

Mixing Non-Hydraulic Lime

It is vital that lime mortar is thoroughly mixed before use to ensure that the lime is well distributed and that any lumps are broken down. Good mixing is also needed to make the mortar more workable. Mature lime putty is initially stiff with a dry, cheesy consistency. It is rather hard to mix sand into this stiff mass and there is often a temptation to add water to help in mixing. However, with persistent chopping and beating with a shovel, or working with a paint stirrer attached to a drill, the lime becomes much more liquid, resembling cream cheese or toothpaste, and the sand can be worked into it without the need for extra water.

Commercially made mortars are mixed in a mortar mill. This consists of a wide pan with two revolving rollers, which crush and squeeze the mortar ingredients together. The pressures involved ensure an intimate contact between the sand and the lime as well as eliminating lumps.

The revolving drum type of cement mixer is not ideal for mixing lime mortar. As there is no pressure applied to the ingredients the lime tends to remain lumpy and usually just sticks to the sides of the mixer without mixing with the sand. The temptation is to add more water but mortar made this way is too liquid and prone to shrinkage as the water evaporates. If tipped out and stored in stout wooden boxes (solid wood, not plywood) or a timber-lined lime pit, the water can seep away leaving a usable mix, but making the wooden boxes or pit is time consuming and expensive, and only worthwhile if you have a lot of mortar to mix and cannot stand the thought of hand mixing. However, it may be more practical and economic to use a ready-mixed mortar.

Traditionally mortars were hand mixed in a large, shallow wooden box using a hoe-shaped tool known as a larry. The mortar could be thoroughly mixed by turning it with the larry and by pressing it against the sides of the box.

Unless you have access to a larry and a box you will have to mix your mortar using a shovel as follows:

- Accurately measure the quantities of sand and mature lime putty using gauging boxes or, more commonly, plastic buckets, and tip the ingredients onto a clean wooden mixing board.
- Using a clean shovel chop and press the mixture with the back of the shovel using as much downward pressure as possible and working across the heap from the far side back towards your feet. A dirty shovel with dried-on lumps of mortar will make mixing even harder work than normal as the lime will stick to the shovel.<
- Turn the mix over with the shovel and repeat the chopping and pressing until the sand and lime are well mixed and the consistency is soft and workable. This may take up to twenty minutes. It is unlikely that any water will need to be added. In most cases the water present in the lime putty is sufficient. When properly mixed, a blob of mortar dropped from a height of a few inches onto a hawk will stick to the hawk when it is turned upside down.
- You will now have a basic mortar known as coarse stuff. Although it can be used immediately it improves if stored in airtight containers for a while. When you come to use it you may find that it has stiffened up and become crumbly. Tip it out onto a clean wooden board and mix it with a shovel, as

described above, to restore its plasticity. This is called 'knocking up'. No additional water should be added.

If you buy ready mixed mortar you will simply have to tip the mortar onto the mixing board and knock it up ready for use. This is much easier than mixing your own mortar and for most people the extra cost of buying mortar is more than offset by the savings in time and effort.

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