Code Compliance Research Report
CCRR-0335

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Revision Date: 12-17-2024
Renewal Date: 12-31-2025

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

REPORT HOLDER:
UFP Ventures II, Inc.
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REPORT SUBJECT:
Mineral-PVC Guardrail Systems
- **Classic Grab & Go**
- **Contemporary Grab & Go**

1.0 SCOPE OF EVALUATION

1.1 This Research Report addresses compliance with the following Codes:
- 2024, 2021, and 2018*International Building Code®* (IBC)
- 2024, 2021, and 2018 *International Residential Code®* (IRC)

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

1.2 Mineral-PVC Guardrail Systems have been evaluated for the following properties:
- Structural Performance
- Durability
- Surface Burning Characteristics

1.3 Mineral-PVC Guardrail Systems have been evaluated for the following uses:
- Guards intended for exterior use at or near the open sides of elevated walking areas in buildings and walkways, including stairs and ramps, as required by the referenced codes.
- Guardrail systems referenced 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 and 2612. 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

Mineral-PVC Guardrail 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.

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 Mineral-PVC Guardrail Systems are guardrails under the definitions of the referenced codes.

3.2 Level guards are provided in rail lengths up to 93 inches between supports and installed height of up to 42 inches. See Table 1 for qualified lengths and configurations.

3.3 Stair guards are provided in rail lengths up to 86 inches measured along the sloping length between supports and an installed height of up to 42 inches at the leading edge of the stair tread or landing. See Table 1 for qualified lengths and configurations.

3.4 The Mineral-PVC Guardrail Systems are an assemblage of an extruded mineral-PVC (M-PVC) material along with other metal and plastic parts. The M-PVC and plastic parts are produced in multiple colors. Guardrail systems include:

3.4.1 Classic Grab & Go Guardrail System (see Figures 1, 4, and 5), comprised of independent coextruded profiles for the top and bottom rails. Balusters are a 1.25-inch-square coextruded profile (see Figure 9) or *Classic* round aluminum balusters (see Figure 8).

3.4.2 Contemporary Grab & Go Guardrail System (see Figures 2, 6, and 7), comprised of a single coextruded profile used for both the top and bottom rail. *Classic* round aluminum balusters are used (see Figure 8).

3.5 Four structural supports may be used. See Table 1 for qualified lengths and configurations:

3.5.1 Conventional wood framing. Coextruded M-PVC post sleeves are installed over a conventional 4x4 preservative-treated wood post (see Figure 3).

3.5.2 *Deckorators Deck Post Mount* (also known as *Atlas-Pro Quik-Mount Post Mount*) System. M-PVC post sleeves and post spacers are installed over the post mount (see Figure 3). The *Deckorators Deck Post Mount* System is documented in Intertek CCRR-0257.

3.5.3 LMT *Blu-Mount* Post Mount System. M-PVC post sleeves and post spacers are installed over the post mount (see Figure 3).

3.5.4 LMT *LC Galvanized* Post Mount System. M-PVC post sleeves and post spacers are installed over the post mount (see Figure 3).

3.6 Top and bottom rails are attached directly to structural supports with molded plastic mounting brackets for level and stair applications. See Table 2, Table 3, Figure 5, and Figure 7.

4.0 PERFORMANCE CHARACTERISTICS

4.1 The M-PVC Guardrail Systems have 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 D7032.

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

4.3 The M-PVC material used in the guardrail systems has a flame spread index not exceeding 200 when tested in accordance with ASTM E84.

5.0 INSTALLATION

5.1 General:

Mineral-PVC Guardrail 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 Application:

5.2.1 The *Deckorators Deck Post Mount* must be anchored to concrete or wood in accordance with the manufacturer's published instructions and Section 5.0 of CCRR-0257.

5.2.2 The LMT *Blu-Mount* Post must be anchored to concrete or wood in accordance with the manufacturer's published instructions.

5.2.3 The LMT *LC Galvanized* Post must be anchored to concrete or wood in accordance with the manufacturer's published instructions.

5.2.4 The top and bottom rails are attached directly to structural supports utilizing plastic mounting brackets. See Tables 2 and 3 for fastening.

