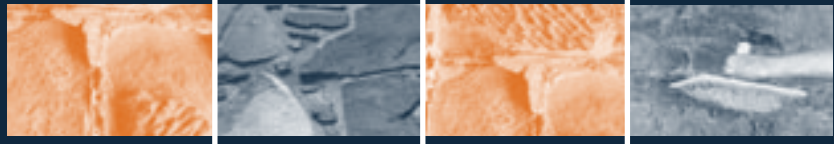


Caring for the **Built Environment**



Re-pointing Traditional Buildings

This leaflet is one of a group of leaflets which provide advice on materials and techniques relevant to the repair and conservation of traditional buildings. It refers to the general re-pointing of stone buildings using moderately hydraulic lime mortar. Please refer also to the leaflet on traditional lime mortar which deals specifically with the make-up and nature of lime mortar.

Mortar is not the “glue” holding building stones together but is a bed to keep stones apart. It has to move with the building. It must allow water to evaporate through the joints. It must be weaker than the surrounding stones yet must be able to support the weight of the wall.

Good jointing mortar is ‘sacrificial’; it erodes away due to the action of weathering thus protecting the adjacent stonework from the same fate. Re-pointing will, in time, become inevitable for all older buildings.

Re-pointing is re-filling the outer part of the bedding joints in brick and stonework where the original pointing has weathered away. It should only be undertaken where there are deeply recessed joints that are vulnerable to further weathering, where there are signs of instability in the walling or where the existing mortar is very soft and friable. The comprehensive re-pointing of a building is rarely necessary.

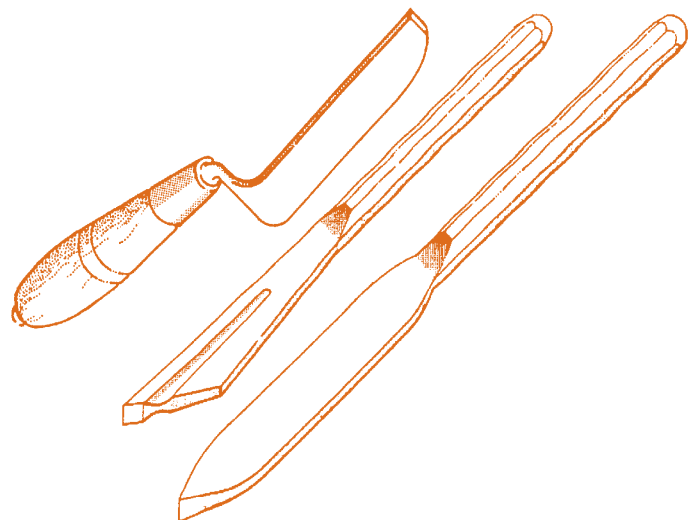
Sometimes repairs to external walls can include the need for re-setting of loose stones or the filling and stabilisation of deep voids. These will require appropriate specialist working practices in the use of lime mortar based on the general techniques

for re-pointing referred to in this leaflet. It is important, for example, that packing stones are used to avoid large volumes of mortar that could result in shrinkage and lime being washed out.

Hard, impervious cement mortars are not appropriate for older traditionally constructed buildings and can cause considerable damage. In contrast to lime mortar, cement mortar does not flex or move with the building and being hard and brittle forms cracks allowing water into the structure, which then seeps to the interior. Cement mortar also prevents the evaporation of moisture from the joint.

Re-pointing is a craft skill requiring careful attention to detail. It cannot be rushed; there is no cheap and fast alternative to good workmanship.

This leaflet gives a simple overview of re-pointing as applied to rubble or coarse stonework. For more detail or when dealing with fine ashlar further specialist advice should be obtained.





Materials

Mortar used for re-pointing should normally be based on hydraulic lime and clean sharp sand or other appropriate aggregates. The colour and size of the sand particles determine the appearance of the mortar. The existing older mortar should be carefully examined so that aggregates used in re-pointing can be selected to match existing mortar for texture and colour. In any case 'soft' building sand is not appropriate.

The strength of the mortar should reflect the strength of the stone or brickwork and the exposure to weathering. Sandstone requires a weak mix while whinstone will allow a firmer mortar bed but not so hard as to cause cracking and capillary pathways for water. Exposed chimneys will need a more durable mortar than a sheltered area of walling.

Method

Joints should be raked out to a depth of between 25mm and 50mm, by hand but NOT using a disc grinder. Cutting out the joint should be done using specialised tools, such as quirks, plugging chisels and long-necked jointing chisels. These are designed not to bind in the joint and so risk damaging or dislodging adjacent stones. Care must be taken not to damage adjacent stonework. The joints should then be brushed to remove loose material and can be flushed out with clean water but avoiding saturation of the wall.

If you need to remove old, hard cement pointing care must be taken not to damage the adjoining stonework. A balance will need

to be struck between removing potentially damaging hard mortar and the risk of causing damage to the stone by its removal.

As re-pointing proceeds the joint should be wetted to prevent the water from the mortar being sucked into the adjacent stonework. The new mortar must be well compacted into the joint in layers and kept back from the face of the stone or brick.

Wide joints should be pinned with matching stone pieces to avoid over-wide mortar

joints. Some walling incorporates pinnings, (also known as pin stanes, galleting or cherry-cocking). Such features should be accurately reproduced, particularly if they are part of the decorative element of the wall.

