



REPORT OF

PRODUCT EVALUATION

CONDUCTED ON A

**“COMPONENT GLASS”
ALUMINUM GUARDRAIL ASSEMBLY**

TO THE

NATIONAL BUILDING CODE OF CANADA, 1995 EDITION

FOR

**ENSURCO DURADEK LTD.
8288 – 129th STREET
SURREY, BC
V3W 0A6**

REPORT PREPARED BY

**INTERTEK TESTING SERVICES NA LTD.
WARNOCK HERSEY
211 SCHOOLHOUSE STREET
COQUITLAM, BC
V3K 4X9**

REPORT NUMBER: 481-1457 – 4a

DATE: MARCH 6, 2000



INTRODUCTION

Intertek Testing Services NA Ltd./Warnock Hersey has conducted Uniform and Concentrated load tests on an aluminum guardrail assembly manufactured at Ensurco Duradek Ltd. manufacturing plant in Surrey, BC. The rail assembly was identified as the "Component Glass System (42" Height)" and was tested on January 19, 2000.

The testing was conducted in accordance with the National Building Code of Canada , 1995 Edition, Section 4. 10. "Loads on Guards."

DESCRIPTION

The guardrail is (120) wide measured from corner post to corner post (which includes an intermediate post at mid-span) and is (42") high measured from deck level to the top of the guardrail.

The top rail is constructed in two pieces consisting of a sub-rail and a snap-on Square Top Rail cap. The sub-rail is fastened to the top of each corner post using two #12 x 1-1/2" panhead screws. The corner sleeve portion of the top cap is mitre cut and welded and extends approximately 4" to either side. Each top cap runs continuously from one 90° corner segment to the other. Where the top and bottom rails attach to the building wall structure a wall attachment plate is provided.

A 2-1/2" wide x 3" high x 1/8" aluminum plate assembly (complete with 1-1/2" long welded sleeve) is fastened to the end of the top rail using two #12 x 1-1/2" panhead screws and three #14 x 2" panhead screws (complete with Mungo brand, model MN8x40 sleeve anchors) which secure the wall attachment plate to the concrete wall structure. A 1-1/2" wide x 2-7/8" high x 1/8" thick aluminum plate assembly is fastened to the end of the bottom rail using a single #8 x 3/4" self tapping panhead screw and two #14 x 2" panhead screws (complete with Mungo brand, model MN8x40 sleeve anchors) which secure the wall attachment plate to the concrete wall structure. The bottom rails are fastened to a "1" long extruded aluminum rail clip using a single #8 x 3/4" self tapping panhead screw. Each of the rail clips, located on either side of each post, are fastened to the post using two #12 x 1-1/2" panhead screws.

A tempered glass panel 0.222" (5.65mm) thick is supported between the top sub-rail and the tapered channel shaped bottom rail. A co-extruded vinyl sleeve is provided within both the top sub-rail channel and the bottom rail channel. The vinyl sleeve in the top channel is approximately 1" deep. The vinyl sleeve in the bottom channel is approximately 1/2" deep.

The corner posts are 1-5/8" square complete with a screw chase at each inside corner and mid-section with a wall thickness of 0.068" thick. An aluminum baseplate measuring 3-1/2" x 3-1/2" x 1/4" thick was fastened to the base of each post using four #12 x 2" hardened steel flathead tapping screws (Robertson Whitehouse Type "A"). Four #14 x 2" panhead screws (complete with Mungo brand, model MN8x40 sleeve anchors) secure each post to the concrete floor. Supporting the bottom rail midway between the posts are 1/2" square (0.060" wall thickness) aluminum picket support leg which is snapped into the underside of the bottom rail and secured using a single #8 x 1/2" self tapping screw. Each leg is fastened to the concrete floor using a #12 x 2" panhead screw (complete with a Mungo brand, model MN8x40 sleeve anchor). See attached drawings in the Appendix for details and a general layout.

TEST RESULTS

A uniform load of 0.75 kN/m (51 lbs/ft) was applied horizontally outward and normal to the span at the top of the guardrail system.

2. A concentrated load of 0.5 kN (101.2 lbs) was applied to individual elements within the guard including solid panels.
3. A uniform load of 1.5 kN/m (102.8 lbs/ft) was applied vertically to the top of the guardrail system.

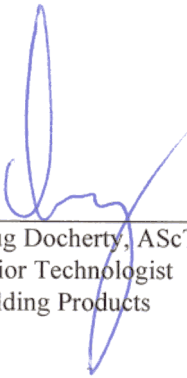
The guardrail assembly withstood the loading conditions as described above which included a 1.5 safety factor (the top rail was uniformly loaded a minimum of 1.5 x 51.1 lbs/ft or 76.7 lbs/ft).

CONCLUSION

The guardrail system and installation as described in this report (and attached drawings) meets the loading requirements of the National Building Code, 1995 Edition, Section 4.1.10.1 "Loads on Guards."

