



PROJECT MANUAL

FOR

EXTERIOR WALL RESTORATION

SANITATION ENGINEERING / BUILDING REGULATIONS

1111 SOUTH McCORD ROAD

HOLLAND, OHIO 43528

LUCAS COUNTY FACILITIES

ONE GOVERNMENT CENTER – SUITE 800

TOLEDO, OHIO 43604

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Total Building Envelope Management Solution SM

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PROJECT NO. 5310.RST3

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SECTION 00010

TABLE OF CONTENTS

00001	Title Page
00010	Table of Contents

DIVISION 01 - GENERAL REQUIREMENTS

01100	Summary of Work
01230	Alternates
01270	Unit Prices
01290	Payment Procedures
01310	Project Meetings
01330	Submittal Procedures
01430	Quality Assurance
01500	Temporary Facilities and Controls
01630	Product Substitution Procedures
01660	Product Storage and Handling Requirements
01780	Project Closeout and Warranties
01785	Operating and Maintenance Data

DIVISION 02 - SITE CONSTRUCTION

02220	Selective Demolition
02900	Landscaping

DIVISION 04 – MASONRY

04900	Masonry Repair and Restoration
-------	--------------------------------

DIVISION 06 - WOOD AND PLASTICS

06100	Rough Carpentry
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DIVISION 07 - THERMAL AND MOISTURE PROTECTION

07245	Exterior Insulation & Finish Systems (EIFS) Restoration
07625	Metal Flashing and Trim
07790	Fastening Systems
07920	Joint Sealants

DIVISION 09 – FINISHES

09960	High Performance Coatings
09965	Elastomeric Coatings

LIST OF DRAWINGS AND DETAILS

Drawing #	Title
E-1	Partial South Elevation
E-2	Partial South Elevation
E-3	East Elevation
E-4	Partial North Elevation
E-5	Partial North Elevation
E-6	Partial West Elevation
E-7	Partial Roof Level Elevation

E-8 Partial Roof Level Elevation

Detail #	Title
D-1	Concrete Masonry Unit (CMU) Replacement
D-2	Typical Tuckpointing
D-3	Typical Sealant Joint
D-4	Typical EIFS Puncture Repair
D-5	Standing Seam Coping
D-6	Two Piece Metal Coping Termination
D-7	Alternate: Through-wall Flashing at Building Addition Construction
D-8	Alternate: Through-wall Flashing at Original Building Construction

END OF SECTION

SECTION 01100

SUMMARY OF WORK

PART 1 – GENERAL

1.01 LOCATION OF WORK

A. Work to be performed at:

**Sanitation Engineering / Building Regulations Building
1111 South McCord Road
Holland, OH 43528**

1.02 WORK SUMMARY

- A. This summary presents a general overview and should not be construed as a complete accounting of all work to be performed. The extent of the Work is indicated on the Drawings and by the requirements of each specification Section.
- B. The Contractor shall be responsible for ensuring that interior finishes, carpeting, furnishings, merchandise and/or equipment in the building are adequately protected from debris and water leaks throughout the duration of the project.
- C. Furnish all labor, trades, equipment, materials, incidentals, and supervision to repair and provide a complete weathertight restoration of the exterior facility walls. A summary of the specified Work is presented in this Section.
- D. Base Scope of Work
1. General
 - a. Provide all permits, staging / wall access, temporary protection, barricading, supervision, temporary facilities, warranties / guarantees, etc. as required to complete the work.
 - b. Field measure quantities for all Base Scope of Work items.
 2. EIFS
 - a. Repair all damage and deterioration in existing EIFS system. Work includes patching delaminated coating, repairing puncture damage, treating cracks, and sealant replacement. Reference Section 07245 – Exterior Insulation & Finish System Restoration
 3. Sheet Metal Flashings
 - a. Provide all new sheet metal coping at parapet walls. Work includes removal of existing sheet metal coping and installation of flashing membrane prior to coping installation. Reference Section 07625 – Metal Flashing and Trim.
 4. Joint Sealants
 - a. Remove all existing and provide new sealant at EIFS exterior joints. Typical joints include; control/expansion joints, wall openings/penetrations, building material interfaces. Work includes cutting EIFS joints where required, removing existing sealant/backing materials, cleaning, and properly preparing joints prior to sealant application. Reference Section 07920 – Joint Sealants.
 5. Sealers/Coatings

- a. Provide all new elastomeric coating to EIFS. Work includes cleaning, properly preparing surfaces and applying elastomeric coating in accordance with the manufacturer's instructions. Reference Section 09965 – Elastomeric Coatings.
6. Warranties
 - a. Provide a written five (5) year contractor's warranty against defective materials, defective workmanship, and water leakage. Warranty shall cover 100% replacement of the completed work as required to maintain the building exterior in a sound and weathertight condition.
 - b. Provide specified manufacturer warranties against defective materials, and against water leakage. Warranties/guarantees shall cover 100% replacement of the completed work as required to maintain the building exterior in a sound and weathertight condition during the warranty period. Reference Section 01780 – Project Closeout and Warranties.
 - c. Perform warranty Work as required following Consultant's 12 month warranty audits after project completion. Reference Section 01430 – Quality Assurance.
 - d. The Contractor is responsible for contacting the Consultant's office daily. Call StructureTec at (800) 745-7832 ext. 373 before proceeding with daily work. Reference Section 01430 – Quality Assurance.

1.03 ALTERNATES

A. Alternate No. 1

1. Masonry Restoration
 - a. Remove and replace existing distressed and deteriorated masonry. Reference Section 04900 – Masonry Repair and Restoration.
 - b. Cut and tuckpoint damaged and deteriorated mortar joints. Work includes saw-cutting existing joints, providing new pointing mortar. Reference Section 04900 – Masonry Repair and Restoration.
 - c. Quantities to be included in the Alternate Bid are as following:
 - 1) Masonry replacement: 30 units. Note that this does not include the quantities required to provide through-wall flashing.
 - 2) Tuckpointing: 2,800 lineal feet.
2. Steel Coating Restoration
 - a. Provide restoration and reconditioning of exposed steel components at overhead door jambs, window lintels, and exterior man doors. Work includes thoroughly cleaning exposed steel to remove rust, chipped / failing paint, and reconditioning steel with primer and protective coating. Reference Section 09960 – High Performance Coatings.
 - b. Quantities to be included in the Alternate Bid are as following:
 - 1) Steel Coating: 650 square feet.
3. Sheet Metal Flashings
 - a. Provide new sheet metal through-wall flashings in the existing exterior brick veneer at window shelf angle locations. Work includes removing several courses of brick above the flashing location, reconditioning underlying support steel, installing new sheet metal flashings including a flexible sheet counterflashing. Reference Section 07625 – Metal Flashing and Trim.
 - b. Quantities to be included in the Alternate Bid are as following:
 - 1) Through-wall window flashing: 150 lineal feet
4. Joint Sealants

- a. Remove all existing and provide new sealant at all exterior joints. Typical joints include; control/expansion joints, steel shelf angle/lintel joints, wall openings/penetrations, window/door perimeters, building material interfaces, and joints at grade. Work includes saw-cutting masonry joints where required, removing existing sealant/backing materials, cleaning, and properly preparing joints prior to sealant application. Reference Section 07920 – Joint Sealants.
 - b. Quantities to be included in the Base Bid are as following:
 - 1) Control/expansion joints, window/door perimeter, and building interface joint sealant: 1,700 lineal feet
 - 2) Joints at grade: 300 lineal feet
5. Cleaning
- a. Provide thorough restoration cleaning of all exterior masonry wall surfaces. Work includes implementing preparatory treatment of stained/discolored surfaces for effective cleaning procedures. Reference Section 04900 – Masonry Repair and Restoration.
6. Sealers/Coatings
- a. Provide a new elastomeric coating to all masonry surfaces. Work includes cleaning, properly preparing surfaces and applying elastomeric coating in accordance with the manufacturer's instructions. Reference Section 09965 – Elastomeric Coatings.
7. Warranties
- a. Provide a written five (5) year contractor's warranty against defective materials, defective workmanship, and water leakage. Warranty shall cover 100% replacement of the completed work as required to maintain the building exterior in a sound and weather-tight condition.
 - b. Provide specified manufacturer warranties against defective materials, and against water leakage. Warranties/guarantees shall cover 100% replacement of the completed work as required to maintain the building exterior in a sound and weather-tight condition during the warranty period. Reference Section 01780 – Project Closeout and Warranties.
 - c. Perform warranty Work as required following Consultant's 12 month warranty audits after project completion. Reference Section 01430 – Quality Assurance.
 - d. The Contractor is responsible for contacting the Consultant's office daily. Call StructureTec at (800) 745-7832 ext. 373 before proceeding with daily work. Reference Section 01430 – Quality Assurance.

PART 2 – PRODUCTS

2.01 NOT USED

PART 3 – EXECUTION

3.01 NOT USED

END OF SECTION

SECTION 01230

ALTERNATES

PART 1 – GENERAL

1.01 SUMMARY

- A. This Section specifies administrative and procedural requirements for Alternates.
- B. An Alternate Work Item is an amount proposed by bidders and stated on the Bid Form for certain construction activities defined in the Bidding Requirements that may be added to or deducted from Base Bid amount if the Owner decides to accept a corresponding change in either the amount of construction to be completed, or in methods described in Contract Documents.
- C. The Owner reserves the right to reject all Alternates or accept Alternates in any order or combination and to determine the low bidder for each classification of Work on the basis of the sum of the Base Bid and the Alternates accepted.

1.02 COORDINATION

- A. The Contractor shall coordinate related Work and modify or adjust Work as necessary to ensure that Work affected by each accepted Alternate is complete and fully integrated into the project.

1.03 NOTIFICATION

- A. Immediately following the award of the Contract, the Contractor shall prepare and distribute to each party involved: (1) notification of the status of each Alternate; (2) indication of whether Alternates have been accepted, rejected or deferred for consideration at a later date; and (3) a complete description of negotiated modifications to Alternates.

1.04 SCHEDULE

- A. "Schedule of Alternates" is included at the end of Section 01100. Refer to individual specification sections for materials and methods necessary to achieve the Work described under each Alternate.
- B. Include as part of each Alternate miscellaneous devices, accessory objects and similar items incidental to or required for a complete installation whether or not mentioned as part of the Alternate.

PART 2 – PRODUCTS

2.01 NOT USED

PART 3 – EXECUTION

3.01 NOT USED

END OF SECTION

SECTION 01270

UNIT PRICES

PART 1 – GENERAL

1.01 PROJECT PRICING

- A. Bidder shall complete the Bid Form, including all requested information.
- B. Project pricing is a combination of lump sum work items and unit price work items.

1.02 UNIT PRICES

- A. Bidders shall submit unit prices for each unit price item listed in the Bid Form. The amount of each unit price shall be stipulated in the space provided in the Bid Form.
- B. Unit prices shall be stated in the Contractor's proposal as to the amount to be added or deducted from the base as specified, including labor, material overhead, profit and taxes.

1.03 UNIT PRICE QUANTITY MEASUREMENT

- A. The Bidding Contractors shall be solely responsible for the accuracy of all measurements and for estimating the material quantities required to satisfy these Specifications.
- B. The Owner reserves the right to reject the Contractor's measurement of work-in-place that involves use of established unit prices, and to have this Work measured by an independent surveyor acceptable to the Contractor at the Owner's expense.
- C. Contractor shall maintain plan drawings locating all unit price repairs performed. Location and size of repairs/corrections must be located on clean drawings. Separate drawings shall be maintained for each level and building. Contractor shall submit copy of drawing identifying current quantities with each payment request. Work being invoiced must be properly identified. These drawings shall be incorporated into "As Built" set required per Division 01.
- D. Quantity measurements shall be performed as described in Specification or shown on Drawings.

PART 2 – PRODUCTS

2.01 NOT USED

PART 3 – EXECUTION

3.01 NOT USED

END OF SECTION

SECTION 01290

PAYMENT PROCEDURES

PART 1 – GENERAL

1.01 APPLICATION FOR PAYMENT

- A. The form of Application for Payment shall be notarized AIA Document G702, "Application and Certification for Payment", supported by AIA Document G703, Continuation Sheet.
- B. Submit three executed copies of each Application for Payment to the Consultant. One copy shall be complete, including waivers of lien and similar attachments, when required.
- C. Administrative actions and submittals that must precede or coincide with submittal of the first Application for Payment include the following:
 - 1. List of subcontractors
 - 2. List of principal suppliers and fabricators
 - 3. Schedule of Values
 - 4. Contractor's Construction Schedule (preliminary, if not final)
 - 5. Schedule of principal products
 - 6. Submittal Schedule (preliminary, if not final)
 - 7. List of Contractor's staff assignments
 - 8. List of Contractor's principal consultants
 - 9. Copies of permits
 - 10. Copies of authorizations and licenses from governing authorities for performance of the Work
 - 11. Initial progress report
 - 12. Certificates of insurance and insurance policies
 - 13. Performance and payment bonds (if required)
 - 14. Data needed to acquire Owner's insurance
- D. Progress Payments
 - 1. Work being invoiced must be properly identified.
 - 2. The Contractor shall submit Application for Payment to the Consultant for review and processing:
 - a. For materials delivered to and stored on job site.
 - b. Subsequent monthly payment requests.
 - 3. Contractors shall maintain plan drawing locating repairs performed; location and size of repairs must be located on clean drawing. Contractor shall submit copy of drawing, identifying current quantities with each payment request. Contractor shall procure necessary drawings as specified.
 - 4. Each Application for Payment shall be accompanied by a detailed estimate of the amounts and value of labor expended and materials purchased up to the last day of the preceding month.
 - 5. Such payments shall be viewed by both parties as progress payments and shall not, in any way, relieve the Contractor of performance obligations under this contract, nor

shall such payments be viewed as approval or acceptance of work performed under this contract.

6. The Owner reserves the right to retain ten (10) percent of the Contract amount until final project completion.

E. Final Payment

1. Administrative actions and submittals that must precede or coincide with the final submittal for Application of Payment include the following:
 - a. Final punch list report verifying compliance with provisions of the Specifications.
 - b. Final Waiver of Lien executed by each supplier and subcontractor.
 - c. Final warranty audit following 12 months from the date of acceptance of the Owner. Audit services to be provided by StructureTec. Costs associated with this service shall be included in the Base Bid.
 - d. Warranties/guarantees shall commence upon the date of final punch list verification as found on the Final Construction Review Punch List.
2. Application for Payment shall reflect adjustments and previous progress payments.

PART 2 – PRODUCTS

2.01 NOT USED

PART 3 – EXECUTION

3.01 NOT USED

END OF SECTION

SECTION 01310
PROJECT MEETINGS

PART 1 – GENERAL

1.01 DESCRIPTION

A. Work Included:

1. The Consultant will conduct project meetings throughout the construction period to enable review during progress of the Work, and to provide for systematic discussion of problems.

1.02 REPRESENTATION

- A. Each Contractor and major subcontractor shall be represented at every meeting by a responsible member of their organization.

1.03 SUBMITTALS

- A. The proceedings of these meetings will be recorded by the Consultant, and each required representative at meetings will be furnished one copy in addition to the Owner.
- B. The Consultant will conduct meetings, record notes, and distribute meeting minutes on behalf of the Owner. This, however, shall not be construed as coordinating or scheduling Contractor's Work.

1.04 DECISIONS/INTERPRETATIONS

- A. All decisions and interpretations given by the Consultant at project meetings, upon confirmation by the Owner, shall be final on each Contractor affected.

PART 2 – PRODUCTS

2.01 NOT USED

PART 3 – EXECUTION

3.01 MEETING SCHEDULE/DATE AND TIME/LOCATION

- A. Meeting schedule will be as agreed to by the Owner and Contractors at preconstruction meeting.
- B. If a change in meeting date/time is required due to causes beyond control of the Owner, all concerned parties will be advised in advance of such change.
- C. To the maximum extent practical, meetings will be held at the job site.

3.02 PRECONSTRUCTION MEETING

- A. Meeting will be scheduled within fourteen (14) days after a Notice to Proceed has been issued. The Owner will advise other interested parties and request their attendance.
- B. Minimum Agenda
 - 1. Organizational arrangement of Contractor's forces and personnel and those of subcontractors, materials suppliers, and the Owner.
 - 2. Channels and procedures for communications.
 - 3. Construction schedule, including sequence of critical Work.
 - 4. Contract Documents, including distribution of required copies of original documents and revisions.
 - 5. Processing of shop drawings and other data submitted to the Consultant for review.
 - 6. Rules and regulations governing performance of the Work.
 - 7. Procedures for safety and first aid, security, quality control, housekeeping, and other related matters.
 - 8. Scheduling of project meetings.
 - 9. Project record documents (as built).
 - 10. Shop drawings.

3.03 PROJECT MEETINGS

- A. Attendance
 - 1. To the maximum extent practical, the Contractor and major subcontractors shall assign the same person or persons to be present as representatives at project meetings throughout progress of the Work. Subcontractors, material suppliers, and others may be invited to attend those project meetings in which their aspects of the Work are involved.
- B. Minimum Agenda
 - 1. Review, revise as necessary, and approve minutes of previous meeting.
 - 2. Review progress of the Work since last meeting, including status of submittals for approval.
 - 3. Identify concerns and review quality control/assurances of Work in progress and Work completed.
 - 4. Identify problems which may impede planned progress.
 - 5. Processing of field decisions and change orders.
 - 6. Develop corrective measures and procedures to maintain/regain planned schedule.
 - 7. Complete other current business.

END OF SECTION

SECTION 01330

SUBMITTAL PROCEDURES

PART 1 – GENERAL

1.01 SCHEDULE

- A. Contractor shall prepare an estimated progress schedule and submit it to the Consultant for review.
- B. Contractor shall provide a separate schedule form for each major subcontractor.

1.02 ADMINISTRATIVE PROCEDURES

- A. Contractor shall submit to the Consultant the required administrative submittals as specified on the provided checklist, and required product submittals as specified in each product section.
- B. Where the phrase, "or equal" or "or equal as approved by the Owner" occurs in the Contract Documents, Contractor shall not assume materials, equipment, or methods will be approved as equal unless the item has been approved for this work by the Consultant and the Owner.
- C. Contractor shall not substitute materials, equipment, or methods unless such substitution has been approved for this work by the Consultant and the Owner. The decision of the Owner shall be final.

1.03 CONTRACTOR'S RESPONSIBILITIES

- A. Review shop drawings, project data and samples and affix Contractor's stamp prior to submission to the Consultant.
- B. Verify:
 - 1. Field dimensions.
 - 2. Catalog numbers, quantities and similar data.
- C. Contractor's responsibility for errors and omissions in submittals is not relieved by Consultant's review of submittals.
- D. Contractor's responsibility for deviations in submittals from requirements of Contract Documents is not relieved by Consultant's review of submittals, unless Consultant gives written acceptance of specific deviations.
- E. Contractor shall notify Consultant in writing at the time of submission of deviations in submittals from requirements of Contract Documents.

1.04 SUBMISSION REQUIREMENTS

- A. Contractor shall provide a minimum of two originals of all submittals.

- B. Bid submittals are submittals that shall be provided by the Contractor prior to Owner acceptance of Bid and shall include:
 - 1. Certificates of insurance and insurance policies.

- C. Pre-construction submittals are submittals that shall be provided by the Contractor to the Consultant for review and approval prior to the pre-construction meeting. These items shall include, but are not limited to:
 - 1. List of subcontractors.
 - 2. List of principal suppliers and fabricators.
 - 3. Schedule of values.
 - 4. Contractor's construction schedule (preliminary, if not final).
 - 5. Schedule of principal products, along with material information.
 - 6. Manufacturer warranties and Contractor guarantees (including dollar values coverage).
 - 7. Submittal schedule (preliminary, if not final).
 - 8. List of Contractor's staff assignments.
 - 9. List of Contractor's principal consultants.
 - 10. Copies of applicable permits.
 - 11. Copies of authorizations and licenses from governing authorities for performance of the Work.
 - 12. Initial progress report.
 - 13. Certificates of insurance and insurance policies.
 - 14. Performance and payment bonds.
 - 15. Data needed to acquire Owner's insurance.

- D. Each submittal is to contain the following criteria:
 - 1. Field dimensions, clearly defined as such.
 - 2. Specification section number and Article that submittal pertains to.
 - 3. Applicable standards such as ASTM number or Federal specification.
 - 4. A blank space, 3" x 4", for the Consultant's stamp at the lower right-hand corner of drawings, when possible.
 - 5. Identification of deviations from the Contract Documents.
 - 6. Contractor's stamp, initialed or signed, certifying review of submittal, verification of field measurements and compliance with the Contract Documents.

- E. The submission of submittals and samples to the Consultant that have been approved by the Contractor and the review of said submittals and samples by the Consultant shall not constitute submission in writing or approval in writing of any deviation from the requirements of the Contract Documents unless it is brought to the attention of the Consultant that specific changes are being suggested.

- F. Changes to the drawings and specifications by means of submittals become the responsibility of the party initiating such changes.

- G. No delay or omission to exercise any right or remedy accruing to the Consultant upon any breach or event of default of the Contractor shall impair any such right or remedy or be construed to be a waiver of any such breach or default; nor be deemed a waiver of any other, prior, or subsequent breach or default. Any waiver, permit, consent, or

approval on the part of Consultant of any breach or default, or of any provision or condition hereof, must be in writing and shall be effective only to the extent that such writing specifically sets forth.

H. Certificates:

1. Any certificate for demonstrating proof of compliance of materials with the requirements of the Contract Documents shall be executed in three copies.
2. Each certificate shall be signed by an authorized officer of the manufacturing company and shall contain:
 - a. Name and address of the Contractor
 - b. Project name
 - c. Location
 - d. Quantity and dates of the tests to which the report applies
3. Certification shall not be construed as relieving Contractor from furnishing satisfactory material. If, after tests are performed on selected samples, the material is found not to meet the specific requirements, the entire order may be rejected.

I. Consultant's Submittal Stamp

1. The Consultant's terminology on the submittal review stamp of "NO EXCEPTION TAKEN" shall mean that the Consultant has reviewed and confirmed the submittal so stamped only for conformance with the design concept of the Project as given in the Contract Documents.
2. The Consultant's terminology on the submittal review stamp of "MAKE CORRECTIONS NOTED" shall mean that the Consultant has reviewed the submittal so stamped, subject to the corrections made on the submittal, only for conformance with the design concept of the Project as given in the Contract Documents. Revision and re-submittal is not required.
3. The Consultant's terminology on the submittal review stamp of "RECEIVED" shall mean that the Consultant acknowledges receipt of the informational submittal (such as MSDS Sheets), but has not performed a formal review for conformance to any requirements or regulations.
4. The Consultant's terminology on the submittal review stamp of "REJECTED" shall mean that the Consultant has reviewed the submittal so stamped only for conformance with the design concept of the Project as given in the Contract Documents, but the submittal does not meet the specified requirements and shall not be included as part of the Project.
5. The Consultant's terminology on the submittal review stamp of "REVISE AND RESUBMIT" shall mean that the Consultant has reviewed the submittal so stamped, subject to the corrections made on the submittals, for conformance with the design concept of the Project as given in the Contract Documents. The Contractor shall make the noted corrections and re-submit to the Consultant.
6. The Consultant's stamp on the submittal shall not imply approval of quantities, dimensions, fabrication processes and techniques of construction, all of which shall remain the responsibility of the Contractor.
7. The Consultant's stamp on a submittal shall not relieve the Contractor from responsibility for errors or omissions in the submittal and shall not imply that the Contractor may proceed in error.

1.05 DISTRIBUTION OF SUBMITTALS AFTER REVIEW

A. Consultant will distribute reviewed copies of shop drawings and project data which carry Consultant's stamp to:

1. Contractor's file
2. Owner
3. Record documents file (Consultant)

B. Contractor will distribute copies of shop drawings and project data which carry Consultant's stamp to:

1. Job site file
2. Subcontractors (as required)
3. Supplier (as required)
4. Fabricator (as required)

1.06 CONSULTANT'S DUTIES

A. Review submittals and transmit to Contractor within 10 working days after receipt of submittals.

PART 2 – PRODUCTS

2.01 NOT USED

PART 3 – EXECUTION

3.01 NOT USED

StructureTec.

