
Northern Composite Products – Euroboard and Enviroboard

Date: June 19, 2008 **No. of Pages:** 3
Project: Euroboard and Enviroboard Analysis **Project. No.:** TE-15069-08
Client: Northern Composite Products
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Background

Tacoma Engineers has been retained to undertake a structural review of the *Euroboard* and *Enviroboard* manufactured by Northern Composite Products. The *Euroboard* and *Enviroboard* are composite lumber products which are to be used as a deck board. This report addresses the structural adequacy of using these products as an exterior residential deck board and/or stair tread for any location in Ontario, Canada.

Comments

Northern Composite Products has provided Tacoma Engineers a summary of material test results from their own tests and from independent testing laboratory *Cambridge Materials Testing Limited*. The results are based on tests completed using standard test methods described by ASTM D6109-05, Standard Test Methods for Flexural Properties of Unreinforced and Reinforced Plastic Lumber, and ASTM D7032-04, Standard Specification for Establishing Performance Ratings for Wood-Plastic Composite Deck Boards.

Euroboard Analysis

Results are given for two different orientations of the board: the Canadian Showing consists of the ridges downward while the European Showing consists of the ridges upward. The moment of inertia of the board used in the testing was calculated by Tacoma Engineers and has a value of $0.143 \times 10^6 \text{ mm}^4$. Refer to Figure 1 for board cross section.

Summary of Results

Canadian Showing

Flexural Strength = 14.6 Mpa

Modulus of Elasticity = 1780 Mpa

European Showing

Flexural Strength = 12.2 Mpa

Modulus of Elasticity = 2061 Mpa

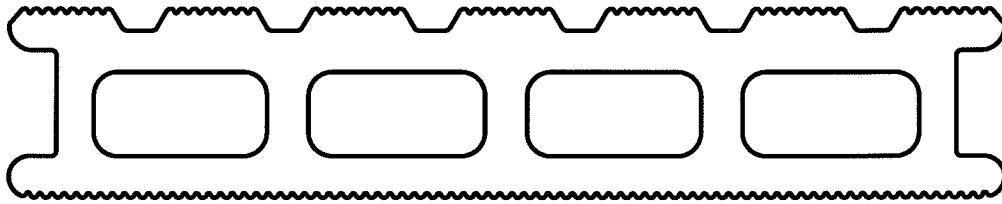


Figure 1: Euroboard Cross Section

The structural analysis was based on the assumption that the boards are supported by structural framing spaced at 16"o.c. as indicated in Northern Composite Products *Euroboard* Installation Instructions (see attached).

Based on the mechanical properties provided by Northern Composite Products and *Cambridge Materials Testing Limited* and our structural analysis, it is our opinion that Euroboard composite deck boards are structurally adequate to support a maximum specified occupancy load of 1.9 kPa (40 psf) or a maximum specified roof snow load of 2.9 kPa (61 psf) in Ontario, Canada as specified in the Ontario Building Code 2006 Clause 9.4.2.3.

Enviroboard Analysis

The moment of inertia of the board used in the testing was calculated by Tacoma Engineers and has a value of $0.132 \times 10^6 \text{ mm}^4$. Refer to Figure 2 for board cross section.

Summary of Results

Flexural Strength = 15.2 Mpa

Modulus of Elasticity = 1913 Mpa

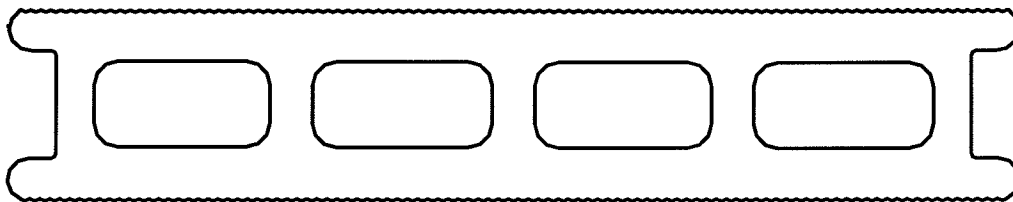


Figure 2: Enviroboard Cross Section

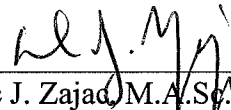
The structural analysis was based on the assumption that the boards are supported by structural framing spaced at 16"o.c. as indicated in Northern Composite Products Installation Instructions (see attached).

Based on the mechanical properties provided by Northern Composite Products and *Cambridge Materials Testing Limited* and our structural analysis, it is our opinion that *Enviroboard* composite deck boards are structurally adequate to support a maximum specified occupancy load of 1.9 kPa (40 psf) or a maximum specified roof snow load of 2.9 kPa (61 psf) in Ontario, Canada as specified in the Ontario Building Code 2006 Clause 9.4.2.3.

Limitations

This report is based on test results determined by independent testing companies and forwarded to Tacoma Engineers by Northern Composite Products. No tests have been performed by Tacoma Engineers. No attempt to verify the accuracy of the test results has been performed by Tacoma Engineers. Tacoma Engineers has not investigated the long term effects of outdoor exposure to the deck material. Northern Composite Products assumes all liability for material deterioration in their product warranty.

Per:



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Encl:

Euroboard/Enviroboard Installation Instructions
Cambridge Materials Testing Limited Report (Euroboard)
Cambridge Materials Testing Limited Report (Enviroboard)