

FAIRWAY

ARCHITECTURAL RAILING SOLUTIONS



SECTION 057300 - DECORATIVE METAL RAILINGS

Specifier Notes:

This Section is for custom architectural aluminum railings as a delegated design product.

Edit this Section based on the standard or custom configurations for the Project.

Refer to Manufacturer's printed instructions and product data for more choices and information.

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Aluminum decorative railings.

1.2 ADMINISTRATIVE REQUIREMENTS

Specifier Note:

Edit the duration desired; noted as one week before start of Work.

A. Pre-installation Meeting Attendance and Procedure:

1. Conduct meeting before starting Work of this Section.

B. Coordination:

1. Provide templates or layout drawings and manufacturer's directions for anchorage, including concrete inserts, anchor bolts, and sleeves that are embedded in concrete.
2. Do not install railings when adjacent wall is not completed. No temporary supports for railings.
3. Field check when unfinished conditions exist.

1.3 ACTION SUBMITTALS

A. Product Data:

1. Railing system components.
2. Finishing system.
3. Prefinished Components: Initial selection color samples.

B. Shop Drawings:

1. Railing profiles and sizes.
2. Railing connections.

3. Anchorage accessories and fasteners.
4. Joint locations.

C. Samples:

1. Railing: 6 inch long top rail, pickets, and bottom rail to show color and finish, including connections.
2. Infill; panel: 24 inch by 24 inch sample to show design quality, color, and finish, including channel connections.

D. Delegated-Design Submittal: Sealed calculations and shop drawings.

1. Posts, guards, dividers and pickets or infill.
2. Handrails.

1.4 LEED SUSTAINABLE DESIGN SUBMITTALS

A. Building Product Disclosure and Optimization: Sourcing of raw materials documentation:

1. Domestically sources.
2. Recycled content.
3. Recyclable at end of life.

1.5 QUALITY ASSURANCE

A. Qualifications:

1. Installer: Qualified Exterior finish trade Contractor.

B. Mockups:

1. Construct railing mockups to demonstrate product interfaces, intersections, and terminations.
2. Size and location as indicated by Contract documents.

1.6 WARRANTY

A. Finish Warranty: Repair deteriorated finishes or replace components.

1. Deterioration includes the following:
 - a. Color Fading: More than 5 Hunter units per ASTM D2244.
 - b. Chalking: More than No. 8 rating per ASTM D4214
 - c. Paint cracking, peeling or chalking.

Specifier Note:

