



SPECIFICATION FOR REMEDIAL WORKS

in connection, with

CLYMPING MILL, INCLUDING MILL HOUSE, MILL COTTAGE & MILL THATCH

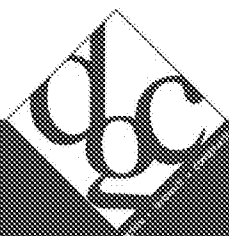
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Specification for Remedial Works

In connection with Clymping Mill

PART 2

MATERIALS & WORKMANSHIP

British Standard Specification and Codes of Practice

All works shall be carried out generally in accordance with British Standard specifications and Codes of Practice.

Quality of Materials and Workmanship Standards

Only best quality materials are to be used strictly in accordance with British Standard Specification requirements. Substitute materials, materials of a doubtful origin, materials that are not from sustainable resources, particularly where timber is concerned, are prohibited.

A high standard of workmanship is required particularly for finishing trade. The Contract Administrator will closely scrutinise the quality of the workmanship employed on this contract and will not hesitate to condemn any work falling below the high standards that are to be achieved.

Building Regulation Compliance

All work shall be in compliance with the Building Regulations. Where appropriate an application has been made to Local Authority and the consent document will be provided.

LEAD WORK

All lead work shall be strictly in accordance with the Lead Development Association Recommendations in every respect. These recommendations will be taken as a mandatory requirement for this Contract.

Lead sheet shall generally conform to BS1178:1982 milled lead sheet for building purposes.

Copper clips should not be less than 50mm wide and cut from copper sheet to BS 2870 1/4H temper. Thickness unless otherwise specified not less than 0.6mm for moderate exposure, 0.7mm for severe exposure.

Stainless steel clips should be not less than 50mm wide and cut from tene coated stainless steel strip to comply with grade 304S 11, 15, 16 or 31, or 316S 11,13,31 or 33 of BS 1449:Part 2. Thickness unless otherwise specified not less than 0.38mm for moderate exposure, 0.46mm for severe exposure.

Lead clips should not be less than 50mm wide and the same thickness as general lead work in sheltered exposure. Thickness to be increased by 1 code for moderate exposure and 2 code for severe exposure.

Copper nails to be annular ring shank nails to BS 1202:Part 2: 1974 at least 20mm long, 3.35mm shank and 8mm head.

Underlay to be reinforced building paper to BS 1521 Class A or non-woven needle-punched polyester geotextile weight not less than 210g/m².

Lead for roofing or gutters should be treated with calcium carbonate to help protect against underside lead corrosion as described below:

Immediately the lead is delivered to site pre-treat as:-

- a) Remove any deposits from the lead sheets with a nylon scourer, to expose a bright shiny surface.

Specification for Remedial Works

In connection with Clymping Mill

- b) Prepare a slurry of chalk powder in 3 times its volume of water. Stir regularly during application to ensure that the chalk remains in suspension.
- c) Using a paintbrush or spray, apply a uniform coating of the slurry to the underside of the lead sheets.
- d) The slurry may also be applied to the top surface to help avoid initial corrosion.
- e) Leave this for at least 2 hours, and preferably overnight. Then brush off any remaining chalk.

Once the lead has been formed to shape a further treatment should be applied as:-

- a) Prepare a paste of chalk powder in twice its volume of water, to give a consistency similar to that of emulsion paint.
- b) After bossing each lead sheet into shape, turn it over and paint on the paste to a sufficient thickness and uniformity that the surface of the lead can no longer be seen.
- c) In order to avoid possible capillary attraction of rainwater, do not apply chalk to the bottom 50mm of a lap, the flat part of a splashlap, or the bottom 15mm of the adjacent step or roll. Wipe off any chalk inadvertently applied to these areas.
- d) If required, the chalk may also be applied to the substrate or underlay.
- e) After a few minutes, which the chalk is touch-dry, lower the sheet carefully and fix in place.

