

A Practical Guide to REBUILDING A STONE WALL

Traditional Buildings Maintenance Part 2



The size of the job and whether it's a listed property will affect the questions below, which should be checked with your local council;

- Do I need planning permission and listed building consent?
- Do I need Building Regulations approval?
- What size foundations are necessary?

The requirements for repairs to an existing wall will differ from a new wall separating your patio from the neighbour's! The type of stone or brick used will affect the strength of mortar in which to bed them. Prior to the 1900's most solid walls of traditional construction were bedded in lime putty mortars, often with earth (subsoil) mixed in as well.

Rebuilding and repairing with lime mortars offers a number of advantages:

- They will match the existing structure for porosity and density, allowing moisture to move in a similar way
- They can accommodate general movement better than a hard mortar
- Soluble salts will be less likely to crystallise in the stone or brick faces
- They will match existing walls aesthetically

Preparation:

Select stone from a local quarry to match the existing. Take a sample along to the quarry if

you're not sure. You can usually get two size ranges; 4"-6" and 6" - 9". For the bedding mortar use a volume mix of 7 parts coarse sharp well graded sand (from fine up to 8mm size) and 2 parts mature lime putty, mixed in advance for at least a week. Lime mortars gain strength from carbonation with carbon dioxide from the air. In damp, frost prone or very exposed situations it may be appropriate to add an extra ingredient to a lime mortar to increase its compressive strength and frost resistance. Traditionally volcanic ash or brick dust were added, these are forms of burnt clay called pozzolans after the Italian town of Pozzuoli where volcanic ash was used by the Romans. We use a calcined clay from Cornwall called metastar at a volume gauge of 10 -25% depending on the degree of exposure. It won't give an overnight set but will slowly begin to add extra compressive strength to the mortar after a couple of weeks.

Building:

If you're a novice, position a stone dry first to make sure it looks right and you have the best face showing. Stagger the vertical joints so there isn't a vertical joint running continuously up the wall

Premixing:

All lime putty mortars benefit from being pre-mixed for a minimum of a couple of weeks and then "knocked up" again prior to use to plasticise them - this reduces shrinkage in the mortar. Natural Hydraulic Limes (NHL) benefit from premixing

by an hour then mixing again just prior to use.

Application:

Use a mortar bed just thick enough to spread the load evenly, finishing just beyond the front face and then trimming flush with the edge of the gauging trowel. Use a through stone that can tie together the entire thickness of the wall or thereabouts, one every square metre of wall face. Pin the wall together from both faces. The mortar shouldn't dry out too quickly - protect from sun, wind and rain with damp hessian cloth. Protect from rain if necessary. Build up to a maximum of 1 metre high at a time and then let the lime mortar cure for 2 to 3 days. When dry, the joints can be brushed with a stiff brush to expose the aggregate.

Safety:

Limes are caustic. Always wear eye protection and protective gloves and clothing and follow the safety instructions on the labels. Our advice and information are given in good faith. It's important that users satisfy themselves that they've chosen an appropriate product and have a suitably skilled workforce.

Mike Wye & Associates
Natural Building
& Decorating Products
www.mikewye.co.uk

Tel: 01409-281644
Fax: 01409-281669

Buckland Filleigh Sawmills
Buckland Filleigh
Beaworthy
Devon EX21 5RN