



Product Evaluation Report

PER-08030

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Initial Listing
October, 2008

Re-Approved
September 11, 2009

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Goshen, Indiana 46528 www.p-e-i.com

Listed Products

Style 4A 8' T Rail Vinyl Railing
Style 4A 10' T Rail Vinyl Railing

Listed For

Royal Outdoor Products

P.O. Box 360
Milford, IN 46542

Approved Manufacturer

Royal Outdoor Products

401 S. Syracuse Street
Milford, IN 46542

Progressive Engineering Inc. is an accredited Testing Laboratory and Third Party Quality Control Agency. This **Product Evaluation Report** represents a product that **Pei** has a follow-up service agreement with. This **Product Evaluation Report** in no way implies warranty for this product or relieves **Royal Outdoor Products** of their liabilities for this product. **Pei** is accredited to ISO Standard 17020 and 17025. This **PER** is an official document if it is within one year of the initial or renewal date.

Listing Details

Styles 4A8 and 4A10 T Railings are used for exterior guards for balconies, porches, stairs and decks. The top and bottom railings are manufactured with openings spaced under 4" to accommodate the vertical balusters.

Styles 4A8 and 4A10 T Railings have been tested and evaluated for structural strength to meet design loads and requirements of the codes listed under Code Compliance of this PER.

Product Descriptions

T Railing is manufactured from coextruded PVC plastic, with a UV inhibitor to prevent sun damage or color change along with impact modifiers to provide stability. The T Rail systems are designed for an installed height of 42" with a maximum length of 120" when measured from center-of-post to center-of-post. Each post is a sleeve over a 4x4 timber. Style 4A8 has a span rating of 92" and Style 4A10 has a span rating of 115". The Style 4A8 & 4A10 T Railing top rails are strengthened with a .075" thick aluminum rail reinforcement. One or two crush blocks are used to reinforce the bottom rails.

General Product Usage 4A8 & 4A10

1. Style 4A8 & 4A10 T Railings shall be installed in accordance with the Straight Bracket Railing Installation Instructions and subject to the conditions of this PER. A copy of the Straight Bracket Railing Installation Instructions shall be made easily available to the installer.
2. All framing, wood posts, beams, joists, stringers and associated connections needed to support the 4A8 & 4A10 T Railing is outside of the scope of this PER. All framing shall follow applicable codes or be designed by a licensed Engineer. Stairways shall be designed and constructed in accordance with the applicable codes.
3. 4A8 T Railing is installed and fastened to the wood framing using #12 by 1-1/2 inch long stainless steel pan head screws or equal. The screws are driven through the wall mount securing the top and bottom rails in place. One #10 by 1" long screw is set in the middle slot of each bracket on both sides of the bottom rail as well as in the top and bottom slot of each bracket on both sides of the top rail. One 2" high crush block is to be fastened to the bottom rail at the center of its length. Only the fasteners and fastener configurations specified for use have been evaluated for installation of the Style 4A8 T Rail system.
4. The Style 4A10 T Railing is installed and fastened to the wood framing using #12 by 1-1/2 inch long stainless steel pan head screws or equal. The screws are driven through the wall mount securing the top and bottom rails in place. One #10 by 1" long screw was set in the middle slot of each bracket on both sides of the top rail. The bottom rail does not get fastened to the brackets. Two (2) 2" high crush blocks are fastened to the bottom rail to provide three (3) equidistant spaces between the posts. Only the fasteners and fastener configurations specified for use have been evaluated for installation of the Style 4A10 T Rail system.

