

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 **Homeland Vinyl Products, Inc.** 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
November, 2019

Re-Approved

See all **Pei ES** Listings at: www.p-e-i.com

Report Owner

Homeland Vinyl Products, Inc.
3300 Pinson Valley Parkway
Birmingham, AL 35217

Approved Manufacturing Location

Homeland Vinyl Products, Inc.
3300 Pinson Valley Parkway
Birmingham, AL 35217

Product

Nexus® 1 Guardrail System
Nexus® 2 Guardrail System
Nexus® Hollow Utility Rail

Evaluation Report Information

Homeland Vinyl Products Contact: Aaron Waldrup
Phone: (205) 314-2496

General Details

The **Nexus Guardrail Systems** have been tested and evaluated for structural strength to meet design loads and requirements of 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. **Homeland Vinyl Products, Inc** 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 Description

All guardrail systems covered by this **PER** are co-extruded Polyethylene/Wood core with HDPE capstock products manufactured in one of the following **Pei ES** approved colors, White, Adobe, Tan, Honey Maple & Mocha Walnut. The **Nexus® Guardrail Systems** consist of the structural components outlined in Table 1 & Table 2 of this **PER** report.

General Product Use

1. The **Nexus®** guardrails shall be installed in accordance with Homeland Vinyl Products 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 **Nexus®** guardrails may be used in all construction types where untreated wood is permitted in accordance with Section 1406.3 of the IBC.
4. All guardrail system load tests were performed using 4x4 Douglas Fir or Treated Southern Pine posts. 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. The **Nexus®** guardrails have been evaluated to the design rating and requirements of Table 1 of this evaluation report.

Code and Standard Compliance

| | |
|--|---|
| 2012 International Residential Code Section R301.5 Section R312.1 Section R317.4 Section R507.3 | 2012 International Building Code Section 1013 Section 1607.8.1 |
| 2015 International Residential Code Section R301.5 Section R312.1.4 Section R317.4 Section R507.3 | 2015 International Building Code Section 1015 Section 1607.8.1 Section 2612 |
| 2018 International Residential Code Section R301.5 Section R312.1.4 Section R317.4 Section R507.2.2 | 2018 International Building Code Section 1015 Section 1607.8.1 Section 2612 |

- Notes:**
1. Evaluated and approved to meet or exceed requirements in 2012, 2015 & 2018 International Building Code (IBC) and International Residential Code (IRC) only if installed as product was tested. See Table 1 for approved code compliance assemblies and Table 2 for approved fastener requirements. See Figure 1 through 27 for profile details.
 2. All products may be recognized as code compliant in accordance with the 2012, 2015 & 2018 IBC/IRC. System specific limitations are provided in Table 1.

Tested To

- ICC-ES AC 174 (2009 & 2012)** - Acceptance Criteria for Deck Board Span Ratings and Guardrail Systems (Guards and Handrails)
- ASTM D790-07** - Test Methods for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials.
- ASTM D1761-06** - Standard Test Methods of Mechanical Fasteners in Wood
- ASTM D2565-99** (Reapproved 2008) - Practice for Operating Xenon-Arc-Type Light Exposure Apparatus With and Without Water for Exposure of Plastics.
- ASTM D6109 (05/10)** - Standard Test Methods for Flexural Properties of Unreinforced and Reinforced Plastic Lumber.
- ASTM D7032 (07/08/10/12)** - Standard Specification for Establishing Performance Ratings for Wood, Plastic Composite Deck Boards and Guardrail Systems (Guards or Rails)
- ASTM E84-(03/09)** - Test Methods for Surface Burning Characteristics of Building Materials

Product Documentation

A Product Evaluation Service Agreement between *Pei Evaluation Service* and Homeland Vinyl Products, Inc.
 A Follow-up Inspection Service Agreement between *Progressive Engineering Inc.* and Homeland Vinyl Products, Inc.
 A Homeland Vinyl Products, Inc. Quality Control Manual - Dated: 5/30/2019

Nexus Installation Guide - Dated:

SDS for Extruded PVC Profiles - Dated: 5/15/2015

- Test Report No. 2018-6270 (A) - ASTM D7032 Guardrail Test on a Nexus[®] 1 Composite Railing System - Dated: 6/14/2019
- Test Report No. 2018-6270 (B) - ASTM D7032 Guardrail Test on a Nexus[®] 1 Composite Railing System - Dated: 7/12/2019
- Test Report No. 2018-6270 (C) - ASTM D7032 Guardrail Test on a Nexus[®] 2 Composite Railing System - Dated: 6/20/2019
- Test Report No. 2018-6270 (D) - ASTM D7032 Guardrail Test on a Nexus[®] 2 Composite Railing System - Dated: 4/18/2019
- Test Report No. 2018-6270 (E) - ASTM D7032 Guardrail Test on a Nexus[®] Hollow Utility Rail Composite Railing System - Dated: 4/18/2019

Product Labeling

Each guardrail shipment, that is covered by this **Product Evaluation Report**, must have a label attached with at least the following information:

1. Homeland Vinyl Products, Inc. Name and Address
2. Product Name
3. Plant Identifier and Date Code
4. This **PER** Number and *Pei ES* Logo

