Code Compliance Research Report
CCRR-0530

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

REPORT HOLDER:
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REPORT SUBJECT:
Westbury® Aluminum Railing

- *Tuscany* Series (Style C10, C10 Hvy)
- *VertiCable* Series (Style C80 Hvy)
- *Riviera Series (Style C30, C301)*
- *Juliette Series*
- *Sorrento Series (C60)*

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)
- 2023 *Florida Building Code* (see Section 9.0) including High-Velocity Hurricane Zone (HVHZ) provisions.
- 2023 *Florida Building Code Residential* (See Section 9.0)

1.2 *Westbury® Aluminum Railing* has been evaluated for the following properties (see Table 1):

- Structural Performance

1.3 *Westbury® Aluminum Railing* has been evaluated for the following uses (see Table 1):

- The *Westbury® Aluminum Railing* system is a guard 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.
- *Westbury® Aluminum Railing* are provided as guards for the open side of walking areas such as decks, balconies, porches, and stairs.

2.0 STATEMENT OF COMPLIANCE

Westbury® Aluminum Railing 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.

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 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 up to 42 inches. See Table 2 for qualified configurations.

3.2 The *Westbury® Aluminum Railing* system is primarily an assemblage of extruded aluminum top and bottom rails, in-fill, structural aluminum posts, rail to post or wall return brackets, decorative moldings, and post caps.

3.3 The system is available in various colors and architectural-grade powder-coated finishes.

3.3.1 Rails - Each of the top, mid, and bottom aluminum rails are routed to accept various in-fill components described in Section 3.3.2 for the various railing systems as shown in Figure 1 through 10.

3.3.1.1 The *Tuscany, Riviera, and Juliette* top rails are extruded 6005-T5 aluminum rails with internal longitudinal ribs, and dimensions of 1.74 inches wide by 1.38 inches tall. The *Tuscany and Riviera* Series use PVC rail inserts as a baluster retainer. See Figures 11 and 13.

3.3.1.2 The *VertiCable* top rails are extruded 6005-T5 aluminum rails with one internal longitudinal rib and are 1.74 inches wide by 1.38 inches tall and a 0.14-inch x 1-3/16-

inch wide 6005-T5 aluminum plate that is drilled for the cable and baluster in-fills. See Table 5 for the cable fastening schedule and Figure 11 for cross sections of the *VertiCable* top rail sections.

3.3.1.3 The *Sorrento* top rail is an extruded 6005-T5 aluminum rail with an internal longitudinal rib and is 1.74 inches wide by 1.38 inches tall. The rail is fitted with an EPDM Rubber Durometer 90 gasket to slip fit the Sorrento in-fill (see Figure 14). See Table 8 for the fastening schedule and Figure 11 for cross sections of the Sorrento top rail.

3.3.1.4 The *Tuscany, Riviera, and Juliette* bottom rails are extruded 6005-T5 aluminum rails with internal longitudinal ribs and are 1.74 inches wide by 1.25 inches tall. The *Tuscany and Riviera* Series use a PVC rail insert as a baluster retainer. See Figure 13.

3.3.1.5 The *VertiCable* bottom rail is an extruded 6005-T5 aluminum rail with internal longitudinal ribs and is 1.74 inches wide by 1.25 inches tall. A 1.50-inch-wide x 0.125-inch thick bar made from 6005-T5 aluminum is inserted into the bottom rail intermittently for retaining the round baluster in-fills. See Table 5 for the cable fastening of the in-fills. See Figure 12 for a cross section of the *VertiCable* bottom rail.

3.3.1.6 The Sorrento bottom rail is an extruded 6005-T5 aluminum rail with an internal longitudinal rib and is 1.74 inches wide by 1.25 inches tall. The rail is fitted with an EPDM Rubber Durometer 80 gasket to slip fit the Sorrento in-fill (see Figure 14). See Table 8 for the fastening schedule and Figure 12 for cross sections of the Sorrento bottom rail.

3.3.2 The guard in-fills vary by guard style:

3.3.2.1 The *Tuscany* Series (Style C10, C10 Hvy) utilizes a square and round profile, 6063-T6 aluminum balusters in various lengths. See Figure 15 and Table 2 for applicable assemblies.

3.3.2.2 The *VertiCable* (Style C80 Hvy) in-fill area utilizes 1/8-inch diameter, 1x19, S31600 stainless steel cables spaced at 3.00 inches on center between the hollow balusters (see Figure 13). Also, see Table 5 for cable fastening methods.

3.3.2.3 The *VertiCable* (Style C80 Hvy) uses 5/8-inch hollow balusters that are equally spaced along the rail. The 5/8-inch aluminum balusters, with a 0.19-inch wall thickness, are used with the 36-inch-tall configuration. The 5/8-inch stainless steel baluster, with a 0.09-inch wall thickness, is Type 304 stainless steel used with the 42-inch-tall configuration. See Figures 5, 6 and 7.

3.3.2.4 The *Riviera* Series (Style C30, C301) in-fill area of the railing system is configured with 6063-T6 aluminum balusters, square and round profiles. See Figure 8 and Table 2 for applicable assemblies. See Tables 6 and 7 for fastening methods.

3.3.2.5 The *Juliette* Series in-fill area of the railing system is configured with 6063-T6 aluminum square profile balusters, welded direct to top and bottom rails. Top and bottom rails are welded to Juliette Bracket Plate and installed direct to support. See Figures 9 and 17 and Table 2 for applicable assemblies. See Table 8 for fastening methods.

3.3.2.6 The *Sorrento* Series (Style C60) in-fill is a 2-3/8-inch square welded wire mesh fabricated of 3/16-inch diameter 18-8 stainless steel wire. See Figure 10 and Table 2 for applicable assemblies. See Table 9 for fastening methods.

3.3.3 Structural Aluminum Posts:

3.3.3.1 Power Posts are a 2-1/2-inch square by 0.12-inch wall extruded 6005-T5 aluminum tube with six internal screw slots. The tube is connected to a 4-1/2-inch square, 1/2 inch thick 6061-T6 aluminum base plate via both a 1/4-inch continuous fillet weld and six #14 × 2-inch flat-head screws. For the standard Power Post, see Table 3 and Figure 20.

3.3.3.2 2-inch Alum Support Posts are a 2-inch square by 0.09-inch wall extruded 6005-T5 aluminum tube with two internal screw slots. The tube is connected to a 3-7/8-inch square, 1/2-inch thick 6061-T6 aluminum base plate via both a 1/4-inch continuous fillet weld and two #14-14 x 2-inch flat-head screws. For the Alum Support Post, see Table 3 and Figure 19.

4.0 PERFORMANCE CHARACTERISTICS

4.1 The guard system described in this report has demonstrated the capacity to resist the design loadings specified in Chapter 16 of the IBC and the FBC and Section R301 of the IRC when tested in accordance with ICC-ES AC273.

5.0 INSTALLATION

5.1 General:

Westbury® Aluminum 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 Application: The top and bottom rails are attached directly to structural posts utilizing cast Zamak 3 mounting brackets via mechanical fasteners. See Figure 16 and Tables 4 through 9.

5.3 Guards may be assembled in various configurations. Refer to Figure 1 through Figure 10 for overall assembly and Tables 4 through 9 for the fastening schedule.

5.4 In-fill components (aluminum balusters and aluminum rings) are inserted into routed holes in the aluminum rails and secured via PVC rail inserts that are installed internally to the rails. See Figure 13.

5.5 The cable in-fill for the *VertiCable* consists of both 1/8-inch diameter stainless steel cables and 5/8-inch diameter hollow aluminum balusters. The steel cables must be installed with the stainless-steel cable tensioner below the bottom rail tensioned to 200 pounds of tension per cable.

5.6 The 2-inch square aluminum posts must be installed with the two internal screw channels perpendicular with the rail line. See Figure 19. Two shim plates are utilized under the base of the 2-inch aluminum post mount. The shim plates line the perimeter of the post base. Shim plates are 3.88 inches long by 0.75 inches wide by 0.06-inch-thick austenitic stainless-steel plates.

5.7 *Power Post* shim plates are 4-1/2 inches long by 3/4-inch wide by 1/16-inch thick austenitic (300 series) stainless steel plates. The 4-inch aluminum post shim plates are 6 inches long by 3/4-inch wide by 0.06-inch thick austenitic (300 series) stainless steel plates.

5.8 The 3-inch square aluminum post shim plates are 5 inches long by 3/4-inch wide by 0.06-inch thick austenitic (300 series) stainless steel plates. The 6-inch square aluminum post shim plates are 7.75 inches long by 3/4-inch wide by 0.06-inch thick austenitic (300 series) stainless steel plates.

5.9 The Westbury 2-inch HD Fascia Mount Posts are installed in the following conditions:

5.9.1 Line Post Installation (See Figure 24):

5.9.1.1 The deck is constructed with one 2x8 pressure-treated Southern Yellow Pine installed between 16-inch spaced deck framing on the back side of the rim joist. Each 2x8 block is attached to the deck framing with #10 x 3-inch deck screws in accordance with the National Design Specification for Wood Construction (ANSI/AWC NDS). Two angle mount brackets are used where the backer blocks meet each joist. Two 5/16-inch x 2-1/2-inch bolts are installed through the angle mount brackets and joist and secured with a 5/16-inch nut and washer.

5.9.1.2 Posts are drilled with two 3/8-inch dia. holes on each side of the post, spaced 3 inches apart, 1 inch from the back of the post and starting 1 inch from the bottom of the post. Attach angle brackets to post sides with four 3/8-inch x 1-inch bolts and aluminum post insert with threaded holes.

5.9.1.3 Attach post to rim joist using angle mount brackets. Four 5/16-inch dia. holes are drilled through the rim joist and backer blocks. Four 5/16-inch x 4-inch bolts are installed through the angle mount brackets, rim joist, backer blocks and backer plates. Secure by tightening 5/16-inch nuts on the bolts.

5.9.2 Inside Corner Post Installation (See Figure 25):

5.9.2.1 The deck is constructed with one 2x8 pressure-treated SYP backer block and 6x6 pressure-treated SYP block. The 2x8 and 6x6 blocks are attached to the deck framing with #10 x 3-inch deck screws in accordance with the National Design Specification for Wood Construction (ANSI/AWC NDS).

5.9.2.2 Posts are drilled with three 3/8-inch dia. holes on each side of the post, spaced 1-1/2 inches apart. Attach angle brackets to post sides with six 3/8-inch x 1-inch bolts and aluminum post insert with threaded holes.

5.9.2.3 Attach post to double beam and joist using 3-hole angle mount brackets. Three 5/16-inch dia. holes are drilled through the double beam and 2x8 backer block. Three 5/16-inch x 6-inch bolts are installed through the angle mount bracket, backer block, and backer plate. Secure by tightening 5/16-inch nuts on the bolts. Three 3/8-inch dia. holes are drilled through the joist and 6x6 block. Three 3/8-inch x 8-1/2-inch bolts are installed through the angle mount bracket, joist, 6x6 block and backer plate. Secure by tightening 3/8-inch nuts on the bolts.