Test Documentation

Test Report FH-1448 - Per ASTM E84 Surface Burning Characteristics - Dated 2/13/2004
 End Use Adjustment Factor Using PEI Test Report No.'s 2003-565 (D), 2003-565 (E) and 2003-565 (F)
 PEI Test Report No. 2007-0755 - ASTM D638 Tensile Test on Xenon Arc Exposed Plastic- Dated 6/30/2007
 PEI Test Report No. 2008-0837 (A) - ASTM D7032 Guardrail Test on Style 4A10 Railing System .075" Thick Aluminum Rail Reinforcement - Dated 6/20/2008
 PEI Test Report No. 2008-0837 (B) - ASTM D7032 Guardrail Test on Style 4A8 Railing System .075" Thick Aluminum Rail Reinforcement - Dated 7/3/2008
 PEI Test Report No. 2008-0837 (I) - Guardrail Post Connection Test - Dated 10/09/2008
 Test Report 67969.01-119-19 - Polycarbonate Bracket 1-1/4" and 1-1/2" Injection-Molded Spindle and Thermo-Formed Spindle
 Test Report 77831.02-119-19 - PVC Thermo-Formed Balusters, Series: 3100/3102, 3107, 3110 and 3114/3115/3116.

Tested to

ASTM E84-03a - Standard Test Method for Surface Burning Characteristics of Building Materials
ASTM D638-03 - Standard Test Method for Tensile Properties of Plastic
ASTM D7032-04 - Standard Specification for Establishing Performance Ratings for Wood Plastic Composite Deck Boards and Guardrail Systems (Guards for Handrails)
ASTM G155-04 - Standard Practice for Operating Xenon Arc Light Apparatus for Exposure of Non-Metallic Materials.

Quality Assurance Documentation

Straight Bracket Installation Instruction - From LMT Mercer Group Inc.
 A Quality Control Manual for 4A10 T- Rail Manufacturing - Dated 8/18/2008
 A follow-up Listing & Inspection agreement between Pei and Royal Outdoor Products
 A MSDS sheet for PVC Compounds dated 5/16/2008

Code Compliance for 4A8 T Railing

2003 International Residential Code Section R312.1	2006 International Residential Code Section R312.1
2003 International Building Code Section 1607.7.1	2006 International Building Code Section 1607.7.1

Code Compliance for 4A10 T Railing

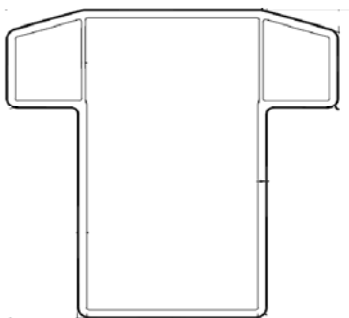
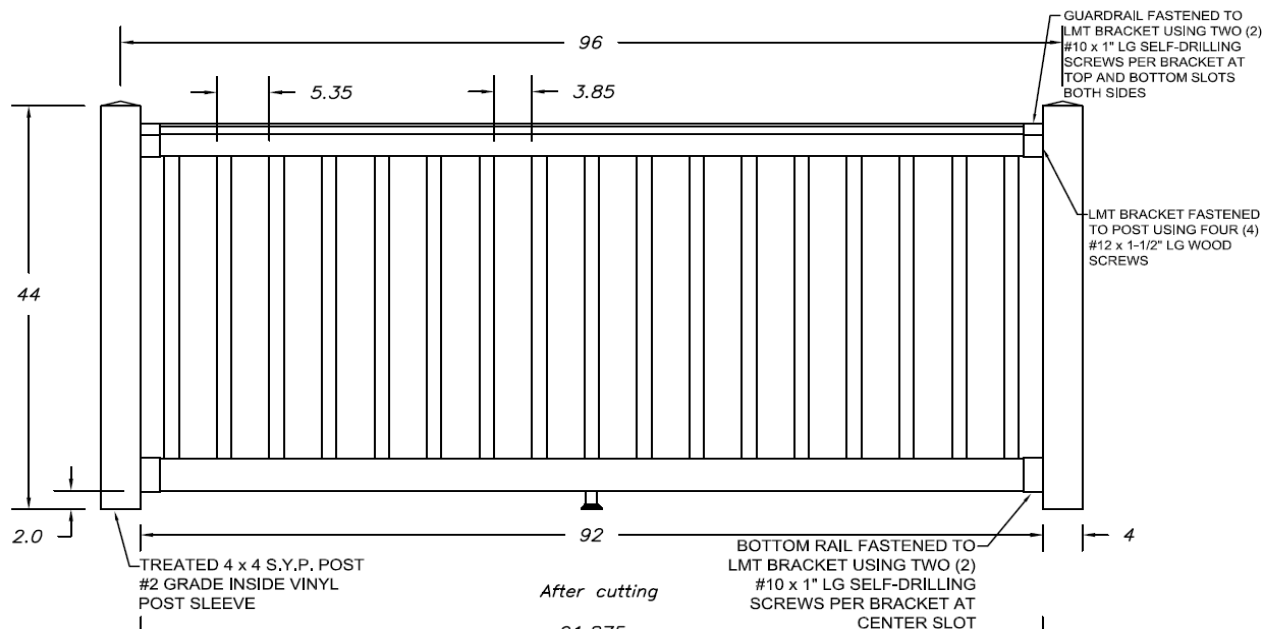
2003 International Residential Code Section R312.1	2006 International Residential Code Section R312.1
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Product Labeling

