

VinylClassic™ Balustrade Architectural Guide Specification

SECTION 06610 RAILINGS and GUARDS

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes: Melton Classics Inc. VinylClassic™ Guardrail and HandRail Systems.
- B. Related Sections: Section(s) related to this section include:
 - 1. Division 6 Section: Woods and Plastics
 - a. 06430- Wood Stairs and Railings
 - b. 06500- Structural Plastic
 - c. 06600- Plastic Railings and Guards

1.02 REFERENCES

- A. American Society for Testing and Materials (ASTM):
 - 1. ASTM D256 Standard Test Methods for Determining the Izod Pendulum Impact Resistance of Plastics.
 - 2. ASTM D638 Standard Test Method for Tensile Properties of Plastics.
 - 3. ASTM D638 Modulus of Elasticity in Tension
 - 4. ASTM D648 Standard Test Method for Deflection Temperature of Plastics Under Flexural Load in the Edgewise Position.
 - 5. ASTM D792 Standard Test Methods for Density and Specific Gravity (Relative Density) of Plastics by Displacement.
 - 6. ASTM D790 Standard Test Methods for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials.
 - 7. ASTM D4216 Standard Specification for Rigid Poly (Vinyl Chloride) (PVC) and Related PVC and Chlorinated Poly (Vinyl Chloride)
 - 8. (CPVC) Building Products Compounds.
 - 9. ASTM E985 Standard Specification for Permanent Metal Railing Systems and Rails for Buildings.
 - 10. ASTM F964 Standard Specification for Rigid Poly (Vinyl Chloride) (PVC) Exterior Profiles Used for Fencing.
 - 11. ASTM D4226 Impact Resistance Procedure A & B
 - 12. ASTM D696 Coefficient of Linear Expansion
 - 13. ASTM B221-05a Aluminum Alloy / Temper 6105-T5
 - 14. ASTM D 7032 Performance Ratings for Wood-Plastic Composite Deck Boards and Guardrail Systems (Guard or Handrail)
 - 15. ASTM D4216 PVC Cell Classification

B. Architectural Testing, Inc. - Code Compliance Research Report CCRR-0153

1. 2006 International Building Code (IBC)
2. 2006 Residential Building Code (IRC)
3. 2007 Florida Building Code (FBC)

1.03 DEFINITIONS

- A. General: Definitions in ASTM E985 for railing related terms apply to this section.
- B. Posts: Vertical structure support members of the rail system.
- C. Rails: Horizontal structural support members of the railing system.
- D. Balusters: Vertical members between the bottom and top rails.
- E. Aluminum Insert: Structural supports inside rails.
- F. Structural Post Mounts: Structural supports inside of posts.

1.04 SYSTEM DESCRIPTION

A. Structural Performance of Guardrail and HandRail Systems: Engineer, fabricate and install handrails and railing systems to withstand the following structural loads without exceeding the allowable design working stress of the materials for handrails, railing systems, anchors and connections. Apply each load to produce the maximum stress, by applying a multiplying factor of 2.5 to the required design load, in each of the respective components comprising handrails and railing systems. All Rail Systems have been test to the AC-174 Accept Criteria for Deck Span and Guard Rail Systems.

1. Top Rail of Guardrail Systems: Capable of withstanding the following loads applied as indicated:

Concentrated load of 500 lbs applied at mid point and in horizontal direction.
Uniform load of 125 plf applied at quarter points in a horizontal direction and concurrently with a uniform load of 125 plf applied vertically downward.
Concentrated and uniform loads shall not be applied simultaneously.

2. Handrails Not Serving as Top Rails: Capable of withstanding the following loads applied as indicated:

- a. Concentrated load of 125 lb applied in a horizontal direction.

- b. Concentrated and uniform loads shall not be applied simultaneously.

3. Infill Area of Guardrail Systems: Capable of withstanding a horizontal concentrated load of 125 lb applied to a 1 sq ft (976 kg/m²) area at any point in the system, including panels, intermediate rails, balusters or other elements composing the infill area.

- a. Above load need not be assumed to act concurrently with loads on top rails of railing systems in determining stress on guardrail.

- b. Infill loads shall be recalculated after flexural testing is completed from materials property testing.

1.05 SUBMITTALS

- A. General: Submit listed submittals in accordance with Conditions of the Contract.
- B. Product Data: Submit product data for specified products.
- C. Drawings: Submit part drawings showing profiles and product components, including anchorage, accessories and finish colors.
- D. Samples: Submit selection and verification samples for colors.
 - 1. Samples for initial selection purposes should be in the form of material swatches of the color(s) specified.
- E. Quality Assurance Submittals: Submit the following:
 - 1. Manufacturer's Instructions: Manufacturer's installation instructions.
- F. Closeout Submittals: Submit the following:
 - 1. Operation and Maintenance Data: Operation and maintenance data for installed products in accordance with Division 1 Closeout Submittals (Maintenance Data and Operation Data) Section. Include methods for maintaining installed products and precautions against cleaning materials and methods detrimental to finishes and performance.
 - 2. Warranty: Warranty documents specified herein.

