
The logo for Industrial Roofing Services, Inc. (IRS) is displayed in a bold, red, sans-serif font. It is positioned to the left of a technical cross-section drawing of a roof edge, which shows various layers of roofing materials, insulation, and structural components. The drawing is rendered in black lines on a white background.

Industrial Roofing Services, Inc.
13000 West Silver Spring Drive
Butler, Wisconsin 53007
Phone: (262) 432-0500
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SPECIFICATIONS

for

MASONRY RESTORATION

FOND DU LAC PUBLIC LIBRARY

File #2015-110

IRS JOB# 15393

Located at

32 SHEBOYGAN STREET

FOND DU LAC, WISCONSIN

Prepared for

Mr. Jon Mark Bolthouse

Library Director

Fond du Lac Public Library

32 Sheboygan Street

Fond du Lac, Wisconsin 54935

September 28, 2015

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SECTION 00020

ADVERTISEMENT FOR BIDS

FOND DU LAC PUBLIC LIBRARY MASONRY RESTORATION - File No. 2015-110

CITY OF FOND DU LAC, WISCONSIN

IRS JOB #15393

NOTICE IS HEREBY GIVEN that sealed bids will be received in the City Administrative Offices within City-County Government Center, 160 South Macy Street, Fond du Lac, Wisconsin, until 2:00 PM CST, on Tuesday, October 20, 2015, at which time bids will be publicly opened and read aloud in the City Manager's Conference Room. The project encompasses grinding out mortar joints and installing sealant.

Complete bidding documents are available on the City of Fond du Lac web site at www.fdl.wi.gov. Bidding documents are also available at no charge from the City Administrative Offices located on the fourth floor of the City-County Government Center, 160 South Macy Street, Fond du Lac, WI 54936.

The Work is to be started on October 26, 2015 and shall be completed on or before November 23, 2015.

There will be a **mandatory pre-bid meeting** held for the purpose of reviewing the job-site conditions, the specifications, and other pertinent information regarding the masonry restoration project on Monday, October 12, 2015 at 9:00 am. The meeting will be held at the Fond du Lac Public Library, 32 Sheboygan Street, Fond du Lac, Wisconsin, 54935.

No bid will be opened unless the "Bidder's Proof of Responsibility" for 2015 is filed at least five days before the scheduled time for opening of bids. Reference is made to Section 66.0901(2) and (3) Wisconsin Statutes. The Director of Public Works decision as to qualifications shall be final.

All bids shall be prepared on the proposal forms provided in the specifications and shall remain attached thereto, and shall be addressed to City of Fond du Lac, P.O. Box 150, Fond du Lac, Wisconsin. Each bid envelope shall be properly identified on the face thereof "**SEALED BID – FOND DU LAC PUBLIC LIBRARY MASONRY RESTORATION File No. 2015-110**". Bids shall be on a lump-sum basis: unit pricing and a time & material (T&M)

rate shall be submitted for the repair of latent defects.

No bid shall be withdrawn for a period of thirty days after the opening of said bids, without the consent of the Director of Public Works. The City of Fond du Lac may reject any or all bids on any basis and without disclosure of any reason. The failure to make a disclosure shall not result in accrual of any right, claim or cause of action against the City. The City also reserves the right to waive any formalities or informalities in bidding, and to select the bid that, in its opinion, will best serve the interests of the City.

Bidder's attention is called to the fact that this contract includes a "Disclosure of Ownership" form. Section 66.0903 (12)(d) of Wisconsin Statutes requires that each bidder complete this form. No bid will be considered unless the prospective bidder has completed the form entitled "Disclosure of Ownership".

Questions may be directed to the Consultant acting on the Owner's behalf,

INDUSTRIAL ROOFING SERVICES, INC

13000 West Silver Spring Drive

Butler, WI 53007

Phone: (800) 236-3477

Fax: (262) 432-0504

Published by authority of the City of Fond du Lac, Wisconsin on October 6, 2015.

END OF SECTION

SECTION 00100 INSTRUCTIONS TO BIDDERS

PART 1 - GENERAL

1.01 SUBMISSION OF BIDS

- A. To be considered, bids must be submitted in accordance with these "Instructions to Bidders." Bids shall be submitted prior to the bid due date specified in Section 00020 - "Invitation to Bid."
- B. To submit a bid, the Bidder must have attended and signed in at the mandatory pre-bid meeting and Bidder's Proof of Responsibility" for 2015 is to be filed at least five days before the scheduled time for opening of bids .

1.02 DOCUMENT DISTRIBUTION

- A. Qualified Bidders will be provided access to Bidding Documents as stipulated in Section 00020 - "Invitation to Bid." No partial sets will be issued and no sets will be issued by the Consultant to sub-contractors.

1.03 EXAMINATION

- A. Each bidder shall visit and carefully examine the proposed work and fully acquaint themselves with conditions relating to construction and labor so that they may fully understand the facilities, difficulties and restrictions attending the execution of the work included under the Contract.
- B. Bidders shall thoroughly examine and be familiar with the drawings, specifications and other contract documents.
- C. Should a bidder find discrepancies in or omissions from the drawings or documents, or should he be in doubt as to their meaning, he shall at once notify the Consultant, at least five (5) days before bids are due, who will send written instructions in the form of an addendum to all bidders. Neither the Owner nor the Consultant will be responsible for any oral instructions.

- D. It is the responsibility of each bidder to become familiar with the site and documents; no extras will be approved for conditions that could be reasonably determined at the time of bidding.

1.04 QUESTIONS AND ADDENDA

- A. The Bidder shall resolve all questions regarding the intent of the Bidding Documents with the Consultant prior to submitting their bid. If necessary, to change or clarify the intent of the Bidding Documents, the Consultant will issue, to all Prime Bidders of Record, an Addendum that will become part of the Bidding Documents. The Consultant will not be responsible for oral clarifications.
- B. In the event of a conflict between the Bidding Documents and those of the Manufacturer, the bidder shall be responsible for the resolution of the conflict with the Consultant prior to submitting his bid. Any and all costs associated with the resolution of such conflicts shall be included in the Bidder's Bid Price.
- C. The Bidder shall acknowledge receipt of Addenda, and the inclusion of any and all associated costs within his Bid Price, by certifying receipt on the Bid Form.

1.05 SUBSTITUTIONS

- A. Any Bidder who wishes to propose substitute products must nevertheless submit his Bid Price in accordance with the Bidding Documents. Failure to do so may result in the substitution being rejected without consideration.
 - 1. The substitute product shall be limited to the general classification of the specified product.
 - 2. Substitution requests shall clearly describe the product for which approval is sought. Submit all data necessary to demonstrate that the proposed product is, in fact, equal to or superior to the product specified.
 - 3. Substitutions shall be submitted with the bid on the form provided in the specifications, "Supplement to Bid Form."
- B. Acceptance of a substitute product shall not relieve the Bidder of responsibility for providing workmanship, materials and equipment which meets the quality standards established for the project by the Bidding Documents.

1.06 BASIS OF THE BID

- A. The Bidder must submit a Base Bid price in order to submit prices for any Alternate or Additive bids.
- B. Unit Prices and Time & Material (T&M) pricing provided by the contractor shall be used by the Owner to increase or decrease the initial contract amount. Bids which do not provide Unit Prices and Time & Material pricing may be rejected at the Owner's discretion.
- C. The Bidder's Bid Price shall be based on the complete Work, as described in the Bidding Documents, including all costs incidental to the Work, unless specifically indicated otherwise.
- D. The Bidder shall base his Bid Price on a completion date of November 23, 2015.

1.07 BONDS

- A. Each proposal must be accompanied by a Bidders bond, or a certified check payable to the Owner, equal to five percent (5%) of the amount of the bid as a guarantee that if the bid is accepted, the proper contract will be executed and performance bond filed.

- B. The Bidder shall furnish bonds covering faithful performance of the Contract and payment of all obligations arising thereunder. Bonds shall be furnished in such manner as the Owner may prescribe, and issued by a surety company acceptable to the Owner. The Bidder shall be responsible for the cost of the bonds. The Bidder shall deliver Bonds to the Owner no later than the date of execution of the Contract. Failing or neglecting to deliver the specified Bonds shall be considered as abandonment of the Contract.

1.08 INSURANCE REQUIREMENTS

- A. The contractor shall not commence work under this contract until he has obtained all insurance required under this heading. A certificate of insurance shall accompany the signed contract and shall be filed with the City Clerk as proof of such insurance, which shall also not be cancelable in less than thirty (30) days upon written notice to the insured and the City. All insurance premiums shall be the obligation of and shall be paid by the contractor.

- B. Insurance requirements under this heading and during the term of the contract shall provide protection for the City, the contractor, and any subcontractor performing work covered by this project from claims for damages for personal injury, including accidental death, as well as from claims for property damages, which may arise from operations under this project, whether such operation by himself or by any subcontractor or by anyone directly or indirectly employed by either of them, and the amounts of such insurance shall be:
 - 1. Workmen’s Compensation Insurance to meet Wisconsin Statutory requirements
 - 2. Automobile Liability Insurance; Limits of liability applicable to automobile insurance shall not be less than \$1,000,000 combined single limit to include all owned, non-owned and hired automobiles.
 - 3. General Liability and Property Damage Insurance limits shall not be less than:
 - a. General Aggregate \$2,000,000
 - b. Products-Completed Operations Aggregate..... \$2,000,000
 - c. Each Occurrence \$2,000,000

- C. The City of Fond du Lac shall be listed as an additional insured as respects to the General Liability for operations and activities and shall be so noted in the proper blank on the insurance certificate.

1.09 GOVERNING LAWS OR REGULATIONS

- A. The Bidder is responsible for ascertaining and complying with all ordinances, codes, and laws governing business practices and construction in the project location, including acquisition of necessary permits and permit fees.

- B. Prevailing Wage Rates: If the base bid and allowance is less than \$48,000.00 or if the Base Bid, Allowance, and Alternate Add #1 is less than \$100,000.00 than prevailing wage is not required. If the bids are above the referenced thresholds than prevailing wage is required for this project.

1.10 REGULATED MATERIAL(S) HANDLING PROCEDURES

- A. Not Used.

1.11 SUBCONTRACTORS

- A. The names of principal subcontractors must be listed and attached to the Bid Form. There shall be only one subcontractor named for each classification listed.

1.12 PREPARATION OF BIDS

- A. Bids shall be submitted on unaltered forms provided in the Bidding Documents, on unaltered photocopies of the form provided, or on a form provided with an Addendum. The Bid Form shall have all blank spaces filled, including certification of receipt of Addenda, price-hold period, and project start & completion period.
- B. Bidder shall indicate on the Bid Form whether bidder is an individual, partnership, corporation, or other business entity.
 - 1. If the Bidder is an individual, the Bid Form shall be dated and signed, with the name printed below the signature.
 - 2. If the Bidder is a corporation, the legal title of the Corporation and the State of incorporation must be listed, and the signature must be of an Officer authorized to bind the corporation to a contract.
 - 3. If the Bidder is a partnership, the names of all partners must also be listed.

1.13 BID SUBMITTAL

- A. Enclose the following in one opaque, sealed envelope.
 - 1. Bid Form.

2. Subcontractor Disclosure Form.
3. Bid Bond.
4. Disclosure of Ownership.

B. Clearly mark the envelope with the following information:

1. Bidder's Information
 - a. FIRM NAME
 - b. ADDRESS
 - c. CITY,STATE, ZIP-CODE
2. Project Information
 - a. "SEALED BID ENCLOSED"
 - b. Fond du Lac Public Library
 - c. Masonry Restoration
 - d. IRS JOB# 15393
 - e. ATTN: Purchasing Manager

City of Fond du Lac

C. Submit bid at the time, date and place listed in Section 00020 - "Invitation to Bid."

1.14 BID MODIFICATION OR WITHDRAWAL

- A. Bids may not be modified after submittal. Bidder may withdraw his bid anytime before the Bid Opening, but may not then resubmit it. No bid may be withdrawn or modified after the Bid Opening has begun. The Bidder may withdraw his bid if the award of contract has been delayed for longer than his stated price-hold period.

1.15 BID EVALUATION

- A. The Owner reserves the right to disqualify any or all bids, waive informalities or technicalities in any bid proposal, or accept any bid proposal which he deems to be in his best interest.
- B. The Owner may consider such factors as bid prices, unit pricing, project start & completion period, experience and responsibility of the Bidder, etc. in evaluating which proposal he deems to be in his best interest.

1.16 OPENING AND AWARD

- A. Bids shall be opened publicly, in accordance with Section 00020 - "Invitation to Bid."
- B. If requested, the Bidder shall furnish information to satisfy the Owner as to integrity, equipment, personnel, and financial ability to perform the Work.
- C. If requested, the Bidder shall submit a list of five (5) similar projects completed by the Bidder. The list shall include the project Owner, location, approximate date of completion, and the value of construction performed.

1.17 EXECUTION OF THE CONTRACT

- A. The Owner reserves the right to negotiate changes or contract terms with any or all Bidders, at any time after the Bid Opening, if he deems it to be in his best interest.
- B. The Bidder to whom the Contract is awarded shall, within ten (10) days after receiving notice of such award, execute a contract with the Owner for the full and complete performance of all work.
- C. Notwithstanding any delay in the preparation and execution of the formal Contract Agreement, the successful Bidder shall be prepared, upon notice of Bid Acceptance, to commence work on the date stipulated on his Bid Form.
- D. The successful bidder shall furnish a Performance Bond and a Labor and Material Payment Bond in the full amount of the Contract. Such Bonds shall be in force from the date of signing of the Contract until one (1) year after issuing of final Certificate for Payment. The cost of the Bonds shall be included in the bidder's Proposal.

1.18 SPECIFICATION TECHNIQUES

- A. Format:
 - 1. These specifications are written in imperative and streamlined form and are directed to the Contractor unless specifically noted otherwise.
 - 2. The words "shall be" shall be inferred where a colon(:) is used within phrases or sentences.
- B. Definitions:
 - 1. The word "furnish" shall mean to purchase, supply, and deliver to the project site, elevation, and location, those materials and/or services which are necessary for the completion of the Work.
 - 2. The word "install" shall mean to place and integrate materials into position for their designed use.
 - 3. The word "provide" shall mean furnish and install.

4. The word "manufacturer" shall mean the manufacturer or private-labeler of the material, which are to be integrated into the Work.

PART 2 - PRODUCTS

- A. Not Used.

PART 3 - EXECUTION

- A. Not Used.

END OF SECTION

SECTION 00300

BID FORM

BID TO:

City of Fond du Lac

160 South Macy Street

Fond du Lac, Wisconsin 54935

PROJECT:

Fond du Lac Public Library

Masonry Restoration

IRS Job# 15393

File #2015-110

Attention: Purchasing Manager

City of Fond du Lac

Bids due: Tuesday, October 20, 2015 at 2:00 pm

BID FROM:

Firm Name: _____

Address: _____

Phone/Fax: _____

BID PRICES

BASE BID: (Grind out mortar and sealant joints and install new sealant). \$ _____

dollars

ALLOWANCE: (Funding for Unit Pricing).....\$ 5,000.00

Total Bid (Base Bid + Allowance) \$ _____

ALTERNATE ADD #1: (Wet seal windows and install aluminum sill flashings)\$ _____

dollars

UNIT PRICING

1. Additional tuck-point of mortar Joints (per lineal foot) \$ _____
2. Removal and replacement of joint sealant (per lineal foot) \$ _____
3. Install new pre-cast concrete coping Work Area M1 (per each) \$ _____
4. Install new pre-cast concrete coping Work Area M2 (per each) \$ _____
5. Install new pre-cast concrete Block Work Area M2 (per each) \$ _____

- 6. Install new limestone coping (in lieu of precast coping)
Work Area M1 (per each) \$ _____

- 7. Install new limestone coping (in lieu of precast coping)
Work Area M2 (per each) \$ _____

- 8. Install new limestone block (in lieu of precast concrete
Block Work Area M2 (per each) \$ _____

- 9. Wet seal window (per lineal foot) \$ _____

TIME & MATERIAL RATE

- 1. For repair of latent conditions or additional work:
 - Time (per man-hour) \$ _____

 - Material (Contractor cost) plus _____ %

CONSTRUCTION SCHEDULE

- 1. The Undersigned agrees to commence the Work in _____ Calendar days after Contract Award and to complete the Work on or before November 23, 2015.

CERTIFICATION

- 1. The Undersigned acknowledges receipt of:
 - a. The Project Manual for the above-referenced Project.

- b. The Project Drawings for the above-referenced Project.
 - c. Addenda numbered _____, _____, and _____.
2. The Undersigned agrees:
- a. To hold this Bid open for 30 days after the Bid due date.
 - b. To enter into and execute a Contract if awarded on the basis of the Bid and to furnish all bonds and insurance required in the Bidding Documents.
 - c. To accomplish the Work in accordance with the Contract Documents.
 - d. To comply with requirements outlined in attached Contract between Owner/Contractor; if applicable.
3. The Undersigned acknowledges and agrees that the Owner reserves the right to reject any or all bids and to place the Contract wherever and with whomever it may deem advisable.
4. The Undersigned attests, having carefully examined the Drawings, Specifications, Commercial Terms and Conditions and all Addenda thereto and other Contract Documents and having familiarized themselves with all existing conditions affecting this proposed Project. Also, having familiarized themselves with material availability, Federal, State and Local Laws, Ordinances, rules and regulations affecting performance of the work, does hereby propose to furnish all labor, mechanics, supervision, tools, material, equipment, transportation, services and all incidentals necessary to complete said work.

SUBMITTALS

1. The Undersigned submits, enclosed with this Bid Form:
 - a. The necessary Bid Bond as specified in Section 00100 - "Instructions to Bidders."
 - b. A listing of subcontractors, if any, to be used on this project.

SIGNATURES

Authorized signature, in affirmation of the statements and Bid prices on the BID FORM:

Contractor's State License Registration Number:

No. _____

In State of _____

(Firm Name)

(Address)

(City, State, Zip)

(Authorized Signature)

(Title)

(Name Printed or Typed)

(Date)

Corporation Information (if applicable)

Masonry Restoration

IRS Project 15393

Partnership Information (if applicable)

Fond du Lac Public Library

Fond du Lac Public Library

(Corporation Name, if different from above)

(State of Incorporation)

(Names of the Partners)

SUBCONTRACTOR LIST

Name of Proposed Subcontractors

Class of Work

1. _____

Address

2. _____

Address

3. _____

Address

4. _____

Address

5. _____

Address

6. _____

Address

7. _____

IRS

Address

END OF SECTION

SECTION 01010 SUMMARY OF WORK

PART 1 - GENERAL

1.01 PROJECT OVERVIEW

- A. The Work consists of masonry restoration on portions of the south, east, and west elevations at Fond du Lac Public Library in Fond du Lac, Wisconsin for Fond du Lac Public Library.
- B. The Base Bid includes:
 - 1. Grind out all joints within the precast concrete coping and cornice and install sealant on portions of the south, east, and west elevations, **Sheets A2.0 & A2.1, Work Area M1.**
 - 2. Grind out all joints within the precast concrete block and coping and install sealant at the south entrance, **Sheets A2.0 & A2.1, Work Area M2.**
- C. The Work may also include the following Alternate Additional Work Item:
 - 1. Alternate Addition #1:
 - a. Wet seal windows, **Sheets A2.0 & A2.1, Work Area M3.**
 - b. Install aluminum sill flashings, **Sheets A2.0 & A2.1 Work Area M4.**
- D. The Owner will not be responsible for any work associated with this project.:

PART 2 - PRODUCTS

2.01 SYSTEM COMPONENTS

- A. Sealant Primer.
- B. Closed-cell backer rod.