5.9.3 Outside Corner Post Installation (See Figure 26):

5.9.3.1 The deck is constructed with one 6x6 pressure-treated SYP block. The 6x6 blocks are attached to the deck framing with #10 x 3-inch deck screws in accordance with the National Design Specification for Wood Construction (ANSI/AWC NDS).

5.9.3.2 Posts are drilled with three 3/8-inch dia. holes on each side of the post, spaced 1-1/2 inches apart. Attach angle brackets to post sides with six 3/8-inch x 1-inch bolts and aluminum post insert with threaded holes.

5.9.3.3 Attach post to rim joist using 3-hole angle mount brackets. Three 3/8-inch dia. holes are drilled through the rim joist and 6x6 backer block. Six 3/8-inch x 6-inch bolts are installed through the angle mount bracket, rim joist, 6x6 block, and backer plate. Secure by tightening 3/8-inch nuts on the bolts.

5.10 Westbury Aluminum Systems Utilizing Wall Return Installation

Westbury® Aluminum Railings with Wall Return Brackets rail assemblies shall be secured to a supporting structure with fasteners in each bracket plate that are designed in accordance with the code referenced design standard for the type of fasteners and supporting structure.

Attachment shall be made to structural elements designed to support the required guard loads specified in IBC Section 1607.9. Attachment to wall sheathing, brick or masonry veneer, wall claddings, or other nonstructural elements shall not be permitted.

If the supporting structure is wood, it shall be preservative treated in accordance with AWPA U1 or naturally durable wood in accordance with IBC Section 202.

Juliette Series attachment shall be made by securing the Juliette system bracket plate (Figure 17) with minimum 3/16" diameter fasteners (screws, bolts, etc.) in each of the four holes provided in the bracket plate. Fasteners shall be corrosion resistant and compatible with the supporting structure material.

The Tuscany (C10, C10 Hvy), Riviera (C30), VertiCable (C80 Hvy), and Sorrento (C60) Series attachment shall be made by securing the Wall Return Bracket (Figure 18) with minimum 3/16" diameter fasteners (screws, bolts, etc.) in each of the two holes provided in the bracket plate. Fasteners shall be corrosion resistant and compatible with the supporting structure material.

6.0 CONDITIONS OF USE

The guard assemblies identified in this report are deemed to comply with the intent of the provisions of the referenced building codes subject to the following conditions:

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

6.3 Austenitic stainless-steel shim plates are used to prevent direct contact between the structural post base plate and the supporting structure. Compatibility of fasteners and other metallic components with the supporting structure, including chemically treated wood, is outside the scope of this report.

6.4 Shim plates must be used for all structural post installations as described in Section 5.7.

6.5 Anchorage of the structural surface-mounted posts is not within the scope of this report and is 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:

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

6.5.2 The anchors must have a minimum nominal diameter equal to 3/8 inch.

6.5.3 When the supporting structure is a wood-framed deck, installation must include anchorage to suitable structural framing. Decking is not considered structural framing, and anchorage to decking alone is not an approved installation method.

6.5.4 For post installation on concrete or other rigid supports such as structural steel, the installation uses four 3/8-inch diameter anchor bolts located in the pre-drilled holes in the structural post base plate. 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.

6.5.5 The structural wood framing detailed in Figure 23 is a mounting method for the 2" square aluminum post limited to the IRC or FBC Residential only.

6.5.6 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.

6.6 All products are manufactured under a quality control program with inspections by Intertek Testing Services NA, Inc.

7.0 SUPPORTING EVIDENCE

7.1 Drawings and installation instructions submitted by Digger Specialties, Inc.

7.2 Data demonstrating compliance with ICC-ES AC273, Acceptance Criteria for Handrails and Guards, approved June 2017, editorially revised May 2024.

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

8.0 IDENTIFICATION

The *Westbury® Aluminum Railing* assemblies that are described in this report shall be identified with labeling on the individual components and/or the packaging such that the product is identifiable at the point of use. The label shall include at least the following information:

8.1 The manufacturer's name (Digger Specialties, Inc.), address, and telephone number

8.2 The product name (*Westbury® Aluminum Railing*)

8.3 The name and/or identifying mark of the independent inspection agency.

8.4 For 36" high guard systems, the label shall also include the phrase, "For Use in One- and Two-Family Dwellings Only."

8.5 The Intertek Mark as shown below, and the Code Compliance Research Report number (CCRR-0530).

9.0 FLORIDA BUILDING CODE

9.1 Scope of Evaluation: The *Westbury® Aluminum Railings* were evaluated for compliance with the *Florida Building Code***.**

9.2 Conclusion: The *Westbury® Aluminum Railings*, described in Sections 2.0 through 7.0 of this Research Report, comply with the *Florida Building Code,* including High-Velocity Hurricane Zone (HVHZ) provisions.

Intertek is an approved evaluation entity and quality assurance entity pursuant to Florida Statute 553.842 – *Product Evaluation and Approval*.

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 – PROPERTIES EVALUATED

PROPERTY	APPLICABLE CODE SECTIONS[1]			
	IBC SECTION	IRC SECTION	FBC - Building	FBC-Residential
Structural Performance	1607.9	R301.5	1607.9	R301.5

[1] Sections numbers in earlier Code editions may differ

TABLE 2 – GUARD SYSTEMS AND USE CATEGORIES

***Westbury*® Aluminum Railing System**	**Guard Type**	**Guard Dimensions[1]**	**Code Occupancy Classification**
Tuscany C10	Level	6’ x 42”	IBC and FBC IRC and FBC-Residential
Tuscany C10 HVY	Level	6’ x 42"	IBC and FBC IRC and FBC-Residential
		8’ x 36”	IRC and FBC-Residential Only
	Stair	6’ x 42"	IBC and FBC IRC and FBC-Residential
		7’ x 36”	IRC and FBC-Residential Only
VertiCable C80 HVY	Level	6’ x 42"	IBC and FBC IRC and FBC-Residential
		8’ x 36”	IRC /and FBC-Residential Only
	Stair	6' x 42"	IBC and FBC IRC and FBC-Residential
		6’ x 36”	IRC and FBC-Residential Only
Riviera C30/301	Level	5’ 6” x 42”[2]	IBC and FBC IRC and FBC-Residential
		7’ 9” x 42”	
		8’ x 42”	IRC and FBC-Residential Only
		8’ x 36”	
	Stair	5’ 5” x 42”	IBC and FBC IRC and FBC-Residential
		8’ x 42”	IRC and FBC-Residential Only
		8’ x 36”	
Juliette	Level	8’ x 42”	IBC and FBC IRC and FBC-Residential
		8’ x 36”	IRC and FBC-Residential Only
Sorrento C60	Level	6’ x 36”	IRC and FBC-Residential Only

[1] Guards are qualified up to and including the listed maximum guard system length for use in the referenced Code Occupancy Classification. Guard lengths are actual railing lengths, i.e., clear space between supports for level rails. Guard height is walking surface to top of top rail.

[2] Limited where no baluster is installed between the top and intermediate rail.

TABLE 3 – POST MOUNTS AND USE CATEGORIES

Post	*Westbury*® Aluminum Railing System	Guard Height[1]	Maximum Railing Length[2]	Fastening	Code Occupancy Classification
2" Square Aluminum Post Surface Mount	*Tuscany C10 Hvy VertiCable Series Sorrento*	42 inches	8 feet	See Section 6.5 of this report	IRC and FBC-Residential Only
2" HD Post Surface Mount	*Tuscany C10 Hvy VertiCable Series Sorrento*	42 inches	61 inches	See Section 6.5 of this report	IBC and FBC IRC and FBC-Residential
2" Post Fascia Mount	*Tuscany C10 Hvy VertiCable Series Sorrento*	42 inches	8 feet	Line Post Installation - See Section 5.9.1	IRC and FBC-Residential Only
				Inside Corner Post Installation - See Section 5.9.2 [3]5.9.1	IRC and FBC-Residential Only
				Corner Post Installation - See Section 5.9.3 [3]5.9.1	IRC and FBC-Residential Only
2-1/2" Power Post Surface Mount	*Tuscany Series VertiCable Series Riviera Series Sorrento*	42 inches	8 feet	See Section 6.5 of this report	IBC and FBC IRC and FBC-Residential
3" Square Aluminum Post Surface Mount	*Tuscany Series VertiCable Series Sorrento*	42 inches	8 feet	See Section 6.5 of this report	IRC and FBC-Residential Only
4" Square Aluminum Post Surface Mount	*Tuscany Series VertiCable Series Riviera Series Sorrento*	42 inches	8 feet	See Section 6.5 of this report	IBC and FBC IRC and FBC-Residential
6" Square Aluminum Post Surface Mount	*Tuscany Series VertiCable Series Sorrento*	42 inches	8 feet	See Section 6.5 of this report	IRC and FBC-Residential Only

[1] Rail height is walking surface to top of top rail.
[2] Rail lengths are actual railing lengths, i.e., clear distance between supports.
[3] Wood deck installation methods (Figures 18, 19, 20 and 21) are limited to one- and two-family dwellings in accordance with the IRC and FBC-Residential.

TABLE 4 – TUSCANY FASTENER SCHEDULE

Connection	Fastener
Rail Brackets to Post	Two #10-16 x 5/8 in pan-head, self-drilling, 18-8, 300 Series screws [1]
Crossover Assemblies to Top Rail	
Top Rail Bracket to C10 Rail	Two #10-16 x 3/4 in flat-head, self-drilling, 18-8, 300 Series screws [1] (one through each side hole)
Top Rail Bracket to C10 Hvy Rail	Two #10-16 x 3/4 in flat-head, self-drilling, 18-8, 300 Series screws [1] (one through each side hole)
Support Block Screw to Bottom Rail	One #8-18 x 3/4 in pan-head, self-drilling, zinc-plated 18-8, 300 Series screw [1]
Power Post Base Plate to 2-1/2" Structural Post Tube	Six #14-14 x 2 in flat-head, self-drilling, 18-8, 300 Series screws [1] (Two sets of three screws shall be aligned parallel with rail)
Square Baluster to Rails	Inserted into 0.8-inch square routed hole and held snug with PVC Rail Insert
Round Baluster to Rails	Inserted into 0.79-inch diameter routed hole and held snug with PVC Rail Insert
Bottom Rail Bracket to Rail	No mechanical fastener
Stair Rail Bracket to Post	Two #10-16 by 5/8 in. (0.140 in minor diameter) pan-head, self-drilling, stainless steel screws
Stair Rail Bracket to Rail	Two #10-16 by 3/4 in. (0.140 in minor diameter) trim-head, self-drilling, stainless steel screws

[1] Permissible grades of the 300 Series stainless steel material include: 304, 305, 316, 384, and/or XM7 (30430), which are all Austenitic Stainless Steel – Cold Worked materials

