



# Code Compliance Research Report CCRR-0192

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DIVISION: 05 00 00 - METALS  
Section: 05 52 00 – Metal Railings

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## REPORT SUBJECT:

*FE<sup>26</sup> Traditional Railing*

*FE<sup>26</sup> PLUS Traditional Railing*

## 1.0 SCOPE OF EVALUATION

This research report addresses compliance with the following Codes:

2015 International Building Code (IBC)  
2015 International Residential Code (IRC)

2012 International Building Code (IBC)  
2012 International Residential Code (IRC)

*FE<sup>26</sup> Traditional Railing* and *FE<sup>26</sup> PLUS Traditional Railing* has been evaluated for the following properties:

- Durability

See Table 1 for applicable Code sections related to these properties.

## 2.0 USES

**2.1.** The *FE<sup>26</sup> Traditional Railing* and *FE<sup>26</sup> PLUS Traditional Railing* as described in this report are guardrails (guards) 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.

**2.2.** Railing systems are provided as level guards for level walking areas such as decks, balconies, and porches. See Table 1 for qualified guardrail dimensions.

## 3.0 DESCRIPTION

**3.1.** The *FE<sup>26</sup> Traditional Railing* and *FE<sup>26</sup> PLUS Traditional Railing* systems are pre-assembled steel railing systems consisting of pre-galvanized formed steel rails, pickets, and posts (see Figure 1). Systems consist of the following components:

**3.1.1.** The top and bottom rails of the *FE<sup>26</sup> Traditional Railing* are 1 inch square steel tubes. The *FE<sup>26</sup> PLUS Traditional Railing* are 1.25 inch square steel tubes. See Figure 2.

**3.1.2.** The balusters of the *FE<sup>26</sup> Traditional Railing* and the *FE<sup>26</sup> PLUS Traditional Railing* are 0.64 inch and 0.76 inch square steel tubes, respectively. See Figure 5. Balusters are permanently welded to top and bottom rails.

**3.1.3.** Top and bottom rails are connected to posts using cast steel mounting brackets. See Figure 3 and Figure 4.

**3.1.4.** The railings are attached to either conventional wood supports or steel post mounts of either: a) 2 inch square steel tube permanently welded to a 4 inch square steel base plate or b) 3 inch square steel tube permanently welded to a 5-1/8" square steel base plate. See Figures 6 & 7. See Table 1 for configurations and Table 2 for fastening schedule.

## 4.0 PERFORMANCE CHARACTERISTICS

**4.1.** The *FE<sup>26</sup> Traditional Railing* and *FE<sup>26</sup> PLUS Traditional Railing* systems described in this report have 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 AC273. The *FE<sup>26</sup> Traditional Railing* is limited to use in One- and Two-Family Dwellings.

## 5.0 INSTALLATION

The *FE<sup>26</sup> Traditional Railing* and *FE<sup>26</sup> PLUS Traditional Railing* must be installed in accordance with the manufacturer's published installation instructions, the applicable Code and this Research Report. The manufacturer's published installation instructions and this Research Report must be strictly adhered to, and a



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copy of the instructions must be available on the jobsite during installation.

**5.1.** The *Fe<sup>26</sup> Traditional Railing* and *Fe<sup>26</sup> PLUS Traditional Railing* are pre-assembled (welded) steel railing systems.

**5.2.** Top and bottom rails are secured to steel supports or conventional 4x4 wood posts with metal brackets and stainless steel screws. The wood in the supports and 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 mounting screws. The steel support shall have a minimum wall thickness of 2.5 mm. Rail attachment shall be in accordance with Table 2.

**5.3.** The steel post mounts are anchored to a concrete or steel surface with four 3/8 inch approved anchor bolts. The type and length of the anchor bolts is dependent upon the material and condition of the supporting structure and is not within the scope of this report. See Section 7: Conditions of Use for additional requirements.

## 6.0 SUPPORTING EVIDENCE

**6.1.** Manufacturer's drawings and installation instructions.

**6.2.** Reports of testing and engineering analysis demonstrating compliance with the performance requirements of ICC-ES AC273, *Acceptance Criteria for Handrails and Guards*, revised March 2016.

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

## 7.0 CONDITION OF USE

The *Fe<sup>26</sup> Traditional Railing* and *Fe<sup>26</sup> PLUS Traditional Railing* described in this Research Report complies with, or is a suitable alternative to, what is specified in those Codes listed in Sections 1.0 and 2.0 of this report, subject to the following conditions:

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

**7.2.** Conventional wood guardrail 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 supports, respectively. Where required by the building official, engineering calculations and details shall be provided.

