Code Compliance Research Report
CCRR-0608

Issue Date: 06-24-2025
Renewal Date: 06-30-2026

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

REPORT HOLDER:
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REPORT SUBJECT:
Guard Systems
TimberTech® Reliance Contour
TimberTech® Reliance Core

1.0 SCOPE OF EVALUATION

1.1 This Research Report addresses compliance with thefollowing Codes:

- 2024, 2021, 2018 *International Building Code®* (IBC)
- 2024, 2021, 2018 *International Residential Code®* (IRC)

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

1.2 The *TimberTech®* guards have been evaluated for the following properties:

- Structural Performance
- Durability
- Surface Burning

1.3 The TimberTech® guards have been evaluated for the following uses:

- The TimberTech® railing assemblies are guards (guardrails) under the definitions of the referenced codes and are intended for use on elevated walking areas in buildings and walkways, including stairs and ramps, as required by the referenced codes.
- Guards assemblies are provided as level guards for level walking areas such as decks, balconies and porches, and sloped guards for open sides of stairways.
- Guard systems recognized 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 705.2.2 and 705.2.3.1, Exceptions 2 and 3. Guards 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

The *TimberTech®* guards 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 6.0.

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 TimberTech® Reliance Contour and Reliance Core are guards under the definitions of the referenced codes. Level and sloped guards are offered. See Table 1 for qualified lengths and configurations.

3.2 The Reliance Contour PVC guard system includes a top and bottom rail, top and bottom rail stiffeners, infill, post sleeves, rail-to-post brackets, and foot blocks. See Figures 1 and 2.

3.3 Top rails, bottom rails, square infill and post sleeves are manufactured from extruded PVC shapes in two colors: White and Khaki. Round infill members are extruded aluminum. The top and bottom rail stiffeners are extruded aluminum. Top and bottom rail brackets are injection molded plastic. See Table 2 for rail descriptions and Table 3 for infill options. The Reliance Core PVC guard system includes a top and bottom rail, top rail stiffener, infill, post sleeves, rail-to-post brackets, and foot blocks. See Figures 3 and 4.

3.3.1 Top rails, bottom rails, square infill and post sleeves are manufactured from extruded PVC shapes in two colors: White and Khaki. Round infill members are extruded aluminum. The bottom rail stiffener is extruded aluminum. Top and bottom rail brackets are injection molded plastic. See Table 2 for rail descriptions and Table 3 for infill options.

4.0 PERFORMANCE CHARACTERISTICS

4.1 The *TimberTech®* guard systems described in this report 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.

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

4.3 Materials used are deemed equivalent to preservative treated or naturally durable wood for resistance to weathering effects, decay, and attack from termites.

4.4 The PVC materials used in the railing assemblies have a flame spread index not exceeding 200 when tested in accordance with ASTM E84.

5.0 INSTALLATION

5.1 General: The *TimberTech®* guards 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 Foot blocks are a section of nominal 1.2 Inch square extruded PVC picket and a plastic foot block adapter to facilitate fastening. Foot blocks shall be installed to the bottom rail between the deck surface and the bottom rail at approximate 1/3 intervals for rails over six feet in length or at mid-span for rails less than six feet in length. See Table 3.

5.2.2 Guard systems may be attached to conventional 4x4 wood posts or other suitable wood support structure. The wood 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 bracket mounting screws. Conventional 4x4 wood posts or other wood supports are outside the scope of this report.

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 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. Where required by the building official, engineering calculations and details 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 Compatibility of the supporting construction materials with all fasteners, metal post mount components, and other hardware components is subject to approval by the building code official.

6.5 Only those types of fasteners and fastening methods described in this report have been evaluated for the installation of *TimberTech®* guard systems; other methods of attachment are outside the scope of this report.

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

6.7 The *TimberTech®* guard systems 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 the manufacturer.

7.2 Reports of testing and engineering analysis demonstrating compliance with the requirements of ICC-ES AC174 Acceptance Criteria for Deck Board Span Ratings and Guard Systems (Guards and Handrails), revised April 2021.

7.3 Reports of testing and engineering analysis demonstrating compliance with the performance requirements of ASTM D7032-21 Standard Specification for Establishing Performance Ratings for Wood-Plastic Composite Deck Boards and Guardrail Systems (Guards or Handrails).

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

7.5 Intertek Listing Report "AZEK Company - TimberTech Reliance Guardrail Systems", on the Intertek Directory of Building Products

8.0 IDENTIFICATION

8.1 The *TimberTech®* guards produced in accordance with this report shall identified with labeling on the individual components or the packaging that includes the following information:

8.1.1 The manufacturer's name, address, the product name,

8.1.2 The following statement: "ASTM D7032 CCRR-0608 See Use and performance levels at www.bpdirectory.intertek.com",

8.1.3 The Intertek Control Number, the Intertek Mark as shown below, and the Code Compliance Research Report Number (CCRR-0608).

CODE COMPLIANCE
ETL US
Intertek
CCRR-0608

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 bpdirectory.intertek.com is recommended to ascertain the current version and status of this report.

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TABLE 1 - RAILING SYSTEM BUILDING CODE RECOGNITION

Guard System	Guard System Type	Maximum Guard System Dimensions	Occupancy Use
TimberTech® Reliance Contour	Level/In-Line Application (1)	96" x 42"	IBC (All Use Groups) and IRC (Residential)
	Level/45° Application (1)	96-1/2" x 42"	
	Stair Systems (2)	94-1/4" x 42"	
TimberTech® Reliance Core	Level/In-Line Application (1)	96" x 42"	IBC (All Use Groups) and IRC (Residential)
	Level/45° Application (1)	96-1/2" x 42"	
	Stair Systems (2)	94" x 42"	

(1) Level Railing lengths are maximum clear length between supports. Railing height is the minimum installed height from walking surface to top of top rail.

(2) Stair Railing lengths are maximum clear length along the slope between supports. Stair railing height is measured vertically from the leading edge of the stair nose.

