

**Pei Evaluation Service®** is an accredited ISO Standard 17065 Product Certifier, accredited by the IAS. This **Product Evaluation Report** represents a product that **Pei ES** has Evaluated. This product has a Product Evaluation Service Agreement & Follow-up Inspection Service Agreement. This **Product Evaluation Report** in no way implies warranty for this product or relieves **Fypon Ltd.** of their liabilities for this product. This **PER** is an official document if it is within one year of the Initial or Re-Approval date.

Initial Approval  
May, 2020

Re-Approved

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### Report Owner

#### **Fypon, Ltd.**

1750 Indian Wood Circle  
Maumee, OH 43537

### Products

**QuickRail™ Synthetic Railing System**

### Approved Manufacturing Locations

#### **Fypon, Ltd.**

8055 North State Road 9  
Howe, IN 46746

### Evaluation Report Information

Fypon, Ltd. Contact Information:  
**1-800-446-3040 or [info@fypon.com](mailto:info@fypon.com)**

### General Details

The product described in this **PER** is limited to use in exterior guards as required by 2018/2015 IBC 1015, 2012/2009 IBC 1013 or IRC 312.1. Any other use is not authorized by this **PER**. **QuickRail™ Synthetic Railing System** has been tested and evaluated for structural strength to meet design loads of and requirements for guardrails to the building codes listed under the Code Compliance section of this Product Evaluation Report (**PER**). The approved manufacturing location shown above has an approved Quality Control Manual to manufacture the products. **Fypon, Ltd.** has a Product Evaluation Service Agreement with **Pei Evaluation Service® (Pei ES)** and a Follow-up Inspection Service Agreement with **Progressive Engineering Inc. (Pei)**. The manufacturing facility will be audited on a quarterly basis by **Pei**.

### Product Descriptions

The **QuickRail™ Synthetic Railing System** covered by this **PER** is extruded from a 100% rigid PVC, manufactured in the **Pei ES** approved color of White. The **QuickRail™ Synthetic Railing System** uses a "T" shaped profile for the top rail and a rectangular profile for the bottom rail. The "T" shape profile measures 3.25" width x 3.70" height x .125" thick. The rectangular shaped bottom rail measures 3.5" width x 2" height x .140" thick. The **QuickRail™ Synthetic System** is uses an aluminum rail reinforcement in the 8-ft and 10-ft. systems that is manufactured with an alloy and temper per 6063-T6. Please reference Table 2 for the fasteners connections.

### General Product Usage

1. The **QuickRail™ Synthetic Railing System** shall be installed in accordance with the manufacturer's installation instructions and the conditions of this **PER**. A copy of the manufacturer's installation instructions shall be made easily available to the installer.
2. All framing, wood posts, beams, joists, stringers and associated connections required to anchor the railing posts are outside the scope of this **PER**. All framing shall follow applicable codes or be designed by a licensed Engineer. Stairway handrails shall be designed and constructed in accordance with the applicable codes.
3. The **QuickRail™ Synthetic Railing System** may be used in all construction types where untreated wood is permitted in accordance with the 2009, 2012, 2015 IBC, Section 1406.3 or Section 705.2.3.1 Exception 3 of the 2018 IBC.
4. All guardrail system load tests were performed using 4x4 Douglas Fir, treated Southern Pine or the Blu-Mount PVC guides. Where alternative lumber species are utilized, the fastener capacity shall be verified by the local code official or a registered design professional as deemed applicable.
5. Each guardrail system may be installed at the maximum spans as indicated in Figure 1.
6. The 10' **QuickRail™ Synthetic Railing Systems** shall NOT be attached directly to the 4" complete post kit or post sleeve. The 10' QuickRail Synthetic systems shall only be attached directly to the supporting structure (i.e. wall or support column).
7. The **QuickRail™ Synthetic Railing System** offers two (2) kinds of spindle options. The Square spindle option shall be spaced less than 4" apart whereas the Colonial spindles are smaller in size and shall be spaced so any opening along the spindle is less than 4".
8. Installer shall consult with local building code officials for compliance to the applicable building code requirements before installing the **QuickRail™ Synthetic Railing System**.
9. **QuickRail™ Synthetic Stair System** mounting brackets and covers are designed for stair applications with a 30° to 40° degree slope only.
10. The Blu-Mount (Ultra-Post) connection details are outside the scope of this report. Special inspection may be required.
11. Anchorage of the support post to the supporting structure is outside the scope of this **PER** and would need to be evaluated separately.

