



# Product Evaluation Report

**PER-08032**

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*Progressive Engineering Inc.*

Initial Listing  
November, 2008

Re-Approved  
September 11, 2009

58640 State Road 15 574-533-0337  
Goshen, Indiana 46528 [www.p-e-i.com](http://www.p-e-i.com)

Listed Products

**Style 3B 8' Guardrail**

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

Style 3B8 Guardrail is 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.

Style 3B8 Guardrails 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

Style 3B8 Guardrails are manufactured from coextruded PVC plastic, with a UV inhibitor to prevent sun damage or color change along with impact modifiers to provide stability. The Style 3B8 Guardrail systems are designed for an installed height of 44" with a maximum length of 96" when measured from center-of-post to center-of-post. Each post is a sleeve over a 4x4 timber. Style 3B8 has a span rating of 92" and 96". The Style 3B8 Guardrail top rails is strengthened with a .075" thick aluminum rail reinforcement. One crush blocks is used to reinforce the bottom rail.

General Product Usage 3B8

1. Style 3B8 Guardrail 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 Style 3B8 Guardrails are outside 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. Style 3B8 Guardrails are installed and fastened to the wood framing using #12 by 1-1/2 inch long stainless steel screws or equal. The screws are driven through the wall mount securing the top and bottom rails in place. One #10 by 1" long pan-head galvanized screw is set in the top and bottom slot on each side of the bracket in the top rail and one in the middle slot on each side of the bracket for the bottom 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 3B8 Guardrail 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 (C) - ASTM D7032 Guardrail Test on Style 3B8 Railing System .075" Thick Aluminum Rail Reinforcement - Revised on 3/03/2009  
PEI Test Report No. 2008-0837 (I) -Guardrail Corner 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 Railing Manufacturing - Dated 10/31/2008  
A follow-up Listing & Inspection agreement between Pei and Royal Outdoor Products  
A MSDS sheet for PVC Compounds dated 5/16/08

**Code Compliance for Style 3B8 Guardrail System**

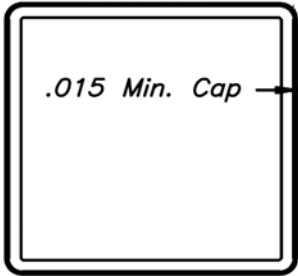
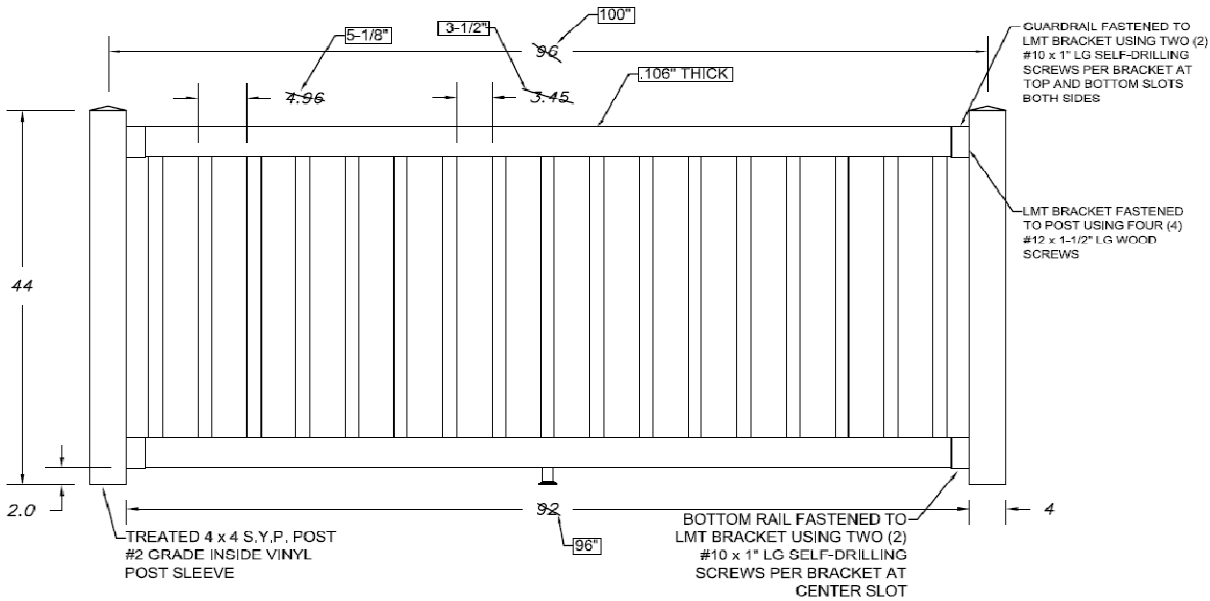
**2003 International Building Code**  
Section 1607.7.1

