construction that will affect roofing system.
7. Review governing regulations and requirements for insurance and certificates if applicable.
8. Review temporary protection requirements for roofing system during and after installation.
9. Review roof observation, repair, and maintenance procedures after roofing installation.

E. Mock-up: Before proceeding with final purchase of materials and fabrication of roofing components, prepare a mock-up of work. Incorporate and demonstrate materials and methods of substrate preparation, fabrication and installation identical with project requirements. Install mock-up at roof area location directed by Owner's Representative. Rejected mock-up shall be removed in it's entirety and replaced at no additional cost to the Owner until an acceptable mock-up is achieved. Acceptable mock-up shall become the minimum standard of quality for the remainder of the Work and shall not be removed.

1. Provide mock-up of sufficient size and scope to show typical pattern of seams, fastening details, edge construction, finish texture / color and incorporation into the Work of other Specification Sections.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver roofing materials to Project site in original containers with seals unbroken and labeled with manufacturer's name, product brand name and type, date of manufacture, and directions for storing and mixing with other components.

B. Store liquid materials in their original undamaged containers in a clean, dry, protected location and within the temperature range required by roofing system manufacturer. Protect stored liquid material from direct sunlight.

1. Discard and legally dispose of liquid material that cannot be applied within its stated shelf life.

C. Protect roof insulation materials from physical damage and from deterioration by sunlight, moisture, soiling, and other sources. Store in a dry location. Comply with insulation manufacturer's written instructions for handling, storing, and protecting during installation.

D. Handle and store roofing materials and place equipment in a manner to avoid permanent deflection of deck.

1.7 PROJECT CONDITIONS

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

1.8 WARRANTY

A. Special Warranty: Manufacturer's standard form, without monetary limitation, in which manufacturer agrees to repair or replace components of membrane roofing system that fail in materials or workmanship within specified warranty period. Failure includes roof leaks.

1. Special warranty includes roofing membrane, base flashings, roofing accessories, roof insulation, fasteners, cover boards, and other components of membrane roofing system.
2. Warranty Period: 20 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 EPDM ROOFING MEMBRANE

A. EPDM Roofing Membrane: ASTM D 4637, Type II, scrim or fabric internally reinforced uniform, flexible sheet made from EPDM, and as follows:

1. Manufacturers: Subject to compliance with requirements, provide products from one of the following:

   a. Carlisle SynTec Inc.
   b. Holcim Elevate
   c. Johns Manville International, Inc.

2. Thickness: 75 mils, nominal.
3. Exposed Face Color: Black.

2.2 AUXILIARY MATERIALS

A. General: Auxiliary materials recommended by roofing system manufacturer for intended use and compatible with membrane roofing.

1. Liquid-type auxiliary materials shall meet VOC limits of authorities having jurisdiction.

B. Sheet Flashing: 60-mil- thick EPDM, uncured, partially cured, or cured, according to application.

C. Bonding Adhesive: Manufacturer's standard bonding adhesive.

D. Seaming Material: Single-component butyl splicing adhesive and splice cleaner or manufacturer's standard synthetic-rubber polymer primer and 3-inch- wide minimum, butyl splice tape with release film at Contractor’s option.

E. Lap Sealant: Manufacturer's standard single-component sealant, color to match roofing membrane or flashing.

F. Water Cutoff Mastic: Manufacturer's standard butyl mastic sealant.

G. Metal Termination Bars: Manufacturer's standard predrilled stainless steel or aluminum bars, approximately 1 by 1/8 inch thick; with screw anchors.

H. Metal Battens: Manufacturer's standard aluminum-zinc-alloy-coated or zinc-coated steel sheet, approximately 1 inch wide by 0.05 inch thick, prepunched.

I. Fasteners: Factory-coated steel fasteners and metal or plastic plates meeting corrosion-resistance provisions in FMG 4470, designed for fastening membrane to substrate, and acceptable to membrane roofing system manufacturer.

J. Miscellaneous Accessories: Provide pourable sealers, preformed cone and vent sheet flashings, preformed inside and outside corner sheet flashings, T-joint covers, in-seam sealants, termination reglets, cover strips, and other accessories.

2.3 ROOF INSULATION

A. General: Provide preformed roof insulation boards that comply with requirements and referenced standards, selected from manufacturer's standard sizes and of thicknesses indicated.

B. Polyisocyanurate Board Insulation: ASTM C 1289, Type II, glass-fiber mat facer on both major surfaces; 15 psi minimum compressive strength, 20 psi typical compressive strength.

1. Manufacturers:

a. Carlisle SynTec Inc.
b. Firestone Building Products Company.
c. Johns Manville International, Inc.

C. Tapered Insulation: Provide factory-tapered insulation boards at locations indicated and as otherwise required to provide positive drainage slope. Fabricate to slope of 1/4 inch per 12 inches(1:48), unless otherwise indicated.

D. Provide preformed saddles, crickets, tapered edge strips, and other insulation shapes where indicated for sloping to drain. Fabricate to slopes indicated.

2.4 INSULATION ACCESSORIES

A. General: Furnish roof insulation accessories recommended by insulation manufacturer for intended use and compatible with membrane roofing.

B. Fasteners: Factory-coated steel fasteners and metal or plastic plates meeting corrosion-resistance provisions in FMG 4470, designed for fastening roof insulation to substrate, and acceptable to roofing system manufacturer.

C. Insulation Adhesive: Manufacturer’s recommended VOC compliant adhesives designed for attaching roof insulation to substrate. Application rates shall be in accordance with Manufacturer’s written instructions to achieve the required field, perimeter and corner uplift resistance.

2.5 WOOD-PRESERVATIVE-TREATED MATERIALS

A. Preservative Treatment by Pressure Process: AWPA C2 (lumber) and AWPA C9 (plywood), 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).

B. Kiln-dry material after treatment to maximum moisture content of 19 percent for lumber and 15 percent for plywood.

C. Mark each treated item with treatment quality mark of an inspection agency approved by the American Lumber Standards Committee Board of Review.

D. Application: Treat items indicated on Drawings, and the following:

1. Wood cants, nailers, curbs, equipment support bases, blocking, and similar members in connection with roofing and flashing.
2. Plywood sheathing in connection with fascia assembly.

PART 3 - EXECUTION

3.1 PREPARATION

A. Remove existing roofing, flashings, substrate and fill materials down to clean, bare structural concrete deck in accordance with Section 07 01 50.19.

B. Dry out concrete deck as required prior to installing any new roofing materials. No open flame is approved for use in water removal / drying procedures.

C. Install treated wood nailers, blocking, and cants at locations indicated and as required by roofing membrane manufacturer to fulfill guarantee requirements. Secure wood components to the substrate with top surface of nailers and blocking flush with top surface of roof insulation at point of contact.

D. Clean substrate of dust, debris, moisture, and other substances detrimental to roofing installation according to roofing system manufacturer's written instructions. Remove sharp projections.

E. Prevent materials from entering and clogging roof drains and conductors and from spilling or migrating onto surfaces of other construction. Remove roof-drain plugs when no work is taking place or when rain is forecast.

F. Complete terminations and base flashings and provide temporary seals to prevent water from entering completed sections of roofing system at the end of the workday or when rain is forecast. Remove and discard temporary seals before beginning work on adjoining roofing.

G. Examine substrates, areas, and conditions, with Installer present, for compliance with the following requirements and other conditions affecting performance of roofing system:

1. Verify that roof openings and penetrations are in place and set and braced.
2. Verify that wood blocking, curbs, and nailers are securely anchored to roof deck at penetrations and terminations and that nailers match thicknesses of insulation.
3. Verify that the substrate is sound, dry, and in acceptable condition for application of new membrane roofing system.
4. Proceed with installation only after unsatisfactory conditions have been corrected.
5. Verify that plywood decking above projecting cornice is dry and in acceptable condition to receive new roofing system.

3.2 INSULATION INSTALLATION

A. Coordinate installing membrane roofing system components so insulation is not exposed to precipitation or left exposed at the end of the workday.

B. Comply with membrane roofing system manufacturer's written instructions for installing roof insulation.

C. Install tapered insulation under areas of roofing as shown on Drawings to conform to slopes indicated.

D. Install insulation and secure to deck using mechanical fasteners and/or adhesives specifically designed and sized for fastening specified board-type roof insulation to roof deck type.

1. Fasten and/or adhere insulation to resist uplift pressure at corners, perimeter, and field of roof.

E. Trim surface of insulation where necessary at roof drains so completed surface is flush and does not restrict flow of water.

F. Install insulation with long joints of insulation in a continuous straight line with end joints staggered between rows, abutting edges and ends between boards. Fill gaps exceeding 1/4 inch with insulation.

1. Cut and fit insulation within 1/4 inch (6 mm) of nailers, projections, and penetrations.

G. Install nailers and blocking.

3.3 ADHERED ROOFING MEMBRANE INSTALLATION

A. Install roofing membrane over area to receive roofing according to membrane roofing system manufacturer's written instructions. Unroll roofing membrane and allow to relax before installing.