Once laid all the lead should be treated with patination oil, applied evenly with a soft cloth.

Softwood boarding to be 25mm plain edge preservative treated boards, laid in the direction of fall with a penny gap between.

Plywood decking to be 25mm WBP plywood to BS 6566 eg, Finnply WBP2 or Douglas fir to Canadian standard 0121. All edges supported with a penny gap in between.

The work generally shall be carried out in accordance with the recommendations of the Lead Sheet Association publication "Lead Sheet Manuals, Volume 1 1990, Volume 2 1992 and Volume 3 1993", and as specified following.

For roofs and gutters with a fall less than 3 degrees drips shall be 50-60mm high, with the undercloak rebated into the substrate and nailed at 50mm cts with copper nails.

Softwood rolls to be 45 x 45x 25mm preservative treated softwood, screw fixed with countersunk stainless steel woodscrews at 400mm cts maximum. Lead undercloak turned well over roll and nailed at 150mm centres for the top third of the bay. At abutments to the top of the bay is turned up 100mm maximum and fixings into the undercloak increased to 50mm cts.

The contractor shall keep an approved fire extinguisher at working level at all times and shall observe and maintain all hot working regulations. No lead burning to be undertaken after 3 hours before the end of the working day.

No lead should be laid in wet conditions or on a wet substrate.

LIME MORTAR

The existing external masonry was constructed using lime mortar without any cement content. Later repairs have in places been carried out using cement based mortars which was incorrect and will lead to enhanced deterioration of the masonry.

Specification for Remedial Works

In connection with Clymping Mill

Repointing of the existing masonry which has been specified and any cutting out and reconstruction of defective stone areas covered by provisional items, must be undertaken using traditional lime mortar.

1 part lime putty
2 parts Tilcon sand (sharp)
1 part Sevenoaks sand

1 part St Astier Hydraulic lime NHL3.5
2.5 parts Tilcon sand (sharp with even grading from 5mm down)

The object is to achieve a close match with existing mortar and the Contractor should allow for up to 3 sample panels for approval.

Contractors must be able to demonstrate experience with the preparation, handling and application of traditional lime mortars and hydraulic lime mortars which will also be employed on external repairs.

Great care must be exercised in the use of lime mortar to ensure against premature drying out and during dry periods the working area must be kept moist and covered with dampened hessian to avoid this condition. Similarly preventative action must be taken against frosting whilst maintaining a constant air flow to achieve carbonation.

CEMENT, LIME, SAND MORTARS

Cement, lime, sand mortars may only be utilised for work in connection with the roofing as specified, and must be 1:1:5 cement:lime:sand, 1:1:5 assuming no frost is expected, where frost is likely within 7 days, then an alternative mix of 1:4 or 5 masonry cement:sand plus plasticiser or 1:6 cement:sand plus plasticiser may be used.

BRICKWORK

All Clay bricks shall be first quality second-hand imperial bricks to be approved by the Contract Administrator prior to purchase.

All bricks to be sound, clean and free from salt contamination.

Samples of bricks shall be submitted to approved by the Contract Administrator before deliveries are made to site.

All bricks shall be carefully stacked on site in accordance with good practice and in no circumstances shall they be tipped.

Old sound bricks obtained from the pulling down may be re-used if properly cleaned and approved by the Contract Administrator.

The Contractor and Contract Administrator are to confirm bricks to be replaced in accordance with specification.

The Contractor is to ensure that new brickwork for repairs matches existing in colour, texture and size by taking dimensions prior to cutting out or, if missing, from adjacent bricks as agreed with the Contract Administrator.

The Contract Administrator is to approve samples of brickwork, in writing, prior to rebuilding work progressing.

Specification for Remedial Works

In connection with Clymping Mill

Mortars

Hydraulic lime shall be natural hydraulic lime, NHL3.5 to match mortar sample analysis.