- C. Miscellaneous sealants
- D. Mortar.
- E. Pre-cast concrete coping stones.
- F. Rust inhibitive paint and coatings.
- G. Aluminum sill flashings.
- H. Gasketed Fasteners.

2.02 COMPONENTS SUPPLIED BY OWNER

- A. None.

PART 3 - EXECUTION

3.01 WORK PERFORMED BY CONTRACTOR

A. General:

1. The south entrance is to remain open to the public at all times. The Contractor is to keep the south entrance safe at all times.
2. Notify Consultant of any detrimental conditions that may affect installation of the work.
3. All removed and demolished items are the property of the contractors, unless otherwise indicated. All debris shall be properly disposed of in accordance with all applicable local and state codes and ordinances.
4. When staging on the roof, the roof must be protected at all times. Any damage to the roof is the responsibility of the Contractor to repair.
5. Pull test with the manufacturer's representative is required.
6. Restoration of any damaged landscaping is incidental to the contract. DS-75 erosion control blanket or equivalent and specified seed to be used for restoration. Watering of new seed is required for 2 weeks to establish growth. Topsoil to be per specifications to encourage seed growth.

Base Bid:

- B. Grind out all joints within the precast concrete coping and cornice and install sealant on portions of the south, east, and west elevations, **Sheets A2.0 & A2.1, Work Area M1.**
1. Clean all precast concrete copings and cornice with low pressure water and diluted Diedrich technologies 960 Heavy Duty Concrete Cleaner. **Contractor to perform a test area to ensure no damage or staining occurs to the precast concrete before work is to start.**
 2. Carefully grind out all joints within the precast concrete coping and precast concrete cornice including but not limited to; top joints, vertical joints, horizontal joints, joints at the coping and counter flashing interface, and the joint at the brick and cornice interface per **Detail 1/A3.0**
 3. Clean and prime all joints with DOW Corning 1200 OS Primer
 4. Install closed cell backer-rod.

5. Install Dow Corning 795 Silicone sealant per **Detail 6/A3.1**. The joint is to be “dusted” with mortar to have the appearance of a mortar joint. The joint is to be concave a 1/8”. **Contractor to perform a mock up area of all joint types for the Owner approval before any work is started.**
 6. Apply Diedrcih 303WB Water-Base Siloxanie water repellent to the precast concrete coping **ONLY**. **Contractor to perform a test area before work is to start.**
 7. Clean brick below the cornice experiencing efflorescence with EaCo Chemical EF-FORTLESS chemical cleaner. **Contractor to perform a test area before work is to start.**
- C. Grind out all joints within the precast concrete block and coping and install sealant at the south entrance, **Sheets A2.0 & A2.1, Work Area M2.**
1. Remove the existing wall flashing on the backside of the wall and set aside for reuse.
 2. Remove letters on the wall and set aside for reuse.
 3. Clean all precast concrete copings and block with low pressure water and diluted Diedrich technologies 960 Heavy Duty Concrete Cleaner. **Contractor to perform a test area to ensure no damage or staining occurs to the precast concrete before work is to start.**
 4. Remove four (4) cracked coping stones and install new precast coping stones matching the existing size and configuration.
 5. At cracked precast blocks, saw cut crack, apply grease pencil and install DOW Corning 795 Silicone Sealant
 6. Carefully grind out all joints within the precast concrete coping and precast concrete blocks including but not limited to; top joints, vertical joints, horizontal joints, and joints at the precast concrete block and counter flashing interface per **Detail 2/A3.0**.
 7. Prime all joints with DOW Corning 1200 OS Primer
 8. Install closed cell backer-rod.
 9. Install Dow Corning 795 Silicone sealant per **Detail 6/A3.1**. The joint is to be “dusted” with mortar to have the appearance of a mortar. The joint is to be recessed an 1/8”. **Contractor to perform a mock up area of all joint types for the Owner to approve before any work is started.**
 10. Grind out joints at the lintel and precast concrete block interface and point with Type O mortar per **Detail 3/A3.0**.

11. Remove rust from lintel. Clean prep, prime, and apply rust inhibitive paint to lintel per Section 09900.
12. Apply Diedrcih 303WB Water-Base Siloxanie water repellent to the precast concrete coping **ONLY. Contractor to perform a test area before work is to start**
13. Re-attach the wall flashing to the backside of the wall.
14. Re-attached letters to the wall.

Alternate Addition #1

D. Wet seal windows, Sheets A2.0 & A2.1, Work Area M3.

1. Prepare joints to receive new sealant installation per **Detail 4/A3.0 & Detail 5/A3.1..**
 - a. Clean Joints
 - b. Prime joints with DOW Corning 1200 OS Primer.
2. Install DOW Corning 795 Silicone sealant.
3. Provide extruded silicone tape at all corners.

E. Install aluminum sill flashings at the windows, Sheets A2.0 & A2.1, Work Area M4.

1. Remove the existing sill flashing and discard.
2. Remove and replace joint sealant at vertical joints and at the counter flashing and precast concrete sill interface per the instructions in Work Area M1 per **Detail 4/A3.0.**
3. Install a new aluminum sill flashing matching the existing color per **Detail 4/A3.0.** Sill flashing to be set in a bead of sealant and fastened to the side of the precast concrete sill with gasketed screws spaced every 24". Lengths of the sill flashings not to exceed eight (8) feet. Overlap ends of sill flashing a minimum of two (2) inches set in a bed of sealant.

3.02 INCLUSIONS

- A. The Contractor shall include, in his bid, any and all costs incurred in complying with the intent of the Construction Drawings. This shall include, but not be limited to:

1. Masonry returns are incidental to the primary.

END OF SECTION

SECTION 01025 APPLICATIONS FOR PAYMENT

PART 1 - GENERAL

1.01 DESCRIPTION

- A. This section describes the procedures and submittal requirements regarding Unit Pricing, Change Orders, and Application for Payment requests to the Owner.

1.02 PROGRESS PAYMENTS

- A. Unit Pricing:
1. The Unit Pricing submitted by the Contractor shall be considered fixed and inclusive of its purchase, installation, overhead expenses and profit.
 2. Units of measurement shall be as described on the Bid Form:
 - a. Dollars per lineal foot.
 - b. Dollars per each.
 3. The Contractor shall obtain written approval, on the Unit Pricing forms provided by or acceptable to the Consultant, by signature of the Consultant or an authorized on-site representative of the Owner, for each day's quantity of completed work affected by unit pricing.
 4. The Contractor shall accumulate the completed Unit Pricing forms and submit them to the Consultant, on a weekly basis, in conjunction with a completed Change Order form totaling the cost of the approved Unit Pricing.
 5. In the event that proper approval of Unit Pricing is not obtained, the Owner reserves the right to reject the Contractor's measurement of Unit Pricing work-in-place, and to have the Work measured by the Consultant, or an independent surveyor acceptable to both the Owner and Contractor, at the Contractor's expense.
 6. Unit Pricing is intended to be used for small-scale areas of extra work. In the event that the scope of the work covered by the unit pricing escalates, the Owner reserves the right to use the Contractor's time and materials (T&M) rate or negotiate a lump sum price in lieu of the Unit Pricing.

B. Time and materials (T&M) pricing:

1. The Time & Material Rate submitted by the Contractor shall be considered fixed and inclusive of overhead and profit.
2. Repair of latent defects or the execution of additional work for which unit prices were not submitted:
 - a. Dollars, per man-hour, for labor.
 - b. Percentage mark-up over purchase price for materials furnished.

C. Change Orders:

1. The Contractor shall be responsible for initiating the request for Change Order, on the forms provided by or acceptable to the Consultant, to include:
 - a. A summary of the approved Unit Pricing (include copies of approved Unit Pricing forms), on a weekly basis.
 - b. A description of the approved change in the Work, within one (1) week of initiation.
2. The Consultant will review the Change Order requests and forward them with his recommendation to the Owner; copies approved by the Consultant and Owner will be returned to the Contractor.
3. The Contractor shall submit the approved Change Order forms in conjunction with an Application for Payment form, including the total of the approved Change Orders.

4. Change Orders shall be considered valid only if:
 - a. Submitted in writing on the proper Change Order form.
 - b. Approved by signatures of both the Consultant and the Owner.

D. Application for Payment:

1. The Contractor shall submit:
 - a. Completed Application for Payment, on standard AIA formats or on IRS forms, in triplicate.
 - b. Contractor's original invoice.
 - c. Subcontractor's material and/or labor Waivers of Lien, where applicable, to match the amount requested.
 - d. Written justification for payment of materials not in-place by means of supplier invoices, bills of lading, Waivers of Lien, etc.
2. The Contractor shall submit Application for Payment, on a periodic basis or as determined in the Agreement, to:

Industrial Roofing Services, Inc.

13000 West Silver Spring Drive

Butler, WI 53007

3. The Consultant shall review the Application for Payment and either:
 - a. Approve the requested amount as a representation that the Work has progressed to the point indicated and, that to the best of his knowledge, information and belief, the quality of the Work is in accordance with the Contract Documents, or;
 - b. Revise the amount requested to an amount for which he is able to make such representation to the Owner.
 - c. Notify the contractor in writing of the applications rejection due to error and/or incompleteness

4. Payments will be reviewed, approved, and submitted to the Owner with the Consultants recommendations on a timely basis.
5. A retainage of five percent (5%) of the requested amount shall be withheld on each progress payment. The Contractor's invoice shall match the amount requested, less the retainage.

PART 2 - PRODUCTS

- A. Not Used.

PART 3 - EXECUTION

- A. Not Used.

END OF SECTION

SECTION 01030

ALTERNATES, ALLOWANCES AND SUBSTITUTIONS

PART 1 - GENERAL

1.01 DESCRIPTION

- A. This section identifies each voluntary and/or mandatory Alternate, by number, and describes the basic changes to be incorporated into the Work; only if that Alternate is made a part of the Work by acceptance by the Owner in the Agreement.
 - 1. A Mandatory Alternate Bid shall be in addition to the Base Bid. It may contain some or all aspects of the Base Bid, except those changes specifically described herein.
 - 2. An Alternate Bid shall be in lieu of the Base Bid. It shall contain all aspects of the Base Bid, except those changes specifically described herein.
 - 3. An Alternate Add or Alternate Deduct, as described herein, shall add work to, or deduct work from, the Base Bid.
- B. This section also includes the Contractor's options in selecting products or requesting the acceptance of substitute products.
- C. This section also specifies Allowances – monetary amounts (or materials) to be included in the Contractor's bid prices – which will be used to cover change orders, unit pricing, deteriorated material replacement and/or other intangibles during the course of the Work.

1.02 RELATED REQUIREMENTS

- A. Bidding Documents: Method of quotation for each Alternate, and the basis of the Owner's acceptance of Alternates.
- B. Referenced sections of these specifications, or drawing details, which stipulate the products and methods necessary to achieve the Work for each Alternate, as described below.
- C. Coordination of related work and modification of surrounding work of the Base Bid, as required to properly integrate the work of each Alternate, to provide the Work as required by the

Contract Documents.

1.03 DESCRIPTION OF ALTERNATES

- A. Mandatory Alternate Bid #1: None.
- B. Alternate Bid #1: None.
- C. Alternate Add #1: Wet Seal windows and install aluminum sill flashings
- D. Alternate Deduct #1: None.

1.04 PRODUCT OPTIONS AND SUBSTITUTIONS

- A. Contractor's product options:
 - 1. If products are specified only by reference standard, any product which meets that standard, by any manufacturer, shall be used.
 - 2. If several products are specified by name or manufacturer, any of the listed products may be used.
 - 3. If only one product is specified by name or manufacturer, that product shall be used, or the Contractor shall submit a request for substitution, as specified below, for a product that meets or exceeds the quality standards of the listed product.
 - 4. If product list is followed by "Approved equal", the Contractor may use any of the listed products or shall submit his "or equal" for consideration, following the substitution procedure, as specified below.
- B. Substitutions:
 - 1. During the Bidding process, the Consultant may consider written requests from Bidders for substitute products in place of those specified. If the Consultant deems the substitute product to be worthy of approval, it will be incorporated as such into an Addendum to all Bidders. Requests for substitutions shall include data as listed below.

2. Any Bidder who wishes to propose substitute products must nevertheless submit his Bid Price in accordance with the specifications. Failure to do so may result in the substitution being rejected without consideration. He shall then submit his substitute product, and corresponding bid adjustment amount, in conjunction with the Bid Form, on the form provided.
 3. After the Bid Opening but prior to Contract Award, the Consultant may consider the requests, submitted in conjunction with the Bid Form, from Bidders for substitute products in place of those specified. If the Owner deems the substitute product to be worthy of approval, it will be incorporated as such into the Agreement. Requests for substitutions shall include data as listed below.
 4. After Contract Award, the Consultant will consider written requests for “or equal” product substitutions in place of those specified. Such requests must be submitted with the product list submittals. Approval of the submittal package shall constitute approval of proposed substitute products. Requests for substitutions shall include data listed below.
 5. Submit two (2) copies of the request form for each substitution, supported with complete data, drawings and/or appropriate samples as necessary to show compliance with the intent of the Contract Documents, including:
 - a. Product description, performance and test data, and applicable reference standards.
 - b. Name, address, date of installation and Owner contact of similar projects on which the product was used.
 - c. Changes required in other elements of the Work as a result of incorporation of the substitute product.
 - d. Effect on the anticipated construction schedule, if any.
 - e. Cost of incorporation of the proposed substitution regardless of whether the Contract Sum is affected or not.
- C. Contractor’s representation: a request for substitution constitutes a representation that the Contractor:
1. Has investigated and determined that the proposed substitute product is equal or superior, in all respects, to the specified product.
 2. Will provide the same warranty as specified if substitute products are utilized.

3. Will coordinate the incorporation of the proposed substitution in the Work
4. Will modify other portions of the Work, as may be required, to complete the project in accordance with the intent of the Contract Documents.
5. Waive all future claims for added costs to the Contract, over and above those approved by the Owner that may be caused by use of the substitute product.

D. Substitutions will not be considered if:

1. They are indicated or implied on shop drawings or product data submittals, except as described above.
2. The substitute product is considered, in the opinion of the Consultant, to be outside of the general classifications of the specified product.
3. Approval of the substitution would require substantial revisions to the Contract Documents.

- E. Contractor shall not order or install substitute products without Written Notice of Acceptance of the request for substitution by the Consultant and the Owner. Submission of the Substitution Request Form does not in any way constitute approval. If the substitution is not approved, the rejection shall be considered final and the Contractor shall furnish a specified product.

1.05 ALLOWANCES

- A. The Contractor shall include the following allowance in his bid amount:
 - 1. Contractor shall add a lump sum amount of **five thousand dollars (\$5,000.00)** to their base bid amounts for the funding of Unit Price Work.
- B. Use of the allowance is restricted to direction of the Consultant for the Owner's purposes and only authorized by Signed Change Orders or Unit Pricing Approvals that indicate amounts to be charged to the allowance.
- C. At Project closeout, credit unused amounts remaining in the contingency allowance to Owner by Change Order.

PART 2 - PRODUCTS

- A. Not Used.

PART 3 - EXECUTION

- A. Not Used.

END OF SECTION

SECTION 01200 PROJECT MEETINGS

PART 1 - GENERAL

1.01 DESCRIPTION

- A. This section provides information regarding the Consultant's scheduled project meetings.

1.02 PRE-BID MEETING

- A. A pre-bid meeting will be held, at the project site, at the time designated in Section 00020 – "Invitation to Bid."
- B. Representatives of all prospective Bidders shall meet with the Consultant to review the existing conditions on the project site.
- C. The Consultant will, as a minimum, address the following items at the pre-bid meeting:
 - 1. Introduction of key project personnel;
 - 2. The general project scope, including site walkover;
 - 3. The requirements of Section 00100 – "Instructions to Bidders";
 - 4. The bid(s) to be included;
 - 5. The Bid due date;
 - 6. The Owner's intended project construction schedule;
 - 7. Required project warranties;
 - 8. Presence of regulated materials and any special requirements;
 - 9. Anticipated construction facilities:
 - a. Use of the site and restrictions, if any;
 - b. Temporary services and controls.

1.03 PRE-CONSTRUCTION CONFERENCE

- A. Within ten (10) days after Consultants receipt and approval of required project submittals Contractor shall provide Consultant with written notice of his intent to start the work.
- B. Within ten (10) days after receipt of Contractors written notice of his intent to start the work Consultant will schedule a formal pre-construction conference to be held at the project site, at a time designated by the Consultant.
- C. Representatives of the Contractor and his subcontractors, including the project superintendent and foreman, shall attend the pre-construction conference with the Consultant and a representative of the Owner.
- D. The Consultant will, as a minimum, address the following items at the pre-construction meeting:
 - 1. Designation of key personnel and their duties;
 - 2. The channels for project communication;
 - 3. Review of the project Scope of Work;
 - 4. The anticipated project construction schedule, showing timeframe for start and completion of each portion of the Work;
 - 5. Review of material list (Contractor shall provide an updated list if changes were made from initial submittal);
 - 6. Review of sequencing for critical areas of the Work;
 - 7. The requirements for approving and processing of Unit Pricing and Change Orders;
 - 8. Job site conditions and requirements:
 - a. Use of site and restrictions;
 - b. Temporary services and controls;
 - c. Existing facilities and maintenance of operation;
 - d. Daily completion procedures, such as night seals;
 - e. Emergency weather-seal protections;

9. Notification procedures;
10. Expectations of the Owner and IRS;
11. Quality control of new installation.

PART 2 - PRODUCTS

- A. Not Used.

PART 3 - EXECUTION

- A. Not Used.

END OF SECTION

SECTION 01340

SUBMITTALS

PART 1 - GENERAL

1.01 DESCRIPTION

- A. This section provides requirements for project submittals and guidelines for submittals, by the Contractor or his Subcontractor, of shop drawings and other submittals as requested in the Project Documents.

1.02 SUBMISSION REQUIREMENTS

- A. Submittals listed below shall be delivered to the Consultant as soon as possible after Contract Award, but no later than ten (10) days prior to Contractor's intent to start work, and/or a minimum of five (5) days before approval is needed to order materials.
- B. Provide Three (3) Bound Sets for IRS and Owner's use; any additional copies will be returned for the Contractor's use or for subcontractors or material suppliers.
- C. Provide Three (3) Bound Sets of MSDS, one for IRS and one for Owner's reference; the third copy shall be kept at the project site.
- D. Accompany submittals with transmittal letter, containing:
 - 1. Date.
 - 2. Project title and IRS Job number.
 - 3. Contractor's name and address.
 - 4. Notification of deviations from Contract Documents, if any.
- E. Required Submittal items:
 - 1. Insurance Certificate: Original copy, with the Owner as certificate holder and the Consultant (and any other entities specified) named as Additional Insureds.

