Conservation Guidance Note

Repointing

What is repointing?

Repointing is the process of taking out mortar and replacing it from the face of the masonry joint. It helps to maintain the appearance of the wall and keep it wind and weathertight. With historic buildings poor repointing is commonly undertaken that damages the brick or stone and also takes away valuable clues to a building's construction and history.

Why is repointing necessary?

Repointing is only needed where mortar has become so loose, powdery, decayed or eroded that water has started to penetrate the joints. As a general rule it is advised to only undertake repointing when the mortar has weathered back to a depth equivalent to the joint width. Complete repointing of an elevation is rarely needed, or advisable. Lime mortars can often appear soft but this is often not a sign of failure – they are inherently flexible and therefore work well with historic buildings where there may be small scale settlement.

The purpose of repointing is not to 'tidy up' the building for aesthetic appearance. Sand or grit blasting is not acceptable as it can severly damage the face of the masonry.

Hard cement pointing

The use of a hard cement mortar on a historic building is not recommended. Cement mortars prevent the movement of moisture through the building, 'trapping it' within the masonry and increasing the rate of decay. Historic buildings were built with lime mortar, which is flexible, and allows the building to 'breathe'. Cement mortars tend to have a consistent and 'closed' pore structure that traps water rather than allowing the building to breathe. Any trapped moisture will expand if subjected to freezing conditions and mortars may ultimately fail, often causing damage to the surrounding masonry in the process.

Hard cement pointing significantly detracts from the appearance of a historic building and traps moisture within the walling causing damp

Any replacement mortar should be no stronger or harder than the material it is bonding**. It is therefore essential to use a lime mortar when repointing a historic building and when removing defective mortar to use hand tools only.**

History of Repointing

Before the 18th century repointing was a functional process related to the need to provide structural stability in the wall. Over the last three centuries it has been refined for its aesthetic and weathering purposes. During the 19th century cement was introduced that replaced more traditional lime mortars. As well as being a technological innovation it unfortunately had a negative effect on the appearance and breathability of historic buildings.

Styles of finished pointing

South Kesteven has a variety of attractive brick and stone built properties. Styles of masonry include coursed rubble stone, random rubble stone and brick, including handmade and machine made.

Tuck pointing: This is a practice that was common in the late 17th and early 20th century, whereby fine joints were imitated in gauged brickwork. It was also sometimes used to disguise irregular shaped, damaged or cheap bricks. The joints are filled flush with a self coloured mortar to match the existing bricks and then scored with a narrow grove onto which a thin ribbon of finer mortar (usually white) is pressed or tucked which gives the desired illusion of tight joints. If you believe that Tuck pointing has been used on your building please contact the Conservation Officer for further advice.

- **Where possible, historic pointing should be retained and its style copied in any new repointing works proposed.**
- **If it is difficult to ascertain the original style of repointing, any new repointing works should be flush or slightly recessed.**
- **Care should be given so that the mortar is not finished proud or spread over the masonry.**

Inappropriate weather struck and ribbon pointing can cause both visual and structural damage to both brick and stone masonry

Choice of materials

Lime: ***Lime putty****:* Known as non-hydraulic lime.
Hydrated lime: Dry hydrated lime that comes in bags, known as ‗bagged lime'. Water will need to be added to create lime putty that has a plastic/fatty consistency. A small amount of cement will need to be added achieve an adequate set.
Aggregate: Sharp sand should be used that has a wide range of particle sizes appropriate to the size of the joint. The largest particle size should not exceed one third of the joint width. It is recommended that time is spent finding the correct colour match. Within South Kesteven for example, the buff coloured sands are common such as Ancaster sand. Pigments, available from most builders' merchants can also be added to get the correct colour match.

