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The Old Manor Bedhampton

Methodology Statement

The porch is a later adaptation of the building the legibility of which is read by the straight joint to each side where the structure abuts the principal façade. Whilst it is not proposed to tooth in / rebuild to porch in such a way to loose the historic context the lack of tie has resulted in the porch coming away from the historic core.

The proposal therefore is to reinforce this joint using a combination of helibars set within the mortar joints and stainless steel expamet.

The helibars are to be inserted only where the gauging of the brickwork allows and at least 100mm of the stainless steel bar should be bent around the corner and bonded into the return wall (principal façade). Then bars are to be inserted internally within the porch structure only to avoid any impact upon the visual appearance of the porch, unless otherwise agreed with the Conservation Officer.

The bars should be set into a chase formed in the bed joint between the courses of flint and/or brick cut using a mortar chisel. Mechanical tooling may not be considered appropriate as these may bounce off the hard flint and cause further damage. Should any contractor wish to apply mechanical means their competence will be assessed on a sample area. The chase should be 10mm wide to accommodate the 6mm diameter stainless steel bar.

All mortar and loose debris must be removed to ensure a sound bond. The chase is to be prepared with a primer WB or thoroughly wetted with clean water.

Inject a bead of bonding agent into the back of the chase, using a finger trowel, or similar, push the bar into the grout to obtain good coverage. Insert a further bead of bonding agent over the exposed bar, finishing 10-15mm from the face, and 'iron' into the slot using a finger trowel.

Repoint brickwork to all internal walls within the porch, removing all loose, defective mortar including any cementitious repairs by hand. No mechanical tools are to be used to avoid damage to the surrounding brickwork.

The prepared face of the brick work shall be carefully cleaned out with a soft bristle brush and flushed out with clean water avoiding unnecessary saturation. All dust and loose material must be removed working from top to bottom, old joints affected by algae or lichen should be treated with Biocide used on a dry surface as part of cleaning out.

The mortar should as closely as possible match the existing comprising 1 part hydraulic lime mortar : 3 parts evenly graded sharp sand, or similar and approved.

Water content of the mortar mix is to be strictly controlled, dense impervious mortar is to be avoided.

After the initial set has taken place, the mortar is to be tamped/stippled with a stiff bristle brush to compact the mortar into the joints to fill any voids.

Once set line all of the walls within the porch internally with Expamet external stainless steel expanded metal lath, fixed at 350mm (maximum) centres into the mortar joints with stainless steel penny washer and screw.

Ensure that the metal lath sheet is bent around the junction of the porch walls and extends 1000mm along the principal façade and fixed in accordance with manufacturer's recommendation to provide reinforcement to the straight joint.

Prepare and render over EML using a lime hair plaster as specified.

Workmanship to be in accordance with BS5492 Internal Plastering.

Lime

Lime putty shall be high calcium white lime to BS890 matured for a minimum of 3 months, delivered in sealed containers and kept under water seal until required for use.

Sand

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

Scratch coat 1 - 6mm approx.

Floating coat 1 - 3mm approx..

Finishing coat 0.5 - 1.5mm approx..

Hair

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

Before mixing, the hair shall be well teased out and mixed by hand with the coarse stuff just prior to application, mixing in a mortar mill will damage the hair.

Lathes

Unless otherwise specified, hardwood lathes shall be Oak or sweet chestnut and soft wood lathes shall be Scotts Pine, or Baltic Red Pine.

Lathes shall be split or sawn as specified from straight grained hard wood, 25 - 38mm wide x 5 - 9mm thick.

Lathes to be fixed to joists or studs at max 350mm centres with 18mm nails, with a 9mm gap between lathes. Allow for butt joints at the ends with 3mm gap to allow for expansion along the length of the lathe. Bundles of split lathes should be used together so that irregular edges are parallel.

Coarse Stuff

Make up coarse stuff at least 30 days before required, comprising:

1 part lime putty to 3 parts sand for scratch and floating coats, and
3 parts lime putty to 1 part sand for the finishing coat.

Mix in a roller pan mill or mortar mill, or in small quantities by hand, working for at least 1 hour by beating, ramming and chopping until the mix is workable and sticky. Store in an airtight container until needed.

Allow to make up separate batches of coarse stuff for each coat with appropriately graded sand as before described.

When ready to use, add hair to the scratch coat at the rate of about 2kg per metre cubed, and to the second coat at the rate of about 1kg per metre cubed. Depending on the hair used, the exact proportion may change. A check for the correct quantity of hair is that when blobs of the material are pulled out on the end of a trowel, hair is regularly and evenly distributed, the hairs will be about 1mm apart in the mix.

Do not mix the hair into the coarse stuff with a mortar mill, since this can give rise to difficulties in achieving the correct distribution and may damage the hair.

Alternatively, premixed hair plaster can be purchased from specialist suppliers, but this has a limited shelf life.

Preparation

Prepare masonry background by cleaning away old loose material and raking out joints if necessary to form a key. Thoroughly wet to reduce suction.

Where necessary on uneven and rubble background, dub out joints and recessed sections by filling with coarse stuff and hammering in small stone or broken brick pinnings, where required, in such a way as to ensure that no coat is more than 10mm thick.

Prepare lath backgrounds by cleaning off old plaster, dirt, debris (where original lathes are reused) and thoroughly wet down.

Scratch Coat

Apply 8 - 10mm thick scratch coat with a steel trowel, firmly pushed into the key. The scratch coat on lathes should be laid on diagonally across the lathes using sufficient pressure and in one stroke to force the plaster through the gaps in the lathes to provide a key. When firm, but not set, the surface should be lightly scratched, without cutting through, with a lathe scratcher, to provide an undercut key for the next coat.

Floating Coat

Allow the scratch coat to dry (1 - 3 weeks depending on conditions), sweep off any dust and re-wet, then apply 8 - 10mm thick floating coat. When this has dried sufficiently, re-wet and vigorously scour with a wood float to compact the material as it shrinks on drying. Repeat the process 3 - 5 hours later. If necessary, scour again a day later. Scouring should continue until there is little or no moisture left on the surface.

If coarse and sharp sand is being used, the scouring should leave a good open grit finish which is sufficiently keyed for the finishing coat, however if necessary key with a fine nail float.

Finishing Coat

Allow the floating coat to dry (1 - 3 weeks depending on conditions), sweep off any dust and re-wet, then apply 3mm thick finishing coat in 2 or 3 layers, applied immediately after each other. When sufficiently dry, re-wet and vigorously scour with a hand float. Allow to shrink and repeat the scouring once or twice more.

Hydraulic Lime

Natural hydraulic lime NHL2 or NHL3.5 to BS EN 459:1995 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 manufacturers/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

Although it can be used in all hydraulic lime plasters it is only necessary with lath and plaster work

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 panels

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

Preparation of Background

The surface should be clean, free from dust and any organic material

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, on 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

Paint finishes should only be applied to fully dry and set work. Use either modern microporous (breathable) paints (Keim) or traditional lime wash, lime, distemper and casein paints.