2. Performance Bond: If required in the Bidding Documents (or if requested by the Owner after the bid), provide original, sealed copy for the Owner.
3. Materials: **List** of major products proposed for use, with name of manufacturer, trade name or model number of product or materials (final list may be provided at the pre-construction meeting if changing between specified products). Submit product data sheets, printed information, installation instructions, catalog cuts, or material color charts.
4. Material Safety Data Sheets: Provide copies of MSDS for each product that will be brought on-site.
5. Project Schedule: Provide a breakdown of the project schedule timetable by **each major portion** of the work. As a minimum, include start and completion dates for each required task.
6. Schedule of Values: Provide a breakdown of project cost by **each major portion** of the Work such as mobilization, sealant, sheet metal, etc. **DO NOT** list only r material and labor.
7. Sheet Metal Color Charts: Original, standard color charts, for selection by the Owner. This selection may not be made during the submittal approval process.
8. Shop Drawings,
 - a. Shop-fabricated items, shall be original drawings (not reproductions of Contract Documents) prepared by the Contractor, Subcontractor, Supplier or Distributor, which illustrates some portion of the Work, showing fabrication, layout, setting or erection details, if applicable.
 - b. Portions of the Work to be designed by the Contractor, as specifically stated in the Contract Documents.
 - c. Submit shop drawings of sill flashings.
9. Warranty: Submit a sample copy of the contractors two (2) year warranty and the sealant manufactures five (5) year sealant warranty.
10. Project Contacts: Provide all necessary contact numbers (cellular, pager, etc.) for key personnel involved in the project. Include after-hours contact name and home telephone number in case of emergency. Also provide subcontractors' names, addresses, contact names, and phone/fax numbers, if applicable.

1.03 SHOP DRAWINGS

- A. Original drawings required by the Project Documents, prepared by Contractor, Subcontractor, material supplier or distributor, which illustrate some portion of the Work, showing fabrication, layout, setting or erection details, prepared by a qualified draftsman. Reproduction and use of enclosed drawings will not be allowed.

1.04 CONTRACTOR RESPONSIBILITIES

- A. The Contractor shall review the shop drawings, product data and samples prior to submission. The Contractor shall initial, sign, or stamp the submittals to certify his review and acceptance.
- B. Verification of existing field measurements and conditions is the **SOLE** responsibility of the Contractor.
- C. The Contractor's responsibility for errors and omissions in submittals is not relieved by the Consultant's review or acceptance of submittals.
- D. Clearly indicate, in the submittals, any deviations from the requirements of the Project Documents caused by acceptance of substitutions, negotiations with the Owner after the Bid, etc. Any changes to the Project Documents must be confirmed by written Change Order.
- E. The Contractor shall not begin work prior to receipt of the approved submittals from the Consultant.

1.05 DISTRIBUTION OF SUBMITTALS

- A. The Consultant will retain three (3) copies of approved or approved-as-noted submittals, two for IRS office use, and one for the Owner, and will return the remaining copies to the Contractor.
- B. The Contractor shall be responsible for distributing submittals which carry the Consultant's approval, as required for construction or fabrication, to the project Superintendent, Subcontractors, and material suppliers or distributors.

PART 2 - PRODUCTS

A. Not Used.

PART 3 - EXECUTION

A. Not Used.

END OF SECTION

SECTION 01400 QUALITY CONTROL

PART 1 - GENERAL

1.01 DESCRIPTION

- A. This section provides requirements for the standards of quality for materials and workmanship for this project.

1.02 GENERAL

- A. The Contractor shall maintain quality control over his employees, suppliers, manufacturer's products, services and site conditions to produce work of specified quality.

1.03 WORKMANSHIP

- A. Comply with recognized industry standards, except where specifications indicate more rigid standards or more precise workmanship.
- B. Perform the Work with personnel qualified to produce workmanship of specified quality.

1.04 APPLICATION QUALITY CONTROL

- A. The Contractor shall be experienced in all aspects of the type of work being performed.
- B. The Contractor's foreman shall, at all times, have a complete set of Project Documents, including specifications, drawings, MSDS sheets and approved submittals for his use and reference, on the project site. The foreman shall produce these Project Documents upon request of either the Owner or the Consultant. Failure to do so will result in a violation of Item 1.07 of this Section.

1.05 TESTING SERVICES

- A. During the course of the Work, the Consultant may secure samples of materials being used and/or samples of the work in place at the project site. The samples will be submitted to an Independent Testing Laboratory for comparison with the specifications.
- B. Should it be determined by the Consultant that the materials and/or application rates being utilized do not meet the specification requirements; the Contractor shall pay for the services of the Independent Testing Laboratory to perform reviews, tests, and other services, including costs incurred by the Consultant.
 - 1. If test results prove that the material and/or work in place is not in compliance with the specifications, the Contractor shall be charged for all testing and other services, including costs incurred by the Consultant.
 - a. If the Work has been completed when test results are received, the Owner may charge the Contractor a penalty of up to twenty percent (20%) of the Contract price or require the Contractor to remove and replace the Work.
 - b. If only a portion of the Work has been completed when test results are received, the Owner may charge the Contractor a penalty in proportion to the amount completed or require the Contractor to remove and replace the Work. All remaining work shall be completed in accordance with the specifications.
- C. Testing services shall be performed in accordance with the requirements of governing authorities, industry and specified standards.
- D. Reports shall be submitted to the Owner, in duplicate, giving observations and results of the tests, indicating compliance or non-compliance with specified standards and the Project Documents.

1.06 MANUFACTURER'S FIELD SERVICES

- A. The manufacturer shall make qualified personnel available to make necessary recommendations during the course of the project, and to perform a final review of the Work, if requested.
- B. The manufacturer's representative shall submit a copy of his written report to the Consultant, listing observations and recommendations.

1.07 CONSTRUCTION OBSERVATION

- A. Construction observation shall be conducted by the Consultant on a periodic basis, as determined by agreement with the Owner. If the Contractor is cited for non-compliance with the specifications during the course of a site visit, all parties shall be notified with a copy of the observation report.

- B. In the event that the Contractor is cited for the same non-compliance item twice, or any three items total, the Owner may employ the Consultant to provide more frequent observation or full-time observation, to ensure compliance with the Project Documents. **The cost of these additional visits may be deducted, in whole or in part, from the Contractor's final contract amount.**

PART 2 - PRODUCTS

- A. Not Used.

PART 3 - EXECUTION

- A. Not Used.

END OF SECTION

SECTION 01500**SITE CONDITIONS AND CONTROLS****PART 1 - GENERAL****1.01 DESCRIPTION**

- A. This section provides requirements for the Contractor's operations at the project site, including use of existing facilities and utilities, delivery and storage of materials and equipment and controls affecting work operations.

1.02 SECURITY AND ACCESS

- A. Security: follow the Owner's procedures and requirements, as established during the pre-construction conference.
- B. Maintenance of access and operations:
1. During the performance of the Work, the Owner shall continue to perform his normal operations in the building. The Contractor shall maintain access to Owner-occupied areas at all times.
 2. Schedule demolition and installation work with the Owner in such a manner as to allow his normal operations to continue without interruption.
- C. Maintenance of existing services:
1. The Contractor shall, during the performance of the Work, not adversely affect the temperature and humidity of the building interior; dust and debris shall be controlled to prevent interference with normal operations.
 2. Notify the Owner a minimum of three (3) days prior to each required interruption of mechanical or electrical services in building. Such interruptions shall occur only when, and for the length of time, approved by the Owner.
- D. Building access:
1. Access to the building's interior shall be restricted to investigating leaks and performing portions of the Work which requires such interior access. The Contractor shall not have

access to the building's interior during non-business hours unless previously arranged with the Owner.

2. All access to the project site shall be by way of exterior means provided by the Contractor.
3. Restrict construction traffic over adjacent areas as designated by the Owner during the pre-construction conference.

1.03 MATERIAL STORAGE AND HANDLING

- A. Store materials on-site where specified in Section 01600 - "Materials and Equipment." Do not use any portion of the building interior for storage, unless specifically approved by the Owner.
- B. Stored materials shall be available for review by the Owner or Consultant at all times.
- C. Handle all materials properly and in original cartons or containers to prevent damage. Provide for all necessary rigging of materials and equipment supplied to the project site.

1.04 SANITARY FACILITIES

- A. The Contractor shall provide adequate, temporary chemical toilets for use by his employees. The toilets shall be in place at the project site when the Work is commenced.
- B. Upon completion of the Work, remove these facilities and all traces thereof.

1.05 TEMPORARY WATER

- A. The Contractor shall make arrangements with the Owner for water as required during the performance of the Work.
- B. The Owner shall be responsible for the cost of the water supply.
- C. The Contractor shall be responsible for providing hoses necessary for conveyance.

1.06 TEMPORARY ELECTRICAL POWER

- A. The Contractor shall make arrangements for electrical service, as necessary for completion of the Work, as established during the pre-construction conference.
- B. In the event that the Owner agrees to provide access to electrical service, he shall pay all energy charges for power and/or lighting used by the Contractor.

1.07 ENVIRONMENTAL CONDITIONS

- A. Do not work in rain or snow, or in the presence of visible precipitation.
- B. Do not install materials marked "Keep from Freezing" when daily temperatures are predicted to fall below 40°F.
- C. Do not perform masonry work unless the temperature is above 35°F and rising. Make provisions to protect masonry work from freezing for a period of forty-eight (48) hours after completion. Remove any masonry work that has been exposed to freezing within forty-eight (48) hours of completion.

1.08 DEBRIS REMOVAL

- A. Remove debris promptly from the site each day. Do not allow piled debris to accumulate.
- B. All removed material, unless specifically noted for retention by the Owner, becomes the property of the Contractor.
- C. Do not allow debris to enter roof drains, storm sewers, catch basins, etc.
- D. Provide at site, prior to commencing removal of debris, a dumpster or dump truck to be located adjacent to the building where directed by the Owner.

- E. Protect the building surfaces at set-up and debris removal areas. Take all precautions necessary to prevent the scattering of debris during removal operations.
- F. Remove dumpster or dump truck from the premises when full and dispose of at an approved dumping or refuse area.
- G. Upon job completion, dumpster or dump truck and set-up area protection shall be removed from premises. All spilled or scattered debris shall be cleaned up immediately.

1.09 PARKING FACILITIES

- A. The Owner shall provide vehicle parking assignments and/or restrictions for the Contractor to the extent established during the pre-construction conference.

1.10 CLEANING

- A. The Contractor shall remove all spillage, overspray, or collections of dust or debris, and repair any damage inflicted on Owner-occupied spaces during the course of the Work.
- B. As soon as work on a area is complete, clean up all surfaces, remove equipment, materials and debris, and restore to a condition suitable for use by the Owner as quickly as possible.

PART 2 - PRODUCTS

- A. Not Used.

PART 3 - EXECUTION

- A. Not Used.

END OF SECTION

SECTION 01600
MATERIALS AND EQUIPMENT

PART 1 - GENERAL

1.01 DESCRIPTION

- A. This section includes general requirements for delivery, storage and handling of products to be used in the Work.

1.02 GENERAL

- A. Materials to be incorporated into the Work:
1. Shall conform to applicable specifications and standards.
 2. Shall comply with the size, make, type and quality specified or shall be substitute products as specifically approved, in writing, by the Consultant.
 3. Fabricated products:
 - a. Fabricate and assemble in accordance with recognized industry standards.
 - b. Shall conform to the dimensions and configuration shown or specified or in accordance with approved shop drawing submittals.
- B. Materials shall not be used for purposes other than those for which they are designed, unless otherwise specified.

1.03 REUSE OF EXISTING MATERIALS

- A. Except as specifically indicated in the Construction Drawings or in Section 01010 - "Summary of Work," materials and equipment removed from the existing construction shall not be utilized in the completed Work.
- B. Where materials and equipment are specifically indicated to be reused in the Work:

1. Use special care in removal, handling, storage and reinstallation, to assure adequate and proper function in the completed Work.
2. The Contractor shall be responsible for transportation, storage and handling of products which require off-site storage, restoration or renovation.

1.04 MANUFACTURER'S INSTRUCTIONS

- A. Where Project Documents require that the installation of work shall comply with the manufacturer's printed instructions, obtain and distribute copies of those instructions to all parties involved in the installation, including two copies to the Consultant.
 1. Maintain one set of complete instructions at the project site until completion of the work.
 2. Include copies of the printed instructions with the appropriate Product Data submittal.
- B. Handle, install, connect, clean, condition and adjust products in strict accordance with such instructions, and in conformity with specified requirements.
 1. Should existing conditions or specified requirements conflict, in any way, with the manufacturer's instructions, request clarification from the Consultant. Failure to notify the Consultant shall be grounds for rejection of the completed work.
 2. Do not proceed with work without clear instructions.

1.05 TRANSPORTATION AND HANDLING

- A. Arrange for delivery of materials in accordance with construction schedules; coordinate to avoid conflict with sequencing of the Work and conditions at the project site.
 - 1. When being transported to the project site by the Contractor, cover and protect materials in transit against entrance of dirt and/or weather damage.
 - 2. Deliver materials in undamaged condition, in manufacturer's original containers or packaging, with identifying labels intact and legible.
 - 3. Immediately upon delivery, inspect shipments to assure compliance with requirements of the Project Documents and approved submittals, and to assure that materials are properly protected and undamaged.
- B. Handle all materials properly and in original cartons or containers to prevent damage.
- C. Provide equipment and personnel to handle materials using methods necessary to prevent soiling or damage to products or packaging.

1.06 STORAGE OF MATERIALS

- A. Stored materials shall be available for review by the Owner or Consultant at all times.
- B. Store rolled goods on ends only. Discard rolls which have been flattened, creased, or otherwise damaged.
- C. Do not use any portion of the building interior for storage, unless specifically approved by the Owner.
 - 1. Disperse materials on rooftop to avoid concentrated loading of structure.
 - 2. Do not place materials on areas not included in the Work.
- D. Stack insulation and roll goods on pallets; neatly stack wood on dunnage. Do not stack pallets.

- E. Remove the factory-installed plastic wrapping from all materials as soon as they arrive at the project site. Completely cover the top and sides of materials with canvas tarpaulin (not polyethylene). Secure tarpaulin to prevent blow-off.

- F. Materials which, in the judgment of the Consultant, have been damaged, contaminated or improperly stored shall be immediately removed from the project site and replaced with new materials.

PART 2 - PRODUCTS

- A. Not Used.

PART 3 - EXECUTION

- A. Not Used.

END OF SECTION

SECTION 01700

CONTRACT CLOSE-OUT AND WARRANTIES

PART 1 - GENERAL

1.01 DESCRIPTION

- A. This section includes requirements for specific administrative procedures, close-out submittals, warranties and other forms to be used at the final completion of the Work.

1.02 CLOSE-OUT PROCEDURES

- A. When the Contractor considers the Work complete, he shall submit **Written Notice** to the Consultant that:
1. He has reviewed the Project Documents and inspected the project for compliance with them;
 2. He certifies that the Work has been completed in accordance with the Project Documents; and
 3. He certifies that the project is complete, to his satisfaction, and is ready for the Final Review.
- B. The Consultant will perform the Final Review after receipt of the Contractor's **Written Notice** of project completion.
1. If the Consultant considers the Work to be complete and in accordance with the requirements of the Project Documents he shall notify the Contractor to produce the Contract Close-out submittals, as described below.
 2. If the Consultant considers the Work to be incomplete or not in accordance with the requirements of Project Documents:
 - a. He shall notify the Contractor, in writing, of the deficiencies.
 - b. The Contractor shall take immediate steps to remedy the identified deficiencies, and shall make the Work ready for re-review.
 - c. The Contractor shall submit a second **Written Notice** to the Consultant confirming that the identified deficiencies have been remedied.

- d. The Consultant shall review the Work and, if complete, shall notify the Contractor to produce the Contract Close-out Submittals.
3. Should the Consultant be required to perform a third review of the Work due to the failure of the Contractor to correct previously-identified deficiencies, the Owner may retain, from moneys due the Contractor, such amount as necessary to compensate the Consultant for additional visits.

1.03 FINAL CLEANING

- A. Perform project clean-up prior to the Final Review:
 1. Clean roof surface, gutters, downspouts and drainage system free from foreign matter and debris.
 2. Remove all grease, mastics, adhesives, bitumen or other foreign materials from sight-exposed exterior surfaces of the building.
 3. Repair, patch and touch up marred surfaces to match adjacent finishes.
 4. Remove all waste and surplus material, rubbish, and construction facilities from the project site.
 5. Repair the grounds and landscaping in accordance with Section 02900 - "Grounds Repair."
 6. Prior leaving the project site, conduct a thorough review of the roof surface and all sight-exposed exterior surfaces in work areas, to verify that the entire Work is clean.

1.04 CLOSE-OUT SUBMITTALS AND WARRANTIES

- A. Guarantees, Warranties and Bonds:
 1. The Contractor shall, upon project completion provide the following original warranty documents to the Consultant for the delivery to the Owner:
 - a. After the Consultant's acceptance, the Contractor shall deliver to the Consultant each manufacturer warranty required by individual Sections of the Project Specifications, to be effective once complete payment has been received by both the Contractor and material suppliers.
 - b. Contractors two (2) year workmanship warranty for labor and materials.

- c. Contractors five (5) year sealants warranty for labor and materials associated with the application of sealants.

B. Certification:

1. Lien Waivers: The Contractor shall submit final Waivers of Lien including those from subcontractors, material suppliers, or any other parties that may have lien rights against the property of the Owner, including a list of those parties. All waivers of lien shall be verified and duly executed before submittal.

C. Final Application for Payment:

1. The Contractor shall submit a final Application for Payment form showing the remaining amount due.

1.05 CONTRACT CLOSE-OUT PACKAGE

- A. The Contractor shall submit the Contract Close-out package to IRS Corporate Office in accordance with these requirements. The Consultant shall review the Contract Close-out Package for accuracy and completeness.

1. Contract Close-out Packages that are accurate, complete and in proper form shall be approved by Consultant and submitted to Owner on a timely basis.
2. Contract Close-out Packages that are not accurate, complete and in proper form, Consultant shall notify Contractor of its rejection and cause the Package to be set aside for forty-five (45) days, after which time Consultant shall again review corrected Contract Close-out Package if received and if correct, shall approve final payment and submit them to the Owner on a timely basis.

IRS CORPORATE OFFICE

**Industrial Roofing Services, Inc.
13000 West Silver Spring Drive
Butler, Wisconsin 53007**

PART 2 - PRODUCTS

A. Not Used.

PART 3 - EXECUTION

A. Not Used.

END OF SECTION

SECTION 02900 GROUNDS REPAIR

PART 1 - GENERAL

1.01 DESCRIPTION

- A. This section covers the removal, and replacement with like materials, of lawns, plantings, and pavement damaged by the Contractor during the performance of the Work.
- B. The cost of all repairs covered under this section shall be the sole responsibility of the Contractor. If the Contractor fails to make repairs to the Owner's satisfaction, the Owner reserves the right to retain, from moneys due the Contractor, such amount as necessary to repair the grounds to their previous condition.

1.02 REQUIREMENTS

- A. Verify, with the Owner, at the pre-construction meeting, as to whether re-seeding will be acceptable for repair of lawn areas; if not, areas shall be resodded.
- B. All plants and planting materials shall meet "Horticultural Standards" for number one grade nursery stock as adopted by the American Association of Nurserymen.
- C. All plants and planting materials shall meet or exceed applicable regulatory requirements and inspections for plant disease and insect control.

1.03 WORK SEQUENCING

- A. Do not proceed with permanent replacements until after the Contractor has cleaned and vacated the project site.
- B. Replacement plantings and/or sod:
 - 1. Place plantings and/or sod within forty-eight (48) hours of cutting; protect and maintain during transit and storage on the site to prevent dry-out.

2. All plantings and/or sod remaining unplaced on the site longer than forty-eight (48) hours, as well as any yellowing or otherwise discolored plantings and/or sod shall be discarded.

1.04 WARRANTY

- A. The Contractor shall maintain and warrant all work performed under this section for a period of ninety (90) days from the date of its completion. The Contractor shall be responsible for the correction of unsatisfactory landscaping materials or workmanship and shall repair such defects promptly upon notice, at no additional cost to the Owner.