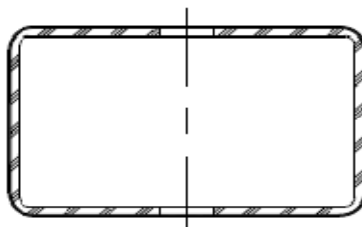
Style 4A8 & 4A10 T Rail Systems must be labeled with at least the following information:

1. The Style 4A8 and 4A10 T Railing name
2. Manufacturing Date Code
3. Manufacturer's name, Logo or website
4. This PER number & Pei's name or Logo

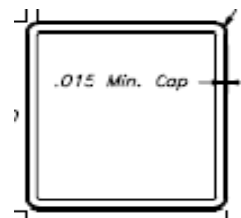
4A8 T Rail



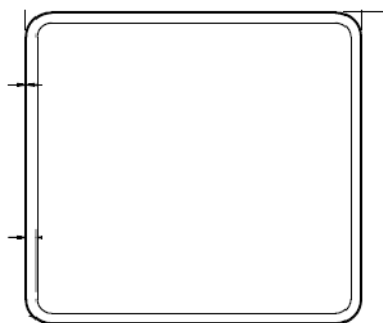
T Rail



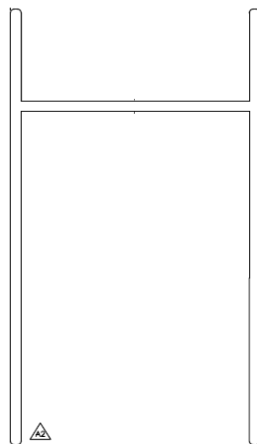
2" x 3.5" Rail



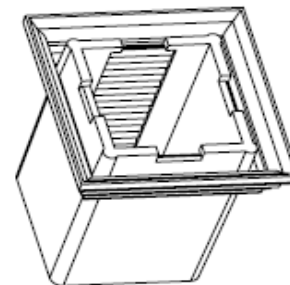
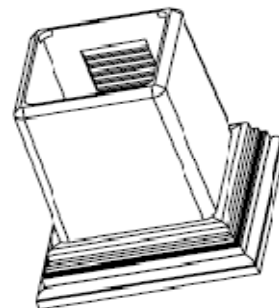
1.5 x 1.5 Picket



