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

REPORT HOLDER:

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REPORT SUBJECT:

Trex® Signature® Railing
Trex® Reveal™ Railing

1.0 SCOPE OF EVALUATION

1.1 This Research Report addresses compliance with the following Codes:

- 2015 and 2012 *International Residential Code®* (IRC)

1.2 *Trex® Signature®* and *Trex® Reveal™* Railing have been evaluated for the following properties (see Table 1):

- Structural Performance

1.3 *Trex® Signature®* and *Trex® Reveal™* Railing have been evaluated for the following uses (see Table 1):

- The *Trex® Reveal™* railing system is a guard or guardrail under the definitions of the referenced codes. It is intended for use at or near the open sides of elevated walking areas of buildings and walkways as required by the codes. *Trex® Signature®* Railing is an alternative name for *Trex® Reveal™* Railing.
- Guards are provided as level guards for level walking areas such as decks, balconies, and porches.
- Level guards are provided with rail lengths up to 96 inches in length (measured between the inside of support posts) and an installed height of 42 inches. See Table for qualified configurations.

2.0 STATEMENT OF COMPLIANCE

Trex® Signature® and *Trex® Reveal™* Railing 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.

3.0 DESCRIPTION

3.1 The *Trex® Signature®* / *Trex® Reveal™* Railing is an assemblage of extruded aluminum materials, stainless steel fasteners, and cast Zamak 3 bracket materials.

3.2 The guardrail system includes a top rail, bottom rail, balusters, structural aluminum post, rail-to-post brackets, and decorative moldings and post caps.

3.3 Each of the top and bottom aluminum rails are routed to accept various infill components described in Section 3.4.

3.3.1 The top rail is an extruded aluminum rail with internal longitudinal ribs, dimensions of 1.75 inches wide by 1.44 inches tall. See Figure 1. A PVC rail insert is used as a baluster retainer.

3.3.2 The bottom rail is an extruded aluminum rail with internal longitudinal ribs, dimensions of 1.75 inches wide by 1.25 inches tall. See Figure 2. A PVC rail insert is used as a baluster retainer.

3.4 The infill area utilizes aluminum square or round balusters (See Figure 3).

3.5 Aluminum post supports consist of a 2.5 inch square by 0.125 inch wall extruded aluminum tube. The tube is connected to a 4 inch square by 1/2 inch thick aluminum base plate via a 1/4 inch continuous fillet weld on all four sides. See Figure 7.



3.6 An IRC Crossover post is an intermediate post that permits the uninterrupted connection of two top rails without the interruption of the post profile above the top railings. It consists of a 2.5 inch square by 0.125 inch wall extruded tube. The tube is connected to a 4 inch square by ½ inch thick aluminum base plate via a ¼ inch continuous fillet weld on all four sides. See Figure 8.

3.7 A support block is installed between the lower rail and the deck surface midway between supports. See Figure 5.

4.0 PERFORMANCE CHARACTERISTICS

4.1 The guardrail system described in this report has demonstrated the capacity to resist the design loadings specified in Section R301 of the IRC when tested in accordance with ICC-ES AC273.

5.0 INSTALLATION

5.1 The *Trex® Signature® / Trex® Reveal™* Railing 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 The top and bottom rails are attached directly to structural posts utilizing cast Zamak 3 mounting brackets via mechanical fasteners. See Figure 6 and Table 2.

5.3 Aluminum balusters are inserted into routed holes in the aluminum rails and secured via PVC rail inserts that are installed internally to the rails. See Figure 3 and 4.

5.4 The *Trex® Signature® / Trex® Reveal™* Railing is attached to 2.5" square aluminum post mounts which may be surface mounted to a wood deck.

5.4.1 The *Trex® Signature® / Trex® Reveal™* Railing 2.5 inch post mount may be mounted to a wood deck in accordance with the details in Figure 9.

5.4.2 A minimum of four 3/8 inch diameter, 6 inch long anchor bolts must be used and located in the four pre-drilled holes in the structural post base plate.

5.4.3 Pressure-treated 2x8 Southern Yellow Pine (specific gravity 0.50 or better) boards are used as

blocking under the post location and are fastened between the joists with #10 x 3 inch wood screws in accordance with the National Design Specification for Wood Construction (ANSI/AWC NDS-2012). See Figure 9 for spacing and quantities.

5.4.4 A 3/8" thick, 4.5 inch square aluminum back plate is installed on the underside of the wood blocking as illustrated in Figure 9. This aluminum plate shall be factory painted or given a heavy coat of alkali-resistant bituminous paint to provide separation between any wood, fiberboard, or other porous material that absorbs water and the aluminum.