Acceptable Evaluation Marks



Approved Colors



Adobe

Mocha Walnut

Honey Maple

White

Tan

Table 1 - Individual Railing System Additional Code Limitations

| Railing System | Nominal Length | Maximum Height | Code Approval |
|---|----------------|----------------|---|
| Nexus® I T-Rail w/ Polymer Bracket | 6-ft and 8-ft | 42-in | IRC Code only ^{1,2} |
| Nexus® I T-Rail w/ Aluminum & PVC Brackets | 6-ft and 8-ft | 42-in | IRC ^{1,2} & IBC ³ Codes |
| Nexus® II Contour w/ Aluminum & PVC Brackets | 6-ft and 8-ft | 42-in | IRC ^{1,2} & IBC ³ Codes |
| Nexus® II Contour w/ Polymer & PVC Brackets | 6-ft and 8-ft | 42-in | IRC Code only |
| Nexus® Hollow Rail w/ PVC Brackets | 6-ft and 8-ft | 42-in | IRC Code only |

Notes:

1. All guardrail systems have been tested at a maximum height of 42-in (measuring from walking surface to top of top rail). A shorter guardrail system may be installed at the same span length as long as local code requirements for rail heights are met.
2. IRC = One and Two-Family Dwellings
3. IBC - All Use Groups
4. The **Nexus® I** T-Rail aluminum top rail insert is manufactured from **6005A-T61** aluminum alloy. See [Figures 1 and 4](#) on [page 4](#) for profile detail.
5. The **Nexus® II** Top Rail aluminum top rail insert is manufactured from 6005A-T61 aluminum alloy. See [Figures 1 and 4](#) on [page 4](#) for profile detail.

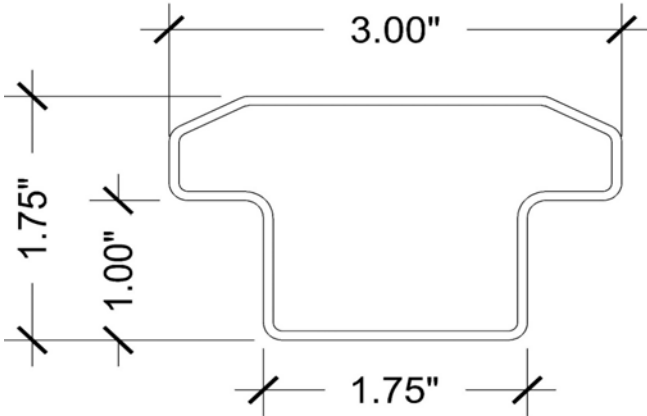
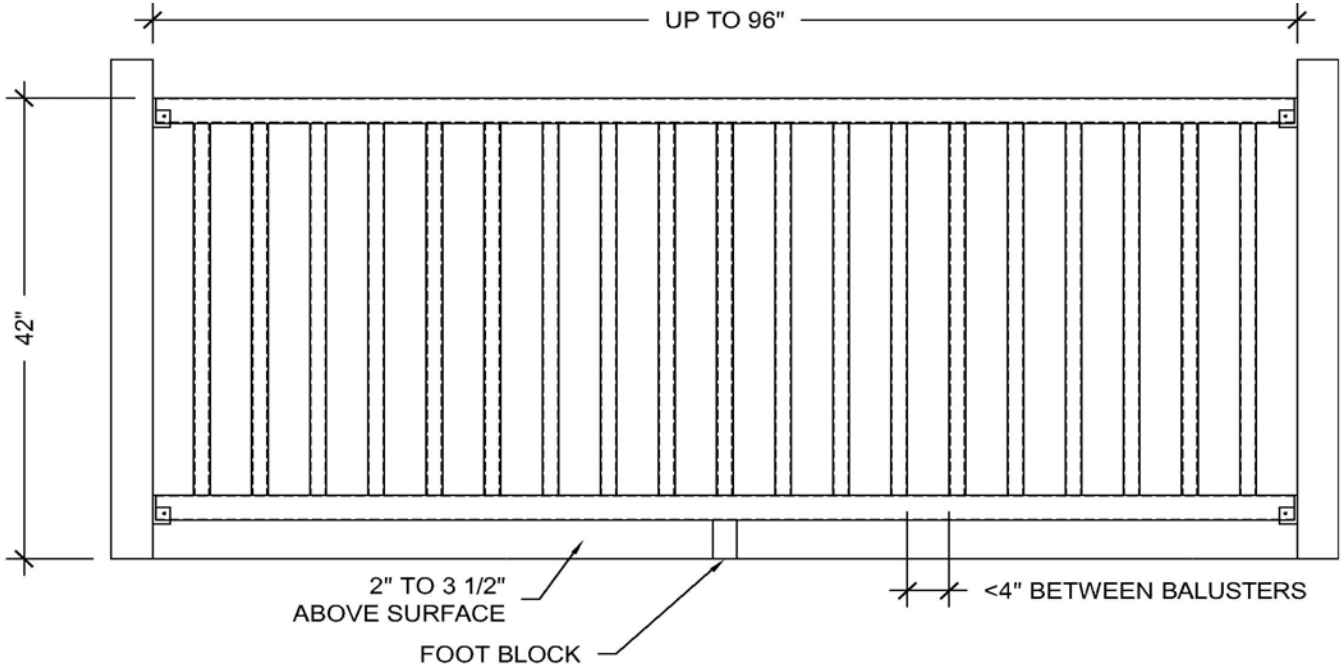
Table 2 - Guardrail Fastening Requirements¹