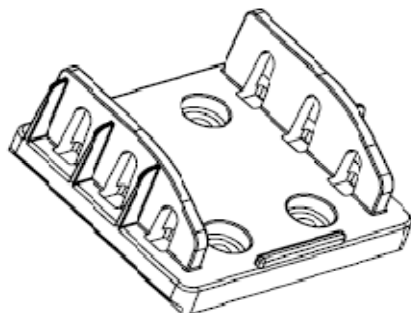
4" Square Post



Aluminum Reinforcement



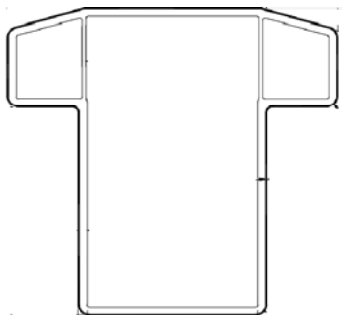
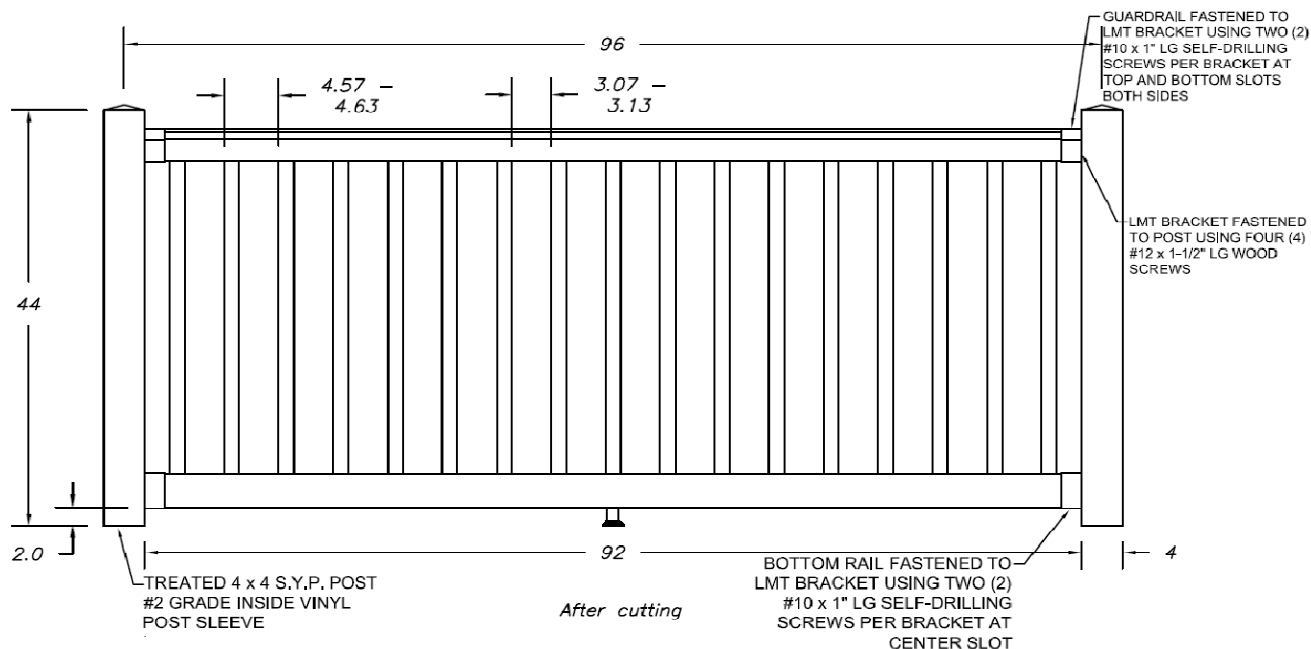
Foot Blocks



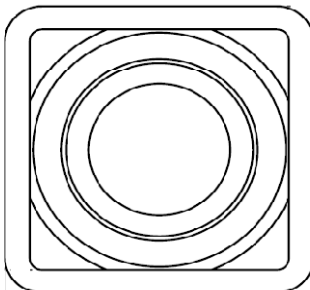
Straight Bracket

PER-08030

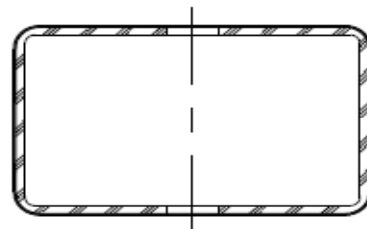
4A8 T Rail (w/PVC Thermo-Formed Spindle)



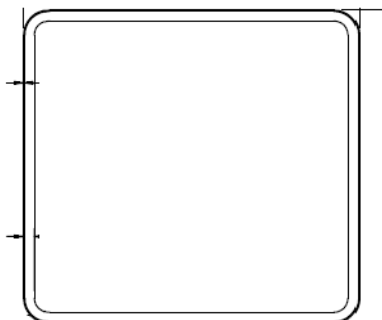
T Rail



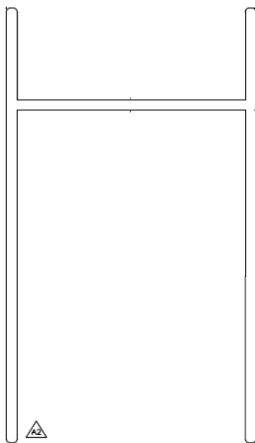
1.50" X 1.50" Thermo-Formed Spindle (3150)



