

Zoar Historic Preservation Standards

Masonry *Construction*



Stone and brick masonry should not be replaced or repaired with artificial stone, brick, or block, or covered with stucco or siding. Unpainted brick or stone buildings should not be painted. Existing painted brick or stone buildings should be repainted consistent with these standards. Repairs to brick and stone masonry should duplicate, to the extent practicable, the existing structure and appearance. Cleaning or other restoration should be done in a manner as to cause the least possible damage to the stone or brick. Sand-blasting should not be done. The patina of age should be retained. Repointing of joints should be done in a manner consistent with the appearance of the existing, and remaining mortar joints. Stuccoed buildings should remain stuccoed unless the original building surface is to be restored to its historical appearance and can be done so without leaving evidence of damage caused by the stuccoed covering.

REPOINTING

Masonry - brick, stone, terra-cotta, and concrete block - generally considered "permanent," is subject to deterioration, especially at the mortar joints. Repointing is the process of removing deteriorated mortar from the joints of a masonry wall and replacing it with new mortar. Properly done, repointing restores the visual and physical integrity of the masonry. Improperly done, repointing not only detracts from the appearance of the building, but may also cause physical damage to the masonry units themselves. Mortar consisted of lime putty and sand mortar was used until the advent of portland cement a fast-curing, hydraulic cement which hardens under water. Mortar used in masonry structures built between 1873 and 1930 can range from pure lime and sand mixes to a wide variety of lime, portland cement, and sand combinations.

BEFORE REPOINTING

The decision to repoint is most often related to some obvious sign of deterioration, such as disintegrating mortar, cracks in mortar joints, loose bricks or stones, damp walls, or damaged plasterwork. It is, however, erroneous to assume that repointing alone will solve deficiencies that result from other problems. The root cause of the deterioration-leaking roofs or gutters, differential settlement of the building, capillary action causing rising damp, or extreme weather exposure should always be dealt with prior to beginning work. Without appropriate repairs to eliminate the source of the problem, mortar deterioration will continue and any repointing will have been a waste of time and money.

USE OF CONSULTANTS

Because there are so many possible causes for deterioration in historic buildings, it may be desirable to retain a consultant, such as a historic architect or architectural conservator, to analyse the building. Referrals to preservation consultants can be obtained from the Zoar Historical Society and local chapters of the American Institute of Architects (AIA).

FINDING AN APPROPRIATE MORTAR

Proposed repointing work must be matched to existing to be physically and visually appropriate to the building. Analysis of unweathered portions of the historic mortar can suggest appropriate mixes for the repointing so that it will not damage the building because it is excessively strong or vapour impermeable. A simple, non-technical, evaluation of the masonry units and mortar can provide information concerning the relative strength and permeability for developing the new mortar mix and application techniques. The most useful

Summary

information that can come out of laboratory analysis is the identification of sand by gradation and color. This allows the color and the texture of the mortar to be matched with some accuracy because sand is the largest ingredient by volume. In creating a repointing mortar that is compatible with the masonry units, the objective is to achieve one that matches the historic mortar as closely as possible, so that the new material can coexist with the old in a sympathetic, supportive and, if necessary, sacrificial capacity. The exact physical and chemical properties of the historic mortar are not of major significance as long as the new mortar conforms to the following criteria:

- The new mortar must match the historic mortar in color, texture and tooling.
- The sand must match the sand in the historic mortar.
- The new mortar must have greater vapour permeability and be softer than the masonry units.
- The new mortar must be as vapour permeable and as soft as or softer than the historic mortar.

The mortar joint in a historic masonry building has often been called a wall's "first line of defence." Good repointing practices guarantee the long life of the mortar joint, the wall, and the historic structure. Although careful maintenance will help preserve the freshly repointed mortar joints, it is important to remember that mortar joints are intended to be sacrificial and will probably require repointing sometime in the future.

The essential ingredients for repairing and maintaining a historic masonry exterior are:

- Repoint masonry in areas where mortar is loose or where masonry units have settled.
- Resolve cause of cracks or failure before resetting units and repointing.
- Rake out joints by hand, generally avoiding rotary saws or drills, to a depth of 2 ½ times the width of the joint (or until sound mortar is encountered), to make sure that fresh mortar will not pop out.
- Repointing mortar should be lime-rich and formulated to be slightly weaker than the masonry units and to match the historic mortar in color, width, appearance, and tooling.
- Off-the-shelf pre-mixed cement mortars are not appropriate for most historic buildings.
- Avoid use of joint sealants in place of m
- Mortar on vertical masonry wall surfaces, as they are not breathable and can lead to moisture-related damage of the adjacent masonry.

Construction Permit

U.S. Department of the Interior
National Park Service Cultural Resources
Heritage Preservation Services

PRESERVATION BRIEFS
Roofing for Historic Buildings
by Sarah M. Sweetser

Resource

Per the
Village of Zoar, Zoning Ordinance
any roof construction requires a
"Certification of Appropriateness" (COA)
Issued by the Zoar Historic
Preservation Commission in order to obtain a
"Project permit"
Approved by the Zoning Board and
issued by the Zoning Inspector.

