



GENESEE COUNTY PURCHASING
A Division of the Genesee County Controller's Office
COUNTY ADMINISTRATION BLDG
1101 BEACH STREET, ROOM 361,
FLINT, MICHIGAN 48502
Phone: (810) 257-3030
www.gc4me.com

May 17, 2018

GENESEE COUNTY INVITATION FOR BIDS #18-137

Sealed bids will be received until **10:00 A.M. (EDT), Wednesday, June 13, 2018**, at the Genesee County Purchasing Department, 1101 Beach Street, Room 361, Flint, MI, 48502 for **CROSSROADS VILLAGE FENTON OPERA HOUSE REPAIRS**.

A **Mandatory Pre-Bid Meeting** followed by a site inspection, will be held at Crossroads Village Café located in the Opera House building, on Main Street at 6140 Bray Road, Flint, MI 48505. Attendance at the mandatory meeting and inspection is required for the submission and consideration of any bid, the meeting will be on **Tuesday, May 29, 2018 at 10:00 a.m. (EDT)**.

This procurement is conducted in accordance with the Genesee County Purchasing Regulations, a copy of which is on file and available for inspection at the Genesee County Purchasing Department or at the website www.gc4me.com.

Each offeror is responsible for labeling the exterior of the sealed envelope containing the bid response with the bid number, bid name, bid due date and time, and your firm's name. The bid request number and due date for this RFP are:

DUE DATE: 10:00 A.M. (EDT), Wednesday, June 13, 2018
BID REQUEST NUMBER: #18-137

Cindy Carnes
CINDY CARNES, PURCHASING MANAGER

bid2\2018\18-137
Attachments

GENESEE COUNTY IS AN EQUAL OPPORTUNITY EMPLOYER
www.gc4me.com

TABLE OF CONTENTS

SECTION 1 - INSTRUCTIONS TO BIDDERS	3
SECTION 2 - STANDARD TERMS & CONDITIONS.....	4
SECTION 3 - ADDITIONAL TERMS & CONDITIONS.....	4
SECTION 4 - QUALIFICATIONS OF PROPOSERS	5
SECTION 5. STATEMENT OF WORK	6
SECTION 6. SPECIFICATIONS.....	7
SECTION 7. SUPPLEMENTAL CONDITIONS.....	44
SECTION 8. INFORMATION REQUIRED FROM BIDDERS.....	45
FINANCIAL BID FORM.....	47
SIGNATURE PAGE	48
INSURANCE CHECKLIST	49
REFERENCES	50

RFP #18-137 CRV FENTON OPERA HOUSE REPAIRS

SECTION 1 - INSTRUCTIONS TO BIDDERS

1. Sealed bids will be received until **10:00 A.M. (EDT), Wednesday, June 13, 2018**, at the Genesee County Purchasing Department, 1101 Beach Street, Room 343, Flint, MI, 48502. The Genesee County Purchasing Department hours of operation are 8:00 a.m. to 5:00 p.m., closed holidays and furlough days, check website for closed days. Label the envelope containing the bid response as described on page 1. **LATE BIDS AND BIDS SENT BY FACSIMILE OR E-MAIL WILL NOT BE ACCEPTED.**
2. **Submit one original, and one electronic copy of your bid.** All bids become the property of Genesee County. The original must include a signature on the Signature Page of a person authorized to make a binding offer. Additionally the bid response must consist of one copy in electronic format on a CD, DVD or USB flash drive formatted in Adobe (.pdf), Microsoft Word, and/or Microsoft Excel. Failure to provide the required number of duplicate copies may result in rejection of your bid. Bids may not be submitted at the MITN site for this offering.
3. Michigan Inter-governmental Trade Network– an alternate review of the CRV FENTON OPERA HOUSE REPAIRS can be done at <https://www.bidnetdirect.com/mitn>.
 - a. Genesee County has partnered with BidNet as part of the Michigan Inter-governmental Trade Network (MITN) and will post their bid opportunities to this site. As a vendor, you can register with [Michigan Inter-governmental Trade Network](https://www.mitn.info/Registration.asp?ID=2340) (use hyperlink or <https://www.mitn.info/Registration.asp?ID=2340>) and be sure that you see all available bids and opportunities. By selecting automatic bid notification, your company will receive emails once Genesee County has a bid opportunity that matches your company's business. In addition, the site handles bid opportunities, RFPs, and RFQs for other member governmental agencies. If you need help registering, please call [Michigan Inter-governmental Trade Network](https://www.mitn.info/Registration.asp?ID=2340) support department toll free 1-800-835-4603.
4. All communications, any modifications, clarifications, amendments, questions, responses or any other matters related to this IFB, shall be made by and through the purchasing contact reference in this solicitation. No contact regarding this solicitation made with other County employees is permitted. Any violation of this condition may result in immediate rejection of bid.
5. All prospective proposers shall be responsible for routinely checking the Genesee County Purchasing Department website at <http://www.gc4me.com/departments/purchasing> for issued addenda and other relevant information. Genesee County shall not be responsible for the failure of a prospective proposer to obtain addenda and other information issued at any time related to this IFB.
6. The County's Standard Proposed Contract is attached to this IFB. After the award is made to the successful proposer, the County and the successful proposer will negotiate a final contract that substantially conforms to the Standard Proposed Contract. Any exceptions to

the terms and conditions of the Standard Proposed Contract and this IFB must be clearly set forth in your bid and referenced on company letterhead. The County will not entertain negotiations to change any terms and conditions of the Standard Proposed Contract or IFB unless those changes are requested in your bid.

7. The County of Genesee requires a signed Genesee County Insurance Checklist with each bid submitted. Insurance required per the specifications governing this work must be provided prior to the contract starting date and kept in full effect and compliance during entire contract period. Failure to comply with these provisions will cause termination of the contract.

The contractor agrees to be responsible for any loss or damage to property or persons due to the performance of services herein contracted and further agrees to protect and defend the County of Genesee against all claims or demands whatsoever, and to hold the County of Genesee harmless from any loss or damage resulting therefrom.

8. Bid Format: Bids must be submitted in the format outlined in SECTION 8 - INFORMATION REQUIRED FROM PROPOSERS to be deemed responsive.
9. Attend the Mandatory Pre-Bid Meeting followed by a site inspection, will be held at Crossroads Village Café located in the Opera House building, on Main Street at 6140 Bray Road, Flint, MI 48505. Attendance at the mandatory meeting and inspection is required for the submission and consideration of any bid, the meeting will be on **Tuesday, May 29, 2018 at 10:00 a.m. (EDT)**.

SECTION 2 - STANDARD TERMS & CONDITIONS

1. See Genesee County website, Purchasing Department for Standard Terms and Conditions

SECTION 3 - ADDITIONAL TERMS & CONDITIONS

1. **Purpose**: Through this IFB, Genesee County (“the County”) is soliciting bids from qualified firms who can provide exterior masonry repairs and/or roof replacement for Genesee County Parks and Recreation Commission (GCPCR).
2. **Issuing Office**: This IFB is issued by the Genesee County Purchasing Department on behalf of the Genesee County Parks and Recreation Commission (GCPCR). The contact person is Ms. Cindy Carnes, Purchasing Manager, Genesee County, 1101 Beach Street, Room 361, Flint, Michigan 48502, phone: (810)-257-3030, and ccarnes@co.genesee.mi.us. Email is the preferred method of contact.
3. **Questions & Inquiries**: All questions regarding this IFB shall be submitted in writing and received no later than **12:00 p.m., Monday June 4, 2018** to the Genesee County Purchasing Department as listed above. E-mail is the preferred method of contact for all inquiries concerning this IFB. No verbal interpretation to any respondent as to the meaning of any

requirement stated in this IFB shall be binding on Genesee County. All responses to questions regarding this IFB shall be issued in writing and distributed as an addendum by Genesee County.

4. **Addenda:** Genesee County reserves the right to amend and provide clarification of this IFB prior to the date for bid submission. In such an event, an addendum will be posted on the Purchasing Department website (<http://www.gc4me.com/Purchasing/currentbids.htm>). Further, all proposers shall acknowledge having seen any and all addendums issued (1, 2, 3, etc.) on the Signature Page.
5. **Responsive Bids:** To ensure proper consideration, all proposers are encouraged to submit a complete response to this IFB using the format outlined in Section 8, **INFORMATION REQUIRED FROM PROPOSERS**. In addition, at least one of the paper bids must be signed with an **original signature** of the official authorized to bind the proposer to its provisions.
6. **Validity Period:** Any bid submitted as a result of this Invitation for Bid shall be binding on the proposer for 120 calendar days following the due date.
7. **Disclosure:** All information in an offeror's bid is subject to disclosure under the provisions of Public Act N. 442 of 1976 known as the "Freedom of Information Act". This Act also provides for the complete disclosure of contracts and attachments thereto. In the event that a proposer wishes to designate any portion of their submission as "confidential" or "proprietary," the proposer must contact the Purchasing Manager prior to submission of the bid. All requests regarding disclosure and requests for confidentiality of a bid response to this IFB shall be submitted in writing and received no later than 12:00 p.m., Monday, June 4, 2018, to the Genesee County Purchasing Department as listed above.
8. **Statement of Exceptions:** The proposer shall furnish a statement on company letterhead giving a complete description of all exceptions to the terms, conditions, and specifications set forth in the bid. Failure to furnish this statement shall mean that the proposer agrees to meet all requirements set forth in this solicitation.
9. **Acceptance of Bid Content:** It is proposed that, if a contract is entered into as a result of this IFB, the IFB will serve as the basis for the contract. The contents of the bid of the successful offeror may become contractual obligations if a contract is issued. Failure of the successful offeror to accept these obligations will result in cancellation of contract award.

SECTION 4 - QUALIFICATIONS OF PROPOSERS

In order to qualify for award, a proposer shall have the capability in all respects to perform the work and the integrity and reliability, which will assure good faith performance. This requirement shall include, but is not limited to, the availability of the appropriate financial, material, equipment, facility, personnel, ability, expertise and experience necessary to meet all procurement requirements.

No bid will be considered from any proposer unless known to be skilled and regularly engaged in work of a character similar to that covered by the solicitation documents.

The following requirements are necessary for consideration of contract award:

1. The proposer shall have and any relevant licenses or certifications.
2. Proposer shall be financially stable and have the financial wherewithal to carry out the requirements of this solicitation.
3. The proposer must be engaged as an experienced masonry restoration. Firm shall have completed work similar in material, design, and extent to that indicated for this Project with a record of successful in-service performance. Experience in only installing masonry is insufficient experience.

If a proposer does not convince Genesee County that it possesses the above minimum qualifications with the bid submission, Genesee County shall not consider its bid for award.

SECTION 5 - STATEMENT OF WORK

Work consist of exterior masonry repairs and roof replacement to the Fenton Opera House located within the Crossroads Village in Flint, Michigan. Upper portions of the building's façade has extensive masonry damage present where many brick units are cracked and/or spalling away from the building's surface. For safety concerns this damage had been temporarily covered with a mesh material in order to contain any falling brick pieces.

Masonry repairs will include complete removal of approximately 4 – 6 feet in height of the upper parapet walls on the East and North elevations, along with removal of the existing limestone coping caps. New stainless steel flashings will be installed, the limestone caps cleaned and reinstalled, and new brick matching the façade's original appearance laid where the existing damaged brick had been removed. Also, miscellaneous damaged brick and mortar on the West and South elevations will be replaced with new.

Two deduct alternates will be pursued with the first taking place at the center masonry parapet wall between the varying roof elevations. The condition of the existing brick at this location is very poor and will require complete reconstruction of the brick veneer. Second alternate is to completely remove the current rubber membrane roof system down to the wood decking and install 3 inches of new rigid insulation, and a fully-adhered new rubber membrane roof system at all roof levels.

Work is to be scheduled to commence the week of September 2, 2018. Crossroads Village last day of the season is Monday, September 3, 2018 and work can begin September 4, 2018.

SECTION 6 - SPECIFICATIONS

PART 3 -

SECTION 012100 - ALLOWANCES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes administrative and procedural requirements governing allowances.
- B. Types of allowances include the following:
 - 1. Unit-cost allowances.
 - 2. Quantity allowances.
- C. Related Requirements:
 - 1. Section 012200 "Unit Prices" for procedures for using unit prices, including adjustment of quantity allowances when applicable.

1.2 SELECTION AND PURCHASE

- A. At the earliest practical date after award of the Contract, advise Architect of the date when final selection, or purchase and delivery, of each product or system described by an allowance must be completed by the Owner to avoid delaying the Work.
- B. At Architect's request, obtain proposals for each allowance for use in making final selections. Include recommendations that are relevant to performing the Work.
- C. Purchase products and systems selected by Architect from the designated supplier.

1.3 ACTION SUBMITTALS

- A. Submit proposals for purchase of products or systems included in allowances in the form specified for Change Orders.

1.4 INFORMATIONAL SUBMITTALS

- A. Submit invoices or delivery slips to show actual quantities of materials delivered to the site for use in fulfillment of each allowance.
- B. Submit time sheets and other documentation to show labor time and cost for installation of allowance items that include installation as part of the allowance.
- C. Coordinate and process submittals for allowance items in same manner as for other portions of the Work.

1.5 UNIT-COST ALLOWANCES

- A. Allowance shall include cost to Contractor of specific products and materials ordered by Owner or selected by Architect under allowance and shall include taxes, freight, and delivery to Project site.
- B. Unless otherwise indicated, Contractor's costs for receiving and handling at Project site, labor, installation, overhead and profit, and similar costs related to products and materials ordered by Owner or selected by Architect under allowance shall be included as part of the Contract Sum and not part of the allowance.

1.6 QUANTITY ALLOWANCES

- A. Allowance shall include cost to Contractor of specific products and materials ordered by Owner or selected by Architect under allowance and shall include taxes, freight, and delivery to Project site.
- B. Unless otherwise indicated, Contractor's costs for receiving and handling at Project site, labor, installation, overhead and profit, and similar costs related to products and materials ordered by Owner or selected by Architect under allowance shall be included as part of the Contract Sum and not part of the allowance.

1.7 ADJUSTMENT OF ALLOWANCES

- A. Allowance Adjustment: To adjust allowance amounts, prepare a Change Order proposal based on the difference between purchase amount and the allowance, multiplied by final measurement of work-in-place where applicable. If applicable, include reasonable allowances for cutting losses, tolerances, mixing wastes, normal product imperfections, and similar margins.
 - 1. Include installation costs in purchase amount only where indicated as part of the allowance.
 - 2. If requested, prepare explanation and documentation to substantiate distribution of overhead costs and other markups.
 - 3. Submit substantiation of a change in scope of Work, if any, claimed in Change Orders related to unit-cost allowances.
 - 4. Owner reserves the right to establish the quantity of work-in-place by independent quantity survey, measure, or count.
- B. Submit claims for increased costs because of a change in scope or nature of the allowance described in the Contract Documents, whether for the purchase order amount or Contractor's handling, labor, installation, overhead, and profit.
 - 1. Do not include Contractor's or subcontractor's indirect expense in the Change Order cost amount unless it is clearly shown that the nature or extent of Work has changed from what could have been foreseen from information in the Contract Documents.
 - 2. No change to Contractor's indirect expense is permitted for selection of higher- or lower-priced materials or systems of the same scope and nature as originally indicated.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine products covered by an allowance promptly on delivery for damage or defects. Return damaged or defective products to manufacturer for replacement.