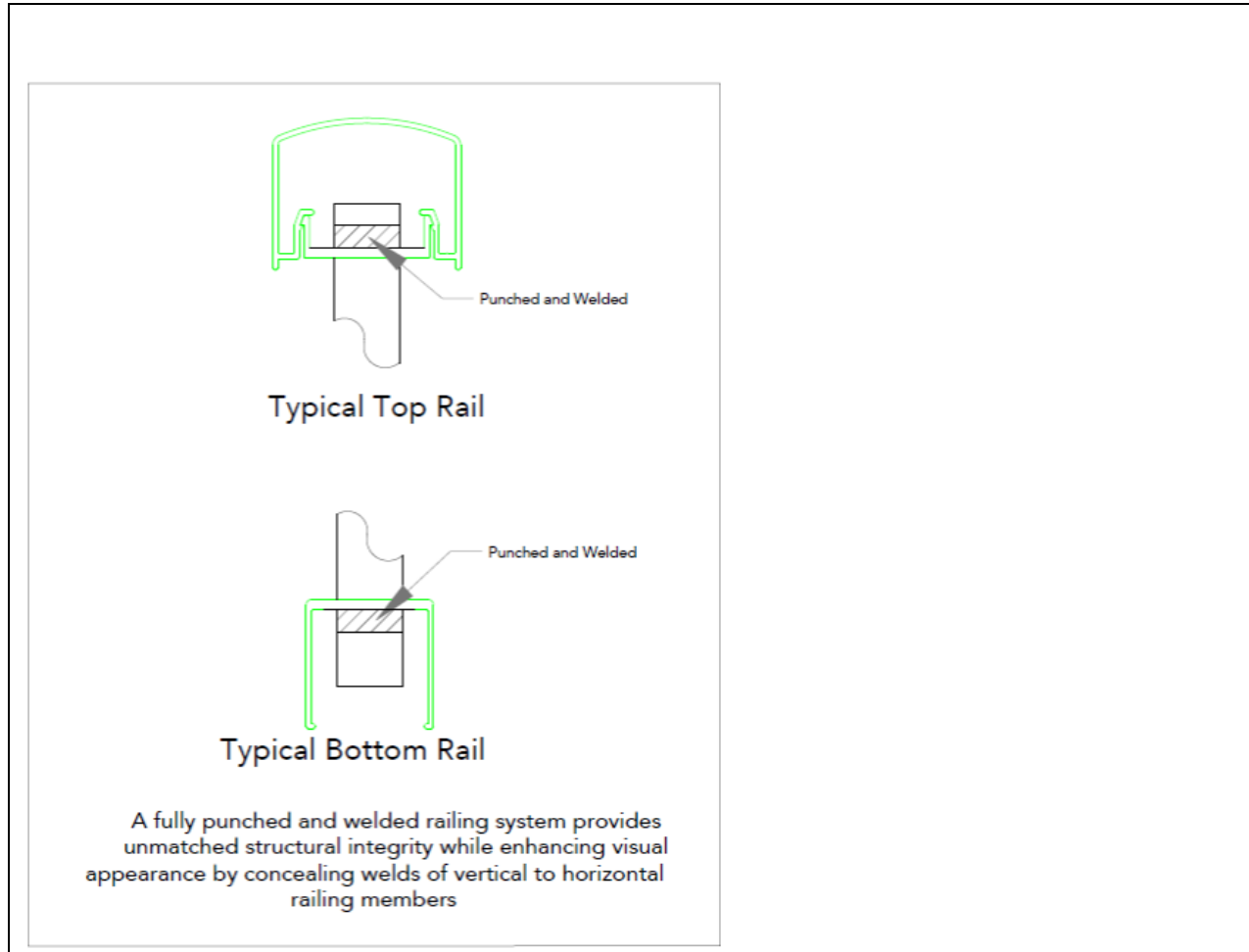
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2. Warranty Period: [Ten AAMA 2604] [Twenty AAMA 2605] years.
 - a. Reference Manufacturer Warranty and Care instructions for full details.

PART 2 - PRODUCTS

2.1 MANUFACTURER

- A. Single Source Responsibility: Furnish engineered design and fabrications by a single manufacturer.
- B. Approved Manufacturer:
 - 1. Fairway Architectural Railing Solutions; <https://fairwayarchitectural.com>.



2.2 RAILING SYSTEMS

- A. Provide railing systems per ASTM E985 standard specification.

Specifier Notes:

There are six different top rail designs. Choose which one is needed for this Project.

Edit options and post types below to remove what is not wanted. Custom items will have an increase in cost to the standard.

B. Monterey:

1. Top Rail: 1-5/8 inch by 3 inch aluminum extrusion.
2. Bottom Channel: 1-1/2 inch by 1-1/2 inch.
 - a. Optional: Closure cap for bottom closure.
3. Posts and Intermediate Posts:
 - a. 2 inch tube post with 5 inch by 5 inch flange baseplate.
 - b. 2-1/2 inch tube post with 5 inch by 5 inch flange baseplate.
 - c. 3 inch tube post with 5 inch by 6 inch flange baseplate.
 - d. 4 inch tube post with 5 inch by 7 inch flange baseplate.
4. Through Post Caps:
 - a. Standard: Flat standard cap.
 - b. Custom: Ball cap.
5. Pickets:
 - a. Standard: 3/4 inch square extrusion.
 - b. Custom:
 - 1) Vertical:
 - a) 1 inch square extrusion.
 - b) 3/4 inch by 1-1/2 inch rectangle extrusion.
 - c) 3/4 inch round extrusion.
 - 2) Horizontal: 3/4 inch Schedule 40 round extrusion.
6. Vertical to Horizontal Members: Punched and concealed internal welds.

