

17 March 2009

Daan Olthuis
General Manager
Tunncliffe Timber Company Limited
PO Box 54
Edgecumbe

Dear Daan,

The Durability of ThermoWood

As requested, we have completed a review of results of durability tests for thermally modified radiata pine according to the ThermoWood process. The tests are now 5 years old following their establishment in our Whaka test site in January 2004.

Comparisons have been made between durability data for chemically treated radiata pine and naturally durable timber species available at Scion, to arrive at a conclusion and opinion as to the suitability of ThermoWood-230 with regard to NZS 3602:2003 "Timber and Wood-based Products for Use in Building": specifically under Section 111 "Requirements for wood-based building components with a 15-year durability", Table 2A "Members exposed to exterior weather conditions and dampness", Sections 2A.5 and 2A.6, which includes products for exterior joinery and timber reveals for aluminium windows.

The following results, conclusion and opinion apply only to New Zealand grown radiata pine modified at a temperature of 230 degrees Celsius referred to as "**ThermoWood-230**" which you plan to promote for the above mentioned applications.

Results Summary

The following results are extracted from our comprehensive test report:

- In above ground test samples ThermoWood-230, is of similar durability to radiata pine sapwood treated with preservatives to the H3.1 hazard class specification.
- In-ground accelerated ground contact stake test indicate that ThermoWood-230 is of similar durability as locally grown redwood heartwood.
- Decking tests indicate that ThermoWood-230, compares favourably with macrocarpa heartwood.

Conclusions

Select A heartwoods from locally grown redwood, western red cedar, macrocarpa and radiata pine (either as ThermoWood-230 or chemically treated to Hazard Class H3.1), all have similar resistance to decay in low to moderate decay hazard situations, which apply to the above mentioned section of

NZS 3602:2003. ThermoWood-230 should therefore be suitable for the proposed applications specific to NZS 3602:2003, Table 2, Sections 2A.5 and 2A.6.

Opinion

It is our opinion that ThermoWood-230, as a new wood-based building product, is an acceptable alternative to all timber species listed under NZS 3602:2003 for use as specified in Table 2, Sections 2A.5 and 2A.6.

We believe that thermally modified New Zealand grown radiata pine has good potential as an alternative to traditional wood preservative treatments for wood-based products in New Zealand and overseas, for use in many low/moderate decay hazard situations. We would encourage further research and development and would be pleased to include Scion's involvement in any further work to expand acceptance of thermally modified wood in a wider range of end uses.

Yours sincerely,

A handwritten signature in black ink, appearing to read "Mick Hedley". The signature is fluid and cursive, with a large, stylized flourish at the end.

Mick Hedley B.Sc. (Hons), Ph.D.
Project Leader, Wood Preservation
Wood and Biofibre Technologies

For Group Manager, BioProduct Development