



# Jorgenson Wing Masonry & Cast Stone Replacement

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**Moberly Area Community College  
101 College Avenue  
Moberly, Missouri 65270**

**PROJECT # 0722-01**

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## NOTICE TO CONTRACTORS

Moberly Area Community College, 101 College Avenue, Moberly, MO 65270 is accepting sealed bids for repair/replacement of masonry and cast stone on the Jorgenson Wing of the Main Building. For specifications visit our website at [www.macc.edu/bids](http://www.macc.edu/bids) or for site visits, please contact the Office of Plant Operations at 660-263-4100 extension 11206.

Sealed bids are due in the Office of Plant Operations, room 136 of the Main Building, by July 19, 2022 at 11am. A public bid opening will be held in the Blue Room located in the Main Building immediately after bids are due. Bids shall be signed and submitted on the Proposal Form, included in the specification documents. Contractors must also include their specifications for their proposal with the Proposal Form.

Contractor's attention is directed to the requirement that prevailing wages are to be paid on this project. Payroll records and an affidavit of compliance will be required from the Contractor by the Owner. This project is exempt from Missouri sales and use taxes.

The Owner reserves the right to accept or reject any and all bids and to waive all informalities in bids. Likewise, the Owner reserves the right to select the lowest and best bid which is in the best interest of the Owner. No bid may be withdrawn for a period of 60 days subsequent to the specified time for receipt of bids

## INSTRUCTIONS TO BIDDERS

**Owner:** Moberly Area Community College  
101 College Avenue  
Moberly, MO 65270

**Project Location:** Main Building – Jorgenson Wing  
101 College Avenue  
Moberly, MO 65270

**Owner's Representative:** Eric Ross

**Project Description:** Repair and Replacement of Masonry and Cast Stone as shown in specifications.

**Bid Forms:** This Project Manual includes a complete set of bidding forms. One (1) full executed and signed set shall be submitted in a sealed envelope plainly marked identifying the project and the bidder.

**Prevailing Wage Rates:** The Contractor shall pay not less than the prevailing hourly rate of wages for work of similar character in the locality in which the work is performed, as determined by the Department of Labor and Industrial Relations, Division of Labor Standards, State of Missouri, and as set forth in Appendix 3 of the specification documents.

**Sales Tax Exemption:** Moberly Area Community College is exempt from taxation pursuant to Missouri statutes. Purchase of materials and equipment for work in this contract is exempt from Missouri Sales and Use Tax. Contractors, subcontractors, and suppliers shall comply with all provisions of Missouri Law, including properly documenting and maintaining records of applicable sales.

**Warranty:** Complete statement of warranty for all products shall be provided with the proposal, as well as the vendor's own warranty or guarantee for installation.

# PROPOSAL FORM

BID TIME: 11:00 AM

BID DATE: July 19, 2022

FROM: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

(hereinafter called the Bidder)

TO: **MOBERLY AREA COMMUNITY COLLEGE**

101 College Avenue

Moberly, Missouri 65270

(hereinafter called the Owner)

FOR: **Masonry and Cast Stone Repair/Replacement**

**Main Building – Jorgenson Wing**

Moberly Area Community College

101 College Avenue

Moberly, Missouri

(hereinafter called the Work)

1. The undersigned, having examined and being familiar with the local conditions affecting the Work and with the contract documents, the Notice to Contractors, Instructions and Supplementary Instructions to Bidders, Statement of Bidder Qualifications, Job Site Management Procedures and the body of technical specifications, as issued by the Owner, hereby propose to furnish all labor, materials, equipment, services, etc., required for the performance and completion of the aforementioned Work as follows:

**TOTAL BID – The Sum Of:**

\_\_\_\_\_  
Dollars (\$) \_\_\_\_\_).

**Unit Cost for damaged Insulation replacement -**

\_\_\_\_\_  
Dollars Per sqft(\$ \_\_\_\_\_).

NOTE: This project is exempt from Missouri Sales and Use Tax

2. The Contractor agrees to substantially complete the Work by June 30, 2023 and further agrees to pay to, or allow the Owner as liquidated damages, and not as penalty or forfeiture, the sum of one hundred dollars (\$100.00) for each calendar day occurring thereafter that the work is not substantially complete or provide the owner justification for the lengthening of the project.

3. The Bidder agrees to pay not less than the hourly rate of wages as determined by the Department of Labor and Industrial Relations, State of Missouri, in accordance with Section 290.210 to 290.340 as amended RSMo. 1978.

4. The Bidder hereby certifies: That this Proposal is genuine and is not made in the interest of or on behalf of any undisclosed person, firm or corporation and is not submitted in conformity with any agreement or rules of any group, association or corporation; That he has not directly or indirectly induced or solicited any other bidder to put in a false or sham proposal; That he has not solicited or induced any person, firm or corporation to refrain from bidding; That he has not sought by collusion or otherwise to obtain for himself any advantage over any other bidder or over the Owner; and That discrimination against any employee or applicant for employment because of race, creed, color or national origin is not practiced in connection with the performance of this Work.