TABLE 5 – VERTICABLE FASTENER SCHEDULE

Connection	Fastener
Rail Brackets to Post	Two #10-16 x 5/8 in pan-head, self-drilling, 18-8, 300 Series screws [1]
Crossover Assemblies to Top Rail	
Top Rail and Mid-Rail Bracket to Rail	Two #10-16 x 3/4 in flat-head, self-drilling, 18-8, 300 Series screws [1] (one through each side hole)
Support Block Screw to Bottom Rail	One #8-18 x 3/4 in pan-head, self-drilling, zinc-plated 18-8, 300 Series screw [1]
Power Post Base Plate to 2-1/2" Structural Post Tube	Six #14-14 x 2 in flat-head, self-drilling, 18-8, 300 Series screws [1] (Two sets of three screws shall be aligned parallel with rail)
Base Plate to 2" Alum Support Post	Two #14-14 x 2 in trim head, Phillips-drive, 18-8, 300 Series screws [1] (Screws shall be aligned perpendicular to rail)
Aluminum Baluster to Rails	slip fit in routing – No mechanical fasteners
Cable In-fill to Top Rail Insert	One 0.23 in diameter (OD) hollow 18-8 stainless steel cable stop sleeve, crimp fit to each cable
Cable In-fill to Bottom Rail Insert	One 0.23 in diameter (OD) hollow 18-8 stainless steel cable stop sleeve, crimp fit to each cable and one 3/8 in wide by 7/8 in long threaded (20 TPI) stainless steel cable tensioner with 1/2 in 18-8 stainless steel nut per cable
Bottom Rail Bracket to Rail	Two #10-16 x 3/4 in flat-head, self-drilling, 18-8, 300 Series screws [1] (one through each side hole)

[1] Permissible grades of the 300 Series stainless steel material include: 304, 305, 316, 384, and/or XM7 (30430), which are all Austenitic Stainless Steel – Cold Worked materials

TABLE 6 – RIVIERA FASTENER SCHEDULE

Connection	Fastener
Rail Brackets to Post	Two #10-16 x 5/8 in pan-head, self-drilling, 18-8, 300 Series screws [1]
Crossover Assemblies to Top Rail	
Top Rail and Mid-Rail Bracket to Rail	Two #10-16 x 3/4 in flat-head, self-drilling, 18-8, 300 Series screws [1] (one through each side hole)
Support Block Screw to Bottom Rail	One #8-18 x 3/4 in pan-head, self-drilling, zinc-plated 18-8, 300 Series screw [1]
Power Post Base Plate to 2-1/2" Structural Post Tube	Six #14-14 x 2 in flat-head, self-drilling, 18-8, 300 Series screws [1] (Two sets of three screws shall be aligned parallel with rail)
Square Baluster to Rails	Inserted into 0.8-inch square routed hole and held snug with PVC Rail Insert
Round Baluster to Rails	Inserted into 0.79-inch diameter routed hole and held snug with PVC Rail Insert
Bottom Rail Bracket to Rail	No mechanical fastener
Stair Rail Bracket to Post	Two #10-16 by 5/8 in. (0.140 in minor diameter) pan-head, self-drilling, stainless steel screws
Stair Rail Bracket to Rail	Two #10-16 by 3/4 in. (0.140 in minor diameter) trim-head, self-drilling, stainless steel screws

[1] Permissible grades of the 300 Series stainless steel material include: 304, 305, 316, 384, and/or XM7 (30430), which are all Austenitic Stainless Steel – Cold Worked materials

TABLE 7 – WALL RETURN BRACKET FASTENER SCHEDULE

Connection	Fastener
Wall Return Brackets to Supporting Structure	Designed in accordance with code referenced design standard. See Section 5.10 for requirements.

TABLE 8 – JULIETTE FASTENER SCHEDULE

Connection	Fastener
Rail Brackets to Supporting Structure	Designed in accordance with code referenced design standard. See Section 5.10 for requirements.

TABLE 9 – SORRENTO FASTENER SCHEDULE

Connection	Fastener
Rail Bracket to Post	Two, #10-16 by 5/8 in pan-head, self-drilling, 18-8 300 Series screws. [1]
Rail Bracket to Top/Bottom Rail	Two, #10-16 by 3/4 in flat-head, self-drilling, 18-8, 300 Series screws [1] (one through each side hole)
In-fill Panel to Top/Bottom Rail	Slip fit into EPDM gasket rail insert – No mechanical connection
Power Post Base Plate to 2-1/2" Structural Post Tube	Six #14-14 x 2 in flat-head, self-drilling, 18-8, 300 Series screws [1] (Two sets of three screws shall be aligned parallel with rail)
Base Plate to 2" Alum Support Post	Two #14-14 x 2 in trim head, Phillips-drive, 18-8, 300 Series screws [1] (Screws shall be aligned perpendicular to rail)

[1] Permissible grades of the 300 Series stainless steel material include: 304, 305, 316, 384, and/or XM7 (30430), which are all Austenitic Stainless Steel – Cold Worked materials

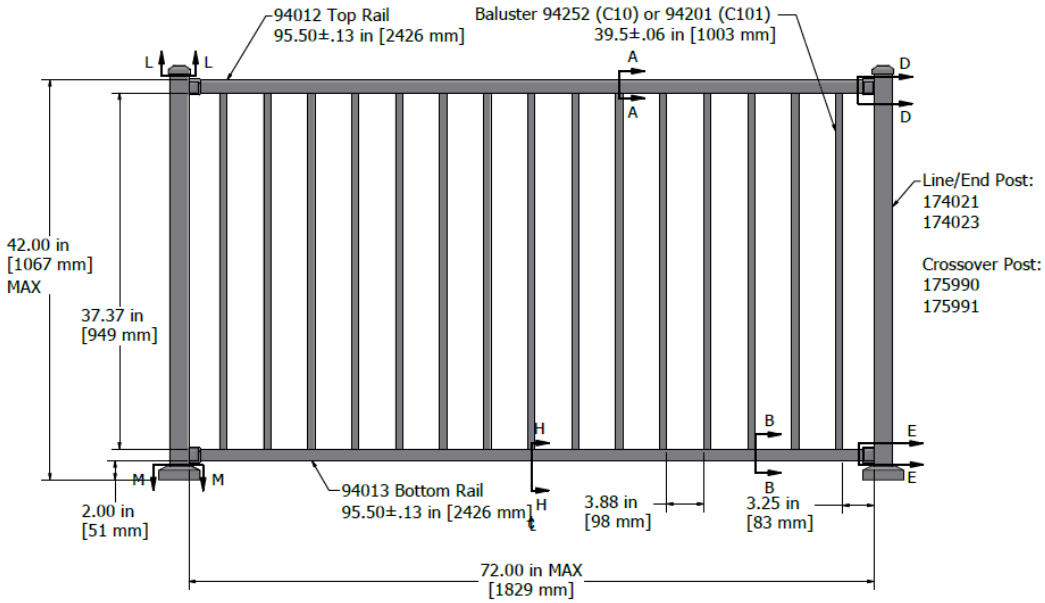


FIGURE 1 - *WESTBURY® TUSCANY* SERIES STYLE C10 ALUMINUM RAILING SYSTEM (42" TALL)

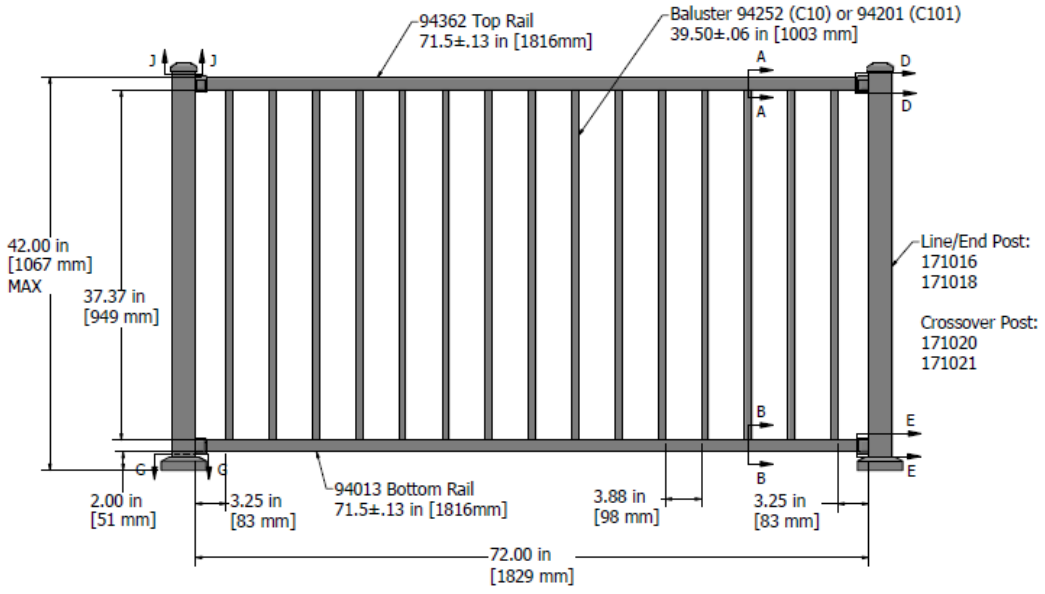


FIGURE 2 - *WESTBURY® TUSCANY* SERIES STYLE C10 HVY ALUMINUM RAILING SYSTEM (42" TALL)

