

SECTION 05 73 16 {05720}

CABLE RAILING SYSTEM

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PART 1 GENERAL

1.1 SUMMARY

- A. Section includes cable railing system, with architectural metal posts, stainless steel horizontal cable balustrade and fittings; and [wood] [matching metal] handrails.
- B. Related Sections:
1. Section [] - []: Attachment [plates] [angles] [and] [] for metal stairs, including anchorage.
 2. Section 03 30 00 - Cast-In-Place Concrete: Execution requirements for placement of anchors specified in this section in concrete.
 3. Section 04 20 00 - Unit Masonry: Execution requirements for placement of anchors specified in this section in masonry.
 4. Section [] - []: Execution requirements for placement of anchors specified in this section in [] wall construction.
 5. Section 05 51 00 - Metal Stairs: Handrails other than those specified in this section.
 6. Section 06 20 00 - Finish Carpentry: Wood handrail.
- C. Related Sections:
1. Section [] - []: Attachment [plates] [angles] [and] [] for metal stairs, including anchorage.
 2. Section 03300 - Cast-In-Place Concrete: Execution requirements for placement of anchors specified in this section in concrete.
 3. Section 04810 - Unit Masonry Assemblies: Execution requirements for placement of anchors specified in this section in masonry.
 4. Section [] - []: Execution requirements for placement of anchors specified in this section in [] wall construction.
 5. Section 05510 - Metal Stairs and Ladders: Handrails other than those specified in this section.
 6. Section 06200 - Finish Carpentry: Wood handrail.

1.2 REFERENCES

- A. ASTM International:
1. ASTM A36/A36M - Standard Specification for Carbon Structural Steel.
 2. ASTM A53/A53M - Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless.
 3. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.

4. ASTM A500 - Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes.
5. ASTM A501 - Standard Specification for Hot-Formed Welded and Seamless Carbon Steel Structural Tubing.
6. ASTM A513 - Standard Specification for Electric-Resistance-Welded Carbon and Alloy Steel Mechanical Tubing.
7. ASTM E935 - Standard Test Methods for Performance of Permanent Metal Railing Systems and Rails for Buildings.

B. National Ornamental & Miscellaneous Metals Association:

1. NOMMA Guideline 1 - Joint Finishes.

C. SSPC: The Society for Protective Coatings:

1. SSPC - Steel Structures Painting Manual.
2. SSPC Paint 15 - Steel Joist Shop Paint.
3. SSPC Paint 20 - Zinc-Rich Primers (Type I - Inorganic and Type II - Organic).

1.3 DESIGN REQUIREMENTS

A. Design handrail, guardrail, and attachments to resist forces as required by [applicable] [] code. Apply loads non-simultaneously to produce maximum stresses.

1. Guard Top Rail and Handrail Concentrated Load: 200 pounds (0.89 kN) applied at any point in any direction.
2. Guard Top Rail Uniform Load: [50 plf (0.73 kN/m)] [20 plf (0.29 kN/m)] applied in any direction.
3. Intermediate Rails, Panels, and Baluster Concentrated Load: 50 pounds (0.22 kN) applied to 1 sf (300 sq mm) area.

1.4 SUBMITTALS

A. Section 01 33 00 - Submittal Procedures {01330 - Submittal Procedures}: Submittal requirements.

B. Shop Drawings: Indicate profiles, sizes, connection attachments, anchorage, size and type of fasteners, and accessories.

C. Samples: Submit [two] [] inch ([] mm) long samples of top rail. Submit [two] [] samples, of standard post showing style and finish.

1.5 QUALITY ASSURANCE

A. Finish joints in accordance with NOMMA Guideline 1.

B. Manufacturer's Qualifications: Not less than 5 years experience in the actual production of specified products.

C. Installer's Qualifications: Firm with 3 years experience in installation of systems similar in complexity to those required for this Project.

1.6 FIELD MEASUREMENTS

- A. Verify field measurements prior to fabrication.

1.7 DELIVERY, STORAGE AND HANDLING

- A. Deliver architectural metal railing posts with manufacturer's protective covering intact.
- B. Store and handle in strict compliance with manufacturer's written instructions and recommendations.
- C. Protect from damage due to weather, excessive temperature, and construction operations.

PART 2 PRODUCTS

2.1 CABLE RAILING SYSTEM

A. Manufacturer:

1. Keuka Studios Inc.,
1011 Rush Henrietta Town Line Road
Rush, New York, 14543
<http://keuka-studios.com>
Phone: 585-487-6148
Fax: 585-487-6150
TOLL FREE 1-855-454-5678

2. Substitutions: [Section 01 60 00 - Product Requirements {01600 - Product Requirements}] [Not Permitted].

B. System Design:

1. The Keuka Curved Cable Railing: [36] [42] [] inch height, post spacing as indicated.
2. The Ithaca Style Cable Railing: [36] [42] [] inch height, post spacing as indicated.
3. The Chicago Style Cable Railing: [36] [42] [] inch height, post spacing as indicated.
4. The Prairie Style Cable Railing: [36] [42] [] inch height, post spacing as indicated.
5. The Tokyo Style Cable Railing: [36] [42] [] inch height, post spacing as indicated.
6. Provide a custom design as indicated.