3.2 PREPARATION

- A. Coordinate materials and their installation for each allowance with related materials and installations to ensure that each allowance item is completely integrated and interfaced with related work.

3.3 SCHEDULE OF ALLOWANCES

- A. Allowance No. 1: Unit-Cost Allowance: Include the sum of \$1,100.00 per 1,000 brick units.
 - 1. This allowance includes material cost, receiving, handling, and Contractor overhead and profit.
- B. Allowance No. 2: Quantity Allowances: Include the sum of quantity amounts of allowances as indicated on drawings by the "Exterior Restoration General Notes".
 - 1. This allowance includes material cost, receiving, handling, installation, and Contractor overhead and profit.
 - 2. Coordinate quantity allowance adjustments with corresponding unit price requirements in Section 012200 "Unit Prices".

END OF SECTION 012100

SECTION 012200 - UNIT PRICES
PART 1 – GENERAL

1.1 SUMMARY

- A. Section includes administrative and procedural requirements for unit prices.
- B. Related Requirements:
 - 1. Section 012100 "Allowances" for procedures for using unit prices to adjust quantity allowances.

1.2 DEFINITIONS

- A. Unit price is an amount incorporated into the Agreement, applicable during the duration of the Work as a price per unit of measurement for materials, equipment, or services, or a portion of the Work, added to or deducted from the Contract Sum by appropriate modification, if the scope of Work or estimated quantities of Work required by the Contract Documents are increased or decreased.

1.3 PROCEDURES

- A. Unit prices include all necessary material, plus cost for delivery, installation, insurance, applicable taxes, overhead, and profit.
- B. Measurement and Payment: See individual Specification Sections for work that requires establishment of unit prices. Methods of measurement and payment for unit prices are specified in those Sections.
- C. Owner reserves the right to reject Contractor's measurement of work-in-place that involves use of established unit prices and to have this work measured, at Owner's expense, by an independent surveyor acceptable to Contractor.
- D. List of Unit Prices: A schedule of unit prices is included in Part 3. Specification Sections referenced in the schedule contain requirements for materials described under each unit price.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 SCHEDULE OF UNIT PRICES

- A. Unit Price No. 1: Replace one (1) individual brick unit:
 - 1. Quantity Allowance: Coordinate unit price with allowance adjustment requirements in Section 012100 "Allowances."
- B. Unit Price No. 2: Replace one (1) square foot of brick, single wythe, based on seven (7) brick units per square foot.
 - 1. Quantity Allowance: Coordinate unit price with allowance adjustment requirements in Section 012100 "Allowances."
- C. Unit Price No. 3: Replace one (1) lineal foot of masonry mortar.
 - 1. Quantity Allowance: Coordinate unit price with allowance adjustment requirements in Section 012100 "Allowances."
- D. Unit Price No. 4: Install one (1) helical brick tie and patch mortar at tie.
 - 1. Quantity Allowance: Coordinate unit price with allowance adjustment requirements in Section 012100 "Allowances."
- E. Unit Price No. 5: Custom stain one (1) installed brick unit.
- F. Unit Price No. 6: Replace one (1) lineal foot of treated 2 x 4 wood roof blocking.
- G. Unit Price No. 7: Install one (1) square foot of 3 inch (2 layers of 1 ½ inch) rigid roof insulation.
- H. Unit Price No. 8: In lieu of new rigid insulation, install one (1) square foot of ½ inch thick high-density ISO board.
- I. Unit Price No. 9: Remove one (1) square foot of existing ¾ inch thick wood roof decking and install new ¾ inch thick exterior grade wood plywood sheathing.

END OF SECTION 012200

SECTION 012300 - ALTERNATES

PART 1 – GENERAL

1.1 SUMMARY

- A. Section includes administrative and procedural requirements for alternates.

1.2 DEFINITIONS

- A. Alternate: An amount proposed by bidders and stated on the Bid Form for certain work defined in the bidding requirements that may be added to or deducted from the base bid amount if the Owner decides to accept a corresponding change either in the amount of construction to be completed or in the products, materials, equipment, systems, or installation methods described in the Contract Documents.
 - 1. Alternates described in this Section are part of the Work only if enumerated in the Agreement.
 - 2. The cost or credit for each alternate is the net addition to or deduction from the Contract Sum to incorporate alternates into the Work. No other adjustments are made to the Contract Sum.

1.3 PROCEDURES

- A. Coordination: Revise or adjust affected adjacent work as necessary to completely integrate work of the alternate into Project.
 - 1. Include as part of each alternate, miscellaneous devices, accessory objects, and similar items incidental to or required for a complete installation whether or not indicated as part of alternate.
- B. Execute accepted alternates under the same conditions as other work of the Contract.
- C. Schedule: A schedule of alternates is included at the end of this Section. Specification Sections referenced in schedule contain requirements for materials necessary to achieve the work described under each alternate.

PART 2 - PRODUCTS (Not Used)

PART 3 – EXECUTION

3.1 SCHEDULE OF ALTERNATES

- A. Deduct Alternate No. 1: Center Masonry Parapet Wall Reconstruction
 - 1. Base Bid: At the entire length of the center wall as indicated by the Roof Plan on sheet A6.1, remove all existing masonry and replace with new masonry as indicated by Center Wall Detail 4/A7.2 on sheet A7.1.
 - 2. Alternate: Omit full wall replacement of masonry as indicated by Center Wall Detail 4/A7.2 and only replace masonry units identified by Exterior Restoration General Note No. 1 or 2 allowances.
- B. Deduct Alternate No. 2: Roof Replacement
 - 1. Base Bid: Completely remove the current rubber membrane roof system down to the wood decking at both roof levels and install new 3 inches of rigid insulation, and a fully-adhered new rubber membrane roof system as indicated by the Roof Plan on sheet A6.1, and Wall Details on sheet A7.1.
 - 2. Alternate: Omit full replacement of existing roof and only provide new flashing terminations of the new parapet wall flashing onto the existing roof membrane.

END OF SECTION 012300

SECTION 04 0120- MASONRY PARAPET

REPAIR PART 1 – GENERAL

1.1 SUMMARY

A. Section Includes:

1. Removing and reinstalling limestone coping
2. Repairing brick masonry, including replacing units and partial wall reconstruction.
3. Removing abandoned anchors.
4. Painting steel uncovered during the work.

1.2 DEFINITIONS

- A. Low-Pressure Spray: 100 to 400 psi (690 to 2750 kPa); 4 to 6 gpm (0.25 to 0.4 L/s)
- B. Medium-Pressure Spray: 400 to 800 psi (2750 to 5500 kPa); 4 to 6 gpm (0.25 to 0.4 L/s)

1.3 PREINSTALLATION MEETINGS

A. Pre-installation Conference: Conduct conference at Project site

1. Required attendance: Architect, Owner, Contractor's Superintendent, Masonry and Roofing Contractor Foremen, Testing and Inspection Company Representative.
2. Review scheduling, coordination, methods and procedures related to parapet repair.

1.4 ACTION SUBMITTALS

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

1. Include recommendations for product application and use.

B. Samples, for each product indicated:

1. Colored Mortar: Submit samples of mortar that will be left exposed.
 - a. Have each sample contain a mix of colored sands and cements that produce a mortar matching existing, cleaned mortar when cured and dry.
2. Patching Compound: Submit 3 (three) sets of patching compound samples in the form of plugs (patches in drilled holes) in sample units of masonry representative of the range of masonry colors on the building.
3. Brick Tie and Flashing: Submit one (1) sample each of all various brick ties and flashing pieces.
4. Samples of other exposed accessories involving color selection.

1.5 INFORMATIONAL SUBMITTALS

A. Qualification Data: For brick masonry repair specialist including field supervisors and workers.

1.6 QUALITY ASSURANCE

1. Restoration Specialist Qualifications: Engage an experienced masonry restoration firm to perform work of this Section. Firm shall have completed work similar in material, design, and extent to that indicated for this Project with a record of successful in-service performance. Experience in only installing masonry is insufficient experience. Field Supervision: Masonry restoration specialist firm shall maintain experienced full-time supervisors on Project site during times that masonry restoration work is in progress.
2. Restoration Worker Qualifications: Persons who are experienced and specialize in restoration work of types indicated.

- B. Construction Testing and Inspection: Owner will engage a qualified independent testing agency to perform construction testing and inspection as follows:
 - 1. Inspector will be on site periodically during the parapet reconstruction period. Contractor to cooperate with inspector and allow use of lift devices and scaffolding as needed to perform inspections.
 - 2. Inspector will perform up to 6 (six) random destructive inspections of parapet masonry construction to observe adherence to specifications including; through-wall flashing installation, coping dowel anchor installation, sealing of flashing lap joints, sealing of dowel penetrations, and coping joint sealant.
 - 3. Contractor to re-construct the inspected construction.
- C. Architect's Project Representatives: Architect will assign Project Representatives to help carry out Architect's responsibilities at the site, including observing progress and quality of portion of the Work completed. Allow Architect's Project representatives use of lift devices and scaffolding, as needed, to observe progress and quality of portion of the Work completed.
- D. Notify inspectors and Architect's Project representatives in advance of times when lift devices and scaffolding will be relocated. Do not relocate lift devices and scaffolding until inspectors and Architect's Project representatives have had reasonable opportunity to make inspections and observations of work areas at lift device or scaffold location.
- E. Source Limitations: Obtain each type of material for masonry restoration (cement, sand, etc.) from one source with resources to provide materials of consistent quality in appearance and physical properties.
- F. Mockups: Prepare mockups of masonry parapet repair to demonstrate aesthetic effects and to set quality standards for materials and execution and for fabrication and installation.
 - 1. Parapet Mockup: Prepare a section of re-constructed parapet two - to - three coping sections long (approximately 12 to 16 linear feet).
 - a. Include at least one through-wall flashing joint, counter-flashing joint, wall flashing vertical seam and one end dam.
 - b. Leave stone coping off a portion to expose the through wall flashing joint and at least one dowel penetration for review.
 - c. Mockup will be prepared and reviewed in stages with Architect and Owner's Representative present. Proposed stages may consist of:
 - 1) Upon Demolition of existing
 - 2) When new masonry is install but before flashing
 - 3) Flashing and dowel pin installation
 - 4) Stone coping reinstalled and joints sealed.
 - 2. Brick Repair / Replacement Mockup: 16 (sixteen) square feet minimum
 - 3. Tuck-Pointing Mockup: 4 (four) square feet minimum.
 - 4. Provide 4 minimum masonry cleaning mockups to determine best cleaning agent.
 - 5. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Deliver masonry units to Project site strapped together in suitable packs or pallets or in heavy-duty cartons and protected against impact and chipping.
- B. Store cementitious materials and lime on elevated platforms, under cover, and in a dry location. Do not use cementitious materials that have become damp.
- C. Store sand where grading and other required characteristics can be maintained and contamination avoided.

- D. Handle masonry units to prevent overstressing, chipping, defacement, and other damage.

1.8 FIELD CONDITIONS

- A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit brick masonry repair work to be performed according to product manufacturers' written instructions and specified requirements.
- B. Temperature Limits, General: Repair masonry units only when air temperature is between 40 and 90 deg F (4 and 32 deg C) and is predicted to remain so for at least seven days after completion of the Work.
- C. Cold-Weather Requirements: Comply with the following procedures for masonry repair unless otherwise indicated:
 - 1. When air temperature is below 40 deg F (4 deg C), heat mortar ingredients, masonry repair and pointing materials, and existing masonry walls to produce temperatures between 40 and 120 deg F (4 and 49 deg C).
 - 2. When mean daily air temperature is below 40 deg F (4 deg C), provide enclosure and heat to maintain temperatures above 32 deg F (0 deg C) within the enclosure for seven days after repair and pointing.
- D. Hot-Weather Requirements: Protect masonry repairs and 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.
- E. For manufactured repair materials, perform work within the environmental limits set by each manufacturer.

PART 2 - PRODUCTS

2.1 MATERIALS, GENERAL

- A. Source Limitations: Obtain each type of material for repairing brick masonry (brick, cement, sand, etc.) from single source with resources to provide materials of consistent quality in appearance and physical properties.
- B. It is the intent to match existing brick color, texture, shading variations and outward appearance as closely as possible. Subject to compliance with performance requirements, contractors may propose alternative brick from their available sources. The existing brick size is standard. Contractors may at their option utilize modular brick for areas not exposed to view and for creating header courses. All exposed stretchers are to be standard size to match existing.

2.2 MASONRY MATERIALS

- A. Face Brick: As required to complete brick masonry repair work.
 - 1. Brick Matching Existing: Units with colors, color variation within units, surface texture, size, and shape that match existing brickwork and physical properties.
 - a. Physical Properties: ASTM C 216:
 - 1) Grade: SW
 - 2) Type: FBS
 - 3) Unit Compressive Strength: 3000 psi - (20.7MPa-) minimum, average net-area compressive strength.
 - 4) Initial Rate of Absorption: Less than 20 g/30 sq. In. (20g / 194sc.cm.) per minute when tested per ASTM C67.
 - 5) Maximum saturation coefficient 0.78
 - 6) Maximum 5 hour boil 17%
 - 7) Efflorescence: Rated "Not Effloresced" when tested in accordance with ASTM C 67.

2. Basis of design brick: Subject to compliance with requirements, brick approved for use on this project include, but are not limited to the following:
 - a. Custom blend between a Redland and Belden brick.
 - b. Supplier contact: Belden Brick and Supply, Shawn LaPere, Ph: 989-573-8170

2.3 MORTAR MATERIALS

- A. Portland Cement: ASTM C 150, Type I or Federal Specification SS-C-1292, Type I, white or gray, or both where required for color matching of mortar.
 1. Use ASTM C 91 non-staining cement for stone setting.
- B. Hydrated Lime: ASTM C 207 (hydrated), Type S or ASTM C5 (quicklime).
- C. Mortar Sand: ASTM C 144, unless otherwise indicated.
 1. For pointing mortar, provide sand with rounded edges.
 2. Exposed Mortar: Match size, texture, and gradation of existing mortar sand as closely as possible. Blend several sands if necessary to achieve suitable match.
- D. Water: Potable.

2.4 MANUFACTURED REPAIR MATERIALS

- A. Patching Compound: Factory-mixed cementitious product that is custom manufactured for patching brick masonry.
 1. Use formulation that is vapor and water permeable (equal to or more than the masonry unit), exhibits low shrinkage, has lower modulus of elasticity than masonry units being repaired, and develops high bond strength to all types of masonry.
 2. Patching of brick is only authorized for minor anchor holes in a sound brick. Intent for damaged brick is total unit replacement. Patching Compound for brick to be Jahn M-100 terra cotta and brick repair mortar.
 3. Patching Compound for limestone to be Jahn M70 stone repair mortar.

2.5 FLASHING MATERIALS

- A. Through-Wall Flashing and Reglet: Fabricate to comply with the following requirements:
 1. Stainless Steel: ASTM A 240, Type 304 stainless steel in thicknesses indicated, but not less than 0.0156 inch (0.4mm) thick.
 2. Fabricate with drip ½ inch out from exterior face of the wall, having a hemmed outer edge bent down 30 degrees, and a reglet on interior face of wall or receptor for counter flashing provided by roofing installer.
 3. Punch for dowels required for coping dowel anchors. Raised dimple in the flashing shall face upward.
 4. Fabrications shall comply with SMACNA and NRCA design standards.

