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Ref. No. 710

October 9, 2002

Director of Engineering  
**GSW Building Products**  
 26 Lorena Street  
 Barrie, ON  
 L4N 4P4

**Re: Yardcrafters™ Vinyl Railing System – Strength Testing**

8' system (42" high with square balusters) tested with the following anchorage:

- P0SP4 steel post anchor with 3/8"x 3" wedge anchors into concrete, BMTC Inc. Report No. 02-06-M0205

This letter confirms that the Yardcrafters™ Vinyl Railing System, manufactured by GSW Building Products has been tested for structural compliance with the design load requirements for guardrail systems specified in the following Codes / Standards:

- BOCA / ASCE 7 Section 4.4.2 A,
- 1999 SBCCI Section 1608.2.2.2,
- 1995 National Building Code of Canada Section 4.1.10.1,
- 1997 Ontario Building Code Section 4.1.10.1

Testing was performed by Bodycote Materials Testing Canada Inc. at our Bodycote Ortech Laboratory. The following tables summarize the test results for the Yardcrafters™ Vinyl Railing System.

<b>Table 1.0 - BOCA / ASCE 7 - 4.4.2 A</b>				
<b>Criteria</b>	<b>Specified Load</b>	<b>Minimum Design Load Required</b>	<b>2.5 x Factored Load Required</b>	<b>Test Result</b>
Uniformly distributed load applied anywhere along the top rail				
Uniformly distributed load applied in vertical up direction	50 lbf/ft	400 lbf	1000 lbf	Pass
Uniformly distributed load applied in vertical down direction	50 lbf/ft	400 lbf	1000 lbf	Pass
Uniformly distributed load applied in horizontal direction	50 lbf/ft	400 lbf	1000 lbf	Pass
Concentrated load applied anywhere along the top rail				
Concentrated load applied at the midpoint and end of the rail in vertical up direction	200 lbf	200 lbf	500 lbf	Pass
Concentrated load applied at the midpoint and end of the rail in vertical down direction	200 lbf	200 lbf	500 lbf	Pass
Concentrated load applied at the midpoint and end of the rail in horizontal direction	200 lbf	200 lbf	500 lbf	Pass
Uniformly distributed load applied anywhere on balusters				
Distributed load over an area of 1 ft <sup>2</sup>	50 lbf	50 lbf	125 lbf	Pass

These test results confirm that the Yardcrafters™ Vinyl Railing System complies with the ASCE 7 structural requirements listed in Section 4.4.2 A as referred to by the BOCA building code.

<b>Table 2.0 - 1999 SBCCI Section 1608.2</b>				
<b>Criteria</b>	<b>Specified Load</b>	<b>Minimum Design Load Required</b>	<b>2.0 x Factored Load Required</b>	<b>Test Result</b>
Uniformly distributed load applied anywhere along the top rail				
Uniformly distributed load applied in vertical up direction	50 lbf/ft	400 lbf	800 lbf	Pass
Uniformly distributed load applied in vertical down direction	50 lbf/ft	400 lbf	800 lbf	Pass
Uniformly distributed load applied in horizontal direction	50 lbf/ft	400 lbf	800 lbf	Pass
Simultaneous horizontal and vertical uniformly distributed load applied along the top rail				
Simultaneous uniformly distributed loads applied in horizontal and vertical directions	50 lbf/ft Horizontal 100 lbf/ft Vertical	400 lbf Horizontal 800 lbf Vertical	800 lbf/ft Horizontal 1600 lbf/ft Vertical	Pass
Concentrated load applied anywhere along the top rail				
Concentrated load applied at the midpoint and end of the rail in vertical up direction	200 lbf	200 lbf	400 lbf	Pass
Concentrated load applied at the midpoint and end of the rail in vertical down direction	200 lbf	200 lbf	400 lbf	Pass
Concentrated load applied at the midpoint and end of the rail in horizontal direction	200 lbf	200 lbf	400 lbf	Pass
Uniformly distributed load applied anywhere on balusters				
Distributed load over an area of 1 ft <sup>2</sup>	200 lbf	200 lbf	400 lbf	Pass

These test results confirm that the Yardcrafters™ Vinyl Railing System complies with the SBCCI structural requirements listed in Section 1608.2.

<b>Table 3.0 - NBCC / OBC 4.1.10.1 – Loads on Guards</b>				
<b>Criteria</b>	<b>Specified Load</b>	<b>Minimum Design Load Required</b>	<b>1.5 x Factored Load Required</b>	<b>Test Result</b>
Section 4.1.10.1.1(c) – 0.75kN.m or 1.0kN applied at any point				
Uniformly distributed load applied in horizontal direction	0.75 kN/m	1.83 kN	2.74 kN	Pass
Concentrated load applied at the midpoint and end of the rail in horizontal direction	1.0 kN	1.0 kN	1.5 kN	Pass
Concentrated load applied at the midpoint and end of the rail in vertical down direction	1.0 kN	1.0 kN	1.5 kN	Pass
Section 4.1.10.1.2 – 0.5 kN applied to elements within the guard				
Concentrated load applied to individual balusters	0.5 kN	0.5 kN	0.75 kN	Pass
Section 4.1.10.1.4 – 1.5 kN/m applied vertically at the top of every guard				
Uniformly distributed load applied in vertical down direction	1.5 kN/m	3.66 kN	5.49 kN	Pass

These test results confirm that the Yardcrafters™ Vinyl Railing System complies with 1995 National Building Code of Canada and the 1997 Ontario Building Code sections 4.1.10.1.1(c), 4.1.10.1.2, 4.1.10.1.4 entitled “Loads on Guards”.

Details of the test procedure and results for the Yardcrafters™ Vinyl Railing System can be found in the report noted above.

For further information, please contact the Building Performance Group at the Bodycote Materials Testing Canada Inc., Ortech Laboratory.

Sincerely,

Prepared by:



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