Technical Bulletin

Understanding Efflorescence in Concrete Roof Tiles

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What Is Efflorescence?



Efflorescence is a temporary surface discoloration that can be observed on all concrete products. This phenomenon occurs due to the natural chemical properties of cement. Cement contains free lime, and when water is introduced, a series of chemical reactions are triggered. These reactions generate calcium hydroxide, which may migrate to the surface of the tile. Once at the surface, it reacts with carbon dioxide in the air and forms a white, chalky crystalline salt deposit. Efflorescence can appear as a subtle "bloom" that softens the overall color of the tile or it may present as more concentrated patches.



When Does Efflorescence Occur?

Efflorescence typically develops shortly after the manufacturing process. It is most commonly reported within several weeks or months following installation, and its occurrence is influenced by local weather conditions. The duration of efflorescence is difficult to predict, as it depends on the characteristics and amount of the deposits as well as environmental factors. Over time, exposure to carbon dioxide and rainfall usually removes these deposits, restoring the tile's original color. Once removed, efflorescence does not usually reappear.

Methods for Accelerating Removal

For those who wish to speed up the removal process, several effective methods are available. One common approach is pressure washing the tile surface to eliminate the residue. Following this, applying a new sealer coat to the top side of the roof can help with the overall appearance of the roof. Removal of efflorescence should not be performed before the chemical reactions that cause efflorescence are completed. This can take up to 18 months to two years.



Impact on Tile Performance

It is important to recognize that **efflorescence is a temporary and superficial issue.** It does not negatively affect the structural integrity or the functional performance of the tile.

For more information, contact your local Eagle Account Representative by visiting eagleroofing.com.