

SECTION 05522

TEMPERED GLASS RAILING ASSEMBLIES

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Tempered Glass Railing Assemblies.

1.2 RELATED SECTIONS

- A. Section 05500 - Metal Fabrications.

1.3 REFERENCES

- A. ASTM A 666 - Standard Specification for Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar.
- B. ASTM B 221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Shapes, and Tubes.
- C. ASTM B 221M - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Shapes, and Tubes (Metric).
- D. ASTM B 455 - Standard Specification for Copper-Zinc-Lead Alloy (Leaded-Brass) Extruded Shapes.
- E. ASTM C 595 - Standard Specification for Blended Hydraulic Cements.
- F. ASTM C 920 - Standard Specification for Elastomeric Joint Sealants.
- G. ASTM C 1036 - Standard Specification for Flat Glass.
- H. ASTM C 1048 - Standard Specification for Heat Treated Flat Glass-Kind HS, Kind FT Coated and Uncoated Glass.
- I. NAAMM Metal Finishes Manual; National Association of Architectural Metal Manufacturers.

1.4 SYSTEM DESCRIPTION

- A. Performance Requirements for Handrail Assembly:
 - 1. Support distributed load of 50 pounds per linear foot (8,756 N/m), applied in any direction.

2. Support concentrated horizontal load of 200 pounds (90.6 kg), uniformly distributed over 1 square foot (0.092 sq m) of area, applied at any point in system.
3. Distributed loads and concentrated loads not to be applied simultaneously.

1.5 SUBMITTALS

- A. Submit under provisions of Section 01300.
- B. Product Data: Manufacturer's descriptive literature for railing assemblies; identify each component.
- C. Shop Drawings: Dimensioned drawings of railing assemblies indicating the following:
 1. Elevations; include joint locations, transitions, and terminations.
 2. Construction details; include fabrication details of joints, transitions and terminations.
 3. Anchoring details; indicate construction activities and materials required that are not provided by railing assemblies installer.
- D. Selection Samples: Two sets of color chips representing manufacturer's full range of available metals and finishes.
- E. Verification Samples: Two samples each, minimum size 12 inches (304 mm) long, of railing cap and base, representing actual metal and finish of products to be installed.
- F. Quality Assurance Submittals:
 1. Design data: Design calculations, bearing seal and signature of structural engineer licensed to practice in the State in which the project is located, documenting compliance of handrail assemblies to performance requirements specified in SYSTEM DESCRIPTION Article of PART 1 of this section.
 2. Certificates: Contractor's certification that installer of railing assemblies meets specified qualifications.

1.6 QUALITY ASSURANCE

- A. Installer Qualifications: Minimum three (3) years installing railing assemblies similar to that specified in this section.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Store products of this section in manufacturer's unopened packaging until installation.

1.8 PROJECT CONDITIONS

- A. Field Measurements: When project conditions permit, take field measurements of areas where handrail assemblies will be located; note discrepancies between drawings and actual dimensions on submitted shop drawings.

1.9 SCHEDULING

- A. Ensure that sill angles are correctly fabricated before placement, and are correctly placed and anchored in time for installation of railing assemblies in accordance with construction progress schedule.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Manufacturer: ACI Distribution, located at one of the following addresses:
 - 1. West of Rocky Mountains: 9010 S. Norwalk Boulevard, Santa Fe Springs CA 90670; ASD. Tel. (800) 285-3677 or (562) 908-8893, Fax. (562) 695-8496.
 - 2. East of Rocky Mountains: 129000 Nicholson Road, Farmers Branch TX 75234; ASD. Tel. (800) 284-4527 or (972) 484-3691, Fax. (972) 247-6457.
- B. Requests for substitution will be considered in accordance with provisions of Section 01600.
- C. Substitutions: Not permitted.

2.2 MATERIALS

- A. Aluminum Components: Conforming to ASTM B 221/ASTM B 221M, Alloy 6063, Temper T5.
- B. Stainless Steel Components: Conforming to ASTM A 666, Type 304.

- C. Brass Components: Conforming to ASTM B 455, UNS C38500, Architectural Bronze.
- D. Expansion Cement: Hydraulic, conforming to ASTM C 595, factory-prepared with accelerator; product specified in shop drawings.
- E. Sealant: One-part silicone sealant, conforming to ASTM C 920, _____ color; product specified in shop drawings.
- F. Adhesive: Product specified in shop drawings.