C. Huntington:

1. Top Rail: 1-1/2 inch by 2-3/16 inch aluminum extrusion.
2. Bottom Channel: 1-1/2 inch by 1-1/2 inch.
 - a. Optional: Closure cap for bottom closure.
3. Posts and Intermediate Posts:
 - a. 2 inch tube post with 5 inch by 5 inch flange baseplate.
 - b. 2-1/2 inch tube post with 5 inch by 5 inch flange baseplate.
 - c. 3 inch tube post with 5 inch by 6 inch flange baseplate.
 - d. 4 inch tube post with 5 inch by 7 inch flange baseplate.
4. Through Post Caps:
 - a. Standard: Flat standard cap.
 - b. Custom: Ball cap.
5. Pickets:
 - a. Standard: 3/4 inch square extrusion.
 - b. Custom:
 - 1) Vertical:
 - a) 1 inch square extrusion.
 - b) 3/4 inch by 1-1/2 inch rectangle extrusion.
 - c) 3/4 inch round extrusion.
 - 2) Horizontal: 3/4 inch Schedule 40 round extrusion.
6. Vertical to Horizontal Members: Punched and concealed internal welds.

D. Laguna:

1. Top Rail: 1-1/2 inch by 2-5/8 inch aluminum extrusion.

2. Bottom Channel: 1-1/2 inch by 1-1/2 inch.
 - a. Optional: Closure cap for bottom closure.
3. Posts and Intermediate Posts:
 - a. 2 inch tube post with 5 inch by 5 inch flange baseplate.
 - b. 3 inch tube post with 5 inch by 6 inch flange baseplate.
 - c. 4 inch tube post with 5 inch by 7 inch flange baseplate.
4. Through Post Caps:
 - a. Standard: Flat standard cap.
 - b. Custom: Ball cap.
5. Pickets:
 - a. Standard: 3/4 inch square extrusion.
 - b. Custom:
 - 1) Vertical:
 - a) 1 inch square extrusion.
 - b) 3/4 inch by 1-1/2 inch rectangle extrusion.
 - c) 3/4 inch round extrusion.
 - 2) Horizontal: 3/4 inch Schedule 40 round extrusion.
6. Vertical to Horizontal Members: Punched and concealed internal welds.

E. Coronado:

1. Round Top Rail: 3 inch by 2-9/16 inch aluminum extrusion.
2. Bottom Channel: 1-1/2 inch by 1-1/2 inch.
 - a. Optional: Closure cap for bottom closure.
3. Posts and Intermediate Posts:
 - a. 2 inch tube post with 5 inch by 5 inch flange baseplate.
 - b. 3 inch tube post with 5 inch by 6 inch flange baseplate.
 - c. 4 inch tube post with 5 inch by 7 inch flange baseplate.
4. Through Post Caps:
 - a. Standard: Flat standard cap.
 - b. Custom: Ball cap.
5. Pickets:
 - a. Standard: 3/4 inch square extrusion.
 - b. Custom:
 - 1) Vertical:
 - a) 1 inch square extrusion.
 - b) 3/4 inch by 1-1/2 inch rectangle extrusion.
 - c) 3/4 inch round extrusion.
 - 2) Horizontal: 3/4 inch Schedule 40 round extrusion.
6. Vertical to Horizontal Members: Punched and concealed internal welds.

F. Del Mar:

1. Top Rail: 2 15/16 inch by 2 1/4 inch aluminum extrusion
2. Bottom Channel: 1-1/2 inch by 1-1/2 inch.
 - a. Optional: Closure cap for bottom closure.
3. Posts and Intermediate Posts:
 - a. 2 inch tube post with 5 inch by 5 inch flange baseplate.
 - b. 3 inch tube post with 5 inch by 6 inch flange baseplate.
 - c. 4 inch tube post with 5 inch by 7 inch flange baseplate.
4. Through Post Caps:
 - a. Standard: Flat standard cap.

- b. Custom: Ball cap.
- 5. Pickets:
 - a. Standard: 3/4 inch square extrusion.
 - b. Custom:
 - 1) Vertical:
 - a) 1 inch square extrusion.
 - b) 3/4 inch by 1-1/2 inch rectangle extrusion.
 - c) 3/4 inch round extrusion.
 - 2) Horizontal: 3/4 inch Schedule 40 round extrusion.
- 6. Vertical to Horizontal Members: Punched and concealed internal welds.

