CITY OF FORT PIERRE
PO BOX 700 - 08 E 2ND AVE
FORT PIERRE, SD 57532
605-223-7690

# SPECIFICATIONS

# FOR

# THE CITY OF FORT PIERRE

# VERENDRYE MUSEUM TUCK POINTING PROJECT

I hereby certify that these plans, specifications, or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of South Dakota.

REGISTERED PROFESSIONAL ENGINEER REG. NO. 5821 RICHARD A. HAHN SOUTH DAKOTA

| Richard A. Hahn, PE | 9/24/2018 | 5821 |
|---|---|---|
| | Date | Registration No. |

CITY OF FORT PIERRE

FORT PIERRE, SOUTH DAKOTA

September 2018

Contents

# NOTICE OF CALL FOR BIDS

The City of Fort Pierre in Fort Pierre, South Dakota, will receive FIRM sealed bids at the City of Fort Pierre, 08 E 2ND Ave , Fort Pierre, South Dakota, 57532, until 3:00 PM CDT, Thursday, October 11, 2018, for the **"Verendrye Museum Tuck Pointing Project"** for the City of Fort Pierre.

Plans and Specifications are on file at Fort Pierre City Hall, 08 E 2nd Ave., Fort Pierre South Dakota 57532, and a printed copy may be obtained for a refundable cost of $50.00 less postage and handling. Plans may also be obtained in PDF form by email by sending an email to R.Hahn@fortpierre.com or by downloading from the Fort Pierre City website. **For Contractors who are resident in South Dakota who intend, in good faith, to bid upon the project one copy of Plans and Specifications shall be furnished, without charge, in accordance with South Dakota Codified Law 5-18B-1.**

The City of Fort Pierre reserves the right to accept or reject any or all BIDS, to waive any informality in the BID received and to accept the BID that is to the advantage of, and in the best interest of the City of Fort Pierre.

Each bid must contain a certified check, a Cashier's check or Draft, for five percent (5%) of the amount of the bid; such check to be certified or issued by either a State or National Bank and payable to the City of Fort Pierre or in lieu thereof a Bid Bond for Ten percent (10%) of the amount of this bid, such bond to be issued by a Surety authorized to do business in the State of South Dakota and payable to the City of Fort Pierre as a guarantee that such bidder will enter into a contract with said the City of Fort Pierre, thereof in accordance with the terms of such letting and bid in case such bidder is awarded the contract. The Certified Check or other guarantee, or bid bond of the successful bidder, will be returned to him forthwith upon the execution of the contract and surety hereafter provided for. The Contractor shall also provide proof of liability insurance and workman's compensation insurance.

Bids shall be marked **"Verendrye Museum Tuck Pointing Project"** and sealed. The City of Fort Pierre requests one (1) Original Bid and one (1) copy. Bids may be mailed to the City of Fort Pierre, P.O. Box 700, Fort Pierre, South Dakota, 57532-0800 or hand delivered to the Office of the Finance Officer, 08 East 2nd Ave., Fort Pierre, South Dakota 57532.

By order of the City of Fort Pierre City Council, dated this _____ day of _____, 2018.

_____

Roxanne Heezen, City Finance Officer

Advertisement published _____ and _____, 2018.

## INFORMATION FOR BIDDERS

BIDS will be received by the City of Fort Pierre City Council (hereinafter called the "OWNER"), at the Office of the City of Fort Pierre Finance Officer until 3:00 PM CDT, Thursday October 11, 2018 and then at said office publicly opened and read aloud.

Each BID must be submitted in a sealed envelope, addressed to the City of Fort Pierre Finance Office at 08 E. 2nd Avenue, Fort Pierre, South Dakota 57532. Each sealed envelope containing a BID must be plainly marked on the outside as BID for **"VERENDRYE MUSEUM TUCK POINTING PROJECT"** and the envelope should bear on the outside the name of the BIDDER, his address, his license number if applicable and the name of the project for which the BID is submitted. If forwarded by mail, the sealed envelope containing the BID must be enclosed in another envelope addressed to the City of Fort Pierre at P.O. Box 700, Fort Pierre, South Dakota, 57532-0800.

All BIDS must be made on the required BID form. All blank spaces for BID prices must be filled in, in ink or typewritten, and the BID form must be fully completed and executed when submitted. One original BID form and one (1) copy are required.

The OWNER may waive any informalities or minor defects or reject any and all BIDS. Any BID may be withdrawn prior to the above scheduled time for the opening of BIDS or authorized postponement thereof. Any BID received after the time and date specified will not be considered. No BIDDER may withdraw a BID within 30 days after the actual date of the opening thereof. Should there be reasons why the contract cannot be awarded within the specified period, the time may be extended by mutual agreement between the OWNER and the BIDDER.

BIDDERS must satisfy themselves of the accuracy of the estimated quantities in the BID Schedule by examination of the site and a review of the drawings and specifications including ADDENDA. After BIDS have been submitted, the BIDDER will not assert that there was a misunderstanding concerning the quantities of WORK or of the nature of the WORK to be done.

The OWNER will provide to BIDDERS prior to BIDDING, all information that is pertinent to, and delineates and describes, the land owned and the rights-of-way acquired or to be acquired.

The CONTRACT DOCUMENTS contain the provisions required for the construction of the PROJECT. Information obtained from an officer, agent, or employee of the OWNER or any other person will not affect the risks or obligations assumed by the CONTRACTOR or relieve him from fulfilling any of the conditions of the contract.

Each BID must be accompanied by a BID bond payable to the OWNER for ten (10%) percent of the total amount of the BID. As soon as the BID prices have been compared, the OWNER will return the BONDS of all except the three lowest responsible BIDDERS. When the Agreement is executed the bonds of the two remaining unsuccessful BIDDERS will be returned. The BID BOND of the successful BIDDER will be retained until the payment BOND and performance BOND have been executed and approved, after which it will be returned. A certified check for five (5%) percent of the total amount of the BID may be used in lieu of a BID BOND.

A performance BOND and a payment BOND, each in the amount of one hundred (100%) percent of the CONTRACT PRICE, with a corporate surety approved by the OWNER, will be required for the faithful performance of the contract.

Attorneys-in-fact who sign BID BONDS and payment BONDS or performance BONDS must file with each BOND a certified and effective dated copy of their power of attorney.

The party to whom the contract is awarded will be required to execute the Agreement and obtain the performance BOND and payment BOND within fifteen (15) calendar days from the date when NOTICE OF AWARD is delivered to the BIDDER. The NOTICE OF AWARD will be accompanied by the necessary Agreement and BOND forms. In case of failure of the BIDDER to execute the Agreement, the OWNER may at his option consider the BIDDER in default, in which case the BID BOND accompanying the proposal will become the property of the OWNER.

The OWNER within thirty (30) days of receipt of acceptable payment BOND and performance BOND, and Agreement signed by the party to whom the Agreement was awarded will sign the Agreement and return to such party an executed duplicate of the Agreement. Should the OWNER not execute the Agreement within such period, the BIDDER may by WRITTEN NOTICE withdraw his signed Agreement. Such notice of withdrawal will be effective upon receipt of the notice by the OWNER.

The NOTICE TO PROCEED will be issued within thirty (30) days of the execution of the AGREEMENT by the OWNER. Should there be reasons why the NOTICE TO PROCEED cannot be issued within such period, the time may be extended by mutual agreement between the OWNER and CONTRACTOR. If the NOTICE TO PROCEED has not been issued within the thirty (30) day period or within the period mutually agreed upon, the CONTRACTOR may terminate the Agreement without further liability on the part of either party.