Mortar for bedding and pointing shall generally comprise:

1 : 2½ : Hydraulic lime : Sand

Admixtures and masonry cement will not be permitted.

Sand

The sand for mortar shall be clean, naturally occurring sharp pit sand, or crushed rock or gravel in accordance with BS1200 well graded in the range 3.5mm to 75µ with a good proportion of sharp grit to aid adhesion. Sand should be washed clean of loam and clay.

Water

Water shall be clean and pure, free from acid, salt, dirt or other contamination or deleterious material obtained from the mains supply.

Cramps and Dowels

Copper alloy of grades listed in tables 8 and 12 of BS2780

Austenitic stainless steel sheet strip and plate to BS 1449 Part 2

Cramps to be screwed to face of timber posts and studs both sides of each panel to every third course of brickwork with stainless steel screws.

Samples

Provide Contract Administrator with samples of the following:

All brick types specified.

Sample of cutting and cleaning joint at location to be approved by the Contract Administrator.

Tools to be used: Pointing irons.

Evidence of previous experience and details of work previously undertaken by the bricklayer.

Sample Panels

Prepare sample panels to BS 3921, appendix F2 for each type of facing brickwork, including jointing or pointing and obtain approval before proceeding.

Protect

All new and adjacent work to prevent damage by weather, impact or staining during site operations.

Dispose of all builders debris and cart away from site to Local Authority tip.

Preparing Records

Identification of bricks/blocks to be replaced or rebuilt.

Final agreement of brickwork repairs and replacement shall take place on site before work commences.

The Contract Administrator and Contractor will examine the brickwork to be replaced/rebuilt and clearly mark areas to be taken down/bricks to be cut out.

Removal / Taking down Brickwork

Remove / cut out damaged bricks working from the upper level of the repair downwards. Bricks in sound condition within the zone of repair are to be set aside for re-use.

Specification for Remedial Works

In connection with Clymping Mill

At junction between work to remain and area of repair, adopt methods necessary to prevent displacement of existing structure during taking down operations.

Use manual tools only.

Inform Contract Administrator if signs of structural movement are found during taking down operations.

Remove render from brickwork if required as directed by the Contract Administrator.

Remove remaining jointing pointing attached to surrounding work adopting methods which will ensure that no disturbance is caused.

Remove loose material and dust taking corework back to a sound backing.

Remove existing metal fixings such as nails as directed by the Contract Administrator.

Provide all necessary supports for existing brickwork or other.

Remove defective bricks, remnant corework, pointing and jointing materials and other unwanted debris from site to Local Authority tip or similar

Protection

Provide all necessary access and protection to:

Prevent damage to surrounding work.

Prevent ingress of rain damaging existing structures or finishes.

Protect remaining works from damage or collapse.

Metal Cramps

Remove built in metal cramps, dowels and brackets within area as directed by the Contract Administrator.

Leadwork

If any lead found inform the Contract Administrator and await further instructions.

Resetting / Replacing

With least possible handling carefully pack and stack to prevent damage during transport

Check the bricks delivered to the site to ensure that:

The bricks are not damaged.

The bricks are those ordered.

Each delivery is consistent in appearance with previous deliveries. Do not accept if variation is excessive

Store bricks in stable stacks, clear of the ground, clearly identified by type etc.

Protect from inclement weather and keep dry.

Prevent soiling, chipping and contamination by salts and other deleterious materials

Coursing

Arrange brick courses to line up with existing work.

Structural Stability

The Contractor shall be entirely responsible for the structural stability during repairs and shall arrange that sufficient temporary supports are used as works proceed to keep the structure stable until repair is completed.

Temporary bracing where deemed necessary, shall be designed by the Contractor so that it does not impede work on site or in any way weaken or impair the serviceability of the structure.

Laying Bricks

Lay bricks plumb, level, square and true or in such a way to match existing. Spread only sufficient mortar to bed each brick.

