

July 3, 2025

Titan Building Products

5390 Canotek Road, Unit 14
Ottawa, ON.
K1J 1H8

ATTENTION: Richard Bergman

SUBJECT: Titan Building Products – Shadow Rail | Structural Review
Project Number: S349-25

As requested, Vriend Engineering Inc. has reviewed the Shadow Rail connector produced by Titan Building Products.

Test Report:

We are in receipt of the Intertek Testing Services NA Ltd. Test Report No. 102551713TOR-002 dated September 28, 2016 for Titan Building Products. The load testing of the Shadow Rail connector was completed between July 7, 2016 and July 21, 2016. The testing was carried out in accordance with the loads specified in the 2024 Ontario Building Code, Section 9.8.8.2 – Loads on Guards.

Loads on Guards:

The 2024 Ontario Building Code, Section 9.8.8.2 Loads on Guards consists of guards within dwelling units and exterior guards serving not more than 2 dwelling units.

Minimum Specified Loads:

- **Horizontal Load Applied Inward or Outward at any Point at the Minimum Height of the Guard:** 0.5 kN/m or concentrated load of 1.0 kN (225 lbf) applied at any point. The load that creates the most critical condition shall apply.
- **Horizontal Load Applied Inward or Outward on Elements Within the Guard, Including Solid Panels and Pickets:** Concentrated Load of 0.5 kN (112 lbf) load applied over an area with maximum width of 300 mm and maximum height of 300 mm.

Tested Guardrail Assembly:

The tested guardrail assembly consisted of the following: Two 4x4 cedar wood posts at 1.83 m (6 feet) on centre, 2x4 cedar wood top and bottom rails and 19 mm (3/4") diameter round aluminum balusters spaced at 100 mm (4") on centre. Post to rail attachment was achieved using the polycarbonate Shadow Rail connector. The Shadow Rail connector consisted of interlocking mating halves with one half fastened to the post and the other half fastened to the rail end. Each Shadow Rail connector was secured to the post and rail using two #10 x 2-inch-long flat head wood screws. The guard infill balusters were secured with Snap'n Lock baluster connectors. Each connector was fastened to the rails

by a single #8 x 1 ½ inch long flat head screw. The guard assembly was installed vertically with the top rail 1070 mm (42") above the deck surface.

Conclusion:

Based on the test results, the Shadow Rail safely resisted the specified loading requirements as noted above. Based on our review, we confirm the Shadow Rail connectors, when installed in strict accordance with Titan Building Products installation instructions, are found to be in conformance with the 2024 Ontario Building Code, Section 9.8.8.2 – Loads on Guards. Please note the Shadow Rail connectors are only to be installed in residential guardrail applications in accordance with the 2024 Ontario Building Code. Other applications of the Shadow Rail are not permitted.

We trust the preceding is sufficiently clear and acceptable. If you have any questions, please contact the undersigned.

Yours Truly,

VRIEND ENGINEERING INC.



Jason Vriend, P. Eng.

