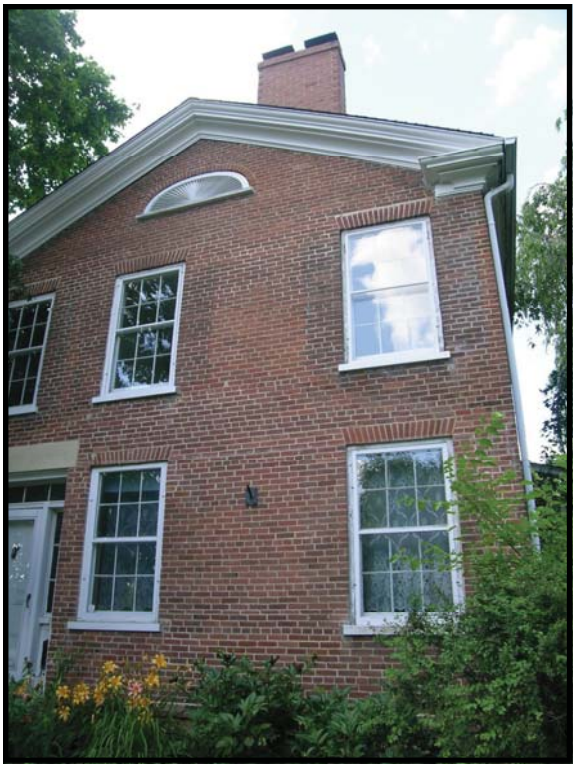
2.4 Masonry:

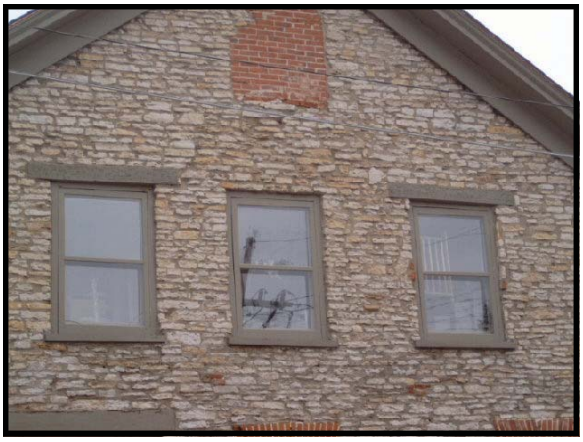
Brick, Stone, Terra-Cotta, Concrete, Stucco, and Mortar



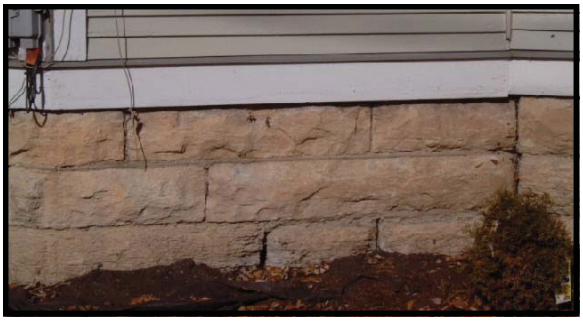
Dwellings constructed of masonry, if well maintained, can last indefinitely. Masonry is often important in defining the historic character of a building. While masonry is among the most durable of historic building materials, it is also the most susceptible to damage by improper maintenance or repair techniques and by harsh or abrasive cleaning methods. Most preservation guidance on masonry focuses on such concerns as cleaning and the process of re-pointing.

Before proceeding with any masonry work, it is wise to perform an inspection of the masonry. It is recommended to have a professional check the following:

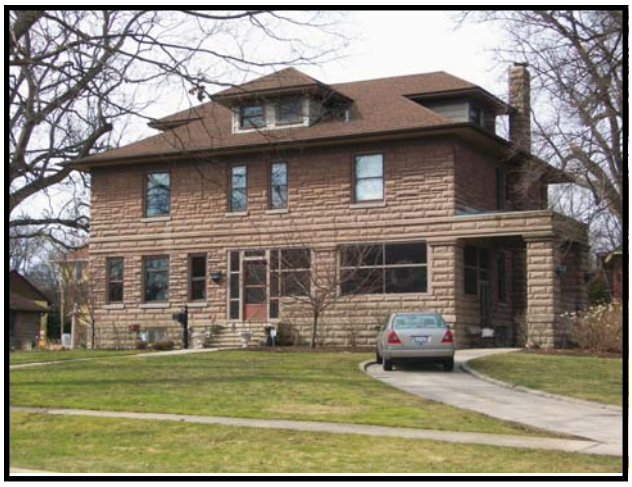
- Structural integrity- check for wall movement, bowing, stress fractures
- Wall voids and water penetration
- Integrity of surfaces and existing joints
- Surface finishes
- Evaluate and treat the various causes of mortar joint deterioration such as leaking roofs or gutters, differential settlement of the building, capillary action, or extreme weather exposure. Also inspect painted masonry surfaces to determine if repainting is necessary.