5.5 Decking shall be Trex® Transcend® deck boards (solid or grooved) or decking equivalent in compressive strength. Hollow, ribbed or decking that is of less compressive strength is not suitable for post mount installation.

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 Attachment of guardrail systems described herein to conventional wood supports is outside the scope of this report.

6.3 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.

6.4 Stainless steel shim plates are used to prevent direct contact between the structural post base plate and supporting structure.

6.5 Compatibility of fasteners and other metallic components with the supporting structure, including chemically treated wood, is outside the scope of this report.

6.6 The *Trex® Signature® / Trex® Reveal™* Railing is manufactured under a quality control program with inspections.



7.0 SUPPORTING EVIDENCE

7.1 Drawings and installation instructions submitted by Trex Company, Inc.

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

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

8.0 IDENTIFICATION

The *Trex® Signature® / Trex® Reveal™* Railing is identified with the manufacturer's name (Trex Company, Inc.), address and telephone number, the product name (*Trex® Signature® / Trex® Reveal™* Railing), the statement "For Use in One- and Two-Family Dwellings Only.", the Intertek Mark as shown below, and the Code Compliance Research Report number (CCRR-0202).



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.

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TABLE 1 – CODE OCCUPANCY CLASSIFICATION

Guardrail System	Type	Maximum Guardrail Dimensions ¹⁾	Support Post Mount System		Code Occupancy Classification
Trex® Signature® / Trex® Reveal™ Railing System	Level	96 inches by 42 inches	2.5 inch Aluminum Post Mount (Figure 7)	Mounted to surface of wood deck ⁽²⁾	The use of this product shall be limited to exterior or interior use as a guard system for dwellings constructed in accordance with the IRC (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. Guardrail lengths are actual railing lengths, i.e. clear space between supports for level rails. Guardrail height is walking surface to top of top rail. Minimum installed height shall be 36 inches.

⁽²⁾ The 2.5 inch aluminum post mount attachment to surface of wood deck must be in accordance with the wood deck support blocking as depicted in Figure 9. Decking shall be Trex® Transcend® deck boards (solid or grooved) or decking equivalent in compressive strength. Hollow, ribbed or decking that is of less compressive strength is not suitable for post mount installation.

TABLE 2 - TREX® SIGNATURE® / TREX® REVEAL™ RAILING FASTENER SCHEDULE

Connection	Fastener
Top Rail Bracket to Post	Three #10-16 by 5/8 inch pan-head, self-drilling stainless steel screws
Bottom Rail Bracket to Post	Two #10-16 by 5/8 inch pan-head, self-drilling stainless steel screws
Top Rail Bracket to Rail	
Bottom Rail Bracket to Rail	One #10-16 by 5/8 inch pan-head, self-drilling stainless steel screws
Picket to Rail	The picket at the midpoint of rail length is attached to the top and bottom rails using two #8-15 x 1.25 inch pan-head, stainless steel screws through screw bosses.
Foot Block to Bottom Rail	One #12-11 by 1.25 inch pan-head self-drilling stainless steel screws
Top Rail to Crossover Post	5/16" Diameter x 2" bolt and nut into Wedge Plate (see Figure 8)
Top Rail to Crossover Adapter	#10 x 5/8" long self-drilling screw each side of adapter into railing (see Figure 8)

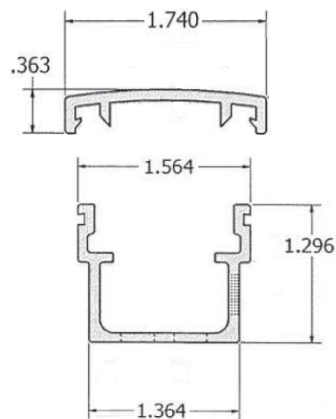


FIGURE 1 – TOP RAIL

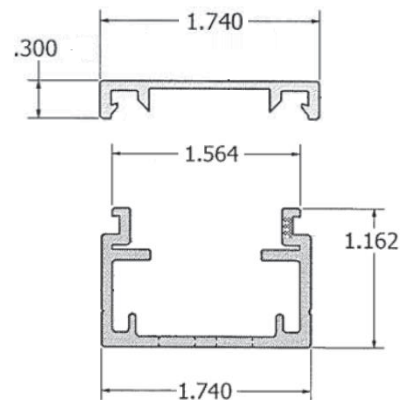
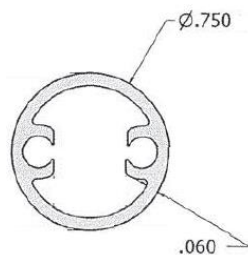
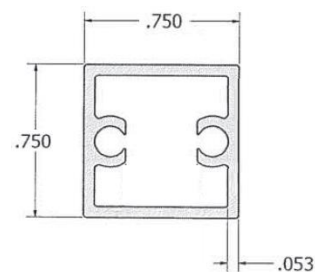


