U.S. General Services Administration

Removing Old Sulphated Limewash From Masonry

Procedure code:
420006S
Source:
Developed For Hspg (Nps - Sero)
Division:
Masonry
Section:
Unit Masonry
Last Modified:
06/28/2017

THE CLEANING OR REMOVAL OF STAINS FROM MASONRY MAY INVOLVE THE USE OF LIQUIDS, DETERGENTS OR SOLVENTS WHICH MAY RUN OFF ON ADJACENT MATERIAL, DISCOLOR THE MASONRY OR DRIVE THE STAINS DEEPER INTO THE POROUS MASONRY. USE THE PRODUCTS AND TECHNIQUES DESCRIBED HERE ONLY FOR THE COMBINATIONS OF DIRT/STAIN AND MASONRY SPECIFIED.

PART 1---GENERAL

1.01 SUMMARY

A. This procedure includes guidance on removing old sulphated limewash from masonry by poulticing with hydrochloric acid.

B. IT IS VERY DIFFICULT TO REMOVE OLD SULPHATED LIMEWASH FROM MASONRY WITHOUT CAUSING DAMAGE TO THE SURFACE BELOW. THEREFORE, LIMEWASHES SHOULD ONLY BE REMOVED WHEN IT IS ABSOLUTELY DESIRABLE AND SHOULD ONLY BE PERFORMED BY A TRAINED PROFESSIONAL.

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)

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 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. Hydrochloric Acid (30-35%):

1. Other chemical or common names include Chlorhydric acid; Hydrogen chloride; Muriatic acid* (generally available in 18 degree and 20 degree Baume solutions); Marine acid*; Spirit of salt*; Spirit of sea salt*.
2. Potential hazards: TOXIC; CORROSIVE TO FLESH; CORROSIVE TO CONCRETE, STEEL, WOOD OR GLASS; FLAMMABLE.
3. Available from chemical supply house, drugstore or pharmaceutical supply distributor, or hardware store.

B. Filler for poulticing such as attapulgite or sepiolite clay: Available from hardware store.

C. Clean, potable water

D. Plastic sheets for covering poultice

2.02 EQUIPMENT

A. Wood or plastic spatula

B. Phosphor bronze or bristle brushes

C. Air abrasive tools (suction or pressure)

PART 3---EXECUTION

3.01 PREPARATION

A. Protection:

1. Provide adequate wash solutions (i.e. water, soap and towels) before starting the job.
2. Whenever acid is used, the surface should be thoroughly rinsed with water as soon as its action has been adequate. Otherwise it will continue etching the masonry even though the stain is gone.

3.02 ERECTION/INSTALLATION/APPLICATION

NOTE: UNDER NO CIRCUMSTANCES ARE THESE TECHNIQUES TO BE USED ON SCULPTURE OR IMPORTANT DETAILS. NOTE: DO NOT TRY MORE THAN ONE TREATMENT ON A GIVEN AREA UNLESS THE CHEMICALS USED FROM PRIOR TREATMENT HAVE BEEN WASHED AWAY.

A. Soften the limewash by applying a poultice:

1. Mix attapulgite or sepiolite clay with water to form a thick paste.
2. Thoroughly wet the area to be treated with clean, clear water.
3. Apply the poultice over the limewash using a wood or plastic spatula and cover with plastic to keep it damp.
4. When the poultice has dried, brush or scrape it off with a wooden scraper.

B. Break down the limewash surface by scrubbing with a phosphor bronze or bristle brush and hot water; Hot water should be used if the limewash has an oil or tallow binder.

D. If residual traces remain, wet the wall again with hand sprays and wash with a 30-35% solution of hydrochloric acid.

E. Thoroughly rinse the surface with clean water and allow to dry.

F. Repeat as necessary to achieve the desired level of cleanliness.

Last Reviewed: 2018-10-25