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PROCUREMENT AND CONTRACTING REQUIREMENTS

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END OF SECTION
SECTION 01 1000 - SUMMARY

PART 1 GENERAL

1.01 OWNER OCCUPANCY
A. Owner intends to continue to occupy adjacent portions of the existing building during the entire construction period.
B. Cooperate with Owner to minimize conflict and to facilitate Owner's operations.
C. Schedule the Work to accommodate Owner occupancy.

1.02 CONTRACTOR USE OF SITE
A. Construction Operations: Limited to areas noted on Drawings.
B. Arrange use of site and premises to allow:
   1. Owner occupancy.
   2. Use of site and premises by the public.
C. Provide access to and from site as required by law and by Owner.
D. Emergency Building Exits During Construction: Keep all exits required by code open during construction period; provide temporary exit signs if exit routes are temporarily altered.
E. Do not obstruct roadways, sidewalks, or other public ways without permit.
F. Existing building spaces may not be used for storage.
G. Time Restrictions:
   1. Limit conduct of exterior work to the hours of 7:00 am - 3:30 pm.
H. Utility Outages and Shutdown:
   1. Do not disrupt or shut down life safety systems, including but not limited to fire sprinklers and fire alarm system, without notice to and approval from the Owner. Secure the approval of authorities having jurisdiction when required.
   2. Prevent accidental disruption of utility services to other facilities.

1.03 WORK SEQUENCE
A. Coordinate construction schedule and operations with Owner.

PART 2 PRODUCTS - NOT USED
PART 3 EXECUTION - NOT USED

END OF SECTION
SECTION 01 2200 - UNIT PRICES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. List of unit prices, for use in preparing Bids.
B. Measurement and payment criteria applicable to Work performed under a unit price payment method.

1.02 COSTS INCLUDED

A. Unit Prices included on the Bid Form shall include full compensation for all required labor, products, tools, equipment, plant, transportation, services and incidentals; erection, application or installation of an item of the Work; overhead and profit.

1.03 UNIT QUANTITIES SPECIFIED

A. Quantities indicated in the Bid Form are for bidding and contract purposes only. Quantities and measurements of actual Work will determine the payment amount.

1.04 MEASUREMENT OF QUANTITIES

A. Measurement methods delineated in the individual specification sections complement the criteria of this section. In the event of conflict, the requirements of the individual specification section govern.
B. Take all measurements and compute quantities. Measurements and quantities will be verified by Owner.

1.05 PAYMENT

A. Payment for Work governed by unit prices will be made on the basis of the actual measurements and quantities of Work that is incorporated in or made necessary by the Work and accepted by the Architect, multiplied by the unit price.
B. Payment will not be made for any of the following:
   1. Products determined as unacceptable before or after placement.

1.06 SCHEDULE OF UNIT PRICES

A. Install new stone fascia - Type A.
   1. Provide all labor, materials, tools, and equipment necessary to furnish, access and install new stone fascia - Type A.
   2. Section 044200.
   3. Drawing A211.
   4. Measurement: Per stone
   5. Payment: Per new stone installed.

B. Install new stone fascia - Type C.
   1. Provide all labor, materials, tools, and equipment necessary to furnish, access and install new stone fascia - Type C.
   2. Section 044200.
   3. Drawing A211.
   4. Measurement: Per stone
   5. Payment: Per new stone installed.

C. Install sealant at stone joints/reglet.
   1. Provide all labor, materials, tools and equipment necessary to furnish, access and install new sealant at stone joints/reglet.
2. Section 079000.
3. Drawing A211.
5. Payment: per linear foot of sealant installed.

D. Install new metal roof flashing.
   1. Provide all labor, materials, tools, and equipment necessary to furnish, access and install new metal roof edge flashing.
   2. Section 076200.
   3. Drawing A211.
   4. Measurement: per linear foot
   5. Payment: per linear foot of flashing installed.

PART 2 PRODUCTS - NOT USED
PART 3 EXECUTION - NOT USED

END OF SECTION
SECTION 01 3000 - ADMINISTRATIVE REQUIREMENTS

PART 1 GENERAL
1.01 SECTION INCLUDES
   A. Preconstruction meeting.
   B. Progress meetings.
   C. Construction progress schedule.
   D. Progress photographs.

1.02 SUBMITTALS
   A. Construction progress schedule.

1.03 ELECTRONIC DELIVERY OF PROJECT CORRESPONDENCE
   A. Where electronic delivery of documents is required or permitted, deliver electronic documents to the Architect via "NewForma Info Exchange" provided by the Architect at no cost to the Contractor.
   B. Where pdf format is required, create pdf documents using standard text/graphic conversion software such as Adobe or Bluebeam and employ bookmarks throughout the document for ease of navigation; manually scanned documents are not acceptable.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION
3.01 PRECONSTRUCTION MEETING
   A. Owner will schedule a meeting at the Project site prior to Contractor occupancy.
   B. Attendance Required:
      1. Contractor.
      2. Owner.
      3. Architect.
      4. Contractor's Superintendent.
   C. Agenda:
         a. Bonds, insurance certificates, and other preliminary contract compliance submittals.
         b. Notice to proceed.
         c. Schedule of values.
         d. Construction progress schedule.
         e. Submittal schedule.
         f. List of subcontractors.
         g. List of products.
         h. Posted construction documents (including addenda).
         i. Mobilization.
         j. Use of premises by Owner.
      2. Project Correspondence.
         a. Meeting notes.
         b. Architect’s Field Reports.
         c. Requests for Information.
         d. Submittals (product data, shop drawings, test reports, etc.).
         e. Product substitutions.
f. Procedures for processing of ASI, PR, CCD, CO.
g. Substantiation of proposed cost of contract modifications and substitution requests.
h. Applications for Payment.

3. Site.
a. Temporary Utilities.
b. Temporary facilities and services.
c. Staging/storage.
d. Contractor parking.
e. Owner Requirements (Badging, Housekeeping).
f. Testing Procedures.
g. Severe Weather Rules.
h. Security and housekeeping.
i. Waste removal and disposal.

4. Post Construction.
a. Owner’s requirements and occupancy prior to completion.
b. Project close out procedures.
c. Maintaining record documents.
d. Releases (surety, waivers, etc.).
e. Reducing retainage.
f. Inspection for Substantial Completion, Date of Substantial Completion, Final Completion, Final Payment.
g. 11-Month Warranty Review.
h. Post-Contract Evaluation.

D. Record minutes and distribute copies within two days after meeting to participants, with copies to Architect, Owner, participants, and those affected by decisions made.

3.02 PROGRESS MEETINGS

A. Progress meetings will be held at weekly intervals.

B. Attendance Required: Job superintendent, major Subcontractors and suppliers, Owner, Architect, as appropriate to agenda topics for each meeting.

C. Agenda:
   1. Review minutes of previous meetings.
   2. Change Order Log.
      a. Effect of proposed changes on progress schedule and coordination.
   3. Condemnation Log.
      a. Field observations, problems, and decisions.
   5. Review of Work progress.
   6. RFI Log.
   8. Review construction progress schedule.
      a. Planned progress during succeeding work period.
      b. Review of off-site fabrication and delivery schedules.
      c. Time Extension Requests (if any).
      d. Corrective measures to regain projected schedules.
   9. Payment or Claim Issues.
   10. Subcontractor Issues.
11. Contractor Application for Payment.
12. Identification of problems which impede planned progress.
13. Other issues Affecting the Work.
14. Scheduled pre-installation meetings.
15. Scheduled mock-ups.
16. Scheduled tests.
17. Any other items for discussion.
18. Is the Contractor being delayed because of any action or non-action by the Architect or Owner.
19. Next Meeting Date.
20. Other business relating to Work.

D. Record minutes and distribute copies within two days after meeting to participants, with two copies to Architect, Owner, participants, and those affected by decisions made.

3.03 CONSTRUCTION PROGRESS SCHEDULE
A. Within 10 days after date of the Agreement, submit preliminary schedule.
B. If preliminary schedule requires revision after review, submit revised schedule within 10 days.
C. Within 15 days after review of preliminary schedule, submit draft of proposed complete schedule for review.
D. Submit updated schedule with each Application for Payment.
E. Include in the construction progress schedule:
   1. Construction tasks broken down in such detail as the Contractor may require.
   2. Quality control activities either by the Contractor or by others such as tests, inspections, mock-ups, commissioning.
   3. Submission of shop drawings, product data, and other submittals to the Architect.
      Include sufficient time for the Architect's review and resubmittals. See additional requirements specified in Section 01 3300 and the General Conditions.

3.04 PROGRESS PHOTOGRAPHS
A. Submit photographs with each application for payment, taken not more than 3 days prior to submission of application for payment.
B. Photography Type: Digital; electronic files.

3.05 DOCUMENTATION OF DETERIORATED EXISTING CONDITIONS
A. Before beginning operations on the site, record and document existing conditions that will not be corrected as part of the project and that will remain after the project is completed and that are damaged, soiled, deteriorated, or are otherwise incompatible with the quality expected of the completed work. Submit photographs and brief descriptions of each such condition as required by the General Conditions.

3.06 REQUESTS FOR INFORMATION (RFI)
A. When additional information concerning the Contract Documents is desired, the Contractor shall make a request to the Architect in the form of an RFI and shall include a detailed written statement that indicates the specific Drawing number or Specification paragraph number in need of clarification and the nature of the clarification requested.
B. 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 10 days.
by the Architect. If appropriate, the Architect will prepare and issue supplemental Drawings and Specifications in response to the requests for information.

3.07 FOR REQUESTS FOR SUBSTITUTION, SEE:
   A. Invitation to Bid.
   B. General Conditions of the Contract for Construction.
   C. Section 01 6000 - Product Requirements.
   D. Section 01 6201 - Pre-Bid Substitution Request.
   E. Section 01 6202 - Post-Bid Substitution Request.

3.08 FOR SUBMITTAL PROCEDURES, SEE:
   A. Section 01 3300 - Submittals.

END OF SECTION
SECTION 01 3300 - SUBMITTAL PROCEDURES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Procedural requirements for submittals for review, information, and project closeout.
B. Timing and packaging of submittals.
C. Delivery of submittals.

1.02 ELECTRONIC DELIVERY OF PROJECT CORRESPONDENCE

A. Where electronic delivery of documents is required or permitted, deliver electronic documents to the Architect via "NewForma Info Exchange" provided by the Architect at no cost to the Contractor.
B. Where pdf format is required, create pdf documents using standard text/graphic conversion software such as Adobe or Bluebeam and employ bookmarks throughout the document for ease of navigation; manually scanned documents are not acceptable.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 SUBMITTALS FOR REVIEW

A. Product Data Submittals: Submit manufacturer's standard published data necessary to demonstrate compliance with specified requirements. Mark each copy to identify applicable products, models, options, and other data. If necessary, supplement manufacturer's standard data with information specific to this Project.
B. Shop Drawing Submittals: Prepared specifically for this Project; indicate utility and electrical characteristics.
C. Sample Submittals: Illustrate functional and aesthetic characteristics of the product, with integral parts and attachment devices. Coordinate sample submittals for interfacing work.
   1. For selection from standard finishes, submit samples of the full range of the manufacturer's standard colors, textures, and patterns.
D. When the following are specified in individual sections, submit them for review:
   1. Product data.
   2. Shop drawings.
   3. Samples for selection.
   4. Samples for verification.
   5. Other types indicated in respective specification sections.
E. Submit to Architect for review for the limited purpose of checking for conformance with information given and the design concept expressed in the contract documents. Architect's review 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. 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. Architect's approval of a specific item shall not indicate approval of an assembly of which the item is a component.
F. Contractor is responsible for determining and verifying materials, field measurements and field construction criteria related thereto, and checking and coordinating the information contained within the submittal with the requirements of the Work and of the Contract Documents.

