

Limetec Hydraulic Lime Mortar

Mixing & Laying to Maintain Consistency

Method Sheet

Introduction

This information sheet has been produced as a guide for the mixing of 25kg bags "special" recipe of Limetec Hydraulic Lime Mortar. The key aspect is to maintain consistency and quality of the finished mortar.

1. Products

Limetec Hydraulic Lime Mortars are available in various strengths and are a blend of natural hydraulic lime (NHL), high calcium lime (CL90), well -graded aggregates and pigments (if required or specified); they do not contain patented cements. All mortars are factory batched, ensuring quality and consistency of the dry mortar product.

NB: Our mortar is manufactured for us by Tarmac Building Products. They mix our lime with their local aggregate which has a pink tinge. They then add pigments to give the mortar the desired colour.

When water is first added to the mortar the pinkness of the aggregate shows through. As the mortar dries and cures the pinkness is replaced by the colour of the pigment and the true colour becomes dominant. This can take a little while.

Mixing the mortar thoroughly is very important. You should use a free fall mixer and mix the mortar dry first to ensure even distribution of the pigment. After adding water you should then mix for at least 10 minutes to allow the lime to absorb the moisture.

2. General notes on mixing

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A drum mixer can be used and will provide adequate mixing. Water must be clean and free from organic matter - tap water is recommended. Depending on the consistency of the mix, approximately 3.8-4.5 litres of water are required for each 25kg bag of dry material. Following trials on site to establish workability and colour, record water addition and maintain throughout the mixing period. Measure dosage of water per 25kg bag.

3. Mixing mortar using a drum mixer

- Switch the mixer on and dampen down the inside of the drum before emptying the contents of the bag, as
- This will help to reduce the amount of airborne dust.
- Once the inside of the drum is coated with a film of water, switch the mixer off and empty the contents of the Limetec Hydraulic Lime Mortar 25 kg bag into the drum.
- Add a proportion of the water (approximately 50%) to the dry mix and switch the mixer on.
- Allow the water to thoroughly disperse through the mix before more water is added.

Note (a): The lime, which is in a powdered form, is hungry for moisture and absorbs water like a sponge. It will momentarily hold more water than it can cope with; this is then released which can result in a saturated or sloppy mix. Through controlling the amount of water that is added, allowing it to thoroughly disperse and keeping the mix slightly lean, the chances of the mortar becoming sloppy and unworkable are greatly reduced.

- Continue to add water in this way, allowing all of the water to combine before adding more.
- When the mix is slightly lean of the required consistency (or once you have added 90% of the water) leave the mortar to turn over in the drum for 5-10 minutes.
- Before the mixing period has expired, add the remaining 10% or enough water to get the mix to the desired consistency.

QUICK CHECK:

To check that the lime is of the right consistency, put a small quantity of lime onto the back of a trowel and tap it gently (allowing the mortar to evenly spread across the face of the trowel). Then, holding the trowel steady turn it upside down – the mortar should remain stuck to the trowel and not fall off.

4. Improving the properties of the mix and re-working

The workability of Limetec Hydraulic Lime Mortars can be improved by allowing the mortar to stand after the initial mixing period and then re-working the mix just prior to when the mortar is required.

- Once the mortar has been thoroughly mixed to the desired consistency, empty the contents into a mortar tub or barrow and cover with a damp hessian or polythene sheet. This will help to control the evaporation of water from the mix.
- The mortar can be left like this for up to 12 hours in normal weather conditions.
- During this period of standing the mortar will stiffen and water will come to the surface - this is quite normal. After the standing period the mortar can be dug out and re-mixed. Allow the mortar to turn over in the mixer for at least 5 minutes, during which time the mortar will regain its workability. There is no need to add extra water, however if the mortar does look dry after 5 minutes of re-working add a small amount until the desired consistency is achieved.
- If the mortar appears "dead" or if the consistency does not improve without the addition of excess water, then the mortar has been left standing too long and should be discarded.

TOP TIP:

By mixing a quantity of mortar at the end of the day, it can be left overnight and then re-worked first thing the next day. This will help to control evaporation and save time, as work can commence almost immediately the following morning.

5. Laying Bricks

Limetec Hydraulic Lime mortars can be used to lay up to 1.5m lifts of brick per day. For optimum results ensure adequate protection can be given to the mortar.