The OWNER may make such investigations as he deems necessary to determine the ability of the BIDDER to perform the WORK, and the BIDDER will furnish to the OWNER all such information and data for this purpose as the OWNER may request. The OWNER reserves the right to reject any BID if the evidence submitted by, or investigation of, such BIDDER fails to satisfy the OWNER that such BIDDER is properly qualified to carry out the obligations of the AGREEMENT and to complete the WORK contemplated therein.

A conditional or qualified BID will not be accepted. Award will be made to the lowest RESPONSIBLE BIDDER. All applicable laws, ordinances, and the rules and regulations of all authorities having jurisdiction over construction of the PROJECT will apply to the contract throughout. Each BIDDER is responsible for inspecting the site and for reading and being thoroughly familiar with the CONTRACT DOCUMENTS. The failure or omission of any BIDDER to do any of the foregoing will in no way relieve any BIDDER from any obligation in respect to his BID.

| | |
|---|---|
| The Engineer/Owner is: | Richard A. Hahn, PE<br>Director of Public Works |
| Whose address is: | City of Fort Pierre<br>PO Box700/08 E 2nd Ave<br>Fort Pierre, SD 57532 |
| Contacted Information: | Phone (605) 223-7690<br>Fax (605) 223-7693<br>Email: R.Hahn@FortPierre.com |

# BID

Proposal of _____ (hereinafter called "BIDDER"), organized and existing under the laws of the State of _____, doing business as _____*. To the City of Fort Pierre City Council (hereinafter called "OWNER").

* Insert "a Corporation", "a Partnership", or "an Individual", as applicable.

In compliance with your Advertisement for Bids, BIDDER hereby proposes to perform all WORK for the construction of the **"VERENDRYE MUSEUM TUCK POINTING PROJECT"** in strict accordance with the CONTRACT DOCUMENTS, within the time set forth therein, and at the prices stated below.

By submission of this BID, each BIDDER certifies and in the case of a joint Bid, each party thereto certifies as to his own organization, that this Bid has been arrived at independently, without consultation, communication, or agreement as to any matter relating to this Bid with any other BIDDER or with any competitor.

BIDDER hereby agrees to commence WORK under this contract on or before a date to be specified in the NOTICE TO PROCEED and to begin the PROJECT this fall and be 50% completed with the PROJECT by DECEMBER 15, 2018, WEATHER PERMITTING, and fully completed with the PROJECT by May 1, 2019 WEATHER PERMITTING. BIDDER further agrees to pay as liquidated damages the sum of $50.00 for each consecutive calendar day thereafter following each MILESTONE.

BIDDER acknowledges receipt of the following addendums:

_____

_____

**NOTE: BIDS will include sales tax and all other applicable taxes and fees.**

BIDDER agrees to perform all the work described in the SPECIFICATIONS for the following unit prices:

**BID SCHEDULE – Verendrye Museum Tuck Pointing Project**

| VERENDRYE MUSEUM TUCK POINTING PROJECT | | | | |
|---|---|---|---|---|
| ITEM | QUANTITY | UNIT | UNIT PRICE | EXTENDED PRICE |
| Mobilization | 1.0 | LS | | |
| Traffic Control | 1.0 | LS | | |
| Tuck Pointing | 1.0 | LS | | |
| Brick/Block Unit Replacement | 500 | EA | | |
| Sealants & Caulking | 1.0 | LS | | |
| Close Existing West Opening | 1.0 | LS | | |
| Install New Doorway Headers | 1.0 | LS | | |
| | | | **Project Total:** | |

Bidder is aware quantities are estimates and may be adjusted to accommodate changes in scope of work or actual conditions.

The Bidder is aware that Owner has the right to select any combination of projects or may elect to reject all bids.

Respectfully submitted by: _____

Signature: _____ Address: _____

Title: _____ City, State, Zip: _____

_____ Date: _____

License Number (If Applicable)

(SEAL * If BID is by a Corporation)

_____

ATTEST

# STANDARD CONTRACT DOCUMENTS

Standard a contract documents are in a separate package labeled "Standard Contract Documents and are available upon request or may be viewed and downloaded from the City website.

## STANDARD AGREEMENT

The Agreement used for City of Fort Pierre projects will be the STANDARD FORM OF AGREEMENT BETWEEN OWNER AND CONTRACTOR ON THE BASIS OF A STIPULATED PRICE prepared by the Engineer's Joint Contract Committee (Form 1910-08A1 – 1996 Edition) as modified for this project. Copies are available upon request and are available for download from the Fort Pierre City Website.

## STANDARD GENERAL CONDITIONS

The standard General Conditions for this project is the STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT prepared by the Engineer's Joint Contract Committee (Form 1910-08 – 1996 Edition) as modified as indicated below. Copies are available upon request and are available for download from the Fort Pierre City Website.

Amendments to the Standard General Conditions are as follows:

Arbitration will not be utilized to settle disagreements. In lieu of arbitration, both parties are to negotiate a final settlement to any disagreements resulting from performance of the Contract. If no settlement can be reached after fully exhausting all efforts, the matter will be resolved by the District Court with jurisdiction over this matter.

## OTHER CONTRACT DOCUMENTS

Other contract documents such as Notice of Award, Bid Bond form, Performance Bond form, Notice to Proceed and Construction Change Order are in the package "Standard Contract Documents".

# SPECIAL CONDITIONS

SC-1 EXAMINATION OF SITE: Before bidding the work, each contractor will inform themselves fully as to all site conditions and local regulations.

SC-2 WORK INCLUDED IN THE CONSTRUCTION CONTRACT: The work to be included in this contract includes all labor and materials that are necessary for and reasonably incidental to the completion of all the new construction, as shown and specified in the plans and specifications.

SC-3 STORAGE OF MATERIALS: The Contractor may store materials on the site of the project. The Contractor may store materials in the City Street directly in front of the project building for a distance of 10 feet from the back of curb. The Contractor may not have any material stored in the street or block the sidewalk between July 1 and July 7, 2018. The Contractor shall be responsible for any damage to the street and sidewalk due to materials stored. Proper traffic control for pedestrian and vehicle traffic shall be installed and maintained. The Contractor is responsible for all of the materials stored until all work on the project is completed and the finished project is in the full possession of the Owner.

SC-4 SAFETY EQUIPMENT: Precautions will be exercised at all times for the protection of all persons and property. All Federal Safety Standards and City Regulations will be abided by and enforced by the National Health and Safety Act. All safety precautions will be exercised and carried out in such a manner so as to not make the Owner and Engineer negligent at all times. Safety measures shall be in place to protect Pedestrian and vehicle traffic passing near the project site.

SC-5 SAMPLES REQUIRED: Any and all samples will be furnished by the Contractor to the Engineer/Owner as requested.

SC-6 PAYMENT FOR MATERIALS: The Contractor will be paid the measured Quantity for materials unless prior ***written*** approval is received from the City or it's agent. The Measured Quantities are based on lengths, widths, and depths or rates indicated on the "Estimate of Quantities". Changes in project parameters (length, width, depth/rate) approved in the field shall be relayed to the Contractor in ***written*** form. Agreed upon changes to the project parameters will then determine the payment quantity, ***not*** the Contractors scale tickets or other quantity documentation.

SC-7 CONTRACTOR COORDINATION: Contractor shall be aware that there may be other projects proceeding in the same area as this project. Coordination between projects may be necessary to facilitate project completion.

