



**SECTION 04 23 16  
STEEL AND  
PLANK GLASS PANELS**

**PART 1. – GENERAL**

**1.1. DESCRIPTION OF WORK**

- A. Extent of the Glass and Metal Panels as indicated on the drawings.
- B. Principal Work in this section includes:
  - 1. Steel and Plank Glass Panels
  - 2. Reinforcement, anchors, fasteners and similar items
  - 3. Glazing materials and sealant for panels
  - 4. Fasteners at perimeter of panels

**1.2. DESCRIPTION OF PANELS**

- A. Panels shall be factory prefabricated and glazed Steel and Plank Glass Panels by GBA Architectural Products and Services, 877-280-7700 sales@gbaproducts.com and shall be of overall sizes as detailed on the drawings. Metal framework shall be designed and produced to meet or exceed the specified structural performance as well as the composite glass panel construction tolerance requirements of plus, minus .050 maximum. Glass units shall be GBA Products' standard, traffic bearing, composite glass units. Glass units shall be initially factory installed in respective cell openings using GBA Products standard waterproof sealant and bedding material.

**1.3. QUALITY ASSURANCE**

- A. Structural: Design, engineer and fabricate the panels to support live load capacity of one hundred (100) lbs. per square foot (amend as required) on a 4'-0" span supported on four sides and to the stringent tolerance of (+) (-) .050 required for structural glass performance.
- B. Thermal Movement: Design the framing system to provide for such expansion and contraction of component materials as will be caused by the surface temperature range of -10 degrees F to 120 degrees F, without causing buckling stresses on glass, failure of joint seals, undue stress on structural elements, damaging loads on fasteners, reduction in performance, or other detrimental effects.
- C. Water Penetration: Water penetration is defined as the appearance of or damage from water, other than condensation, on the underside of the panels. The panels shall be totally watertight.
- D. Manufacturer of Panels: The manufacturer of the shop fabricated panels shall be a firm with not less than Three (3) years of successful experience in supplying the same type of panels as required for this project and solely employs and is responsible for all of the personnel required for all facets of production required in manufacturing the units at its production facility.

- E. Design Criteria: The drawings and specifications are based on a specific type of panel by a single manufacturer. Equivalent type panels by another manufacturer may be acceptable only if deviations in dimension, profile, manufacturing tolerance, appearance and performance history are minor and do not materially detract from the design concept of intended performances, as judged solely by the Architect. If a substitute is being offered as an "Or Equal" to the specified products, in order to be considered, the Contractor will notify the Architect within five (5) business days of such intent of substitution and upon notification by the Architect the Contractor will have three business days to provide adequate proof of equivalency, i.e.; documentation that the "Or Equal" meets the minimum characteristics of the ordering description or specification. Submission of proof of equivalency and samples shall be at the bidder's expense and no compensation shall be offered by Architect or Owner. Failure to provide this documentation which must include Substitute's Manufacturer History, Technical Specifications, Specifications, Brochures, Samples, Catalogues, Etc., will render the substitution non-responsive and ineligible for award.
- F. Warranty: Submit written warranties signed by the manufacturer, installer, and contractor, agreeing to repair or replace defective materials and workmanship during the warranty period. Manufacturer must be able to document its warranty based upon at least Twenty (20) projects with at least Three (3) years of successful field performance. Defective materials and workmanship in manufacture include abnormal deterioration, aging or weathering of work, leakage of water (except at perimeter), structural failure, deterioration of finishes in excess of normal weathering and aging. The manufacturer shall warrant the panels to be free from manufacturing defects in either materials or workmanship for a period of one (1) year from the date of shipment. The manufacturer's warranty does not include glass breakage, delaminating, damage caused by improper handling or use, improper installation, vandalism, abuse or natural conditions exceeding standard performance requirements. Where the manufacturer is contacted and upon inspection finds that performance failure is due to defective materials of fabrication of the factory prefabricated Steel and Panels, all materials necessary to repair will be provided by the manufacturer at no extra cost to the customer. The manufacturer's liability is limited to materials in the factory prefabricated panels only and manufacturer shall not be liable for handling by contractor and installer, installation procedures, and consequential damages or expenses. The contractor and installer shall furnish a written warranty covering defects in handling, installation procedures, materials and workmanship and field applied perimeter sealant work for a period of one (1) year from the date of final acceptance. The contractor and installer's liability shall be limited to the prompt repair or replacement of panels, materials and/or perimeter sealant work.

#### 1.4. SUBMITTALS

- A. Shop Drawings: Submit shop and erection drawings at large scale clearly showing sections of panels with all fasteners, joinery techniques, provisions for expansion/contraction, metal thickness and profiles. Identify all materials including metal alloys and fasteners. Locate and identify shop and field sealants on drawings. Show adjacent structural elements. G.C. shall provide accurate field dimensions to GBA Products and coordinate all efforts with GBA products to insure Architects design intent.
- B. Samples: Submit samples for color and finish of the Steel and Glass Plank Panels that are to be factory installed in the metal grid.