TABLE 2 - RAIL DESCRIPTIONS

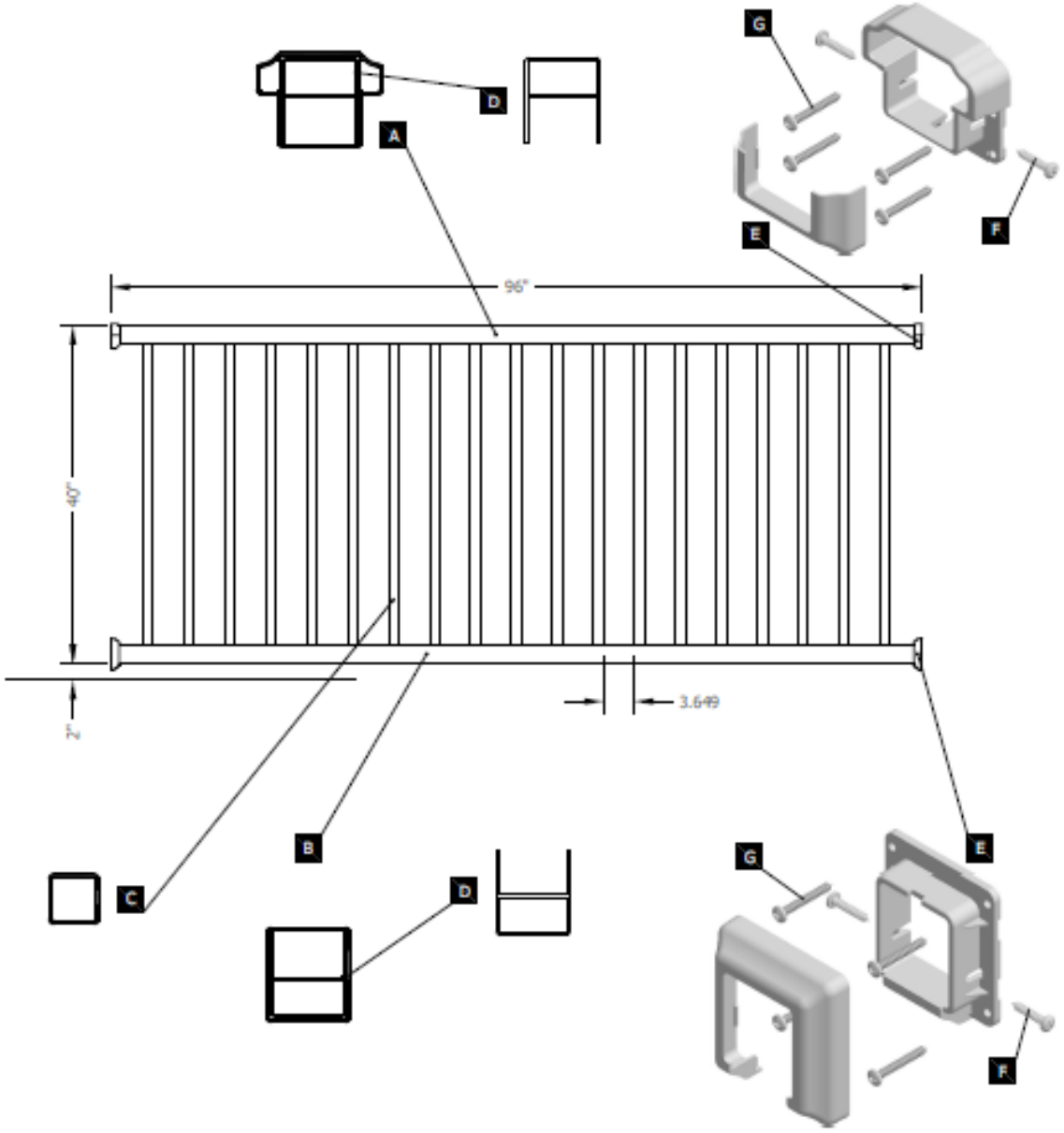
Guard System	Rail Description
TimberTech® Reliance Contour	Top rails are an assemblage of two components: a PVC profile with an inner aluminum stiffener (Figure 5). Bottom rails are an assemblage of two components: a PVC profile with an inner aluminum stiffener (Figure 6).
TimberTech® Reliance Core	Top rails are an assemblage of two components: a PVC profile with an inner aluminum stiffener (Figure 7). Bottom rails are a PVC profile (Figure 8).

TABLE 3 - INFILL DESCRIPTIONS

Guard System	Infill Options	Infill Fastening Description
TimberTech® Reliance Contour ***TimberTech® Reliance Core***	Nominal 1.2" square, hollow, PVC baluster. See Figure 9. 3/4 inch diameter, hollow aluminum balusters. See Figure 9.	The top and bottom rails include pre-routed holes to receive balusters.