B. Start installation of roofing membrane in presence of membrane roofing system manufacturer's technical personnel.

C. Accurately align roofing membrane and maintain uniform side and end laps of minimum dimensions required by manufacturer. Stagger end laps.

D. Bonding Adhesive: Apply bonding adhesive to substrate and underside of roofing membrane at rate required by manufacturer and allow to partially dry before installing roofing membrane. Do not apply bonding adhesive to splice area of roofing membrane.

E. Mechanically or adhesively fasten roofing membrane securely at terminations, penetrations, and perimeter of roofing in accordance with the Drawings and the roofing manufacturer’s standard details to achieve the specified guarantee.

F. Apply roofing membrane with side laps shingled with slope of roof deck where possible.

G. Adhesive Seam Installation: Clean both faces of splice areas, apply splicing cement, and firmly roll side and end laps of overlapping roofing membranes according to manufacturer's written instructions to ensure a watertight seam installation. Apply lap sealant and seal exposed edges of roofing membrane terminations.

H. Tape Seam Installation: Clean and prime both faces of splice areas, apply splice tape, and firmly roll side and end laps of overlapping roofing membranes according to manufacturer's written instructions to ensure a watertight seam installation. Apply lap sealant and seal exposed edges of roofing membrane terminations.

I. Repair tears, voids, and lapped seams in roofing that does not meet requirements.

J. Spread sealant or mastic bed over deck drain flange at deck drains and securely seal roofing membrane in place with clamping ring.

3.4 BASE FLASHING INSTALLATION

A. Install sheet flashings and preformed flashing accessories and adhere to substrates according to membrane roofing system manufacturer's written instructions.

B. Apply bonding adhesive to substrate and underside of sheet flashing at required rate and allow to partially dry. Do not apply bonding adhesive to seam area of flashing.

C. Flash penetrations and field-formed inside and outside corners with cured or uncured sheet flashing.

D. Clean splice areas, apply splicing cement, and firmly roll side and end laps of overlapping sheets to ensure a watertight seam installation. Apply lap sealant and seal exposed edges of sheet flashing terminations.

E. Terminate and seal top of sheet flashings and mechanically anchor to substrate through termination bars, except as indicated.

3.5 FIELD QUALITY CONTROL

A. Final Roof Inspection: Arrange for roofing system manufacturer's technical personnel to inspect roofing installation periodically and on completion; submit report to Owner’s Representative.

1. Notify Owner’s Representative 48 hours in advance of date and time of completion inspection.

B. Repair or remove and replace components of membrane roofing system where test results or inspections indicate that they do not comply with specified requirements.

3.6 PROTECTING AND CLEANING

A. Protect membrane roofing system from damage and wear during remainder of construction period. When remaining construction will not affect or endanger roofing, inspect roofing for deterioration and damage, describing its nature and extent in a written report, with copies to Owner’s Representative.

B. Correct deficiencies in or remove membrane roofing system that does not comply with requirements, repair substrates and repair or reinstall membrane roofing system to a condition free of damage and deterioration at time of Substantial Completion and according to warranty requirements.

C. Clean overspray and spillage from adjacent construction using cleaning agents and procedures recommended by manufacturer of affected construction.

END OF SECTION

07 61 00
DOUBLE-LOCK STANDING SEAM COPPER ROOFING

SECTION 07 61 00
DOUBLE-LOCK STANDING SEAM COPPER ROOFING

PART 1 - GENERAL

1.1 WORK INCLUDED

A. Furnish all labor, materials, equipment and services necessary or incidental to the completion of all sheet metal work as shown on the Drawings or herein specified.

B. This Section includes copper sheet metal roofing work in the following categories:

1. Double-lock standing seam copper roofing.
2. Expansion joints.
3. Connection to external downspouts.
4. Flashing and trim.

1.2 REFERENCE STANDARDS

A. "Architectural Sheet Metal Manual" published by the Sheet Metal and Air Conditioning Contractors National Association, Inc.

B. “Metal Roofing Systems Design Manual” published by Metal Building Manufacturers Association, Inc., Cleveland, OH.

C. ASTM B29 “Specification for Refined Lead”.

D. ASTM B32 “Specification for Solder Metal”.

E. ASTM B370 “Specification for Copper Sheet and Strip for Building Construction”.

F. ASTM D2178 “Specification for Asphalt Glass Felt Used in Roofing and Waterproofing”.

G. ASTM E283 “Standard Test Method for Determining Rate of Air Leakage through Exterior Windows, Curtain Walls, and Doors under Specified Pressure Differences Across the Specimen”.

H. ASTM E331 “Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference”.

I. ASTM E1592 “Test Method for Structural Performance of Sheet Metal Roof and Siding Systems by Uniform Static Air Pressure Difference”.

J. ASTM E1646 “Test Method for Water Penetration of Exterior Metal Roof Panel Systems by Uniform Static Air Pressure Difference”.

K. ASTM E1680 “Test Method for Rate of Leakage through Exterior Metal Roof Panel Systems”.

L. AAMA 501-1 “Standard Test Method for Water Penetration of Windows, Curtain Walls, and Doors Using Dynamic Pressure”.

M. UL 263 “Tests for Fire Resistance”.

N. UL 580 “Tests for Uplift Resistance of Roof Assemblies”.

O. UL 790 “Tests for Fire Resistance of Roof Covering Materials”.

P. The latest edition of all references shall be used.

1.3 PERFORMANCE REQUIREMENTS

A. General: Install sheet metal flashing and trim to withstand wind loads, structural movement, thermally induced movement, and exposure to weather without failing.

B. Thermal movement:

1. Provide copper roofing capable of withstanding thermal expansion and contraction movements for an ambient temperature change of 150 degrees F. without failure, including air and water leakage, and without noise from metal-to-metal contact in movement.
2. Roof system manufacturer shall design interface between panel and clip providing for unlimited thermal movement in each direction along the longitudinal direction.
3. Roof system manufacturer shall design location of panel fixed point per job conditions.

C. The panels and concealed anchor clips shall be capable of supporting a 300-pound temporary concentrated load at the panel mid-span in the installed condition. The load shall be applied over the entire panel width. The panels shall support this concentrated load without displaying permanent distortions that would affect the weathertightness of the system.

D. UL wind uplift resistance classification: Roof assembly shall be classified as Class UL 90, as defined by UL 580.

E. UL fire resistance “P” ratings for roof assemblies, UL Class A fire rating per UL 790.

F. Capacities for gauge, span or loading other than those tested may be determined by interpolation of test results within the range of test data. Extrapolation for conditions outside test range is not acceptable.

1.4 SUBMITTALS

A. Shop Drawings: Submit in accordance with Section 01 33 00. Include the following details and information:

1. Elevations and plan view, with keyed reference to termination points
2. Details of termination points and assemblies.
3. Indicate where fixed point of roofing sheet occurs and how cleats and clips will handle expansion and contraction of materials.
4. Expansion and contraction direction of roof.
5. Penetrations through roof panels
6. Seam and panel dimensions.
7. Eave, ridge, valley, rake, cricket and counterflashing.
8. Interfaces of metal roofing material to adjoining materials.
9. Show transverse seam patterns and locations.
10. Sufficient technical data to demonstrate compliance with the specific requirements.
11. Fastener, clip and attachment layout, with load carrying capacity to meet these specifications and pullout data on fastener into the designed substrate.

B. Physical Samples:

1. Submit three 12-inch long sample panels, including clips samples for all proposed finishes.

C. Fabrication/Installation contractor's qualifications:

1. Submit a letter on the roofing contractor's letterhead which provides references to five (5) successfully completed copper roofing fabrication/installation projects that are similar in material, design and scope with the last five years. References shall include contact information for the building Owners (phone#/email address) as well as the physical address of the project site

1.5 QUALITY ASSURANCE

A. Engage an experienced fabricator and installer who has completed copper flashing and trim work similar in material, design, and extent to that indicated for this Project and with a record of successful in-service performance on at least 5 projects within the last five years.

B. All work performed under this section must be performed by a Contractor who is both experienced in and has in-house capability, equipment and personnel to fabricate and install custom ornamental copper sheet metal work.

C. Mock-up: Before proceeding with final purchase of materials and fabrication of copper roofing components, prepare a mock-up of work. Incorporate materials and methods of fabrication and installation identical with project requirements. Install mock-up at roof area location directed by Owner's Representative. Retain accepted mock-up as quality standard for acceptance of completed copper roofing. If accepted, mock-up may be incorporated as part of copper roofing work.

1. Provide mock-up of sufficient size and scope to show typical pattern of seams, fastening details, edge construction, and finish texture and color.

1.6 WARRANTY

A. Special Warranty: The Contractor shall provide a no-dollar-limit (NDL) total systems warranty in which he/she agrees to repair or replace components of roofing system that fail in materials or workmanship within 5 years from date of Substantial Completion. Failure includes roof leaks.