REQUIRED ADMINISTRATIVE SUBMITTALS

- Certificate of Liability Insurance
- Hold Harmless Agreement
- Performance & Payment Bonds
- Progress Schedule
- List of Contacts
- AIA G703 Schedule of Values
- Listing of All Products to be Used
- List of Suppliers & Fabricators
- List of Subcontractors
- Shop Drawings

END OF SECTION

SECTION 01430

QUALITY ASSURANCE

PART 1 – GENERAL

1.01 GENERAL

- A. Contractor shall provide a minimum of 48 hours notice of required site reviews to the Consultant to allow scheduling. Unless critical, such reviews shall be scheduled when sufficient areas are prepared to effectively utilize the Consultant's visit.
- B. Contractor shall keep on site at all times the following items:
 - 1. The most recent revision of the Contract Documents, including all changes made by addenda, sketches, bulletins, change orders and approved submittals.
 - 2. Material safety and data sheets

1.02 DAILY CALL-INS/FIELD QUALITY ASSURANCE LINE

- A. Contractor must report in daily all anticipated work activities.
- B. "Call-ins" must be made in the morning of anticipated work, prior to 7:30 am.
- C. Message must be left on the Construction - Field Quality Control Line, number 800.745.7832 extension 373.
- D. Failure to comply with these procedures may result in a "project shutdown" and/or retainage of payment schedule until compliance is satisfied.

1.03 OWNER, CONSULTANT, AND CONTRACTOR

- A. Owner's Representative on Site: The Consultant acts on behalf of the Owner to verify that the Work is completed in accordance with the Contract Documents, and is entitled to conduct reviews of the Contractor's Work and materials and to perform or witness such tests as are specified or directed. In order to avoid conflict of operations or delay in completion of the Work, the Consultant may furnish the Contractor with non-binding recommendations pertaining to the methods, sequencing and priority of the operations or Work, without taking responsibility for the execution or results thereof. Only those modifications of adjustments in the Work that are stipulated by a duly executed change order, change directive, bulletin, or other form of written authorization by the Consultant will be formally recognized and legally binding.
- B. Communication to Owner: All communication from the Contractor to the Owner on Contract matters shall be through the Consultant, except as otherwise specified in writing.
- C. Instructions to Contractor: The Owner will issue all instructions to the Contractor through the Consultant, except as otherwise specified in writing.

- D. Consultant/Contractor Relationship: The Consultant is the Contractor's single point of contact for all submittals and approvals (shop drawings, samples, tests and the like), interpretation of the Contract Documents and changes, and claims of whatever nature. The Consultant will inform the Contractor of all decisions on questions which may arise with respect to specifications, plans, the Contract and the rights of other Contractors and their interface with one another.

1.04 ACCESS TO THE SITE

- A. The Owner, Consultant and their authorized representatives shall have access to the site and to the Work. The Contractor shall facilitate and provide assistance for access by such persons.

1.05 CONSULTANT SITE REVIEWS

A. Materials:

1. A site review will be conducted by the Consultant prior to commencement of any Work to substantiate that all materials conform to the specifications and approved submittal data. Unfit materials will be rejected and conspicuously marked. These materials shall be removed from the job site by the Contractor, who, in turn, shall replace them with acceptable materials in a timely manner and shall not delay the progress of the job.
2. No Work may commence until an acceptable amount of approved materials is at the job site and reviewed by the Consultant.
3. Any indication of an unauthorized substitution of materials will be considered a justifiable cause for rejecting the entire portion of Work relating to said materials.

B. Workmanship:

1. Workmanship will be reviewed by the Consultant to the extent necessary to determine that the Work conforms to the Contract Documents.
2. All reviews by the Consultant will be performed in such manner as not to delay the Work unnecessarily; however, neither the Owner nor the Consultant shall be liable for such delays.
3. Contractor shall, without charge, correct any workmanship found by the Consultant not conforming to the Contract requirements.
4. If Contractor does not promptly correct rejected workmanship, the Owner may: (1), by Contract or otherwise, correct such workmanship and charge the cost thereof to the Contractor or (2) terminate Contractor's right to continue the Work in accordance "General Conditions of the Contract for Construction".

C. Testing:

1. For confirmation purposes and at the discretion of the Consultant, tests in accordance with specific methods will be made by the Consultant during and upon completion of the Work. All material being used is subject to review, testing, or rejection at any time. Copies of all test results will be furnished to the Contractor at their written request. The Contractor shall be responsible for the repair and replacement of any such test areas, after the appropriate testing and observation have been conducted.

2. Contractor shall furnish samples required by the Consultant without charge, provide every facility for the securing of material samples, and provide means and assistance in the verification of all scales, measures and other devices which he operates.
3. Contractor shall notify the Consultant, in writing, when tests by outside testing laboratories are required, giving reasonable notice so that the Consultant may be present at testing. It shall be the obligation of the Contractor to uncover any Work covered prior to required testing at the Contractor's cost and expense due to failure to provide notice and obtain the Consultant's review.
4. The Owner reserves the right to retest all materials which have been tested and accepted at the source of supply after the same have been delivered, prior to incorporation in the Work, and to reject all materials which, when tested, do not meet the requirements of the Contract. Should Owner so elect, Owner may deduct from amounts due to the Contractor the costs of testing materials that do not conform to the Contract Documents.

1.06 PROJECT MANAGEMENT, PROGRESS AND FINAL CONSULTANT REVIEWS

- A. A StructureTec Technical Representative will be on site performing construction review on a consistent basis throughout the course of the project.
- B. Construction review by the StructureTec Technical Representative will be required at the final completion, and remaining "punch list" items will be determined and designated.
- C. While Work is still in progress, it is the Contractor's responsibility to notify StructureTec prior to leaving the job site so that the "punch list" can be implemented and executed on a timely basis.
- D. These procedures will not negate or supersede periodic progress reviews as performed by the designated representatives and/or employees of StructureTec.
- E. In addition, further construction review may be implemented by the Owner, or Owner's Representative, on a discretionary basis, as well as performing a final *StructureScan*™ survey at the project close-out to ensure proper construction and integrity. This contract Work will be handled under separate cover and separate provisions will be made for these additional services by the building Owner and/or Owner's Representative.

1.07 SCHEDULED MAINTENANCE REVIEW AND EVALUATION

- A. A StructureTec Technical Representative will be required to perform:
 1. A visual survey and review of the Project within 90 days of the one-year anniversary of Substantial Completion.
- B. An audit form will be processed and copies will be submitted to the Owner or Owner's Representative and the Contractor for review.
- C. Scheduled maintenance items and/or technical requirements will be determined as follows:
 1. Items covered under manufacturer's/contractor's warranty.
 2. Items to be addressed as required maintenance and/or repair.

D. These requirements are part of the contract provisions and will become part of the Scope of Work for this Project.

PART 2 – PRODUCTS

2.01 NOT USED

PART 3 – EXECUTION

3.01 NOT USED

END OF SECTION

SECTION 01500

TEMPORARY FACILITIES AND CONTROLS

PART 1 – GENERAL

1.01 GENERAL

A. Utilities: All temporary facilities shall be subject to the Owner's approval.

1.02 PROJECT STAGING

A. Staging for the Work shall be an Owner-approved location as designated.

1.03 TEMPORARY ELECTRIC

A. Electrical service may be available at no charge to the Contractor from existing electrical sources. Contractor may obtain temporary power for construction from this source or may use their own generator. Temporary power service shall comply with OSHA standards. The Contractor shall maintain these temporary services in good order throughout the Project until repair Work is complete. All extension cords shall be provided by the contractor or subcontractor requiring the power. All required electrical equipment shall be GFCI protected.

1.04 TEMPORARY WATER

A. Owner may provide for water used for on-site construction purposes. The Contractor shall provide and maintain necessary temporary connections to the source of temporary supply, including necessary safety devices, controls and backflow valves.

B. Provide potable drinking water for construction personnel at all times.

1.05 TEMPORARY SANITARY FACILITIES

A. Contractor shall provide, pay for and maintain sufficient and approved sanitary facilities with weatherproof enclosures. These facilities shall be clean and sanitary at all times, and shall be satisfactory to the local board of health and the Owner.

B. Location shall be approved by the Owner.

1.06 TEMPORARY PARKING

A. Contractor's employee parking, delivery trucks, and other construction vehicle parking shall only be at areas designated by the Owner.

1.07 TEMPORARY FIRE PROTECTION

A. Contractor shall provide adequate fire protection and fire prevention for the Project, and in no case less than that required by applicable city, county, state, and federal regulations.

1.08 FIRST AID

- A. Contractor shall provide a first aid kit with adequate provisions for the materials being used on site.
- B. Contractor shall maintain an envelope to hang above the first aid kit which will contain all of the material safety data sheets for materials being used on this Project.

1.09 SECURITY

- A. Contractor shall be responsible for the security of their work area and equipment.

1.10 DUST AND FUME CONTROL

- A. Contractor shall take all necessary precautions to keep dust confined in the present work area.
- B. Contractor shall be responsible for any damage to vehicles due to the construction.
- C. Contractor shall submit to the Owner, for approval, proposed methods used to contain dust, fumes, and debris in work area.

1.11 ENCLOSURES

- A. Contractor shall furnish, install, and maintain for the duration of construction all required scaffolds, tarpaulins, barricades, canopies, warning signs, steps, bridges, platforms, and other temporary construction necessary for proper completion of the Work in compliance with all safety and other regulations.

1.12 FENCING OF THE CONSTRUCTION AREA

- A. Contractor shall furnish and install temporary fencing compliant with local ordinances and per Owner's requirements around all ground-located equipment and materials.

1.13 PROTECTION OF CONCRETE SIDEWALKS AND ASPHALT PARKING LOTS

- A. Protect all concrete sidewalks and asphalt parking lots at staging locations and areas surrounding the building. Damaged areas shall be replaced or repaired at the Contractor's expense.

1.14 HEATING

- A. Contractor shall provide and maintain all heat needed for proper conduct of all operations included in the Work.

1.15 TELEPHONE/PAGER SERVICE

- A. Contractor shall be responsible to provide telephone service or other acceptable methods of communication services at the Project site.

PART 2 – PRODUCTS

2.01 NOT USED

PART 3 – EXECUTION

3.01 NOT USED

END OF SECTION

SECTION 01630

PRODUCT SUBSTITUTION PROCEDURES

PART 1 – GENERAL

1.01 GENERAL

- A. Whenever the proposal of substitute material, equipment or process is permitted by the specifications, the proposed substitute material, equipment or process shall be submitted in accordance with the General Conditions and subject to requirements of this Section.

1.02 REQUIREMENTS

- A. Consultant shall review the acceptability of the proposed substitute.
- B. The proposal of substitute material, equipment or process will be considered only for one of the following reasons:
1. The manufacture or production of the specified material, equipment, or process has been discontinued.
 2. The specified material, equipment, or process is not available in sufficient quantity or quantities to complete the Work. Failure of the Contractor to award subcontracts in sufficient time or failure of the Contractor and/or the Subcontractor involved to place orders for material, equipment or process so as to insure delivery or execution without delaying the Work shall not establish cause for approval of substitutions.
 3. Delays beyond the control of the Contractor such as, but not limited to, strikes, lockouts, storms, fires or earthquakes, preclude the procurement and delivery of material or equipment for the Project as included in Contractor's proposal.
 4. Availability or an earlier delivery date for proposed substitute will advance the overall progress of the Work.
 5. There will be an improvement in quality or function of the material, equipment or process.
- C. If the Contractor proposes a substitute to the Project, the Contractor must submit a separate request for each product, supported by complete data with drawings and samples as appropriate, including:
1. Comparison of the qualities of the proposed substitution with that specified.
 2. Changes required in other elements of the Work because of substitution.
 3. Affect on the construction schedule.
 4. Cost data comparing the proposed substitution with the product specified.
 5. Any required license fees or royalties.
 6. Availability of maintenance service and source of replacement materials.
- D. Any proposed substitute material, equipment or process shall be subject to the following conditions:
1. Submittal of the proposed substitute material, equipment or process per the General Conditions.

2. Submittal of the request for a substitution early enough to allow ample lead time for the Consultant's review, preparation of the submittals, fabrication and delivery, without delaying the Work.
3. Approval of substitutions by the Consultant and the Owner in the form of a duly executed change order, change directive, bulletin or other form of written authorization.

PART 2 – PRODUCTS

2.01 NOT USED

PART 3 – EXECUTION

3.01 NOT USED

END OF SECTION

SECTION 01660

PRODUCT STORAGE AND HANDLING REQUIREMENTS

PART 1 – GENERAL

1.01 TRANSPORTATION AND HANDLING

- A. Contractor shall arrange deliveries of products in accordance with construction schedules and coordinate to avoid conflict with the Work and conditions at the site.
 - 1. Deliver products in undamaged condition, in manufacturer's original containers or packaging, with identifying labels intact and legible.
 - 2. Upon delivery, inspect shipments to assure compliance with requirements of Contract Documents and approved submittals and that products are protected and undamaged.

1.02 STORAGE AND PROTECTION

- A. Contractor shall arrange storage in a manner to provide easy access for inspection and make periodic inspections of stored products to assure that products are maintained under specified conditions and free from damage or deterioration.
- B. Contractor shall store products in accordance with manufacturer's instructions and as required by the Contract Documents, with seals and labels intact and legible.
 - 1. Store products subject to damage by the elements in weathertight enclosures.
 - 2. Maintain temperature and humidity within the ranges required by manufacturer's instructions.
- C. Where exterior storage is utilized, Contractor shall:
 - 1. Store fabricated products above the ground on blocking skids.
 - 2. Cover products with impervious sheet coverings and provide adequate ventilation to avoid condensation.
- D. Protection after installation
 - 1. Provide coverings to protect installed products from damage from weather, traffic and subsequent construction operations.
 - 2. Remove products when no longer needed.

PART 2 – MATERIALS

2.01 NOT USED

PART 3 – EXECUTION

3.01 NOT USED

END OF SECTION

SECTION 01780

PROJECT CLOSEOUT AND WARRANTIES

PART 1 – GENERAL

1.01 COMPLETION

A. Project Close Out

1. Throughout the progress of the Work, the Contractor shall keep a current, detailed record of changes in the installation of his own work from the conditions, locations, and layout shown on the accompanying drawings or manufacturer details. This information shall be submitted to the Consultant. This requirement does not authorize any deviations without the approval of the Owner or Owner's Representative.
2. When all revisions showing Work as finally installed are made, the field record drawings (as-builts) shall be delivered to the Owner before final payment is made.
3. Submit the following before final payment is made:
 - a. Project record documents
 - b. Guarantees and warranties
 - c. Applicable waivers of lien
 - d. Invoice(s) reflecting adjustments and previous progress payments
 - e. Consent of Surety to Final Payment
 - f. Signed punch list

1.02 CLEANING AND CLOSEOUT

- A. Each contractor or subcontractor, in addition to the responsibilities set forth in the General Conditions, shall keep the premises free from accumulation of waste materials or rubbish caused by their employees or Work.
- B. At the completion of the Project, the Contractor shall restore or replace all property damaged by their Work and remove spots, paint, soil, concrete, writing, droppings, or other foreign material from Work. Remove temporary protection from the Work.
- C. Consultant will issue a punch list, along with a drawing, showing locations of the unacceptable Work items to the Contractor after Substantial Completion of the Project.
- D. Contractor shall be responsible for maintaining work areas in a neat and orderly manner. Upon completion, cleanup shall be performed to the satisfaction of the Owner or Owner's Representative. Contractor shall be responsible for the return of site-exposed surfaces to their original condition prior to the start of the Work.
- E. Contractor shall complete all necessary cleanup within 10 working days after receiving notification of cleanup requirements as outlined in the punch list.

1.03 WARRANTIES

A. Base Bid Warranty

1. Sheet metal, as specified and installed under this specification, shall have a manufacturer's finish warranty for a period of twenty (20) years.
2. Silicone sealants, as specified and installed under this specification, shall be covered under a manufacturer's warranty for a period of twenty (20) years against defective materials.
3. Elastomeric Coatings, as specified and installed under this specification, shall be covered under a manufacturer's warranty for a period of ten (10) years against defective materials.

B. Alternate Bid Warranty

1. Silicone sealants, as specified and installed under this specification, shall be covered under a manufacturer's warranty for a period of twenty (20) years against defective materials.
2. Urethane sealants, as specified and installed under this specification, shall be covered under a manufacturer's warranty for a period of ten (10) years against defective materials.
3. Elastomeric Coatings, as specified and installed under this specification, shall be covered under a manufacturer's warranty for a period of ten (10) years against defective materials.

1.04 GUARANTEES

- A. Work, as specified and completed under this specification, shall be covered under a separate contractor's guarantee for a period of five (5) years.
- B. The guarantee issued by the Contractor must include visual review by the Consultant at approximately the 12 month anniversary of Project completion.
- C. Warranties and guarantees shall commence upon the date of final punch list verification as found on the Final Construction Review Punch List.
- D. Warranties and guarantees are to be furnished by the Contractor and submitted to the Consultant for review at the time of final payment.

PART 2 – PRODUCTS

2.01 NOT USED

PART 3 – EXECUTION

3.01 NOT USED

END OF SECTION

SECTION 01785

OPERATING AND MAINTENANCE DATA

PART 1 – GENERAL

1.01 GENERAL REQUIREMENTS

- A. Compile product data and related information appropriate for the Owner's maintenance and operation of products furnished under the Contract. Prepare maintenance data as specified in this Section and as referenced in other pertinent Sections of the Specifications.
- B. Prepare data in the form of a manual for use by the Owner's personnel.

1.02 CONTENT OF THE MANUAL

- A. Contractor, name or responsible principal, address and telephone number.
- B. A list of each product required to be included, indexed to the content of the volume.
 - 1. List with each product the name, address, and telephone number of:
 - a. Subcontractor or installer
 - b. Maintenance contractor, as appropriate
 - c. Identify the area of responsibility of each
 - d. Local source of supply for products, materials, and replacement
 - 2. Identify each product by product name and other identifying symbols as set forth in Contract Documents.
- C. Product Data
 - 1. Include only those sheets which are pertinent to the specific product.
- D. Drawings
 - 1. Shop drawings
 - 2. As-built drawings, for any details differing than those included in the Contract Documents.
- E. Copy of each warranty, guarantee, bond and service contract issued.
 - 1. Provide information sheet for the Owner's personnel and give:
 - a. Proper procedures in the event of failure.
 - b. Instances which might affect the validity of warranties/guarantees or bonds.

1.03 MANUAL FOR MATERIALS AND FINISHES

- A. Content for architectural products, applied materials and finishes.
 - 1. Manufacturer's data, giving full information on products.
 - 2. Instructions for care and maintenance.

B. Provide complete information for products as specified in each respective Section.

1.04 INSTRUCTIONS TO THE OWNER'S PERSONNEL

A. Prior to final inspection or acceptance, fully instruct the Owner's designated maintenance personnel in the maintenance of each product and system.

PART 2 – PRODUCTS

2.01 NOT USED

PART 3 – EXECUTION

3.01 NOT USED

END OF SECTION

SECTION 02220

SELECTIVE DEMOLITION

PART 1 – GENERAL

1.01 SUMMARY

- A. Provide all labor, materials, equipment, and supervision to demolish, haul and dispose of items in accordance with Specifications and Drawings.
- B. Work of this Section includes the following:
 - 1. Demolition and removal of designated components to complete the specified Work.
 - 2. Provide shoring prior to / during work as required to maintain structural stability.
 - 3. Cutting and alterations for completion of Work.
 - 4. Removing items for reinstallation including exhaust fans.
 - 5. Protecting adjacent areas.
 - 6. Disposal of demolished materials.
 - 7. Contain all dust during cutting and grinding of masonry and concrete materials using dust-collection systems, or other approved means.

1.02 REFERENCES

- A. References are latest editions, unless otherwise indicated.
- B. American National Standards Institute (ANSI):
 - 1. Safety Requirements for Demolition, Document A10.6.
- C. Occupational Safety and Health Administration (OSHA):
 - 1. Construction Safety Act, Part 1926.
- D. National Fire Protection Agency (NFPA):
 - 1. NFPA 241: Standard for Safeguarding Construction, Alteration, and Demolition Operations.
- E. Environmental Protection Agency (EPA) regulations related to construction practices and the scope of work of the project.

1.03 DEFINITIONS

- A. Remove: Detach items from existing construction and legally dispose of them off-site unless indicated to be removed and salvaged.
- B. Remove and Salvage: Detach items from existing construction and save ready for reinstallation.
- C. Existing: Existing items of construction that are not to be removed, salvaged, or recycled.

1.04 PERFORMANCE REQUIREMENTS

- A. The responsibility for planning and the effective implementation of the Work, as well as safety to persons and property, are the responsibility of the Contractor. This responsibility shall not transfer to the Owner, Consultant or governing authorities.
- B. Prior to demolition, examine areas and conditions under which the Work is to occur and notify the Consultant immediately in writing of any conditions detrimental to the proper and timely completion of this Work.
- C. A review of the Contractor's means and methods will be performed by the Owner for general conformance with the requirements of this specification. This review shall not imply agreement by the Owner, Consultant or other governing authorities that the Contractor's planning is appropriate or reasonable.
- D. Review with the Owner and Consultant the proposed types of equipment to be used during the course of the project.
- E. Provide all necessary precautions to prevent unauthorized personnel from entering the job site.
- F. Conduct demolition operations to ensure minimum interference with roads, streets, walks, and other adjacent occupied or used facilities. Do not close or obstruct streets, walks, or other occupied or used facilities without permission from authorities having jurisdiction.
- G. Protect adjoining properties, public thoroughfares, sidewalks, and utilities from damage due to this operation.
- H. Provide all necessary protection to prevent airborne construction material, debris, dust, fumes, etc. from entering occupied spaces (e.g. adjacent building, air intake).
- I. Structural Support Systems: The structure is designed to be self-supporting and stable after it is fully completed. It is the Contractor's responsibility to determine the erection procedures and sequence, and to ensure the safety and stability of the structure and its component parts during the construction process. This includes, but is not limited to, providing and maintaining temporary bracing, shoring, guys or tie downs and all necessary safety and fire-fighting equipment. Temporary elements shall remain in place until all structural components are in place and completed.

1.05 SUBMITTALS

- A. Written plan of the demolition procedures and protection measures with sufficient detail necessary to ensure that the Work can be accomplished in a safe and prudent manner.
- B. Proposed Environmental-Protection, Dust-Control and Noise-Control Measures: Submit statement or drawing that indicates the measures proposed for use, proposed location, and proposed time frame for their operation. Identify options if proposed measures are later determined to be inadequate.

C. Plan of Demolition Activities:

1. Detailed sequence of demolition and removal work, with starting and ending dates for each activity.
2. Interruption of utility services, including any required certificates of severance.
3. Coordination for shutoff, capping, and continuation of utility services.
4. Locations of temporary protection and means of safe egress for building occupants.
5. Proposed method of traffic maintenance and required permits by local governing agencies or authorities.
6. Coordination of Owner's continuing occupancy of adjacent buildings and use of premises.
7. Required permits for transport and disposal of debris.
8. Temporary barricades and shoring plan.

D. Pre-Existing Conditions Report: Written documentation, with associated photographs, of existing conditions of areas / item that are not scheduled to be repaired, adjoining construction, landscaping in the area of work, etc., including finish surfaces, which might be misconstrued as damage caused by the demolition operations. Do not proceed to the work until the report is submitted and approved by the Consultant.

E. Inventory: Submit a list of items that have been removed and salvaged after completing demolition of specified building components.

1.06 QUALITY ASSURANCE

A. Contractor Qualifications: Not less than five (5) current years relevant successful experience with comparable projects and employing personnel skilled in the Work specified in this Section. The skilled person shall have at least five (5) years of experience and shall have successfully completed at least two (2) projects within the past three (3) years involving quantities and complexities similar to those required under this Section.

B. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.

C. Pre-Construction Conference: Conduct conference at Project site to comply with requirements in Section 01310 – Project Meetings. The items of discussion may include, but are not limited to, the following:

1. Inspect and discuss condition of construction to be selectively demolished.
2. Review and finalize demolition schedule and verify availability of demolition personnel, equipment, and facilities needed to make progress and avoid delays.
3. Review requirements of work performed by other trades that rely on substrates exposed by demolition operations.
4. Review and finalize protection requirements.

1.07 PROJECT CONDITIONS

- A. Portions of the building immediately adjacent to selective demolition area will be occupied. Conduct selective demolition so that the Owner's operations will not be disrupted. Provide not less than 72 hours notice to Owner of activities that will affect Owner's operations.
- B. Maintain access to existing walkways, exits, corridors and other adjacent occupied or used facilities. Do not close or obstruct walkways, exits, corridors, or other occupied facilities without written permission from authorities having jurisdiction.
- C. Hazardous Materials: Hazardous materials are not expected to be encountered in Work.
 - 1. If materials suspected of containing hazardous materials are encountered, do not disturb; immediately notify the Owner and Consultant.
 - 2. Hazardous materials will be removed by Owner under separate contract.
- D. Utility Service: Maintain existing utilities in service and protect them against damage during selective demolition operations.
- E. Fire Protection: Maintain fire-protection services during selective demolition operations.

1.08 SEQUENCING & SCHEDULING

- A. Scheduling of the work shall be coordinated with the Owner. Contractor shall be prepared to modify or revise the plan as necessary to accommodate the Owner's requirements. The schedule shall include the number of days that are required for each area of work, coordination and sequencing between demolition and replacement, as well as disposal of materials.

