

## **GLAZING**

### **PART ONE: GENERAL**

#### **1.1 Description**

1.1.1 Work of this Section, as shown or specified, shall be provided by the Interior Contractor/Vendor and shall be in accordance with the requirements of the Contract Documents.

1.1.2 Work of this Section includes all labor, materials, installation equipment, and services necessary to complete the Work as shown on the drawings and specified herein, including, but not limited to, the following:

- a. Tempered clear glass for doors.
- b. All interior glazing.
- c. Mirror glass.
- d. All fastening devices, adhesive materials and accessories necessary for complete installation.
- e. Protection of all glass mirrors during transit, storage, and installation. Cleaning of glass and mirrors prior to acceptance.

1.1.3 Related work in other sections:

- a. Interior Stone Section 04401
- b. Wood Flooring Section 09550
- c. Millwork Section 06410
- d. Finish Carpentry Section 06200
- e. Carpet Section 09680

#### **1.2 Submittals**

1.2.1 All submittals shall be made according to Section 01300

and as specified herein.

1.2.2 Submit the following to the Consultant for approval prior to construction and fabrication.

- a. Shop Drawings, indicating fabrication and installation methods, to include plans at not less than  $1/2" = 1'-0"$  (1:20) scale and details at not less than  $3" = 1'-0"$  (1:5) scale. Indicate required field dimensions, materials, finishes, substructure, all fastening devices and accessory items. Include coordination details for related and adjoining work.
- b. Submit samples of all materials to be encompassed in the work in size and quantity, as required by the Consultant. These will include, but not be limited to, samples of:
  1. For each type of glass and for each pattern condition: Two sets indicating full range of materials, color, texture, and pattern. Each set shall be  $12" \times 12"$  (300 x 300 mm), or larger if necessary to show full range.
  2. Maintenance Data: Submit manufacturers recommendations for cleaning of glass, including recommended products, cleaning machinery and procedures for maintenance.
  3. For each type of mirror and for each pattern condition indicating full range of materials, color, texture and pattern. Each set shall be  $18" \times 18"$  (450 x 450 mm), or larger if necessary to show full range.
  4. Maintenance Data: Submit manufacturers recommendations for cleaning of mirror, including recommended products, cleaning machinery and procedures for maintenance.
  5. All glazing and mirror delivered to and installed in the project shall match the applicable approved samples.

### 1.3 Documentation

1.3.1 The drawings and specifications are an outline of the criteria and performance requirements of the work. The requirements shown by the details are intended to establish basic dimensions and profiles of members. Within these parameters, the Interior Contractor is responsible for the design and engineering of the support system, including whatever modifications or additions may be required to meet the specified requirements and maintain the visual design concept.

1.3.2 It is recognized that the design details do not cover every condition. It is intended that any conditions not detailed shall be developed through the Interior Contractor's Shop

Drawings in compliance with performance criteria, as indicated for detailed areas and stipulated in these specifications.

#### **1.4        Quality Assurance**

1.4.1 All glazing, mirrors and trim shall be installed using experienced, skilled workmen who are thoroughly trained and experienced in the skills required and completely familiar with the requirements established for this work. Work shall be performed to the highest standard of workmanship. The finished appearance of the glass and mirrors shall be free from any defects due to faulty workmanship.

1.4.2 All work and materials shall conform to the the drawings and specifications; any changes or deviations in materials or methods must be approved by the Consultant.

1.4.3 Glazing and mirrors shall meet requirements of local and state codes where applicable. Comply with all laws, ordinances, rules and regulations and orders of any public authority having jurisdiction over this part of the work. Comply with all pertinent recommendations contained in the "Manual of Glazing" of the Flat Glass Marketing Assoc., latest edition.

1.4.4 All glass and mirrors applied to a substrate shall be appropriately backed according to manufacturers

recommendations for its intended use.

- 1.4.5 Interior Contractor shall be responsible for securing approval when required from the State Fire Marshall on all materials to be used. A letter from the Fire Marshall's office shall be sent to the Owner indicating such approval where required.
- 1.4.6 The Interior Contractor shall be responsible for taking accurate job-site measurements for all dimensions related to the Work.
- 1.4.7 The Interior Contractor shall examine all conditions pertaining to the installation of glazing and mirrors and shall provide all coordination as required to achieve the proper and timely completion of the installation.
- 1.4.8 The Interior Contractor will not change brands of materials during the course of the Work unless approved by the Consultant.
- 1.4.9 Interior Contractor shall advise General Contractor of requirements relating to his placement of any inserts which are to be used for attachment of and/or supporting glazing and/or mirror.