B. Owner Responsibility: Owner shall notify the Contractor of any leaks as they occur during the warranty period in a timely manner.

1.7 PROJECT CONDITIONS

A. Coordinate Work of this Section with interfacing and adjoining Work for proper sequencing of each installation. Ensure best possible weather resistance, durability of Work and protection of materials and finishes. Prevent contact with materials which may cause discoloration.

PART 2 - PRODUCTS

2.1 COPPER SUPPLIERS

A. Available Suppliers: Subject to compliance with requirements, suppliers offering materials that may be incorporated in the Work include, but are not limited to, the following:

1. Hussey Copper, Ltd.
2. Luvata, Inc.
3. PMX Industries Inc.
4. Revere Copper Products, Inc.

2.2 METALS

A. Copper shall be ASTM B 370; temper H00, cold rolled except where temper 060 is required for forming; not less than 16 oz./sq.ft. (0.55 mm thick), unless otherwise

indicated. Panels to be formed to full length of slope with no end laps for any piece. Seams to be double lock of configuration and spacing to match existing.

2.3 MISCELLANEOUS MATERIALS AND ACCESSORIES

A. Sheet copper for related scuppers, downspouts, anchors and flashings shall be minimum 20 ounce cold rolled, CDA 110, copper conforming to ASTM Standard B370**.**

1. Edge strips and ornamentation shall be a minimum of 16 ounce material.

B. Concealed Cleats: 16 ounce copper fixed or expansion type, as required. Cleats shall be designed to prevent hook unwind.

C. Fasteners: All fasteners in contact with copper shall be copper, brass or series 300 stainless steel. (Fasteners for concealed cleats to be stainless steel screws – nails are not acceptable.)

D. Solder: ASTM B32, composition 50% pig lead and 50% block tin.

E. Flux: Rosin, muriatic acid neutralized with zinc, or an approved soldering paste.

F. Underlayment: Grace Ultra or approved equal.

G. Slip Sheet: Rosin sized building paper, weighing approximately 4 lbs. per 100 square feet, minimum.

H. Sealant: ASTM C920, two component polyurethane based material, movement capability of +/- 50%. Color as selected by Owner’s Representative.

I. Protective Coatings:

1. Alkyd type Zinc Chromate: FS TTP641, Type II
2. Bituminous Coating Compound: FS TTC494, Type II

2.4 GENERAL FABRICATION

A. Fabricate sheet metal flashing and trim to comply with recommendations of SMACNA's "Architectural Sheet Metal Manual" that apply to the design, dimensions, metal and other characteristics of the item indicated.

B. Comply with details shown to fabricate sheet metal flashing and trim that fit substrates and result in waterproof and weather-resistant performance once installed. Verify shapes and dimensions of surfaces to be covered before fabricating sheet metal.

C. Form exposed sheet metal Work that is without excessive oil canning, buckling, and tool marks and that is true to line and levels indicates, with exposed edges folded back to form hems

D. Double Lock Standing Seam Panels:

1. Fabricate pans to create center to center standing seam spacing to match existing batten seam spacing.
2. Pans to be fabricated with smooth profile and integral standing seams.
3. Maximum finished seam height to be two inches.
4. Fabricated pans in continuous runs for the entire length of the roof segments. No transverse joints will be accepted.
5. Provide hemmed edges at all eaves.

E. Fabricate nonmoving seams in sheet metal with flat-lock seams. Tin edges to be seamed, form seams, and solder.

F. Expansion joint locations and profiles to match existing.

G. Form non-expansion, but movable sealed joints in metal to accommodate elastomeric sealant in compliance with SMACNA standards.

H. Separate metal from non-compatible metal or corrosive substrates by coating concealed surfaces at locations of contact with asphalt mastic or other permanent separation as recommended by manufacturer. These include but are not limited to copper, cedar and redwood.

I. Conceal fasteners and expansion provisions where possible. Exposed fasteners are not allowed.

J. Fabricate cleats and attachment devices from same material as sheet metal component being anchored or from compatible, non-corrosive metal recommended by sheet metal manufacturer.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions under which sheet metal flashing and trim are to be installed and verify that Work may properly commence. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Pre-roofing conference: Prior to beginning copper roofing work, a pre-roofing conference shall be held to review work to be accomplished

1. Contractor, copper roofing subcontractor, copper roofing system manufacturer's representative and all other subcontractors who have equipment penetrating roof or whose work involves access to roof shall be present
2. Contractor shall notify Engineer and other attending parties at least one week prior to time for conference.

B. Remove existing copper roof and substrate layers down to structural deck. Owner maintains the salvage rights to all copper removed from the building. Dispose of copper roofing compounds in a separate dumpster as directed by the Owner's Representative.

C. Clean surfaces to receive copper roofing. Substrate to be smooth and free of defects. Drive all projecting nails or other fasteners flush with substrate.

D. Install3/4 inch exterior grade CDX plywood over all decking to receive copper roof. Anchor/adhere plywood securely to substrate to resist I-90 uplift forces. Adhesives used on this project shall be water-based materials only. No solvent based adhesives shall be accepted. Anchors shall be non-corrosive and compatible with the plywood and existing deck.

E. Water Barrier Underlayment:

1. Install high temperature grade water barrier on clean, dry roof substrate.
2. Remove dust, dirt, and loose fasteners.
3. Remove protrusions from the deck area.
4. Verify substrate has no voids, damaged, or unsupported areas.
5. Repair voids or unacceptable areas before installing membrane.
6. Prime substrates with manufacturer's approved primer if required for proper installation of membrane over substrate.
7. Install membrane in strict accordance with manufacturer's printed application procedures, precautions, and limitations.
8. Start application at low points and lap membrane shingle fashion to prevent water penetration.
9. Membrane Underlayment: Apply horizontally, lapping preceding layer not less than 4-inches. End lap membrane not less than 6-inches.
    a. Maximize adhesion to substrate by brooming or rolling membrane in place after placement.
    b. Center membrane at valleys, hips, and ridges.

F. Install underlayment and paper slip sheet on substrate under copper roofing to greatest extent possible unless otherwise recommended by manufacturer of sheet metal. Paper slip sheets must be installed over the underlayment. Use adhesive for

temporary anchorage, where possible, to minimize use of mechanical fasteners under copper roofing. Lap joints 2 inch minimum.

3.3 INSTALLATION

A. Unless otherwise indicated, install roofing, flashings, drain connections and trim to comply with performance requirements, manufacturer's installation instructions, and SMACNA's "Architectural Sheet Metal Manual." Anchor units of Work securely in place by methods indicated, providing for thermal expansion of metal units; conceal fasteners where possible, and set units true to line and level as indicated. Install Work with laps, joints, and seams that will be permanently watertight and weatherproof.

B. Install exposed sheet metal Work that is without excessive oil canning, buckling, and tool marks and that is true to line and levels indicated, with exposed edges folded back to form hems. Install sheet metal flashing and trim to fit substrates and to result in waterproof and weather-resistant performance. Verify shapes and dimensions of surfaces to be covered before fabricating sheet metal.

C. Provide for thermal expansion of exposed sheet metal work. Locate expansion joints to match existing, expansion joint configuration and details to be shown, as shown on the Drawings.

D. Clean surface to be soldered, removing oils and foreign matter. Pretin edges of sheet to be soldered to a width of 1-1/2 inches, except where pretinned surface would show in finished work.

1. Do not use torches for soldering. Heat surfaces to receive solder and flow solder into joint. Fill joints completely. Completely remove flux and spatter from exposed surfaces.

E. Form non-expansion, but movable sealed joints in metal to accommodate elastomeric sealant to comply with SMACNA standards. Fill joint with sealant and form metal to completely conceal sealant.

1. Use joint adhesive for nonmoving joints specified not to be soldered.

F. Fabricate nonmoving seams in sheet metal with flat-lock seams. Tin edges to be seamed, form seams, and solder. Surfaces, at locations of contact, with asphalt mastic or other permanent separation as recommended by manufacturer.

G. Separate metal from non-compatible metal or corrosive substrates by coating concealed surfaces, at locations of contact, with asphaltic mastic or other permanent separation as recommended by the manufacturer.

1. Bed flanges of work in a thick coat of roofing cement where required for waterproof performance.

H. Coordinate installation of counterflashing and reglets with installation of assemblies to be protected by counterflashing. Install counter flashings in existing reglets or receivers. Secure in a waterproof manner by means of snap-in installation and sealant, lead wedges and sealant, interlocking folded seam, or blind rivets and sealant. Lap counterflashing joints a minimum of 2 inches and bed with sealant.

I. Surfaces to receive sheet metal shall be smooth, sound, clean, dry and free from defects that might affect the application.

J. Cutting, fitting, drilling and other operations in connection with sheet metal required to accommodate work of other trades shall be performed by sheet metal mechanics.

