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### **Titan Pro Rail™ Vinyl Railing Guide Specification**

This section is based on the products of RDI, Egg Harbor City, NJ 08215; (877) 420-7245; [www.rdirail.com](http://www.rdirail.com).

Titan Pro Rail was created with the installer in mind. A Titan rail section assembles in minutes and is ideal for residential and commercial applications. Metal-to-metal connections add to the sound engineering that enables easy and safe installations. Titan vinyl-clad aluminum railing is manufactured using the highest quality materials to meet your performance and building requirements.

RDI is the number one vinyl railing manufacturer in the US and the leading innovator of low-maintenance, easy to install, quality railing systems, porch post systems, and complete accessory lines.

## SECTION 066300 - PLASTIC RAILINGS

### PART 1 - GENERAL

#### 1.1 SECTION INCLUDES

- A. Vinyl-clad aluminum railing system.

#### 1.2 REFERENCES

Specifier: If retaining this optional article, edit list below to correspond to those references retained in edited specification section.

- A. References, General: Versions of the following standards current as of the date of issue of the project or required by applicable code apply to the Work of this Section.
- B. ASTM International (ASTM):
  - 1. ASTM B209 - Aluminum and Aluminum-Alloy Sheet and Plate.
  - 2. ASTM B209M - Aluminum and Aluminum-Alloy Sheet and Plate. (Metric)
  - 3. ASTM B221 - Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.
  - 4. ASTM B221M - Aluminum-Alloy Extruded Bar, Rod, Wire, Profiles, and Tube (Metric).
  - 5. ASTM D638 - Test Method for Tensile Properties of Plastics.

6. ASTM D648 - Test Method for Deflection Temperature of Plastics Under Flexural Load in the Edgewise Position.

### 1.3 SUBMITTALS

- A. Product Data: Manufacturer's technical literature for each product specified.
  1. Include preparation instructions and recommendations.
  2. Include storage and handling requirements and recommendations.
  3. Include manufacturer's installation instructions.

Specifier: This product is available with load calculation documentation that is individually stamped by a Professional Engineer per state. Contact RDI Customer Service at (877) 420-7245 for documents that pertain to your region. Delete paragraph below if requirement for Delegated Design Submittal is retained.

4. Include load calculation documentation stamped by a Professional Engineer licensed in the jurisdiction in which Project is located.

- B. Shop Drawings:

1. Include plans, elevations, sections, and details.
2. Include points of attachment and their corresponding static and dynamic loads imposed on deck and post foundations.

Specifier: Retain "Delegated Design Submittal" Paragraph and related paragraphs under Quality Assurance and Performance Requirements articles when required due to railing size or other exceptional Project requirements.

- C. Delegated Design Submittal: For railings, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

Specifier: Retain both "Samples for Initial Selection" and "Samples for Verification" paragraphs below for two-stage Samples.

- D. Samples for Initial Selection: For each finish product and finish specified, sets of color chips representing manufacturer's full range of available colors.
- E. Samples for Verification: For each material and for each color, in manufacturer's standard size.

### 1.4 QUALITY ASSURANCE

- A. Qualification Data:

1. Manufacturer Qualifications: Company specializing in manufacturing products specified in this Section with minimum five years documented experience.
2. Installer Qualifications: Railing manufacturer, or experienced Installer with a record of successful installations of similar type and size to that specified.

Specifier: Retain below for delegated design requirement.

- B. Professional Engineer Qualifications: Documented experience with providing delegated-design engineering services of the kind required by this Section, including documentation that engineer is licensed in the jurisdiction in which Project is located.

## 1.5 DELIVERY, STORAGE, AND HANDLING

- A. Transport, handle, store and protect railing components so they are in undamaged condition when installed.
- B. Store railing components in manufacturer's unopened packaging.
- C. Store railing components off the ground in a dry, protected, covered and secure area.

## 1.6 WARRANTY

- A. Special Warranty: On manufacturer's standard form in which manufacturer agrees to repair or replace components which fail in materials or workmanship within specified warranty period.

Specifier: RDI offers a limited lifetime warranty for single-family residential installations and a 20-year warranty for other building types.

- 1. Warranty Period: [Lifetime] [20 years from date of Substantial Completion].

