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EXTERNAL HYDRAULIC LIME RENDER

Preparation of the Wall Surface

The successful application, bonding and correct hardening of hydraulic lime mortars, requires that the background should be clean, free from vegetation, free of containments and reasonably dry throughout the wall mass. The wall should be structurally sound and the masonry and bedding mortars in good condition.

Where natural weathering or incomplete repair works have previously been carried out, new repair work will be required to correct these defects. In masonry the natural weathering process can result in the loss of small stones, known as pinnings, which are traditionally placed into wide bed joints between larger stones, where these are missing their replacement should be carried out with any general repointing work which needs to be undertaken. (See repointing).

Where walls are covered in vegetation, lichen or moss, these should be removed, by use of cutting stems, treatment with biocides and eventual cleaning down with brushes, any remaining biological growth can retain water and may in time grow back through the new lime coatings.

The application of various coats of hydraulic lime should not be seen as remedial repair works to the masonry background, the replacement of loose or defective mortar, replacing missing stone pinnings, repairing damaged brickwork or stonework are distinct separate operations and their eventual outcome should be to present a reasonably flat and even surface, which is structurally sound and clean ready for the rendering application.

Suction Control and Bonding

Before the application of any new lime coatings it is vitally important to check the degree of suction within the background. Poor or excessive suction can result in a weak bonding with the substrate caused by rapid de-maturing of the newly applied render. This will result in a weak and powdery interface which could lead to later failure and separation.

In situations where suction needs to be controlled, wetting down will be required. On dense blocks or near impervious masonry, simply dampening the surface with a mist spray may be all that is required.

On very porous surfaces such as old brickwork considerable wetting will be required. Wet the wall with a hose, working from the top of the structure, downwards, this may need to be carried out the previous day and several times on the day before rendering commences depending on the substrate.



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The objective of the suction control is to achieve a thoroughly damp surface, but not wet, i.e., the surface must not have running or standing water remaining on the masonry or brick, this could form a barrier between the coating and substrate.

A certain amount of suction is required for lime mortars to adhere and stiffen so the exact amount of wetting down is decided by the plasterer's experience.

Salt Contamination

Where new lime coatings are to be applied to masonry which is salt contaminated, the masonry should be allowed to dry fully before applying new renders. This will allow salt to be detected on the masonry and mortar joint surfaces, if excessive salt is identified clay or lime mortar poulticing may be required. Specialist advice should be sought.

Salt contaminants should never be washed from the surface, as this will result in the crystallized salt returning to a soluble state and retreating back into the pores of the masonry or brick. Where detected on the masonry surface, the salts should be brushed from the surface and cleaned away from the structure.

Scud or Keying Coats – (See Harling)

Techniques or render application (2 or 3 coat work)

The techniques employed in the application of hydraulic lime plasters should be to ensure a correct bonding with the background while striving to minimise shrinkage and rapid drying. These techniques should be followed throughout the plastering process.

Lime plastering is generally applied in 3 coats, but it is common to find 2 coats or even single coat work in vernacular or early structures. In 3 coat work the first coat on masonry or brickwork is generally known as the scratch coat or render coat. This coat is applied at a maximum thickness of 10mm and is applied by use of a steel trowel or thrown onto the wall by use of a harling trowel and then flattened in by the steel trowel.

When the coat has firmed up but has not gone hard, the plaster is keyed or scratched up to produce a key for the following coats. The keying up is carried out by use of a lath scratcher or similar toothed instrument and care should be taken not to cut through the plaster coat back to the background.

The keying up is generally in the shape of diamonds of approximately 30mm spacing. This coat should be allowed to harden for 72 hours minimum before further coats of plaster are applied. Before applying the second coat the first coat should be checked for shrinkage cracks, and these should be filled with plaster before proceeding with further coats. The first coat should be brushed down to remove any dust, which may have blown onto the surface.



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The first coat should then be damped down to ensure that the second coat is applied to a damp but not wet surface.

This second coat is called the floating coat and is the coat, which is straightened to ensure a flat and even surface, after this coat has been straightened, the surface of this coat is scoured up with a timber or polyurethane float.

Surface Finish

Where possible the texture of the finished surface should be left slightly open or coarse, as this will allow better evaporation of moisture from the surface, the finished work should not be closed or “trowelled” up with a steel trowel.

Day-Joints

Where day joints are unavoidable they should be hidden wherever possible behind down-pipe runs or over the shortest possible areas. When working with Roundtower NHL2 or NHL3.5 mortars the reworking of the joint is usually achievable the next day by lightly spraying the surface with water and rubbing up the joint with a wooden or polyurethane float, if this process proves difficult cut away approximately 50mm of the previous days render, it is this perimeter zone which is most open to the air and will therefore dry first.