



Building Product Evaluation Report 0146

Fusion Guardrail Systems Oldcastle, Inc.

Initial Acceptance: July 31, 2026

Expiration: July 31, 2028

Version: 1.0

TYPE OF ACCEPTANCE

Product Material – Wood and Plastics

CSI Specification Division: 06 50 00 (Structural Plastic) and 06 63 00 (Plastic Railing)

MANUFACTURER IDENTIFICATION:

Oldcastle

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EVALUATION REPORT SUBJECT:

Fusion Guardrail Systems for Exterior Applications.
Installation on construction complying with the International Residential Code® (IRC®).

DESCRIPTION OF BUILDING COMPONENTS:

Oldcastle guardrail system is identified by the name –**Fusion (Guardrail) System**. The guardrail system is for use in areas as referenced in the Applicable Codes. The guardrail system provides a protective barrier for walking areas, balconies, and porches. The guardrail systems are manufactured by the co-extrusion process, assembled with stainless steel components, and are produced in black. See Figure 1 for rail schematic.

1. Fusion Rail and Stair Systems

A Fusion Rail

- (a) The guardrail system consists of a top rail, bottom rail, and balusters. The top rail, bottom rail, and rectangular baluster are manufactured by the co-extrusion process with the AlumiCast™ material.
- (b) The **Fusion** guardrail system has a contoured profile top rail with a 0.225-in. wall thickness, hollow in the center, has rounded edges, is pre-routed for balusters and has a PVC cap stock. See Table 1 in this Report for drawings and dimensions.
- (c) The **Fusion** guardrail system has a bottom rail that is rectangular in shape, hollow in the center, has rounded edges and is pre-routed for balusters. The bottom rails connect to the supports utilizing stainless steel brackets. See Table 1 in this Report for drawing and dimensions.
- (d) The **Fusion** guardrail system has AlumiCast™ balusters, 1-inch x 0.75 inch rectangular in shape with 0.080-inch wall nominal wall thickness, has rounded edges and hollow in the center. See Table 1 in this Report for drawings and dimensions.
- (e) The **Fusion** guardrail system connections for the top rail and bottom rail to the supports are brackets. The brackets are secured to the supports with steel screws (stainless, corrosion-resistant, or galvanized) suitable for use in preservative-treated wood. See Tables 1 and 2 in this Report for drawings of the brackets and number of fasteners required.



- (f) See Table 3 in this Report for the **Fusion** guardrail system height and length. The guardrail system is 6 feet in length and requires two supports located under the bottom rail and are evenly spaced between supports as shown in Figure 1.
- (g) See the manufacturer's published installation instructions, [Fusion Level Rail](#) for additional details.

2. Posts

The **Fusion** guardrail system has post-sleeves, post-sleeve insert, and post-sleeve spacers. The post sleeves are manufactured with PVC material, are square in shape, hollow in the center and have rounded edges. The post sleeves are non-structural and are installed with the post-sleeve steel insert. Specific details regarding the construction installation for the post sleeves, post sleeve insert and/or posts have not been evaluated and are outside the scope of this Report. Specific details when required must be furnished to the authority having jurisdiction. See Table 1 of this Report for post sleeve and post sleeve insert drawings and dimensions.

APPLICABLE CODES:

- 2015, 2018, and 2021 International Residential Code (IRC)

APPLICABLE CHARACTERISTICS REVIEWED:

1. Structural Performance:

- (a) Oldcastle **Fusion** guardrail systems have been reviewed for maximum spans as indicated in **Table 2** in this Report with the limitations of use evaluated for each design (style).

2. Temperature:

- (a) Oldcastle **Fusion** guardrail systems have been reviewed and evaluated for temperature range of -20 °F (-29 °C) to 125 °F (52 °C).

3. Flame Spread Index:

- (a) Oldcastle **Fusion**, guardrail system flame spread rating was less than 200 when tested in accordance with ASTM E84, *Standard Test Method for Surface Burning Characteristics of Building Materials*.

4. Decay Resistance:

- (a) The materials used in the Oldcastle **Fusion** guardrail system in this Report do not contain any wood and have been deemed comparable to naturally resistant wood or to preservative-treated wood for resistance to fungal decay.

5. Termite Resistance:

- (a) The materials used in the Oldcastle **Fusion** guardrail system in this Report do not contain any wood and have been deemed equivalent to naturally resistant wood or to preservative-treated wood for resistance to termite attack.

