



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

PART 1. SUMMARY

1.1. DESCRIPTION OF WORK

- A. Extent of the Glass Paver and Metal Panels as indicated on the drawings.
- B. Principal Work in this section includes:
 - 1. Steel and Glass Paver 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 Glass Paver Panels as manufactured by GBA Architectural Products + Services, 1213 Medina Rd, Medina OH 44256, 877-280-7700. Panels 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. Solid Glass Paver units shall be GBA's standard, traffic bearing, replaceable type, glass units. Glass units shall be initially factory installed in respective cell openings using GBA's standard waterproof sealant materials.

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 as 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 excessive buckling stresses on glass blocks, 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 3-years of successful experience in supplying the same type of panels as required for this project
- 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 bidders' 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 nonresponsive 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 ten (10) projects with at least five (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, 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 Glass Paver 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 and will coordinate all efforts with GBA to ensure Architects design intent.

- B. Samples: Submit a full size sample of the Glass Paver units that are to be factory installed in the steel grid.
- C. Structural Calculations: Submit structural calculations for live and dead loads on framing members confirming the panels' capacity to withstand the specified load requirements.

PART 2. PRODUCTS

2.1. MATERIALS

- A. Panels shall be factory fabricated Steel and Glass Paver Panels as manufactured by GBA Architectural Products + Services.®, 1213 Medina Rd., Medina OH 44256, 877-280-7700. 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's standard traffic bearing glass shall be properly spaced according to GBA's standard dimensions.
 - 2. Finish of exposed structural metal grid with GBA's standard factory applied epoxy prime and two (2) part urethane topcoat painted finish.
- C. Standard traffic bearing glass with factory sandblasting of the top surfaces of glass is recommended for walking surfaces (Custom sandblasted finishes available). Glass units shall be factory installed in respective cell openings using GBA's standard waterproof sealant materials.
 - 1. Exposed top glass joints weather shall be sealed with sealant of a type recommended and warranted by the panel manufacturer.

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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 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. to 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" per foot) 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 that 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 if it's an exterior application. 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