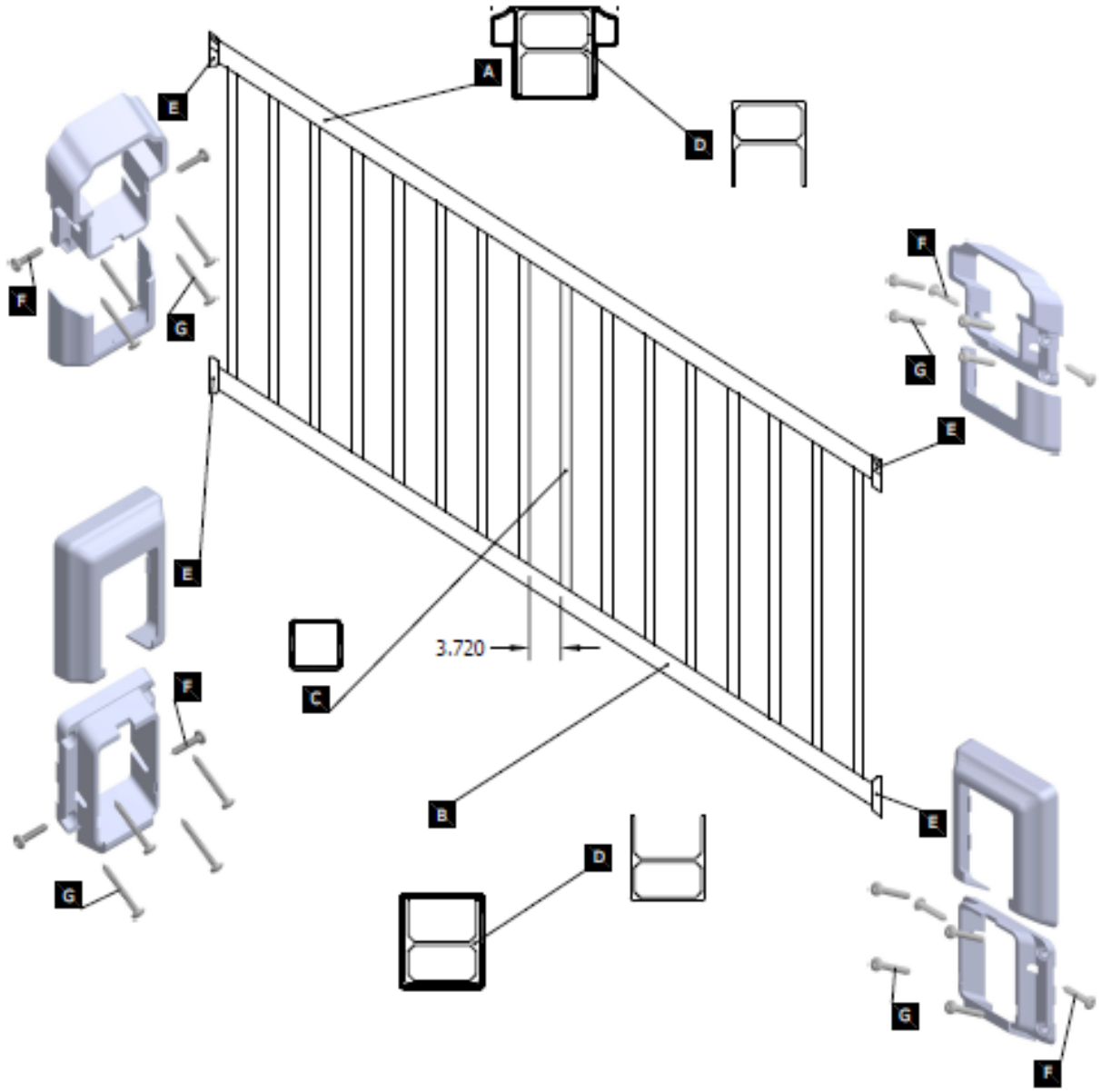
TABLE 4 - RAIL/BRACKET FASTENING SCHEDULE

Guard System		Fastening
TimberTech® Reliance Contour	Level	Top Rail Secure Contour Top Rail Bracket to post with four (4) #10-16x1-5/8" Torx head screws. Secure Contour Top Rail Bracket to top rail with two (2) #10-16x1" Torx head screws. Bottom Rail Secure Contour Bottom Rail Bracket to post with four (4) #10-16x1-5/8" Torx head screws. Secure Contour Bottom Rail Bracket to bottom rail with two (2) #10-16x1" Torx head screws.
	45°	Top Rail Secure Contour Top Rail 45° Bracket to post with four (4) #10-16x3" Torx head screws. Secure Contour Top Rail 45° Bracket to top rail with two (2) #10-16x1" Torx head screws. Bottom Rail Secure Contour Bottom Rail 45° Bracket to post with four (4) #10-16x3" Torx head screws. Secure Contour Bottom Rail 45° Bracket to bottom rail with two (2) #10-16x1" Torx head screws.
	Stair	Top Rail Secure Contour Top Rail Stair Bracket to post with four (4) #10-16x1-5/8" Torx head screws. Secure Contour Top Rail Stair Bracket to top rail with two (2) #10-16x1" Torx head screws. Bottom Rail Secure Contour Bottom Rail Stair Bracket to post with four (4) #10-16x1-5/8" Torx head screws. Secure Contour Bottom Rail Stair Bracket to bottom rail with two (2) #10-16x1" Torx head screws.
TimberTech® Reliance Core	Level	Top and Bottom Rail Secure Core Rail Bracket to post with four (4) #10-16x1-5/8" Torx head screws. Secure Core Rail Bracket to top and bottom rail with four (4) #10-16x1" Torx head screws.
	45°	Top and Bottom Rail Secure Core Rail 45° Bracket to post with four (4) #10-16x3" Torx head screws. Secure Core Rail 45° Bracket to top and bottom rail with four (4) #10-16x1" Torx head screws.
	Stair	Top and Bottom Rail Secure Core Stair Rail Bracket to post with four (4) #10-16x1-5/8" Torx head screws. Secure Core Stair Rail Bracket to top and bottom rail with four (4) #10-16x1" Torx head screws.
Foot Block	Level Stair	Foot Block Drill 1/2" diameter hole at bottom side of bottom rail. Insert stem of foot block adapter into 1/2" diameter hole in bottom of bottom rail. Slip fit baluster portion over foot block adapter.