PART 2 - PRODUCTS

2.01 ACCEPTABLE LAWN REPAIR PRODUCTS

- A. Provide topsoil which is:
 1. Natural, friable, and characteristic of soil on the project site;
 2. Not extremely acidic nor alkaline, nor containing toxic substances;
 3. Free from subsoil, clay lumps, stones, roots, debris or other foreign objects;
 4. Contains 1/3, by volume, soil amendment - organic material, fortified with organic nitrogen.

- B. Provide fertilizer which is:
 - 1. Commercially-balanced 11-8-4 composition.
 - 2. Free flowing to allow for mechanical spreading.

- C. Provide grass seed, if acceptable, which is:
 - 1. Free from noxious weeds, and recleaned;
 - 2. Grade A recent crop seed;
 - 3. Treated with appropriate fungicide at time of mixing;
 - 4. Mix 40 WISDOT standard specs
 - 5. Covered with DS-75 erosion blanket or equivalent.

- D. Provide sod, if grass seed is not acceptable, which is:
 - 1. Well established, containing dense root systems;
 - 2. Exhibiting vigorous, healthy root growth;
 - 3. Free of noxious weeds, objectionable grasses, grubs, diseases or injurious insects.

- E. Erosion Control Blanket:
 - 1. Manufacturer: North American Green or approved equivalent
 - 2. Model #: DS75 or approved equivalent
 - 3. Equivalents shall meet or exceed Type 1.C specification requirements established by the Erosion Control Technology Council

2.02 ACCEPTABLE PLANTING REPAIR PRODUCTS

- A. Provide trees and/or plants which are:
 - 1. Of the same species and size of growth to match those being replaced;
 - 2. Well established, containing dense root systems;

3. Exhibiting vigorous, healthy root growth;
 4. Free of grubs, diseases or injurious insects.
- B. Provide planting bed cover consisting of:
1. Ground mulch chips;
 2. Shredded bark.

2.03 VEHICLE & PEDESTRIAN PAVEMENTS

- A. Asphalt pavement:
1. Base course aggregate:
 - a. Crushed limestone (traffic-bond) or crushed concrete, containing no pieces over three-quarter (3/4) inch in greatest dimension, for base courses less than four (4) inches thick.
 - b. Crushed limestone, containing no pieces over one and one-half (1-1/2) inches in greatest dimension, for base courses over four (4) inches thick.
 2. Paving asphalt:
 - a. Shall comply with applicable sections of the State Highway Specifications for binder and surface-grade paving asphalt mixes.
 - b. Shall be hot, plant-mixed asphalt paving material; temperature shall be 290-320°F when leaving the plant and 280°F, minimum, at time of placement.
- B. Concrete pavement: Compressive strength shall achieve a minimum of 4000 psi in twenty-eight (28) days. Mix concrete materials in accordance with ASTM C94, to comply with the following:
1. Slump: three (3) inches, plus one (1) inch or minus one-half (1/2) inch.
 2. Air entrainment: Maximum five percent (5%) at time of placement.
 3. Maximum aggregate size: 3/4 inch.
 4. Minimum cement content: 440 lbs./cu. yd.
 5. Maximum fly ash content: 100 lbs./cu. yd.

6. Maximum water-to-cementitious material ratio (W/C): 0.55.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Examine the project site and verify satisfactory conditions for performance of the work.
- B. Notify the Owner and Consultant of pre-existing defects or conditions which may interfere with the requirements of this section. Absence of notice will constitute the Contractor's acceptance of the site.
- C. Verify existence and location of underground utilities, water and gas lines, fire sprinkler systems, pavement heating devices, and lawn sprinkling systems.

3.02 PREPARATION

- A. Provide protection of existing adjacent trees, plantings, lawns and pavement prior to commencing repairs.
- B. Lawn replacement areas:
 1. Fill ruts and depressions with topsoil. Work the soil to a to depth of not less than three (3) inches with a rototiller.
 2. Remove stones, debris, and foreign objects larger than one (1) inch in diameter from the lawn repair area prior to seeding or sodding.
 3. Grade the repair area, thoroughly remove ridges and depressions, and make area a smooth, continuous, firm plane that ensures proper drainage.
- C. Planting replacement areas:
 1. Remove existing damaged trees, plants or ground cover. Remove large root systems, stones, debris, of foreign objects larger than one (1) inch in diameter from the area prior to installation of new plantings.

2. Remove the topsoil, to a depth of not less than three (3) inches, from an area not less than three (3) times the width of the root ball of the new planting.
3. Dig a hole in the center of the prepared area:
 - a. For a one (1) gallon plant container, twelve (12) inches wide and deep.
 - b. For a five (5) gallon plant container, twenty (20) inches wide and deep.
 - c. For a fifteen (15) gallon plant container, thirty (30) inches wide and deep.
 - d. For larger trees, 1-1/2 times the root ball diameter wide and deep.

3.03 LAWN REPLACEMENT - SEEDING

- A. When preparations are complete, seed the repair area:
 1. Sow the grass seed over the area with a mechanical seeder at the rate of two (2) pounds per thousand (1,000) square feet.
 2. Promptly after seeding, water until the soil is saturated to a depth of two (2) inches; apply water slowly to prevent erosion of the seed bed.
 3. Apply the specified fertilizer at the rate of seven (7) pounds per thousand (1,000) square feet; rake lightly into the soil.
 4. Cover the repair area with DS-75 erosion blanket or equivalent.
 5. Make arrangements to keep the seed beds moist throughout the germination process.

3.04 LAWN REPLACEMENT - SODDING

- A. When preparations are complete, install sod:
 1. Fit sod pieces tightly together so that no joint is visible, with alternate courses staggered. Compact sod to eliminate all air pockets, provide a true and even surface, and ensure knitting without displacement of sod or deformation of the surface of sodded areas.
 2. Fill cracks between sod pieces with screened topsoil following compaction.
 3. Excess soil shall be worked into the grass surface.

4. Bury edges of sod pieces flush with adjacent soil.
5. After the sod has been placed, water with a fine spray until the soil is saturated to a depth of two (2) inches.
6. Make arrangements to keep the sod moist until it is rooted into place.

3.05 TREE, PLANT AND GROUND COVER REPLACEMENT

- A. When preparations are complete, install planting:
1. Fill the bottom of the hole with a backfill mixture, consisting of three (3) parts soil (removed from the hole) and one (1) part soil amendment, to support the root ball so that the top of the ball is just above or equal to the existing grade for drainage.
 2. Place the root ball of the planting into the hole and adjust for height and position of the planting. Work excess soil to the sides for support of the root ball.
 3. Fill the remaining area of the hole with backfill mixture around the root ball; tamp firmly to eliminate all air pockets. When the hole is 2/3 full, thoroughly water the plant to saturate the soil.
 4. Fill the remainder of the area with topsoil and tamp into place until the surface is slightly sloping to the edge of the surrounding area.
 5. Remove excess soil from the area.
 6. Stake trees over four (4) feet high with a minimum of two (2) stakes and ties. Drive stakes a minimum of twelve (12) inches deep; provide protection for trunk at tree-tie location.
 7. Apply the specified planting bed cover to a minimum depth of two (2) inches, evenly spread over the entire area.
 8. Water with a fine spray to ensure that the soil is thoroughly saturated.
 9. Make arrangements to water the planting regularly until it is rooted into place.

3.06 PAVEMENT REPLACEMENT

- A. Removal and subgrade preparation:

1. Remove damaged areas of paving, as well as areas of unsound pavement and areas heavily stained with grease and oil.
2. Cut edges to a straight, vertical edge of 1/2-inch or more, by means of mechanical sawing. Excavate a minimum of six (6) inches below the existing, surrounding pavement surface, or as necessary to reach sound base material.
3. Provide new aggregate subbase as required to fill within three (3) inches of existing, surrounding asphalt pavement surface or to within four (4) or six (6) inches of existing, surrounding concrete pavement surface, depending on slab thickness. Compact aggregate subbase to 95% density.

B. Asphalt paving replacement:

1. Place the new asphalt paving material in two lifts:
 - a. The first lift shall be 1-3/4 inches, after compaction, binder-grade asphalt.
 - b. The second lift shall be 1-1/4 inches, after compaction, surface-grade asphalt.
2. Spread material in a manner which requires minimal handling.
3. After the material is placed, to proper depth, roll until the surface is hard, smooth, unyielding, and true to the specified thickness and elevation of the existing, surrounding asphalt pavement.
4. Roll surface layer in at least two directions until no roller marks are visible.
5. Finish paving surface shall be free from "birdbaths," with no variations of more than 1/8-inch in six (6) feet.
6. Seal the interface of the existing pavement with hot rubberized crack filler to prevent water infiltration.

C. Concrete paving replacement:

1. Place wooden forms where necessary, staked into the ground, to provide straight and true edges for new pavement.
2. Dampen the subgrade material before placing concrete.
3. Pour concrete over the prepared subgrade. Tamp the freshly-placed concrete, using a heavy tamper, until at least 3/8-inch of mortar is brought to the surface.
4. Trowel surface and screed with a straightedge until depressions and irregularities are worked out and the surface is true to specified thickness and elevation of the existing, surrounding concrete pavement.
5. Float surface to a compact, smooth surface.
6. When concrete has set sufficiently, provide a non-slip, "broomed" surface finish.

END OF SECTION

SECTION 04012
MAINTENANCE OF UNIT MASONRY

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

- A. Section includes maintenance of unit masonry consisting of brick clay masonry restoration and cleaning as follows:
1. Preliminary cleaning, including removing plant growth.
 2. Preparation and tuck-pointing of mortar joints within unit masonry and cast stone.
 3. Replacement of damaged unit masonry and cast stone.
 4. Painting steel uncovered during the work.
 5. Cleaning exposed unit masonry surfaces.
- B. Related Sections:
1. Section 07620 – Sheet Metal Flashings and Trim
 2. Section 07900 - Joint Sealants.

1.03 ALLOWANCE

- A. Perform work covered by allowances to the extent authorized on signed Unit Price Approval Forms or as authorized by Change Orders.

1.04 UNIT PRICES

- A. Work of this Section may be affected by Unit Prices as specified in Section 01340.
 - 1. Unit Prices apply only to authorized work covered by estimated quantities specified in Section 01340.
 - 2. Unit Price work in excess of the quantities specified in Section 01340 apply only to additions and/or deletions from Work as authorized by Signed Change Order(s).

1.05 DEFINITIONS

- A. Very Low Pressure Spray: Under 100 psi (690 kPa).
- B. Low Pressure Spray: 100 to 400 psi (690 to 2750 kPa); 4 to 6 gpm (0.25 to 0.4 L/s).
- C. Medium Pressure Spray: 400 to 800 psi (2750 to 5510 kPa); 4 to 6 gpm (0.25 to 0.4 L/s).
- D. High Pressure Spray: 800 to 1200 psi (5510 to 8250 kPa); 4 to 6 gpm (0.25 to 0.4 L/s).
- E. Saturation Coefficient: Ratio of the weight of water absorbed during immersion in cold water to weight absorbed during immersion in boiling water; used as an indication of resistance of masonry units to freezing and thawing.
- F. Building Brick: ASTM C62 – Standard Specification for Building Brick (Solid Masonry Units made from Clay or Shale).
- G. Face Brick: ASTM C216 – Specification for Facing Brick (Solid Masonry Units made from Clay or Shale).
- H. American Society for Testing and Materials (ASTM):
 - 1. Additional Specific ASTM numbers are noted in later text.
- I. The Brick Institute of America (BIA)

1.06 PRECONSTRUCTION TESTING

- A. Preconstruction Testing Service: None Required.

1.07 SUBMITTALS

- A. Product Data: For each type of product indicated. Include recommendations for application and use. Include test data substantiating that products comply with requirements.
- B. Samples for Verification: For the following:
1. Each type of unit masonry and/or cast stone unit to be used for replacing existing units. Include sets of samples as necessary to show the full range of shape, color, and texture to be expected.
 - a. For each unit masonry and/or cast stone type, provide straps or panels containing at least four unit masonry and/or cast stone units. Include multiple straps for unit masonry and/or cast stone units with a wide color range.
 2. Each type of sand used for pointing mortar; minimum 1 lb (0.5 kg) of each in plastic screw top jars.
 - a. For blended sands, provide samples of each component and blend.
 - b. Identify sources, both supplier and quarry, of each type of sand.
 3. Each type, color, and texture of pointing mortar in the form of sample mortar strips, 6 inches (150 mm) long by 1/4 inch (6 mm) wide, set in aluminum or plastic channels.
 - a. Include with each Sample a list of ingredients with proportions of each. Identify sources, both supplier and quarry, of each type of sand and brand names of cementitious materials and pigments if any.
 - b. Each type of masonry patching compound in the form of briquettes, at least 3 inches (75 mm) long by 1-1/2 inches (38 mm) wide.
 - 1) Document each Sample with manufacturer and stock number or other information necessary to order additional material.
 - c. Sealant Materials: See Section 07920 - Joint Sealants.

- 4. Accessories: Each type of anchor, accessory, and miscellaneous support.
- C. Quality Control Program.
- D. Cleaning Program.

1.08 QUALITY ASSURANCE

- A. Restoration Specialist Qualifications: Engage an experienced masonry restoration and cleaning firm to perform work of this Section. Firm shall have completed work similar in material, design, and extent to that indicated for this Project with a record of successful in-service performance. Experience installing standard unit masonry is not sufficient experience for masonry restoration work.
 - 1. At Contractor's option, work may be divided between two specialist firms: one for cleaning work and one for repair work.
 - 2. Field Supervision: Restoration specialist firms shall maintain experienced fulltime supervisors on Project site during times that clay masonry restoration and cleaning work is in progress. Supervisors shall not be changed during Project except for causes beyond the control of restoration specialist firm.
 - 3. Restoration Worker Qualifications: Persons who are experienced and specialize in restoration work of types they will be performing. When masonry units are being patched, assign at least one worker among those performing patching work who is trained and certified by manufacturer of patching compound to apply its products.
- B. Chemical Cleaner Manufacturer Qualifications: A firm regularly engaged in producing masonry cleaners that have been used for similar applications with successful results, and with factory trained representatives who are available for consultation and Project site inspections and assistance at no additional cost.
- C. Source Limitations: Obtain each type of material for masonry restoration (face brick, cement, sand, etc.) from one source with resources to provide materials of consistent quality in appearance and physical properties.

- D. Quality Control Program: Prepare a written quality control program for this Project to systematically demonstrate the ability of personnel to properly follow methods and use materials and tools without damaging masonry. Include provisions for supervising performance and preventing damage due to worker fatigue.
- E. Restoration Program: Prepare a written, detailed description of materials, methods, equipment, and sequence of operations to be used for each phase of restoration work including protection of surrounding materials and Project site.
1. Include methods for keeping pointing mortar damp during curing period.
 2. If materials and methods other than those indicated are proposed for any phase of restoration work, add to the Quality Control Program a written description of such materials and methods, including evidence of successful use on comparable projects, and demonstrations to show their effectiveness for this Project and worker's ability to use such materials and methods properly.
- F. Cleaning Program: Prepare a written cleaning program that describes cleaning process in detail, including materials, methods, and equipment to be used, protection of surrounding materials, and control of runoff during operations.
1. If materials and methods other than those indicated are proposed for any phase of restoration work, add to the Quality Control Program a written description of such materials and methods, including evidence of successful use on comparable projects, and demonstrations to show their effectiveness for this Project and worker's ability to use such materials and methods properly.
- G. Cleaning and Repair Appearance Standard: Cleaned and repaired surfaces are to have a uniform appearance as viewed from 20 feet (6 m) away by Consultant. Perform additional paint and stain removal, general cleaning, and spot cleaning of small areas that are noticeably different, so that surface blends smoothly into surrounding areas.
- H. Pre-installation Conference: Conduct conference at Project site.
1. Review methods and procedures related to masonry restoration and cleaning, including, but not limited to, the following:
 2. Construction schedule: Verify availability of materials, Restoration Specialist's personnel, equipment, and facilities needed to make progress and avoid delays.

3. Materials, material application, sequencing, tolerances,

1.09 DELIVERY, STORAGE, AND HANDLING

- A. Deliver mortar mix to site in sealed bags. Identify each bag with material name and type.
- B. Deliver unit masonry and/or cast stone units to Project site strapped together in suitable packs or pallets or in heavy-duty cartons.
- C. Deliver other materials to Project site in manufacturer's original and unopened containers, labeled with manufacturer's name and type of products.
- D. Store cementitious materials on elevated platforms, under cover, and in a dry location. Do not use cementitious materials that have become damp.
- E. Store hydrated lime in manufacturer's original and unopened containers. Discard lime if containers have been damaged or have been opened for more than two days.
- F. Store sand where grading and other required characteristics can be maintained and contamination avoided.

1.10 PROJECT CONDITIONS

- A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit masonry restoration and cleaning work to be performed according to manufacturers' written instructions and specified requirements.
- B. Repair masonry units and repoint mortar joints only when air temperature is between 40 and 90 deg F (4 and 32 deg C) and is predicted to remain so for at least 7 days after completion of the Work unless otherwise indicated.
- C. Cold-Weather Requirements: Comply with the following procedures for masonry repair and mortar-joint pointing unless otherwise indicated:

1. When air temperature is below 40 deg F (4 deg C), heat mortar ingredients, masonry repair materials, and existing masonry walls to produce temperatures between 40 and 120 deg F (4 and 49 deg C).
 2. 2. When mean daily air temperature is below 40 deg F (4 deg C), provide enclosure and heat to maintain temperatures above 32 deg F (0 deg C) within the enclosure for 7 days after repair and pointing.
- D. Hot-Weather Requirements: Protect masonry repair and mortar-joint pointing when temperature and humidity conditions produce excessive evaporation of water from mortar and repair materials. Provide artificial shade and wind breaks and use cooled materials as required to minimize evaporation. Do not apply mortar to substrates with temperatures of 90 deg F (32 deg C) and above unless otherwise indicated.
- E. For manufactured repair materials, perform work within the environmental limits set by each manufacturer.
- F. Clean masonry surfaces only when air temperature is 40 deg F (4 deg C) and above and is predicted to remain so for at least 7 days after completion of cleaning.

1.11 COORDINATION

- A. Coordinate masonry restoration and cleaning with public circulation patterns at Project site. Some work is near public circulation patterns. Public circulation patterns cannot be closed off entirely, and in places can be only temporarily redirected around small areas of work. Plan and execute the Work accordingly.

1.12 SEQUENCING AND SCHEDULING

- A. Order replacement materials at earliest possible date to avoid delaying completion of the Work.
- B. Order sand and Portland cement for pointing mortar immediately after approval of Samples. Take delivery of and store at Project site a sufficient quantity to complete Project.
- C. Perform masonry restoration work in the following sequence:
 - 1. Remove plant growth.
 - 2. Inspect for open mortar joints and repair before cleaning to prevent the intrusion of water and other cleaning materials into the wall.
 - 3. Remove paint.
 - 4. Clean masonry surfaces.
 - 5. Where water repellents, specified in Division 07, are to be used on or near masonry work, delay application of these chemicals until after pointing.
 - 6. Rake out mortar from joints surrounding masonry to be replaced and from joints adjacent to masonry repairs along joints.
 - 7. Repair masonry, including replacing existing masonry with new masonry materials.
 - 8. Repair cast stone, including cut out and replacing with new material.
 - 9. Rake out mortar from joints to be repointed.
 - 10. Point mortar joints.
 - 11. After repairs and repointing have been completed and cured, perform a final cleaning to remove residues from this work.
 - 12. Inspect for open mortar joints and repair before cleaning to prevent the intrusion of water and other cleaning materials into the wall.
 - 13. Clean masonry surfaces.
- D. As scaffolding is removed, patch anchor holes used to attach scaffolding. Patch holes in masonry units to comply with project requirements.

