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U.S. General Services Administration

General Cleaning of Exterior Limestone

Procedure code:

446003S

Source:

Brown, Grier. Historic Structure Report- Departmental Auditorium, Washington, DC.

Division:

Masonry

Section:

Limestone

Last Modified:

08/08/2016

PREFACE

The cleaning or removal of stains from stone may involve the use of liquids, detergents or solvents which may run off on adjacent material, discolor the stone or drive the stains deeper into porous stones. Use the products and techniques described here only for the combinations of dirt/stain and stone specified.

PART 1---GENERAL

1.01 SUMMARY

A. This procedure includes guidance on the removal of surface dirt and environmental pollution on exterior limestone.

NOTE: GENERALLY, THIS WORK SHOULD BE ACCOMPLISHED BY AN EXPERIENCED CONTRACTOR.

B. Read "General Project Guidelines" along with this specification. 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). The 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)

C. See also: "Guidelines For Using High Pressure Cleaning Equipment On Masonry".

PART 2---PRODUCTS

2.01 MANUFACTURERS

ProSoCo, Inc.

Lawrence, KS 66117

1-[800-255-4255](tel:800-255-4255)

2.02 MATERIALS

A. Limestone (unpolished): Sodium hydroxide, (pH 14), undiluted.

1. For heavy high pollution stains, an alkaline-based prewash such as "Sure Klean 766 Limestone & Masonry Prewash" or equal, follow manufacturer's instructions including rinse cycle.

2. Followed up with "Sure Klean Limestone & Masonry Afterwash" or equal, as per manufacturer's instructions.

B. Clean, potable water (heated to a temperature effective and tested for cleaning procedure and approved by RHPO).

2.03 EQUIPMENT

A. Pressure water rinsing equipment (measuring between 100 and 400 psi for low-pressure; between 400 and 1000 psi for medium pressure).

B. Fan-type spray tips (15 -45 degree fan spray).

C. Stiff fiber-bristle brushes.

D. Plastic spatula.

PART 3---EXECUTION

3.01 EXAMINATION

A. Examine site conditions to determine that current drainage is sufficient for adequately and safely removing cleaning waste and run-off from the site.

B. Test-clean a small, inconspicuous area to check for adverse effects and damage to the material.

3.02 PREPARATION

A. Protection:

1. Protect surrounding materials on the site and adjacent building surfaces from coming in contact with the cleaning materials and run-off.

2. Provide workers with necessary protection against cleaning chemicals, overspray and run-off.

3. Prevent cleaning chemicals from coming in contact with any painted, polished or metallic surfaces.
4. Divert flow of run-off to drains in compliance with municipal codes. Comply with municipal codes regarding containment and disposal of cleaning materials.

B. Surface Preparation:

1. Before proceeding with cleaning operations, remove all miscellaneous hardware, anchors and bird excrement from the surface to prevent any discoloration.
2. NOTE: BIRD EXCREMENT THAT COMES IN CONTACT WITH CLEANING SOLUTION WILL LEAVE A PERMANENT DARK-COLORED STAIN ON THE SURFACE.
3. Check for open holes and joints in surface and repoint mortar joints and caulk gaps around window and door openings, as required to prevent water and cleaning solutions from penetrating deeply into the wall.
4. Clean the limestone working from bottom to top.

3.03 ERECTION, INSTALLATION, APPLICATION

NOTE: WHEN CLEANING, AVOID OVERCLEANING. AIM FOR ACHIEVING 85% CLEAN. MOST DAMAGE OCCURS WHEN ATTEMPTING TO CLEAN THE LAST 15%.

NOTE: TEST-CLEAN A SMALL AREA TO DETERMINE EFFECTIVENESS OF CLEANING METHODS, MATERIALS, EQUIPMENT AND WORKING PRESSURES SELECTED BEFORE PROCEEDING WITH CLEANING OPERATIONS ON LARGER AREAS. ADJUST METHODS, MATERIALS, EQUIPMENT, PRESSURES, ETC. AS NECESSARY. DO NOT PROCEED UNTIL AN ACCEPTABLE CLEANING OPERATION HAS BEEN APPROVED AND FULLY DOCUMENTED.

NOTE: DO NOT TREAT THE SURFACE WITH ACID CLEANER MORE THAN ONCE.

- A. Pre-wet limestone surface using a low pressure wash (between 100 and 400 psi).
- B. Apply a heavy coating of limestone pre-wash using a soft, nylon bristle brush. Follow manufacturer's applications instructions.
- C. Allow to stand for one hour or as long as determined by testing.
- D. Thoroughly rinse the surface using high pressure water (between 800 and 1000 psi) until all suds have disappeared.
 1. Rinse all corners, moldings, and interstices to remove all traces of chemical without damaging surrounding materials.
 2. Rinse water should be heated to 150-180 degrees Fahrenheit or as determined most effective during testing.
- E. While surface is still wet from rinsing off pre-wash, apply limestone afterwash with a soft, fiber bristled brush.
 1. Dilute limestone afterwash with as much water as determined effective during testing.
 2. If surface has begun to dry, re-wet before applying afterwash.
 3. Cover all corners, moldings, and interstices of the limestone.
- F. Allow to stand for 3-5 minutes or as long as determined by testing.

G. Thoroughly rinse the surface using high pressure water (between 400 and 1000 psi), with a water flow of 6-8 gallons per minute.

1. Rinse all corners, moldings, and interstices to remove all traces of chemical without damaging surrounding materials.
2. Heat rinse water to a temperature determined most effective during testing.

Last Reviewed: 2018-10-25