



Pointing with Lime Mortar

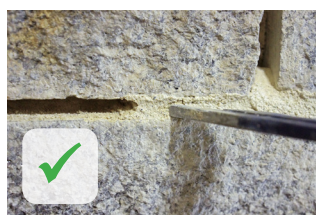
Pointing is the action of filling the external part of the mortar joints between masonry units such as stone or brick etc. with new mortar to better protect the masonry from water ingress and associated decay.

With rubble stonework especially, before any work commences we would advise that you take a moment to simply study the wall and observe how it was built originally (if still possible), certainly take pictures for a visual reference. With this type of masonry you will often observe small stones being used to support larger stones. These pinning stones (also referred to as gallets or snecks) while providing a “wedge” also act as large pieces of aggregate, reducing the amount of mortar used within the joint. This reduction in mortar mass aids curing and to some degree the cost. In order to maintain the visual integrity it is important that these pinning stones are placed back within the wall as close as possible to that of the original.



Joint Preparation

In most repointing cases the least popular aspect of the process, although vital that it's done as thoroughly as possible, is the removal of the existing mortar joints. In the case of original lime mortars, it is relatively straight forward, however, more frequently this involves the removal of hard cement mortars. In order to mitigate further damage to the original masonry this should be removed as carefully as practical, leaving as square a profile as can be realistically achieved at the back of the joint. Exactly how it's achieved will be very subjective, as will the tools used to achieve it. There may well be occasions where mechanical cutting out is deemed appropriate and when and where this method is suitable we would advise due diligence to mitigate unnecessary damage to the masonry units.



Clean out existing mortar joint into space to reduce stress on the masonry unit

When removing existing pointing it's important to keep any damage to the masonry to an absolute minimum, and the most obvious element to manage that is “common sense”. Existing mortar should be removed by cutting out in a controlled manner, where the existing mortar is cut out to the open face of the joint, don't direct energy from the chisel directly into the mortar. This reduces the energy and stress to the masonry unit. Tools should be appropriate to the joint size and chisels should be as

sharp as possible. While it may be counter intuitive you don't need big heavy hammers, and rarely would we advocate the use of mechanical type “breakers”; however, mechanical methods can often be appropriate – when used sensibly.

The joints need to be raked out to a suitable depth, with the general rule being that it should be at least one and a half times the width of the joint, in the case of wide joints common sense should prevail. Insufficient depth will result in nothing more than a token gesture with an increased risk of the mortar becoming loose or simply falling out within a relatively short time.

Once the joint has been cut out square it should then be further prepared by a thorough brushing out, with no loose material present to compromise the bond of the fresh mortar once it is placed.

Dampening the Wall

While this should be important when working with any mortar it's far more so with lime, lime mortar after placing should not allowed to dry out too quickly. Before any mortar is applied the background of the joints will need to be dampened down and as different masonry will have different characteristics the advice we offer here is generic. Existing lime mortars tend to be highly absorbent and assuming the work is being carried out on typical masonry with an average amount of residual moisture (approx. 20% in northern Europe), spray the wall using appropriate methods that will place sufficient moisture into the background to prevent desiccation of the fresh mortar after placing. NEVER place your mortar where standing water is present.



Lime Mortar

Mortar should be selected for specific applications and locations. The table below offers a simple overview of suitable mortars; however, we advise that you contact us for more specific advice.

Lime Type	Host Surface	Exposure	Time of Year	Examples
Non Hydraulic Lime Putty	Very soft and friable backgrounds	Sheltered & Internal	April to September	Cob (earth) soft friable brick or stone. Well suited to other masonry types throughout the year
NHL 2	Soft and friable backgrounds	Sheltered	All year with adequate protection	
NHL 3.5	Reasonably sound to very hard backgrounds	Sheltered to moderate		Most Masonry Types
NHL 5	Very durable / hard backgrounds	Exposed		Dense / Hard Masonry

Mortar for pointing should be workable without being too wet, generally the stiffer the mortar the cleaner the work can be executed. If the mortar is too wet, it can be difficult to apply and will readily stain the masonry; also, the wetter a mortar is the more prone it will be to shrinkage cracking.