**Code & Standard Compliance**

<b>2009 International Residential Code</b> Table R301.5 Section R312 Section R317.4	<b>2009 International Building Code</b> Section 1013.1 Section 1013.3 Section 1013.2 Section 1607.7.1 Section 1607.7.1.1	<b>2017 Florida Building Code</b> Evaluated for compliance with the 2017 Building Code <sup>4</sup>
<b>2012 International Residential Code</b> Table R301.5 Section R312.1 Section R317.4	<b>2012 International Building Code</b> Section 1013.2 Section 1607.8.1 Section 1013.3 Section 1607.8.1.1 Section 1013.4 Section 1607.8.1.2	<b>2013 Abu Dhabi International Building Code</b> Evaluated for compliance with the 2013 Building Code (ADIBC) <sup>3</sup>
<b>2015 International Residential Code</b> Section R301.5 Section R507.3 Section R312.1 Section R317.4	<b>2015 International Building Code</b> Section 1015.2 Section 1607.8.1 Section 1015.3 Section 1607.8.1.1 Section 1015.4 Section 1607.8.1.2 Section 2612	
<b>2018 International Residential Code</b> Table R301.5 Section R312.1 Section R317.4 Section R507.2.2	<b>2018 International Building Code</b> Section 1015.2 Section 1607.8.1 Section 1015.3 Section 1607.8.1.1 Section 1015.4 Section 1607.8.1.2 Section 2612	

**Notes:**

- Limited to use in all construction types where untreated wood is permitted in accordance with Section 1406.3 of the 2009, 2012 & 2015 IBC and Section 705.2.3.1 Exception 3 of the 2018 IBC.
- All products may be recognized as code compliant in accordance with the 2009, 2012, 2015 and 2018 IBC/IRC. System specific limitations are provided in Table 1.
- The ADIBC is based on the 2009 IBC, 2009 IBC code sections referenced in this report are the same sections in the ADIBC
- The QuickRail Synthetic Railing system has not been evaluated for use in HVHZ (High Velocity Hurricane Zones) and is outside the scope of this PER.

**Table 1 - Individual Railing System Additional Code Limitations**

Railing System	Nominal Length	Maximum Height	Additional Limitations
QuickRail™ Synthetic Railing System	6-ft	42-in	None
QuickRail™ Synthetic Stair System	6-ft	42-in	One- and Two-Family Dwellings
QuickRail™ Synthetic Railing System	8-ft	42-in	None
QuickRail™ Synthetic Railing System	10-ft*	42-in	One- and Two-Family Dwellings

**Notes:**

- Conventional preservative-treated wood (Southern Pine) 4x4 support posts were provided to anchor the rail brackets and were not included within the scope of the testing. These conclusions would apply only for a guardrail that is provided with adequate supports that provide equal or better substrate material (Southern Pine Wood) for the fasteners used to anchor the rail brackets.
- For the 8-ft. and 10-ft. Rails, the top rail shall be reinforced with an aluminum insert as stated in the installation instructions.

**Table 2 - QuickRail™ Synthetic Railing System Fastener Requirements<sup>1</sup>**

System Connection	Bracket <sup>3</sup>	Fastener	Quantity
Top Rail to Bracket	Entech Hylon Back Plate (N1000HL)	#10 x 1" Phillips Pan-Head, Self Drilling Plated Steel Screw	4
Bottom Rail to Bracket			2
Bracket to PVC Sleeved Blu-Mount			4
Bracket to 4x4 Wood Post (pvc sleeved Blu-Mount)		#10 x 1-1/2" Phillips Pan-Head Self Drilling Plated Steel Screw	4

**Notes:**

- Fastening requirements are valid for both level and stair rail applications unless noted otherwise.
- The arms of the T on the lower end of the stair top rail rested on the brackets side flanges. The bottom of all other rail ends rested on the protruding lower lip of the bracket.
- Four (4) Entech Hylon back plates are provided with each Rail Kit.

**Table 3 - QuickRail™ Synthetic Railing System using the Ultra-Post - Fastener Requirements<sup>1</sup>**

System Connection	Bracket <sup>3</sup>	Fastener	Quantity
Top Rail to Bracket	Metal Bracket	#10 x 3/4" Pan-Head, Self Starting SS Steel Screw	6
Bottom Rail to Bracket			4
Bracket to 4x4 PVC Sleeved Ultra-Post			4
Post Mount to Leveling Plate	n/a	5/16" Grade 5 Bolts	4

**Notes:**

- Fastening requirements are valid for both level and stair rail applications unless noted otherwise.
- Max span of 6'
- The Ultra-Post connection is outside the scope of this PER report. Please reference the Ultra-Post installation instructions as well as the ATI Test report.

