

## **SECTION 057300 - DECORATIVE METAL RAILINGS**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

#### **1.2 SUMMARY**

- A. Section Includes:
  - 1. Stainless steel decorative railing.

#### **1.3 COORDINATION AND SCHEDULING**

- A. Coordinate installation of anchorages for railings. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver items to Project site in time for installation.

#### **1.4 ACTION SUBMITTALS**

- A. Product Data:
  - 1. Manufacturer's product lines of decorative metal railings assembled from standard components.
  - 2. Fasteners.
  - 3. Metal finishes.
- B. Shop Drawings: Include plans, elevations, sections, and attachment details.
- C. Samples for Verification: For each type of exposed finish required.

#### **1.5 DELIVERY, STORAGE, AND HANDLING**

- A. Protect mechanical finishes on exposed surfaces of railings from damage by applying a strippable, temporary protective covering before shipping.

**PART 2 - PRODUCTS****2.1 METALS, GENERAL**

- A. Metal Surfaces, General: Provide materials with smooth surfaces, without seam marks, roller marks, rolled trade names, stains, discolorations, or blemishes.
- B. Anchors: Same metal and finish as supported rails unless otherwise indicated.

**2.2 STAINLESS STEEL DECORATIVE RAILINGS**

- A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
  - 1. Architectural Iron Designs, Inc.
  - 2. Architectural Metal Works.
  - 3. Atlantis Rail Systems.
  - 4. Blum, Julius & Co., Inc.
  - 5. C.R. Laurence Co., Inc.
  - 6. CraneVeyor Corp.
  - 7. Greco, a CSW Industrials Company.
  - 8. Hollaender Mfg. Co.
  - 9. Kane Innovations, Inc.
  - 10. Lavi Industries.
  - 11. Livers Bronze Co.
  - 12. Morse Industries.
  - 13. P & P Artec.
  - 14. R & B Wagner, Inc.
  - 15. Seco South, Inc.
  - 16. Tri Tech, Inc.
  - 17. VIVA Railings, LLC.
  - 18. Wylie Systems.
- B. Railing Design: 36" high railing with top rail and mid rail, spaced so there are two equal spaces approximately 18" each.
- C. Source Limitations: Obtain stainless steel decorative railing components from single source from single manufacturer.
- D. Tubing: ASTM A554, Grade MT 304.
- E. Pipe: ASTM A312/A312M, Grade TP 304.
- F. Castings: ASTM A743/A743M, Grade CF 8 or CF 20.

## 2.3 FASTENERS

- A. Fastener Materials:
  - 1. Stainless Steel Railing Components: Type 304 stainless steel fasteners.
- B. Fasteners for Anchoring to Other Construction: Select fasteners of type, grade, and class required to produce connections suitable for anchoring railings to other types of construction.
- C. Provide concealed fasteners for interconnecting railing components and for attaching railings to other work unless otherwise indicated.

## 2.4 FABRICATION

- A. Fabricate railings to comply with requirements indicated for design, dimensions, member sizes and spacing, details, finish, and anchorage.
- B. Shop assemble railings to greatest extent possible to minimize field splicing and assembly. Disassemble units only as necessary for shipping and handling limitations.
  - 1. Clearly mark units for reassembly and coordinated installation.
  - 2. Use connections that maintain structural value of joined pieces.
- C. Cut, drill, and punch metals cleanly and accurately.
  - 1. Remove burrs and ease edges to a radius of approximately 1/32 inch unless otherwise indicated.
  - 2. Remove sharp or rough areas on exposed surfaces.
- D. Form work true to line and level with accurate angles and surfaces.
- E. Cut, reinforce, drill, and tap as indicated to receive finish hardware, screws, and similar items.
- F. Connections: Fabricate railings with welded or mechanical connections unless otherwise indicated.
- G. Welded Connections: Cope components at connections to provide close fit, or use fittings designed for this purpose. Weld all around at connections, including at fittings.
  - 1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
  - 2. Obtain fusion without undercut or overlap.
  - 3. Remove flux immediately.
  - 4. At exposed connections, finish exposed welds to comply with NOMMA's "Voluntary Joint Finish Standards" for Finish #1 welds; ornamental quality with no evidence of a welded joint.

