

ICC-ES Evaluation Report

ESR-1848

Issued May 1, 2009

This report is subject to re-examination in one year.
www.icc-es.org | (800) 423-6587 | (562) 699-0543

A Subsidiary of the International Code Council®

DIVISION: 06—WOOD AND PLASTICS
Section: 06500—Structural Plastics
Section: 06610—Plastic Railings and Guards

REPORT HOLDER:

TREX COMPANY, INC.
245 CAPITOL LANE
WINCHESTER, VIRGINIA 22602
(540) 542-6300
www.trex.com

ADDITIONAL LISTEE:

ANDERSEN CORPORATION
39811 GOLDEN AVENUE
NORTH BRANCH, MINNESOTA 55056

EVALUATION SUBJECT
TREX ARTISAN SERIES RAILING®
1.0 EVALUATION SCOPE
Compliance with the following codes:

- 2006 *International Building Code*® (IBC)
- 2006 *International Residential Code*® (IRC)

Property evaluated

- Structural
- Durability
- Surface-burning characteristics

2.0 USES

Trex Artisan Series Railing® is limited to exterior use as a guard system for balconies, porches and decks for buildings of Type V-B (IBC) construction and other types of construction in applications where untreated wood is permitted by IBC Section 1406.3, or in buildings constructed in accordance with the IRC.

3.0 DESCRIPTION
3.1 General:

The Trex Artisan Series Railing® is produced from a manufactured composite material that consists of approximately 39 percent wood fibers and 61 percent polyvinyl chloride (PVC). Through an extrusion molding process, the wood thermoplastic composite material is made into comparable lumber-sized boards that are available in one color, white. The railing is assembled in

sections 72 inches or 96 inches (1829 mm and 2438 mm) long center-of-post to center-of-post, and is 36 inches or 42 inches (915 mm or 1067 mm) high.

3.2 Materials:

The components of the Trex Artisan Series Railing® consist of nominally 6-inch-by-6-inch [actually 5¹/₂ inches by 5¹/₂ inches (140 mm by 140 mm)] posts, 39 inches, 45 inches or 96 inches (990, 1143 and 2438 mm) long, with a center hollow cavity and stiffeners to accept a standard 4-by-4 wood post; nominally 2-inch-by-2-inch [actually 1.418 inches by 1.418 inches (36 mm by 36 mm)] hollow balusters, 30.375 or 36.375 inches long (772 mm and 924 mm); a top-profiled rail with actual dimensions of 3.312 inches by 2.453 inches (84 mm by 62 mm); and a bottom-profiled rail with actual dimensions of 3 inches by 2 inches (76 mm by 51 mm). Both top and bottom rails are 67.5 inches (1714 mm) or 91.5 inches (2324 mm) long. See Figure 2.

3.2.1 Durability: When subjected to weathering, insect attack, and other decaying elements, material used to manufacture the Trex Artisan Series Railing® is equivalent in durability to preservative-treated or naturally durable lumber, when used in locations described in Section 2.0 of this report. The Trex Artisan Series Railing® has been evaluated for a temperature range of -20°F (-29°C) to 125°F (52°C).

3.2.2 Surface-burning Characteristics: When tested in accordance with ASTM E 84, the Trex Artisan Series Railing® has a flame-spread index of not greater than 200.

4.0 DESIGN AND INSTALLATION
4.1 General:

Installation of Trex Artisan Series Railing® must comply with this report and the manufacturer's published installation instructions. The manufacturer's published installation instructions must be available at the jobsite at all times during installation. When the manufacturer's published installation instructions differ from this report, this report governs.

4.2 Design:

The Trex Artisan Series Railing® system will resist the loads specified in Section 1607.7.1 of the IBC and Table R301.5 of the IRC, when installed at a maximum center-to-center post spacing as prescribed in Table 1. When a guardrail is supported on one or both ends by the supporting construction, the maximum distance must be measured from center-of-post to center-of-post, center-of-post to edge-of-structure or edge-of-structure to edge-of-structure.

4.3 Installation:

The top and bottom rails are attached to each post with a Trex nylon resin support bracket. Each bracket is connected to the post with two No. 8 by 2¹/₂-inch-long (64 mm), Type 17 square-drive-deck screws. Each rail is also attached to each bracket using two No. 12 by 1¹/₂-inch-long (38 mm), flat head self-drilling screws. The balusters are installed in channels in the top and bottom rail. No fasteners are needed to secure the balusters. A squash block is required every 2 feet of spans. See Figure 1.

5.0 CONDITIONS OF USE

The Trex Artisan Series Railing® described in this report complies with, or is a suitable alternative to what is specified in, those codes listed in Section 1.0 of this report, subject to the following conditions:

- 5.1 The use of this product must be limited to exterior use as a guardrail system for balconies and porches for Type V-B (IBC) construction and structures constructed in accordance with the IRC.
- 5.2 Installation must comply with this report, the manufacturer's published installation instructions and the applicable code. When the manufacturer's published installation instructions differ from this report, this report governs. Only those fasteners and fastener configurations described in this report have been evaluated for the installation of the Trex Artisan Series Railing®.
- 5.3 The compatibility of the fasteners, metal mount components and other metal hardware with the supporting construction, including chemically treated wood, is outside the scope of this report.
- 5.4 The Trex Artisan Series Railing® must be directly fastened to supporting construction. Where required by the code official, engineering calculations and construction documents consistent with this report must be submitted for approval. The calculations must verify that the supporting construction complies with the applicable building code requirements and is adequate to resist the loads imparted upon it from the products and systems discussed in this report. The documents must contain details of the attachment to the supporting structure consistent with the requirements of this report. The documents must be prepared by a registered design professional where required by the statutes of the jurisdiction in which the project is to be constructed.
- 5.5 The top rail component of the Trex Artisan Series Railing® must not be used as a handrail for stairways or ramps.
- 5.6 The solid wood posts used with the post sleeves are provided and designed by others and are outside the scope of this report.