**2006 International Building Code**  
Section 1607.7.1

**Product Labeling**

Style 3B8 Guardrail Systems must be labeled with at least the following information:  
1. The Style 3B8 Guardrail name  
2. Plant Identifier & Date Code  
3. Manufacturer's name, Logo or website  
4. This PER number & Pei's name or Logo

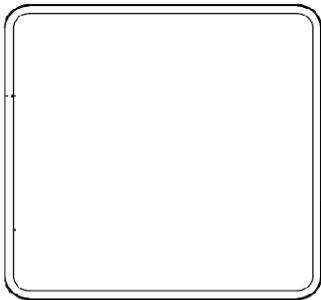
**Style 3B8 Guardrail**



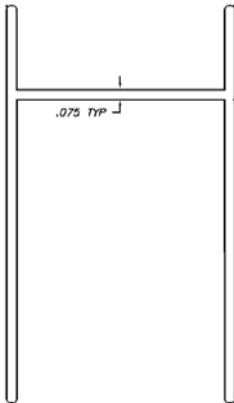
**1.50" x 1.50" Picket**



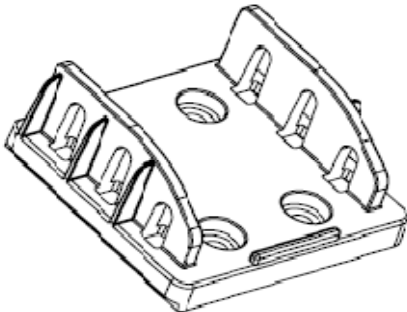
**2" X 3.5" Rail**



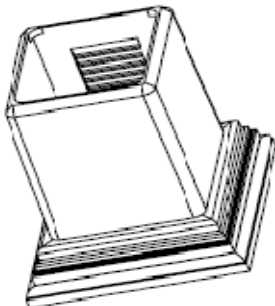
**4" Square Post**



**Aluminum Reinforcement**

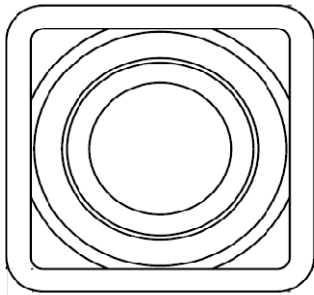
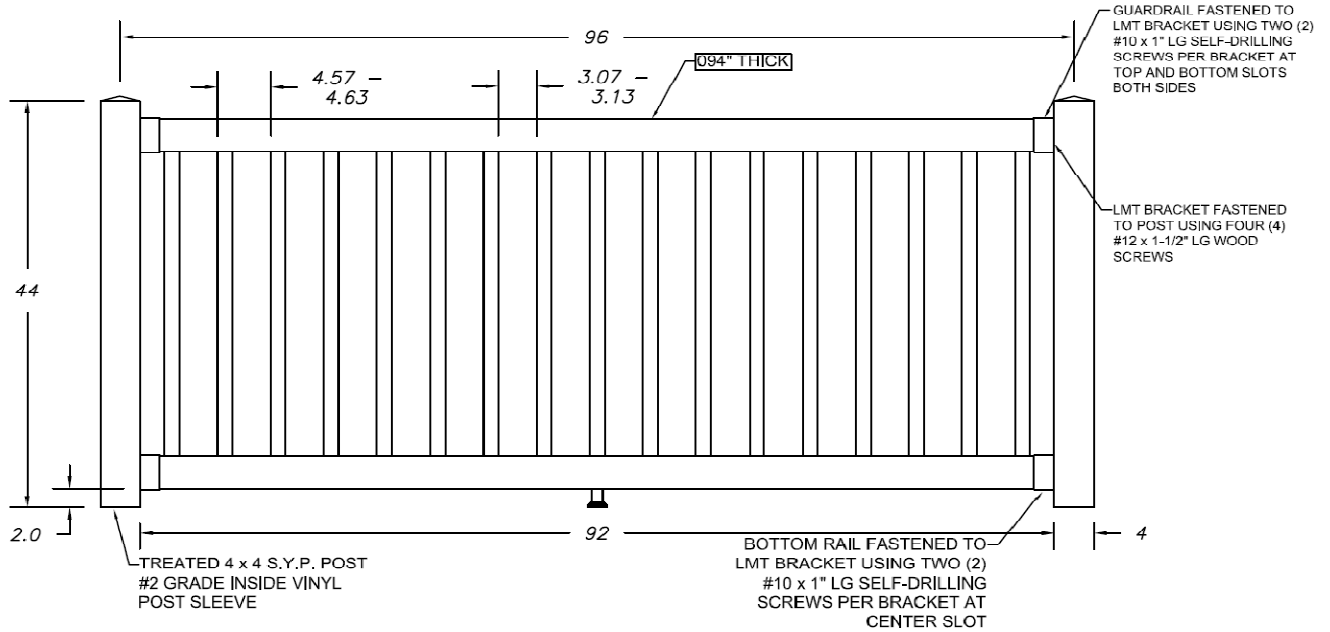


**Straight Bracket**



**Foot Block**

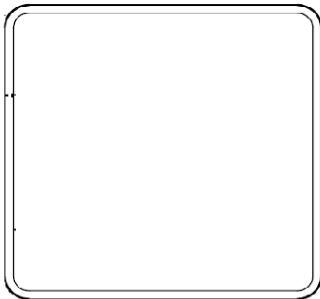
**Alternative Style 3B8 Guardrail (PVC Thermo-Formed Spindle)**



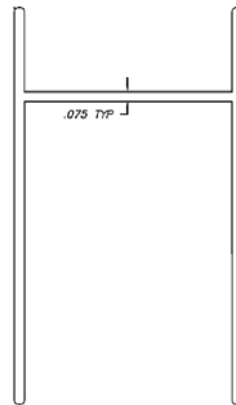