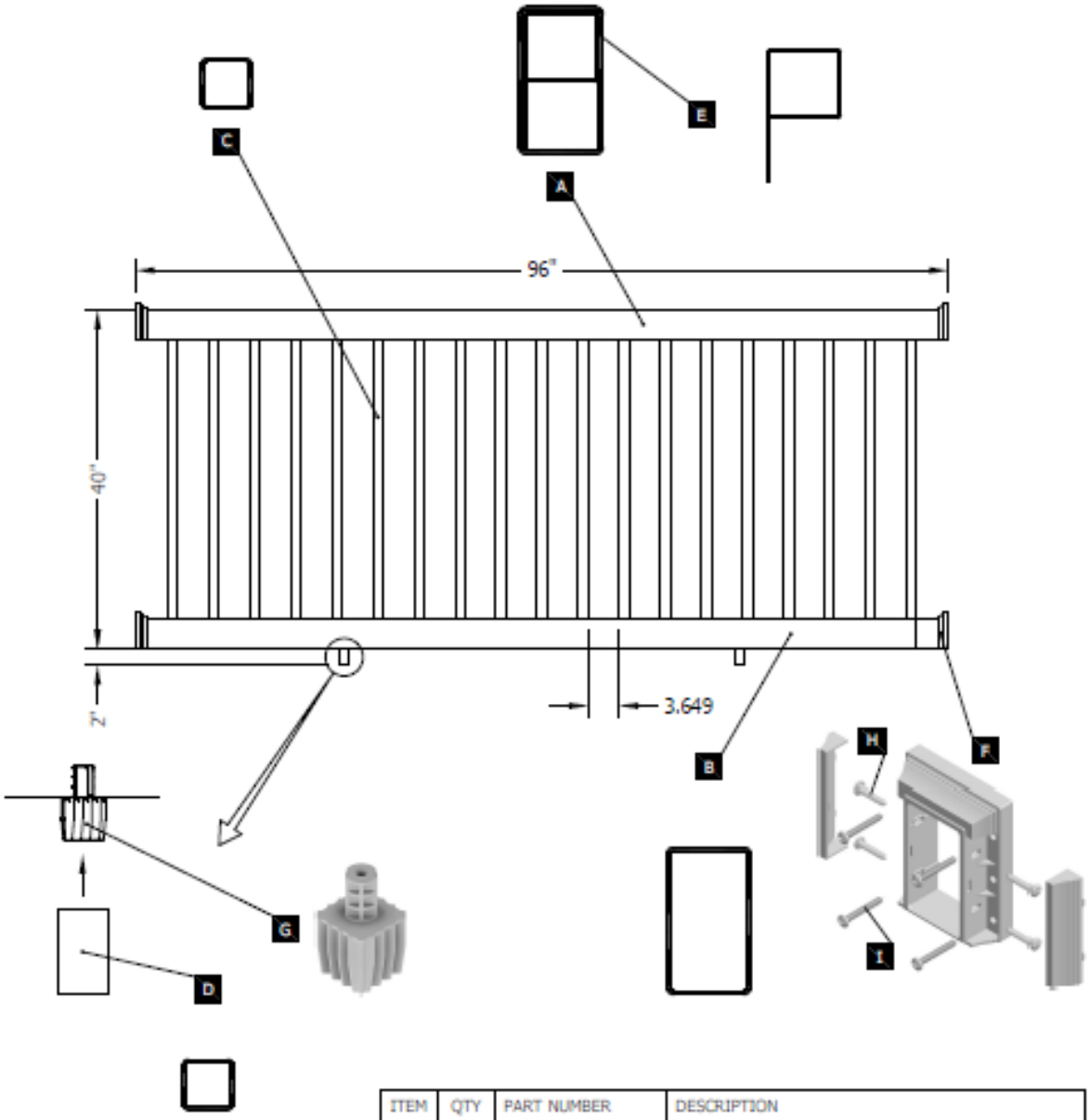
ITEM	QTY	PART NUMBER	DESCRIPTION
A	1	TTCT08.00TOPxx002	CONTOUR TOP RAIL LEVEL - 8 FT - SQR ROUTE
B	1	TTCR08.00BOTxx002	CONTOUR BOTTOM RAIL LEVEL - 8 FT - SQR ROUTE
C	19	TT1.203.16xx	1.2" X 38" PICKET
D	2	TTCTSA08.00X.06	TIMBERTECH "A" STIFFENER X 96" X .06 WALL
E	2	TTCTLBRxx-SET	CONTOUR LEVEL BRACKET SET
F	2	TTRL-10X1.00KT	#10 X 1.00" T25 NONPAINTED SCREW KIT
G	2	TTRL-10X1.625KT	#10 X 1-5/8" T25 NONPAINTED SCREW KIT