K. Provide weathertight juncture where sheet metal abuts or extends into adjacent materials.

L. Double-Lock Standing Seam Roofing:

1. Dry fit copper panels in place to determine locations of hold down clips
2. Anchor hold down clips to substrate using non-corrosive anchors that are compatible with the copper and plywood substrate. Space clips as needed to achieve specified uplift resistance.
3. Apply panels beginning at eaves. Hem lower edges of pans at eaves.
4. Lock pans in place with flange rollers.
5. At intersections of roof slope with ridge and hip turn up edges of roof pans against sides of seams and terminate in two inch flange. Install copper cover strips over top of hips and ridges.
6. At eaves, hook pan over edge strip. Extend edge strip up under metal roofing four inches and secure with nails at three inch centers, at 1 inch from upper end.

3.4 DOWNSPOUTS

A. Replace all wire screens with new to match the original size and profile. Provide wire screens with hinges and clips and mount inside leader head. Secure in place with screws so that screens can be removed and reinstalled without damage.

B. Inspect and clean out all existing downspout leadersLeaders shall be cleaned such that a garden hose running at full capacity does not back flow water after a period of 30 minutes.

3.5 CLEANING AND PROTECTION

A. Clean exposed metal surfaces, removing substances that might cause corrosion of metal or deterioration of finishes.

B. Provide final protection and maintain conditions that ensure sheet metal flashing and trim work during construction is without damage or deterioration other than natural weathering at the time of Substantial Completion.

END OF SECTION

07 62 00
SHEET METAL WORK

SECTION 07 62 00
SHEET METAL WORK

PART 1 - GENERAL

1.1 WORK INCLUDED

A. Furnish all labor, materials, equipment and services necessary or incidental to the completion of all sheet metal work as shown on the Drawings or herein specified.

B. This Section includes all new work and any repairs and/or modifications necessary to sheet metal components scheduled to remain that work together to produce a complete and fully functioning water collection and discharge system:

1. Roof-drainage sheet metal fabrications.
2. Low-slope roof sheet metal fabrications.
3. Miscellaneous sheet metal fabrications.

1.2 COORDINATION

A. Coordinate sheet metal flashing and trim layout and seams with sizes and locations of penetrations to be flashed, and joints and seams in adjacent materials

B. Coordinate sheet metal flashing and trim installation with adjoining roofing and wall materials, joints, and seams to provide leakproof, secure and noncorrosive installation.

1.3 REFERENCE STANDARDS

A. ASTM B29 – Specification for Refined Lead.

B. ASTM B32 – Specification for Solder Metal.

C. ASTM B370 – Specification for Copper Sheet and Strip for Building Construction.

D. ASTM D1970 – Standard Specification for Self-Adhering Polymer Modified Bituminous Sheet Materials Used as Steep Roofing Underlayment for Ice Dam Protection.

E. "Architectural Sheet Metal Manual" published by the Sheet Metal and Air Conditioning Contractors National Association, Inc.

F. “The NRCA Roofing Manual: Architectural Metal Flashing, Condensation and Air Leakage Control, and Reroofing” published by the National Roofing Contractors Association.

G. “Copper in Architecture Handbook” published by the Copper Development Association, Inc.

H. The latest edition of all references shall be used.

1.4 PERFORMANCE REQUIREMENTS

A. General: Fabricate and install sheet metal fabrications to withstand wind loads, structural movement, thermally induced movement, and exposure to weather without failing.

B. Thermal movement:

1. Provide copper sheet metal work capable of withstanding thermal expansion and contraction movements for an ambient temperature change of 150 degrees F. without failure, including air and water leakage, and without noise from metal-to-metal contact in movement.
2. Fabricator shall design interface between panel and clip providing for unlimited thermal movement in each direction along the longitudinal direction.
3. Fabricator / Installer shall designate locations of panel fixed points per job conditions.

C. Panels and concealed anchor clips shall be capable of supporting a 300-pound temporary concentrated load at the panel mid-span in the installed condition. The load shall be applied over the entire panel width. The panels shall support this concentrated load without displaying permanent distortions that would affect the weathertightness of the system.

D. Capacities for gauge, span or loading other than those tested may be determined by interpolation of test results within the range of test data. Extrapolation for conditions outside test range is not acceptable.

1.5 SUBMITTALS

A. Submittals shall be delivered in accordance with Section 01 33 00 – SUBMITTALS.

B. Product Data including manufacturer’s material and finish data, installation instructions, and general recommendations for each specified flashing material and fabricated product.

C. Shop Drawings for all factory or shop formed components showing details, layout, profiles, weight, gauges or thickness of metal, joint configuration and joint spacing, installation procedures, methods of joining, and anchorage details.

1. Elevations and plan view, with keyed reference to termination points.
2. Details of termination points and assemblies.
3. Indicate where fixed points of roofing sheets occur and how cleats and clips will handle expansion and contraction of materials.
4. Expansion and contraction direction of roof.
5. Penetrations through roof panels.
6. Seam and panel dimensions.

7. Eave, ridge, valley, rake, cricket and counterflashing.
8. Interfaces of metal roofing material to adjoining materials.
9. Show seam patterns and locations.
10. Sufficient technical data to demonstrate compliance with the specific requirements.
11. Fastener, clip and attachment layout, with load carrying capacity to meet these specifications and pullout data on fastener into the designed substrate.

D. Samples of sheet metal flashings, counter-flashings, trim and accessory items in the specified material and finish. Where finish involves normal color and texture variations, include samples composed of two or more units showing the full range of variations expected.

1. 8-inch square samples of specified sheet materials to be exposed as finished surfaces.

E. Qualification data for firms and persons specified in the "Quality Assurance" Article to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.

1.6 QUALITY ASSURANCE

A. Engage an experienced fabricator and installer who has completed sheet metal work similar in material, design, and extent to that indicated for this Project and with a record of successful in-service performance on at least 5 projects.

B. All work performed under this section must be performed by a Contractor who is both experienced in and has in-house capability, equipment and personnel to fabricate and install custom ornamental sheet metal work.

C. Mock-up: Before proceeding with final purchase of materials and fabrication of copper roofing components, prepare a mock-up of work. Incorporate materials and methods of fabrication and installation identical with project requirements. Install mock-up at roof area location directed by Owner's Representative. Retain accepted mock-up as quality standard for acceptance of completed copper roofing. If accepted, mock-up may be incorporated as part of copper roofing work.

1. Provide mock-up of sufficient size and scope to show typical pattern of seams, fastening details, edge construction, and finish texture and color.

1.7 PROJECT CONDITIONS

A. Coordinate Work of this Section with interfacing and adjoining Work for proper sequencing of each installation. Ensure best possible weather resistance, durability of Work and protection of materials and finishes.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Do not store sheet metal flashing and trim materials in contact with other materials that might cause staining, denting, or other surface damage.

1. Store sheet metal flashing and trim materials away from uncured concrete and masonry.
2. Protect stored sheet metal flashing and trim from contact with water.

B. Protect strippable protective covering on sheet metal flashing and trim from exposure to sunlight and high humidity, except to extent necessary for period of sheet metal flashing and trim installation.

PART 2 - PRODUCTS

2.1 SHEET METALS

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

B. Copper Sheet: ASTM B370, cold-rolled copper sheet, H00 or H01 temper.

1. Source Limitations: Obtain sheet from single source from single manufacturer.
2. Nonpatinated, Exposed Finish: Mill.

2.2 UNDERLAYMENT MATERIALS

A. Self-Adhering, High-Temperature Sheet Underlayment: Minimum 30 mils (0.76 mm) thick, consisting of a slip-resistant polyethylene- or polypropylene-film top surface laminated to a layer of butyl- or SBS-modified asphalt adhesive, with release-paper backing; specifically designed to withstand high metal temperatures beneath metal roofing. Provide primer in accordance with underlayment manufacturer's written instructions.

1. Source Limitations: Obtain underlayment from single source from single manufacturer.
2. Low-Temperature Flexibility: ASTM D1970/D1970M; passes after testing at minus 20 deg F (29 deg C) or lower.

B. Slip Sheet: Rosin-sized building paper, 3 lb/100 sq. ft. (0.16 kg/sq. m) minimum.

2.3 MISCELLANEOUS MATERIALS

A. Provide materials and types of fasteners[**, solder**], protective coatings, sealants, and other miscellaneous items as required for complete sheet metal flashing and trim installation and as recommended by manufacturer of primary sheet metal[**or manufactured item**] unless otherwise indicated.

B. Fasteners: Wood screws, annular threaded nails, self-tapping screws, self-locking rivets and bolts, and other suitable fasteners designed to withstand design loads and recommended by manufacturer of primary sheet metal.

1. General: Blind fasteners or self-drilling screws, gasketed, with hex-washer head.

a. Exposed Fasteners: Heads matching color of sheet metal using plastic caps or factory-applied coating. Provide metal-backed EPDM or PVC sealing washers under heads of exposed fasteners bearing on weather side of metal.
b. Blind Fasteners: High-strength rivets suitable for metal being fastened.