| Rail Profile | Connection | Bracket | Fastener ² | Quantity |
|-----------------------------------|-----------------------------|-------------------------|--|----------|
| Nexus® 1 | Top/Bottom Brackets to Post | Nexus Polymer Bracket | #9 x 1-1/2-in Flat-head SS thread cutting screws | 6 |
| | Bracket to Top Guardrail | | #9 x 7/8-in pan-head galvanized steel self-drilling screws | 2 |
| | Bracket to Bottom Guardrail | | #9 x 7/8-in pan-head galvanized steel self-drilling screws | 2 |
| Nexus® 1 | Top Rail Brackets to Post | Nexus Aluminum Bracket | #9 x 1-1/2-in Flat-head SS thread cutting screws | 6 |
| | Bottom Rail Bracket to Post | Nexus PVC Bracket | #9 x 1-1/2-in Flat-head SS thread cutting screws | 6 |
| | Bracket to Top Guardrail | Nexus Aluminum Bracket | #9 x 7/8-in pan-head galvanized steel self-drilling screws | 6 |
| | Bracket to Bottom Guardrail | Nexus PVC Bracket | #9 x 7/8-in pan-head galvanized steel self-drilling screws | 2 |
| Nexus® 2 | Top Rail Brackets to Post | Nexus Aluminum Bracket | #9 x 1-1/2-in Flat-head SS thread cutting screws | 6 |
| | Bottom Rail Bracket to Post | Nexus PVC Level Bracket | #9 x 1-1/2-in Flat-head SS thread cutting screws | 6 |
| | Bracket to Top Guardrail | Nexus Aluminum Bracket | #9 x 7/8-in pan-head galvanized steel self-drilling screws | 2 |
| | Bracket to Bottom Guardrail | Nexus PVC Level Bracket | #9 x 7/8-in pan-head galvanized steel self-drilling screws | 2 |
| Nexus® 2 | Top Rail Brackets to Post | Nexus Polymer Bracket | #9 x 1-1/2-in Flat-head SS thread cutting screws | 6 |
| | Bottom Rail Bracket to Post | Nexus PVC Level Bracket | #9 x 1-1/2-in Flat-head SS thread cutting screws | 6 |
| | Bracket to Top Guardrail | Nexus Polymer Bracket | #9 x 7/8-in pan-head galvanized steel self-drilling screws | 2 |
| | Bracket to Bottom Guardrail | Nexus PVC Level Bracket | #9 x 7/8-in pan-head galvanized steel self-drilling screws | 2 |
| Nexus® Hollow Utility Rail | Top/Bottom Brackets to Post | Nexus PVC Level Bracket | #9 x 1-1/2-in Flat-head SS thread cutting screws | 6 |
| | Bracket to Top Guardrail | | #9 x 7/8-in pan-head galvanized steel self-drilling screws | 3 |
| | Bracket to Bottom Guardrail | | #9 x 7/8-in pan-head galvanized steel self-drilling screws | 2 |

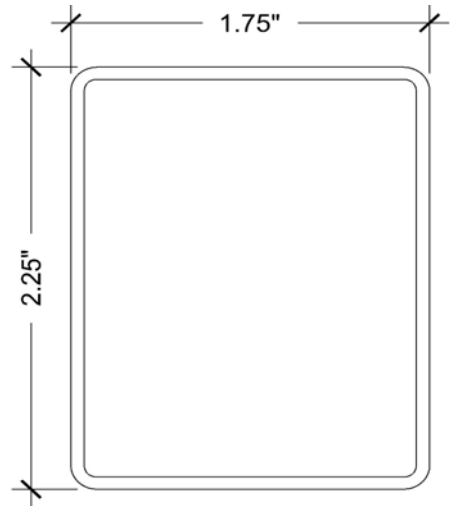
Notes:

1. Mechanical fastener not required for crush block to bottom rail.
2. SS - Stainless Steel

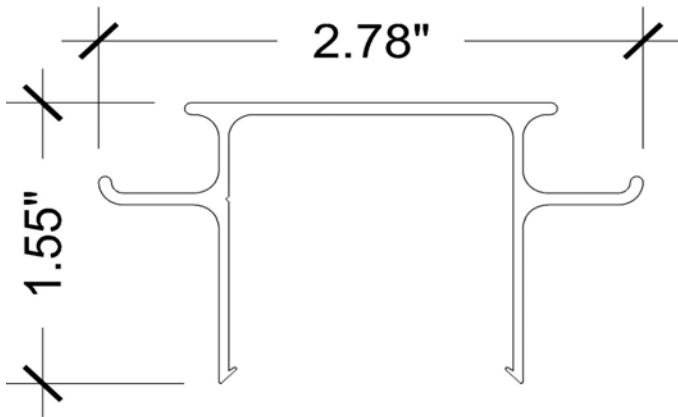
Nexus® I T-Rail Guardrail



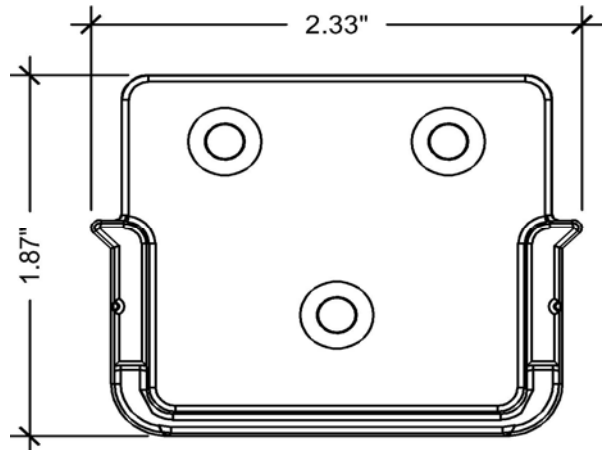
Nexus® I T-Rail (Top Rail)



