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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, considerable further 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 or spalls, which are traditionally placed into wide bed joints between larger stones. Where these are missing, their replacement should be carried out during general re-pointing work which needs to be undertaken. (See 'Pointing with Lime' method statement).

Where walls are covered in vegetation, lichen or moss, these should be removed. Cut stems, treat with biocides and eventually clean 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. The eventual outcome of remedial works should be to present a reasonably flat and even surface, which is structurally sound and clean ready for the rendering application.

Disclaimer

Although we have taken great care to ensure that this information and advice is correct, we respectfully suggest that you take further advice to take into account site specific conditions. Therefore, we cannot accept any responsibility for any loss or damage in carrying out work using these guidelines.

Suction Control and Bonding

Before the application of any new lime coatings, hydraulic or non-hydraulic, it is vitally important to check to 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, which will result in a weak and powdery interface which will lead to later failure and separation.

Where there is little or no suction, further action will be required to help bond the coating to the substrate. 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, but on very porous surfaces such as old brickwork considerable wetting will be required. Wetting the wall by use of a hose, working from the top of the structure, downwards, may need to be carried out the previous day or several times throughout the day before rendering commences. 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 will form a barrier between the coating and substrate, also lime mortars adhere and stiffen through a certain amount of suction.

On dense or near impervious background, it may be necessary to apply a sand/splatterdash coat to the background to act as a mechanical key.

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. If the technique is considered where salt is detected on the mortar joints, rake out the joints to a depth of 50mm, as this is likely to be heavily contaminated and in a weakened condition and re-point (See 'Pointing with Lime' method statement).

Salt contaminates 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.

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Scud or Keying Coats – (See Harling with Lime Method Statement)

Techniques for render application (2 or 3 coat work)

The techniques employed in the mixing and application of lime renders should be to ensure a correct bonding with the background while striving to minimise drying, shrinkage and cracking during the curing process. The first coat of lime render is applied by use of a laying on trowel or float, the coat is applied to a thickness of approximately 8-10mm, coats much thicker than this will result in shrinkage cracks.

In 2 coat work, the first coat will need to be straightened by use of plastering straight edges, once flat the coating should be left to stiffen up, sometimes known as tightening, as this happens, the render should be compacted and compressed by scouring the render with a wood or polyurethane float, i.e., rubbing up in a circular motion. The over working of the surface should be avoided as this will draw lime to the surface. During the scouring process any shrinkage cracks should be closed, by pushing the crack back with the edge of the trowel and rubbing new material into the depression. Once this process has been completed the surface is keyed by use of a scratcher in a diagonal pattern.

The inclusion of hair or other fibres in the backing coat mixes will greatly aid the minimising of shrinkage cracks and is strongly recommended.

Before the application of the second coat, the first coat should be left for a minimum of 4 days, during which time the first coat should be checked for shrinkage cracks and also kept damp to avoid rapid drying out. Before applying the second coat the first coat should be damped down, making sure the water is absorbed into the render and not sitting on the surface. The second coat is applied using the same tools as the previous coat, if the work is 3-coat work, this second coat will act as the floating or straightening coat and should be treated as mentioned in the previous coat, and again applied to the same thickness.

If this second coat is to be the final coat, the coat thickness should be 8mm and no thicker, the coat is applied, left to stiffen and then scoured up to the required finish, as before over scouring should be avoided. Good curing once the work has been completed is essential if shrinkage cracks are to be minimised (see Lime Aftercare Method Statement).

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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 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.

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