2.6 MORTAR MIXES

- A. General: Match size, texture, and gradation of existing mortar sand as closely as possible. Blend several sands, if necessary, to achieve suitable match.
- B. Mortar Mixes: Measure cementitious materials and sand in a dry condition by volume or equivalent weight. 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.

- C. Do not use admixtures of any kind in mortar, unless otherwise indicated.
- D. Pointing Mortar for Brick (Type N): 1 part portland cement, 1 part lime, and 6 parts sand (Not less than 2-1/4 and not more than 3 times the sum of the volumes of cement and lime used.).
 - 1. Use only as required for tuck pointing any existing Type N or S mortar used in laying brick having absorption rates greater than 25 gm./min./ 30 sq. in.
- E. Rebuilding (Setting) Mortar (Type N): 1 part portland cement, 1 part lime, and 6 parts sand Same as pointing mortar.

2.7 ACCESSORY MATERIALS

- A. Lap Sealant and Silicone sealant are specified under Division 7.
- B. Masking Tape: Nonstaining, nonabsorbent material; compatible with mortar, joint primers, sealants, and surfaces adjacent to joints; and that easily comes off entirely, including adhesive.
- C. Antirust Coating: Fast-curing, lead- and chromate-free, self-curing, universal modified-alkyd primer according to SSPC-Paint 20 or SSPC-Paint 29 zinc-rich coating formulated for use on hand-tool cleaned previously rusted steel surfaces.
- D. Other Products: Select materials and methods of use based on the following, subject to approval of a mockup:
 - 1. Previous effectiveness in performing the work involved.
 - 2. Minimal possibility of damaging exposed surfaces.
 - 3. Consistency of each application.
 - 4. Uniformity of the resulting overall appearance.
 - 5. Do not use products or tools that could leave residue on surfaces.

2.8 CLEANING MATERIALS

- A. Water for Cleaning: Potable.
- B. Job-Mixed Detergent Solution: Solution prepared by mixing 2 cups (0.5 L) of tetra sodium polyphosphate (TSPP), 1/2 cup (125 mL) of laundry detergent, and 20 quarts (20 L) of hot water for every 5 gal. (20 L) of solution required.
- C. Nonacidic Gel Cleaner: Manufacturer's standard gel formulation, with pH between 6 and 9 that contains detergents and chelating agents and is specifically formulated for cleaning masonry surfaces.
 - 1. Products:
 - a. Price Research, Ltd.; Price Marble Cleaner-Gel.
 - b. ProSoCo; Sure Klean 942 Masonry Cleaner.
 - c. Approved equal
- D. Nonacidic Liquid Cleaner: Manufacturer's standard mildly alkaline liquid cleaner formulated for removing organic soiling from polished stone, brick, aluminum, plastics, and wood.
 - 1. Products:
 - a. Dominion Restoration, Inc.; Bio-Cleanse.
 - b. Dumond Chemicals, Inc.; Safe n' Easy Architectural Cleaner/Restorer.
 - c. Price Research, Ltd.; Price Non-Acid Masonry Cleaner.
 - d. ProSoCo; Enviro Klean Restoration Cleaner.
 - e. Approved equal.

PART 3 – EXECUTION

3.1 PROTECTION

- A. Protect persons, motor vehicles, surrounding surfaces of building being restored, building site, plants, and surrounding buildings from harm resulting from masonry restoration work.

1. Cover adjacent surfaces with materials that resist chemical cleaners used unless chemical cleaners will not damage surfaces. Use materials that contain only waterproof, UV-resistant adhesives.
 - B. Prevent mortar from staining face of surrounding masonry and other surfaces.
 1. Cover sills, ledges, and other projecting items to protect them from mortar droppings.
 2. Keep wall area wet below rebuilding and repair work to discourage mortar from adhering.
 3. Immediately remove mortar splatters in contact with exposed masonry and other surfaces.
 - C. Provide temporary cover and rain drainage if required during work to direct water off exposed wall surfaces and away from building.
- 3.2 MASONRY REPAIR, GENERAL
- A. Appearance Standard: Repaired surfaces are to have a uniform appearance as viewed from 50 feet (15 m) away by Architect.
- 3.3 STONE COPING REMOVAL, PREPARATION AND STORAGE
- A. Remove existing limestone coping, prep and save for reinstallation:
 1. Carefully remove existing limestone copings from wall, avoiding damaging units or adjacent construction. Do not exceed loading capacities of existing roofing and structures.
 2. Tag each piece and notate on a plan or schedule it's location for reinstallation.
 3. Manually scrape or remove residual mortar, flashing, etc. using hand tools, brushes and water. Remove sealants by cutting close to stone with utility knife and cleaning with non-staining solvents.
 4. Clean limestone coping using non-acidic cleaner.
 5. Store limestone coping on pallets or other raised surface and protected from weather until ready for reinstallation.
- 3.4 ACCESSORY REMOVAL
- A. Remove ladders, anchors, gutters, and other extraneous items in the area of work.
 1. Salvage ladder and turn over to Owner.
 2. Salvage gutter system for reinstallation.
 3. Remove items carefully to avoid spalling or cracking masonry.
 4. Notify Architect before proceeding if an item cannot be removed without damaging surrounding masonry.
 5. Patch holes where extraneous items were removed and are not intended to be reinstalled, unless directed to remove and replace entire masonry unit.
- 3.5 BRICK REMOVAL AND REPLACEMENT
- A. At locations indicated, remove bricks that are damaged, spalled, or deteriorated. Carefully remove entire units from joint to joint, without damaging surrounding masonry, in a manner that permits replacement with full-size units.
 1. When removing single bricks, remove material from center of brick and work toward outside edges.
 - B. Support and protect remaining masonry that surrounds removal area.
 - C. Maintain adjoining construction in an undamaged condition. Coordinate with new flashing, reinforcement, and lintels as required.
 - D. Notify Architect of unforeseen detrimental conditions including voids, cracks, bulges, and loose units in existing masonry backup, rotted wood, rusted metal, and other deteriorated items.
 - E. Clean masonry surrounding removal areas by removing mortar, dust, and loose particles in preparation for brick replacement.

- F. Replace removed damaged brick with new brick matching existing brick.
- G. Install replacement brick into bonding and coursing pattern of existing brick. If cutting is required, use a motor-driven saw designed to cut masonry with clean, sharp, unchipped edges.
 - 1. Maintain joint width for replacement units to match existing joints.
 - 2. Use setting buttons or shims to set units accurately spaced with uniform joints.
- H. Lay replacement brick with rebuilding (setting) mortar and with completely filled bed, head, and collar joints. Butter ends with enough mortar to fill head joints and shove into place. Wet both replacement and surrounding bricks that have ASTM C 67 initial rates of absorption (suction) of more than 30 g/30 sq. in. per min. (30 g/194 sq. cm per min.) Use wetting methods that ensure that units are nearly saturated but surface is dry when laid.
 - 1. Tool exposed mortar joints in repaired areas to match joints of surrounding existing brickwork.
 - 2. When mortar is hard enough to support units, remove shims and other devices interfering with pointing of joints.
- I. Curing: Cure mortar by maintaining in thoroughly damp condition for at least 72 consecutive hours, including weekends and holidays.
 - 1. Hairline cracking within the mortar or mortar separation at edge of a joint is unacceptable. Completely remove such mortar and repoint.

3.6 PAINTING STEEL UNCOVERED DURING THE WORK

- A. Notify Architect if steel is exposed during masonry removal. Where Architect determines that steel is structural, or for other reasons cannot be totally removed, prepare and paint it as follows:
 - 1. Surface Preparation: Remove paint, rust, and other contaminants according to SSPC-SP 2, "Hand Tool Cleaning, as applicable to comply with paint manufacturer's recommended preparation.
 - 2. Antirust Coating: Immediately paint exposed steel with two coats of antirust coating, following coating manufacturer's written instructions and without exceeding manufacturer's recommended rate of application (dry film thickness per coat).
- B. If on inspection and rust removal, the thickness of a steel member is found to be reduced from rust by more than 1/16 inch (1.6 mm), notify Architect before proceeding.

3.7 SETTING LIMESTONE COPING

- A. Limestone coping will be reinstalled in mortar bed in same location as existing, over new stainless steel through - wall flashing and using new stainless steel dowel anchors in lieu of thin metal tab anchors originally used.
- B. Drill stone coping for new dowel anchors. Dowel holes should be over-bored 1/4".
- C. Install dowels into rebuilt masonry parapet, accurately coordinated with penetrations in through-wall flashing.
- D. Install through - wall flashing with dimples formed from punching dowel penetrations facing upward, to form a water dam at the dowel. Install continuous bead of butyl sealant around the dowel penetration above and below the flashing and allow to cure. Lap through-wall flashing six-inches at joints and provide three 1/4-inch beads of butyl lap sealant continuous from edge of metal to edge of metal.
- E. Set stone in a full bed of mortar with head joints filled unless otherwise indicated. Provide sealant in the dowel holes in lieu of mortar to allow for thermal movement.
- F. Tool joints with a round jointer having a diameter 1/8 inch (3 mm) larger than width of joint, when mortar is thumbprint hard.

- G. Rake out mortar from head joints and other sealant-pointed joints to depths required for sealant and sealant backing but not less than 1 inch. Rake joints to uniform depths with square bottoms and clean sides.
- H. Provide backerrod and silicone sealant in head joints and bed joints.

3.8 INSTALLATION TOLERANCES

- A. Variation from Plumb: For vertical lines and surfaces of walls, do not exceed 1/4 inch in 10 feet (6 mm in 3 m). For external corners, corners and jambs and other conspicuous lines, do not exceed 1/8 inch in 10 feet (3 mm in 3 m).
- B. Variation from Level: For, parapets, horizontal bands, and other conspicuous lines, do not exceed 1/8 inch in 10 feet (3 mm in 3 m).
- C. Variation in Cross-Sectional Dimensions: For thickness of walls from dimensions indicated, do not exceed plus or minus 1/4 inch (6 mm).
- D. Variation in Joint Width: Do not vary from average joint width more than plus or minus 1/8 inch (3 mm) or a quarter of nominal joint width, whichever is less.
- E. Variation in Plane between Adjacent Stone Units (Lipping): Do not exceed 1/16-inch (1.5-mm) difference between planes of adjacent units.

3.9 MASONRY UNIT PATCHING

- A. Patch the following masonry units unless another type of repair or replacement is indicated:
 - 1. Units indicated to be patched.
 - 2. Units with holes less than 3/8 – inch diameter.
 - 3. Units in the area of work with holes greater than 3/8-inch diameter, chipped edges or corners or units with any areas of deep deterioration are to be replaced.
- B. Remove and replace existing patches if found loose, cracked or deteriorated.
- C. Prepare patching in accordance with patching material manufacturer's instructions.

3.10 ADJUSTING AND PROGRESS CLEANING

- A. Adjust stone work to comply with installation tolerances and approved mockups.
- B. Remove and reinstall any stone work that does not match approved mockup. Damaged stone may be repaired if Architect approves methods and results.
- C. In-Progress Cleaning: Remove mortar fins and smears before tooling joints. Remove excess sealant and smears as sealant is installed.

3.11 FINAL CLEANING

- A. After mortar has fully hardened, thoroughly clean exposed masonry surfaces of excess mortar and foreign matter; use wood scrapers, stiff-nylon or -fiber brushes, and clean water applied by low-pressure spray.
 - 1. Do not use metal scrapers or brushes.
 - 2. Do not use acidic or alkaline cleaners.
- B. Clean adjacent surfaces. Use detergent and soft brushes or cloths.
- C. Clean mortar and debris from roof; remove debris from drainage system. Rinse off roof and remove masking materials. Leave no residues that could trap dirt.

3.12 MASONRY WASTE DISPOSAL

- A. Salvageable Materials: Unless otherwise indicated, excess masonry materials are Contractor's property.
- B. Masonry Waste: All masonry waste is to be recycled.

END OF SECTION 040120

SECTION 042200 - CONCRETE UNIT MASONRY

PART 1 – GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Concrete masonry units.
 - 2. Steel reinforcing bars.

1.2 DEFINITIONS

- A. CMU(s): Concrete masonry unit(s).
- B. Reinforced Masonry: Masonry containing reinforcing steel in grouted cells.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Shop Drawings: For reinforcing steel. Detail bending, lap lengths, and placement of unit masonry reinforcing bars. Comply with ACI 315.

1.4 INFORMATIONAL SUBMITTALS

- A. Material Certificates: For each type and size of product. For masonry units, include data on material properties and material test reports substantiating compliance with requirements.
- B. Mix Designs: For each type of mortar and grout. Include description of type and proportions of ingredients.
 - 1. Include test reports for mortar mixes required to comply with property specification. Test according to ASTM C 109/C 109M for compressive strength, ASTM C 1506 for water retention, and ASTM C 91/C 91M for air content.
 - 2. Include test reports, according to ASTM C 1019, for grout mixes required to comply with compressive strength requirement.

1.5 QUALITY ASSURANCE

- A. Sample Panels: Build sample panels to verify selections made under Sample submittals and to demonstrate aesthetic effects. Comply with requirements in Section 014000 "Quality Requirements" for mockups.
 - 1. Build sample panels for each type of exposed unit masonry construction in sizes approximately 60 inches (1500 mm) long by 48 inches (1200 mm) high by full thickness.

1.6 FIELD CONDITIONS

- A. Cold-Weather Requirements: Do not use frozen materials or materials mixed or coated with ice or frost. Do not build on frozen substrates. Remove and replace unit masonry damaged by frost or by freezing conditions. Comply with cold-weather construction requirements contained in TMS 602/ACI 530.1/ASCE 6.
- B. Hot-Weather Requirements: Comply with hot-weather construction requirements contained in TMS 602/ACI 530.1/ASCE 6.

PART 2 - PRODUCTS

2.1 UNIT MASONRY, GENERAL

- A. Masonry Standard: Comply with TMS 602/ACI 530.1/ASCE 6, except as modified by requirements in the Contract Documents.
- B. Defective Units: Referenced masonry unit standards may allow a certain percentage of units to contain chips, cracks, or other defects exceeding limits stated. Do not use units where such defects are exposed in the completed Work.