## CONTRACTOR'S RESPONSIBILITIES

- The Contractor shall ensure that the foreman on the project site and each subcontractor shall have a set of project documents on site during any construction activities. The Engineer/Owner will have the authority to stop construction activities if the Contractor does not have plans and reasonable supervision on site during any construction activities.

- It shall be the Contractor's responsibility to coordinate work with other Contractors working nearby.

- The Contractor shall complete projects no later than August 1, 2018.

- All work is completed in commercial district, therefore all work sites shall be maintained, including: trash picked up at the end of each day, no blocking of access to adjacent businesses, and no blocking of available parking spaces for adjacent businesses.

- The Contractor shall provide all necessary traffic control signing and flaggers to direct traffic through and around construction zones. The Contractor may not close streets to through traffic for durations exceeding 1 hour.

- Waste material and residue from the project on the roadway, Sidewalk or adjacent private land shall be satisfactorily cleaned off by the Contractor.

- It shall be the Contractor's responsibility to notify the City at least 10 days in advance of when they plan to begin work.

## OWNER'S RESPONSIBILITIES

- The Owner shall request any samples and provide sample containers when required.

- The Owner or its Agent shall complete all inspection during construction.

- The Owner shall have the existing west addition and adjacent south building cleared from the project site. Block and Brick deemed salvageable shall be stored on the project site for contractor's use.

# PROJECT LOCATION MAP

# SPECIFICATIONS

The project work shall be in accordance with the specifications listed in this document, standard practices for the Masonry Industry and South Dakota State Historical Society's Standards for the preservation of Historical Buildings.

The project building is currently the Verendrye Museum located at 115 N. Deadwood Street, Fort Pierre, South Dakota. The masonry Building was originally constructed in approximately 1932 for the American Legion Post 20. In the late 1960's the American Legion relocated to the adjacent building and the building was donated to the City of Fort Pierre. The building has been occupied by the Verendrye Museum since the 1970's.

## TRAFFIC CONTROL

1. The Contractor shall provide Traffic Control Devices to direct pedestrian and vehicle traffic safely around construction project and stored material on the sidewalk or street. Complete blockage of the street shall be temporary and for durations of not more than 1 hour. Additional traffic control required to coordinate public traffic and construction traffic. Closing of the sidewalk immediately in front of the project building is permitted. Signage for sidewalk closure per standard detail included in this document.

2. Removing, relocating, covering, salvaging and resetting of the existing traffic control devices, including delineation, shall be the responsibility of the Contractor. Cost for this work shall be included in the Traffic Control Bid item. Any delineators and signs damaged or lost shall be replaced by the Contractor at no cost to the Owner.

3. Storage of materials, vehicles and equipment shall be at locations designated by the City and shall not block access to adjacent properties outside of the work zone. Indiscriminate parking of vehicles and equipment in the street will not be permitted. Any damage to the adjacent properties, surfacing and existing signs resulting from such indiscriminate use shall be repaired and/or restored by the Contractor, at no expense to the Owner, and to the satisfaction of the Engineer.

## UTILITIES

The Contractor shall contact the involved utility companies through South Dakota One Call (1-800-781-7474) prior to starting work. It shall be the responsibility of the Contractor to coordinate work with the utility owners to avoid damaged to existing facilities.

Utilities are not planned to be affected on this project. If utilities are identified near the improvement area through the SD One Call Process as required by South Dakota Codified Law 49-07A and Administrative Rule Article 20:25, the Contractor shall contact the Project Engineer to determine modifications that will be necessary to avoid utilities.

# MASONRY TUCK POINTING AND BRICK/BLOCK REPLACEMENT

## PART 1 - GENERAL

### 1.1 DESCRIPTION

This section specifies requirements for tuck pointing and replacement of existing masonry and stone work.

### 1.2 RELATED WORK

### 1.3 APPLICABLE PUBLICATIONS

A. Publications listed below form a part of this specification to extent referenced. Publications are referenced in the text by basic designation only.

B. American Society for Testing and Materials (ASTM):

C67-07 ..... Brick and Structural Clay Tile, Sampling and Testing

C216-07 ..... Facing Brick (Solid Masonry Units Made From Clay or Shale)

C270-07 ..... Mortar for Unit Masonry

C. International Masonry Institute: Recommended Practices and Guide Specifications for Cold Weather Masonry Construction.

## PART 2 - PRODUCTS

### 2.1 TUCK POINTING MORTAR

Mortar type based on location. Provide mix proportions for each mix type.

Type M – for use on Chimneys and below anticipated Grade.

Type N or O – for use for Tuck pointing and Block replacement other than Chimney and below grade.

All Mortar shall be colored as necessary to match existing mortar when fully cured.

### 2.2 REPLACEMENT MASONRY UNITS

A. Face Brick:

1. ASTM C216, Grade SW, Type FBS. Brick shall be classified slightly efflorescent or better when tested in accordance with ASTM C67.
2. Face brick shall match facing brick of the existing building(s) that is being tuck pointed.

B. Other Units to match existing.

C. Reuse existing brick or salvaged brick where possible.

### 2.3 SAMPLE OF PRODUCTS

A. 3 feet x 3 feet square sample of mortar and brick shall be prepared on the building for each phase of work and approved by the owner prior to proceeding with work.

## PART 3 - EXECUTION

### 3.1 CUT OUT OF EXISTING MORTAR JOINTS

A. Cut out existing mortar joints (both bed and head joints) and remove by means of chisel or grinder with thin blade, to a uniform depth of to 3/4-inch, or until sound mortar is reached. Take care to not damage edges of existing masonry units to remain.

B. Remove dust and debris from the joints by brushing, blowing with air or rinsing with water. Do not rinse when temperature is below freezing. Do not cause damage to interior of building with rinsing water.

C. Cracks exceeding 1/64$^{th}$ of an inch in width or those found to be eroded to a depth exceeding ¼" shall be cut to a depth of two times width but not to exceed one(1) inch.

D. If sound mortar is not reached for depths exceeding two (2) inches on two (2) or more sides of an individual unit, brick replacement procedures shall be followed. Mark brick unit and notify owner for payment as "Brick/Block Unit Replacement". If extensive areas of such condition are found (32 square feet or larger), mark limits of area and notify engineer for directions on how to proceed.

### 3.2 JOB CONDITIONS

A. Protection: Protect newly pointed joints from rain, until pointed joints are sufficiently hard enough to prevent damage.

B. Cold Weather Protection:

1. Tuck pointing may be performed in freezing weather when methods of protection are utilized.
2. Comply with applicable sections of "Recommended Practices for Cold Weather Construction" as published by International Masonry Industry All Weather Council.
3. Existing surfaces at or above temperatures to prevent mortar from freezing or causing other damage to mortar.

### 3.3 INSTALLATION OF TUCK POINTING MORTAR

**Note:** Use standard masonry techniques for tuck pointing that provide quality of work no less than the quality achieved using the techniques listed below.

A. Immediately prior to application of mortar, dampen joints to be tuck pointed. Prior to application of pointing mortar, allow masonry units to absorb surface water.

B. Tightly pack mortar into joints in thin layers, approximately 1/4-inch thick maximum.

C. Allow layer to become "thumbprint hard" before applying next layer.

D. Pack final layer flush with surfaces of masonry units. When mortar becomes "thumbprint hard", tool joints to match existing joints.