FIGURE 1 – RELIANCE CONTOUR LEVEL GUARD



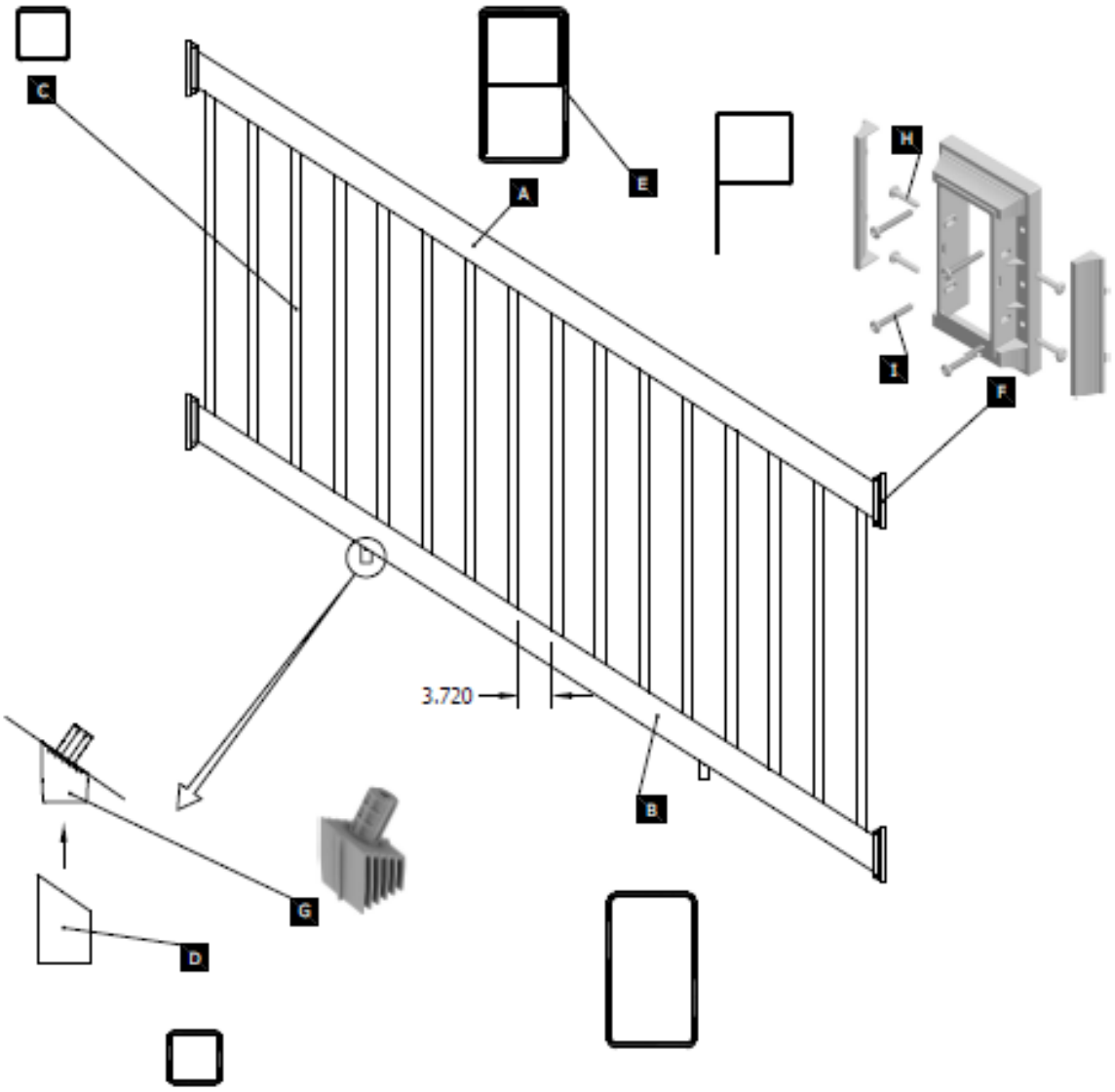
ITEM	QTY	PART NUMBER	DESCRIPTION
A	1	TTCT08.00TOPxx006	CONTOUR TOP RAIL STAIR - 8 FT - SQR ROUTE
B	1	TTCT08.00BOTxx006	CONTOUR BOTTOM RAIL STAIR - 8 FT - SQR ROUTE
C	16	TT1.203.16xx	1.2" X 38" PICKET
D	2	TTCTSA08.00X.08	TIMBERTECH "A" STIFFENER X 96" X .08 WALL
E	2	TTCTSTBRKxx-SET	CONTOUR STEP TOP & BOTTOM BRACKET SET
F	4	TTRL-10X1.00KT	#10 X 1.00" T25 NONPAINTED SCREW KIT
G	2	TTRL-10X1.625KT	#10 X 1-5/8" T25 NONPAINTED SCREW KIT

FIGURE 2 – RELIANCE CONTOUR SLOPED GUARD



ITEM	QTY	PART NUMBER	DESCRIPTION
A	1	TTCR08.00xx002	CORE TOP RAIL LEVEL - 8 FT - SQR ROUTE
B	1	TTCR08.00xx002	CORE BOTTOM RAIL LEVEL - 8 FT - SQR ROUTE
C	19	TT1.203.16xx	1.2" X 38" PICKET - CORE
D	1	TT1.200.33xx	1.2" X 4" FOOT BLOCK (KICKERPICKET)
E	1	SFRP08.00MT	P-ALUMINUM X 8'
F	2	TTCRLBRxx-SET	CORE LEVEL BRACKET SET
G	1	TTFBLVL	FOOT BLOCK - LEVEL RAIL
H	4	TTRL-10X1.00KT	#10 X 1.00" T25 NONPAINTED SCREW KIT
I	2	TTRL-10X1.625KT	#10 X 1-5/8" T25 NONPAINTED SCREW KIT

FIGURE 3 – RELIANCE CORE LEVEL GUARD



ITEM	QTY	PART NUMBER	DESCRIPTION
A	1	TTCR08.00xx006	CORE TOP RAIL STAIR - 8 FT - SQR ROUTE
B	1	TTCR08.00xx006	CORE BOTTOM RAIL STAIR - 8 FT - SQR ROUTE
C	16	TT1.203.16xx	1.2" X 38" PICKET - CORE
D	2	TT1.200.33xx	1.2" X 4" FOOT BLOCK (KICKERPICKET)
E	1	SFRP08.00MT	P-ALUMINUM X 8'
F	2	TTCRSBRxx-SET	CORE STAIR BRACKET SET
G	2	TTFBSTR	FOOT BLOCK - STAIR RAIL
H	4	TTRL-10X1.00KT	#10 X 1.00" T25 NONPAINTED SCREW KIT
I	2	TTRL-10X1.625KT	#10 X 1-5/8" T25 NONPAINTED SCREW KIT