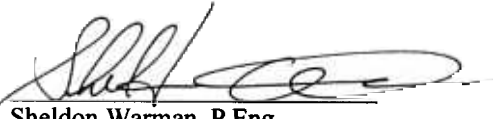
INTERTEK TESTING SERVICES NA LTD.
Warnock Hersey

Tested by:



Doug Docherty, ASCT
Senior Technologist
Building Products

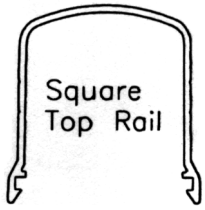
Reviewed by:



Sheldon Warman, P.Eng.
Manager
Physical Testing and Certification

DD/vjk

COMPONENTS



Square Top Rail



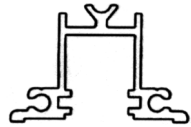
Square Top Sleeve



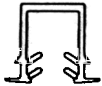
Round Top Rail



Round Top Sleeve



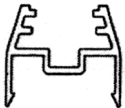
Top Rail Receiver



Top Rail Glass Insert



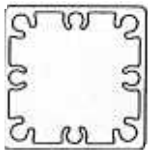
Bottom Rail Glass Insert



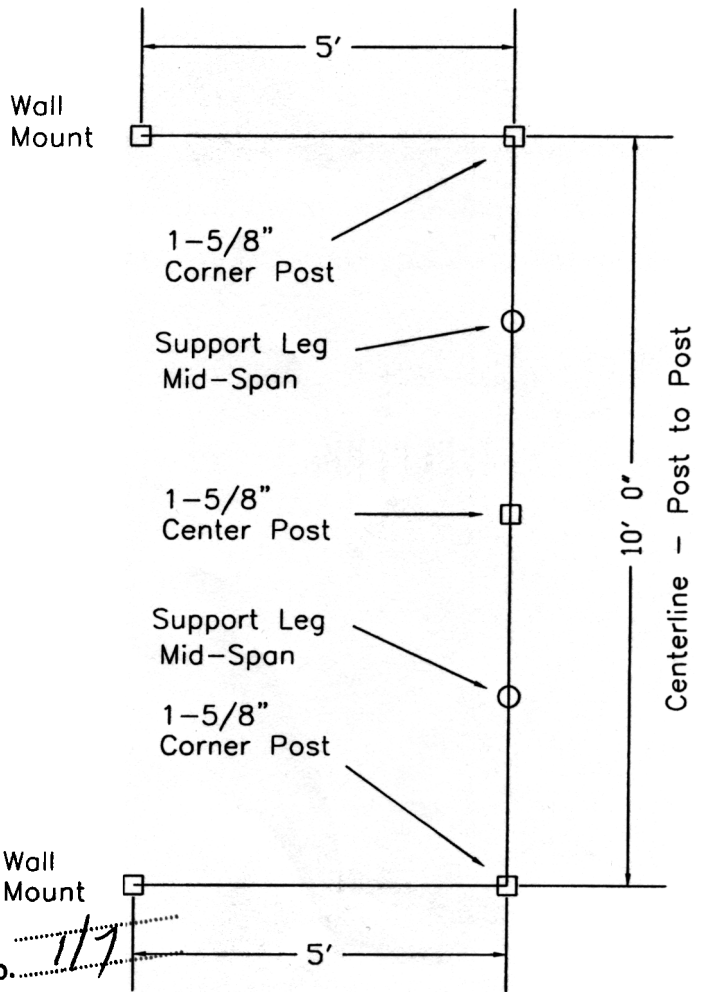
Bottom Rail



Rail Clip



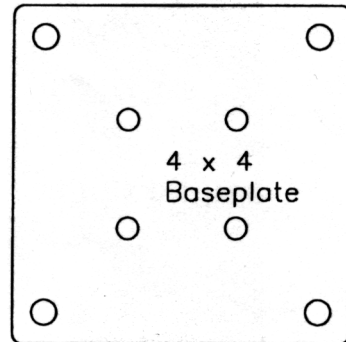
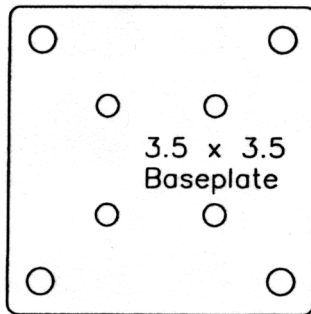
1-5/8" Square Post



DWG No. 117

APR 26 2004

APP BY



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TITLE Component Glass System @ 42" Height	
SCALE 3/8" = 1'	DATE Jan.2000
DRAFT P.Bacon	CHK'D
ENG.	CHK'D
APPR'D	AS BUILT

N.B.C. 120" Centerline
U.B.C. 120" Centerline
BOCA 120" Centerline

durarail™

DRAWING No. 004