### 3.4 TOOLING OF JOINTS

A. Tool joints with a jointing tool to produce a smooth, compacted joint matching the original joints.

B. Tool joints in patch work with a jointing tool to match the existing surrounding joints.

### 3.5 REPLACEMENT OF MASONRY UNITS

**Note:** Remove damaged units and install replacement units using standard masonry techniques that provide quality of work not less than utilizing the technique listed below.

A. Cut out mortar joints surrounding masonry units that are to be removed and replaced.
   1. Units removed may be broken and removed, providing surrounding units to remain are not damaged.
   2. Once the units are removed, carefully chisel out the old mortar and remove dust and debris.
   3. If units are located in exterior wythe of a cavity or veneer wall, exercise care to prevent debris falling into cavity.

B. Dampen surfaces of the surrounding units before new units are placed.
   1. Allow existing masonry to absorb surface moisture prior to starting installation of the new replacement units.
   2. Butter contact surfaces of existing masonry and replacement masonry units with mortar.
   3. Center replacement masonry units in opening and press into position.
   4. Remove excess mortar with a trowel.
   5. Point around replacement masonry units to ensure full head and bed joints.
   6. When mortar becomes "thumbprint hard", tool joints.

### 3.6 CLEANING

**Note:** Clean masonry surfaces using standard masonry techniques that provide quality of work not less than utilizing the technique listed below.

A. Clean exposed masonry surfaces on completion.
B. Remove mortar droppings and other foreign substances from wall surfaces.
C. First wet surfaces with clean water, then wash down with a solution of soapless detergent specially prepared for cleaning brick.
D. Brush with stiff fiber brushes while washing, and immediately thereafter hose down with clean water.
E. Free clean surfaces from traces of detergent, foreign streaks or stains. Protect materials during cleaning operations including adjoining construction.
F. Use of muratic acid for cleaning is prohibited.

End of Masonry Tuck Pointing and Brick/Block Replacement

# JOINT SEALANTS

## PART 1- GENERAL

### 1.1 SUMMARY

A. Section Includes:

1. Silicone joint sealants.
2. Urethane joint sealants.
3. Latex joint sealants.

### 1.2 RELATED REQUIREMENTS

A. Section 04 20 00 "Unit Masonry" for masonry control and expansion joint fillers and gaskets and for compatibility with flexible flashing components.
B. Section 04 21 13 "Brick Masonry" for masonry control and expansion joint fillers and gaskets and for compatibility with flexible flashing components.
C. Section 07 01 91 "Joint Sealant Rehabilitation and Replacement" for rehabilitation and replacement of exterior joint sealant applications.

### 1.3 REFERENCES

A. References, General: Versions of the following standards current as of the date of issue of the project apply to the Work of this Section.

1. ASTM International (ASTM): www.astm.org:

2. ASTM C 510 - Standard Test Method for Staining and Color Change of Single- or Multicomponent Joint Sealants.
3. ASTM C 661 - Standard Test Method for Indentation Hardness of Elastomeric Type Sealants by Means of a Durometer.
4. ASTM C 719 - Standard Test Method for Adhesion and Cohesion of Elastomeric Joint Sealants Under Cyclic Movement (Hockman Cycle).
5. ASTM C 794 - Test Method for Adhesion-in-Peel of Elastomeric Joint Sealants
6. ASTM C 834 - Specification for Latex Sealants.
7. ASTM C 920 - Specification for Elastomeric Joint Sealants.
8. ASTM C 1087 - Test Method for Determining Compatibility of Liquid-Applied Sealants with Accessories Used in Structural Glazing Systems.
9. ASTM C 1193 - Guide for Use of Joint Sealants.
10. ASTM C 1247 - Standard Test Method for Durability of Sealants Exposed to Continuous Immersion in Liquids.
11. ASTM C 1248 - Test Method for Staining of Porous Substrate by Joint Sealants.
12. ASTM C 1311 - Specification for Solvent Release Sealants.
13. ASTM C 1330 - Cylindrical Sealant Backing for Use with Cold Liquid Applied Sealants.
14. ASTM D 412 - Test Methods for Vulcanized Rubber and Thermoplastic Elastomers—Tension.
15. ASTM D 624 - Test Method for Tear Strength of Conventional Vulcanized Rubber and Thermoplastic Elastomers.
16. ASTM D 2203 - Standard Test Method for Staining from Sealants.
17. ASTM D 2240 - Test Method for Rubber Property - Durometer Hardness.

## PART 2 ADMINISTRATIVE REQUIREMENTS

A. Coordination: Coordinate installation of joint sealants with cleaning of joint sealant substrates and other operations that may impact installation or finished joint sealant work.

## 2.1 PRODUCT SUBMITTALS

A. Product Data: For each type of joint sealant product specified, including:

1. Preparation instructions and recommendations.
2. Standard drawings illustrating manufacturer's recommended sealant joint profiles and dimensions applicable to Project.

B. Joint Sealant Schedule: Indicate joint sealant location, joint sealant type, manufacturer and product name, and color, for each application. Utilize joint sealant designations included in this Section.

C. Samples for Color Selection: For each joint sealant type.

D. Joint Sealant Schedule: Include application, location, manufacturer and product name, and selected color.

## 2.2 INFORMATIONAL SUBMITTALS

A. Qualification Data: For qualified applicator.

B. Warranty: Sample of unexecuted manufacturer and installer special warranties.

## 2.3 QUALITY ASSURANCE

A. Installer Qualifications: Company with minimum of three years experience specializing in work of this section, employing applicators trained for application of joint sealants required for this project, with record of successful completion of projects of similar scope, and approved by manufacturer.

B. Single Source Responsibility: Provide exterior joint sealants by a single manufacturer responsible for testing of Project substrates to verify compatibility and adhesion of joint sealants.

C. Preconstruction Manufacturer Laboratory Compatibility, Staining, and Adhesion Testing: Submit current manufacturer test data of products on matching substrates.

1. Adhesion: Use ASTM C 719 and ASTM C 794 to determine requirements for joint preparation, including cleaning and priming.
2. Compatibility: Use ASTM C 1087 to determine materials forming joints and adjacent materials do not adversely affect sealant materials and do not affect sealant color.
3. Stain Testing: Use ASTM C 510, ASTM C 1248, or ASTM D 2203 to verify non-staining characteristics of proposed sealants on specified substrates.

4. Pre-construction manufacturer laboratory testing is not required when sealant manufacturer can furnish data acceptable to owner based on previous testing for materials matching those of the Work.

## 2.4 DELIVERY, STORAGE AND HANDLING

A. Accept materials on site in manufacturer's unopened original packaging.

B. Store primers and sealants in dry location with ambient temperature range of 60 to 80 deg. F (15 to 27deg. C).

## 2.5 ENVIRONMENTAL REQUIREMENTS

A. Do not install primers or sealants when atmospheric temperatures or joint surface temperatures are less than 40 deg. F (4 deg. C).

## 2.6 SCHEDULING

A. Schedule work so waterproofing, water repellents and preservative finishes are installed after sealants, unless sealant manufacturer approves otherwise in writing.

B. Ensure sealants are cured before covering with other materials.

## 2.7 WARRANTY

A. Special Manufacturer's Warranty: Manufacturer's standard form in which joint sealant manufacturer agrees to furnish joint sealants to repair or replace those that demonstrate deterioration or adhesive or cohesive failure under normal use within warranty period specified.

   1. Warranty Period for Silicone Sealants: [Five] years date of Substantial Completion.

B. Special Installer's Warranty: Original statement on Installer's letterhead in which Installer agrees to repair or replace joint sealants that demonstrate deterioration or failure within warranty period specified.