PART 2 – PRODUCTS

2.01 MORTAR MATERIALS

- A. Portland cement: ASTM C 150, Type I or Type II, white or gray or both where required for color matching of exposed mortar.
 - 1. Provide cement containing not more than 0.60 percent total alkali when tested according to ASTM C 114.

- B. Hydrated Lime: ASTM C 207, Type S.

- C. Factory-Prepared Lime Putty: ASTM C 1489.

- D. Quicklime: ASTM C 5, pulverized lime.

- E. Mortar Sand: ASTM C 144 unless otherwise indicated.
 - 1. Color: Provide natural sand or ground marble, granite, or other sound stone of color necessary to produce required mortar color. Match existing.
 - 2. For pointing mortar, provide sand with rounded edges.
 - 3. Match size, texture, and gradation of existing mortar sand as closely as possible. Blend several sands if necessary to achieve suitable match.

- F. Mortar Pigments: Natural and synthetic iron oxides, compounded for mortar mixes. Use only pigments with a record of satisfactory performance in masonry mortars.

- G. Water: Potable.

2.02 CLEANING MATERIALS

- A. Water: Potable.
- B. Hot Water: Water heated to a temperature of 140 to 160 deg F (60 to 71 deg C).
- C. Job Mixed Detergent Solution: Solution prepared by mixing 2 cups of tetra sodium polyphosphate, ½ cup of laundry detergent, and 20 quarts of hot water for every 5 gallons of solution required.
- D. Job-Mixed Mold, Mildew, and Algae Remover: Solution prepared by mixing 2 cups (0.5 L) of tetra sodium polyphosphate, 5 quarts (5 L) of 5 percent sodium hypochlorite (bleach), and 15 quarts (15 L) of hot water for every 5 gal. (20 L) of solution required.
- E. Nonacidic Liquid Cleaner: Manufacturer's standard mildly alkaline liquid cleaner formulated for removing mold, mildew, and other organic soiling from ordinary building materials, including polished stone, brick, aluminum, plastics, and wood.
 - 1. Products: Subject to compliance with requirements provide the following/provide one of the following/available products that may be incorporated into the Work include, but are not limited to, the following:
 - 2. Diedrich technologies 960 Heavy Duty Concrete Cleaner.

2.03 ACCESSORY MATERIALS

- A. Liquid Strippable Masking Agent: Manufacturer's standard liquid, film-forming, strippable masking material for protecting glass, metal, and polished stone surfaces from damaging effects of acidic and alkaline masonry cleaners.
 - 1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
 - a. ABR Products, Inc.; Rubber Mask.
 - b. Price Research, Ltd.; Price Mask.

2. PROSOCO; Sure Klean Strippable Masking.
- B. Sealant Materials: See Section 07920.
 - C. Setting Buttons: Resilient plastic buttons, non staining to masonry, sized to suit joint thicknesses and bed depths of masonry units without intruding into required depths of pointing materials.
 - D. Masking Tape: Nonstaining, nonabsorbent material, compatible with pointing mortar, joint primers, sealants, and surfaces adjacent to joints; that will easily come off entirely, including adhesive.
 - E. Antirust Coating: Fast-curing, lead- and chromate-free, self-curing, universal modified-alkyd primer complying with MPI #79, Alkyd Anticorrosive Metal Primer or SSPC-Paint 20 or SSPC-Paint 29 zincrich coating.
 1. 1. Use coating requiring no better than SSPC-SP 2, "Hand Tool Cleaning" surface preparation according to manufacturer's literature or certified statement.
 2. Use coating with a VOC content of 420 g/L (3.5 lb/gal.) or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
 - F. Miscellaneous Products: Select materials and methods of use based on the following, subject to approval of a mockup:
 1. Previous effectiveness in performing the work involved.
 2. Little possibility of damaging exposed surfaces.
 3. Consistency of each application.
 4. Uniformity of the resulting overall appearance.

5. Do not use products or tools that could do the following:
 - a. Remove, alter, or in any way harm the present condition or future preservation of existing surfaces, including surrounding surfaces not in contract.
 - b. Leave a residue on surfaces.

G. Water repellent

1. Diedrcih 303WB Water-Base Siloxanie water repellent

2.04 MORTAR MIXES / CAST STONE MIXES

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

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

B. Colored Mortar: Produce mortar of color required by using specified ingredients. Do not alter specified proportions without Consultant's approval.

1. 1. Mortar Pigments: Where mortar pigments are indicated, do not exceed a pigment-to-cement ratio of 1:10 by weight.

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

D. Mortar Proportions: Mix mortar materials in the following proportions:

1. Pointing Mortar for Brick: 1 part Portland cement, 2 parts lime, and 6 parts sand.
 - a. Add mortar pigments to produce mortar colors required.

2. Add mortar pigments to produce mortar colors required.

2.05 CHEMICAL CLEANING SOLUTIONS

- A. Dilute chemical cleaners with water to produce solutions not exceeding concentration recommended by chemical cleaner manufacturer.
- B. Acidic Cleaner Solution for Brick: Dilute with water to produce hydrofluoric acid content of 3 percent or less, but not greater than that recommended by chemical cleaner manufacturer.
- C. At areas of efflorescence
 1. EaCo Chemical EF-FORTLESS chemical cleaner.

2.06 MASONRY CEMENT MORTAR

- A. Masonry Mortar Mix: Factory blended masonry cement/sand mix proportioned to produce masonry mortar complying with the property specifications in ASTM C270 for the specified type of masonry mortar:
 1. Masonry Cement: ASTM C 91, Type O.
 2. Sand: Mason's sand, ASTM C144.

PART 3 – EXECUTION

3.01 PROTECTION

- A. Protect persons, motor vehicles, surrounding surfaces and finishes of building being restored, building site, plants, and surrounding buildings from harm resulting from masonry restoration work.
 - 1. Erect temporary protective covers over walkways and at points of pedestrian and vehicular entrance and exit that must remain in service during course of restoration and cleaning work.

- B. Comply with chemical-cleaner manufacturer's written instructions for protecting building and other surfaces against damage from exposure to its products. Prevent chemical-cleaning solutions from coming into contact with people, motor vehicles, landscaping, buildings, and other surfaces that could be harmed by such contact.
 - 1. Cover adjacent surfaces with materials that are proven to resist chemical cleaners used unless chemical cleaners being used will not damage adjacent surfaces. Use materials that contain only waterproof, UV-resistant adhesives. Apply masking agents to comply with manufacturer's written instructions. Do not apply liquid masking agent to painted or porous surfaces. When no longer needed, promptly remove masking to prevent adhesive staining.
 - 2. Keep wall wet below area being cleaned to prevent streaking from runoff.
 - 3. Do not clean masonry during winds of sufficient force to spread cleaning solutions to unprotected surfaces.
 - 4. Neutralize and collect alkaline and acid wastes for disposal off Owner's property.
 - 5. Dispose of runoff from cleaning operations by legal means and in a manner that prevents soil erosion, undermining of paving and foundations, damage to landscaping, and water penetration into building interiors.

- C. Prevent mortar from staining face of surrounding masonry and other surfaces.
 - 1. Cover sills, ledges, and projections to protect from mortar droppings.
 - 2. Keep wall area wet below rebuilding and pointing work to discourage mortar from adhering.

3. Immediately remove mortar in contact with exposed masonry and other surfaces.
4. Clean mortar splatters from scaffolding at end of each day.
5. Provide temporary rain drainage during work to direct water away from building.

3.02 CLEANING MASONRY, GENERAL

- A. Proceed with cleaning in an orderly manner; work from top to bottom of each scaffold width and from one end of each elevation to the other. Ensure that dirty residues and rinse water will not wash over cleaned, dry surfaces.
- B. Use only those cleaning methods indicated for each masonry material and location.
 1. Do not use wire brushes or brushes that are not resistant to cleaner being used. Do not use plastic-bristle brushes if natural-fiber brushes will resist chemical cleaner being used.
 2. Use spray equipment that provides controlled application at volume and pressure indicated, measured at spray tip. Adjust pressure and volume to ensure that cleaning methods do not damage masonry.
 - a. Equip units with pressure gages.
 3. For chemical cleaner spray application, use low-pressure tank or chemical pump suitable for chemical cleaner indicated, equipped with cone-shaped spray tip.
 4. For water spray application, use fan shaped spray tip that disperses water at an angle of 25 to 50 degrees.
 5. For high-pressure water spray application, use fan shaped spray tip that disperses water at an angle of at least 40 degrees.
 6. For heated water spray application, use equipment capable of maintaining temperature between 140 and 160 degree at flow rates indicated.
 7. For steam application, use steam generator capable of delivering live steam at nozzle.
- C. Perform each cleaning method indicated in a manner that results in uniform coverage of all surfaces, including corners, moldings, and interstices, and that produces an even effect without streaking or damaging masonry surfaces.

D. Water Application Methods:

1. Water-Soak Application: Soak masonry surfaces by applying water continuously and uniformly to limited area for time indicated. Apply water at low pressures and low volumes in multiple fine sprays using perforated hoses or multiple spray nozzles. Erect a protective enclosure constructed of polyethylene sheeting to cover area being sprayed.
2. Water-Spray Applications: Unless otherwise indicated, hold spray nozzle at least 6 inches from surface of masonry and apply water in horizontal back and forth sweeping motion, overlapping previous strokes to produce uniform coverage.

E. Steam Cleaning: Apply steam to masonry surfaces at the very low pressures indicated for each type of masonry material. Hold nozzle at least 6 inches from surface of masonry and apply steam in horizontal back and forth sweeping motion, overlapping previous strokes to produce uniform coverage.

F. Chemical-Cleaner Application Methods: Apply chemical cleaners to masonry surfaces to comply with chemical-cleaner manufacturer's written instructions; use brush [or spray] application.[Do not spray apply at pressures exceeding 50 psi.] Do not allow chemicals to remain on surface for periods longer than those indicated or recommended by manufacturer.

G. Rinse off chemical residue and soil by working upward from bottom to top of each treated area at each stage or scaffold setting. Periodically during each rinse, test pH of rinse water running off of cleaned area to determine that chemical cleaner is completely removed.

1. Apply neutralizing agent and repeat rinse if necessary to produce tested pH of between 6.7 and 7.5.

H. After cleaning is complete, remove protection no longer required. Remove tape and adhesive marks.

3.03 CLEANING BRICKWORK

A. Cold-Water Soak:

1. Apply cold water by intermittent spraying to keep surface moist.
2. Use perforated hoses or other means that will apply a fine water mist to entire surface being cleaned.

3. Apply water in cycles with at least 30 minutes between cycles.
 4. Continue spraying until surface encrustation has softened sufficiently to permit its removal by water wash, as indicated by cleaning tests.
 5. Continue spraying for 72 hours.
 6. 6. Remove soil and softened surface encrustation from masonry with cold water applied by low-pressure spray.
- B. Cold-Water Wash: Use cold water applied by low-pressure spray.
- C. Mold, Mildew, and Algae Removal:
1. Wet masonry with coldwater applied by low-pressure spray.
 2. Apply mold, mildew, and algae remover by low-pressure spray.
 3. Scrub masonry with medium-soft brushes until mold, mildew, and algae are thoroughly dislodged and can be removed by rinsing. Use small brushes for mortar joints and crevices. Dip brush in mold, mildew, and algae remover often to ensure that adequate fresh cleaner is used and that masonry surface remains wet.
 4. Rinse with cold water applied by low-pressure spray to remove mold, mildew, and algae remover and soil.
 5. Repeat cleaning procedure above where required to produce cleaning effect established by mockup.
- D. Nonacidic Liquid Chemical Cleaning:
1. Wet masonry with cold water applied by low-pressure spray.
 2. Apply cleaner to masonry in two applications by or low-pressure spray. Let cleaner remain on surface for period indicated below:
 - a. As recommended by chemical-cleaner manufacturer.
 - b. As established by mockup.
 - c. Two to three minutes.
 3. Rinse with cold water applied by low-pressure spray to remove chemicals and soil.

4. Repeat cleaning procedure above where required to produce cleaning effect established by mockup. Do not repeat more than once. If additional cleaning is required, use steam cleaning.

3.04 PAINTING STEEL UNCOVERED DURING THE WORK

- A. Inspect steel exposed during masonry removal. Where Consultant determines that it is structural, or for other reasons cannot be totally removed, prepare and paint it as follows:
 1. Remove paint, rust, and other contaminants according to SSPC-SP 2, "Hand Tool Cleaning" SSPC-SP 3, "Power Tool Cleaning" or SSPC-SP 6/NACE No. 3, "Commercial Blast Cleaning", as applicable to meet paint manufacturer's recommended preparation.
 2. Immediately paint exposed steel with two coats of antirust coating, following coating manufacturer's written instructions and without exceeding manufacturer's recommended rate of application (dry film thickness per coat).
- B. If on inspection and rust removal, the cross section of a steel member is found to be reduced from rust by more than 1/16 inch (1.6 mm), notify Consultant before proceeding.

3.05 REPOINTING MASONRY

- A. Rake out and repoint joints to the following extent:
 1. All joints in areas indicated.
- B. Do not rake out and repoint joints where not required.
- C. Rake out joints as follows, according to procedures demonstrated in approved mockup:
 1. Remove mortar from joints to depth of 2-1/2 times joint width, but not less than 1/2 inch (13 mm) or not less than that required to expose sound, unweathered mortar.
 2. Remove mortar from masonry surfaces within raked-out joints to provide reveals with square backs and to expose masonry for contact with pointing mortar. Brush, vacuum, or flush joints to remove dirt and loose debris.

3. Do not spall edges of masonry units or widen joints. Replace or patch damaged masonry units as directed by Consultant.
 - a. Cut out mortar by hand with chisel and resilient mallet. Do not use power-operated grinders without Consultant's written approval based on approved quality-control program.
 4. Cut out center of mortar bed joints using angle grinders with diamond-impregnated metal blades. Remove remaining mortar by hand with chisel and resilient mallet. Strictly adhere to approved quality-control program.
- D. Notify Consultant of unforeseen detrimental conditions including voids in mortar joints, cracks, loose masonry units, rotted wood, rusted metal, and other deteriorated items.

E. Pointing with Mortar:

1. Rinse joint surfaces with water to remove dust and mortar particles. Time rinsing applications so, at time of pointing, joint surfaces are damp but free of standing water. If rinse water dries, dampen joint surfaces before pointing.
2. Apply pointing mortar first to areas where existing mortar was removed to depths greater than surrounding areas. Apply in layers not greater than 3/8 inch (9 mm) until a uniform depth is formed. Fully compact each layer thoroughly and allow it to become thumbprint hard before applying next layer.
3. After low areas have been filled to same depth as remaining joints, point all joints by placing mortar in layers not greater than 3/8 inch (9 mm). Fully compact each layer and allow to become thumbprint hard before applying next layer. Where existing masonry units have worn or rounded edges, slightly recess finished mortar surface below face of masonry to avoid widened joint faces. Take care not to spread mortar beyond joint edges onto exposed masonry surfaces or to featheredge the mortar.
4. When mortar is thumbprint hard, tool joints to match original appearance of joints as demonstrated in approved mockup. Remove excess mortar from edge of joint by brushing.
5. Cure mortar by maintaining in thoroughly damp condition for at least 72 consecutive hours including weekends and holidays.
 - a. Acceptable curing methods include covering with wet burlap and plastic sheeting, periodic hand misting, and periodic mist spraying using system of pipes, mist heads, and timers.
 - b. Adjust curing methods to ensure that pointing mortar is damp throughout its depth without eroding surface mortar.
6. Hairline cracking within the mortar or mortar separation at edge of a joint is unacceptable. Completely remove such mortar and repoint.

- F. Where repointing work precedes cleaning of existing masonry, allow mortar to harden at least 30 days before beginning cleaning work.

3.06 FINAL CLEANING

- A. After mortar has fully hardened, thoroughly clean exposed masonry surfaces of excess mortar and foreign matter; use wood scrapers, stiff-nylon or -fiber brushes, and clean water, spray applied at low pressure.
 - 1. Do not use metal scrapers or brushes.
 - 2. Do not use acidic or alkaline cleaners.

- B. Wash adjacent woodwork and other non-masonry surfaces. Use detergent and soft brushes or cloths.

- C. Clean mortar and debris from roof; remove debris from gutters and downspouts. Rinse off roof and flush gutters and downspouts.

- D. Sweep and rake adjacent pavement and grounds to remove mortar and debris. Where necessary, pressure wash pavement surfaces to remove mortar, dust, dirt, and stains.

END OF SECTION

SECTION 07620
SHEET METAL FLASHING AND TRIM

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

- A. Section Includes:
 - 1. Aluminum Sill Flashings

- B. Related Sections:
 - 1. Section 04012 – Maintenance of Unit Masonry.
 - 2. Section 07920 – Joint Sealants.

1.03 REFERENCES

- A. American Society for Testing and Materials (ASTM):
 - 1. B 209 Aluminum and Aluminum-Alloy Sheet and Plate

- B. American National Standards Institute/Single Ply Roofing Institute (ANSI/SPRI):
 - 1. ES-1 Wind Design Standard for Edge Systems Used with Low Slope Roofing Systems

- C. Sheet Metal and Air Conditioning Contractors National Association (SMACNA): Architectural Sheet Metal Manual (Latest Edition).

- D. National Association of Architectural Metal Manufacturers (NAAMM):

1. AMP 500-505 Metal Finishes Manual
- E. American Architectural Manufacturers Association (AAMA):
1. 605 Voluntary Specification for High Performance Organic Coatings on Architectural Extrusions Panels
- F. International Code Commission (ICC): International Building Code (IBC), Current Edition

1.04 PERFORMANCE REQUIREMENTS

- A. General: Install sheet metal flashing and trim to withstand wind loads, structural movement, thermally induced movement, and exposure to weather without failing, rattling, leaking, and fastener disengagement.
- B. Wind Uplift Forces: Resist the following forces per FM Approvals 1-49:
1. Wind Zone 2: 1.48 to 2.15 kPa (31 to 45 lbf/sq. ft.): 4.31-kPa (90-lbf/sq. ft.) perimeter uplift force, 5.74-kPa (120-lbf/sq. ft.) corner uplift force, and 2.15-kPa (45-lbf/sq. ft.) outward force.
- C. ANSI/SPRI Wind Design Standard: Manufacture and install roof-edge flashings tested according to ANSI SPRI ES-1 and capable of resisting the following design pressures:
1. Design pressure: Calculate based on 90 mph wind speed, Exposure B, Category II.

- D. Thermal Movements: Provide sheet metal flashing and trim that allow for thermal movements resulting from the following maximum change (range) in ambient and surface temperatures by preventing buckling, opening of joints, hole elongation, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Provide clips that resist rotation and avoid shear stress as a result of sheet metal and trim thermal movements. Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.
 - 1. Temperature Change (Range): -22 deg F (-30 deg C), ambient; 180 deg F (100 deg C), material surfaces.
- E. Water Infiltration: Provide sheet metal flashing and trim that do not allow water infiltration to building interior.