**Tested to**

**ASTM D790-07** - Test Methods for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials.  
**ASTM D1761-06** - Standard Test Methods for Mechanical Fasteners in Wood  
**ASTM D2565-99** - Practice for Operating Xenon-Arc-Type Light-Exposure Apparatus With and Without Water for Exposure of Plastics.  
**ASTM D3345** - Standard Test Method for Laboratory Evaluation of Solid Wood for Resistance to Termites.  
**ASTM D6109-05** - Standard Test Methods for Flexural Properties of Unreinforced and Reinforced Plastic Lumber  
**ASTM D7032-07** - Standard Specification for Establishing Performance Ratings for Wood-Plastic Composite Deck Boards and Guardrail Systems  
**ASTM E 84-05** - Standard Test Method for Surface Burning Characteristics of Building Materials  
**AWPA E10-11** - Laboratory Method for Evaluating the Decay Resistance of Wood-Based Materials Against Pure Basidiomycete Cultures.

**Approved Colors**

White

**Product Labeling**

The Guardrail Systems must be labeled with at least the following information:

1. The Guardrail name and lot number code
2. Part name, part number, part size & quantity
3. Manufacturer Name, Logo or Website
4. This **PER** Number & *Pei* **ES** Name or Logo
5. Guardrail Performance & Use Limitations (Indicate ASTM D7032 Compliance)

**Acceptable Evaluation Marks****Product Documentation**

A Product Evaluation Service Agreement between *Pei Evaluation Service*<sup>®</sup> and **Fiber Composites, LLC**

A Follow-up Inspection Service Agreement between *Progressive Engineering Inc.* and **Fypon, Ltd.**

A **Fypon, Ltd.** Quality Control Manual - Dated: 3/20/2018

A SDS for Rigid Extrude Vinyl - Dated: 5/22/2015

A SDS for PVC Compound Pellets - Dated: 5/21/2015

A SDS for Vinyl Resin Compounds - Dated: 5/22/2015

A SDS for Westlake Compounds LLC - Dated: 9/30/2019

A SDS for Mittel Metal Coated Sheet - Dated 2/14/2006

A SDS for Dubai Aluminum for Aluminum Metal Alloy - Dated 12/29/2011

**QuickRail Straight Rail Kit** Installation Instructions

**QuickRail Stair Rail Kit** Installation Instructions

A Test Report No. 94788.01-119-19 - QuickRail OVC Guardrail System - ICC-ES AC 174 (June 1, 2009), Acceptance Criteria for Deck Board Span Ratings and Guardrail Systems (Guards and Handrails) - Dated 04/22/2010.

A Test Report No. 59972.01-119-19 - Level and Stair PVC Guardrail Systems QuickRail™ - ICC-ES AC 174 (July 1, 2005), Acceptance Criteria for Deck Board Span Ratings and Guardrail Systems (Guards and Handrails) - Dated 04/16/2009.

A Test Report No. 01.11810.01-147b - Investigation of the Surface Burning Characteristics of a Nominal 1 X 4-IN. Rectangular Shaped Hollow PVC Rail with a 0.14-in Wall Thickness (Supported over Rods) - Dated 05/8/2006.

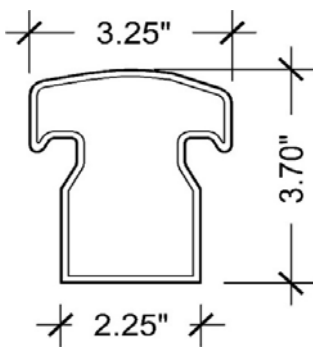
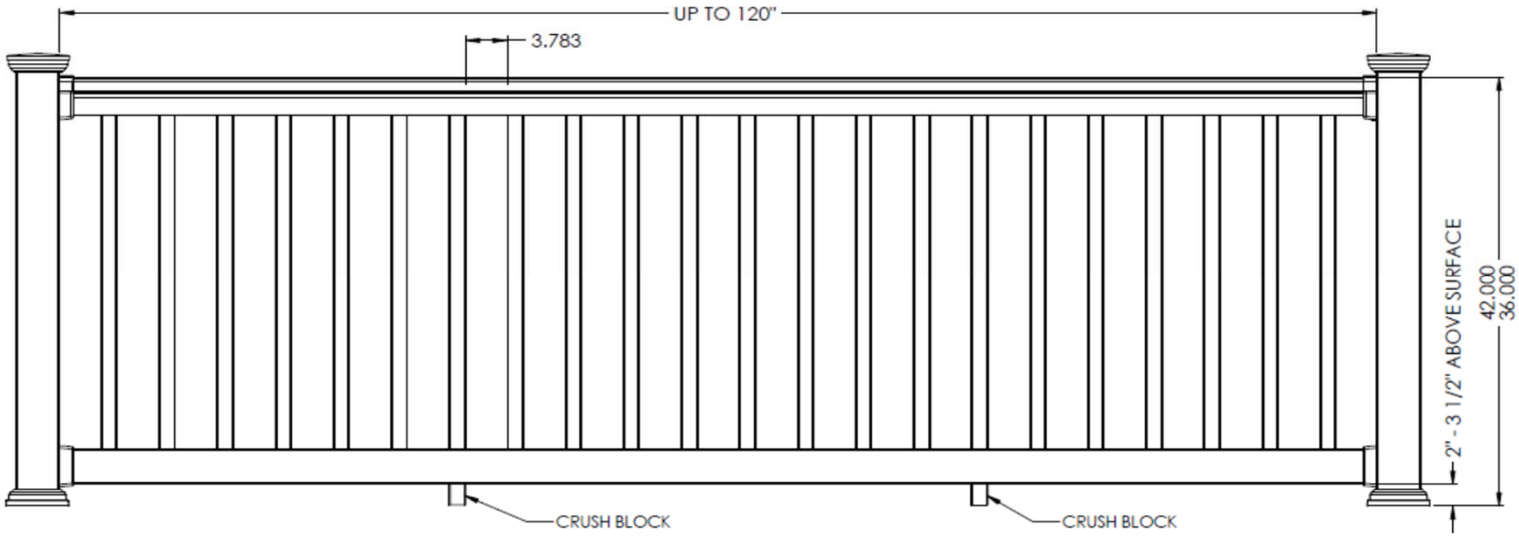
A Test Report No. 01.11810.01-147c - Investigation of the Surface Burning Characteristics of a Nominal 1.5 X 1.5-IN. Rectangular Shaped Hollow PVC Rail with a 0.15-in Wall Thickness (Supported over Rods) - Dated 05/1/2006.

