

## Two and Three Coat Work - Natural Hydraulic Lime (NHL) Renders

### St Astier Natural Hydraulic Limes (NHL)

#### Two coat work

Two coat work is suitable for renders with an overall thickness of approx. 15 mm. on surfaces that provide adequate suction and a good key. On surfaces offering poor suction and keying, it is recommended to use a stipple coat (3-4mm thick) applied by casting on, harling or spraying. The main coat can be applied after sufficient hardening and finished as required. Alternatively use 3 coat work by applying a finishing coat.

On two coat work the base coat will be the thickest (up to 10mm, more if applied in 2 passes) and with a binder: sand ratio of 1:1.5 or 1:2. Use mainly NHL 5 or NHL 3.5.

This can be laid on or preferably cast/sprayed on. Scour back and key after initial setting.

To ensure a flat and uniform surface see "Ensuring a level surface" under Undercoat in 3 coat work section.

**Curing:** check for initial shrinkage. If found, dampen surface lightly with water and tighten back and re-key. Repeated shrinkage is usually a function of poor quality sands, poor suction control or rapid drying.

**Finishing coat:** use [NHL 3.5 \(Chaux LC pure\)](#) or [NHL 2 \(Terechaux\)](#) (see individual product sheets) 5mm max. for smooth or light textured finishes, 7-8mm for coarse finishes (tyrolean, roughcast etc).

**Smooth and light textured finishes:** use finer well graded sands, 1-2mm down to 0.075mm. Add just enough water to obtain required workability. The more water is added the higher the risk of shrinkage. When the mortar is firm enough, proceed to float up with a cross-grained wood float. This is the most important phase of the finishing work and should be done diligently together with good curing and protection it is vital in obtaining a good finish. See "[Protecting Lime Mortar](#)".

**Coarse finishes:** use coarser sands if thick (rustic) granular finishes are required. The thickness of the coat depends on the final finish required. Some of these finishes, especially the ones requiring special skills such as cottage, scraped and travertine effects, could also be done by using the same type of sand as smooth and light textured (floated) finishes. In these and tooled renderings (patterned), if initial shrinkage takes place, lightly dampen the surface and re-float the area during the first day or two. Tooling is normally applied when the render is 5-7 days old.

**Dry dashing:** throw the chosen aggregate onto soft mortar and leave exposed. To speed up the work a plasterer throwing the aggregate can follow the laying on plasterer.

**Curing:** curing by water mist over 3 to 4 days, if necessary more than once a day, is essential when weather conditions would cause quick drying. See "[Protecting Lime Mortar](#)".

#### Three coat work

Background preparation, sands, suction control, keying and dubbing out: as previously described.

**First coat:** has to provide sufficient bonding. Stipple or spatterdash can be used on all backgrounds, but especially on impervious and smooth background. Leave these coats rough to provide a key. Use richer mix (1:1.5 preferably). The normal thickness is between 3 and 5 mm. On soft or weak background use 1:2 or 2:5. Successive coats must be weaker than this coat. The thickness of the first coat depends on the nature of the background and the overall thickness required of the render.

A laid on scratch coat can be used on old bricks or surfaces providing a good key (greater care is required in application to ensure good bonding with the background). It will be scoured back with a cross grained wood float and keyed (crisscross keying pattern preferred) once initial stiffening has taken place.

**Second coat (straightening):** to be applied 2 days (or more, depending on weather conditions) after completion of first coat. Its strength should be less than the first coat. Thickness will vary according to the overall thickness required but it is normally between 10 and 15 mm. It must not be over 20 mm thick. If this is required it should be done in successive coats each not exceeding 20 mm. The thicker the intermediate coats, the longer the waiting time before each subsequent application.

**Ensuring a level surface:** to achieve a uniform and level surface fix vertical timber battens or dab's 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. Fill out to screeds, if necessary in layers. 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.

An alternative is to make running screeds 100mm. wide at regular intervals.

Scour back and key as usual after initial setting. Check for shrinkage during the first 2 days and, if necessary, lightly dampen the relevant area, tighten back and re-key. In case of intermediate coats this would apply to each coat. Do not apply finishing coat until undercoat is adequately hardened.

**Finishing coat and curing:** as per 2 coat work.

### **Protecting NHL mortars and renders**

The setting properties of NHL mortars require protection against adverse weather conditions. Precautions are necessary and, if in doubt, your St. Astier Distributor will be able to advise further.

See "[Protecting Lime Mortar](#)".

**Early exposure to rain will cause some moisture absorption in the first few millimeters of a fresh render. If frost occurs, there might be damage. The figures given above refer, therefore, to a render that has not been subject to water penetration in its early life.**

The preferred form of protection is hessian covers that, with re-damping, will also contribute to curing the mortar. Hessian covers are essential to protect against frost. Plastic sheeting is effective against rain but should be kept clear of fresh work. If too tight it will generate condensation leading to unsightly staining. It will not protect against frost. Frost protection should be provided even if frost is not occurring at the moment of finishing the day's work but is forecast during the early days of a mortar. Work should not start in frost conditions or when frost is forecast or with temperatures below 5°C. In working with NHL 2 or in rendering with fine finishing coats, this should be 8°C. Protection from the quick drying effects of wind or direct strong sun should be provided by using shading sheets on scaffolding. See "[Protecting Lime Mortar](#)".

### **Good working practices**

In this document we have already discussed items such as background preparation, suction control, detailing, keying, protection and curing. A good and durable result depends mainly on these factors, the correct mortar mix, sand, dosages and workmanship. One item not to be overlooked is scaffolding.

Where scaffolding is being used make sure that the scaffolding has adequate clearance from the face of the wall to allow application, avoiding unsightly lift lines. Scaffolding should project past all areas to be rendered to allow for protection of the new work against direct rainfall. Generally scaffolding should be capable of carrying the protective screens necessary to shade the work and prevent rapid uncontrolled drying and any covers needed to protect against frost. See "[Protecting Lime Mortar](#)".

**For further Guidance, contact your St Astier Distributor.**

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