5.2.5 The top and bottom rails may be attached to conventional wood supports. Conventional wood supports including wood posts are outside the scope of this report.

5.2.6 4x4 conventional wood posts, *Deckorators Deck Post Mounts*, LMT *Blu-Mount* posts, and LMT *LC Galvanized* posts may be covered by M-PVC post sleeves, decorative caps, and moldings.

5.2.7 Support blocks are installed between the bottom rail and the deck surface. One support is used for rail lengths up to 6 feet, and two supports are used for rail lengths up to 8 feet (34-inch maximum spacing between supports).

5.2.8 Contemporary Grab & Go Balusters are restrained within routed holes in the top and bottom rail.

5.2.9 Classic Grab & Go Balusters may be restrained within routed holes in the top and bottom rail or secured to the top and bottom rails via plastic connectors. See Table 2 and Figure 9.

5.2.10 The wood in the supporting structure, including support posts, shall have a specific gravity of 0.55 or greater (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 Conventional wood supports, including support posts, for guards 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 and must provide suitable material for anchorage of the rail brackets (see Section 5.2.10). Where required by the building official, engineering calculations and details prepared by a licensed design professional shall be provided.

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

6.4 Only those types of fasteners and fastening methods described in this report have been evaluated for installation of the guardrail systems; other methods of attachment are outside the scope of this report.

6.5 Compatibility of supporting construction materials with all fasteners, metal post mount components, and other hardware components is subject to approval by the code official.

6.6 The Mineral-PVC Guardrail Systems are manufactured by UFP Ventures II, Inc under a quality control program with ongoing inspections.

7.0 SUPPORTING EVIDENCE

7.1 Drawings and installation instructions submitted by the manufacturer.

7.2 Reports of testing in accordance with ASTM D7032-21 and ASTM E84-21a.

7.3 Data in accordance with the ICC-ES AC174, *Acceptance Criteria for Deck Board Span Ratings and Guardrail Systems (Guards and Handrails)*, revised December 2014.

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

8.0 IDENTIFICATION

The Mineral-PVC Guardrail Systems are identified with the manufacturer's name (UFP Ventures II, Inc), the product name, and the Code Compliance Research Report number (CCRR-0335).

CODE COMPLIANCE
Intertek
CCRR-0335

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

Guardrail System	Guardrail Type	Guardrail Dimensions[1]	Support Post	Baluster	Code Occupancy Classification
Classic Grab & Go	Level (Inline/Angled)	92 in. x 42 in.	LMT *Blu-Mount* *or* Wood Post[2]	1.25 in Square *Classic* Round aluminum	IBC – All Use Groups
		86 in. x 42 in.	*Deckorators Deck Post Mount*		
	Stair	67 in. x 42 in. 86 in. x 42 in.	LMT *Blu-Mount* *or* Wood Post[2] *or* *Deckorators Deck Post Mount*		
	Level (Inline/Angled)	92 in. x 36 in.	LMT *LC Galvanized*	1.25 in Square *Classic* Round aluminum	IRC – One- and Two-Family Dwellings
	Stair	67 in. x 36 in.			
Contemporary Grab & Go	Level (Inline/Angled)	68 in. x 42 in.	LMT *Blu-Mount* *or* Wood Post[2] *or* *Deckorators Deck Post Mount*	*Classic* Round aluminum	IBC – All Use Groups *and* IRC – One- and Two-Family Dwellings
	Stair	67 in. x 42 in.			
	Level (Inline/Angled)	68 in. x 36 in.	LMT *LC Galvanized*	*Classic* Round aluminum	IRC – One- and Two-Family Dwellings
	Stair	67 in. x 36 in.			

[1]Guardrails are qualified up to and including the listed maximum guardrail system dimensions for use in the referenced Code Occupancy Classification. Guardrail lengths are actual railing lengths, i.e. clear space between supports for level rails and sloping length of rail between supports for stair rails.
[2]Wood support posts are not within the scope of this evaluation. See section 6.2.