1.06 QUALITY ASSURANCE

- A. Qualifications:
 - 1. Obtain guardrail accessories, fittings and fasteners from Melton Classics Inc. as an approved source to ensure consistent quality standards are maintained Man throughout the project.

1.07 DELIVERY, STORAGE & HANDLING

- A. General: Comply with Division 1 Product Requirements Sections.
- B. Ordering: Comply with manufacturer's ordering instructions and lead time requirements to avoid construction delays.

- C. Delivery: Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact.
- D. Storage and Protection: Store materials protected from exposure to wet and violent weather conditions and in general conditions recommended by the manufacturer. Handle and store product according to Melton Classics' recommendations. Store in original packaging whenever possible until components are required on the project.

1.08 PROJECT CONDITIONS

- A. Field Measurements: Verify actual measurements and openings by field measurements prior to field modifications to length; show recorded measurements on shop drawings. Coordinate field measurements and schedule with Melton Classics Inc. to avoid material and construction delays.

Specifier Note: Coordinate Article below with Conditions of the Contract and with Division 1 Closeout Submittals (Warranty) Section.

1.09 WARRANTY

- A. Manufacturer's Warranty: Submit, for Owner's acceptance, manufacturer's standard warranty document executed by authorized company official.

PART 2 - PRODUCTS

2.01 RAILING SYSTEM

Specifier Note: Alternative material handrails are becoming popular choices for architects and builders on residential and light commercial projects of many types. Alternative material railing products are intended to provide safe, decorative and low maintenance components for use as a railing on steps, porches and decks. Melton Classics' vinyl and composite products will not rot, rust, chip, flake or corrode. They are low maintenance and will withstand harsh weather conditions, including temperature changes and intense ultraviolet light.

A. ACCEPTABLE MANUFACTURER

- A. Melton Classics Inc.
 - P.O. Box 465020
 - Lawrenceville, GA 30042
 - 800-963-3060 Phone
 - 770-962-6988 Fax
 - www.MeltonClassics.com Website
 - Sales@MeltonClassics.com Email

Specifier Note: Melton Classics' vinyl products are manufactured from 100% new vinyl. The base ingredient is rigid PVC (polyvinyl chloride) homopolymer compound with a high level of titanium dioxide pigment for long-term UV resistance and impact modifiers for strength. The formulation is similar to that of vinyl siding and windows, which have more than 20 years of proven long-term durability and structural integrity. The profiles are free from visible cracks, holes, foreign inclusions or other defects. They are uniform in color, capacity and density. Cost: The initial material cost of vinyl is slightly higher than wood. However, due to virtually no maintenance or replacement cost, enhanced property value and the manufacturer's transferable warranty, the life cycle cost can be much lower than alternative materials. Budget cost information may be obtained from Melton Classics Inc. at 800-963-3060.

A. Proprietary Product(s)/System(s): Melton Classics Inc. Railing Systems.

1. Post Profile Types and Sizes: As indicated on drawings and as follows:
 - a. 4" x 4" x 0.115" (102 x 102 x 4.3 mm) Post Sleeve.
 - b. 5" x 5" x 0.150" (127 x 127 x 3.8 mm) Post Sleeve.
 - c. 6 1/2" x 6 1/2" x 0.170" (165 x 165 x 4.3 mm) Post Sleeve.
2. Rails Profile Types and Sizes: As indicated on drawings and as follows:
 - a. 2" x 3 1/2" (51 x 89 mm) Standard Rail.
 - b. 2 1/4" x 3" (57 x 76 mm) Classic Contour Rail.
3. Baluster Profile Types and Sizes: As indicated on drawings and as follows:
 - a. 1 3/8" x 1 3/8" (35 x 35 mm) Contour and Standard Rail Square Baluster.
 - b. 1 1/4" x 1 1/4" (38 x 38 mm) Contour and Standard Rail Turned Baluster.
4. Caps Profile Types and Sizes: As indicated on drawings and as follows:
 - a. Sizes:
 - 1) 4" x 4" (102 x 102 mm).
 - 2) 5" x 5" (127 x 127 mm).
 - 3) 6 1/2" x 6 1/2" (165 x 165 mm).
 - b. Styles:
 - 1) Ball: [4" x 4" (102 x 102 mm)] [5" x 5" (127 x 127 mm)].
 - 2) Classic: [4" x 4" (102 x 102 mm)] [5" x 5" (127 x 127 mm)].
 - 3) Gothic: [4" x 4" (102 x 102 mm)] [5" x 5" (127 x 127 mm)].
 - 4) Pyramid: [4" x 4" (102 x 102 mm)] [5" x 5" (127 x 127 mm)] [6-12" x 6-1/2" (165 x 165mm)].
5. Mounting Components Types and Sizes: As indicated on drawings and as follows:
 - a. 2" x 3 1/2" (51 x 89 mm) Standard Rail Level Bracket.
 - b. 2" x 3 1/2" (51 x 89 mm) Standard Rail Stair Bracket.
 - c. 4" x 4" x 42" (102 x 102 x 762 mm) Structural Post Mount.

