

(often above or below window openings). In all of these instances, the obvious goal should be to ensure that the repaired area is as seamless as possible, and matches the wall surface of surrounding undisturbed areas. Where possible, existing brick should be cleaned of old mortar and reused for patching or reconstruction.

Brownstone and other soft sedimentary stones may present repair issues due to improper installation at the time of construction. If installed with its sediment layers laid vertically rather than horizontally (as it was originally formed), some sedimentary stones may absorb water and exhibit spalling and delamination. Standard mortars and patches will only temporarily cover over the problem and typically fail and fall off within several years. An exception is Jahn Restoration Mortars, a proprietary system licensed by Cathedral Stone, a permeable masonry product that is matched to the physical properties of the stone. When individual stones are significantly deteriorated, replacement with matching stone or cast stone may be necessary.

Parging is the process where brick or stone is covered with stucco or a cementitious coating. Parging is not appropriate as a method of repairing a finished brick wall (such as the front elevation of a house) but may be appropriate for finishing an unfinished wall surface, such as where a wing of a building or adjacent building has been removed. Parging should not be used as a substitute for repointing, as it merely conceals rather than addresses the structural deterioration of mortar joints.

Quick Tips for Masonry Repair:

- Reuse existing brick when repairing or rebuilding brick walls.
- Masonry patches should be developed specifically to match the composition, coloration and permeability of the stone, brick or mortar.

- Rebuilding brick walls and patching historic masonry should be undertaken by a professional with experience.
- Custom matching of brick or the use of salvaged period brick may be necessary if available new brick does not provide a sufficient visual match.
- Conducting a sample test of the proposed repair or reconstruction method in an inconspicuous location on the building is strongly encouraged and may be required as a condition of permit approval by the HPO.
- If you have questions or concerns about appropriate treatments or methods, contact the HPO.

PERMIT REVIEW FOR MASONRY WORK

Masonry repointing and repair on historically designated property requires a DC building permit. Painting unpainted masonry on designated landmarks also requires a building permit, while painting masonry on contributing buildings within historic districts and cleaning masonry do not require a permit. Property owners with questions about whether a project requires a permit, or who want assistance in discussing a project or reviewing a contractor's scope of work prior to applying for a permit are encouraged to contact the HPO.

The Historic Preservation Office (HPO) reviews building permit applications to ensure that original materials are preserved, that treatments are appropriate and will not cause damage, and that the appearance and character of historic masonry are retained.

Application for a building permit for masonry work must include the following:

1. *Photographs* of the entire building which are sufficient to show the existing masonry and the area(s) where work is to be performed.

2. *A written scope of work* or contract detailing what work is to be performed. The scope of work should describe the type and extent of masonry work, the mortar composition and color to be used, the method(s) of mortar removal or masonry repair, and the name of any products to be applied.
3. *A DC building permit application* ("Construction on Private Property"), which can be obtained at the city's permit office at 1100 4th Street, SW 2nd Floor, or online at www.dkra.dc.gov.
4. *A DC building permit application for scaffolding*, if the work will involve erecting scaffolding. If the scaffolding is erected in public space (the front yards of most rowhouse properties), the application for work in public space is the appropriate form (www.ddot.dc.gov – see "Public Space Management").

With these materials in hand, contact the HPO at 442-8800 or come to the Permit Center at 1100 4th Street, SW 2nd Floor, during business hours (8:30-4:30 weekdays; 9:30-4:30 on Thursday). DC building permits cannot be applied for online. Approval can typically be given within three-five days, and usually on the same day if the scope of work and photographs are clear. A test sample of the masonry work may be required as a condition of permit approval.

FOR MORE INFORMATION CONTACT:

Historic Preservation Office
Office of Planning
1100 4th Street, SW
Suite E650
Washington, DC 20024
(202) 442-7600
www.planning.dc.gov/hp



Historic Preservation Maintenance and Repair Guidelines For Masonry



Brick and stone are predominant wall materials on Washington's historic buildings. Today, many of these masonry walls are in need of maintenance and repair, including repointing, cleaning, and resetting loose brick or stone. The Historic Preservation Office (HPO) encourages these types of projects, and has developed this handout to provide property owners with information on the technical and aesthetic considerations for masonry work on historic property.



Government of the District of Columbia

MASONRY REPOINTING

Mortar serves to join together masonry units and to seal walls to keep out water. Mortar on most historic buildings in Washington contains a mixture of lime and sand, often mixed with tinted pigments such as brick dust to blend the color of the mortar with the masonry. Historic lime-based mortars are relatively soft in composition, allowing a certain amount of permeability so that moisture does not become trapped within the walls and permitting the dissipation of stresses in the walls limiting damage to the masonry units. Over time, as mortar erodes, masonry may require repointing (sometimes called tuckpointing) where the loose mortar is removed and new mortar reinserted into the joints.