FIGURE 4 – RELIANCE CORE SLOPED GUARD

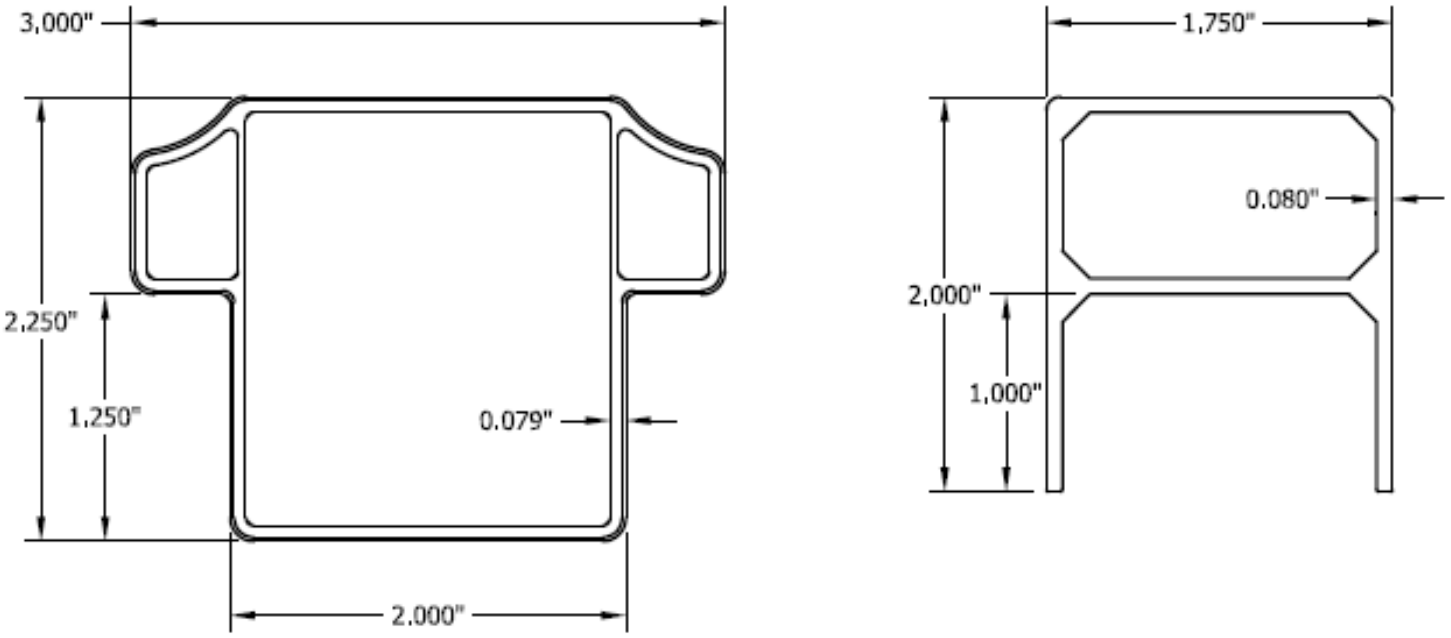


FIGURE 5 – RELIANCE CONTOUR TOP RAIL AND TOP RAIL STIFFENER

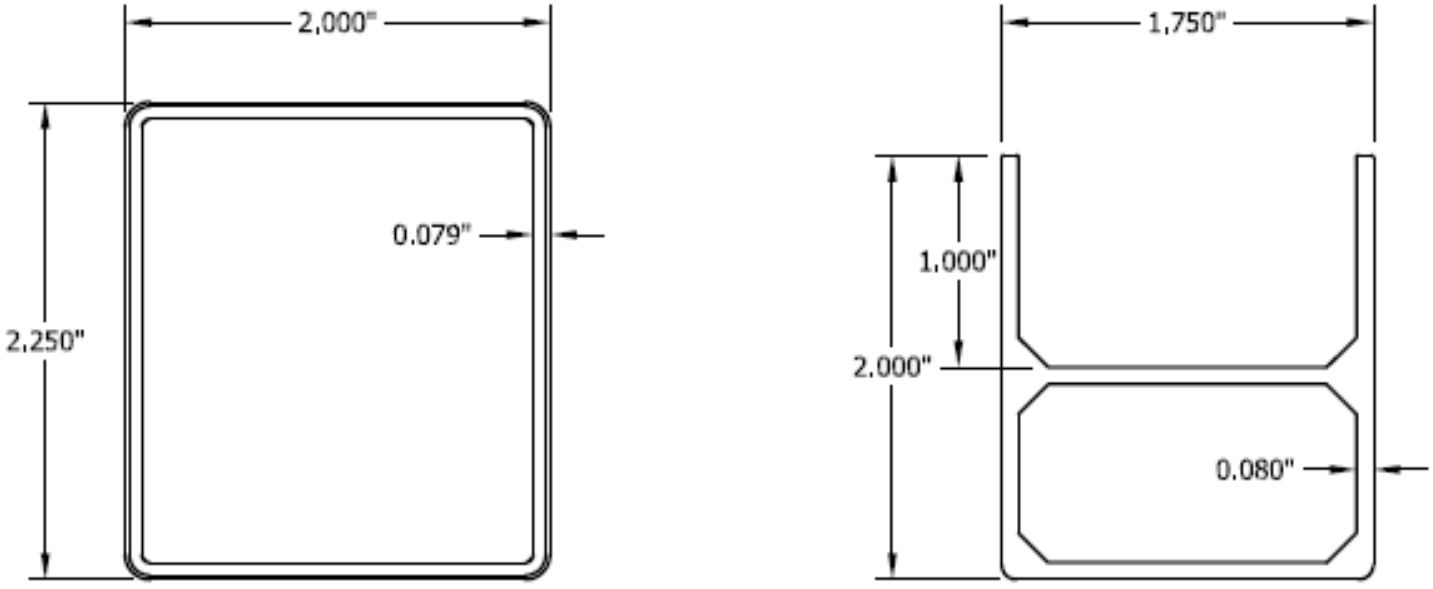


FIGURE 6 – RELIANCE CONTOUR BOTTOM RAIL AND BOTTOM RAIL STIFFENER

