



Product Evaluation

MC15 | 0916

Engineering Services Program

The following product has been evaluated for compliance with the wind loads specified in the International Residential Code (IRC) and the International Building Code (IBC).

This product evaluation is not an endorsement of this product or a recommendation that this product be used. The Texas Department of Insurance has not authorized the use of any information contained in the product evaluation for advertising, or other commercial or promotional purpose.

This product evaluation is intended for use by those individuals who are following the design wind load criteria in Chapter 3 of the IRC and Section 1609 of the IBC. The design loads determined for the building or structure shall not exceed the design load rating specified for the products shown in the limitations section of this product evaluation. This product evaluation does not relieve a Texas licensed engineer of his responsibilities as outlined in the Texas Insurance Code, the Texas Administrative Code, and the Texas Engineering Practice Act.

For more information, contact TDI Engineering Services Program at (800) 248-6032.

Evaluation ID: MC-15

Effective Date: September 1, 2016

Re-evaluation Date: September 2020

Product Name: Westbury Aluminum Railing Style C Railing Systems

Manufacturer: Digger Specialties, Inc.
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General Description:

The Westbury Tuscany Series (Style C10) guardrail systems are comprised of aluminum top and bottom rails with spaced square aluminum balusters located between the rail members. The guardrail system has an overall top rail length (inside of post to inside of post) of 96" with an overall rail height (bottom of bottom rail to top of top rail) of 40". Top and bottom rails are attached to aluminum support posts by the way of cast Zamak socket brackets.

The Westbury Tuscany Series (Style C101) guardrail systems are comprised of aluminum top and bottom rails with spaced round aluminum balusters located between the rail members. The guardrail system has an overall top rail length (inside of post to inside of post) of 96" with an overall rail height (bottom of bottom rail to top of top rail) of 40". Bottom rails are attached to aluminum support posts by the way of die cast Zamak 3 drop-in brackets. Top rails are attached to the aluminum posts by the way of Zamak 3 cross-over brackets.

The Westbury Riviera Series guardrail systems are comprised of extruded aluminum top, intermediate, and bottom rails with spaced aluminum balusters located between the bottom and intermediate rail members. The Styles C30, C30R, C31, C32, C33, and C34 are square balusters. The Styles C301, C301R, C311, C321, C331, and C341 are round balusters. The guardrail system has an overall top rail length (inside of post to inside of post) of 96" with an overall rail height (bottom of bottom rail to top of top rail) of 39-

7/8". Top, intermediate, and bottom rails are attached to aluminum post mounts by the way of die cast Zamak 3 collar brackets.

The Westbury Veranda Series (Style C70) guardrail systems are comprised of aluminum top and bottom rails with a single glass panel located between the rail members. The guardrail system has an overall top rail length (inside of post to inside of post) of 72" with an overall rail height (deck surface to top of top rail) of 42". Top and bottom rails are attached to aluminum Power Post structural posts by the way of cast Zamak socket brackets and /or crossover bracket assemblies.

The Westbury VertiCable Series (Style C80) guardrail systems are comprised of aluminum top and bottom rails with spaced aluminum and stainless steel balusters located between the rail members. The guardrail system has an overall top rail length (inside of post to inside of post) of 96" with an overall rail height (bottom of bottom rail to top of top rail) of 34-1/4". Top and bottom rails are attached to aluminum support posts by the way of die cast Zamak 3 collar brackets.

The Tuscany Series (Style C10) guardrail systems consist of the following components:

- Top Rail: 1-3/8" high x 1-3/4" wide x 0.085" wall thickness. 83-1/2" long. 6005-T6 aluminum extrusion with internal longitudinal ribs.
- Bottom Rail: 1-1/4" high x 1-3/4" wide x 0.085" wall thickness. 83-1/2" long. 6005-T6 aluminum extrusion with internal longitudinal ribs.
- Top and Bottom Rail Insert: 1" high x 1/2" wide x 0.05" thick. Full rail length. Ridged PVC.
- Baluster: 3/4" square x 0.045" wall thickness. 39-1/2" long. 6063-T52 aluminum extrusion.
- Rail Bracket: 1-1/4" high x 2" high x 1-1/8" long. 6063-T6 aluminum extrusion.

