Code Compliance Research Report
CCRR-0382

Issue Date: 09-27-2020
Revision Date: 09-30-2026
Renewal Date: 09-30-2027

DIVISION: 06 00 00 – WOOD, PLASTICS AND COMPOSITES
Section: 06 63 00 – Plastic Railings

REPORT HOLDER:
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REPORT SUBJECT:
***Vinyl Traditional* Railing System**

1.0 SCOPE OF EVALUATION

1.1 This Research Report addresses compliance with the following Codes:

- 2024, 2021, 2018 *International Building Code®* (IBC)
- 2024, 2021, 2018 *International Residential Code®* (IRC)
- 2026, 2023 *Florida Building Code* (FBC) excluding High Velocity Hurricane Zone (see Section 9.0)

NOTE: This report references the most recent Code sections cited. Section numbers in earlier editions may differ.

1.2 The *Vinyl Traditional* railing systems have been evaluated for the following properties:

- Structural Performance
- Durability
- Surface Burning

1.3 The *Vinyl Traditional* railing systems were evaluated for the following uses:

- The vinyl railing systems are guards (guardrails) under the definitions of the referenced codes and are intended for use on elevated walking areas in buildings and walkways, as required by the referenced codes.
- Guard assemblies are provided as level guards for level walking areas such as decks, balconies and porches, and sloped guards for open sides of stairways.
- Guard assemblies recognized in this report may be used in One- and Two-Family Dwellings regulated by the IRC and all construction types regulated by the IBC in accordance with IBC Section 705.2.2 and 705.2.3.1, Exception 2 and 3. Guards less than 42 inches high are limited to use in One- and Two-Family Dwellings (IRC). See Table 1 for additional restrictions based upon Use and Occupancy Classification

2.0 STATEMENT OF COMPLIANCE

The *Vinyl Traditional* railing systems comply with the Codes listed in Section 1.1, for the properties stated in Section 1.2 and uses stated in Section 1.3, when installed as described in this report, including the Conditions of Use stated in Section 6.0.

2.1 2024 IBC and IRC Evaluation Reports

The Intertek CCRR is an *Evaluation Report* for approval of an alternate material, design, or method of construction in accordance with Section 104.2.3.6.1 of the 2024 IBC and Section R104.2.2.6.1 of the 2024 IRC.

3.0 DESCRIPTION

3.1 The *Vinyl Traditional* railing systems are an assemblage of co-extruded and molded components, with aluminum reinforcements and mounting brackets. See Figure 1.

3.1.1 Top rails are nominally 1-3/4 inches high by 3 inches wide with 0.065-inch nominal wall thickness, “T” shaped extruded PVC rail profile, reinforced with an aluminum “T” shaped insert.

3.1.2 Bottom rails are nominally 2-1/4 inches high by 1-3/4 inches wide with 0.065-inch nominal wall thickness, rectangular extruded PVC rail profile, reinforced with an aluminum “H” shaped insert.

3.1.3 Infill are provided in 1-3/8" square PVC balusters or 3/4" dia. aluminum balusters. Rails are routed to the shape of the infill profile to receive the infill.

3.1.4 Top and bottom rails are connected to sleeved conventional wood posts using aluminum brackets, as defined in Table 2.

4.0 PERFORMANCE CHARACTERISTICS

4.1 The *Vinyl Traditional* railing systems described in this report has demonstrated the capacity to resist the design loads specified in Chapter 16 of the IBC, as well as Section R301 of the IRC when tested in accordance with ICC-ES AC174.

4.2 Structural performance has been demonstrated for a temperature range from -20°F to 125°F.

4.3 Materials used are deemed equivalent to preservative treated or naturally durable wood for resistance to weathering effects, decay, and attack from termites.

4.4 Materials used in the railing assemblies have a flame spread index not exceeding 200 when tested in accordance with ASTM E84.

5.0 INSTALLATION

5.1 The *Vinyl Traditional* railing systems must be installed in accordance with the manufacturer's published installation instructions, the applicable Code, and this Research Report. A copy of the manufacturer's instructions must be available on the jobsite during installation.