PART 2 – PRODUCTS**2.01 NOT USED****PART 3 – EXECUTION****3.01 EXAMINATION**

- A. Survey existing conditions and correlate with requirements indicated to determine extent of selective demolition.
- B. Inventory and record the condition of items to be removed and salvaged.
- C. Any unanticipated conditions not shown on Drawings or indicated in Specifications are to be reported to the Consultant in writing.

3.02 PREPARATION

- A. Existing Electrical and Mechanical Systems: Temporarily disconnect and remove electrical, plumbing, lightning protection, fire protection lines, etc. as required for Work. This work shall be performed by a licensed Contractor for each trade. Store at Owner's

designated location for later re-installation. Upon re-installation, test systems for proper operation.

- B. Temporary Shoring: Provide and maintain interior and exterior shoring, bracing, or structural support to preserve stability and prevent unexpected movement, settlement, or collapse of construction being selectively demolished. Strengthen or add new supports as required, or as directed by Consultant, during the progress of selective demolition
 - 1. Masonry Openings:
 - a. Up to than 24 inches in height: Provide continuous horizontal members to support the brick masonry remaining above the opening. The horizontal members shall be rigid enough to support the masonry without deflection between vertical members. Provide vertical members of sufficient strength at 24 inches on center maximum spacing.
 - b. Greater than 24 inches in height: Support to be designed by a professional engineer paid by the Contractor, and approved by the Consultant. Do not proceed with the work without review and approval from the Consultant.
 - c. The Contractor shall repair cracked masonry due to inadequate / improper support at no cost to the Owner.
- C. Temporary Enclosures: Erect and maintain weatherproof, smoke tight and dustproof partitions and temporary enclosures to limit dust and dirt migration and to separate areas from fumes and noise. Use fireproof materials for all temporary enclosures.
- D. Temporary Protection: Contractor is responsible for protection and safety in the work area.
 - 1. Protect Work at all times, and protect all adjacent work, materials, landscaping and pavements, by suitable covering or other methods during the progress of the Work
 - 2. Erect, and maintain temporary protection, such as walks, fences, railings, canopies, and covered passageways, including warning signs and lights, where indicated and required by authorities having jurisdiction.
 - 3. Maintain exits at all times from the building(s). Erect protective scaffolding over entrances/exits as required, with a minimum clear height of 6 feet 8 inches.
- E. Where traffic and/or equipment are required over any roofing/waterproofing and concrete paving materials, the Contractor shall provide the following layers of protection:
 - 1. Minimum one inch insulation board directly on the roof/waterproofing surface.
 - 2. Minimum 3/4 inch plywood traffic surface.
 - 3. Care shall be taken to secure the protection layers against blow-off or other related damage.
 - 4. Protection shall extend at least 4 feet from the wall / parapet in the areas of work, and all other areas that may be damaged by construction activities (such as access paths to the work

3.03 DEBRIS CONTROL

- A. At all times, prevent debris and materials from exiting staging equipment and falling to ground or lower roof levels.

- B. Provide netting at interior side of staging basket to contain.
- C. Position staging equipment so that work is conducted between waist and chest height to allow for better control of materials. Over-head work shall not be permitted.
- D. Adhere to Owners safety policy at all times, including personal protection equipment and protection of surrounding persons / property.

3.04 DUST CONTAINMENT

- A. Temporary Enclosures: Erect and maintain weatherproof, smoke tight and dustproof partitions and temporary enclosures to limit dust and dirt migration and to separate areas from fumes and noise. Use fireproof materials for all temporary enclosures.
- B. The Contractor shall contain all dust during saw-cutting of masonry and concrete, and any other materials.
- C. Use dust-free saw-cutting equipment with integrated vacuum systems. Change filters frequently to prevent dust from escaping.
- D. Wet cutting may be considered by the Owner, but must be approved in advance for each location. If wet cutting is used, pre-wet the area to be cut and the entire wall area below. After cutting, thoroughly wash down the entire wall area below to remove all mortar and debris.

3.05 DEMOLITION

- A. Coordinate and execute all demolition to ensure that all reconstruction work can be completed once it is begun.
- B. Demolish and remove existing construction only to the extent required by new construction or as otherwise indicated. Use methods required to complete selective demolition within limitations of governing regulations and as follows:
 - 1. Proceed with selective demolition systematically. Conduct work in an order that avoids transporting removed items and debris through areas of completed Work.
 - 2. Neatly cut openings and holes square and true to dimensions required. Use cutting methods least likely to damage adjoining construction. Whenever possible, use hand tools or small power tools designed for sawing or grinding, to minimize disturbance of adjacent surfaces.
 - 3. Temporarily cover openings at the end of each workday.
 - 4. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
 - 5. Do not use cutting torches until work area is cleared of flammable materials, as approved by the Owner. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting flame-cutting operations. Maintain portable fire-suppression devices during flame-cutting operations, and maintain adequate ventilation when using cutting torches.

- C. Remove and salvage existing items specified or indicated on Drawings.
- D. Remove debris from elevated portions by chute, hoist, or other device that will convey debris to grade level in a controlled descent. All debris must be directly placed into trash receptacles at the elevation the work is being performed, and later transported to the ground elevation under safe controlled conditions.
- E. Close and seal all heating and ventilation ducts as required to prevent contamination and intake of fumes inside the building. Where ducts can not be closed, as determined by the Owner, provide filtering media for duct and fumes.
- F. Protect all glass and metal surfaces in area of Work.
- G. Existing Items to Remain: Protect construction items to remain in place against damage and soiling during selective demolition. When permitted by the Owner, items may be removed to a suitable, protected storage location during selective demolition and then cleaned and reinstalled in their original locations.
- H. Except for items or materials indicated to be salvaged, reinstalled or otherwise indicated to remain the Owners property, demolished materials will become the Contractor's responsibility and will be removed from the Owner's property.

3.06 REPAIRS

- A. General: Promptly repair damage to adjacent construction caused by demolition operations. Provide required repairs due to inadequate protection methods at no cost to the Owner.
- B. Where repairs to existing surfaces are required, provide materials and procedures to match existing construction.
- C. Restore exposed finishes of repaired areas and extend restoration into adjoining construction in a manner that eliminates evidence of remedial and refinishing procedures.

3.07 ADJUSTING AND CLEANING

- A. At the end of each work period, the Contractor shall remove from the premises all rubbish and accumulated materials of any nature not caused by others and shall leave his part of the Work in a clean, orderly and acceptable condition.
- B. Disposal of debris shall be the responsibility of the Contractor.

END OF SECTION

SECTION 02900

LANDSCAPING

PART 1 – GENERAL

1.01 SUMMARY

- A. Provide labor, materials, equipment and supervision as required for removal and replacement of landscaping as specified in this section.
- B. Work of this Section includes the following:
 - 1. Replacement of materials damaged by the contractor during the performance of the Work.

1.02 SUBMITTALS

- A. Product Data
 - 1. Submit data indicating material characteristics, performance criteria, and any limitations.
 - 2. Submit manufacturer's installation instructions indicating preparation, installation or other specific procedures to be followed during installation.

1.03 QUALITY ASSURANCE

- A. Contractor Qualifications: Not less than five (5) current years relevant successful experience with comparable projects and employing personnel skilled in the Work specified in this Section. The skilled person shall have at least five (5) years of experience and shall have successfully completed at least two (2) projects within the past three (3) years involving quantities and complexities similar to those required under this Section
- B. Standards:
 - 1. All plants and planting material shall meet or exceed the specifications of federal, state, and county laws requiring inspection for plant disease and insect control.
 - 2. Quality and size shall conform to the current edition of *Horticultural Standards* for number one grade nursery stock as adopted by the American Association of Nurserymen.
- C. General lawn repair shall be performed by those familiar with the accepted procedures of planting and under the supervision of a qualified planting foreman.

1.04 DELIVERY, STORAGE AND HANDLING

- A. Delivery and Storage:
 - 1. Deliver all items to the job site in their original containers with all labels intact and legible.

2. Use all means necessary to protect plant materials before, during, and after installation and to protect the work and materials of all other trades.
- B. Replacements: In the event of damage, make all repairs and replacements necessary to the approval of the Owner and at no additional cost.

PART 2 – PRODUCTS

2.01 GENERAL

- A. Listed are the products and materials for the specified work. Provide all incidental items and materials required to complete the Work in accordance with these documents.
- B. Protect structures, utilities, roads, trees and vegetation from damages caused by landscaping operations.
- C. Topsoil required to complete the work of planting shall be natural, friable topsoil, characteristic of representative soils in the vicinity that produce heavy growths of crops, grass or other vegetation. All topsoil used for this project shall be without admixtures of subsoil; free from clay lumps, stones, roots, debris and other objects over one inch in diameter.

2.02 SOIL MATERIALS

- A. Top Soil: Fertile, agricultural soil, typical for locality, capable of sustaining vigorous plant growth, taken from drained site; free of subsoil, clay or impurities, plants weeds, and roots; minimum ph value of 4.5 and maximum of 7.0.

2.03 SEED

- A. Premium Grass Seed – mixture of ryegrass, bluegrass, and fine fescue grass seed, or as otherwise directed by the Owner.
- B. Manufacturer – Contractor to submit for review prior to installing.

2.04 FERTILIZER

- A. Fertilizer shall be uniform in composition, free flowing and suitable for application with approved equipment.

PART 3 – EXECUTION

3.01 INSPECTION

- A. Ground preparation shall not be started until all stones, debris, and similar material larger than 1" in diameter have been removed, depressions and ruts filled and the entire area to be seeded and/or sodded has been accepted by the Owner.
- B. The surface shall be worked to depth of not less than 3 inches with a disc, tiller, or other equipment approved by the Owner.

- C. Prepared surfaces that become crusted shall be reworked to an acceptable condition prior to application of landscaping materials.

3.02 PROTECTION OF PERSON AND PROPERTY

A. Protection of Existing Plant Materials

1. Existing trees, shrubs, and plant materials to remain shall be protected by means to meet the satisfaction of the Owner.
2. Damage to above plant material shall be repaired by qualified nurserymen or replaced with Owner approved material.

3.03 SEEDING

- A. General lawn repair shall be performed by those familiar with the accepted procedures of planting and under the supervision of a qualified planting foreman.

B. Preparation for Seeding

1. Prior to, but not in excess of 24 hours before seed is to be placed, the soil surface shall be worked until it is free from debris, washes, gullies, clods and stones and is in satisfactory condition.
2. The surface shall be worked to a depth of not less than 3" with a disc, tiller, or other equipment approved by the Owner.
3. Prepared surfaces that become crusted shall be reworked to an acceptable condition before seeding.
4. Broadcast seed over prepared area per manufacturer's requirements.

C. Application of Starter Fertilizer

1. Commercial starter fertilizer shall be applied in accordance with the State Highway Specifications.

D. Protective Layer and Watering

1. Provide protective layer of straw matting over lawn patch material, installed per manufacturer's recommendation.
2. Water thoroughly seeded area after installation followed by twice a day watering until lawn has been established.

3.04 ADJUSTING AND CLEANING

- A. At the end of each work period, the Contractor shall remove from the premises all rubbish and accumulated materials of any nature not caused by others and shall leave his part of the Work in a clean, orderly and acceptable condition.
- B. Disposal of debris shall be the responsibility of the Contractor.

END OF SECTION

SECTION 04900

MASONRY REPAIR AND RESTORATION

PART 1 – GENERAL

1.01 SUMMARY

- A. Provide labor, materials, equipment, and incidentals required to perform repair and restoration work at exterior masonry walls.
- B. Work for this Section includes the following:
 - 1. Base Bid: Saw-cut reglets for counterflashing closures at EIFS system.
 - 2. Alternate: Removal and replacement of deteriorated masonry units.
 - 3. Alternate: Cutting and tuckpointing of damaged/deficient mortar joints.
 - 4. Alternate: Removal and installation of masonry for provision of through-wall flashings.
 - 5. Alternate: Saw-cut existing expansion joints in masonry wall system to widen joint for sealant installation.
 - 6. Alternate: Restoration cleaning of concrete masonry wall surfaces.
- C. All new materials are to be interfaced with, and integrated into, existing materials to provide completed work that is sound and weather-tight.

1.02 REFERENCES

- A. All standards referenced are latest editions, unless otherwise indicated.
- B. Building Code Requirements for Masonry Structures: ACI 530/ASCE 5/TMS 402
- C. Specifications for Masonry Structures: ACI 530.1/ASCE 6/TMS 602
- D. American Society for Testing and Materials (ASTM)
 - 1. ASTM A 153: Zinc (Hot-Dipped Galvanized) Coatings on Iron and Steel Products.
 - 2. ASTM A 525: Steel Sheet, Zinc Coated, (Galvanized) by the Hot-Dip Process.
 - 3. ASTM C 62: Specification for Building Brick (Solid Masonry Units Made from Clay or Shale).
 - 4. ASTM C 67: Methods for Sampling and Testing Brick and Structural Clay Tile.
 - 5. ASTM C 90: Load Bearing Concrete Masonry Units.
 - 6. ASTM C144: Aggregate for Masonry Mortar.
 - 7. ASTM C 150: Specification for Portland Cement.
 - 8. ASTM C 207: Specification for Hydrated Lime for Masonry Purposes.
 - 9. ASTM C 216: Specification for Facing Brick (Solid Masonry Units Made From Clay or Shale).
 - 10. ASTM C 270: Specification for Mortar for Unit Masonry.
 - 11. ASTM C 387: Packaged, Dry, Combined materials, for Mortar and Concrete.
 - 12. ASTM C 1142: Ready-Mixed Mortar for Unit Masonry.
- E. The Brick Industry Association (BIA): Technical Notes.

F. Indiana Limestone Institute of America Handbook

1.03 SUBMITTALS

- A. Product Data: Submit manufacturer's product literature, performance data, and installation instructions for the specified materials.
- B. Repair Procedures: Submit written procedures for the remedial work including materials, methods, and equipment that will be used.
- C. Samples: Submit for verification purposes the following;
 - 1. Provide at least ten (10) concrete masonry units to be used in replacement areas to illustrate color, texture and extremes of color range.
- D. Hardware List: Submit a complete list of incidental materials to be provided under this Section.

1.04 QUALITY ASSURANCE

- A. Contractor Qualifications: Not less than five (5) current years relevant successful experience with comparable projects and employing personnel skilled in the Work specified in this Section. The skilled person shall have at least five (5) years of experience and shall have successfully completed at least two (2) projects within the past three (3) years involving quantities and complexities similar to those required under this Section
- B. Source of Materials: Obtain materials from a single source for each type required (face brick, cement, sand, etc.) to ensure quality, color, pattern, match, and texture.
- C. Field Sample: Prior to starting full-scale installation of the Work, prepare the following sample applications. Do not proceed with field samples until all materials have been submitted and approved.
 - 1. Clean two (2), 4 ft. by 4 ft. panels, unless otherwise directed by the Consultant, of wall to determine extent of cleaning necessary to remove efflorescence, dirt, plant fungi, etc. from masonry surfaces.
 - a. Repeat, using same or different cleaning methods up to 3 times, until acceptable.
 - 2. Cut and point a 5 ft. by 5 ft. area of wall; cleaned and finished.
 - 3. Rebuild a 5 ft. by 5 ft. area of wall, unless otherwise directed by the Consultant, cleaned and finished.
 - 4. Acceptable field samples, and method of procedure, will become the standard for Work of this Section.
- D. Pre-Installation Conference: Convene prior to commencing work with the Owner and Consultant to discuss sequencing and installation procedures.

1.05 DELIVERY, STORAGE AND HANDLING

- A. Coordinate locations for on-site staging and storage areas with the Owner.

- B. Package and neatly store materials in a manner that prevents surface damage or contamination, distortion, breakage or structural weakening. Replace any damaged materials.

1.06 PROJECT CONDITIONS

- A. Protect elements surrounding the Work from damage or disfiguration.
- B. Immediately remove stains, efflorescence, or other excess resulting from the Work.
- C. Be prepared to immediately protect incomplete installations from damage by inclement weather.
- D. Provide protection at open wall conditions due to delays in fabrication, shipment, and installation of the specified Work.

1.07 WARRANTY

- A. Reference Section 01780 – Project Closeout and Warranties.

PART 2 – PRODUCTS

2.01 GENERAL

- A. Listed are primary products and materials for the specified restoration work. Provide all incidental items and materials required for completion of the Work in accordance with these documents.

2.02 MORTAR

- A. Portland Cement: ASTM C 150, Type I or IA, white or natural color, low alkali (equivalent alkalis less than 0.6 percent). Only one brand and type portland cement shall be used for the Work unless prior written approval is obtained from the Consultant. Brands are subject to approval from the Consultant based on mortar color desired and obtainable by uses of the various brands readily available. Where white cement or nonstaining cement is required, the cement shall have not over 0.03 percent water soluble alkali in accordance with ASTM C 114.
- B. Hydrated Lime: ASTM C 207, Type S.
- C. Mortar Aggregate: ASTM C 144 aggregate to match color and texture in original mortar, with no more than 50 parts per million chloride ions and free of organic contaminants. For joints narrower than 1/4 inch, use aggregate graded with 100 percent passing the No. 8 sieve and 95 percent passing the No. 16 sieve.
- D. Water: Clean, potable, and free from deleterious acids, alkalis or organic materials.

E. ADMIXTURES

1. Admixtures such as air-entraining agents, accelerators, retardants, water repellent agents, antifreeze compounds, and other admixtures shall not be added to mortar unless specified.
2. Do not use admixtures containing more than 0.2% chloride ions.
3. Mortar Pigments: Mortar pigments shall only be used when an acceptable mortar can not be obtained by altering mix proportions and / or material types (such as different color sand and cement). Do not use pigments without written direction from the Consultant. Pigments shall conform to ASTM C 270 and C 979. Integral coloring material shall consist of inert, non-fading, finely ground, alkali-fast mineral oxides, made specifically for cement/lime mortars. Limit coloring additive so as to no exceed 10% of the weight of Portland cement. Do not use carbon black as a coloring additive.

F. MORTAR MIXES

1. Mortar for Concrete Masonry: ASTM C 270, Type S using the Proportion Specification.

2.03 MASONRY UNITS

A. Concrete Masonry Units (CMU):

1. ASTM C 90, Type I, unless otherwise indicated.
2. Size, Texture and Color: To match adjacent, existing masonry units. Provide samples for Owner approval.
3. Properties:
 - a. Compressive Strength: Minimum 1,900 psi; gross area, average of 3 units.
 - b. Water Absorption: Maximum of 13 lb/ft³; average of 3 units.
4. Use: Provide as needed for replacement of existing damaged units.
5. Provide special units for corners and other similar exposed applications.

- B. Common Brick: For fill in work, where not exposed, shall be a sound, hard burned clay or shale brick conforming to ASTM C 62, grade SW, of size to match existing.

2.04 REINFORCEMENT AND ANCHORAGE

- A. All screws, bolts, nuts, washers, rivets, ties, and pins shall be hot-dipped galvanized steel (ASTM A 153, Class B), or Type 304 stainless steel.
- B. Joint Reinforcement: Ladder type; steel wire, hot dip galvanized to ASTM A 641 after fabrication, 3/16 inch side rods and inch cross ties.
- C. Wall Ties: Adjusted wall tie, with formed steel wire, minimum 3/16 inch diameter hot dip galvanized to ASTM A 153 B2 steel finish. Length as required to provide minimum 2 inch embedment in bed joint of outer masonry, and minimum 1/2 inch mortar cover.

2.05 ACCESSORIES

- A. Joint Filler: Closed cell polyethylene oversized 50% to joint width; self-expanding.
- B. Weeps:

1. Type: Preformed rectangular, plastic with intermediate honeycomb design
2. Size: minimum 1-1/2 inches in height, maximum height 1 head joint.
3. Color: As selected by Owner.
4. Acceptable Products:
 - a. #342 Series Rectangular Plastic Weep Holes by Hohmann & Bernard, Inc.
 - b. Quadro-Vent by Hohmann & Bernard, Inc.
 - c. Cell Vents Weep-Hole Ventilator by Dur-O-Wal

2.06 CLEANING MATERIALS

- A. Chemical Cleaning Agent: Mix agents according to manufacturer specifications.
- B. Acceptable Products:
 1. Prosoco Corp. / Enviro Klean EK Restoration Cleaner
 - a. Primary Use: Provide as initial cleaner for stains at masonry.
 2. Prosoco Corp. / Sure Klean 600
 - a. Primary Use: Provide as an initial cleaner at previous mortar and brick replacement area.
 3. Prosoco Corp. / 2010 All Surface Cleaner
 - a. Primary Use: Provide as general cleaner for all exterior building surfaces.

PART 3 – EXECUTION

3.01 GENERAL

- A. Examine each area of work and verify that existing conditions are acceptable for the specified installation procedures. Report, in writing, adverse conditions that could affect the performance of the Work within five calendar days. Absence of written notification will indicate the Contractor's acceptance of existing project conditions.
- B. Measurements: Before ordering materials or performing work, obtain and verify all measurements at the building site. Exact measurements are the Contractor's responsibility.
- C. Masonry workmanship shall comply with all applicable recommendations of the Brick Industry Association (BIA, formerly the Brick Institute of America), the Indiana Limestone Institute of America, and Masonry Structures ACI 530.1, except as modified below. Report any damage to new or existing flashings within the work area to the consultant, and provide for repairs by appropriately skilled tradesmen, at no cost to the Owner.
- D. Hot weather (above 90°F): Do not use mortar when masonry surface temperature is above 90°F. Protect the masonry and mortar (mixed and individual components) from direct sunlight and exposure to wind, to avoid rapid evaporation of water in the mortar before, during, and after masonry construction. Mixed mortar must remain below 120°F. When temperature is above 100°F or 90°F with winds, mist newly constructed masonry until damp, at least three (3) times a day, for at least three (3) days.
- E. Cold Weather (below 40°F): Do not work in average daily temperatures below 40°F without providing cold weather protection as described in ACI 530 and outlined in the table below. Continue to operate heaters overnight with appropriate supervision. Do not

use heaters that produce oily deposits on the masonry. If any oily deposits occur, consult with the Engineer to determine how best to remove oily deposits, and remove at the Contractor's expense.

Temp.	<u>WORK IN PROGRESS</u>			<u>COMPLETED WORK</u>
	Brick	Mortar	Assemblage	Assemblage
Above 40°F	No Requirements.	No Requirements.	No Requirements.	No Requirements.
40°F to 25°F	Remove visible ice.	Heat during mixing to between 40°F and 120°F. Maintain above freezing while in use.	No Requirements.	Protect masonry with a weather-resistive cover for 24 hours after construction. Completely cover masonry when temp. is less than 32°F.
25°F to 20°F	Remove visible ice.	Heat during mixing to between 40°F and 120°F. Maintain above freezing while in use.	Use heat sources on both sides of wall. Install wind breaks when velocity is over 15 mph.	Completely cover with insulated blanket for 24 hours after construction.
Below 20°F	Heat to above 20°F; remove visible ice.	Heat during mixing to between 40°F and 120°F. Maintain above freezing while in use.	Provide an enclosure and use heat sources to maintain temp. above 32°F within the enclosure.	Provide an enclosure and use heat sources to maintain temp. above 32°F within the enclosure.

F. Conduct all masonry work in a neat and workmanlike manner, to prevent staining any surface with mortar or other spills. Avoid dropping mortar on completed masonry work or other elements of the building. If mortar drops or spills, spot-clean immediately using a sponge and clean water.

G. Tolerances:

1. External corners and other conspicuous lines and levels: Maximum deviation from plumb or level $\pm 1/4$ inch in any 10 ft section with a maximum cumulative amount of $3/8$ inch in any one direction beyond 10 ft.
2. Variation from Level: Maximum $1/2$ inch in 20 feet, or $3/4$ inch in 40 feet or more.
3. Mortar bed joint thickness: $3/8$ inch or match existing adjacent construction. Maximum deviation $\pm 1/16$ inch
4. Mortar head joint thickness: $3/8$ inch or match existing adjacent construction. Maximum deviation $\pm 1/16$ inch

5. Vertical alignment of the center line of corresponding head joints in alternate courses when using other than stacked bond. Maximum deviation $\pm 1/4$ inch
6. Vertical alignment of the center line of all head joints in total assemblage height when using other than stacked bond. Maximum deviation ± 1 inch

H. Preparation:

1. Clean masonry surfaces of any loose or deleterious material which could prevent adhesion or otherwise impair performance of installed materials.
2. Carefully remove and store exhaust fans and other fixtures.

I. Manufacturer's Recommendations: Comply with the manufacturer's written approved installation instructions and with any governing regulations and industry standards applicable to the work.

3.02 MORTAR MIXING

A. Thoroughly mix mortar ingredients in accordance with ASTM C 270 in quantities needed for immediate use.

B. Measure cementitious and aggregate material in a dry condition by volume. Do not measure by shovel; use a known volume measure (i.e. box or bucket).