   1. Warranty Period: Two years from date of Substantial Completion.

# PART 3 PRODUCTS

## 3.1 MANUFACTURERS

A. Products: Provide joint sealant product manufacture's information for approval prior to use.

## 3.2 MATERIALS, GENERAL

A. VOC Content for Interior Applications: Provide sealants and sealant primers complying with the following VOC content limits per 40 CFR 59, Subpart D (EPA Method 24):

   1. Architectural Sealants: 250 g/L.
   2. Sealant Primers for Nonporous Substrates: 250 g/L.
   3. Sealant Primers for Porous Substrates: 775 g/L.

B. Compatibility: Provide joint sealants and accessory materials that are compatible with one another, and with adjacent materials, as demonstrated by sealant manufacturer using ASTM C 1087 testing and related experience.

C. Joint Sealant Standard: Comply with ASTM C 920 and other specified requirements for each joint sealant.

D. Stain Test Characteristics: Where sealants are required to be nonstaining, provide sealants tested per ASTM C 1248 as non-staining on porous joint substrates specified.

## 3.3 SILICONE JOINT SEALANTS

A. Single-Component, Nonsag, Non-Staining, Neutral-Curing Silicone Joint Sealant: ASTM C 920, Type S, Grade NS, Class 100/50, Use NT; SWRI validated.

   1. Volatile Organic Compound (VOC) Content: 1 g/L maximum.
   2. Volatile Organic Emissions (VOE): Not greater than EPA allowable emissions levels.
   3. Staining, ASTM C 1248: None on concrete, marble, granite, limestone, and brick.
   4. Color: As selected by owner from manufacturer's standard line of not less than 12 colors.

### 3.4 URETHANE JOINT SEALANTS

A. Single-Component, Nonsag, Moisture-Cure, Polyurethane Joint Sealant: ASTM C 920, Type S, Grade NS, Class 50, Use NT.
   1.
   2. Volatile Organic Compound (VOC) Content: 40 g/L maximum.
   3. Volatile Organic Emissions (VOE): Not greater than EPA allowable emissions levels..
   4. Tensile Strength ASTM D412: 350 to 450 psi
   5. Percent Elongation ASTM D412: 800 to 900%
   6. Modulus at 100% ASTM D412: 75 to 85 psi
   7. Tear Strength ASTM D412: 65 to 75 psi
   8. Smoke Development ASTM E84: 5
   9. Color: As selected by Owner from manufacturer's standard line of not less than 20 colors.

B. Multi-Component, Non-sag, Polyurethane Joint Sealant: ASTM C 920, Type M, Grade NS, Class 50, Use I.
   1. Volatile Organic Compound (VOC) Content: 0 g/L maximum.
   2. Volatile Organic Emissions (VOE): Not greater than EPA allowable emissions levels.
   3. Color: [Match Architect's custom color] [As selected by Architect from manufacturer's standard line of not less than 70 colors].

### 3.5 LATEX JOINT SEALANTS

A. Latex Joint Sealant: Siliconized acrylic latex, ASTM C 834, Type OP, Grade NF.

   1. Volatile Organic Compound (VOC) Content: 35 g/L maximum.
   2. Volatile Organic Emissions (VOE): Not greater than EPA allowable emissions levels.
   3. Color: White, paintable.

### 3.6 SOLVENT-RELEASE-CURING JOINT SEALANTS

A. Butyl-Rubber-Based Joint Sealant: ASTM C 1311.

   1. Volatile Organic Compound (VOC) Content: 250 g/L maximum.
   2. Color: As selected by Architect from manufacturer's standard colors.

### 3.7 JOINT SEALANT ACCESSORIES

A. Cylindrical Sealant Backing: ASTM C 1330, Type B non-absorbent, bi-cellular material with surface skin, or Type O open-cell polyurethane, as recommended by sealant manufacturer for application.

B. Bond Breaker Tape: Polymer tape compatible with joint sealant and adjacent materials and recommended by sealant manufacturer.

C. Joint Substrate Primers: Substrate primer recommended by sealant manufacturer for application.

D. Cleaners: Chemical cleaners acceptable to joint sealant manufacturer.

E. Masking tape: Non-staining, non-absorbent tape product compatible with joint sealants and adjacent joint surfaces.

## PART 4 EXECUTION

### 4.1 EXAMINATION

A. Examine joint profiles and surfaces to determine if work is ready to receive joint sealants. Verify joint dimensions are adequate for development of sealant movement capability. Verify joint surfaces are clean, dry, and adequately cured. Proceed with joint sealant work once conditions meet sealant manufacturer's written recommendations.

### 4.2 PREPARATION

A. Joint Surface Cleaning: Clean joints prior to installing joint sealants using materials and methods recommended by sealant manufacturer. Comply with ASTM C 1193.

1. Remove curing compounds, laitance, form-release agents, dust, and other contaminants.
2. Clean nonporous and porous surfaces utilizing chemical cleaners acceptable to sealant manufacturer.
3. Protect elements surrounding the Work of this section from damage or disfiguration. Apply masking tape to adjacent surfaces when required to prevent damage to finishes from sealant installation.

### 4.3 SEALANT APPLICATION

A. Sealant and Primer Installation Standard: Comply with ASTM C 1193 and manufacturer's written instructions.

B. Joint Backing: Select joint backing materials recommended by sealant manufacturer as compatible with sealant and adjacent materials. Install backing material at depth required to produce profile of joint sealant allowing optimal sealant movement.

C. Install joint backing to maintain the following joint ratios:

1. Joints up to 1/2 inch (13 mm) wide: 1:1 width to depth ratio.
2. Joints greater than 1/2 inch (13 mm) wide: 2:1 width to depth ratio; maximum 1/2 inch (13 mm) joint depth.

D. Install bond breaker tape over substrates when sealant backings are not used.

E. Masking: Mask adjacent surfaces as necessary to prevent staining or damage by contact with sealant or primer.

F. Joint Priming: Prime joint substrates when recommended by sealant manufacturer or when indicated by preconstruction testing or experience. Apply recommended primer using sealant manufacturer's recommended application techniques.

G. Liquid Sealant Application: Install sealants using methods recommended by sealant manufacturer, in depths recommended for application. Apply in continuous operation from bottom to top of joint vertically and horizontally in a single direction. Apply using adequate pressure to fill and seal joint width.

H. Tool sealants immediately with appropriately shaped tool to force sealants against joint backing and joint substrates, eliminating voids and ensuring full contact.
1. Install sealant free of air pockets, foreign embedded matter, ridges, and sags.
2. Tool exposed joint surface concave using tooling agents approved by sealant manufacturer for application.

I. Cleaning: Remove excess sealant using materials and methods approved by sealant manufacturer that will not damage joint substrate materials.

1. Remove masking tape immediately after tooling joint without disturbing seal.
2. Remove excess sealant from surfaces while still uncured.

## 4.4 FIELD QUALITY CONTROL

A. Field-Adhesion Testing: Perform adhesion tests in accordance with manufacturer's instructions and with ASTM C 1193, Method A.

1. Perform One (1) test for each kind of sealant and joint substrate.
2. For sealant applied between dissimilar materials, test both sides of joint.

B. Remove sealants failing adhesion test, clean substrates, reapply sealants, and re-test. Test adjacent sealants to failed sealants.

C. Submit report of field adhesion testing to Engineer indicating tests, locations, dates, results, and remedial actions taken.