Dated this \_\_\_\_\_ day of \_\_\_\_\_, 2022

**IF AN INDIVIDUAL:**

\_\_\_\_\_  
Name of Individual Firm Name (if any)

\_\_\_\_\_  
Telephone Number Address for Communications

\_\_\_\_\_  
Signature Address for Communications

**IF A PARTNERSHIP:**

\_\_\_\_\_  
Name of Partnership Address for Communications

\_\_\_\_\_  
Name of Partner Address for Communications

\_\_\_\_\_  
Name of Partner (2) Residence Address

\_\_\_\_\_  
Telephone Number Residence Address

\_\_\_\_\_  
Federal Tax I.D. Number Residence Address (2)

\_\_\_\_\_  
Signature of Either Partner Residence Address (2)  
(State names and Residence addresses of all Partners)

**IF A CORPORATION:**

\_\_\_\_\_  
Name of Corporation Address for Communications

\_\_\_\_\_  
Telephone Number Address for Communications

\_\_\_\_\_  
Federal Tax I.D. Number Incorporated under the laws of the State of Missouri

\_\_\_\_\_  
Name and Title of Office Corporate License Number

\_\_\_\_\_  
Signature of Officer (If a corporation organized in a state other than Missouri,  
attach Certificate of Authority to do Business in the State  
of Missouri)

\_\_\_\_\_  
(Attest Seal) Secretary

(Each bidder must complete the Proposal Form by signing in the proper signature line above and by supplying the required information called for in connection with the signature.)

## STATEMENT OF BIDDER QUALIFICATIONS

Each bidder for the work included in the specifications and drawings and the Contract Documents shall submit with their bid the data requested in the following schedule of information, **if they have not previously performed work for the College**. This data must be included in and made a part of each bid document and be contained in the sealed envelope. Failure to comply with this instruction may be regarded as justification for rejecting the Contractor's Proposal. Statement to be in one (1) original and one (1) copy. The Owner reserves the right to request additional information concerning the qualifications of the Bidder or any of his subcontractors prior to award of Contract.

1. Name of bidder
2. Business address
3. When organized
4. When incorporated
5. Number of years engaged in contracting business under present firm name
6. Have you ever failed to complete any work awarded to your company? If so, where and why
7. Have you ever defaulted on a contract?
8. List of completed projects within last four years, including cost of each:
9. List of projects currently under construction, including cost of each:

Note: Attach additional sheets giving information required, if necessary.

## GENERAL CONDITIONS

The Contract Documents do not include bidding requirements such as the Notice to Contractors, the Instructions to Bidders, sample forms, or portions of Addenda relating to bidding requirements. The Contract Documents do include the executed proposal form submitted by the Bidder.

Moberly Area Community College is exempt from taxation pursuant to Missouri Statutes. All purchases of tangible personal property and materials to be incorporated into or consumed in the construction of this project shall be made by contractors and subcontractors on a tax-exempt basis.

The Owner will furnish to the Contractor, and the Contractor shall distribute to all subcontractors, an executed and signed copy of a Missouri Project Exemption Certificate for this project, along with a copy of the Owner's MO Tax Exemption Letter.

Contractors and subcontractors purchasing materials for this project shall present copies of such documents to all suppliers as authorization to purchase, on behalf of the Owner, all tangible personal property and materials to be incorporated into or consumed in the construction of this project.

Suppliers shall obtain a completed copy of the exemption certificate, along with the MO Tax Exemption Letter, from the contractor or subcontractor making purchases of tangible personal property for use in this project and retain for audit purposes. Invoices issued for such purchases must reflect the name of Moberly Area Community College and the project number for this project to be assigned by the Owner.

All parties purchasing or supplying materials and equipment for this project shall comply with Missouri Law and maintain required documents for a period of five years. A copy of the Owner's MO Tax Exemption Letter and a Missouri Project Exemption Certificate for this project will be issued to the Contractor awarded the Contract for Construction.

The Contractor is solely responsible for the safe installation, maintenance and use of all shoring, scaffolding, barricades, etc. and for supervising the wearing of appropriate safety clothing and other protective devices.



# **JOB SITE MANAGEMENT PROCEDURES**

## **General**

Specifications are considered design development and are used to indicate design intent and may not necessarily reflect exact actual conditions. Verification of existing site and actual conditions is necessary by the Contractor. Field modifications may be required for actual and final installation. Changes to materials and design intent shall be submitted to Owner for approval before construction. Contractor shall be responsible for complete and finished installation of all detailed and specified systems. All exterior building construction shall be installed weather-tight.

