



ST JOHNS DOWNSHIRE HILL

Gallery plaster and lath re-instatement requirements

A: METHOD STATEMENT

Stage 1 - Removal and reinstatement of plaster generally

- Carefully remove any unsound plaster along edges of removed plaster, and undercut all edges of retained plaster in a straight line to provide a dove-tail key for new plaster
- Protect thoroughly all existing work and approaches using suitable boards, sheets, etc.

Stage 2 - Replacement and repair of laths

- Replacement timber laths are to match existing.
- All plaster between retained laths is to be scraped out to allow a key for new plaster
- Confirm a sound substrate (without causing further damage) beyond the area of plaster removed
- Additional fixings are to be added through a pilot hole to strengthen any area where ends of existing retained fixings may have rusted

Stage 3 - New plaster or any remedial work to plaster on existing ceilings

- Replace in 3 coats: apply in one, two, and three coats to match existing thickness throughout
- Clean out all retained surfaces with a vacuum cleaner to remove all debris. Cut all edges to provide a dove-tail key for new plaster
- De-dust with a 50:50 solution of alcohol and water. Clean out with a vacuum cleaner. Treat the edges of the existing plaster with Primal AC33 (or WS24 if unavailable) in a 20% solution (1 part Primal to 4 parts water)
- Ensure correct pre-wetting of adjacent retained plaster using clean water only before plastering to reduce and control suction and so as not to reduce the effectiveness of the bond nor the strength of the plaster. Monitor the surrounding area to prevent lime bloom and sponge off with clean water or brush off immediately
- Apply plaster in mixes and number of coats to match the existing and in layers to match existing thickness. Provide adequate key by scoring preceding coats. Ensure all preceding coats are sufficiently compacted to prevent cracking and pay attention to the new joint.
- Assume to finish the plaster with sharp sand applied to the green top coat. Match existing texture and colour in all respects
- Keep each coat damp for at least the first three days in summer and a week in cooler months. Longer times may be needed and will require judgement from the conservator based on his experience. Allow minimum of two weeks for each coat to dry out sufficiently to eliminate shrinkage and ensure each is firm before applying the next coat. Test as necessary for adhesion and strength before applying the next coat
- Lightly spray each undercoat to reduce and control suction
- Clean off all droppings on to finished work immediately

Stage 4 – Re-decoration generally

Assume redecoration of ceiling with Keim Ecosil - applied to manufacturer's recommendations

PLASTERED COATING REQUIREMENTS

Lime : sand plaster:

The original plaster is a traditional lime plaster applied to timber laths under the gallery: analysis of the plasters has been carried out and the results form details of this specification

Undercoats (pricking and scratch coats):

- Lime putty: as identified below
- Sand: to BS822 coarse well graded washed
- Mix proportions: 1:2.5 lime:sand with 10% volume fine reactive brick dust (less than 300 microns)
- Fibre reinforcement: hair as identified below
- Thickness (excluding dubbing out): to match existing

Final coat:

- Lime putty: As for undercoats.
- Sand: to BS 1200 well graded washed
- Mix proportions: 1:1
- Thickness: to match existing
- Finish: to match existing

Other requirements:

- Trials will be necessary to establish the best method for mixes. Allow to prepare different mixes, to make trial applications and for trial records to be logged and recorded
- Storage of materials: all materials must be stored dry, under cover and off the ground.

GENERAL REQUIREMENTS FOR WORKMANSHIP

Samples:

Before starting re-instatement submit for approval representative sample. Once samples of coatings have been approved do not change type or proportion of constituent materials. Ensure that supplies of materials are sufficient to give consistent and uniform colour and texture. Obtain each material from one source and mix different loads if necessary

Mixing:

- Measure materials accurately by volume using clean gauge boxes. Proportions of specified mortar mixes are for damp sand. Adjust proportions if dry sand is used
- Mix materials thoroughly to a uniform consistency and appearance using suitable mechanical or manual means
- Do not use mixes after initial set has taken place. Do not re-temper or reconstitute mixes

Cold weather

- Do not carry out work when air temperature is below 5°C and falling or below 3°C and rising

- Take all necessary precautions to enable internal coating work to proceed without damage when air temperature is below 3°C
- Do not use frozen materials and do not apply coatings to frozen or frost bound backgrounds

Ready prepared lime putty

- Use lime putty slaked directly from CL 90 (high calcium) quicklime to BS 890, using an excess of water and matured in pits/containers that allow excess water to drain away
- Density of matured lime putty: 1.3 to 1.4 kg/litre
- Maturity of lime putty before use: Not less than 90 days after slaking
- Prevent lime putty from drying out and protect from frost

Hair reinforcement

- Type: goats or horse hair
- Proportions: Add at approximately 70 grams to 1 full bucket of lime sand mortar (25kg)
- Hair to be clean and free from grease and other impurities. Length of chopped fibres: 30-50 mm and well teased before adding to the mix
- Mix thoroughly into lime:sand mortar during final mixing stage or knocking up stage as appropriate for the type of lime. Ensure that hair is well distributed throughout the mix without balling into lumps. Do not add hair to lime:sand mortar which is to be stored for more than 4 weeks

Protection of historic plasterwork

- Prevent damage and disfigurement to adjacent plain and decorative plasterwork during the course of the works
- Adopt careful working methods when working alongside or above existing plasterwork to prevent disturbance from vibration and impact
- Do not make temporary fixings into decorative plasterwork or apply adhesive tape to plaster surfaces

PREPARING BACKGROUNDS

Acceptance of backgrounds

Before preparation or application of coatings ensure:

- Background is secure, adequately true and level, free from contamination and loose areas, reasonably dry and in a suitable condition to receive specified coatings

Timber lathing

- Type: oak
- Size: to match existing
- Free from decay, insect attack (except pinhole borers), splits, shakes and with no knots wider than half the width of the section.
- Type/desired service life: 60 years
- Moisture content at time of installation: Not exceeding 16%.
- Space laths 8-10 mm apart in straight lines with 3 mm wide butt joints centred accurately over supports. Stagger butt joints at not more than every eighth lath
- Nails at every support: 25 mm long stainless-steel screws

PLASTERING

Application generally:

- Apply each coating firmly to achieve good adhesion and in one continuous operation between joints
- All coatings to be firmly bonded, of even and consistent appearance, free from rippling, hollows, ridges, cracks and crazing
- Finish surfaces to correct line and level
- Prevent excessively rapid or localised drying out

Accuracy:

The variation in gap under 1.8 m straight edge (with feet) placed anywhere on the surface to be not more than 3 mm.

Junction of new plasterwork with existing:

Finish new plasterwork flush with original face of existing work to form a seamless junction.

Lime plaster undercoats:

Apply plaster firmly and trowel to an even surface. Allow to stiffen and cross scratch to provide an undercut key for the next coat. Do not penetrate through the coat. After completion of consolidation/scouring, lightly scratch the second undercoat using a wood 'devil' float to provide a key for the final coat.

Three layer lime plaster final coat:

- Remove any dust from undercoat and dampen to control suction.
- Apply first layer with a steel trowel. Apply second layer with a wood float in the opposite direction to the first layer. Apply third layer with a steel trowel in the same direction.
- Thoroughly consolidate/scour the plaster with a wood cross grain float. Dampen the surface using a stock brush and polish with a steel trowel. Finish with a damp stock brush.

Drying of lime plaster:

- Keep each undercoat and final coat damp by spraying with water until coating is sufficiently firm.
- Thoroughly consolidate/scour second and final coats one or more times as necessary to control shrinkage.