- C. Fire-Resistance Ratings: Comply with requirements for fire-resistance-rated assembly designs indicated.
 - 1. Where fire-resistance-rated construction is indicated, units shall be listed and labeled by a qualified testing agency acceptable to authorities having jurisdiction.
- 2.2 CONCRETE MASONRY UNITS
- A. Shapes: Provide shapes indicated and as follows, with exposed surfaces matching exposed faces of adjacent units unless otherwise indicated.
 - 1. Provide special shapes for lintels, corners, jambs, sashes, movement joints, headers, bonding, and other special conditions.
 - B. CMUs: ASTM C 90.
 - 1. Unit Compressive Strength: Provide units with minimum average net-area compressive strength of 2800 psi (19.3 MPa).
 - 2. Density Classification: Normal weight.
 - C. Concrete Building Brick: ASTM C 55.
 - 1. Unit Compressive Strength: Provide units with minimum average net-area compressive strength of 2800 psi (19.3 MPa).
 - 2. Density Classification: Normal weight.
- 2.3 MORTAR AND GROUT MATERIALS
- A. Portland Cement: ASTM C 150/C 150M, Type I or II, except Type III may be used for cold-weather construction. Provide natural color or white cement as required to produce mortar color indicated.
 - B. Hydrated Lime: ASTM C 207, Type S.
 - C. Portland Cement-Lime Mix: Packaged blend of portland cement and hydrated lime containing no other ingredients.
 - D. Masonry Cement: ASTM C 91/C 91M.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Cemex S.A.B. de C.V.
 - b. Essroc.
 - c. Holcim (US) Inc.
 - d. Lafarge North America Inc.
 - e. Lehigh Hanson; Heidelberg Cement Group.
 - E. Aggregate for Mortar: ASTM C 144.
 - 1. White-Mortar Aggregates: Natural white sand or crushed white stone.
 - 2. Colored-Mortar Aggregates: Natural sand or crushed stone of color necessary to produce required mortar color.
 - F. Aggregate for Grout: ASTM C 404.
 - G. Water: Potable.
- 2.4 REINFORCEMENT
- A. Uncoated-Steel Reinforcing Bars: ASTM A 615/A 615M or ASTM A 996/A 996M, Grade 60 (Grade 420).
 - B. Reinforcing Bar Positioners: Wire units designed to fit into mortar bed joints spanning masonry unit cells and to hold reinforcing bars in center of cells. Units are formed from 0.148-inch (3.77-mm) steel wire, hot-dip galvanized after fabrication. Provide units designed for number of bars indicated.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Dur-O-Wal; a Hohmann & Barnard company.
 - b. Heckmann Building Products, Inc.

- c. Hohmann & Barnard, Inc.
 - d. Lock Rite.
 - e. Wire-Bond.
- C. Masonry-Joint Reinforcement, General: ASTM A 951/A 951M.
1. Exterior Walls: Stainless steel.
 2. Wire Size for Side Rods: 0.148-inch (3.77-mm) diameter.
 3. Wire Size for Cross Rods: 0.148-inch (3.77-mm) diameter.
 4. Spacing of Cross Rods: Not more than 16 inches (407 mm) o.c.
 5. Provide in lengths of not less than 10 feet (3 m), with prefabricated corner and tee units.
- 2.5 TIES AND ANCHORS
- A. Materials: Provide ties and anchors specified in this article that are made from materials that comply with the following unless otherwise indicated:
1. Hot-Dip Galvanized, Carbon-Steel Wire: ASTM A 82/A 82M, with ASTM A 153/A 153M, Class B-2 coating.
 2. Steel Sheet, Galvanized after Fabrication: ASTM A 1008/A 1008M, Commercial Steel, with ASTM A 153/A 153M, Class B coating.
 3. Steel Plates, Shapes, and Bars: ASTM A 36/A 36M.
- B. Adjustable Anchors for Connecting to Structural Steel Framing: Provide anchors that allow vertical or horizontal adjustment but resist tension and compression forces perpendicular to plane of wall.
1. Anchor Section for Welding to Steel Frame: Crimped 1/4-inch- (6.35-mm-) diameter, hot-dip galvanized-steel wire.
 2. Tie Section: Triangular-shaped wire tie made from 0.25-inch- (6.35-mm-) diameter, hot-dip galvanized-steel wire.
- C. Adjustable Anchors for Connecting to Concrete: Provide anchors that allow vertical or horizontal adjustment but resist tension and compression forces perpendicular to plane of wall.
1. Tie Section: Triangular-shaped wire tie made from 0.25-inch- (6.35-mm-) diameter, stainless-steel wire.
- 2.6 EMBEDDED FLASHING MATERIALS
- A. Metal Flashing: Provide metal flashing complying with Section 076200 "Sheet Metal Flashing and Trim" and as follows:
1. Fabricate metal drip edges from stainless steel. Extend at least 3 inches (76 mm) into wall and 1/2 inch (13 mm) out from wall, with outer edge bent down 30 degrees and hemmed.
 2. Fabricate metal sealant stops from stainless steel. Extend at least 3 inches (76 mm) into wall and out to exterior face of wall. At exterior face of wall, bend metal back on itself for 3/4 inch (19 mm) and down into joint 1/4 inch (6 mm) to form a stop for retaining sealant backer rod.
 3. Fabricate metal expansion-joint strips from stainless steel to shapes indicated.
- B. Flexible Flashing: Use the following unless otherwise indicated:
1. Copper-Laminated Flashing: 5-oz./sq. ft. (1.5-kg/sq. m) copper sheet bonded between two layers of glass-fiber cloth. Use only where flashing is fully concealed in masonry.
 - a. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1) Advanced Building Products Inc.
 - 2) Hohmann & Barnard, Inc.
 - 3) Wire-Bond.
 - 4) York Manufacturing, Inc.

- C. Solder and Sealants for Sheet Metal Flashings: As specified in Section 076200 "Sheet Metal Flashing and Trim."
- D. Adhesives, Primers, and Seam Tapes for Flashings: Flashing manufacturer's standard products or products recommended by flashing manufacturer for bonding flashing sheets to each other and to substrates.

2.7 MISCELLANEOUS MASONRY ACCESSORIES

- A. Compressible Filler: Premolded filler strips complying with ASTM D 1056, Grade 2A1; compressible up to 35 percent; of width and thickness indicated; formulated from neoprene.
- B. Preformed Control-Joint Gaskets: Made from styrene-butadiene-rubber compound, complying with ASTM D 2000, Designation M2AA-805 and designed to fit standard sash block and to maintain lateral stability in masonry wall; size and configuration as indicated.
- C. Bond-Breaker Strips: Asphalt-saturated felt complying with ASTM D 226/D 226M, Type I (No. 15 asphalt felt).

2.8 MORTAR AND GROUT MIXES

- A. General: Do not use admixtures, including pigments, air-entraining agents, accelerators, retarders, water-repellent agents, antifreeze compounds, or other admixtures unless otherwise indicated.
 - 1. Do not use calcium chloride in mortar or grout.
 - 2. Use portland cement-lime mortar unless otherwise indicated.
 - 3. For exterior masonry, use portland cement-lime mortar.
 - 4. For reinforced masonry, use portland cement-lime mortar.
 - 5. Add cold-weather admixture (if used) at same rate for all mortar that will be exposed to view, regardless of weather conditions, to ensure that mortar color is consistent.
- B. Preblended, Dry Mortar Mix: Furnish dry mortar ingredients in form of a preblended mix. Measure quantities by weight to ensure accurate proportions, and thoroughly blend ingredients before delivering to Project site.
- C. Mortar for Unit Masonry: Comply with ASTM C 270, Proportion Specification. Provide the following types of mortar for applications stated unless another type is indicated.
 - 1. For reinforced masonry, use Type S.
 - 2. For exterior, above-grade, load-bearing and nonload-bearing walls and parapet walls; for interior load-bearing walls; for interior nonload-bearing partitions; and for other applications where another type is not indicated, use Type S.
- D. Grout for Unit Masonry: Comply with ASTM C 476.
 - 1. Use grout of type indicated or, if not otherwise indicated, of type (fine or course) that will comply with TMS 602/ACI 530.1/ASCE 6 for dimensions of grout spaces and pour height.
 - 2. Proportion grout in accordance with ASTM C 476, Table 1 or paragraph 4.2.2 for specified 28-day compressive strength indicated, but not less than 2000 psi (14 MPa).
 - 3. Provide grout with a slump of 8 to 11 inches (200 to 280 mm) as measured according to ASTM C 143/C 143M.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- A. Use full-size units without cutting if possible. If cutting is required to provide a continuous pattern or to fit adjoining construction, cut units with motor-driven saws; provide clean, sharp, unchipped edges. Allow units to dry before laying unless wetting of units is specified. Install cut units with cut surfaces and, where possible, cut edges concealed.

3.2 TOLERANCES

- A. Dimensions and Locations of Elements:

1. For dimensions in cross section or elevation, do not vary by more than plus 1/2 inch (12 mm) or minus 1/4 inch (6 mm).
 2. For location of elements in plan, do not vary from that indicated by more than plus or minus 1/2 inch (12 mm).
 3. For location of elements in elevation, do not vary from that indicated by more than plus or minus 1/4 inch (6 mm) in a story height or 1/2 inch (12 mm) total.
- B. Lines and Levels:
1. For bed joints and top surfaces of bearing walls, do not vary from level by more than 1/4 inch in 10 feet (6 mm in 3 m), or 1/2-inch (12-mm) maximum.
 2. For conspicuous horizontal lines, such as lintels, sills, parapets, and reveals, do not vary from level by more than 1/8 inch in 10 feet (3 mm in 3 m), 1/4 inch in 20 feet (6 mm in 6 m), or 1/2-inch (12-mm) maximum.
 3. For vertical lines and surfaces, do not vary from plumb by more than 1/4 inch in 10 feet (6 mm in 3 m), 3/8 inch in 20 feet (9 mm in 6 m), or 1/2-inch (12-mm) maximum.
 4. For conspicuous vertical lines, such as external corners, door jambs, reveals, and expansion and control joints, do not vary from plumb by more than 1/8 inch in 10 feet (3 mm in 3 m), 1/4 inch in 20 feet (6 mm in 6 m), or 1/2-inch (12-mm) maximum.
 5. For lines and surfaces, do not vary from straight by more than 1/4 inch in 10 feet (6 mm in 3 m), 3/8 inch in 20 feet (9 mm in 6 m), or 1/2-inch (12-mm) maximum.
- C. Joints:
1. For bed joints, do not vary from thickness indicated by more than plus or minus 1/8 inch (3 mm), with a maximum thickness limited to 1/2 inch (12 mm).
 2. For head and collar joints, do not vary from thickness indicated by more than plus 3/8 inch (9 mm) or minus 1/4 inch (6 mm).
 3. For exposed head joints, do not vary from thickness indicated by more than plus or minus 1/8 inch (3 mm).
- 3.3 LAYING MASONRY WALLS
- A. Lay out walls in advance for accurate spacing of surface bond patterns with uniform joint thicknesses and for accurate location of openings, movement-type joints, returns, and offsets. Avoid using less-than-half-size units, particularly at corners, jambs, and, where possible, at other locations.
 - B. Bond Pattern for Exposed Masonry: Unless otherwise indicated, lay exposed masonry in running bond; do not use units with less-than-nominal 4-inch (100-mm) horizontal face dimensions at corners or jambs.
 - C. Built-in Work: As construction progresses, build in items specified in this and other Sections. Fill in solidly with masonry around built-in items.
 - D. Fill space between steel frames and masonry solidly with mortar unless otherwise indicated.
 - E. Where built-in items are to be embedded in cores of hollow masonry units, place a layer of metal lath, wire mesh, or plastic mesh in the joint below, and rod mortar or grout into core.
 - F. Fill cores in hollow CMUs with grout 24 inches (600 mm) under bearing plates, beams, lintels, posts, and similar items unless otherwise indicated.
- 3.4 MORTAR BEDDING AND JOINTING
- A. Lay hollow CMUs as follows:
 1. Bed face shells in mortar and make head joints of depth equal to bed joints.
 2. Bed webs in mortar in all courses of piers, columns, and pilasters.
 3. Bed webs in mortar in grouted masonry, including starting course on footings.
 4. Fully bed entire units, including areas under cells, at starting course on footings where cells are not grouted.
 - B. Lay solid CMUs with completely filled bed and head joints; butter ends with sufficient mortar to fill head joints and shove into place. Do not deeply furrow bed joints or slush head joints.

- C. Tool exposed joints slightly concave when thumbprint hard, using a jointer larger than joint thickness unless otherwise indicated.
- D. Cut joints flush for masonry walls to receive plaster or other direct-applied finishes (other than paint) unless otherwise indicated.

3.5 MASONRY-JOINT REINFORCEMENT

- A. General: Install entire length of longitudinal side rods in mortar with a minimum cover of 5/8 inch (16 mm) on exterior side of walls, 1/2 inch (13 mm) elsewhere. Lap reinforcement a minimum of 6 inches (150 mm).
 1. Space reinforcement not more than 16 inches (406 mm) o.c.
 2. Space reinforcement not more than 8 inches (203 mm) o.c. in foundation walls and parapet walls.
 3. Provide reinforcement not more than 8 inches (203 mm) above and below wall openings and extending 12 inches (305 mm) beyond openings in addition to continuous reinforcement.
- B. Interrupt joint reinforcement at control and expansion joints unless otherwise indicated.
- C. Provide continuity at wall intersections by using prefabricated T-shaped units.
- D. Provide continuity at corners by using prefabricated L-shaped units.

3.6 ANCHORING MASONRY TO STRUCTURAL STEEL AND CONCRETE

- A. Anchor masonry to structural steel and concrete, where masonry abuts or faces structural steel or concrete, to comply with the following:
 1. Provide an open space not less than 1/2 inch (13 mm) wide between masonry and structural steel or concrete unless otherwise indicated. Keep open space free of mortar and other rigid materials.
 2. Anchor masonry with anchors embedded in masonry joints and attached to structure.
 3. Space anchors as indicated, but not more than 24 inches (610 mm) o.c. vertically and 36 inches (915 mm) o.c. horizontally.

3.7 FLASHING

- A. General: Install embedded flashing at ledges and other obstructions to downward flow of water in wall where indicated.
- B. Install flashing as follows unless otherwise indicated:
 1. Prepare masonry surfaces so they are smooth and free from projections that could puncture flashing. Where flashing is within mortar joint, place through-wall flashing on sloping bed of mortar and cover with mortar. Before covering with mortar, seal penetrations in flashing with adhesive, sealant, or tape as recommended by flashing manufacturer.
 2. At lintels, extend flashing a minimum of 6 inches (150 mm) into masonry at each end. At heads and sills, extend flashing 6 inches (150 mm) at ends and turn up not less than 2 inches (50 mm) to form end dams.
 3. Install metal drip edges beneath flexible flashing at exterior face of wall. Stop flexible flashing 1/2 inch (13 mm) back from outside face of wall, and adhere flexible flashing to top of metal drip edge.
 4. Install metal flashing termination beneath flexible flashing at exterior face of wall. Stop flexible flashing 1/2 inch (13 mm) back from outside face of wall, and adhere flexible flashing to top of metal flashing termination.
- C. Install single-wythe CMU flashing system in bed joints of CMU walls where indicated to comply with manufacturer's written instructions. Install CMU cell pans with upturned edges located below face shells and webs of CMUs above and with weep spouts aligned with face of wall. Install CMU web covers so that they cover upturned edges of CMU cell pans at CMU webs and extend from face shell to face shell.

3.8 REINFORCED UNIT MASONRY INSTALLATION

- A. Temporary Formwork and Shores: Construct formwork and shores as needed to support reinforced masonry elements during construction.
 - 1. Construct formwork to provide shape, line, and dimensions of completed masonry as indicated. Make forms sufficiently tight to prevent leakage of mortar and grout. Brace, tie, and support forms to maintain position and shape during construction and curing of reinforced masonry.
 - 2. Do not remove forms and shores until reinforced masonry members have hardened sufficiently to carry their own weight and that of other loads that may be placed on them during construction.
- B. Placing Reinforcement: Comply with requirements in TMS 602/ACI 530.1/ASCE 6.
- C. Grouting: Do not place grout until entire height of masonry to be grouted has attained enough strength to resist grout pressure.
 - 1. Comply with requirements in TMS 602/ACI 530.1/ASCE 6 for cleanouts and for grout placement, including minimum grout space and maximum pour height.
 - 2. Limit height of vertical grout pours to not more than 24 inches.