G. Samples will be reviewed only for aesthetic attributes such as color and texture.

3.02 SUBMITTALS FOR INFORMATION

A. When the following are specified in individual sections, submit them for information:
   1. Design data.
   2. Certificates.
   3. Test reports.
   4. Inspection reports.
   5. Manufacturer's instructions.
   6. Manufacturer's field reports.
   7. Other types indicated in respective specification sections.

B. Submit for Architect's delivery to Owner.

C. Action taken by the Architect (whether "approval" or other action) indicates only that the item has been received in the form required by the contract documents and that the Architect will transmit the item to the Owner for the Owner's records, but does not indicate that the Architect has verified the accuracy or adequacy of the contents of the submittal.

3.03 SUBMITTALS FOR PROJECT CLOSEOUT

A. When the following are specified in individual sections, submit them at project closeout:
   1. Project record documents.
   2. Warranties.
   4. Other types as indicated.

B. Submit for Owner's benefit during and after project completion.

C. Action taken by the Architect (whether "approval" or other action) indicates only that the item has been received in the form required by the contract documents and that the Architect will transmit the item to the Owner for the Owner's records, but does not indicate that the Architect has verified the accuracy or adequacy of the contents of the submittal.

3.04 TIMING AND PACKAGING OF SUBMITTALS

A. Submit complete, coordinated data. Partial submittals are not acceptable unless specifically exempted. For complex assemblies comprising components from two or more Specifications Sections, submit data for all components of the assembly as a single, coordinated package.

B. Initial Product Information: Submit the initial product information listed below for each Section of the Specifications as a single package.
   1. Product data.
   2. Samples.
   3. Installer and manufacturer qualifications.
   4. Manufacturer's instructions.
   5. Certificates, test reports, and inspection reports of standard plant runs that demonstrate compliance of proposed products with specified quality.
   6. Similar submittals demonstrating quality of proposed products.

C. Shop Drawings and Design Data:
1. Submit Shop Drawings and Design Data for each Section of the Specifications as a single package.
   a. Exception: When approved by the Architect especially large quantities of drawings on large projects may be divided into individual submissions, such as package 1, 2, 3, etc.

2. Submit the following prior to placing final order for fabrication:
   a. Detailed drawings prepared specifically for the project, for example drawings of concrete reinforcing, structural steel, curtain wall, equipment.
   b. Calculations or other designs prepared specifically for the project.

D. In-Progress Reports: Multiple submittals permitted. Submit the following in a timely manner as the work progresses.
   1. Certificates, test reports, and inspection reports of actual plant runs for this project (where required) or of tests and inspections made at the project site (earthwork, concrete, steel, etc.).
   2. Similar submittals recording actual quality installed on-site.

E. Closeout Submittals: Submit the following for each Section of the Specifications as a single package:
   1. Final certificates, test reports, and inspection reports of completed work.
   2. Project record documents.
   3. Warranties and bonds.
   4. Similar submittals attesting to completed work.

3.05 DELIVERY OF SUBMITTALS

A. Initial Product Information, Shop Drawings, Design Data, and In-Progress Reports:
   1. Deliver documents electronically in pdf format.
   2. Small Size Documents:
      a. Sheet size either 8-1/2 x 11 or 11 x 17 inches; do not submit 8-1/2 x 14.
   3. Documents Larger than 11 x 17 Inches:
      a. Sheet size as necessary.

B. Samples: Submit the number specified in individual specification sections; one of which will be retained by Architect. If not specified in individual specification sections, submit two.
   1. Retained samples will not be returned to Contractor unless specifically so stated.

C. Documents for Information:
   1. Deliver documents electronically in pdf format.

D. Documents for Project Closeout:
   1. Warranties, Bonds, and Executed Forms: Submit original (paper) executed documents plus two photocopies.

E. Submittal Procedures:
   1. Transmit each submittal with approved form.
   2. Sequentially number the transmittal form. Revise submittals with original number and a sequential alphabetic suffix.
   3. Identify Project, Contractor, Subcontractor or supplier. Identify Specification Section number, paragraph and pertinent drawing and detail number.
   4. Apply Contractor's stamp, signed or initialed certifying that review, approval, verification of Products required, field dimensions, adjacent construction Work, and coordination of information is in accordance with the requirements of the Work and Contract Documents.
5. Text of the Contractor's stamp shall not be effective to limit or reduce the Contractor's responsibilities for review, approval, verification of Products required, field dimensions, adjacent construction Work, and coordination of information is in accordance with the requirements of the Work and Contract Documents.

6. Deliver submittals to Architect at business address.

7. Schedule submittals to expedite the Project, and coordinate submission of related items.

8. Schedule submittals for orderly review by the Architect. For each submittal for review, allow 10 days plus delivery time to and from the Contractor, unless Architect notifies Contractor that additional time is necessary for review on account of Contractor's scheduling of simultaneous submittals.


10. Identify product or system limitations that in Contractor's view may be detrimental to successful performance of the completed Work.

11. When revised for resubmission, identify all changes made since previous submission.

12. Distribute copies of reviewed submittals as appropriate. Instruct parties to promptly report any inability to comply with requirements.

13. Submittals not requested will not be processed.

3.06 FOR REQUESTS FOR SUBSTITUTION, SEE:

A. General Conditions of the Contract for Construction.
B. Section 01 6000 - Product Requirements.
C. Section 01 6201 - Pre-Bid Substitution Request.
D. Section 01 6202 - Post-Bid Substitution Request.

END OF SECTION
SECTION 01 4000 - QUALITY REQUIREMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. References and standards.
B. Mock-ups.
C. Control of installation.
D. Tolerances.
E. Testing and inspection services.
F. Manufacturer's field services.

1.02 REFERENCES


1.03 SUBMITTALS

A. Test Reports: After each test/inspection, promptly submit report directly to Architect and to Contractor. Include:
   1. Date issued.
   2. Project title and number.
   3. Name of inspector.
   4. Date and time of sampling or inspection.
   5. Identification of product and specifications section.
   6. Location in the Project.
   7. Type of test/inspection.
   8. Date of test/inspection.
   9. Results of test/inspection.
   11. When requested by Architect, provide interpretation of results.

B. Manufacturer's Field Reports: Submit reports for Architect's information and benefit as contract administrator.
   1. Submit reports within 7 days of observation to Architect.

1.04 REFERENCES AND STANDARDS

A. For products and workmanship specified by reference to a document or documents not included in the Project Manual, also referred to as reference standards, comply with
requirements of the standard, except when more rigid requirements are specified or are required by applicable codes.

B. Conform to reference standard of date of issue specified in individual specification sections or, if none, the date current on the date of issue of the Contract Documents.


D. Neither the contractual relationships, duties, or responsibilities of the parties in Contract nor those of Architect shall be altered from the Contract Documents by mention or inference otherwise in any reference document.

1.05 TESTING AND INSPECTION AGENCIES

A. Employment of agency in no way relieves Contractor of obligation to perform Work in accordance with requirements of Contract Documents.

B. Contractor Employed Agency:
   2. Maintain a full time registered engineer on staff to review services.
   3. Testing Equipment: Calibrated at reasonable intervals either by NIST or using an NIST established Measurement Assurance Program, under a laboratory measurement quality assurance program.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 CONTROL OF INSTALLATION

A. Monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce Work of specified quality.

B. Comply with manufacturers' instructions, including each step in sequence.

C. Should manufacturers' instructions conflict with Contract Documents, request clarification from Architect before proceeding.

D. Comply with specified standards as minimum quality for the Work except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.

E. Have Work performed by persons qualified to produce required and specified quality.

F. Verify that field measurements are as indicated on shop drawings or as instructed by the manufacturer.

G. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion, and disfigurement.

3.02 MOCK-UPS

A. Testing may be performed under provisions identified in the respective product specification sections and as otherwise directed by the Architect.

B. Assemble and erect specified items with specified attachment and anchorage devices, flashings, seals, and finishes.
C. Approved mock-ups (in conjunction with the other requirements of the Contract Documents) shall be a standard of quality for judging the Work.

D. If mock-up is specified to be removed, remove and dispose of the mock-up only after mock-up has been approved by Architect and when directed to do so.

3.03 TOLERANCES
A. Monitor fabrication and installation tolerance control of products to produce acceptable Work. Do not permit tolerances to accumulate.
B. Comply with manufacturers’ tolerances. Should manufacturers’ tolerances conflict with Contract Documents, request clarification from Architect before proceeding.
C. Adjust products to appropriate dimensions; position before securing products in place.

3.04 TESTING AND INSPECTION
A. See individual specification sections for testing required.
B. Testing Agency Duties:
   1. Test samples of mixes submitted by Contractor.
   3. Perform specified sampling and testing of products in accordance with specified standards.
   4. Ascertain compliance of materials and mixes with requirements of Contract Documents.
   5. Promptly notify Architect and Contractor of observed irregularities or non-conformance of Work or products.
   6. Perform additional tests and inspections required by Architect.
   7. Submit reports of all tests/inspections specified.
C. Limits on Testing/Inspection Agency Authority:
   1. Agency may not release, revoke, alter, or enlarge on requirements of Contract Documents.
   2. Agency may not approve or accept any portion of the Work.
   3. Agency may not assume any duties of Contractor.
   4. Agency has no authority to stop the Work.
D. Contractor Responsibilities:
   1. Deliver to agency at designated location, adequate samples of materials proposed to be used which require testing, along with proposed mix designs.
   2. Cooperate with laboratory personnel, and provide access to the Work and to manufacturers' facilities.
   3. Provide incidental labor and facilities:
      a. To provide access to Work to be tested/inspected.
      b. To obtain and handle samples at the site or at source of Products to be tested/inspected.
      c. To facilitate tests/inspections.
      d. To provide storage and curing of test samples.
   4. Provide reasonable notice to Architect and laboratory of expected time for operations requiring testing/inspection services to permit Architect and testing laboratory to schedule their activities.
   5. Employ services of an independent qualified testing laboratory and pay for additional samples, tests, and inspections required by Contractor beyond specified requirements.
E. Re-testing required because of non-conformance to specified requirements shall be performed by the same agency on instructions by Architect. Payment for re testing will be charged to the Contractor by deducting testing charges from the Contract Price.