## 4.5 EXTERIOR JOINT-SEALANT SCHEDULE

A. Exterior construction joints in concrete.

1. Joint Sealant: Single-component neutral-curing non-staining silicone sealant.
2. Joint Sealant: Multi-component neutral-curing non-staining field tintable silicone sealant.
3. Joint Sealant: Single-component non-sag urethane sealant.
4. Joint-Sealant Color: Approved colors matching existing sealants and substrates.

B. Exterior movement joints in concrete unit masonry.

1. Joint Sealant: Single-component neutral-curing non-staining silicone sealant.
2. Joint Sealant: Multi-component neutral-curing non-staining field tintable silicone sealant.
3. Joint Sealant: Single-component non-sag urethane sealant.
4. Joint-Sealant Color: Approved colors matching existing sealants and substrates.

C. Exterior movement joints in brick masonry.

1. Joint Sealant: Single-component neutral-curing non-staining silicone sealant.
2. Joint Sealant: Multi-component neutral-curing non-staining field tintable silicone sealant.
3. Joint Sealant: Single-component non-sag urethane sealant.
4. Joint-Sealant Color: Approved colors matching existing sealants, substrates and mortars.

D. Exterior movement joints in stone masonry.

1. Joint Sealant: Single-component neutral-curing non-staining silicone sealant.
2. Joint Sealant: Single-component non-sag urethane sealant.
3. Joint-Sealant Color: Approved colors matching existing sealants, substrates and mortars.
4.

E. Exterior joints between different materials listed above.

1. Joint Sealant: Single-component neutral-curing non-staining silicone sealant.
2. Joint Sealant: Multi-component neutral-curing non-staining field tintable silicone sealant.
3. Joint Sealant: Single-component non-sag urethane sealant.
4. Joint-Sealant Color: Approved colors matching existing sealants, substrates and mortars.

F. Exterior perimeter joints at frames of doors, windows, storefront frames, curtain wall frames, and louvers. Only on East Elevation Doors and windows.

1. Joint Sealant: Single-component neutral-curing non-staining silicone sealant.
2. Joint Sealant: Multi-component neutral-curing non-staining field tintable silicone sealant.

3. Joint Sealant: Single-component non-sag urethane sealant.
4. Joint-Sealant Color: Approved colors matching existing sealants, substrates and mortars.

G. Exterior joints within aluminum storefront framing, curtain walls, and window systems:

1. Joint Sealant: Single-component neutral-curing non-staining silicone sealant.
2. Joint-Sealant Color: Approved colors matching existing sealants, substrates and Mortars.

**END OF SECTION**

# STRUCTURAL STEEL

## PART 1 – GENERAL

1.1 SECTION INCLUDES

A. Structural steel framing members.
B. Grouting between masonry and Structural Steel.
C. Prime coat painting and touchup.

1.2 PRODUCTS FURNISHED BUT NOT INSTALLED UNDER THIS SECTION

A. None

1.3 RELATED SECTIONS

A. Masonry: Tuck Pointing.
B. Painting

1.4 REFERENCE STANDARDS

A. ASTM A36 - Structural Steel.
B. AWS A2.0 - Standard Welding Symbols.
C. AWS D1.1 - Structural Welding Code.
D. AISC - Specification for Structural Steel Buildings.

1.5 SUBMITTALS

A. Submit Welders Certifications. Submit Welders AWS qualifications within the previous 12 months.
B. Product Data: Include laboratory test reports and other data to show compliance with specifications (include specified standards). Include certified copies of mill reports covering chemical and physical properties of each type of structural steel.
C. Shop Drawings – If unable to use detail included in Specifications, provide Shop Drawings containing the following:
    1. Shop drawings shall include complete details and schedules for fabrication and assembly of structural steel members, procedures, and diagrams.
    2. Include details of cuts, connections, camber, holes, and other pertinent data. Indicate welds by standard AWS symbols, and show size, length, and type of each weld.
    3. Provide setting drawings, templates, and directions for installation of anchor bolts and other anchorages to be installed by others.
    4. Dimensions required to locate structural steel for manufactured items such as mechanical equipment, electrical equipment, etc., shall be coordinated and provided by the General Contractor.

1.6 QUALITY ASSURANCE

A. Except where other requirements are specified, comply with the following standards by American Institute of Steel Construction (AISC) and American Welding Association (AWS):
    5. AISC "Specification for Structural Steel Buildings".
    6. AISC "Code of Standard Practice for Steel Buildings and Bridges".
    7. AISC "Specifications for Structural Joints Using A325 of A490 Bolts".
    8. AWS D.1 "Structural Welding Code".
    9. ASTM A6 "General Requirements for Delivery of Rolled Steel Plates, Shapes, Sheet Piling and Bars for Structural Use".
B. Comply with the referenced ASTM standards for materials.
C. Perform all welding only with AWS certified welders.
D. Paint
    1. Single Source Responsibility: Provide primers and other undercoat paint by paint manufacturer, and use within recommend limits

2. Coordination of Work: Review other Sections in which prime paints are to be provided to ensure compatibility of coatings system for various substrates. Upon request, furnish information or characteristics of finish materials to be used.

1.7 QUALIFICATIONS

A. Fabricator: Company shall be capable of supplying AISC certified for Steel products.

1.8 TESTING AND INSPECTION

A. Structural Steel Testing and Inspection:
    1. For shapes, plates, bars, pipe and tubing, manufacturer's certified mill test reports and analysis for each heat will be acceptable in lieu of testing for steel identifiable in accordance with indicated ASTM designation. Mill test reports shall indicate the physical and chemical properties of all structural steel used. Correlate individual heat numbers with each specified structural section.
    2. For unidentifiable steels listed above, one tension and elongation test and one bend or flattening test for each five tons or fractional part thereof for each size, will be performed by the Testing Laboratory.
B. Welding Inspection:
    1. Welding Inspection shall be performed at the Owner's discretion.

1.9 JOB CONDITIONS

A. Store materials to permit easy access for inspection and identification. Keep steel members off the ground, using pallets, platforms, or other supports. Protect steel members and packaged materials from erosion and deterioration.
B. Do not store materials on structure in a manner that might cause distortion or damage to members or supporting structures. Repair or replace damaged materials or structures as directed.

**PART 2 – PRODUCTS**

2.1 MATERIALS

A. Structural Steel Shapes, Plates and Bars: ASTM A36 except for all "W" shapes which shall conform to ASTM A992.
B. Anchor Bolts: ASTM A307 or ASTM 325 as indicated on drawings.
C. Electrodes for Welding: Comply with AWS Code, E70 Series minimum. Fabricator to select proper electrodes according to weld procedures as submitted.
D. Shop Primer – Compatible with top coat field applied paint.
E. Grout: Non-shrink type, pre-mixed compound consisting of non-metallic aggregate, cement, water reducing and plasticizing additives, capable of developing a minimum compressive strength of 5,000 psi at 28 days.

**PART 3 - EXECUTION**

3.1 EXAMINATION

A. Verify that field conditions are acceptable and are ready to receive work.
B. Beginning of installation means erector accepts existing conditions.

3.2 FABRICATION

A. Shop Fabrication and Assembly: Fabricate and assembly structural assemblies in shop to greatest extent possible. Fabricate items of structural steel in accordance with AISC Specifications and as indicated on final shop drawings. The contractor shall coordinate member tolerances with finishes.
B. Properly mark and match-mark materials for field assembly. Fabricate for delivery sequence which will expedite erection and minimize field handling of materials. Where finishing is required, complete assembly, including welding of units, before start of finishing operations. Provide finish surfaces of members exposed in final structure free of markings, burrs, and other defects.

