

Architectural & Historic Buildings Consultants

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INTERNAL NATURAL HYDRAULIC LIME PLASTER

Internal Lime Plastering

Workmanship to be in accordance with BS5492 Internal Plastering.

Hydraulic Lime

Natural hydraulic lime NHL2 or NHL3.5 to BSEN459:1995 as appropriate. to be St. Astier or similar and approved. The use of hydrated lime is not permitted.

All lime to be prepared, mixed and applied in accordance with manufactures/suppliers' recommendations.

Sand

Sand for internal plastering shall be sharp, well graded and well washed to BS 1200. The sand should be well graded 3.5mm down in the following ranges:

Render coat 9-12mm approx.

Floating coat 1 - 3mm approx.

Finishing coat 0.5 - 1.5mm approx.

Fibre Reinforcement/ Hair

Fibre reinforcement should be alkali resistant

Hair shall be goat or cow hair, minimum 25mm long, maximum 100mm long, soft and strong, free from grease or other impurities, free from lumps and clumps Allow to wash in lime water to get rid of excess lanolin as necessary.

Fibre reinforcement of hair should be teased into the mortar and repeatedly chopped and turned until a good even distribution is achieved. It should be abundantly visible as a beard around the edge of an inverted trowel full of mortar

Sample panel

sample panel 1mx1m to be made available to the Contract Administrator for approval to ensure good working practises.

Preparation of Background Brick or Stone

The surface should be clean, free from dust and any organic material such as lichens etc Test the surface of the masonry backgrounds for dust by applying a piece of masking tape to the masonry and immediately remove, examine the sticky side for traces of materials that may affect the bond between the plaster and the wall. Where the internal walls are uneven and/or rough with deep holes, wide joints or pockets dub out using thin layers of mortar with pinnings tightly bedded in, keyed and leave to cure.



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Wood Lath

laths to be fixed by butt and break joints to joists or battens securely fixed back to the wall or ceiling, with gaps between the laths of approximately 8-10mm. The support battens or ceiling joists to be spaced so that the lath does not give unduly in the centre. Wide spacing of battens or joists may require intermediate support or thicker laths sawn or riven (dependent upon existing evidence) traditionally handmade should be thoroughly damp before fixing to prevent the laths swelling when applying the wet mortar which would cause the laths to bow in or out.

Nails for fixing of the laths should be thin shank to avoid splitting the ends.

Where necessary to conform to current building regulations building paper and insulation to be place between the laths and outside walls. However, this will affect the drying rate and prevent proper rivet formation when fixed hard against the back of the lath. If essential, use moderately (NHL3.5) or eminently hydraulic (NHL 5.0) for the first coats (faster sets) leaving a gap of 20mm between the paper and the lath.

Dampen area as necessary to prevent suction between the first coat and the wall (and between all subsequent coats) A loss of moisture will result in a weakened bond between the substrate and the mortar.

First Coat (Render Coat)

1 part Natural Hydraulic Lime (NHL) 2 : 2 parts well graded sand or

1 part Natural Hydraulic Lime (NHL) 3.5: 2 parts well graded sand

Mix in accordance with manufacturer's recommendations,

Masonry

When working on hard surfaces the mortar should be applied by throwing (a spray gun can be used) or with a laying on trowel on to a dampened but not wet background.

Do not straighten the rendering coat.

Lath

For application onto laths, the mortar to be trowel applied as evenly as possible and pressed home to form rivets between and behind the laths.

The coat should cover the lath by 8-10mm

Any initial shrinkage to be floated back in the drying out phase.

Tighten the entire surface with a cross grained wood float, closing back by further dampening and tightening in a close circling motion.

Key the surface with a comb, or lath scratcher taking care not to score too deeply. ensure that the scratching is across and not in line with the laths.

Control the rate of drying as necessary by misting the surface with clean or lime water, until all shrinkage has stopped, and the mortar hardened sufficiently to take the second coat.

Do not over-wet (water droplets to the surface constitutes over wet), plastering onto laths may take longer to dry than plaster applied to a masonry background.

Second Coat (Floating or straightening coat)

Using the same mortar as the render coat (1:2 mix), mix in accordance with recommendations and apply with a laying on trowel to a dampened background.

Fill out any irregularities in thin layers and apply floating coat to the desired line using rules and dabs. Maximum thickness to be 12-16mm in one pass.

Tighten in as previously described with a cross grained wood float and key lightly to receive the finish.

Make good any irregularities.

NOTE on lath the second coat should not be applied until first coat sufficiently hard (approximately 7 days, depending upon curing conditions)

Setting Stuff (Finishing Coat)

1 part Natural Hydraulic Lime NHL2 :1 part fine silica sand 0.8 to 0.075mm, clean and free from silt or clays. To obtain the best finishing re-work the setting stuff the day after.

Apply with a laying on trowel in two passes to an overall thickness of 2mm approximately.

Tighten with a cross grained wood float, dampening as necessary as the set takes up (suction from the background).

Final finish is achieved by trowelling the surface with a steel float and dampening as necessary. Finish in one direction top to bottom.

Patching finished lime plaster into a repair requires care as the finish is sand based and will therefore abrade and degrade the existing edges. leaving a dull surface. Allow a clean break of a few mm around the patch and fill with NHL2 made into a putty with no sand content when the patch is fully hardened.

Protection

Work should not be undertaken in frosty conditions or when the temperature is likely to fall below 8 degrees during the execution of the work or until the mortar has hardened. Protection should remain in place for as long as necessary.

Ensure that the drying out rate is consistent, and that strong draughts are excluded from the working area. Do not accelerate drying by excessive heating. If heating is required to maintain proper working temperatures use propane heating which will produce heat and moisture simultaneously. Ensure that the temperature is adequately controlled.

Decoration

Wallpapers should wherever possible be avoided to ensure breathability of the historic fabric. Paint finishes should only be applied to fully dry and set work. Use either modern microporous (breathable) paints or traditional lime wash, lime, distemper and casein paints.

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