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.
 - 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.

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- 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

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filled with epoxy grout.

H. All fasteners into concrete shall be stainless steel.

3.4 ERECTION TOLERANCES

- A. Maximum Variation From Plumb: ¼" per story, non-cumulative
- B. Maximum Offset From True Alignment: ¼"
- C. Maximum Out-of-Position: ¼"

END OF SECTION