FIGURE 2 – BOTTOM RAIL



0.75 Round



0.75" Square

FIGURE 3 – ALUMINUM BALUSTERS

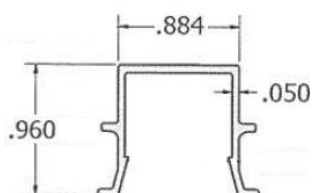


FIGURE 4 – PVC RAIL INSERT

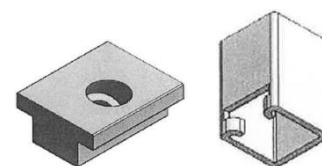
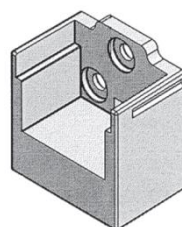
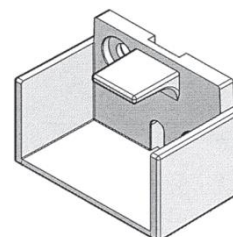


FIGURE 5 – TWO PIECE RAILING SUPPORT



Top Mount



Bottom Mount

FIGURE 6 – ZAMAK 3 CAST MOUNTING BRACKETS

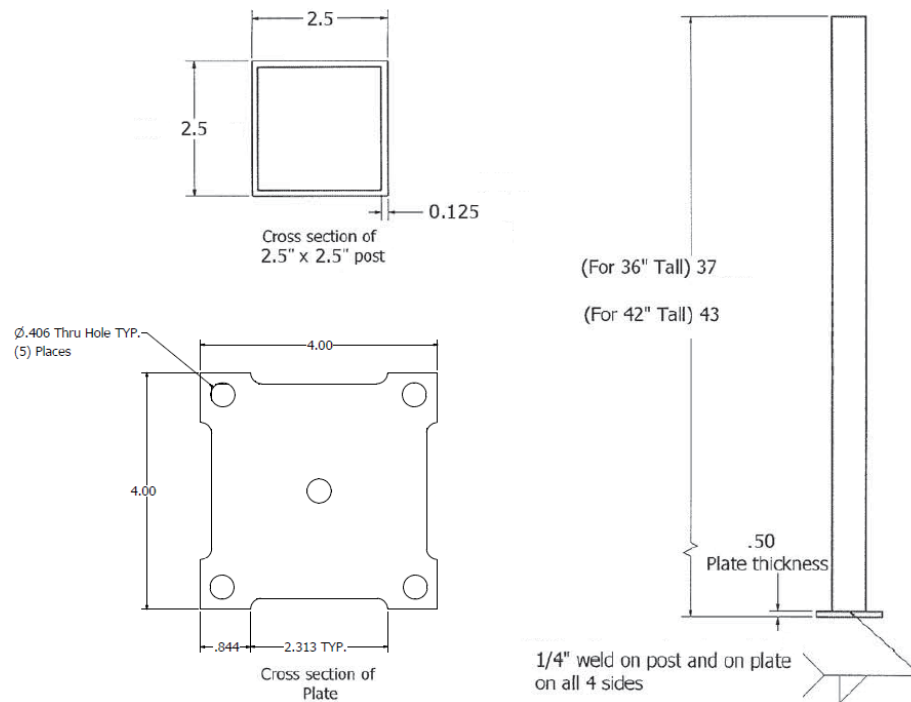


FIGURE 7 – 2.5 INCH SQUARE ALUMINUM SUPPORT POST

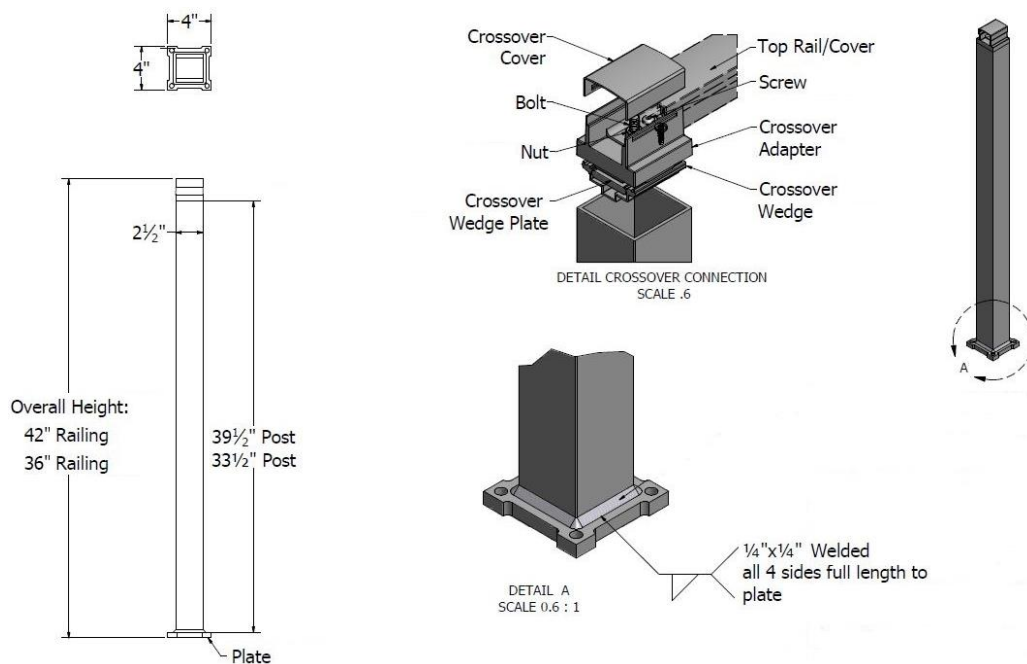
