FRETTING IN CLAY ROOF TILES A Consumer's Guide

WHAT IS ROOF TILE FRETTING?

Fretting is an issue that affects historical production of clay roof tiles. It refers to the erosion or wearing away of the tile material, resulting in the release of fine, dusty particles. This process can lead to a change in the tile's appearance, texture, structural integrity, and potentially its effectiveness as a roofing material over time.

Two important aspects of the production of clay roof tiles that can influence its likelihood of fretting are:

- 1. Clay Composition: The type and quality of clay used in tile production can affect its susceptibility to fretting.
- 2. Firing Temperature: Inadequate firing temperatures during production can result in tiles that are more prone to fretting.

HISTORICAL CONTEXT

Terracotta, which means "baked earth" in Italian, has been used for roofing for thousands of years. The issue of fretting has been observed since the widespread use of terracotta tiles in roofing, becoming more noticeable as mass production techniques were introduced in the 19th and 20th centuries.

Prior to 2002, roof tile manufacturers were not required to show evidence or test for exposure criteria as they were not included in the relevant Australian Standard AS 2049 *Roof tiles*.

The inclusion of these criteria and current production methods have dramatically reduced the risk and almost eliminated the occurrence of fretting in clay roof tiles.

COMMON CAUSES OF FRETTING OF OLDER CLAY TILES

If the clay and firing conditions during production are not adequate, the following factors may also contribute to the fretting of clay roof tiles:



Weather and or Marine Exposure: Constant exposure to marine environment, sun, rain, wind, and varying temperatures can accelerate the fretting process.



Freeze-Thaw Cycles: In colder climates, repeated freezing and thawing of moisture within the tiles can cause fretting.



Acid Rain: In areas with high pollution (such as industrial areas), acid rain can contribute to the deterioration of roof tiles.



Moss and Lichen Growth: These organisms can retain moisture and may damage the tile over time.

WARRANTIES FOR CLAY ROOF TILES

As manufacturing processes and quality control have improved, many clay roof tile manufacturers now offer comprehensive warranties to include:

- **Duration:** warranties can range from 50 to 100 years and offer a full replacement value for the length of the warranty.
- **Coverage:** defects in materials and workmanship that exceed normal weathering are typically covered, including resistance to fretting.
- Transferability: Many warranties are transferable to new homeowners.
- Installation Requirements: tiles need to be installed by certified professionals according to manufacturer specifications.
- Maintenance Clauses: keeping records and regular maintenance may be required.

MODERN PRODUCTION METHODS TO REDUCE ROOF TILE FRETTING

Today's manufacturers employ various techniques to minimize fretting in terracotta roof tiles:



Improved Clay Selection: Using high-quality clays with optimal particle size distribution enhances the tile's durability.

Density Enhancement: Increasing the density of tiles through advanced pressing techniques can improve their resistance to fretting.

Surface Treatments: Application of sealants or glazes can provide additional protection against moisture and weathering.

Advanced Firing Techniques: Precise control, higher firing temperatures and longer duration ensures proper vitrification of the clay particles.

Quality Control: Rigorous testing procedures ensure tiles are resistant to fretting.





DURABILITY IN MARINE ENVIRONMENTS

Marine environments present unique challenges for roofing materials due to constant exposure to salt, moisture, and potentially extreme weather conditions. Here's how clay roof tiles perform in these environments:

- Salt Resistance: Clay tiles don't corrode like metal roofing materials might.
- **Moisture Handling:** Clay tiles can effectively shed water, helping to protect the underlying roof structure from moisture damage.
- Wind Resistance: Clay tiles are designed and tested to withstand high wind speeds (crucial in coastal regions prone to storms or hurricanes).
- Algae and Moss Growth: Moisture in marine environments can promote algae and moss growth. Some manufacturers offer tiles with algae-resistant coatings to mitigate this issue.
- Colour Retention: Being a fired product, clay roof tiles do not fade or lose their colour, even when exposed to intense sunlight.
- Thermal Properties: Natural thermal properties of fired clay helps regulate indoor temperatures (beneficial in warm coastal climates).

The use of marine-grade fasteners and underlayments is often recommended for installation in coastal areas to prevent corrosion and enhance overall roof system durability.

WHAT TO DO IF TILES ARE FRETTING

While modern production methods have significantly reduced the occurrence of fretting, these steps help prevent the risks of fretting for old tiles:

- 1. **Regular Inspections:** If you have concerns with your roof fretting, arrange an inspection to catch any signs of fretting early.
- 2. Cleaning and Maintenance: Avoid high-pressure washing as this can damage tiles.
- 3. Contact Manufacturer: If the manufacturer of the tiles are known, contact them for warranty and replacement information and recommendations.
- 4. **Prompt Repairs:** Address any damaged or missing tiles promptly to prevent water ingress and further damage.
- 5. **Proper Installation:** Ensure tiles are installed correctly by experienced professionals to minimise stress on individual tiles. Also ensure your attic or roof space is well ventilated to reduce moisture build up.
- 6. Adequate Ventilation: Ensure your attic or roof space is well ventilated to reduce moisture build up.

By understanding the causes of fretting and taking preventive measures, homeowners can enjoy the timeless beauty and durability of clay roof tiles while maximising their longevity and effectiveness.



By considering these factors and choosing clay roof tiles, homeowners in coastal areas can enjoy the beauty and durability of terracotta roofing while minimising the risk of fretting and other weather-related issues.



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