

TITAN BUILDING PRODUCTS TEST REPORT

SCOPE OF WORK

REPORT OF TESTING SNAP'N LOCK BALUSTER CONNECTORS TO ASSESS RESISTANCE TO LOADS ON GUARDS FOR ELEMENTS WITHIN GUARDS AS PRESCRIBED IN THE 2015 NATIONAL BUILDING CODE OF CANADA AND THE 2012 ONTARIO BUILDING CODE.

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TEST REPORT FOR TITAN BUILDING PRODUCTS

Report No.: 102720794TOR-002 Date: 04/12/18

REPORT ISSUED TO

TITAN BUILDING PRODUCTS Unit 71-5450 Canotek Road Ottawa, ON K1J 9G6 Canada

SECTION 1

OBJECTIVE

Intertek Testing Services NA Ltd. (Intertek) has conducted loads on guards tests for Titan Building Products on infill aluminum balusters retained in wood rails by Snap'n Lock Baluster Connectors. The evaluation was carried out to determine whether the elements within guards loads outlined in Table 1 and specified in the 2015 National Building Code of Canada (NBC) and 2012 Ontario Building Code (OBC), Article 9.8.8.2 *Loads on Guards* will be resisted.

The infill baluster testing was conducted on January 19, 2018.

SECTION 2

SAMPLE SELECTION

The client submitted three (3) western red cedar wood guard systems to the Evaluation Center on August 17, 2017. Samples were not independently selected for testing.

SECTION 3

SAMPLE ASSEMBLY DESCRIPTION

The infill assembly of the guard consisted of $\frac{3}{4}$ inch diameter T6066 aluminum tubes spaced 4 inches on centre. The balusters were fitted to the top and bottom 2x4 cedar rails using polycarbonate Snap'n Lock Baluster Connectors. Each connector was fastened to the rails by a single #8 x 1-1/4 inch round head screw. The guard system that incorporates the tested infill section was tested and described in Intertek report number 102729794TOR-001 dated September 18, 2017.



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SECTION 4

TESTING AND EVALUATION METHODS

The infill portion of the guard was loaded at a rate to achieve the specified loads between 10 seconds and 5 minutes. The specified elements within guards loads test per Article 9.8.8.2 of the 2015 NBC and 2012 OBC, were applied and held for one minute before the load was released. The deflection measurements were taken at the point of load application. Following the application of the specified load, the factored loads identified in this report were applied and held for one minute. The deflection was recorded and the load was then increased to determine the ultimate load at failure. Testing was conducted in both inward and outward directions. Loads were applied at the geometric centre of the infill section and adjacent to the rail. The geometric center of the infill section was determined to be the most critical location.

Table 1 – OBC 2012 and NBC 2010 Loads on Guards

OBC/NBC Article	Location of Guard	Minimum OBC/NBC Specified Loads		
		Horizontal Load Applied Inward or Outward on Elements Within the Guard, Including Solid Panels and Pickets		
9.8.8.2	Guards within dwelling units and exterior guards serving not more than 2 dwelling units	Concentrated 0.5 kN load applied over an area with maximum width of 300 mm and maximum height of 300mm		

SECTION 5

RESULTS AND OBSERVATIONS

The test results are presented below.

Table 2 – Results Summary

OBC/NBC Article	Property	Load	Deflection	Requirement	Pass/Fail
	Specified In-fill Load	112 lbf (0.5 kN) 18 mm		Load to be resisted	Pass
9.8.8.2	Factored In-fill Load	252 ¹ lbf (1.12 kN) ¹	40 mm	Load to be resisted	Pass
	Ultimate Outward Ultimate Inward	506 lbf (2.24 kN) 515 lbf (2.29 kN)	-	-	n/a

¹The specified required load from Table 1 was multiplied by 1.5/0.67 = 2.25 safety factor



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SECTION 6

CONCLUSION

Intertek has conducted elements within guards load testing for Titan Building Products on a wood guard with T6066 aluminum balusters fitted with polycarbonate Snap'n Lock Baluster Connectors. The evaluation was carried out to determine whether the rail/infill section would meet the elements within guards specified in the 2015 National Building Code of Canada (NBC) and 2012 Ontario Building Code (OBC), Article 9.8.8.2 Loads on Guards. The rail/infill section described herein resisted the specified elements within guards loads and factored loads for guards within dwelling units and exterior guards serving not more than 2 dwelling units.

Joe DeRose, P. Eng. PROJECT ENGINEER BUILDING & CONSTRUCTION

Vern Jones SENIOR TECHNOLOGIST BUILDING & CONSTRUCTION



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APPENDIX – Drawings





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REVISION LOG

REVISION #	DATE	PAGES	REVISION
0	04/12/18	-	Original Report Issue
1	4/12/18	5,6	Drawings appended to report.