

**SECTION 05 52 00
METAL RAILINGS**

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Aluminum pipe handrails, balusters, and fittings

1.2 REFERENCES

- A. ACSE 7 – Minimum Design Loads of Buildings and Other Structures
- B. ASTM B210 - Standard Specification for Aluminum and Aluminum-Alloy Drawn Seamless Tubes
- C. ASTM B211 - Standard Specification for Aluminum and Aluminum and Aluminum Alloy Rolled or Cold Finished Bars, Rods, and Wire
- D. ASTM B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes
- E. ASTM B241/A241M - Standard Specification for Aluminum and Aluminum Alloy Seamless Pipe and Seamless Extruded Tube
- F. ASTM B483 - Standard Specification for Aluminum and Aluminum and Aluminum Alloy Drawn Tubes for General Purpose Applications
- G. ASTM E935 – Standard Test Methods for Performance of Permanent Metal Railing Systems and Rails for Buildings
- H. ASTM E985 – Standard Specification for Permanent Metal Railing Systems and Rails for Buildings
- I. FBC - Florida Building Code

1.3 DESIGN REQUIREMENTS

- A. Railing assembly, wall rails, and attachments shall conform to the FBC.
- B. Design stairs and handrails to conform to ASCE 7.

1.4 SUBMITTALS FOR REVIEW

- A. Section 01 33 00 - Submittals Procedures
- B. Shop Drawings: Indicate profiles, sizes, connection attachments, anchorage, size, and type of fasteners, and accessories.
- C. Samples: Submit 1' long samples of handrail. Submit samples of elbow, tee, wall bracket, escutcheon and end stop.
- D. Certification: Submit written certification prepared, signed, and sealed by a Professional Engineer, registered to practice in the State of Florida verifying that the metal handrail system design meets indicated loading requirements and codes of authorities having jurisdiction.

PART 2 PRODUCTS

2.1 ALUMINUM RAILING SYSTEM

- A. Rails and Posts: 1½" outside diameter, excluding tubing conforming to ASTM B211
- B. Fittings: Elbows, T-shapes, wall brackets, escutcheons; cast aluminum
- C. Mounting:
 - 1. Provide adjustable brackets and flanges, with aluminum inserts for casting in concrete with aluminum brackets for embedding in masonry.
 - 2. Prepare backing plate for mounting in wall.
- D. Exposed Fasteners: Flush countersunk screws or bolts consistent with design of railing.
- E. Splice Connectors: Concealed spigots; cast aluminum.
- F. Exterior Aluminum Surfaces: Exterior anodized to clear color.
 - 1. May use an electrostatic painting system with prior approval by the District and the Architect, must provide minimum 3-year warranty.

- G. Interior Aluminum Surfaces: Interior anodized to clear color.
 - 1. May use an electrostatic painting system with prior approval by the District and the Architect, must provide minimum 3-year warranty.
- H. Apply one coat of bituminous paint to concealed aluminum surfaces in contact with cementitious or dissimilar materials.

2.2 FABRICATION

- A. Fit and shop assemble components as large as practical for delivery to site.
- B. Fabricate components with joints tightly fitted and secured.
 - 1. Provide spigots and sleeves to accommodate site assembly and installation.
- C. Provide anchors, plates, and angles required for connecting railings to structure.
- D. Exposed Mechanical Fastenings, install flush-countersunk screws or bolts that are unobtrusively located and are consistent with the design of component.
- E. Supply components required for anchorage of fabrications.
 - 1. Fabricate anchors and related components of same material and finish as fabrication, except as noted otherwise.
- F. Exterior Components:
 - 1. Continuously seal joined pieces by continuous welds.
 - 2. Drill condensate drainage holes at bottom of members at locations that will not encourage water intrusion.
- G. Interior Components: Continuously seal joined pieces by continuous welds.
- H. Grind exposed joints flush and smooth with adjacent finish surface.
 - 1. Make exposed joints butt tight, flush, and hairline.
 - 2. Ease exposed edges to small uniform radius.
- I. Accurately form components to suit stairs and landings to each other and to building structure.
- J. Accommodate for expansion and contraction of members and building movement without damage to connections or members.

2.3 FINISHES

- A. Exterior Aluminum Surfaces: Exterior anodized to clear color.
- B. Interior Aluminum Surfaces: Interior anodized to clear color.
- C. Apply one coat of bituminous paint to concealed aluminum surfaces in contact with cementations or dissimilar materials.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that field conditions are acceptable and ready to receive work.

3.2 PREPARATION

- A. Clean and strip aluminum where site welding is required.
- B. Supply items being casted into concrete, embedded in masonry, or placed in partitions with setting templates to appropriate sections.

3.3 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Install components plumb and level, accurately fitted, free from distortion or defects.
- C. Anchor railings to structure with anchor plates and angles.
- D. Field weld anchors as indicated on shop drawings grind welds smooth and touch-up with primer.
- E. Conceal bolts and screws whenever possible, if cannot, use flush countersunk fastenings.
- F. Assemble with spigots and sleeves to accommodate tight joints and secure installation.
- G. Install floor mounted support post plumb and secure in the concrete within a core-drilled hole

The School District of Palm Beach County

Project Name

SDPBC Project No.

filled with epoxy grout.

H. All fasteners into concrete shall be stainless steel.

3.4 ERECTION TOLERANCES

A. Maximum Variation From Plumb: $\frac{1}{4}$ " per story, non-cumulative

B. Maximum Offset From True Alignment: $\frac{1}{4}$ "

C. Maximum Out-of-Position: $\frac{1}{4}$ "

END OF SECTION