SECTION 05 73 00

GLAZED HANDRAILS AND RAILINGS

PART 1 - GENERAL

- 1.01 SUMMARY
 - A. This Section includes glass railing system at Second Floor Bridge in the Hall of Justice.
 - B. Related Sections:
 - 1. Metal fabrications are specified in Section 05 50 00.
 - 2. Interior glazing is specified in Section 08 80 01.

1.02 PERFORMANCE REQUIREMENTS

- A. Design Loads: Load on guardrails shall be as required by California Building Code (CBC) Section 1607.7, with the following amendment:
 - a. Guardrails shall support a load of 50 pounds per linear foot acting horizontally, simultaneous with 50 pounds per linear foot acting vertically, at the top.

1.03 SUBMITTALS

- A. Product Data: Submit manufacturer's product data, including description of materials, components, fabrication, finishes and installation instructions. Installation instructions include all structural computations and test reports provided by the manufacturer evidencing compliance with the specifications.
- B. Shop Drawings: Show fabrication and installation of railings, including plans, elevations, sections, indicating materials, components, sizes, dimensions, tolerances, hardware, fasteners, finishes, and attachments to other units of work.
- C. Samples: For verification of each type of exposed finish required, prepared on components of same thickness and metal to be used in the work.
 - 1. 6-inch-long section or top rail and bottom channel members.
 - 2. 12-inch-square sample of glass panel.
 - 3. Fittings and brackets.
 - 4. Welded connections.
- D. Certification that components were installed in accordance with manufacturer's engineering data to meet required design loads as specified.
- E. Test Reports: Submit test reports from qualified independent testing agency indicating compliance with ASTM E985.

1.04 QUALITY ASSURANCE

A. Components and installation shall comply with ADA guidelines and CBC requirements.

1.05 DELIVERY, STORAGE AND HANDLING

A. Store railing systems inside a well-ventilated area, away from uncured concrete and masonry and protected from weather, moisture, soiling, abrasion, extreme temperatures, and humidity.

1.06 PROJECT CONDITIONS

A. Field Measurements: Where railings are required to fit to other construction, check actual dimensions of other construction by accurate field measurements before fabrication; show recorded measurements on final shop drawings. Coordinate fabrication schedule with construction progress to avoid delaying the work.

PART 2 - PRODUCTS

- 2.01 METALS
 - A. General: Provide metal free from surface blemishes where exposed to view in the finished work. Exposed-to-view surfaces exhibiting pitting, seam marks, roller marks, stains, discoloration, or other imperfections on finished units are not acceptable.
 - B. Stainless Steel: AISI Type 304.
 - 1. Tubing: ASTM A269.
 - 2. Bars, Shapes, and Mouldings: ASTM A276.
 - 3. Finish: #4.
 - C. Brackets, Flanges, and Anchors: Cast or formed metal of the same type material and finish as supported rails.
 - D. Embeds: Hot-dipped galvanized.
- 2.03 GLASS PRODUCTS AND GLAZING MATERIALS
 - A. Safety Glass Standard: Provide safety glass complying with ANSI Z97.1 and testing requirements of 16 CFR Part 1201 for Category II materials.
 - B. Laminated Glass: Two sheets of clear tempered float glass laminated together with a 0.030-inch thick clear plastic interlayer.
 - C. Glazing Tapes: Provide either preformed back-bedding mastic glazing tape complying with AAMA 800 or expanded cellular glazing tape complying with AAMA 800 for product 810.5.
 - D. Glazing Accessories: Provide setting blocks, filler material, spacers, rubber washers, and related accessories recommended or supplied by railing manufacturer for supporting glass in channel shoe molding.

2.04 MISCELLANEOUS MATERIALS

A. Filler Metal and Electrodes: Provide type and alloy of filler metal and electrodes as recommended by producer of metal to be welded or brazed and as required for color match, strength, corrosion resistance, and compatibility in fabricated items.

2.05 FASTENERS

- A. Fasteners for Anchoring Railings to Other Construction: Select fasteners of the type, grade, and class required to produce connections that are suitable for anchoring railing to other types of construction and capable of withstanding design loading.
 - 1. Provide fasteners fabricated from Type 304 stainless steel.
- B. Fasteners for Interconnecting Railing Components: Use fasteners of same basic metal as the fastened metal. Provide concealed fasteners for interconnecting railing components and for attaching them to other work, except where exposed fasteners are unavoidable.
- C. Adhesive: Scotch-Weld epoxy adhesive.
- D. Cement: Hydraulic, ASTM C595, factory prepared with accelerator.
- 2.06 FABRICATION
 - A. Glass Rail System Components: Provide Type 304 stainless steel glazing channels, glass stops, and cap rail.

- B. Welded Connections: Fabricate railing systems for connecting members by welding. For connections made during fabrication, weld corners and seams continuously to comply with the following:
 - 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 welding flux immediately.
 - 4. At exposed connections, finish exposed welds and surfaces smooth and blended so that no roughness shows after finishing and welded surface matches contours of adjoining surfaces.
 - 5. Passivate stainless steel surfaces before welding.
- C. Ease exposed edges to a radius of approximately 1/32-inch. Form bent-metal corners to the smallest radius possible without causing grain separation or otherwise impairing work.
- D. Glass Panels: Cut and drill tempered glass to final size and shape prior to heat treatment; provide for proper edge clearance and bite on glass.
- E. Railing System shall be surface mounted.
- F. Rails: Fabricate from stainless steel.
- G. Glass Structural Balustrade: Clear tempered laminated glass as specified.
- H. Shoe Moulding: Fabricate from stainless steel.
- I. Fittings: Wrought stainless steel. Miter elbows shall be of welded construction with no weld marks visible when the fitting is installed.
- J. Connector Sleeves: Internal connector sleeves shall be stainless steel.

PART 3 - EXECUTION

3.01 INSTALLATION, GENERAL

- A. Fit exposed connections accurately together to form tight, hairline joints.
- B. Cutting, Fitting, and Placement: Perform cutting, drilling, and fitting required for installing railings. Set railings accurately in location, alignment, and elevation, measured from established lines and levels and free from rack.
 - 1. Do not weld, cut, or abrade surfaces of railing components that are intended for field connection by mechanical or other means without further cutting or fitting.
 - 2. Set glass plumb within a tolerance of 1/4-inch in 12-feet.
 - 3. Align rails so that variations from level for horizontal members do not exceed 1/4-inch in 12-feet.
- C. Field Welding: Comply with the following requirements:
 - 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 welding flux immediately.
 - 4. At exposed connections, finish exposed welds and surfaces smooth and blended so that no roughness shows after finishing and welded surface matches contours of adjoining surfaces.
- D. Adjust railing systems prior to anchoring to ensure matching alignment at abutting joints.

E. Fastening to In-Place Construction: Use anchorage devices and fasteners required for securing railings systems and for properly transferring loads to in-place construction.

3.02 ADJUSTING AND CLEANING

A. Clean stainless steel by washing thoroughly with clean water and soap, followed by rinsing with clean water.

3.03 PROTECTION

- A. Protect finishes of railing systems from damage during construction period with temporary protective coverings. Remove protective coverings at the time of Acceptance of Work.
- B. Restore finishes damaged during installation and construction period so that 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