## **Permits**

The successful bidder is responsible for obtaining any and all permits, and or certificates, as necessary to perform the work.

## **Project Crewmembers**

The project crew must be professional in behavior and appearance. Strict behavior standards are expected of crew members at all times.

## **Communications**

Upon commencement of work, a list of phone numbers must be provided to allow necessary contact with contractor and the College.

## **Utilities**

Use of the Owner's electricity, water, and sanitary facilities will be permitted without metering, provided the utilities are not abused and facilities are maintained in a proper working order.

## **Temporary Facilities**

Locate facilities where they will serve Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required by progress of the Work. Protect the site from damage from construction activities and temporary facilities. Contractor shall be responsible for repairing areas damaged due to construction activities.

## **Owner's Occupancy Requirements**

Full Owner Occupancy: Owner will occupy site during entire construction period. Cooperate with Owner during construction operations to minimize conflicts and facilitate Owner usage. Perform the Work so as not to interfere with Owner's day-to-day operations. Maintain existing access and exits, unless otherwise indicated.

1. Maintain access to existing walkways, corridors, parking lots, driveways, entrances and other adjacent occupied or used facilities. Do not close or obstruct walkways, corridors, or other occupied or used facilities without written permission from Owner and authorities having jurisdiction. Allow for Owner occupancy of Project site and use by the public.
2. Provide not less than 72 hours' notice to Owner of activities that will affect Owner's operations.
3. Use of existing Building: Maintain existing building in a weathertight condition throughout the construction period. Repair damage caused by construction operations. Protect building and its occupants during construction period.

## **Work Restrictions**

Existing Utility Interruptions: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:

1. Notify Owner not less than 72 hours in advance of proposed utility interruptions.
2. Do not proceed with utility interruptions without Owner's permission.

## Support Facilities

1. Protect existing site improvements to remain including curbs, pavement, and utilities.
2. Maintain access for fire-fighting equipment and access to fire hydrants.
3. Parking: Use designated areas of Owner's existing parking areas for construction personnel.
4. Dewatering Facilities and Drains: Comply with requirements of authorities having jurisdiction. Maintain Project site, excavations, and construction free of water. Dispose of rainwater in a lawful manner that will not result in flooding Project or adjoining properties nor endanger permanent Work or temporary facilities. Remove snow and ice as required to minimize accumulations.

## Security and Protection Facilities

1. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction in ways and by methods that comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.
2. Temporary Erosion and Sedimentation Control: Provide measures to prevent soil erosion and discharge of soil-bearing water runoff and airborne dust to adjacent properties and walkways, according to requirements of authorities having jurisdiction.
3. Inspect, repair, and maintain erosion- and sedimentation-control measures during construction until permanent vegetation has been established.
4. Stormwater Control: Comply with authorities having jurisdiction. Provide barriers in and around excavations and subgrade construction to prevent flooding by runoff of stormwater from heavy rains.
5. Tree and Plant Protection: Install temporary fencing located as indicated or outside the drip line of trees to protect vegetation from damage from construction operations. Protect tree root systems from damage, flooding, and erosion.
6. Site Enclosure Fence: Before construction operations begin, furnish and install site enclosure fence in a manner that will prevent people and animals from easily entering site except by entrance gates.
7. Extent of Fence: As required to enclose entire Project site or portion determined sufficient to accommodate construction operations.
8. Barricades, Warning Signs, and Lights: Comply with requirements of authorities having jurisdiction for erecting structurally adequate barricades, including warning signs and lighting.

## Insurance Information

Upon receiving a signed contract, a certificate of insurance will be required and sent directly from the insurance carrier naming the building Owner as an additional insured. Please submit with proposal any deviance from those outlined below. Coverage should include:

Commercial General Liability	General Aggregate	\$2,000,000
Automobile Liability	Combined Single Limit	\$1,000,000
Excess Liability	Each Occurrence	\$5,000,000
Workers Compensation and Employers Liability		Statutory

## Project Start-up Meeting

On the first day of the project a meeting will be held to discuss parking, access to electrical outlets and water, as well as general scheduling of the crew's workday.

## Project Progress Meetings

Informal meetings during the course of the project are essential. The crew supervisor should be available to answer any questions that may arise at any time during the project.

**Waste Removal**

Upon completion of the work all trash, waste materials, rubbish, tools, and equipment shall be removed from the job site. Any cost associated with trash removal and landfill charges will be the responsibility of the Contractor. All work areas shall be clean and left in the same condition as they were found. Any damage or costs associated with repairs and or removal will be billed to the Contractor in the amount necessary to perform the necessary clean up or repairs.

**References**

A minimum of ten references must be provided, with project scopes similar and as large as or larger than the one provided.