**1.50" X 1.50" Thermo-Formed Spindle (3150)**



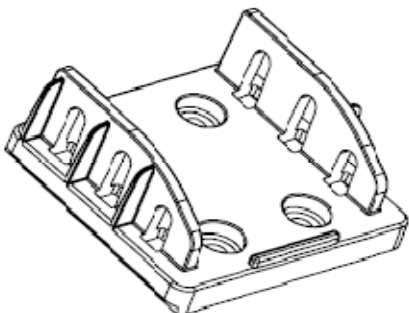
**2" X 3.5" Rail**



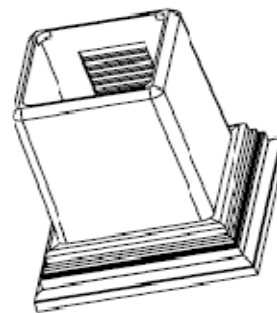
**4" Square Post**



**Aluminum Reinforcement**



**Straight Bracket**



**Foot Block**

**Approved Fabricators for Royal Outdoor PER-08032**

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.

| <b>Fabricator Name</b> | <b>Address</b>                      | <b>Website</b>   | <b>Date Approved</b> |
|------------------------|-------------------------------------|--|----------------------|
| USA Vinyl, LLC         | 3830 Lacon Road, Hilliard, OH 43026 | <a href="http://www.usavinyl.com">www.usavinyl.com</a> | 3/5/2009             |
|                        |                                     |  |                      |
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