2. Fasteners for Copper, Zinc-Tin Alloy-Coated Copper, or Copper-Clad Stainless Steel Sheet: Copper, hardware bronze or passivated Series 300 stainless steel.

C. Solder for Copper: ASTM B32, Grade Sn50, 50 percent tin and 50 percent lead.

D. Sealant Tape: Pressure-sensitive, 100 percent solids, polyisobutylene compound sealant tape with release-paper backing. Provide permanently elastic, nonsag, nontoxic, nonstaining tape 1/2 inch (13 mm) wide and 1/8 inch (3 mm) thick.

E. Elastomeric Sealant: ASTM C920, elastomeric polyurethane sealant; of type, grade, class, and use classifications required to seal joints in sheet metal flashing and trim and remain watertight.

F. Butyl Sealant: ASTM C1311, single-component, solvent-release butyl rubber sealant; polyisobutylene plasticized; heavy bodied for hooked-type expansion joints with limited movement.

G. Bituminous Coating: Cold-applied asphalt emulsion in accordance with ASTM D1187/D1187M.

H. Asphalt Roofing Cement: ASTM D4586, asbestos free, of consistency required for application.

I. Reglets: Units of type, material, and profile required, formed to provide secure interlocking of separate reglet and counterflashing pieces, and compatible with flashing indicated with interlocking counterflashing on exterior face, of same metal as reglet.

1. Source Limitations: Obtain reglets from single source from single manufacturer.
2. Material: Copper, 16 oz./sq. ft. (0.55 mm thick).

3. Masonry Type: Provide with offset top flange for embedment in masonry mortar joint.
4. Accessories:

    a. Flexible-Flashing Retainer: Provide resilient plastic or rubber accessory to secure flexible flashing in reglet where clearance does not permit use of standard metal counterflashing or where Drawings show reglet without metal counterflashing.
    b. Counterflashing Wind-Restraint Clips: Provide clips to be installed before counterflashing to prevent wind uplift of counterflashing's lower edge.

5. Finish: Mill

2.4 FABRICATIONS, GENERAL

A. Custom fabricate sheet metal flashing and trim to comply with details indicated and recommendations in cited sheet metal standard that apply to design, dimensions, geometry, metal thickness, and other characteristics of item required.

1. Fabricate sheet metal flashing and trim in shop to greatest extent possible.
2. Fabricate sheet metal flashing and trim in thickness or weight needed to comply with performance requirements, but not less than that specified for each application and metal.
3. Verify shapes and dimensions of surfaces to be covered and obtain field measurements for accurate fit before shop fabrication.
4. Form sheet metal flashing and trim to fit substrates without excessive oil-canning, buckling, and tool marks; true to line, levels, and slopes; and with exposed edges folded back to form hems.
5. Conceal fasteners and expansion provisions where possible. Do not use exposed fasteners on faces exposed to view.

B. Fabrication Tolerances:

1. Fabricate sheet metal flashing and trim that is capable of installation to a tolerance of 1/4 inch in 20 feet (6 mm in 6 m) on slope and location lines indicated on Drawings and within 1/8-inch (3-mm) offset of adjoining faces and of alignment of matching profiles.

C. Expansion Provisions: Form metal for thermal expansion of exposed flashing and trim.

1. Form expansion joints of intermeshing hooked flanges, not less than 1 inch (25 mm) deep, filled with butyl sealant concealed within joints.

D. Sealant Joints: Where movable, nonexpansion-type joints are required, form metal in accordance with cited sheet metal standard to provide for proper installation of elastomeric sealant.

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

F. Fabricate nonmoving seams with flat-lock seams. Tin edges to be seamed, form seams, and solder.

2.5 ROOF-DRAINAGE SHEET METAL FABRICATIONS

A. Built-in Gutters:

1. Fabricate to cross section required, with riveted and soldered joints, complete with end pieces, outlet tubes, and other special accessories as required.
2. Fabricate in minimum 96-inch- (2400-mm-) long sections. Fabricate expansion joints and accessories from same metal as gutters unless otherwise indicated.
3. Fabricate gutters with built-in expansion joints.
4. Accessories: Bronze wire-ball downspout strainers.
5. Fabricate from the following materials:

    a. Copper: 20 oz./sq. ft. (0.68 mm thick).

2.6 LOW-SLOPE ROOF SHEET METAL FABRICATIONS

A. Roof Edge Flashing (Gravel Stop) and Fascia Cap: Fabricate in minimum 96-inch- (2400-mm-) long, but not exceeding 12-foot- (3.6-m-) long sections. Furnish with 6-inch- (150-mm-) wide, joint cover plates.

1. Joint Style: Overlapped, 4 inches (100 mm) wide.
2. Fabricate from the following materials:

    a. Copper: 20 oz./sq. ft. (0.68 mm thick).

B. Expansion-Joint Cover: Fabricate from the following materials.

1. Copper: 16 oz./sq. ft. (0.55 mm thick).

C. Base Flashing: Fabricate from the following materials.

1. Copper: 16 oz./sq. ft. (0.55 mm thick).

D. Counterflashing: Fabricate from the following materials.

1. Copper: 16 oz./sq. ft. (0.55 mm thick).

E. Flashing Receivers: Fabricate from the following materials.

1. Copper: 16 oz./sq. ft. (0.55 mm thick).

F. Roof-Penetration Flashing: Fabricate from the following materials.

1. Copper: 16 oz./sq. ft. (0.55 mm thick).
2. Lead 4 lb (1.8 kg).

G. Roof-Drain Flashing: Fabricate from the following materials.

1. Copper: 12 oz./sq. ft. (0.41 mm thick).

2.7 STEEP-SLOPE ROOF SHEET METAL FABRICATIONS

A. Apron, Step, Cricket and Backer Flashing: Fabricate from the following materials.

1. Copper: 16 oz./sq. ft. (0.55 mm thick).

B. Valley Flashing: Fabricate from the following materials.

1. Copper: 16 oz./sq. ft. (0.55 mm thick).

C. Drip Edges: Fabricate from the following materials.

1. Copper: 16 oz./sq. ft. (0.55 mm thick).

D. Eave, Rake, Ridge and Hip Flashing: Fabricate from the following materials.

1. Copper: 16 oz./sq. ft. (0.55 mm thick).

E. Counterflashing: Fabricate from the following materials.

1. Copper: 16 oz./sq. ft. (0.55 mm thick).

F. Flashing Receivers: Fabricate from the following materials.

1. Copper: 16 oz./sq. ft. (0.55 mm thick).

G. Roof Penetration Flashing: Fabricate from the following materials.

1. Copper: 16 oz./sq. ft. (0.55 mm thick).
2. Lead: 4 lb (1.8 kg).

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions under which sheet metal flashing and trim are to be installed and verify that Work may properly commence. Do not proceed with installation until unsatisfactory conditions have been corrected.

1. Verify compliance with requirements for installation tolerances of substrates.
2. Verify that substrate is sound, dry, smooth, clean, sloped for drainage, and securely anchored.

3.2 PREPARATION

A. Pre-roofing conference: Prior to beginning copper roofing work, a pre-roofing conference shall be held to review work to be accomplished.

1. Contractor, copper roofing subcontractor, copper roofing system manufacturer's representative and all other subcontractors who have equipment penetrating roof or whose work involves access to roof shall be present.
2. Contractor shall notify Engineer and other attending parties at least one week prior to time for conference.

B. Remove existing copper roof and substrate layers down to structural deck where indicated.

C. Clean surfaces to receive copper roofing. Substrate to be smooth and free of defects. Drive all projecting nails or other fasteners flush with substrate.

3.3 UNDERLAYMENT INSTALLATION

A. Install high temperature grade underlayment on clean, dry roof substrate.

B. Remove dust, dirt, and loose fasteners.

C. Remove protrusions from the deck area.

D. Verify substrate has no voids, damaged, or unsupported areas.

E. Repair voids or unacceptable areas before installing membrane.

F. Prime substrates with manufacturer's approved primer if required for proper installation of membrane over substrate.

G. Install membrane in strict accordance with manufacturer's printed application procedures, precautions, and limitations.

H. Start application at low points and lap membrane shingle fashion to prevent water penetration.

I. Apply horizontally, lapping preceding layer not less than 4-inches. End lap membrane not less than 6-inches.

1. Maximize adhesion to substrate by brooming or rolling membrane in place after placement.
2. Center membrane at valleys, hips, and ridges.

J. Install underlayment and paper slip sheet on substrate under copper roofing to greatest extent possible unless otherwise recommended by manufacturer of sheet metal. Paper slip sheets must be installed over the underlayment. Use adhesive for temporary anchorage, where possible, to minimize use of mechanical fasteners under copper roofing. Lap joints 2 inch minimum.

