



Efflorescence on concrete roof tiles: Guidance for homeowners and building owners



The appearance of white deposits or streaks on a newly constructed or recently re-roofed property can understandably cause concern. One of the most common enquiries received by NFRC relates to these white marks, often leading homeowners to question whether their roof has been incorrectly installed or whether the roof tiles are defective.

In the vast majority of cases, these deposits are efflorescence, a naturally occurring characteristic of concrete roof tiles and other cement-based building materials.

This guidance explains what efflorescence is, why it occurs, its effect on the performance of a roof and when further investigation may be appropriate.

Scope

This guidance applies to concrete roof tiles.

It explains the characteristics of efflorescence and provides general information for homeowners and building owners. It does not replace a site-specific inspection where there are concerns regarding the performance or condition of a roof.

This guidance does not apply to natural slate, fibre cement slates, clay roof tiles or metal roof coverings.

What is efflorescence?

Efflorescence is the appearance of a white or light-coloured deposit on the surface of concrete roof tiles.

Concrete roof tiles are manufactured from cement, aggregates, pigments and water. During the normal curing process, naturally occurring calcium compounds are formed within the concrete. When moisture passes through the microscopic pores of the tile, small quantities of these compounds can be carried to the surface. As the moisture evaporates, the compounds react with carbon dioxide in the atmosphere to form a fine white deposit known as calcium carbonate.

Efflorescence is not unique to roofing. It is a recognised characteristic of many cement-based construction products, including brickwork, blockwork, paving, mortar and concrete structures.

Although efflorescence is the most common cause of white deposits on concrete roof tiles, other substances such as biological growth, atmospheric contamination or residues from nearby construction activities may produce a similar appearance. Where there is uncertainty regarding the cause of staining, professional advice should be sought.

Why does efflorescence occur?

Efflorescence is a natural process and does not indicate a manufacturing fault or installation defect.

Its occurrence depends on several factors including rainfall and drying cycles, humidity, the age of the roof, roof orientation and exposure to sunlight and prevailing weather. Some roof slopes may display more noticeable deposits than others because they remain damp for longer or receive less direct sunlight. The extent and duration of efflorescence cannot be predicted for an individual roof.

White streaks concentrated beneath ridge or hip tiles may originate from cementitious bedding mortar or pointing materials, where rainwater dissolves small quantities of free lime and carries them onto the roof surface.

Does efflorescence affect the roof?

No.

Efflorescence itself has no adverse effect on the strength, durability, weather resistance or expected service life of concrete roof tiles. It does not indicate that the roof has been incorrectly installed.

Is efflorescence a defect?

No.

Efflorescence is widely recognised throughout the roofing and construction industries as a normal characteristic of cement-based products rather than a product defect.

The possibility of efflorescence is recognised within the manufacture and use of concrete roof tiles and is not normally regarded within the roofing industry as a defect in the product.

Its appearance alone should not be interpreted as evidence of poor workmanship, defective roof tiles, product failure or an increased risk of water ingress.



Will it disappear?

In most cases, yes.

Natural weathering gradually removes efflorescence as the roof is exposed to rainfall and the environment. Over time, the appearance of the roof generally becomes more uniform.

In many cases its appearance reduces noticeably within the first few years of service, although the timescale varies significantly depending on location, weather exposure, roof orientation and environmental conditions. For this reason, no fixed timescale can be given.

Should I clean my roof?

NFRC generally recommends allowing efflorescence to weather away naturally.

Pressure washing, abrasive cleaning techniques or unsuitable chemical cleaners may damage the surface finish of roof tiles, disturb correctly installed roof coverings or create unnecessary health and safety risks when working at height.

Cleaning should only be undertaken where considered necessary and in accordance with the roof tile manufacturer's recommendations.

When should further advice be sought?

Further investigation may be appropriate where efflorescence is accompanied by:

- Water ingress;
- Cracked, broken or displaced roof tiles;
- Loose ridge or hip tiles;
- Visible deterioration affecting roof performance; or
- Any other indication that the roof is no longer providing effective weather protection.

Professional advice should also be sought where there is uncertainty over the cause of white deposits or staining.

NFRC position

NFRC recognises efflorescence as a normal and naturally occurring characteristic of concrete roof tiles.

In the absence of any associated defects affecting the performance of the roof, efflorescence is considered to be an aesthetic issue only, consistent with the recognition given in BS EN 490:2011+A1:2017, Annex A (Informative)–Surface characteristics, where efflorescence is recognised as a natural surface characteristic. It does not adversely affect the strength, durability or weather resistance of concrete roof tiles and should not, in isolation, be regarded as evidence of defective materials, poor workmanship or roof failure.

Where no defects are present, the roof should be allowed to weather naturally, with its appearance expected to improve over time.

Disclaimer

This guidance note provides general information only and should not be relied upon as a substitute for a professional inspection of a specific roof. Circumstances may vary between properties, and where concerns exist regarding roof condition or performance, professional advice should be obtained.

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