**7.3.** Steel guardrail supports were evaluated for use in concrete applications and are described in Section 3.1.4.

**7.4.** Concrete anchors and anchoring systems for use with the steel post mounts are not within the scope of this report and are subject to evaluation and approval by the building official. Anchors must satisfy the design load requirements specified in Chapter 16 of the building code and must meet the following minimum requirements:

**7.4.1.** A minimum of four anchor bolts must be used and located in the four pre-drilled holes in the post base plate.

**7.4.2.** The anchors must be stainless steel, galvanized steel, or other approved material compatible with the steel post mount system.

**7.4.3.** The anchor bolts must have a minimum diameter of 3/8 inch and utilize flat washers. The type and length of the anchor bolts is dependent upon the material and condition of the supporting structure and is not within the scope of this report.

**7.4.4.** Where required by the building official, engineering calculations and details shall be provided. The calculations shall verify that the anchorage and supporting structure complies with the building code for the type and condition of the supporting construction.

**7.5.** 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 and/or number is prohibited.

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

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

7.8. The *Fe<sup>26</sup> Traditional Railing* and *Fe<sup>26</sup> PLUS Traditional Railing* systems are manufactured in accordance with the manufacturer's approved quality control system with inspections by Intertek Testing Services NA, Inc. (IAS AA-676).

## 8.0 IDENTIFICATION

The *Fe<sup>26</sup> Traditional Railing* and *Fe<sup>26</sup> PLUS Traditional Railing* systems described in this Research Report are identified by a marking bearing the report holder's name (Fortress Railing Products) the Code Compliance Research Report number (CCRR-0192) and the following statement: "See CCRR-0192 at <https://whdirectory.intertek.com> for uses and performance levels."



## 9.0 CODE COMPLIANCE RESEARCH REPORT USE

9.1. 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.

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

9.3. Reference to the Intertek website address: [whdirectory.intertek.com](https://whdirectory.intertek.com) is recommended to ascertain the current version and status of this report.

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TABLE 1 – Qualified Level Guardrail Systems

Railing System	Maximum Guardrail Dimensions <sup>(1)</sup>	Railing Bracket	Substrate for Railing Bracket	Code Occupancy Classification
<i>Fe<sup>26</sup></i> <i>Traditional Railing</i>	93-1/2" x 36" <sup>(2)</sup> 93-1/2" x 42"	Collar Bracket	Steel Post Mount (3)	<b>IBC &amp; IRC:</b> One- and Two-Family Dwellings
		Universal Bracket	Steel Post Mount (3) -or- Conventional 4x4 wood post	
<i>Fe<sup>26</sup></i> <i>PLUS Traditional Railing</i>	93-1/2" x 36" <sup>(2)</sup>	Collar Bracket	Conventional 4x4 wood post	<b>IRC:</b> One- and Two-Family Dwellings
<i>Fe<sup>26</sup></i> <i>PLUS Traditional Railing</i>	93-1/2" x 42"	Collar Bracket	Conventional 4x4 wood post	<b>IBC:</b> All Use Groups

