

PART 1 GENERAL

1.1 REFERENCE

- .1 Comply with the General Conditions of the Contract, Supplementary General Conditions and the requirements of Division 1.

1.2 RELATED WORK SPECIFIED ELSEWHERE

- .1 Cast in Place Concrete Section 03300
- .2 Unit Masonry Section 04200
- .3 Miscellaneous Metals Section 05500
- .4 Sealants Section 09900

1.3 SCOPE OF WORK INCLUDED

- .1 Supply and installation of Glass Block walls c/w white mortar and reinforcement.

1.4 SUBMITTALS

- .1 Submit shop drawings and samples in accordance with Section 01340.
- .2 Clearly indicate fabrication details, plans, deviations, hardware and installation details.
- .3 Fire Tests - Submit Documents verifying glass block units are classified for 3/4, 1 or 1 1/2 hour fire exposure according to ASTM E 163 or ULC " Fire Tests of Window Assemblies ". All such glass block unit cartons shall carry appropriate UL labels.
- .4 Submit 2 glass block units of each type specified showing size, colour, design and pattern faces.
- .5 Submit 2 glass block units and incorporate into the mock up of masonry units [Section 04200].
- .6 Submit representative samples of panel reinforcing, panel anchors, expansion strips and sealant.

1.5 WARRANTY

- .1 Provide a Warranty as stipulated in the General Conditions, but for an extended period of five [5] years from the date of final completion and acceptance of the Work. Warranty shall be signed by both manufacturer and installer.

1.6 MAINTENANCE MANUAL

- .1 Provide triplicate set of printed maintenance instructions and installation data for inclusion in Data Manual as specified in Division 1.

1.7 REFERENCES

- .1 ASTM A 153 - Class B-2, Spec. Zinc Coating (Hot Dip) on iron and steel hardware.
- .2 ASTM C144, Spec. for Aggregate for Masonry
- .3 ASTM C150, Spec. for Portland Cement
- .4 ASTM E163, Fire Test of Window Assemblies (equivalent to UL9)
- .5 ASTM C207, Spec. for Hydrated Lime for Masonry Purposes
- .6 ASTM C270, Spec. for Mortar and Unit Masonry

1.8 STORAGE

- .1 Store unopened cartons of glass block in clean, cool, dry area. Protect unopened cartons of glass block against windblown rain or water run-off with tarpaulins or plastic covering.

1.8 PROJECT CONDITIONS

Do not install glass block units when temperature is 40 degrees F and falling.

PART 2 PRODUCTS

2.1 MATERIALS

- .1 Glass block units, metric equivalent to 197mm x 197mm 98 mm T thick shall be partially evacuated hollow units made of clear glass, Pattern type Decora.

Edge Coating - Glass block shall have a polyvinylbutyral edge coating to provide for better bonding and to provide for an expansion / contraction mechanism for each block.

- .2 Panel Reinforcing : two parallel 9 gauge wires with or 2" on center with electrically butt-welded cross-wires spaced at regular intervals, galvanizing after welding.
- .3 Expansion Strips : made of fibrous glass or polyethylene foam with a thickness of 3/8 ".
- .4 Panel Anchors : 20 gauge perforated steel strips 24" long by 1 3/4" wide, galvanized after perforation.
- .5 Asphalt Emulsion : a water based asphalt emulsion by Karnak Chemical Corp - Karnak 100.
- .6 Sealant : non-staining, water proof mastic, silicone, white type.
- .7 Packing (backer rods) : polyethylene foam, neoprene, oakum or equal as approved by sealant manufacturer.

2.2 MATERIALS - MORTAR WHITE

- .1 Mortar : Type S in accordance with ASTM C270. Mortar shall be 1 part Portland Cement, 1/2 Lime, and sand equal to 2 1/4" to 3 times the amount of cementitious material, all measures by volume. For exterior applications add an integral waterproofer to the mortar mix.
- .2 Portland Cement : Type 1 in accordance with ASTM C150. if a waterproof Portland Cement is used, the integral type waterproofer shall be omitted.
- .3 Lime : Type S, in accordance with ASTM C207. Shall be a high calcium lime, or a pressure hydrated dolomitic lime, provided that not less than 92 % of all the active ingredients are completely hydrated.
- .4 Sand : A clean white quartzite or silica type, essentially free of iron compounds, for thin joints, in accordance with ASTM C144, not less than 100 % passing a No. 8 sieve.
- .5 Integral Waterproofer : Stearate type by Sonneborn Building Products.