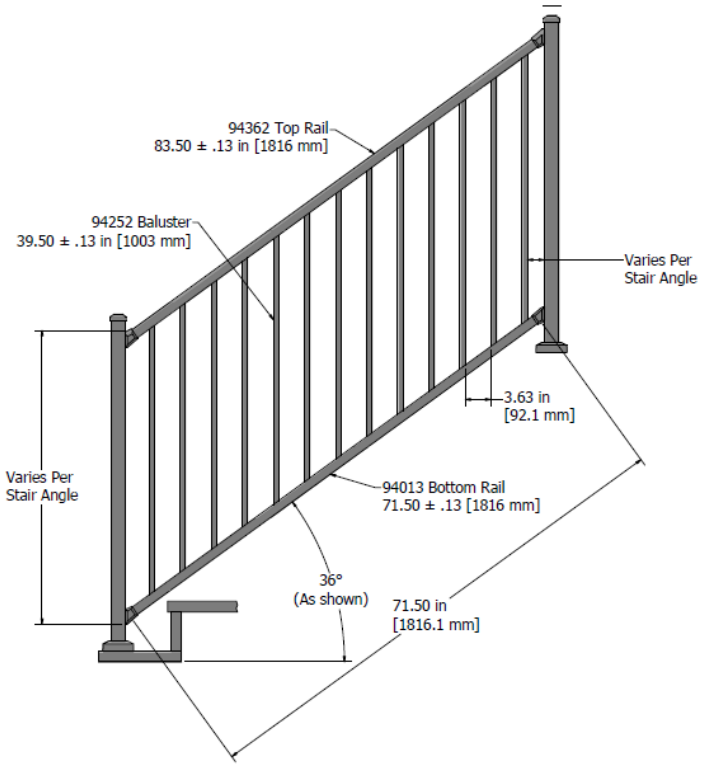


FIGURE 3 - *WESTBURY® TUSCANY* SERIES STYLE C10 HVY ALUMINUM RAILING SYSTEM 6 FT STAIR

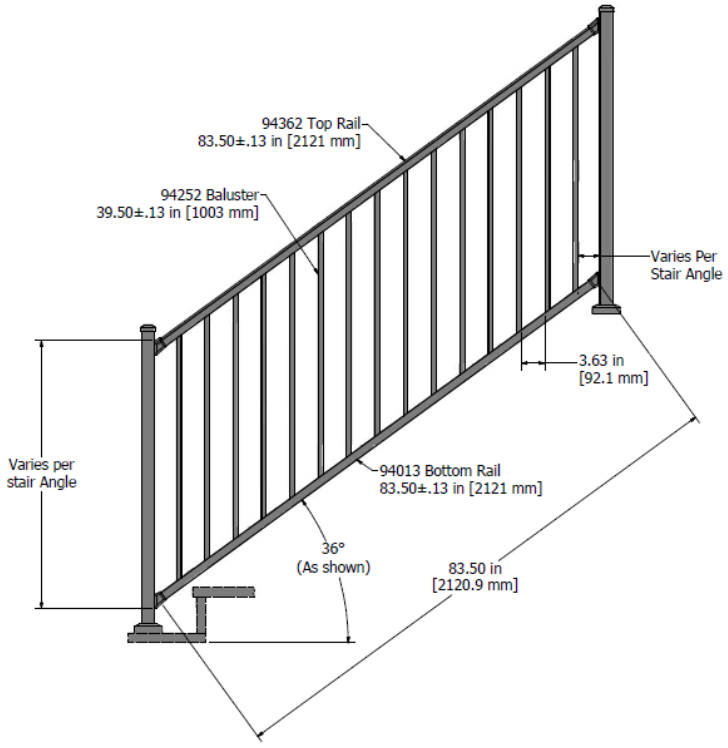


FIGURE 4 - *WESTBURY® TUSCANY* SERIES STYLE C10 HVY ALUMINUM RAILING SYSTEM 7 FT STAIR

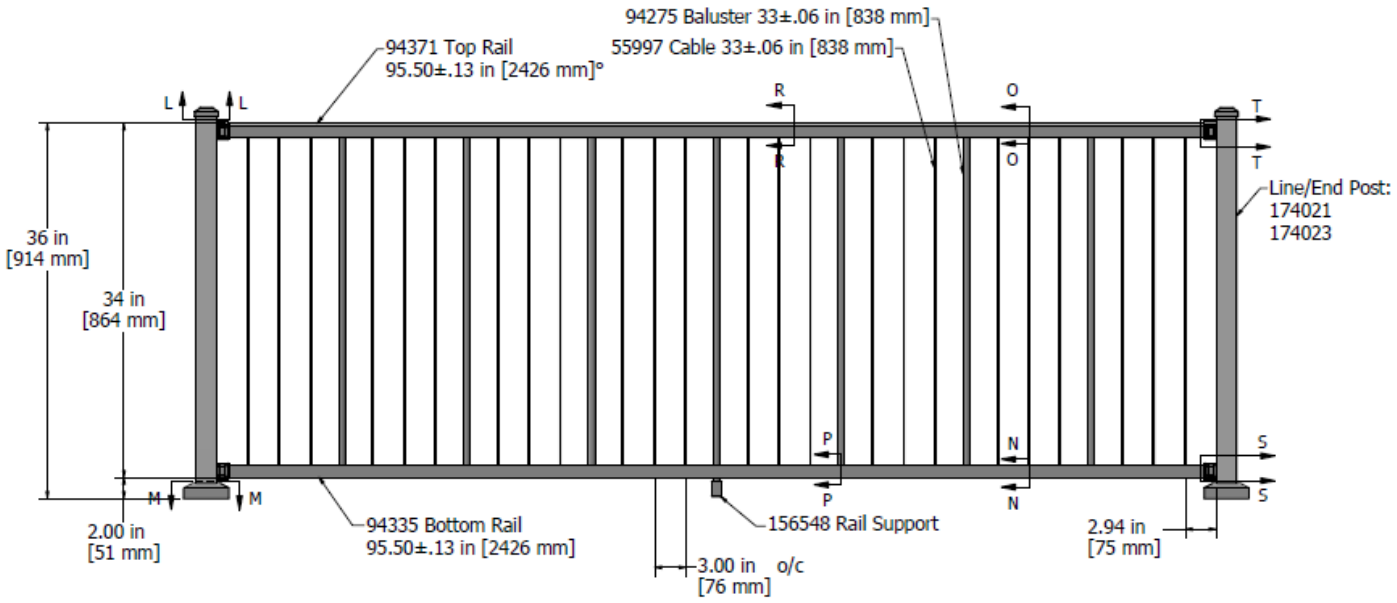


FIGURE 5 - *WESTBURY® VERTICABLE* SERIES STYLE C80 HVY ALUMINUM RAILING SYSTEM (36" TALL)

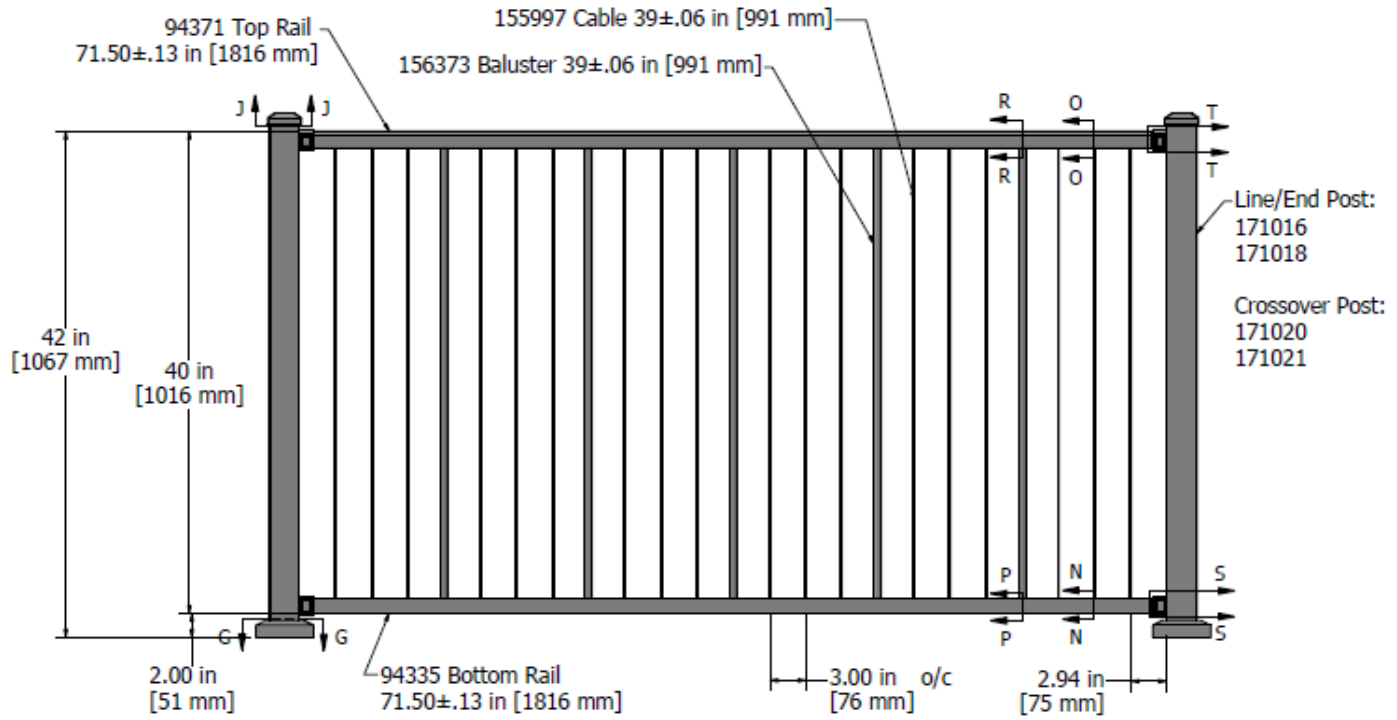


FIGURE 6 - *WESTBURY® VERTICABLE* SERIES STYLE C80 HVY ALUMINUM RAILING SYSTEM (42" TALL)

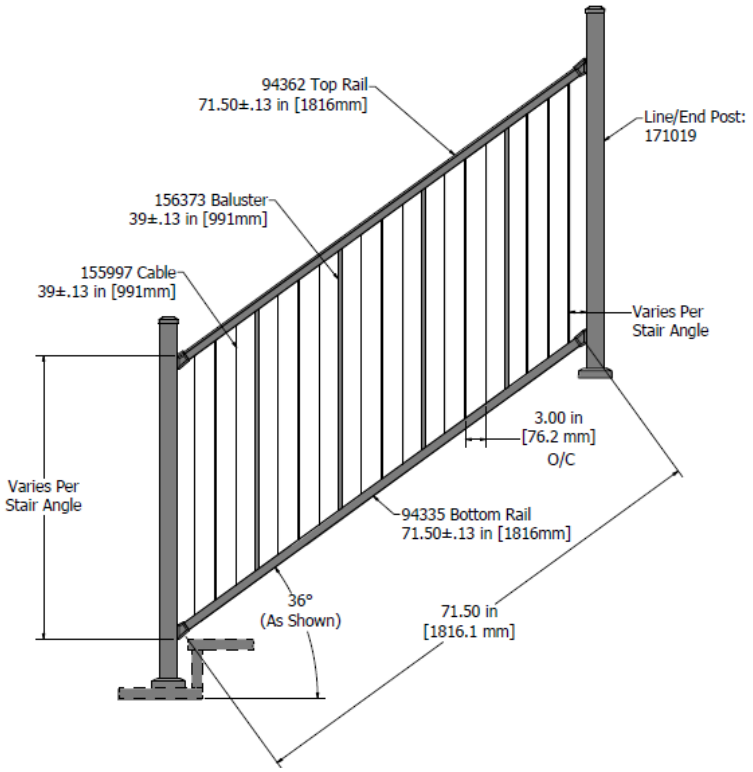


FIGURE 7 - *WESTBURY® VERTICABLE* SERIES STYLE C80 HVY ALUMINUM RAILING SYSTEM (42" TALL) STAIR

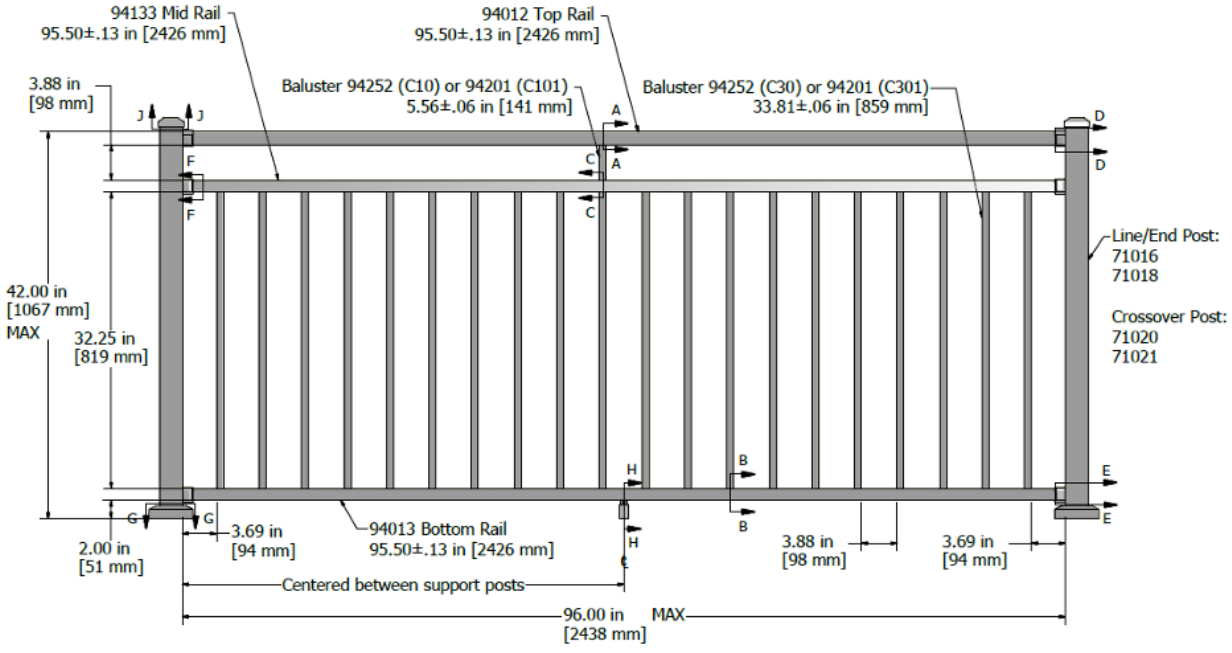


FIGURE 8 - *RIVIERA®* SERIES ALUMINUM RAILING SYSTEM (42" TALL)