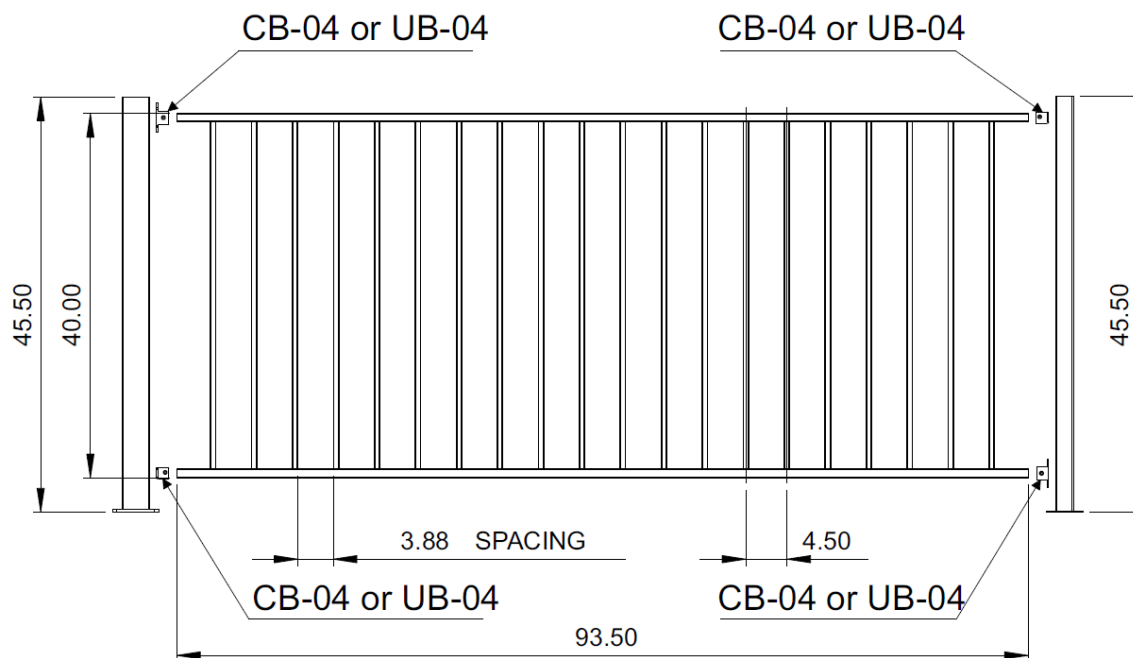
- (1) Level rail lengths are maximum clear length between supports. Railing height is the minimum installed height from walking surface to top of top rail.
- (2) The use of these products shall be limited to exterior use as a guard system for balconies and porches for one- and two-family dwellings in accordance with the IRC.
- (3) See Figure 6 Installation on surface of steel or concrete only.

TABLE 2 – Fastening Schedule

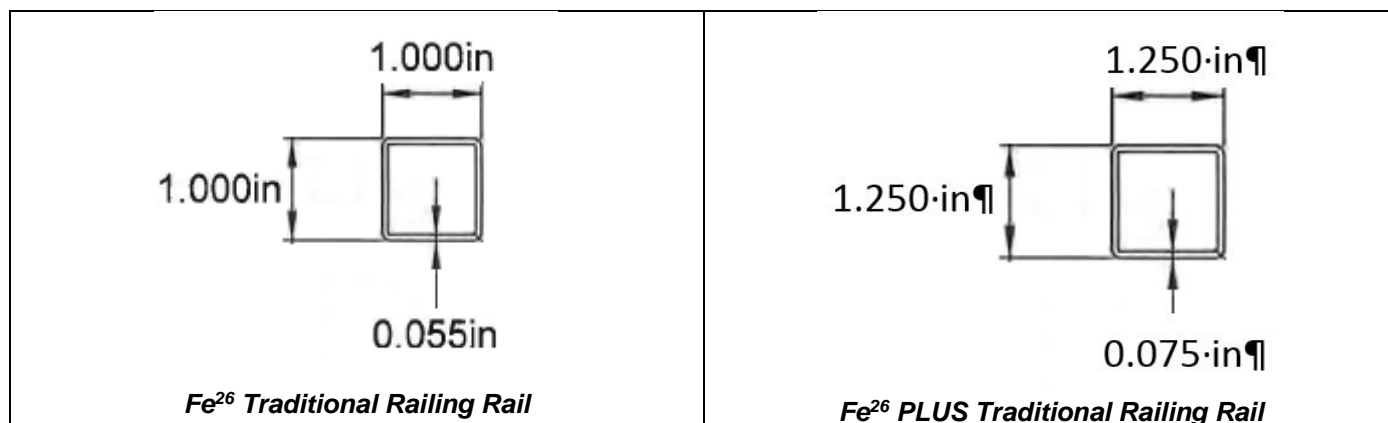
Railing System	Railing Bracket	Connection	Fastener	Qty.
<i>Fe<sup>26</sup> Traditional Railing</i>	Collar Bracket	Rail Bracket to Steel Support (1)	#12-24 by 3/4" Torx drive, flat head, Type F thread cutting point, stainless steel screws	2
		Rail Bracket to Rail (1) (2)	#12-24 by 3/4" Torx drive, flat head, Type F thread cutting point, stainless steel screw	1
	Universal Bracket	Rail Bracket to Steel Support (1)	#12-24 by 3/4" Torx drive, flat head, Type F thread cutting point, stainless steel screws	2
		Rail Bracket to Conventional 4x4 Wood Post	#12-10 x 2-1/2 inch stainless steel, Torx drive, flat-head wood screw	2
		Rail Bracket to Rail (2)	#12-24 by 3/4" Torx drive, flat head, Type F thread cutting point, stainless steel screw	1
<i>Fe<sup>26</sup> PLUS Traditional Railing</i>	Collar Bracket	Rail Bracket to Conventional 4x4 Wood Post	#9-9 x 2-1/2 inch stainless steel, Torx drive, flat-head wood screw	2
		Rail Bracket to Rail (2)	#12-24 by 3/4" Torx drive, flat head, Type F thread cutting point, stainless steel screw	1