C. Connections: Weld or bolt shop connections, as indicted. Bolt field connections, except where welded connections or other connections are indicated.
D. Unless noted otherwise, make holes 1/16 inches larger than the nominal bolt diameter.
E. Welding, Shop and Field: Weld by shielded arc method, submerged arc method, flux cored arc method, or other method approved by AWS. Perform welding in accordance with AWS Code. If sizes of fillet welds are not shown on drawings, use AWS minimum weld size but not less than 3/16" fillet welds.

3.3 WELDING

A. General: Quality of materials and design and fabrication of all welded connections shall conform to AISC "Specifications for the Design, Fabrication and Erection of Structural Steel for Building," "AWS Code for Welding in Building Construction," and requirements of this section. Location and type of all welds shall be as shown.
B. Automatic Welding: Use electrode wire and flux for automatic and semiautomatic as approved by AWS for conditions present.
C. Qualification of Welders:
    1. Structural steel welding: Manual and automatic welds for structural steel construction shall be made only by operators who have been previous qualified by tests, as prescribed in AWS D1.1 to perform type of work required.
D. Flame cut surfaces shall be ground to remove contaminated steel layer to provide welds proper fusion without impurities.
E. Preparation of surface: Surfaces to be welded shall be free of loose scale, slag, rust, grease, paint, and any other foreign material.
F. Welding equipment: Use equipment with suitable devices to regulate speed, and manually adjust operating amperage and voltage. The amperage capacity shall be sufficient to overcome line drop, and to give adequate welding heat.

3.4 ERECTION

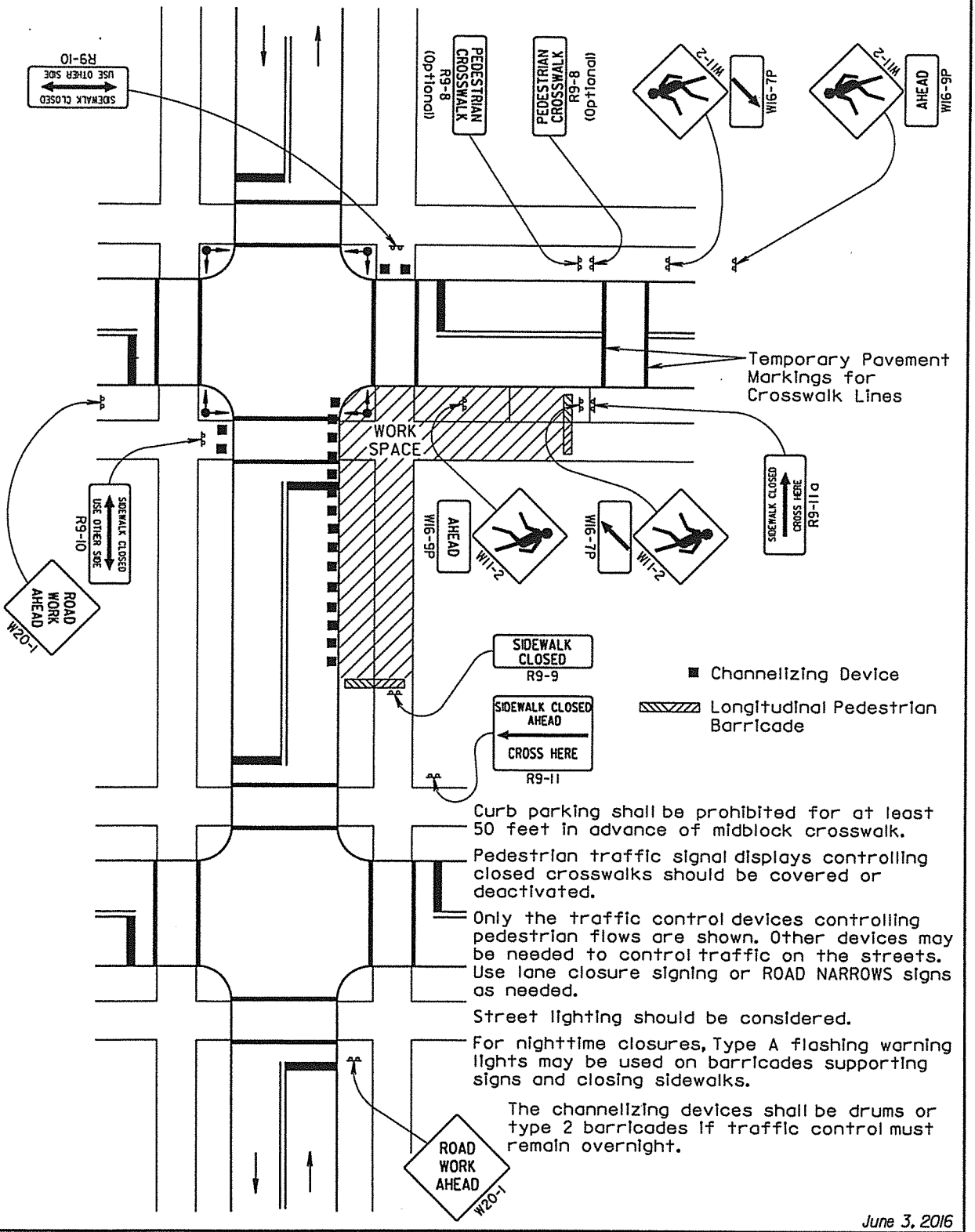
A. Structural steel erection: Comply with AISC "Specification for Structural Steel Buildings", latest edition.
B. Before and during erection, keep all structural steel clean. Ship, handle and store steel in manner to avoid injury to members. Steel members showing evidence to rough handling or injury will be rejected.
C. Provide sufficient bracing, shoring and guys to effect safe and satisfactory erection. Provide bracing and shoring capable of holding steel work plumb and properly aligned while field connections are being made.
D. Field Assembly: Set structural framing accurately to the lines and elevations indicated. Align and adjust the various members forming a part of a complete frame or structure before permanently fastening. Level and plumb individual members of the structure within specified AISC tolerances except as noted herein.
E. All welds shall be full and clean, and conform to AISC and AWS specifications.
F. Erection Tolerances: Individual pieces shall be erected so that the deviation from plumb, level and alignment shall not exceed 1 to 500 plus or maximum tolerances of finish product to be placed in or around structural steel:

3.5 PAINTING AND CLEANING

A. Shop prime all steel. Prepare surface in accordance with Paint Manufacturer instructions.
B. Field Paint after erection with compatible paint from same manufacture as primer. Color shall be selected from manufacturer's standard colors.
C. Apply two shop prime coats to areas which will be inaccessible after erection.
D. After erection, field touch up all welded areas and damaged areas. For all steel to remain exposed, remove all blemishes, paint drips, and touch up prime coat.

3.7 FIELD QUALITY CONTROL
A. Field inspection will be performed as directed by Owner.

END OF SECTION - Structural Steel




Curb parking shall be prohibited for at least 50 feet in advance of midblock crosswalk.

Pedestrian traffic signal displays controlling closed crosswalks should be covered or deactivated.

Only the traffic control devices controlling pedestrian flows are shown. Other devices may be needed to control traffic on the streets. Use lane closure signing or ROAD NARROWS signs as needed.

Street lighting should be considered.

For nighttime closures, Type A flashing warning lights may be used on barricades supporting signs and closing sidewalks.