3.05 MANUFACTURERS' FIELD SERVICES

A. When specified in individual specification sections or when requested by the Architect, require material or product suppliers or manufacturers to provide qualified staff personnel to observe site conditions, conditions of surfaces and installation, quality of workmanship, start-up of equipment, and testing, adjusting, and balancing of equipment, and to initiate instructions when necessary.

B. Report observations and site decisions or instructions given to applicators or installers that are supplemental or contrary to manufacturers' written instructions.

3.06 DEFECT ASSESSMENT

A. Replace Work or portions of the Work not conforming to specified requirements.

B. If, in the opinion of Architect, it is not practical to remove and replace the Work, Architect will direct an appropriate remedy or adjust payment.

END OF SECTION
SECTION 01 5000 - TEMPORARY FACILITIES AND CONTROLS

PART 1 GENERAL

1.01 SECTION INCLUDES
   A. Temporary utilities.
   B. Temporary sanitary facilities.
   C. Temporary closures.
   D. Temporary vehicular access and parking.
   E. Project waste removal.

1.02 TEMPORARY UTILITIES
   A. Reasonable use of electrical power and water for construction purposes can obtained from exterior building outlets and spigots.
   B. The Ownerwill pay for utility charges for existing service.

1.03 TEMPORARY SANITARY FACILITIES
   A. Provide and maintain temporary toilets. Provide at time of project mobilization.
   B. Maintain daily in clean and sanitary condition.

1.04 BARRIERS
   A. Provide barriers to prevent unauthorized entry to construction areas, to allow for owner's use of site and to protect existing facilities and adjacent properties from damage from construction operations and demolition.
   B. Provide barricades and covered walkways required by governing authorities for public rights-of-way and for public access to existing building.
   C. Provide protection for plants designated to remain. Replace damaged plants.
   D. Protect the vehicles of others, stored materials, site, and structures from damage.

1.05 FENCING
   A. Construction: Commercial grade chain link fence.

1.06 VEHICULAR ACCESS AND PARKING
   A. Coordinate access and haul routes with governing authorities and Owner.
   B. Provide and maintain access to fire hydrants, free of obstructions.
   C. Provide means of removing mud from vehicle wheels before entering streets.
   D. Existing parking areas located at 450 W Palmer Ave (WSU Palmer Structure) or WSU Parking Structure 6 (Welcome Center Garage) at 61 Putnam Street may be used for construction parking.

1.07 WASTE REMOVAL
   A. Provide waste removal facilities and services as required to maintain the site in clean and orderly condition.
   B. Provide containers with lids. Remove trash from site periodically.
   C. If materials to be recycled or re-used on the project must be stored on-site, provide suitable non-combustible containers; locate containers holding flammable material outside the structure unless otherwise approved by the authorities having jurisdiction.
D. Open free-fall chutes are not permitted. Terminate closed chutes into appropriate containers with lids.

1.08 REMOVAL OF UTILITIES, FACILITIES, AND CONTROLS

A. Remove temporary utilities, equipment, facilities, materials, prior to Substantial Completion inspection.

B. Clean and repair damage caused by installation or use of temporary work.

C. Restore existing facilities used during construction to original condition.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION
SECTION 01 6000 - PRODUCT REQUIREMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES
   A. General product requirements.
   B. Prohibition of asbestos-containing materials.
   C. Storage and protection.
   D. Product option requirements.
   E. Substitution requirements and procedures.

1.02 RELATED SECTIONS
   A. Instructions to Bidders and General Conditions: Product options and substitution procedures.
   B. Section 01 6201 - Pre-Bid Substitution Request.
   C. Section 01 6202 - Post-Bid Substitution Request.

PART 2 PRODUCTS

2.01 EXISTING PRODUCTS
   A. Do not use materials and equipment removed from existing premises unless specifically required or permitted by the Contract Documents.
   B. Existing materials and equipment indicated to be removed, but not to be re-used, relocated, reinstalled, delivered to the Owner, or otherwise indicated as to remain the property of the Owner, become the property of the Contractor; remove from site.

2.02 NEW PRODUCTS
   A. Provide new products unless specifically required or permitted by the Contract Documents.
   B. Do not use products that contain 1 percent or more by weight of asbestos (asbestiform varieties of chrysotile (serpentine), crocidolite (riebeckite), amosite (cummingtonite-grunerite), anthophyllite, tremolite, or actinolite).

2.03 PRODUCT OPTIONS
   A. Products Specified by Reference Standards or by Description Only: Use any product meeting those standards or description, and comply with the remaining requirements of the project.
   B. Products Specified by Naming One or More Brand Name Products: Use one of the brand name products specified, and comply with the remaining requirements of the project.
   C. Products Specified by Naming One or More Manufacturers: Use products of one of the manufacturers specified, and comply with the remaining requirements of the project.
   D. Products Specified by Naming a "Basis of Design": Use the product named as "basis of design" or obtain the approval of the Architect of specific products by other manufacturers listed in the specification, following the procedures specified for substitutions.

2.04 MANUFACTURER QUALIFICATIONS AND INSTALLER QUALIFICATIONS
   A. The qualifications for manufacturers and for installers specified in the respective specification sections are requirements of the Contract.
PART 3 EXECUTION

3.01 SUBSTITUTION PROCEDURES

A. For time restrictions on substitution requests see the Invitation to Bidders and the General Conditions.

B. Approval of substitutions after the award of contract may occur only by Contract Modification.

C. Substitutions will not be considered when they are indicated or implied on shop drawing or product data submittals without separate written request complying with the requirements specified herein.

D. Substitution Submittal Procedure:
   1. Submit three copies of request for substitution for consideration. Limit each request to one proposed substitution.
   2. Accompany requests during the bidding period with a completed Pre-Bid Substitution Request as specified in Section 01 6201.
   3. Accompany requests after the receipt of bids with a completed Post-Bid Substitution Request as specified in Section 01 6202.
   4. Submit shop drawings, product data, and certified test results attesting to the proposed product equivalence. Burden of proof is on proposer.
   5. Accompany requests after the receipt of bids with complete documentation of cost (whether cost will increase, decrease, or remain the same) for both the specified item and the proposed item. Provide full information required for evaluation:
      a. Quantities of materials and the cost thereof, including shipping to the site.
      b. Manhours of labor and hourly cost including payroll taxes, insurance, and benefits for each skill or labor classification.
      c. Quantities and costs of equipment, tools, and other material not incorporated into the work.
      d. Overhead and profit.
      e. Credit for deletions from Contract, similarly documented.
      g. Other information requested by the Architect.
   6. The Architect will notify Contractor in writing of decision to accept or reject request.

E. A request for substitution constitutes a representation that the submitter:
   1. Has investigated proposed product and determined that it meets or exceeds the quality level of the specified product.
   2. Will provide the same warranty for the substitution as for the specified product.
   3. Will coordinate installation and make changes to other Work which may be required for the Work to be complete with no additional cost to Owner.
   4. Waives claims for additional costs or time extension which may subsequently become apparent.

3.02 STORAGE AND PROTECTION

A. Designate receiving/storage areas for incoming products so that they are delivered according to installation schedule and placed convenient to work area in order to minimize waste due to excessive materials handling and misapplication.

B. Store and protect products in accordance with manufacturers' instructions.

C. Store with seals and labels intact and legible.
D. Store sensitive products in weather tight, climate controlled, enclosures in an environment favorable to product.

E. For exterior storage of fabricated products, place on sloped supports above ground.

F. Provide bonded off-site storage and protection when site does not permit on-site storage or protection.

G. Cover products subject to deterioration with impervious sheet covering. Provide ventilation to prevent condensation and degradation of products.

H. Store loose granular materials on solid flat surfaces in a well-drained area. Prevent mixing with foreign matter.

I. Prevent contact with material that may cause corrosion, discoloration, or staining.

J. Provide equipment and personnel to store products by methods to prevent soiling, disfigurement, or damage.

K. Arrange storage of products to permit access for inspection. Periodically inspect to verify products are undamaged and are maintained in acceptable condition.

END OF SECTION
SECTION 01 6201 - PRE-BID SUBSTITUTION REQUEST

TO: LORD, AECK & SARGENT, INC.,
   213.S. Ashley Street, Suite 200, Ann Arbor, MI 48104

Substitution of the following is hereby requested in accordance with the Instructions to
Bidders, the General Conditions of the contract, and Section 01 6000.

SPECIFIED PRODUCT:

SECTION NO.: PAGE NO.: PARA. NO.:

REASON FOR REQUESTING SUBSTITUTION; CHECK ONE OR MORE:
   [ ] Contractor cannot provide the specified product, assembly, or method of construction
within the Contract Time;
   [ ] The request directly relates to an “or-equal” clause or similar language in the Contract
Documents;
   [ ] The request directly relates to a “product design standard” or “performance standard”
clause in the Contract Documents;
   [ ] The requested substitution offers Owner a substantial advantage in cost, time, energy
conservation, or other considerations after deducting additional responsibilities Owner must
assume;
   [ ] The specified product or method of construction cannot receive necessary approval by an
authority having jurisdiction, and Owner can approve the requested substitution;
   [ ] Contractor cannot provide the specified product, assembly, or method of construction in a
manner that is compatible with other materials and Contractor certifies that the substitution
will overcome the incompatibility;
   [ ] Contractor cannot coordinate the specified product, assembly, or method of construction
with other materials and Contractor certifies they can coordinate the proposed substitution; or
   [ ] The specified product, assembly, or method of construction cannot provide a warranty
required by the Contract Documents and Contractor certifies that the proposed substitution
provides the required warranty.
   [ ] Other (explain):

PROPOSED PRODUCT INFORMATION:
   Manufacturer:
   Address:
   Product trade name, model number, other characteristics:

   Name of fabricator or supplier:
Address:

CHECK ONE:

[ ] The proposed product complies with the contract documents in every respect except for the specified manufacturer name or brand name or model number.

[ ] The proposed product material complies with the contract documents in every respect except for deviations which are as follows:

CHECK ONE:

[ ] No changes are required in other work or products if the substitute product is approved.

[ ] Changes will be required in other work or products if the substitute product is approved, as follows:

MAINTENANCE SERVICES AND REPLACEMENT MATERIAL AVAILABILITY (IF APPLICABLE):

CONTRACTOR’S CERTIFICATION

To the Owner, to the Architect, to other bidders and sub-bidders (of any tier), and to the Contractor(s) and subcontractors and suppliers (of any tier) to whom contracts are eventually awarded in connection with the project, the undersigned warrants that the undersigned:

- has examined the bidding documents for the project,

- has investigated the proposed product and has found it to be equal or superior in all significant respects to the specified product,

- will provide the same warranty for the proposed product as for the specified product,

- will coordinate the installation and make other changes which may be required for the work to be complete in all respects, including, redesign, additional components, and additional capacity required by other work affected by the change, and

- waives all claims for additional costs and time extensions which subsequently may be come apparent and which are caused by the change.

