

Lime Plasters - Shelter Coats/Consolidation

The purpose of a shelter coat is to provide protection to surfaces that suffer unduly from the effects of erosion from wind, rain and pollutants or to protect and consolidate water damaged plaster. Generally they are used as a last resort in the knowledge that they offer the only solution, even a short-term one, to particularly problematic surfaces on historically significant buildings. The principle of "Less is More" is particularly relevant in deciding when a shelter coat is appropriate.

For instance, some statues, perhaps early medieval in origin, carved from soft stone that are of significant historic and architectural merit that have been badly weathered, but where sufficient detail remains to distinguish features, may be a candidate for shelter coat protection. Replacement or significant repair may be inappropriate for a number of reasons.

The complete understanding of the decay mechanisms involved is vital.

Inappropriate methods may lead to further deterioration and sometimes to irreversible damage.

Shelter coats should be sacrificial in nature, always being reversible. They usually consist of a feeble or non-hydraulic lime, with or without aggregates. In many respects they are similar to lime washes, and it could be argued that repeated lime washing of specific areas could be considered one way of applying and utilising shelter coats.

Where a feebly hydraulic lime such as St Astier NHL 2 is being used and particularly where an aggregate is considered necessary, they can be applied by trowel, spray or brush, depending on circumstances, but are usually applied as a series of thin coats of lime rich sand mixes, pigmented or not, often requiring several applications over a period of time.

Backgrounds. (Masonry - Brick or Stone & Plaster or rendering)

Backgrounds, should be clean and free of all pollutants and generally have loose or flaking materials removed before any consolidation work is attempted.

Backgrounds should be checked for the presence of damaging salts and treated where necessary. This may involve applying a poltice to remove salts over a long period.

Some lime stones that are very friable and delicate may require several treatments with limewater or other methods of gentle consolidation. Shelter coats are often applied to porous backgrounds and considerable pre-wetting may be required.

Protection and exclusion of direct rainfall to repair areas is very important. See "[Protecting Lime Mortar](#)".

In some circumstances, friable surfaces can be consolidated by several applications of limewater. St Astier NHL2 & NHL 3.5 are particularly appropriate for consolidating poor backgrounds. Upon completion of consolidation, the background should be treated as any other background to control suction.

Consolidation materials.

NHL 2 or NHL 3.5 mixed in a ratio of 1:8-10 by volume with clean potable water and sprayed lightly on to a pre-dampened background repeatedly over a period of time can significantly improve the surface condition prior to application of a shelter coat.

Always check that a lime water will be beneficial before application, in some rare circumstances lime water would be detrimental, reacting with the primary agents of decay in the host masonry or background. In the case of lime plasters or renders, lime water almost always has a beneficial effect.

Shelter coat materials.

NHL 2 and fine aggregates, usually ground marble, limestone, crushed chalk or fine silica sand, with or without pigments. Typical mixes could include all of these materials.

Example: badly weathered soft friable lime stone sculpture.

Consolidation with lime water until background is physically improved.

Shelter coat consisting of 3 parts NHL 2 : 1 part fine marble dust : 6 parts clean drinking water mixed to a slurry and allowed to stand for 12 hours.

Immediately before application, remix the materials vigorously ensuring complete mixing and apply to pre-dampened background with a bristle brush in several coats, minimum 5 coats with 24 hours between coats. Finish off with 3 coats of simple lime wash made with 1 part NHL2 : 4 parts clean drinking water again leaving 24 hours between coats. Protect work at all times. See "[Protecting Lime Mortar](#)".

It cannot be overemphasised how important correct diagnosis of the decay process is.

Professional investigation of the problem by a suitably qualified laboratory should always be carried out, both to determine the mode of decay and to ensure that the treatment is suitable.

St Astier distributors do not provide specifications for shelter coat consolidation on a general basis. This can only be provided on an ad hoc basis, case by case. Reactions do occur between some materials and these must be fully evaluated before deciding on a specification.

Ultimately the decision process on when and where a shelter coat is appropriate must be based on full information. Lime shelter coats have been used very successfully to overcome significant problems in the past and offer a solution to often seemingly insurmountable problems and are a useful tool for the conservator.

For further Guidance, contact your St Astier Distributor.

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