The channelizing devices shall be drums or type 2 barricades if traffic control must remain overnight.

*June 3, 2016*

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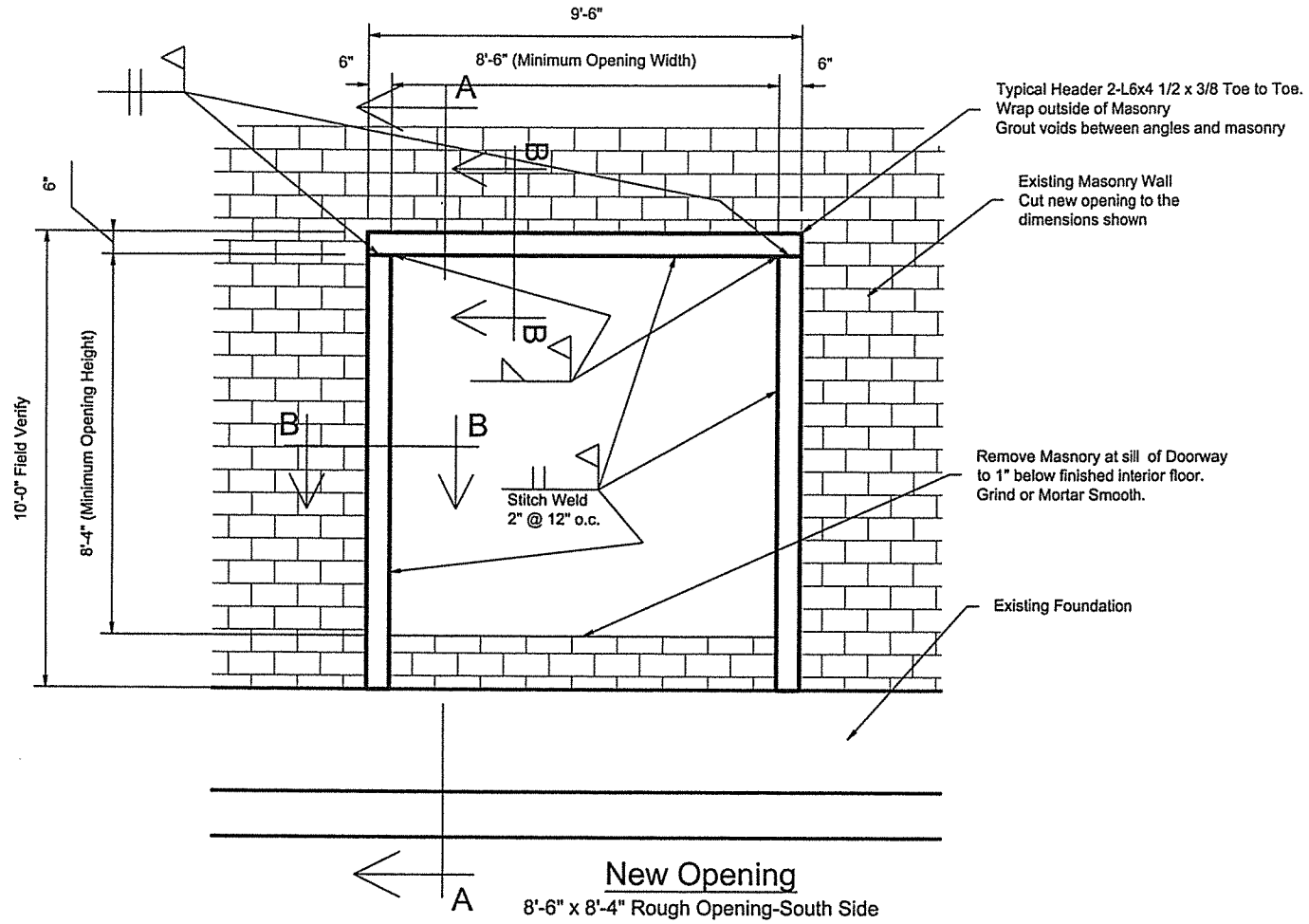
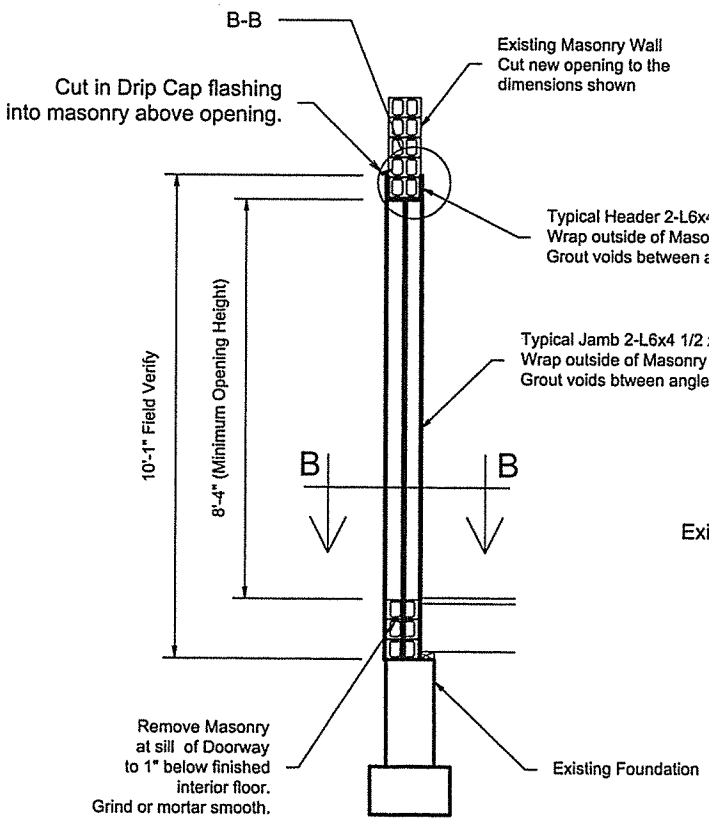
| *Published Date: 3rd Qtr. 2018* | SDDOT | *GUIDES FOR TRAFFIC CONTROL DEVICES SIDEWALK CLOSURES AND PEDESTRIAN DETOURS* | *PLATE NUMBER 634.33* <br> *Sheet 1 of 1* |



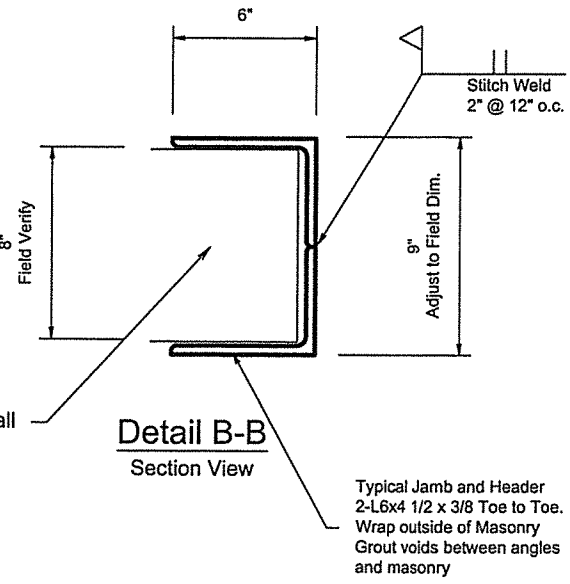

## New Opening

8'-6" x 8'-4" Rough Opening-South Side




## Detail A-A

Section View




## Detail B-B

Section View