A Test Report for Termite Testing for Architectural Testing per ASTM D-3345 with Exceptions to Section 106, 12.2.1 & 12.2.5 - Dated 09/22/2010.

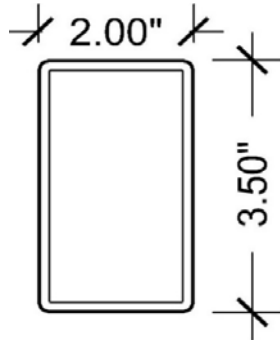
A Test Report for Testing the Decay Resistance of Polypropylene/Jute Samples per American Wood Protection Association (AWPA) Standard E10-11 - Dated 07/05/2011.

A Test Report for 2-in Square (thin wall) and Blu-Mount Post Mounts per ICC-ES AC174 2012, Section 5.1 Guardrail System Test Requirements - Dated 09/15/2016.

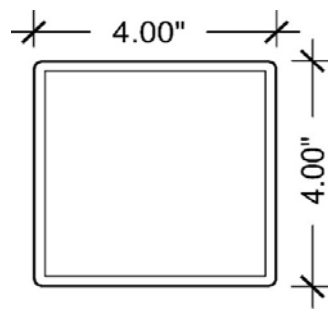
**QuickRail 10' Synthetic Railing System**



