

ITEM 560.0501--07 - REPAIR ASHLAR MASONRY - STONE PATCH

DESCRIPTION:

The work shall consist of removing stone patching material and repairing ashlar masonry, where indicated on the contract plans or where ordered by the Engineer.

MATERIALS:

Repair mortar for stone patching shall be premixed cementitious material formulated to match the color and texture of the existing masonry. The mortar shall be vapor permeable, freeze-thaw resistant, shrink resistant, and physically compatible with the substrate.

Repair mortar shall be produced by one of the following manufacturers or an approved equal.

Cathedral Stone Products, Inc.
Jessup, MD

Edison Coatings, Inc.
Waterbury, CT

Conproco Corporation
Dover, NH

Legacy Architectural Conservation
Boston, MA

Unless otherwise specified for an individual product or material, all repair products shall be supplied by the same manufacturer. Materials shall be stored in the manufacturer's unopened packaging until installation. Maintain the storage area for repair mortar products in accordance with manufacturer's instructions until installation. The Contractor shall provide the Engineer with the manufacturer's descriptive literature, installation instructions, and Safety Data Sheets.

Grout material for dowel embedment used in overhead applications, or where a sustained tensile load will exist, shall conform to §701-05 Concrete Grouting Material. Grout material for dowel embedment used in other applications shall conform to §701-07 Anchoring Materials - Chemically Curing.

Dowels shall be stainless steel threaded rod meeting the requirements of ASTM F593.

CONSTRUCTION DETAILS:

Stone patching work shall be performed by skilled masons. Work shall be supervised by a lead mason with a minimum of five years masonry restoration experience. The Contractor shall provide the Engineer with specific documentation of lead mason's experience.

Workmanship shall comply with all applicable recommendations of the mortar manufacturer's written specifications and requirements, except as modified by the plans and this specification.

Repair mortar shall not be applied to frozen or hot substrates. Apply mortars only when the ambient temperature is between 4° C and 32° C, with low to average humidity.

The Contractor shall prepare a 0.5 square meter sample stone patching repair, at a representative location selected by the Engineer. The sample repair shall be completed in accordance with the plans and this specification. The Contractor shall coordinate with the repair mortar manufacturer to provide a custom repair material match. The repair material shall be designed to match the color and texture of the masonry after it has been cleaned as specified under other items of the contract. The color, texture, and finish of the completed sample repair shall be subject to approval of the Engineer, prior to

ITEM 560.0501--07 - REPAIR ASHLAR MASONRY - STONE PATCH

commencing stone patching work. The approved sample repair will be the standard by which completed stone patching work will be accepted. Rejected sample repairs shall be completely removed, and a new sample prepared. The approved sample repair shall remain as part of the finished work.

Existing concrete repair material shall be removed in accordance with Subsections 580-3.01 and 580-3.02 of the Standard Specifications, except that chipping hammers shall weigh no more than 10 kg with the bit and muffler removed. Existing dowels embedded into the substrate shall remain, unless otherwise directed by the Engineer. Wire mesh reinforcement shall be removed. Remove loose or deteriorated substrate from the patch area, plus an additional 5 mm of what appears to be sound material, using hand tools or small pneumatically-powered chisels such as Chicago Pneumatic Model CP 0456 or equal. Roughen the substrate surface using chisels, diamond grinders, or other approved methods, to create a mechanical key to bond repair material.

The maximum depth of removal shall be limited to 150 mm, unless other wise directed by the Engineer. Where sound stone substrate is not encountered within 150 mm from the surface, anchor dowels shall be drilled and grouted into sound material. The minimum depth of patches shall be 20 mm. Edges of patches shall be chiseled out square. Saw-cut patch edges will not be permitted, except at joints between stones.

Cracks or voids encountered within the limits of the stone patching work shall be filled with grout in accordance with the ashlar masonry cleaning and pointing specification.

Where the depth of the patch is greater than 100 mm, install threaded stainless steel dowels, or other approved anchors, in accordance with Subsection 586-3.02 of the Standard Specifications, where indicated on the plans or ordered by the Engineer. Provide 75 mm minimum embedment and 25 mm minimum cover for dowels or anchors. Use of wire mesh, tie wires, or metal lathe between the anchors will not be permitted unless recommended by the repair mortar manufacturer.

Joints between adjacent stones shall be formed or carefully sawcut through the full depth of the repair. After patching is completed, joints shall be filled with pointing in accordance with the ashlar masonry cleaning and pointing specification.

Complete surface preparation by thoroughly blast cleaning the substrate including any new or existing anchors, and wash with clean water.

Mix mortar materials in accordance with manufacturer's instructions. Use only mixing methods and equipment specified. Add only the amount of water specified in manufacturer's instructions. Re-tempering partially set mixes by the addition of water will not be permitted. Additives such as plasticizers, accelerators, retarders, curing compounds, or other materials not specified in manufacturer's instructions, will not be permitted. The use of bonding agents will not be permitted without prior written approval of both the repair mortar manufacturer and the Engineer.

Completely saturate the substrate immediately before applying mortar by flushing with clean water. Mortar shall be applied to a damp surface, with no pooling water. If the surface is allowed to dry out before mortar is applied, repeat flushing. Apply mortar in accordance with the manufacturer's instructions. For deeper patches, use scratch coats as recommended by the mortar manufacturer. Build out mortar approximately 5 mm further than the plane of the finished surface.

ITEM 560.0501--07 - REPAIR ASHLAR MASONRY - STONE PATCH

After mortar achieves initial set, scrape away excess mortar until desired finished profile is attained. To ensure color uniformity, wait until the mortar has set such that the material being removed is the consistency of dry sand. For rougher masonry texture, wait longer before finishing. Do not trowel or float surface excessively to achieve finish; this can alter texture, porosity, or color of mortar material.

Immediately after completing repair, thoroughly clean excess mortar from adjacent areas with a damp cloth or sponge.

Keep patches moist by water-misting at least three times a day, or as directed by the Engineer, for a seventy-two hour period after finishing. Repair areas shall be protected from extreme heat, freezing, high winds, and direct sunlight until materials are completely cured in accordance with manufacturer's instructions. Repair areas shall be protected from rain for at least 12 hours after finishing. Completed patch areas damaged by subsequent construction activities shall be repaired in accordance with manufacturer's recommendations and to the satisfaction of the Engineer.

METHOD OF MEASUREMENT:

This work will be measured as the number of square meters of patched stone surface. No deduction will be made for the areas of joints within the patched areas. No measurement will be made for rejected sample repairs.

BASIS OF PAYMENT:

The unit price bid shall include the cost of furnishing all labor, materials, and equipment necessary to complete the work.

No separate payment will be made for grouting cracks and voids or pointing joints within the limits of stone patching work.