1.05 SUBMITTALS

- A. Product Data: For each type of product indicated. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes.
- B. Shop Drawings: Show layouts of sheet metal terminations, joints and corners. Distinguish between shop-assembled and field-assembled work. Include the following:
 - 1. Identify material, thickness, weight, and finish for each item and location in Project.
 - 2. Details for forming sheet metal flashing and trim, including profiles, shapes, seams, and dimensions.
 - 3. Details for fastening, joining, supporting, and anchoring sheet metal flashing and trim, including fasteners, clips, cleats, and attachments to adjoining work.
 - 4. Details of expansion-joint covers, including showing direction of expansion and contraction.
- C. Samples for Verification: For each type of exposed finish required, prepared on Samples of size indicated below:
 - 1. Trim: 12 inches (300 mm) long. Include fasteners and other exposed accessories.
 - 2. Accessories: Full-size Sample.

- D. Certificates: Indicating compliance with specified finishing requirements, from applicator and contractor.

1.06 QUALITY ASSURANCE

- A. Sheet Metal Flashing and Trim Standard: Comply with SMACNA's "Architectural Sheet Metal Manual." Conform to dimensions and profiles shown unless more stringent requirements are indicated.
- B. Pre-installation Conference: Conduct conference at Project site to comply with requirements in Section 01200 "Project Meetings."
 - 1. Meet with Owner, Consultant, Owner's insurer if applicable, Installer, and installers whose work interfaces with or affects sheet metal flashing and trim including installers of roofing materials, roof accessories, unit skylights, and roof-mounted equipment.
 - 2. Review methods and procedures related to sheet metal flashing and trim.
 - 3. Examine substrate conditions for compliance with requirements, including flatness and attachment to structural members.
 - 4. Document proceedings, including corrective measures and actions required, and furnish copy of record to each participant.

1.07 DELIVERY, STORAGE AND HANDLING

- A. Deliver sheet metal flashing materials and fabrications undamaged. Protect sheet metal flashing and trim materials and fabrications during transportation and handling.
- B. Unload, store, and install sheet metal flashing materials and fabrications in a manner to prevent bending, warping, twisting, and surface damage.
- C. Stack materials on platforms or pallets, covered with suitable weathertight and ventilated covering. Do not store sheet metal flashing and trim materials in contact with other materials that might cause staining, denting, or other surface damage.

1.08 COORDINATION

- A. Coordinate installation of sheet metal flashing and trim with interfacing and adjoining construction to provide a leakproof, secure, and noncorrosive installation.
- B. Where sheet metal flashings are incorporated into the roof system flashings, installation shall commence concurrently with roofing operations to prevent delays.
- C. Where sheet metal flashings are designed to provide counter flashing, installation shall commence after roof flashing work has been completed in accordance with the specifications.

PART 2 – PRODUCTS

2.01 SHEET METALS

- A. Aluminum Sheet: ASTM B 209 (ASTM B 209M), Alloy 3003, 3004, 3105, or 5005, Temper suitable for forming and structural performance required, but not less than H14, finished as follows:
 - 1. High-Performance Organic Finish: AA-C12C42R1x (Chemical Finish: cleaned with inhibited chemicals; Chemical Finish: acid-chromate-fluoride-phosphate conversion coating; Organic Coating: as specified below). Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.
 - 2. Fluoropolymer 2-Coat System: Manufacturer's standard 2-coat, thermocured system consisting of specially formulated inhibitive primer and fluoropolymer color topcoat containing not less than 70 percent polyvinylidene fluoride resin by weight; complying with AAMA 2605.
 - 3. Mill Finish
 - 4. Finish shall consist of primer on both sides, minimum 0.25-mil thickness, followed by a 70% Kynar 500® resin premium fluoropolymer (PVDF) coating on one side to achieve a 1.0 mil (+/- 0.1-mil) dry-film thickness
 - a. Color: Manufacturer's standard color which will be selected by the Owner.

2.02 FLASHING ACCESSORIES

- A. General: Provide materials and types of fasteners, solder, welding rods, protective coatings, separators, sealants, and other miscellaneous items as required for complete sheet metal flashing and trim installation.

- B. Fasteners:
 - 1. Use copper, copper alloy, bronze, brass, or stainless steel for copper and copper clad stainless steel, and stainless steel for stainless steel and aluminum alloy. Use galvanized steel or stainless steel for galvanized steel.

 - 2. Nails:
 - a. Minimum diameter for copper nails: 3 mm (0.109 inch).
 - b. Minimum diameter for aluminum nails 3 mm (0.105 inch).
 - c. Minimum diameter for stainless steel nails: 2 mm (0.095 inch) and annular threaded.
 - d. Length to provide not less than 22 mm (7/8 inch) penetration into anchorage.

 - 3. Exposed Fasteners: Heads matching color of sheet metal by means of plastic caps or factory-applied coating. Use only where concealed fasteners cannot be used.

 - 4. Fasteners for Flashing and Trim: Blind fasteners or self-drilling screws, gasketed, with hex washer head.

- C. Sealant: As specified in Section 07920, JOINT SEALANTS.

2.03 FABRICATION, GENERAL

- A. General:
 - 1. Custom fabricate sheet metal flashing and trim to comply with recommendations in SMACNA's "Architectural Sheet Metal Manual" that apply to design, dimensions, metal, and other characteristics of item indicated. Shop fabricate items where practicable. Obtain field measurements for accurate fit before shop fabrication.

2. All points where the sheet metal flashing ends or transitions into a different flashing detail shall be flashed with a field-formed sheet metal closure.
- B. Fabricate sheet metal flashing and trim in thickness or weight needed to comply with performance requirements, but not less than that specified for each application and metal.
- C. Fabricate sheet metal flashing and trim without excessive oil canning, buckling, and tool marks and true to line and levels indicated, with exposed edges folded back to form hems.
 1. Seams for Aluminum: Fabricate nonmoving seams with flat-lock seams. Form seams and seal with epoxy seam sealer.
 - 2.
- D. Sealed Joints: Form nonexpanding but movable joints in metal to accommodate elastomeric sealant to comply with SMACNA recommendations.
- E. Expansion Provisions: Where lapped or bayonet-type expansion provisions in the Work cannot be used, form expansion joints of intermeshing hooked flanges, not less than 1 inch (25 mm) deep, filled with elastomeric sealant concealed within joints.
- F. Conceal fasteners and expansion provisions where possible on exposed-to-view sheet metal flashing and trim, unless otherwise indicated.
- G. Fabricate cleats and attachment devices from same material as accessory being anchored or from compatible, noncorrosive metal.
 1. Thickness: As recommended by SMACNA's "Architectural Sheet Metal Manual" and Factory Mutual Group Loss Prevention Data Sheet 1-49 for application but not less than thickness of metal being secured.

2.04 MISCELLANEOUS SHEET METAL FABRICATIONS

- A. Equipment Support Flashing: Fabricate from the following material:
 1. Prepainted, Metallic-Coated Steel: 0.0276 inch (0.7 mm) thick.

2.05 FINISHES

- A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.

- B. Protect mechanical and painted finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

- C. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. Noticeable variations in the same piece are not acceptable. Variations in appearance of other components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

PART 3 – EXECUTION

3.01 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, to verify actual locations, dimensions and other conditions affecting performance of work:
 - 1. Verify that substrate is sound, dry, smooth, clean, sloped for drainage, and securely anchored.
 - 2. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 INSTALLATION, GENERAL

- A. General: Anchor sheet metal flashing and trim and other components of the Work securely in place, with provisions for thermal and structural movement. Use fasteners, solder, welding rods, protective coatings, separators, sealants, and other miscellaneous items as required to complete sheet metal flashing and trim system:
 - 1. Torch cutting of sheet metal flashing and trim is not permitted.
- B. Metal Protection: Where dissimilar metals will contact each other or corrosive substrates, protect against galvanic action by painting contact surfaces with bituminous coating or by other permanent separation as recommended by fabricator or manufacturers of dissimilar metals:
 - 1. Coat side of stainless-steel sheet metal flashing and trim with bituminous coating where flashing and trim will contact wood, ferrous metal, or cementitious construction.
 - 2. Underlayment: Where installing metal flashing directly on cementitious or wood substrates, install a course of felt underlayment and cover with a slip sheet or install a course of polyethylene underlayment.

3. Bed flanges in thick coat of asphalt roofing cement where required for waterproof performance.
- C. Install exposed sheet metal flashing and trim without excessive oil canning, buckling, and tool marks.
 - D. Install sheet metal flashing and trim true to line and levels indicated. Provide uniform, neat seams with minimum exposure of solder, welds, and elastomeric sealant.
 - E. Install sheet metal flashing and trim to fit substrates and to result in watertight performance. Verify shapes and dimensions of surfaces to be covered before fabricating sheet metal.
 1. Spaced Cleats: Space cleats not more than 12 inches (300 mm) apart. Anchor each cleat with two fasteners. Bend tabs over fasteners.
 2. Continuous Cleats: Place cleat sections continuous with ½-inch space at ends. Anchor each cleat with two rows of fasteners. Bend tabs over fasteners if applicable.
 - F. Expansion Provisions: Provide for thermal expansion of exposed flashing and trim. Space movement joints at a maximum of 8 feet with no joints allowed within 24 inches (600 mm) of corner or intersection. Where lapped or bayonet-type expansion provisions cannot be used or would not be sufficiently watertight, form expansion joints of intermeshing hooked flanges, not less than 1 inch (25 mm) deep, filled with elastomeric sealant concealed within joints.
 - G. Fasteners: Use fasteners of sizes that will penetrate substrate not less than 1-1/4 inches (32 mm) for nails and wood screws:
 1. Aluminum: Use aluminum or stainless-steel fasteners.
 - H. Seal joints with elastomeric sealant as required for watertight construction.
 1. Where sealant-filled joints are used, embed hooked flanges of joint members not less than 1 inch (25 mm) into sealant. Form joints to completely conceal sealant. When ambient temperature at time of installation is moderate, between 40 and 70 deg F (4 and 21 deg C), set joint members for 50 percent movement either way. Adjust setting proportionately for installation at higher ambient temperatures. Do not install sealant-type joints at temperatures below 40 deg F (4 deg C).

2. Prepare joints and apply sealants to comply with requirements in Section 07920 "Joint Sealants."
- I. Aluminum Flashing: Rivet or weld joints in uncoated aluminum where necessary for strength.

3.03 CLEANING AND PROTECTION

- A. Clean exposed metal surfaces of substances that interfere with uniform oxidation and weathering.
- B. Clean and neutralize flux materials. Clean off excess solder and sealants.
- C. Remove temporary protective coverings and strippable films as sheet metal flashing and trim are installed. On completion of installation, clean finished surfaces, including removing unused fasteners, metal filings, pop rivet stems, and pieces of flashing. Maintain in a clean condition during construction.
- D. Replace sheet metal flashing and trim that have been damaged or that have deteriorated beyond successful repair by finish touchup or similar minor repair procedures.
- E. Repair of deficiencies:
 1. Installation or details noted as deficient during Final Review must be repaired and corrected by Contractor, and made ready for review, within five (5) working days.

END OF SECTION

SECTION 07920 JOINT SEALANTS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

- A. Section includes sealants, joint backing, and accessories.
 - 1. Exterior joints in the following vertical surfaces and horizontal non-traffic surfaces:
 - a. Precast concrete coping and cornice.
 - b. Wet sealing aluminum storefront windows
- B. Related Sections:
 - 1. Section 04012 – Maintenance of Unit Masonry
 - 2. Section 07620 - Sheet Metal Flashing and Trim.

1.03 REFERENCES

- A. American Society for Testing and Materials:
 - 1. ASTM C 920 Standard Specification for Elastomeric Joint Sealants.
 - 2. ASTM C 1193 Standard Guide for Use of Joint Sealants.
 - 3. ASTM D 1056 Standard Specification for Flexible Cellular Materials-Sponge or Expanded Rubber.
 - 4. ASTM D 1667 Standard Specification for Flexible Cellular Materials-Vinyl Chloride Polymers and Copolymers (Closed-Cell Foam).

1.04 PERFORMANCE REQUIREMENTS

- A. Provide elastomeric joint sealants that establish and maintain watertight and airtight continuous joint seals without staining or deteriorating joint substrates.
- B. Provide joint sealants for interior applications that establish and maintain airtight and water-resistant continuous joint seals without staining or deteriorating joint substrates.

1.05 SUBMITTALS

- A. Section 01340 - Submittal Procedures.
- B. Product Data: Submit data indicating sealant chemical characteristics, performance criteria, substrate preparation, limitations, and color availability.
- C. Samples: Submit manufacturer's color charts consisting of strips of cured sealants illustrating sealant colors for selection.
- D. Manufacturer's Installation Instructions: Submit special procedures, surface preparation, and perimeter conditions requiring special attention.
- E. Qualification Data: For Installer.

- F. Compatibility and Adhesion Test Reports: From sealant manufacturer, indicating the following:
 - 1. Materials forming joint substrates and joint-sealant backings have been tested for compatibility and adhesion with joint sealants.
 - 2. Interpretation of test results and written recommendations for primers and substrate preparation needed for adhesion.

- G. Warranty: Include coverage for installed sealants and accessories failing to achieve watertight seal, exhibit loss of adhesion or cohesion, and sealants which do not cure.

1.06 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing products specified in this section with minimum three years experience.

- B. Applicator: Company specializing in performing Work of this section with minimum three years documented experience, and approved by manufacturer.

- C. Source Limitations: Obtain each type of joint sealant through one source from a single manufacturer.

1.07 ENVIRONMENTAL REQUIREMENTS

- A. Section 01600 – Materials and Equipment.

- B. Maintain temperature, humidity and surface conditions recommended by sealant manufacturer during and after installation.

1.08 WARRANTY

- A. Special Installers Warranty: Installer’s standard form in which Installer agrees to repair or replace elastomeric joint sealants that do not comply with performance and other requirements specified in this Section within specified warranty period.

1. Two (2) years from date of Substantial Completion.
- B. Special Manufacturer's Warranty: Manufacturer's standard form in which elastomeric sealant manufacturer agrees to furnish elastomeric joint sealants to repair or replace those that do not comply with performance and other requirements specified in this Section within specified warranty period.
1. Five (5) years from date of Substantial Completion.
- C. Special warranties specified in this Section exclude deterioration or failure of elastomeric joint sealants from the following:
1. Movement of the structure resulting in stresses on the sealant exceeding sealant manufacturer's written specifications for sealant elongation and compression caused by structural settlement or errors attributable to design or construction.
 2. Disintegration of joint subsurfaces from natural causes exceeding design specifications.
 3. Mechanical damage caused by individuals, tools, or other outside causes.
 4. Changes in sealant appearance caused by accumulation of dirt or other atmospheric contaminants.

PART 2 – PRODUCTS

2.01 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 upon testing and field experience.
- B. Colors of Exposed Joint Sealants: As selected by Owner from manufacturer's full range of colors.

2.02 ELASTOMERIC JOINT SEALANTS

- A. Elastomeric Sealants: Comply with ASTM C 920 and other requirements indicated for each liquid-applied chemically curing sealant specified, including those referencing ASTM C 920 classifications for type, grade, class and uses related to exposure and joint substrates.

- B. Stain-Test-Response Characteristics: Where elastomeric sealants are specified to be non-staining to porous substrates, provide products that have undergone testing according to ASTM C 1248 and have not stained porous joint substrates indicated for Project.
- C. Single-Component Neutral and Basic-Curing Silicone Sealant (Exterior Applications):
1. Products:
 - a. Dow Corning Corporation;
 - b. Tremco;
 2. Type and Grade: S (single component) and NS (non-sag).
 3. Class 100/50.
 4. Use Related to Exposure: NT (non-traffic).
 5. Use Related to Joint Substrates: M, G, A, and as applicable to joint substrates indicated, O.
 6. Use O Joint Substrates: color anodic aluminum, galvanized steel, limestone, wood.
 7. Stain-Test-Response Characteristics: Non-staining to porous substrates per ASTM C1248.
- D. General Purpose Exterior (Non-traffic) Sealant: One-part silicone, ASTM C 920, NS, Class 100/50
1. Type:
 - a. 795 manufactured by Dow Corning
 - b. SilPruf NS manufactured by GE.
 2. Color: Colors as selected by Owner.
 3. Applications: Use for:
 - a. Precast concrete coping and cornice joints.
 - b. Wet sealing windows.
- E. Preformed Silicone-Sealant System: Preformed, ultra-low modulus silicone extrusion.

1. Type:
 - a. 123 Silicone Seal manufactured by Dow Corning.
 - b. Ultra Span US1100 manufactured by GE.
2. Roll width: As necessary for application.
3. Material physical properties:
 - a. Hardness: 25-durometer hardness, Shore A, tested in accordance with ASTM C661.
 - b. Properties, tested in accordance with ASTM D412:
 - 1) Tensile strength: 400 psi.
 - 2) Elongation: 400 percent.
 - 3) Tear strength, die B: 100 ppi, tested in accordance with ASTM C624.
4. Color: To match storefront.
5. Wet seal sealant: As recommended for project conditions and approved by preformed silicone seal manufacturer.
6. Primer: As recommended for project conditions and approved by preformed silicone seal manufacturer.
7. Applications: Use for:
 - a. Wet sealing aluminum storefront and entrances

2.03 JOINT-SEALANT BACKING

- A. General: Provide sealant backings of material and type that are non-staining; are compatible with joint substrates, sealants, primers, and other joint fillers; and are approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.
- B. Cylindrical Sealant Backings: ASTM C 1330, Type or any of the preceding types, as approved in writing by joint-sealant manufacturer for joint application indicated, and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance.
- C. Elastomeric Tubing Sealant Backings: Neoprene, butyl, EPDM, or silicone tubing complying with ASTM D 1056, non-absorbent to water and gas, and capable of remaining resilient at temperatures down to minus 26 ° F. (minus 32 ° C). Provide products with low compression set and of size and shape to provide a secondary seal, to control sealant depth, and to otherwise contribute to optimum sealant performance.
- D. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint-filler materials or joint surfaces at back of joint where such adhesion would result in sealant failure. Provide self-adhesive tape where applicable.

2.04 ACCESSORIES

- A. Primer: Material recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.
- B. Masking Tape: Non-staining, non-absorbent material compatible with joint sealants and surfaces adjacent to joints.
- C. Joint Cleaner: Non-corrosive and non-staining type, recommended by sealant manufacturer; compatible with joint forming materials.
- D. Loose mason's sand:

1. Clean, sharp, free from loam or silt, and free from deleterious amounts of oil, acid, alkalis, salts, or organic matter.
2. Conforming to ASTM C-144.
3. Color: Provide natural sand or ground marble, granite, or other sound stone of color necessary to match color of existing mortar and brick

PART 3 – EXECUTION

3.01 EXAMINATION

- A. Examine joints indicated to receive joint sealants, with Installer present, for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting joint-sealant performance.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 PREPARATION

- A. Perform preparation in accordance with ASTM C 1193.
- B. Protect elements surrounding Work of this section from damage or disfiguration.

