

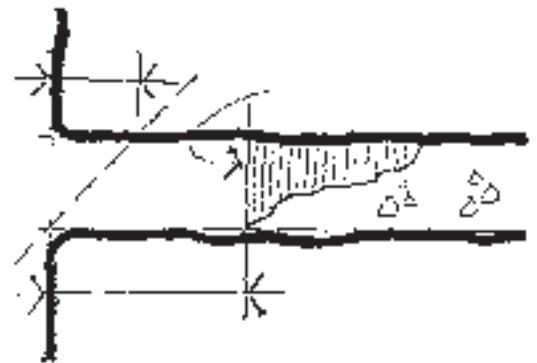
# The repointing of granite masonry joints

## Importance of correct pointing

Repointing which is poorly executed, is of the wrong type or of the wrong materials, can result in physical damage to the fabric of a traditionally constructed, masonry building. It can also radically alter the appearance of a building and thus substantially diminish its character.

## General principles

Pointing should always be weaker than the surrounding stone. Hard, dense mortars generally have the effect of increasing rather than decreasing the risk of water penetration and stone decay. If there is any movement in a stone wall, it should take place in the joint, or the stone itself will crack. Lime based mortars should therefore be employed in most instances as these can accommodate a certain degree of movement and are very workable. Hard grey cement-only mortars should never be used. Cement may, however, be added in certain circumstances to aid setting.



## When to repoint

Wholesale repointing should only be carried out where there is widespread failure of the pointing on a building. Where there is only localised failure, careful patching should always be the first option. Repointing should not be carried out for cosmetic reasons only, unless the building has been repointed at a later stage in its life with a particularly inappropriate type of pointing. Older weathered pointing generally has a more attractive appearance than fresh pointing, particularly if the new pointing is smooth and cementitious.

Masonry with fine, lime putty joints, as found from the late 18th Century onwards in ashlar work, requires especially careful treatment. Sound putty joints should never be disturbed, even if the outer few millimetres have been eroded. When repointing is necessary, loose putty should be gently raked out with a knife to avoid damage to the arrises of the ashlar, and all new putty matched to the original.

## Preparation of the joint

Repointing should never be superficial and it is vital therefore that old mortar be raked out to a suitable depth before repointing commences. Under no circumstances, however, should joints be widened to facilitate the work. Raking out should be executed carefully with hand tools and no form of hammer action power tool should ever be used as this could damage the outer stone facing and loosen mortar in the middle of the wall. In some cases however, it may be acceptable to use a masonry saw to cut a groove in the middle of joints which are 10mm wide or greater, in order to facilitate the hand removal of the remainder of the mortar in the joint.

As a general rule, joints should be cleaned out to a depth of 25mm, but never to a depth less than the width of the joint (**Figure 1**). If any joints have voids beyond this depth they should be carefully grouted and tamped with a suitably shaped tool to the desired pre-pointing depth, to provide a solid backing for the pointing (**Figure 1**). If this is not done, voids may be left in which water could collect, rendering the joint liable to frost damage.

Joints in rubble masonry, or joints which are liable to be exposed to extreme weathering, should be raked out to a depth of 38-50mm. It may sometimes be necessary to remove small stone pinnings during such an operation, but these should be replaced when tamping or repointing is in progress.

Prior to grouting or repointing, all dust and loose material must be removed with a stiff brush and flushed out with clean water. When grouting or pointing is about to be carried out, the joint should be pre-wetted [but not saturated], unless still wet from the earlier flushing, to prevent undue suction from the backing material which would weaken the interface between the new pointing and original mortar joint.

## Repointing

Very fine ashlar joints should be pointed flush with the face of the stone in pure lime putty, or lime putty mixed with very fine sifted sand. No coarse aggregate should be used in this type of joint. Care must be taken to ensure the lime is not smeared over the face of the stonework. Smearing can be avoided by inserting the putty from between two sheets of greaseproof paper or film, or by the use of masking tape.

Wider joints should be filled almost flush with the face of the stone with a mixture of non-hydraulic lime and sharp sand, graded to include small and large grains. If cement is added to the mixture it should be in equal proportions to the lime, although it is best omitted. If an early set is required it is preferable to use a hydraulic lime and no cement. On rubble walls the mortar should be flush with or marginally recessed by no more than 3 mm from the face of the stone. The pointing should not spread over the face of the stone unnecessarily, as the feathered edge will fall off in time, leaving a pocket to hold moisture and accelerate decay. In smaller joints the face of the mortar may be slightly struck to aid weathering (**Figure 2**), but in all cases the edge of each stone should be clearly defined.

The finished face of new pointing should resemble the weathered appearance of the original pointing. A smooth joint "struck" with a steel trowel should be avoided and "green", partially set mortar should be stippled with a bristle brush to expose the aggregate in the mortar. Alternatively the "green" mortar can be textured with a fine spray of water, to remove the whiteness of the lime and to bring out the graininess and colour of the sand. Fresh pointing should be protected from frost, rain and excessive or premature drying out.

Other types of joint treatment may be acceptable where there is clear evidence that the pointing proposed was the original type of pointing on the building. One treatment which is generally not acceptable on stonework is the use of heavily projecting "pare" or "ribbon" pointing (Figure 3). Not only does this kind of pointing draw attention to itself and away from the stone by its harsh linear appearance, but it is more likely to trap water resulting in damp penetration and frost damage, leading to additional maintenance.

In certain situations, evidence may exist of flush "pare" pointing (**Figure 4**). This type of pointing was most probably employed as a means of providing a joint of regular appearance where the stone was so roughly hewn that a joint of consistent width would otherwise be difficult to achieve. This type of pointing may, in rare circumstances, be acceptable providing it is formed by first pointing the joint flush with the mean face of the stone then cutting the edges back into the joint to reduce the amount of visible mortar and to prevent unnecessary smearing of the surrounding stonework.