## **SPECIFICATIONS**

**WORK AREA – East Elevation of Jorgenson Wing of Main Building**

**See Appendix 1**

**Product and Installation Specifications**

**See Appendix 2**

**APPENDIX 1 - WORK AREA**



**Appendix 2 – Product and Installation Specifications**

## SECTION 04 72 00

### HISTORIC CAST STONE RESTORATION

#### PART 1 – GENERAL

##### 1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions, apply to this section.

##### 1.02 REFERENCES

A. United States Department of the Interior, National Park Service, “The Secretary of the Interior’s Standards for the Treatment of Historic Properties”, latest edition.

B. The American Institute for Conservation of Historic and Artistic Works (AIC) “Code of Ethics” and “Guidelines for Practice”, latest edition.

##### 1.03 DESCRIPTION OF WORK

A. The Work of this Section includes all labor, materials, tools, equipment and services necessary for and reasonably incidental to complete the restoration of cast stone, including but not limited to the following:

1. Replication and replacement of missing or damaged historic ornament to match originals.
2. Treatment of corroded embedded steel reinforcement in cast stone elements, including columns in east elevation tracery window.
3. Mortar injection grouting of previously treated and untreated cracks and microcracks where indicated.
4. Patching of cracks, small holes, and spalls
5. Repointing of mortar joints

## 1.04 QUALITY ASSURANCE

1. Qualifications: Firm shall show qualifications and specialization in the following:

- a. Field survey and pre-construction documentation
- b. Mold making for decorative moldings and features
- c. Casting ornamental cast stone
- d. Installation of cast stone
- e. Rehabilitation of embedded steel in cast stone assemblies
- f. Surface repair of cast stone
- g. Injection of grouts and adhesives to repair cracks in cast stone
- h. Repointing existing cast stone

2. Foreman: Cast stone restoration shall be directly supervised by a full-time foreman, who must have a minimum of five (5) years of experience in the restoration and conservation of historic cast stone and the process and operations, and two (2) years with the present company. Foreman shall read and speak English fluently. Foreman shall be on site daily for duration of work of this Section. Same foreman shall remain on job throughout work unless his/her performance is deemed unacceptable.

3. Artisans: Cast stone restoration shall be carried out by a skilled artisan who is thoroughly experienced with materials and methods specified, has a minimum of three (3) years of experience with work on historic buildings similar to that required by this Section, and is familiar with project requirements. Contractor shall certify that all artisans employed for work of this Section fully understand project requirements. In acceptance or rejection of work of this Section, no allowance will be made for workers' incompetence or lack of skill. Provide list of qualified artisans with bid.

4. Subcontractors: Subcontractors are subject to same requirements as Restoration Specialist. Subcontracting of any work included in this section, except for that accepted by owner in writing prior to award of Contract, is specifically prohibited.

B. Laws, Codes, and Regulations: All work of this Section shall comply with requirements of all applicable federal, state, and local laws, codes, and regulations.



## 1.05 SUBMITTALS

- A. Protection Plan: Submit a written description of the proposed protection plan, describing methods and materials for protection of surrounding materials, vegetation and site features that may be damaged by restoration operations. Provide a detailed description of the proposed materials and installation methods.
- B. Hazard Assessment and General Safety Program: Submit a written plan detailing the potential hazards to personnel and the public that could occur during the course of work. Submit a safety plan detailing the specific actions; including training, procedures, protection, and signage, that will be performed to address and mitigate the hazards.
- C. Product Data: Submit manufacturer's literature, product data, use and installation instructions and SDS for each of the products and materials proposed to perform the work of this section. Materials used in this work must be identical to those submitted and approved.
- D. Repair Methodology: Prior to preparing repair mock-ups, submit a detailed written description of methods, methods, sequencing, materials and equipment proposed for use for restoration of cast stone. Detail each specific treatment step, protection, and sequencing with other work for each repair procedure. Include materials and methods to be used to control waste materials Contractor may propose products for testing in addition to those specified. Only submitted and approved products will be tested.
- E. Provide letters of certification from the manufacturer stating that materials and chemical concentrations meet the requirements specified below.
- F. Training Certifications: Provide certificates from manufacturers and trainer confirming that the specific personnel assigned to perform Jahn patching, and the use of any tools or supplies that require specific training for safe and/or proper use has been adequately trained.
- G. Models: Restored and assembled fragments, or new sculptured models, should be submitted for approval prior to final molding and casting.
- H. Qualifications: Individual resumes and proof of required experience in the repair and restoration of architectural cast stone.

## 1.06 MOCK-UPS

- A. Cast Stone Repair: Prepare a sample of each types of cast stone repair using the specified and approved materials and methods selected by the Owner.  
Adjust the color, finish, and installation of the repair as directed by the Owner.  
Approved samples panels, materials and procedures will become the

standard for review of the work of this Section. Approved sample panels may be incorporated into the work.