PART 3 EXECUTION

3.1 EXAMINATION

- .1 Take field dimensions of Work upon which Work of this Section depends before fabrication. Field adaptation of Work fabricated in error or without field check will not be allowed without Consultant's approval.
- .2 Verify that channels, panel anchors have been provided at head, jambs and head for the purpose of providing panel support within the opening.

3.2 INSTALLATION

- .1 Mix all mortar components to a consistency that is drier than mortar for ordinary masonry. Retempering the mortar after it has taken its initial set is not permitted. Do not use antifreeze compounds or accelerators.
- .2 Cover all sill area with a heavy coat of asphalt emulsion. Allow emulsion to dry at least 2 hours before placing mortar. Note metal sub sill at ground floor supplied by others.
- .3 Adhere expansion strips to jambs and head. Make sure expansion strips extend to sill.
- .4 Set a full mortar bed joint, applied to sill.
- .5 Set lower course of block. Maintain a uniform joint width. All mortar joints must be full and not furrowed. Steel tools must be used to tap blocks into position. Do not realign, tap, or otherwise move block after initial placement.
- .6 Install panel reinforcement every 400mm in the horizontal mortar joint, and in joints immediately above and below all opening with panels.

Where panel anchors are used at jambs and heads in lieu of channels or chase surrounds, install panel anchors in the same joints as the panel reinforcing, except that, at panel corners, anchors shall be placed in each mortar joint, both at the jamb and at the head, 600mm on each side of the corner. Run reinforcing continuously from end to end of panels. Lap reinforcing not less than 150mm whenever it is necessary to use more than one length. Do not bridge expansion joints with reinforcing. Install reinforcing as follows :

- .1 Place lower half of mortar in bed joint. Do not furrow.
- .2 Press reinforcing panel into place.
- .3 Cover reinforcing panel with upper half of mortar bed and trowel smooth. Do not furrow.
- .4 Place full mortar bed for joints not requiring panel reinforcing - do not furrow. Maintain uniform joint width.
- .5 Set succeeding courses of block. Space at head of panel and jambs must remain free of mortar.
- .6 Strike joints smooth while mortar is plastic and before final set. At this time rake out all spaces requiring sealant to a depth equal to the width of the spaces. Remove surplus mortar from faces of glass blocks and wipe dry. Tool joints smooth and concave, before mortar takes final set.
- .7 After final mortar set, install packing tightly between glass block panel and jamb and head construction. Leave space for sealing.
- .8 Apply sealant evenly to the full depth of recesses as indicated on the drawings and in accordance with the manufacturer's written instructions.

3.2 CLEANING

- .1 Final cleaning in accordance with Division 1
- .2 Remove surplus mortar from the faces of the glass block at the time joints are struck and tooled. Mortar shall be removed while it is plastic using a clean, wet sponge.
- .3 Do not use harsh cleaners, acids, abrasives or alkaline materials while cleaning glass block. Never use steel wool to remove mortar from glass block.
- .4 Final mortar removal is accomplished with a clean, wet sponge or cloth. Rinse sponge thoroughly in clean water to remove mortar. **Protect precast sills from staining and be responsible for the cleaning if stain removal is required.**

- .5 After all organic sealants, caulking, etc have been applied, remove excess caulking materials with commercial solvents such as mineral spirits and follow with normal wash and rinse. Comply with solvent manufacturer's instructions and be cautious not to damage the sealant due to over generous application.
- .6 Final cleaning of glass block panels is accomplished after they are completely installed. Wait until panels are not exposed to direct sunlight. Start at the top of the panel and wash with generous amounts of clean water. Use a clean, dry, soft cloth to remove all water from the glass surface. Change cloth frequently to eliminate dried mortar particles or aggregate that could scratch the glass surface.

END OF SECTION