C. Maintain sand uniformly damp immediately before the mixing process.

D. Do not use anti-freeze compounds to lower the freezing point of mortar.

E. Mortar Mixing Procedure:

1. General

- a. Mix all cementitious materials and aggregates between 3 and 5 minutes in a mechanical batch mixer with a sufficient amount of water to produce a workable consistency.
- b. Unless acceptable, do not hand mix mortar.
- c. Maintain workability by remixing or retempering. Discard all mortar which has begun to stiffen or is not used within 2-1/2 hours after initial mixing.

2. Tuckpointing

- a. Prehydrate to reduce excess shrinkage.
- b. Mix materials in a clean mechanical batch mixer.
- c. Add only enough clean water to produce a consistency which will retain its shape when formed into a ball.
- d. Allow mortar to stand in this dampened condition for approximately 30 to 45 minutes.
 - 1) Add the balance of the mixing water to bring mortar to the proper workable consistency (somewhat drier than conventional masonry mortars).
 - 2) Use mortar within 30 minutes of final mixing; do not retemper or use partially hardened material. Discard any mortar not used within the 30 minutes.

3.03 MASONRY UNITS

A. General:

1. Remove existing masonry, as required to complete the Work. Prior to starting Work, verify locations with the Owner.
2. Construction Tolerances, Corners, and Recess: Match existing wall conditions.
3. Provide shoring and support, as required, prior to removing existing masonry units.
4. Saw cut mortar joints of masonry units from existing walls with motor-driven saw designed to cut masonry with clean, sharp, unchipped edges; only after test cuts determine no damage to masonry units will result.
5. Cut new masonry units as required to fit adjoining work neatly.
6. Use full units without cutting wherever possible.
7. Avoid the use of less-than-half-size units at corners, jambs, and at other locations.
8. Install masonry work to match and align with existing, with joints and coursing true and level, faces plumb and in line.
9. Pre-wet masonry units, as needed, in accordance with ACI 530.
10. Recondition existing support steel prior to installing new units, in accordance with Section 09900.

B. Mortar Bedding and Jointing:

1. Provide new wire ties to replace damaged ties.
2. Lay new units with completely filled bed and head joints. Butter ends with sufficient mortar to fill head joints and lay into place. Do not slush head joints. Tooth new units into existing masonry work, to match existing bonding patterns.
3. Spaces between masonry units and backup materials are to remain free and clear of mortar.
4. Tuckpoint head joints and top joints where new work adjoins existing masonry work in accordance with this Section.
5. Joint Widths: To match existing.
6. Exposed Joints: Prior to initial set, and when "thumbprint" hard, tool mortar joints to match existing brickwork mortar. At caulked joints, rake out mortar to the required depth to be finished with sealant.
7. Concealed Joints: Cut flush joints in surfaces to be concealed or covered by other construction.
8. Collar joints: At existing collar joints, reconstruct after each course of new masonry is laid, filling the vertical joint between wythes solid with mortar.

C. Establish lines, levels, and coursing indicated. Protect from displacement.

D. Maintain masonry courses to uniform dimension. Form vertical and horizontal joints of uniform thickness.

E. Concrete Masonry Units (CMU):

1. Bond: Running.
2. Mortar Joints: Concave.

F. PLACING AND BONDING

1. Lay hollow masonry units with full bedding on head and bed joints.
2. Do not lay mortar bed more than 2 ft ahead of work.

3. Do not furrow bed joints.
4. Completely butter the ends and head of each unit with mortar and shove the unit into place so that mortar squeezes out the top of the head joint and bed joint. Do not slush head joints.
5. At cavity wall sections, cut off and scoop out the mortar that extrudes from bed and head joints on outer and inner faces of the wythe.
6. Do not disturb, tap, shove or push units once they are laid in their final position. Where adjustment must be made, remove mortar and replace.
7. Tooth masonry at intersections and external corners.
8. Perform job site cutting of masonry units with proper masonry saw to provide straight, clean, unchipped edges. Prevent broken masonry unit corner or edges. Do not break masonry units with a hammer.
9. Strike exterior of mortar joints flush during laying. When mortar is thumb print hard on exposed surfaces, tool joints concave with a cylindrical pointing tool slightly larger than the masonry joint to compact the mortar thoroughly.
10. Slightly bevel bed joint mortar away from the cavity space before placing the unit to minimize mortar protrusions into any cavity space intended to be free of mortar. Back parge or strike mortar extrusions in the cavity space.
11. Above flashing, provide weeps at every third head joints.
12. Isolate top joint of masonry walls from horizontal structural framing members and slabs or decks with compressible joint filler.

G. WALL CAVITY BEHIND VENEER

1. Do not permit mortar to drop or accumulate into cavity air space or to plug weeps.
2. Provide clean-out every third unit of the bottom course to remove any mortar droppings in the cavity space, clean mortar at openings as necessary prior to the mortar hardening.

H. REINFORCEMENT AND ANCHORAGE

1. General: All masonry reinforcement and anchors should be completely bedded in mortar. Direct masonry unit-to-anchor contact is not permitted.
2. Install horizontal joint reinforcement 16 inches on center.
3. Place masonry joint reinforcement in first and second horizontal joint above and below openings. Extend minimum 16 inches each side of opening.
4. Place joint reinforcement continuous in first and second joint below top of walls.
5. Lap joint reinforcement ends minimum 6 inches.
6. Install wall ties in masonry back-up for bonding veneer at maximum 16 inches on center vertically and 24 inches on center horizontally. Place at maximum 3 inches on center each way around perimeter of openings, within 12 inches of openings.
7. Reinforce concrete masonry unit joint corners and intersections with strap anchors 16 inches on center.

I. EXPANSION JOINTS

1. Do not continue horizontal joint reinforcement through expansion joints.

2. Construct expansion joints in accordance with Section 07920 – Joint Sealants for proper sealant performance.
3. All expansion joints should be clear, free of mortar and other construction materials.

3.04 REPOINTING EXISTING MASONRY

A. General: Tuckpoint mortar joints containing static cracks, deterioration, holes or voids. New bedding and pointing mortar mix should not have a compressive strength that exceeds existing mortar or masonry materials.

B. Joint Preparation:

1. Clean existing masonry surfaces to remove dirt, efflorescence, plant fungi, etc. prior to tuckpointing work.
2. Rake out mortar from joints to depths equal to 2-1/2 times their widths but not less than 3/4 inch by use of motor driven saw designed to cut masonry with clean, sharp, unchipped edges; only after test cuts determine no damage to masonry units will result.
3. Remove mortar from masonry surfaces within raked-out joints to provide square backs and to expose masonry for contact with pointing mortar. Brush, vacuum, or flush joints to remove dirt and loose debris.
4. Do not spall edges of masonry units or widen joints. Replace any masonry units which become damaged.

C. Joint Pointing:

1. Rinse masonry joint surfaces with water to remove any dust and mortar particles. Time application of rinsing so that, at time of pointing, excess water has evaporated or run off, and joint surfaces are damp but free of standing water.
2. Apply pointing mortar in minimum 2 layers with first layer filling approximately 1/2 of joint depth and second layer the remaining 1/2. Fully compact each layer and allow to become thumbprint hard before applying next layer. Where existing brick have rounded edges recess final layer slightly from face. Take care not to spread mortar over edges onto exposed masonry surfaces, or to featheredge mortar.
3. When mortar is thumbprint hard, tool joints to match original appearance of joints, unless otherwise indicated. Remove excess mortar from edge of joint by brushing. Cure mortar by maintaining in a damp condition for not less than 72 hours. Where repointing work precedes cleaning of existing masonry, allow mortar to cure not less than 14 days before beginning cleaning work.

3.05 MASONRY FLASHINGS

- A. At existing flashing, remove masonry at flashings locations indicated on Drawings as required to complete the work.
- B. Install new flashing system in accordance with Section 07620 – Sheet Metal Flashings and Trim.
- C. Install new masonry units to match and align with existing units, joints and coursing true and level, faces plumb and in plane.

D. Install weeps in veneer at 24 inches o.c. horizontally directly above flashing.

3.06 SAW-CUTTING REGLETS AND EXPANSION JOINTS

A. Perform all saw-cutting of masonry using motor driven saw designed to cut masonry with clean, sharp, unchipped edges. Replace any masonry units which become damaged. Perform test cuts as directed by the Consultant to verify no damage to masonry units will result.

B. After saw-cutting, brush, vacuum, or flush joints to remove dirt and loose debris.

C. At masonry expansion joints less than 3/8 inch wide, saw-cut joints full depth to provide minimum 1/2 inch width.

D. At reglets, saw-cut masonry to receive metal flashing, as indicated on the Drawings.

3.07 MASONRY CLEANING

A. General:

1. Clean existing masonry in areas of repair work to ensure positive mortar bond.
2. Cleaning methods must be sufficiently flexible to permit adjustment of procedures and application speed for maximum effectiveness. Perform small test samples for each type of stain, starting with the least aggressive procedure, to determine effectiveness and prevent substrate damage.
3. Approved cleaning methods consist of water and light abrasion with hand tools. Stains that may require more aggressive cleaning procedures, consisting of power tools or chemicals, must be approved by the Consultant and demonstrated by test samples.
4. When cleaning masonry, mask lower areas as required to prevent loosened stains from soiling other surfaces, or keep the lower areas saturated with water to prevent absorption of dirty run off. Remove all stains as soon as possible. Do not smear wet stains by wiping. Soak up wet stains with absorbent materials (cotton cloths).

B. Saturate masonry, and all other porous materials, with clean water prior to proceeding with cleaning work.

C. Pre-treat heavy stains and efflorescence staining with the least aggressive cleaning material that will remove the staining.

D. After pre-treatment, provide a general cleaning of all masonry areas using a diluted detergent.

E. Provide a complete and thorough wash-down of all masonry, and other wall system components, working from the top down.

F. New Mortar:

1. After new mortar has fully hardened, thoroughly clean exposed masonry surfaces of excess mortar and foreign matter using stiff nylon brushes and clean water that is spray applied at low pressure.
2. Remove surplus mortar from the faces of masonry units at the time joints are struck or tooled. Mortar should be removed while it is still plastic using a clean, wet sponge or scrub brush having stiff bristles.
3. Do not use harsh cleaners, acids, abrasives to clean masonry surfaces. If a chemical cleaning agent is required, obtain initial approval from both the masonry unit manufacturer and Consultant.
4. Final mortar removal is to be accomplished with a clean wet sponge or cloth. Rinse sponges or clothes frequently in clean water to remove abrasive particles. Allow any remaining film on the masonry to dry to a powder.

3.08 FIELD QUALITY CONTROL

- A. Contractor shall maintain or exceed levels of workmanship and material acceptability in regard to surface preparation, cleaning, and coating application as established by mock-up/test samples.
- B. Contractor shall employ trained, skilled and experienced tradesmen for all phases of the Work.
- C. Contractor shall make provision to assist and coordinate monitoring of the Work by the Manufacturer and Owner Representatives.

3.09 ADJUSTING AND CLEANING

- A. Clean site of all unused materials, residues, and waste in accordance with environmental regulations.
- B. Remove and dispose of all materials used to protect surrounding areas and building surfaces, following completion of the Work of this Section.
- C. Repair, restore, or replace all materials, landscaping, interior finishes, and damaged surfaces to the satisfaction of the Owner at no additional expense.

END OF SECTION

SECTION 06100

ROUGH CARPENTRY

PART 1 – GENERAL

1.01 SUMMARY

A. Section includes:

1. Furnish all labor, materials, equipment and supervision to install/replace the following:
 - a. Wood blocking

1.02 REFERENCES

- A. ALSC (American Lumber Standards Committee) - Softwood Lumber Standards.
- B. NFPA (National Forest Products Association).
- C. APA (American Plywood Association)
- D. AWWA (American Wood Preservers Association) C1 – All Timber Products Preservative Treatment by Pressure Process.

1.03 DELIVERY, STORAGE AND HANDLING

- A. Inspect materials delivered to the site for evidence of contact with moisture. Reject delivery of materials with stained or wet wrappers or torn covers. Packaging labels must be readable, identify the material, and indicate conformance with the reference standard applicable to the material.
- B. Store all lumber as follows:
 1. Do not expose materials to moisture of any form.
 2. When out-of-doors, store on clean raised platforms at least four inches above the ground surface.
 3. Completely cover all lumber with weatherproof covers to protect from weather and moisture.
 4. Arrange covers to allow venting; do not allow covers to extend onto the ground. Do not use polyethylene or other non-breathing cover materials.
 5. Factory applied plastic wrap is not an acceptable weatherproof cover. Rooftop storage of lumber is not permitted except for materials intended for installation that same day.

1.04 PROJECT CONDITIONS

- A. Prior to ordering materials, or doing any work, verify at the site all dimensions, details, and conditions which may affect the work. No allowance for additional compensation will be considered for discrepancies between dimensions indicated in the specifications and

drawings and actual field dimensions, or for the Contractor's failure to comply with this requirement.

PART 2 – PRODUCTS

2.01 LUMBER MATERIALS

A. Wood Nailers/Blocking and Curbs

1. Southern Yellow Pine or Hem Fir; No. 2 grade; free from warping and visible decay.

PART 3 – EXECUTION

3.01 CARPENTRY

A. Parapet Walls

1. Replace rotted blocking as required.
2. Mechanically attach new wood blocking where detailed at parapet wall construction.
3. Re-secure existing blocking as required.
4. Wood securement shall be in accordance with FM Loss Prevention Data Bulletin I-49.
5. Fasteners shall be installed in two staggered rows. Spacing in any one row shall not exceed 24 inches. Within eight (8) feet of outside corners spacing shall not exceed 12 inches in any one row.

END OF SECTION

SECTION 07245

EXTERIOR INSULATION & FINISH SYSTEM (EIFS) RESTORATION

PART 1 – GENERAL

1.01 SUMMARY

- A. Furnish all labor, materials, tools and equipment as necessary to perform the required scope of work.
- B. Work for this Section includes the following:
 - 1. Clean existing EIFS.
 - 2. Resurface existing EIFS.
 - 3. Repair surface cracks in EIFS finish coat.
 - 4. Repair cracks through entire EIFS lamina (finish and base coats).
 - 5. Repair puncture/insulation damage in EIFS.
 - 6. Widen and back-wrap existing EIFS panel joints.
 - 7. Prepare EIFS for sealant replacement.

1.02 REFERENCES

- A. References are latest editions, unless otherwise indicated.
- B. American Society for Testing and Materials (ASTM):
 - 1. ASTM C 578: Rigid Cellular Polystyrene Thermal Insulation.
 - 2. ASTM E 84: Test Method for Surface Burning Characteristics of Building Materials.
- C. EIFS Industry Members Association (EIMA): Guideline Specification for Exterior Insulation and Finish Systems, Class PB and Class PM.
- D. National Fire Protection Association (NFPA):
 - 1. NFPA 255: Test of Surface Burning Characteristics of Building Materials.
- E. Underwriters Laboratories, Inc. (UL):
 - 1. UL 723: Tests for Surface Burning Characteristics of Building Materials.

1.03 SUBMITTALS

- A. Product Data: Submit manufacturer's specifications, including individual material data sheets, performance criteria and any limitations, installation instructions, and general recommendations for the EIFS repairs.
- B. Manufacturer's Certification: Provide written certification from EIFS manufacturer attesting that:
 - 1. The proposed materials are recommended for the intended applications and comply with necessary requirements.

2. The installation was accomplished in full compliance with the manufacturer's recommendations.
- C. Shop drawings: Provide shops drawings showing each repair type/condition, including interface with adjacent materials.
- D. Samples: Submit two, 2 x 2 foot size samples illustrating coating color and texture range for approval by the Owner, prior to preparation of the mock-up.
- E. Manufacturer field reports from quality control inspections while the work is in progress. Reference paragraph Quality Assurance in this Section.

1.04 QUALITY ASSURANCE

- A. Contractor Qualifications: Not less than five (5) current years relevant successful experience with comparable projects and employing personnel skilled in the Work specified in this Section. The skilled person shall have at least five (5) years of experience and shall have successfully completed at least two (2) projects within the past three (3) years involving quantities and complexities similar to those required under this Section.
- B. Manufacturer Qualifications: The manufacturer will be a company with at least ten (10) years documented experience and regularly engaged in the manufacturing and marketing of the EIFS products specified in the construction documents.
 1. A manufacturer representative is required to visit the project site while the work is in progress at least 2times during the EIFS work. Following each site visit, the manufacturer representative is required to submit a field report, which shall include date of inspection, weather conditions, area of work at the time of the visit, materials being installed, comments regarding the quality of the work being completed and any previous applications, any system deficiencies observed, and required corrective action by the Contractor (if any).
- C. Source of Materials: Obtain materials from a single source for each type required to ensure quality, color, pattern, match, and texture.
- D. Prior to the application of any coatings, the Consultant's representative must inspect and approve surface preparation. Should any deficiencies be found, the Contractor shall correct prior to the installation of coatings.
- E. Pre-Installation Conference: Convene with the Consultant and Owner's Representative prior to commencing Work of this Section.
- F. Field Samples
 1. Provide field samples of the system materials illustrating cleaning methods recoating methods, resurfacing methods, and repair methods.

2. Construct one (2) field sample; two (2) feet long by two (2) feet wide, including insulation substrate, surface finish, color, texture, perimeter and control joints, and typical interface with adjacent construction.
3. Incorporate accepted field sample as part of Work, unless otherwise directed by the Owner and Consultant.

1.05 DELIVERY, STORAGE AND HANDLING

- A. Deliver materials in the original manufacturer's sealed containers indicating product, batch number and shelf life as applicable. Material Safety Data Sheets for each product shall accompany all shipments.
- B. Store materials in a dry area between 50°F and 85°F. Protect from direct sunlight and freezing by storing in an environment recommended by manufacturer.
- C. Handle all products with appropriate precautions and care as stated in the Material Safety Data Sheets. Coating materials shall be thoroughly agitated as recommended by manufacturer before use.

1.06 PROJECT CONDITIONS

- A. Weather and Substrate Conditions: Do NOT proceed with application of the EIFS materials when:
 1. Ambient temperature is less than 50°F.
 2. Rain or temperatures below 40°F are predicted for a period of 24 hours.
 3. Within three (3) days after surfaces became wet.
 4. The substrate is frozen.
 5. Substrate surface temperature is less than 40°F.
- B. Protect elements surrounding the Work from damage or disfiguration.

1.07 WARRANTY

- A. Reference Section 01780 – Project Closeout and Warranties.

PART 2 – PRODUCTS

2.01 GENERAL

- A. Listed are the products and materials for the specified work. Provide all incidental items and materials required to complete the Work in accordance with these documents.

2.02 EXTERIOR INSULATION AND FINISH SYSTEM

- A. General: Comply with quality control, references, specifications and manufacturer's data.
- B. Acceptable Manufacturers
 1. STO Corporation.
 2. Dryvit Systems, Inc.

2.03 EIFS REPAIR MATERIALS

A. Adhesive:

1. One component, polymer-modified, cement base high build adhesive. Provide manufacturer-supplied notched trowel to provide the required drainage channels/ribbons.
2. Approved Materials:
 - a. STO BTS Plus Adhesive by STO Corporation.
 - b. Genesis DM™, Primus DM™, Rapidry DM™ 35-50 or 50-75 by Dryvit Systems, Inc.

B. Insulation Fasteners: Corrosion resistant coated screw fasteners with plates, such as the Wind Devil 2 by Wind-Lock. Provide lengths required to obtain 3 inch minimum embedment.

C. Insulation Board: Expanded Polystyrene (EPS) in compliance with ASTM C 578 Type I and EIMA Guideline specification for Expanded Polystyrene (EPS) Insulation board. Thickness to match existing. Nominal 1.0 pound per cubic foot.

D. Base Coat:

1. One component, polymer modified, cement based high build base coat with less than 33 percent portland cement content by weight and capable of achieving minimum 1/16 inch thickness in a single pass.
2. Approved Materials:
 - a. STO BTS Plus Base Coat by STO Corporation.
 - b. Genesis DM, Primus DM, Rapidry DM 35-50 or 50-75 by Dryvit Systems, Inc.

E. Reinforcing mesh: Interwoven glass fiber mesh, types as recommended by manufacturer for each location and substrate.

1. Standard Mesh: Minimum 6.0 oz./sq. yd.

2.04 CLEANING SOLUTION

1. Generic cleaning solution consists of:
 - a. 1 to 2 cups trisodium phosphate (TSP) detergent
 - b. 1 gallon of warm water
 - c. Add 1/2 to 1 quart of bleach to remove algae or mildew.
2. Acceptable Products:
 - a. Wind-lock Corp. / General Cleaner
 - b. Wind-lock Corp. / Miracle Mildew Remover
 - c. Demand Products / Wash Down

2.05 ACCESSORIES

A. Spray Foam: Low expanding urethane spray foam, approved by the EIFS system manufacturer. Do not use without approval from the Consultant.

B. Water: Clear, potable, and free of foreign matter.

- C. Sealant Materials: As specified in Section 07920 – Joint Sealants.
- D. Trim and Control Joints: Galvanized steel, with attachment flanges and pre-punch weeps.

PART 3 – EXECUTION

3.01 EXAMINATION

- A. Inspect surfaces for the following:
 - 1. Contamination including: algae, chalkiness, dirt, dust, efflorescence, oils, fungus, grease, laitance, mildew or other foreign substances.
 - 2. Surface absorption and chalkiness.
 - 3. Cracks: Measure crack width and record location of cracks.
 - 4. Damage and deterioration.
 - 5. Moisture content and moisture damage: Use a moisture meter to evaluate the extent of wet materials/insulation) in each area of damage. Record areas of moisture on building elevation drawings. Remove existing materials back to dry areas.
 - 6. Compliance with specification tolerances: Verify substrate surface is flat and free of irregularities. Record areas that are out of tolerance (greater than 1/4 inch in 8-0 feet deviation in plane).
- B. Report deviations from the requirements of project specifications or other conditions that might adversely affect the EIFS installation to the Consultant.

3.02 GENERAL

- A. Do not mix admixtures, such as set accelerators, anti-freeze, etc., into the EIFS materials.
- B. Do not use products that have frozen. Immediately discard all EIFS coating products that have frozen.

3.03 EIFS CLEANING

- A. The tools and methods used for cleaning will vary depending on the size of the area to be cleaned and the tenacity of the dirt, algae or mildew accumulation.
- B. The cleaning method selected should not damage the existing EIFS and backup system(s), or introduce moisture into the system, including the existing insulation boards and wall components. Cover defect areas to prevent water infiltration. All wet materials must be cut-out and removed. Allow all materials to adequately dry before proceeding with repair work.
- C. Do NOT:
 - 1. Use solvent cleaners.
 - 2. Use steam or high temperature water.
 - 3. Use excessive scrubbing and/or stiff bristle brushes.
 - 4. High pressure washing.

- D. Apply the cleaning solution to the wall surface by brush or light spray and allow soaking for at least 15 minutes. For heavy deposits, lightly scrub the affected area with a soft-bristle scrub brush.
- E. If mildew and/or algae are present, add bleach to the cleaning solution. After application to wall, allow to soak for at least 15 minutes.
- F. For larger areas, a pressure washer can be used. Start with low pressure, slowly increasing the pressure as required to remove the existing stains. Maintain a maximum pressure of 300 psi, keeping the nozzle several feet from the wall at all times.
- G. Any damage resulting from aggressive scrubbing or power washing shall be repaired at no cost to the Owner.
- H. After the cleaning solution has soaked the surface and scrubbing completed, thoroughly rinse the EIFS surface with clean water and allow to dry.
- I. Review and follow federal, state, and local regulatory requirements for neutralizing and disposal of cleaning solution and wastewater.

3.04 GENERAL BASE COAT, PRIMER AND FINISH COAT APPLICATION

- A. The following summarizes typical installation procedures for the base coat, primer, and finish coat. Reference individual repair sections for repair-specific requirements.
- B. Base Coat Application
 - 1. Perform base coat application in reasonably sized strips so that the base coat material does not dry out before installing the mesh.
 - 2. Apply an approximately 1/8 inch thick layer of base coat over the existing lamina.
 - 3. Apply mesh over wet base coat material, wrinkle-free. Immediately trowel over mesh, fully embedding the mesh in the base coat material. Cut all wrinkles in mesh and apply a mesh patch over the cut area.
 - 4. After the base coat dries, apply additional base coat material as required to fully embed the mesh. Although the outline of the mesh may still be visible, the color of the mesh should not be visible and the mesh must be fully supported (especially at corners).
 - 5. Overlap adjacent areas of mesh a minimum of three (3) inches. Feather base coat at laps and repair edges to minimize visual effects.
 - 6. Allow the base coat to thoroughly dry for at least 24 hours prior to primer application. If cold and/or damp weather conditions exist, allow more drying time (typically at least 72 hours).