Nexus® Bottom Rail

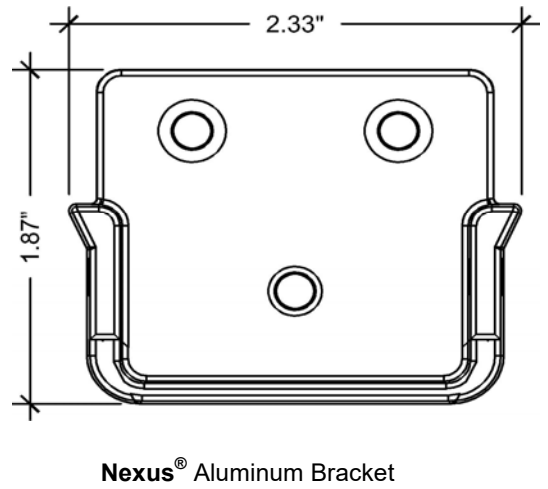
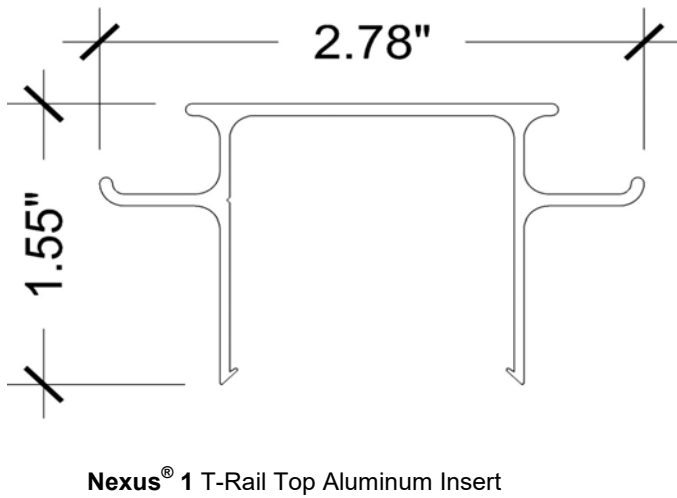
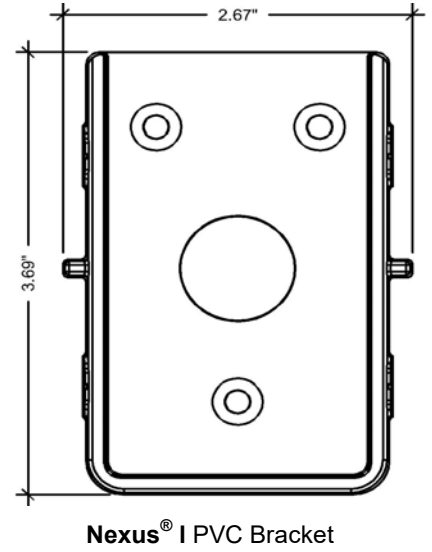
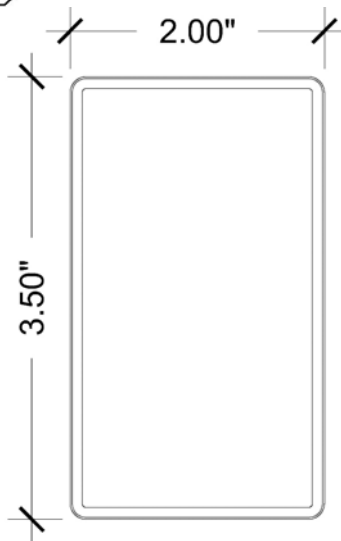
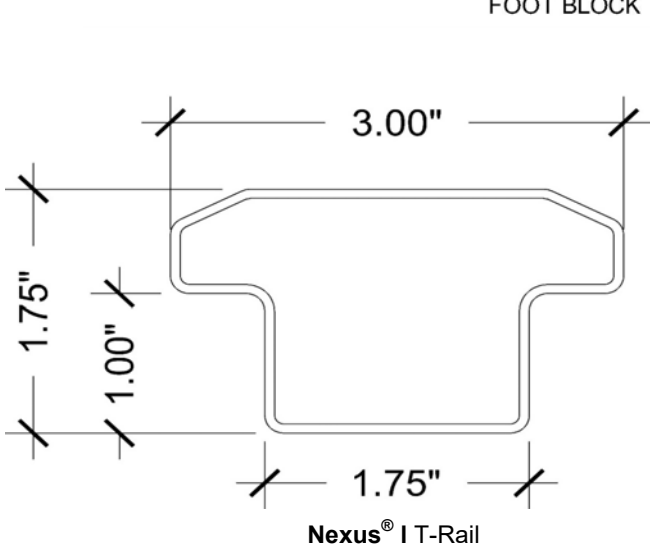
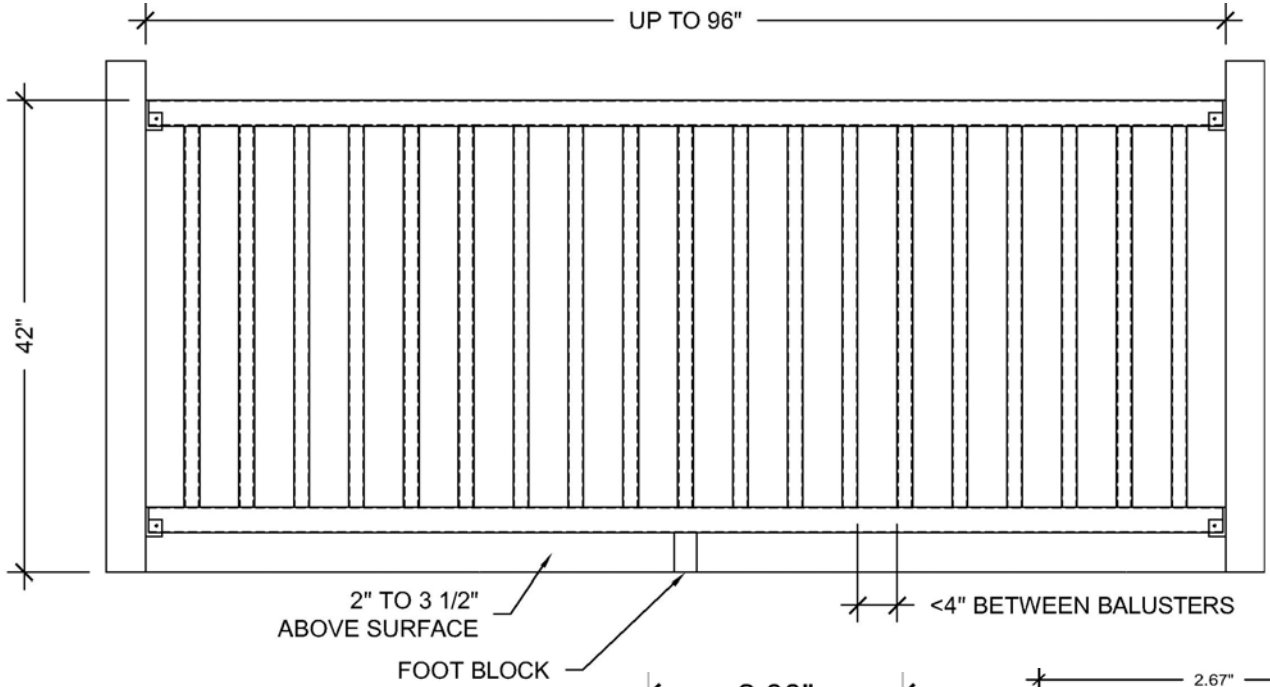