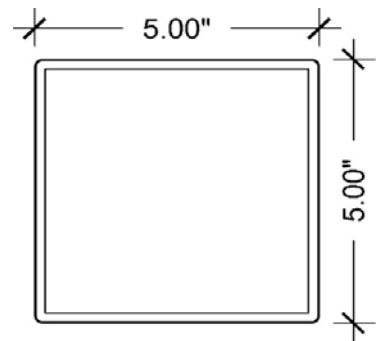
**Top Rail**



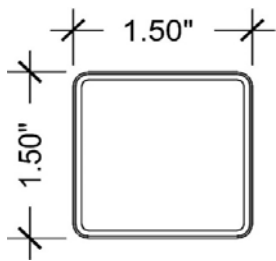
**Bottom Rail**



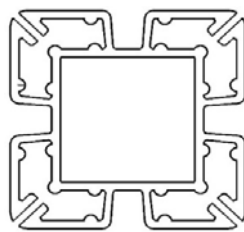
**4x4 Post Sleeve**



**5x5 Post Sleeve**



**Baluster**



**4\"/>**



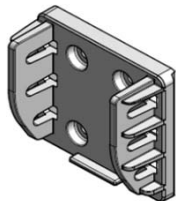
**Ultra-Post**



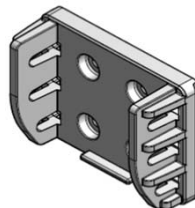
**#10 X 1\"/>**



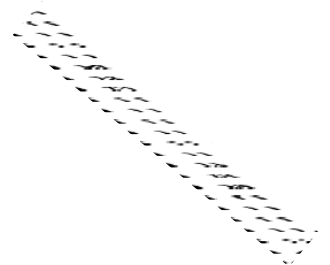
**#10 X 1-1/2\"/>**



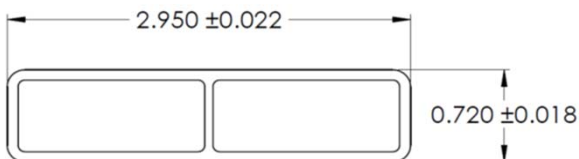