3.4 SHEET METAL INSTALLATION

A. Unless otherwise indicated, install sheet metal components to comply with performance requirements, manufacturer's installation instructions, and SMACNA's "Architectural Sheet Metal Manual." Anchor units of Work securely in place by methods indicated, providing for thermal expansion of metal units; conceal fasteners where possible, and set units true to line and level as indicated. Install Work with laps, joints, and seams that will be permanently watertight and weatherproof.

B. Install exposed sheet metal Work that is without excessive oil canning, buckling, and tool marks and that is true to line and levels indicated, with exposed edges folded back to form hems. Install sheet metal flashing and trim to fit substrates and to result in waterproof and weather-resistant performance. Verify shapes and dimensions of surfaces to be covered before fabricating sheet metal.

C. Provide for thermal expansion of exposed sheet metal work. Space movement joints at maximum of 10 feet with no joints allowed within 24 inches of corner or intersection. Where lapped or bayonet-type expansion provisions in Work cannot be used or would not be sufficiently weatherproof and waterproof, form expansion joints of intermeshing hooked flanges, not less than 1 inch deep, filled with sealant concealed within joints.

D. Clean surfaces to be bonded, removing oils and foreign matter. Pretin edges of sheet to be soldered to a width of 1-1/2 inches, except where pretinned surface would show in finished work.

1. Do not use torches for soldering. Heat surfaces to receive solder and flow solder into joint. Fill joints completely. Completely remove flux and spatter from exposed surfaces.

E. Form nonexpansion, but movable sealed joints in metal to accommodate sealant to comply with SMACNA standards. Fill joint with sealant and form metal to completely conceal sealant.

1. Use joint adhesive for nonmoving joints specified not to be soldered.

F. Separate metal from non-compatible metal or corrosive substrates by coating concealed surfaces at locations of contact with asphaltic mastic or other permanent separation as recommended by the manufacturer.

1. Bed flanges of work in a thick coat of roofing cement where required for waterproof performance.

G. Coordinate installation of counterflashing and reglets with installation of assemblies to be protected by counterflashing. Install counterflashings in existing reglets or receivers. Secure in a waterproof manner by means of snap-in installation and sealant, lead wedges and sealant, interlocking folded seam, or blind rivets and sealant. Lap counterflashing joints a minimum of 2 inches and bed with sealant.

H. Surfaces to receive sheet metal shall be smooth, sound, clean, dry and free from defects that might affect the application.

I. Cutting, fitting, drilling and other operations in connection with sheet metal required to accommodate work of other trades shall be performed by sheet metal mechanics.

J. Provide weathertight juncture where sheet metal abuts or extends into adjacent materials.

3.5 CLEANING AND PROTECTION

A. Clean exposed metal surfaces, removing substances that might cause corrosion of metal or deterioration of finishes.

B. Provide final protection and maintain conditions that ensure sheet metal components and work installed during construction is without damage or deterioration other than natural weathering at the time of Substantial Completion.

END OF SECTION 07 62 00

08 01 52.61
WOOD WINDOW REPAIRS

SECTION 08 01 52.61
WOOD WINDOW REPAIRS

PART 1 - GENERAL

1.1 WORK INCLUDED

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 wood window repairs as follows:

1. Repairing wood windows and trim.
2. Reglazing.

B. Glazing: Includes glass, glazing points, glazing tapes, glazing sealants, and glazing compounds.

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

D. Window: Includes window frame, sash, hardware, storm window, and exterior and interior shutters unless otherwise indicated by context.

E. Wood Window Component Terminology: Wood window components for repair work include the following classifications:

1. Frame Components: Head, jambs, and sill.
2. Sash Components: Stiles and rails, parting bead, stop, and muntins.
3. Exterior Trim: Exterior casing, brick mold, and cornice or drip cap.
4. Interior Trim: Casing, stool, and apron.

1.3 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1.4 SEQUENCING AND SCHEDULING

A. Perform window repairs in the following sequence, which includes work specified in this and other Sections:

1. Label each window frame with permanent opening-identification number in inconspicuous location.
2. Remove window, dismantle hardware, and tag hardware with opening-identification numbers.
3. Install temporary protection and security at window openings.
4. Sort units by condition, separating those that need extensive repair.
5. Clean surfaces.

6. General Wood-Repair Sequence:

    a. Remove paint to bare wood.
    b. Rack frames slightly to inject adhesive into mortise and tenon joints; square frames to proper fit before adhesive sets.
    c. Repair wood by consolidation, member replacement, partial member replacement, and patching.
    d. Sand, prime, fill, sand again, and prime surfaces again for refinishing.

7. Repair, refinish, and replace hardware if required. Reinstall operating hardware.
8. Install glazing.
9. Remove temporary protection and security at window openings.
10. Reinstall units.
11. Apply finish coats.
12. Install remaining hardware and weather stripping.

1.5 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. Include recommendations for product application and use.
2. Include test data substantiating that products comply with requirements.

B. Samples for Verification: For the following products in manufacturer's standard sizes unless otherwise indicated, finished as required for use in the Work:

1. Repaired Wood Window Members: Prepare Samples using existing wood window members removed from site, repaired, and prepared for refinishing.
2. Refinished Wood Window Members: Prepare Samples using existing wood window members removed from site, repaired, and refinished.
3. Weather Stripping: 12-inch- (300-mm-) long sections.

1.6 INFORMATIONAL SUBMITTALS

A. Qualification Data: For wood-window-repair specialist and wood-repair-material manufacturer.

1.7 QUALITY ASSURANCE

A. Wood-Window-Repair Specialist Qualifications: A qualified wood window specialist, experienced in repairing, refinishing, and replacing wood windows in whole and in part. Experience only in fabricating and installing new wood windows is insufficient experience for repairing wood windows.

B. Wood-Repair-Material Manufacturer Qualifications: A firm regularly engaged in producing wood consolidant and wood-patching compound that have been used for

similar wood-repair applications with successful results, and with factory-authorized service representatives who are available for consultation and Project-site inspection and on-site assistance.

C. Mockups: Prepare mockups of window-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 windows where directed by Architect.
2. Wood Window Repairs: Prepare one entire window unit to serve as mockup to demonstrate samples of each type of repair of wood window members including frame, sash, glazing, and hardware.
3. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
4. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.8 PRECONSTRUCTION TESTING

A. Preconstruction Testing Service: Engage a qualified wood-window-repair specialist to perform preconstruction testing on wood windows.

1. Provide test specimens representative of proposed materials and existing construction.
2. Test repair products and methods for effectiveness and compliance with specified requirements.

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 are not deformed, broken, or otherwise damaged.

B. Store products inside a well-ventilated area and where environmental conditions comply with manufacturer's requirements; protect from weather, moisture, soiling, abrasion, extreme temperatures, and humidity.

1.10 FIELD CONDITIONS

A. Weather Limitations: Proceed with wood window repairs 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 WOOD WINDOW REPAIRS, GENERAL

A. Quality Standard: Comply with applicable requirements in Section 6, "Interior & Exterior Millwork," in AWI/AWMAC/WI's "Architectural Woodwork Standards" for construction, finishes, grades of wood windows, and other requirements unless otherwise indicated.

1. Exception: Industry practices cited in Section 6, Article 1.5, Industry Practices, of the Architectural Woodwork Standards do not apply to the work of this Section.

2.2 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.

2.3 WOOD-REPAIR MATERIALS

A. Source Limitations: Obtain wood consolidant and wood-patching compound from single source from single manufacturer.

B. Wood Consolidant: Ready-to-use product designed to penetrate, consolidate, and strengthen soft fibers of wood materials that have deteriorated due to weathering and decay and designed specifically to enhance the bond of wood-patching compound to existing wood.

C. Wood-Patching Compound: Two-part epoxy-resin wood-patching compound; knife-grade formulation as recommended in writing by manufacturer for type of wood repair indicated, tooling time required for the detail of work, and site conditions. Compound shall be designed for filling voids in damaged wood materials that have deteriorated due to weathering and decay. Compound shall be capable of filling deep holes and spreading to feather edge.

2.4 GLAZING MATERIALS

A. Glazing Systems:

1. Traditional Glazing Products: Glazing points and oil-based glazing putty or latex glazing compound. Tint to required color according to manufacturer's written instructions.

2. Polyurethane Glazing Products: Glazing points and single-component polyurethane glazing compound; ASTM C920, Type S, Grade NS, Class 25, Use G; struck uniformly to match taper of existing glazing system (removed); colored as required to match painted sash.
3. Silicone Glazing Products: Glazing securement and silicone glazing sealant according to Section 088000 "Glazing"; struck uniformly to match taper of existing glazing system (removed); colored as required to match painted sash.
4. Primers and Cleaners for Glazing: As recommended in writing by glazing material manufacturer.

