



Product Evaluation

MC17 | 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-17

Effective Date: September 1, 2016

Re-evaluation Date: July 2020

Product Name: TRX Vinyl Guardrail Railing Systems

Manufacturer: Digger Specialties, Inc.
3446 US 6 East
Bremen, IN 46506
(574) 546-5999

General Description: TRX vinyl guardrail systems are comprised of vinyl (PVC) top and bottom rails with spaced balusters located between the rail members. The railing system has an overall top rail length of 96" with an overall rail height (bottom of bottom rail to top of top rail) of 40-1/8". Top and bottom rails are attached to treated 4x4 Southern Yellow Pine posts that are sleeved by 4" x 4" vinyl post covers by the way of vinyl socket brackets.

The TRX vinyl guardrail system consists of the following components:

- Top Rail: 1-3/4" high x 3-1/4" wide x 0.08" wall thickness. 96" long. T-profile PVC extrusion.
- Top Rail Insert: 1-1/2" high x 3" wide x 0.65" wall thickness. 96" long. 6063-T6 aluminum T-profile extrusion
- Bottom Rail: 1-3/4" square x 0.08" wall thickness. 96" long. PVC extrusion.
- Bottom Rail Insert: 1-1/2" high x 1-1/2" wide x 0.055" wall thickness. 96" long. 6063-T6 aluminum U-profile extrusion.
- Baluster: 1-3/8" square x 0.08" wall thickness. 39-5/8" long. PVC extrusions.
- Top Rail Bracket: 2-5/8" high x 3-5/8" wide x 1" deep x 0.10" to 0.15" wall thickness. Molded PVC flange socket bracket with two 7/32" diameter holes for post attachment screws and two 5/32" diameter holes for attachment of bracket cover.

- Bottom Rail Bracket: 3" square x 1" deep x 0.08" wall thickness. Molded PVC flange socket with four 7/32" diameter holes for post attachment screws and four 3/16" diameter holes for attachment of bracket cover.
- Support Post: 4x4 Southern Yellow Pine wood post with 4" square PVC sleeve (wood post extended the full height of the post sleeve)
- Rail to Bracket Attachment: Rails are inserted into socket brackets and are attached with fasteners.
- Bottom Rail Support: One 2" long baluster located at the mid span of the bottom rail. Attached to a 1-5/16" square by 5/8" thick black HDPE block with fasteners.
- The components are produced in the color white.

Limitations:

Design Load: The guardrail system has a maximum allowable 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.

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
TRX Vinyl Guardrail 4" Square Post (96" x 42")	Level (In-line)	See Note Below	IBC – All Use Groups

Note: IRC-Limited to exterior use as a guard system for balconies and porches of Type V-B construction.

Installation:

The TRX vinyl guardrail system is fastened together in accordance with Table 2.

Table 2. Fastening Schedule

Connection	Quantity
Top or Bottom Rail Bracket to Rail	Two No. 8-18 x 3/4" (0.120" minor diameter) self-drilling pan head, stainless steel screws
Top Rail Bracket to Post	Two No. 12-11 x 1-1/4" (0.155" minor diameter) Type 17 point pan head zinc-coated stainless steel screws.
Bottom Rail Bracket to Post	Four No. 12-11 x 1-1/4" (0.155" minor diameter) Type 17 point pan head zinc-coated stainless steel screws.
Bottom Rail Support to HDPE Block	Two No. 8-18 x 3/4" (0.120" minor diameter) self-drilling pan head stainless steel screws.
HDPE Block to Bottom Rail	Two No. 12-11 x 1-14" (0.155" minor diameter) Type 17 point pan head zinc-coated stainless steel screws

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.