



Left: Lorton Stone repointing mortar joints on the Washington National Cathedral, Washington, DC. Photo by Joe Alonso.
Center: Completed mortar repointing between the decorative terra cotta band and brick at the First Baptist Church of Asheville, NC.
Photo by WxProofing.
Right: Restored grotesque on Saint Mary of the Immaculate Conception Catholic Church, Indianapolis, IN. Photo by Rosemary Dorsa.

HISTORIC MASONRY

Masonry has been used throughout history in the construction of sacred places, because it is one of the most long lasting building materials. Masonry is defined as bricks and pieces of stone that are used by masons to construct a building. The most commonly used types of masonry in historic buildings are quarried stone (limestone, sandstone, granite, and marble), field stones (river rock and boulders), and fired clay products (brick and terracotta). The different types of masonry differ considerably in character, hardness, and durability.

The individual masonry units in historic buildings were usually laid with mortar but were sometimes dry-stacked (laid without mortar). The mortar was used to bond the masonry units together. Historic mortar primarily consisted of a mixture of lime and sand with other additives that were mixed with water, which created a generally soft mortar. Portland cement, which creates a harder mortar, was not commonly used in the United States until the early 20th century, even though it was first manufactured in the 1870s.

While masonry is one of the most durable historic building materials, it is also very susceptible to damage caused by exposure to the elements, improper maintenance or repairs, abrasive cleaning, or the application of non-breathable coatings.

GENERAL RECOMMENDATIONS

All projects funded by the National Fund for Sacred Places must respect the property's historic character and materials, and must adhere to the Secretary of the Interior's Standards for Rehabilitation. Below are general recommendations for the treatment of historic masonry, but they do not cover all the specific recommendations. Reference the resources in the section below for more detailed recommendations.

- **RETAIN AND PRESERVE:** Preserve historic masonry features (such as walls, window and door surrounds, steps, and columns, cornices, brackets, and railings) and other masonry details (such as tooling, bonding patterns, coatings, and color).
- **CONTRACTORS:** Only qualified masons that have experience working with historic masonry should be used.
- **PROTECT AND MAINTAIN:** Protect and maintain historic masonry by making sure historic drainage features and systems (such as roof overhangs, gutters, downspouts, and site grading) are intact and function properly to redirect rainwater away from masonry surfaces.
- **CLEAN:** Use the gentlest method possible for cleaning stained or dirty historic masonry surfaces, such as low-pressure water, detergent, and natural or soft-bristle brushes. Abrasive cleaning methods (such as sandblasting, high-pressure washing, and chemical cleaning) can damage the surface of some masonry and mortar joints. The cleaning method should be tested in an inconspicuous location to determine that no damage is being done and to ensure that the gentlest method can be used before finalizing the appropriate cleaning method.
- **REPAIR:** Repair historic masonry by injecting, patching, splicing, replacing in-kind or reinforcing the masonry using recognized preservation methods.
- **REPLACE IN-KIND:** Replace in-kind masonry features that are too deteriorated to repair.
- **REPOINT MORTAR:** The new repointing mortar should:
 - Match the strength of the historic mortar or be softer (lower compressive strength) than the surrounding masonry units.
 - Match the size, color, texture, profile, and tooling of the historic mortar.
 - Match the new sand to the historic sand.
- **REPOINT:** Hand tools are typically recommended to remove deteriorated mortar. Mechanical tools should only be used by skilled masons. Power tools should only be used on horizontal joints in conjunction with hand chiseling to remove hard mortar that is deteriorated or that is a non-historic material which is causing damage to the masonry units. Power tools are generally not recommended on short, vertical joints.
- **WATER-REPELLENTS:** Applying waterproofing, water-repellent, sealants, or other non-original historic coatings should not be applied to the entire building or as a substitute for repointing or masonry repairs. Historic masonry buildings that are kept watertight and in good repair should not need a water-repellent coating. The water-repellent coating can potentially intensify damage to masonry walls because if water enters the walls, it might not be able to escape. During cold weather, this water can freeze which can cause damage to the masonry, such as spalling.

RESOURCES

[The Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring and Reconstructing Historic Buildings](#) | Masonry Recommendations are found on Pages 80-87

[Preservation Brief #1: Assessing Cleaning and Water-Repellent Treatments for Historic Masonry Buildings](#)

[Preservation Brief #2: Repointing Mortar Joints in Historic Masonry Buildings](#)

[Preservation Brief #7: The Preservation of Historic Glazed Architectural Terra-Cotta](#)

[Preservation Brief #38: Removing Graffiti from Historic Masonry](#)

[Preservation Brief #42: The Maintenance, Repair, and Replacement of Historic Cast Stone](#)