Nexus® I T-Rail Aluminum Insert

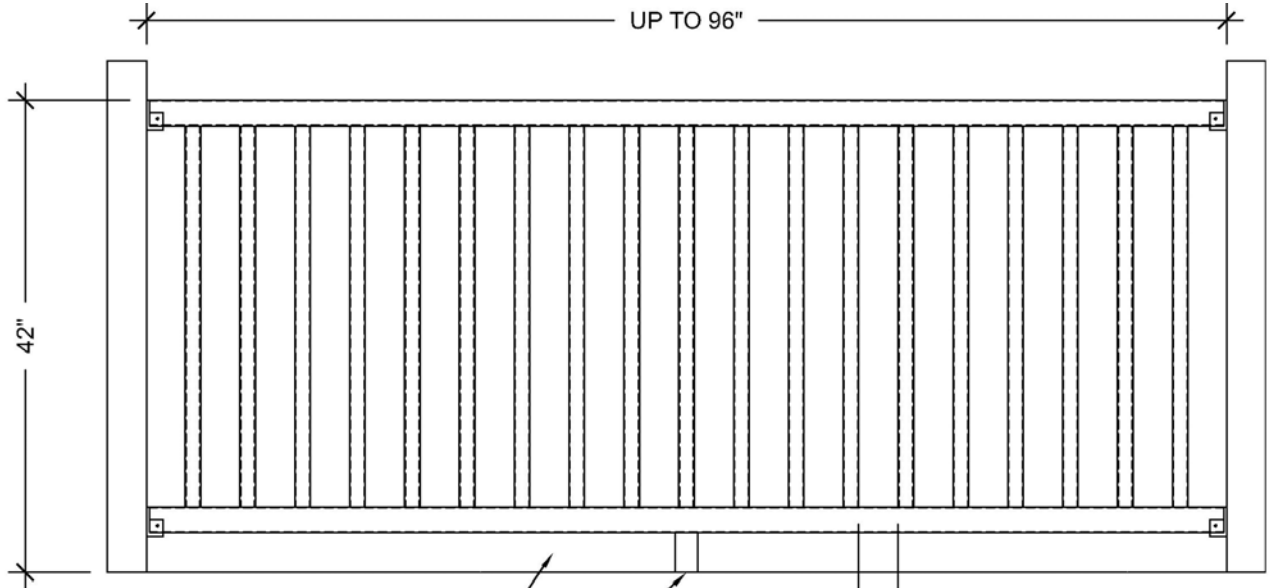


Nexus® I Polymer Bracket

Nexus® I Composite Guardrail



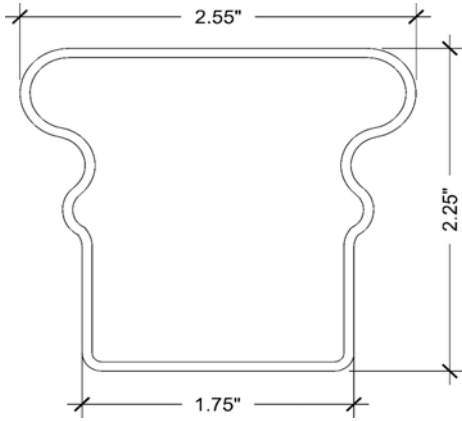
Nexus® II Contour Guardrail



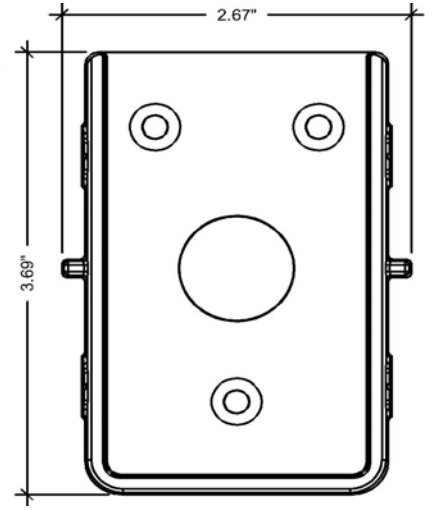
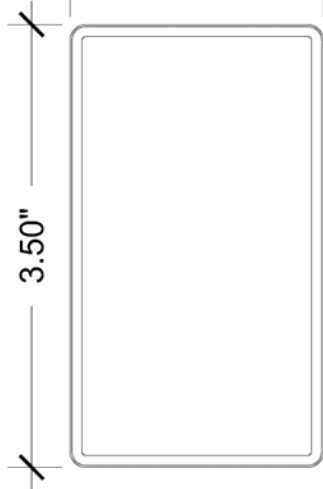
FOOT BLOCK

2.00"