Other Riviera assemblies (IBC, Stair, Wall Return) not imaged.



FIGURE 9 - *JULIETTE®* SERIES ALUMINUM RAILING SYSTEM (42" TALL)

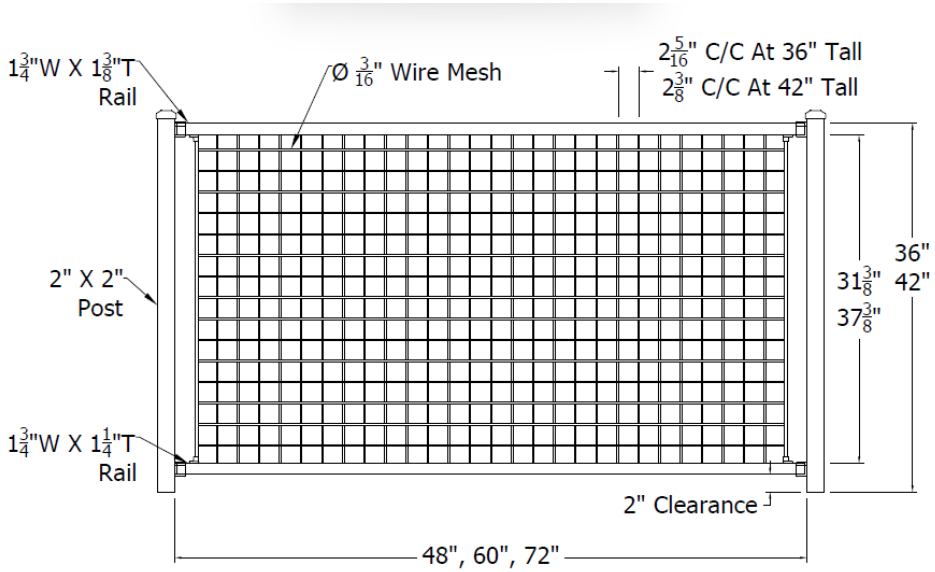
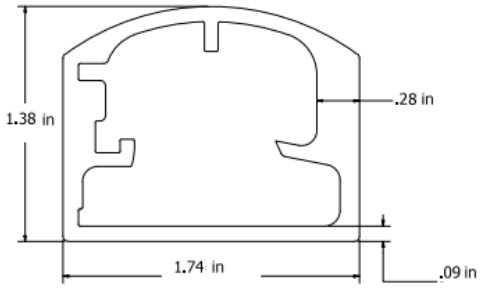
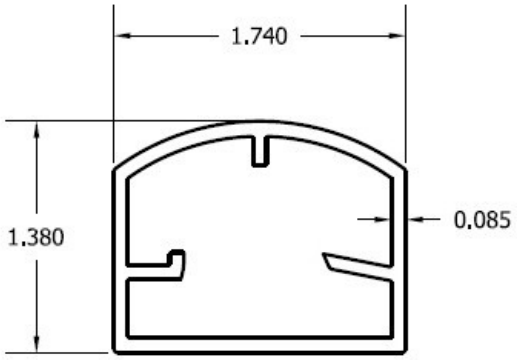


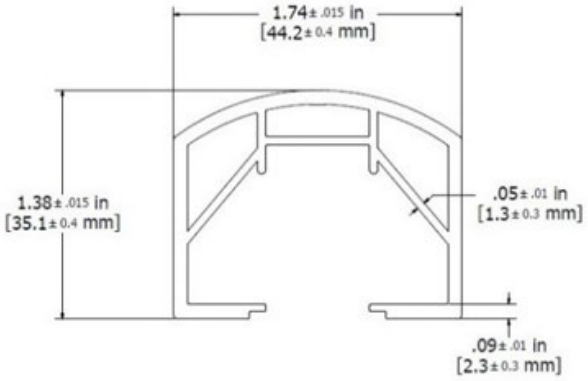
FIGURE 10 – *SORRENTO* SERIES ALUMINUM RAILING SYSTEM



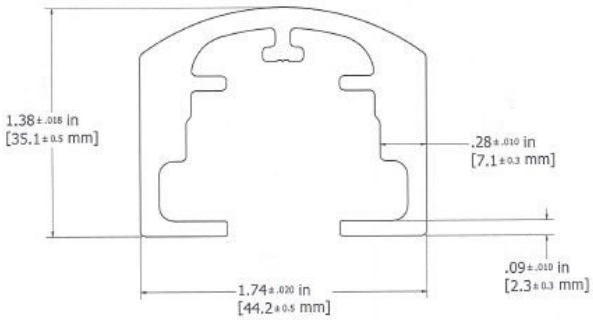
TUSCANY C10 HVY, RIVIERA, JULIETTE SERIES



