

How to use lime successfully

The most common use of lime now is either in repair or repointing of historic walls. Other leaflets are available including an introduction to lime, and other information on conservation techniques and methods.

Further Information

Further information and advice on lime mortars other conservation practices and principles can be found at various web-sites, including:

www.buildingconservation.com
www.greenspec.co.uk

Further reading is also suggested, including:

Lime in Building – Jane Schofield
Hydraulic Lime Mortar – Donhead Publishing
Practical Building Conservation vol 3 – John & Nicola Ashurst / English Heritage

Suppliers of lime in the region include:

Lime Green, Much Wenlock
The Traditional Lime Co., Cheltenham
Ingarsby Conservation, Leicester
Lime Works Ltd, Cambridge, Gloucs
Old House Store Ltd, Henley on Thames, Oxon

A number of companies and organisations run lime training days for professionals, contractors and home owners.

English Heritage publish specialist technical advisory leaflets which are available free from www.helm.org.uk

The Society for Protection of Ancient Buildings (SPAB) have information on traditional construction methods, and hold training days and courses for their members, detail of which can be found at www.spab.org.uk

It is important to note that when working with Listed Buildings, special consent (Listed Building Consent) may be required for some works. It is advisable to check with the Council's Conservation Officer prior to starting any such works. If consent is necessary, a sample panel of brickwork and pointing may be required as a condition of any consent.

For further information and advice on the historic environment you can contact us in the following ways:

Writing :

Wyre Forest District Council
Economic Prosperity and Place Directorate
Wyre Forest House
Finepoint Way Kidderminster DY11 7WF

Email:

conservation@wyreforestdc.gov.uk

Telephone:

01562 732536

This document can be made available in other languages (including British Sign Language) and alternative formats (large print, audio tape, computer disc and braille) on request from

Wyre Forest District Council
by telephoning **01562 732928**
or by e-mailing
worcestershirehub
@wyreforestdc.gov.uk

Conservation Practice Note 2

Working with lime



Mortar Ingredients and Mixing

All historic lime mortars will have slightly different mixes due to the materials available, but the following details can help as a general rule of thumb. However, for an accurate mix, it is often best to provide a sample to a specialist lime company who will analyse the original mortar, and prepare a mix to the same specification.

If mixing lime mortar yourself, it is important to understand that the sand can alter both the colour and the strength of the mortar. With many different types and colours of sand available, it is often very easy to use the wrong sand, with a result of a mortar which looks and acts very differently from the original mortar you are trying to match.



The most common sand in most builder's merchants is a dry screened sand, which often contains significant amounts of impurities such as silt and clay. Whilst this is very good for cement, it is one of the worst for lime mortar. Ideally, a silica sand should be used, or a good plastering sand. Some sands will have dyes or colours put in them to achieve the the colour (i.e. red or yellow), and this dye will then affect the colour of the mortar. In order to gain a neutral colour for mortar, the sand will need to be washed and free of any added colouring or dyes. Generally, if a good quality washed sand is used, then the natural colour of the sand will not have a dramatic impact on the colour of the mortar. As a general rule of thumb, the mix of lime should be 1 part lime; 1 part sharp sand; 1 part soft sand; 0.5 – 1 part aggregate (generally crushed limestone or similar). However, this can vary slightly and it is

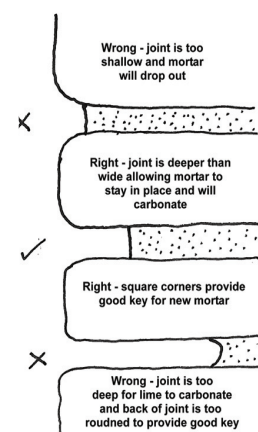
always advised to have a sample analysed to achieve the best match. Contrary to popular belief, It is never advised to mix lime and cement - this will create a very poor mortar, and will not provide any benefits.

Preparation

Preparation is everything. Firstly, in preparing and mixing (or “knocking up”) the mortar, this is very similar to that of cement. If large quantities are to be made, then a drum mixer can be used, or alternatively, mixed on a board with a shovel. It is also important to note that non-hydraulic lime can be stored in its mixed state in an air tight container, for up to 6 months – the longer it is stored, the better it becomes and easier it is to use. It is generally recommended to leave the mix in an airtight container for at least a week to achieve a good working lime mortar. Conversely, hydraulic lime should be used within a few hours of being made, and does not store well.

A good lime mix does not need an excess of water and the end result should be firm rather than the sloppy mix of cement, ideally slightly thinner than the consistency of cottage cheese.

Preparing the wall and/or joints is as important as the mix itself. Firstly, the joints need to be raked out by hand, and never with the use of an angle-grinder,



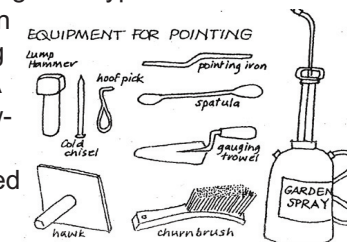
or similar tool, which will always damage the brick edges (the arris). Either a small, narrow cold chisel or a hoof pick should be used to remove any loose mortar. In repointing, the depth to be raked out should be slightly more than the width of the joint, but no more.

Next, the wall needs to be moistened. This can be done through the use of a general garden sprayer (not a hose-

pipe), and the wall should be damp (but not soaking).

Do I need any specialist tools?

Several tools are used in working with lime. Firstly, a “hawk” – a small hand-held board for putting the lime on as you work with it, held in one hand as you undertake the repointing. Two types of trowel should be used, depending on the depth of repointing or quantity of laying. A standard gauging trowel is good for laying, and a narrow flat-ended pointing trowel or iron should be used for repointing. These come in a variety of sizes, so chose the right one for the width of joint. Finally, a churn or dairy brush, with firm bristles is needed for finishing. Hessian is also required, if there is any frost or the weather is too warm.



Working with Lime

Care should be taken to ensure that lime is not smeared over the brickwork, and that the mortar is firmly pressed into place to ensure that there are no air gaps.

Finishing

The finishing of the work is one of the most important, ensuring that the work looks right and performs well. Generally, a week after finishing the pointing or laying, the wall should be very lightly dampened again, and brushed with a churn or dairy brush, removing any excess mortar from the brickwork, leaving the aggregate to show through clearly.

It is also very important to understand that lime mortar weathers – at first the mortar will look very bright and stand out. However, over time (6 months to a year), the colour will mellow, and the mortar should blend with the original.