SECTION 04500D - MASONRY RESTORATION AND CLEANING

A. GENERAL

1. Before any masonry restoration is attempted, several factors should be considered. Factors contributing to the deterioration should be determined and corrective action taken to prevent further damage or damage to the new work. For example, removing efflorescence from brick without stopping the source of water intrusion would be a short lived solution. The availability of matching brick, mortar and other components should be determined. It may be difficult, or even impossible to match certain older brick. Depending on the project and its location, concerns for the protection of persons and property may affect how the work is accomplished. Noise, vibration, abrasives, chemicals, fumes, and other items may pose serious environmental concerns.

2. The extent of masonry restoration work is often very difficult to fully assess. The Associate should have tests done to determine the condition of the masonry and its components. Investigative field testing is the best way assess the project requirements so that the Contract Documents will permit competitive bidding and ensure predictable results. If appropriate, initial tests results should be made available to bidders to assist them in preparing bids. Brick should be tested to determine its physical properties and availability. Mortar samples should be tested in a Laboratory to determine their composition.

3. Even with well documented conditions and a complete set of contract documents, it is usually a good idea to establish unit prices for various portions of the work to account for unforeseen conditions.

B. MATERIALS

1. Repointing Brick: Specify that old mortar shall be removed to a depth of 3/4" to ensure adequate bond. All loose mortar beyond that depth should be removed. Mortar shall be removed with hand tools only; grinders are prohibited.

2. Pointing Mortar: Specify that the Contractor shall prepare batches of mortar of various mixes until a match is established. Mixing proportions should match existing if it can be determined. Do not use mortar that has a higher strength than the masonry. Proportions should be adjusted as necessary. In general, repointing mortar should be approximately one part white Portland cement, two parts lime, and six parts aggregate. Masons should maintain accurate records of mortar mix and methods. Each batch should be carefully formulated to ensure consistency from batch to batch. Masonry cement should not be used. Anti-freeze compounds, air entraining agents, and bonding agents are prohibited. Specify that repointing mortar be pre-hydrated prior to pointing.

C. APPLICATION

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9/16/96
1. **Pointing Joints:** New mortar should be placed in the joints in multiple layers, allowing each to achieve thumbprint hardness before the next layer is applied. Specify that new mortar be tooled to match existing and that new mortar shall not extend over the face of weathered corners of the brick.

2. **Cleaning Masonry:** Methods and materials used to clean existing masonry should be evaluated to reduce the possibility of damage to the masonry, adjacent surfaces and grounds, or disruption of the University operations. Cleaning should employ the least intrusive, mildest, and safest methods and materials that will accomplish the work.

3. Specify that the Contractor perform tests using proposed cleaning method in a less conspicuous area prior to commencing work.

4. Specify pre-construction conferences prior to commencing masonry restoration and cleaning work. Discuss proposed materials, methods, sequence schedule, project conditions, protection of adjacent surfaces, lawns, and project site, and other relevant items.

5. Specify that after all restoration and cleaning work has been completed that brick surfaces be coated with a water repellent coating. Refer to Section 07180D.

END