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
B. Section 05720 - Ornamental Handrails & Railings
C. Section 08800 – Glazing

1.3 REFERENCES

A. ASTM C 1048 – Standard Specification for Heat Treated Flat Glass – Kind HS, Kind FT Coated and Uncoated Glass

B. 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 horizontally at right angles to the handrail.
    2. Support concentrated horizontal load of 200 pounds (90.6 kg), applied in any direction at any point along handrail 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: Submit Manufacturer’s technical product data for railing components and accessories.

C. Shop Drawings: Dimensioned drawings of railing assemblies indicating the following:

1. Elevations; include joint locations, transitions, and terminations.

2. Manufacturer's installation and maintenance instructions.

D. Samples of manufacturer's finishes (As selected by Architect.)

1.6 QUALITY ASSURANCE

A. Components and installation are to be in accordance with state and local building codes.

B. All components and fittings are furnished by the same manufacturer.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials properly protected against damage to finished surfaces during transit.

B. Inspect materials upon delivery for damage. Unless minor defects can be made to meet the Architect's specifications and satisfaction, damaged parts should be removed and replaced.

C. Store materials at building site under cover in dry location

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturer: **C.R. Laurence Co., Inc. (CRL)**

B. Manufacturers of equivalent products will be considered for substitution in accordance with provisions of Section 01630 - Product Substitution Procedures.

2.2 MATERIALS

A. Aluminum Components: Conforming to ASTM B 221/ASTM B221M, Alloy 6063- T52

B. Stainless Steel Components: Conforming to ASTM A 666, Type 304

C. Brass Components: Conforming to ASTM B 248, No. 260, Yellow Brass

2.3 COMPONENTS

A. Glazing: Fully tempered ASTM C 1048 Kind FT, Quality q3. As specified in Section 08800
   1. Thickness: 1/2 inch (12 mm). (Architect to specify.)
   2. Thickness: 3/4 inch (19mm). (Architect to specify.)
   3. Color: Clear, or tint. (Architect to specify.)
   4. Architect to specify edge type on exposed glass edges. (See section 008800.)

B. Internal Handrail Cap Connection Sleeves: Metal tube, material compatible with handrail cap material.

C. Glass Wedge Dry Glazing System: Consists of three components, a plastic isolator, an aluminum wedge and CRL 4-1/8 inches high shoe base. Patent number US 6,517,056 B2.

D. Expansion Cement: Hydraulic, conforming to ASTM c 595, **CRL Part # ROCK50**, used in conjunction with EPDM setting blocks, **CRL Part # GR5UB** for 1/2" Glass, or **GR7UB** for 3/4" Glass. (Cement is not needed if Glass Wedge Dry System is used.)

E. Shoe Base:
   1. Profile: **CRL Part # B5S**; 2-1/2 inches (63.5 mm) wide by 4-1/8 inches (104.7 mm) high rectangular cross-section.
   2. Profile: **CRL Part # B7S**; 2-3/4 inches (69.8 mm) wide by 4-1/8 inches (104.7 mm) high rectangular cross-section.
   3. Profile: **CRL Part # B5L**; 2-1/4 inches (63.5 mm) wide by 3-1/2 inches (88.9 mm) high rectangular cross-section. ****Cannot be used with Glass Wedge Dry System. Must be used with Expansion Cement.****
   4. Profile: **CRL Part # B5T**; 2-1/2 inches (63.5 mm) wide by 4-1/8 inches (104.7 mm) high tapered cross-section**.**Cannot be used with Glass Wedge Dry System. Must be used with Expansion Cement.****
   5. Material: Aluminum 6063-T52
   6. Finish: (Architect to specify.)
      a. Base Cladding: Sheet metal cladding added to exposed shoe base sections. Adhere with double-sided tape and/or silicone adhesive. Provide end caps where ends of shoe base sections are exposed.

F. Handrail Cap:
    1. Profile: **Part # GR15**, round 1-1/2 inches (38.1 mm) diameter.
    2. Profile: **Part # GR19,** round 1-7/8 inches (48.3 mm) diameter (aluminum only).
    3. Profile: **Part # GR20**, round 2 inches (50.8 mm) diameter.
    4. Profile: **Part # GR25**, round 2-1/2 inches (63.5 mm) diameter.
    5. Profile: **Part # GR30**, round 3 inches (76.2 mm) diameter.
    6. Profile: **Part # GR35**, round 3-1/2 inches (88.9 mm) diameter.
    7. Profile: **Part # GR40**, round 4 inches (101.6 mm) diameter.
    8. Profile: **Part # GR0V4,** oval 4 inches x 2-1/2 inches (101.6 mm x 63.5 mm) (aluminum only)
    9. Material: _____.
    10. Finish: (Architect to specify.)

G. Handrail Brackets:
    1. Material: Aluminum
    2. Material: Stainless Steel
    3. Material: Brass
    4. Fabrication: Machined
    5. Fabrication: Cast
    6. Finish: Match handrail cap finish

H. Fasteners: Types and sizes indicated in shop drawings.
    A. For concrete attachment, hole size in base shoe is to be 9/16” (14.3 mm), counter bore 7/8” (22.2 mm) x depth ½” (12.7 mm), center-to-center spacing of holes is 12” (304.8mm). Use Power Fasteners 3/8” x 4” Wedge-Bolts **CRL Part # WBA38X4** with Wedge-Bolt Washer **CRL Part # WBAW38**.
    B. For steel attachment, hole size in base shoe is to be 9/16” (14.3 mm), counter bore 7/8” (22.2 mm) x depth ½” (12.7 mm), center-to-center spacing of holes is 12” (304.8mm). Use ½” – 13 x 1 stainless steel socket head cap screw **CRL Part # SHCS12X1**.

I. Sill Angles for Tempered Glass Railing Assemblies: Steel angle profiles conforming to ASTM A 36, with anchoring devices, sizes indicated in shop drawing of section 05522, drilled and tapped for fastener types, sizes, and spacing 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 INSTALLATIONS

3.1

A. Install handrails in accordance with manufacturer's recommended installation instructions and approved shop drawings.

3.2 CLEANING

A. Clean glazing surfaces after installation, complying with requirements contained in the manufacturer's instructions. Remove excess glazing sealant compounds, dirt or other substances.

B. Remove protective films from metal surfaces.

C. Clean railing surfaces with clean water and mild detergent. Do not use abrasive chemicals, detergents, or other implements that may mar or gouge the material.

3.3 PROTECTION

A. Institute protective measures required throughout the remainder of the construction period to ensure that all the materials do not incur any damage or deterioration.

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