**Bottom Rail Back Plate**



**Top Rail Back Plate**

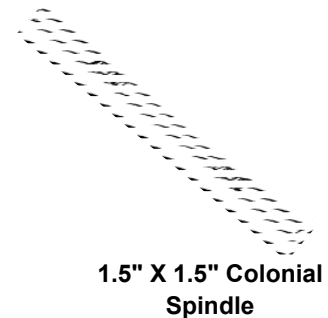
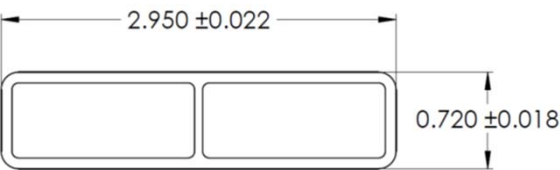
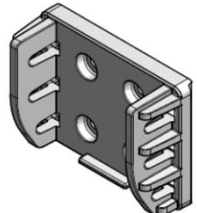
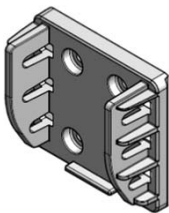
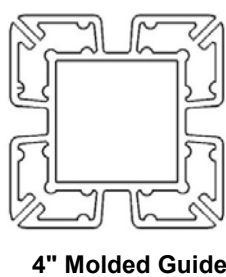
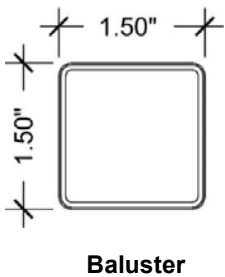
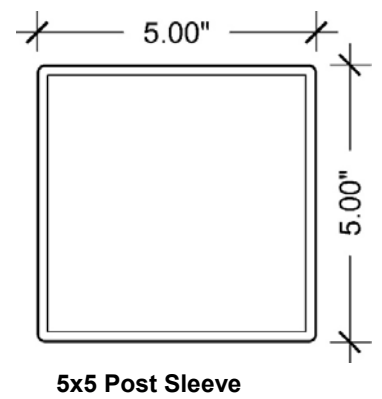
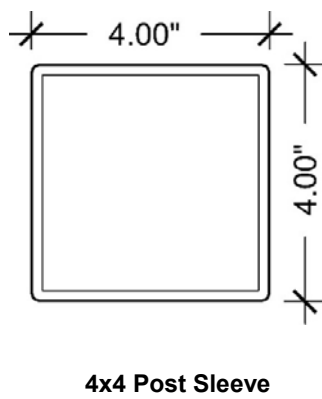
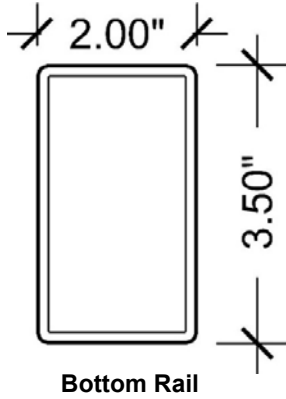
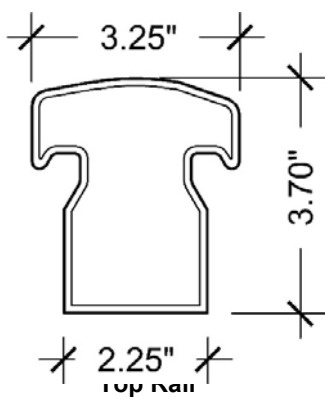
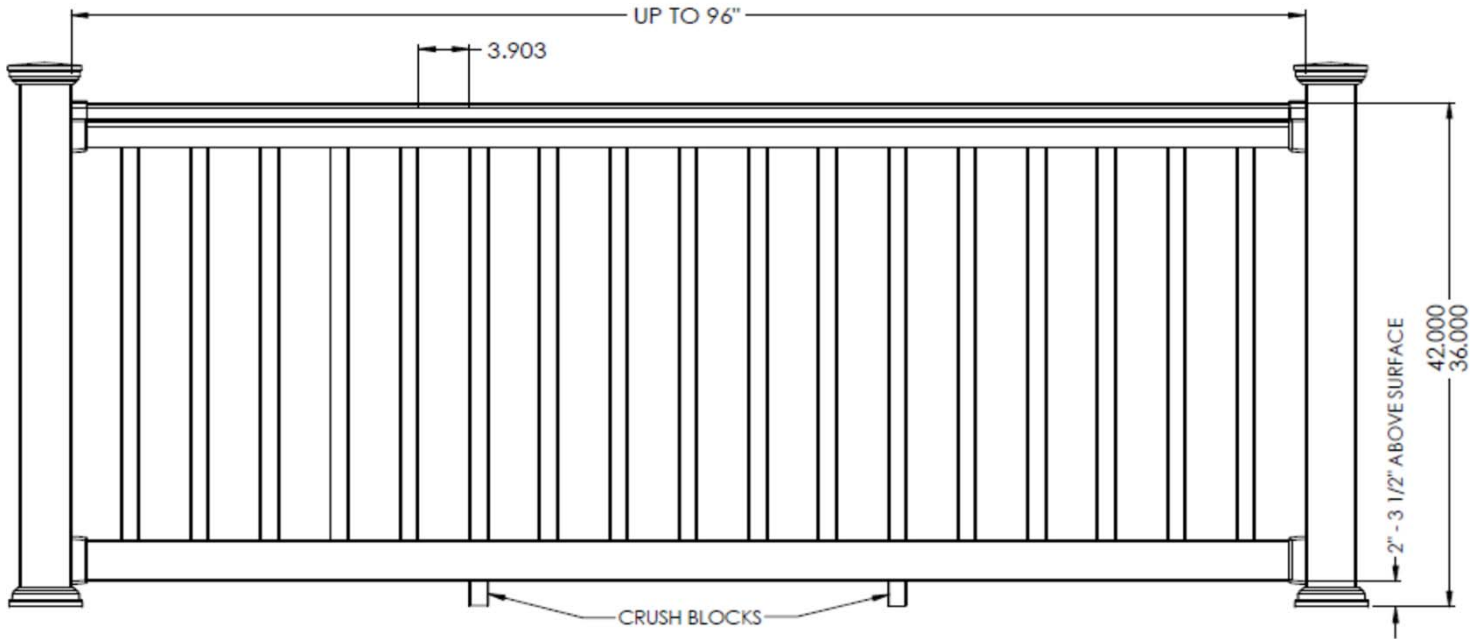