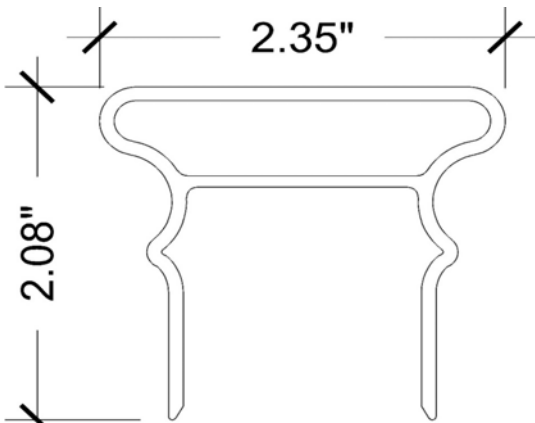
<4" BETWEEN BALUSTERS



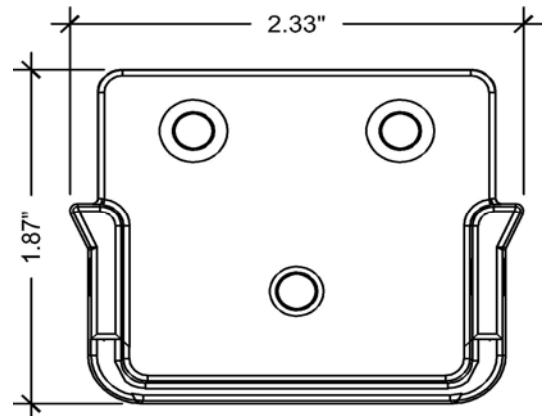
Nexus® II Contour Rail



Nexus® Aluminum Mounting Bracket Kit

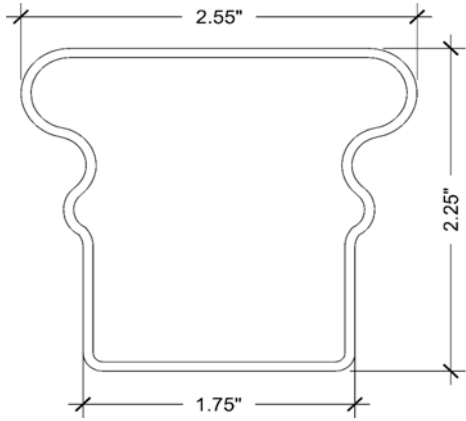
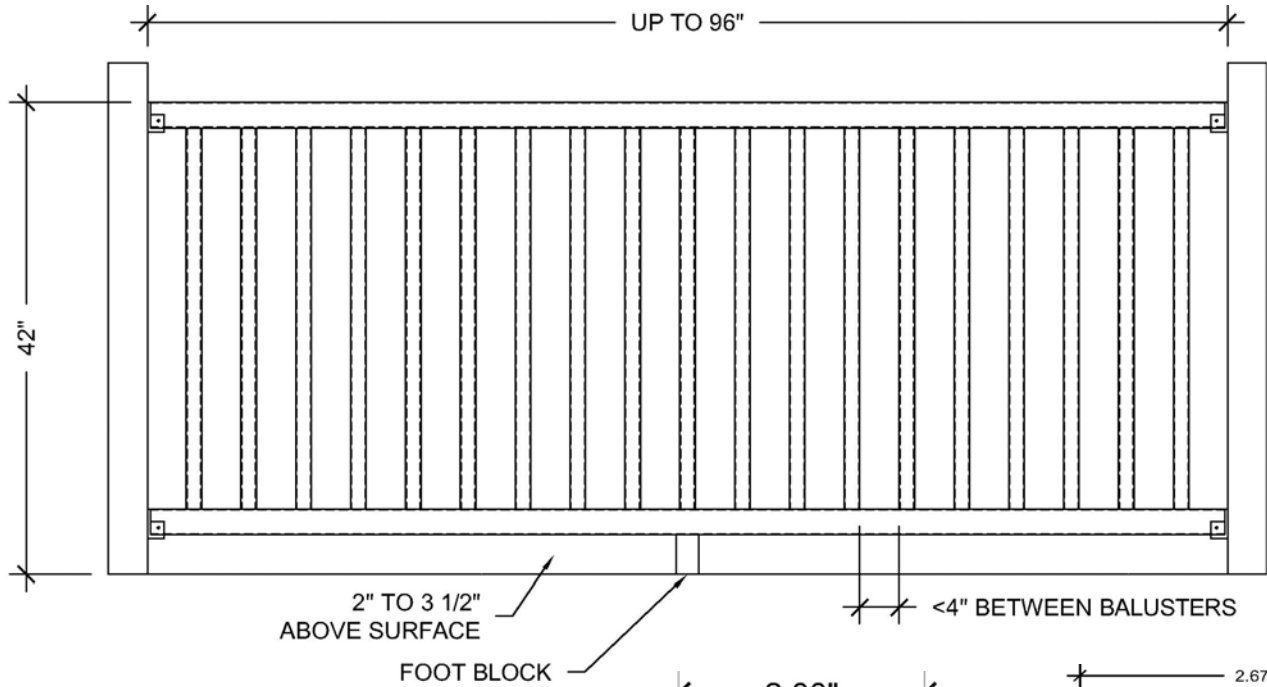


