DeckRail Aluminum Railing

SECTION 05721

ORNAMENTAL ALUMINUM RAILINGS

For best results, display hidden notes to specifier.

*** NOTE TO SPECIFIER ** DeckRail Aluminum Railing, ornamental aluminum railing and fence systems.*

This section is based on the products of DeckRite LLC, which is located at:
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DeckRite LLC markets the DeckRail aluminum component railing system for new construction or remodeling, residential or commercial applications. Available in several rail profiles and several powder coated stock or custom colors. DeckRail is designed for fast and versatile installation to fit any deck configuration. It is available in "view-through" tempered glass and traditional picket designs to meet all national building codes. DeckRite LLC also markets a large selection of powder coated aluminum fencing systems. Contact manufacturer for additional information and specifications.

***DeckRite LLC,** markets railings and railing products relating to:*
[05} Metals
[05500] Metal Fabrications
[05520] Handrails and Railings
[05521] Aluminum handrails and Railings
[05522] Glass railings
[05700] Ornamental Metals
[05720] Ornamental Handrails an railings
[05730] Ornamental Formed Metal

PART 1: GENERAL

1.1 SECTION INCLUDES

A. Component type ornamental aluminum handrails, guardrails, and railing systems, including connectors, fasteners, and required accessories.

1.2 PERFORMANCE REQUIREMENTS

A. General: Handrails and railings shall withstand structural loading as determined by allowable design working stresses of material based on the following standards.

1. As per ICC-EC AC 273 with reference to the 2006 International building code, Section 1607.7.7.1, handrails and Guards.

B. Structural Performance: Provide handrails and railings capable of withstanding the following structural Loads without exceeding allowable design working stress of material for the handrails, railings, anchors and connections.

C. IN-FILL LOAD TEST (Clause 4.2.22)

1. A load consisting of 200 lbf over a 1 sq.ft. (0.0929 m 2) normal to the infill in a worst-case scenario. As per the 2006 International Code, Section 2407, Glass in handrails and Guards, a safety factor of 4.0 was used.

D. UNIFORM LOAD TEST (Clause 4.2.3)

1. The top rail of the system was subjected to a single test where a maximum uniform load of 125 lbf/ft was applied vertical and in a outward direction at an 45* from horizontal.

E. CONCENTRATED LOAD TEST (Clause 4.2.4)

The top rail of the system was subjected to two separate tests where a concentrated load of 500 lbf was applied at the following locations:

- Horizontally at the center of the guardrail.
- Horizontally at the top rail adjacent to the rail post connection to verify the connection capacity

F. Method: AC 273 Acceptance Criteria for Handrails and Guards (Approved October 2004) 4.2 Structural Test/ 1714.3.1 Test Procedures
Safety Factor: 2.5 – 4.0 Glass Safety Factor as per Section 2407 Glass in Handrails and Guards.

G. Thermal Movements: Design handrails and railings to allow for movements resulting from 120 degree F (49 C) changes in ambient and 180 degree F (82 C) surface temperatures. Base engineering calculations on surface temperatures of materials due to both solar heat gain and night times-sky heat loss.

H. Corrosion Resistance: separate incompatible materials to prevent galvanic corrosion.

1.3 References

A. ANSI/CABO A117.1 – American national Standard for Building and Facilities ; Providing Accessible and Usable Building and Facilities ; Council of American Building Officials
B. ASTM B 221 – Standard Specification for Aluminum and Aluminum – Alloy Extruded Bars, Rods, Wire, Shapes, and Tubes.
C. ASTM E 935 – Standard Test Methods for Performance of Permanent Metal Railing Systems and Rails for Building.
D. ASTM E 985 – Specification for Permanent Metal railing and Rails for Buildings.
E. ASNI Z 07.1 – Glazing Material used in Building Safety Performance Specifications and method of test.
F. ASTM E 894 – Anchorage of Permanent Metal Railing Systems and Rails for buildings.
G. International Code Council ICC-ES AC 273 " Acceptance Criteria for Handrails and Guards"
H. Section 1607.7 of 2006 International Building Code (IBC)
I. AAMA – 2604-98 Voluntary, Performance Requirements and test procedures for high performance organic coatings on aluminum extrusions and panels.
J. AAMA – 2605-98 Voluntary, Performance Requirements and test procedures for high performance organic coatings on aluminum extrusions and panels.