3.9 FIELD QUALITY CONTROL

- A. Testing and Inspecting: Owner will engage special inspectors to perform tests and inspections and prepare reports. Allow inspectors access to scaffolding and work areas as needed to perform tests and inspections. Retesting of materials that fail to comply with specified requirements shall be done at Contractor's expense.
- B. Inspections: Special inspections according to Level B in TMS 402/ACI 530/ASCE 5.
 - 1. Begin masonry construction only after inspectors have verified proportions of site-prepared mortar.
 - 2. Place grout only after inspectors have verified compliance of grout spaces and of grades, sizes, and locations of reinforcement.
 - 3. Place grout only after inspectors have verified proportions of site-prepared grout.
- C. Testing Prior to Construction: One set of tests.
- D. Testing Frequency: One set of tests for each 5000 sq. ft. (464 sq. m) of wall area or portion thereof.
- E. Concrete Masonry Unit Test: For each type of unit provided, according to ASTM C 140 for compressive strength.
- F. Mortar Aggregate Ratio Test (Proportion Specification): For each mix provided, according to ASTM C 780.
- G. Mortar Test (Property Specification): For each mix provided, according to ASTM C 780. Test mortar for mortar air content and compressive strength.
- H. Grout Test (Compressive Strength): For each mix provided, according to ASTM C 1019.
- I. Prism Test: For each type of construction provided, according to ASTM C 1314 at seven days and at 28 days.

3.10 REPAIRING, POINTING, AND CLEANING

- A. In-Progress Cleaning: Clean unit masonry as work progresses by dry brushing to remove mortar fins and smears before tooling joints.
- B. Final Cleaning: After mortar is thoroughly set and cured, clean exposed masonry as follows:
 - 1. Test cleaning methods on sample wall panel; leave one-half of panel uncleaned for comparison purposes.
 - 2. Clean concrete masonry by applicable cleaning methods indicated in NCMA TEK 8-4A.

3.11 MASONRY WASTE DISPOSAL

- A. Waste Disposal as Fill Material: Dispose of clean masonry waste, including excess or soil-contaminated sand, waste mortar, and broken masonry units, by crushing and mixing with fill material as fill is placed.

1. Do not dispose of masonry waste as fill within 18 inches (450 mm) of finished grade.
- B. Masonry Waste Recycling: Return broken CMUs not used as fill to manufacturer for recycling.
 - C. Excess Masonry Waste: Remove excess clean masonry waste that cannot be used as fill, as described above or recycled, and other masonry waste, and legally dispose of off Owner's property.

END OF SECTION 042200

SECTION 075323 - ETHYLENE-PROPYLENE-DIENE-MONOMER (EPDM) ROOFING

PART 1 – GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Adhered ethylene-propylene-diene-terpolymer (EPDM) roofing system.
 - 2. Roof insulation.
 - 3. Walkways.

1.2 DEFINITIONS

- A. Roofing Terminology: Definitions in ASTM D 1079 and glossary of NRCA's "The NRCA Roofing and Waterproofing Manual" apply to work of this Section.

1.3 PREINSTALLATION MEETINGS

- A. Pre-installation Roofing Conference: Conduct conference at Project site.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Shop Drawings: For roofing system. Include plans, elevations, sections, details, and attachments to other work.
- C. Samples for Verification: For each product included in membrane roofing system.

1.5 INFORMATIONAL SUBMITTALS

- A. Research/Evaluation Reports: For components of roofing system, from ICC-ES.
- B. Sample Warranties: For manufacturer's special warranties.

1.6 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For roofing system to include in maintenance manuals.

1.7 QUALITY ASSURANCE

- A. Installer Qualifications: A qualified firm that is approved, authorized, or licensed by roofing system manufacturer to install manufacturer's product and that is eligible to receive manufacturer's special warranty.

1.8 WARRANTY

- A. Special Warranty: Manufacturer agrees to repair or replace components of roofing system that fail in materials or workmanship within specified warranty period.
 - 1. Warranty Period: 20 years from date of Substantial Completion.
- B. Special Project Warranty: Submit roofing Installer's warranty, on warranty form at end of this Section, signed by Installer, covering Work of this Section, including all components of roofing system such as roofing pavers, and walkway products, for the following warranty period:
 - 1. Warranty Period: 2 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Source Limitations: Obtain components including roof insulation and fasteners for roofing system from same manufacturer as membrane roofing or manufacturer approved by membrane roofing manufacturer.

2.2 PERFORMANCE REQUIREMENTS

- A. Accelerated Weathering: Roofing system shall withstand 2000 hours of exposure when tested according to ASTM G 152, ASTM G 154, or ASTM G 155.

- B. Impact Resistance: Roofing system shall resist impact damage when tested according to ASTM D 3746 or ASTM D 4272.
- C. Wind Uplift Resistance: Design roofing system to resist the following wind uplift pressures when tested according to FM Approvals 4474, UL 580, or UL 1897.
- D. FM Approvals' RoofNav Listing: Roof membrane, base flashings, and component materials shall comply with requirements in FM Approvals 4450 or FM Approvals 4470 as part of a roofing system, and shall be listed in FM Approvals' RoofNav for Class 1 or noncombustible construction, as applicable. Identify materials with FM Approvals Certification markings.
 - 1. Fire/Windstorm Classification: Class 1A-90.
 - 2. Hail-Resistance Rating: SH.
- E. Exterior Fire-Test Exposure: ASTM E 108 or UL 790, Class A; for application and roof slopes indicated; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.

2.3 EPDM ROOFING

- A. EPDM: ASTM D 4637, Type I, nonreinforced, uniform, flexible EPDM sheet.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. CarlisleSynTecIncorporated.
 - b. Firestone Building Products.
 - c. Johns Manville; a Berkshire Hathaway company.
 - 2. Thickness: 60 mils (1.5 mm), nominal.
 - 3. Exposed Face Color: Black.

2.4 AUXILIARY ROOFING MATERIALS

- A. General: Auxiliary materials recommended by roofing system manufacturer for intended use and compatible with roofing.
- B. Sheet Flashing: 60-mil- (1.5-mm-) thick EPDM, partially cured or cured, according to application.
- C. Prefabricated Pipe Flashings: As recommended by roof membrane manufacturer.
- D. Bonding Adhesive: Manufacturer's standard.
- E. Seaming Material: Single-component, butyl splicing adhesive and splice cleaner or Manufacturer's standard, synthetic-rubber polymer primer and 3-inch- (75-mm-) wide minimum, butyl splice tape with release film.
- F. Lap Sealant: Manufacturer's standard, single component sealant, colored to match membrane roofing.
- G. Water Cutoff Mastic: Manufacturer's standard butyl mastic sealant.
- H. Metal Termination Bars: Manufacturer's standard, predrilled stainless steel or aluminum bars, approximately 1 by 1/8 inch (25 by 3 mm) thick; with anchors.
- I. Fasteners: Factory-coated steel fasteners and metal or plastic plates complying with corrosion-resistance provisions in FM Approvals 4470, designed for fastening components to substrate, and acceptable to roofing system manufacturer.
- J. Miscellaneous Accessories: Provide lap sealant, water cutoff mastic, metal termination bars, metal battens, pourable sealers, preformed cone and vent sheet flashings, reinforced EPDM securement strips, T-joint covers, in-seam sealants, termination reglets, cover strips, and other accessories.
- K. Miscellaneous Accessories: Provide pourable sealers, preformed cone and vent sheet flashings, molded pipe boot flashings, preformed inside and outside corner sheet flashings, reinforced EPDM securement strips, T-joint covers, in-seam sealants, termination reglets, cover strips, and other accessories.

2.5 ROOF INSULATION

- A. Polyisocyanurate Board Insulation: ASTM C 1289, Type II, felt or glass-fiber mat facer on both major surfaces.

- B. Tapered Insulation: Provide factory-tapered insulation boards fabricated to slope of 1/4 inch per 12 inches (1:48) unless otherwise indicated.
- C. Provide preformed saddles, crickets, tapered edge strips, and other insulation shapes where indicated for sloping to drain. Fabricate to slopes indicated.

2.6 INSULATION ACCESSORIES

- A. Fasteners: Factory-coated steel fasteners and metal or plastic plates complying with corrosion-resistance provisions in FM Global 4470, designed for fastening roof insulation to substrate, and acceptable to roofing system manufacturer.
- B. Insulation Adhesive: Insulation manufacturer's recommended adhesive formulated to attach roof insulation to substrate or to another insulation layer.
- C. Roofing Asphalt: ASTM D 312, Type III or Type IV.
 1. Asphalt Primer: ASTM D 41/D 41M.

2.7 WALKWAYS

- A. Flexible Walkways: Factory-formed, nonporous, heavy-duty, slip-resisting, surface-textured walkway pads or rolls, approximately 3/16 inch (5 mm) thick and acceptable to roofing system manufacturer.
 1. Size: Approximately 36 by 60 inches (914 by 1524 mm).
 2. Color: Contrasting with roof membrane.

PART 3 - EXECUTION

3.1 ROOFING INSTALLATION, GENERAL

- A. Install roofing system according to roofing system manufacturer's written instructions.
- B. Complete terminations and base flashings and provide temporary seals to prevent water from entering completed sections of roofing system at the end of the workday or when rain is forecast. Remove and discard temporary seals before beginning work on adjoining roofing.
- C. Install roofing and auxiliary materials to tie in to existing roofing to maintain weather tightness of transition and to not void warranty for existing roofing system.

3.2 INSULATION INSTALLATION

- A. Coordinate installing roofing system components so insulation is not exposed to precipitation or left exposed at the end of the workday.
- B. Install tapered insulation under area of roofing to conform to slopes indicated.
- C. Install insulation under area of roofing to achieve required thickness. Where overall insulation thickness is 2.7 inches (68 mm) or greater, install two or more layers with joints of each succeeding layer staggered from joints of previous layer a minimum of 6 inches (150 mm) in each direction.
- D. Mechanically Fastened Insulation: Install each layer of insulation and secure to deck using mechanical fasteners specifically designed and sized for fastening specified board-type roof insulation to deck type.
 1. Fasten insulation to resist uplift pressure at corners, perimeter, and field of roof.

3.3 ADHERED ROOFING INSTALLATION

- A. Adhere roof membrane over area to receive roofing according to roofing system manufacturer's written instructions.
- B. Unroll membrane roof membrane and allow to relax before installing.
- C. Start installation of roofing in presence of roofing system manufacturer's technical personnel and Owner's testing and inspection agency.
- D. Accurately align roof membrane, and maintain uniform side and end laps of minimum dimensions required by manufacturer. Stagger end laps.

- E. Bonding Adhesive: Apply to substrate and underside of roof membrane at rate required by manufacturer, and allow to partially dry before installing roof membrane. Do not apply to splice area of roof membrane.
 - F. Hot Roofing Asphalt: Apply a solid mopping of hot roofing asphalt to substrate at temperature and rate required by manufacturer, and install fabric-backed roofing. Do not apply to splice area of roof membrane.
 - G. Fabric-Backed Roof Membrane Adhesive: Apply to substrate at rate required by manufacturer, and install fabric-backed roof membrane.
 - H. In addition to adhering, mechanically fasten roof membrane securely at terminations, penetrations, and perimeters.
 - I. Apply roof membrane with side laps shingled with slope of roof deck where possible.
 - J. Adhesive Seam Installation: Clean both faces of splice areas, apply splicing cement.
 1. Firmly roll side and end laps of overlapping roof membrane to ensure a watertight seam installation.
 2. Apply lap sealant and seal exposed edges of roofing terminations.
 3. Apply a continuous bead of in-seam sealant before closing splice if required by roofing system manufacturer.
 - K. Tape Seam Installation: Clean and prime both faces of splice areas, apply splice tape.
 1. Firmly roll side and end laps of overlapping roof membrane to ensure a watertight seam installation.
 2. Apply lap sealant and seal exposed edges of roofing terminations.
 - L. Factory-Applied Seam Tape Installation: Clean and prime surface to receive tape.
 1. Firmly roll side and end laps of overlapping roof membrane to ensure a watertight seam installation.
 2. Apply lap sealant and seal exposed edges of roofing terminations.
 - M. Spread sealant or mastic bed over deck-drain flange at roof drains, and securely seal roof membrane in place with clamping ring.
 - N. Adhere protection sheet over roof membrane at locations indicated.
- 3.4 BASE FLASHING INSTALLATION
- A. Install sheet flashings and preformed flashing accessories, and adhere to substrates according to roofing system manufacturer's written instructions.
 - B. Apply bonding adhesive to substrate and underside of sheet flashing at required rate, and allow to partially dry. Do not apply to seam area of flashing.
 - C. Flash penetrations and field-formed inside and outside corners with cured or uncured sheet flashing.
 - D. Clean splice areas, apply splicing cement, and firmly roll side and end laps of overlapping sheets to ensure a watertight seam installation. Apply lap sealant and seal exposed edges of sheet flashing terminations.
 - E. Terminate and seal top of sheet flashings and mechanically anchor to substrate through termination bars.
- 3.5 WALKWAY INSTALLATION
- A. Flexible Walkways: Install walkway products according to manufacturer's written instructions.
 1. Install flexible walkways at the following locations:
 - a. Locations indicated on Drawings.
 - b. As required by roof membrane manufacturer's warranty requirements.
 2. Provide 6-inch (76-mm) clearance between adjoining pads.
 3. Adhere walkway products to substrate with compatible adhesive according to roofing system manufacturer's written instructions.

3.6 PROTECTING AND CLEANING

- A. Protect membrane roofing system from damage and wear during remainder of construction period. When remaining construction does not affect or endanger roofing, inspect roofing for deterioration and damage, describing its nature and extent in a written report, with copies to Architect and Owner.
- B. Correct deficiencies in or remove membrane roofing system that does not comply with requirements, repair substrates, and repair or reinstall membrane roofing system to a condition free of damage and deterioration at time of Substantial Completion and according to warranty requirements.
- C. Clean overspray and spillage from adjacent construction using cleaning agents and procedures recommended by manufacturer of affected construction.

PART 4 – INSTALLER’S WARRANTY

4.1 ROOFING INSTALLER’S WARRANTY

- A. WHEREAS _____ of _____, herein called the "Roofing Installer," has performed roofing and associated work ("work") on the following project:
 - 1. Owner: _____
 - 2. Address: _____
 - 3. Building Name/Type: _____
 - 4. Address: _____
 - 5. Area of Work: _____
 - 6. Acceptance Date: _____
 - 7. Warranty Period: _____
- B. AND WHEREAS Roofing Installer has contracted (either directly with Owner or indirectly as a subcontractor) to warrant said work against leaks and faulty or defective materials and workmanship for designated Warranty Period,
- C. NOW THEREFORE Roofing Installer hereby warrants, subject to terms and conditions herein set forth, that during Warranty Period he will, at his own cost and expense, make or cause to be made such repairs to or replacements of said work as are necessary to correct faulty and defective work and as are necessary to maintain said work in a watertight condition.
- D. This Warranty is made subject to the following terms and conditions:
 - 1. Specifically excluded from this Warranty are damages to work and other parts of the building, and to building contents, caused by:
 - a. lightning;
 - b. peak gust wind speed exceeding _____ mph;
 - c. fire;
 - d. failure of roofing system substrate, including cracking, settlement, excessive deflection, deterioration, and decomposition;
 - e. faulty construction of parapet walls, copings, chimneys, skylights, vents, equipment supports, and other edge conditions and penetrations of the work;
 - f. vapor condensation on bottom of roofing; and
 - g. Activity on roofing by others, including construction contractors, maintenance personnel, other persons, and animals, whether authorized or unauthorized by Owner.
 - 2. When work has been damaged by any of foregoing causes, Warranty shall be null and void until such damage has been repaired by Roofing Installer and until cost and expense thereof have been paid by Owner or by another responsible party so designated.

