



City of Easton, Pennsylvania HISTORIC DISTRICT COMMISSION

GUIDELINES FOR EXTERIOR MASONRY

This brochure, published by the City of Easton Historic District Commission, contains guidelines for exterior masonry on buildings within the Historic District. Please review this information before considering the installation, maintenance, repair, or replacement of exterior masonry, including stone, brick, and stucco. Familiarity with HDC standards can help move a project quickly through the approval process, saving applicants both time and money.

Historic masonry walls act as important design features, helping to define a building's style and add visual interest to the streetscape. Exterior masonry, including stone, brick, terra cotta and stucco provides a strong, durable, and

attractive appearance with relatively low maintenance.



The Jacob Nicholas house, built in 1807, is an early example of stone construction.

Many different types of masonry are found throughout the Historic District, including a variety of brick and stone. Masonry features that are important in defining the building's overall character should be preserved and protected. Such elements include but are not limited to walls, cornices, hoodmolds, columns, door

pediments, mortar joints, and bonding patterns (i.e., the arrangement of the bricks or stones in a pattern so as to increase the strength and enhance the appearance of the construction).

The HDC encourages a program of regular maintenance, repair, and repointing with compatible mortar. With proper care, exterior masonry and stucco can last for many years. Improper maintenance and repair may lead to deterioration and even structural weakness.

Character-defining masonry elements should be repaired rather than replaced. If replacement of any element becomes necessary, the replacement should match the original design and materials as closely as possible. If historic masonry features such as door pediments or hoodmolds are missing, and there is no pictorial, historical,

or physical documentation, a new design that is contemporary yet compatible with the size, scale, material, and color of the building is the appropriate approach.



Library Hall, site of Easton's first Library, is typical of historic brick buildings.

The HDC will not recommend for approval installing stucco over brick, stone, or terra cotta walls, or installing artificial stucco (EIFS or Exterior Insulation and Finish System) over any exterior surface.

MASONRY PROBLEMS

The majority of the problems associated with historic masonry are caused by failing to keep the mortar joints in good repair. Mortar joint failure can be caused by:

- Weathering – rain, wind, and pollution erode softer historic mortars
- Temperature extremes – extremes in temperature cause the masonry and mortar to contract or expand at different rates
- Poor maintenance – poorly maintained gutters, downspouts, and flashing; standing water around the base of the wall; or vegetation such as ivy allow water to enter the wall and hasten deterioration
- Poor design or materials – masonry and/or mortar that are incompatible or inappropriate for the location.

Although the mortar will generally deteriorate before the bricks or stones, individual bricks and stones can suffer damage. This may be caused by moisture infiltration, mortar that is too hard, building settling, harsh chemical or abrasive treatments, heavy vegetation growth, and heavy pollution. If the protective layer of the brick or stone is allowed to deteriorate, the surface can become powdery and scale off.



Note the deteriorated bricks in the lower center of the photo. Also, several open joints and poor patching are visible.

The HDC recommends careful maintenance of masonry buildings to prevent water penetration. If water is allowed to penetrate the masonry, serious and potentially costly damage may result either through freezing inside the walls or by causing destructive chemical reactions. To prevent these problems from occurring, it is important to keep roof, flashing, drains, gutters, and downspouts in good repair.

MORTAR

Masonry buildings constructed prior to about 1910 did not use Portland cement. Early mortar was mixed to be softer than the surrounding brick or stone, allowing the mortar to act as a cushion when the

masonry surface expanded or contracted. If the mortar is harder than the surrounding masonry, the stress of expansion and contraction could result in the cracking and/or spalling of individual bricks or stones.

When the mortar has deteriorated, and repointing becomes necessary, the mortar should be compatible in material, hardness, composition, color, and joint style to the original.

Historically, mortar is composed of a few simple ingredients:

- **Sand** - Defines the color character and texture of the mortar.
- **Lime and Portland cement** - Act as binders for the mortar.
- **Water** - Needs to be clean and free of salts or other detrimental chemicals
- **Additives** - Historic additives include oyster shells, clay particles, and animal hair.

REPOINTING HISTORIC MASONRY

Repointing masonry is labor intensive work that is best left to knowledgeable

craftsmen. Repointing involves removing the existing deteriorated mortar; mixing the mortar to the appropriate content, color and hardness; applying the mortar to the prepared joints; and tooling the mortar to match the historic appearance. It is recommended that repointing be limited to areas of deterioration rather than an entire building to minimize damage to the masonry.