Mortar should not be used if the temperature is at 5°C and falling. Attention must be given to the weather forecast before and for at least 24 hours after laying masonry.

Work should not be carried out if the temperature reaches 30°C. In warm weather it is advisable to damp down the brick/stone to avoid the substrate taking moisture from the mortar.

Wetting of Masonry Units

It's important to create a bond between the masonry and the mortar and to achieve this certain amount of suction is required. Masonry with high porosity should be pre-wetted in advance of being used, as too high a suction rate will "kill" the mortar

Pre-wetting will vary according to brick type and weather conditions and will range from dipping the unit into a bucket of water to spraying the units with a water hose. Care should be taken to ensure that the masonry is not overly wet, as this will completely kill the suction, cause the masonry to slip and the mortar to stain the face of the

work. Water should be absorbed into the masonry and not run off of the face. Over wetting in cool conditions will also increase the setting time.

Pre-wetting should not be necessary in the winter.

Note (b): Well-graded sharp sands are used in the manufacture of lime mortar, and these can feel slightly gritty when compared to cement mortars which use soft building sands. A consequence of using sharp sand is that some difficulty may be experienced in bedding down the brick, particularly if the brick is too dry, so it is important that the mortar bed is laid as evenly as possible and bricks are properly dampened.

The process can be made easier by running a furrow through the mortar bed — the bricks can be placed and pushed down to the required thickness, with the excess being cut off at the face.

6. Jointing Up

The process of "jointing up" is undertaken to influence the overall aesthetics of the building, but can also affect the performance qualities of the mortar. An open texture is required to maximise performance as a closed surface will inhibit the permeability or breathability of the mortar. Generally, a flush joint (with the brick face) is more desirable than one that is weather struck, recessed or finished with a rounded tool.

Method A

1. Allow the mortar to firm up (or wait until the surface of the mortar takes on a leathery texture).
2. Compress the surface of the mortar using a hardwood stick approximately the same width of the joint (10mm) with a face cut at a 45° angle. This is also known as "rubbing up" as the stick is being pulled along the face of the joints. This action, as well as compressing/consolidating the mortar is also opening up the texture of the joint. If any holes appear in the joint fill them with mortar and repeat the process. A flat profile must be maintained on the surface of the stick otherwise the joint will become rounded (this step may be omitted if the work is very tidy).
3. Using a churn brush or naturally bristled stiff brush, beat the surface of the joint flat on (do not drag as this may lead to staining of the brickwork). This will compress/consolidate the mortar and exposes the coarser aggregate. If holes appear in the mortar, fill them and repeat the process. Loose material, should fall away from the brickwork.
4. To finish the area off use a soft brush across the face of the whole wall to remove further loose material.

Method B

1. Allow the mortar to firm up (or wait until the surface of the mortar takes on a leathery texture).
2. Compress the surface of the mortar using a hardwood stick approximately the same width of the joint (10mm) with a face cut at a 45° angle. This is also known as "rubbing up" as the stick is being pulled along the face of the joints. This action, as well as compressing/consolidating the mortar is also opening up the texture of the joint. If any holes appear in the joint fill them with mortar and repeat the process. A flat profile must be maintained on the surface of the stick otherwise the joint will become rounded.
3. After compressing the mortar gently run a phosphor bronzer brush along the joint. This removes loose material, exposes the coarser aggregate in the mortar and cleans the arises (phosphor bronze brushes are softer than steel wire brushes and will not leave residues that will rust and lead to staining).
4. To finish the area off use a soft brush across the face of the whole wall to remove further loose material.



7. Do's and Don'ts

- Typical water addition 3.8-4.5 litres per 25kg bag
- Once established, maintain water addition
- Ensure mortar is fully mixed before laying (10 minutes mixing)
- Do not add admixtures to the mix
- Do not overwork the surface of the mortar as this will affect (lighten) colour
- Provide adequate protection from harsh weather conditions, particularly frost
- Do not lay Mortar if the temperature is at 5°C and falling. [see working with Lime Mortar in Winter Conditions]

8. Health and Safety

Lime is alkaline in nature (Xi, irritating) therefore it is necessary to protect eyes and skin. As a precaution, in case of contact with skin, rinse area with water and dry thoroughly. If contact is made with the eyes, clean water should be used immediately to wash any debris to the outer edge of the eye, medical attention should then be sought. Please refer to the Limetec Health & Safety data sheet or mortar bag for full details.