## **1.5 Product Handling**

- 1.5.1 Use all means necessary to protect the materials of this Section before, during and after installation and to protect the work and materials of all other trades.
- 1.5.2 In the event of damage, immediately make all repairs and replacements needed to the approval of the Owner and at no additional cost to the Owner.

## **1.6 Job Conditions**

- 1.6.1 Do not perform work under adverse job conditions. Install liquid sealants and adhesives when temperatures are within lower or middle third of temperature

range recommended by manufacturer. Do not install glazing and/or mirrors until ambient conditions of temperature and humidity will be continuously maintaining at values near those indicated for final occupancy.

- 1.6.2 Installer must review installation procedure and coordination with other work with Contractor and other subcontractors whose work will be affected by glazing and/or mirror work.

## **1.7 Performance Requirements**

- 1.7.1 Methods and fabrication and assembly (except and specified herein) shall be at the discretion of the Interior Contractor provided that the visible architectural effect is not changed, the work of other Contractors is not affected, and the strength and function qualities, as demonstrated by engineering calculations are not reduced.

- 1.7.2 The work shall be designed to accommodate variation in location of surrounding and supporting work, as defined as allowable variations in the work, as specified in other sections of the project Specifications.

- 1.7.3 Unless specified otherwise on drawings or specifications, the allowable dimensions and tolerances shall be:

- a. Variation from Plumb or from Level: For lines and surfaces of walls and arrises, do not exceed 1/8" (3 mm) in 10 ft. (3 M) max.
- b. Offset of Joints: Do not exceed plus or minus 1/32" (1 mm).
- c. Maximum variation in height between adjacent units: 1/32" (1 mm).
- d. Out-of-square variation: Maximum 1/16" (2 mm) in diagonal measurement while not exceeding specified unit face size variation.
- e. Face dimension:  $\sqrt{1/32}$ " (1 mm) in all directions.
- f. Joint width: Mirrors units shall be abutted;

glazing joint shall be 1/8" (3 mm).

## **1.8 Guarantee**

1.8.1 Unless stated otherwise in these Specifications, guarantee shall state all work is in accordance with drawings and Specifications as amended by any changes authorized by the Consultant, a free from defects in materials and workmanship for a period of five (5) years from the date of acceptance of the work by the Owner. Interior Contractor shall agree to repair or replace defective materials and workmanship during the guarantee period at no additional cost to the Owner.

1.8.2 Defective materials and workmanship are hereby defined to include evidence of abnormal deterioration, aging, structural failure of components resulting from exposure to normal load and forces, failure of operating parts to function normally, sealant failure, deterioration or discoloration of finishes in excess of normal aging and failure to fulfill other specified performance.

1.8.3 Interior Contractor and respective Subcontractors shall be responsible for damage to the building and furnishings occasioned by defective materials, workmanship or damage as part of repairs to the glazing and/or mirrors.

## **PART TWO: PRODUCTS**

### **2.1 Materials**

2.1.1 All glass shall bear the label of its manufacturer and shall conform in all respects with the pertinent requirements of Fed. Spec. DD\_G-1403 for tempered and heat strengthened glass and DD-G-451 for float and wire glass.

- a. Float Glass - Type I, Quality Q3.
- b. Tempered Glass: Provide prime glass of color and type indicated, which has been heat treated to strengthen glass in bending to not less than 4.5 times annealed strength. Verify desired location of tong marks with Consultant.
- c. Mirror Glass - 1/4" (6 mm) thick, type I, class 1, Quality 2, conforming to Federal Specification FS-DD-G-451, with silver coating and protective electrolytic copper coating not less than .0002" thick, complying with CS27. Paint mirror back surface with 2 coats of manufacturer's special mirror backing paint totaling 2.0 mils dry film thickness. Glass to have ground smooth square edges, unless specified otherwise in drawings or specifications. All mirrors shall be guaranteed against silver oxidation.
- d. Refer to Drawings for glass thickness, glass shall be not less than 1/4" (6 mm) thick.