- d. 4" x 4" x 42" (102 x 102 x 762 mm) Structural Post Mount Leveling Kit.
 - e. 4" x 4" x 42" (102 x 102 x 762 mm) Structural Post Mount Joist Bracket.
 - f. 2 1/4" x 3" (75 x 76 mm) Contour Rail Level Bracket.
 - g. 2 1/4" x 3" (75 x 76 mm) Contour Rail Stair Bracket.
 - h. 45 degree Bracket Adapter.
 - i. 22.5 degree Bracket Adapter.
 - j. 6"-10" Round Column Adapter.
6. Aluminum Insert Types and Sizes: As indicated on drawings and as follows:
- a. 2" x 3 1/2" (51 x 76 mm) Standard Rail Insert.
 - b. 2 1/4" x 3" (57 x 76 mm) Contour Rail Insert.
7. Miscellaneous Types and Sizes: As indicated on drawings and as follows:
- a. Classic Post Base Trim:
 - i. 4" x 4" (102 x 102 mm).
 - ii. 5" x 5" (127 x 127 mm).
 - iii. 6 1/2" x 6 1/2" (165 x 165 mm).
 - iv. Universal "Sleeve" Trim Ring
 - v. Universal "Porch" Trim Ring
8. Finishes: Smooth, soft gloss.
9. Colors: Titanium dioxide is the main ultraviolet light inhibitor in the PVC material used to manufacture these products. Since it is a white pigment, dark colors are not practical or possible.
- a. Rails. White, tan, or khaki
 - b. Posts: White, tan, or khaki
 - c. Balusters: White, tan, or khaki
10. Product(s)/System(s) Testing: Provide PVC railing system that complies with the following physical/chemical properties:
- a. ASTM D256 - Izod Impact greater than 5 ft lb/in (2.1 N•m/m) at 23 degrees C.
 - b. ASTM D638 - Tensile Strength 6290 psi (43 MPa).
 - c. ASTM D638 - Tensile Modulus 430,000 psi (2963 MPa).
 - d. ASTM D648 - Deflection Temperature 67 degrees C.
 - e. ASTM D4216 Kind of Resin in Compound
 - f. ASTM D4226 Impact Resistance Procedure A and B
 - g. ASTM D696 Coefficient of Linear Expansion
 - h. Railing was tested according to ASTM D7032 outlined in the AC-174 Acceptance Criteria for Deck Span Ratings and Guardrails (Guardrail & Handrail) Railing systems shall withstand basic 500 lb. (IRC) & 125 lbf. (IBC) design load requirements for handrails and guardrails. System also shall meet requirements for 2.5 times the design load for handrails and guardrails.

2.02 PRODUCT SUBSTITUTIONS

Substitutions: No substitutions permitted.

Specifier Note: Edit Article below. Select types and sizes set forth in Article 2.01. Stainless steel or galvanized fasteners should be of sufficient size and strength to support local code requirements.

2.03 MATERIALS

Melton Classics Inc. Rail System Materials:

1. General: Posts, rails, balusters, post caps and brackets shall comply with ASTM D4216, Class 143354311122.
2. Posts: One piece extruded square profile: [Specify type and size.].
3. Rails: One piece extruded profile: [Specify type and size.].
4. Balusters: One piece extruded profile: [Specify type or size.].
5. Post Caps Molded: Specify to fit the selected post profile.
Sizes: [4" x4" (102 x 102 mm)] [5" x 5" (127 x 127 mm)].
Styles: [Ball] [Classic Manor] [Gothic] [Pyramid.].
6. Mounting Components: [Specify type or size.].
7. Aluminum Reinforcement Insert: [Meets the mechanical property limits established by Aluminum Association Standards & Data Manual and ASTM B221-05a for Alloy.].
8. Miscellaneous Component: [Specify type or size.].
9. Fasteners: [Specify.].