The Tuscany Series (Style C101) guardrail systems consist of the following components:

- Top Rail: 1-3/8" high x 1-3/4" wide x 0.090" wall thickness. 6005-T5 aluminum extrusion with internal longitudinal ribs.
- Bottom Rail: 1-1/4" high x 1-3/4" wide x 0.090" wall thickness. 6005-T5 aluminum extrusion with internal longitudinal ribs.
- Top and Bottom Rail Insert: 15/16" high x 7/16" wide x 0.05" thick. Full length. C-shaped profile rigid PVC extrusion.
- Bottom Rail Insert: 11/16" high x 1-1/2" wide x 0.09" thick. Full rail length. U profile 6005-T5 aluminum extrusion.
- Baluster: 3/4" round x 0.05" wall thickness. Hollow 6063-T6 aluminum extrusion.
- Bottom Rail Bracket: 1/4" high x 1-1/8" long. Collar profile. Die cast Zamak 3.
- Rail Crossover: Four piece assembly installed in the top of the post for rail over post configuration.
- Rail Support Block: Two piece assembly. 1" x 1" x 1-1/2" threaded 6061-T6 aluminum base. 1-1/2" long 6061-T6 aluminum bolt for height adjustment.

The Riviera Series (Square Balusters- Styles C30, C30R, C31, C32, C33, and C34; Round Balusters - Styles C301, C301R, C311, C321, C331, and C341) guardrail systems consist of the following components:

- Top Rail: 1-3/8" high x 1-3/4" wide x 0.090" wall thickness. 6005-T5 aluminum extrusion with internal longitudinal ribs.
- Bottom Rail: 1-1/4" high x 1-3/4" wide x 0.090" wall thickness. 6005-T5 aluminum extrusion with internal longitudinal ribs.
- Intermediate Rail: 1-1/4" high x 1-3/4" wide x 0.070" wall thickness. 6005-T5 aluminum extrusion with internal longitudinal ribs.
- Top and Bottom Rail Insert: 15/16" high x 7/16" wide x 0.05" thick. Full rail length. C-shaped PVC extrusion.
- Intermediate Rail Insert: 1-1/16" high x 1" wide x 0.05" thick. Full rail length. H-shaped PVC extrusion.
- Baluster: 3/4" square x 0.045" wall thickness. 6063-T6 aluminum extrusion.
- Baluster: 3/4" round x 0.05" wall thickness. Hollow 6063-T6 aluminum extrusion.
- Rail Mount Brackets: 1-1/4" high x 2" wide x 1-1/8" long. Collar profile. Die cast Zamak 3.
- Support Block Assembly: 1" square x 1-1/2" high. 6061-T6 aluminum bar with threaded core. 3/4" diameter by 1-1/2" high 6061-T6 aluminum bar located at mid span of the bottom rail.

The Veranda Series (Style C70) guardrail systems consist of the following components:

- Top Rail: 1-3/8" high x 1-3/4" wide x 0.090" wall thickness. 6005-T5 aluminum extrusion with internal longitudinal ribs and gussets.
- Bottom Rail: 1-1/4" high x 1-3/4" wide x 0.090" wall thickness. 6005-T6 aluminum extrusion with internal longitudinal T rib.
- Top Rail Insert: 1" high x 0.8" wide x 0.09" thick. Full rail length. U profile EDPM 90 durometer extrusion
- Bottom Rail Insert: 0.55" high x 0.8" wide x 0.09" thick. Full rail length. C profile EDPM 80 durometer extrusion
- Infill: 66" x 38-1/4"x 1/4" fully tempered glass.
- Rail Bracket: 1-1/4" high x 2" wide x 1-1/8" long. Saddle profile Zamak 3 die cast. For rail between post configuration.
- Rail Crossover: Seven piece assembly installed in the top of the Power Post for rail over post configuration.

The VertiCable Series (Style C80) guardrail systems consist of the following components:

- Top Rail: 1-3/8" high x 1-3/4" wide x 0.090" wall thickness. 6005-T5 aluminum extrusion with internal longitudinal ribs and gussets.
- Bottom Rail: 1-1/4" high x 1-3/4" wide x 0.080" wall thickness. 6005-T6 aluminum extrusion with internal longitudinal T-ribs.
- Top Rail Insert: 0.14" high x 1-3/16" wide plate. 6005-T5 aluminum with a double rabbet.
- Bottom Rail Insert: 11/16" high x 1-1/2" wide x 0.09" thick. Full rail length. U profile 6005-T5 aluminum extrusion.
- Baluster: 9/16" round (OD) x 0.16" wall thickness. 31-1/2" long. Hollow 6005-T5 aluminum extrusion.
- Cable Infill: 1/8" diameter. 1x19 316 stainless steel cable.

