

# **VALENTIN ENGINEERING LTD**

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Att: Ron Rebel

July 8, 2014

C. R. Laurence – Railing Base Shoes  
For compliance to the 2012 British Columbia Building Code.

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We have reviewed the structural design of the C. R. Laurence railing base shoe types B5S, B5T, B6S, B7S, L56S, L21S and L25S for compliance to the 2010 National Building Code and the 2012 British Columbia Building Code.

## Design Loads

1. Design loads are based on combination loading  $1.4W + 0.5L$  or  $1.5L + 0.4W$  whichever produces the higher loading.
2. Lateral Guard Point Load = 1.0 kN (225 lbs) applied at 1067mm (42”) above the finished floor.
3. Lateral Guard Line Load = 0.75 kN/m (51.4 lbs/ft) applied at 1067mm (42”) above the finished floor.
4. Lateral Guard Concentrated Load = 0.5 kN (112.5 lbs) applied over a 100mm x 100mm (3.9”x 3.9”) area anywhere within the guard.
5. Vertical Guard Line Load = 1.5 kN/m (102.9 lbs/ft) applied on the top rail. This load does not act simultaneously with any lateral loads.
6. Wind load for this analysis taken as 1.0 kPa (20.9 psf).

## Material Specifications

1. All aluminum members to be alloy 6063-T52 or better and comply with CAN3-S157 latest edition.
2. All glass is to be in compliance to CAN/CGSB-12.20-M89.
3. All tempered and laminated glass to comply with CAN/CGSB-12.1 and 12.2 latest edition.
4. For exterior applications, all fasteners are to be stainless steel.

For compliance to the 2012 British Columbia Building Code.

**Glass**


1. Glass design is based on a maximum glass height of 1067mm (42”).
2. Where glass edges are vulnerable to hard body impact, they are to be protected as per CAN/CGSB-12.20-M89 section A5.2.
3. Glass design is to assume each alternate glass pane has failed. All glass is to be protected by a horizontal member as per CAN/CGSB-12.20-M89 section A5.1.

**Contractor's Responsibilities**

1. The contractor is to confirm that the wind loads for the project do not exceed the maximum 1.0 kPa (20.9 psf) design load. For higher wind loads additional engineering design is required.
2. The contractor is to confirm that the structure, to which the railing will be attached, is structurally adequate for support the applied loading.
3. The contractor is to confirm that all climability issues are addressed in accordance with the local building department.
4. Railing design is to assume each alternate glass pane has failed. All glass is to be protected by a horizontal member as per CAN/CGSB-12.20-M89 section A5.1.
5. The contractor is to ensure that the correct fasteners are utilized to secure the base shoe to the structure. Fastener edge distances, spacing, pull-out resistance, shear resistance, tension resistance etc... must all be reviewed as per the manufacturer's test data.
6. Railing installation is to be inspected as required by the local building department.

**Note:** The above letter certifies that the railing base shoes are structurally adequate to meet the load requirements set out in the 2012 British Columbia Building Code, up to a wind pressure of 1.0 kPa (20.9 psf). Each individual project will still require a professional engineer to confirm wind loads for the region, structural adequacy of structure to accept the railing loading, and the glass type required and the type of fasteners required to secure the railing to the structure. The use of structurally inadequate glazing, inadequate connection of the railing posts to the structure and/or a structurally inadequate base building support structure design can all result in failure of the railing system.

Sincerely Yours,

  
Valentin Brinovec, P.Eng.