3. Roofing Installer is responsible for damage to work covered by this Warranty but is not liable for consequential damages to building or building contents resulting from leaks or faults or defects of work.
4. During Warranty Period, if Owner allows alteration of work by anyone other than Roofing Installer, including cutting, patching, and maintenance in connection with penetrations, attachment of other work, and positioning of anything on roof, this Warranty shall become null and void on date of said alterations, but only to the extent said alterations affect work covered by this Warranty. If Owner engages Roofing Installer to perform said alterations, Warranty shall not become null and void unless Roofing Installer, before starting said work, shall have notified Owner in writing, showing reasonable cause for claim, that said alterations would likely damage or deteriorate work, thereby reasonably justifying a limitation or termination of this Warranty.
5. During Warranty Period, if original use of roof is changed and it becomes used for, but was not originally specified for, a promenade, work deck, spray-cooled surface, flooded basin, or other use or service more severe than originally specified, this Warranty shall become null and void on date of said change, but only to the extent said change affects work covered by this Warranty.
6. Owner shall promptly notify Roofing Installer of observed, known, or suspected leaks, defects, or deterioration and shall afford reasonable opportunity for Roofing Installer to inspect work and to examine evidence of such leaks, defects, or deterioration.
7. This Warranty is recognized to be the only warranty of Roofing Installer on said work and shall not operate to restrict or cut off Owner from other remedies and resources lawfully available to Owner in cases of roofing failure. Specifically, this Warranty shall not operate to relieve Roofing Installer of responsibility for performance of original work according to requirements of the Contract Documents, regardless of whether Contract was a contract directly with Owner or a subcontract with Owner's General Contractor.

E. IN WITNESS THEREOF, this instrument has been duly executed this _____ day of _____, 20____.

1. Authorized Signature: _____

2. Name: _____

3. Title: _____

END OF SECTION 075323

SECTION 076200 - SHEET METAL FLASHING AND TRIM

PART 1 – GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Formed wall sheet metal fabrications.

1.2 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project Site.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Shop Drawings: For sheet metal flashing and trim.
 - 1. Include plans, elevations, sections, and attachment details.
 - 2. Distinguish between shop- and field-assembled work.
 - 3. Include identification of finish for each item.
 - 4. Include pattern of seams and details of termination points, expansion joints and expansion-joint covers, direction of expansion, roof-penetration flashing, and connections to adjoining work.
- C. Samples: For each exposed product and for each color and texture specified.

1.4 QUALITY ASSURANCE

- A. Fabricator Qualifications: Employs skilled workers who custom fabricate sheet metal flashing and trim similar to that required for this Project and whose products have a record of successful in-service performance.
 - 1. For copings and roof edge flashings that are SPRI ES-1 tested, shop shall be listed as able to fabricate required details as tested and approved.
- B. Mockups: Build mockups to verify selections made under Sample submittals to demonstrate aesthetic effects and to set quality standards for fabrication and installation.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. General: Sheet metal flashing and trim assemblies shall withstand wind loads, structural movement, thermally induced movement, and exposure to weather without failure due to defective manufacture, fabrication, installation, or other defects in construction. Completed sheet metal flashing and trim shall not rattle, leak, or loosen, and shall remain watertight.
- B. Sheet Metal Standard for Flashing and Trim: Comply with NRCA's "The NRCA Roofing Manual" and SMACNA's "Architectural Sheet Metal Manual" requirements for dimensions and profiles shown unless more stringent requirements are indicated.
- C. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes.
 - 1. Temperature Change: 120 deg F (67 deg C), ambient; 180 deg F (100 deg C), material surfaces.

2.2 SHEET METALS

- A. General: Protect mechanical and other finishes on exposed surfaces from damage by applying strippable, temporary protective film before shipping.
- B. Stainless-Steel Sheet: ASTM A 240/A 240M, Type 304, dead soft, fully annealed; 2D (dull, coldrolled) finish.

2.3 UNDERLAYMENT MATERIALS

- A. Felt: ASTM D 226/D 226M, Type II (No. 30), asphalt-saturated organic felt; nonperforated.

- B. Synthetic Underlayment: Laminated or reinforced, woven polyethylene or polypropylene, synthetic roofing underlayment; bitumen free; slip resistant; suitable for high temperatures over 220 deg F (111 deg C); and complying with physical requirements of ASTM D 226/D 226M for Type I and Type II felts.
 - 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:
 - a. AtlasRoofing Corporation.
 - b. Intertape Polymer Group.
 - c. Kirsch Building Products, LLC.
 - d. SDP Advanced Polymer Products Inc.
- C. Self-Adhering, High-Temperature Sheet: Minimum 30 mils (0.76 mm) thick, consisting of a slip-resistant polyethylene- or polypropylene-film top surface laminated to a layer of butyl- or SBS-modified asphalt adhesive, with release-paper backing; specifically designed to withstand high metal temperatures beneath metal roofing. Provide primer according to written recommendations of underlayment manufacturer.
 - 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:
 - a. Carlisle Coatings & Waterproofing Inc.
 - b. Carlisle Residential; a division of Carlisle Construction Materials.
 - c. Drexel Metals.
 - d. GCP Applied Technologies Inc.
 - e. Henry Company.
 - f. Kirsch Building Products, LLC.
 - g. Owens Corning.
 - h. Polyguard Products, Inc.
 - i. Protecto Wrap Company.
 - j. SDP Advanced Polymer Products Inc.
 - 2. Thermal Stability: ASTM D 1970; stable after testing at 240 deg F (116 deg C) or higher.
 - 3. Low-Temperature Flexibility: ASTM D 1970; passes after testing at minus 20 deg F (29 deg C) or lower.
- D. Slip Sheet: Rosin-sized building paper, 3 lb/100 sq. ft. (0.16 kg/sq. m) minimum.

2.4 MISCELLANEOUS MATERIALS

- A. General: Provide materials and types of fasteners, solder, protective coatings, sealants, and other miscellaneous items as required for complete sheet metal flashing and trim installation and as recommended by manufacturer of primary sheet metal unless otherwise indicated.
- B. Fasteners: Wood screws, annular threaded nails, self-tapping screws, self-locking rivets and bolts, and other suitable fasteners designed to withstand design loads and recommended by manufacturer of primary sheet metal.
 - 1. General: Blind fasteners or self-drilling screws, gasketed, with hex-washer head.
 - a. Exposed Fasteners: Heads matching color of sheet metal using plastic caps or factory-applied coating. Provide metal-backed EPDM or PVC sealing washers under heads of exposed fasteners bearing on weather side of metal.
 - b. Blind Fasteners: High-strength aluminum or stainless-steel rivets suitable for metal being fastened.
 - c. Spikes and Ferrules: Same material as gutter; with spike with ferrule matching internal gutter width.
 - 2. Fasteners for Stainless-Steel Sheet: Series 300 stainless steel.
- C. Solder:
 - 1. For Stainless Steel: ASTM B 32, Grade Sn60, with acid flux of type recommended by stainless-steel sheet manufacturer.

- D. Sealant Tape: Pressure-sensitive, 100 percent solids, polyisobutylene compound sealant tape with release-paper backing. Provide permanently elastic, nonsag, nontoxic, nonstaining tape 1/2 inch (13 mm) wide and 1/8 inch (3 mm) thick.
- E. Butyl Sealant: ASTM C 1311, single-component, solvent-release butyl rubber sealant; polyisobutylene plasticized; heavy bodied for hooked-type expansion joints with limited movement.
- F. Bituminous Coating: Cold-applied asphalt emulsion according to ASTM D 1187.
- G. Asphalt Roofing Cement: ASTM D 4586, asbestos free, of consistency required for application.

2.5 MANUFACTURED REGLETS

- A. Reglets: Units of type, material, and profile required, formed to provide secure interlocking of separate reglet and counterflashing pieces, and compatible with flashing indicated with factory-mitered and -welded corners and junctions and with interlocking counterflashing on exterior face, of same metal as reglet.
 1. Material: Stainless steel, 0.019 inch (0.48 mm) thick
 2. Finish: Mill

2.6 FABRICATION, GENERAL

- A. General: Custom fabricate sheet metal flashing and trim to comply with details shown and recommendations in cited sheet metal standard that apply to design, dimensions, geometry, metal thickness, and other characteristics of item required. Fabricate sheet metal flashing and trim in shop to greatest extent possible.
 1. Obtain field measurements for accurate fit before shop fabrication.
 2. Form sheet metal flashing and trim to fit substrates without excessive oil canning, buckling, and tool marks; true to line, levels, and slopes; and with exposed edges folded back to form hems.
 3. Conceal fasteners and expansion provisions where possible. Do not use exposed fasteners on faces exposed to view.
- B. Expansion Provisions: Form metal for thermal expansion of exposed flashing and trim.
 1. Form expansion joints of intermeshing hooked flanges, not less than 1 inch (25 mm) deep, filled with butyl sealant concealed within joints.
 2. Use lapped expansion joints only where indicated on Drawings.
- C. Sealant Joints: Where movable, nonexpansion-type joints are required, form metal to provide for proper installation of elastomeric sealant according to cited sheet metal standard.
- D. Fabricate cleats and attachment devices from same material as accessory being anchored or from compatible, noncorrosive metal.
- E. Fabricate cleats and attachment devices of sizes as recommended by cited sheet metal standard for application, but not less than thickness of metal being secured.
- F. Seams: Fabricate nonmoving seams with flat-lock seams. Tin edges to be seamed, form seams, and solder.
- G. Seams: Fabricate nonmoving seams with flat-lock seams. Form seams and seal with elastomeric sealant unless otherwise recommended by sealant manufacturer for intended use. Rivet joints where necessary for strength.

2.7 WALL SHEET METAL FABRICATIONS

- A. Through-Wall Flashing: Fabricate continuous flashings in minimum 96-inch- (2400-mm-) long, but not exceeding 12-foot- (3.6-m-) long, sections, under copings, and at shelf angles. Fabricate discontinuous lintel, sill, and similar flashings to extend 6 inches (150 mm) beyond each side of wall openings; and form with 2-inch- (50-mm-) high, end dams. Fabricate from the following materials:
 1. Stainless Steel: 0.016 inch (0.40 mm) thick.

- B. Opening Flashings in Frame Construction: Fabricate head, sill, jamb, and similar flashings to extend 4 inches (100 mm) beyond wall openings. Form head and sill flashing with 2-inch- (50-mm-) high, end dams. Fabricate from the following materials:
 - 1. Stainless Steel: 0.016 inch (0.40 mm) thick.
- C. Wall Expansion-Joint Cover: Fabricate from the following materials:
 - 1. Stainless Steel: 0.019 inch (0.48 mm) thick.

PART 3 – EXECUTION

3.1 UNDERLAYMENT INSTALLATION

- A. Felt Underlayment: Install felt underlayment, wrinkle free, using adhesive to minimize use of mechanical fasteners under sheet metal flashing and trim. Apply in shingle fashion to shed water, with lapped joints of not less than 2 inches (50 mm).
- B. Synthetic Underlayment: Install synthetic underlayment, wrinkle free, according to manufacturers' written instructions, and using adhesive where possible to minimize use of mechanical fasteners under sheet metal.
- C. Self-Adhering Sheet Underlayment: Install self-adhering sheet underlayment, wrinkle free. Prime substrate if recommended by underlayment manufacturer. Comply with temperature restrictions of underlayment manufacturer for installation; use primer for installing underlayment at low temperatures. Apply in shingle fashion to shed water, with end laps of not less than 6 inches (150 mm) staggered 24 inches (600 mm) between courses. Overlap side edges not less than 3-1/2 inches (90 mm). Roll laps and edges with roller. Cover underlayment within 14 days.

3.2 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, protective coatings, separators, sealants, and other miscellaneous items as required to complete sheet metal flashing and trim system.
 - 1. Install sheet metal flashing and trim true to line, levels, and slopes. Provide uniform, neat seams with minimum exposure of solder, welds, and sealant.
 - 2. 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.
 - 3. Space cleats not more than 12 inches (300 mm) apart. Attach each cleat with at least two fasteners. Bend tabs over fasteners.
 - 4. Install exposed sheet metal flashing and trim with limited oil canning, and free of buckling and tool marks.
 - 5. Torch cutting of sheet metal flashing and trim is not permitted.
- B. Metal Protection: Where dissimilar metals contact each other, or where metal contacts pressure-treated wood or other corrosive substrates, protect against galvanic action or corrosion by painting contact surfaces with bituminous coating or by other permanent separation as recommended by sheet metal manufacturer or cited sheet metal standard.
 - 1. Coat concealed side of stainless-steel sheet metal flashing and trim with bituminous coating where flashing and trim contact wood, ferrous metal, or cementitious construction.
 - 2. Underlayment: Where installing sheet metal flashing and trim directly on cementitious or wood substrates, install underlayment and cover with slip sheet.
- C. Expansion Provisions: Provide for thermal expansion of exposed flashing and trim. Space movement joints at maximum of 10 feet (3 m) with no joints within 24 inches (600 mm) of corner or intersection.

1. Form expansion joints of intermeshing hooked flanges, not less than 1 inch (25 mm) deep, filled with sealant concealed within joints.
 2. Use lapped expansion joints only where indicated on Drawings.
- D. Fasteners: Use fastener sizes that penetrate substrate not less than recommended by fastener manufacturer to achieve maximum pull-out resistance.
- E. Conceal fasteners and expansion provisions where possible in exposed work and locate to minimize possibility of leakage. Cover and seal fasteners and anchors as required for a tight installation.
- F. Seal joints as required for watertight construction. Prepare joints and apply sealants to comply with requirements in Section 079200 "Joint Sealants."
- G. Soldered Joints: Clean surfaces to be soldered, removing oils and foreign matter. Pre-tin edges of sheets with solder to width of 1-1/2 inches (38 mm); however, reduce pre-tinning where pre-tinned surface would show in completed Work.
1. Do not use torches for soldering.
 2. Heat surfaces to receive solder, and flow solder into joint. Fill joint completely. Completely remove flux and spatter from exposed surfaces.
 3. Stainless-Steel Soldering: Tin edges of uncoated sheets, using solder for stainless steel and acid flux. Promptly remove acid flux residue from metal after tinning and soldering. Comply with solder manufacturer's recommended methods for cleaning and neutralization.
- 3.3 WALL FLASHING INSTALLATION
- A. General: Install sheet metal wall flashing to intercept and exclude penetrating moisture according to cited sheet metal standard unless otherwise indicated. Coordinate installation of wall flashing with installation of wall-opening components such as windows, doors, and louvers.
- B. Through-Wall Flashing: Installation of through-wall flashing is specified in Section 040120 "Masonry Parapet Repair" and "Unit Masonry."
- C. Reglets: Installation of reglets is specified in Section 042000 "Unit Masonry."
- D. Opening Flashings in Frame Construction: Install continuous head, sill, jamb, and similar flashings to extend 4 inches (100 mm) beyond wall openings.
- 3.4 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.
- C. Clean off excess sealants.
- D. Remove temporary protective coverings and strippable films as sheet metal flashing and trim are installed unless otherwise indicated in manufacturer's written installation instructions.