Posts. The following posts may be used with each of the guardrail systems:

- **Power Post:** 2-1/2" square x 0.12" wall thickness. 6005-T5 aluminum tubular extrusion with six internal longitudinal screw chases. 1/4" continuous fillet welded to 4-1/2" square x 1/2" thick 6061-T6 aluminum plate with four 3/8" diameter holes on 3-3/4" centers for anchors. Six 0.33" diameter counter sunk holes for tube attachment screws. Four 5/16-18 holes for leveling screws. One 0.33" diameter center hole.
- **2x2 Post:** 2" square x 0.090" wall thickness. 6005-T5 aluminum extrusion with two internal longitudinal screw chases. 1/4" continuous fillet welded to 3-7/8" square x 1/2" thick 6061-T6 aluminum plate with four 0.40" diameter holes on 3-1/8" centers for anchors. Two 0.31" diameter counter sunk holes for post attachment screws. Four 5/16-18 holes for leveling screws. One 0.40" diameter center hole.
- **4x4 Post:** 4" square x 0.12" wall thickness. 6063-T6 aluminum tubular extrusion. 0.3" continuous 3/16" fillet welded to a 6" square x 1/2" thick 6061-T6 aluminum base plate. Four 3/8" diameter holes on 5-1/4" centers for anchors. Four 5/16-18 holes for leveling screws. One 0.40" diameter center hole.

Limitations:

Design Load:

For guardrails installed in one- and two-family dwellings (IRC), the guardrail system has a maximum allowable design concentrated load of 200 lb. applied in any direction at any point along the top.

For guardrails installed in all other structures (IBC), the guardrail system has a maximum design load of 50 plf applied in any direction at the top.

Use: The code occupancy classification is specified in Table 1.

Configurations: Refer to Table 1 for acceptable configurations.

Impact Resistance: The Westbury C70 Veranda guardrail systems cannot be used in areas where windborne debris protection is required.

Guardrail to Supporting Structure: The attachment of the guardrail system to the supporting structure is not within the scope of this evaluation report. The attachment of the guardrail system to the supporting structure must be designed to resist the allowable design load for the guardrail system specified in this evaluation report with the load applied in any direction at the top to transfer this load into the supporting structure.

Table 1. Code Occupancy Classification

Product	Guardrail Type	Code Occupancy Classification	
		IRC	IBC
Tuscany Series ¹ Riviera Series ¹ 2-1/2" Power Post (8' x 42") 4" Square Post (8' x 42")	Level (In-line)	Limited to exterior and interior use as a guard rail system for balconies and porches for dwellings constructed in accordance with the IRC	IBC – All Use Groups
Tuscany Series ¹ Riviera Series ¹ 2" Square Post (6' x 42")	Level (In-line)	Limited to exterior and interior use as a guard rail system for balconies and porches for dwellings constructed in accordance with the IRC	N/A
Veranda Series 4" Square Post (6' x 42") 2-1/2" Power Post (6' x 42")	Level (In-line)	Limited to exterior and interior use as a guard rail system for balconies and porches for dwellings constructed in accordance with the IRC	IBC – All Use Groups
Veranda Series 2" Square Post (6' x 42")	Level (In-line)	Limited to exterior and interior use as a guard rail system for balconies and porches for dwellings constructed in accordance with the IRC	N/A
VertiCable Series 2" Square Post (8' x 36")	Level (In-line)	Limited to exterior and interior use as a guard rail system for balconies and porches for dwellings constructed in accordance with the IRC	N/A
VertiCable Series 2-1/2" Power Post (6' x 42") 4" Square Post (6' x 42")	Level (In-line)	Limited to exterior and interior use as a guard rail system for balconies and porches for dwellings constructed in accordance with the IRC	IBC – All Use Groups

¹Can use either round or square balusters

Installation:

The guardrail systems are fastened together in accordance with Tables 2, 3, 4, 5, and 6.