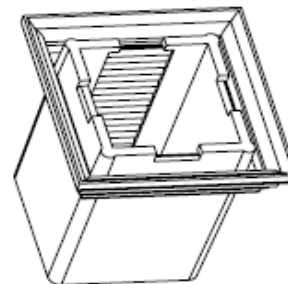
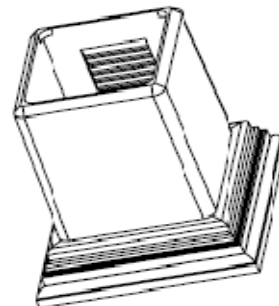
2" x 3.5" Rail



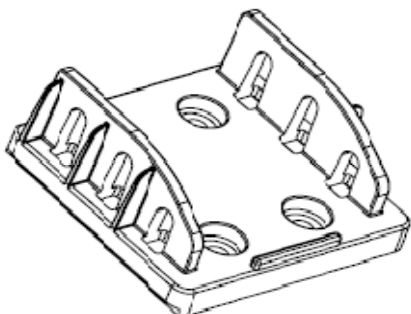
4" Square Post



Aluminum Reinforcement

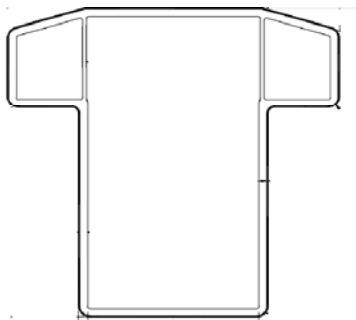
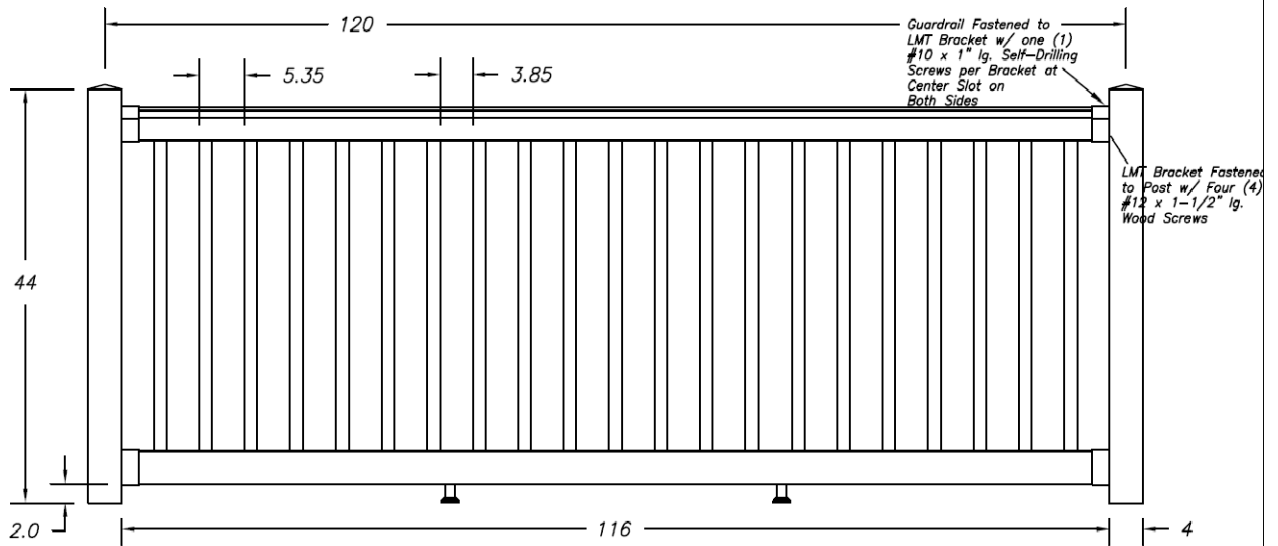