Where the stonework is generally decayed and no longer has neat arrises the mortar should be set back into the joint to avoid feathered edges that can crack away and allow water into the joint.



Take care using appropriate hand tools to clean the joint.

Keep the working area damp, but not wet; compact the mortar carefully and use pinnings as necessary.

Finishing

The surface finish of the pointing mortar should match that of the original where this can still be seen. Otherwise it generally should finish flush with, or slightly set back from, the faces of adjacent stones and should never be spread or smeared over weathered areas of stone.



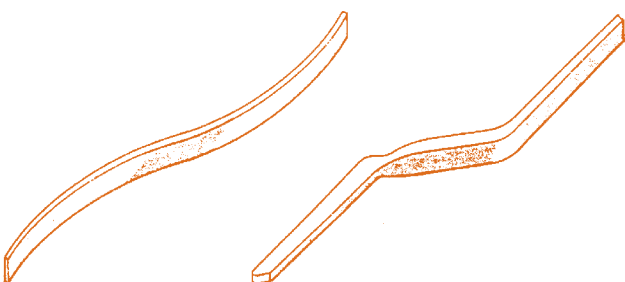
The final finish will depend on several factors including the nature of the stonework, (i.e. ashlar, coursed rubble or random rubble) and the evidence of earlier finishes. Often it will be adequate to stipple the mortar back into the joint with a stiff brush as this will give an appropriate rough texture. Alternatively if the aggregate needs to be exposed it may be lightly washed with a fine water spray.

Correct timing of the finishing work is important. The mortar must first be allowed to stiffen, which may be anything from several hours to several days. It should be remembered that the main aims of finishing the joint are to leave an open textured surface with the mortar fully compacted into the joint and to give a good appearance to the wall.

Occasionally, in rubblework the mortar was spread over adjacent stones. This traditional finish is known “slaister” or harl pointed. This should only be reproduced where it is still apparent as the traditional finish and then only using a soft lime mortar.

Smooth trowelled finishes and strap or ribbon pointing are inappropriate. Similarly over-hard mortar and hollow sounds when tapped indicate poor quality work where the mortar is too hard or has not been correctly tamped into the joint. Such work is not acceptable and can lead to failure of the joint and the retention of water in the joint resulting in damp penetration and accelerated decay in adjacent stonework.

Ensure a porous open finish flush with or set back from the face of the stonework.



Aftercare

All new work should be protected from adverse weather conditions to allow adequate curing time for the mortar.

It is important to protect new work from frost and rain. Do not work when temperatures are expected to fall below 5° Centigrade within 72 hours of undertaking the work.

The new mortar must not dry out too quickly and should be kept damp, not wet, for a period of up to two weeks. In hot, dry or windy weather the work should be covered with damp hessian and occasionally sprayed with a fine water mist.

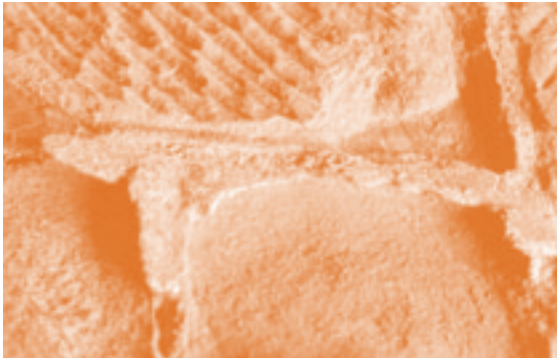
Protect the work from cold or rapid drying during the initial curing period.

Fine-jointed Ashlar

The re-pointing of fine-jointed ashlar work requires special care and different techniques from that required in general re-pointing work covered in this leaflet. If you need to undertake such work then you are strongly urged to ensure that the work is undertaken by skilled and specialist craftspeople.

Before you start

Repointing can seriously affect the character and appearance of a building. If your property is listed please discuss your proposals with the local area planning officer before you undertake any work as listed building consent may be required. In grant assisted work the mortar mixes should always be specified and agreed before work starts. A sample area of pointing should also be agreed before work proceeds.



Hard cement pointing has caused erosion of sandstone

The Scottish Lime Centre Trust offers training, practical experience and specialist advice in the use of lime-based materials. Contact at: The Schoolhouse, Rocks Road, Charlestown, Fife, KY11 3EN (Tel. 01383 872722).

A valuable source of advice and information is the Technical Advice Note 1, **Preparation and Use of Lime Mortars**, published by Historic Scotland, 1995.

Other references include:

The Repair of Historic Buildings in Scotland, Historic Scotland, 1995

The Care and Conservation of Georgian Houses, Edinburgh New Town Trust 3rd Ed. 1986

Practical Building Conservation John & Nicola Ashurst, Gower Technical Press 1988.

Lime products can be obtained from the following suppliers:

The Scottish Lime Centre Trust
(see above)

Leonard Grandison & Son, Innerleithen Rd, Peebles, EH45 8BA,
Tel: 01721 720212

Masons Mortars, 77 Salamander Street, Leith, Edinburgh, EH6 7JZ
Tel: 0131 555 0503

Telling Lime Products Ltd. Primrose Avenue, Fordhouses, Wolverhampton, WV10 8AW
Tel: 01902 789777

NHL Products
St Astia Hydraulic Limes,
The Lime Line – 0800 7839014

Somerset Stonework Ltd. Tout Quarry, Chessels Lane, Charlton Adam, Somerset, TA11 7AN

