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bre

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Our Ref. 254-816

Dear Mr Väätäinen,

Service life of Luna Thermo-D Thermally Modified Timber (TMT) for exterior decking boards

BRE has a long record of assessing the properties and performance of ThermoWood® (the collective name for Finnish TMT product). In December 2003 BRE extensively reviewed VTT technical data which is the cornerstone for the development of the technology. In 2008 we published our BRE Digest 504 "Modified Wood – an introduction to products in UK construction". In that we considered the properties and performance of ThermoWood®.

Two documents that are especially pertinent to the consideration of Luna Thermo-D are as follows:

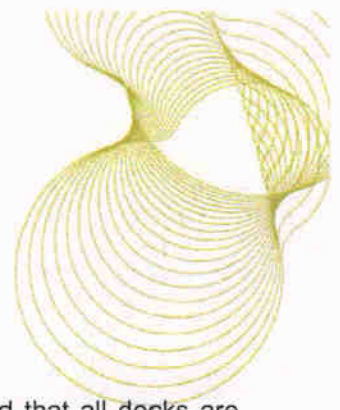
The first is an accelerated weathering performance study conducted by the Helsinki University of Technology (*Virta et al.*). It shows the reduced cupping of cladding boards made from Lunawood thermally modified timber. This dimensional stability of the material is recognised as a considerable advantage for decking, as well as cladding, for extending the service life of the boards.

The second is the KOMO certificate (32941/04) for your product that declares legitimate confidence that modified wood produced by Lunawood complies with the stated technical specification of the certificate. This includes a durability class 2 for the substrate. We would expect a timber of natural durability class 2 to be able to deliver a 30 year service life for a Use Class 3 application such as exterior decking boards.

Timber decking continues to be a popular product in the United Kingdom with the Timber Decking Association providing a focus for best practice. The design of a deck has a



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significant impact on the service life achieved. We strongly recommend that all decks are designed to maximise water shedding and ease of drying and to minimise opportunities for water trapping. A good source of information is the Timber Decking Association's design section www.tda.org.uk. This letter is concerned with low level decks (less than 600mm off the ground) and the decking boards not the parapet, balustrade or structural frame.

Some best practice construction principles that enable water shedding and drying and avoid water trapping are:

- Design decks with a fall of 1:100 with the grooves in the boards running in the direction of the fall to shed water away from the building
- Rounded edges to the boards
- Rotate areas covered by objects placed on the deck (e.g. planters, sand pits, paddling pools) where water may either be a source or become trapped
- Ensure that the joints between the deck boards and frame, and the deck boards and the parapet are designed to dry readily and not trap water.
- Design for appropriate board spacing to aid water shedding and drying
- Ensure regular brushing of the deck to clear debris build up such as leaves and dirt that will restrict water shedding and aid water trapping

Considering all these points we are able to provide the following statement:

BRE is able to conclude that the expected service life for the Luna Thermo-D used in the UK for exterior decking boards will be 30 years, when following manufacturer's guidance and best practice construction principles to promote water shedding and ease of drying and avoid water trapping.

If you have any questions I'd be happy to answer them.

Yours sincerely,

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