TUSCANY C10

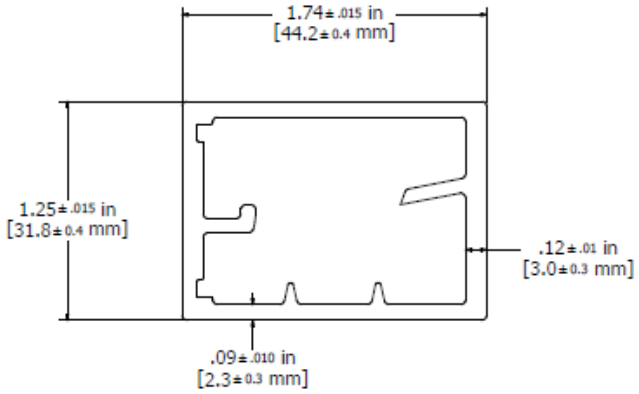


SORRENTO SERIES C60

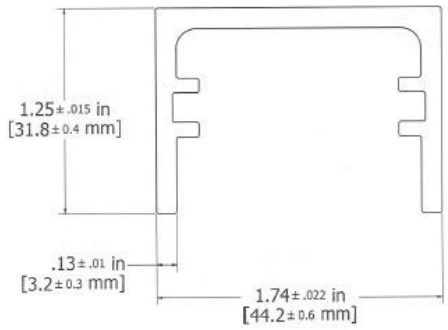


VERTICABLE SERIES C80 HVY

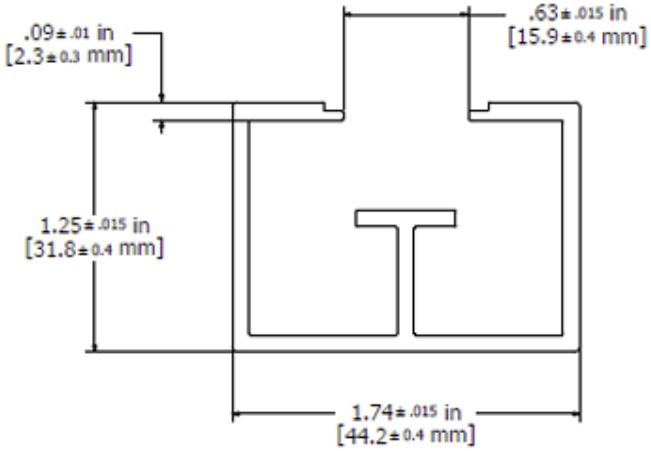
FIGURE 11 – TOP RAIL PROFILES



Tuscany, Riviera, Juliette Series

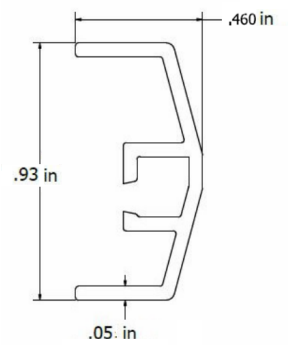


VertiCable Series



SORRENTO SERIES C60

FIGURE 12 – BOTTOM RAIL PROFILES



For Top and Bottom Rails

FIGURE 13 – *TUSCANY, RIVIERA, JULIETTE* SERIES PVC INSERTS FOR ALUMINUM BALUSTERS

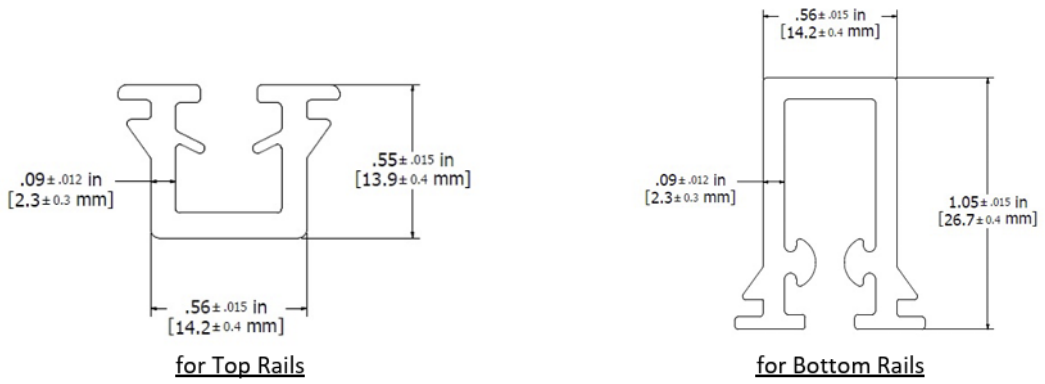


FIGURE 14 – *SORRENTO* SERIES RUBBER INSERTS FOR MESH IN-FILL

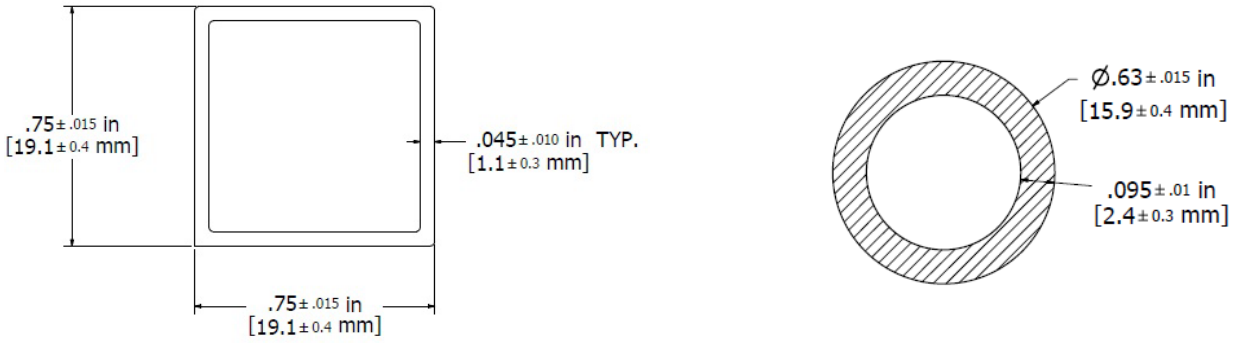
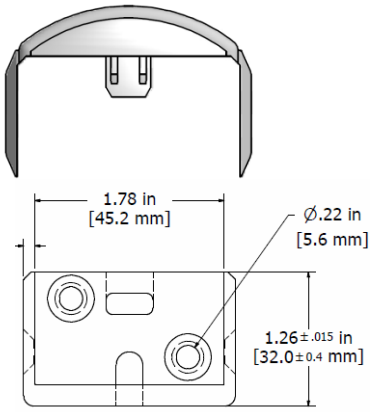
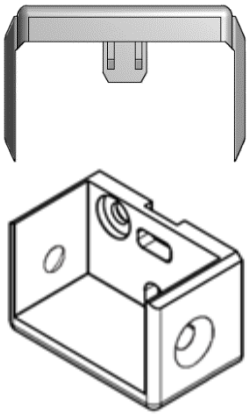
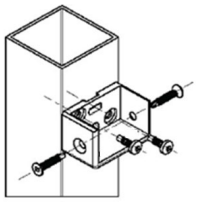


FIGURE 15 – BALUSTERS

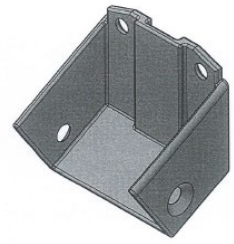




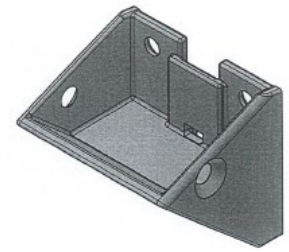


Rail Bracket Installation Detail

Tuscany, *VertiCable, and Sorrento* Brackets



ZAMAK 3 Cast *Stair Bracket* (down)



ZAMAK 3 Cast *Stair* Bracket (up)

