

Limetec® Hydraulic Lime Mortars – Benefits V Cement

Limetec® Hydraulic Lime Mortars are manufactured under modern factory techniques using a blend of sands and limes. These comply with the durability requirements of BS5628: part 3: 2001. Raw materials and end products are subject to regular quality control procedures and testing. Although mortar is traditionally specified by volume, it is generally accepted that batching by weight produces mortar of a greater consistency.

Lime mortars have been in use for thousands of years and we see many examples of historical buildings and structures standing the test of time. Recent history in the expansion of the rail industry saw lime mortar used extensively in the construction of bridges, tunnels & viaducts.

Lime mortars are now being specified and successfully used in many new modern buildings.

The key differences in Lime & cement when used in the manufacture of mortar are listed below:

LIME	CEMENT
Soft	Hard
Vapour Permeable	Impervious
Flexible	Rigid
Self Healing	Strong and Brittle
Slower Drying Times	Very Quick Drying

Lime mortars are weaker than the masonry, stones or bricks, yet able to support the weight of the wall. This is due to the mix composition incorporating sharp sand with the particles interlocking when in compression.

Being weaker than the surrounding stones, lime based mortars have the ability to move and flex with the building without the use of movement joints (see structural design guide)

As for build ability, there are numerous examples of modern buildings that have used lime mortar and achieved and maintained a satisfactory build program. It is possible to lay in lifts up to 1.5m high.

Whilst it is not recommended to lay mortar, either sand cement or lime, in temperatures of 5 degrees C or less, it can be possible if adequate protection is given (see Winter Guidelines for Lime Mortar).

Design Benefits of using Lime Mortar

Movement is accommodated in the bed joints reducing the need for vertical movement joints which greatly improves the aesthetics of buildings. More tolerance to movement particularly in high buildings/ structures.



Improved breathability allows moisture vapour to move freely through the mortar joint effectively reducing the likelihood of frost damage in the brickwork

Sustainability – In the manufacturing process lime produces less carbon dioxide than cement, as it's burnt at lower temperatures, saving on fuel consumption and emissions of pollution and greenhouse gases. Co2 emissions are around 20% lower than in cement manufacture. Lime mortar will also absorb Co2 during the hydration process (carbonation) and over a period of time become carbon neutral.

Recycling – Due to the lower bond strength the bricks/ masonry can be easily cleaned and recycled at the end of the buildings life Limetec® Hydraulic Lime Mortars offer several usage and mix advantages over sand/cement mortars and site mixed lime mortars:

- **Reduces the need for movement joints.**
- **Uses less energy to produce than cement.**
- **Re-absorbs CO₂ when it cures and sets.**
- **Allows masonry to be recycled at end of life.**
- **Provides a breathable form of construction.**
- **Provides a water shedding barrier for walls.**
- **Enhances brickwork and masonry.**
- **Consistent mix proportions.**
- **Consistent quality and colour of mortar.**
- **Correct choice of sands.**
- **Mortars can be re-worked for up to 24 hours.**
- **Reduces wastage when using silo option**
- **Productivity savings**
- **Mortar is produced as and when needed**

Performance

Limetec® Hydraulic Lime Mortars are more flexible than Portland cement based mortars, which means that movement joints are not necessary in many circumstances. [see design guide]

Limetec® Hydraulic Lime Mortars offer good vapour permeability, which enables the building to “breathe”.

Limetec® Hydraulic Lime Mortars are formulated to meet the requirements of compressive strength and durability for masonry and can be used to lay up to 1.5m of brickwork per day.

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 [see working with Lime Mortar in Winter Conditions or check with Limetec for advice].