6. UV Testing:

- (a) The UV testing was conducted, and an appropriate adjustment factor was applied in accordance with ASTM D7032, *Standard Specification for Establishing Performance Ratings for Wood-Plastic Composite Deck Boards and Guardrail Systems (Guards or Handrails)*.

7. Fastening:

- (a) Oldcastle **Fusion**, guardrail system top and bottom rails must be fastened to posts with stainless steel brackets using steel (stainless, corrosion-resistant, or galvanized) screws. See Table 1 of this Report for drawing of the bracket. See Table 3 of this Report and manufacturer's installation instructions for fastening details.
- (b) The fasteners and brackets are supplied by the manufacturer and must be used in the installation of the Oldcastle **Fusion**, guardrail system. Use of other brackets and fasteners is not covered under this Report.

8. Posts:

- (a) Wood posts or other wood support framing members are not covered under this Report. However, wood posts and other wood support framing members must be designed to meet load and other requirements in the applicable building code(s), have a minimum specific gravity of 0.51 (Southern Pine or better), and of sufficient thickness to allow full penetration of bracket mounting screws.

APPLICABLE USES:

Oldcastle **Fusion** guardrail system evaluated in this Report is for installation on construction complying with IRC or complying with the IBC Exceptions indicated in Section 1015.3. The guardrail system is limited to a height of 42 inches. See limitations of acceptance below and Table 2.

**LIMITATIONS OF ACCEPTANCE:**

The Oldcastle **Fusion** guardrail system as described in this Report complies with those codes listed in the Applicable Codes section above and is subject to the following conditions.

1. The guardrail systems are limited to exterior construction complying with the IRC. The guardrail system is limited to a height of 42 inches.
2. Installation of the guardrail systems must comply with this Report; the manufacturer's published installation instructions, and the applicable code. When the guardrail installation instructions differ from this Report, this Report governs.
3. The fasteners described in this Report have been evaluated for the installation of the Oldcastle **Fusion** guardrails only. Material necessary for anchorage of the guardrail and compatibility of the fasteners to the treated wood supporting construction have not been evaluated.
4. The guardrail systems indicated in the Report must be fastened to the supporting construction as indicated in the manufacturer's published installation instructions and as outlined in this Report. When guardrail fastening instructions differ from this Report, this Report governs.
5. The top rail component for the guardrail system does not meet the graspability requirements when used as a handrail for stairs. In order to comply with the IBC or IRC graspability requirements, a separate handrail complying with IBC Section 1014.3 or IRC Section R311.7.8.3 must be provided. Specific details regarding the construction installation and attachment to the stair guardrail and/or posts have not been evaluated and are outside the scope of this Report. Specific details, when required, must be furnished to the authority having jurisdiction.
6. When required, the guardrail system, including a stair in this Report must be designed by a professional and submitted to the authority having jurisdiction for final acceptance.
7. The Oldcastle **Fusion** guardrail systems have not been evaluated as a member of a fire-resistance-rated assembly.
8. Oldcastle has a third-party inspection program provided by PFS TECO.

DOCUMENTATION SUBMITTED:

Submitted data was provided in accordance with PFS TECO Certification and Inspection Policy: Deck Boards and Guardrails (Quality Control Manual, Specifications, Manufacturer's published installation instructions, Test data and Descriptive information). The products have been evaluated in accordance with ASTM D7032 *Standard Specification for Establishing Performance Ratings for Wood-Plastic Composite and Plastic Lumber Deck Boards, Stair Treads, Guards, and Handrails*.

PRODUCT IDENTIFICATION:

The Oldcastle guardrail assembly system must be identified with a label on each component or the packaging. The information required is as follows: Oldcastle, product identification (**Fusion**), compliance to ASTM D7032 including the maximum guardrail span and loading, the PFS TECO Building Product Evaluation number (BPER 0146), and the PFS Certification Mark (see image below). Guardrails that are 36" high require a label indicating, "Guardrail installation in residential (1 & 2 Family) units only." Guardrails without this information are not covered under this Report.