(1) Pre-drill a 3/16 inch diameter hole

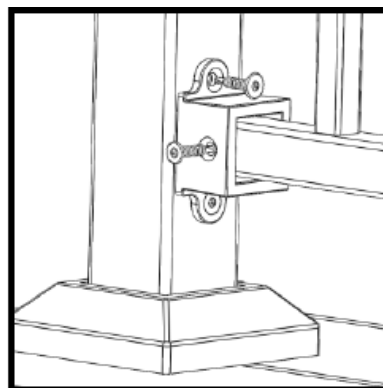
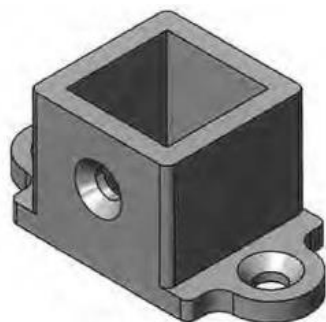
(2) Located on the interior side of the deck (i.e. facing the walking surface) – see Figure 3



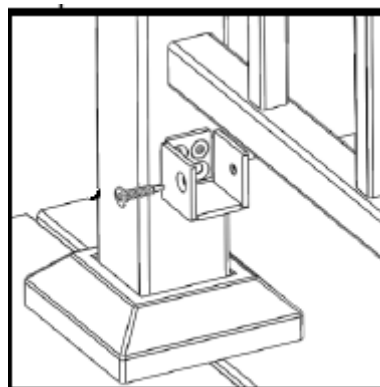
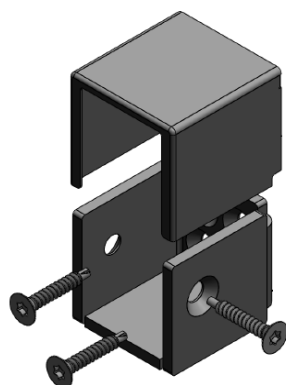
**FIGURE 1 – 42" Railing Assembly**



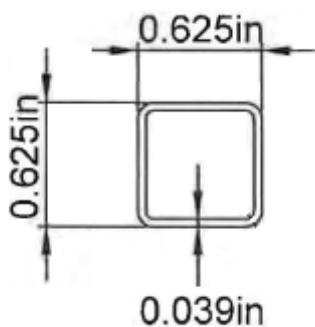
**FIGURE 2 – Railing Profiles**



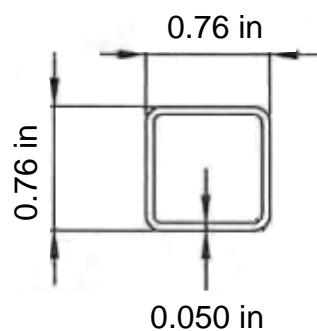
**FIGURE 3 – “Collar Bracket” Rail Bracket and Installation Detail**