- 2.1.2 All trim, borders, or other materials shall be provided for complete installation as shown in drawings and as specified and shall be of the highest quality, and shall be installed according to Manufacturers recommendations.
- 2.1.3 Float glass cement and/or mirror mastic shall be as recommended by the Glass and/or Mirror manufacturer respectively and shall be compatible with the surfaces contacted and appropriate to the intended use, weight of the glass/mirror.
- 2.1.4 Provide putty gaskets and glazing sealant as specified and as recommended by the manufacturer for the required application and condition of installation in each case. Provide only compounds which are known (proven) to be fully compatible with surfaces contacted. Color shall be as specified on drawings and specifications; submit 3, 12" (300 mm) long samples of each color required for each type of glazing sealant exposed to view. Install sample between two strips of material similar to or representative of channel surfaces where sealant will be used, held apart to represent typical joint widths. Samples will be reviewed by Consultant for color and texture only. Compliance with other requirements is the exclusive responsibility of the Interior Contractor.

### **PART THREE: EXECUTION**

#### **3.1 Inspection and Preparation of Surfaces**

- 3.1.1 It is the responsibility of the Interior Contractor to see that areas and surfaces are properly prepared to receive glazing and mirrors as specified.
- 3.1.2 Installation of glazing and mirrors shall not commence until the areas in which and surfaces to which they will be installed have been inspected by the installer and found to be satisfactory.

#### **3.2 Installation**

- 3.2.1 All installations shall be done in a workmanlike manner consistent with the standards of the industry and shall be guaranteed per paragraph 1.8.



3.2.2 Unless specifically indicated otherwise on drawings or specifications, on areas requiring more than one full width of glass or mirror, joint locations shall be as follows:

- a. When an even number of full glass or mirror widths is required, center the joint on the center line of the area width with equal number of widths occurring at each side.
- b. When an odd number of full glass or mirror widths is required, center one full width on the center line of area width with equal number of widths occurring at each side.
- c. When full and partial glass or mirror widths are required, center one full width on the center line of area width with equal number of full and/or partial widths occurring at each side.
- d. Install glass or mirror so that widths of less than 12" (300 mm) do not occur unless approved by Consultant prior to installation.
- e. Submit proposed joint locations to Consultant for approval prior to cutting and installing glass or mirror.

3.2.3 Airtight installation of each glass product is required, except as otherwise shown. Each installation must withstand normal temperature changes, impact loading (for doors), without failure including loss or breakage of glass, failure of sealants or gaskets to remain airtight, deterioration of glazing materials and other defects in the work.

3.2.4 Make faces of glass or mirror units in same lane flush at joints. All finished surfaces shall be true in line and face.

### **3.3 Cutting, Drilling and Fitting**

3.3.1 Provide holes required for any devices required to support and/or suspend glass or mirror and to accommodate other items which connect to or penetrate the glass or mirror.

3.3.2 Include all cutting, drilling and fitting of glass or mirror required to accommodate the work of other

trades. In cutting and fitting carefully cut and grind edges to a neat tight fit. Do cutting in such a manner so as not to impair strength or appearance of glass or mirror. Use physical templates for all cutting and drilling; obtain required templates from proper trades.

### **3.4 Cure, Protection and Cleaning**

- 3.4.1 Protect glass from breakage immediately upon installation by use of crossed streamers attached to framing and held away from glass. Do not apply markers to surfaces of glass. Remove non-permanent labels and clean surfaces. Cure sealants for high early strength and durability.
- 3.4.2 Remove and replace glass which is broken, chipped, cracked, abraded or damaged in other ways during construction period, including natural causes, accidents and vandalism. In the event damage is irreparable, notify Consultant for direction on correction procedure.
- 3.4.3 Clean and trim excess glazing materials from glass and mirror and from stops or frames promptly after installation, and eliminate stains and discolorations.
- 3.4.4 Wash and polish glass on both faces not more than 4 days prior to date scheduled for inspections intended to establish date of substantial completion in each area of project. Complete with glass product manufacturer's recommendations for final cleaning.

**END OF SECTION**