

Braintree District Council
Supplementary
Planning Guidance



Conservation Practice -
Repointing Old
Brickwork



BRAINTREE

**DISTRICT
COUNCIL**

CONSERVATION PRACTICE



REPOINTING OLD BRICKWORK

Bad repointing can have disastrous effects on both the structural stability and the visual quality of old brickwork. It is important that the pointing of such brickwork is done in the most sympathetic manner possible, so that the characteristics of the original work are respected.

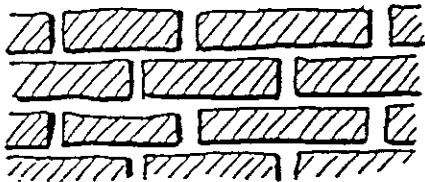
The mortar should at all times be subordinate to the brickwork, yet usually complement it.

This leaflet aims to outline the principles of repointing old brickwork, so as to combine sound building practice with historical accuracy.

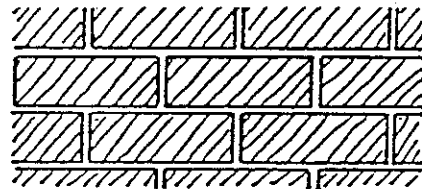
MORTAR

Mortar has two basic functions: Firstly, it evens out irregularities in the size and shape of the bricks. The more irregular the bricks, the thicker the bed of mortar is likely to be. The more precise the dimensions of the bricks, the thinner the mortar.

Early brickwork, laid before the standardisation of brick dimensions, can usually be identified by its thick beds of mortar.



Early brickwork



17th Cent. onwards

The second function of mortar is to adhere the bricks together. In old buildings with lime mortar joints, this adhesion is minimal and is not designed to provide tensile strength.

One of the requirements of mortar is that it should be weaker than the brickwork. If it is not, then moisture is forced to evaporate through the face of the bricks only, rather than through the whole surface of the wall. This leads to the flaking off of the top surface of the bricks and their erosion.

The repointing of old brickwork should be carried out almost exclusively in lime based mortars, as until comparatively recent years, was the traditional practice, rather than mortars based on cement.

Lime mortar is subject to greater erosion than its cement-based counterpart, but this should not necessarily be seen as a disadvantage. Lime mortar is far easier to replace than eroded brickwork, and cement mortar is virtually impossible to remove from brickwork once it has set.

Lime mortars consist of lime, sand, water and, nowadays, a little cement to aid hardening. The cement should be used sparingly, as too much will lead to a mortar which is dense, impervious and liable to shrink and crack.

Lime may be obtained in three forms: Unslaked quicklime, putty, or as a dry powder. The putty and powder are easier and safer to use on site than the quicklime.

A mix of 1:1:6 (cement/lime/sand) is the strongest required for most purposes, but an average mix would be nearer 1:2:9.

There are no hard and fast rules for mixes, but the strength of the bricks, their likely exposure to weathering and their porosity must all be taken into account when determining the strength of the mortar.

COLOUR AND TEXTURE

The colour of the mortar can make or mar a repointing job. The colour to be used depends on the colour of the bricks and the existing mortar. The effects of cleaning the brickwork should be considered. The desired colour match can only be obtained by trial patches using different quantities of lime and sand. There are many different colour sands available and colouring additives are also manufactured. These should be used with caution, however, as they can weaken the mix if used in too great a quantity.

The aim should be to match the existing mortar as closely as possible. The texture of the mortar depends on the grade of sand used. A fine sand will give a smoother texture than will a coarse grained sand. Texture can be produced or emphasised by mechanical means at the pointing stage, as will be seen.

Mortar was traditionally made using sand found locally. Sands from different regions will have different properties of texture and colour. Use sand from local sources, if possible, to achieve a better match between the existing and new mortars.

PREPARATION

Joints should be raked out to a depth of at least 20mm, taking care not to damage the edges of the bricks. If the mortar is soft enough, this can be done initially with a sharp piece of wood, then with a sharp chisel once the surface of the mortar is below that of the bricks.

The inside face of the joint should be left rough to provide a key, but joints should be washed or brushed free of loose material. Before repointing, the wall should be wetted to prevent the mortar drying out too quickly, as this can lead to shrinkage and loss of strength.