Figure 1: Assembled Rail Schematic

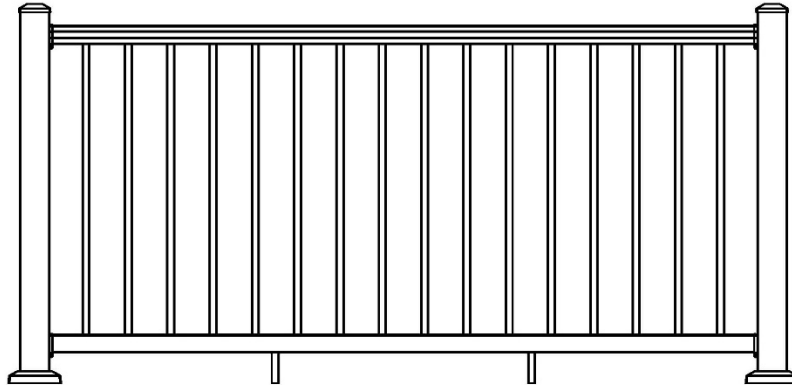
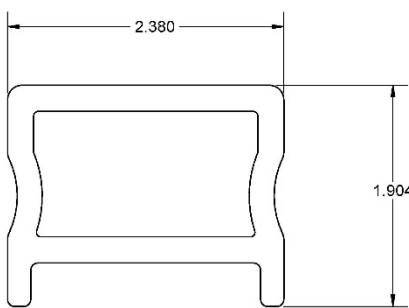
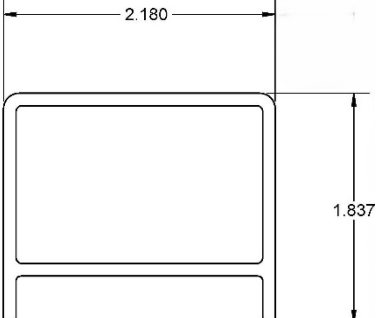
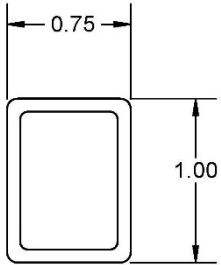
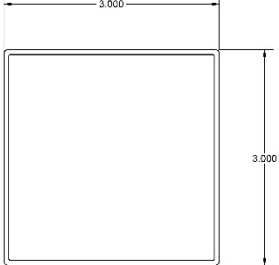
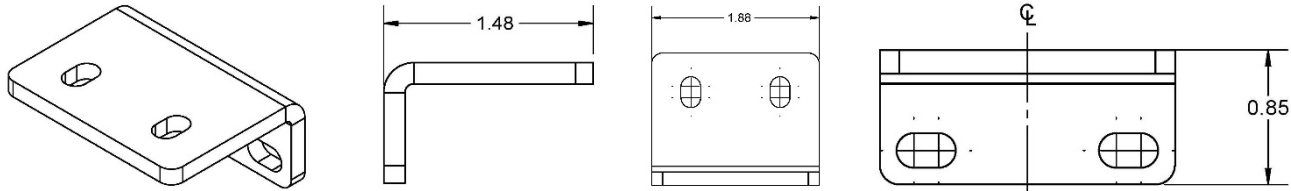


Table 1: Schematics of Fusion Guardrail System Components

Top Rail	Bottom Rail
	
Baluster	Post Sleeve
	
Level Rail Brackets	
	

**Table 2: Maximum Span Table for Fusion Guardrail Assembly**

Railing Assembly for Compliance with IRC, Residential Dwellings (Type V-B) only Maximum Rail Height 42 inches	
Guardrail Type	Approved Standard Guardrail Lengths
Level	72-inches ¹

For SI conversion: 1 in = 25.4 mm, 1 psf = 47.9 Pa, 1 lbf = 0.0044 kN

Refer to Table 3 for fastening schedule

Maximum span is clear length between posts measured parallel to top/bottom rail

¹ Maximum approved length.

Table 3: Fastening Schedule for Fusion Guardrail Assembly

Location	Connection	Fasteners
Level Rail Assembly		
T-Rail Level Top Rail with Bracket	Rail Bracket to Post	Two #10 x 1" Pan #2 Square Drive SDS 410 SS screw
	Rail Bracket to Rail	Two #10 x 1" Pan #2 Square Drive SDS 410 SS screw
Bottom Rail Level with Bracket	Rail Bracket to Post	Two #10 x 1" Pan #2 Square Drive SDS 302 SS screw ¹
	Rail Bracket to Rail	Two #10 x 1" Pan #2 Square Drive SDS 302 SS screw ¹

² Pre drill with 1/8" drill bit

³ Use two Support Blocks for 6-ft span or longer spans

⁴ See Applicable Characteristics Reviewed – 8 for additional post information