ENCLOSURES:

Complete product data, as specified in the Contract Documents, is enclosed with this request. Other enclosures:
THIS REQUEST IS SUBMITTED IN THE NAME OF:

Company name: 
Address: 
Telephone: 
By: 

Authorized Signature: 
Date: 
Typed Name: 
Title: 

END OF SECTION
SECTION 01 6202 - POST-BID SUBSTITUTION REQUEST

TO: LORD, AECK & SARGENT, INC.,
213.S. Ashley Street, Suite 200, Ann Arbor, MI 48104

Substitution of the following is hereby requested in accordance with the Instructions to Bidders, the General Conditions of the contract, and Section 01 6000.

SPECIFIED PRODUCT:

SECTION NO.: PAGE NO.: PARA. NO.:  

REASON FOR REQUESTING SUBSTITUTION; CHECK ONE OR MORE:
[ ] Contractor cannot provide the specified product, assembly, or method of construction within the Contract Time;
[ ] The request directly relates to an “or-equal” clause or similar language in the Contract Documents;
[ ] The request directly relates to a “product design standard” or “performance standard” clause in the Contract Documents;
[ ] The requested substitution offers Owner a substantial advantage in cost, time, energy conservation, or other considerations, after deducting additional responsibilities Owner must assume;
[ ] The specified product or method of construction cannot receive necessary approval by an authority having jurisdiction, and Owner can approve the requested substitution;
[ ] Contractor cannot provide the specified product, assembly, or method of construction in a manner that is compatible with other materials and Contractor certifies that the substitution will overcome the incompatibility;
[ ] Contractor cannot coordinate the specified product, assembly, or method of construction with other materials and Contractor certifies they can coordinate the proposed substitution; or
[ ] The specified product, assembly, or method of construction cannot provide a warranty required by the Contract Documents and Contractor certifies that the proposed substitution provides the required warranty.
[ ] Other (explain):

PROPOSED PRODUCT INFORMATION:
Manufacturer:
Address:
Product trade name, model number, other characteristics:
Name of fabricator or supplier:
POST-BID SUBSTITUTION REQUEST

WSU Project No. 026-295211

Address:

CHECK ONE:

[ ] The proposed product complies with the contract documents in every respect except for the specified manufacturer name or brand name or model number.

[ ] The proposed product material complies with the contract documents in every respect except for deviations which are as follows:

CHECK ONE:

[ ] No changes are required in other work or products if the substitute product is approved.

[ ] Changes will be required in other work or products, if the substitute product is approved, as follows:

MAINTENANCE SERVICES AND REPLACEMENT MATERIAL AVAILABILITY (IF APPLICABLE):

CHECK ONE:

[ ] No change in the Contract Sum is proposed.

[ ] Modification of the Contract Sum by adding $ is hereby requested.

[ ] Modification of the Contract Sum by subtracting $ is hereby requested.

CHECK ONE:

[ ] No change in the Contract Time is proposed.

[ ] Modification of the Contract Time by adding calendar days is hereby requested.

[ ] Modification of the Contract Time by subtracting calendar days is hereby requested.

CONTRACTOR'S CERTIFICATION:

To the Owner, to the Architect, and to other contractors and their subcontractors (if any), the undersigned warrants that the undersigned:

- has examined the Contract Documents for the project,
- has investigated the proposed product and has found it to be equal or superior in all significant respects to the specified product,
- will provide the same warranty for the proposed product as for the specified product,
- will coordinate the installation and make other changes which may be required for the work to be complete in all respects, including, redesign, additional components, and additional capacity required by other work affected by the change, and
- waives all claims for additional costs and time extensions which subsequently may become apparent and which are caused by the change.
- Will reimburse Owner for review or redesign services, when request is made after the award of contract.

ENCLOSURES:
The following complete information is enclosed for evaluation:
1. Product data on the proposed substitution.
2. Detailed cost breakdown itemizing each of the following:
   a. Quantities of materials and the cost thereof.
   b. Shipping to the site.
   c. Manhours of labor and hourly cost including payroll taxes, insurance, and benefits for each skill or labor classification.
   d. Quantities and costs of equipment, tools, and other material not incorporated into the work.
   e. Overhead and profit.
   f. Credit for deletions from Contract, similarly documented.
4. Other information requested by the Architect.
Other enclosures:

THIS REQUEST IS SUBMITTED IN THE NAME OF:
Company name:
Address:
Telephone:

BY:
Authorized Signature:
Date:
Typed Name:
Title:

END OF SECTION
SECTION 01 7000 - EXECUTION REQUIREMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Examination, preparation, and general installation procedures.
B. Requirements for alterations work, including selective demolition, except removal, disposal, and/or remediation of hazardous materials and toxic substances.
C. Pre-installation meetings.
D. Cutting and patching.
E. Cleaning and protection.

1.02 PROJECT CONDITIONS

A. Pollution Control: Provide methods, means, and facilities to prevent contamination of soil, water, and atmosphere from discharge of noxious, toxic substances, and pollutants produced by construction operations.

1.03 COORDINATION

A. Coordinate scheduling, submittals, and work of the various sections of the Project Manual to ensure efficient and orderly sequence of installation of interdependent construction elements.
B. Coordinate completion and clean-up of work of separate sections.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that existing site conditions and substrate surfaces are acceptable for subsequent work. Start of work means acceptance of existing conditions.
B. Verify that existing substrate is capable of structural support or attachment of new work being applied or attached.
C. Examine and verify specific conditions described in individual specification sections.
D. Take field measurements before confirming product orders or beginning fabrication, to minimize waste due to over-ordering or misfabrication.
E. Verify that utility services are available, of the correct characteristics, and in the correct locations.
F. Prior to Cutting: Examine existing conditions prior to commencing work, including elements subject to damage or movement during cutting and patching. After uncovering existing work, assess conditions affecting performance of work. Beginning of cutting or patching means acceptance of existing conditions.

3.02 PREPARATION

A. Clean substrate surfaces prior to applying next material or substance.
B. Seal cracks or openings of substrate prior to applying next material or substance.
C. Apply manufacturer required or recommended substrate primer, sealer, or conditioner prior to applying any new material or substance in contact or bond.
3.03 PREINSTALLATION MEETINGS
   A. Notify Architect sufficiently in advance of meeting date to allow for coordination with Architect's schedule.
   B. Prepare agenda and preside at meeting:
      1. Review conditions of examination, preparation and installation procedures.
      2. Review coordination with related work.
   C. Record minutes and distribute copies within two days after meeting to participants, with copies to Architect, Owner, participants, and those affected by decisions made.

3.04 GENERAL INSTALLATION REQUIREMENTS
   A. Install products as specified in individual sections, in accordance with manufacturer's instructions and recommendations, and so as to avoid waste due to necessity for replacement.
   B. Make vertical elements plumb and horizontal elements level, unless otherwise indicated.
   C. Make consistent texture on surfaces, with seamless transitions, unless otherwise indicated.
   D. Make neat transitions between different surfaces, maintaining texture and appearance.

3.05 ALTERATIONS
   A. Drawings showing existing construction and utilities are not record documents or precise surveys of actual conditions.
      1. Verify that construction and utility arrangements are as shown.
      2. Report discrepancies to Architect before disturbing existing installation.
      3. Beginning of alterations work constitutes acceptance of existing conditions.
   B. Maintain weatherproof exterior building enclosure except for interruptions required for replacement or modifications; take care to prevent water and humidity damage.
      1. Where openings in exterior enclosure exist, provide construction to make exterior enclosure weatherproof.
   C. Remove existing work as indicated and as required to accomplish new work.
      1. Remove items indicated on drawings.
   D. Protect existing work to remain.
      1. Perform cutting to accomplish removals neatly and as specified for cutting new work.
      2. Repair adjacent construction and finishes damaged during removal work.
      3. Patch as specified for patching new work.
   E. Remove demolition debris and abandoned items from alterations areas and dispose of off-site; do not burn or bury.

3.06 CUTTING AND PATCHING
   A. Execute work by methods to avoid damage to other work, and which will provide appropriate surfaces to receive patching and finishing. In existing work, minimize damage and restore to original condition.
   B. Employ original installer to perform cutting for weather exposed and moisture resistant elements, and sight exposed surfaces.
   C. Cut rigid materials using masonry saw or core drill. Pneumatic tools not allowed without prior approval.
   D. Restore work with new products in accordance with requirements of Contract Documents.
E. Make neat transitions. Patch work to match adjacent work in texture and appearance. Where new work abuts or aligns with existing, perform a smooth and even transition.

3.07 PROGRESS CLEANING
A. Maintain areas free of waste materials, debris, and rubbish. Maintain site in a clean and orderly condition.
B. Collect and remove waste materials, debris, and trash from the site without delay; dispose off-site; do not burn or bury.

3.08 PROTECTION OF INSTALLED WORK
A. Protect installed work from damage by construction operations.
B. Provide special protection where specified in individual specification sections.
C. Provide temporary and removable protection for installed products. Control activity in immediate work area to prevent damage.
D. Provide protective coverings at walls, projections, jambs, sills, and soffits of openings.
E. Prohibit traffic or storage upon waterproofed or roofed surfaces. If traffic or activity is necessary, obtain recommendations for protection from waterproofing or roofing material manufacturer.
F. Prohibit traffic from landscaped areas.
G. Remove protective coverings when no longer needed; reuse or recycle plastic coverings if possible.

3.09 FINAL CLEANING
A. Use cleaning materials that are nonhazardous.
B. Clean debris from roofs, gutters, downspouts, and drainage systems.
C. Clean site; sweep paved areas, rake clean landscaped surfaces.
D. Remove waste, surplus materials, trash/rubbish, and construction facilities from the site; dispose of in legal manner; do not burn or bury.

END OF SECTION
SECTION 01 7800 - CLOSEOUT SUBMITTALS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Project Record Documents.
B. Warranties and bonds.

1.02 SUBMITTALS

A. Project Record Documents: Submit documents to Architect with claim for final Application for Payment.
B. Warranties and Bonds:
   1. Make other submittals within 10 days after Date of Substantial Completion, prior to final Application for Payment.
   2. For items of Work for which acceptance is delayed beyond Date of Substantial Completion, submit within 10 days after acceptance, listing the date of acceptance as the beginning of the warranty period.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 PROJECT RECORD DOCUMENTS

A. Maintain on site one set of the following record documents; record actual revisions to the Work:
   1. Drawings.
   2. Addenda.
   3. Change Orders and other modifications to the Contract.
B. Ensure entries are complete and accurate, enabling future reference by Owner.
C. Store record documents separate from documents used for construction.
D. Record information concurrent with construction progress.
E. Record Drawings and Shop Drawings: Legibly mark each item to record actual construction including:
   1. Field changes of dimension and detail.
   2. Details not on original Contract drawings.

3.02 WARRANTIES AND BONDS

A. Obtain warranties and bonds, executed in duplicate by responsible Subcontractors, suppliers, and manufacturers, within 10 days after completion of the applicable item of work. Except for items put into use with Owner's permission, leave date of beginning of time of warranty until Date of Substantial completion is determined.
B. Verify that documents are in proper form, contain full information, and are notarized.
C. Co-execute submittals when required.
D. Retain warranties and bonds until time specified for submittal.