The two most critical principles of masonry wall preservation are keeping water out and using an appropriate mortar mix when repair is needed. Most pre-1920 dwellings in the have soft mortars and require similar mortar compounds when re-pointing or repairing. The use of hard mortars with Portland cement can cause brick to crack and break when it can't expand and contract with the hot and cold weather. Portland cement was used for dwellings after 1920 and generally this type of hard mortar will be appropriate for dwellings from this period.



Common Types of Masonry



Tinted Cement Block

Random Ashlar Stone

Lamont River Stone

Stucco

Stucco Over River Stone

Brick

Masonry Building Exterior

Recommended

- ✓ Identifying, retaining, and preserving masonry features that are important in defining the overall historic character of the building.
- ✓ Materials original to the dwelling should be preserved and maintained.
- ✓ Protecting and maintaining masonry by providing proper drainage so that water does not stand on flat, horizontal surfaces or accumulate in curved decorative features.

Not Recommended

- ❑ Removing or radically changing masonry features which are important in defining the overall historic character of the building so that, as a result, the character is diminished.
- ❑ Replacing a non-repairable feature with a new feature that does not convey the same visual appearance.

Cleaning Masonry Exteriors

Recommended

- ✓ Cleaning masonry only when necessary to halt deterioration or remove heavy soiling. Masonry should be cleaned only if there are major stains or paint buildup. If the staining or dirt is limited, it may be best to leave it alone.
- ✓ To verify effectiveness of a cleaning method, perform a test in a small, inconspicuous area first.
- ✓ Cleaning masonry with the gentlest method possible, such as low- pressure water and detergents, using natural bristle brushes.

Not Recommended

- ❑ Cleaning masonry surfaces without testing or without sufficient time for the testing results to be of value. Don't rush it!
- ❑ Cleaning masonry surfaces when they are not heavily soiled to create a new appearance, thus needlessly introducing chemicals or moisture into historic materials.
- ❑ Sandblasting brick or stone surfaces using dry or wet grit or other abrasives. These methods of cleaning permanently erode the surface of the materials and accelerate deterioration.
- ❑ Water blasting brick with high-pressure water which exceeds 300 pounds per square inch or when there is a chance for freezing temperatures.

Re-pointing and Repair of Masonry Exteriors

Recommended

- ✓ Removing deteriorated mortar by carefully hand-raking the joints to avoid damaging the masonry. Use hand tools, not electric saws, to remove mortar.
- ✓ Duplicate the joint profile of existing mortar
- ✓ Re-pointing (fixing the mortar between bricks) should match the original brick and mortar regarding width, depth, color, raking profile, composition, and texture. Re-pointing should never be done with Portland cement or other hard mortars unless these mortar compounds are original to the dwellings. For most pre-1920 dwellings, use soft mortars to match the original composition. If the original composition cannot be determined, use a historic compound such as one part lime and two parts sand.
- ✓ Repair stucco by removing the damaged material and patching with new stucco that duplicates the old in strength, composition, color, and texture.
- ✓ Chimneys should be repaired and re-pointed to match the original in materials, color, shape, and brick pattern and design.
- ✓ Masonry chimneys should have clay, slate, or stone caps, or cast in place concrete.

Not Recommended

- ❑ Using electric saws and hammers rather than hand tools to remove deteriorated mortar from joints prior to re-pointing.
- ❑ Changing the width or joint profile when re-pointing.
- ❑ Replacing or rebuilding a major portion of exterior masonry walls that could be repaired so that, as a result, the building the historic character of the masonry is significantly diminished.
- ❑ Re-pointing with mortar of high Portland cement content (unless it is the content of the historic mortar on the building).
- ❑ Re-pointing with a synthetic caulking compound.
- ❑ Removing sound stucco; or repairing with new stucco that is stronger than the historic material, or repairing with synthetic stucco (exterior insulated finishing systems, or EIFS)
- ❑ Removing or altering original chimneys
- ❑ Covering masonry chimneys with stucco or other materials.
- ❑ Concealing foundations with concrete block, plywood panels, corrugated metal, or other non-original materials

Painting and Sealing Masonry Exteriors

Recommended

- ✓ To remove paint from brick, the use of chemical removers is appropriate.
- ✓ It is recommended to repaint with colors that are historically appropriate to the building and district.
- ✓ Previously sandblasted brick or brick in poor condition may be painted or stained to provide a sealing coat.

Not Recommended

- ❑ Removing paint that is firmly adhering to, and thus protecting, masonry surfaces.
- ❑ Removing paint from historically painted masonry.
- ❑ Using methods of removing paint which are destructive to masonry, such as sandblasting, application of caustic solutions, or high-pressure water blasting.
- ❑ Applying waterproof, water-repellent, or non-historic coatings such as stucco to masonry as a substitute for re-pointing and masonry repairs. Coatings are frequently unnecessary, expensive, and may change the appearance of historic masonry as well as accelerate its deterioration.
- ❑ Coating masonry with silicone-based water sealants. Water sealants or water repellants generally have the affect of keeping interior moisture from evaporating through the walls and thereby damaging the brick.