Specification for Remedial Works

In connection with Clymping Mill

Ensure that there are no hard lumps in the mortar which could prevent even bedding.

Bricks should be well wetted to reduce suction before laying. Hollow bedding is not permitted.

Keep brickwork clean during construction and until practical completion. Ensure that no mortar encroaches on face when laying. Turn back scaffolding boards at night and during heavy rain. Rubbing to remove stains or marks will not be permitted.

Carry up work with no portion more than 1.2m above at any one time, racking back between levels. Do not carry work higher than 1.5m in a day, as specified in BS 5628 code of practice for masonry. Do not use frozen materials and do not lay on frozen surfaces.

Do not lay bricks when air temperature is below 5 degrees Celsius or above over a 24 hour period unless mortar is kept at a constant minimum temperature of 5 degrees Celsius when laid and walling is protected.

Maintain temperature of the work at 5 degrees Celsius or above until mortar has fully hardened.

Adequately protect newly erected walling against rain or snow by covering when precipitation occurs and at completion of each days work.

Mortar that has failed to set after 7 days must be assumed to be damaged by frost. Ensure mortar has set and is not unset but frozen. If the damage is merely to the surface of the joint the work can be made good by raking out and repointing. All defective material should be raked out. The depth to be removed should not be less than 25mm. In cases of more severe damage the work is to be rebuilt.

Take down and rebuild any brickwork damaged by frost or other adverse conditions resulting from non-compliance with this specification.

Bricks to be laid in stretcher bond to match the existing, generally four courses of brickwork will rise 300mm.

Finishing Joints: Face Brickwork Generally

Set joint slightly back from brick face unless instructed to do otherwise so by Contract Administrator.

Rebuilding Elements with New Brickwork

Replacement bricks to match existing. Dampen bricks prior to laying to reduce suction.

Ensure that bond, joint size and that any other special or unusual features are replicated as recorded and to match.

Joint finish as previously specified completed as the works progress

Repointing Face Brickwork

Rake out joints, using methods necessary to prevent damage to the surrounding work, to a minimum depth of 30mm or twice the width of the joint whichever is the greater.

Well attached mortar to remain in situ. Back of joints to be square.

Use manual tools only, power tools will not be permitted.

Dampen joints to prevent suction.

Allow bricks to settle and the repoint in a continuous operation working from the upper level of repair downwards.

Press the mortar well into the joints using a pointing iron, preventing voids forming behind, but avoiding encroaching over arises of surrounding bricks.

Do not allow rapid drying out of the mortar.

Finishing Joints

Set joint slightly back from stone face unless otherwise instructed by the Contract Administrator.

Where arises are eroded set joint back to round edge avoiding the creation of ledges which may trap water. Where water may be trapped create a flaunched run off.

Match existing work by stippling with a wet bristle brush following the initial set of the mortar.

Specification for Remedial Works

In connection with Clymping Mill

Wash surrounding work with clean water to prevent staining.

Drying

During periods of rapid drying, either by general temperature, sunlight or wind, ensure that the joints are prevented from rapid drying by spraying with fine water sprays, and covering with sheets of wet Hessian. Ensure that drying takes place steadily over a period of not less than 5 days.

The Hessian should not be in direct contact with the mortar.

Where there is the risk of freezing or rain, dry Hessian and polythene sheets should be provided for protection.

Completed face work shall be protected and kept clean and free from mortar droppings and scaffold splash.

EXTERNAL LIME RENDER

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.

Hydraulic Lime

Natural hydraulic lime NHL2.5 or NHL3.5 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 current British Standards. The sand should be well graded 3.5mm down in the following ranges:

Render coat 9mm

Floating coat 9mm

Finishing coat 6mm

Sample panels

It is advisable to require the contractor to produce a sample panel 1mx1m to ensure good working practices and to achieve a satisfactory match to the lining out of the existing so that it can be used as a template during the course of the works.