Foot Blocks

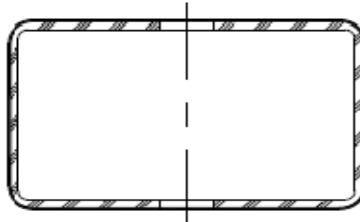


Straight Bracket

4A10 T Rail



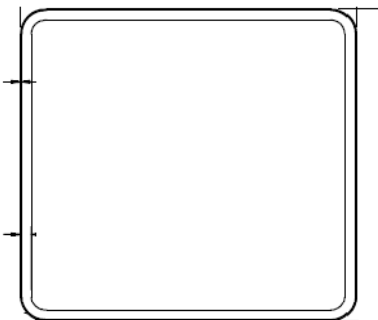
T Rail



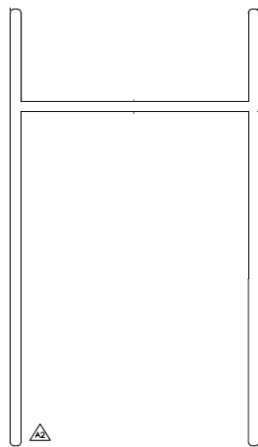
2" x 3.5" Rail



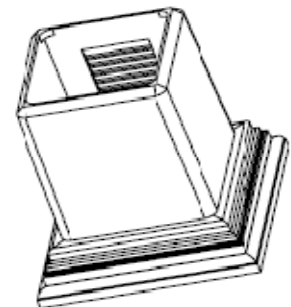
1.5 x 1.5 Picket



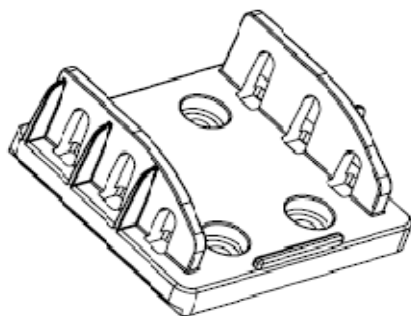
4" Square Post



Aluminum Reinforcement

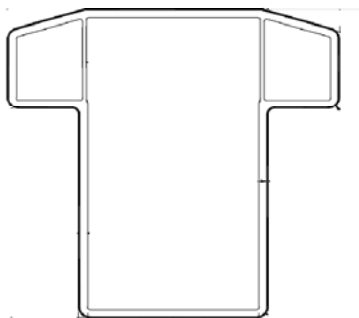
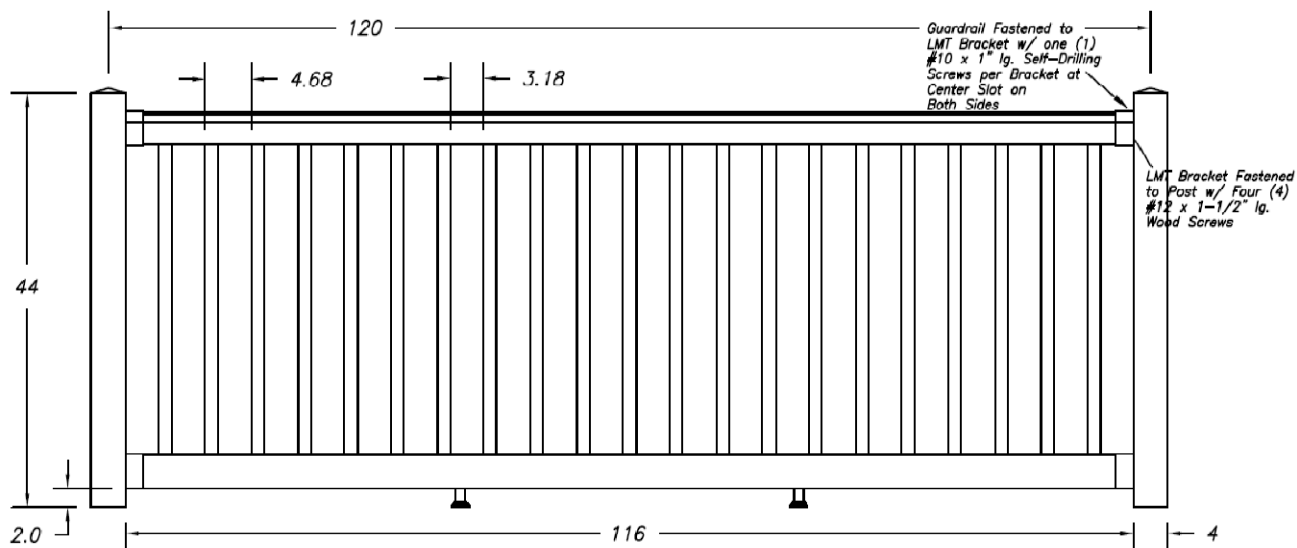