FIGURE 16 –BRACKET COMPONENTS

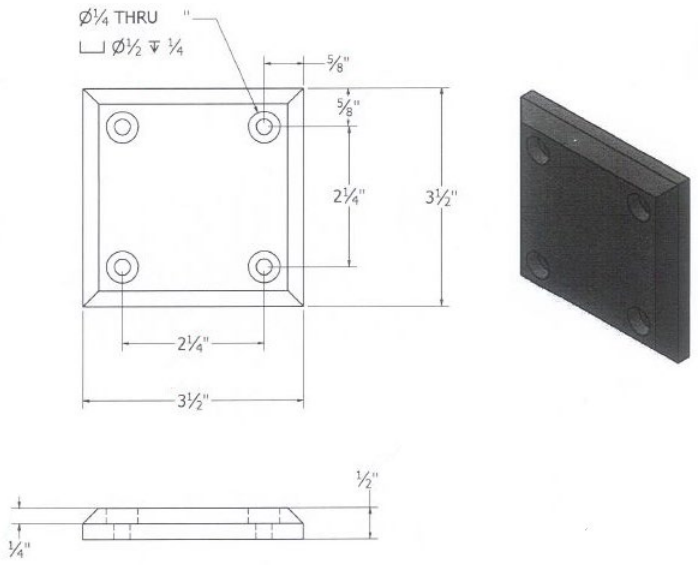


FIGURE 17 – JULIETTE BRACKET PLATE

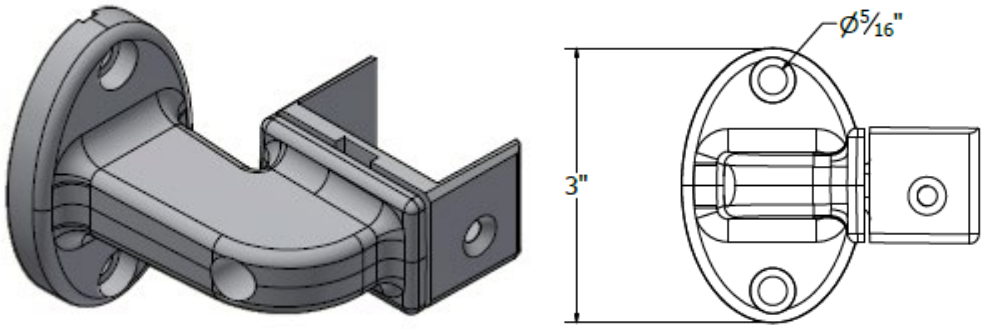


FIGURE 18 –WALL RETURN BRACKET

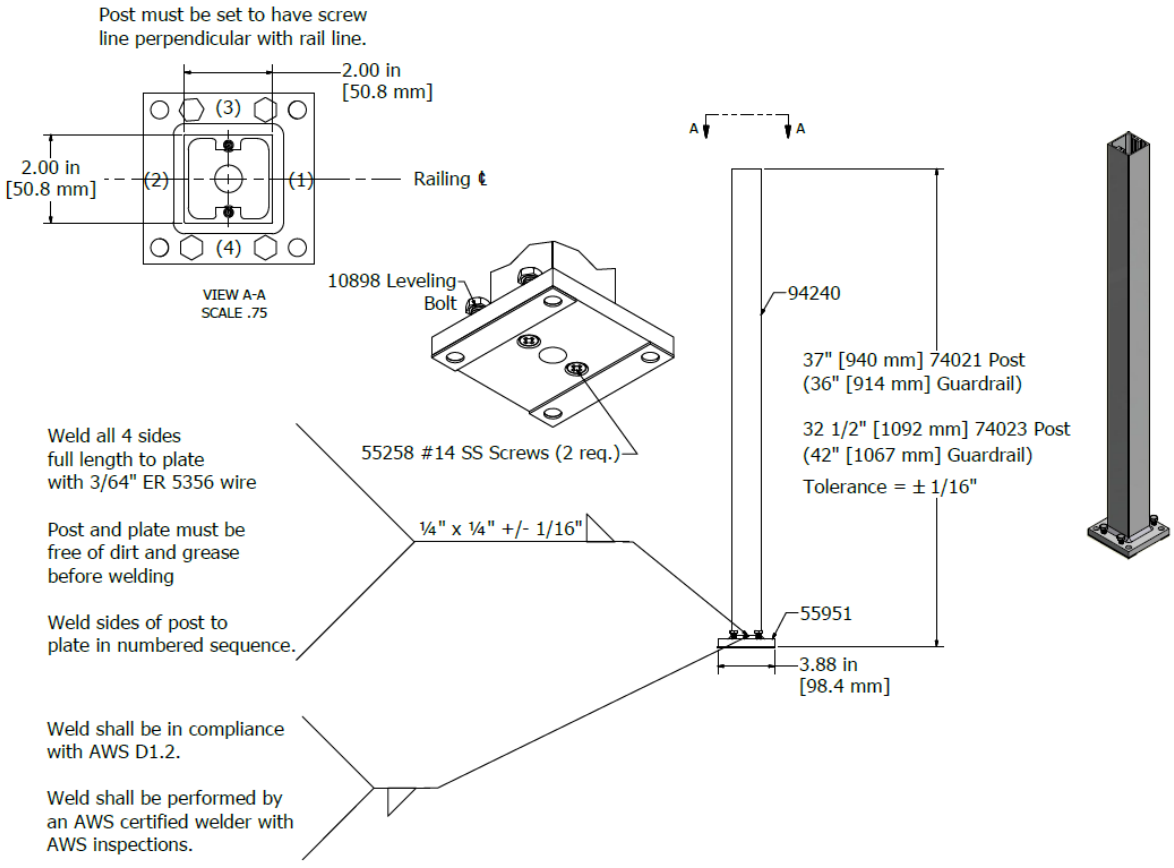


FIGURE 19 – 2" SQUARE ALUMINUM SUPPORT POST ASSEMBLY – SURFACE MOUNT

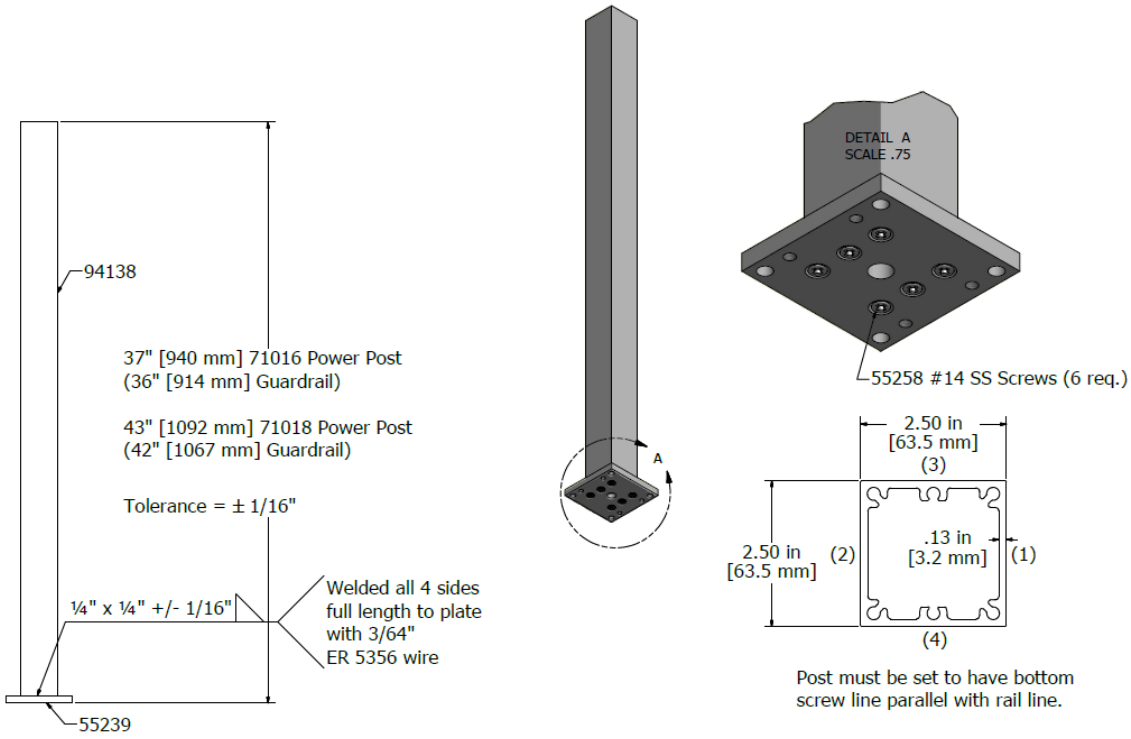


FIGURE 20 – 2-1/2" POWER POST ASSEMBLY

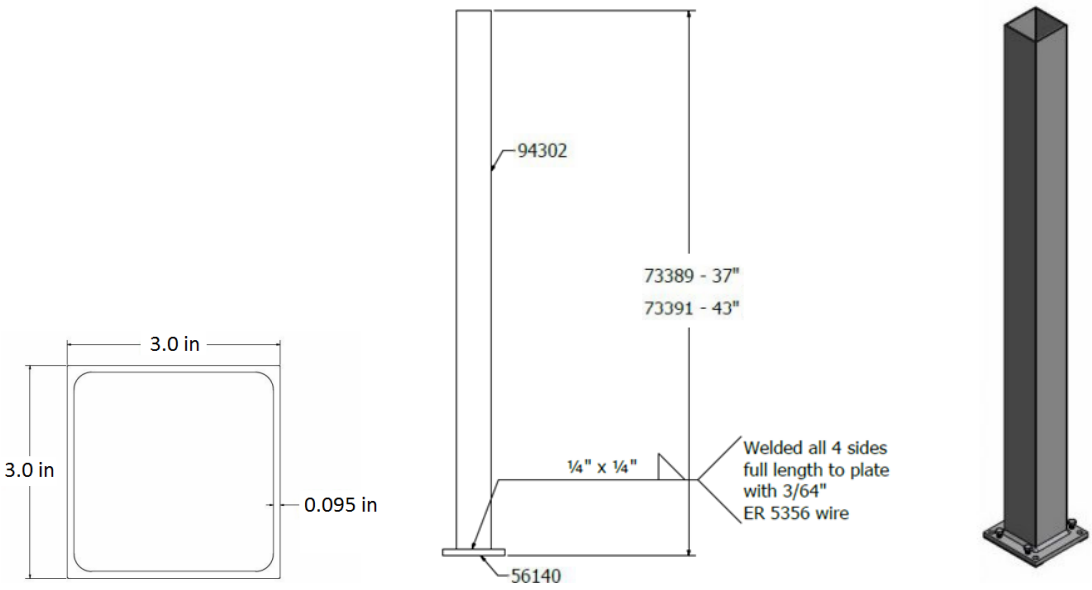


FIGURE 21 – 3" SQUARE ALUMINUM SUPPORT POST ASSEMBLY

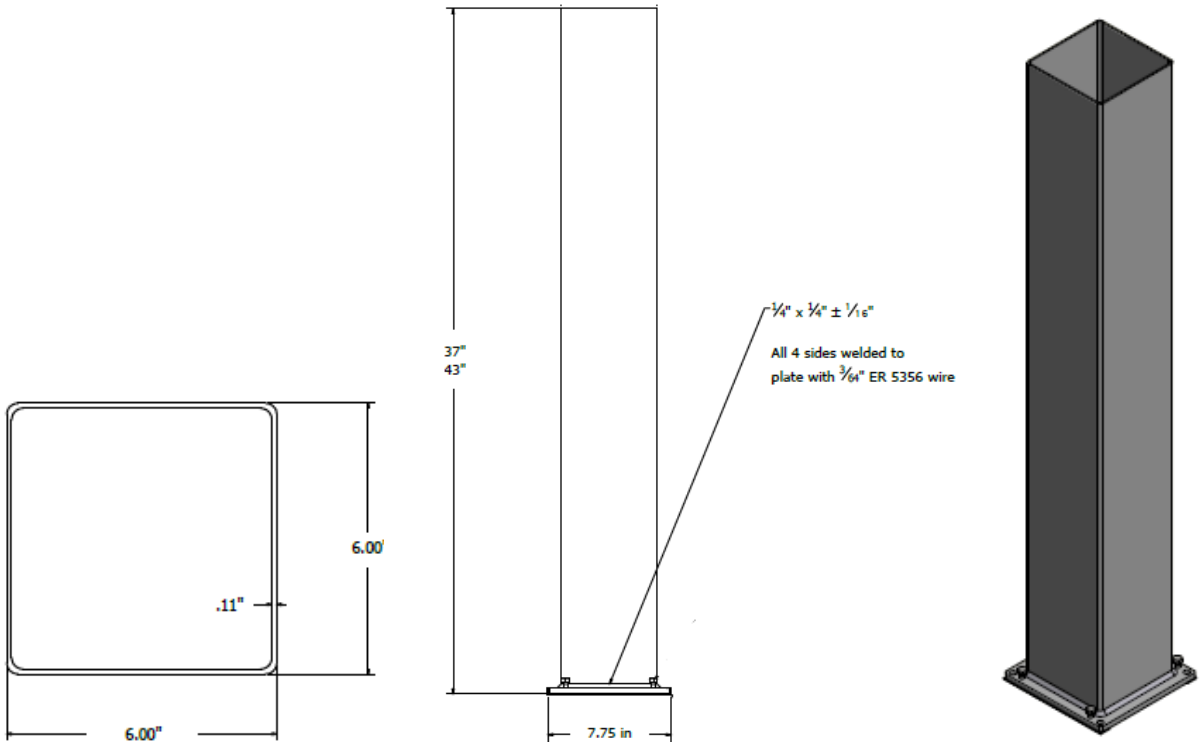


FIGURE 22 – 6" SQUARE ALUMINUM SUPPORT POST ASSEMBLY

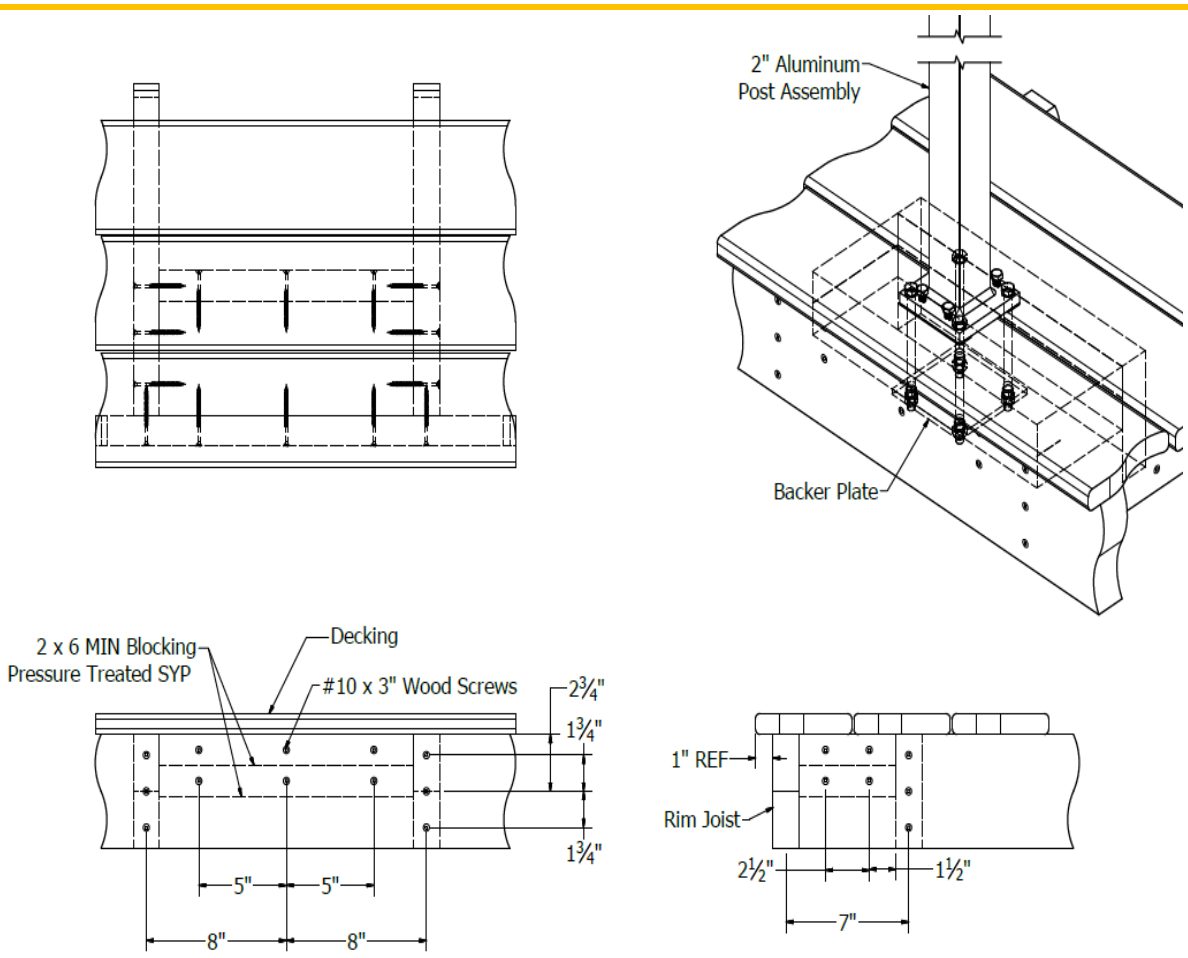
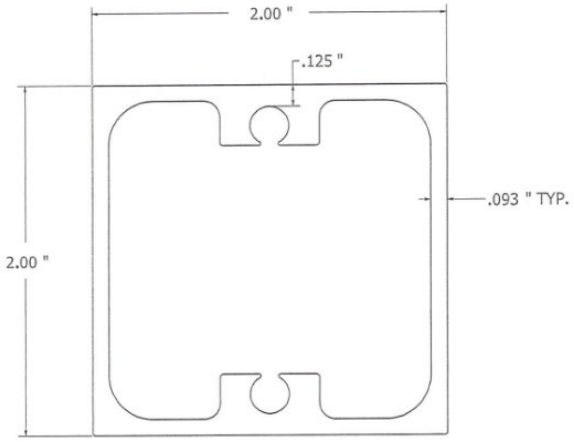
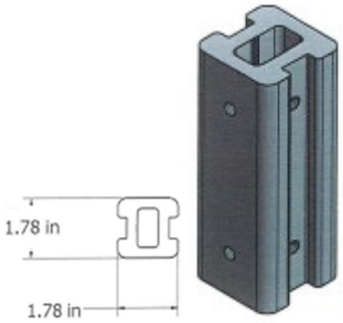


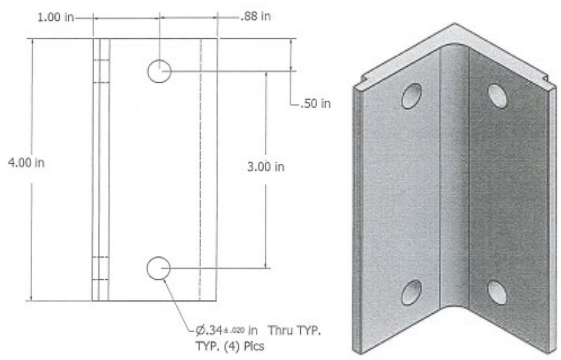
FIGURE 23 – STRUCTURAL WOOD FRAMING 2" POST MOUNT
Limited to IRC and FBC Residential



