

**SECTION 04 23 00
GLASS UNIT MASONRY**

PART 1 GENERAL

1.1 STIPULATIONS

- A. The specifications sections "General Conditions to the Construction Contract", "Special Conditions" and "Division 01 - General Requirements" form a part of this Section by this reference thereto, and shall have the same force and effect as if printed herewith in full.

1.2 SECTION INCLUDES

- A. Glass masonry units.
- B. Setting and pointing materials.
- C. Perimeter treatment.

1.3 RELATED REQUIREMENTS

- A. Section 07 92 00 - Joint Sealants: Sealing joints between glass unit masonry and adjacent construction.

1.4 REFERENCE STANDARDS

- A. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products 2017.
- B. ASTM C270 - Standard Specification for Mortar for Unit Masonry 2019a, with Editorial Revision.
- C. ASTM C780 - Standard Test Method for Preconstruction and Construction Evaluation of Mortars for Plain and Reinforced Unit Masonry 2020.
- D. ASTM C979/C979M - Standard Specification for Pigments for Integrally Colored Concrete 2016.

1.5 SUBMITTALS

- A. Product Data: Provide data for glass units and accessories.
- B. Samples: Submit two glass units illustrating color, design, and face pattern.
- C. Manufacturer's Installation Instructions: Indicate special procedures, positioning of reinforcement, perimeter conditions requiring special attention.

1.6 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section, with not less than three years of documented experience.

1.7 MOCK-UP

- A. Construct a glass unit masonry mock-up within a former stair window opening; include glass units with head, jamb, and sill conditions, and perimeter chase and construction.

- B. Locate where directed.
- C. Mock-up may remain as part of the Work, if approved by the Architect and Client Agency.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Accept glass units on site on pallets; inspect for damage.

1.9 FIELD CONDITIONS

- A. Cold and Hot Weather Requirements: Comply with requirements of TMS 402/602 or applicable building code, whichever is more stringent.

1.10 PRE-INSTALLATION MEETING

- A. Contractor shall utilize the Pre-Installation Meeting Agenda and Pre-Installation Meeting Checklist documents located in e-Builder, Z - Standard Documentation & Training project: Documents \ 03 - Construction - Training and Guidance Documents \ 03 - Role Based Training and Guidance Documents \ Contractors.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Glass Units:
 - 1. Mulia, Inc: www.muliainc.com/glassblcok/#sle.
 - 2. Nippon Electric Glass Co. Ltd: www.neg.co.jp/arch.
 - 3. Seves Glass Block, Inc: www.sevesglassblock.com/#sle.
 - 4. Substitutions: Or equal as approved by the Professional.

2.2 GLASS UNITS

- A. Hollow Glass Units: Permanently seal hollow unit by heat fusing joint; with joint key to assist mortar bond.
 - 1. Nominal Size: 8 inch by 8 inch by 3 inch.
 - 2. Color: Clear glass.
 - 3. Pattern and Design: 'Clarity Glass Type' (clear view) except at ICR Room #112 use 'Ice Glass Type'.

2.3 ACCESSORIES

- A. Panel Reinforcement: Steel, galvanized after fabrication in accordance with requirements of ASTM A123/A123M:
 - 1. Side Rods: Two 3/16 inch diameter rods spaced 2 inch apart.
 - 2. Cross Rods: 1/16 inch diameter rods welded 8 inch on center.
- B. Expansion Strips: Dense glass fiber matting, 7/16 inches by 4 inches nominal size.

- C. Panel Anchors: Steel strips, at least 20 gauge, 0.0359 inch thick by 1 3/4 inch wide; punched with three rows of elongated holes, pattern staggered, hot dip galvanized after fabrication in accordance with requirements of ASTM A123/A123M.
- D. Perimeter Channel: Extruded aluminum channel profile, 4-3/4 inch by 1-1/4 inch by 1/8 inch size, one piece per length installed, uncoated finish.
- E. Asphalt Emulsion: Water based.

2.4 MORTAR AND POINTING MATERIAL

- A. Mortar: ASTM C270, Type M using the Proportion specification.
- B. Pointing Mortar: ASTM C270, Type M using the Proportion specification with maximum 2 percent ammonium stearate or calcium stearate per cement weight, with beach sand aggregate.
- C. Pigments for Colored Mortar: Pure, concentrated mineral pigments specifically intended for mixing into mortar and complying with ASTM C979/C979M.
 - 1. Color(s): As selected by Architect from manufacturer's full range.
 - 2. Manufacturers:
 - a. Davis Colors: www.daviscolors.com/#sle.
 - b. Lambert Corporation: www.lambertusa.com/#sle.
 - c. Solomon Colors: www.solomoncolors.com/#sle.
 - d. Substitutions: Or equal as approved by the Professional.

2.5 MORTAR MIXING

- A. Thoroughly mix mortar ingredients in accordance with ASTM C270 in quantities needed for immediate use.
- B. Add mortar color in accordance with manufacturer's instructions. Provide uniformity of mix and coloration.
- C. Do not use anti-freeze compounds to lower the freezing point of mortar.
- D. If water is lost by evaporation, re-temper only within two hours of mixing.
- E. Use mortar within two hours after mixing at temperatures of 90 degrees F, or two-and-one-half hours at temperatures under 40 degrees F.

2.6 MIX TESTS

- A. Testing of Mortar Mix: In accordance with ASTM C780 for compressive strength, consistency, mortar aggregate ratio, water content, air content, and splitting tensile strength.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that openings are ready to receive work.

3.2 PREPARATION

- A. Clean glass units of substances that may impair bond with mortar or sealant.
- B. Establish and protect lines, levels, and coursing.
- C. Protect elements surrounding the work of this section from damage and disfigurement.

3.3 INSTALLATION

- A. Erect glass units and accessories in accordance with manufacturer's instructions.
- B. Locate and secure perimeter metal channel.
- C. Coat sill under units with asphalt emulsion as a bond breaker, and allow to dry.
- D. Set panel anchors in mortar bed directly over coating.
- E. Provide full mortar joints. Furrowing is not permitted. Remove excess mortar.
- F. Maintain uniform joint width of 1/4 inch.
- G. Place panel reinforcement at every second horizontal joint in full mortar bed.
- H. Lap reinforcement joints 6 inches.
- I. Isolate panel from adjacent construction on sides and top with expansion strips concealed within perimeter trim. Keep expansion joint voids clear of mortar.
- J. Shore assembly until setting bed will maintain panel in position without movement.
- K. Pointing With Mortar:
 - 1. Before mortar sets, rake out joints to depth of 5/8 to 3/4 inch.
 - 2. Fill joints with pointing mortar; press into joint to eliminate voids; neatly tool surface to a concave profile.
 - 3. Remove excess pointing mortar.

3.4 TOLERANCES

- A. Variation From Joint Width: Plus 1/8 inch and minus 0 inches.
- B. Maximum Variation from Plane of Unit to Adjacent Unit: 1/32 inch.
- C. Maximum Variation of Panel from Plane: 1/8 inch.

3.5 CLEANING

- A. Clean and polish faces of glass unit masonry, using materials and technique that will not scratch or deface units.

END OF SECTION