1.4 SUBMITTALS

A. Submit under provisions of Section 01300.

B. [Product Data]: Manufacturer's specifications and installation instructions for all components of each product type specified.

*** NOTE TO SPECIFIER ** Delete the following paragraph if sample submittals are not required for the project.*

C. Samples: Submit samples for each railing type, profile, and color specified, not less than 6 inches (150mm) long.

D. Shop Drawings: Prepared specifically for this project.
   1. Show complete layout: plan views, elevations, connections, details for fabrication, attachment to other elements, and other installation details.
   2. Include sealed drawings by the registered engineer responsible for structural design of system.

1.5 QUALITY ASSURANCE

A. Manufacturer Qualifications: Provide handrails, guardrails, and railing systems from one source, produced by a manufacturer and craftsmen having resources to provide consistent quality in appearance and physical properties, without delaying the work.

B. Installer Qualifications: All products listed in this section should be installed by a single installer with a minimum of (1) year demonstrated experience in installing products of the same type and scope specified.

C. Mock-Up: Provide a mock –up for evaluation of surface preparation techniques and workmanship.

1. Finish areas designated by Architect
2. Do not proceed with remaining work until workmanship, color, and sheen are approved by Architect.
3. Refinish mock-up area as required to produce acceptable work.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver handrails, guardrails, railing systems, and related components in protective packaging. Inspect materials to ensure that specified products have been received.

B. Store components to avoid damage from abrasion and other construction activities.

C. Store and dispose of solvent-based materials, and materials used with solvent-based materials, in accordance with requirements of local authorities having jurisdiction.

D. Project conditions: Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by the manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.

PART 2: PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturer: DeckRite LLC, 3912 East Progress Tel: (501) 945-1919, Fax: (501) 945-0235, Toll: (888) 450-3325, E-Mail: info@deckrite.com, URL: www.deckrite.com.

B. Substitutions: Not permitted

C. Requests for substitutions will be considered in accordance with provisions of Section 01600.

*** NOTE TO SPECIFIER ** Delete paragraph above or below. Coordinate with Division 1 requirements.*

D. Provide all ornamental aluminum handrails, guardrails, and railing systems as approved by manufacturer.

2.2 MANUFACTURED UNITS

A. General: Provide products free from surface blemishes where exposed to view in the finished installation.

B. Ornamental Aluminum Railing Systems: "DeckRail..."

*** NOTE TO SPECIFIER ** Select designs from the following four subparagraphs or insert a custom design in the fifth paragraph, deleting those paragraphs not required for the project. In each design the top rail runs continuously over each support post and bottom rails are attached to the post at post interruption locations.*

1. Design: Component glass system.
2. Design: Welded picket system.
3. Design: Welded glass system.
4. Design:_____

*** NOTE TO SPECIFIER ** Select stock color from the following seven subparagraphs, deleting those not required for the project, or delete all stock colors and insert custom color. Coordinate custom colors with the manufacturer.*

5. Color: White.
6. Color: Black.
7. Color: Rideau Brown.
8. Color: Fence Green.
9. Color: Beige.
10. Color: Electric Grey.
11. Color: Sandalwood.
12. Color: Almond
13. Color. Oyster Grey
14. Color: _____

2.3 COMPONENTS

A. General: Provide all aluminum components of same alloy.

B. Posts: Aluminum, sizes indicated on approved shop drawings, welded bases.

C. Rails: Aluminum, sizes indicated on approved shop drawings.
   1. Top rails continuous over posts

*** NOTE TO SPECIFIER ** Refer to DeckRail product catalog for the profiles below. Select profile from the following two subparagraphs, unless shown on the drawings. The first is for the "component system," and the second is for the "welded picket system." Insert custom profile description in the third subparagraph if required. Delete profiles not required or delete all profile subparagraphs if detailed on the drawings.*

a. Profile No. Square-Welded Picket # VH-49887_____
b. Profile No. Round-Welded Picket # VH-49534_____
c. Profile No. Square-Component Glass # VH-49885_____
d. Profile No. Round –Component Glass# VH-49533_____
e. Profile: _____.

