

Section 05 52 00

S100 STEEL RAILING

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Section 06 Envision Outdoor Living Products S100 Steel Railing

1.2 RELATED SECTIONS

- A. Section 05 52 13 – Pipe and Tube Railings
- B. Section 05 73 00 – Decorative Metal Railings

1.3 REFERENCES

- A. ASTM E 935 – Standard Test Methods for Permanent Metal Railing Systems and Rails for Buildings
- B. ASTM E 985 – Standard Specification for Permanent Metal Railing Systems and Rails for Buildings
- C. ANSI 1264.1 Safety Requirements for Workplace Floor and Wall Openings, Stairs, and Railing Systems
- D. American Welding Society: AWS D1.1 – Structural Welding Code – Steel
- E. ASTM A123/A123M-13 Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products
- F. ASTM A751-14a Standard Test Methods, Practices, and Terminology for Chemical Analysis of Steel Products

1.4 DESIGN / PERFORMANCE REQUIREMENTS

Material Performance:

- A. Railing shall be engineered to withstand structural loads indicated. Determine allowable design working stresses of railing materials.
- B. Structural Performance: Provide railings capable of withstanding test loads in accordance with ICC-ES AC273.
 - 1. Structural Performance of Top Rails and Supports:
 - a. Concentrated Load Test: In Accordance with Section 4.23 of AC273. Two separate tests on each specimen shall be conducted, where a test load of 500 lbf/ft (2.22 kN) is applied at the midspan of the top rail and at the top of a single post is an outward direction. In both cases the load shall be continuously applied horizontally and normal to the top rail at the maximum guard and handrail system height.

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b. Uniform Load Test: In accordance with Section 4.2.3 of AC273. The top rail of the guard and handrail test specimens shall be subjected to a single test where a maximum uniform load of 125 lbf/ft (1.82 kN/m) is applied vertically and in an outward direction at an angle of 45 degrees from horizontal.

c. Design need not provide for both concentrated and uniform loads to be applied concurrently.

2. Structural Performance of Guardrail Infill:

a. In-Fill Load Test: In accordance with Section 4.2.2 of AC273. The test specimens shall be tested and shall be capable of satisfactorily resisting a load of 125 lbf (556 N) applied over a 1-square-foot (0.1 m²) area normal to the in-fill. In-Fill is defined to include panels, intermediate rails, balusters and other elements.

b. Design need not provide for infill loads to be applied concurrently with top rail loads.

1.5 SUBMITTALS

A. Submit under provisions of Section 01300

B. Product Data: Submit manufacturer's product data for each product required, including installation requirements.

C. Shop Drawings: Provide complete details of entire railing system showing layout, components, fasteners and anchors.

D. Verification Samples: For each finished product specified, two samples, minimum size 6" long, representing actual product, color, and patterns.

E. Test Reports: Submit manufacturer's test reports of railings from independent testing agency to support load test requirements.

1.6 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section.

B. Installer Qualifications: Company specializing in installing products of the type specified in this section.

C. Obtain guardrail accessories, fittings and fasteners from a Fairway Architectural Railing Solutions dealer to ensure consistent quality standards are maintained throughout the project.

D. Mock Up: Provide mock-up using acceptable products and manufacturer approved installation methods. Verify owner and architect's acceptance of product and workmanship.

1. Install one railing section of each type required.

2. Maintenance: Maintain mock-up during construction for workmanship comparison.

3. Removal: Remove and legally dispose of mock-up when no longer needed.

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4. Incorporation: Incorporate mock-up into final construction.

E. Pre-Installation Conference: Conduct pre-installation conference.

1. Prior to commencing installation, meet at project site to review material selections, installation procedures, and coordination with other trades.

2. Mock-ups shall be reviewed during the pre-installation conference.

3. Pre-installation conference shall include the contractor, installer, Fairway Architectural Railing Solutions Representative, Architect and any other relevant parties.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Ordering: Comply with manufacturer's ordering instructions and lead time requirements to avoid construction delays.

B. Delivery: Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact.

C. Storage and Handling: Store materials in clean, dry area away from other construction activities. Maintain material in original packaging until installation.

1.8 WARRANTY

A. Project Warranty: Refer to conditions of the Contract for project warranty provisions used with their permission. The manufacturer is responsible for technical accuracy.

B. Manufacturer's Warranty: Submit, for Owner's acceptance, manufacturer's standard warranty documents executed by authorized company official. Manufacturer's warranty is in addition to, and not a limitation of, other rights Owner may have under Contract Documents.

C. Warranty: Limited Warranty against defective workmanship and materials, when subject to normal and proper use, it is further warranted against surface peeling, rot, ground insects, splitting, corrosion, flaking, rusting and blistering, abnormal weathering and discoloration under conditions of normal use and service.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Contract Documents are based on products by: Fairway Architectural Railing Solutions

53 Eby Chiques Road, Mount Joy, PA 17552.

223 S KK HWY, Lamar, MO 64759

B. Substitutions: Not permitted under Division 01.

2.2 MATERIALS

A. S100 Guardrail System: Steel frame, fully assembled with welded channels, superior 2604 compliant power coating available in level and stair. Safe, strong and durable railing.

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S110 Rail System (28", 34", 40" Heights) Level and Stair

1. 1" square steel extrusion with .06" wall top and bottom rail (Antique Bronze, Black Sand)
2. Balustrade: 5/8" square steel extrusion with .05" wall
3. Mounting Hardware: Cast steel socket brackets contour to shape of rails
 - A. #10-24 X 3/4" flat head, thread tapping, sheet metal screws

2.3 ACCESSORIES

- A. 2" square X .10" wall hollow steel extrusion attached to a base plate with 1/8" fillet weld all around – 39", 44", 54"
- B. 3" square X .10" wall hollow steel extrusion attached to a base plate with a 1/8" fillet weld all around – 39", 44", 54"
- C. 3 15/16" square by 5/16" thick steel plate with 4 – 9/16" diameter holes located 5/8" on center from edge of plate and 1 – 1 1/2" diameter hole in center of the plate
- D. 2" Dome post cap
- E. 3" Dome post cap
- F. 2" Pyramid post cap
- G. 3" Pyramid post cap
- H. 2" post base trim 2/pc
- I. 3" post base trim 2/pc
- J. 34 1/2" wide X 36" high railing gate kit
- K. 34 1/2" wide X 42" high railing gate kit

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that surfaces are properly prepared to receive installation of guardrails.
- B. Notify Architect of conditions that would adversely affect installation or subsequent use.
- C. Do not begin until unsatisfactory conditions are corrected.

3.2 INSTALLATION

- A. Install handrail and accessories according to applicable manufacturer's instructions.
- B. Install components plumb and level, accurately fitted, free from distortion or defects.
- C. Install railings using manufacturer's supplied mounts, fasteners, and hardware.
- D. Structural post mounts shall be attached to concrete surfaces or wood structure

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using hardware recommended by local building codes, engineers, or architects.

3.2 CLEANING

- A. Clean railing promptly after installation in accordance with manufacturer's instructions.
- B. Remove labels and temporary protective coverings.
- C. Do not use harsh cleaning material or methods that could damage finish.
- D. Remove construction debris from project site and legally dispose of debris.

END OF SECTION