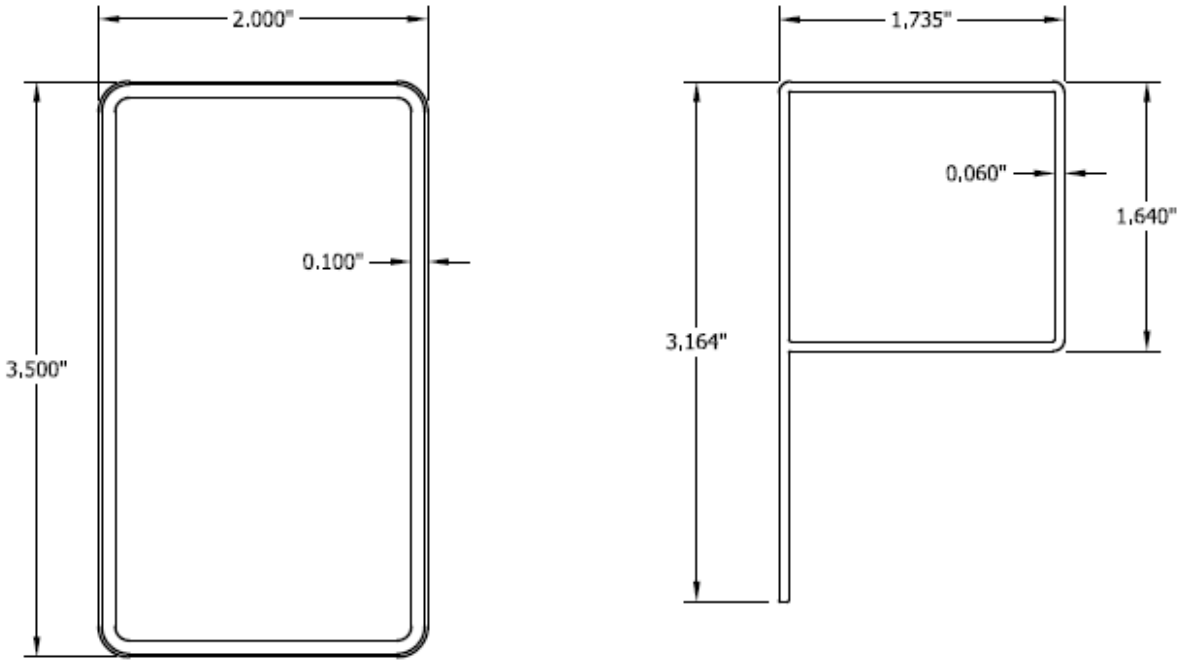


FIGURE 7 – RELIANCE CORE TOP RAIL AND TOP RAIL STIFFENER

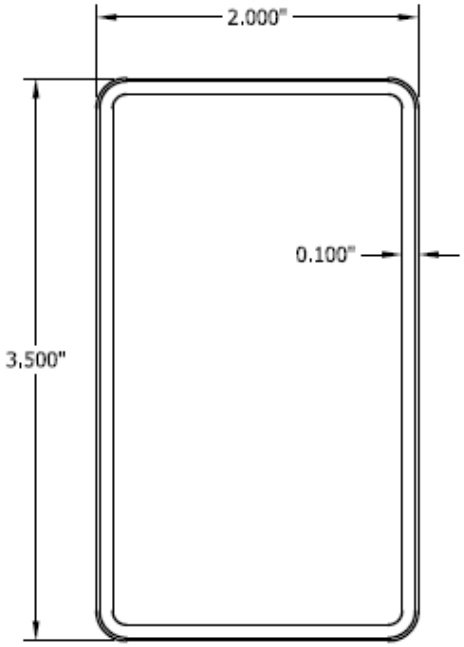
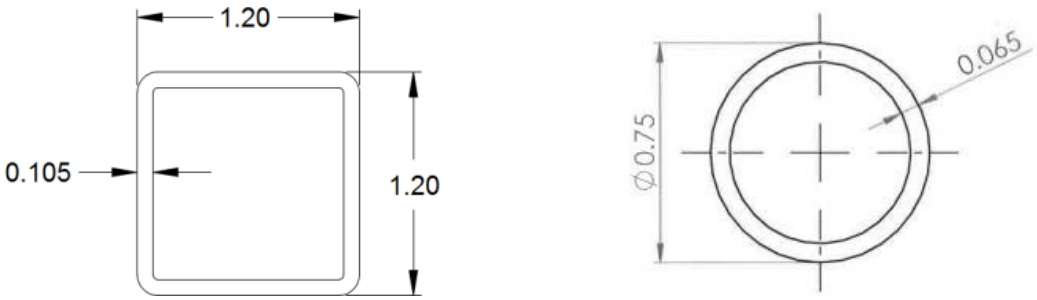
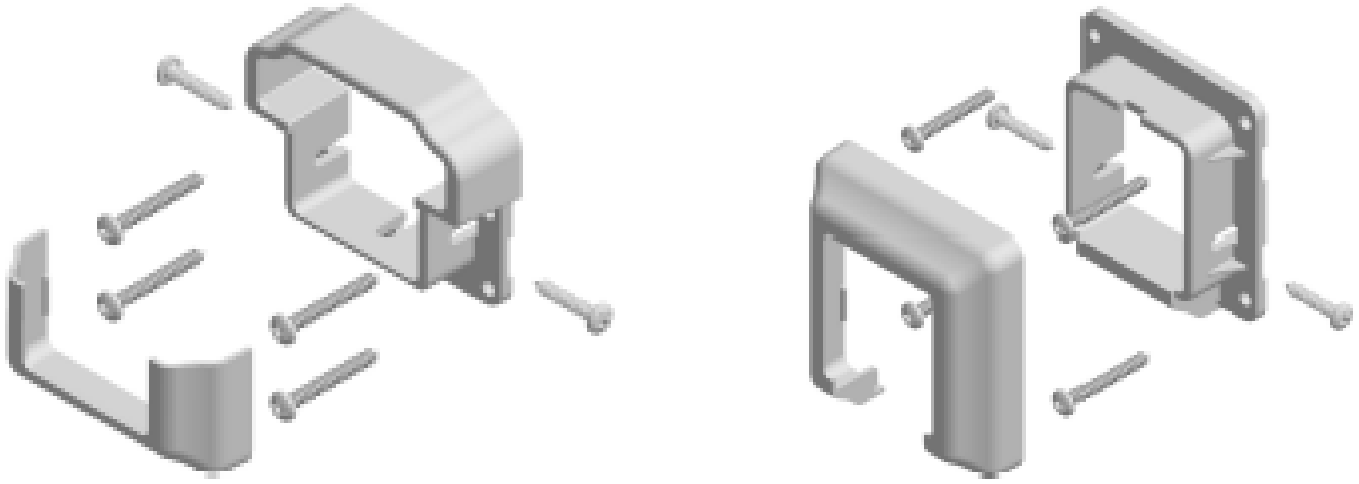


