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U.S. General Services Administration

General Cleaning of Exterior Brick Masonry

Procedure code:

421104S

Source:

National Capitol Region Specifications

Division:

Masonry

Section:

Brick Unit Masonry

Last Modified:

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GENERAL CLEANING OF EXTERIOR BRICK MASONRY

PART 1---GENERAL

1.01 SUMMARY

A. This procedure includes guidance on cleaning exterior brick masonry.

B. Safety Precautions:

1. The work specified herein requires knowledge of older materials and methods and a high degree of skill to execute properly. This work should be performed only by an experienced, pre-qualified contractor. It is not recommended that building maintenance personnel perform this work.

2. This outline specification contains recommended materials which may be toxic. The manufacturer's literature on application techniques, appropriate protection for workers and disposal procedures for materials should be complied with in conjunction with all regulatory requirements referenced in this document.

C. See 01100-07-S for general project guidelines to be reviewed along with this procedure. These guidelines cover the following sections:

1. Safety Precautions

2. Historic Structures Precautions

3. Submittals
4. Quality Assurance
5. Delivery, Storage and Handling
6. Project/Site Conditions
7. Sequencing and Scheduling
8. General Protection (Surface and Surrounding)

D. These guidelines should be reviewed prior to performing this procedure and should be followed, when applicable, along with recommendations from the Regional Historic Preservation Officer (RHPO).

1.02 SUBMITTALS

A. Product Data:

1. Submit manufacturer's product literature instructions for use, and Material Safety Data Sheets(MSDS) to the Contracting Officer or the designated representative for all cleaning materials.
2. Prior to commencing the cleaning operations, the Contractor shall submit to the Contracting Officer or the designated representative a written description of the entire methods and procedures proposed for cleaning the masonry including, but not limited to: Method of application, dilution of application, temperature of application, length of time of surface contact, method of rinsing surface (temperature, pressure, and duration), repetition of procedures, etc.
3. Prior to commencing the cleaning operations, the Contractor shall submit to the Contracting Officer or the designated representative for approval, a written description of proposed materials and methods of protection for preventing damage to adjacent materials, vehicular and pedestrian traffic, and the building interior during the cleaning of masonry.

B. Samples:

1. The Contractor shall clean a sample panel(s), approximately 3' x 3' in area, on each type of masonry included in the work of this section for approval by the Contracting Officer. Locations of sample panels to be selected by the Contracting Officer or the designated representative.
2. Adjust the chemical concentrations, working pressures and methodologies during test panel cleaning, as directed by the Contracting Officer or the designated representative.
3. Sample panels shall be cleaned by the Contractor using methods, materials, and working pressures previously submitted and approved. Sample panel cleaning shall be performed in the presence of the Contracting Officer or the designated representative. The working pressures during sample panel cleaning shall be varied up to the previously submitted and approved capacities to determine the best working pressure.
4. Where chemical cleaners and poultices are tested, the manufacturer's representative shall be present during testing.

5. The Contractor shall obtain written approval from the Contracting Officer or the designated representative of cleaning methods, working pressures, materials, equipment used and sample panels before proceeding with building cleaning operations. For this written approval purpose, the Contractor shall allow a minimum of seven calendar days after completion of sample cleaning to permit the Contracting Officer or the designated representative to study the sample panels for negative reaction. Retain approved panels in unaltered condition, suitably designated during construction as a standard for judging completed work.

1.03 QUALITY ASSURANCE

A. Qualifications:

1. Comply with municipal and federal regulations governing all work included in this section and including, but not limited to waste disposal.
2. General Objective: The objectives of masonry cleaning are to remove dirt, grime and coatings from masonry without damaging underlying material and to give all masonry a clean, uniform appearance without blotches, streaks, runs, or any other kind of spotty appearance. Too aggressive cleaning shall not be acceptable.
3. Cleaning Standard: Prepare sample panels for approval which shall establish a standard for general brick and stone cleaning. General cleaning shall not commence until written approval is obtained from the Contracting Officer or the designated representative.
4. Contractor: The work of this section shall be performed by a specialist possessing a minimum of five (5) years of specialized experience in the cleaning of historic architectural masonry similar to that which is required by this project. Contractors shall submit to the Contracting Officer or the designated representative references of previous work justifying their experience. The Contracting Officer or the designated representative reserves the right to approve or disapprove the use of Contractors contingent upon their experience.
5. In the event that the Contractor wishes to modify any cleaning method specified, he shall submit his proposal in writing for consideration and review. The Contracting Officer or the designated representative will have the right to ask for test samples before final approval. Any such modifications or changes shall be at no additional cost to the Government.

B. Regulatory Requirements: Comply with municipal and Federal regulations governing the cleaning, chemical waste disposal, product safety, scaffolding and protection to workers and adjacent properties.