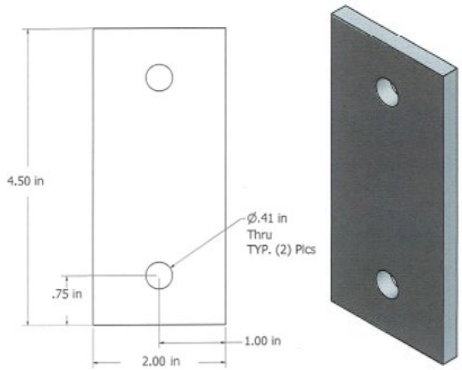
2" HD Aluminum Post



Aluminum Post Insert



2-hole 4 inch Angle Bracket



2-hole 4-1/2 inch Backer Plate

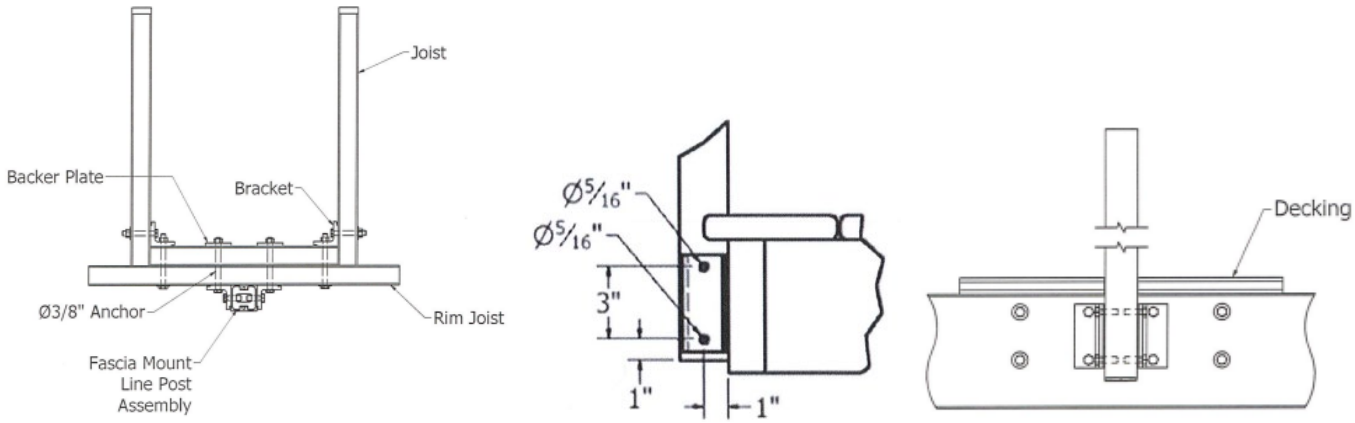
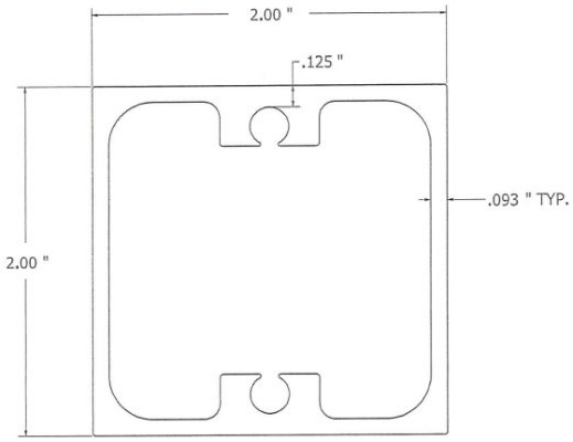
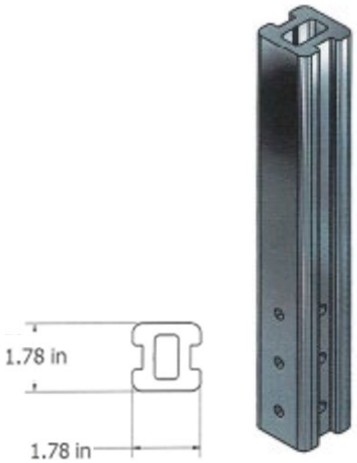


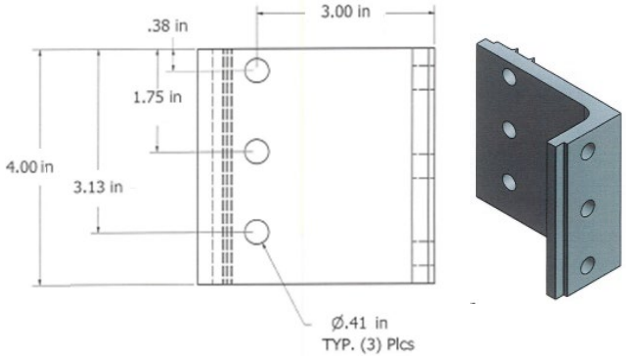
FIGURE 24 – WESTBURY® 2" HD FASCIA MOUNT LINE POST INSTALLATION
Limited to IRC and FBC Residential



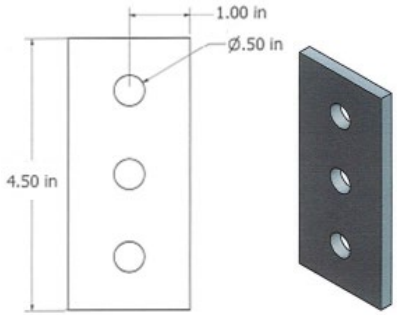
2" HD Aluminum Post



Aluminum Post Insert



3-hole 4 inch Angle Bracket



3-hole 4-1/2 inch Backer Plate

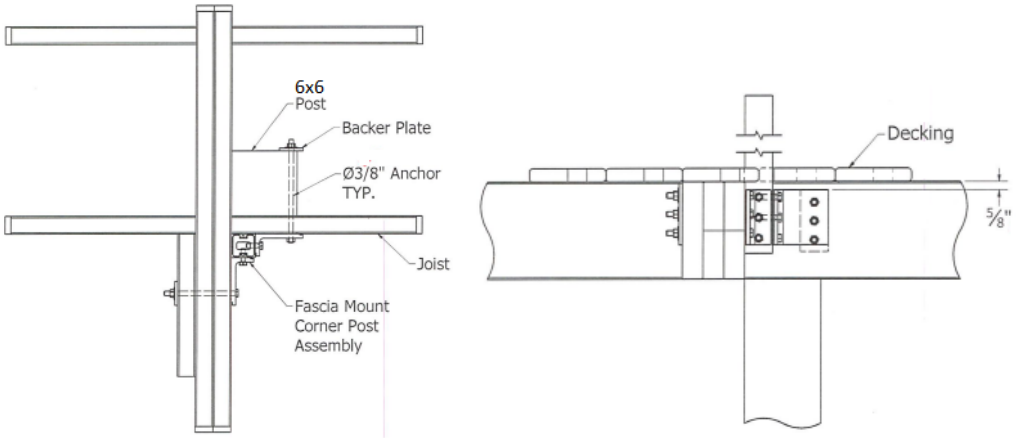
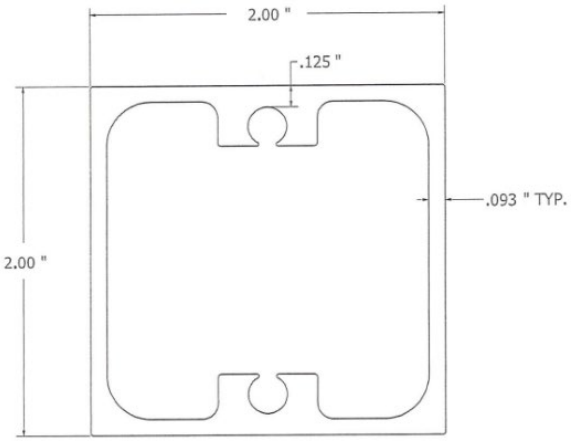


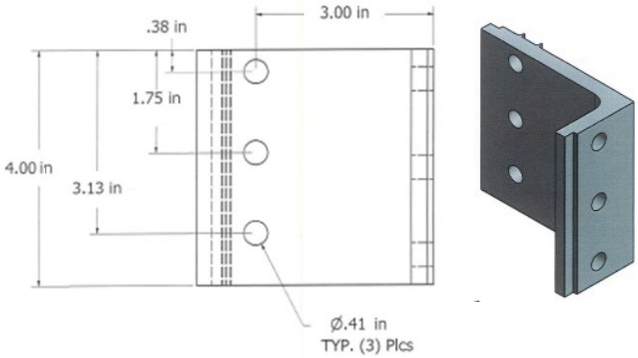
FIGURE 25 – WESTBURY® 2" HD FASCIA MOUNT INSIDE CORNER POST INSTALLATION
Limited to IRC and FBC Residential



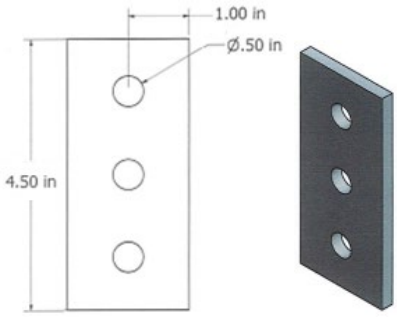
2" HD Aluminum Post



Aluminum Post Insert



3-hole 4 inch Angle Bracket



3-hole 4-1/2 inch Backer Plate

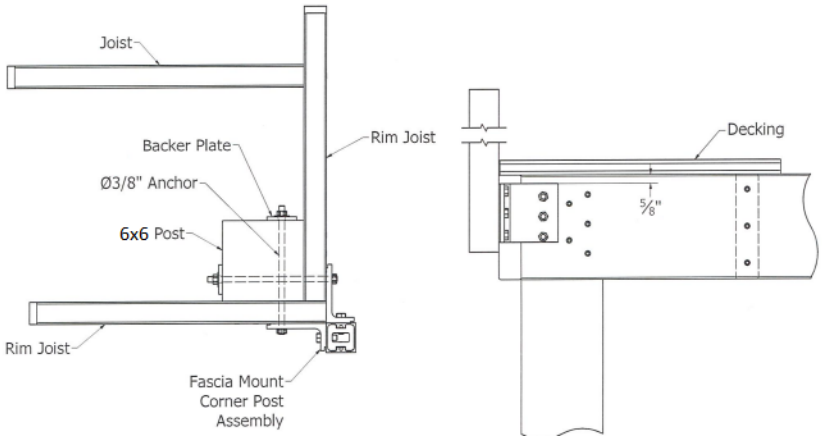


FIGURE 26 – WESTBURY® 2" HD FASCIA MOUNT POST OUTSIDE CORNER POST INSTALLATION
Limited to IRC and FBC Residential