

SECTION 057300 - DECORATIVE METAL RAILINGS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Aluminum decorative railings.

1.2 PERFORMANCE REQUIREMENTS

A. Structural Performance: Railings shall withstand the effects of gravity loads and the following loads and stresses within limits and under conditions indicated:

1. Handrails and Top Rails of Guards:

- a. Uniform load of **50 lbf/ft. (0.73 kN/m)** applied in any direction.
- b. Concentrated load of **200 lbf (0.89 kN)** applied in any direction.
- c. Uniform and concentrated loads need not be assumed to act concurrently.

2. Infill of Guards:

- a. Concentrated load of **50 lbf (0.22 kN)** applied horizontally on an area of **1 sq. ft. (0.093 sq. m)**.
- b. Infill load and other loads need not be assumed to act concurrently.

B. Control of Corrosion: Prevent galvanic action and other forms of corrosion by insulating metals and other materials from direct contact with incompatible materials.

1.3 SUBMITTALS

A. Product Data: For the following:

1. Manufacturer's product lines of railings assembled from standard components.
2. Grout, anchoring cement, and paint products.

B. Shop Drawings: Include plans, elevations, sections, details, and attachments to other work.

C. Samples: For each type of exposed finish required.

1.4 QUALITY ASSURANCE

A. Product Options: Information on Drawings and in Specifications establishes requirements for system's aesthetic effects and performance characteristics. Do not modify intended aesthetic effects, as judged solely by Architect, except with Architect's approval.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
1. Aluminum Decorative Railings:
 - a. Architectural Metal Works.
 - b. Architectural Railings & Grilles, Inc.
 - c. ART Technologies, Inc.
 - d. Blum, Julius & Co., Inc.
 - e. Bluecoat of Pittsburgh.
 - f. Braun, J. G., Company; a division of the Wagner Companies.
 - g. CraneVeyor Corp.
 - h. Laurence, C. R. Co., Inc.
 - i. Livers Bronze Co.
 - j. Newman Brothers, Inc.
 - k. Pisor Industries, Inc.
 - l. Platers Polishing Company; a division of Rippel Architectural Metals.
 - m. Poma Corporation.
 - n. Sterling Dula Architectural Products, Inc.; Div. of Kane Manufacturing.
 - o. Superior Aluminum Products, Inc.
 - p. Wagner, R & B, Inc.; a division of the Wagner Companies.
 - q. Wylie Systems.

2.2 METALS, GENERAL

- A. Brackets, Flanges, and Anchors: Same metal and finish as supported rails unless otherwise indicated.

2.3 ALUMINUM

- A. Aluminum, General: Provide alloy and temper recommended by aluminum producer and finisher for type of use and finish indicated, and with strength and durability properties for each aluminum form required not less than that of alloy and temper designated below.
- B. Extruded Bars and Shapes: **ASTM B 221 (ASTM B 221M)**, Alloy 6063-T5/T52.
- C. Drawn Seamless Tubing: **ASTM B 210 (ASTM B 210M)**, Alloy 6063-T832.
- D. Plate and Sheet: **ASTM B 209 (ASTM B 209M)**.
- E. Die and Hand Forgings: **ASTM B 247 (ASTM B 247M)**, Alloy 6061-T6.
- F. Castings: **ASTM B 26/B 26M**, Alloy A356.0-T6.

2.4 FASTENERS

- A. Fastener Materials: Unless otherwise indicated, provide the following:
 - 1. Aluminum Components: Type 304 stainless-steel fasteners.
- B. Anchors, General: Anchors capable of sustaining, without failure, a load equal to six times the load imposed when installed in unit masonry and four times the load imposed when installed in concrete, as determined by testing according to ASTM E 488, conducted by a qualified independent testing agency.
- C. Post-Installed Anchors: Torque-controlled expansion anchors or chemical anchors.

2.5 MISCELLANEOUS MATERIALS

2.6 FABRICATION

- A. General: Fabricate railings to comply with requirements indicated for design, dimensions, member sizes and spacing, details, finish, and anchorage, but not less than that required to support structural loads.
- B. Mechanical Connections: Connect members with concealed mechanical fasteners and fittings.
- C. Close exposed ends of hollow railing members with prefabricated end fittings.
- D. Provide wall returns at ends of wall-mounted handrails unless otherwise indicated.
- E. Brackets, Flanges, Fittings, and Anchors: Provide wall brackets, flanges, miscellaneous fittings, and anchors to interconnect railing members to other work unless otherwise indicated.

2.7 ALUMINUM FINISHES

- A. High-Performance Organic Finish: Two-coat fluoropolymer finish complying with AAMA 2604 and containing not less than 50 percent PVDF resin by weight in color coat.
 - 1. Color and Gloss: Color is as shown on Drawings. Gloss to be Egg Shell.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Perform cutting, drilling, and fitting required for installing railings. Set railings accurately in location, alignment, and elevation; measured from established lines and levels and free of rack.
 - 1. Set posts plumb within a tolerance of 1/16 inch in 3 feet (2 mm in 1 m).

2. Align rails so variations from level for horizontal members and variations from parallel with rake of steps and ramps for sloping members do not exceed **1/4 inch in 12 feet (5 mm in 3 m)**.
- B. Corrosion Protection: Coat concealed surfaces of aluminum that will be in contact with grout, concrete, masonry, wood, or dissimilar metals, with a heavy coat of bituminous paint.
 - C. Anchor posts to metal surfaces as indicated using fittings designed and engineered for this purpose.
 - D. Anchor railing ends to concrete and masonry with brackets on underside of rails connected to railing ends and anchored to wall construction with anchors and bolts.
 - E. Attach handrails to walls with wall brackets except where end flanges are used.
 1. Use type of bracket with predrilled hole for exposed bolt anchorage.
 2. Locate brackets as indicated or, if not indicated, at spacing required to support structural loads.
 - F. Touchup Painting: Immediately after erection, clean field welds, bolted connections, and abraded areas of shop paint, and paint exposed areas with the same material as used for shop painting to comply with SSPC-PA 1 for touching up shop-painted surfaces.

END OF SECTION 057300