## PART 2 - PRODUCTS

### 2.1 PERFORMANCE REQUIREMENTS

- A. Structural Requirements: Engineer railings to withstand live and dead loads according to authorities having jurisdiction and information indicated within limits and under conditions indicated, without material failure or permanent deformation of structural members.

Specifier: Retain paragraph below if retaining requirement for delegated design by Contractor. Custom engineering is available via authorized Titan Pro Rail vinyl railing dealers.

- B. Delegated Design: Design railing to withstand design and operational loads.

### 2.2 MANUFACTURER

- A. Basis of Design: [Titan Pro Rail™](#) manufactured by RDI; Egg Harbor City, New Jersey 08215; (877) 420-7245; [www.rdirail.com](http://www.rdirail.com).

Specifier: Retain one of the following two paragraphs.

- 1. Substitutions: Not permitted.
- 2. Substitutions: Submit request for substitution according to Instructions to Bidders and Division 01 General Requirements.

### 2.3 RAILING SYSTEM

- A. Use manufacturer's standard components.
- B. System Description:
  - 1. Height: [36 inches] [42 inches].
  - 2. Length: [72 inches] [96 inches] [120 inches] [As indicated on the Drawings].
  - 3. Color: [White] [Earth].

- C. Top Rail: 2.75 by 2.00 inches, 0.09-inch-thick, extruded PVC formed with rounded, graspable, top surface. Reinforce with manufacturer's standard aluminum stiffener conforming to shape of vinyl extrusion and running continuously through length of member
- D. Bottom Rail: 2.12 by 1.5 inches, 0.10-inch-thick, extruded PVC. Reinforce with manufacturer's standard aluminum stiffener conforming to shape of vinyl extrusion and running continuously through length of member.
- E. Balusters: 1-1/4-inch square, 0.08-inch-thick extruded PVC.
- F. Posts: Preassembled structural posts, 3.15-inch-square galvanized steel tube with 5 by 5 by 1/4-inch-thick galvanized steel plate welded to post. Structural post to be stabilized inside 3.385-inch-square PVC post sleeve
- A. Fasteners:
  - 1. Stainless steel fasteners to be concealed upon installation.
  - 2. Attachment to Wood Decking: 3/8-inch diameter A307 bolts for through bolt attachment.
  - 3. Attachment to Concrete: Comply with manufacturer's instructions.
- B. Accessories: Include preinstalled brackets, trim rings, and all accessories required for a complete installation.

## 2.4 MATERIALS

- A. Aluminum: Alloy and temper recommended by aluminum producer and finisher for type of use and finish indicated, and with not less than strength and durability properties of alloy and temper designated below for each aluminum form required.
  - 1. Extruded Bar and Tube: ASTM B221 (ASTM B221M), alloy 6063-T5/T52
  - 2. Plate and Sheet: ASTM B209 (ASTM B209M), alloy 6061-T6.
- B. Polyvinyl Chloride Components: Rigid PVC homopolymer compound modified for cold weather impact retention with high levels of Titanium Dioxide pigment for long-term ultraviolet light resistance.:
  - 1. Tensile Modulus: ASTM D638, 425,000 psi.
  - 2. Heat Deflection Temperature: ASTM D648, 67° c.
  - 3. Tensile Strength: ASTM D638, 6,203 psi.
  - 4. Thermal Expansion:  $3 \times 10^{-5}$  in/in °F.
- C. Fasteners: Stainless steel fasteners, all concealed upon installation.

## PART 3 - EXECUTION

### 3.1 INSPECTION

- A. Examine railing system substrate with Installer present. Inspect for erection tolerances and other conditions that would adversely affect installation of railing system.

1. Inspect substrate that will support railing system to determine if support components are installed as indicated on approved shop drawings and are within tolerances acceptable to railing system manufacturer.

- B. Proceed with railing installation once out-of-tolerance work and other deficient conditions are corrected.

### 3.2 RAILING INSTALLATION

- A. General: Install railing system in accordance with approved shop drawings and manufacturer's written instructions.

- B. Support Installation: Install blocking and other supports at locations, spacings, and with fasteners recommended by manufacturer.

- C. During installation, carefully handle and store PVC components to avoid contact with abrasive surfaces. Install components in sequence as recommended by manufacturer.

### 3.3 CLEANING AND PROTECTION

- A. Clean finished surfaces as recommended by railing system manufacturer.

- B. Replace damaged or discolored components that cannot be restored by field repair.

END OF SECTION