Table 2. Fastening Schedule – Westbury Tuscany Series (Style C10)

Connection	Quantity
Rail Bracket to Post	Two No. 10-16 x 5/8" (0.135" minor diameter) square drive pan head, self-drilling stainless steel screws
Top Rail Bracket to Rail	Two No. 10-16 x 1" (0.134" minor diameter) square drive flat head, self-drilling stainless steel screws
Bottom Rail Bracket to Rail	No Mechanical Fasteners
Baluster to Rail	Inserted in 0.8" square routed hole and held snug with PVC Rail insert
Post Plate to Post Tube	Six No. 14-14 x 2" (0.188" minor diameter) Philips drive flat head stainless steel screws

Table 3. Fastening Schedule – Westbury Tuscany Series (Style C101)

Connection	Quantity
Crossover Assembly to Top Rail	Two No. 10-16 x 5/8" (0.135" minor diameter) square drive pan head, self-drilling stainless steel screws
Bottom Rail Bracket to Post	Two No. 10-16 x 5/8" (0.135" minor diameter) square drive flat head, self-drilling stainless steel screws
Bottom Rail Bracket to Rail	No Mechanical Fasteners
Crossover Assembly to Post	Pressure Fit – No Mechanical Fasteners
Baluster to Rail	Inserted in 0.85" diameter routed hole and held snug with PVC rail insert
Support Block to Bottom Rail	One No. 10-16 x 5/8" (0.135" minor diameter) square drive pan head, self-drilling stainless steel screws

Table 4. Fastening Schedule – Westbury Riviera Series (Style C30, C301, C30R, C301R, C31, C311, C32, C321, C33, C331, C34, and C341)

Connection	Quantity
Rail Bracket to Post	Two No. 10-16 x 5/8" (0.135" minor diameter) square drive pan head, self-drilling stainless steel screws
Top and Intermediate Rail Bracket to Rail	Two No. 10-16 x 1" (0.134" minor diameter) square drive flat head, self-drilling stainless steel screws
Bottom Rail Bracket to Rail	No Mechanical Fasteners
Baluster to Rail	Mo Mechanical Fasteners
Support Block to Bottom Rail	One No. 8-18 x 3/4" (0.119" minor diameter) pan head square drive self-drilling stainless steel screws
Post to Base Plate	1/4" continuous fillet weld and two 1/4-14 x 2" (0.189" minor diameter) trim head Philips drive stainless steel screws

Table 5. Fastening Schedule – Westbury Veranda Series (Style C70)

Connection	Quantity
Top and Bottom Rail Bracket to Post	Two No. 10-16 x 5/8" (0.135" minor diameter) square drive pan head, self-drilling stainless steel screws
Top Rail Bracket to Rail	Two No. 10-16 x 1" (0.135" minor diameter) square drive flat head, self-drilling stainless steel screws
Bottom Rail Bracket to Rail	No Mechanical Fasteners
Crossover Assembly to Top Rail	Two No. 10-16 x 5/8" (0.135" minor diameter) square drive pan head, self-drilling stainless steel screws
Post Plate to Post Tube	Six No. 14-14 x 4" Philips flat head self-drilling stainless steel screws
Rail Bracket to Post	Two No. 10-16 x 5/8" (0.135" minor diameter) square drive pan head, self-drilling stainless steel screws

Table 6. Fastening Schedule – Westbury VertiCable Series (C80)

Connection	Quantity
Top and Bottom Rail Bracket to Post	Two No. 10-16 x 5/8" (0.135" minor diameter) square drive pan head, self-drilling stainless steel screws
Top and Bottom Rail Bracket to Rail	Two No. 10-16 x 1" (0.135" minor diameter) square drive flat head, self-drilling stainless steel screws
Aluminum Balusters to Top and Bottom Rail	No Mechanical Fasteners
Cable Infill to Top Rail Insert	One 0.23" diameter (OD) hollow 18-8 stainless steel cable stop sleeve, crimp fit to each cable
Cable Infill to Bottom Rail Insert	One 0.23" diameter (OD) hollow 18-8 stainless steel cable stop sleeve, crimp fit to each cable and one 3/8" wide x 7/8" long thread (20 TPI) Zamak 3 cable tensioner with 1/2" 18-8 stainless steel nut per cable

Note: Keep the manufacturer's installation instructions available on the job site during installation. Use corrosion resistant fasteners as specified in the IRC, the IBC, and the Texas Revisions.