

SECTION 05720 - ORNAMENTAL ALUMINUM RAILINGS

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes:

1. Heavy duty aluminum extruded shape top rail, square post framing guardrails.
 - a. Fabricate railing system base mounting and side mounting.
2. Extruded shape handrail with cast aluminum wall brackets.

B. Products Not Furnished or Installed under This Section:

1. Sleeves cast in concrete.

1.02 REFERENCES

A. American National Standard Specifications (ANSI)

1. ANSI A1264.1 - Safety Requirements for Workplace Floor and Wall Openings, Stairs, and Railing Systems.

B. American Society for Testing and Materials: Standard Specifications (ASTM)

1. ASTM B 211 - Standard Specification for Aluminum and Aluminum-Alloy Bar, Rod, Wire.
2. ASTM B 247 - Standard Specification for Aluminum and Aluminum Die Forgings, Hand Forgings and rolled Ring Forgings.
3. ASTM B 429 - Standard Specification for Aluminum-Alloy Extruded Structural Pipe and Tube.
4. ASTM E 935 - Standard Test Methods for Permanent Metal Railing Systems and Rails for Buildings.

1.03 PERFORMANCE REQUIREMENTS

A. Structural Performance: Engineer, fabricate, and install handrails, guardrails, and railing systems to withstand, when tested per ASTM E 935, loadings required by applicable building and safety codes but not less than the following:

1. Concentrated and uniform loading need not be applied simultaneously.
 - a. Uniform load: 50 pounds per foot applied at the top in any direction..
 - b. Concentrated load: 200 pounds (90.6 kg)] applied at the top in any direction.

1.04 SUBMITTALS

A. Product Data: Submit sufficient manufacturer's data to indicate compliance with these specifications. Mark data to indicate:

1. Details of material and construction.
2. Recommended installation requirements to properly accommodate the proposal railing and accessories.

B. Shop Drawings: Submit shop drawings for fabrication and installation of ornamental metal work. Include plans, elevations and detail sections. Indicate materials, methods, finishes and types of joinery, fasteners, anchorages and accessory items. Provide setting diagrams and templates for anchorages, sleeves, and bolts installed by others.

C. Load Tests: For railings required to meet structural loading requirements, submit results from ASTM E 935 conducted on the manufacturer's supplied system indicating compliance with required structural loading.

- D. Samples: Submit rail sample of same alloy and thickness of the work:
 - 1. Selection: Submit [color charts] color to match cement fiber panels of each building representing manufacturer's full range of available colors.

1.05 QUALITY ASSURANCE

- A. Regulatory Requirements: Comply with requirements of building authorities having jurisdiction in Project location and the following:
 - 1. Handrail Standard: ANSI A1264.1
- B. Codes and Regulations;
 - 1. Occupational Safety and Health Administration - 29 CFR 1910.23 - Guarding floor and wall openings;
 - 2. International Building Code, NJ 2009 Edition.
- C. Manufacturer Qualifications: Minimum three (3) years documented experience producing systems specified in this section.

1.06 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 moisture, abrasion, and other construction activities. 7
- A. Deliver and maintain material in original packaging until installation.

1.08 PROJECT CONDITIONS

- A. Field Measurements: Take measurements of actual dimensions where necessary for fit without gaps. Indicate measurements on shop drawings.

1.09 COORDINATION AND SEQUENCING

- A. Supply items required to be cast in to concrete or embedded in masonry with setting templates on instruction to appropriate sections.
- B. Install railings prior to installation of waterproof membrane coating.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. Acceptable Manufacturer:
 - 1. Superior Aluminum Products "Heavy-Duty Aluminum Railing":
 - 2. Greco Aluminum Railings
 - 3. Feeney Architectural Products
 - 4. Duradek / Durarail
 - 5. Wagner Companies (The)
 - 6. C.R. Laurence Co., Inc.
 - 7. Approved equal
- B. See drawings for required dimensions and configurations.

2.02 RAILING MATERIALS

- A. Rail, post and pickets: Aluminum extrusions; alloy and temper 6063-T6.

1. Pipe: ASTM B 429.
2. Tube: ASTM B 211.

B. Base Flanges, Anchors, and railing accessories: ASTM B 247..

1. Manufacturer's standard ANSI 713 alloy cast bases or solid aluminum 6063 stock.

C. Fasteners: Provide concrete anchorage for fastening and complying with applicable Federal standards. All fasteners used in the system shall be aluminum or stainless steel.

2.03 FABRICATION

A. Top rails shall be continuous without splices.

B. Cuts shall be clean and free of chamfer, from deburring, nicks and burrs. Drill holes of proper size for a tight flush fit of rivets and screws.

1. All posts grouted in concrete to have one nominal 1/4 inch (6.0 mm) nominal diameter weep hole, 1/2 inch (12.0 mm) nominal above post collar, in the plane of the rail

C. Provide components required for anchorage of framing. Fabricate anchors and related components of material and finish as required, or as specifically noted.

2.04 FINISHES

A. Prefabrication External Protection: Baked-on Enamel coating.

1. Baked on Enamel Colors: Selected from full range of manufacturer's standard color to match cement fiber panels of each building representing manufacturer's full range of available colors

PART 3 - EXECUTION

3.01 EXAMINATION

A. Installer's Examination: Examine conditions under which construction activities of this section are to be performed,

1. Submit written notification to Architect and system manufacturer if such conditions are unacceptable.
2. Beginning erection constitutes installer's acceptance of conditions.

3.02 PREPARATION

A. Ensure that adjacent surfaces, structures, and finishes are protected from damage by construction activities of this section.

3.03 INSTALLATION

A. Install units in accordance with the manufacturer's instructions. Keep perimeter lines straight, plumb, and level. Provide grounds, clips, backing materials, adhesives, brackets, anchors, and accessories necessary for a complete installation.

3.04 ERECTION TOLERANCES

A. Install railings plumb and level, securely fastened, with vertical members plumb.

1. Maximum variation from plumb: 1/4 inch (6.0 mm).
2. Maximum misalignment from true position: 1/4 inch (6.0 mm).
3. Maximum misalignment between adjacent separated members: 1/8 inch (3.0 mm).

3.05 CLEANING AND PROTECTION

A. Remove dust or other foreign matter from component surfaces; clean finishes in accordance with manufacturer's instructions.

1. Clean units in accordance with the manufacturer's instructions.
- B. Protection: After installation, protect installed work until project completion.
1. Ensure that finishes and structure of installed systems are not damaged by subsequent construction activities.
 2. If minor damage to finishes occurs, repair damage in accordance with manufacturer's recommendations; provide replacement components if repaired finishes are unacceptable to Architect.

END OF SECTION