D. Pickets: Aluminum, sizes indicated on approved shop drawings.

E. Panels: 1/4 inch (6mm) tempered glass.
   1. Clear.
   2. _____.

2.4 ACCESSORIES

*** NOTE TO SPECIFIER ** Delete one of the following two paragraphs.*

A. Screws: Color matched stainless steel.

B. Anchors and Inserts: As required to support work specified, in accord with approved shop drawings.

C. Fittings and Fasteners: Same basic material as parts being joined, unless otherwise indicated. Do not use metals corrosive or incompatible with materials being fastened.

2.5 FABRICATION

A. Fabricate handrails and railing systems to comply with manufacturer's printed requirements, project design requirements, details, dimensions, finish and member sizes, including post spacing and anchorage, but not less than the structural requirements to support loading.

B. Clearly mark component units for site assembly and installation.

C. Use connections that maintain structural capacity of joined members.

2.6 FINISHES

A. General

1 .Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.

2. Appearance of Finish work:

a. Variations in appearance of abutting of adjacent units are acceptable if they are within one-half of the range of approved samples. Noticeable variations in the same unit are not acceptable.

b. Variations in appearance of other components are acceptable if they within the range of approval samples and are assembled or installed to minimize contrast.

B. E-CLPS Chrome-Free Pre-Treatment Process
1. Cleaning with acid or alkaline Bulk Kleen products as manufactured by Bulk Chemicals.
2. Fresh Water Rinse
3. Surface Conditioning with Bulk Chemicals Conditioner.
4. Water Overflowing Rinse
5. E-CLPS Chrome Free pretreatment as manufactured by Bulk Chemicals.

C. Finish Coating: Prepare, pre-treatment and apply coating to exposed metal surfaces to comply with manufactures written instructions.
1. Material: AAMA 2604-Polyester powder coating, 3mil average film thickness
2. Material: AAMA 2605-Fluoropolymer, 2-4 mil average thickness.

PART 3: EXECUTION

3.1 EXAMINATION

A. Examine system components, substrate, and conditions where railing systems are to be installed.

B. Notify Architect in writing of unsatisfactory conditions. Do not proceed with the work until unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Prepare surrounding construction to receive railing system installation to comply with manufacturer's requirements.

B. Review and coordinate setting drawings, shop drawings, templates, and instructions for assembly and installation of railing system and related items to be embedded in concrete and masonry.

3.3 INSTALLATION

A. Install railing system and related components in strict accordance with manufacturer's printed installation instructions and project shop drawings.

B. Preassemble railing system including posts, pickets, and panels where shown in easy to lift sections whenever possible.

1. Align rails so that variations from level for horizontal members, and from parallel with rake of steps and ramps for sloping members, do not exceed 1/4 inch in 12 feet (6mm in 3.65m).

2. Separate aluminum from building materials where electrolytic action may occur by means of asphaltic paint or other approved method.

D. Adjust level and securely install railing system components.

E. Provide for thermal expansion and contraction by use of expansion joints or gaps in rails. Strictly adhere to manufacturer's instructions for locations of expansion joints and fastening of expansion sleeves.

F. Install bottom rails in un-spliced lengths between posts.

G. Install posts of continuous sections from mounting base to top rail.

3.4 CLEANING

Immediately upon completion of installation, clean all railing system surfaces using clean water and mild soap or detergent.

a. Do not use abrasive agent or harsh chemicals.

b. Follow manufactures "Care & Maintenance" Guidelines.

END OF SECTION