END OF SECTION 076200

SECTION 07 9200 - JOINT SEALANTS

PART 1 – GENERAL

1.1 SUMMARY

- A. This Section includes joint sealants for the following applications, including those specified by reference to this Section and following applications:
 - 1. Exterior joints in the following vertical surfaces and horizontal nontraffic surfaces:
 - a. Head joints in limestone masonry parapet copings.
 - b. Control and expansion joints in unit masonry.
 - c. Flashing re-bar penetrations
 - d. Flashing lap joints
 - e. Joints between different materials listed above.
 - f. Other joints as indicated.

1.2 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 warranted sealant installations as indicated. Provide all testing and all other requirements of the sealant manufacturer to obtain the desired warranty.

1.3 SUBMITTALS

- A. Product Data: For each joint-sealant product indicated.
- B. Samples: For each type and color of joint sealant required, provide Samples with joint sealants in 1/2-inch- (13-mm-) wide joints formed between two 6-inch- (150- mm-) long strips of material matching the appearance of exposed surfaces adjacent to joint sealants.
- C. Product Certificates: For each type of joint sealant and accessory, signed by product manufacturer.
- D. SWRI Validation Certificate: For each elastomeric sealant specified to be validated by SWRI's Sealant Validation Program.
- E. Qualification Data: For Installer and testing agency.
- F. Preconstruction Field Test Reports: When requested by owner, indicate which sealants and joint preparation methods resulted in optimum adhesion to joint substrates based on preconstruction testing specified in "Quality Assurance" Article.
- G. Compatibility and Adhesion Test Reports: From sealant manufacturer, indicating the following:
 - 1. Materials forming joint substrates and joint-sealant backing 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.
- H. Field Test Report Log: For each elastomeric sealant application.
- I. Product Test Reports: Based on comprehensive testing of product formulations performed by a qualified testing agency, indicating that sealants comply with requirements.
- J. Warranties: Special warranties specified in this Section.

1.4 QUALITY ASSURANCE

- A. Installer Qualifications: Manufacturer's authorized Installer who is approved or licensed for installation of elastomeric sealants required for this Project.

- B. Source Limitations: Obtain each type of joint sealant through one source from a single manufacturer.
- C. Preconstruction Compatibility and Adhesion Testing: Submit to joint-sealant manufacturers, for testing indicated below, samples of materials that will contact or affect joint sealants.
 - 1. Schedule sufficient time for testing and analyzing results to prevent delaying the Work.
 - 2. Use ASTM C 1087 or manufacturer's standard test method to determine whether priming and other specific joint preparation techniques are required to obtain rapid, optimum adhesion of joint sealants to joint substrates.
 - 3. Submit number required by the sealant manufacturer, but no less than six pieces of each type of material, including joint substrates, shims, joint-sealant backings, secondary seals, and miscellaneous materials.
 - 4. For materials failing tests, obtain joint-sealant manufacturer's written instructions for corrective measures including use of specially formulated primers.
 - 5. Testing will not be required if joint-sealant manufacturers submit joint preparation data that are based on previous testing of current sealant products for adhesion to, and compatibility with, joint substrates and other materials matching those submitted.
- D. Product Testing: Obtain test results for "Product Test Reports" Paragraph in "Submittals" Article from a qualified testing agency based on testing current sealant formulations within a 36-month period preceding the commencement of the Work.
 - 1. Testing Agency Qualifications: An independent testing agency qualified according to ASTM C 1021 to conduct the testing indicated, as documented according to ASTM E 548.
 - 2. Test elastomeric joint sealants for compliance with requirements specified by reference to ASTM C 920, and where applicable, to other standard test methods.
 - 3. Test elastomeric joint sealants according to SWRI's Sealant Validation Program for compliance with requirements specified by reference to ASTM C 920 for adhesion and cohesion under cyclic movement, adhesion-in-peel, and indentation hardness.
- E. Preconstruction Field-Adhesion Testing: Before installing elastomeric sealants, field test their adhesion to Project joint substrates as follows:
 - 1. Locate test joints where indicated on Project or, if not indicated, as directed by Construction Manager.
 - 2. Conduct field tests for each application indicated below:
 - a. Each type of elastomeric sealant and joint substrate indicated.
 - b. Each type of non-elastomeric sealant and joint substrate indicated.
 - 3. Notify Construction Manager seven days in advance of dates and times when test joints will be erected.
 - a. Test Method: Test joint sealants according to Method A, Field-Applied Sealant Joint Hand Pull Tab, in Appendix X1 in ASTM C 1193.
 - 1) For joints with dissimilar substrates, verify adhesion to each substrate separately; extend cut along one side, verifying adhesion to opposite side. Repeat procedure for opposite side.
 - 4. Report whether sealant in joint connected to pulled-out portion failed to adhere to joint substrates or tore cohesively. Include data on pull distance used to test each type of product and joint substrate. For sealants that fail adhesively, retest until satisfactory adhesion is obtained.
 - 5. Evaluation of Preconstruction Field-Adhesion-Test Results: Sealants not evidencing adhesive failure from testing, in absence of other indications

of noncompliance with requirements, will be considered satisfactory. Do not use sealants that fail to adhere to joint substrates during testing.

- F. Mockups: Build mockups incorporating sealant joints, as follows, to verify selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution:
 - 1. Joints in mockups of assemblies specified in other Sections that are indicated to receive elastomeric joint sealants, which are specified by reference to this Section.

1.5 PROJECT CONDITIONS

- A. Do not proceed with installation of joint sealants under the following conditions:
 - 1. When ambient and substrate temperature conditions are outside limits permitted by joint-sealant manufacturer.
 - 2. When joint substrates are wet.
 - 3. Where joint widths are less than those allowed by joint-sealant manufacturer for applications indicated.
 - 4. Contaminants capable of interfering with adhesion have not yet been removed from joint substrates.

1.6 WARRANTY

- A. Special Installer's 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. Warranty Period: Two 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 sealant materials to repair or replace those that do not comply with performance and other requirements specified in this Section within specified warranty period.
 - 1. Warranty Period: 20 years from date of Substantial Completion.

PART 2 – PRODUCTS

2.1 MANUFACTURERS

- A. Products: Subject to compliance with requirements, provide one of the products listed in other Part 2 articles.

2.2 MATERIALS, GENERAL

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

2.3 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 nonstaining 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. Silicone Sealant (Sealant A): A medium-modulus, one-part, pre-pigmented, neutral-cure, non-staining silicone joint sealant: Where joint sealants of this type are

indicated, provide products complying with the following:

1. Products: Provide one of the following:
 - a. 756 SMS; Dow Corning.
 - b. Sikasil WS-295; Sika Corporation
 2. Application: Exterior masonry joints including coping head joints, flashing penetrations, and other joints as indicated
 3. Primer: manufacturer's recommended primer for each substrate, if required, based on compatibility and adhesion tests.
 4. Color: To be selected by Owner/Architect from special and custom colors.
- E. Butyl Sealant (Sealant B): A one part non-skinning, permanently tacky butyl metal flashing sealant that allows metal lap joints to expand and contract. Where joint sealants of this type are indicated, provide products complying with the following:
1. Products: Provide one of the following:
 - a. Lap Rite; Masonpro
 - b. Sikalastomer 511; Sika Corporation
 2. Color: Manufacturer's standard gray or beige.
 5. Application: Lap joints within stainless steel thru-wall flashing.
- 2.4 JOINT-SEALANT BACKING
- A. General: Provide sealant backings of material and type that are nonstaining; 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 (Backer Rod): ASTM C 1330, Type C (closed-cell material with a surface skin), polyurethane foam rod, oversized 20 to 50 percent larger than joint width, 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. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer.
- 2.5 MISCELLANEOUS MATERIALS
- 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. Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials, free of oily residues or other substances capable of staining or harming joint substrates and adjacent nonporous surfaces in any way, and formulated to promote optimum adhesion of sealants to joint substrates.
 - C. Masking Tape: Nonstaining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.

PART 3 - EXECUTION

3.1 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.

3.2 PREPARATION

- A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants.
 - 1. Remove all foreign material from joint substrates that could interfere with adhesion of joint sealant.
 - a. 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:
 - 1) Limestone
 - 2) Masonry
 - 2. Clean nonporous surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion of joint sealants or paint, if applicable. Nonporous joint substrates include the following:
 - a. Metal.
- B. 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.
- C. Masking Tape: Use masking tape where required to prevent contact of sealant with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

3.3 INSTALLATION

- A. General: Comply with joint-sealant manufacturer's written installation instructions for products and applications indicated, unless more stringent requirements apply.
- B. Sealant 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 Nonsag 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 joint configuration per Figure 5A in ASTM C 1193, unless otherwise indicated.
- G. 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.
- 3.4 PROTECTION
- A. 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 required areas are indistinguishable from original work.
- 3.5 JOINT-SEALANT SCHEDULE
- A. SEALANT A: Exterior masonry joints including coping head joints, flashing penetrations, and other joints as indicated
- B. SEALANT B: Lap joints within stainless steel thru-wall flashing.

END OF SECTION – 079200

SECTION 7 - SUPPLEMENTAL CONDITIONS

1. **Reference Form:** All proposers shall include information for current or prior project references similar to the projects referenced in this solicitation (see Reference Page). The name, address, and telephone numbers of the appropriate contact for each reference shall be submitted as part of the bid. Particular attention will be paid to references from other municipalities and/or public sector entities in the state of Michigan.
2. **Surety Bonds:**
 - A. **Performance Bond:** The successful proposer must provide a Performance Bond insuring the Contractor's performance of awarded structures/projects.
 - B. **Payment Bond:** The successful proposer must provide a Materials & Labor Payment Bond insuring that the Contractor's subcontractors will be paid according to their subcontracts.
 - C. **Maintenance Bond:** The successful proposer must provide a 24 month maintenance bond insuring the Contractor's performance of awarded structures/projects. The maintenance bond commences with final acceptance of project completion.
 - D. **General Conditions:** The Bonds must be issued by a surety authorized to issue bonds in the State of Michigan and must have a penal amount at least equal to 100% of the total amount due to the Contractor under this Agreement.
3. **Permits and Fees:** The successful proposer/contractor shall be responsible for all permits and fees associated with the successful completion of the work relevant to this solicitation.
4. **Payment:** Genesee County will make payment based on cost of the building, the cost of installation and the total price proposed in the bid submitted and per the terms and conditions of this IFB. The cost proposed shall include all labor, material, equipment, office and field overheads, profit, insurance, etc., necessary to cover all finished work.

The contractor must submit drafts of each Application for Payment to the Architect for review prior to originals being submitted. The Architect will evaluate all requests for payment to be in compliance with the contract document requirements and work completed. The Architect's decision shall be final.

FINAL PAYMENT

Final Payment will be processed when the when the project is finished and site restoration is complete to the satisfaction of the GCPRC per all terms and conditions included in this Invitation for Bid.

5. **Prevailing Wage Requirement:** The successful proposer and all subcontractors shall adhere to Genesee County's Prevailing Wage Policy (required on all jobs over \$2500.00). Genesee County requires the rates of wages and fringe benefits

to be paid to each class of construction mechanics by the contractor and all of his/her subcontractors, on this project, shall not be less than the wage and fringe benefits currently prevailing in the County of Genesee. Further, the County requires the contractor and all subcontractors to pay their construction mechanics per the prevailing wage schedule as determined by the State of Michigan Department of Labor and Economic Growth (DLEG). Prevailing Wage information is available at

http://www.michigan.gov/documents/lara/Genesee_519899_7.pdf

The contractor shall be required to submit certified payroll reports to the County. The reports shall detail the rates of wages and fringe benefits paid to each class of construction mechanics by the contractor and all of his/her subcontractors. Further, the Certified Payroll Reports must be submitted by the contractor with all invoices for payment.

6. Sub-Contractors

All sub-contractors must be identified and are subject to approval by the County. Qualifications and background information.

Proposers shall submit a list of all construction mechanics called for in this project and possible contract. The information shall include the corresponding prevailing wages and fringe benefits to be paid for each class of relevant construction mechanics.

- 7. Start Date:** Work is to be scheduled to commence the week of September 2, 2018. Crossroads Village last day of the season is Monday, September 3, 2018 and work can begin September 4, 2018.

**SECTION 8 - INFORMATION REQUIRED FROM BIDDERS
(BID FORMAT)**

Submit the following as required to substantiate a responsive bid as indicated below.

1. Business organization, state the full name and address of your organization, and, if applicable, the branch office or other subordinate element that will perform or assist in performing the work. Include the names and phone numbers of personnel at your organization authorized to negotiate the proposed contract.
2. Statement of Exceptions: See Section 1.6 for clarification.
3. Signed Signature Page: See page 48 of this solicitation.
4. Executed Insurance Checklist: See page 49 of this solicitation.
5. References: See page 50 of this solicitation. Prior experience with similar projects is essential for any firm to provide the services required in this solicitation. This section shall consist of a minimum of three (3) references with project descriptions. In addition, contact information for each reference shall be provided with the name, address, phone number and email address. The contacts for each reference must be knowledgeable of the offeror's performance on the referenced project and the scope of services performed by the proposer.

6. Financial Bid Form: See page 47 of this solicitation. Complete and include Bid Form.
7. A representative from the bidding firm must be in attendance at the **Mandatory Pre-Bid Meeting** held at Crossroads Village Café located in the Opera House building, on Main Street at 6140 Bray Road, Flint, MI 48505 on **Tuesday, May 29, 2018 at 10:00 a.m. (EDT)** in order to submit a bid.

FINANCIAL BID FORM GENESEE COUNTY IFB #18-137

CRV FENTON OPERA HOUSE REPAIRS Lump Sum Amount: \$ _____
_____ Dollars

Deduct Alternate No. 1: Center Masonry Parapet Wall Reconstruction \$ _____
_____ Dollars

Deduct Alternate No. 2: Roof Replacement \$ _____
_____ Dollars

Description	ADD	DEDUCT
Unit Price No. 1: Replace one (1) individual brick unit:		
Unit Price No. 2: Replace one (1) square foot of brick, single wythe, based on seven (7) brick units per square foot.		
Unit Price No. 3: Replace one (1) lineal foot of masonry mortar.		
Unit Price No. 4: Install one (1) helical brick tie and patch mortar at tie.		
Unit Price No. 5: Custom stain one (1) installed brick unit.		
Unit Price No. 6: Replace one (1) lineal foot of treated 2 x 4 wood roof blocking.		
Unit Price No. 7: Install one (1) square foot of 3 inch (2 layers of 1 ½ inch) rigid roof insulation.		
Unit Price No. 8: In lieu of new rigid insulation, install one (1) square foot of ½ inch thick high-density ISO board.		
Unit Price No. 9: Remove one (1) square foot of existing ¾ inch thick wood roof decking and install new ¾ inch thick exterior grade wood plywood sheathing.		

Time frame for completion _____ days

Company Name

SIGNATURE PAGE
GENESEE COUNTY IFB #18-137
CRV FENTON OPERA HOUSE REPAIRS

The undersigned represents that he or she:

1. is duly authorized to make binding offers on behalf of the company,
2. has read and understands all information, terms, and conditions in the IFB,
3. has not engaged in any collusive actions with any other potential proposers for this IFB,
4. hereby offers to enter into a binding contract with Genesee County for the products and services herein offered, if selected by Genesee County within 120 days from bid due date,
5. certify that it, its principals, and its key employees are not "Iran linked businesses," as that term is described in the Iran Economic Sanctions Act, P.A. 2012, No. 517, codified as MCL 129.311, et seq.
6. acknowledges the following addenda _____ issued as part of the IFB:

Conflict of Interest:

____ To the best of our knowledge, the undersigned firm has no potential conflict of interest due to any other County contracts, or property interest for this bid.