Foot Blocks

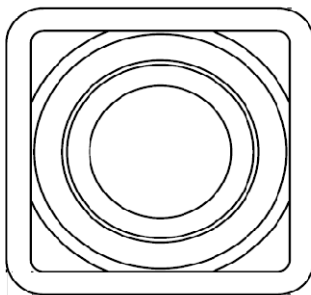


Straight Bracket

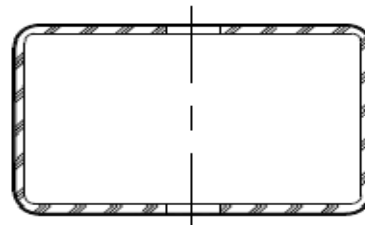
4A10 T Rail (w/Thermo-Formed Spindle)



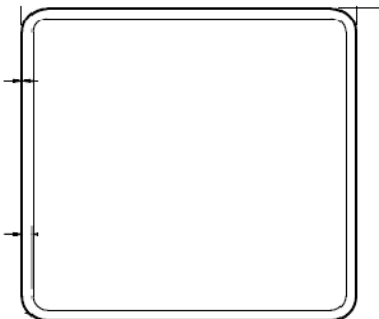
T Rail



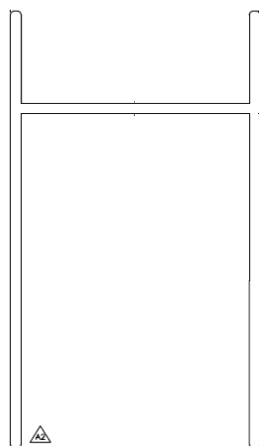
1.50" X 1.50" Thermo-Formed Spindle (3150)



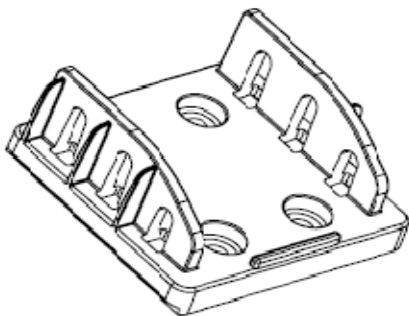
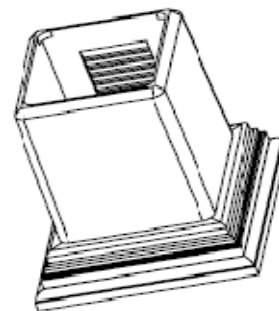
2" x 3.5" Rail



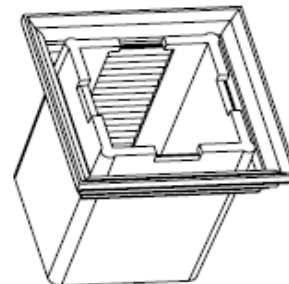
4" Square Post



Aluminum Reinforcement



Square Bracket



Foot Blocks

Approved Fabricators for Royal Outdoor PER-08030

The following is a list of approved Fabricators. The following Fabricators have an approved Q.C. Manual for this listed product and are inspected quarterly by PEI. Royal Outdoor Products has also approved this list of Fabricators.

Fabricator Name	Address	Website	Date Approved
USA Vinyl, LLC	3830 Lacon Road, Hilliard, OH 43026	www.usavinyl.com	3/5/2009