END OF SECTION
SECTION 02 4100 - DEMOLITION

PART 1    GENERAL

1.01 SECTION INCLUDES
   A. Selective demolition of built site elements.
   B. Selective demolition of building elements for alteration purposes.

1.02 RELATED REQUIREMENTS
   A. Section 01 1000 - Summary: Limitations on Contractor's use of site and premises.
   B. Section 01 5000 - Temporary Facilities and Controls: Site fences, security, protective barriers, and waste removal.
   C. Section 01 7000 - Execution and Closeout Requirements: Project conditions; protection of bench marks, survey control points, and existing construction to remain; reinstallation of removed products; temporary bracing and shoring.

1.03 REFERENCE STANDARDS

1.04 SUBMITTALS
   A. Site Plan: Showing:
      1. Vegetation to be protected.
      2. Areas for Contractor staging.

PART 2    PRODUCTS -- NOT USED

PART 3    EXECUTION

3.01 GENERAL PROCEDURES AND PROJECT CONDITIONS
   A. Comply with applicable codes and regulations for demolition operations and safety of adjacent structures and the public.
      1. Obtain required permits.
      2. Take precautions to prevent catastrophic or uncontrolled collapse of structures to be removed; do not allow worker or public access within range of potential collapse of unstable structures.
      3. Provide, erect, and maintain temporary barriers and security devices.
      4. Use physical barriers to prevent access to areas that could be hazardous to workers or the public.
      5. Conduct operations to minimize effects on and interference with adjacent structures and occupants.
      6. Do not close or obstruct roadways or sidewalks without permit.
      7. Conduct operations to minimize obstruction of public and private entrances and exits; do not obstruct required exits at any time; protect persons using entrances and exits from removal operations.
   B. Do not begin removal until receipt of notification to proceed from Owner.
   C. Do not begin removal until specified measures have been taken to protect vegetation to remain.
   D. Protect existing structures and other elements that are not to be removed.
      1. Provide bracing and shoring.
      2. Prevent movement or settlement of adjacent structures.
3. Stop work immediately if adjacent structures appear to be in danger.

3.02 SELECTIVE DEMOLITION FOR ALTERATIONS

A. Drawings showing existing construction and utilities are based on casual field observation and existing record documents only.
   1. Verify that construction and utility arrangements are as indicated.
   2. Report discrepancies to Architect before disturbing existing installation.
   3. Beginning of demolition work constitutes acceptance of existing conditions that would be apparent upon examination prior to starting demolition.

B. Remove existing work as indicated and as required to accomplish new work.
   1. Remove items indicated on drawings.

D. Protect existing work to remain.
   1. Prevent movement of structure; provide shoring and bracing if necessary.
   2. Perform cutting to accomplish removals neatly and as specified for cutting new work.
   3. Repair adjacent construction and finishes damaged during removal work.
   4. Patch as specified for patching new work.

3.03 DEBRIS AND WASTE REMOVAL

A. Remove debris, junk, and trash from site.

B. Leave site in clean condition, ready for subsequent work.

C. Clean up spillage and wind-blown debris from public and private lands.

END OF SECTION
SECTION 04 4200 - EXTERIOR STONE CLADDING

PART 1 GENERAL

1.01 SECTION INCLUDES
A. Cut limestone veneer at exterior walls.
B. Metal anchors and supports.
C. Sealing exterior joints.

1.02 REFERENCE STANDARDS
B. ASTM A666 - Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar; 2015.

1.03 SUBMITTALS
A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
B. Product Data: Provide data on stone, mortar products, and sealant products.
C. Shop Drawings: Indicate layout, pertinent dimensions, anchorages, head, jamb, and sill opening details, and jointing methods.
D. Samples: Submit two stone samples 9 by 12 inch in size, illustrating color range and texture, markings, surface finish.
E. Installation Instructions: Submit stone fabricator's installation instructions and field erection or setting drawings; indicate panel identifying marks and locations on setting drawings.

1.04 QUALITY ASSURANCE
A. Design anchors and supports under direct supervision of a Professional Structural Engineer, registered in the State in which the Project is located.
   1. Design anchors to resist positive and negative wind pressures and other loads as required by applicable code.
   2. Design anchor attachment to stone with a factor of safety of 5:1.
   3. Design each individual anchor with a factor of safety in the vertical dead-load-bearing direction of 4:1 and in the horizontal lateral-load-bearing direction of 2:1.
B. Perform work in accordance with ILI Indiana Limestone Handbook.
C. Stone Fabricator: Company specializing in fabricating cut stone with minimum ten years of documented experience.
D. Installer Qualifications: Company specializing in performing the work of this section with minimum 5 years of experience.
1.05 Mock-up
   A. Construct stone fascia mock-up, 4'-4" feet long by 1' feet wide, including stone anchor accessories, typical control joint, and flashing.
   B. Locate where directed.
   C. Mock-up may remain as part of the Work.

1.06 Delivery, Storage, and Handling
   A. Store stone panels vertically on edge, resting weight on panel edge.
   B. Protect stone from discoloration.

1.07 Field Conditions
   A. During temporary storage on site, at the end of working day, and during rainy weather, cover stone work exposed to weather with non-staining waterproof coverings, securely anchored.

Part 2 Products
2.01 Stone
   A. Limestone: Minnesota Stone, Dolomitic Limestone.
      1. Grade: ILI Standard.
      2. Color: Match Existing.
      4. Surface Texture: Match Existing.
      5. Acceptable Producers:
         d. Substitutions: See Section 01 6000 - Product Requirements.

2.02 Anchors and Accessories
   A. Anchors and Other Components in Contact with Stone: Stainless steel, ASTM A 666, Type 304.
      1. Sizes and configurations: As required for vertical and horizontal support of stone and applicable loads.
      2. Wire ties are not permitted.
   B. Support Components not in Contact with Stone: Stainless steel, ASTM A240/A240M, Type 304.
   C. Setting Buttons and Shims: Plastic type.
   D. Weep/Cavity Vents: Molded PVC grille, insect resistant.
   E. Joint Sealant: ASTM C920 silicone sealant with movement capability of at least plus/minus 25 percent and non-staining to stone when tested in accordance with ASTM C1248.
   F. Joint Backer Rod: ASTM C1330 open cell polyurethane of size 40 to 50 percent larger in diameter than joint width.

2.03 Stone Fabrication
   A. Fabricate units for uniform coloration between adjacent units and over the full area of the installation.
PART 3 EXECUTION

3.01 EXAMINATION
   A. Verify that support work and site conditions are ready to receive work of this section.
   B. Verify that items built-in under other sections are properly located and sized.

3.02 PREPARATION
   A. Clean stone prior to erection. Do not use wire brushes or implements that will mark or damage exposed surfaces.

3.03 INSTALLATION
   A. Erect stone in accordance with stone supplier's instructions and erection drawings.
   B. Set stone with a consistent joint width of 3/8 inch. Match Existing.
   C. Install anchors and place setting buttons to support stone and to establish joint dimensions.
   D. Joints in Exterior Work: Seal joints with joint sealant over backer rod, following sealant manufacturer's instructions; tool sealant surface to concave profile.

3.04 CUTTING AND FITTING
   A. Obtain approval prior to cutting or fitting any item not so indicated on Drawings.
   B. Do not impair appearance or strength of stone work by cutting.

3.05 CLEANING
   A. Remove excess joint material upon completion of work.
   B. Clean soiled surfaces with cleaning solution.
   C. Use non-metallic tools in cleaning operations.

END OF SECTION
SECTION 07 5010 - CUTTING AND PATCHING OF EXISTING ROOF COVERING

PART 1  GENERAL

1.01  SUMMARY
A. Section Includes:
   1. Patching and repair of existing roof coverings.

1.02  PERFORMANCE REQUIREMENTS
A. Factory Mutual System Classification: Comply with FM Global requirements for modifications to the roofing assembly.

1.03  SUBMITTALS
A. Product Data: Submit technical product information, installation instructions, and recommendations for each type of roofing material. Furnish additional information as necessary to demonstrate products comply with project criteria.
   1. Certificates:
      a. Installer certification from roofing manufacturer.

1.04  QUALITY ASSURANCE
A. Installer:
   1. Certification: For existing roofing that is currently under manufacturer's warranty, furnish to the Architect, written documentation signed by the roofing manufacturer's representative stating that installer is manufacturer certified to install roofing systems qualifying for manufacturer's standard 20-year labor and material warranty, and further stating that such certification has been in force since at least 3 months prior to the date of opening of bids for the Project.

1.05  PRODUCT HANDLING
A. Deliver materials to project site in manufacturer's unopened, sealed containers or packages, with manufacturer's labels intact.
   B. Store materials in weather-protected environment, clear of ground and moisture, in strict accordance with manufacturer’s and NRCA recommendations.

PART 2  PRODUCTS

2.01  SUBSTITUTIONS
A. Refer to Section 01 6000 - Product Requirements.

2.02  ASSEMBLIES AND DETAILS
A. For cutting and patching back, employ only materials, assemblies, and details that would qualify for manufacturer's 20-year NDL warranty for new work. Where a manufacturer's warranty is currently in force for the existing roof, provide notice to manufacturer and maintain existing warranty in force.
   B. Existing Roofing Manufacturer: Koppers Industries, Inc.
   C. The manufacturer's warranty is currently in force for the existing roof. Provide notice to manufacturer and maintain existing warranty in force.

2.03  SHEET MATERIALS
A. General:
   1. Coal-tar bitumen membranes:
      a. Preformed sheets of reinforced rubberized asphalt or coal-tar.
b. Modifier (rubberizing agent): Manufacturer’s standard modifier.
c. Reinforcement: Manufacturer’s standard reinforcement.

2.04 INSULATION
A. Roof Insulation: Match existing insulation type, number of layers, and thickness.
B. Crickets, Saddles, and Tapered Edge Strips: Tapered insulation.
C. Cants:
   1. Against wood curbs or parapets: Pressure preservative treated wood.
   2. Elsewhere: Tapered insulation.

PART 3 EXECUTION
3.01 EXISTING CONDITIONS
A. Correct substrates that are unacceptable to the installer or the roof membrane manufacturer before starting roofing application.

3.02 GENERAL
A. No roofing operations shall occur without the presence of the installer’s supervisor on site, whether:
   1. Demolition.
   2. Installation of insulation and roof covering.
   3. Installation of base flashings.
   4. Installation of sheet metal flashings specified elsewhere.

3.03 SUBSTRATE PREPARATION
A. General: Remove trash, debris, grease, oil, water, and contaminants from surface.
B. Removal Of Existing Roofing: Remove existing roofing, insulation, blocking, etc., as indicated and as necessary to accommodate project requirements.
C. Penetrations: Ensure that roof curbs, equipment supports, columns, posts, piping, etc., which will penetrate roof are installed in correct locations, and permanently secured.