B. The contractor shall obtain written acceptance of the restoration methods, protective methods, materials, equipment, and mock-ups before proceeding with restoration. Before written approval is given, the contractor shall allow a minimum of seven calendar days after completion of mock-ups to permit study of the mock-ups.

C. Modify equipment, methods, and workmen and prepare additional samples until the quality of the work is acceptable to the Owner's Representative. Additional samples shall be prepared at no additional cost, until the samples are approved. Approved samples shall stand as the Quality Control standard to which all subsequent work conforms

#### 1.07 ENVIRONMENTAL REQUIREMENTS

A. Protect cast stone and mortar installations from premature drying from exposure to direct sun and wind by covering with tarps and damp burlap for a minimum of 24 hours after installation.

B. Protect installations from direct rain exposure for a minimum of 24 hours after installation.

C. Do not install masonry components when ambient temperature is below 40 degrees Fahrenheit.

D. All restoration operations shall be completed under natural daylight at a minimum of 100-foot candle evenly across the surface of the cast stone.

#### 1.08 DELIVERY, STORAGE, AND HANDLING

A. Store and handle all products in strict compliance with manufacturer's instructions and recommendations.

B. Store materials off the ground in a dry, clean location. Remove materials which are damaged or otherwise not suitable for use from the job site. Store materials at temperatures and humidity conditions required by the manufacturer. Store temperature sensitive materials in accordance with the manufacturer's instructions.

C. Deliver materials to the site in the manufacturer's original and unopened containers and packaging, bearing labels as to the type of material, brand name and manufacturer's name. Delivered materials shall be identical to accepted products.

D. Store materials away from potential ignition sources and keep containers tightly closed when not dispensing. Keep containers in an upright position. Keep factory seal in place until used.

#### 1.09 REGULATORY REQUIREMENTS

A. Comply with city and Federal regulations governing cleaning, chemical disposal, scaffolding, worker protection, and protection of adjacent site.

B. Dispose of runoff from repair operations in accordance with city and Federal regulations. Collect alkaline or acidic wastes that exceed the legal limits established by the City of Coral Gables for disposal in the city sewer system. Arrange for neutralization of such wastes by qualified personnel trained in this procedure or the wastes should be collected for off-site management in accordance with applicable Federal, state, and local laws and regulations. Test the pH levels of the runoff a minimum of once each hour during rinsing to assure compliance.

### **PART 2 – PRODUCTS**

#### 2.01 MATERIALS, GENERAL

A. Grade and Quality: Materials shall conform to requirements of this Section and shall be new, free from defects, and of recent manufacture.

1. Where any manufacturer makes more than one grade of each material specified, use highest grade and quality of each material, whether or not material is mentioned by trade name in these specifications.

2. Where products specified by name and number are not available, furnish products equal to original specifications, as approved by owners rep, in writing, at no additional cost to Owner.

3. Alternate Restoration Materials and Methods (If Any): If Restoration Specialist proposes alternate materials and methods to those specified for work of this Section, the Restoration Specialist shall provide detailed evidence of successful use on comparable projects and demonstrate effectiveness for use on this Project. Proposals for alternate materials and methods shall include testing, reports, and documentation of successful use on similar projects elsewhere and require approval from owners representative

B. Ready-Mixed Products: Wherever a ready-mixed product is specified for use, containers shall bear labels giving exact mixture formula. Manufacturer shall guarantee formula, and product shall be subject to chemical analysis by laboratory

selected by owner, in writing, at Contractor's expense.

C. Manufacturer's Instructions: Comply with material manufacturer's instructions for use of products (including surface preparation, mixing, applying, drying, etc.). In case of conflict of requirements of this Section, the more stringent requirements shall govern.

## 2.02 ADHESIVE AND ANCHOR MATERIALS

A. Pin Anchors: Stainless steel, Type 304, size as specified by engineer.

1. Adhesive: Hilti HIT-HY 200 R. White or off white in color, or approved equal.

B. Depth of anchor holes shall be no more than 1/4 inch deeper than the length of the anchor.

C. The contractor may propose additional repair products or methodologies for testing onsite included with the proposal, but must submit all product literature, SDS, and manufacturers use instructions the same as for the specified products, and must prepare sample areas for each product or method proposed in the presence of the Owners rep. Should any contractor proposed materials or methods be approved for use in the project, the contractor will perform the repairs using the approved materials or methods at no additional cost to the Owner.

## 2.03 CRACK REPAIR AND REPOINTING MORTAR

A. Color of the grout shall match the color of the cast stone. Color mix with mineral stable pigments as needed to match.

1. Edison Coatings Pump-X 53i for cracks with a thickness of 1 mm to as much as several inches, as supplied by Edison Coatings, 3 Northwest Drive, Plainville, CT 06062 Tel: 860-747-2220

2. Joint and Void Filling Grout for gaps of 1/4" or greater shall be "VoidSpan PHLc" Grout as supplied by VoidSpan Technologies of Salem, MA Tel: 800-966-8643.

