Code Compliance Research Report
CCRR-0135

Issue Date: 06-07-2013
Revision Date: 05-29-2018
Renewal Date: 06-07-2019

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

REPORT HOLDER:

Integrity Composites, LLC.
8 Morin Street
Biddeford, Maine 04005
(207) 571-0743
www.duralifedecking.com

REPORT SUBJECT:

DuraLife RailWays Universal Railing Collection

1.0 SCOPE OF EVALUATION

1.1 This Research Report addresses compliance with the following Codes:

- 2012 *International Building Code®* (IBC)
- 2012 *International Residential Code®* (IRC)

1.2 *DuraLife RailWays Universal Railing Collection* has been evaluated for the following properties):

- Structural Performance
- Durability
- Surface Burning
- Decay Resistance
- Termite Resistance

1.3 *DuraLife RailWays Universal Railing Collection* has been evaluated for the following uses:

- Guards used at or near the open sides of elevated walking areas of buildings and walkways required by the codes.
- Guards are provided as level guards for level working areas such as decks, balconies, and porches.
- Guardrail systems 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 1406.3, Exception 2. Guardrails 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

DuraLife RailWays Universal Railing Collection complies 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.

3.0 DESCRIPTION

3.1 Level guards are provided with rail lengths up to 94-1/2 inches in length (measured between inside of support posts) and a maximum installed height of 42 inches. See Table 1 for qualified lengths and configurations,

3.2 *DuraLife RailWays Universal Railing Collection* Guardrail Systems are an assemblage of an extruded wood-plastic composite (WPC) material with a polymer capstock produced in eight colors; Black, Burnt Walnut, Cedar, Driftwood, Golden Oak, Mahogany, Pebble, and White.

3.3 The guard system includes two identical rails used as both the top and bottom rail, vertical balusters, 5 inch square post sleeves, baluster connectors, rail-to-post brackets, support block, decorative moldings and post caps.

3.4 The top and bottom rails are extruded composite rails having an overall nominal sectional dimension of 3-5/16 inch wide by 2-7/16 inch tall. See Figure 1.

3.5 The infill area consists of 1-1/2 inch square, hollow, extruded composite balusters with chamfered corners. See Figure 2.

3.6 The top and bottom rails are attached to structural supports with stainless steel mounting brackets. See Figure 5.

3.7 The balusters are secured to the top and bottom rail with 1.20 inch diameter Uni-Ball™ connectors. See Figure 4.

3.8 Railing systems are attached to conventional wood supports, which are sleeved with a 5 inch square composite post sleeve of 1/4 inch thickness. See Figure 3.

3.9 A support block is installed between the lower rail and the deck surface midway between supports. The single support block consists of a 1-1/2 inch square composite baluster cut to the appropriate length. It is attached to the bottom of the lower rail with a Uni-Ball™ connector.

4.0 PERFORMANCE CHARACTERISTICS

4.1 The guardrail system described in this report has demonstrated the capacity to resist the design loadings specified in Chapter 16 of the IBC and Section R301 of the IRC when tested in accordance with ICC-ES AC174 and ASTM D 7032.

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 The WPC material used in the guardrail system has a flame spread index not greater than 200 when tested in accordance with ASTM E84.

5.0 INSTALLATION

DuraLife RailWays Universal Railing Collection 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.

5.1 The top and bottom rails are attached to structural supports utilizing stainless steel level brackets. See Figure 5 and Table 2.

5.2 The baluster connections to both the top and bottom rails are made utilizing a Uni-ball™ connector at each attachment point. See Figure 4 and Table 2.

5.3 The wood in the supporting structure, including supporting posts, shall have a specific gravity of 0.50 (Southern Yellow Pine) or better and a minimum thickness to allow full penetration of the bracket mounting screws.

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 Guardrail systems recognized in this report may be used in detached One- and Two-Family Dwellings regulated by the IRC.

6.3 Conventional wood supports and supporting structural framing are not within the scope of this report and are subject to evaluation and approval by the building official.

6.4 Conventional 4x4 wood posts and structural support framing for post installations must satisfy the design load requirements specified in Chapter 16 of the IBC and must provide suitable material for anchorage. Wood shall have a specific gravity of 0.50 or greater (Southern Yellow Pine or better). Where required by the building official, engineering calculations and details shall be provided.

6.5 Only those types of fasteners and fastening methods described in this report have been evaluated for the installation of the *DuraLife RailWays Universal Railing Collection* guardrails; other methods of attachment are outside the scope of this report.

6.6 Compatibility of fasteners and other metallic components with the supporting structure, including chemically treated wood, is not within the scope of this report.

6.7 The *DuraLife RailWays Universal Railing Collection* is manufactured under a quality control program with inspections by Intertek Testing Services NA, Inc. (AA-647).

7.0 SUPPORTING EVIDENCE

7.1 Drawings and installation instructions submitted by the manufacturer.

7.2 The reports of testing and engineering analysis demonstrating compliance with the performance requirements of ICC-ES AC174, Acceptance Criteria for Deck Board Span ratings and Guardrail Systems (Guards and Handrails), revised December 2014.

7.3 The reports of testing and engineering analysis demonstrating compliance with the performance requirements ASTM D 7032-08, Standard Specification for Establishing Performance Ratings for Wood-Plastic Composite Deck Boards and Guardrail Systems (Guards or Handrails).

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

8.0 IDENTIFICATION

The *DuraLife RailWays Universal Railing Collection* is/are identified with the manufacturer's name (Integrity Composites, LLC), address and telephone number, the product name (*DuraLife RailWays Universal Railing Collection)*, the statement "For Use in One- and two-Family Dwellings Only", the statement "ASTM D7032 Compliant," the Intertek Mark, and the Code Compliance Research Report number (CCRR-0135).