G. Newport:

- 1. Top Rail: 4 inch by 2-1/4 inch aluminum extrusion.
- 2. Bottom Channel: 1-1/2 inch by 1-1/2 inch.
 - a. Optional: Closure cap for bottom closure.
- 3. Posts and Intermediate Posts:
 - a. 2 inch tube post with 5 inch by 5 inch flange baseplate.
 - b. 2 1/2 inch tube post with 5 inch by 5 inch flange baseplate.
 - c. 3 inch tube post with 5 inch by 6 inch flange baseplate.
 - d. 4 inch tube post with 5 inch by 7 inch flange baseplate.
- 4. Through Post Caps:
 - a. Standard: Flat standard cap.
 - b. Custom: Ball cap.
- 5. Pickets:
 - a. Standard: 3/4 inch square extrusion.
 - b. Custom:
 - 1) Vertical:
 - a) 1 inch square extrusion.
 - b) 3/4 inch by 1-1/2 inch rectangle extrusion.
 - c) 3/4 inch round extrusion.
 - 2) Horizontal: 3/4 inch Schedule 40 round extrusion.
- 6. Vertical to Horizontal Members: Punched and concealed internal welds.

Specifier Note:

If using custom infill instead of pickets above, edit the pickets out and edit below for the panels that are wanted.

Infill Panels

- 7. Glass:
 - a. Standard: 3/8 tempered laminated clear glass.
- 8. Woven Mesh - Crimp Lock: Using 1/4 inch aluminum wire.
 - a. Standard: 2 inch by 2 inch, with an openness of 79 percent.
- 9. Aluminum Press-Locked Swag Bar Grate:
 - a. Standard: 1/8 inch thick by 4 inch by 1 inch horizontal.

H. Aluminum Finish: Powder coating.

- 1. Color: Selected from manufacturer's full range of colors.

2. Custom Color: Coordinate color pallet and quality, provide samples color for approval and cost.

2.3 PERFORMANCE CRITERIA

Specifier Note:

Railings are designed to withstand the specified loads in accordance with the performance loading criteria indicated in IBC 2012,2015,2018 and 2021.

- A. Delegate railing design to licensed manufacturer to design railings, including attachments to building and hardscape.
 1. Design railing systems to resist specified load when tested per ASTM E894 for anchorages and ASTM E935 for complete railing systems.

Specifier Note:

Include paragraph B when design criteria are shown on Drawings. Include paragraphs C and D to specify design criteria when not show on Drawings.

- B. Structural Design Criteria: See Structural Drawings.
- C. Handrail Structural Design:
 1. Live Loads: the handrail shall be designed to resist the following loads, these loads are not assumed to act concurrently:
 - a. 50 plf uniform, along the length of the handrail in any direction OR
 - b. 200 lbf concentrated at any point along the handrail, in any direction
- D. Guard Structural Design:
 1. Top rail: Live Loads: the rail shall be designed to resist the following loads, these loads are not assumed to act concurrently:
 - a. 50 plf uniform, along the length of the rail in any direction OR
 - b. 200 lbf concentrated at any point along the rail, in any direction
 2. Guard Infill: Designed to withstand a 50 lbf load applied horizontally on an area not to exceed 12 in. x 12 in.
 3. Allowable Deflection: $H/24+L/96$, H =height of railing system, L = top railing span

Specifier Note:

Choose the text to keep from the [bracketed text]. Remove text not applicable to Project.

- E. Accessibility Requirements: Applicable provisions in [Department of Justice publication 2010 ADA Standards for Accessible Design][ICC/ANSI A117.1][state accessibility code].
- F. Expansion and Contraction: Withstand 120 degree F ambient and 180 degree F surface thermal cycling without failure.

2.4 MATERIALS

- A. General: Provide metal free from pitting, seam marks, roller marks, stains, discolorations, and other imperfections where exposed to view.
- B. Sustainable Characteristics:
 - 1. Recycled content for Aluminum: Postconsumer recycled content not less than 30 percent and preconsumer recycle content not less than 35 percent.
- C. Aluminum:
 - 1. Extruded Bar and Tube: ASTM B 221, alloy 6063-T6.
 - 2. Plate and Sheet: ASTM B 209, manufacturer recommended alloy.
 - 3. Castings: ASTM B25, manufacturer recommended alloy.
- D. Brackets, Flanges and Anchors: Same material and finish as supported rails.
 - 1. Provide formed brackets with predrilled holes for exposed bolt anchorage.
- E. Fasteners: Select fasteners of grade, type and class required to be capable of withstanding design loads, and to produce connections suitable for anchoring handrails and railings to other types of construction indicated.
- F. Fastener Material:
 - 1. Type 304 stainless-steel fasteners.