5.2 Railing assemblies consist of top and bottom rails with pre-routed holes to receive infill. Aluminum railing reinforcements are inserted in the top and bottom rails during assembly as specified for the type and length of railing (see Table 1). Aluminum insert lengths must be the same length as the vinyl railings to assure bracket screws penetrate the aluminum inserts.

5.3 Railings are secured with aluminum brackets and stainless-steel screws to structural wood support which may include a PVC sleeved 4x4. The wood in the supporting structure shall have a specific gravity of 0.50 or greater (Southern Yellow Pine or better) and a minimum thickness to allow full penetration of the bracket mounting screws. Rail attachment shall be in accordance with Table 2.

6.0 CONDITIONS OF USE

6.1 Installation must comply with this Research Report, the manufacturer's published installation instructions, and the applicable Code. In the event of a conflict, this report governs.

6.2 See Section 1.3 for construction type(s) and use classifications.

6.3 Conventional wood railing supports including 4x4 posts, and framing are not within the scope of this report and are subject to evaluation and approval by the building official. Supports must satisfy the design load requirements specified in Chapter 16 of the IBC. Supports and framing must provide suitable material for anchorage of the rail brackets and posts, respectively. Where required by the building official, engineering calculations and details shall be provided.

6.4 Any component or configuration not identified in this report has not been evaluated for performance and/or compliance to the referenced codes. Identification of such components with the CCRR program mark or number is prohibited.

6.5 Only those types of fasteners and fastening methods described in this report have been evaluated for the installation of the *Vinyl Traditional* railing systems; other methods of attachment are outside the scope of this report.

6.6 Compatibility of fasteners and other installation hardware with the supporting construction including treated wood is not within the scope of this report.

6.7 The *Vinyl Traditional* railing systems are manufactured under a quality control program with inspections by Intertek Testing Services NA, Inc.

7.0 SUPPORTING EVIDENCE

7.1 Manufacturer's drawings and installation instructions.

7.2 Reports of testing demonstrating compliance with ICC-ES AC174, *Acceptance Criteria for Deck Board Span Ratings and Guardrail Systems (Guards and Handrails)*, approved January 2025.

7.3 Reports of testing and engineering analysis demonstrating compliance with the performance requirements of ASTM D7032-21 [17], *Standard Specification for Establishing Performance Ratings for Wood-Plastic Composite and Plastic Lumber Deck Boards, Stair Treads, Guards, and Handrails*.

7.4 Documentation of an Intertek approved quality control system for the manufacturing of products recognized in this report.

7.5 Intertek Listing report "Envision Outdoor Living Products, LLC" on the Intertek Directory of Building Products.

8.0 IDENTIFICATION

The *Vinyl Traditional* railing systems are identified with the manufacturer's name, address and telephone number, the product name, the statement "See CCRR-0382 at www.intertek.com/building/ccrr for uses and performance levels.", the phrase "For Use in One- and Two-Family Dwellings Only" for the applicable railing assemblies (See Table 1), the Intertek Control Number, the Intertek Mark as shown below, and the Code Compliance Research Report number (CCRR-0382).

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CCRR-0382

9.0 FLORIDA BUILDING CODE

9.2 Scope of Evaluation:

The *Vinyl Traditional* railing systems were evaluated for compliance with the *Florida Building Code -Building* and *Florida Building Code -Residential.*

9.1 Conclusion:

Vinyl Traditional railing systems, described in Sections 2.0 through 7.0 of this Research Report, comply with the *Florida Building Code – Building, Florida Building Code – Residential, subject to the following conditions:*

- *Use of the Vinyl Traditional* railing systems for compliance with the High-Velocity Hurricane Zone provisions of the *Florida Building Code* has not been evaluated and is outside the scope of this Research Report.
- In accordance with Section 1711 of the FBC-Building and Section R332 of the FBC-Residential Vinyl Traditional railing systems shall not be installed within 3000 feet of a saltwater coastline.
- Intertek is a Florida State product evaluation entity and quality assurance entity pursuant to the Florida Statute 553.842 – *Product Evaluation and Approval*.

10.0 CODE COMPLIANCE RESEARCH REPORT USE

10.1 Approval of building products and/or materials can only be granted by a building official having legal authority in the specific jurisdiction where approval is sought.