FIGURE 8 – RELIANCE CORE BOTTOM RAIL



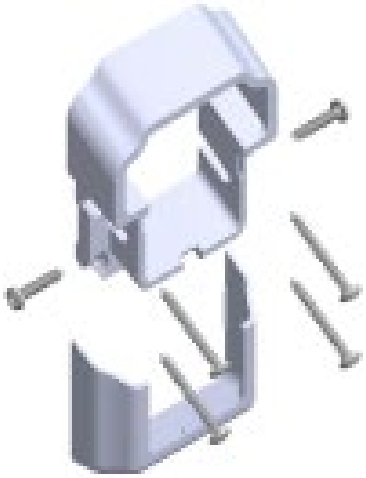
Hollow PVC Baluster Aluminum Balusters

FIGURE 9 – INFILL TYPES

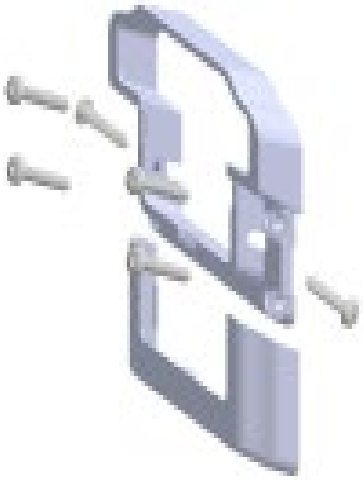


Top Rail Bracket Bottom Rail Bracket

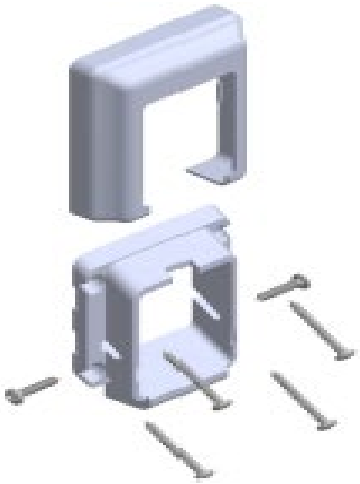
FIGURE 10 – RELIANCE CONTOUR LEVEL BRACKETS



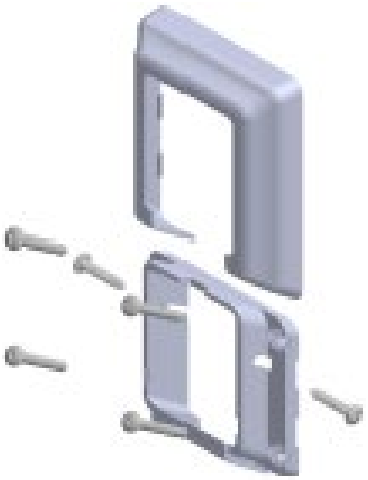
Top Rail Upper Bracket



Top Rail Lower Bracket

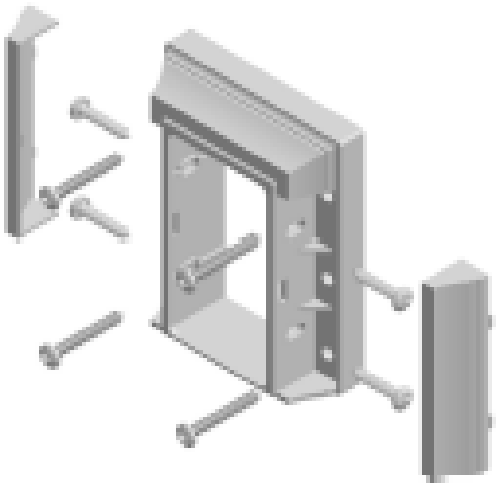


Bottom Rail Upper Bracket



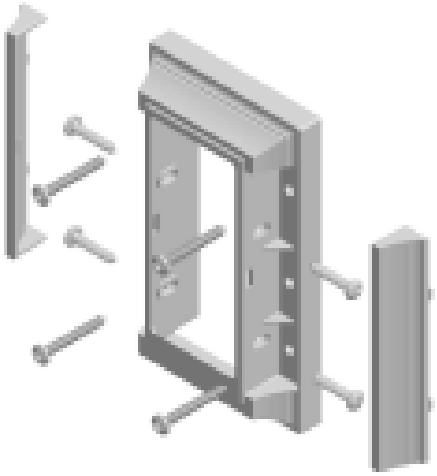
Bottom Rail Lower Bracket

FIGURE 11 – RELIANCE CONTOUR SLOPED BRACKETS



Top Rail Bracket and Bottom Rail Bracket

FIGURE 12 – RELIANCE CORE LEVEL BRACKETS



Top Rail Upper Bracket and Top Rail Lower Bracket
Bottom Rail Upper Bracket and Bottom Rail Lower Bracket

FIGURE 13 – RELIANCE CORE SLOPED BRACKETS

Level Sloped

FIGURE 14 – FOOT BLOCK ADAPTER

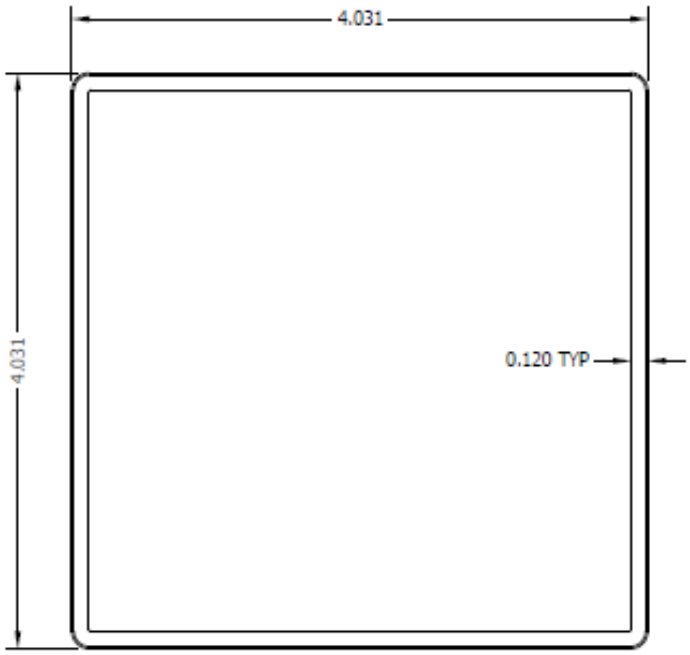


FIGURE 15 – PVC POST SLEEVE FOR 4X4 WOOD POSTS