3.05 REMOVAL OF EXISTING FINISH COAT

- A. Apply a water-based gel-type paint remover in the marked area to soften the finish coat. Use a scraper to remove the finish coat after it has softened; take care not to remove excessive amounts of the base coat and damage the existing embedded mesh. Do not allow paint remover to make contact with adjacent areas not to be repaired. Repair all damaged mesh and/or adjacent finish coat caused by the removal process at no cost to the Owner.

- B. Use coarse sand paper to remove the top layer of base coat down to the mesh surface. Do not damage the mesh during the removal process. Repair all severed mesh at no cost to the Owner, as specified in this Section.

3.06 CRACK REPAIR

- A. Clean repair area to remove surface dirt, as specified above.
- B. Static cracks up to 1/32 inch generally can be bridged by an elastomeric coating with a brush coat without special repair procedures. Verify with the coating manufacturer.
- C. Repair of static cracks up to 1/8 inch in width, where the existing mesh is not cut/torn:
 - 1. Scrape or brush away loose finish or base coat materials.
 - 2. Use a small stiff bristle paint brush to apply base coat material into the crack. Use a wet brush to remove excess base coat that gets on the face of the finish coat.
 - 3. Allow to dry at least 12 hours.
 - 4. Fill/cover the crack with finish coat. Depending on the texture of the surrounding construction, use a stiff bristle paint brush or plastic float to match the existing texture.
- D. Repair of cracks over 1/8 inch, all cracks with severed mesh, all dynamic cracks/joints, and blisters and other defects in the lamina:
 - 1. Identify the area in need of repair and mark the area in the wall surface. A rectangular area is preferred.
 - 2. Remove the finish coat in the repair area, as specified above.
 - 3. Depending on the cause for the crack, employ the respective following method:
 - a. Gap between insulation boards:
 - 1) Remove base coat from within the gap and fill with insulation board slivers or low expanding urethane spray foam. If used, allow spray foam to cure prior to proceeding.
 - 2) Shave or rasp the insulation slivers/spray foam flush with the existing surface.
 - 3) Install reinforcing mesh and base coat, centered over the crack and extending a minimum of 2-1/2 inches on each side of the crack, as specified above.
 - b. Abutted or insufficient mesh:
 - 1) Install reinforcing mesh and base coat, centered over the crack and a minimum of 2 1/2 inch overlap on each side, as specified above.
 - 4. Apply masking tape surrounding the area to be refinished.
 - 5. Apply finish coat to the repair area. Scrape aggregate from the masking tape with a trowel. Scrape the finish coat against the base coat.
 - 6. Remove the masking tape and use a brush to "stipple" the wet edge of finish into the adjacent existing finish.
 - 7. Alternate between brush and float as required to blend the texture to match the existing EIFS areas.

3.07 REPAIR OF PUNCTURE DAMAGE AND LARGE BLISTERS/DEFECTS

- A. Clean if necessary to remove surface dirt, as specified in this Section.

- B. The repair area should extend at least five (5) inches beyond the edges of damage and/or intact base coat/mesh on all sides.
- C. Remove existing finish coat as specified in this Section.
- D. Cut loose/damaged mesh and damaged insulation board using a sharp knife.
- E. Cut a replacement piece of insulation board, larger than the repair area. Slowly and neatly trim the insulation replacement piece to fit tight/snug in the repair opening. Angle cut the edges of the repair insulation to ensure a tight fit.
- F. Apply (“butter”) base coat material to the edges and back face of the insulation repair piece. Insert repair piece into opening; the face of the repair piece should be flush or proud of the wall surface.
- G. After the base coat material has dried, rasp the repair insulation even with the surrounding area.
- H. Cut a repair piece of mesh for over the repair area, extending three (3) inches onto the adjacent area on all sides of the repair (leaving 2 inches on all side of the repair without new mesh).
- I. Apply base coat, primer, and finish coat as specified.

3.08 SEALANT REPLACEMENT PREPARATION

- A. Take precautions to protect the underlying and adjacent materials scheduled to remain. Repair all damage to existing finishes and materials as a result of sealant replacement at no cost to the Owner. Use repair methods specified in this Section.
- B. Cut the existing sealant to be removed using a sharp razor knife. Do not cut into the EIFS base materials. Remove existing sealant and backer materials (rod/tape) from the joint.
 - 1. If the existing finish coat is present where replacement sealant is scheduled to be applied, carefully remove the finish coat material down to the base coat as specified in this Section. Apply masking tape over finish coat to remain to prevent incidental removal.
- C. Where present, remove remaining residue from existing sealants by sanding. Care must be used to not expose and/or damage the embedded mesh.
- D. Remove dust from the joint area using oil-free compressed air and/or brushes.
- E. Apply a layer of base coat over the joint area to cover exposed mesh and to provide a smooth, even substrate for sealant application. Allow base coat to thoroughly dry (typically 48 hours) prior to proceeding.
- F. Prepare surfaces, provide backer materials, and apply sealant as specified in Section 07920.

3.09 WIDENING OF EXISTING EIFS PANEL JOINTS & BACK-WRAPPING EXISTING JOINTS

- A. Widen existing EIFS panel joints to a minimum width of 3/4 inch, unless otherwise specified, where indicated on the Drawings.
- B. Using a straight edge, cut the existing EIFS lamina and insulation full depth, taking precautions to prevent damage to existing back-up waterproofing and sheathing components. Repair damage to the back-up components caused by the removal process at no cost to the Owner.
- C. Remove a five (5) inch wide portion of the finish coat down to the base coat along the EIFS joint, as specified in this Section.
- D. Cut loose/damaged mesh and damaged insulation board using a sharp knife.
- E. Cut a repair piece of mesh that extends three (3) inches onto EIFS face and the full thickness of the joint (back to the back-up sheathing)
- F. Apply base coat, primer, and finish coat as specified. Apply primer and finish coat on the face of the panel only (i.e. not within the panel joint). Apply sealant in joint prior to primer and finish coat application.

3.10 PROTECTION

- A. Provide protection of installed EIFS materials from water infiltration into or behind the system.
- B. Provide protection of installed EIFS from dust, dirt, precipitation freezing and continuous high humidity until the EIFS coatings are fully dry.

3.11 FIELD QUALITY CONTROL

- A. Contractor shall maintain or exceed levels of workmanship and material acceptability in regard to surface preparation and installation as established by the field samples.
- B. Contractor shall employ trained, skilled and experienced craftsmen for all phases of the Work.
- C. Contractor shall make provision to assist and coordinate monitoring of the Work by the Manufacturer and the Owner.

3.12 ADJUSTING AND CLEANING

- A. Clean site of all unused materials and waste in accordance with environmental regulations.
- B. Remove and dispose of all materials used to protect surrounding areas and building surfaces, following completion of the Work of this Section.
- C. Repair, restore, or replace all materials, landscaping, interior finishes, and surfaces damaged by the Work to the satisfaction of the Owner at no additional expense.

END OF SECTION

SECTION 07625

METAL FLASHING AND TRIM

PART 1 – GENERAL

1.01 DESCRIPTION

- A. Provide labor, materials, equipment, and incidentals required to perform installation, repair and restoration of sheet metal work.
- B. Work for this Section includes the following:
 - 1. Provide sheet metal components and required accessories for the following:
 - a. Base Bid: Sheet metal coping
 - b. Alternate: Through-wall flashing
- C. All new materials are to be interfaced with, and integrated into, existing materials to provide completed work that is sound and weathertight.

1.02 REFERENCES

- A. References are latest editions, unless otherwise indicated.
- B. American Society for Testing and Materials (ASTM)
 - 1. ASTM A 653: Steel Sheet, Zinc Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
 - 2. ASTM A 666: Austenitic Stainless Steel Sheet, Strip, Plate, and Flat bar.
 - 3. ASTM A 924: Steel Sheet, Aluminum-Zinc-Alloy-Coated by the Hot-Dip Process, Structural (Physical) Quality.
 - 4. ASTM B 32: Solder Metal.
 - 5. ASTM B 101: Lead-Coated Copper Sheet and Strip for Building Construction.
 - 6. ASTM B 209: Aluminum and Aluminum-Alloy Sheet and Plate.
 - 7. ASTM B 370: Copper Sheet and Strip for Building Construction.
 - 8. ASTM B 749: Lead and Lead Alloy Strip, Sheet, and Plate Products.
- C. Factory Mutual (FM)
 - 1. Factory Mutual Windstorm Approval
- D. Underwriters Laboratories (UL)
 - 1. UL 580: Test for Wind Uplift Resistance of Roof Assemblies
- E. Copper Development Association (CDA): Copper in Architecture – Handbook.
- F. Sheet Metal and Air Conditioning Contractors National Association (SMACNA): Architectural Sheet Metal Manual.

1.03 PERFORMANCE REQUIREMENTS

- A. Sheet metal flashing and trim assemblies as indicated shall withstand wind loads, structural movement, thermally induced movement, and exposure to weather without failure due to defective manufacture, fabrication, installation, or other defects in construction. Completed sheet metal flashing and trim shall not rattle, leak, or loosen, and shall remain watertight.
- B. When required, fabricate and install copings capable of resisting the anticipated for the building according to recommendations in FMG Loss Prevention Data Sheet 1-49.

1.04 SUBMITTALS

- A. Product Data: Submit manufacturer's product literature and performance data for all metal types and finishes.
- B. Samples: Submit the following for verification purposes:
 - 1. Two (2) samples, 3 x 3 inches in size, for proposed metal colors and/or finish.
- C. Hardware List: Submit a complete list of incidental materials to be provided under this Section.
- D. Shop drawings for all metal flashing details, including dimensions, sequencing requirements, conditions of interfaces with other materials, joints and termination detail conditions as well as provisions for expansion and contraction as may be required for completion of Work.

1.05 QUALITY ASSURANCE

- A. Contractor Qualifications: Not less than five (5) current years successful experience with comparable projects and employing personnel skilled in sheet metal fabrication, installation, and related work.
- B. Source of Materials: Obtain materials from a single source for each type required to ensure quality, color, match, and texture.
- C. Install sheet metal components to withstand wind loads, structural movement, thermally induced movement and exposure to weather without failing.
- D. Field Sample: Prior to starting full-scale installation of the Work, prepare the following sample applications. Do not proceed with field samples until all materials have been submitted and approved.
 - 1. Ten (10) lineal feet of through-wall flashing with joint/seam, including all associated materials, including back-up waterproofing, sealants, etc.
 - 2. Ten (10) lineal feet with joint/seam, minimum, of coping flashing.
 - 3. Acceptable field samples, and method of procedure, will become the standard for Work of this Section.

- E. Pre-Installation Conference: Convene prior to commencing Work with the Owner and Consultant to discuss sequencing and installation procedures.

1.06 PRODUCT HANDLING

- A. Coordinate locations for on-site staging and storage areas with the Owner.
- B. Package and neatly store materials in a manner that prevents surface damage, distortion, breakage or structural weakening. Slope metal sheets to ensure drainage. Replace any damaged materials.

1.07 PROTECTION

- A. Protect elements surrounding the Work from damage or disfiguration.

1.08 WARRANTY

- A. Reference Section 01780 – Project Closeout and Warranties.

PART 2 – PRODUCTS

2.01 GENERAL

- A. Listed are primary products and materials for the specified repair work. Provide all incidental items and materials required for completion of the Work in accordance with these documents.

2.02 METAL COMPONENTS

- A. Metal components used for copings shall be:

1. Pre-Finished Galvanized Steel Sheet: ASTM A 924/A 924M, Grade A, or ASTM A 653/A 653M, G90 (Z 275) zinc coating; 24 gauge core steel, shop pre-coated with fluoropolymer (Kynar/Hylar) coating; color to be selected by Owner.
2. Cleat
 - a. 22 gage galvanized, face and top fastened.
 - b. Two Inch high profile, 30° to 40° cant dam with minimum 3 inch flange and 3/4 inch to 1 inch cleat return.

- B. Metal components used for through wall flashings shall be:

1. Stainless Steel: ASTM A 666, Type 304, soft temper, 24 gauge thick; smooth finish.

- C. Shop Fabricated Metal Components

1. Qualifications

- a. Fabricating Contractor must have at least five years documented experience fabricating and installing similar sheet metal assemblies. Provide references to Consultant upon request.

- b. Precision must be used in the fabrication of assemblies in accordance with industry standards.

2.03 ACCESSORIES

A. Flexible Sheet Flashing:

1. Type: Self-adhering, reinforced, rubberized asphalt sheet membrane.
2. Thickness: Minimum 40 mils.
3. Acceptable Product: "Perm-A-Barrier Wall Flashing" by Grace Construction Products.
4. Primer: "Perm-A Barrier Surface Conditioner" or as recommended by the sheet membrane manufacturer.
5. Provide minimum 1 inch high, stainless steel or aluminum termination bar anchored 8 to 12 inches on-center along top edge of sheet flashing.

B. Seam and Lap Joints Membrane:

1. Type: Rubberized asphalt-based liquid membrane.
2. Acceptable Product: "Bituthene Liquid Membrane" by W.R. Grace.

C. Anchors/Fasteners

1. Masonry: Hilti "Kwik-Con II" or ITW "Tapcon" screw anchors, minimum 1/4 inch diameter shank, and of sufficient length to provide minimum 1-1/4 inch embedment into masonry. Where exposed to exterior, provide paint fasteners (matching the flashing color), with weather-seal washers.
2. Steel: Self-drilling / tapping screws.
3. Protective Coating: All fasteners used in through wall flashing applications shall be stainless steel.

D. Secondary Waterproofing Membrane: Ice & Water Shield by Grace Construction Products. High temperature version, Vycor Ultra.

E. Blind Rivets: Stainless steel.

F. Sealant: Refer to Section 07920, Joint Sealants for specific material requirements.

PART 3 – EXECUTION

3.01 GENERAL

- A. Examine the areas of Work and verify that existing conditions are acceptable for the specified installation procedures. Report, in writing, adverse conditions that could affect the performance of the Work within five calendar days. Absence of written notification will indicate the Contractor's acceptance of existing project conditions.
 1. Verify surfaces to receive sheet metal are clean and in sound condition.
 2. Examine substrates and conditions under which sheet metal components are to be installed and verify that Work will properly commence.

- B. Measurements: Before ordering materials or performing work, obtain and verify all measurements at the building site. Exact measurements are the Contractor's responsibility.

3.02 GENERAL FABRICATION

- A. Form sections to shape indicated on Drawings, accurate in size, square, and free from distortion or defects.
- B. Form sheet metal on a bending break. Perform shaping, trimming, and hand seaming in the shop as far as practicable, with the proper sheet-metal working tools. Make the angle of the bends and the folds for interlocking the metal with full regard for expansion and contraction, to avoid buckling or other deformation in service. All lines shall be straight and crisp except where thickness of metal dictates radius bend, and all exposed edges shall be hemmed 1/2 inch minimum.
- C. Fabricate cleats of same material as sheet metal, interlocking with sheet.
- D. Form pieces in longest practical lengths.
- E. Hem exposed edges on underside 1/2 inch.
- F. Fabricate vertical faces with bottom edge formed outward 3/4 inch at 30° angle and hemmed to form drip.
- G. Flashing Joints – Non-Expansion: Form typical non-expansion flashing joints by overlapping 4 inches, and riveting and covering with membrane strip flashing and metal cover plate.
- H. Expansion Joints: Layout metal flashing to minimize transverse joints. Detail transverse joints in all flashing pieces to provide a watertight connection, and allow for expansion/contraction of the metal as shown on the Drawings. Unless shown otherwise on the Drawings, provide expansion joints at 24 feet on-center maximum and at two (2) feet away from all changes in flashing direction (each side) and from all terminations of flashing. Form typical flashing expansion joints by overlapping 4 inches, and covering with membrane strip flashing and metal cover plate.
- I. Prefabricated Transitions/Terminations: Provide pre-fabricated corner pieces out of one piece of metal with joints locked, riveted, and soldered watertight. Space rivets at 1 inch on-center in staggered pattern unless otherwise indicated.

3.03 INSTALLATION

- A. Through-Wall Flashing
 - 1. Provide new masonry flashings at locations indicated on Drawings.
 - 2. Remove all existing mortar, deficient flashing materials, etc. and clean surfaces that are to receive flashings.
 - 3. Install metal flashing over substrate. Provide end dams and other transition/termination flashing, as required to provide a complete system.

4. Fully adhere membrane sheet flashing to vertical leg of metal through-wall flashing and to wall surface above the flashing. Use primer on wall surfaces as required for proper adhesion. Lap ends of membrane sheet flashing a minimum 6 inches. Seal all flashing ends and terminations with compatible waterproofing liquid membrane.
5. Install termination bar along the top of membrane flashing with masonry anchors at a spacing of 16 inches on-center. Cover termination bar and fasteners with liquid membrane.

B. Metal Coping Flashing

1. Ensure existing roof flashings are fastened as detailed.
2. Install specified self-adhering secondary waterproofing membrane over top of parapet wall as detailed.
3. Position new cleat at perimeter edges and secure vertical leg to substrate using fasteners as spaced a minimum of twelve (12) inches on center.
4. Nail interior portion of flange to wood blocking three inches o.c., staggered.
5. Install new coping constructed of specified metal. Coping profile shall be as detailed for designated locations. Coping width shall be sufficient to extend 2 inches minimum below top edge of wall.
6. Install concealed cover plates at all metal coping joints. Install two sided Butyl tape to outside edges of cover plate prior to installing the coping.
7. Metal cover seam shall be joined together by fabrication of 1 (one) inch vertical standing seams. Apply specified urethane sealant between metal joints prior to locking joints together.
8. Install coping, engaging the cleat on the first side, and field bending the second edge to fully engage the cleat.
9. Secure inside face of coping to substrate with specified mechanical fasteners, with rubber grommets, 24 inches on center.
10. Apply a bead of specified sealant to the ends of the standing seam coping joint.
11. Provide specified sheet metal closures at vertical wall interfaces as detailed.

3.04 FIELD QUALITY CONTROL

- A. Contractor shall maintain or exceed levels of workmanship and material acceptability in regard to surface preparation and installation as established by mock-up/test samples.
- B. Contractor shall employ trained, skilled and experienced craftsmen for all phases of the Work.
- C. Contractor shall make provision to assist and coordinate monitoring of the Work by the Manufacturer and Owner Representatives.

3.05 ADJUSTING AND CLEANING

- A. Clean site of all unused materials and waste in accordance with environmental regulations.
- B. Remove and dispose of all materials used to protect surrounding areas and building surfaces, following completion of the Work of this Section.

- C. Repair, restore, or replace all materials, landscaping, interior finishes, and surfaces damaged by the Work to the satisfaction of the Owner at no additional expense.

END OF SECTION

SECTION 07790

FASTENING SYSTEMS

PART 1 – GENERAL

1.01 SUMMARY

A. Section includes:

1. Furnish all labor, materials, equipment, and services to prepare and install the following:
 - a. Wood to Wood
 - b. Galvanized Sheet Steel to Wood
 - c. Termination Bar/Counterflashing to Masonry or Concrete
 - d. Metal to Metal

1.02 SUBMITTALS

A. Product data:

1. Submit manufacturer's latest descriptive literature, installation instructions and/or procedures to be followed during installation.

B. Materials list:

1. List of materials proposed to be furnished and installed under this portion of the Work.
2. This shall in no way be construed as permitting substitution of materials for those specified.

1.03 DELIVERY, STORAGE AND HANDLING

- A. Deliver materials to job site with packages and labels intact identifying manufacturer, product name and lot numbers when appropriate.
- B. Store approved materials neatly in a suitable and designated area at the job site. Support materials off the ground and covered.
- C. Use necessary means to ensure safe storage and use of material, as well as prompt and safe disposal of waste.

PART 2 – PRODUCTS

2.01 MATERIALS/MANUFACTURERS

A. Wood to Wood

1. General
 - a. Type: Hot dip galvanized, common, annular ring nail.
 - b. Length: Sufficient to penetrate underlay blocking 1-1/4 inch

2. Acceptable Manufacturers:
 - a. Independent Nail, Inc., Bridgewater, MA
 - b. W.H. Maze Co., Peru, IL
 - c. National Nail Co., Grand Rapids, MI
 - d. Hillwood Manufacturing Co., Cleveland, OH
- B. Galvanized Sheet Steel to Wood
 1. FS FF-N-105B Type II, Style 20, roofing nails, 10/12 gauge galvanized steel wire, 3/8" to 7/16" diameter flat head, diamond point, round, barbed shank.
 2. Length: Sufficient to penetrate wood 3/4 inch minimum or just through wood decking.
- C. Termination Bar/Counterflashing to Masonry or Concrete
 1. Tapcon 1/4 inch diameter, Phillips flat head anchor with EPDM washer, by Buildex Division of ITW, Itasca, IL
 2. Kwik-Con II, 1/4 inch diameter fastener, by Hilti Corp., Tulsa, OK
 3. Length: Sufficient to provide 1-1/4 inch embedment minimum.
- D. Metal to Metal
 1. Zip screw with EPDM washer, by Tech Specialties
 2. Length: sufficient to penetrate substrate by 1/2 inch.
 3. sufficient to penetrate wood blocking 3/4 inch minimum or just through wood deck.

PART 3 – EXECUTION

3.01 AS DETAILED PER APPROPRIATE SECTION AND SCOPE OF WORK.

END OF SECTION

SECTION 07920

JOINT SEALANTS

PART 1 – GENERAL

1.01 SUMMARY

- A. Provide labor, materials, equipment and incidentals required for restoration of joint sealants.
- B. Work for this Section includes the following:
 - 1. Remove existing sealants, where present. Remove all remnants of existing sealants from substrates.
 - 2. Prepare, clean and prime the substrates scheduled to receive sealant.
 - 3. Provide backing materials (backer rod or release tape) at joint locations.
 - 4. Provide sealant.
 - 5. Areas of Base Bid sealant replacement / application include, but are not limited to:
 - a. EIFS expansion and perimeter joints.
 - b. Sealant associated with new sheet metal work.
 - 6. Alternates:
 - a. Masonry expansion joints.
 - b. Perimeter of system penetrations (such as pipe).
 - c. Window, louver, door, and other wall opening perimeters.
 - d. Sidewalk-to-building wall interfaces.
- C. Sealant materials are to be provided from one manufacturer. Provide accessory materials as required or recommended by the sealant manufacturer.
- D. Comply with manufacturer's requirements for correct sizing, selection and installation of building sealants with respect to joint movements, construction material temperatures, and weather conditions at the project site.
- E. All new materials are to be interfaced with, and integrated into, existing materials to provide completed work that is sound, aesthetically acceptable, and weathertight.

1.02 REFERENCES

- A. American Society for Testing and Materials (ASTM):
 - 1. ASTM C 661: Test Method for Indentation Hardness of Elastomeric - Type Sealants by Means of Durometer Hardness; Shore "A".
 - 2. ASTM C 679: Standard Test Method for Tack-free time of Elastomeric Sealants.
 - 3. ASTM C 719: Adhesion and Cohesion of Elastomeric Joint Sealants under Cyclic Movement (Hockman Cycle).
 - 4. ASTM C 793: Standard Test Method for Effects of Accelerated Weathering on Elastomeric Joint Sealants
 - 5. ASTM C 920: Elastomeric Joint Sealants.
 - 6. ASTM C 1184: Structural silicone sealants.

7. ASTM C 1523: Determining Modulus, Tear and Adhesion Properties of Pre-cured Elastomeric Joint Sealants.
8. ASTM D412: Vulcanized Rubber and Thermoplastic Elastomers – Tension.

B. Federal Specification:

1. Federal Specification TT-S 001 543 A (COM-NBS) Class A for silicone building sealants.
2. Federal Specification TT-S-00230C (COM-NBS) Class A for one-component building sealants.

1.03 SUBMITTALS

A. Product Data:

1. Manufacturer's published data indicating that furnished materials comply with the project requirements and are suitable for applications shown.
2. Manufacturer recommended sealants, primers and cleaners for specified joint conditions.
3. Shop Drawings: Upon request, provide joint details with appropriate manufacturer's approval.
4. Written explanation to decipher code numbers used on material containers to record manufacturing dates.
5. Field reports from the sealant manufacturer representative for periodic site visits made to review the work in-progress. The field report should provide information regarding type of work in-progress during the visit, whether the work meets manufacturer guidelines and the requirements of this Section, recommendations for future work, and required repairs/corrections (if any). The field report should also include results and comments from "in-progress" field adhesion testing of sealant previously installed.

1.04 QUALITY ASSURANCE

- A. Contractor Qualifications: Not less than five (5) current years relevant successful experience with comparable projects and employing personnel skilled in the Work specified in this Section. The skilled person shall have at least five (5) years of experience and shall have successfully completed at least two (2) projects within the past three (3) years involving quantities and complexities similar to those required under this Section
- B. Manufacturer Qualifications: Not less than twenty (20) years successful experience with the production and sales of the sealants intended for Work of this Section.
- C. Source of Materials: Obtain materials from a single source for each type required to ensure quality, color, pattern, match, and texture.
- D. Regulatory Requirements: Properly dispose of all waste materials resulting from this work.

