U.S. General Services Administration

Removal Of Soiling From Sandstone Prior To Repointing

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REMOVAL OF SOILING FROM SANDSTONE PRIOR TO REPOINTING

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 THE POROUS STONE. USE THE PRODUCTS AND TECHNIQUES DESCRIBED HERE ONLY FOR THE COMBINATIONS OF DIRT/STAIN AND STONE SPECIFIED.

SOME DEGREE OF AGING, WEATHERING AND COSMETIC DEFECT IS NATURAL AND ACCEPTABLE AND CONTRIBUTES TO THE BUILDING'S CHARACTER. NATURAL WEAR AND WEATHERING SUCH AS DEPRESSIONS IN THE STONE MAY NOT BE SUFFICIENT CAUSE FOR REPAIR.

PART 1---GENERAL

1.01 SUMMARY

A. This procedure includes guidance on removing biological growth, surface dirt and efflorescence from sandstone

surfaces prior to repointing.

CAUTION: DO NOT CLEAN SANDSTONE FREQUENTLY. THIS MAY CAUSE A PREMATURE BREAKDOWN OF THE BONDING AGENTS OR CEMENTIOUS MATERIAL THAT BINDS THE STONE TOGETHER.

B. Sandstone is very porous and prone to picking up dirt, dust, oils, and greases from both direct contact and from the atmosphere. The absorption of these kinds of contaminants can cause surface staining, and promote biological growth.

C. Biological growths such as lichens, algae, moss and fungi growing on stone walls is usually an indication that there is excess moisture in or around the stone. These growths should be removed, as they attract moisture to the stone surface and hold it there, which can lead to more serious problems. Lichens and mosses in particular, produce oxalic acid which can damage certain types of historic stone.

D. 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)

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).

PART 2---PRODUCTS

2.01 MANUFACTURERS

A. Rohm & Haas (subsidiary of Dow Chemical)
www.rohmhass.com

B. Sigma-Aldrich Corporation
www.sigma-aldrich.com

2.02 MATERIALS

NOTE: Chemical products are sometimes sold under a common name. This usually means that the substance is not as pure as the same chemical sold under its chemical name. The grade of purity of common name substances, however, is usually adequate for stain removal work, and these products should be purchased when available, as they tend to be less expensive. Common names are indicated below by an asterisk (*).

A. Non-ionic Detergents such as "Triton" (Rohm & Haas), "Igepal" (Sigma-Aldrich), or approved equal.

B. Bleach:

CAUTION: DO NOT MIX AMMONIA WITH CHLORINE BLEACHES, AS CHLORINE GAS, (POISONOUS GAS) WILL RESULT! DO NOT USE BLEACH ON BIRD DROPPINGS.

1. Other chemical or common names include Bleaching solution*; Household bleach*; Laundry bleach*; Sodium Hypochlorite (NaOCl); Solution of chlorinated soda*.

2. Potential Hazards: CORROSIVE TO FLESH.

3. Available from chemical supply house, grocery store or supermarket, hardware store or janitorial supply distributor.

C. Clean, potable water

2.03 EQUIPMENT

A. Stiff natural bristle brush

B. Low pressure sprayer or garden hose

C. Polyethylene sheet

D. Wooden spatula or tongue depressors

PART 3---EXECUTION

3.01 EXAMINATION

A. Determine the source of excessive moisture, i.e. leaky downspout, standing water, roof overhang, vegetation, etc., and make any necessary repairs before continuing with this task.

B. Determine the type of stain, i.e. algae and lichens, mold and mildew, or efflorescence.

3.02 PREPARATION

A. Protection:

1. Provide adequate wash solutions (i.e. water, soap and towels) before starting the job.

2. Do not spray in the immediate vicinity of unprotected people, landscaping, and animals.

B. Surface Preparation: Temporarily fill large cracks with foam backer rod before areas are cleaned to avoid the infiltration of large amounts of water.

3.03 ERECTION, INSTALLATION, APPLICATION

CAUTION: DO NOT USE ABRASIVE CLEANING METHODS. DO NOT USE ACIDIC OR ALKALI CHEMICAL CLEANERS. ALWAYS USE THE GENTLEST

MEANS OF CLEANING POSSIBLE.

A. For Crumbly Caulking Compound:

1. Remove the flaking caulking compound using wooden scrapers or tongue depressors. Take care not to gouge or damage the stone.

2. Remove as much as possible using a stiff bristle brush.

CAUTION: DO NOT USE STEEL WIRE BRUSHES AS THEY MAY LEAVE BEHIND BITS OF IRON, WHICH COULD RUST AND LEAVE STAINS ON THE SURFACE. DO NOT USE POWERED ROTARY BRUSHES. THESE ARE TOO HARSH AND MAY SEVERELY ABRADE THE SURFACE.

3. Small amounts of residual caulking compound may remain on the surface, and should be left alone. DO NOT USE SOLVENTS TO REMOVE THIS RESIDUE. It is likely that this residue will weather away naturally and cause no physical harm to the stone.

4. Retain silicone caulking compounds which may have been applied to help seal some flashing joints, and make repairs if necessary.

B. For Loose Dirt and Dust, Bird Droppings:

1. Wash the surface with water using a low-pressure sprayer or garden hose with a fine spray.

2. Gently scrub as necessary with a wet natural bristle or plastic bristle brush.

3. If necessary, add a non-ionic detergent to the sprayer at the lowest effective concentration. Note: Test a small area to see that it does not leave behind a hazy residue.

4. Avoid soaking the stone. Rinse the surface thoroughly to prevent hazy or invisible residues which may attract dirt.

C. For Molds, Mosses, and Algae: Fungal/algal growth is fostered in environments high in moisture. This, combined with lack of sunlight, creates favorable conditions for this type of surface staining.

1. Eliminate conditions of excess moisture.

2. Carefully scrub the surface with a natural bristle or plastic brush and water.

3. If necessary, add a small amount of bleach to the water to help kill the plant growth.

D. For Efflorescence and Surface Salts:

1. Carefully dry-brush salts off the surface using a natural bristle brush or wash with water.

2. If the efflorescence returns, carefully examine surrounding areas to determine the possibility of leaks or sources of water causing excess moisture infiltration.

3. Eliminate sources of excess moisture and repeat D.1. above.

E. For guidance on repointing, see 04470-06-R.

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