**1.5\"/>**

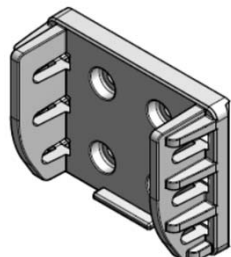
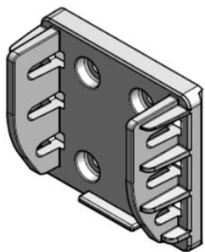
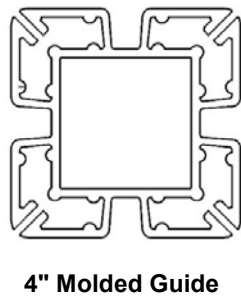
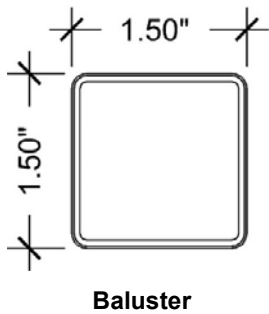
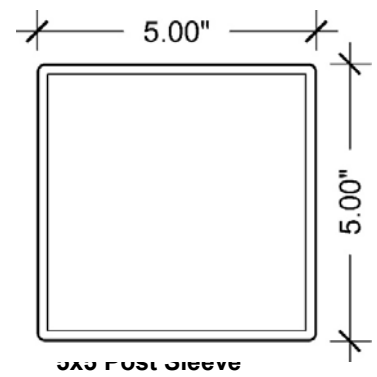
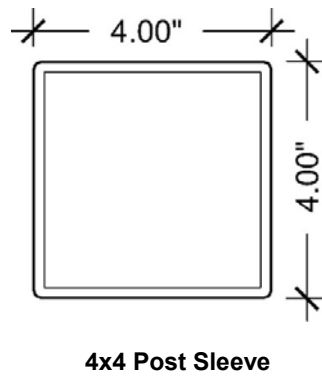
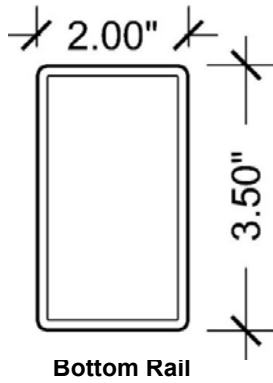
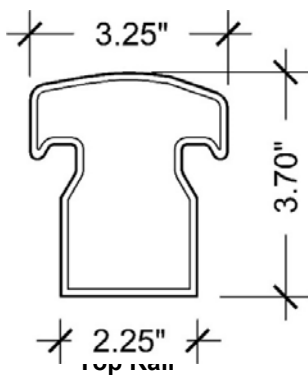
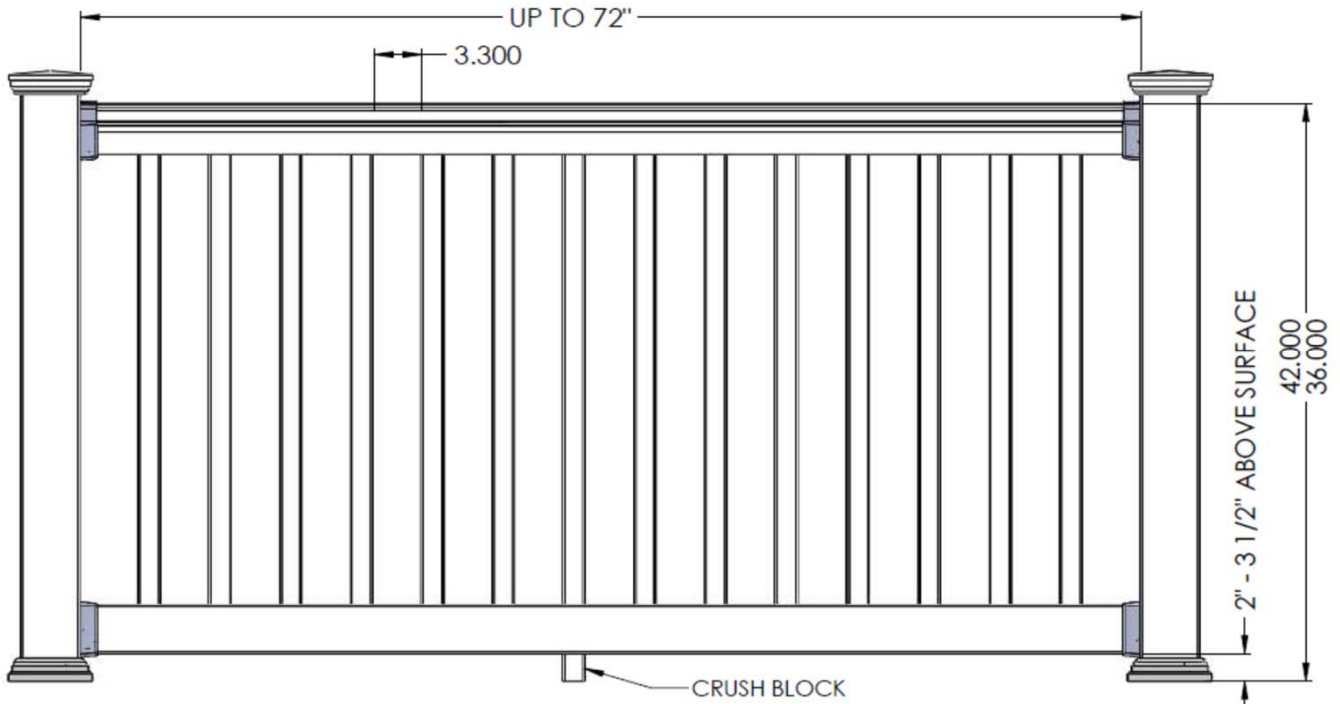


**Aluminum Reinforcement**

**QuickRail 8' Synthetic Railing System**



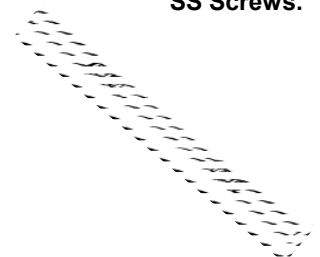
**QuickRail 6' Synthetic Railing System**



#10 X 1" Phillips Pan-Head Self Drilling SS Screws.