- C. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint-sealant manufacturer's written instructions and the following requirements:
1. Remove all foreign material from joint substrates that could interfere with adhesion of joint-sealant, including dust, paints (except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer), old joint sealants, oil, grease, waterproofing, water repellents, water, surface dirt, and frost.
 2. Clean porous joint substrate surfaces by brushing, grinding, blast cleaning, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint sealants. Remove loose particles remaining after cleaning operations above by vacuuming or blowing out joints with oil-free compressed air. Porous joint substrates include the following:
 - a. Concrete
 - b. Masonry
 3. Remove laitance and form-release agents from concrete.
 4. Clean non-porous surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion of joint sealants. Non-porous joint substrates include the following:
 - a. Metal
 - b. Glass
- D. Joint Priming: Prime joint substrates where recommended in writing by joint-sealant manufacturer, based on preconstruction joint sealant substrate tests or prior experience. Apply primer to comply with joint sealant manufacturer's written instructions. Confine primers to areas of joint sealant bond; do not allow spillage or migration onto adjoining surfaces.
- E. 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 SEALANT INSTALLATION

- A. General: Comply with joint sealant manufacturer's written installation instructions for products and applications indicated, unless more stringent requirements apply.
- B. Installation Standard: Comply with recommendations in ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.
- C. Install sealant backings of type indicated to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.
 - 1. Do not leave gaps between ends of sealant backings.
 - 2. Do not stretch, twist, puncture, or tear sealant backings.
 - 3. Remove absorbent sealant backings that have become wet before sealant application and replace them with dry materials.
- D. Install bond-breaker tape behind sealants where sealant backings are not used between sealants and backs of joints.
- E. Install sealants using proven techniques that comply with the following and at the same time backings are installed.
 - 1. Place sealants so they directly contact and fully wet joint substrates.
 - 2. Completely fill recesses in each joint configuration.
 - 3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.

- F. Tooling of Non-Sag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants according to requirements specified below to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.
1. Remove excess sealant from surfaces adjacent to joints.
 2. Use tooling agents that are approved in writing by sealant manufacturer and that do not discolor sealants or adjacent surfaces.
 3. Provide concave joints configuration per Figure 5A in ASTM C 1193, unless otherwise indicated.
 4. Provide flush joint configuration where indicated per Figure 5B in ASTM C 1193.
 5. Provide recessed joint configuration of recess depth and at locations indicated per Figure 5C in ASTM C 1193.
 - a. Use masking tape to protect surfaces adjacent to recessed tooled joints.
- G. Installation of Preformed Tapes: Install according to manufacturer's written instructions.
- H. Installation of Preformed Silicone-Sealant System: Comply with the following requirements:
1. Apply masking tape to each side of joint, outside of area to be covered by sealant system.
 2. Apply silicone sealant to each side of joint to produce a bead of size complying with preformed silicone sealant system manufacturer's written instructions and covering a bonding area of not less than 3/8-inch (10 mm). Hold edge of sealant bead ¼-inch (6 mm) inside masking tape.
 3. Within 10 minutes of sealant application, press silicone extrusion into sealant to wet extrusion and substrate.
 4. Complete installation of sealant system in horizontal joints before installing in vertical joints. Lap vertical joints over horizontal joints. At ends of joints, cut silicone extrusion with a razor knife.
- I. Installation of Preformed Foam Sealants: Install each length of sealant immediately after removing protective wrapping, taking care not to pull or stretch material, producing seal continuity at ends, turns, and intersections of joints. For applications at low ambient

temperatures where expansion of sealant requires acceleration to produce seal, apply heat to sealant in compliance with sealant manufacturer's written instructions.

3.04 SEALANT INSTALLATION WITHIN MASONRY SURFACES

- A. Notify Consultant of unforeseen detrimental conditions including voids in mortar joints, cracks, loose masonry units, and other deteriorated items.

- B. Do not widen a joint.

- C. Preparation:
 - 1. Failed mortar joints:
 - a. Install sealant filled joints at all mortar joints shown on construction plans:
 - b. Remove joints as follows:
 - 1) Remove mortar from joints to depth of 2-1/2 times joint width, but not less than 1/2 inch (13 mm) or not less than that required to expose sound, unweathered mortar.
 - 2) Remove mortar from masonry surfaces to provide reveals with square backs and to expose masonry for contact with pointing mortar. Brush, vacuum, or flush joints to remove dirt and loose debris.
 - 3) Do not spall edges of masonry units or widen joints. Replace damaged masonry units as directed by Consultant.
 - 4) Cut out center of mortar bed joints using angle grinders with diamond-impregnated metal blades. Remove remaining mortar by hand with chisel and resilient mallet. Strictly adhere to approved quality-control program.

2. Through-brick cracking:
 - a. Remove loose particles, soil, dirt and all other foreign material from crack.
 - b. Widen crack to provide a 3/8" joint.
- D. Install sealant joint in accordance with Article 3.02 and 3.03, above.
- E. Install over sealant a thin layer of sand; ensure sand bonds to sealant. Sand color shall match the color of mortar or brick respectively

3.05 FIELD QUALITY CONTROL

- A. Inspect joints for complete fill, for absence of voids, and for joint configuration complying with specified requirements. Record results in a field adhesion test log.
- B. Whether sealant dimensions and configurations comply with specified requirements.

3.06 CLEANING

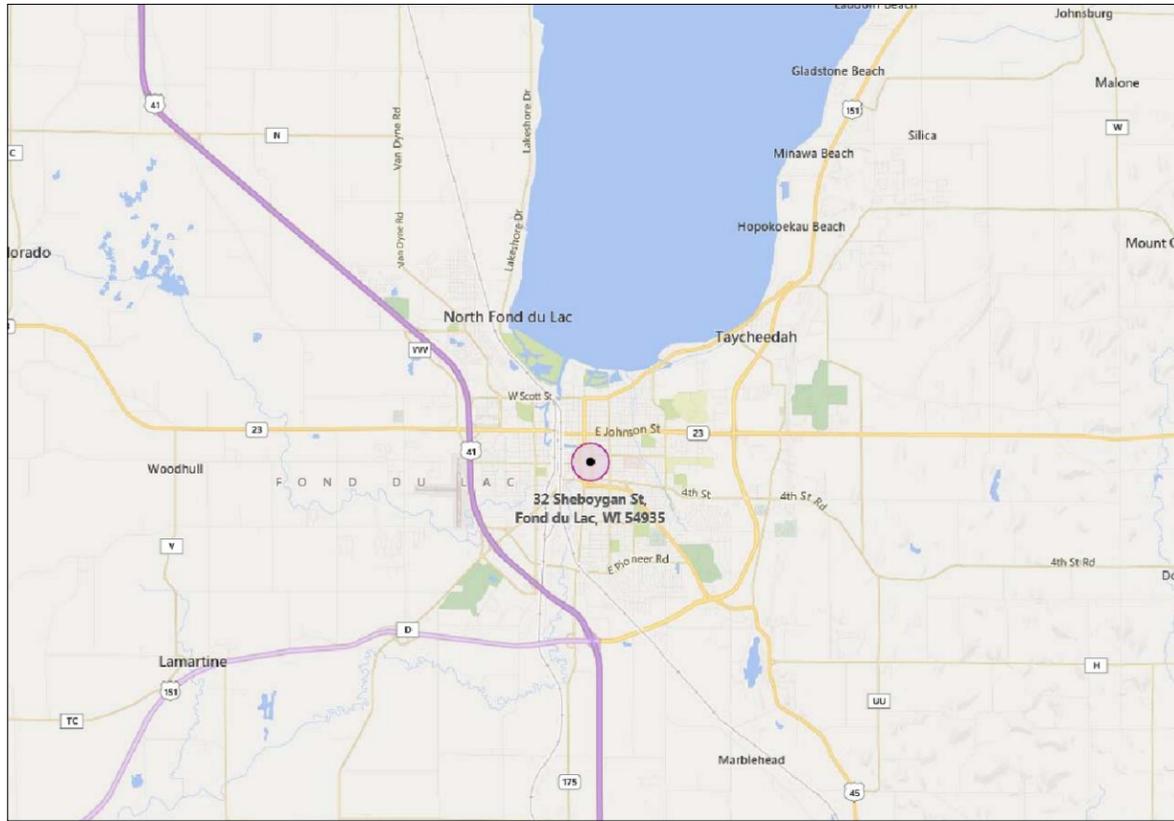
- A. Clean off excess sealant or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved in writing by manufacturers of joint sealants and of products in which joints occur.
- B. Clean adjacent soiled surfaces.

3.07 PROTECTION OF INSTALLED CONSTRUCTION

- A. Section 01700 - Contract Close-out and Warranties: Protecting installed construction.
- B. Protect joint sealants during and after curing period from contact with contaminating substances and from damage resulting from construction operations or other causes so sealants are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated joint sealants immediately so installations with repaired areas are indistinguishable from original

work.

END OF SECTION.

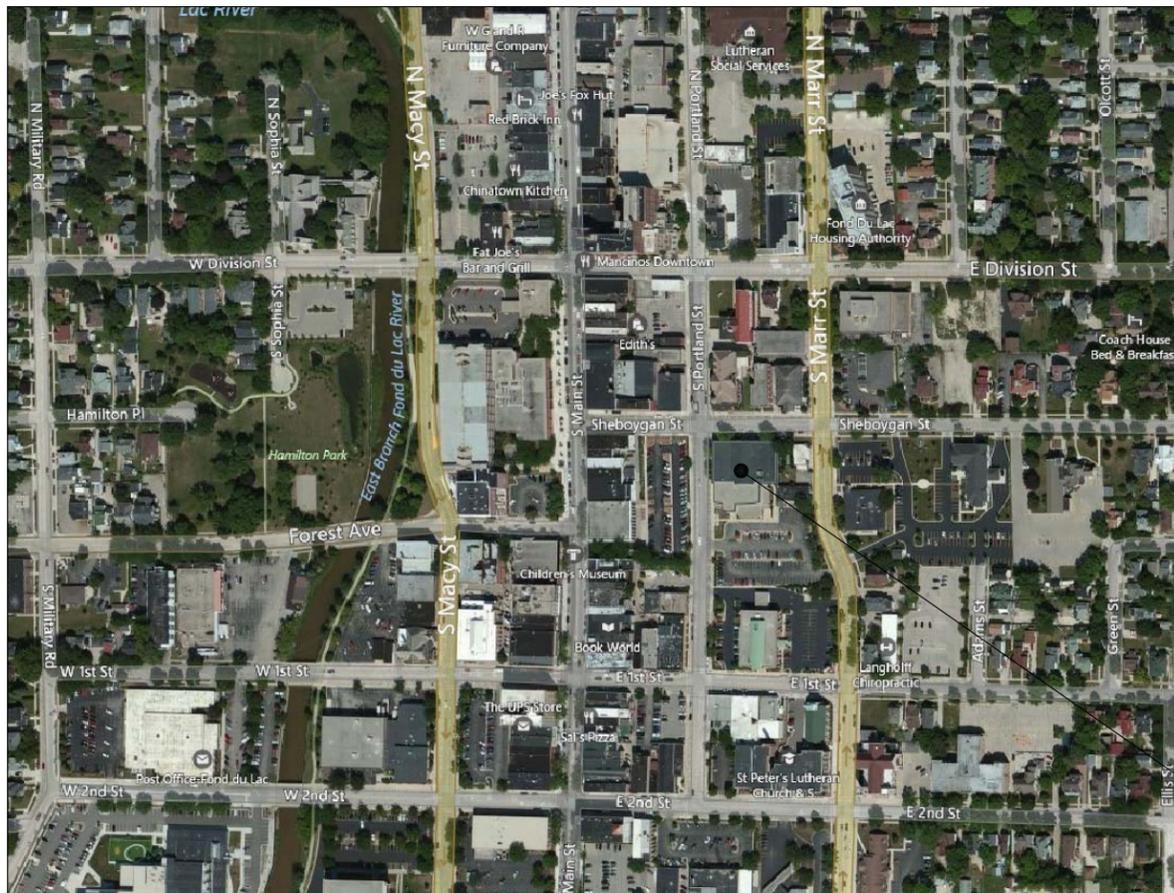


PROJECT: FOND DU LAC PUBLIC LIBRARY
 32 SHEBOYGAN STREET
 FOND DU LAC, WISCONSIN, 54935

OWNER: CITY OF FOND DU LAC
 32 SHEBOYGAN STREET
 FOND DU LAC, WISCONSIN 54935

CONSULTANT: INDUSTRIAL ROOFING SERVICES
 13000 WEST SILVER SPRING DRIVE
 BUTLER, WISCONSIN 53007
 (262) 432-0500

IRS JOB #: 15393



32 SHEBOYGAN ST - FOND DU LAC, WI

SHEET INDEX

- 0 - COVER SHEET
- A1.0 - ROOF PLAN
- A2.0 - NORTH & SOUTH ELEVATIONS
- A2.1 - EAST & WEST ELEVATIONS
- A3.0 - EXTERIOR DETAILS 1-4
- A3.1 - EXTERIOR DETAILS 5, 6

IRS
INDUSTRIAL ROOFING SERVICES, INC.
 13000 WEST SILVER SPRING DRIVE - BUTLER, WI 53007
 PHONE: (800) 236-3477 / (262) 432-0500 FAX: (262) 432-0504

CONSULTANT DOES NOT
 WARRANT THE ACCURACY
 OF THE EXISTING
 CONDITIONS SHOWN ON
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 SHALL FIELD VERIFY
 EXISTING CONDITIONS
 PRIOR TO ANY WORK
 RELATED TO THIS BUILDING.

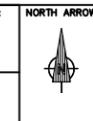
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 32 SHEBOYGAN ST - FOND DU LAC, WI
 FOND DU LAC PUBLIC LIBRARY

TITLE: COVER SHEET

DRAWN BY: ASB
SCALE: N.T.S.

DATE: 10/2/2015
DRAWING NO.: C0

IRS SPEC NO.: 15393



NOTES: DIMENSIONS ARE FOR BIDDING PROPOSES ONLY. CONTRACTOR IS TO FIELD VERIFY ALL DIMENSIONS PRIOR TO ORDERING AND INSTALLING PRODUCTS.

3

11

9

10

1

2

6

8

5

4

7

REPLACE SEALANT AT
COUNTER FLASHING

ALTERNATE ADD #1
- M3 & M4

ALTERNATE ADD #1
- M3 & M4

1
A3.0

4
A3.0

2
A3.0

3
A3.0

4
A3.0

1
A3.0

1
A3.0

(UPPER)

(LOWER)

M1

M1

M2

M1



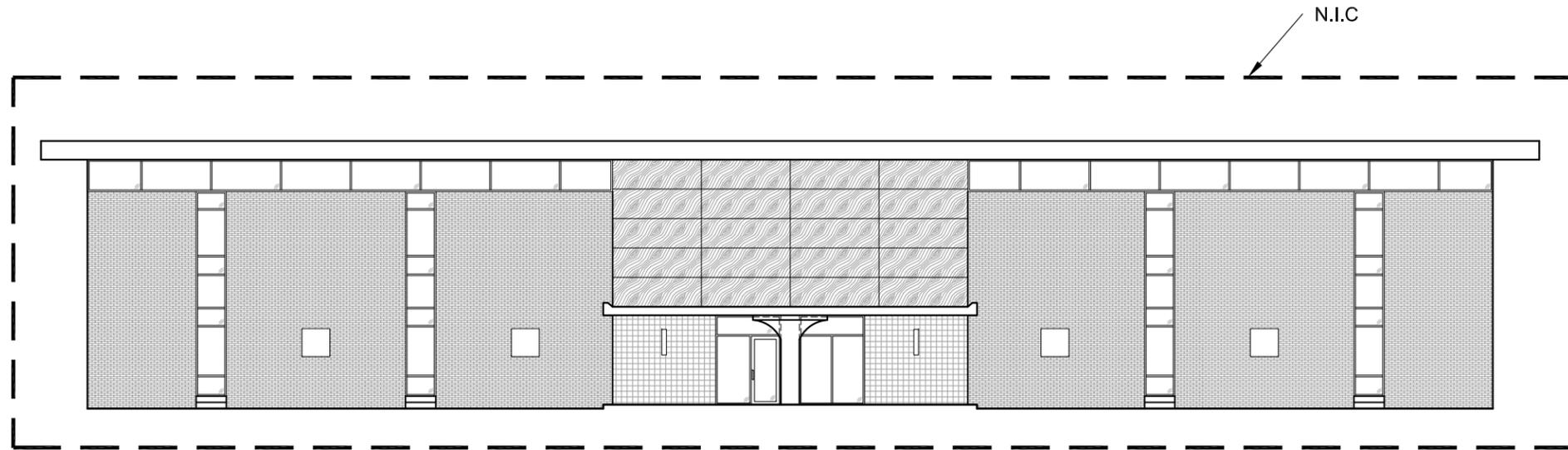
INDUSTRIAL ROOFING SERVICES, INC.
13000 WEST SILVER SPRING DRIVE - BUTLER, WI 53007
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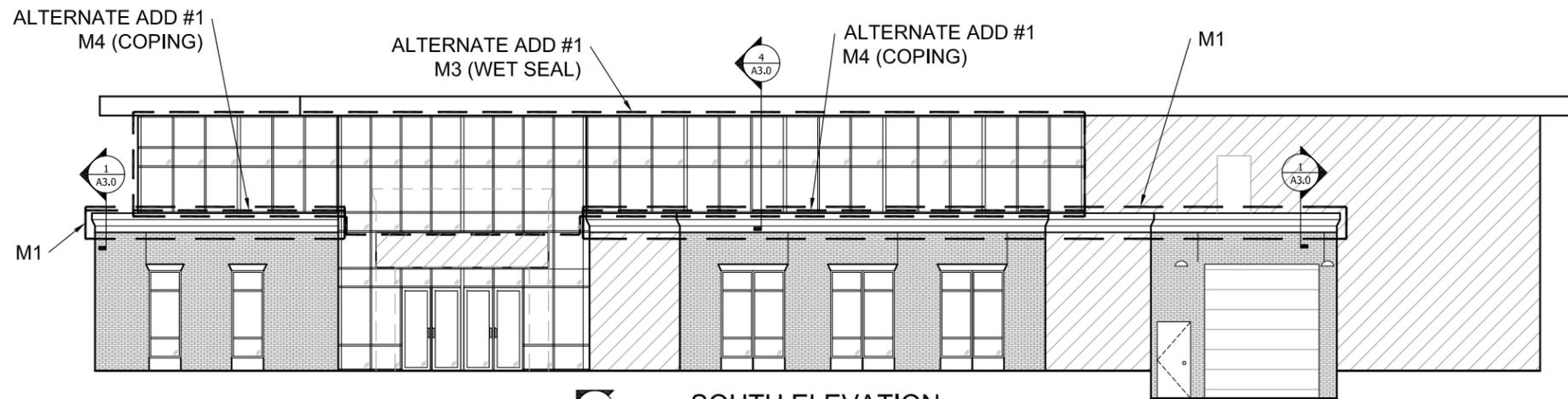
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TITLE: ROOF PLAN	SCALE: N.T.S.	DRAWING TYPE: A1.0	

NORTH ARROW: 	KEY:
	<ul style="list-style-type: none"> ◆ - ROOF DRAIN ⊕ - THROUGH-WALL SCUPPER ⊖ - ROOF EDGE SCUPPER ⊔ - GUTTER EDGE ⊕ - CURBED OPENING ⊕ - ROOF SCUTTLE ⊕ - SKYLIGHT ⊕ - CURBED PIPE VENT ⊕ - UNSEAL ⊕ - CHIMNEY ⊕ - ROOF LADDER ○ - PIPE VENT ○ - SOIL STACK ⊕ - PIPE PENETRATION ⊕ - PITCH PAN ⊕ - EXPANSION JOINT ⊕ - SLOPE TRANSITION ⊕ - SHEET WALL

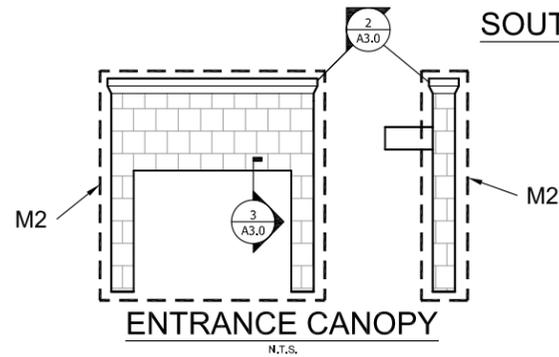
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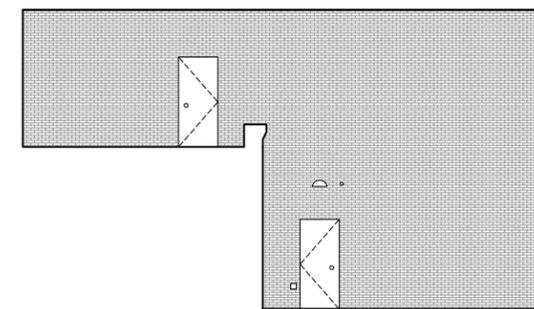
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N.T.S.