Generally, the HDC recommends using a high lime mortar for nearly all repointing projects. To make a mortar appropriate for pre-1900 historic buildings, mix 1 part hydrated lime with 2 parts (by volume) sand of historic color. Add only enough water for a workable mix. To improve workability and drying, this recipe can be

modified with some white Portland cement. The Portland cement content should not exceed 20% of the volume of lime and cement combined. Generally the Portland cement should be white, not gray or light gray. The color of the new mortar should match that of the existing mortar.

Repointing is best done during fair weather when the temperature is expected to remain between 40 and 90 degrees during the project and for at least two days after the project is completed. This helps the mortar to properly bond to the masonry, minimizing the possibility of freezing or excessive evaporation.

MASONRY CLEANING

Masonry should only be cleaned to stop or prevent deterioration, or to remove severe soiling. If cleaning is deemed necessary, only the gentlest methods should be used. The HDC recommends low-pressure water with soft bristle brushes and mild detergents. A test patch should be conducted to determine which cleaning method is appropriate before cleaning any masonry surface. If there is evidence of mortar deterioration, such as disintegrating mortar, cracks in joints, loose bricks, damp walls, or damaged plasterwork, consider

repointing before any large-scale cleaning is done.



Sandblasting has permanently damaged this brick wall.

Abrasive cleaning techniques can severely damage a masonry surface. Techniques such as sandblasting or strong chemical solutions are not appropriate and will generally not be recommended. High-pressure washing is also not an appropriate cleaning method because it can force water into the wall, causing deterioration to both the mortar joints and the masonry.

MASONRY PAINTING

The masonry of pre-20th century buildings was often low-fired and porous. Such buildings were frequently painted.

However, painting previously unpainted masonry structures is usually not appropriate and will not be recommended for approval except under circumstances where the masonry surface is highly deteriorated and painting will preserve the wall.

The removal of paint from a building that has been historically painted may not be appropriate. The building might have been painted to provide a water-protective layer over porous masonry. If paint removal is necessary due to paint failure, the gentlest method possible should be used.

STUCCO

Stucco was typically applied at the time of construction over rubble stone or as a design element. Additionally, stucco has been used as a remodeling material for deteriorated building exteriors.

The problems associated with stucco are typically caused by water infiltration. In addition, stucco failures can be caused by improper mortar mix or installation, exposure to the elements, or building settlement.

The HDC recommends a regular maintenance program including gutters and downspouts, flashing, and drip edges.

WHO CAN HELP ME?

If you are planning the maintenance, repair, or replacement of exterior masonry on a building in the historic district, contact the HDC to review your project in its earliest stages.

The HDC has reserved 15 to 20 minutes at the end of its monthly meetings to provide consultation and advice to members of the public. Contact the Bureau of Codes and Inspections at (610) 250-6724 to confirm the date of the next HDC meeting and schedule a consultation.

Additional Sources of Information

Contact the National Trust for Historic Preservation or visit online at www.nationaltrust.org.

Contact the US Government Bookstore or visit www.nps.gov for *Preservation Briefs*, National Park Service.

Further reading:

Preservation Brief 2: Repointing Mortar Joints in Historic Masonry Buildings, Robert C. Mack and John P. Speweik (Washington, DC, Preservation Press)

Historic Building Façades: The Manual for Maintenance and Rehabilitation, William C. Foulks (ed.) (Washington, DC, Preservation Press, 1997)

Caring for Your Historic House, National Park Service/Heritage Preservation Services (New York, Harry Abrams, Inc., 1998)

The Secretary of the Interior's Standards for the Treatment of Historic Properties: with Guidelines for Preserving, Rehabilitating, Restoring & Reconstructing Historic Building, Kay D. Weeks and Anne

E. Grimmer (National Park Service, Technical Preservation Services, 1995)

Preservation Sourcebook, Mid-Atlantic Edition, 1998: The Comprehensive Directory of Products and Services for Historic Preservation and Restoration (Vienna, VA, Preservation Publications LLC, 1997)

Acknowledgments

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The Secretary of the Interior's Standards for the Treatment of Historic Properties: with Guidelines for Preserving, Rehabilitating, Restoring & Reconstructing Historic Building.

Township of Cheltenham, *Guidelines for Masonry and Stucco*

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