9.0 OTHER CODES

This section is not applicable.

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

TABLE 1 – QUALIFIED GUARDRAIL SYSTEMS AND USE CATEGORIES

***DuraLife RailWays Universal Railing Collection* WPC Guardrail System (1)**	**Guardrail Type**	**Code Occupancy Classification**
94-1/2 inch by 42 inch	Level	The use of this product shall be limited to exterior use as a guard system for balconies and porches for detached one- and two-family dwellings.

(1) Guardrails are qualified up to and including the listed maximum guardrail system dimensions for use in the referenced Code Occupancy Classification. Railing lengths are clear length between supports. Railing height is installed height from walking surface to top of top rail.

TABLE 2 – FASTENING SCHEDULE

Connection	Fastener	Qty.
Top Rail Bracket to Post (1)	1/4 inch x 2 inch hex-head lag bolts with nylon washers	2
Bottom Rail Bracket to Post (1)	1/4 inch x 1-1/2 inch hex-head lag bolts with nylon washers	2
Rail Bracket to Rail (2)	1/4 inch x 1-1/2 inch hex-head lag bolts with nylon washers	2
Baluster to Top Rail	Uni-Ball™ connector secured to rail with one #8 x 2-1/4 inch stainless steel screw	1
Baluster to Bottom Rail	Uni-Ball™ connector secured to rail with one #8 x 2-1/4 inch stainless steel screw	1
Foot Block to Bottom Rail	Uni-Ball™ connector secured to rail with one #8 x 2-1/4 inch stainless steel screw	1

(1) 7/32 inch diameter pre-drill in post.
(2) 7/32 inch diameter pre-drill in rail.

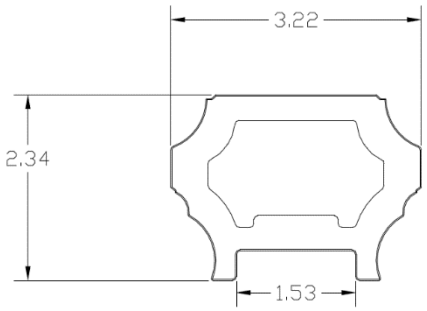


FIGURE 1 - RAIL PROFILE

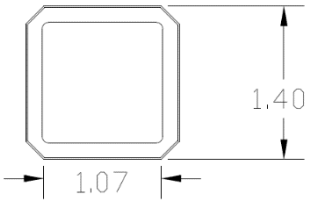


FIGURE 2 - BALUSTER PROFILE

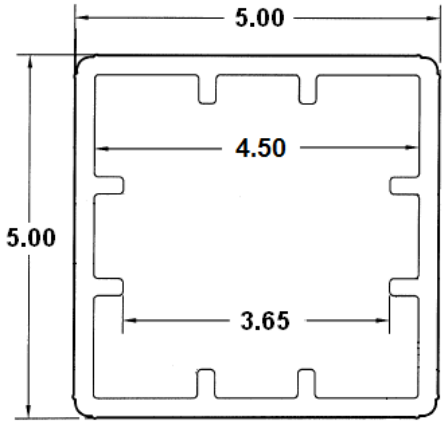
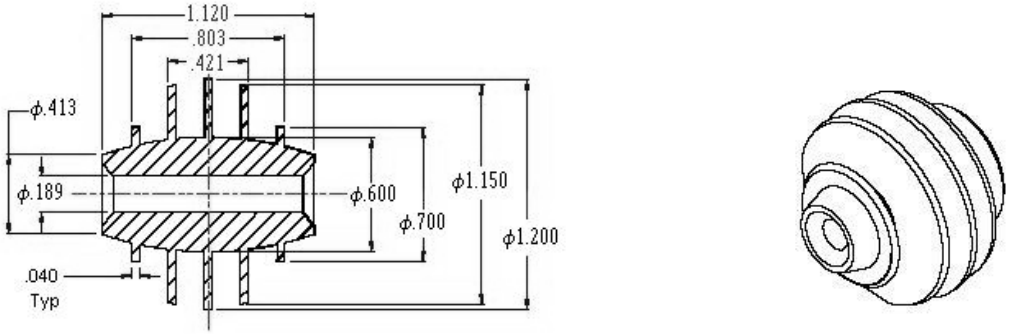


FIGURE 3 – 5X5 COMPOSITE POST SLEEVE



Sectional View **Isometric View**

FIGURE 4 - UNI-BALL™ BALUSTER CONNECTOR

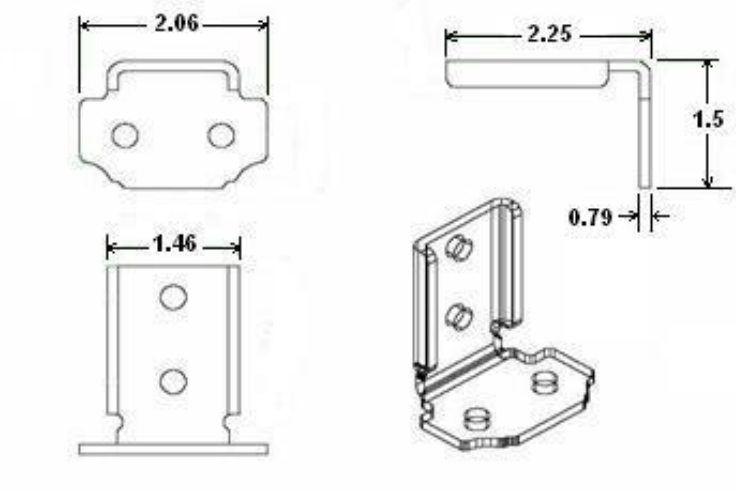


FIGURE 5 - LEVEL RAIL BRACKET