2.3 COMPONENTS

- A. Glazing: Float glass meeting requirements of ASTM C 1036, Type 1, Quality q3, fully tempered in accordance with ASTM C 1048, Kind FT, and as follows:
 - 1. Thickness: 1/2 inch (12 mm).
 - 2. Thickness: 3/4 inch (19 mm).
 - 3. Color: Clear, Class 1.
 - 4. Color: Bronze tint, Class 2, Style B.
 - 5. Color: Grey tint, Class 2, Style B.
 - 6. Polish edges that will be sight-exposed in finished Work to bright flat polish.
 - 7. Temper glass materials horizontally; visible tong marks or tong mark distortions are not permitted.
- B. Setting Blocks: Types and sizes indicated in shop drawings.
- C. Protective Inserts: Types indicated in shop drawings.
- D. Internal Handrail Cap Connector Sleeves: Metal tube, material compatible with handrail cap material.
- E. Handrail Base:
 - 1. Profile: CH 2000; 2-7/8 inches (73 mm) wide by 3-3/8 inches (85.7 mm) high rectangular cross-section.
 - 2. Profile: CH 2001; 2-1/2 inches (63.5 mm) wide by 4-1/8 inches (104.7 mm) high rectangular cross-section.
 - 3. Profile: CH 2002; 2-1/4 inches (57 mm) wide by 3-1/2 inches (88.9 mm) high rectangular cross-section.
 - 4. Profile: CH 2006; 2-7/16 inches (64 mm) wide by 5 inches (127 mm) high rectangular cross-section, with kerf for applied surface materials.
 - 5. Profile: CH 2007; 4 inches (101.6 mm) wide by 3 inches (76 mm) high inverted tee cross-section, with removable covers for access to concealed fasteners.

6. Material: _____
 7. Finish: _____
 8. Finish: NAAMM designation _____.
- F. Handrail Cap:
1. Profile: Round; ___ inch (___ mm) diameter.
 2. Material: _____.
 3. Finish: _____.
 4. Finish: NAAMM designation _____.
- G. Handrail Brackets:
1. Material: Aluminum.
 2. Material: Stainless steel.
 3. Material: Bronze.
 4. Fabrication: Extruded.
 5. Fabrication: Machined.
 6. Fabrication: Cast.
 7. Finish: Match handrail cap finish.
- H. Shoe Molding:
1. Material: Extruded aluminum.
 2. Profile: _____.
 3. Finish: Match handrail base finish.
 4. Finish: _____.
 5. Finish: NAAMM designation _____.
- I. Fasteners: Types and sizes indicated in shop drawings.
- J. Sill Angles for Tempered Glass Railing Assemblies: Steel angle profiles conforming to ASTM A 36, with anchoring devices, sizes indicated in shop drawings of Section 05522, drilled and tapped for fastener types, sizes, and spacings indicated.

2.4 FABRICATION

- A. Fabricate handrail assembly components to lengths and configurations complying with shop drawings.
- B. Machine joint edges smooth and plane to produce hairline seams when site-assembled; supply concealed sleeve connectors for joints.
- C. Isolate dissimilar metals to prevent electrolytic action by applying primer to concealed surfaces of metal components.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that sill angles are correctly placed.
- B. Installer's Examination:
 - 1. Have installer of this section examine conditions under which construction activities of this section are to be performed, then submit written notification if such conditions are unacceptable.
 - 2. Transmit two copies of installer's report to Architect within 24 hours of receipt.
 - 3. Beginning construction activities of this section before unacceptable conditions have been corrected is prohibited.
 - 4. Beginning construction activities of this section indicates installer's acceptance of conditions.

3.2 INSTALLATION

- A. Installation of sill angles is specified in Section 05500.
- B. Install railing assemblies in accordance with shop drawings.
- C. Site Tolerances:
 - 1. Variation from level, horizontal components and sight lines: 1/8 inch in 10 feet (3 mm in 3 m), non-cumulative.
 - 2. Variation from plumb, vertical components and sight lines: 1/8 inch in 10 feet (3 mm in 3 m), non-cumulative.
 - 3. Variation from plane, installed assembly: Maximum 1/16 inch (1.5 mm)

3.3 PROTECTION

- A. Protect finished installation from damage by subsequent construction activities until Substantial Completion.
- B. Repair components damaged by subsequent construction activities in accordance with manufacturer's recommendations; replace damaged components that cannot be repaired to Architect's acceptance.

END OF SECTION