Defects to existing render

Areas of existing render which are extensively cracked or hollow should be cut out to the backing with slightly undercut edges on all but the bottom. After cutting out all dust, loosely adhered material, efflorescence and any organic growth must be thoroughly removed by bristle brushing and treating with a fungicide.

Hollows and depressions should be dubbed out in as many coats as necessary with no one coat exceeding 9mm. Before rendering is applied to a surface the background should be dampened to reduce and control suction, especially in hot weather.

Repairs to existing lime render

Lime putty to be mixed within the container to form a paste. The paste is then to be screened through muslin. The residue left within the muslin to be set aside for cracks larger than 5mm. Whilst the screened solution is to be injected into narrow cracks less than 5mm using a syringe. Or

Limewash purchased from a reputable supplier and made with extra fine mature lime putty.

Specification for Remedial Works

In connection with Clymping Mill

Carefully drain off top solution and retain the residue grout fine cracks less than 5mm in width.

Any loose fragments of dust / debris to be removed by blowing out. Using hand spray wet surrounding lime putty render with water to prevent suction.

Flush crack using a 30cc hypodermic syringe with water until water runs clear and then using 15cc glass syringes fitted with 1mm blunt needles inject water into the crack in several operations.

As soon as the surrounding areas and cracks have been wetted inject lime putty 'slurry' into the crack using syringes as previously described. Repeat this process working from bottom of crack to top until the crack is filled. Where grout mix runs onto the face of the rendered panel remove using a wetted soft bristle brush.

Protect from the sun for a period of a week and dampen down areas for 3 days.

NOTE: leave rendered panels for at least one week prior to preparation for decoration.

Preparation of Background

Rake out joints to a minimum depth of 10mm or score the preceding undercoat to provide a key.

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.

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) 2 parts Lime putty : 5 parts well graded sand or

2 part Natural Hydraulic Lime (NHL) : 5 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.

The render coat should be scratch-combed finished unless applied was a spatterdash using a spray gun.

Do not straighten the rendering coat. 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 (2:5 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 9mm in one pass.

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

Make good any irregularities

Specification for Remedial Works

In connection with Clymping Mill

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

Finishing Coat 1 part Lime putty : 3 parts fine silica sand 0.8 to 0.075mm, clean and free from silt or clays.

1 part Natural Hydraulic Lime NHL :3 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 and finish 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 millimetres around the patch and fill with NHL2.5 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 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.

Ideally external renders should be limewashed so as to allow the optimum breathability, however were it is likely that some residue from previous painting systems will remain Keim mineral paint or similar and approved will adhere to both the lime stucco and the modern paint, providing a consistent but breathable painted finish.

REPAIRING / RENOVATING TIMBER

Comply with CURRENT British Standards for quality of timber.

Unless otherwise specified hardwood species to be European Oak (Quercus Robur).

Softwood species to be:

Imported: Redwood, Whitewood, Douglas Fir / Larch (Canada), Hem Fir (Canada), Spruce Pine Fir (Canada), Western Whitewoods (USA), Southern Pine (USA).

British Grown: Douglas Fir, Scots Pine, European Spruce, Sika Spruce.

Timber for External Joinery

Suitable for machining and machine well to provide a quality finished surface to receive a painted finish

To be suitable for manufacturing to fairly high tolerances.

Remains stable in both production and use.

Timber Classes

Use class CSH quality for all timber sections having one finished dimension measuring 12mm or less.

Use class 1 material for all timber joinery section being machined for framing and the like.

Do not use class 2/4 joinery material without the permission of the Contract Administrator.

Specification for Remedial Works

In connection with Clymping Mill

Adhesives

Use synthetic resin gap filling adhesives, from Urea-formaldehyde, or similar and approved

Filler

Wood filler to comply current British Standards

Fixings

Screws to BS 6105 austenitic stainless steel to be not less than 1 1/2 times the thickness of materials to be joined.