OR

____ The undersigned firm by attachment to this form, submits information which may be a potential conflict of interest due to other County contracts, or property interest for this Bid.

Exceptions to Solicitation and/or Standard Contract: NO _____ YES _____ (include attached statement)

Name (typed): _____

Signature: _____ Title: _____

Company: _____

Federal Employee Identification Number (FEIN): _____

DUNS Number: _____

Date: _____

Contact Person of company representative for matters regarding this IFB

CONTACT NAME POSITION

E-MAIL

MAILING ADDRESS CITY STATE ZIP CODE

PHONE FAX

GENESEE COUNTY INSURANCE CHECKLIST IFB #18-137

PROFESSIONAL SERVICES CONTRACT FOR: **CRV FENTON OPERA HOUSE REPAIRS**

Coverage Required

Limits (Figures denote minimums)

<input checked="" type="checkbox"/> 1. Workers' Compensation	Statutory limits of Michigan
<input checked="" type="checkbox"/> 2. Employers' Liability	\$100,000 accident/disease \$500,000 policy limit, disease Including Premises/operations
<input checked="" type="checkbox"/> 3. General Liability	\$1,000,000 per occurrence with \$2,000,000 aggregate Including Products/Completed Operations and Contractual Liability
<input type="checkbox"/> 4. Professional liability	\$1,000,000 per occurrence with \$2,000,000 aggregate Including errors and omissions
<input type="checkbox"/> 5. Medical Malpractice	\$200,000 per occurrence \$800,000 in aggregate
<input checked="" type="checkbox"/> 6. Automobile liability	\$1,000,000 combined single limit each accident- Owned, Hired, Non-owned
<input type="checkbox"/> 7. Umbrella liability/Excess Coverage	\$ 1,000,000 BI & PD and PI

8 Genesee County named as an additional insured on other than workers' compensation via endorsement. A copy of the endorsement or evidence of blanket Additional Insured language in the policy must be included with the certificate.

9. Other insurance required: Environmental Impairment Liability - \$1,000,000 limit

10. Best's rating: A VIII or better, or its equivalent (Retention Group Financial Statements)

11. The certificate must state bid number and title

Insurance Agent's Statement

I have reviewed the requirements with the bidder named below. In addition:

The above required policies carry the following deductibles:

Liability policies are **occurrence** **claims made**

Insurance Agent

Signature

Prospective Contractor's Statement

I understand the insurance requirements and will comply in full if awarded the contract.

Contractor

Signature

Required general insurance provisions are provided in the checklist above. These are based on the contract and exposures of the work to be completed under the contract. Modifications to this checklist may occur at any time prior to signing of the contract. Any changes will require approval by the vendor/contractor, the department and County Risk Manager. To the degree possible, all changes will be made as soon as feasible.

REFERENCES

List 3 references of similar projects

Submitted by: _____

1. Company

Phone Number

Contact Name and Position

E-mail Address

Address

\$

Type of Work/ Project

Dollar Amount of the Project

Project Description

2. Company

Phone Number

Contact Name and Position

E-mail Address

Address

\$

Type of Work/ Project

Dollar Amount of the Project

Project Description

3. Company

Phone Number

Contact Name and Position

E-mail Address

Address

\$

Type of Work/ Project

Dollar Amount of the Project

Project Description

**CRV FENTON OPERA HOUSE REPAIRS
PROFESSIONAL SERVICES CONTRACT**

This Contract for Professional Services (the “Contract”) is by and between the County of Genesee, a Michigan Municipal Corporation, whose principal place of business is located at 1101 Beach Street, Flint, Michigan 48502 (the “County”), and **[Contractor Name]**, a **[State] [Entity Type]**, whose principal place of business is located at **[Contractor Address]** (the “Contractor”) (the County and the Contractor together, the “Parties”).

1. Agreement and Authority

Execution of this Agreement is authorized by Resolution # _____ issued by the Genesee County Board of Commissioners.

2. Term

2.1 Initial Term

The initial term of this Contract commences on **[Start Date]**, and shall be effective through **[End Date]** (the “Initial Term”).

2.2 Extension Terms

The County has the option to extend this Contract for up to three (3) additional one year terms (the “Extension Terms”).

3. Scope of Work

The Contractor agrees to perform the services described on Exhibit A (the “Services”).

4. Compensation

Flat Fee. The Contractor shall be paid a flat fee of \$ _____ for the performance of the Services. Upon completion of the Services, the Contractor must provide to the County an invoice in a form acceptable to the County, along with any necessary supporting documentation. The County will pay the Contractor within sixty (60) days of the County’s acceptance of the invoice and supporting documentation.

5. Taxes. The County is a Michigan Municipal Corporation. The Contractor acknowledges that the County is exempt from Federal Excise Tax and Michigan Sales Tax.

6. Contract Administrator

The contract administrator for this Contract is **Matt Armetrout** (the "Contract Administrator"). The Contractor acknowledges that the Contract Administrator is the primary County contact for notices and instructions related to this Contract. The Contractor agrees to provide a copy of all notices related to this Contract to the Contract Administrator.

7. Warranties

The Contractor warrants that:

- 7.1 The Services will be performed in a good and workmanlike manner and in accordance with generally acceptable practices in the industry.
- 7.2 The Contractor will comply with all federal, state, and local laws in the performance of the Services.
- 7.3 The Contractor will comply with the requirements of any federal or state grants used to fund or support this Contract.
- 7.4 The Contractor will obtain and maintain all applicable licenses and permits necessary to provide the Services for the entire term of this Contract.

The Contractor agrees to indemnify, defend and hold the County, its officials, officers, agents, and employees harmless from any and all claims, damages, or liability, including defense costs, arising out of the Contractor's breach of these warranties.

8. Suspension of Work

8.1 Order to Suspend Performance

Upon written order of the Contract Administrator, the Contractor agrees to immediately suspend performance of the Services. The Contractor shall not be entitled to compensation for any Services performed during any period in which the Contract Administrator has directed that the Services be suspended.

8.2 Necessary Actions Before Suspension

If immediate suspension of the Services would cause harm, injury, or damage to persons or property, the Contractor must immediately notify the Contract Administrator of the nature of such harm, injury, or damage, and obtain written authorization from the Contract Administrator to take such necessary action as to prevent or minimize such harm, injury or damage. Actions authorized by the Contract Administrator pursuant to this paragraph are compensable.

9. Termination

9.1 Termination for Cause

If the Contractor is in breach of any provision of this Contract, and such breach continues for fourteen (14) days after written notice is issued to the Contractor by the County of the breach, the County may terminate this Contract. Such termination for cause is effective upon receipt of the notice of termination by the Contractor.

In addition to any other remedies provided by law or this Contract, the Contractor shall be responsible for all costs incurred by the County as a result of the Contractor's breach and termination, including any costs to obtain substitute performance.

9.2 Immediate Termination

If the County, in its discretion, determines that the Contractor's breach of this Contract constitutes a threat to public health, safety, or welfare, the County may terminate this Contract immediately upon notice to the Contractor.

In addition to any other remedies provided by law or this Contract, the Contractor shall be responsible for all costs incurred by the County as a result of the Contractor's breach and termination, including any costs to obtain substitute performance.

9.3 Termination for Convenience

If the County determines that it is in the County's best interests, the County may terminate this Contract upon thirty (30) days written notice to the Contractor.

The County shall pay for all work properly performed up to the effective date of the notice of termination.

9.4 Termination for Lack of Funding

If this Contract is funded by public funds or a grant from a public or private entity, and the funds are not appropriated or the grant is discontinued, the County may terminate this Contract by written notice specifying the date of termination.

The County shall pay for all work properly performed up to the effective date of the notice of termination.

10. Nondiscrimination

The Contractor covenants that it will not discriminate against an employee or applicant of employment with respect to hire, tenure, terms, conditions, or privileges of employment, or a matter directly or indirectly related to employment, because of race, color, religion, national origin, age, sex, height, weight, marital status or a disability that is unrelated to the individual's ability to perform the duties of a particular job or position, and that it will require the same non-discrimination assurances from any subcontractor who may be used to carry out duties described in this contract. Contractor covenants that it will not discriminate against businesses that are owned by women, minorities or persons with disabilities in providing services covered by this Contract, and that it shall require the same assurances from subcontractors. Breach of this covenant shall be regarded as a material breach of this contract.

11. Freedom of Information Act

This Contract and all attachments, as well as any other information submitted by the Contractor to the County, are subject to disclosure under the provisions of MCL 15.231, *et seq.*, known as the "Freedom of Information Act".

12. Intellectual Property

Any intellectual property created by the Contractor in the performance of the Services shall be considered a work made for hire, and any and all rights in such intellectual property shall belong solely to the County. Upon the County's request, the Contractor agrees to execute any documents necessary to convey ownership of such intellectual property to the County.

13. Audit Rights

13.1 Certification of Accurate Information

Contractor certifies that all information provided to the County by the Contractor relating to the award or modification of this Contract, or any payment or dispute related to this Contract, is true and correct. The Contractor further certifies that its accounting system conforms to generally accepted accounting principles.

13.2 Inspection

The Contractor agrees that the County may inspect the Contractor's plant, place of business, or worksite to ensure compliance with the terms of this Contract. If this Contract is funded or supported with any state or federal grant funds, the state or federal agencies responsible for administering the

applicable grants may examine the Contractor's plant, place of business, or worksite to ensure compliance with the terms of this Contract and the terms of the applicable grant.

13.3 Audit

The Contractor agrees that the County may examine the Contractor's records to ensure compliance with the terms of this Contract. If this Contract is funded or supported with any state or federal grant funds, the state or federal agencies responsible for administering the applicable grants may examine the Contractor's records to ensure compliance with the terms of this Contract and the terms of the applicable grant.

13.4 Records Retention

The Contractor agrees to maintain any business records related to this Contract or the Contractor's performance under this Contract for a period of at least three (3) years after final payment.

14. Identity Theft Prevention

14.1 In the event that the Contractor will obtain identifying information during the performance of the Services, the Contractor must take reasonable precautions to ensure that such identifying information is protected from unauthorized disclosure and is used only for the purpose of performing the Services.

14.2 For the purposes of this Paragraph, "identifying information" means any name or number that may be used, alone or in conjunction with any other information, to identify a specific person, including but not limited to name, address, telephone number, social security number, date of birth, driver's license number, taxpayer identification number, or routing code.

15. Insurance Requirements and Indemnification

The Contractor agrees to obtain insurance coverage of the types and amounts required as set forth in the Insurance Checklist attached as Exhibit B and keep such insurance coverage in force throughout the life of this Contract.

15.1 Insurance Certificate and Additional Insured Coverage

The Contractor further agrees to provide certificates of insurance to the County evidencing the coverages specified in the Insurance Checklist, and including the County as an additional insured. Additional insured coverage is to be by proof of blanket additional insured coverage within the general liability policy or as provided by an endorsement specifying the County as an additional insured to the policy. Contractor's agent must provide a copy of the endorsement or language from the policy with the certificate of insurance.

15.2 Indemnification

The Contractor agrees to indemnify, defend and hold the County, its officials, officers, agents, and employees harmless from any and all claims, damages, or liability, including defense costs, arising out of the Contractor's performance of the Services or presence on the County's property or worksite.

16. Independent Contractor

The Contractor and its agents and employees are independent contractors and are not the employees of the County.

17. General Provisions

17.1 Entire Contract

This Contract, consisting of the following documents and Exhibits, embodies the entire Contract between the Parties.

17.1.1. The Contract – This Professional Services Contract

17.1.2. Exhibit A – The Scope of Work

17.1.3. Exhibit B – The Insurance Checklist

17.1.4. Exhibit C – The Contractor's Budget

There are no promises, terms, conditions, or obligations relating to the Services other than those contained herein. In the event of a conflict between this Contract and any Exhibit, the terms of this Contract shall control.

17.2 No Assignment

The Contractor may not assign or subcontract this Contract without the express written consent of the County.

17.3 Modification

This Contract may be modified only in writing executed with the same formalities as this Contract.

17.4 Binding Effect

The provisions of this Contract shall apply to and bind the heirs, executors, administrators, and assigns all of the parties hereto.

17.5 Headings

The paragraph headings in this Contract are used only for ease of reference, and do not limit, modify, construe, and or interpret any provision of this Contract.

17.6 Governing Law and Venue

This Contract is entered into under the laws of the State of Michigan. Any litigation between the Parties arising out of this Contract must be initiated within two years of the cause of action accruing and must be brought in a court of competent jurisdiction in Genesee County, Michigan.

17.7 Severability and Survival

In the event that any provision of this Contract is deemed by any court of competent jurisdiction to be legally ineffective, such decision shall have no effect on the remaining provisions of this Contract.

17.8 Interpretation

Each Party has had opportunity to have this Contract reviewed by legal counsel and has had equal opportunity to contribute to its contents. In the event of any dispute concerning the interpretation of this Contract, there shall be no presumption in favor of any interpretation solely because the form of this Contract was prepared by the County.

17.9 Remedies

All remedies specified in this Contract are non-exclusive. The County reserves the right to seek any and all remedies available under this Contract and applicable law in the event that the Contractor fails to abide by the terms of this Contract.

IN WITNESS WHEREOF, the Parties have caused this Contract to be executed by their duly authorized agents.

CONTRACTOR NAME

COUNTY OF GENESEE

By: _____

By: _____

Name of Contractor Signatory

Mark Young, Chairperson

Title of Contractor Signatory

Board of County Commissioners

Date: _____

Date: _____

Approved as to form:

Chief Assistant Prosecuting Attorney – Civil Division

EXHIBIT A
Description of the Services

Work consist of exterior masonry repairs and roof replacement to the Fenton Opera House located within the Crossroads Village in Flint, Michigan.

Upper portions of the building's façade has extensive masonry damage present where many brick units are cracked and/or spalling away from the building's surface. Masonry repairs will include complete removal of approximately 4 – 6 feet in height of the upper parapet walls on the East and North elevations, along with removal of the existing limestone coping caps. New stainless steel flashings will be installed, the limestone caps cleaned and reinstalled, and new brick matching the façade's original appearance laid where the existing damaged brick had been removed. Also, miscellaneous damaged brick and mortar on the West and South elevations will be replaced with new.

Two deduct alternates will be pursued with the first taking place at the center masonry parapet wall between the varying roof elevations. The condition of the existing brick at this location is very poor and will require complete reconstruction of the brick veneer. Second alternate is to completely remove the current rubber membrane roof system down to the wood decking and install 3 inches of new rigid insulation, and a fully-adhered new rubber membrane roof system at all roof levels.

EXHIBIT B
Insurance Checklist

[INSTRUCTIONS: You must contact the Risk Management Division of the Controller's Office to obtain an Insurance Checklist. This ensures that the Contractor has provided sufficient insurance to protect the County from reasonably anticipated risks.]

EXHIBIT C
Contractor's Projected Budget
[Date] to [Date]

[INSTRUCTIONS: If this is not a Budget Reimbursement contract, delete this Exhibit.]