Nexus® II Top Rail Aluminum Insert

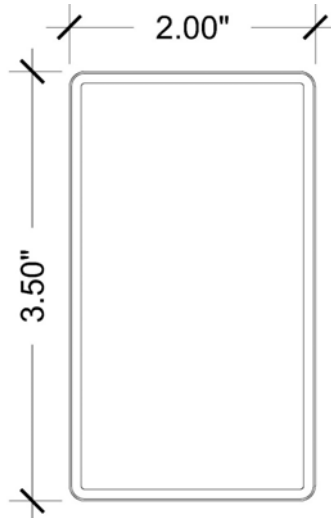


Nexus® PVC Level Bracket

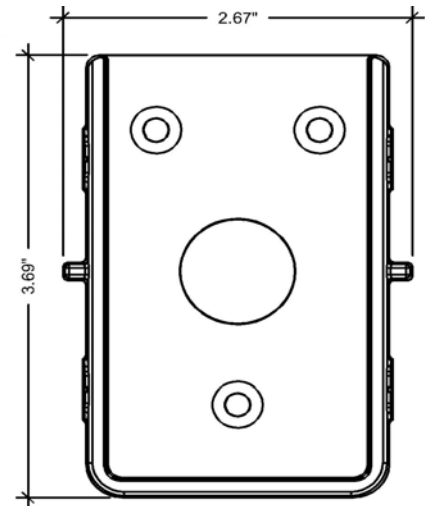
Nexus® II Composite Guardrail



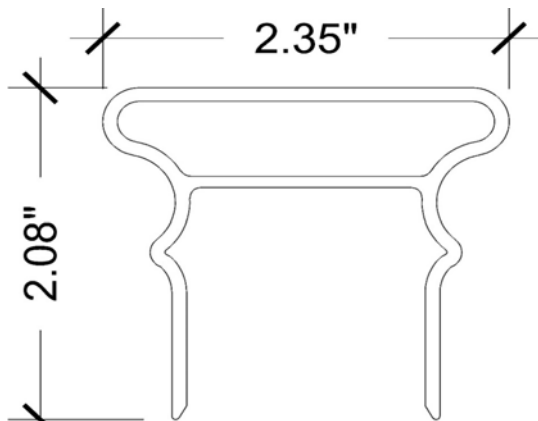
Nexus® II Contour Rail



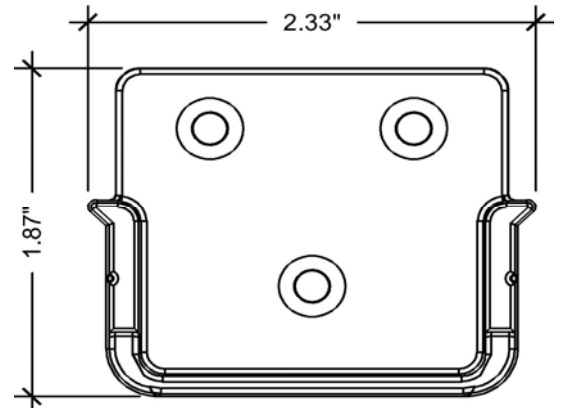
Nexus™ Bottom Rail



Nexus® II PVC Level Bracket

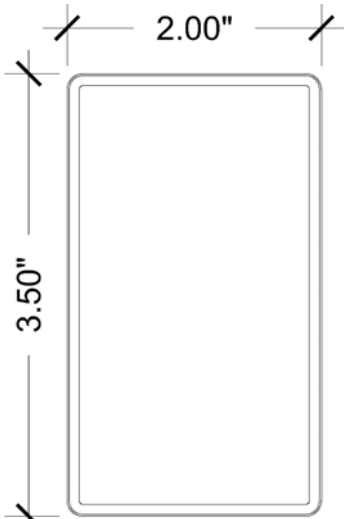
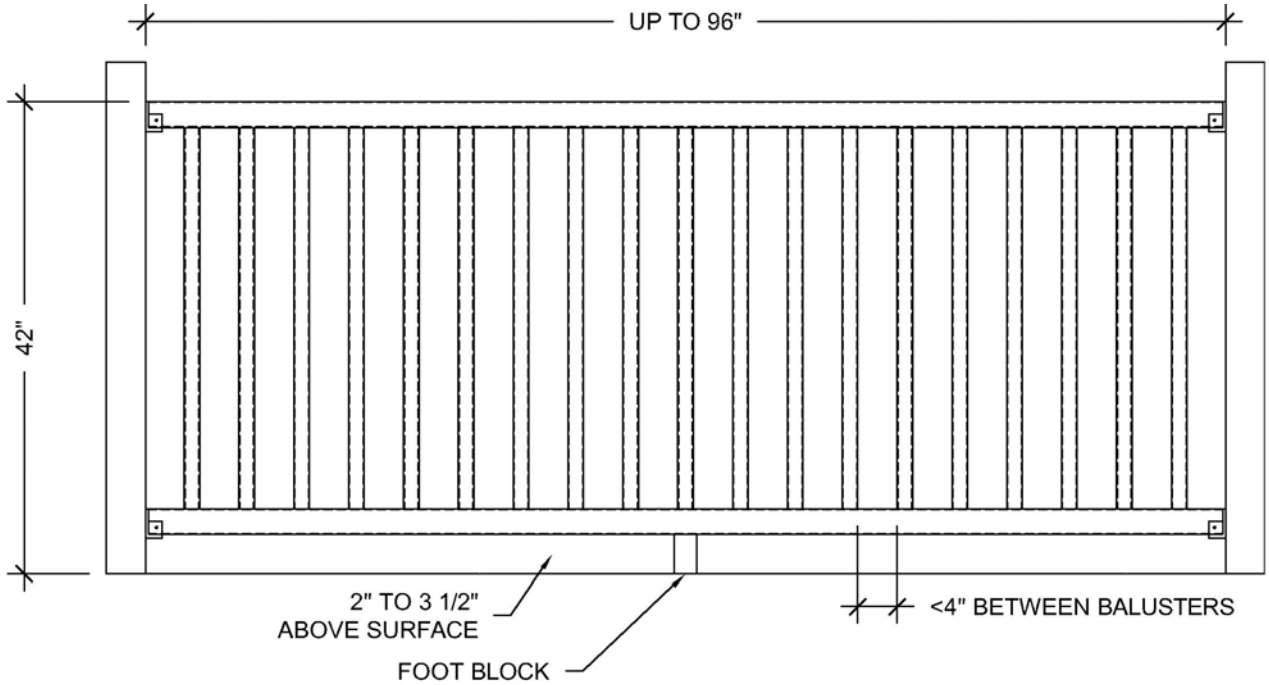


