

SECTION 05720

ORNAMENTAL ALUMINUM RAILINGS

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes:

1. Solutions aluminum extruded shape top rail, square or round balustrade & rectangular bottom rail.
 - a. Rotating joint connections to permit adaption to slope (stair) railing.
 - b. Pre-fabricated structural mounting post system [surface mounting] [side/fascia mounting].

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 Performance of Permanent Metal Railing Systems and Rails for Buildings.
5. ASTM E 985 - 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: NOTE; Solutions Guard Railing has been tested for "Public Assembly- Open Areas" under the ASTM E 985 requirements.

1. Concentrated and uniform loading need not be applied simultaneously.
 - a. Uniform load: [60 pounds per foot (74.3 kg/m)] applied at the top in any direction.
 - b. Concentrated load: [365 pounds (90.6 kg)] applied at the top in any direction.
 - c. Post (1-7/8" & 3-1/2") – surface & side/fascia post mounts were part of the above testing procedure.

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 rail system. 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 (Public Assembly – Open Areas) conducted on the manufacturer's supplied system indicating compliance with required structural loading.

D. Samples: Submit rail samples of same alloy and thickness of the work:

1. Selection: Submit [color charts] [samples of materials] representing manufacturer's full range of available colors.

--or--

2. Verification: Two samples, minimum size 6 inches (15 cm) long of same alloy and thickness of the work, representing actual color and finish of products to be installed.

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. ASTM E 935 Public Assembly – Open Areas Standard Test Methods for Performance of Permanent Metal Railing Systems and Rails for Buildings.
 3. ASTM E 985 Standard Test Methods for Permanent Metal Railing Systems and Rails for Buildings.
- C. Manufacturer Qualifications: Minimum three (5) years documented experience producing guard rail and hand rail systems..

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Deliver hand rails, guard rails, 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.
- C. Deliver and maintain material in original packaging until installation.

1.07 PROJECT CONDITIONS

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

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. Acceptable Manufacturer: Fairway Building Products, L.P. “Solutions Aluminum Railing”.
- B. Guard Rail System: Solutions Aluminum Rail System: guard rail system shall consist of:
 1. Top Rail – 2-3/4" x 2" “Bread Loaf” shape with graspable finger returns
 2. Bottom Rail – 1-7/16" x 1" Rectangle shape with baluster inserts installed (baluster centers will vary depending on rail length).
 3. Balustrade – 3/4" Square or Round balusters. Length of baluster will vary in length depending on rail height (36" or 42").
 4. Newel Post
 - a. 1-7/8 Square Post – 1-7/8" x 1-7/8" x 39" (36" height rail), 48" (42" height) rail or 54" (42" side mount or stair rail). Aluminum post to be used in conjunction with Surface Mount or Side/Fascia Mount Structural Post Mount.
 - b. 3-1/2" Square Post – 3-1/2" x 3-1/2" x 39" (36" height rail), 48" (42" height rail) or 54" (stair rail). Aluminum Post to be used in conjunction with Structural Surface Mount .
 - c. 1-7/8" Side/Fascia Post Mount – 1-7/8" Structural Post in both Surface & Side/Fascia Mount. Manufactured to accept aluminum posts .
 - d. 3-1/2" Surface Post Mount – 3-1/2" Structural post in surface post mount only. Manufactured to accept aluminum posts .
 5. Cast Aluminum Mounting Brackets
 - a. Top Rail – Top rail mounting brackets are available in Post To Post (3-1/2") and Over The Post (1-7/8") mounting for both level, level angle & stair (slope) rail.
 - b. Bottom Rail – Bottom rail mounting brackets serve both Post To Post and Over The Post mounting applications.

2.02 RAILING MATERIALS

- A. Rail, post and balusters: 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: All fasteners used in the system shall be stainless steel and of self-tapping design.

2.03 FABRICATION

- A. Top rails shall be inserted into Cast Aluminum Mounting Brackets without splices.
- B. Cuts shall be clean and free of nicks and burrs before assembly.
 - 1. All posts shall be surface or side/fascia mounted with stainless steel mounting hardware consistent industry standards and consideration for substrata in use and prevailing code requirements.

2.04 FINISHES

- A. Solutions Aluminum Rail System shall have a Power Coated Finish & Colors as follows:
 - 1. AAMA 2604-05 Finish Standards (American Architectural Manufacturers Association)
 - 2. Colors – Black, White & Bronze

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.
 - 1. Expansion Bolt Mounting: Anchor through base plate or side/fascia mount to concrete substrate.

3.04 ERECTION TOLERANCES

- A. Install railings plumb and level, securely fastened, with vertical members plumb.
 - 1. Maximum variation from plumb: 1/8 inch (3.0 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. Never let finish product come in contact with rough finish during or after installation.
3. If minor damage to finish occurs, repair damage in accordance with manufacturer's recommendations; utilize manufacturers approved color match spot paint; provide replacement components if repaired finishes are unacceptable to Architect.

END OF SECTION