TABLE 2 – FASTENING SCHEDULE FOR CLASSIC GRAB & GO M-PVC GUARDRAIL SYSTEMS

Connection	Fastener
Angle Adapter Bracket to Post (Angled)	One #8-9 by 1.5 in. (0.111 in. minor diameter) pan head stainless steel screw
Rail Bracket to Post (Angled)	Four #9-15 by 3.5 in. (0.124 minor diameter) pan head stainless steel screws through angle adapter
Rail Bracket to Post (Level Inline or Stair)	Four #8-18 by 2 in. (0.118 in. minor diameter) pan head stainless steel screws
Rail Bracket to Top Rail (Level Inline)	Four #10-16 by 1 in. (0.135 in. minor diameter) pan head stainless steel screws
Rail Bracket to Top Rail (Stair)	Two #10-16 by 1 in. (0.135 in. minor diameter) pan head stainless steel screws
Rail Bracket to Bottom Rail	Two #10-16 by 1 in. (0.135 in. minor diameter) pan head stainless steel screws
Baluster to Rail or Connector	Slip fit – no mechanical connection
Baluster Connector to Rail (when used)	One #8-9 by 1.5 in. (0.014 in. minor diameter) stainless steel screw
Support Block Connector to Bottom Rail	One #8-9 by 1.25 in. (0.107 in. minor diameter) trim head stainless steel screw
Support Block to Support Block Connector	Slip fit – no mechanical connection

TABLE 3 – FASTENING SCHEDULE FOR CONTEMPORARY GRAB & GO M-PVC GUARDRAIL SYSTEMS

Connection	Fastener
Rail Bracket to Post (Angled)	Four #8-15 by 3.5 in. (0.116 minor diameter) pan head stainless steel screws through socket bracket and angle adapter into post
Rail Bracket to Post (Level Inline or Stair)	Four #8-18 by 2 in. (0.117 in. minor diameter) pan head stainless steel screws
Rail Bracket to Top Rail (Level Inline)	Four #10-16 by 1 in. (0.135 in. minor diameter) pan head stainless steel screws
Rail Bracket to Bottom Rail	Two #10-16 by 1 in. (0.135 in. minor diameter) pan head stainless steel screws
Baluster to Rails	Slip fit – no mechanical connection

