



CITY OF

Ypsilanti

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Historic District

Masonry Repair and Cleaning

This Fact Sheet is not a substitute for the ordinance, but addresses common questions about City ordinances. For further information, please contact the Historic District Assistant.

All permit applications are available from the Building Department and at cityofypsilanti.com/permits.

Completed applications may be dropped off at the Building Department.

City Hall

One South Huron
Ypsilanti, MI 48197

Building

3rd Floor, City Hall
Phone: (734) 482-1025
cityofypsilanti.com/157

Planning

4th Floor, City Hall
Phone: (734) 483-9646
cityofypsilanti.com/planning

Historic District

4th Floor, City Hall
Phone: (734) 483-9646
cityofypsilanti.com/hdc

All permits, fees, and factsheets can be found at cityofypsilanti.com/permits.

Repairing and Repointing Historic Brick

The soft, low-fired brick commonly used in pre-1900 buildings is like a loaf of bread – soft inside, crusty outside. It was laid up with soft mortar. Modern cement-based mortar is very hard and creates a serious problem if used with old soft brick. During the freeze-thaw cycle, hard mortar does not yield to expansion and contraction, causing the outer crust of the brick to spall, or break off. Once this crust is gone, moisture penetrates the brick; when it freezes, the brick is further damaged, ultimately turning it to dust. Thus, *soft mortar with high lime content must be used whenever old soft brick is laid or repointed. Any mortar must be tinted to match existing mortar color.*

Mortar Formula for Use with Soft Brick

- 10 parts sharp mason's sand
- 4 parts hydrated lime
- 1 part white Portland cement, Type I, ASTM C150
- 1/4 to 1/8 box of tint to match existing mortar color, as directed by manufacturer (run pancake tests to confirm dried color match)

Cleaning Historic Masonry

Historic masonry (brick, stone, etc.) is susceptible to damage from modern cleaning techniques, and modern cleaning techniques may also damage the natural patina, an effect the original builders intended to achieve. Thus, masonry cleaning should be limited to the removal of surface grime (airborne dirt and pollutants); staining resulting from failed drainage systems, graffiti, and damaged and/or loose paint in preparation for repainting; or to determine the condition of the underlying masonry. Water-based cleaning (including pressure washing, chemical cleaning, and steam cleaning) should generally only take place June through September to avoid freeze-thaw cycles.

Repairs (tuck-pointing, brick replacement, etc.) must be done before cleaning, as the surface must be in good repair to prevent further damage. Rarely, gentle cleaning may be done first to discover the extent of needed repairs.

Abrasive cleaning is not permitted on any masonry surface. Abrasive cleaning is any technique that wears away surface material, including but not limited to the use of materials under pressure, such as sand, baking soda, or ground corncobs; or the use of abrasive tools and/or equipment, such as wire brushes or sanders.

Pressure washing must be done delicately to avoid being abrasive, and done only when freezing is not threatened within two weeks of the cleaning. For water cleaning/rinsing or test cleaning, do not exceed 200 psi. For low-fired (soft) brick, 300 psi is appropriate with a medium to wide spray tip. For high-fired or glazed brick, 600 psi is appropriate when used with a medium to wide spray tip.

Chemical cleaning may be permitted, provided that the applicant submit written guarantees stating that any damage that might be caused shall be repaired in an appropriate manner and timeframe determined by the HDC, and that the cleaning method proposed is not known to cause damage to the type of material to be cleaned. With the exception of certain detergents, chemical cleaning is not recommended for most stone and stucco surfaces.

High temperature water or steam cleaning can usually be used successfully on masonry surfaces. Pressure levels for water cleaning/rinsing are limited to 200 psi.