

## **ITEM 07560.01 M - REPAIR ASHLAR MASONRY - CRACK INJECTION**

### **DESCRIPTION:**

The work shall consist of installing grout injection ports, sealing the crack surface, and injecting grout material to fill cracks. This work shall be performed at locations indicated on the contract plans or where directed by the Engineer.

### **MATERIALS:**

The material used for sealing the crack surface shall be premixed cementitious stone patching mortar 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. The 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

Grout injection ports shall be of a size and type approved by the Engineer.

Grout for injection shall be supplied under a separate item.

### **EQUIPMENT:**

Use only equipment in good working order, as approved by the Engineer.

A positive displacement pump, capable of maintaining a consistent, uninterrupted pressure up to 30 kPa shall be used to uniformly force grout into cracks. Provide easily viewable, accurate gauges that enable the operator to fully control the grout pressure at the injection point.

### **CONSTRUCTION DETAILS:**

Remove all existing mortar, debris, and contaminants accessible within the cracks using hand tools, small pneumatically-powered chisels, such as Chicago Pneumatic Model CP 0456 or equal, water blasting, oil-free high pressure air blasting, vacuuming, or other methods approved by the Engineer.

Attach injection ports to the prepared surface by placing them into or onto the crack and affixing with stone patching mortar. Other injection port attachment methods require the approval of the Engineer. For cracks less than 5 mm wide, the injection port spacing shall be 0.75 m. For cracks greater than 5 mm wide, the minimum injection port spacing shall be 1.0 m. Place the end-most ports at the ends of the crack so as to ensure complete filling of the crack. To permit maximum flow into the void, position ports on wider sections of the crack and at intersections, rather than at an exact spacing. Port spacing may be modified by the Engineer as experience is gained.

After the injection ports have been installed, seal the crack opening using stone patching mortar, being careful not to plug the injection ports. Stone patching mortar shall be applied, finished to match the stone, and cured as recommended by the manufacturer and approved by the Engineer.

## **ITEM 07560.01 M - REPAIR ASHLAR MASONRY - CRACK INJECTION**

Cracks less than 3 mm wide may be sealed using removable, non-staining clay or masonry masking tape.

Prior to any grout injection, the crack shall be flushed with clean pressurized water using the grout injection procedure, or similar procedure, to clean out any remaining debris, verify that water exits from all installed ports, check for leaks, and dampen the walls of the crack.

Grout injection shall be performed only when the surface temperature and the ambient temperature is above 7° C and is not expected to fall below 7° C during the next 24 hours. Start injection at the wider end of a horizontal crack, or at the lowest point of a sloping or vertical crack. Secure the feed line to the first port. Initiate and continue flow until grout exits from the adjacent port. The adjacent port shall be temporarily plugged and injection continued to achieve maximum penetration. Temporarily stop the injection process, remove the feed line, and seal the port. Attach the feed line to the adjacent port and repeat this procedure along the crack until the last port is sealed. Exercise care to ensure a continuous grouting operation.

The maximum injection pressure shall be 30 kPa, unless otherwise approved by the Engineer. (Low injection pressure allows grout to flow easier and farther into the crack. High injection pressure forces water out of the grout, thickens it, and causes plugging in the crack.)

Allow the grout to fully cure prior to performing subsequent work in the repaired area.

The Contractor shall prevent grout from spilling onto masonry surfaces. Any grout that does spill onto the masonry surfaces shall be thoroughly cleaned to the satisfaction of the Engineer prior to curing of the grout. Once the grout has cured, the injection ports shall be carefully removed and the holes filled with stone patching mortar.

### **METHOD OF MEASUREMENT:**

Crack repair work will be measured by the number of linear meters of cracks satisfactorily repaired as shown on the plans and where ordered by the Engineer.

### **BASIS OF PAYMENT:**

The unit price bid will include the cost of furnishing all labor, materials (except for grout material), and equipment necessary to complete the work.

Injected grout materials will be paid for under a separate item.