2.5 HARDWARE

A. Replacement Hardware: Replace existing damaged or missing hardware with new hardware to match the original.

2.6 MISCELLANEOUS MATERIALS

A. Borate Preservative Treatment: Inorganic, borate-based solution, with disodium octaborate tetrahydrate as the primary ingredient; manufactured for preserving weathered and decayed wood from further damage by decay fungi and wood-boring insects; complying with AWPA P5; containing no boric acid.

B. 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.

C. Adhesives: Wood adhesives for exterior exposure, 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.

D. 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 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 Phillips-type machine screws of head profile flush with metal surface unless otherwise indicated.
6. Finish exposed fasteners to match finish of metal fastened unless otherwise indicated.

E. Anchors, Clips, and Accessories: Fabricate anchors, clips, and window accessories of aluminum, nonmagnetic stainless steel, or hot-dip zinc-coated steel complying with requirements in ASTM B633 for SC 3 (Severe) service condition.

PART 3 - EXECUTION

3.1 WOOD-WINDOW-REPAIR SPECIALIST

3.2 PREPARATION

A. Protect adjacent materials from damage by performing wood window repairs.

B. Clean wood windows 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. Condition replacement wood members and replacement units to prevailing conditions at installation areas before installing.

3.3 WOOD WINDOW REPAIRS, GENERAL

A. Have wood window repairs performed only by qualified wood-window-repair specialist.

B. Appearance Standard: Completed work is to have a uniform appearance as viewed by Architect from the window interior at 5 feet (1.5 m) away and from the window exterior at 20 feet (6 m) away.

C. Execution of the Work: In repairing wood windows, disturb them as minimally as possible and as follows:

1. Stabilize and repair wood windows to reestablish structural integrity and weather resistance while maintaining the existing form of each item.
2. Remove coatings and apply borate preservative treatment before repair. Remove coatings according to Section 090190.52 "Maintenance Repainting" unless otherwise indicated.
3. Repair items in place where possible.
4. Install temporary protective measures to protect wood window work that is indicated to be completed later.

5. Refinish wood windows according to Section 090190.52 "Maintenance Repainting" unless otherwise indicated.

D. Mechanical Abrasion: Where mechanical abrasion is needed for the work, use gentle mechanical methods, such as scraping and natural-fiber bristle brushing, that will not abrade wood substrate, reducing clarity of detail.

E. Repair and Refinish Existing Hardware: Dismantle window hardware; strip paint, repair, and refinish it to match finish samples; and lubricate moving parts just enough to function smoothly.

1. Repair Wood Windows: Match existing materials and features.

F. Repair wood windows by consolidating, patching, splicing, or otherwise reinforcing wood with new wood matching existing wood or with salvaged, sound, original wood.

G. Protection of Openings: Where sash or windows are indicated for removal, cover resultant openings with temporary enclosures so that openings are weathertight during repair period.

H. Identify removed windows, frames, sash, and members with numbering system corresponding to window locations to ensure reinstallation in same location. Key windows, sash, and members to Drawings showing location of each removed unit. Permanently label units in a location that will be concealed after reinstallation.

3.4 WOOD WINDOW PATCH-TYPE REPAIR

A. General: Patch wood members that exhibit depressions, holes, or similar voids and that have limited amounts of rotted or decayed wood.

1. Verify that surfaces are sufficiently clean and free of paint residue before patching.
2. Remove rotted or decayed wood down to sound wood.

B. Apply borate preservative treatment to accessible surfaces after removing rotted or decayed wood and before applying wood consolidant or patching compound. Apply treatment liberally by brush to joints, edges, and ends; top, sides, and bottom. Allow treatment to dry.

C. Apply wood-patching compound to fill depressions, nicks, cracks, and other voids created by removed or missing wood.

1. Prime patch area with application of wood consolidant or manufacturer's recommended primer.
2. Mix only as much patching compound as can be applied according to manufacturer's written instructions.

3. Apply patching compound in layers as recommended in writing by manufacturer until the void is completely filled.
4. Sand patch surface smooth and flush with adjacent wood, without voids in patch material, and matching contour of wood member.
5. Clean spilled compound from adjacent materials immediately.

3.5 WOOD WINDOW MEMBER-REPLACEMENT REPAIR

A. General: Replace parts of or entire wood window members at locations where damage is too extensive to patch.

1. Verify that surfaces are sufficiently clean and free of paint residue before repair.
2. Remove broken, rotted, and decayed wood down to sound wood.
3. Custom fabricate new wood to replace missing wood; either replace entire wood member or splice new wood part into existing member.
4. 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. Apply borate preservative treatment to accessible surfaces after replacements are made. Apply treatment liberally by brush to joints, edges, and ends; top, sides, and bottom.

C. Repair remaining depressions, holes, or similar voids with patch-type repairs.

D. Clean spilled materials from adjacent surfaces immediately.

E. Glazing: Reglaze units before reinstallation.

1. Provide replacement glazing stops coordinated with glazing system indicated.
2. Provide glazing stops to match contour of sash frames.

F. Reinstall units removed for repair into original openings.

3.6 GLAZING

A. Comply with combined written instructions of manufacturers of glass, glazing systems, and glazing materials, unless more stringent requirements are indicated.

B. Remove glass and glazing from openings and prepare surfaces for reglazing.

C. Apply primers to joint surfaces where required for adhesion of glazing system.

D. Install setting bead, side beads, and back bead against stop in glazing rabbets before setting glass, according to industry standards.

E. Install glass with proper orientation so that coatings, if any, face exterior or interior as required.

3.7 FIELD QUALITY CONTROL

A. Manufacturers Field Service: Engage wood-repair-material manufacturers' factory-authorized service representatives for consultation and Project-site inspection and to provide on-site assistance when requested by Architect.

3.8 CLEANING AND PROTECTION

A. Protect window surfaces from contact with contaminating substances resulting from construction operations. Monitor window 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 window surfaces, remove contaminants immediately.

B. Clean exposed surfaces immediately after repairing wood windows. Avoid damage to coatings and finishes. Remove excess sealants, glazing and patching materials, dirt, and other substances.

C. Remove and replace glass that has been broken, chipped, cracked, abraded, or damaged during construction.

END OF SECTION

09 01 90.52
MAINTENANCE REPAINTING

SECTION 09 01 90.52
MAINTENANCE REPAINTING

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 maintenance repainting as follows:

1. Removing existing paint.
2. Patching substrates.
3. Repainting.

B. Related Requirements:

1. Section 040110 "Masonry Cleaning" for cleaning and removing paint from masonry.
2. Section 050170.51 "Decorative Metal Cleaning" for cleaning and removing paint from decorative metal.

C. Gloss Level 1: Not more than 5 units at 60 degrees and 10 units at 85 degrees, according to ASTM D523.

D. Gloss Level 2: Not more than 10 units at 60 degrees and 10 to 35 units at 85 degrees, according to ASTM D523.

E. Gloss Level 3: 10 to 25 units at 60 degrees and 10 to 35 units at 85 degrees, according to ASTM D523.

F. Gloss Level 4: 20 to 35 units at 60 degrees and not less than 35 units at 85 degrees, according to ASTM D523.

G. Gloss Level 5: 35 to 70 units at 60 degrees, according to ASTM D523.

H. Gloss Level 6: 70 to 85 units at 60 degrees, according to ASTM D523.

I. Gloss Level 7: More than 85 units at 60 degrees, according to ASTM D523.

J. Low-Pressure Spray: 100 to 400 psi (690 to 2750 kPa); 4 to 6 gpm (0.25 to 0.4 L/s).

K. Medium-Pressure Spray: 400 to 800 psi (2750 to 5510 kPa); 4 to 6 gpm (0.25 to 0.4 L/s).

1.3 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1.4 SEQUENCING AND SCHEDULING

A. Perform maintenance repainting 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. Apply paint system.
6. Reinstall dismantled surface-mounted objects and hardware unless otherwise indicated.

1.5 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. Include recommendations for product application and use.
2. Include test data substantiating that products comply with requirements.

B. Samples: For each type of paint system and each pattern, color, and gloss; minimum 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. Painted Surfaces: 4-by-8-inch (100-by-200-mm) Samples for each color and material, on hardboard.

6. Printout of current "MPI Approved Products List" for each MPI-product category specified in paint systems, with the proposed product highlighted.
7. VOC content.

1.6 INFORMATIONAL SUBMITTALS

A. Color Matching Certificate: For computer-matched colors.

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) of each material and color applied.

1.8 QUALITY ASSURANCE

A. Mockups: Prepare mockups of maintenance repainting 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 4 sq. ft. (0.37 sq. m).
3. Coating Mockups: On existing surfaces using applicable specified materials and methods apply at least 4 sq. ft. (0.37 sq. m) for application of each type of coating system under same conditions as the completed Work.
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 maintenance repainting 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.

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 (60 to 71 deg C).

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.

E. Abrasives for Ferrous Metal Cleaning: Aluminum oxide paper, emery paper, fine steel wool, steel scrapers, and steel-wire brushes of various sizes.

F. Rust Remover: Manufacturer's standard phosphoric acid-based gel formulation, also called "naval jelly," for removing corrosion from iron and steel.