E. Field Samples:

1. Field-Constructed Samples: At least two weeks prior to the start of the sealant work, provide samples of sealant joints on the building where directed by the Consultant. Notify the Consultant at least seven days before construction of the sample, so that a representative may be present during the construction of the sample. Do not start work until the Consultant has approved the field sample and field adhesion testing (see below). Sample must be aged 14 days and cleaned before being reviewed for approval. Provide sealant joints as required to meet the field sample requirements specified in other Sections.
2. Field Adhesion Testing
 - a. Notify the Consultant at least seven (7) days prior to sealant application for field adhesion testing and at least seven (7) days prior to pull-testing so that a representative can be present during both operations. Failure to notify the Consultant constitutes failure of the samples tested. Work installed without notifying the Consultant may be rejected.
 - b. At least six (6) weeks prior to the start of sealant installation, apply specified sealants to each job site substrate following specified procedures. Construct three (3), 10 inch long x 1/2 inch wide x 1/2 inch deep sealant joints against each substrate. Apply bond breaker tape to the substrate surface under the last 2 inches of the sealant at each end of the strips and joints to provide a tab for testing after curing. Prepare surface (including cleaning and priming) and install sealant joints and strips as described below and as will be done during the general sealant installation.
 - c. Pull-Testing: After curing for 14 days at prevailing outdoor temperatures, grasp the 2 inch tabs on the ends of the joints and the strip samples and pull the sealant at 90° to the surface.
 - d. With acceptable applications, the sealant shall fail cohesively (tearing within itself) with no adhesive (debonding) failure.
 - e. If any sample debonds from the substrate, the sealant manufacturer shall make recommendations regarding changes in surface preparation or primers and submit these recommendations to the Consultant for approval. Repeat field adhesion tests using approved recommendations.
 - f. Repeat sealant adhesion tests as many times as required to produce an acceptable application at no additional cost to the Owner. Acceptable application required prior to full scale sealant installation.
3. Rebuild samples as many times as required to meet the Consultant's approval at no additional cost to the Owner or delay in the project schedule. Keep approved sample areas in a cleaned and finished condition throughout the duration of the project. Reproduce samples accurately in construction using identical materials, mixtures, and quality of workmanship. Mock-ups will be used to measure standards of workmanship and completed work, including finish, texture, and color.
4. Do not proceed with field samples until all materials have been submitted and approved.

- F. Pre-Installation Conference: Prior to commencing work of this Section, meet with the Owner and Consultant to discuss sequencing and installation procedures.

1.05 DELIVERY, STORAGE AND HANDLING

- A. Sealant materials are to be provided from one manufacturer to maintain consistent quality and color. Provide accessory materials recommended by the sealant manufacturer, pending approval by the Owner and Consultant, based on job-site adhesion testing.
- B. Deliver and neatly store materials on job site in a manner that prevents damage, contamination or breakage and with packages intact displaying labels identifying manufacturer, product name, and lot numbers when appropriate.
- C. Store materials in accordance with manufacturer's recommendations. Comply with manufacturer's recommendations for minimum and maximum time and temperature limits for storage. Protect liquid components from freezing.
- D. Store flammable materials in a cool dry, protected area away from sparks and open flames.
- E. Materials shall be marked with the date of manufacture and shelf life. Do not use products beyond the expiration of their shelf life.

1.06 PROJECT CONDITIONS

- A. Protect elements surrounding the work of this Section from damage or disfiguration.
- B. Do not proceed with installation of joint sealants under the following conditions;
 - 1. When ambient and substrate temperature conditions are outside limits permitted by joint-sealant manufacturer.
 - 2. When joint substrates are wet.
 - 3. Where joint widths are less or more than those allowed by joint-sealant manufacturer for applications specified.
 - 4. Contaminants capable of interfering with adhesion have not yet been removed from joint substrates.
- C. Do not proceed with installation of new sealants during threatening or unfavorable weather conditions. If sealant work cannot be performed, provide the necessary protection to keep building weathertight.

1.07 WARRANTY

- A. Reference Section 01780 – Project Closeout and Warranties.

PART 2 – PRODUCTS**2.01 GENERAL**

- A. Listed are the products and materials for the specified work. Provide all incidental items and materials required to complete the Work in accordance with these documents.

2.02 MATERIALS, GENERAL

- A. Compatibility: Provide joint sealants, backings, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by sealant manufacturer, based on testing and field experience.
- B. Colors of Exposed Joint Sealants: As indicated by Owner from manufacturer's standard selections.

2.03 ELASTOMERIC JOINT SEALANTS**A. Single-Component Neutral-Curing Silicone Sealant:**

- 1. Type: Elastomeric sealant with low modulus, high elongation characteristics, capable of obtaining strong, durable bond to the building substrate. Neutral-cure silicone sealant meeting ASTM C920, Type S, Grade NS, Class 25, that is SWRI approved.
- 2. Intended Use: Provide as the primary sealant for weatherproofing exterior joints.
- 3. Approvals: Must meet adhesion and stain testing requirements, as well as compatibility with applied surfaces.
- 4. Acceptable Products:
 - a. Masonry Expansion Joints: Dow 790 by Dow Corning, or approved substitute.
 - b. All other exterior joints: Dow 791 by Dow Corning, or approved substitute.

B. Polyurethane Sealants

- 1. Non-sag Polyurethane Sealant:
 - a. Type: Elastomeric sealant with low modulus, high elongation characteristics, capable of obtaining strong, durable bond to the substrate that is SWRI approved.
 - b. Intended Use: Provide for joints at grade.
 - c. Approvals: Must meet adhesion and stain testing requirements, as well as compatibility with applied surfaces.
 - d. Acceptable Products: Sika Corporation, Inc. / Sikaflex-15 LM, Pecora Corp. / Dynatrol II, or approved substitute.

C. Sheet Metal Coping (exposed sealants)

- 1. FS TT-S-00230C (2), single component, gun grade, non-sag urethane sealant.
 - a. "Vulkem 116" by Mameco
 - b. "Dynatrol I" by Pecora
 - c. "Sonolastic NP 1" by Sonneborn
 - d. "Dymonic" by Tremco
 - e. "Sikaflex-1a" by Sika Corp.

D. Non-exposed compression sealant (base flashing terminations, and coping splice plates)

- 1. TT-S-001657, Type I single component, low viscosity, self-wetting, butyl blend mastic.

2.04 JOINT-SEALANT BACKING

A. Backer Rod:

1. Type: Closed-cell, polyethylene rod. The diameter of the rod is to be approximately 25% greater than joint width except quarter round or triangular rod (for fillet joints) which shall not be over-sized. Surface skin of rod shall be continuous and unbroken and of sufficient thickness to preclude outgassing and formation of voids in the overlying sealant.
2. Acceptable Product:
 - a. HBR by Nomaco
 - b. Kool-Rod by W.R. Meadows
3. Installation: Sized and shaped to control sealant depth and otherwise contribute to producing sealant performance.

B. Bond Breaker Tape:

1. Type: Pressure sensitive adhesive polyethylene tape to which sealant does not bond, as recommended by sealant manufacturer.
2. Use: Apply bond breaker tape at those locations where two-sided sealant adhesion is required, and where a backer rod cannot be installed.
3. Thickness: 0.006 inch (6 mil.)
4. Width: As required for application.

2.05 ACCESSORIES

A. Primer:

1. All substrate surfaces must be primed, except glass; no exceptions.
2. Provide primers recommended by the sealant manufacturer for the specific job-site substrate(s).
3. Verify compatibility of primer with wall finishes prior to application.

B. Joint Cleaner: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials, free of oily residues or other substances capable of staining or harming joint substrates and adjacent nonporous surfaces in any way, and formulated to promote adhesion of sealants to joint substrates. Test the compatibility of joint cleaner on existing surfaces.

C. Masking Tape: Nonstaining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.

D. Shop Cloths: Use shop cloths or clean, lint-free rags for joint cleaning operations.

PART 3 – EXECUTION**3.01 EXAMINATION**

- A. Examine existing conditions in the area of work and verify that no conditions are present that prevent or otherwise interfere with the installation of the specified work.
- B. Adverse conditions are to be reported in writing within three calendar days. Absence of such notification will constitute the Contractor's acceptance of existing conditions.
- C. Before ordering materials or performing work, obtain and verify all measurements at the project site. Exact measurements are the Contractor's responsibility.

3.02 PREPARATION**A. General:**

- 1. Cut out and completely remove existing sealants, backer rods, etc., prior to installing new materials.
- 2. Saw-cut existing masonry to widen joint if necessary as determined by requirements in Section 04900 – Masonry Restoration.
- 3. Coordinate sealant removal and replacement efforts so that existing building joints do not remain open at the end of each work day.
- 4. Where joints extend below grade, remove soil to allow caulking of entire joint length. Aside from soil removal all cleaning and installation instructions remain the same.

B. Joint Cleaning: Clean out joints immediately before installing joint sealants to comply with sealant manufacturer's written instructions, except as modified below:

- 1. Remove all foreign material from joint substrates that could interfere with adhesion of joint sealant, including dust, paints (except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer), old joint sealants, oil, grease, waterproofing, water repellents, water, surface dirt, and frost.
- 2. Clean porous joint substrate surfaces by brushing, grinding, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing bond with joint sealants. Remove loose particles remaining after cleaning operations by vacuuming or blowing out joints with oil-free compressed air. Solvent clean all surfaces to receive sealant, following the manufacturer's recommendations. Protect adjacent building envelope components from exposure to the cleaners.
- 3. Clean nonporous surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion of joint sealants. Protect adjacent building envelope components from exposure to the cleaners.

C. Masking Tape: Use masking tape where required to prevent contact of sealant with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

3.03 INSTALLATION

- A. Install sealant backing materials to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow sealant movement capability.
1. Unless noted otherwise, install clean, dry backer rod, quarter round rod, or bond break tape, in or over all joint openings against dry substrates. Remove all wet materials from the job site. Replace any backer rod not sealed over by the end of each day and solvent clean surfaces again.
 2. Change rod sizes as frequently as required by the variation in the joint width. Do not twist rods together. Butt ends of rods tightly. Provide a full range of rod sizes at the site of all sealant work.
 3. Do not touch with fingers or otherwise contaminate the substrate surfaces while inserting the backer rod or bond breaker tape.
 4. Do not rupture the skin of the closed cell backer rod during installation. Do not cut rod lengthwise as substitute for smaller diameter rod. Remove any rod containing punctures and solvent clean the surfaces again.
- B. Apply primer to all substrates, except glass, after backing material installation. Apply primer to clean, dry substrates at ambient temperatures above 45°F.
1. Do not dilute materials.
 2. Pour primer into a clean container for use. Do not pour more than a ten-minute supply into container to prevent deterioration.
 3. Replace cap on primer can immediately after pouring. Remove from the site any primer that contains a white precipitate or that has thickened.
 4. Apply primer with a clean brush or dry lint-free cloth. Do not apply primer to exposed surfaces beyond sealant. Confine primer to areas of sealant bond only; do not allow spillage or migration onto adjoining surfaces. Mask all surfaces before priming, except where surface irregularities will allow the primer to wick beneath the masking tape.
 5. Use only one coat of primer. Do not apply primer in a thick layer, which will form a white, powdery film. Flooding of the substrate surface with primer is not permitted. Remove any films with a clean, dry, lint-free cloth and repair in accordance with manufacturer's written recommendations.
 6. Allow primer to dry. Do not allow primer to become wet before sealant application.
- C. Joint Design:
1. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow sealant movement capability.
 2. For joint widths greater than 1 inch, submit installation recommendations from the manufacturer for approval by the Consultant.
 3. For typical butt sealant joints, place the backer rod or bond breaker so the sealant depth measured at the center of the joint after tooling is one-half of the sealant joint width, with a min. depth of 1/4 inch and a maximum depth of 1/2 inch.
 - a. Provide concave joint configuration per Figure 5A in ASTM C 1193 unless otherwise indicated.
 4. At fillet (triangular) joints, extend the sealant at least 3/8 inch onto the substrate beyond the bond breaker tape or backer rod and at least 5/8 inch onto the substrate

perpendicular to the tape or rod. The minimum thickness between the edge of the tape or rod and surface of the sealant joint shall be at least 1/4 inch.

5. Avoid three-sided adhesion at all sealant joints.
6. Do not prepare or seal over masonry that is less than 21 days old or was pointed within 21 days.

D. Application

1. Inspect each cartridge or container of sealant before use and verify that the production date is within six months of the date of application. Remove from the site all sealant more than six months old. Each applicator shall understand the method of coding the production date on the cartridge.
2. Mask all exposed surfaces, not masked for priming, along joint before applying sealant.
3. Recheck correct backer rod and bond breaker tape positioning before applying sealant.
4. Apply sealant only to clean, dry, primed surfaces (where required) at ambient temperatures above 45°F. Seal joints within 10 hours of primer application.
5. Fill all joints solidly and continuously with sealant, neatly applied with a standard caulking gun in a continuous motion, using a slight pressure. "Push" the sealant bead ahead of the nozzle; do not "drag" the nozzle.
6. Within five minutes of sealant application and before skin develops on sealant, dry tool the joint surface with a concave tool to insure intimate contact with substrate and to eliminate air bubbles. The use of soaps, oils, water and/or alcohols as tooling aids is not permitted. Provide a smooth, uniform finished surface with indicated profile.
7. Mate joints formed from different colored sealants before skin forms on the sealant.
8. Remove masking tape within ten minutes of tooling. Avoid contaminating adjacent surfaces with excess sealant. Remove all traces of smears and droppings on metal or glass surfaces promptly, using a solvent recommended by the sealant manufacturer that will not damage or discolor the building surfaces. Remove smears and droppings on porous surfaces by mechanical means after the initial cure of the sealant. Remove excess sealant from surfaces adjacent to joints.
9. Coordinate work with other trades to prevent contamination of fresh sealant by dust or other debris.

- E. Outdoor Lights, Signs, and Wall Penetrations: Provide weathertight application of new elastomeric sealant at all other conditions and penetrations through exterior walls.

3.04 FIELD QUALITY CONTROL

- A. Make provision to assist and coordinate progress reviews of the work by the Consultant.
- B. During project sealant application, test adhesion of exterior perimeter sealant joints at the rate of one test per 400 ft of installed sealant. 30%, 60%, and 90% sealant completion. Three weeks after installation, cut a tab on a joint and test adhesion. Patch test areas in accordance with manufacturer's instructions. If application is not acceptable to the Consultant, conduct additional test as directed by the Consultant.
- C. Remove excess sealant or other soiling due to caulking operations on adjacent surfaces as the work progresses by methods and materials approved in writing by manufacturers of joint sealants.

3.05 ADJUSTING AND CLEANING

- A. Clean site of all unused materials and waste in accordance with environmental regulations.
- B. Remove and dispose of all materials used to protect surrounding areas and building surfaces, following completion of the work of this Section.
- C. Repair, restore, or replace all materials, landscaping, interior finishes, and surfaces damaged by the Work to the satisfaction of the Owner at no additional expense.

3.06 PROTECTION

- A. Protect sealed joints from being disturbed or contaminated for a minimum of 48 hours, unless more stringent requirements apply.

END OF SECTION

SECTION 09960

HIGH PERFORMANCE COATINGS

PART 1 – GENERAL

1.01 SUMMARY

- A. Work for this Section includes furnishing all labor, materials, equipment, and services to prepare and paint existing steel components.
- B. Work for this Section includes the following:
 - 1. Alternate: Prepare and paint corroded areas of existing steel wall system components including exposed lintels, overhead door jambs, and man doors/frames.
- C. All new materials are to be interfaced with, and integrated into, existing materials to provide completed work that is sound and weathertight.

1.02 REFERENCES

- A. References are latest editions, unless otherwise indicated.
- B. American Society for Testing and Materials (ASTM):
 - 1. ASTM D 16: Standard Terminology Relating to Paint, Varnish, Lacquer, and Related Products.
- C. The Society for Protective Coatings (SSPC):
 - 1. SSPC: Steel Structures Painting Manual.
- D. Local, state or federal laws and regulations governing Volatile Organic Compounds (VOC) in paint or paint products.
- E. Local, state, or federal laws and regulations governing paint removal.

1.03 SUBMITTALS

- A. Product Data, certifications, and manufacturer's written preparation and application instructions for the specified materials.

1.04 QUALITY ASSURANCE

- A. Contractor Qualifications: Not less than five (5) current years relevant successful experience with comparable projects and employing personnel skilled in the Work specified in this Section. The skilled person shall have at least five (5) years of experience and shall have successfully completed at least two (2) projects within the past three (3) years involving quantities and complexities similar to those required under this Section.

- B. Manufacturer: Company specializing in manufacturing products specified in this Section with minimum five (5) years documented experience.
- C. Source of Materials: Obtain materials from a single source for each type required, to ensure uniform quality, color, match, and texture.
- D. Field Samples:
 - 1. Five (5) lineal feet of existing steel cleaned and ready for coating applications.
 - 2. Five (5) lineal feet of existing steel cleaned with coating applied.
- E. Pre-Installation Conference: Convene prior to commencing work with the Owner and Consultant to discuss sequencing and installation procedures.
- F. Notify the Owner and Consultant at least five (5) days prior to the field sample work so that they may have a representative present. A manufacturer's representative should be present during the field sample work to review the preparation and application procedures.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Deliver products to site in sealed and labeled containers; inspect to verify acceptability.
- B. Container Label: Include manufacturer's name, type of coating, brand name, lot number, brand code, coverage, surface preparation, drying time, cleanup requirements, color designation, and instructions for mixing and reducing.
- C. Paint Materials: Store at minimum ambient temperature of 45°F and maximum of 90°F, in ventilated area, and as required by manufacturer's instructions.

1.06 PROJECT CONDITIONS

- A. Protect elements surrounding the Work from damage or disfiguration.
- B. Provide adequate ventilation to remove material fumes as required to provide a safe area for work, and to confine and control fumes from migrating to adjacent areas.
- C. All paint and thinner containers shall remain closed until required for use and shall be stored in areas with temperature ranges required by paint product manufacturer. All paint shall be mechanically mixed before use, in accordance with the manufacturer's directions. Agitation during application must be provided where specified by the manufacturer.
- D. The Contractor shall provide adequate supervision of the Work at all times. The Owner's Representative and Consultant shall have access to all work, in the shop or at the job site, to ensure that the surface preparation, application, and all aspects of the Work are being done according to the Specifications.
- E. Do not apply exterior coatings during rain or snow when relative humidity is outside humidity ranges, or moisture content of surfaces exceed those required by paint product manufacturer.

1.07 WARRANTY

- A. Reference Section 01780 – Project Closeout and Warranties.

PART 2 – MATERIALS**2.01 GENERAL**

- A. Listed are the products and materials for the specified work. Provide all incidental items and materials required to complete the Work in accordance with these documents.

2.02 STEEL COMPONENTS**A. COATING**

- 1. Urethane-based, zinc rich primer.
 - a. Tneme-Zinc Series 90-97 by Tnemec Company Inc.
 - b. Corothane I GalvaPac Zinc Primer by Sherwin-Williams.

B. Top Coat (for exposed areas only)

- 1. Acrylic polyurethane top coat, as recommended by the primer manufacturer. Color to be selected by Owner.
 - a. Endura-Shield Series 73 by Tnemec Company Inc. or approved equal.
 - b. Fast Clad Urethane by Sherwin-Williams.

PART 3 – EXECUTION**3.01 EXAMINATION**

- A. The Owner and Consultant have the right to determine and inspect surfaces and approve just prior to each coat. The Owner and Consultant shall require Contractor to touch up any scars, abrasions, or holidays in any coating before application of the next coat.
- B. Inspection of work preparation, work in progress, and completed work shall be performed by the Consultant as follows:
 - 1. Approval of dry film thickness per coat in accordance with Specification and manufacturer's written recommendations.
 - 2. Approval of any deviations from the established Specification, when required by job schedule, if approved by Owner and Consultant.
- C. Contractor shall inspect surfaces to which coating will be applied and report immediately in writing to the Consultant any conditions detrimental to the proper execution of this work. Absence of such notification will constitute the Contractor's acceptance of existing conditions.
- D. The Contractor shall determine whether the air and surface temperature are suitable for application of paint. Paint and surface to which it is to be applied should be the same temperature.

3.02 PREPARATION

- A. Clean all steel surfaces removing scaling and rust.
- B. Prepare existing deteriorated steel surface to receive coating in accordance with paint manufacturer's recommendations and with The Society for Protective Coatings (SSPC) as follows:
 - 1. SP-2, "Hand Tool Cleaning".
 - 2. SP-3, "Power Tool Cleaning".
 - 3. SP-6, "Commercial Blast Cleaning".
- C. Inspect the condition of the exposed steel sections and connections (anchors and welds). Where the section loss of the steel member and/or connections is greater than 10 percent of the nominal thickness, report to the Consultant for review and corrective procedure (if any). Do not proceed with the coating work without written notification from the Consultant.
 - 1. Primer: 3 mils (dry) / 5 mils (wet).
 - 2. Top Coat: 2.5 mils (dry) / 4.5 mils (wet).

3.03 APPLICATION – STEEL COMPONENTS

- A. When surfaces are prepared as noted above, apply coating as described in the manufacturer's written application instructions and as determined during the field sample applications.
- B. Mix coating components following the manufacturer's written instructions.
- C. Apply coating to a thickness of: 3 mils (dry)/5 mils (wet). Maintain coating thickness within the manufacturer's published maximum and minimum thickness ranges.
- D. If additional coats are required to obtain the required coating thickness, apply additional coats after the initial coat is completely dried/cured.

3.04 FIELD QUALITY CONTROL

- A. Contractor shall maintain or exceed levels of workmanship and material acceptability in regard to surface preparation and installation as established by the field samples.
- B. Contractor shall employ trained, skilled and experienced craftsmen for all phases of the Work.
- C. Contractor shall make provision to assist and coordinate monitoring of the Work by the Manufacturer and Owner Representatives.

3.05 ADJUSTING AND CLEANING

- A. Clean site of all unused materials and waste in accordance with environmental regulations.

- B. Remove and dispose of all materials used to protect surrounding areas and building surfaces, following completion of the Work of this Section.
- C. Repair, restore, or replace all materials, landscaping, interior finishes, and surfaces damaged by the Work to the satisfaction of the Owner at no additional expense.
- D. Collect waste material which may constitute fire hazard, place in closed metal containers and remove daily from site.
- E. Remove all masking tape used to cover adjacent building components.

END OF SECTION

SECTION 09965

ELASTOMERIC COATINGS

PART 1 – GENERAL

1.01 SUMMARY

- A. Provide all labor, materials, equipment and incidentals necessary to perform the required scope of work on the existing substrate as specified herein.
- B. Work for this section includes the following:
 - 1. Base Bid: Provide new elastomeric coating system to EIFS panels.
 - 2. Alternate: Provide new elastomeric coating system to concrete masonry surfaces.
- C. Application of coatings shall only be to surfaces that are structurally sound, and have been properly prepared in accordance with the manufacturer's requirements. All preparatory work shall include approval by the manufacturer's representative, EIFS repairs, concrete masonry repairs, installation of building sealants, and cleaning prior to application of coating system.
- D. All new materials are to be interfaced with, and integrated into, existing materials in a manner that provides an aesthetically acceptable and completely weathertight system.

1.02 REFERENCES

- A. Steel Structures Painting Council (SSPC):
 - 1. SSPC – SP2, Hand Tool Cleaning
 - 2. SSPC – SP3, Power Tool Cleaning
 - 3. SSPC – SP7, Brush-Off Blast Cleaning
 - 4. SSPC – SP12, Surface Preparation By Water Jetting
- B. Local, state or federal laws and regulations governing Volatile Organic Compounds (VOC) in paint or paint products.
- C. Local, state, or federal laws and regulations governing paint removal.

1.03 PERFORMANCE REQUIREMENTS

- A. Provide elastomeric coatings that comply with performance requirements specified in MPI 113.
- B. Provide elastomeric coating systems with the following properties as determined by test methods indicated:
 - 1. Elongation: Not less than 100 percent with a tensile strength of 200 psi and not less than 88 percent recovery after 1 hour and 90 percent recovery after 24 hours when tested according to ASTM D 2370 using parameters established by MPI 113.
 - 2. Accelerated Weathering: No cracking, peeling, blistering, chalking, or visual deterioration after 1000 hours when tested according to procedures in ASTM G 155.

3. Low-Temperature Flexibility: No crack formation when tested according to ASTM D 1737.
4. Moisture-Vapor Transmission: Not less than 2.0 perms according to ASTM D 1653.
5. Wind-Driven Rain Resistance: No water penetration according to procedures in FS TT-C-555 at 95 mph.
6. Minimum Solids Content by Volume: Not less than 50.1 percent.
7. Volatile Organic Content (VOC): Not less than 55 g/L according to ASTM D 3960.

