

O & M Department: REPOINTING

NEWS

Student Success Center updates STI's Mickelson Building.



Tea Area Intermediate School on track to open for the 2010 school year.



Children's Home Society expands Loving School to meet growing need for classroom space and better serve the children.



The term repointing is often used to describe replacing deteriorated mortar joints in masonry walls. That term once referred to sanding the brick, and then masking the mortar joints with a thin layer of mortar that matched the brick color. After rubbing and dyeing the mortar, thin lines would be cut in with a knife to outline each brick. Repointing, on the other hand, is a more accurate term for replacing mortar joints. In repointing, the old mortar is cut or raked out of defective joints and new mortar is placed in the joints.

Exterior masonry walls, like any other part of a building, need to be maintained. Depending on the age of the wall, it may be appropriate to check for mortar deterioration annually. Good maintenance will prolong the life of the wall, but also the building. Water can get through the walls, via deteriorated mortar joints, causing damage to the interior of the building.

It is not uncommon for mortar to last 25-30 years and in many cases much longer. Brick and concrete block may have a life of well over 100 years. Approximately 30% of a wall area is mortar joints. However, depending

on the age of the mortar, there may be only 20-25% of joints requiring repointing. Usually it is better to leave old mortar joints in good condition rather than to tuckpoint everything.

Inspecting Joints

Joints that need repointing can typically be identified by visual inspection. Another method of checking the integrity of the joints is to use a sharp metal tool to lightly scrape the joint. When an inspection reveals that mortar joints are cracked, deteriorating, or easily scratched repointing is needed.

Selecting the Right Mortar

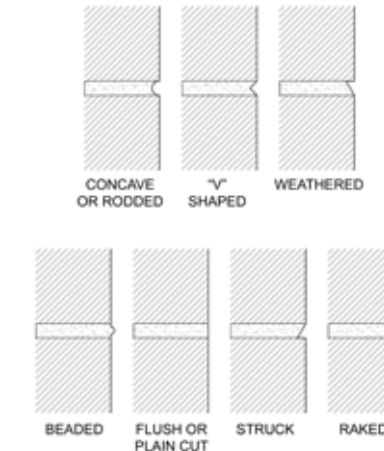
Determining the right type of mortar is important to maintain the integrity of the wall. The repointing mortar should be similar in strength, porosity and color to the original mortar. The age of a building is an important factor; older brick often has a harder external shell to protect the brick from internal moisture migration. The mortar for these buildings should be softer with an equal or greater vapor permeability when cured than the brick shell. If the hardness of the mortar exceeds that of the shell, it



Cutting out old mortar.



Applying new mortar.



Common joints

can cause a breakdown of the brick during freeze thaw cycles.

High content cement mortars have higher compressive strengths and should not be used on older buildings.

It wasn't until the turn of the 20th century that cement was introduced to the mortar mix. Before then, mortars were lime and sand in varying proportions depending on the use. Today's mortars are Portland cement, lime and sand. They are designated by type:

- Type S is a general purpose mortar that is used for its strength and also recommended for below grade applications.
- Type N is recommended for use above ground on exteriors that are exposed to severe weathering. Type S and Type N are usually interchangeable.
- Type M mortar has high compressive strength, but lacks the workability of other mortar types.
- Type O mortar is extremely plastic and workable, but because of its low strength (high lime content) many building

codes do not allow Type O mortar in construction that requires compressive stresses greater than 100 lbs per square inch.

Typically, Types N and O are recommended for repointing historic buildings due to their high lime content.

Selecting the Right Mortar Joint

Tooling works the mortar tight into the joint providing a good, weather resistant joint. The most common mortar joint is the concave joint. Other good weather joints are the "V" joint and the weathered joint. Flush joints are not recommended for exterior use, but are sometimes used for interiors where the walls will be painted or covered. Beaded, raked, and struck joints are not often recommended for exterior use because they leave the brick ledge exposed to weather. Beaded joints were used on many historical buildings, and are still used when trying to maintain a historical look.

Removal and Replacement

Mortar joints should not be cut more than one-third the depth of the masonry unit. Typically the mortar

joint is cut to a uniform depth of 3/8" to 1/2" or until good mortar is reached. After the joints have been pointed, a test area should be cleaned before final cleaning with a commercial cleaning agent. High acid content cleaners can damage old mortar and brick. In many cases, low pressure water spray and a natural bristle or nylon brush is adequate for the final cleaning

Selecting the Right Craftsman

Selecting a qualified and experienced craftsman is critical. An excellent mason may not be skilled in repointing and many masonry contractors do not do this type of work. Depending on the extent of the project and the historical significance of the building, pre-qualifying potential craftsmen is recommended, including references, photos of previous projects and interviews.

When a repointing project is complete, the result will be there for another 25-30 years, so selecting the right craftsman is as important as the mortar, color, and type of joint.