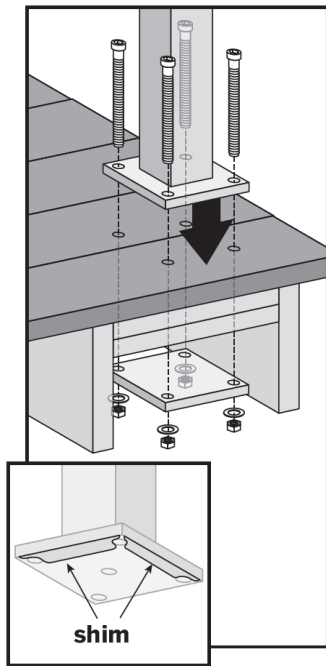
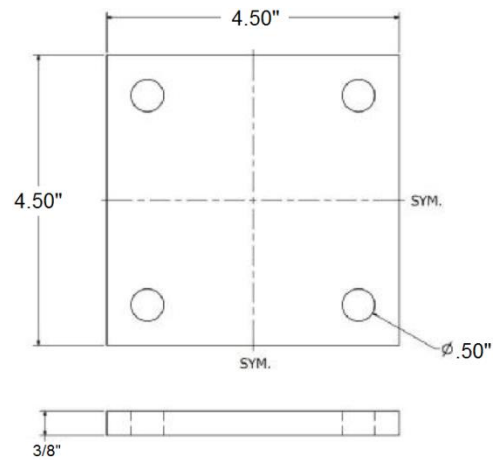


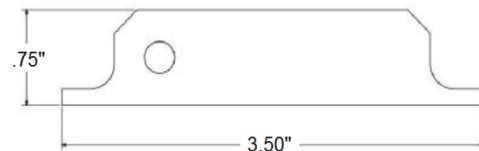
FIGURE 8 - TREX® CROSSOVER POST ASSEMBLY



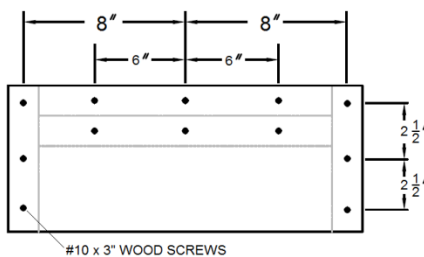
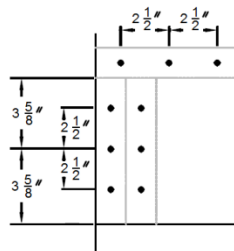
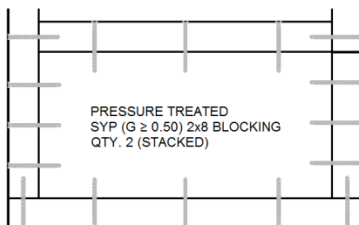
Wood Deck Install Detail



Aluminum Back Plate



Stainless Steel Shim Plates



Wood Blocking Detail

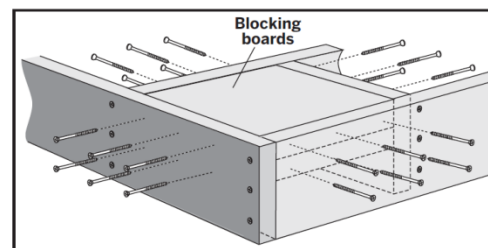


FIGURE 9 – POST MOUNT INSTALLATION ON WOOD DECK