3. Crack and Joint Filling Grout for gaps as small as 1/32" shall be "VoidSpan CG70" PHLc Grout as supplied by VoidSpan Technologies of Salem, MA Tel: 800-966-8643.

4. Natural cement and lime based mortar with a flow rate capable of low pressure injection of cracks and voids less than 1/16". Color of the grout shall match the color of the cast stone.

5. Jahn Concrete and Precast Repair Mortar M90, Jahn Restoration Techniques and Research products available through Cathedral Stone Products, 7266 Park Circle Drive, Hanover, MD 21076.

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6. Or approved equal

#### 2.04 CAST STONE PATCHING MORTAR

A. Natural cement and lime based patching material specifically formulated and color matched for repair of the cast stone, including spalls and three dimensional losses.

1. Jahn Concrete and Precast Repair Mortar M90, Jahn Restoration Techniques and Research products, available through Cathedral Stone Products, 7266 Park Circle Drive, Hanover, MD 21076, or approved equal.

#### 2.05 CAST STONE ORNAMENT REPLICATION

A. Mold Making Materials, flexible epoxy molding compound for molding replica from existing cast stone ornament, and gypsum casting plaster for creating supporting “mother molds”:

1. Silicone Putty GT-6568, manufactured by GT Products, Inc., 501 Industrial Blvd., Grapevine, TX 76051, 817-481-7113, or approved equal.

2. No. 1 Moulding Plaster, manufactured by United States Gypsum Company, 550 West Adams St., Chicago, IL 60661, or approved equal.

B. Modeling Materials, non-hardening, sulphur-free modeling clay for creating model replicas of ornament that is too damaged to be molded directly:

1. PRIMA Plastilina, as manufactured by Chavant, Inc., 5043 Industrial Road, Farmingdale, NJ 07727, 800-242-8268, or approved equal.

C. Replica Ornament Material, cement and lime based material specifically formulated and color matched for repair of the cast stone.

1. Jahn Concrete and Precast Repair Mortar M90, Jahn Restoration Techniques and Research products, available through Cathedral Stone Products, 7266 Park Circle Drive, Hanover, MD 21076, or approved equal.

2. Type “N” concrete consisting of 1 part Type II Portland cement, 1 part Type “S” hydrated lime, 6 parts clean angular sand, mineral pigments as needed to match original cast stone paste.

2. Chopped glass fiber and fiberglass rods for reinforcing new castings.

#### 2.06 COATING FOR EMBEDDED METAL REINFORCING

A. Corrosion inhibiting, epoxy protective coating for embedded ferrous metal reinforcing in cast stone units:

1. Series 135 Chembuild, as manufactured by Tnemec Company, 6800 Corporate Drive, Kansas City, MO 64120-1372, 800-535-5053.
2. Armatec -110 as manufactured by Sika Corporation, 201 Polito Avenue, Lyndhurst, NJ 07071, 800-933-7452.
3. Approved equal.

## 2.07 MIGRATING CORROSION INHIBITOR

A. Migrating corrosion inhibitor / penetrating water repellent for the protection of exposed cast stone:

1. Sure Klean Weather Seal H40 Masonry Strengthening Water Repellent, as manufactured by PROSOCO, 3741 Greenway Cir., Lawrence, KS 66046, 800-255-4255, or approved equal.

## PART 3 – EXECUTION

### 3.01 DOCUMENTATION

- A. Thoroughly and carefully inspect all areas where work is to be performed and identify conditions or defects which would result in the inability to perform the work as required or would result in latent defects in the work.
- B. Bring conditions that are problematic to the attention of the owners rep. Do not Proceed with the work until conditions are corrected.
- C. Take all precautions and protective measures necessary to protect the surrounding materials and site from damage.

### 3.02 PREPARATION

- A. Take all necessary precautions and protective measures to protect all surrounding materials and vegetation on the site not being cleaned from coming in contact with the restoration materials and run-off.
- B. The contractor will be responsible for repair and/or replacement of any and all materials damaged by the repair operations, the failure to install and maintain protection, and the installation or removal of the protection.

### 3.03 PROTECTION

A. Protect persons, adjacent surfaces, and equipment from injury or damage resulting from the stone restoration. Take great care not to damage adjacent surfaces. Any damage will be corrected at no cost to the owner.

1. The Contractor shall provide, erect, and maintain barricades, danger signals, and warning signs as deemed appropriate by the Construction Manager while working on site.

B. Follow all protection and precautionary measures noted by the manufacturer in the Product Literature.

### 3.04 MORTAR PATCHING

A. For cast stone with small holes and spalls which have the potential to collect water, And for filling of old anchor holes, the intent is to repair the cast stone by patching with mortar. Areas to be patched include previously repaired and previously unrepaired anchor holes and spalls. Total patch volume must not exceed 2 cubic inches.