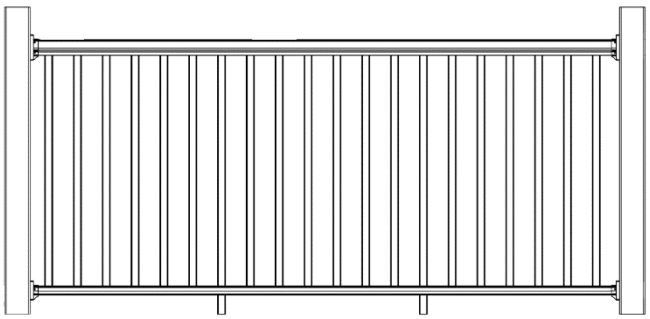


FIGURE 1 – CLASSIC GRAB & GO M-PVC GUARDRAIL SYSTEM

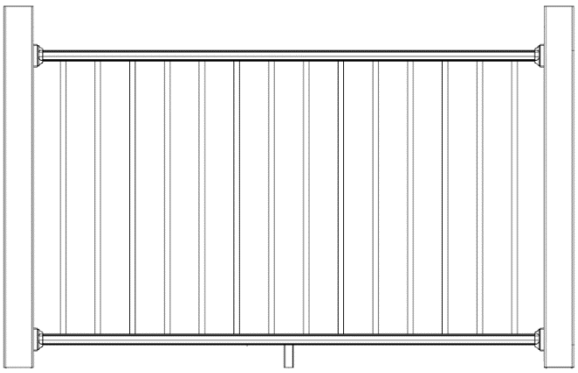


FIGURE 2 – CONTEMPORARY GRAB & GO M-PVC GUARDRAIL SYSTEM

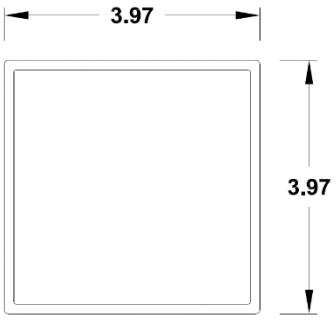


FIGURE 3 – POST SLEEVE

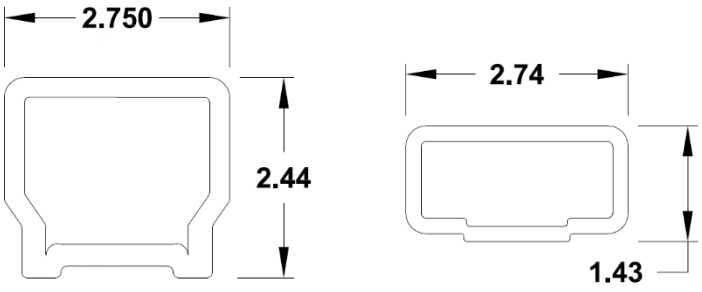
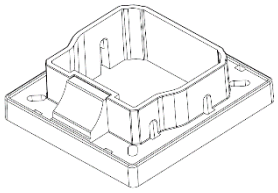
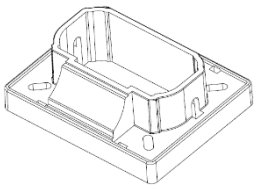


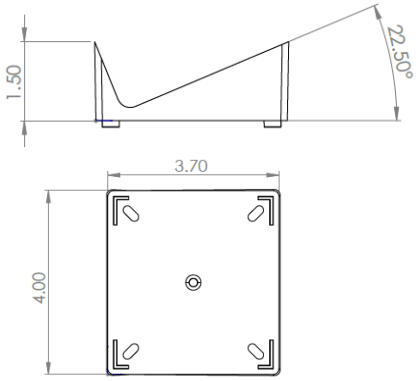
FIGURE 4 – CLASSIC GRAB & GO TOP AND BOTTOM RAIL PROFILES



