

SECTION 05 73 10 - THROUGH GLASS POINT SUPPORTED & TEMPERED GLASS GUARD ASSEMBLIES

PART 1 - GENERAL

Section 1.01 SECTION INCLUDES

- A. Through Glass Point Supported Tempered Glass Guard Assemblies.

Section 1.02 RELATED SECTIONS

- A. Section 05500 - Metal Fabrications
- B. Section 05720 - Ornamental Handrails & Railings
- C. Section 08800 - Glazing

Section 1.03 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
- C. AAMA CW-12-84 Structural Properties of Glass
- D. ASTM E 2358-04 Standard specification for the Performance of Glass in Permanent Glass Railing Systems, Guards and Balustrades.

Section 1.04 SYSTEM DESCRIPTION

- A. Performance Requirements for Guard Assembly:
 - 1. Support distributed load of 50 pounds per linear foot (0.73kN/M), applied horizontally at right angles in any direction to the top/grab rail.
 - 2. Support concentrated horizontal load of 200 pounds (0.89kN), applied in any direction at any point along top/grab rail.
 - 3. 50 lbs. (0.22kN) on 1 sf (0.093m2) perpendicular to guard at any location
 - 4. Wind loads 25 psf or as otherwise specified.
 - 5. These loads need not to be assumed to act concurrently.
 - 6. Maximum deflection at top of glass is height/24.

Section 1.05 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. Glass light fabrication plans with dimensions, holes and finishes.
 - 3. Point support layout, details and attachment to support structure.
 - 4. Manufacturer's installation and maintenance instructions.
- D. Engineering Design Report: Calculations showing point support reactions and glass stresses.
- E. Samples of manufacturer's finishes (As selected by Architect.)

Section 1.06 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.
- C. All glass to be fabricated by an approved temperer to a tolerance of 1/32" for the light size and hole locations.

Section 1.07 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 shall be removed and replaced.
- C. Store materials at building site under cover in a dry location.

PART 2 - PRODUCTS

Section 2.01 MANUFACTURERS

- A. Acceptable Manufacturer: R & B Wagner, Inc (Wagner Companies)
Tel: (888).243.6914 Fax: (414).214.0450
Email: rfq@mailwagner.com
www.wagnercompanies.com
www.wagnerarchitectural.com
- B. Manufacturers of equivalent products will be considered for substitution in accordance with provisions of Section 01630 - Product Substitution Procedures.

Section 2.02 MATERIALS

- A. Aluminum Components: Conforming to ASTM B 221/ASTM B221M, Alloy 6063- T52
- B. Stainless Steel Components: Conforming to ASTM A 666, Type 316 / Type 304

Section 2.03 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.)
(Specifiers note: Glass to be specified in accordance and in compliance with IBC 2015 building codes. Laminated tempered glass must be used in all applications where there is a walking surface beneath the glazed installation – Typically for applications other than single family residential installations 3/4" thick glass should be considered. A structural engineer should be consulted for final clarification)
 - 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. R & B Wagner, Inc (Wagner Companies) Standoff fittings
Fittings to be of Flat head head type; exposed bolt heads shall meet approval of Architect. Regardless of type, standoffs shall be manufactured from 316 grade stainless steel and polished to a #4, brushed satin finish. Minimum tensile strength 75,000psi and Rockwell Hardness B85. All threads to be accordance with ASTM F593-02 (2008). The components used within the system shall withstand all movements, buckling, distortion, cracking, failure of joint seals or undue stress on the glass and fixing assemblies within the limits of the performance requirements. Fittings to be installed with sufficient vertical spacing to meet with applied loads transmitted thru glass and to comply with Federal and local code restitcions where applicable. The Contractor (Contractor's Engineer) shall demonstrate to the Architect's satisfaction that the stresses induced in the glass by the fittings are compatible with the strength of the glass and the performance requirements indicated herein. Glass to metal contact shall be prevented by use of fully vulcanized, non-compressible fiber, neoprene or precured silicone gaskets.
 - 1. Part # LX3S3830 round 1.50" diameter x 1.25" projection
 - 2. Part # LX3S5050 round 2.00" diameter x 2.00" projection
- D. Cap Railing: Grade 316 Satin Stainless Steel
 - 1. Profile: Part # GR3192.4, round 1.90" inches diameter.
 - 2. Profile: Part # GR3168.4, round 1.66" inches diameter.
 - 3. Profile: Part # GR3202.4, round 2.00" inches diameter.
 - 4. Profile: Part # GR30916.4, "U" Channel 7/8" x 1.50" (1/2" Glass.)
 - 5. Profile: Part # GR30915.4, "U" Channel 7/8" x 1.50" (1/2" Glass/Grade 304 S/S/S)
 - 6. Profile: Part # GR31115.4, "U" Channel 1-1/8" x 1.50" (3/4" Glass/Grade 304 S/S/S)
 - 7. Profile: Part # GR90915-8, Polycarbonate Top Cap 1" x 1.50" (1/2" Glass Mono).
 - 8. Profile: Part # GR91015-8, Polycarbonate Top Cap 1.125" x 1.50" (1/2" Lami Glass).
 - 9. Profile: Part # GR91315-8, Polycarbonate Top Cap 1.375" x 1.50" (3/4" Lami Glass).
 - 10. Finish: (Circumferential GRxxx.4 / Longitudinal GRXXXXL.4 - Architect to specify.)
- E. Through Glass Handrail Brackets:
 - 1. Material: Aluminum
 - 2. Material: Stainless Steel
 - 3. Material: Brass
 - 4. Fabrication: Machined
 - 5. Fabrication: Cast
 - 6. Finish: Match handrail cap finish
- F. Handrail Tubing:
 - 1. Profile: Part # P813.4, round 1.66" inches diameter, Sch. 40.
 - 2. Profile: Part # P911.4, round 1.90" inches diameter, Sch.40.
 - 3. Material: Grade 316 satin stainless steel (Circumferential finish).
- G. Fasteners: Types and sizes indicated in shop drawings and engineering report.

Section 2.04 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 INSTALLATION

- A. **Section 3.01**
Install handrails in accordance with manufacturer's recommended installation instructions and approved shop drawings. Standoffs shall be located to a tolerance of 1/32". All bushings, spacers, bearing pads and other components shown in the shop drawings must be properly installed.

Section 3.02 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.

Section 3.03 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.