- 5.7 The Trex Artisan Series Railing® is produced for Trex Company by Andersen Corporation, in North Branch, Minnesota, under a quality control program with inspections by PFS Corporation (AA-652).

6.0 EVIDENCE SUBMITTED

Data in accordance with the ICC-ES Acceptance Criteria for Deck Board Span Ratings and Guardrail Systems (Guards and Handrails) (AC174), dated February 2007 (editorially revised April 2008).

7.0 IDENTIFICATION

Each railing kit described in this report is identified by a stamp, on each individual piece or on the packaging, bearing the Trex name and address, the Trex Artisan Series Railing® product name, the name of the inspection agency (PFS), and the evaluation report number (ESR-1848).

8.0 OTHER CODES

8.1 Evaluation Scope:

In addition to the codes referenced in Section 1.0, the product described in this report was evaluated for compliance with the requirements of the 1997 *Uniform Building Code*™ (UBC). The Trex Artisan Series Railing® complies with, or is a suitable alternative to what is specified in, the UBC, subject to the provisions of Section 8.2 through 8.7.

8.2 Uses:

The Trex Artisan Series Railing® is limited to exterior use as a guard system for balconies, porches and decks for buildings of Type V-N construction under the UBC.

8.3 Description:

See Section 3.0.

8.4 Installation:

See Section 4.0, except the wording of the first sentence in Section 4.2 should be changed to read as follows:

The Trex Artisan Series Railing® system will resist the loads specified in Chapter 16 of the UBC when installed at a maximum center-to-center post spacing as prescribed in Table 1.

8.5 Conditions of Use:

See Section 5.0, except revise the wording in Section 5.1 to read as follows:

This product is limited to exterior use as a guard system for balconies, porches and decks for buildings of Type V-N construction under the UBC.

8.6 Evidence Submitted:

See Section 6.0.

8.7 Identification:

See Section 7.0.

TABLE 1—MAXIMUM GUARDRAIL SYSTEM SPANS^{2,3}

PRODUCT NAME/COMPONENT	APPLICABLE BUILDING CODE ⁴			MAXIMUM SPAN (ft-in) ¹
	IBC	IRC	UBC	
Trex Artisan Series Railing®, 36 inches high	--	Yes	Yes ⁵	8ft. - 0 in.
Trex Artisan Series Railing®, 42 inches high	Yes	Yes	Yes	8ft. - 0 in.

For SI: 1 inch = 25.4 mm; 1 foot = 305 mm.

¹Maximum span is measured center-to-center of the posts or from edge-of-building to center-of-post or edge-of-building to edge-of building where the rail is supported directly by the building.

²Maximum allowable span is adjusted for durability. No further increases are permitted.

³The ability of the supporting construction to resist the reactionary loads must be confirmed by the code official.

⁴Indicates compliance with the respective building codes.

⁵See exception for 36-inch-high guards in Section 509.2 of the UBC.

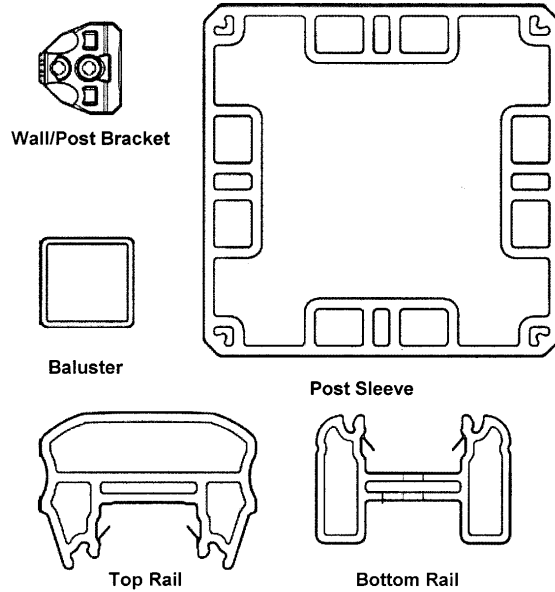


FIGURE 1—RAILING COMPONENTS

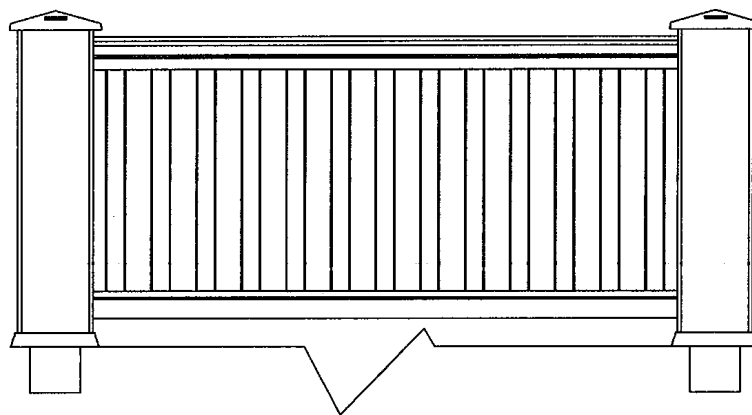


FIGURE 2—RAIL ASSEMBLY