Nexus® II Top Rail Aluminum Insert

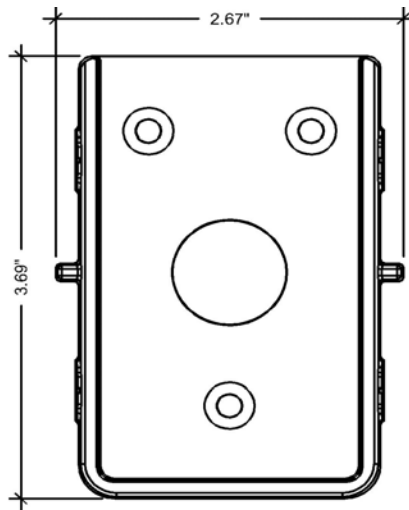


Nexus® II Polymer Bracket

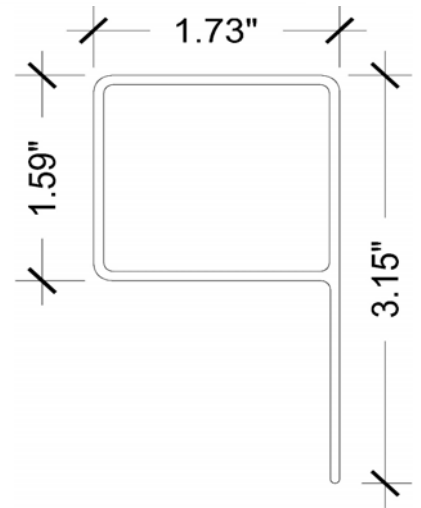
Nexus® Hollow Utility Rail Composite Railing System



Nexus Guardrail / Bottom Rail



Nexus PVC Level Bracket



Nexus Top Rail Aluminum Insert

Fasteners



#9 X 1-1/2" lg. Flat Head SS Thread Cutting Screws



#9 x 7/8" lg. Pan-Head galvanized steel self-drilling screws