Tools

There are a wide variety of tools that can be suitable for pointing. For most applications it will come down to what is suitable to the joint size, personal preference and what feels comfortable. Using too large a tool will result in mortar being smeared over the masonry or prove difficult to apply in tighter joints.

A plasterer's small tool, also known as a leaf and square or a trowel and square, can be very useful for where you have smaller joints.

In our opinion the churn brush is the most important tool when it comes to pointing, with its main role to beat the mortar back after application; this will be discussed in more detail shortly.



Churn Brush



Trowel and Square

Filling the Joints

When filling joints, it is important that the mortar is thoroughly pressed home applying sufficient pressure to the tool forcing mortar into the whole of the joint.

When placing the mortar, avoid filling large voids with just mortar, instead think about packing them out with appropriately sized stones that act as aggregate thus reducing the mortar mass, aiding the curing process; regardless of the type of lime used.

While there are many ways that pointing can be finished, here we are only advising that of “Fully Flush Pointing” or “Pointing to the Weathered

Edge,” where the mortar is finished in such a way that it allows water to run down over the face of the stone. We never advocate or recognise recessed pointing where a ledge is created which in turn can allow easier access for water into the masonry fabric from wind driven rain.



Finishing the Joints

The best tool and method for finishing is to use a churn brush to strike the mortar, to compact it within the joint using a tamping action, throwing the brush square onto the mortar, in such a manner that you compact the mortar, closing any initial shrinkage that may have occurred, thus improving the contact between mortar and masonry. This action serves several purposes, firstly it improves the contact between the stone

and mortar, it also cleans off material that may be on the edge of the stone and finally it leaves a textured surface.

A textured surface increases the surface area of the mortar allowing for greater evaporation from the mortar joint. This tamping operation can and should be further repeated at an appropriate time but while the mortar is in a suitable state to receive such treatment.

The action of finishing the mortar is extremely important for the obvious technical reasons, also the visual impact of pointing; this is after all what you will be displaying for many years to come.

As for the right time to carry out this task it should be done when the mortar has reached a state where it has started to set to the point that it's “leather dry” e.g. when your thumbnail can just indent the mortar; too soon and you'll simply smear the mortar over the masonry and too late you'll just wear the brush out quicker. It can be as soon as a couple of hours or as much as 48 hours, or longer during colder weather, especially with lower strength limes.

The exact time mortar will take to reach this point will vary considerably on weather conditions at the time (temperature especially), with the mortar taking longer during colder conditions and greatly accelerated during the summer. Therefore, with the explanation offered above the best advice we can provide here, is that you should wait for what we hope will be apparent, but please don't hesitate to contact us for further assistance.



Aftercare

While dampening the wall is a vital process for pointing as it helps cure the mortar, there are further measures that need to be considered once the mortar has been placed. Weather in the UK is dynamic and



while there are several factors to manage the two main concerns to watch out for will be frost and drying out. Most importantly, if a lime mortar can dry out too quickly (rapid moisture loss) the result will more likely be a mortar that is chemically deficient and vulnerable to accelerated weathering, and one of the most common causes of mortar failure.

Lime mortars demand baby sitting in their infancy with appropriate measures adopted for good curing and appropriate to the prevailing conditions at the time they are placed.

Mortars can be protected, usually with hessian sheeting. Hessian has a dual purpose, firstly it

protects the mortar from the elements and secondly it helps keep the mortar damp to aid its cure. For further more specific information please refer to our guidance sheet titled “Curing Lime Based Renders & Mortars”

This article is to provide general guidance and an overview of pointing, we strongly advise that you contact us for more specific information for individual applications.

The information given in this document is for guidance purposes only and is not intended to be a specification.