10.2 Code Compliance Research Reports shall not be used in any manner that implies an endorsement of the product by Intertek.

10.3 Reference to https://bpdirectory.intertek.com is recommended to ascertain the current version and status of this report.

TABLE 1 – VINYL TRADITIONAL RAILING SYSTEMS USE GROUP CLASSIFICATIONS

Type	Maximum Railing Dimensions [1]	Top Rail Aluminum Reinforcement	Support	Use Group Classification
Level	96-inch x 42 inch	Aluminum "T" profile with 0.063-inch nominal wall thickness.	Structural wood support[2]	IBC / FBC – All Use Groups IRC / FBC-Residential – One and Two-Family Dwellings

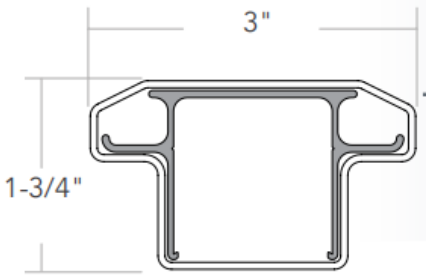
[1] Level rail lengths are maximum clear length between supports. Railing height is the minimum installed height from walking surface to top of top rail.

[2] Railing supports are not within the scope of this evaluation.

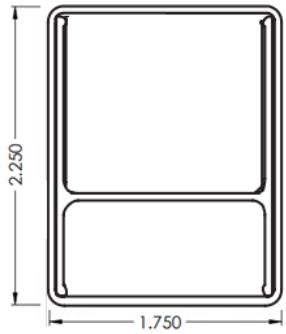
TABLE 2 – VINYL TRADITIONAL RAILING SYSTEM FASTENING SCHEDULE

CONNECTION		FASTENER	QUANTITY
Top Rail Bracket	to Post	#8-8 by 1-5/8-inch long, flat head, stainless steel, thread-cutting self-tapping screws	3
	to Rail	#10-16 by 3/4-inch long, pan-head, plated steel, Tek screws	2
Bottom Rail Bracket	to Post	#8-8 by 1-5/8-inch long, flat head, stainless steel, thread-cutting self-tapping screws	3
	to Rail	#10-16 by 3/4-inch long, pan-head, plated steel, Tek screws	2
Baluster to Top/Bottom Rail		Slip fit into routing - No mechanical connection	-
Foot Block to Bottom Rail		#10-16 by 3/4-inch long, pan-head, plated steel, Tek screws	1

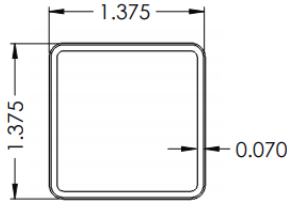
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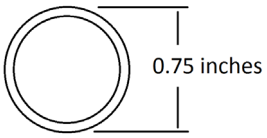
Top Rail with "T" Aluminum Insert



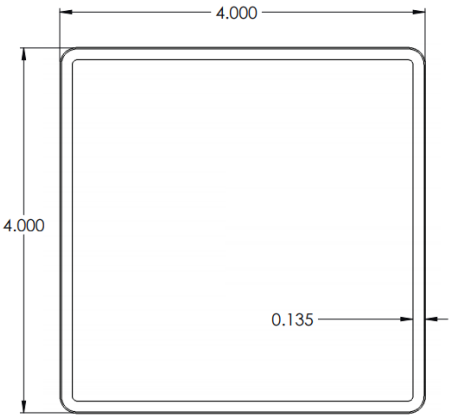
Bottom Rail



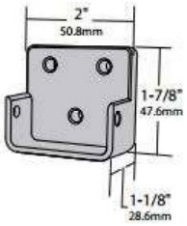
1-3/8" Square Baluster



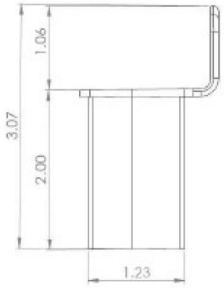
3/4" dia. (0.05" wall) Aluminum Baluster



Post Sleeve



Level – Rail Brackets



Foot Block

FIGURE 1 – VINYL TRADITIONAL RAILNG SYSTEM COMPONENTS