1.04 PROJECT/SITE CONDITIONS

A. Environmental Requirements:

1. No cleaning shall be executed when air or masonry surface temperature is below 45 degrees (F.), unless adequate, approved means are provided for maintaining a 45 degrees (F.), temperature of the air and materials during, and for 48 hours subsequent to, cleaning.
2. Perform cleaning and washing of the exterior masonry only during hours of natural daylight

PART 2---PRODUCTS

2.01 MANUFACTURERS

A. ProSoCo, Inc.

B. Diedrich Technologies, Inc.

2.02 MATERIALS

A. Masonry Cleaner: Commercially available very mild blend of inhibited acidic ingredients and wetting agents specifically formulated for restorative cleaning of brick and natural stone surfaces such as "Sure Klean Restoration Cleaner" (ProSoCo, Inc.), "101 G Granite, Terra Cotta and Brick Restoration Cleaner" (Diedrich Technologies), or approved equal.

Masonry cleaner should have the following physical characteristics:

Form: Clear liquid

pH: 1.2

Specific Gravity (Typical): 1.05

B. Water: Potable, non-staining and free of oils, acids, alkalis and organic matter.

C. Liquid Strippable Masking Agent: Manufacturer's standard liquid, film forming, strippable masking material for protecting glass, metal and polished stone surfaces from damaging effect of acidic and alkaline masonry cleaners, such as "Sure Klean Strippable Masking" (ProSoCo, Inc.), or approved equal.

2.03 EQUIPMENT

A. Brushes: Natural fiber bristle only. The use of wire brushes or steel wool is not permitted.

B. Garden hose with fan tip nozzles

PART 3---EXECUTION

3.01 PREPARATION

A. Protection:

1. Take all necessary precautions and measures to protect surrounding materials on the site, surfaces of the building not being cleaned, adjacent buildings, pedestrians and vehicles from coming in contact with cleaning chemicals, over spray, or runoff. Products used for masonry cleaning may be harmful to painted, polished, glazed, or metallic surfaces. Any damage to materials caused by the cleaning operations is unacceptable and shall be repaired or replaced by the Contractor to the satisfaction of the Contracting Officer or the designated representative at no cost to the Government.

2. Provide protection from water damage to building, structure, or building contents as required.
3. Protect trees and plants around the building from contamination or damage as directed by the Contracting Officer or the designated representative. The Contractor shall be responsible for replacing with new stock any trees, shrubs, perennials, annuals, or grass damaged by the cleaning operations.
4. Test all drains and other water removal systems to assure that drains and systems are functioning properly prior to performing any cleaning operations. Notify Contracting Officer or the designated representative immediately of any and all drains or systems that are found to be stopped or blocked. Contractor shall repair drains if so directed by the Contracting Officer or the designated representative. Do not begin work of this Section until the drains are in working order.
5. Provide a method to prevent solids such as stone or mortar residue from entering the drains or drain lines. Contractor shall be responsible for cleaning out drains and drain lines that become blocked or filled by sand or other solids because of work performed under this Contract.

3.03 ERECTION, INSTALLATION, APPLICATION

A. Dilute masonry cleaner with 16 parts water to 1 part concentrate, or use appropriate dilution based on sample panel cleaning. When diluting, always pour water into empty bucket first, then carefully add concentrate. Handle in rubber or polyethylene buckets only. Acidic liquids and fumes will attack metal.

B. After protecting all non-masonry surfaces, thoroughly wet the area to be cleaned.

C. Apply the cleaning solution liberally using low pressure spray (50 psi), roller or densely filled (tampico) masonry washing brush. Do not apply restoration cleaner with high pressure spray. Such application will drive the chemicals deep into the surface, making it difficult to rinse completely. Discoloration to the surface may result.

D. Allow the cleaning solution to remain on the surface for three to five minutes in accordance with approved test procedures. Light scrubbing of the surface will improve cleaning results. Caution: Do not allow cleaning solution to "dry in" to the masonry as bleaching may result.

1. Begin rinsing with low pressure flood rinse to remove initial acidic residue with minimum risk of wind drift.
2. Then rinse the treated area thoroughly using pressurized cold water. Rinse water pressure shall not exceed 300 psi, and shall be sprayed through nozzles fitted with 15 to 20" wide tips. Nozzles shall be held perpendicular to the surface at a working distance of 1.4 to 2.0 feet. All pressure pumps shall be equipped with working pressure gauges.
3. Rinse from the bottom of the treated area to the top flushing each section of the surface with a concentrated stream of water. To avoid streaking on vertical walls, take care to keep the wall below wet and rinsed free of cleaner and residues.
4. Application of rinse water is extremely important to assure that all surface staining matters and cleaning residues are thoroughly flushed from the treated surface.

E. Surrounding stone surfaces below the section of brick to be cleaned shall be pre-wetted and rinsed periodically during cleaning operations to prevent etching of stone.

F. The surfaces below the sections of brick to be cleaned shall be protected from run-off.

G. Repeat procedures if necessary to remove heavier build-up of soiling.

Last Reviewed: 2018-10-25