Where wholesale repointing is being carried out, a sample area of pointing should be prepared for inspection by Planning & Infrastructure before proceeding with the main work.

### **Mortar mixes**

Due to the impervious nature of granite, water tends to collect and penetrate at the mortar joints. To improve the initial strength of the mortar, cement may be gauged with the lime depending on the strength of mix desired and the degree of exposure of the joint, although recent research suggests that too low a proportion of cement can result in a substandard mortar. It appears safest therefore to avoid the use of cement in the mortar, possibly adding a hydraulic lime instead to obtain an initial set. If a cement/lime mortar is to be used for pointing.

It is recommended that equal portions of cement and lime be used as follows:

1 cement: 1 non-hydraulic lime (putty): 6 graded sand (sharp sand should be used, graded to contain both fine and coarse grains.) Alternatively 1 hydraulic lime: 3 graded sand can be used to provide a rapid set whilst avoiding the use of cement.

Lime suitable for use in mortars can be supplied in ready to use form by:

**Mason's Mortar Limited**  
**77 Salamander Street**  
**Leith**  
**Edinburgh EH6 7JZ**  
**Tel: 0131 555 0503**  
**Fax: 0131 553 7158**  
**www.masonsmortar.co.uk**

who may also provide additional advice on lime's use and on suitable mortar specifications.

### **Further Information**

If you require any further information please contact:

**Masterplanning, Design and Conservation**  
**Enterprise, Planning and Infrastructure**  
**Aberdeen City Council**  
**Business Hub 4**  
**Marischal College**  
**Broad Street**  
**Aberdeen AB10 1AB**  
  
**Telephone: 01224 522155**  
**Fax: 01224 523180**  
**E-mail: pi@aberdeencity.gov.uk**

## **Masonry pointing contractors**

Planning & Infrastructure occasionally receives requests for names of contractors capable of carrying out traditional pointing of granite stonework, using lime mixes with graded sharp sand.

The following list of contractors is offered for information only, and no endorsement of any of the companies is either expressed or implied.

Stone pointing is commonly carried out by slaters but masons are equally as capable of carrying out this work.

Before proceeding with the pointing you should refer to this leaflet, and you should also ask your contractor to prepare a sample panel of pointing for inspection by a member of Planning & Infrastructure.

Please note that the lists are not comprehensive and your choice is not limited to the contractors in this leaflet.

## **Slaters**

AJ Donald  
2 Blenheim Lane  
Aberdeen AB25 2DW  
Telephone: 01224 644680

Hutchison Slaters  
10 Townhead Terrace  
Inverurie  
Telephone: 01467 625028

Sangster and Annand  
2 Novar Place  
Aberdeen AB25 3LG  
Telephone: 01224 633650

## **Stonemasons**

John Clark  
67 Jute Street  
Aberdeen AB2 3EX  
Telephone: 01224 639979

Bruce Mackland  
5 Duff Street  
Aberdeen AB2 1LF  
Telephone: 01224 641423

Ben Thow Limited  
Unit 8  
Spires Business Units  
Mugiemoss Road  
Aberdeen AB2 2RQ  
Telephone: 01224 699466

Alistair G. Urquhart  
North Balnagowan  
Coull  
Aboyne  
Aberdeenshire AB34 5JQ  
Telephone: 01339 886179

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## Illustrations

Figure 1

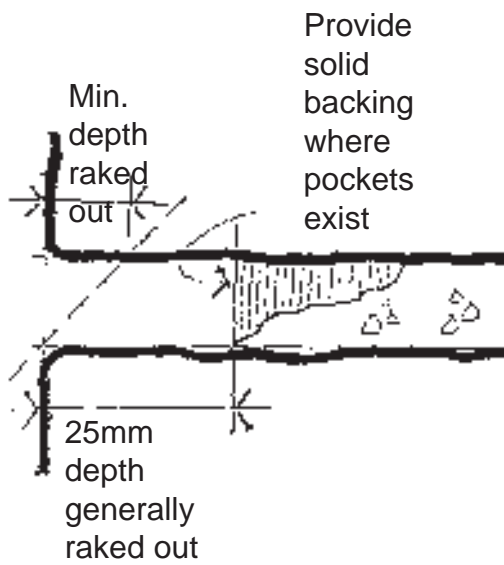


Figure 2

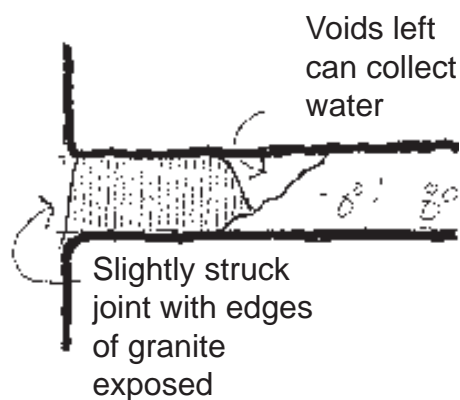


Figure 3

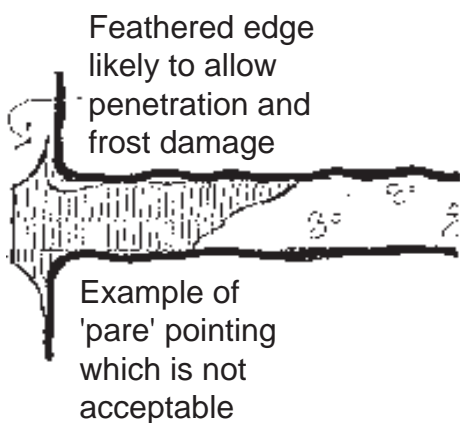


Figure 4