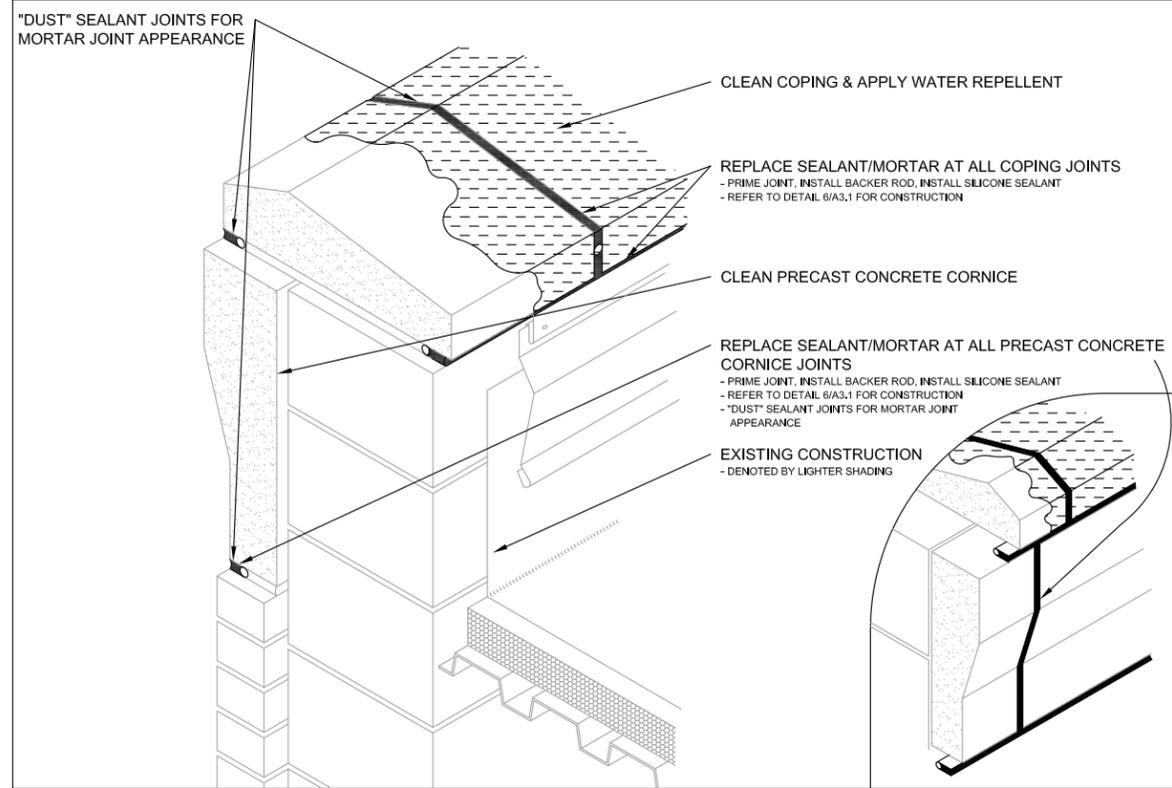
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N.T.S.



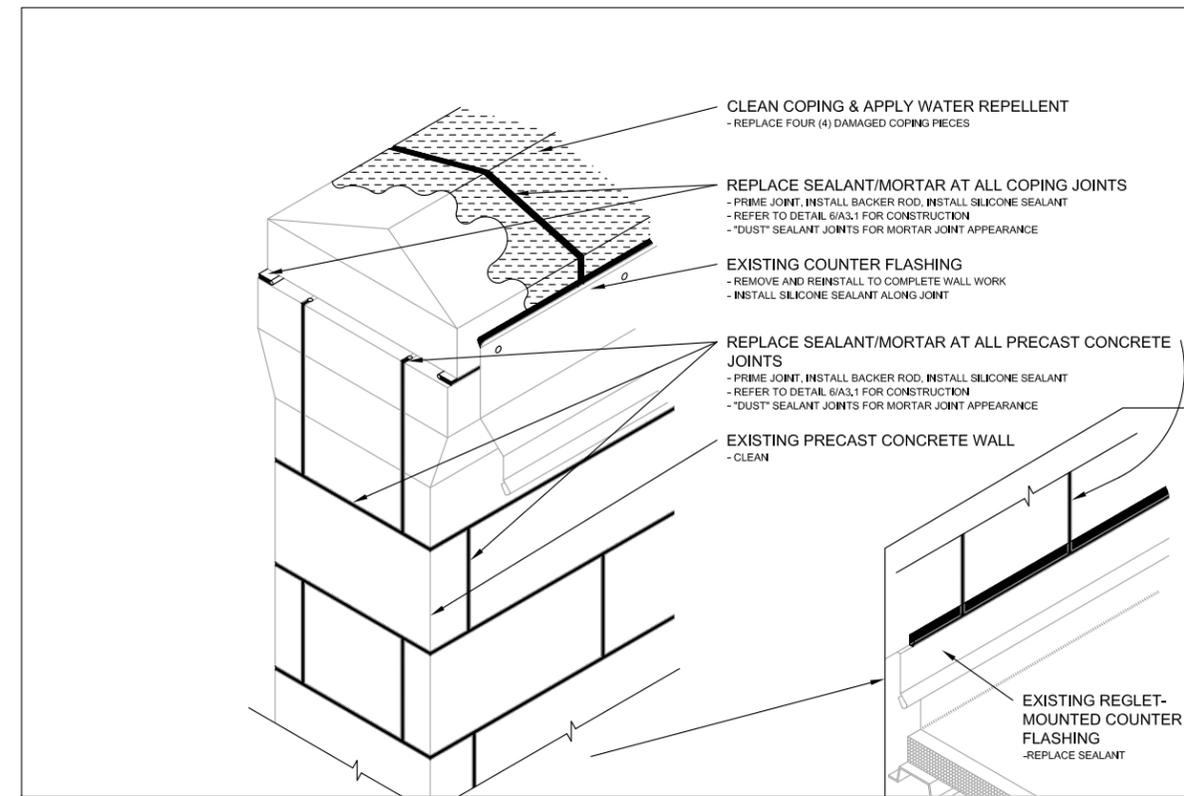
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N.T.S.



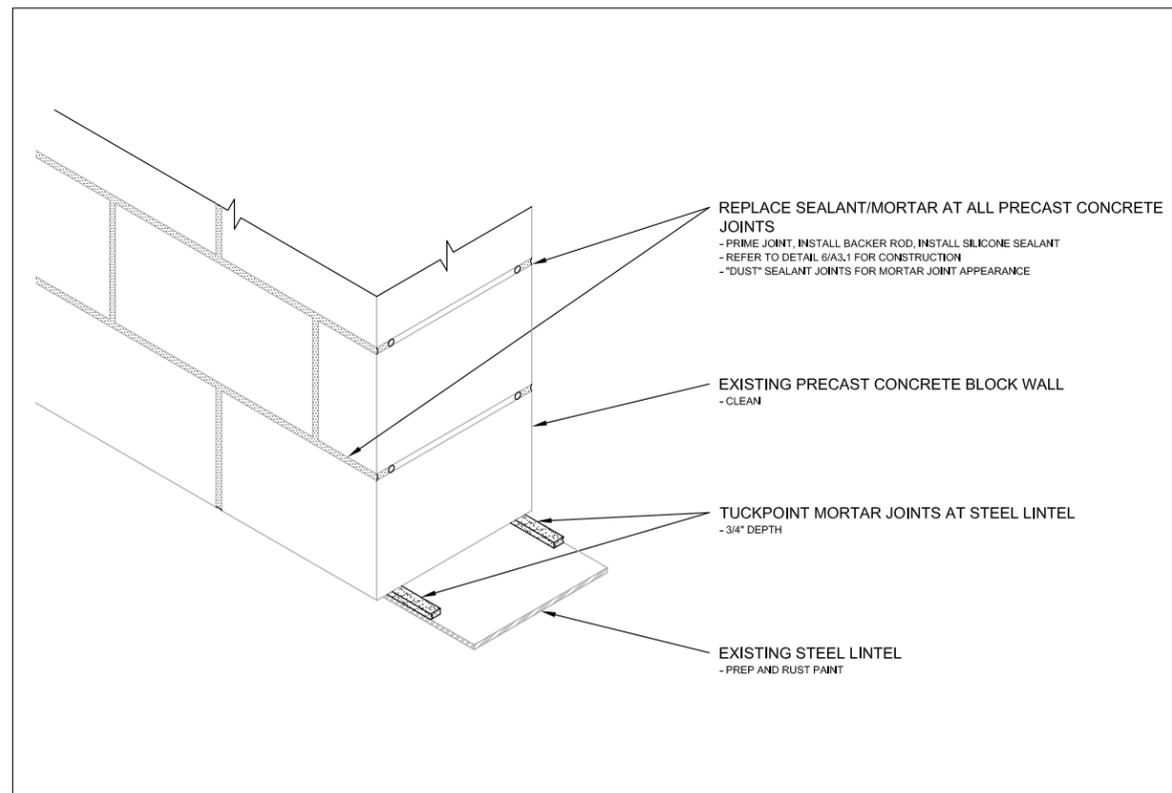
HIDDEN ELEVATIONS
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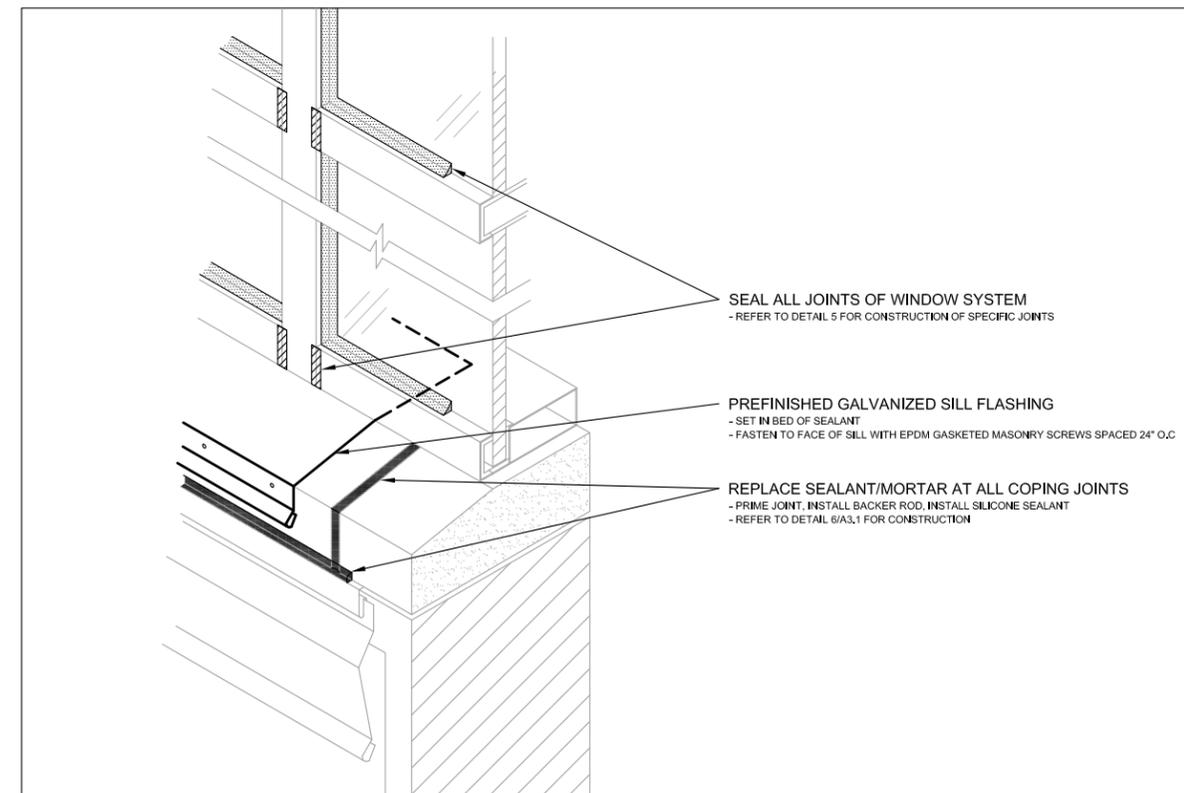
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NOT TO SCALE



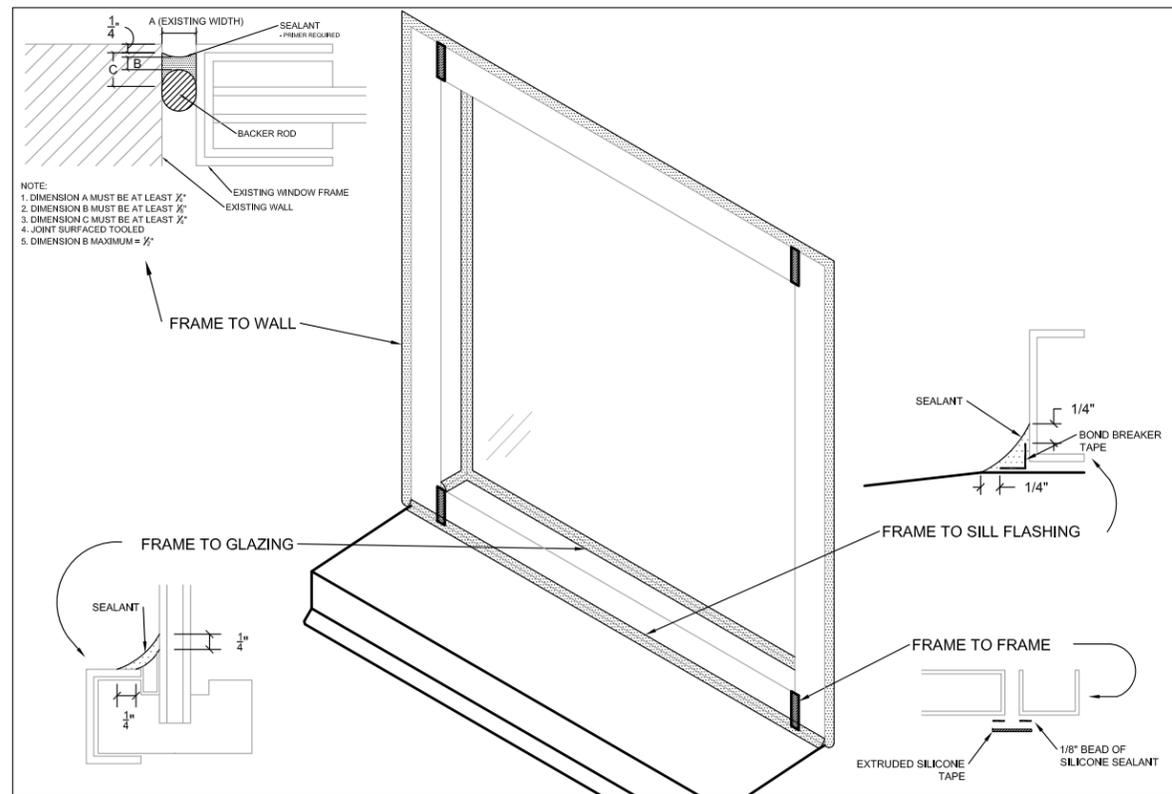
DETAIL 2: SOUTH ENTRANCE
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DETAIL 3: STEEL LINTEL
NOT TO SCALE

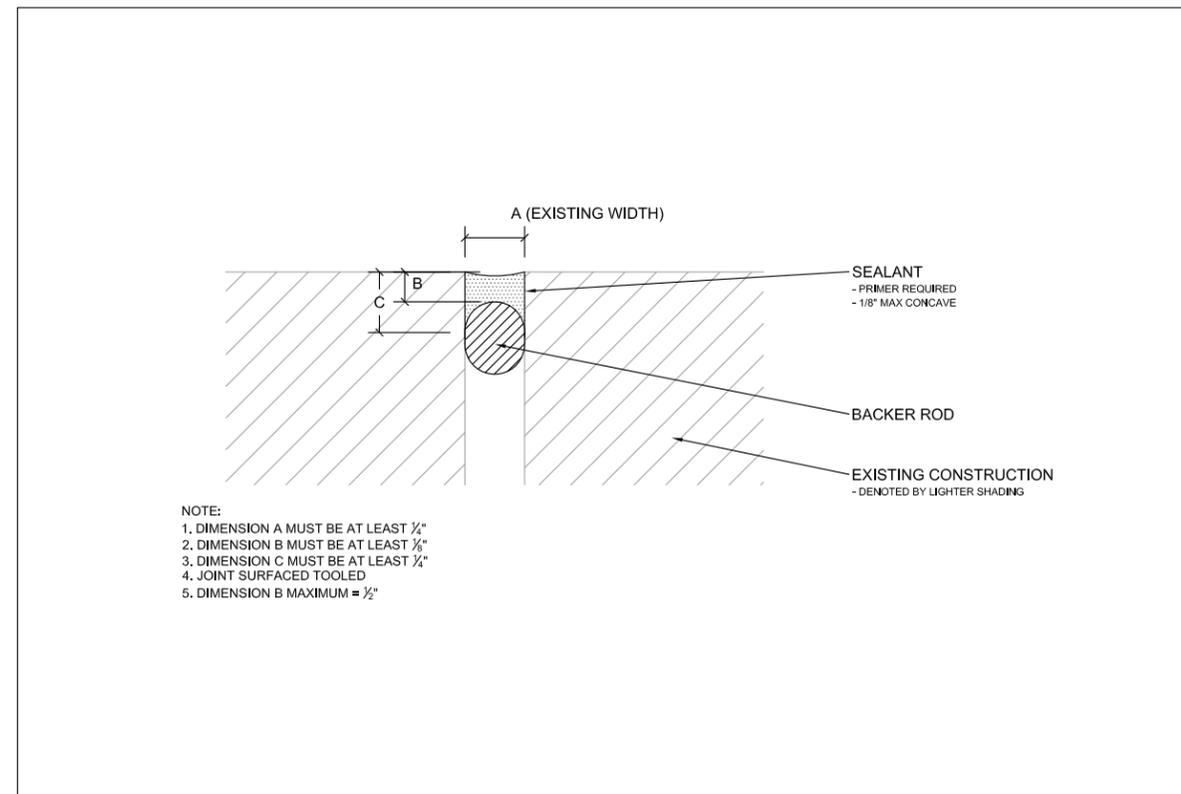


DETAIL 4: WET SEAL WINDOW (ALTERNATE ADD #1)
NOT TO SCALE



DETAIL 5: WINDOW SEALANTS (ALTERNATE ADD #1)

NOT TO SCALE



DETAIL 6: TYPICAL JOINT

NOT TO SCALE