- C. Structural Calculations: Submit structural calculations for live and dead loads on framing members confirming the panel's capacity to withstand the specified load requirements.

## **PART 2. – PRODUCTS**

### **2.1. MATERIALS**

- A. Panels shall be factory prefabricated and glazed Steel and Plank Glass Panels by GBA Architectural Products and Services, 877-280-7700 sales@gbaproducts.com. Panels by other manufacturers will be considered only if the manufacturer and the panels comply fully with these specifications and the drawings.
- B. The factory prefabricated panels shall consist of the following:
  - 1. Panels shall be factory fabricated and glazed, of overall sizes as detailed on the shop drawings. Metal framework and GBA Product's standard traffic bearing glass properly spaced according to GBA Product's standard dimensions.
  - 2. Finish of exposed structural metal grid with GBA Products standard factory applied epoxy prime and 2-part urethane topcoat painted finish.
  - 3. Standard traffic bearing glass with factory sandblasting of the top surfaces of glass is recommended for walking surfaces (Custom sandblasted finishes available). Plank Glass units shall be factory installed in respective cell openings using GBA Product's standard waterproof sealant and bedding material.
  - 4. Exposed top glass joints weather sealed with sealant of a type recommended and warranted by the panel manufacturer.

### **2.2. FABRICATION AND WORKMANSHIP**

- A. Maintain the visual design concept including member sizes, profiles and alignment components. Coordinate this work with that of other trades.
- B. Factory assembles each panel in the manufacturing facility employing qualified personnel solely engaged in prefabricated panel production.
- C. Fit joints accurately in exposed metal work, and secure rigidly with hairline contacts.
- D. Fabricate and fasten metal work so that the work will not be distorted nor the fasteners overstressed from expansion and contraction.
- E. Grind exposed welds smooth and finish to match and blend with finish on adjacent metal.

## **PART 3. - EXECUTION**

### **3.1. STORAGE AND HANDLING**

- A. G.C. shall coordinate and cooperate with GBA Products to ensure handling of panels in a manner that will prevent undue stress on component parts, sealants and structural members. Do not rack, torque, or cause load forces in an inappropriate manner. Lift panels from top only unless specifically instructed by the manufacturer. Prevent damage to finished surfaces. Do not install components that have been damaged or stained.
- B. Store panels in a dry place, off the ground. Bear fully along all supported edges on level and true structural supports.
- C. Handle materials to prevent damage to finished surfaces. Do not install components which have been damaged.

- D. Upon completion of installation, G.C. shall protect panels from damage caused by ensuing work of other trades.

### 3.2. PANEL INSTALLATION

- A. Contractor shall coordinate and set panels into prepared openings and shall bear fully along all supported edges on structural framing supports. Top of panels shall finish flush with adjoining surfaces unless shown otherwise on drawings. Where necessary, build up support ledges and beams as required with materials similar to support framing members, prior to placement of panels. Panels shall be set to proper pitch (minimum 1/4" pf) and cross falls to ensure proper drainage of surface water and avoid ponding. Fasten panels as indicated on shop drawings.
- B. Allow 1/2" spacing between panels and adjacent surfaces and between adjoining panels to permit installation of closed cell foam backer rods and sealants. All joints which are exposed to the weather and to surface traffic shall be sealed with sealant manufacturer's recommended sealant.
- C. Protect installed panels from damage during ensuing construction operations. Prior to the date of substantial completion replace any cracked, broken or otherwise damaged glazing units.

### 3.3. FIELD TESTING

- A. After panel installations are completed, they shall be field tested for leakage. Tests shall be conducted by flooding the surface of panels with a sprinkler hose for a period of 15 minutes while observations are made of the undersides. Correct any deficiencies that are found in a manner to make panels completely watertight. Conduct testing in the presence of the Architect or the Architect's designated representative.

### 3.4. PAINTING

- A. All interior surfaces of the prefabricated metal grid that are exposed to view shall be finished after installation in accordance with the requirements of SPECIAL COATING SECTION. Care shall be taken so that the coating will not extend onto the glazing units. If spray application is used, mask all glazing.

### 3.5. CLEANING

- A. Maintain installed panels, including glazing, in reasonably clean condition during construction operations. Remove any stains or materials that may have an adverse effect on panel materials and finishes. Remove any excess glazing compound and sealants.
- B. Immediately prior to the date of substantial completion clean glazing units to remove any accumulations of dirt, paint stains, etc. Glazing shall be cleaned on both inside and outside surfaces.

### 3.6. REPLACEMENT INSTRUCTION

- A. G.C. shall furnish the Owner with a copy of the panel manufacturer's complete printed instructions for replacement of any damaged glazing units.

**END OF SECTION**