Traditional mortar mix using lime putty

A traditional mortar mix is made from sharp sand and lime putty: **1:3 (lime putty: aggregate)**

Mortar mix using hydrated (bagged lime)

When using hydrated, or ‗bagged lime', cement will need to be added (immediately before use) to achieve the best set. Before this, lime putty should be made by mixing the bagged lime with water for a couple of days or longer (a process known as slaking), until it becomes of a plastic/fatty consistency.

Mixes vary according to material and weather exposure. As a general guide, below are the most appropriate mixes for brickwork and stone:

Brickwork: 1:2:9 (cement: lime: sharp sand)

Stone: 1:3:12 (cement: lime: sharp sand)

Lime mortar is best mixed in a paddle mixer, by hand on a board or in a bucket, but not a standard cement mixer.

Example of good repointing work, with flush joints using a lime rich mortar with graded sand.

Method

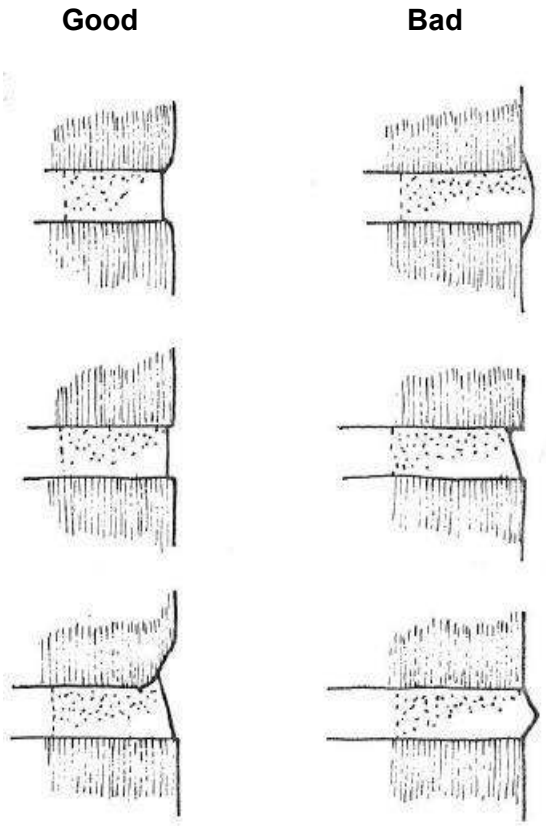
Push in the new mortar and press well into the joint with a pointing tool until it sits flush with the face of the stone or bricks. See figure to the right showing good and bad practice. When the mortar starts to harden, brush the joints with a stiff bristle brush (not steel wire). Tapping the brick is preferable to dragging.

Pointing is a 'top-down, bottom-up' process. Clearing out and preparation of joints should always be carried out from the top down, and pointing should be carried out from the bottom up to take account of the effects of gravity.

No pointing should be undertaken when there are frosts or heavy rain as this weakens the curing process.

After repointing cover with wetted hessian for 7 days to prevent the mortar from drying out too quickly.

Repointing: good and bad treatment of joints



Tools

Pointing irons are widely available at DIY stores but some builder's merchants and on line sites sell them.

Hawks
A hawk is a square board with a handle underneath for carrying mortar or plaster. Wooden hawks are very useful but hard to come by. They can be made by attaching a broom handle to a 6 inch square board.

Brushes:
A stiff bristled dust pan or scrubbing brush is very useful but a churn brush is ideal**.** A churn brush gets its name for their use for cleaning out milk churns. Avoid steel wire brushes.

Useful websites:

English Heritage – www.helm.org.uk

Society for the Protection of Ancient Buildings – www.spab.org.uk

Institute of Historic Building Conservation,

IHBC – www.ihbc.org.uk

Building Conservation Directory - www.buildingconservation.com

For more information please contact the Council's Conservation Officer Tel: 01476 406080, or email

planningpolicy@southkesteven.gov.uk
Enquiries in writing to: South Kesteven District Council, Planning Policy, The Council Offices, St. Peter's Hill, Grantham, Lincs, NG31 6PZ