Nails to BS 1202, Part 1, of suitable type and size for use to be not less than twice the thickness of the material through which the nails are driven.

Bolts, Nuts, Washers to BS 6105 austenitic stainless steel. Sizes to be appropriate for the connection type.

Purpose made brackets to be fabricated from austenitic stainless steel to BS 1449 Part 2.

Preservative Treatments

Joinery liner to be Fosroc joinery liner or similar to the Contract Administrator's approval and of sufficient width to fully mask all timber surfaces in contact with masonry surfaces.

Taking Down / Preparing Openings

Preparing Records

Prior to stripping out operations prepare a record of existing work to enable new joinery work to be built to match existing.

Use full size patterns, drawings and photographic recording methods in accordance with the Contract Administrator's requirements.

Cross reference work to drawings and schedules.

Prior to removing joinery work ensure that glazing has been removed in accordance with safe working practice.

Removing Joinery Work

Frames should be detached from fixings wherever possible to minimise damage to adjacent work.

Joinery components are to be removed using means necessary to prevent damage to the work, which should be retained as a pattern for new work, and surrounding structures and finishes. Where possible remove as a composite unit.

Part removal / disassembly of work, such as individual frames, should always be carried out using existing joint positions as limits of removal. Always replace whole members unless instructed by the Contract Administrator.

Removal of Fixings

Remove all remaining existing fixings from adjacent work following removal of joinery.

Preparing Openings

Ensure, by survey, that clear openings for joinery or surrounding structure for fixing, is satisfactory to enable element to be installed competently.

Pre-fix brackets and the like where necessary to facilitate joinery installation.

Clear out any loose deleterious material from area prior to fixing.

Specification for Remedial Works

In connection with Clymping Mill

Protection

Where external wall is left open following removal of joinery work fix temporary waterproof covering to prevent ingress of water.

Protect all surrounding areas for impact damage.

Disposal

Dispose of all builder's debris and unwanted materials from site.

Replacing / Repairing / Reinstating

Making Joints

Joints between members shall be constructed to match existing work.

Fixing shall, where practical, be inserted from the inside face. All fixings punched below surface and filled with wood filler.

Open joints at junctions of decorative features shall be filled, to prevent the ingress of water with wood filler.

Joints shall include, where necessary, a provision for sealing concealed end grain against the ingress of water.

Allow for one coat of primer paint, to all concealed surfaces to Contract Administrator's approval.

Tolerances to be in accordance with BS 1186 Part 2.

Dowelled Joints

Dowels to be grooved for adhesion and be a tight fit in holes.

Drive dowel in position filling hole to 6mm from each end of assembled joint.

Coat dowelled surfaces with adhesive after assembly.

Halving Joint

Each element of halving joint shall be cut to half thickness of members forming it.

Mating surfaces are firmly held together with adhesive sets.

Mortice and Tenon Joint

Tenon is to be push fit into mortice, in thickness, and secured into position with wedges or dowels.

Wedges to be the same thickness as the tenon and the same taper as that on the mortice to tenon. When driven in shall be a tight fit for at least 75% of tenon.

Where necessary insert dowels, which shall be a tight fit and engage every joint member, into mortice and tenon joint. Ends to finish flush with exposed surfaces.

Exposed end grains to be finished smooth and flush.

Transport joinery in soft packing material isolated from all hard, sharp surfaces capable of inflicting impact damage.

Prevent racking, twisting or warping of materials or components. Ensure protection from weather damage.

For timbers that have been primed ready for painting maintain the primer film integrity – do not damage.

Storing Joinery

Under cover, well ventilated and in dry conditions, ensuring that the moisture content is maintained as delivered, using methods necessary by the Contract Administrator.

Keep away from sources of possible soiling and contamination.

Store in such ways that components to be fixed earliest in the programme are most easily available.

Specification for Remedial Works

In connection with Clymping Mill

Always maintain both quality and seasoning achieved at manufacture.