Specifier Note:

Edit based on location to the ocean and need for extra protections with Type 316.

- 2. Type 316 stainless-steel fasteners.

- G. Post-Installed Anchors: Hilti TZ2 and acceptable to authorities having jurisdiction.
 - 1. Exterior Locations: Stainless Steel.
 - a. Alloy Group 1.

Specifier Note:

Edit based on location to the ocean and need for extra protections with Type 316.

- b. Alloy Group 2.
 - 1) Stainless-Steel Bolts: ASTM F593.
 - 2) Stainless-Steel Nuts: ASTM F594.
- 2. Interior Locations: Carbon-steel components zinc plated to comply with ASTM B633 or ASTM F1941, Class Fe/Zn 5.

- H. Welding Rods: In accordance with AWS specifications for metal alloy welded.
 - 1. Aluminum: Provide alloy and type as recommended by manufacture as required for color match, strength, and compatibility in fabricated items.

Specifier Note:

Choose the text to keep from the [bracketed text]. Remove text not applicable to Project.

- I. Grout: ASTM C1107, factory-packaged nonmetallic, shrinkage-resistant [exterior][interior] use grout.

2.5 FABRICATION

- A. Factory Assembly: Fit and shop assemble components in largest practical sizes for delivery to site.
- B. Fabricate components with joints tightly fitted and secured. Finish as needed spigots and sleeves to accommodate site assembly in installation.
- C. Supply components required for anchorage of fabrications. Fabricate anchor plates and related components of same material and finish as railing assembly.
- D. Accurately form components to each other and to building structure.
- E. Accommodate for expansion and contraction of members and building movement without damage to connections or members.
- F. Railing Ends: Closed, except when railing returns within 1/8 inch of wall face.

2.6 FINISHES

- A. Finish Standard: NAAMM's "Metal Finishes Manual for Architectural and Metal Products".
- B. Provide protective covering on top rail.
- C. Appearance of Finished Work:
 - 1.

Specifier Note:

Color and finish appearance may vary upon factory application due to difference in spray equipment, line conditions, or day-to-day process variations, As a result, color uniformity may not be measured against laboratory prepared samples.

- 2. Variations in Adjacent Pieces: Match mockup within 2 Delta-E per ASTM D2244, Section 6.3.
- 3. Variation of Remote Pieces: Acceptable if within approved sample range. Install to minimize variation in appearance.
- 4. Variations Within a Single Piece: Not acceptable.
- D. Aluminum Finishing:
 - 1. A minimum of a certified 5 Stage AAMA 2605 pretreatment system.
 - 2. Powder Coating: Thermoset polyester, AAMA 2604 TGIC Super Durable 1.5 mil minimum thickness.
 - 3. Powder Coating: High Performance Thermoset Fluoropolymer, AAMA 2605 1.5 mil minimum thickness.

PART 3 - EXECUTION

3.1 PREPARATION

Specifier Note:

Choose the text to keep from the [bracketed text]. Remove text not applicable to Project.

- A. Supply items required to be [cast into concrete] [embedded in masonry] [placed in partitions] with appropriate layouts.

3.2 INSTALLATION

- A. Install components plumb and level, accurately fitted, free from distortion or defects.
- B. Anchor posts to structure.
 - 1. Posts: Secure as noted on manufacturer's printed instructions.
- C. Attach custom infill panels to posts.
- D. Install railing system to accommodate tight joints and secure installation.
- E. Provide isolation barriers between railing and substrate.
- F. Tolerances:
 - 1. Posts: Plumb within a 1/16 inch in 3 feet.
 - 2. Align Rails: Variations from horizontal level and variation from parallel with rake of steps and ramps for sloped rails not to exceed 1/4 inch in 12 feet.

3.3 PROTECTION

- A. Protect finishes from damage during construction period with temporary protective coverings acceptable to railing manufacturer.
- B. Remove protective coverings at time of substantial completion.
- C. END OF SECTION 057300