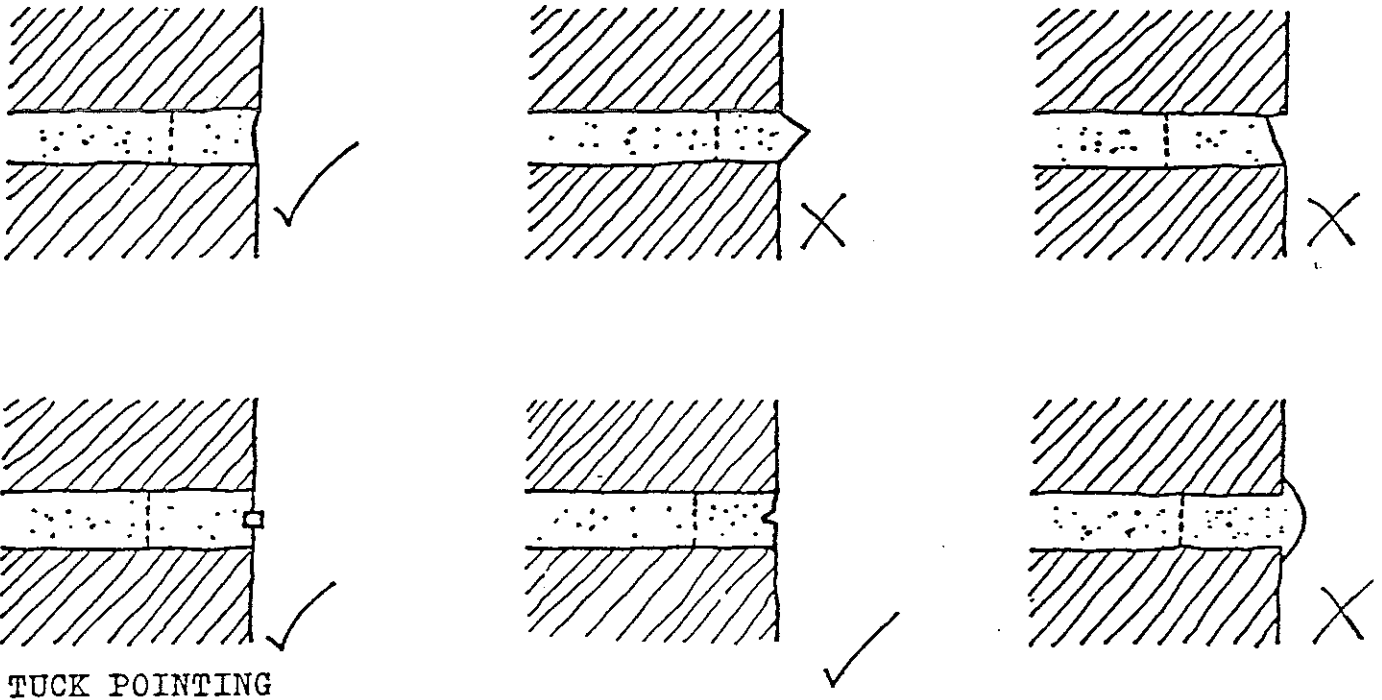
REPOINTING

Start at the top of the wall so that joints can be cleaned up as the work progresses. Fill the joints with a fairly stiff mortar and ram well home, using a pointing trowel. The mortar should not be allowed to spread over the edge of the brick.

When the mortar is applied with a steel trowel, the fine ingredients are left on the surface. This produces a hard, smooth joint, but with little in the way of character. When the mortar has begun to stiffen, after a few hours, expose the texture of the sand by stippling with a stiff-bristled brush at right angles to the surface, or with a gentle water spray.

JOINTS

The appearance of the original pointing should be the guide for the finish to be given to the new work. Generally, brickwork earlier than the seventeenth century requires slightly recessed joints. Later brickwork is usually best pointed with flush joints, but other forms may sometimes be used to match existing work. There are, however, some forms of pointing which are wholly inappropriate in the context of historical buildings and should never be used with old brickwork.



GOOD AND BAD POINTING

Some brick walls may feature 'tuck pointing' in their joints. This technique was used in the 18th century to achieve a regular, formal effect, after the manner of the day, creating the illusion of perfectly straight brick courses.

The effect is achieved by first filling in the joints with coloured mortar to match the bricks. A groove is then made with a pointing tool in a perfectly straight line and filled with lime putty. The putty was often made whiter with the addition of silver sand or darker by adding soot. This strip of putty often projects slightly from the wall.

Tuck pointing is an extremely laborious task, calling for a high degree of skill and patience, and is not recommended for the amateur. Indeed, it may be difficult to find a professional bricklayer prepared to undertake the task.

REPLACING BRICKS

If it becomes necessary to replace individual bricks, great care must be taken not to cause damage to adjacent bricks in the process.

One way of preventing this is to cut out all the joints surrounding the brick with a small sharp chisel, to a depth of at least 25mm. The brick can then be cut away in fairly small pieces without damaging other bricks.

When the cavity has been cut out and cleaned up, a brick should be chosen to match the rest of the brickwork as closely as possible. Wet the cavity thoroughly and place lime mortar on the bottom, rear and sides. Spread mortar on the top of the brick and gently tap into place.

The joint can then be pointed to match the rest of the work.

FURTHER READING:

- 'Pointing stone and brick walling' - S.P.A.B. Technical pamphlet 5
- 'Brick, flint and pebble walls'. - Bill Briault. Period Home
- 'English Brickwork' - R. Brunskill & A. Clifton Taylor.