3.04 VAPOR BARRIER AND INSULATION
A. Vapor Barrier: Preserve, repair, and restore vapor barrier where encountered prior to installing insulation.
B. Insulation:
   1. Install insulation of total thickness to match existing insulation and to fill voids around penetrations and where patching occurs.
   2. Butt insulation units tightly together and trim to fit penetrations and interruptions so that gaps between units and between insulation and adjacent construction do not exceed 1/4 inch.
   3. Provide preformed units at drains to ensure positive drainage.
   4. Provide crickets on high side of roof curbs and other obstructions.
   5. Provide crickets, saddles, and tapered areas where necessary to conform to deck, penetrations, and existing irregularities and to avoid localized areas of ponding.
C. Installation of Roofing Sheets:
   1. Follow manufacturer's recommendations for installation to ensure proper installation of sheet without irregularities such as fishmouths or wrinkles.
   2. Place and press sheets during installation to ensure proper adhesion to substrate and adjacent roofing sheet.
3. Comply with manufacturer's recommendations to ensure that joints are solidly adhered and weather-tight.

END OF SECTION
SECTION 07 6200 - SHEET METAL FLASHING AND TRIM

PART 1  GENERAL

1.01  SUMMARY

A. Section Includes:
   1. Sheet metal flashing, trim, closures, covers, clips, etc.
   2. Fasteners and attachment devices.
   3. Joint sealants in contact with work of this Section.

1.02  REFERENCES

A. ASTM A653 - Standard Specification for Sheet Steel, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2015.
B. ASTM A666 - Standard Specification for Annealed or Cold-Worked Austenitic Sheet, Strip, Plate, and Flat Bar; 2015.
F. CDA A4050 - Copper in Architecture - Handbook; Copper Development Association (CDA); current edition.

1.03  SYSTEM DESCRIPTION

A. Sheet metal work includes exposed and concealed flashing, trim, and other sheet metal fabrications specified in this section, indicated on the Drawings, and as required by project conditions. Only the general arrangement and configuration of sheet metal work is indicated on the drawings.

B. Fabricate join, and fasten sheet metal work in conformance with manufacturer's recommendations and SMACNA recommendations to accommodate the project conditions on the site, and without change in Contract Time or Price. Such details shall conform to the SMACNA recommendations for maximum life and reliability.

C. Such details shall provide:
   1. Expansion provisions for running work.
   2. Sheet metal work that can reasonably be expected to be leak-free for at least 20 years without maintenance.
   3. Weather-proof performance without relying on sealant.
   4. Exception: Where the use of joint sealant is required by the Contract Documents or is required by Project conditions and is approved in writing by the Architect.

D. Seams and Joints: Where specific types of seams and joints are not indicated in the Contract Documents, select seams and joints in the order that follows:
   1. Provide locked seam or joint where, due to slope and interlocking of seam, the seam or joint is inherently weather-proof without the use of solder or sealants.
   2. Provide locked and soldered seam or joint where slope and interlocking of seam would allow water penetration, and where rigid construction is required. Prepare edges to be seamed, form seams, and solder.
3. Provide sealant-filled expansion seams or joints only where lapped or bayonet-type expansion provisions in work cannot be used, or would not be water-and-weather-proof. Obtain the written authorization of the Architect in each case. Form expansion joints of intermeshing hooked flanges, not less than 1 inch deep, filled with mastic sealant concealed within joints.

E. Fastening:
   1. Employ concealed cleats to fasten sheet metal to the substrate.
   2. Do not fasten exposed fabrications directly to the substrate unless explicitly required by the Specifications or the Drawings.
   3. Employ concealed fasteners. Obtain the Architect’s written authorization where exposed fasteners are proposed.
   4. Ensure exposed fasteners are permanently sealed against water penetration.

1.04 SUBMITTALS
   A. Product Data for each material.
   B. Installer qualifications: Submit for Architect’s approval within the time limits specified.
   C. Shop Drawings:
      1. Metal component profiles.
      2. Joints and seams.
      3. Joint and seam pattern.
      4. Fastening methods.
      5. Accessory items.
      6. Relationship of materials to adjacent construction.
   D. FM Global approval for configuration dimensions of coping / and fascia.

1.05 QUALITY ASSURANCE
   A. Installer: A company with at least 15 years of experience with installing products included in this section and which has completed at least 20 installations similar in scope to work included in this section.
   B. Preconstruction Mock-ups:
      1. Construct mock-ups so as to demonstrate on site all aspects of preparation, fabrication, and installation of sheet metal work and its relationship to adjacent materials.
         a. Provide metal flashings and trim for mock-ups specified in other Specification Sections such as wall cladding, windows and glazing, and roofing.
   C. Quality Standard:
      1. Fabricate and install metal work in accordance with SMACNA recommendations.

1.06 DELIVERY, STORAGE AND HANDLING
   A. Follow metal manufacturer’s recommendations for avoiding staining and marring of sheets.
   B. Do not allow traffic of any kind on work.

1.07 WARRANTY
   A. Manufactured Products: Provide manufacturer's standard warranty for copings and fascia; not less than 20 year duration.

PART 2 PRODUCTS
2.01 SUBSTITUTIONS
   A. Refer to Section 01 6000 - Product Requirements.
2.02 MATERIALS
   A. Prefinished Aluminum Sheet: ASTM B209; Kynar (Hylar) coated.

2.03 ACCESSORY MATERIALS
   A. Fasteners for Manufactured Products: Type, style, and configuration suitable for Project substrates; provided by manufacturer.
   B. Fasteners for Job Fabrications:
      1. Fasteners for Masonry Substrates: Type 304 stainless steel expansion type fasteners requiring pre-drilled hole. Powder or impact type fasteners not acceptable.
      2. Fasteners for Steel Substrates: Self-drilling, self-tapping screws with hardened carbon steel tip, Type 304 stainless steel shank. Provide dome head with neoprene washer where exposed fasteners are approved in writing by the Architect.
   C. Sealants in contact with Work of this Section:
      1. Concealed joints.
         a. Mastic sealant: Polyisobutylene sealant as specified in Section 07 9000 - JOINT SEALERS.
         b. Polyisobutylene sealant tape: As specified in Section 07 9000 - JOINT SEALERS.
      2. Exposed joints: Silicone as specified in Section 07 9000 - JOINT SEALERS.

2.04 MANUFACTURED PRODUCTS
   A. Provide products manufactured and tested in accordance with SPRI-ES-1.
   B. Products fabricated by the installing contractor or others may be submitted for the Architect's approval subject to all of the following:
      1. Proposed substitutions are submitted in accordance with procedures specified elsewhere and within the time limits specified therein.
      2. Proposed products actually produced by the proposed fabricator have been tested in accordance with SPRI-ES-1 and demonstrate wind resistance as specified below.
      3. Where the Project is insured by FM Global, fabrications shall comply with FM Global requirements.
      4. Substitution requests shall be accompanied by reports of tests conducted by an independent testing laboratory demonstrating that the fabricator is certified to produce SPRI-ES-1 rated product and that product meets the specified wind resistance in accordance with SPRI-ES-1.
      5. Where spring-snap-on style covers are specified, crimp-on style covers are not acceptable.
      6. Where products without exposed fasteners are specified, fabrications with exposed fasteners are not acceptable.
   C. Materials:
      2. Exposed metal: Kynar (Hylar) coated aluminum.
   D. Manufacturers:
      2. Other Acceptable Manufacturers.

2.05 OTHER FLASHINGS
   A. Miscellaneous sheet metal flashing, trim, closures, covers, clips, etc.
1. Stainless steel; 26 gage.
2. Aluminum, mill finish; 0.032 inch thick.
3. Aluminum, Kynar (Hylar) coated; 0.032 inch thick.

2.06 FINISHES
A. Kynar (Hylar) Coating:
   1. Color: Architect

2.07 FABRICATION
A. Shop and Field Fabrication:
   1. Shop fabricate work to the greatest extent possible.
   2. Form work to fit substrate.
   3. Form sheet metal to match profiles indicated, substantially free from oil-canning, buckling, tool marks, fish-mouths, and other defects.
B. Fasten sheet metal with concealed cleats. Fabricate cleats and attachment devices from same material as sheet metal component being anchored. Employ exposed fasteners only where and if specifically approved in writing by the Architect.
C. Form a 1/2-inch hem on underside of exposed edges.
D. Fabricate components to match profiles and details indicated and to ensure permanently leakproof construction. Provide for thermal expansion of sheet metal.

PART 3 EXECUTION
3.01 EXAMINATION
A. Examine substrates and conditions under which products of this section are to be installed and verify that work may properly commence. Do not proceed with the work until unsatisfactory conditions have been fully resolved.
   1. Verify that nailers, blocking, and other attachment provisions for sheet metal work are properly located and securely fastened to resist effects of wind and thermal stresses.

3.02 PREPARATION
A. Coordinate sheet metal roofing with other sheet metal work and substrate construction to provide a complete and permanently water-tight installation.
B. Verify shapes and dimensions of surfaces to be covered before fabricating sheet metal.
C. Clean surfaces to receive sheet metal work. Verify that substrates are smooth and free of protrusions, irregularities, or other defects.
   1. Drive nails or other fasteners flush with substrate.
D. Coat the back side of metal with bituminous coating where it will be in contact with wood, dissimilar metal, or cementitious construction unless surfaces will be separated by self-adhesive underlayment or similar material.

3.03 INSTALLATION
A. Comply with SMACNA recommendations.
B. General:
   1. Fabricate and install work with lines and corners of exposed units true and accurate.
   2. Form exposed faces flat and free of buckles, excessive waves, and avoidable tool marks considering temper and reflectivity of metal.
   3. Provide uniform, neat seams with minimum exposure of solder and sealant.
   4. Fold back sheet metal to form a hem on concealed side of exposed edges.
5. Conceal fasteners and expansion provision where possible in exposed work, and locate so as to minimize possibility of leakage.
6. Cover and seal fasteners and anchors.

3.04 SEAMS AND JOINTS

A. General: Wherever practicable select joints that are permanently, inherently weather-tight and allow for thermal movement, and do not rely on solder or sealant for their integrity. Otherwise, use soldered joints wherever movement is not essential. Avoid the use of sealant joints except where movement must be accommodated.

B. Lapped Seams, Soldered and Riveted: Rivet and solder joints for additional strength where indicated or where recommended by CDA. Ensure that copper is properly prepared to bright metal, and tinned. Form a 1-1/2-inch-wide lap; provide 1 row of tinner's rivets 1/2 inch from edge; pre-punch holes spaced at 2 inches on center; provide a second row of rivets 1/2 inch from opposite edge of lap, staggered with first row. Ensure that copper is properly prepared to bright metal, and tinned. Peen rivets securely against washers. Solder a fully-sweated, water-tight lap.

C. Expansion Provisions: Where lapped or bayonet-type expansion provisions in work cannot be used, or would not be water-and-weather-proof, form expansion joints of intermeshing hooked flanges, not less than 1 inch deep, filled with mastic sealant concealed within joints.

