

Removing Graffiti from Historic Masonry

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Identify the Graffiti & the Masonry

Successful graffiti removal from historic masonry depends on achieving a balance between breaking the bond between the graffiti and the masonry surface without damaging the masonry.

This generally requires knowledge both of the materials used to make the graffiti and the masonry on which the graffiti has been executed, as well as knowledge of cleaning methods and materials. Without this, masonry surfaces can be badly disfigured or damaged during graffiti removal.

Graffiti:

- spray paint
- brush-applied paints
- permanent felt markers

Masonry:

- natural stones
- manufactured clay materials (brick, terracotta),
- Cementitious materials (cast stone, concrete)

The common factor among masonry materials is that they are porous, to a greater or lesser extent, and sensitive to abrasion. After identifying the masonry, its condition (including fragility, porosity and permeability) must also be assessed prior to beginning graffiti removal.

Some types of masonry may react adversely to contact with the various cleaning agents required to break or dissolve the bond between the graffiti and the masonry surface. Thus, for purposes of cleaning, masonry types are often categorized according to whether they are acid-sensitive, non-acid sensitive, or alkali-sensitive. Glazed and polished surfaces tend to be damaged by both strong acids and strong alkalis.

<i>Acid-sensitive</i>	<i>Non-acid sensitive</i>	<i>Alkali-sensitive</i>
<ul style="list-style-type: none"> - Limestone - Marble - Travertine - Calcareous sandstones - Shales - Most polished stones - Glazed architectural terracotta - Glazed brick 	<ul style="list-style-type: none"> - Slate - Granite - Unglazed architectural terracotta - Unglazed brick 	<ul style="list-style-type: none"> - Some granites - Indiana limestone - Many types of sandstone, especially those that are green or grey in color

Graffiti Removal Methods and Materials

Graffiti removal from historic masonry should always begin with the gentlest means possible. A variety of treatments are available from which to choose the most appropriate method of graffiti removal that will not damage the surface of historic masonry.

Successful graffiti removal often requires a combination of cleaning materials and methods.

Poulticing The most effective method of removing graffiti from masonry usually involves the use of a poultice. A poultice consists of an absorbent material or powder-inert clays such as kaolin or sepiolite, diatomaceous earth (fuller's earth); or cellulose products such as fluff pulp cellulose or shredded paper-mixed with a cleaning solution (a liquid reagent such as water, organic solvent, paint stripper or bleach) to form a paste or slurry.

Water & Detergent Fresh graffiti-one or two days old-made with water-soluble markers may sometimes be removed with low-pressure water washing, possibly aided by a neutral or non-ionic detergent. (Non-ionic detergents which do not ionize in solution, do not deposit a solid, visible residue.) Ammonia can also be effective in removing fresh graffiti. Any detergent should be approached with caution and tested before using because most commercial laundry detergents are not neutral and contain substances which may leave undesirable residues on masonry materials.

Organic Solvents & Paint Removers These products should always be tested and used in accordance with manufacturer's instructions included in the product literature. Normally, solvents should be used in a poultice form to prevent them from penetrating into the substrate, and permanently discoloring or staining the masonry. The advantage of using organic solvents is that they evaporate completely, leaving no residual material in the masonry.

Alkaline Compounds Alkaline compounds may be used to remove some oils and greases, and waxes from *non-alkali sensitive* masonry. Like organic solvents, alkaline compounds should generally be used in conjunction with a poultice when removing graffiti. The use of alkaline compounds should always be followed by a weak acid wash and a water rinse in order to neutralize-or remove-all the alkaline residues from the masonry. Strong alkalies (pH13-14), such as sodium hydroxide-based paint removers (caustic soda or lye), generally should not be used as they can cause efflorescence and staining on masonry surfaces, if not properly neutralized. Potassium and other hydroxide paint removers may react with iron compounds in some masonry, particularly Indiana limestone, to form dark brown (rust-colored), or black ferric hydroxide stains, which are very difficult to remove.

Bleaches Alkali-based bleaches such as calcium hypochlorite can sometimes be used very successfully in a poultice to bleach or decolorize certain dyes contained in some paints and inks that cannot readily be removed by other means.

Mechanical or Abrasive Methods The following abrasive methods will cause damage to masonry and should **never** be considered as a method of removing graffiti from historic masonry:

- dry or wet blasting using abrasive grits, such as sand, dolomite powder, aluminum oxide, ground-walnut shells, sodium bicarbonate (baking soda), and others
- high-pressure water washing
- mechanical sanding or grinding

Abrasive methods used mistakenly by untrained workers to remove graffiti usually result in etching the outline of the graffiti permanently into the masonry. Some historic masonry materials can be easily damaged by pressure washing even at low or moderate pressures (100-400 psi).

Occasionally, however, under very controlled circumstances, a micro-abrasive technique may be appropriate for removing graffiti from delicate masonry surfaces, if used at low pressures of 35-40 psi with fine abrasives. This treatment, which must be done very slowly and carefully to avoid damaging the masonry, should be tested first, and undertaken only by a professional conservator.

Laser Cleaning Although not in general use as a cleaning technique, laser technology offers great promise in the future as a non-damaging method of graffiti removal.

Testing Before selecting a removal method, all cleaning materials & techniques for removing graffiti should be tested on mock-ups or areas of the building that are not highly visible, but which are representative of typical conditions.