**FIGURE 4 – “Universal Bracket” and Installation Detail**

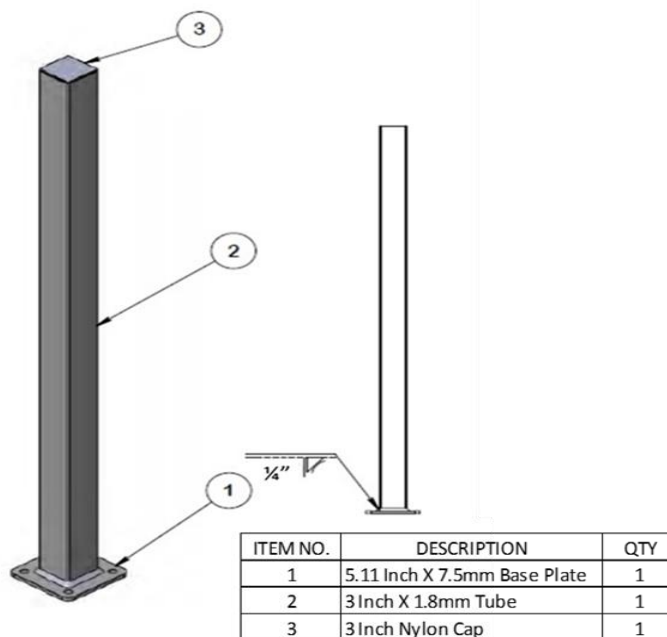
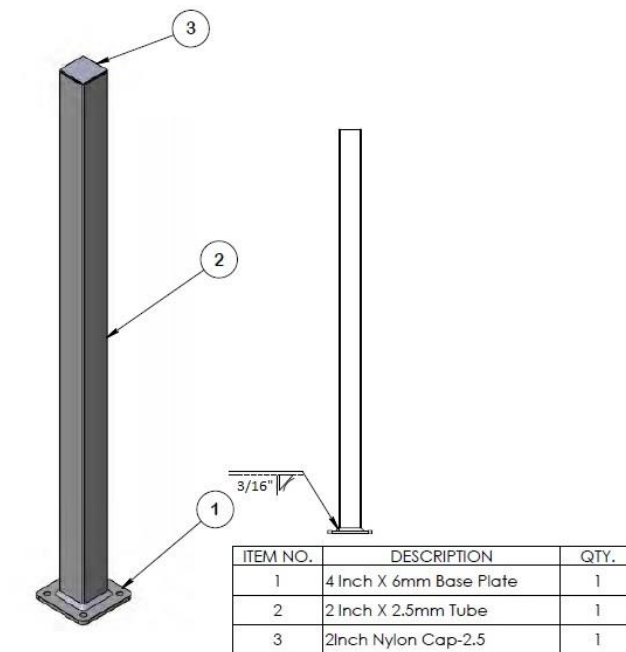


**Fe<sup>26</sup> Traditional Railing Baluster**



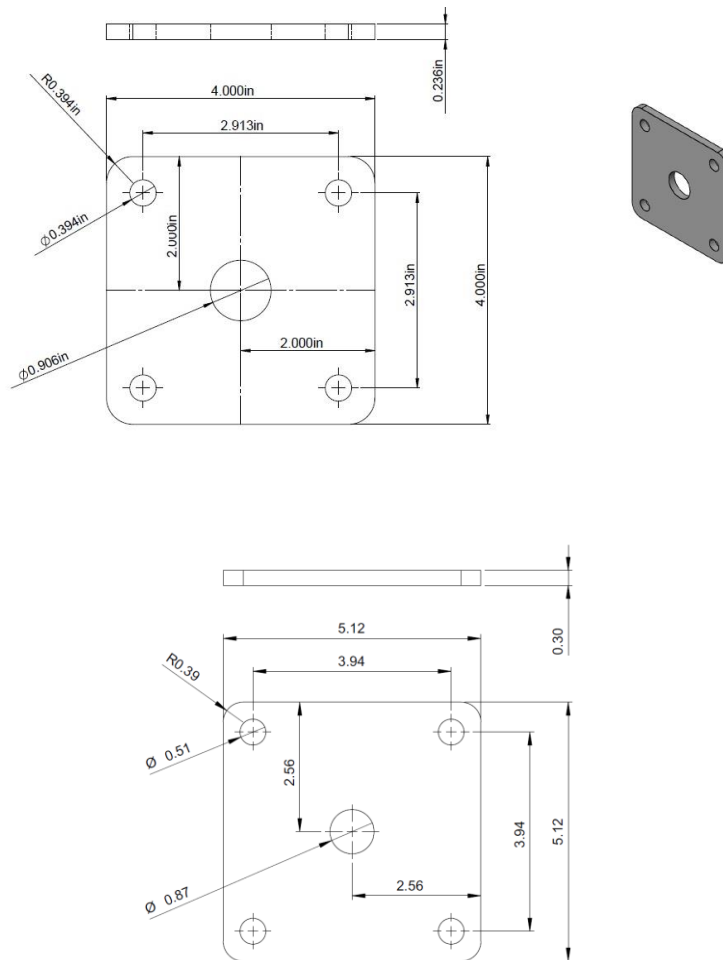
**Fe<sup>26</sup> PLUS Traditional Railing Baluster**

**FIGURE 5 – Baluster Profiles**



**FIGURE 6 – Steel Post Mounts and Bases**





**FIGURE 7 – Steel Post and Base Plates**