D. Sealant Joints: Where movable, non-expansion-type joints are indicated or required for proper performance of roofing, form sheet metal to provide for proper installation of elastomeric sealant as recommended by referenced standards.

E. Moving Joints:
   1. When ambient temperature is moderate (40-70 degrees F) at time of installation, set joined members for 50 percent movement either way.
   2. Adjust setting position of joined members proportionally for temperatures above 70 degrees F.
   3. Do not install sealant at temperatures below 40 degrees F.
   4. Refer to section on sealants elsewhere in Division 7 for handling and installation requirements for joint sealers.

3.05 CLEANING AND PROTECTION

A. Repair or replace work which is damaged or defaced, as directed by the Architect.
B. Remove from sheet metal surfaces any debris or substances which will inhibit uniform weathering.
C. Protect sheet metal work as recommended by the installer so that completed work will be clean, secured, and without damage at Substantial Completion.

END OF SECTION
SECTION 07 9000 - JOINT SEALERS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Section Includes:
   1. Sealants and joint backing.

B. Work of this section includes:
   1. Sealing of joints indicated in the schedule at the end of this section and in other locations required by the Contract Document.
   2. Seal joints in exterior envelope to prevent the entry or escape of water or air.
   3. Joints of a nature similar to that of joints indicated shall be sealed with same sealer, whether or not specifically indicated on the drawings and schedules to be sealed.

1.02 REFERENCES


1.03 DEFINITIONS

A. M Type Substrates: Cast-in-place concrete, concrete masonry units, clay brick, masonry mortar, natural stone.
B. A Type Substrates: Metals, porcelain, glazed tile, and smooth plastics.

1.04 SUBMITTALS

A. Product Data:
   1. Provide manufacturer's data on each joint sealer indicating sealant chemical characteristics, performance criteria, substrate preparation, limitations, color availability, and installation instructions.
   2. Provide manufacturer's technical guide containing recommendations for primers for each exterior sealant/substrate combination.

B. Samples: Submit two cured samples for each product exposed to view, illustrating full range of sealant colors available for selection.

C. Test Reports:
   1. Field installation test reports for each joint sealer.

D. Installer's Preconstruction Inspection Report: List all conditions detrimental to performance of joint sealer work.

E. Warranty.

1.05 MOCK-UP

A. Before beginning installation, install sealers in joints in actual construction as directed by the Architect, to show color, materials, and installation.

B. Locate where directed.

C. Keep mock-ups intact as the standard for evaluating the completed joint sealer work.

D. Mock-up may remain as part of the Work.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials in original containers or bundles with labels showing manufacturer, product name or designation, color, shelf life, and installation instructions.
1.07 PROJECT SITE CONDITIONS
   A. Environmental Limitations: Do not install sealers if any of the following conditions exist:
      1. Air or substrate temperature exceeds the range recommended by sealer manufacturer or is below
         40 degrees F (4.4 degrees C) or is above 100 degrees F (38 degrees C).
      2. Substrate is wet, damp, or covered with snow, ice, or frost.
      3. Substrate is dusty, oily, or otherwise contaminated.
   B. Dimensional Limitations: Do not install sealers if joint dimensions are less than or greater than
      that recommended by sealer manufacturer; notify the Architect and get joint sealer manufacturer's
      recommendations for alternative procedures.

1.08 WARRANTY
   A. Submit a written warranty signed by the Contractor guaranteeing to correct failures in joint
      sealer work within a five year period after Date of Substantial Completion, without reducing or
      otherwise limiting any other rights to correction which the Owner may have under the contract
      documents. Failure is defined as failure to remain weather-tight due to faulty materials or
      workmanship. Correction is limited to replacement of sealers.

PART 2 PRODUCTS
2.01 SUBSTITUTIONS
   A. Refer to Section 01 6000 - Product Requirements.

2.02 SEALANTS
   A. High Movement Silicone Sealant: One- or two-part, non-acid-curing, ASTM C 920, Grade NS, Class 25,
      Use NT, plus movement capability of 50 percent in extension, 50 percent in compression.
      1. Products:
            (60 g/l), (26 g/l), (32 g/l)

2.03 ACCESSORIES
   A. Primer for Silicone Sealants: Nonstaining type, as recommended by joint sealant manufacturer
      for specific substrates encountered on the project and as verified by testing.
   B. Joint Cleaner: Noncorrosive and nonstaining type, recommended by sealant manufacturer; not
      damaging to substrates, and compatible with joint forming materials.
   C. Backer Rods: Flexible, nonabsorbent, compressible polyethylene foam, either open cell or
      nongassing closed cell, unless otherwise restricted by sealant manufacturer; preformed to
      appropriate size and shape.
   D. Bond-Breaker Tape: Self-adhesive, polyethylene or other plastic tape, unless otherwise
      restricted by sealant manufacturer; suitable for preventing sealant adhesion.
   E. Masking Tape: Nonabsorbent, nonstaining.
   F. Tooling Agents: Approved by sealant manufacturer; nonstaining to sealant and substrate.

2.04 SEALANT COLORS
   A. The Architect will select sealant colors from manufacturer's full range of available colors for
      each respective sealant and adjacent substrate.
   B. Obtain approval of mock-up color before ordering job quantities of sealant.
PART 3  EXECUTION

3.01  EXAMINATION
A. Examine joints for characteristics that may affect sealer performance, including configuration and dimensions.
B. Verify that joint backing and release tapes are compatible with sealant.

3.02  PREPARATION
A. Cleaning: Just before starting sealer installation, clean out joints as follows:
   1. Remove loose materials and foreign matter which might impair adhesion of sealant including, but not limited to, dust, dirt, coatings, paint, oil, and grease.
   2. Dry out damp and wet substrates thoroughly.
   3. Clean A-type and G-type substrates by chemical or other methods that will not damage the substrate.
   4. Remove loose particles by brushing and by blowing with oil-free compressed air.
   5. Concrete: Remove laitance and form-release coatings.
   6. Use methods which will not leave residues that will impair adhesion.
B. Existing Concrete and Masonry Joints to be Resealed: Mechanically abrade the substrate to expose clean, sound substrate that is free of existing sealer residue.
C. Prime joint substrates where required by this specification, manufacturer's recommendations, or adhesion tests.
D. Masking Tape: Use masking tape to keep primers and sealers off of adjacent surfaces which would be damaged by contact or by cleanup. Remove tape at the end of each day.
E. Protect elements surrounding the work of this section from damage or disfigurement.
F. Install fillers where needed to provide proper joint depth or support for sealant backers.
G. Do not begin joint sealer work until unsatisfactory conditions have been corrected.

3.03  INSTALLATION
A. Install sealant free of air pockets, foreign embedded matter, ridges, and sags.
B. Comply with sealer manufacturer's installation instructions and recommendations, except where more restrictive requirements are specified.
C. Gunnable and Pourable Sealants: Comply with recommendations of ASTM C 1193.
D. Backers:
   1. Install backers at depth required to result in shape and depth of installed sealant which allows the most joint movement without failure.
      a. Make backers continuous, without gaps, tears, or punctures.
      b. Do not stretch or twist backers.
   2. Use bond-breaker tape wherever it is necessary to keep sealant from adhering to back or third side of joint.
   3. If backers become wet or damp before installation of sealant, dry out thoroughly before proceeding.
E. Shape and Depth: Use methods recommended by manufacturer; completely fill the joint; make full contact with bond surfaces; tool nonsag sealants to smooth surface eliminating air pockets.
   1. Use concave joint shape shown in Figure 8 in ASTM C 1193, where not otherwise indicated.
2. Depth of sealant at center of joint, unless otherwise required by the Contract Documents or recommended by manufacturer:
   a. For joints up to 1/4 inch (6.4 mm) wide: Depth equal to width.
   b. For joints 1/4 inch to 1/2 inch (13 mm) wide: Depth equal to 1/4 inch.
   c. For joints over 1/2 inch (13 mm) wide: Depth equal to 1/2 the width but not deeper than 1/2 inch.

3. Contact depth: Twice the depth of sealant at center of joint, unless otherwise required.

3.04 CLEANING

   A. Clean adjacent soiled surfaces adjacent to joints as work progresses and before sealants set using methods and materials approved by manufacturers of sealers and of surfaces to be cleaned.

3.05 PROTECTION OF FINISHED WORK

   A. Protect sealants from contamination and damage until cured.
   B. Remove and replace damaged sealers.

3.06 FIELD INSTALLATION TESTS:

   A. Before installation, install samples and test the adhesion of each type of sealers to each type of actual substrates. Do initial field adhesion hand-pull tests in the presence of the sealant manufacturer's representative. Report results.
   B. Field Tests on Installed Sealants: Perform periodic tests for each combination of exterior sealer and substrate.
      1. Perform tests at a rate of ten tests for the first 1,000 feet. Thereafter, for each type of sealant being installed on each substrate perform one test per 2,500 square feet thereafter, or one test per floor per elevation, whichever is greater. Record the test results in a field adhesion test log.
   C. For each type of sealant, obtain specific test procedure and pass/fail criteria from sealant manufacturer.
   D. Field Test as described in ASTM C 1193 Appendix X1.1 - Method A, Field-Applied Sealant Joint Hand Pull Tab:
      1. Seal at least 5 foot (1.5 m) lengths of joints and cure properly.
      2. Perform each test at the job site after the sealant is fully cured.
      3. Make a knife cut horizontally from one side of the joint to the other.
      4. Make two vertical cuts, from the horizontal cut, approximately 3\" (76 mm) long, at both sides of the joint.
      5. Place a 1 inch (25 mm) mark on the sealant tab.
      6. Grasp the 2 inch (51 mm) piece of sealant firmly just beyond the 1 inch (25 mm) mark and pull at a 90 degree angle.
      7. If dissimilar substrates are being sealed, check the adhesion of sealant to each substrate separately. This is accomplished by extending the vertical cut along one side of the joint, checking adhesion to the opposite side, and then repeating for the other side.
      8. Pass criteria: When extended to its rated value, sealant remains intact or sealant tears in cohesion. Fail criteria: Before or at extension to its rated value, sealant releases from either substrate.
      9. Inspect the joints for complete fill. The joints should not have voids, and joint dimensions indicated.
10. Repair the sealant pulled from the test area by applying new sealant to the test area. Care should be taken to ensure that the original sealant surfaces are clean and that the new sealant is in contact with the original sealant.

E. Report results.

3.07 SCHEDULE

A. General:
1. Seal joints in exterior envelope to prevent the entry or escape of water or air.
2. Joints of a nature similar to that of joints indicated shall be sealed with same sealer, whether specifically indicated on the drawings and schedules to be sealed or not.

B. Typical Exterior Joints:
1. Including, but not limited to:
   a. Wall joints.
   b. Exterior joints for which no other sealer is indicated.
2. Use high movement silicone sealant unless otherwise indicated.

C. Metal Flashings:
1. Including, but not limited to:
   a. Joints in flashing, gravel stops, fascia, and coping and between them and adjacent construction.
   b. Where flashing is inserted into reglet in wall, and top edge of surface mounted reglets.
2. Use high movement silicone sealant.