Replacement of Damaged Members

Remove member in accordance with specification.

Take dimensions for fabricating new member to match existing.

Brace loose members to remaining work and prevent from being displaced or damaged.

Fabricate new members in seasoned timbers, to match existing in size, length and joint type. No salvaged timbers are to be brought onto the site as this would impeded legibility of the standing built form.

Fix into position as existing wedging and gluing as necessary.

Piece in Timber Joinery

Cut out defective material, using splay cuts, with additional 50mm either side as safety margin.

Cut new piece of timber, material to match existing, as a very tight fit and cover with adhesive before drawing into the cavity.

Plane off to a neat flush profile.

Repairing Open Joints

Rake out all loose deleterious material from gaps using scraper and, where available, compressed air.

Force glue into gap coating as much of the surfaces to be fixed as are visible. Wipe off surplus material.

Using methods necessary to carry out this work without causing damage to timber members, ease the joint closed clamping if possible to prevent re-opening.

Seek Contract Administrator's approval before using wood screws.

Where wedges have worked loose in mortice joints either force back into the openings or make new to suit. Finish flush with exposed material. Wedges in oak glued into position.

Preparation for Filling

For members that have been primed ready for painting inspect the primer film and ensure that it is not damaged. Repair damaged or defective areas.

If primer is weathered wash over with white spirit.

If primer has cracked, flaked or shows signs of mould growth remove and recoat.

Site Cutting

Smooth sawn off timbers removing dust and where specified paint with two coats of preservative allowing each to dry before over painting.

Paint with primer ensuring it is compatible with treatment.

Fixing Joinery / Assembling

Install true and square without twist, diagonal racking or distortion in the frame members along their length.

Ensure clearances and tolerances are maintained during fixing. Use flogging wedges where necessary.

Fully support large frames / joinery items during fixing.

All new timber cills to be hardwood, redwood or similar and approved and should match existing in size, length and profile.

Fixing Window Frames

Take precautions to prevent builders materials from blocking or fouling draining holes / capillary grooves, mechanisms and the like.

Specification for Remedial Works

In connection with Clymping Mill

Prior to installation frames are to be wrapped on external hidden surfaces in contact with masonry using Fosroc joinery liner to manufacturer's recommendations.

Make fixings no more than 150mm from corner and no more than 450mm centres.

Do not allow frames to distort and impair weathertightness or glazing operations.

Where perimeter pointing is used over gap of over 5mm install a polyurethane foam backing strip. Otherwise sealant should be laid on a 6mm fillet.

Protect

Frames from soiling by building materials during fixings.

Frames from impact damage.

Disposal

Disposal of builders debris resulting from fixing operations.

Removing Contaminants

Remove grease, oily deposits and mortar splashes.

Ensure all glazing operations are complete

Painting

To the Contract Administrator's approval.

METALWORK

All existing metalwork to be retained in situ to be treated with Furtan or similar and approved by the Contract Administrator prior to further treatment.

Boiled linseed oil and beeswax mix 80/2 – one coat at beginning of works and one coat at completion of the conservation repairs.

All metal brackets, straps etc to remain insitu to be de-rusted by chipping and wire brushes, butting out around and removing mortar to at least 75mm or completely lifting stonework / brickwork. Treat as previously described and reinstate in epoxy resin and mastic seal to 12mm back from the brick infill panels. Repoint as original in lime mortar.

All redundant metalwork to be carefully removed.

INTERNAL PLASTER

Internal Lime Plastering

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.

Specification for Remedial Works

In connection with Clymping Mill

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 1 kg 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.

Specification for Remedial Works

In connection with Clymping Mill

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 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 / supplier's 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 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.

Specification for Remedial Works

In connection with Clymping Mill

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 (dependant upon existing evidence) traditionally hand made 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

Specification for Remedial Works

In connection with Clymping Mill

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 in 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.