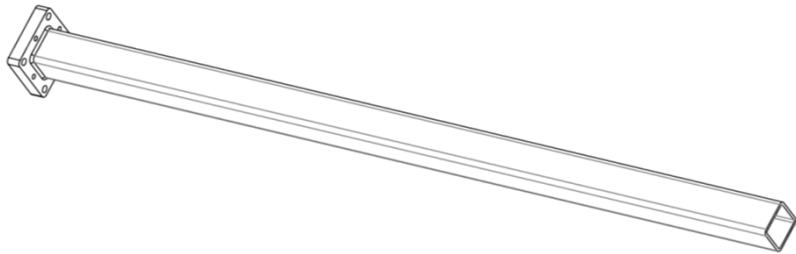
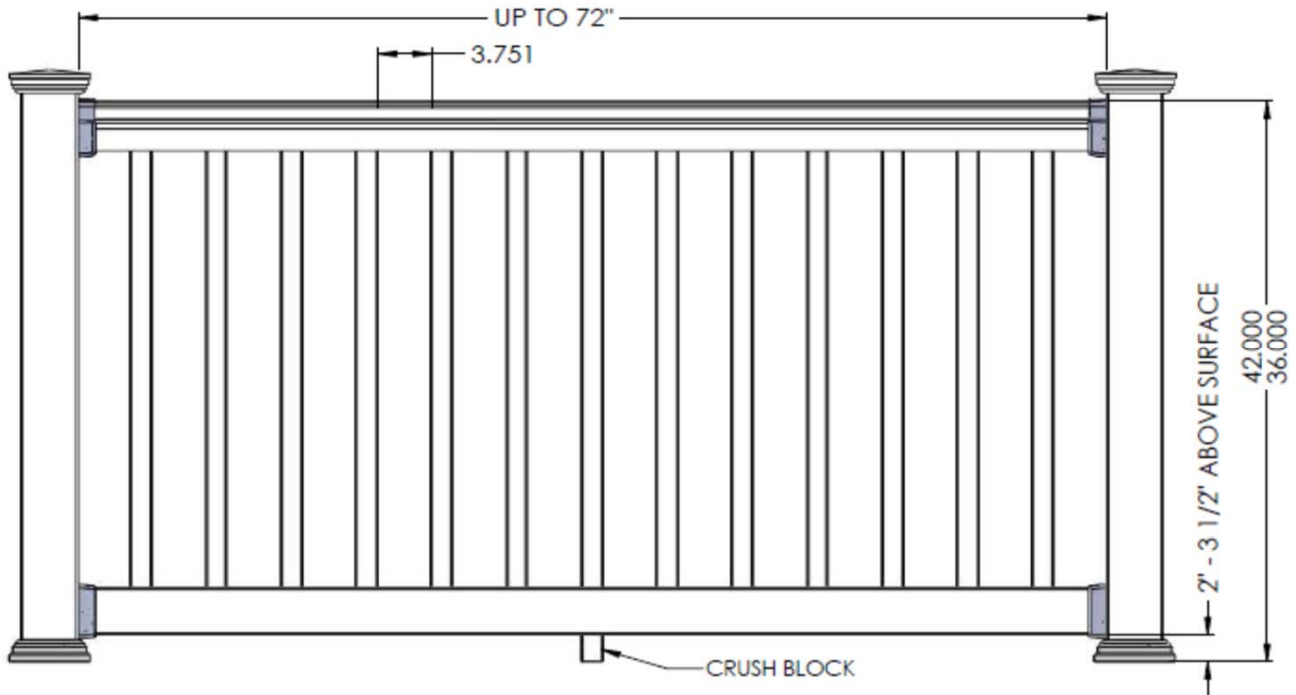


#10 X 1-1/2" Phillips Pan-Head Self Drilling SS Screws.

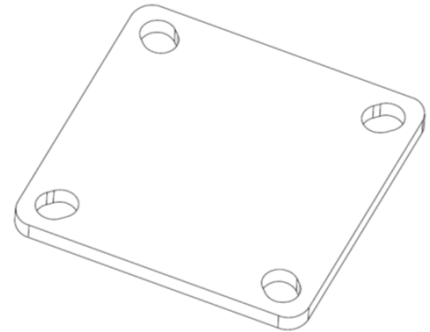


1.5" X 1.5" Colonial Spindle

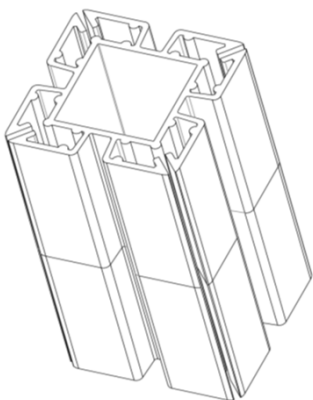
**PRELIM QuickRail Synthetic Railing using Ultra-Post (72" span only)**



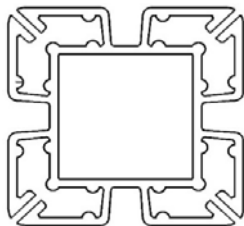
**Ultra-Post**



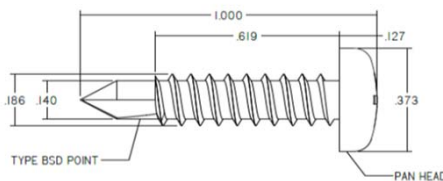
**Leveling Plate**



**4" Molded Guide**



**5/16-18 3/4" Hex Head Grade 5 Bolts**



**#10-10 x 1-1/2" Phillips Pan Head (Top / Bottom stabilizer to Post Sleeve)**

**#10-16 x 1" Phillips Pan Head (Post Mount to Top Stabilizer (internal component))**