END OF SECTION
SECTION 09 9600 - HIGH PERFORMANCE COATINGS

PART 1 GENERAL

1.01 SUMMARY
   A. Section Includes:
      2. Application of primers, intermediate coats, and top coats for each coating system.

1.02 REFERENCES
   A. Steel Structures Painting Manual, Vol. 2; Systems and Specifications; Steel Structures Painting
      Council (SSPC); 2008 Edition.

1.03 SUBMITTALS
   A. Product Data: Manufacturer's technical data sheets for each coating.
      1. Material analysis including vehicle type and percentage by weight and by volume of
         vehicle, resin, and pigment.
      2. Application instructions including mixing, surface preparation, compatible primers and
         topcoats, recommended wet and dry film thickness, recommended application methods.

1.04 QUALITY ASSURANCE
   A. Installer: A company skilled in the application of special coatings whose installations have
      performed in a satisfactory manner under comparable conditions.
   B. Mock-up:
      1. Metals: Mock up one element of each coating system and color. Apply to mock up
         specified in the respective fabrication section, or if no mock up is specified therein, apply
         to an on-site mock-up as directed by the Architect.
      2. Apply full coating systems, including required textures and colors, to mock-up.
      3. Remove and reapply coatings until texture, color, and gloss are approved by the Architect.
      4. Final approval of colors will be based on mock-up; obtain full job quantities of tinted
         materials only after obtaining final approval.
      5. Apply coatings to mock-ups in locations as directed by the Architect.

1.05 DELIVERY, STORAGE AND HANDLING
   A. Deliver materials in manufacturer's original containers bearing coating name and color,
      material composition data, date of manufacture, legal notices if applicable, and mixing,
      thinning, and application instructions.
   B. Storage:
      1. Store materials in an orderly fashion and in clean, well-closed containers with labels
         intact.
      2. Maintain above 40 degrees F. Do not allow materials to freeze.

1.06 PROJECT CONDITIONS
   A. Apply coatings only under the following environmental conditions:
      1. Air and surface temperatures are between 50 and 120 degrees F, or more restrictive when
         recommended by coatings manufacturer.
      2. Surface temperature is at least 5 degrees F above dew point, or more restrictive when
         recommended by coatings manufacturer.
      3. Relative humidity is less than 85 percent, or more restrictive when recommended by
         coatings manufacturer.
B. Do not apply coatings during inclement weather except within enclosed, conditioned spaces.

1.07 MAINTENANCE STOCK
A. At time of completing application, deliver stock of maintenance material to the Owner.
B. Furnish not less than one properly labeled and sealed gallon can of each type of finish coat of each color, taken from batch mix furnished for the work.

PART 2 PRODUCTS

2.01 SUBSTITUTIONS
A. Refer to Section 01 6000 - Product Requirements.

2.02 MANUFACTURERS
A. Provide all products of this section from a single manufacturer.
B. The brand-name products listed in the schedule at the end of this section and made by the following are the basis of the contract documents.
   1. Tnemec Company, Inc.
   2. Carboline.
   3. PPG Architectural Finishes.
C. Provide the products listed.

PART 3 EXECUTION

3.01 EXAMINATION
A. Verify that surfaces and conditions are ready for work in accordance with the contract documents and coating manufacturer's recommendations.
B. Prior to commencement of work, examine surfaces scheduled to be finished.
   1. Report any unsatisfactory conditions in writing.
   2. Do not proceed with work until unsatisfactory conditions have been corrected in a manner acceptable to the applicator.
   3. Beginning work on an area will be deemed acceptance of surfaces in that area.

3.02 PREPARATION
A. Protect surfaces not scheduled for coating. Clean, repair, or replace to the satisfaction of the Architect any surfaces inadvertently spattered or coated.

3.03 SURFACE PREPARATION
A. General: Clean and prepare surfaces as specified. Achieve the surface profile recommended by the coating manufacturer for optimum adhesion and proper appearance.
B. All Surfaces: Ensure surfaces are clean, dry and free of oil, grease and other contaminants.
C. Ferrous Metal:
   1. Clean and prepare surface profile in accordance with applicable SSPC specifications:
      a. Exterior metal: SSPC-SP 6 Commercial Blast Cleaning,
      b. Exterior metal (field touch-up): SSPC-SP 11 Power Tool Cleaning to Bare Metal.
   2. Before hand or power tool cleaning, remove visible oil, grease, soluble welding residue, and salts by SSPC-SP 1 Solvent Cleaning. After hand or power tool cleaning, reclean surfaces if necessary.
D. Nonferrous Metal: Solvent clean new surfaces in accordance with SSPC-SP 1 Solvent Cleaning specifications. If recommended by coating manufacturer to ensure adhesion, brush
off blast clean in accordance with SSPC-SP 7. Prepare and prime any rusted existing surfaces in accordance with coating manufacturer's instructions. For Tnemec products sand or abrade to remove surface contaminants and generate a surface profile greater than 1 mil.

3.04 MIXING AND THINNING

A. Remove and discard any skin formed on surface of coatings in containers. Discard any containers where skin comprises 2 percent or more of the remaining material.

B. Combine multi-component paints in quantities needed for use within the manufacturer's recommended pot life at the anticipated application temperatures. Discard remaining mixed material after pot life has expired.

C. Do not add thinner except as specifically recommended (not merely permitted) by the coating manufacturer for proper coating application under the circumstances prevailing at the project site when application equipment recommended by the coating manufacturer is employed. Use only the quantities and the types of thinner recommended.

D. Mix materials using mechanical mixers in accordance with coating manufacturer's instructions. Agitate mixed materials during application if recommended by manufacturer.

E. Strain pigmented coatings after mixing except where mechanical application equipment is provided with effective strainers.

3.05 APPLICATION

A. General:
   1. Full, uniform coverage is required.
   2. Employ only application equipment that is clean, properly adjusted, in good working order, and of the type recommended by the coating manufacturer.
   3. Apply successive coats after adequate cure of the preceding coat and within the recommended recoating time.

B. Film Thickness: Apply each coat to achieve the dry film mil (DFM) thickness per coat indicated in the schedule at the end of this section. Application rates of excess thickness and fewer numbers of coats than specified will not be accepted.
   1. The dry film mil thicknesses shown in the schedule are per each coat.
   2. Where a thickness range is specified, the dry film thickness actually applied shall fall within the specified range when measured at any point, and the average dry film thickness actually applied to the entire surface shall be equal to the midpoint of the range specified plus or minus 10 percent.
   3. Where a single thickness value is specified, the dry film thickness actually applied, when measured at any point, shall be equal to the specified value plus or minus 10 percent.

C. Prime, First, or Bottom Coats:
   1. Ferrous and Nonferrous Surfaces:
      a. Unless specifically indicated otherwise (in this section or in the respective metal section of the Specification), the first coat of material may be either shop or field applied.
      b. Shop or field applied coatings, including primers, intermediate coats, and finish coats, shall be as specified in this section. Unless specifically indicated otherwise, fabricator's standard shop coats will not be accepted, and if applied, shall be removed, the surface prepared anew, and the coatings specified herein applied.
      c. Ferrous metals that have not been shop primed shall be field primed promptly after arrival at the site or shall be stored away from the effects of weather.
2. Either before or after applying prime coat but before applying successive coats, stripe paint edges, corners, mechanical fasteners, and welds using specified primer.

3. Before applying successive coats, touch-up connections, fasteners, and damaged areas using specified primer.

4. Where first coat shows signs of suction spots or poorly sealed areas, reapply first coat material to adequately seal surface before proceeding with intermediate and top coats.

D. Miscellaneous:
   1. Completed coatings shall be free of defects such as runs, sags, lap or brush marks, holidays, and skips.
   2. Apply coatings according to the schedule at the end of this section and as otherwise indicated. Coat all similar surfaces not specifically mentioned unless specifically exempted.

E. Apply coatings to match approved mock-ups.

F. Remove coatings not in compliance with this specification, reclean and re-prepare surfaces as specified, and apply coatings to comply with the contract documents.

3.06 FIELD QUALITY CONTROL
   A. Monitor coating thickness to ensure proper dry film thickness, complete coverage without skips, holidays, or pinholes and to obtain complete hiding of undercoats.

3.07 CLEANING
   A. Clean work area on a daily basis; dispose of spent materials and empty containers. If requested, turn over to the Architect all empty coatings containers used during the course of each day.
   B. Remove all trace of coatings inadvertently applied to adjacent surfaces not scheduled to be coated. Remove by appropriate methods that do not damage surfaces.

3.08 PROTECTION
   A. Protect work against damage until fully cured. Provide signs identifying wet surfaces until surfaces are adequately cured.
   B. Shortly before final completion of the project, examine surfaces for damage to coatings and restore coatings to new, undamaged condition.
      1. Touch-up of minor damage will be acceptable where, in the opinion of the Architect, the result is not visibly different from surrounding surfaces. Recoat entire surface where result is different either in color, sheen, or texture.

3.09 PRIMER, INTERMEDIATE, AND TOP COAT COLORS
   A. Top coat colors of manufacturers listed on the Finish Schedule (or elsewhere) indicate the required color, only, and do not indicate the required brand name product, which shall be as specified below.

3.10 SCHEDULE
   A. URETHANE COATINGS ON METALS
      1. System Description:
         a. Epoxy primer.
         b. Epoxy intermediate.
         c. Urethane top coat.
      2. Tnemec:
a. Surface Preparation for Non-Ferrous Metals: Sand or abrade to remove surface contaminants and generate a surface profile greater than one mil.
b. Primer: Series N69 Hi-Build Epoxoline II, DFT 2.0 to 3.0 mils. (285 g/l)
c. Intermediate Coat: Series N69 Hi-Build Epoxoline II, DFT 2.0 to 3.0 mils. (285 g/l)
   1) Series 1074 Endura-Shield II; DFT 2.0 to 3.0 mils. (297 g/l)

3. Carboline:
   a. Wash Primer for Non-Ferrous Metals: Galoseal WB Wash Primer, DFT 0.5 to 1.0 mils. (98 g/l)
   b. Primer: Carboguard 893SG; DFT 3.0 to 5.0 mils. (336 g/l)
   c. Intermediate: Carboguard 893SG; DFT 3.0 to 5.0 mils. (336 g/l)

4. PPG:
   a. Wash Primer for Non Ferrous Metals: Poly Clutch Wash Primer 97-687, DFT {___} mils. (728 g/l)
   b. Primer: Pitt-Guard Rapid Coat Epoxy coating 95-245, DFT 2.0 3.0 mils. (263 g/l)
   c. Intermediate Coat: Pitt-Guard Rapid Coat Epoxy coating 95-245, DFT 2.0 3.0 mils. (263 g/l)
   d. Gloss Finish Coat: GUM material designation on finish schedule.
      1) Pitthane Ultra Gloss Urethane 95-812, DFT 2.0 to 3.0 mils. (241 g/l)

END OF SECTION