Specifier Note: Edit Paragraph below. Retain or delete to meet project requirements and specifier's practices.

Mounting Types:

Structural Post: Residential and Commercial:

Configuration: [Surface mounted configuration]

Surfaces: [Wood] [Synthetic composite decking] [Membranes] [Fiberglass decking] [Concrete] [Brick].

Specifier Note: Manufacturer recommends the following: Maximum post spacing is 10' (IRC) & 8' (IBC) from inside of posts face based on code approved testing data. Maximum spacing is 4" (102 mm) between any members as determined by code.

2.05 RELATED MATERIALS

Related Materials: Refer to other sections listed in Related Sections Paragraph herein for related materials.

Adhesive, Grout and Anchor Cement:

Adhesive: PVC based adhesive with the same UV properties as Melton Classics Inc. railing system.

Nonshrink, Nonmetallic Grout: Premixed, factory packaged, nonstaining, noncorrosive, nongaseous grout complying with CE CRD-C-621. Provide grout specifically recommended by manufacturer for exterior applications of type specified in this section.

Products: Subject to compliance with requirements, provide 1 of the following:

“Euco N-S Grout”; Euclid Chemical Co.

“Sealtight 588 Grout”; W. R. Meadows, Inc.

“Sonogrout”; Sonneborn Building Products Div., ChemRex, Inc.

“Five Star Grout”; U.S. Grout Corp.

“Quik-Rok”, OR Inc., Melville. NY.

2.06 FABRICATION

General: All Railing Kits come pre-fabricated in standard lengths and include specified rails, specified balusters, rail inserts, mounting brackets, attachment hardware for standard installations and installation instructions.

Railing systems are manufactured to code approved standards and are capable of withstanding loads required by AC-174 Guard & Handrail systems applications/location.

2.07 SOURCE QUALITY

Source Quality: Obtain alternative material railing system products from a single Fairway Vinyl Systems dealer.

PART 3 EXECUTION

3.01 MANUFACTURER’S INSTRUCTIONS

Compliance: Comply with manufacturer's product data, including product technical bulletins, product catalog installation instructions and product carton instructions for installation.

3.02 EXAMINATION

Site Verification of Conditions: Verify substrate conditions, which have been previously installed under other sections, are acceptable for product installation in accordance with manufacturer's instructions.

3.03 PREPARATION

Surface Preparation: [Specify applicable product preparation requirements.].

3.04 INSTALLATION

Railing System Installation:

Ensure mounting surface and substructure are structurally capable of supporting railing system and application loads.

Install guardrail in application shown in compliance with manufacturer's written instructions.

During installation, components shall be carefully handled and stored to avoid contact with abrasive surfaces.

Install components in sequence recommended by the manufacturer.

Install guardrail or handrail as indicated on the drawings provided.

Post Support Components: To be attached to concrete surfaces or wood structure using hardware recommended by local building codes, engineers or architects.

Install post caps with appropriate PVC adhesive.

Site Tolerances: [Specify applicable site tolerances for specified product(s) installation.].

Related Products Installation: Refer to other sections listed in Related Sections Paragraph herein for related materials installation.

3.05 FIELD QUALITY REQUIREMENTS

Site Tests [Installation and Post-Installation Testing]: [Specify applicable test requirements to be performed during and/or after product installation.].

Inspection: [Specify applicable product inspection requirements to be performed after product installation.].

Specifier Note: Edit Paragraph below. Establish number and duration of periodic site visits with Owner and supplier, and specify below. Consult with manufacturer for services required. Coordinate Paragraph below with Division 1 Quality Assurance Section and Part 1 Quality Assurance Submittals herein. Delete if manufacturer's field service is not required.

Manufacturer's Field Services: Upon Owner's request, provide manufacturer's distributor service consisting of product use recommendations and periodic site visits for inspection of product installation in accordance with manufacturer's instructions.

Site Visits: [Specify number and duration of periodic site visits.].

3.07 CLEANING

Specifier Note: PVC fencing, deck and rail materials offer very low maintenance. They never need painting and are not subject to deterioration. These assemblies will get dirty just as any other product exposed to atmospheric conditions. An occasional pressure washing or cleaning with a long-handled soft-bristle brush of the type used to wash cars may be all that is necessary. If dirt is hard to remove, wipe down the PVC with a solution of 1 cup Simple Green to 1 gallon of water. Tide, Spic 'n Span or other household detergent may also be used. For stubborn stains, consult the manufacturer's literature.

Cleaning: Remove temporary coverings and protection of adjacent work areas. Repair or replace products that have been installed and are damaged. Clean installed products in accordance with manufacturer's instructions prior to Owner's acceptance. Remove construction debris from project site and legally dispose of debris.

END OF SECTION