B. Remove old patches by saw cutting and hand chiseling. Cut the edges of repair area square to the face of the stone and to a minimum depth of 1/2 inch. Leave the bonding surface of the cast stone rough to provide key for the mortar.

C. Clean the cast stone of all loose debris and dust by water washing.

D. Fill the patch area with Jahn M90 repair mortar which matches the color of the cast stone. Pack the area solidly with mortar leaving no voids. Do not allow the mortar to extend over the edges of the face of the stone. Do not feather the edges of the patch.

E. Level the surface of the mortar with the surface of the surrounding stone. Stipple the surface of the mortar to match the surface texture of the adjacent stone.

F. Keep patch damp until cured. Patches which have edge separation or hairline cracking shall be removed and replaced at the direction of the Architect.

### 3.05 CRACK REPAIR – CRACKS LARGER THAN 1/16TH INCH WIDE

A. Remove old mortar, sealants and fillers from within the crack and from the surface of the cast stone by hand. Clean and roughen the cast stone to form key for new patch.

B. Flush cracks with a solution of 50% ethyl alcohol in water. Inject cracks wet on wet after flushing. Fill previously repaired cracks with injection mortar using hypodermic needles. Continue to inject as grout draws into cracks until crack can accept no more grout. Allow grout to stiffen proud of the finished surface and then wipe back excess

flush with the surface of the adjacent cast stone using clean wet sponges. Stipple the surface of the mortar lightly to match the surface texture of the surrounding material.

C. Keep mortar damp until cured. Mortar which has edge separation or hairline cracking shall be removed and replaced at the direction of the owners rep.

### 3.06 CRACK REPAIR – MICRO-CRACKING

A. Remove debris from within the crack with stiff brushes, hand tools and low-pressure water. Do not widen the joint or remove any cast stone materials that is not loose.

B. Install adhesive/masking tape protection along both sides of the crack to prevent the grout from staining or adhering to the adjacent stone.

C. Thoroughly dampen the crack with 50% alcohol water solution.

D. Scrub crack grouting mortar into the crack with a soft, long bristle brush or sponge or inject with hand pressure pump. Scrub into the crack by brushing or wiping at 45-degree angle to the direction of the crack, similar to grouting ceramic tile. Bring grout level with the face of the stone, but do not allow to feather over the edges of the crack. Fill cracks to a minimum depth equal to the width of the crack, but no less than 1/4".

E. Remove masking tape and clean residual surface grout with clear water and soft brushes after grout has cured or as determined optimum during sample preparation.

F. Resulting grout repair should be level with the surface of the stone, match the color of the stone and approximate the surface texture of the stone.

G. Keep grout damp until cured. Grout which has edge separation or hairline cracking shall be removed and replaced.

### 3.07 CRACKS RESULTING FROM CORROSION JACKING

A. Widen crack to expose corroding reinforcing metal. Sawcut patch perimeters in straight uniform cuts. Shoulder of saw cuts should be at least 90 degrees to facilitate keying of cast stone patch.

B. Exposed corroded steel shall be cleaned by sandblasting to SSPC-SP3. The underside of steel shall stand free of cast stone by 3/4 inch and be wire brushed. Contractor shall notify owners rep of any steel members which appear to have a significant loss in cross-section due to corrosion. All exposed steel in areas to be patched shall be painted with two coats of epoxy protective coating.



C. Contractor shall install lengths of rebars to match existing where existing reinforcing has lost more than 25% of its original section. Contractor shall fasten bars, if necessary, with wire and ¼ inch expansion bolts. Contractor shall provide 12 inch minimum lap for #4 bars and lap other sizes as required by code.

D. Install mortar patch according to procedures described in 3.04.

### 3.08 REPOINTING OF CAST STONE MASONRY JOINTS

#### A. Joint Preparation:

1. Rake joints to a depth of 2 times the joint width, but in all cases remove deteriorated and loose material. All sealant and non-cementitious material used to seal or fill joints shall be completely removed.
2. Take special precautions to ensure that masonry faces and arises are not damaged and joints are not widened during the process of mortar raking or sealant removal. Contractor shall be responsible for protection of all adjacent joint surfaces. Work shall not proceed if Contractor's methods are damaging existing surfaces.
3. Only hand tools, in conjunction with a pneumatic tool designed for mortar removal (such as the Barre Pneumatic Carving Tool, as manufactured by Trow and Holden Company, Barre, VT) shall be used to remove mortar from mortar joints.
4. Power grinders, power saws or other power abrasive tools shall be not used to remove mortar, except by approval of owners rep.
5. Remove all mortar and sealant from the surface of the masonry within the joint so that new mortar bonds directly to the masonry. Provide joints with square backs. Brush, vacuum, or flush joints to remove dirt and loose debris.
6. Contractor shall repair all masonry units damaged from raking of joints at no extra cost to the Owner.

