

## **General Specification for plastering with a Haired Lime Mortar gauged with Gypsum**

The original plaster appears to be a haired lime plaster that has been gauged with Gypsum. This technique appears to have been used from the turn of the nineteenth century to speed up working practices.

If you wish to reinstate a similar plaster it is suggested that you use a similarly haired lime plaster gauged with 10% gypsum, casting plaster, by the volume of the binder. It is likely that it was originally gauged with a large proportion of gypsum but the lower grade gypsum used then is no longer available in this country.

Set out below is a general specification that could be used for the works on St Michael's Church.

**Background preparation:** follow good working practices, ensure that the background is thoroughly clean. If removing vegetable growth using biocides check that these would not react with the plaster causing stains. If the background is saturated check for cracks or other causes of water penetration. Causes of damp should be remedied and cracks should be cleaned out, (packed with low fire clay tiles or slate if necessary) and sealed with an NHL pointing mortar and allowed to cure for 1 or 2 days before plastering starts. Where there has been prolonged water penetration through the core of the wall it might be necessary to grout the cavity.

**Keying:** Joints should be raked back (normally 10mm) to provide a key for the under coat.

**Suction control:** apply sufficient water to reduce excessive suction, especially on bricks and porous stone. On many occasions this is done the day before, if necessary several times with the last damping just before application starts. Apply water starting at the top of the structure.

Old bricks require more water than new ones. The top of the structure will dry out before the bottom. (In base coats this means that scouring back and keying of the lower section might have to be done later than the upper section. **Always dampen down before applying subsequent coats**)

**Dubbing out:** on defaced surfaces or in areas with a large amount of damaged joints it might be necessary to apply a dubbing out coat (using a 3-4mm down well graded aggregate) to provide a relatively level surface. In most cases this will be sufficient and joints or holes will not have to be filled with rubble unless quite deep. When a dubbing out coat is used let it set sufficiently before keying it. The most efficient way to apply a dubbing coat is by harling. The strength should, as always, be compatible with the type of background but a moderately hydraulic lime mix, of one part NHL 3.5 to two parts grit sand is recommended in this case. Apply base coat or scratch coat after approx. 3-4 days (more if very deep recesses have been filled)

**Undercoat/ Scratch Coat:** to be applied 3-4 days (or more, depending on atmospheric conditions) after completion of the daubing out. Thickness can vary according to the overall thickness required but it is normally between 10 and 12 mm. It must not be applied over 15 mm thick. If this is required it should be done as an extra coat (two intermediate coats) each not above 12 mm. The thicker the intermediate coats the longer the waiting time before each application. Provide a criss cross key, creating 25-35 mm diamonds, with a pointed wooden

lath. The under coat is to consist of one part fat lime to two and a half parts grit sand, (this mix should have stood for at least two weeks and the putty used must be at least 3 months old). Just before the mortar is ready for application hair should be added to the mix approx. 0.5 kg per 100 litres and the mix should be gauged with gypsum casting plaster at a ratio of 10 % to the volume of the lime.

**Rendering On Different Materials:** Where different materials meet, and where there are timber lintels and other changes in the background material it is necessary to fix timber laths on counter laths.

**Float Coat:** to be applied 3-4 days (or more, depending on atmospheric conditions) after completion of the scratch coat. Its strength should be less than the previous coat. The thickness should be kept between 9 and 11 mm. On walls screeds should be laid out to ensure a level surface is achieved. Alternatively to achieve a uniform and level surface fix vertical timber battens on the wall at 2-2.5 m. interval. If the wall is uneven use spacers and check that battens are straight with a plumb level. Screed off excess mortar between battens with a wooden straightedge spanning between the battens. When battens are taken down, fill in strips with the same mortar. The under coat should consist of one part fat lime to three parts grit sand, (this mix should have stood for at least two weeks and the putty used must be at least 3 months old). Just before the mortar is ready for application hair should be added to the mix approx. 0.5 kg per 100 litres and the mix should be gauged with gypsum casting plaster at a ratio of 10 % to the volume of the lime.

Scour back and key with a devil float after initial setting. Check for shrinkage during the first 2 days and, if necessary, lightly dampen the relevant area, scour back and re-key. Do not apply a finishing coat for 3-4 days, until undercoat is adequately firm and any small amounts of shrinkage are complete. This is especially critical on timber lathed ceilings.

**Finishing coat:** Use a well matured, un-haired mix of one part lime to one part fine silica sand gauged with 10% casting plaster as detailed above. This can be applied in two thin coats immediately after each other.

**Note:** in all plasters, coats should be applied firmly to exclude air and any excessive moisture. Suction needs to be carefully controlled at all times. **Reworking:** Gypsum Gauged mortars can not be reworked

## **Plastering onto timber lath**

**Plastering on wooden lath:** Wood lath backgrounds should be well wetted the day before, and again 2 hours before work proceeds. The constant principal is that at no time should the lath be so dry that it will absorb moisture rapidly from the first coat when it is applied. If the wall becomes dry in patches, these areas should be damped again to ensure uniform adhesion.

Hair must be added to all but the finishing coat. The mortar for the first coat should be stiff enough to hold up when laid, but sufficiently plastic to squeeze easily through gaps between the laths. The first coat should be laid in a diagonal direction across the lath. After the surface has steadied up provide a criss cross key with a pointed wooden lath. The first coat should be mixed at the same ratio as the first undercoat described above and laid to approx. 12mm. Subsequent coats are applied and looked after in the same way as is described above. Any subsequent under coat/float coat on the ceiling will need to match in with existing levels allowing for a skim finish of approx. 2-3mm

If lath is to be treated against insect and fungal attack it is to only be treated with a water based carrier solution and must be fully dried out before any work commences. Drums of the treatment should be retained on site for inspection to ensure compliance. Areas still wet from timber treatment will cause failure.

Before plastering starts it is essential that all laths are sound and securely fitted any new laths should be laid so as not to create long continuous joints and they should be left a few mm short of each other to allow for swelling when wetted.

If you have any questions or queries please do not hesitate to contact Womersley's Limited on Tel 01924 400651 or call in at our workshop.