C. Finish:

1. Powder coat components with [4 stage pre-treat, Zinc Rich primer and Polyester top coat] [3 stage pre-treat, Zinc Rich primer, Polyester top coat]
2. Standard Color: [Matte Black] [Silver] [Matte Bronze] [Pewter] [White] [Custom color selected by architect]

2.2 The CABLE RAILING SYSTEM COMPONENTS

- A. Steel Plate: [ASTM A36/A36M.] [ASTM A572/A572M; Grade 50.] [_____.]

- B. Steel Pipe: [[ASTM A53/A53M, Grade B] [_____] Schedule [40.] [_____]]
[_____].]
- C. Sheet Steel: ASTM A36/A36M.
- D. Welding Materials: AWS D1.1; type required for materials being welded.
- E. Cables: As manufactured by Ultra-tec Cable Railing Systems.
 - 1. Material: 1 x19 Type 316 stainless steel strand, left-hand lay,
 - 2. Diameter: [1/8 inch] with a breaking strength of 1,780 lbs. [3/16 inch] with a breaking strength of 4,000 lbs..
 - 3. Orientation: [Horizontal] [Slope parallel to stair pitch] [As indicated on the drawings].
 - 4. Nominal cable to cable centerline spacing 3”
 - 5. Post to post spacing: 42” Max.
 - 6. Finish: Mill.
 - 7. As indicated on drawings.
- F. Cable Hardware, General: Ultra-tec type 316 stainless steel, manufactured by The Cable Connection.
- G. Exposed Fasteners: Carriage bolts, hex bolts, lag screws, countersunk screws; consistent with design of railing.
- H. Top rail: Wood, [species], [_____] x [_____] inches with eased edges.
- I. Top rail l: Metal, [aluminum] [stainless steel] [_____] diameter/size.
- J. Powder coating: SSPC-SP6 Commercial blast clean, 4 stage pre-treat wash, Zinc rich epoxy powder coated primer, flash cure 300 F, Polyester color coat, final cure.

***** [OR] *****
- K. Galvanizing: ASTM A123/A123M; [minimum [1.2] [2.0] [_____] oz/sq ft ([355] [600] [_____] g/sq m) coating thickness]; galvanize after fabrication.
- L. Touch-Up Primer for Galvanized Surfaces: [SSPC Paint 20 [Type I Inorganic] [Type II Organic] zinc rich.] [_____].]

2.3 FABRICATION

- A. Fit and shop assemble components in largest practical sizes for delivery to site.
- B. Fabricate components with joints tightly fitted and secured.
- C. Exposed Mechanical Fastenings: Flush countersunk screws, hex bolts or carriage bolts; unobtrusively located; consistent with design of component, except where specifically noted otherwise.

- D. Supply components required for anchorage of fabrications. Fabricate anchors and related components of same material and finish as fabrication, except where specifically noted otherwise.
- E. Continuously seal joined pieces by continuous welds. Drill condensate drainage holes at bottom of hollow members at locations not encouraging water intrusion.

***** [OR] *****

- F. Exposed Welded Joints: NOMMA Guideline 1 Joint Finish [_____].
- G. Accurately form components [to suit stairs and landings,] to each other and to building structure.
- H. Accommodate for expansion and contraction of members and building movement without damage to connections or members.
- I. Coordinate installation of wood handrail with Section [_____].]

PART 3 EXECUTION

3.1 EXAMINATION

- A. Section 01 30 00 - Administrative Requirements {01300 - Administrative Requirements} : Coordination and project conditions.
- B. Verify field conditions are acceptable and are ready to receive work.
- C. Verify concealed blocking and reinforcement is installed and correctly located to receive wall mounted handrails.

3.2 PREPARATION

- A. Supply items required to be [cast into concrete] [and] [or] [embedded in masonry] [placed in partitions] with setting templates, to appropriate sections.

3.3 INSTALLATION

- A. Install components plumb and level, accurately fitted, free from distortion or defects.
- B. Use carriage bolts for mounting top cap whenever possible. [When using flush countersunk fastening option, route a recesses in top cap to accept post top plate.]

3.4 ERECTION TOLERANCES

- A. Section 01 40 00 - Quality Requirements {01400 - Quality Requirements} : Tolerances.
- B. Maximum Variation From Plumb: [1/8] [_____] inch ([6] [_____] mm) per story, non-cumulative.
- C. Maximum Offset From Alignment: [1/4] [_____] inch ([6] [_____] mm).

D. Maximum Out-of-Position: [1/2] [] inch ([6] [] mm).

END OF SECTION