#### B. Mortar Installation: Joint profile shall match existing, and mortar shall match existing in color and aggregate size:

1. Wet masonry 24 hours prior to pointing and again immediately before pointing. Rinse masonry joint surfaces with water to remove dust and mortar particles. Time application of rinsing so that, at time of pointing, excess water has evaporated or run off, and joint surfaces are damp but free of standing water.
2. Apply first layer of pointing mortar to area where existing mortar has been removed to depths greater than surrounding areas. Apply in layers not greater than 3/8" until a uniform depth is formed. Compact each layer thoroughly and allow to become thumb print hard before applying next layer.
3. After joints have been filled to a uniform depth, place remaining pointing mortar in 3 layers with each of first and second layers filling approximately 2/5

of joint depth and third layer the remaining 1/5. Fully compact each layer and allow to become thumb print hard before applying next layer. Where existing units have rounded edges, recess final layer slightly from face to avoid leaving a joint that would be wider visually than the original appearance. Take care not to spread mortar over edges onto exposed masonry surfaces, or to featheredge mortar.

4. When mortar is thumb print hard, tool joints to match original appearance of joints. Remove excess mortar from edge of joint by brushing.

5. Cure mortar by maintaining in damp condition for not less than 72 hours or until surface is cured. Mortar which has edge separation or hairline cracking shall be removed and replaced.

6. Allow mortar to harden not less than 14 days before beginning final cleaning.

### 3.09 CAST STONE REPLICATION

A. If applicable

B. Missing ornament elsewhere on the building shall be cast from existing, identical ornament after removal of paint and repair as needed.

C. Ornament that is too damaged to be replicated by casting, such as the weathervane finial, shall be replicated by creating a model in non-hardening clay. The model shall be identical in size, shape, profile, and texture to the original. The replica ornament can then be cast from the model using the procedures outlined below.

1. The clay model shall be sculpted by hand, using measuring instruments and calipers as needed to create an exact replica of the ornament in clay.

2. The Restoration Specialist shall not proceed with casting the replica ornament until the model has been approved by the owners rep.

D. Lightly coat ornament with mold release to facilitate removal from the mold. Press epoxy silicone putty against original ornament, ensuring tight contact at all surfaces including crevices and recesses in three dimensional ornament. Provide keys in silicone to engage plaster mother mold and retain correct form.

E. Install gypsum molding plaster around molding putty after it has cured, securing with wires, straps, screws, or other fasteners as necessary to form a "mother mold" preventing deformation of the putty mold.

F. After the mold sets and has adequately hardened, remove original ornament from mold assembly.

G. Place casting mortar into mold, starting with a slurry coat and using several lifts as necessary, and firmly pressing material of first lift into crevices and recesses. Embed fiberglass mat and reinforcing rods, leaving rod(s) extending a minimum of 6" out of back of casting to be used to mount elements as needed. Fill the mold proud of the surface, scraping back excess material after initial set according to the manufacturer's instructions.

H. After the replica has cured, turn it out of the mold. Correct defects as needed.

I. Install replica ornament in original location, using anchors set into ornament and building as necessary.

### 3.10 PROTECTIVE COATING AT EXPOSED CAST STONE

A. Apply protective coating of migrating corrosion inhibitor / water repellent to all surfaces of exposed, bare cast stone.

B. Apply coating of water repellent on surfaces to be treated using or brush to the point of saturation. Apply coating in dual passes of uniform, overlapping strokes. Remove excess material; do not allow material to puddle beyond saturation. Comply with manufacturer's written instructions for application procedure unless otherwise indicated.

C. Apply a second saturation coating, repeating first application. Comply with manufacturer's written instructions for limitations on drying time between coats and after rainstorm wetting of surfaces between coats. Consult manufacturer's technical representative if written instructions are not applicable to Project conditions.

D. Immediately clean water repellent from adjoining surfaces and surfaces soiled or damaged by water-repellent application as work progresses. Correct damage to work of other trades caused by water-repellent application, as approved by owners rep. Comply with manufacturer's written cleaning instructions.

E. Allow protective coating to cure 28 days before applying paint or other coatings.

### 3.11 CLEANING AND PROTECTION

A. Protect areas below work areas from mortar and adhesive droppings.

B. Remove excess adhesive and mortar from the surface of cast stone immediately using non-metallic scrapers, fiber bristle brushes, and clean rags as necessary. Adhesive MUST be removed before cure occurs.

C. Remove mortar droppings from cast stone at the end of each day.

D. Remove all protective coverings and coatings and remove residue left by same.

E. Clean adjacent and adjoining surfaces of marks arising out of execution of work of this Section.

F. Remove dirt, debris and rubbish from the site daily.

END OF SECTION

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