

## Cedral fibre cement slates Care and Maintenance

TECHNICAL  
NOTE

Cr-01/02/en/v3

**INTRODUCTION** When correctly installed in accordance with the recommendations of Etex Exteriors, the finished roof of Eternit Slates should give trouble-free performance for the service life of the product without the need for extensive maintenance or repair.

**CARE** Basic precautions should be taken to avoid access to the roof by window cleaners, chimney sweeps, aerial installers etc, without the correct use of crawling boards or roof ladders.

Failure to use adequate access equipment can damage slates and fixings and is in breach of Health and Safety Regulations.

**MAINTENANCE** The main objective of regular maintenance involves carrying out regular visual inspections of the roof, usually twice a year, in the spring and autumn.

Any leaves and debris should be removed from valleys and gutters and any moss or lichen growths which affect the flow of water off the slope.

Check the function of any roof space ventilation components and clear any grilles or apertures to ensure adequate air flow into the roof void. (See section on Mosses and Lichens).

**REPAIRS** All repairs, re-covering and maintenance of roofs should conform to: -

- a) Current Building Regulations
- b) BS 8000-0: 2014 – Workmanship on building sites- code of practice for slating and tiling roofs and walls.

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**Safety Hooks** Safety hooks are proprietary devices which are fixed directly to the roof or building structure and to which safety ropes or harnesses are attached by roofing or maintenance contractors.

These devices may be subject to Health & Safety legislation and should comply with EN 517: 2006 – Prefabricated accessories for roofing. Roof safety hooks.

**Roof Walkways** Proprietary devices which are fixed to the roof structure or as part of the tile or slate product may be used for access in order to stand or walk during inspection, maintenance or repairs to elements or parts of the building structure which penetrate the roof covering.

These devices may be required by Health & Safety legislation and should comply with EN 516: 2006 – Prefabricated accessories for roofing. Installations for roof access, walkways, treads and steps.

## **PERMANENT ACCESS**

**Scaffold** Where roofs are to be extensively repaired or re-roofed, a working platform must be provided at eaves level.

An independent tied scaffold conforming to TG 20:13 should be constructed for complete re-tiling operations, or for other work, a catch barrier must be provided at the edge and constructed in accordance with this standard.

**Working Platform** Mobile access platforms are only suitable for use where small areas of roof are to be accessed for repair or maintenance. All mobile tower platforms should be constructed to the requirements of BS EN 280:2013+A1 2015 (power operated) or BS 1004:2004 and BS 12801-1:2003 (mobile working towers).

Ensure all roof inspections are carried out by competent persons in accordance with Health & Safety Regulations.

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## **REPAIR AND REPLACEMENT OF BROKEN SLATES**

Any broken or defective slates should be replaced with a sound matching unit and not covered over superficially with any other material or coating. If extensive repairs are required, sectional or complete recovering should be considered. The use of surface coatings to weatherproof roofs externally or internally is not recommended.

## **FITTINGS**

Ridge and Hip tiles can be replaced individually and mechanically fixed as required in BS5534.

Valley slate replacement may necessitate stripping out adjacent slates in order to replace existing valley slates. Ensure any replacement tiles adjacent to the valley are re-fixed by the correct fixings.

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**EFFLORESCENCE** Efflorescence is a general term used in the construction industry, to describe the white deposits found on building materials such as slates, paving blocks, clay bricks, calcium silicate bricks, mortar, concrete etc.

The different deposits vary significantly in chemical composition and method of formation. It must be appreciated that the processes which give rise to efflorescence in clay products are different to those that affect concrete products.

Efflorescence as found on fibre cement slates is often categorised as 'lime bloom', which is a deposit apparent either in the form of white patches or as a more general lightening in colour. When the latter effect is seen, it is often misinterpreted as a fading or 'washing out' of the colour of the fibre cement.

The term efflorescence covers several different phenomena and different forms of efflorescence can occur on fibre cement products as a result. With fibre cement slates, subtly different reaction mechanisms at various stages of the production process and lifespan of the product can give rise to the formation of calcium carbonate, which appears on the surface of the tile as a white haze. Efflorescence may sound like a complicated chemical phenomenon, but it is merely a superficial characteristic feature of good quality concrete roof products.

The following Questions and Answers hopefully address the important issues concerning efflorescence and provide re-assurance that Etex Exteriors slates provide exceptionally attractive and cost-effective roofing product.

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**Why does it happen?** Lime bloom, when it occurs, is a natural phenomenon brought about as a result of the normal reaction between cement and water. A product of this reaction is calcium hydroxide 'lime' which is slightly soluble in water. Under certain conditions it can migrate through the fibre cement slate to the surface where it in turn reacts with carbon dioxide in the atmosphere to produce a deposit of calcium carbonate crystals.

It is this deposit which gives rise to the white patches or overall lightening referred to as 'efflorescence' but is normally very thin and when wetted becomes transparent and seemingly disappears.

**How does it occur?** The occurrence of lime bloom or efflorescence on concrete roof tiles is spasmodic and unpredictable, but a significant factor seems to be the weather conditions.

Efflorescence forms more readily when the fibre cement slates become wet and dry slowly and therefore there are more occurrences during the winter. It is also generally only likely to occur in the early life of Etex Exteriors fibre cement slates installed for a year or more without experiencing lime bloom. They are unlikely to be affected in the future.

**How long will it last?** It is also difficult to ascertain how long the effects last and this depends upon the amount of deposit and local weather and atmospheric conditions. The action of wind and rain gradually removes the deposits, leaving the true colour of the slates without further efflorescence occurring. As rainwater is slightly acidic, it dissolves the deposits on the slate surface very quickly and they will normally be expected to disappear in 6 - 12 months. As it is only superficial, the strength and durability of the product is unaffected.