Mortars with Portland cement, such as those intended for new construction today, were not widely used until the early twentieth century and should not be used on older masonry. Portland cement mortars are much harder than both lime mortar and the relatively soft brick and stone used on many historic buildings. When used on walls of older buildings, Portland-based mortar does not allow for a building's natural settlement and seasonal shifting, and can result in permanent damage as the masonry itself may crack and spall. While a qualified mason should assess your specific situation, as a general rule lime-based mortars or type "O" and "N" mortars with a very low Portland content are generally the most appropriate for nineteenth and early twentieth century buildings.

Quick Tips for Masonry Repointing:

- New mortar must replicate the historic mortar in color, texture, tooling, general composition and appearance. Color matching often requires careful selection of sand aggregate or tinting ingredients.
- Repointing should avoid visual conflict between new mortar and aged masonry and

maintain the continuity of surface that has developed from age and weathering.

- Mortar for spot pointing should match adjacent mortar in appearance.
- Mechanical grinders and saws should not be used for removing lime-based mortars, particularly where the original mortar joints are very thin. Mechanical grinders can permanently damage masonry by gouging, chipping, or grinding away the edges of old brick or stone. Removal of old mortar by hand is strongly encouraged.
- Upon completion of repointing, all remaining mortar and residual film should be cleaned from the face of the masonry.
- Performing a composition analysis of the existing mortar and conducting a test sample of the proposed repointing in an inconspicuous location on the building are strongly encouraged and may be required as a condition of permit approval by the HPO.
- If you have questions or concerns about appropriate treatments, contact the HPO.

For more detailed information, consult the National Park Service's Preservation Brief #2 "Repointing Mortar Joints in Historic Masonry Buildings" at www.nps.gov/history/hps/tps.publications.htm.

MASONRY CLEANING

Inappropriate cleaning methods and the application of masonry coatings can cause permanent damage to historic masonry. Washing with a low-pressure water or steam wash is generally the safest and most effective way to clean historic masonry and should be performed at the lowest effective pressure. For Washington's nineteenth century pressed brick, a moderate pressure between 200-600 pounds per square inch (psi) is usually sufficient. A psi above 1200 is likely to permanently scar or etch historic masonry,

which may not become apparent until after the wall has dried.

Low-pressure washing may be enhanced by the use of mild cleaning agents and/or scrubbing with a soft bristle brush. Chemical cleaners may be necessary for specific types of stains or paint removal, but should be used with caution and selected based on the type of masonry and nature of cleaning needed. Acidic cleaners on acid-sensitive masonry (such as glazed brick, marble and limestone) will dissolve the surface, but may be appropriate in low concentrations on granite or unglazed brick. Alkaline and organic cleaners can be used on acid-sensitive masonry and are generally best for dissolving paint.

Sandblasting and other abrasive methods of cleaning and paint removal remove the outer layer of masonry and are particularly destructive to brick as they remove its protective hard-fired coating, allowing water to penetrate into the brick units. Sandblasting is prohibited in the District of Columbia.

Application of moisture sealants and water repellants is usually unnecessary and may be destructive to historic masonry. Most often, moisture getting inside a masonry wall is due to the failure of mortar joints, rising damp from the ground, or infiltration from the roof or around windows rather than through the masonry units themselves. The application of masonry sealers on exterior masonry may exacerbate these problems by locking moisture into the walls of the building.

Quick Tips for Masonry Cleaning:

- Low-pressure water or steam washing is the safest and best method for cleaning historic masonry.
- Consult product information on any chemical cleaners to ensure it is appropriate and not harmful.

- Avoid pressure washing a masonry building between November and March. Pressure washing forces water into the walls, which can freeze in colder temperatures causing permanent damage to brick and stone.
- Sandblasting is not appropriate as a method of cleaning or removing paint from historic masonry and is not permitted.
- Masonry sealers are rarely necessary for historic buildings and may cause permanent damage and discoloration.
- Painting unpainted masonry on landmark buildings requires a permit; because it is seldom an appropriate treatment, this type of work is rarely approved. Painting unpainted masonry on contributing buildings in historic districts is not subject to review, but is strongly discouraged.
- Conducting a sample test of a proposed cleaning method in an inconspicuous location on the building is strongly encouraged.
- A building permit is not required for masonry cleaning. However, if you have questions or concerns about a masonry cleaning project, please contact the HPO.

For more information on cleaning methods and products, paint and graffiti removal, and masonry coatings and sealers, consult the National Park Service's Preservation Brief #1 "Assessing Cleaning and Water-Repellent Treatments for Historic Masonry Buildings" at www.nps.gov/history/hps/tps.publications.htm.

MASONRY REPAIR

Brick is the most prevalent exterior wall material in Washington. Typical repair issues include patching brick where holes have been made in a wall, reattaching bricks that have pulled away from the structure of the building, and resetting bricks where settling or cracking has occurred