2.2 PAINT REMOVERS

A. Alkaline Paste Paint Remover: Manufacturer's standard alkaline paste or gel formulation for removing paint from masonry, stone, wood, plaster, or metal as required to suit Project; and containing no methylene chloride.

B. Covered or Skin-Forming Alkaline Paint Remover: Manufacturer's standard covered or skin-forming alkaline paste or gel formulation for removing paint from masonry, stone, wood, plaster, or metal as required to suit Project; and containing no methylene chloride.

C. 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.

D. Covered, Solvent-Type Paste Paint Remover: Manufacturer's standard, low-odor, covered, water-rinsable, solvent-type paste or gel formulation for removing paint from masonry, stone, wood, plaster, or metal as required to suit Project; and containing no methanol or methylene chloride.

2.3 PAINT, GENERAL

A. Material Compatibility:

1. Provide materials for use within each paint system that are compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
2. For each coat in a paint system, provide products recommended in writing by manufacturers of topcoat for use in paint system and on substrate indicated.

B. Colors: As selected by Architect from full range of industry colors.

2.4 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.

2.5 PAINT MATERIALS

A. Primers and Sealers:

1. Primer, Stain Blocking, Water Based:[MPI #137.]

B. Metal Primers:

1. Primer, Zinc-Rich, Epoxy:[MPI #20.]

C. Wood Primers:

1. Primer, Latex for Exterior Wood:[MPI #6.]

2. Primer, Alkyd for Exterior Wood:[MPI #5.]

D. Water-Based Paints:

1. Latex, Exterior Low Sheen (Gloss Levels 3-4):[MPI #15.]

E. Solvent-Based Paints:

1. Alkyd, Exterior, Semigloss (Gloss Level 5):[MPI #94.]

F. Epoxy Coatings:

1. Epoxy, High-Build, Low Gloss:[MPI #108.]

G. Polyurethane Coatings:

1. Polyurethane, Two-Component, Pigmented, Gloss (Gloss Level 6):[MPI #72.]

H. Wood-Patching Compound: Two-part, epoxy-resin, wood-patching compound; knife-grade formulation as recommended in writing by manufacturer for type of wood repair indicated, tooling time required for the detail of work, and site conditions. Compound shall be designed for filling voids in damaged wood materials that have deteriorated from weathering and decay. Compound shall be capable of filling deep holes and spreading to feather edge.

I. Metal-Patching Compound: Two-part, polyester-resin, metal-patching compound; knife-grade formulation as recommended in writing by manufacturer for type of metal repair indicated, tooling time required for the detail of work, and site conditions. Compound shall be produced for filling metal that has deteriorated from corrosion. Filler shall be capable of filling deep holes and spreading to feather edge.

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 MAINTENANCE REPAINTING, GENERAL

A. Maintenance Repainting Appearance Standard: Completed work is to have a uniform appearance as viewed by Architect from building interior at 5 feet (1.5 m) away from painted surface and from building exterior at 20 feet (6 m) away from painted surface.

B. Execution of the Work: In repainting surfaces, 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 repainting.
3. Allow other trades to repair items in place before repainting.

C. Mechanical Abrasion: Where mechanical abrasion is needed for the work, use gentle methods, such as scraping and lightly hand sanding, that will not abrade softer substrates, reducing clarity of detail.

D. Heat Processes: Do not use torches, heat guns, or heat plates.

3.3 EXAMINATION

A. Examine substrates and conditions, with Installer 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. 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 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.

E. Chemical Rust Removal:

1. Remove loose rust scale with specified abrasives for ferrous-metal cleaning.
2. Apply rust remover with brushes or as recommended in writing by manufacturer.
3. Allow rust remover to remain on surface for period recommended in writing by manufacturer or as determined by preconstruction testing. Do not allow extended dwell time.
4. Wipe off residue with mineral spirits and either steel wool or soft rags, or clean with method recommended in writing by manufacturer to remove residue.
5. Dry immediately with clean, soft cloths. Follow direction of grain in metal.

6. Prime immediately to prevent rust. Do not touch cleaned metal surface until primed.

F. Mechanical Rust Removal:

1. Remove rust with specified abrasives for ferrous-metal cleaning. Clean to bright metal.
2. Wipe off residue with mineral spirits and either steel wool or soft rags.
3. Dry immediately with clean, soft cloths. Follow direction of grain in metal.
4. Prime immediately to prevent rust. Do not touch cleaned metal surface until primed.

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: Use spray equipment that provides controlled application at volume and pressure indicated, measured at nozzle. Adjust pressure and volume to ensure that spray methods do not damage surfaces.

a. Equip units with pressure gages.
b. Unless otherwise indicated, hold spray nozzle at least 6 inches (150 mm) from surface and apply material in horizontal, back-and-forth sweeping motion, overlapping previous strokes to produce uniform coverage.
c. For chemical spray application, use low-pressure tank or chemical pump suitable for chemical indicated, equipped with nozzle having a cone-shaped spray.

d. For water-spray application, use fan-shaped spray tip that disperses water at an angle of 25 to 50 degrees.
e. For heated water-spray application, use equipment capable of maintaining temperature between 140 and 160 deg F (60 and 71 deg C) at flow rates indicated.

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.

C. Paint Removal with Alkaline Paste Paint Remover:

1. Remove loose and peeling paint using water, scrapers, stiff brushes, or a combination of these. Let surface dry thoroughly.
2. Apply paint remover to dry, painted surface with brushes.
3. Allow paint remover to remain on surface for period recommended in writing by manufacturer or as determined by preconstruction testing.
4. Rinse with water applied by low to medium pressure spray to remove chemicals and paint residue.
5. Use mechanical methods recommended in writing by manufacturer to remove chemicals and paint residue.
6. Repeat process if necessary to remove all paint.

D. Paint Removal with Covered or Skin-Forming Alkaline Paint Remover:

1. Remove loose and peeling paint using water, scrapers, stiff brushes, or a combination of these. Let surface dry thoroughly.
2. Apply paint remover to dry, painted surface with brushes or as recommended in writing by manufacturer.
3. Apply cover 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. Scrape off paint and remover.
6. Rinse with water applied by low to medium pressure spray to remove chemicals and paint residue.
7. Use mechanical methods recommended in writing by manufacturer to remove chemicals and paint residue.
8. For spots of remaining paint, apply alkaline paste paint remover according to "Paint Removal with Alkaline Paste Paint Remover" Paragraph.

E. Paint Removal with Solvent-Type Paste Paint Remover:

1. Remove loose and peeling paint using water, scrapers, stiff brushes, or a combination of these. Let surface dry thoroughly.
2. 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.

3. Allow paint remover to remain on surface for period recommended in writing by manufacturer or as determined by preconstruction testing.
4. Rinse with water applied by low to medium pressure spray to remove chemicals and paint residue.
5. Use mechanical methods recommended in writing by manufacturer to remove chemicals and paint residue.
6. Repeat process if necessary to remove all paint.

F. Paint Removal with Covered, Solvent-Type Paste Paint Remover:

1. Remove loose and peeling paint using water, scrapers, stiff brushes, or a combination of these. Let surface dry thoroughly.
2. Apply paint remover to dry, painted surface with natural-fiber cleaning brush, deep-nap roller, or large paint brush or as recommended in writing by manufacturer.
3. Apply cover 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. Scrape off paint and remover.
6. Rinse with water applied by low to medium pressure spray to remove chemicals and paint residue.
7. Use mechanical methods recommended in writing by manufacturer to remove remaining chemicals and paint residue.

3.6 SUBSTRATE REPAIR

A. General: Repair substrate surface defects that are inconsistent with the surface appearance of adjacent materials and finishes.

B. Wood Substrate:

1. Repair wood defects including dents and gouges more than 1/8 inch (3 mm) in size and all holes and cracks by filling with wood-patching compound and sanding smooth. Reset or remove protruding fasteners.
2. Where existing paint is allowed to remain, sand irregular buildup of paint, runs, and sags to achieve a uniformly smooth surface.

C. Metal Substrate:

1. Preparation: Treat repair locations by wire-brushing and solvent cleaning. Use chemical or mechanical rust removal method to clean off rust.
2. Defects in Metal Surfaces: Repair non-load-bearing defects in existing metal surfaces, including dents and gouges more than 1/8 inch (3 mm) deep or 1/2 inch (13 mm) across and all holes and cracks by filling with metal-patching compound and sanding smooth. Remove burrs and protruding fasteners.
3. Priming: Prime iron and steel surfaces immediately after repair to prevent flash rusting. Stripe paint corners, crevices, bolts, welds, and sharp edges.

Apply two coats to surfaces that are inaccessible after completion of the Work.

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 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. Manufacturer's Field Service: Engage paint-remover manufacturer's factory-authorized service representative for consultation and Project-site inspection and to provide on-site assistance when requested by Architect.

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.

END OF SECTION