- H. Mechanical Connections: Connect members with concealed mechanical fasteners and fittings.
  - 1. Fabricate members and fittings to produce flush, smooth, rigid, hairline joints.
  - 2. Fabricate splice joints for field connection using an epoxy structural adhesive if this is manufacturer's standard splicing method.
- I. Form changes in direction as follows:
  - 1. By bending or by inserting prefabricated elbow fittings.
- J. Bend members in jigs to produce uniform curvature for each configuration required. Maintain cross section of member throughout entire bend without buckling, twisting, cracking, or otherwise deforming exposed surfaces of components.
- K. Close exposed ends of hollow railing members with prefabricated cap and end fittings of same metal and finish as railings.
- L. Fittings and Anchors: Provide fittings and anchors to interconnect railing members to other Work unless otherwise indicated.
- M. For removable railing posts, fabricate slip-fit sockets from stainless steel tube or pipe whose ID is sized for a close fit with posts; limit movement of post without lateral load, measured at top, to not more than one-fortieth of post height.
  - 1. Provide socket covers designed and fabricated to resist being dislodged.

## **2.5 GENERAL FINISH REQUIREMENTS**

- A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" recommendations for applying and designating finishes.
- B. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipment.

## **2.6 STAINLESS STEEL FINISHES**

- A. Surface Preparation: Remove tool and die marks and stretch lines, or blend into finish.
- B. Polished Finishes: Grind and polish surfaces to produce uniform finish, free of cross scratches.
  - 1. Run grain of directional finishes with long dimension of each piece.
  - 2. When polishing is completed, passivate and rinse surfaces.
  - 3. Remove embedded foreign matter and leave surfaces chemically clean.
- C. Stainless Steel Tubing Finishes:

1. 180-Grit Polished Finish: Uniform, directionally textured finish.
- D. Stainless Steel Sheet and Plate Finishes:
1. Directional Satin Finish: ASTM A480/A480M, No. 4.

## **PART 3 - EXECUTION**

### **3.1 INSTALLATION, GENERAL**

- A. Perform cutting, drilling, and fitting required for installing railings.
1. Fit exposed connections together to form tight, hairline joints.
  2. Install railings level, plumb, square, true to line; without distortion, warp, or rack.
  3. Set railings accurately in location, alignment, and elevation; measured from established lines and levels.
  4. Do not weld, cut, or abrade surfaces of railing components that have been coated or finished after fabrication and that are intended for field connection by mechanical or other means without further cutting or fitting.
  5. Set posts plumb within a tolerance of 1/16 inch in 3 feet.
  6. Align rails so variations from level for horizontal members and variations from parallel with rake of steps and ramps for sloping members do not exceed 1/4 inch in 12 feet.
- B. Adjust railings before anchoring to ensure matching alignment at abutting joints.
- C. Fastening to In-Place Construction: Use anchorage devices and fasteners where necessary for securing railings and for properly transferring loads to in-place construction.

### **3.2 RAILING CONNECTIONS**

- A. Nonwelded Connections: Use mechanical or adhesive joints for permanently connecting railing components. Use wood blocks and padding to prevent damage to railing members and fittings. Seal recessed holes of exposed locking screws, using plastic cement filler colored to match finish of railings.
- B. Welded Connections: Use fully welded joints for permanently connecting railing components. Comply with requirements for welded connections in "Fabrication" Article, whether welding is performed in the shop or in the field.

### **3.3 ANCHORING POSTS**

- A. Install removable railing sections, where indicated, in slip-fit metal sockets cast in concrete.

### **3.4 CLEANING**

- A. Clean stainless steel by washing thoroughly with clean water and soap, rinsing with clean water, and wiping dry.

### **3.5 PROTECTION**

- A. Protect finishes of railings from damage during construction period with temporary protective coverings approved by railing manufacturer. Remove protective coverings at time of Substantial Completion.
- B. Restore finishes damaged during installation and construction period, so no evidence remains of correction work. Return items that cannot be refinished in the field to the shop; make required alterations and refinish entire unit, or provide new units.

**END OF SECTION 057300**