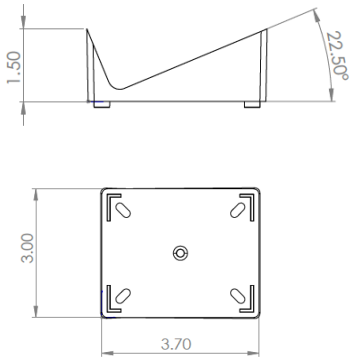
LEVEL INLINE
CLASSIC TOP RAIL BRACKET



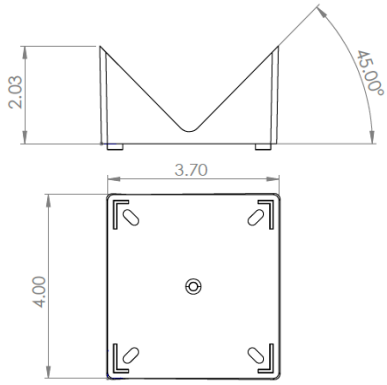
LEVEL INLINE
CLASSIC BOTTOM RAIL



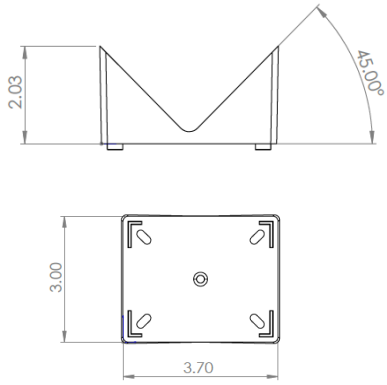
22.5° ANGLE BRACKET
CLASSIC TOP RAIL



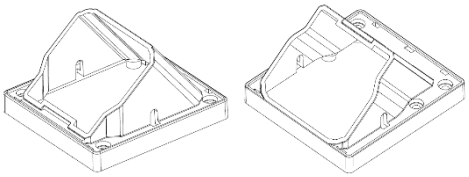
22.5° ANGLE BRACKET
CLASSIC BOTTOM RAIL



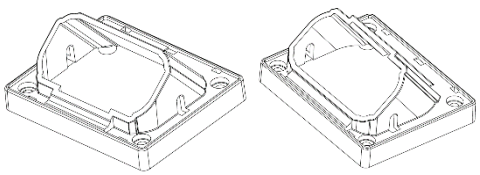
45° ANGLE BRACKET
CLASSIC TOP RAIL



45° ANGLE BRACKET
CLASSIC BOTTOM RAIL



UPPER / LOWER STAIR BRACKET
CLASSIC TOP RAIL



UPPER / LOWER STAIR BRACKET
CLASSIC BOTTOM RAIL

FIGURE 5 – CLASSIC GRAB & GO BRACKETS

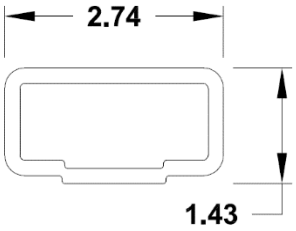
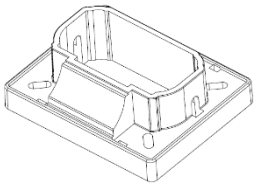
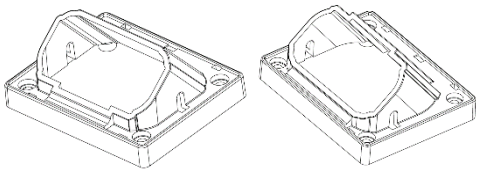


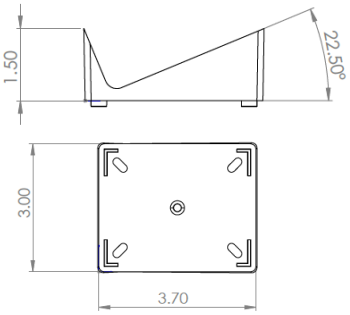
FIGURE 6 – CONTEMPORARY GRAB & GO TOP AND BOTTOM RAIL PROFILE



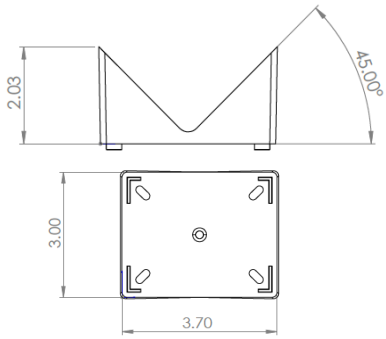
CONTEMPORARY RAIL LEVEL BRACKET



UPPER LOWER
CONTEMPORARY RAIL STAIR BRACKET

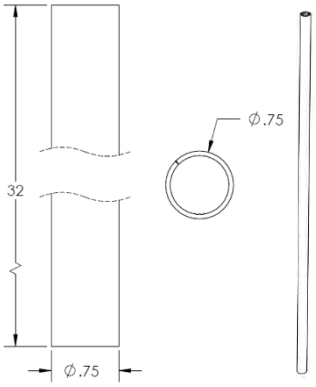


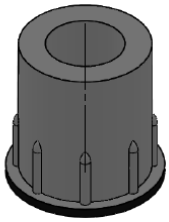
22.5° ANGLE BRACKET
CONTEMPORARY RAIL

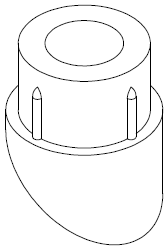


45° ANGLE BRACKET
CONTEMPORARY RAIL

FIGURE 7 – CONTEMPORARY GRAB & GO BRACKETS



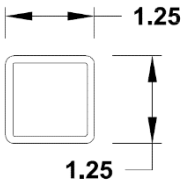


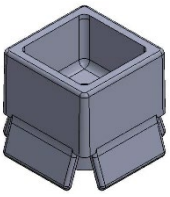


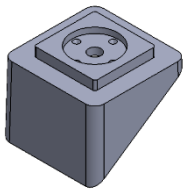
***CLASSIC* ALUMINUM BALUSTER** **LEVEL APPLICATIONS** **STAIR APPLICATIONS**

***CLASSIC* BALUSTER CONNECTORS**

FIGURE 8 – *CLASSIC* ALUMINUM BALUSTER







CLASSIC GRAB & GO M-PVC BALUSTER PROFILE **LEVEL BALUSTER CONNECTOR** **STAIR BALUSTER CONNECTOR**

CLASSIC GRAB & GO BALUSTER ADAPTOR

FIGURE 9 – CLASSIC GRAB & GO M-PVC BALUSTER