1.04 SUBMITTALS

A. Product Data:

1. Coating manufacturer's specifications, recommendations, and installation instructions.
2. Published data or certified test laboratory report that each material complies with requirements and is intended for application shown.
3. Written list of all materials proposed for use at this project.
4. Sample warranty and associated application report forms required by the manufacturer for warranty purposes.
5. Provide from coating manufacturer a written statement certifying the following:
 - a. Status as an approved Contractor for product application for the manufacturer's warranty.
 - b. The manufacturer has verified that the specified work materials are a suitable application for their products. Include a listing of any specified or existing materials which may affect the performance of their products.

- ##### B. Conflicts between this specification and the coating manufacturer's requirements which would abrogate, or in any way nullify, the issuance of the required warranty is to be predetermined by the Contractor.

C. During Work:

1. The manufacturer's representative is to visit the project site during the initial full-scale setup and application of coating product, and provide instruction and recommendations to ensure optimal performance results.
2. Provide copies of manufacturer required job logs and test samples to the Owner's Representative and Consultant.

- ##### D. Samples: Submit two, 2' x 3' samples of each proposed finish, color, and texture to the Owner for approval.

1.05 QUALITY ASSURANCE

- ##### A. Contractor Qualifications: Not less than five (5) current years relevant successful experience with comparable projects and employing personnel skilled in the Work specified in this Section. The skilled person shall have at least five (5) years of experience and shall have successfully completed at least two (2) projects within the past three (3) years involving quantities and complexities similar to those required under this Section.

- B. **Manufacturer Qualifications:** The manufacturer will be a company with at least ten (10) years documented experience and regularly engaged in the manufacturing and marketing of the products specified in the construction documents.
- C. **Source of Materials:** Obtain materials from a single source for each type required, to ensure uniform quality, color, match, and texture.
- D. **Field Samples:**
 - 1. **Field-Constructed Mock-ups**
 - a. Prior to starting work, and in conjunction with the Owner's Representative and Consultant, select a minimum of two (2) separate wall areas which are representative of the total project for sample pre-cleaning, and application of coating product.
 - b. **Mock-up Size:** Ten (10) feet x ten (10) feet (minimum).
 - c. Manufacturer's Representative is to be notified and present during the preparation and application of the coating system to test sample areas.
 - d. Cleaning methods and application of coating are to reflect the proposed procedures and workmanship expected during full-scale application.
 - e. The location of approved test sample areas shall remain undisturbed during the work, and be retained as a standard for judging completed work. Do not alter or destroy the sample areas until all work is completed.
 - 2. **Field Adhesion Testing**
 - a. Notify the Consultant at least seven (7) days prior to coating application for field adhesion testing and at least seven (7) days prior to pull-testing so that a representative can be present during both operations. Failure to notify the Consultant constitutes failure of the samples tested.
 - b. At least eight (8) weeks prior to the start of coating installation, apply specified coating to each job site substrate following specified procedures. Embed multiple pieces of cheese-cloth between coats. The cheese cloth shall be approximately 4 inches wide and 18 inches long, leaving a 6 inch loose tab. Prepare surface (including cleaning and priming) and install coating joints and strips as described below and as will be done during the general coating installation.
 - c. **Pull-Testing:** After curing for 21 days at prevailing outdoor temperatures, grasp the tabs on the ends of the cheese cloth and pull at 90° to the surface.
 - d. With acceptable applications, the coating shall fail cohesively (tearing within itself) with no adhesive (debonding) failure.
 - e. If any sample debonds from the substrate, the coating manufacturer shall make recommendations regarding changes in surface preparation or primers and submit these recommendations to the Consultant for approval. Repeat field adhesion tests using approved recommendations.
 - f. Repeat adhesion tests as many times as required to produce an acceptable application at no additional cost to the Owner. Acceptable application required prior to full scale coating installation.
- E. **Pre-Installation Conference:** Convene prior to commencing work with the Owner and Consultant to discuss sequencing and installation procedures.

1.06 DELIVERY, STORAGE AND HANDLING

- A. Deliver materials to job site intact and unopened in the manufacturer's original sealed containers with labels identifying manufacturer, product name, batch number, lot numbers, and shelf life when applicable. Material Safety Data Sheets for each product shall accompany all shipments.
- B. Store approved materials in accordance with manufacturer's instructions. As a minimum comply with the following:
 - 1. Store all materials off the ground under watertight cover and away from sweating walls and other damp surfaces.
 - 2. Immediately remove damaged or deteriorated materials from the job site.
 - 3. Keep records of the quantities and batch numbers of materials stored.
 - 4. Use necessary means to ensure safe storage and use of materials, as well as prompt and safe disposal of waste.
 - 5. All coating and thinner containers shall remain closed until required for use and shall be stored in areas with a temperature between 50°F and 90°F.
- C. Personnel shall be warned against prolonged breathing of vapors and contact of materials with skin or eyes. Keep products away from heat, sparks, and flame. Do not allow uses of spark producing equipment such as switches, appliances, etc. during application or until vapors are gone.

1.07 PROJECT CONDITIONS

- A. Environmental Requirements:
 - 1. Comply with manufacturer's requirements for environmental conditions under which systems can be applied.
 - 2. Do not apply coating in areas where dust is being generated.
 - 3. Do not apply coating in snow, rain, fog, or on damp/wet surfaces.
 - 4. Coating application may be continued during inclement weather if areas and surfaces are enclosed and within temperature limits specified by the manufacturer during application and drying periods.
- B. Close and seal all heating and ventilation ducts as required to prevent contamination and intake of fumes inside the building. Where ducts can not be closed, as determined by the Owner, provide filtering media for duct and fumes.
- C. All coating shall be mechanically mixed before use, in accordance with the Manufacturer's directions. Agitation during application must be provided where specified by the manufacturer.
- D. The coating shall be done by skilled painters and/or qualified apprentices directed by same. The manufacturer's instructions regarding application shall be followed. Criteria of good workmanship desired shall be proper surface preparation in accordance with these Specifications, a neat appearance of the finished surfaces and the absence of ridges, sags, runs, drops, laps, and unnecessary brush marks. Other criteria are thorough mixing of coating, limited use of thinners, uniformity of film thickness, removal

of dust, grease, and other foreign matter, conservation of coating materials, proper drying time between coats, and protection of surfaces not to be coated.

- E. The Contractor shall provide adequate supervision of the work at all times. The Owner or his representative shall have access to all work, in the shop or at the job site, to ensure that the surface preparation, application, and all aspects of the work are being done according to the Specifications.
- F. Care must be taken to prevent intercoat contamination, particularly from industrial fallout, over spray of coating, greasy hands, oil mists, and the like. If contamination does occur, proper cleaning must be used, and finish coated as soon as the surface is dry.
- G. Protect finished surfaces from rain, dirt, dust, and work of other trades for not less than 48 hours.
- H. Provide "Wet Paint" signs to protect newly coated finishes.

1.08 WARRANTY

- A. Reference Section 01780 – Project Closeout and Warranties.

PART 2 – PRODUCTS

2.01 GENERAL

- A. Listed are the products and materials for the specified work. Provide all incidental items and materials required to complete the Work in accordance with these documents.
- B. A single manufacturer's products are referred to for identification. Products of other listed manufacturers meeting the requirements itemized below may be submitted for approval. The Contractor shall bear the full cost of review of alternate systems by the Consultant, including fees, expenses, travel to review previous products, etc., regardless of outcome or determination. Unless approved by the Consultant, obtain waterproofing system materials from the same manufacturer. Check all specified items upon contract signing and order early so that the work is not delayed. Certain materials may require considerable lead time for delivery.
- C. Coatings shall be measured in terms of mil thickness (0.001"). Total dry mil thickness shall not be less than called for. If the total dry film coating thickness required is not obtained by use of the number of coats shown, additional coats shall be applied until the specified total is provided. Recoating will take place within the time limits specified by the coating supplier.
- D. All coats shall be applied in such a manner as to produce a film of uniform smoothness. Special attention shall be paid to crevices, rivet lines, bolt heads, corners, edges, etc., to obtain the required thickness.

2.02 MATERIALS

A. Silicone Elastomeric Coating:

1. Type: Single component, high-build, elastomeric, 100% silicone-emulsion coating with high elongation, high vapor permeability, and hairline crack bridging characteristics.
2. Acceptable Products:
 - a. Dow Corning / Allguard
 - b. General Electric / SilShield
3. Dry Film Thickness: Provide in accordance with the manufacturer's instructions and as required for warranty. As a minimum, elastomeric coating is to be applied in two coats to attain not less than 10 to 12 mils dry thickness.
4. Color: To match existing surfaces, or as selected and approved by Owner. Base coat shall be one shade lighter than finish coat. Finish coat will have option of a texture as approved by Owner.
5. Primer: Provide product required for existing surfaces and as recommended by coating manufacturer.

B. Cleaners:

1. Materials used for cleaning shall be approved by the coating manufacturer to ensure compatibility.
2. Pre-mixed, commercially available cleaner, specially prepared for use with spray equipment and cleaning EIFS panels and concrete masonry surfaces.

2.03 ACCESSORIES

- A. Tarps or polyethylene sheeting for protection of existing landscaping and building surfaces.
- B. Masking tape: Pressure sensitive adhesive paper tape.
- C. Shop Cloths: Use shop cloths or clean lint-free rags for cleaning operations.
- D. Sealant for Coating System: Provide as recommended or required by coating manufacturer.

2.04 MIXING AND THINNING

- A. Mix the coating materials according to the manufacturer's recommendations, to a homogenous consistency. Thoroughly disperse any coating solids that may have settled to the bottom of the container.
- B. Do not thin coating materials.
- C. Ensure uniform color of coating materials between batches.

PART 3 – EXECUTION**3.01 EXAMINATION**

- A. The Contractor shall be responsible for inspecting the substrate and verifying that no conditions are present which may prevent or otherwise interfere with installation of the proposed elastomeric coating or with obtaining the required manufacturer's warranty.
- B. Inspect surfaces for the following:
 - 1. Contamination including: algae, dirt, dust, efflorescence, form oil, fungus, grease, laitance, mildew or other foreign substances.
 - 2. Surface absorption and chalkiness.
 - 3. Cracks: Measure crack width and record location of cracks.
 - 4. Damage and deterioration.
 - 5. Moisture content and moisture damage: Use a moisture meter to determine if the surface is dry enough to receive the coatings and record any areas of moisture damage.
- C. Report in writing any adverse conditions which might affect the performance of the coating to the Consultant within three (3) calendar days. Absence of such notification shall constitute the Contractor's verification that existing conditions will allow installation of the system in accordance with the plans and specifications, as well as the manufacturer's requirements and recommendations.
- D. Before ordering materials or performing work, obtain and verify all measurements at the project site. Exact measurements are the Contractor's responsibility.

3.02 PREPARATION

- A. General:
 - 1. Repair, patch, and fill all cracks, voids, defects, and damaged areas in existing surfaces. Allow repair materials to cure completely before application of coating product.
 - 2. Perform sealant work specified in Section 07920 – Joint Sealants prior to coating application. Do not coat joint sealants unless compatibility is demonstrated by adhesion testing and approved by the Consultant. Provide masking as required to prevent application of coating onto joint sealants and all non-coated surfaces.
 - 3. Remove old coating, caulking, sealers, roofing tar, dust, dirt, oils, grease, laitance, efflorescence, mildew, fungus, and any other materials that may inhibit adhesion of the coating product. Clean exterior EIFS surfaces by using a low-pressure water/detergent cleaning procedure. Clean masonry surfaces by using a high-pressure (>3000 psi) waterblasting, sandblasting, or mechanical wire brushing.
 - 4. Remove or protect signs, outlets, lighting fixtures, windows, doors, landscaping, roofs, vehicles, and other adjacent surfaces at the Project. Cleaning or replacement of existing surfaces due to inadequate protection is the Contractor's responsibility.
 - 5. Coordinate temporary shutdown and protection at air intake ducts/vents with the Owners Representative to prevent objectionable fumes from entering the interior.

B. Cracks:

1. Static cracks up to 1/16" generally can be bridged by elastomeric coating with a heavy-brush application. Verify with the coating manufacturer.
2. Static cracks over 1/16" wide and all dynamic cracks/joints require proper repair and joint sealant application, in accordance with the appropriate substrate Section in this specification.

3.03 APPLICATION

- A. Verify that existing surfaces have been repaired, cleaned, and are dry before proceeding.
- B. Labels: Do not coat over any code-required labels or equipment name, identification, performance rating or nomenclature plates.
- C. Apply coating products by roller, brush, or spray equipment, as recommended by the manufacturer for the specific project substrates and conditions, following the manufacturer's written specifications and as determined by the test samples.
- D. Maintain minimum (and maximum) thickness of each coat. Apply additional coats as required to obtain the minimum total system thickness.
- E. Allow primer / coating to dry / cure for a minimum of 12 hours, or as recommended by the manufacture (if longer). Allow additional time as required to account for current ambient temperature, surface temperature, and relative humidity at the time of application.
- F. Apply the coating to the entire area in a continuous application, always working to a wet edge to eliminate cold joints.
- G. Back Rolling: Backroll all final coat applications (regardless of application method). Backrolling shall be performing in the same direction for the entire project to prevent differences in appearance.
- H. All finished coating applications must match approved samples for color, texture, coverage, and be free of pinholes to ensure waterproofing performance.

3.04 FIELD QUALITY CONTROL

- A. Contractor shall maintain or exceed levels of workmanship and material acceptability in regard to surface preparation, cleaning, and coating application as established by mock-up/test samples.
- B. Contractor shall employ trained, skilled and experienced craftsmen for all phases of the work.
- C. Contractor shall make provision to assist and coordinate inspections of the work by the Manufacturer and Owner Representatives, and perform adhesion testing, dry film thickness measurements, etc., as required.

- D. Wet mil. thickness measurements shall be taken by the Contractor during application process and submitted to the Consultant. Additionally, the Consultant will perform thickness measurements during field reviews to verify system requirements; the Contractor shall repair coating at measurement locations.

3.05 ADJUSTING AND CLEANING

- A. Clean site of all unused materials, residues, and waste in accordance with environmental regulations.
- B. Clean tools and equipment with water immediately after use. Dried material can only be removed mechanically.
- C. Remove and dispose of all materials used to protect surrounding areas and building surfaces, following completion of the work of this section.
- D. Repair, restore, or replace all materials, landscaping, and surfaces damaged by coating product to the satisfaction of the Owner at no additional expense.

END OF SECTION

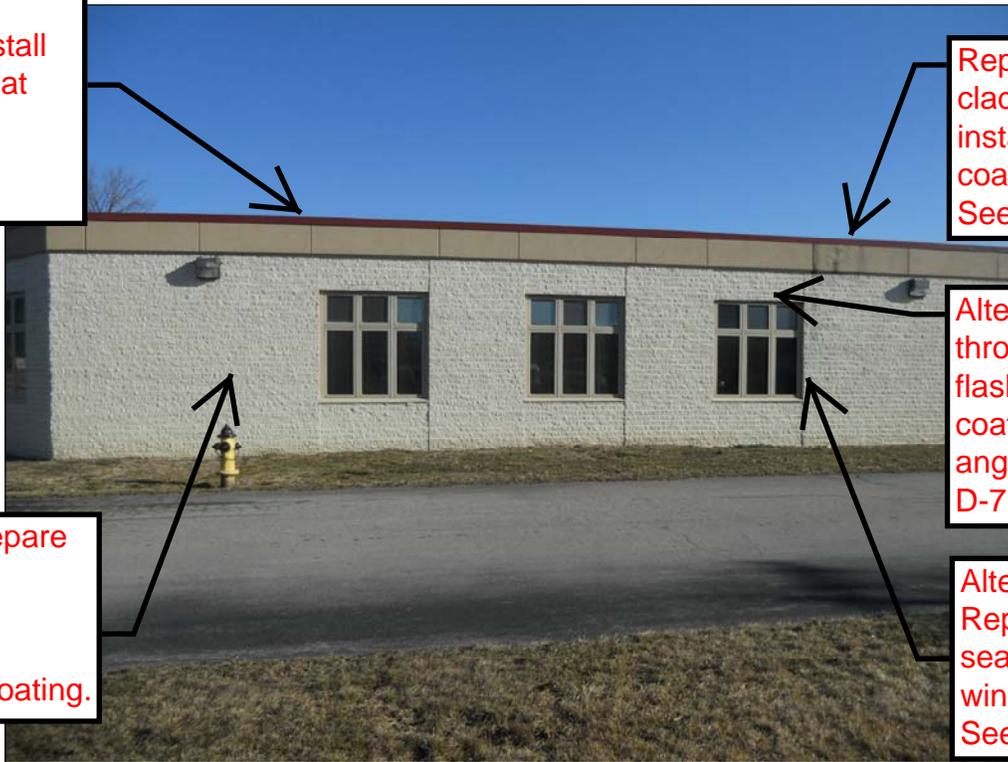
Replace roof fascia and install metal coping at parapet wall (typical). See detail D-5.

Repair EIFS cladding and install finish coating (typical). See detail D-4.

Alternate: Provide through-wall flashing and re-coating steel angle. See detail D-7.

Alternate: Prepare and re-coat masonry wall surface with elastomeric coating.

Alternate: Replace / install sealants around window perimeter. See detail D-3.



Repair EIFS cladding and install finish coating (typical). See detail D-4.

Alternate: Provide through-wall flashing and re-coating steel angle. See detail D-7.

Alternate: Prepare and re-coat masonry wall surface with elastomeric coating.



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PARTIAL SOUTH ELEVATION

2013 BUILDING RESTORATION
 SANITARY ENGINEER
 HOLLAND, OHIO

SCALE: N.T.S.

APPROVED BY: M.S.S.

DRAWN BY: T.A.B.

DATE: MAY 2013

PROJECT #: 5310.RST3

E-1



Repair EIFS cladding and install finish coating (typical). See detail D-4.

Alternate: Replace cracked masonry units. See detail D-1.

Alternate: Prepare and re-coat door, frame, and jambs.



Extend both exhaust flue out beyond EIFS surface.

Alternate: Prepare and re-coat masonry wall surface with elastomeric coating.

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PARTIAL SOUTH ELEVATION

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DATE: MAY 2013
PROJECT #: 5310.RST3
E-2



Replace roof fascia and install metal coping at parapet wall (typical). See detail D-5.

Alternate:
Replace / install sealant at masonry control joints (typical). See detail D-3.

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EAST ELEVATION

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E-3



Repair EIFS cladding and install finish coating (typical). See detail D-4.

Alternate: Replace cracked concrete masonry units. See detail D-1.

Alternate: Prepare and re-coat masonry wall surface with elastomeric coating.



Replace roof fascia and install metal coping at parapet wall (typical). See detail D-5 and D-6.

Alternate: Prepare and re-coat door, frame, and jambs.

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PARTIAL NORTH ELEVATION

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DATE: MAY 2013

PROJECT #: 5310.RST3

E-4

Repair EIFS cladding and install finish coating (typical). See detail D-4.

Alternate: Prepare and re-coat masonry wall surface with elastomeric coating.



Alternate: Provide through-wall flashing and re-coating steel angle. See detail D-8.

Alternate: Tuckpoint deteriorated mortar joints. Prepare and re-coat masonry walls. See detail D-2.



Repair EIFS cladding and install finish coating (typical). See detail D-4.

Alternate: Replace / install sealants around window perimeter. See detail D-3.

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PARTIAL NORTH ELEVATION

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E-5

Repair EIFS cladding and install finish coating (typical). See detail D-4.

Replace roof fascia and install metal coping at parapet wall (typical). See detail D-5.

Alternate: Provide through-wall flashing and re-coating steel angle. See detail D-8.

Alternate: Tuckpoint deteriorated mortar joints. Prepare and re-coat masonry walls. See detail D-2.



Alternate: Replace / install sealants around window perimeter. See detail D-3.

Alternate: Provide through-wall flashing and re-coating steel angle. See detail D-7.

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PARTIAL WEST ELEVATION

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E-6

Replace roof fascia and install metal coping at parapet wall (typical). See details D-5 and D-6.

Repair EIFS cladding and install finish coating (typical). See detail D-4.



Replace roof fascia and install metal coping at parapet wall (typical). see details D-5 and D-6.

Repair EIFS cladding and install finish coating (typical). see detail D-4.



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PARTIAL ROOF LEVEL ELEVATION

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E-7

Replace roof fascia and install metal coping at parapet wall (typical). See details D-5 and D-6.

Repair EIFS cladding and install finish coating (typical). See detail D-4.



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PARTIAL ROOF LEVEL ELEVATION

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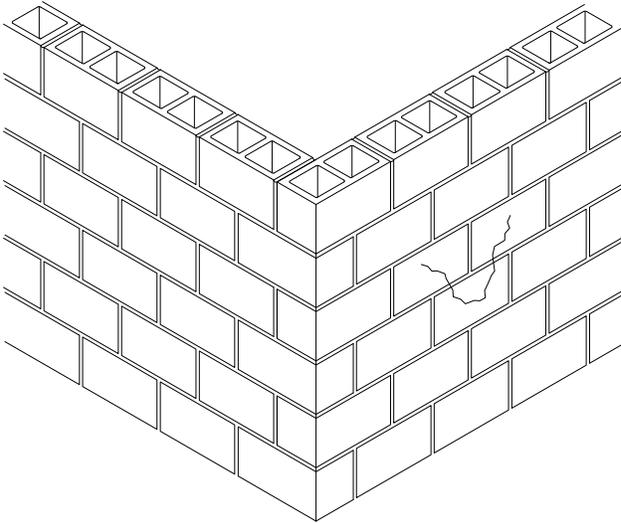
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DRAWN BY: T.A.B.

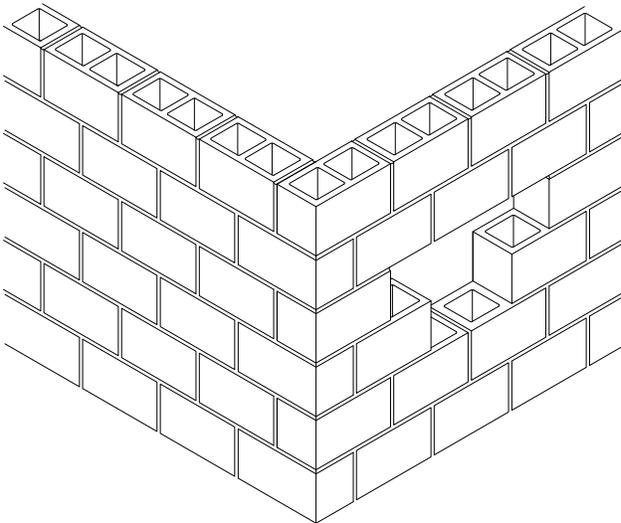
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PROJECT #: 5310.RST3

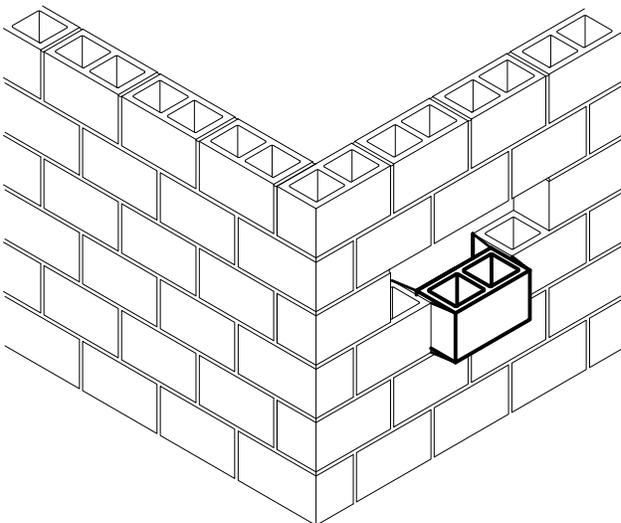
E-8



A. DAMAGED CONCRETE MASONRY UNITS



B. REMOVE DAMAGED CMU AND MORTAR



C. BUTTER REPLACEMENT UNITS AND PRESS INTO PLACE

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CONCRETE MASONRY UNIT (CMU) REPLACEMENT

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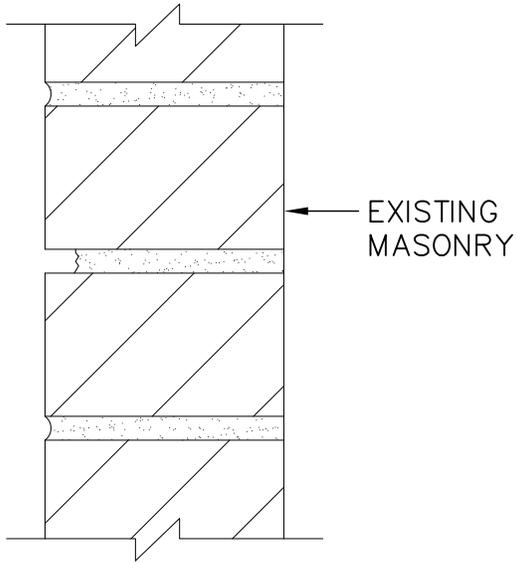
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DRAWN BY: C.A.D.

