SECTION 04071702 - HISTORIC MASONRY CLEANING

PART 1 - GENERAL

1.1 ACTION SUBMITTALS

A. Product Data: For each type of product.
B. Samples: For each exposed product and for each color and texture specified.

1.2 QUALITY ASSURANCE

A. Historic Treatment Specialist Qualifications: A qualified historic masonry cleaning specialist. Experience in cleaning only new or nonhistoric masonry is insufficient experience for historic masonry treatment work.
B. Mockups: Prepare mockups of cleaning on existing surfaces to demonstrate aesthetic effects and to set quality standards for materials and execution.

1. Cleaning: Clean an area approximately 25 sq. ft. for each type of masonry and surface condition.

PART 2 – PRODUCTS

2.1 PAINT REMOVERS

A. Covered, Solvent-Type Past Paint Remover: Manufacturer’s standard, low-odor, covered, water-rinsable, solvent-type paste or gel formulation for removing paint from masonry; and containing no methanol or methylene chloride.

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. Dumond Chemicals, Inc.
   b. PROSOCO, Inc.

2.2 CLEANING MATERIALS

A. Water: Potable
B. Hot Water: Water heated to a temperature of 140 to 160 deg F.

C. Detergent Solution, Job Mixed: Solution prepared by mixing 2 cups of tetrasodium pyrophosphate (TSPP), ½ cup of laundry detergent, and 20 quarts of hot water for every 5 gal. of solution required.

D. Mold, Mildew, and Algae Remover, Job Mixed: Solution prepared by mixing 2 cups of tetrasodium pyrophosphate (TSPP), 5 quarts of 5 percent sodium hypochlorite (bleach), and 15 quarts of hot water for every 5 gal. of solution required.

2.3 CHEMICAL-CLEANING SOLUTIONS

A. Dilute chemical cleaners with water to produce solutions not exceeding concentration recommended in writing by chemical-cleaner manufacturer.

B. Use only those cleaning methods indicated for each masonry material and location.
   1. Brushes: Do not use wire brushes or brushes that are not resistant to the chemical cleaner being used.
   2. Spray Equipment: Use spray equipment that provides controlled application at volume and pressure indicated, measured at nozzle. Adjust pressure and volume to ensure that cleaning methods do not damage masonry.
      a. equip units with pressure gauges.
      b. For chemical-cleaner spray application, use low-pressure tank or chemical pump suitable for chemical cleaner indicated, equipped with nozzle having a cone-shaped spray.
      c. For water-spray application, use fan-shaped spray that disperses water at an angle of 25 to 50 degrees.

C. Perform each cleaning method indicated in a manner that results in uniform coverage of all surfaces, including corners, moldings, and interstices, and that produces an even effect without streaking or damaging masonry surfaces. Keep wall wet below area being cleaned to prevent streaking from runoff.

D. Water-Spray Application Method: Unless otherwise indicated, hold spray nozzle at least 6 inches from masonry surface, and apply water in horizontal back-and-forth sweeping motion, overlapping previous strokes to produce uniform coverage.

E. Chemical-Cleaner Application Methods: Apply chemical cleaners to masonry surfaces according to chemical-cleaner manufacturer’s written instructions: use brush application. Do not spray apply at pressures exceeding 50 psi. Do not allow chemicals to remain on surface for periods longer than those indicated or recommended in writing by manufacturer.
F. Rinse off chemical residue and soil by working upward from bottom to top of each treated area at each stage or scaffold setting. Periodically during each rinse, test pH of rinse water running off cleaned area to determine that chemical cleaner is completely removed.

1. Apply neutralizing agent and repeat rinse if necessary to produce tested pH of between 6.7 and 7.5.

3.2 PRELIMINARY CLEANING

A. Removing Plant Growth: completely remove visible plant, moss, and shrub growth from masonry surfaces. Carefully remove plants, creepers, and vegetation by cutting at roots and allowing remaining growth to dry as long as possible before removal. Remove loose soil and plant debris from open masonry joints to whatever depth they occur.

B. Preliminary Cleaning: Before beginning cleaning, remove extraneous substances that are resistant to planned cleaning methods. Extraneous substances include paint, caulking, asphalt, and tar.

1. Carefully remove heavy accumulations of rigid materials from masonry surface with sharp chisel. Do not scratch or chip masonry surface.

3.3 PAINT REMOVAL

A. Paint-Remover Application, General: Apply paint removers according to paint-remover manufacturer’s written instructions. Do not allow paint removers to remain on surface for periods longer than those indicted or recommended in writing by manufacturer.

B. Paint Removal with Covered, Solvent-Type Paste paint Remover:

1. Remove loose and peeling paint using scrapers, stiff brushes, or a combination of these.

2. Apply paint remover to dry, painted surface with trowel, spatula, or as recommended in writing by manufacturer.

3. Apply cover according to manufacturer’s written instructions.

4. Allow paint remover to remain on surface for period recommended in writing by manufacturer.

5. Scrape off paint and remover.

6. Rinse with cold water applied by low pressure spray to remove chemicals and paint residue.

3.4 CLEANING BRICKWORK / MASONRY UNITS

A. Detergent Cleaning:

1. Wet surface with cold water applied by low-spray.
2. Scrub surface with detergent solution using medium-soft brushes until soil is thoroughly dislodged and can be removed by rinsing. Use small brushes to remove soil from mortar joints and crevices. Dip brush in solution often to ensure that adequate fresh detergent is used and that surface remains wet.

3. Rinse with cold water applied by low-pressure spray to remove detergent solution and soil.

4. Repeat cleaning procedure above, where required to produce cleaning effect established by mockup.

3.5 CLEANING UNPOLISHED STONWORK

A. Nonacidic Liquid Chemical Cleaning:
   1. Wet surface with cold water applied by low-pressure spray.
   2. Apply cleaner to surface in two applications by brush or low-pressure spray.
   3. Let cleaner remain on surface for period recommended in writing by chemical cleaner manufacturer.
   4. Rinse with cold water applied by low-pressure spray to remove chemicals and soil.
   5. Repeat cleaning procedure above, where required to produce cleaning effect established by mockup. Do not repeat more than once. If additional cleaning is required, use steam cleaning.

3.6 FIELD QUALITY CONTROL

A. Manufacturer’s Field Service: Engage paint-remover manufacturer’s and chemical-cleaner manufacturer’s factory-authorized service representatives for consultation, Project-site inspection and to provide on-site assistance when requested by Engineer. Have paint-remover manufacturer’s and chemical-cleaner manufacturer’s factory-authorized service representatives visit Project site not less than twice to observe progress and quality of the Work.

END OF SECTION 04071702