**Additional Comments** Perhaps the most important factor for the specifier, builder and property owner is that efflorescence, which may occur on Etex Exteriors fibre cement slates, is gradually removed by natural weathering processes. This natural removal restores the original colour of the product and in no way does it hinder the product's impermeability, colour consistency or continuing strength growth with age.

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## MOSESSES & LICHENS

**Causes** The principal cause of the growth of mosses and lichens on tiled roofs is that the rough surface of the tile's filters dirt out of rainwater. In addition, decaying matter in the form of dead leaves fall on to the roof and a proportion gets a lodgement there. Spores and seeds of mosses and lichens are blown on to the roof or get carried there by the feet of birds and sooner or later take root in the dirt and begin to grow. Inevitably, the rough edges of some of the slates which have a dressed edge, are the first to attract moss growth.

Moss will not grow much in urban environments, where there are high levels of sulphur dioxide in the atmosphere. It tends to flourish in rural areas or where trees are nearby and where there are shady, damp conditions. Steeper pitched roofs are less likely to support moss and lichen growth as they shed water more quickly than low pitched roofs. By contrast, north facing slopes which remain damper longer, attract the growth of mosses and lichens.

**Effects** The primary effect of moss on a roof is that it holds water. Thus, the flow of water into the gutters is slowed down and the water is held on the roof in contact with the tiling for a much longer time.

If the mosses and lichens affect the drainage of water down valleys, abutment gutters and the interlocking drainage channels of the roof tiles, they should be removed.

In normal circumstances, the growths are deleterious to concrete although in some circumstances it can impart provide a mellow and pleasing appearance. However, there are several methods of removal.

**Weathering** The acrylic coating has a good colour stability and will help protect the pigmented surface layer from erosion and inhibit organic growth on the surface for a period of 5 – 15 years .Thereafter as the coating edrodes to expose the substrate,the product will weather by attracting dirt and organic growth,in the same way as other traditional roofing materials .

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## Methods of Removal

### Spraying with a Toxic Wash

This is perhaps the least expensive, but great care must be taken. Any spray that is toxic to moss can also be dangerous to garden plants in the vicinity of the roof and perhaps to the plants in adjoining gardens. There is also the possibility of ill effects to animals & birds.

Toxic washes take a few days to be fully effective and should preferably be applied during a spell of dry weather, since rain may wash them off before they have time to act. The action is hastened if thick growths are removed and the wash is well brushed in.

Normally, one treatment is sufficient to kill the growths but sometimes repeat applications are necessary. The dead growths will eventually weather off and disappear. This is a job best suited to experienced and qualified labour using a proprietary toxic chemical.

Some toxic washes leave a residue which discourages subsequent growth, but even under favourable circumstances the residual effect is unlikely to last for more than two or three years. A wide range of toxic washes are available, but care must be taken regarding environmental and Health & Safety Regulations. A useful summary of some of these materials and their effectiveness can be found in DIG 370 – Control of lichens, moulds and similar growths.

It must be noted that the use of high-powered jet washes is not recommended as it can damage the surface of a slate, thus reducing its expected life considerably.

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**Copper Wire** A more permanent answer to the problem of maintaining a clear roof can be obtained by trailing copper wires across the roof surface. As the copper slowly oxidises in the atmosphere it provides the roof with a wash of copper salts with every shower of rain, thus preventing renewed growth.

**Scraping** This is certainly not recommended. It is expensive in labour and cost and will probably be extremely dangerous to the person working on the job. It almost inevitably results in broken or damaged tiles and consequential roof leaks and, in addition, it leaves behind a trail of ugly looking scrape marks on the tiles. However carefully it is done, it will have to be done again in due course, because the moss will return.

**Conclusions** Generally, moss growths are not unsightly and, in some cases, give a weathered appearance to the roof.

If, however, removal is deemed necessary for aesthetic reasons, then it can best be undertaken using a recommended toxic chemical wash.

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## Recommended Chemical Treatments

The following is a list of some proprietary products which can be used as a chemical treatment for the removal of mosses and lichens from tiled roofs.

### Household Bleach

Dilute 1:5 with water. Effective against many organisms and will lighten the colour of darker varieties. Rinse off with cold water after 24 hrs. No active residue remains.

### 'MOSSGO'

A safe water-based solution which is simply and quickly applied using a spray, watering can or brush. Manufactured by Thames Valley Specialist Products, PO Box 1945, Maidenhead, Berkshire SL6 2XR Tel: 01628 680045

### Copper Sulphate Solution

Dilute 30gms copper carbonate, 300cc ammonia solution (sp.gr.0.880) with 50 litres of water. Apply with watering can or spray and wash off residue.

## Copper Strips & Wires

The use of chemicals should be carried out strictly in accordance with health and safety guidelines, and the manufacturers application instructions. Great care must be taken in the disposal of all chemical treatments, and they should not be discharged into the roof or building drainage system nor onto the ground. Etex Exteriors takes no responsibility for their effectiveness in use, which remains with the manufacturer of the product concerned.

The application of copper strips or wires fixed horizontally across the roof and ridge provides the roof tiles with a permanent 'wash' of copper sulphate as it oxidises. This has proven to be effective in killing the spores which promote mosses and lichens to grow.

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## CHECK LIST

- Look for signs of any cracked or broken tiles caused by possible impact or wind damage.
- Inspect GRP and metal valleys for deterioration.
- Examine top edge and abutment metal flashings for damage and re-fix/re-dress as appropriate.
- Clear all eaves/back gutters of leaves and other debris and check free flow of water to outlets.
- Cut back overhanging trees or foliage which may impair roof drainage.

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