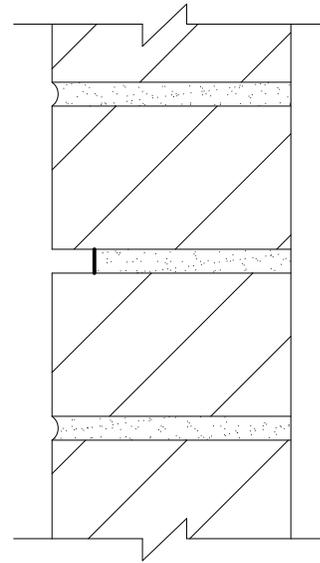
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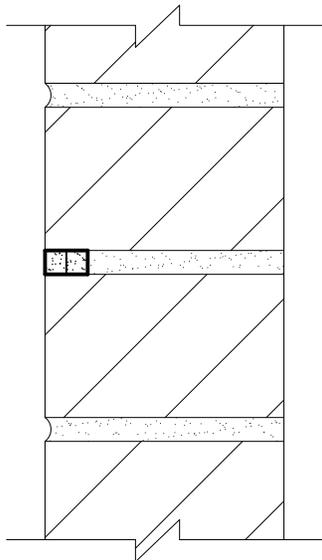
D-1



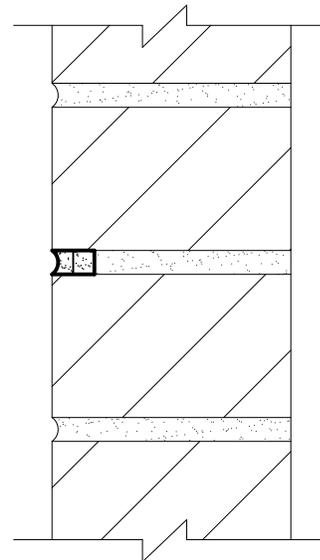
A) EXISTING
DETERIORATED
MORTAR JOINT



B) CUT BACK EXISTING
MORTAR TO A UNIFORM
DEPTH (MIN. 1")



C) PLACE TUCK-POINTING
MORTAR IN 2 LAYERS OF
EQUAL THICKNESS,
CONSOLIDATING EACH LAYER
AS SPECIFIED



D) TOOL JOINT TO MATCH
ORIGINAL PROFILE

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TYPICAL TUCKPOINTING

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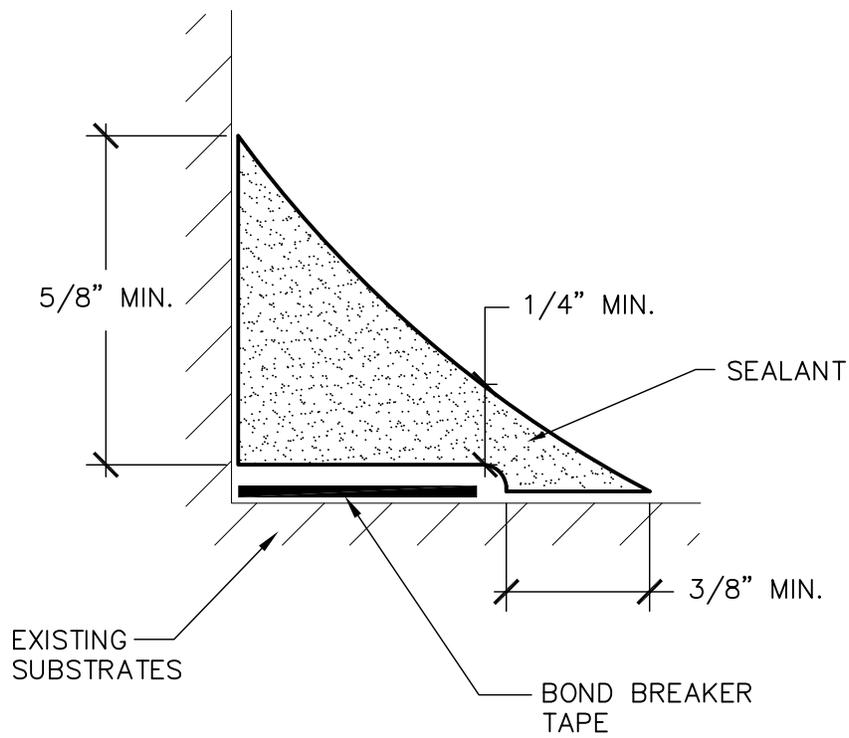
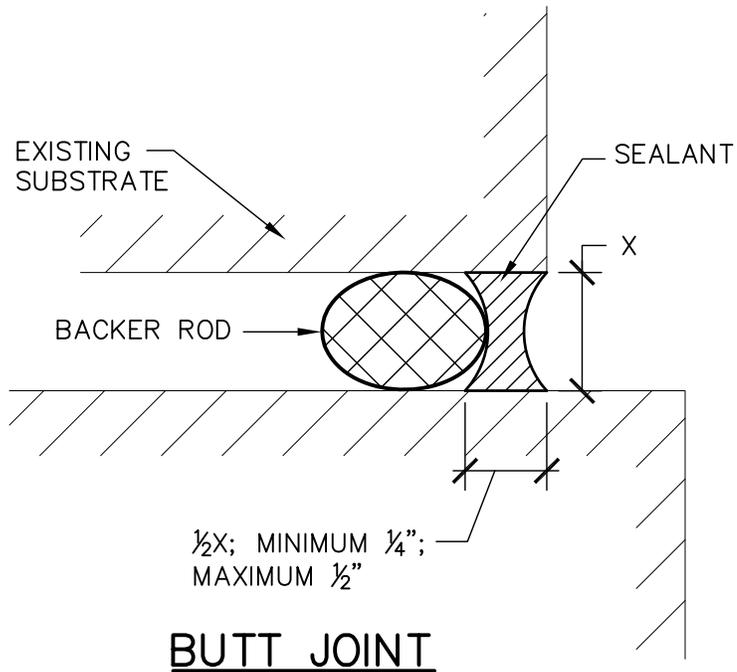
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DATE: MAY 2013

PROJECT #: 5310.RST3

D-2



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TYPICAL SEALANT JOINT

2013 BUILDING RESTORATION
 SANITARY ENGINEER
 HOLLAND, OHIO

SCALE: N.T.S.

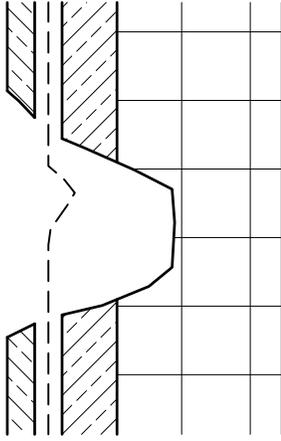
APPROVED BY: M.S.S.

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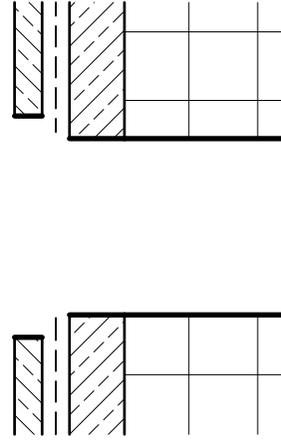
DATE: MAY 2013

PROJECT #: 5310.RST3

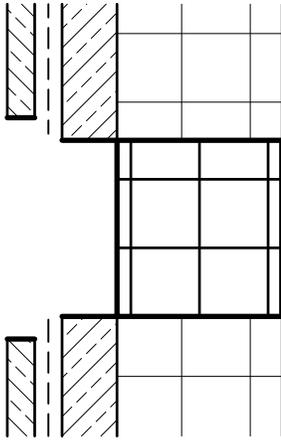
D-3



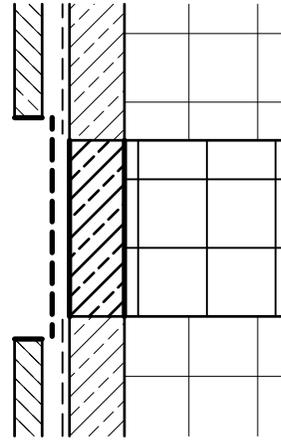
1. REMOVE FINISH COAT AT AREA OF REPAIR WITH WATER – BASED, GEL – TYPE PAINT REMOVER AND SCRAPER.



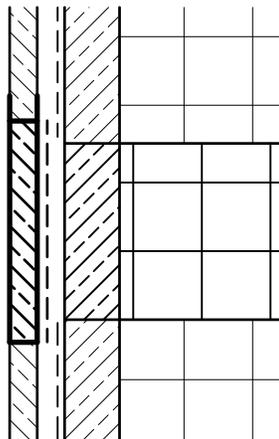
2. REMOVE THE REINFORCING MESH AND INSULATION AT THE DAMAGED AREA LEAVING 2 1/2 INCHES OF SOUND INTACT BASE COAT AND MESH BETWEEN THE DAMAGE AND FINISHED EDGE.



3. PROVIDE INSULATION FIT SNUG AND ADHERED TO SUBSTRATE WITH BASE COAT.



4. PROVIDE REINFORCING MESH OVER LAPPED MINIMUM 1 INCH ONTO EXISTING MESH AND EMBED IN BASE COAT.



5. PROVIDE FINISH COAT COLORED AND TEXTURED TO MATCH.

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TYPICAL E.I.F.S. PUNCTURE REPAIR

2013 BUILDING RESTORATION
 SANITARY ENGINEER
 HOLLAND, OHIO

SCALE: N.T.S.

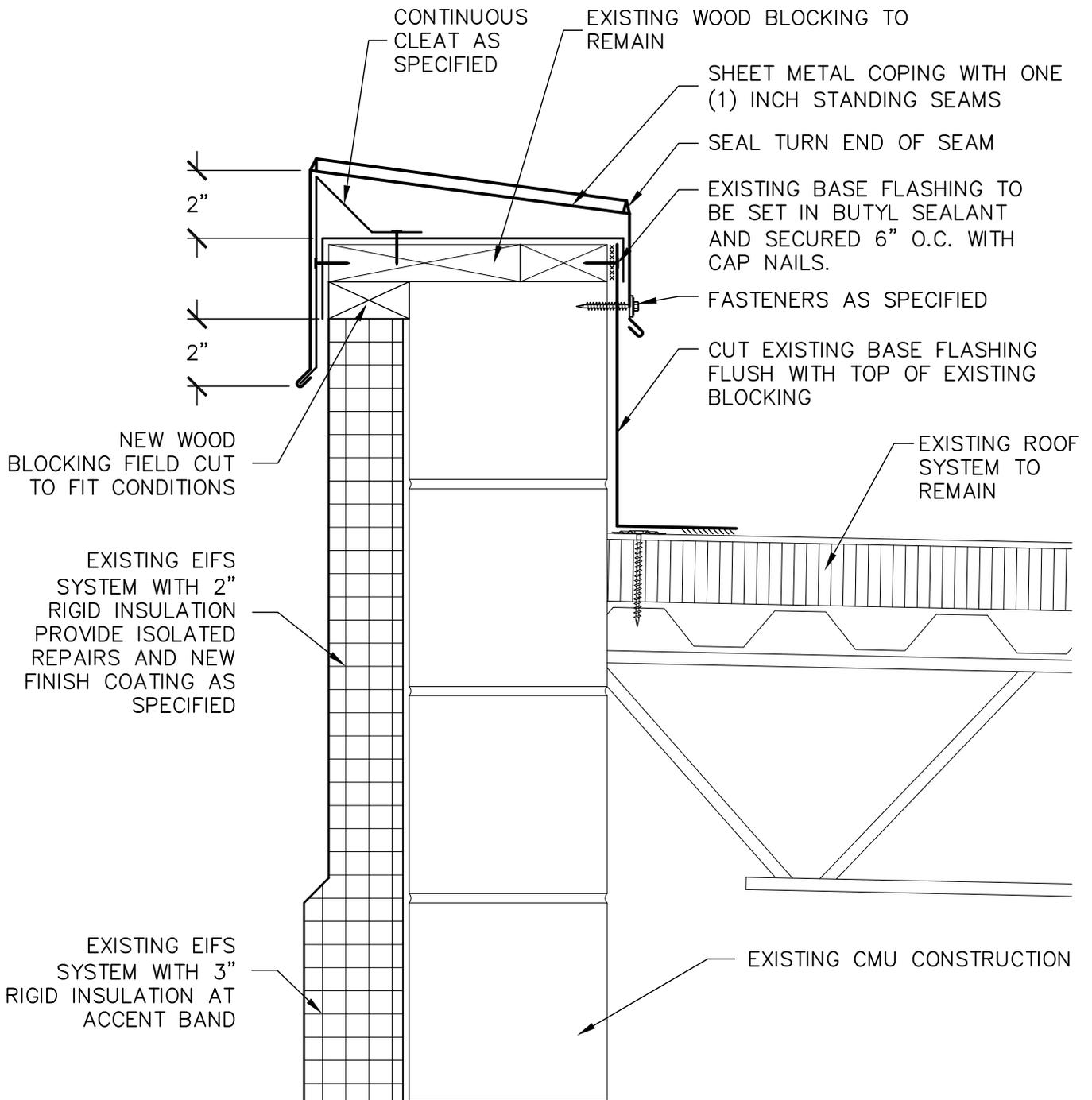
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D-4



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NEW STANDING SEAM COPING

2013 BUILDING RESTORATION
 SANITARY ENGINEER
 HOLLAND, OHIO

SCALE: N.T.S.

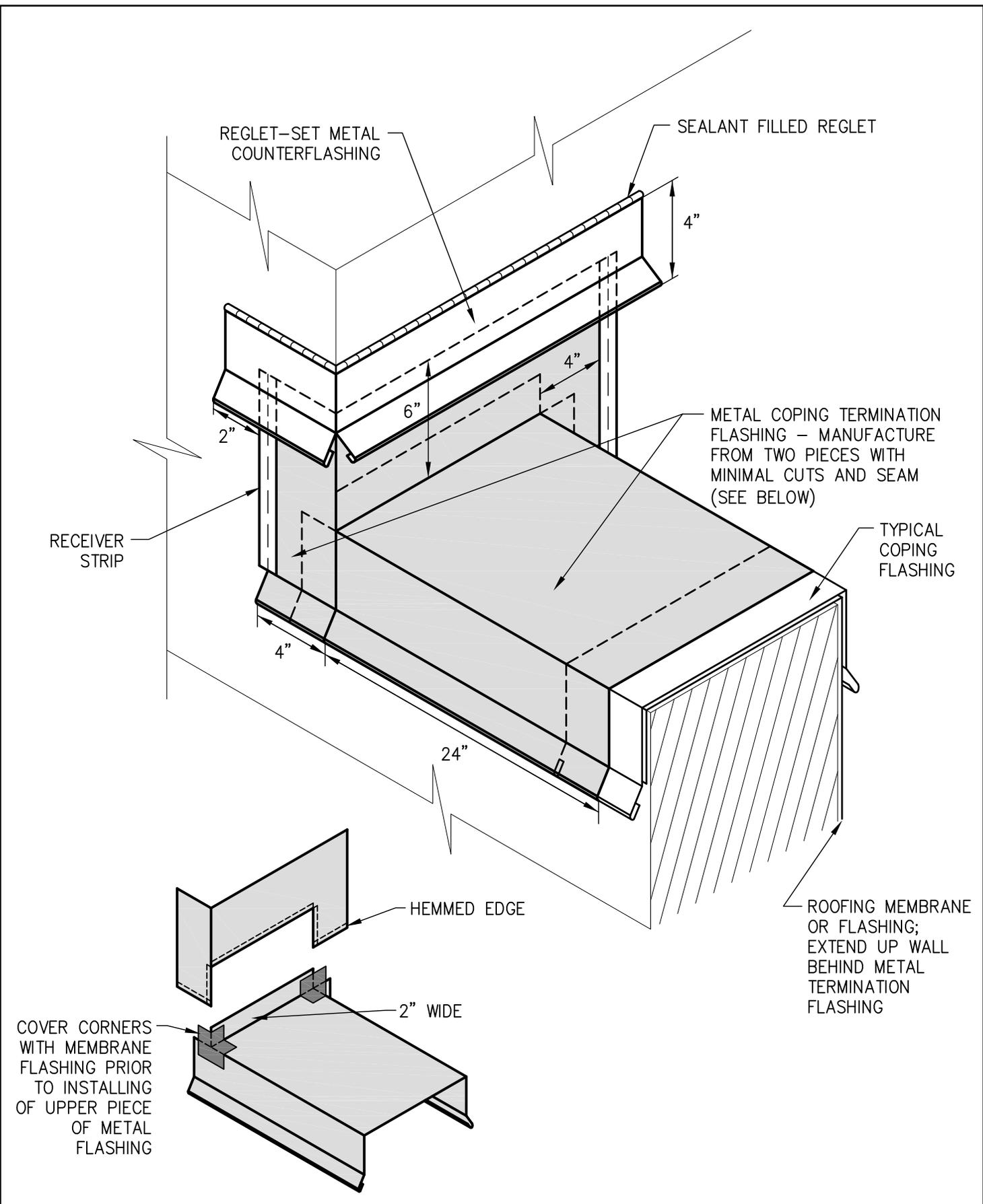
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DATE: MAY 2013

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D-5



COVER CORNERS WITH MEMBRANE FLASHING PRIOR TO INSTALLING OF UPPER PIECE OF METAL FLASHING

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TWO PIECE METAL COPING TERMINATION

2013 BUILDING RESTORATION
 SANITARY ENGINEER
 HOLLAND, OHIO

SCALE: N.T.S.
APPROVED BY: M.S.S.
DRAWN BY: T.A.B.
DATE: MAY 2013
PROJECT #: 5310.RST3

CONTINUOUS FLAT TERMINATION
BAR; COVER WITH LIQUID
MEMBRANE

SELF-ADHERED MEMBRANE
FLASHING

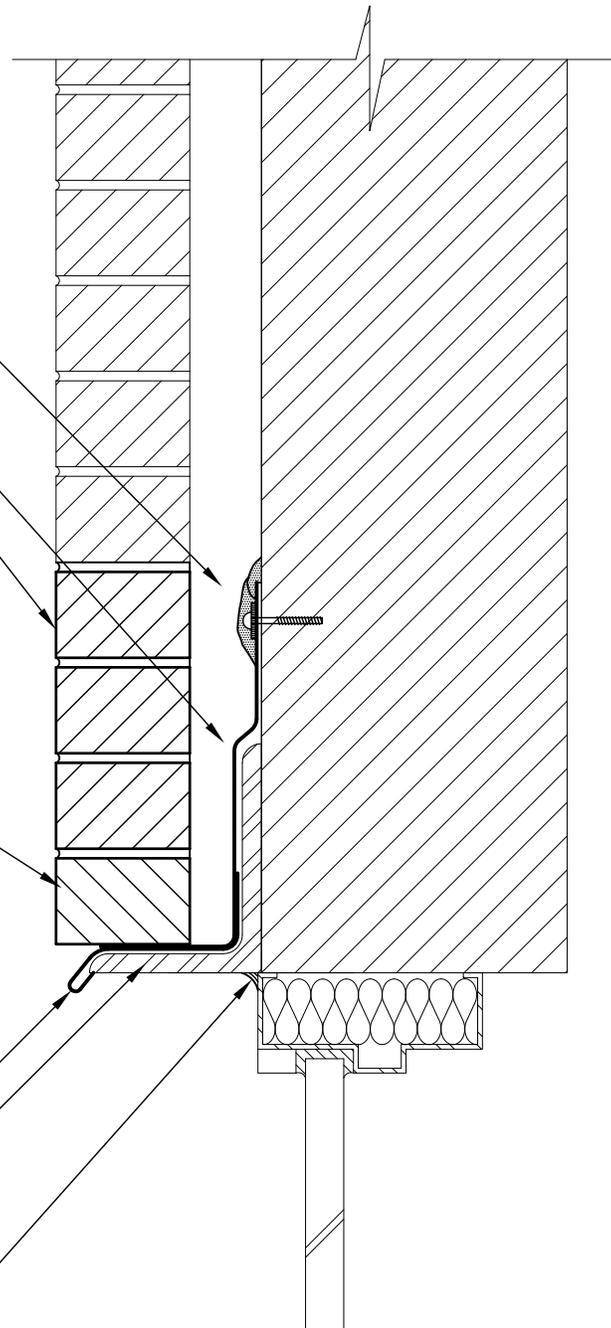
EXISTING BRICK MASONRY. REMOVE
AND REPLACE COURSES ABOVE
THE SHELF ANGLE AS REQUIRED
TO COMPLETE THE WORK

PROVIDE FULL HEAD JOINT WEEPS
AT EVERY THIRD HEAD JOINT

CONTINUOUS METAL FLASHING

EXISTING STEEL LINTEL.
PROVIDE NEW
PROTECTIVE COATING

SEALANT



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ALTERNATE - THROUGH - WALL FLASHING AT BUILDING
ADDITION CONSTRUCTION

2013 BUILDING RESTORATION
SANITARY ENGINEER
HOLLAND, OHIO

SCALE: N.T.S.

APPROVED BY: M.S.S.

DRAWN BY: T.A.B.

DATE: MAY 2013

PROJECT #: 5310.RST3

D-7

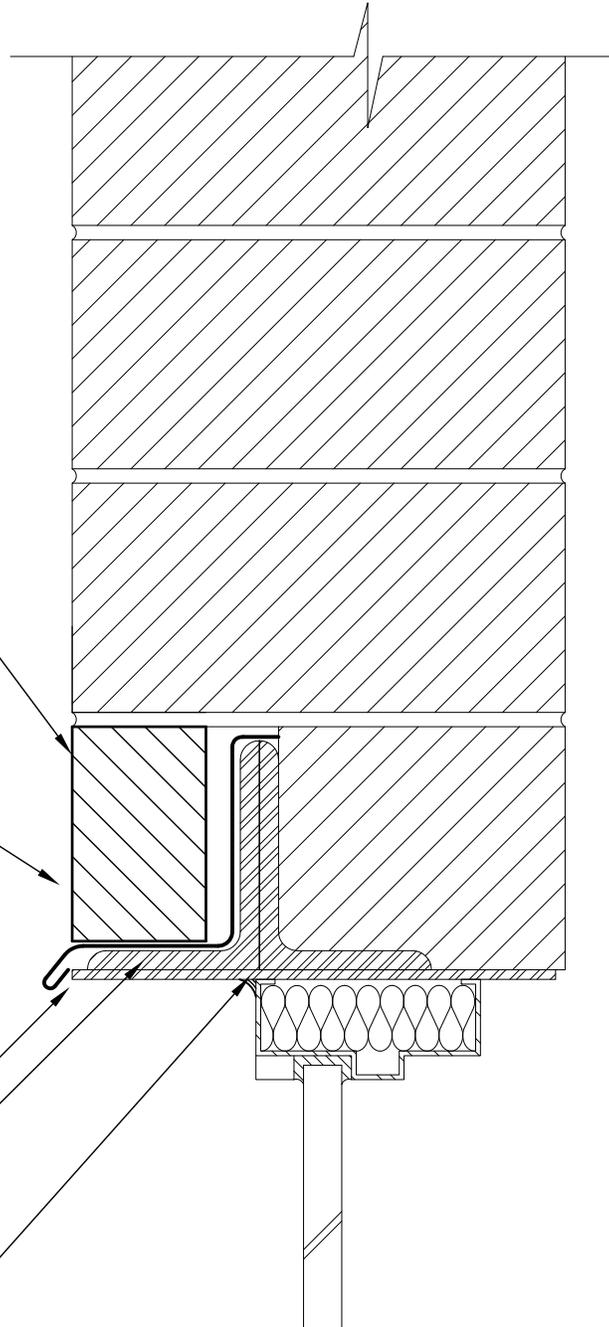
EXISTING BRICK MASONRY. REMOVE
AND REPLACE COURSES ABOVE
THE SHELF ANGLE AS REQUIRED
TO COMPLETE THE WORK

PROVIDE FULL HEAD JOINT WEEPS
AT EVERY THIRD HEAD JOINT

CONTINUOUS METAL FLASHING

EXISTING STEEL LINTEL.
PROVIDE NEW
PROTECTIVE COATING

SEALANT



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ALTERNATE-THROUGH – WALL FLASHING AT ORIGINAL
BUILDING CONSTRUCTION

2013 BUILDING RESTORATION
SANITARY ENGINEER
HOLLAND, OHIO

SCALE: N.T.S.

APPROVED BY: M.S.S.

DRAWN BY: T.A.B.

DATE: MAY 2013

PROJECT #: 5310.RST3

D-8

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