

# Special Specification 5051

## Glass and Ceramic Tile



### 1. DESCRIPTION

Furnish and install glass tile, ceramic tile or both.

### 2. GENERAL

#### 2.1. Glass Tile Mosaic may be mounted on site by one of two methods:

2.1.1. **Mounting Paper-faced Sheets on site.** Mount paper face sheets directly to the concrete substrate.

2.1.2. **Attaching Pre-Mounted Mural Panels.** Install glass tile mosaic murals pre-mounted to aluminum backer by the glass tile manufacturer.

### 3. MATERIALS

Store and protect materials from weather. Protect mortar components and grout from freezing and overheating in accordance with manufacturer's instructions. Submit product data specifications and instructions for using mortar and grout. Submit tile samples for color approval. Submit manufacturer's certification that materials supplied conform to Tile Council of America (TCA) Handbook for Ceramic Tile Installation and to ANSI Specifications for Installation of Ceramic Tile.

3.1. **Ceramic Tile.** Furnish ceramic tile, scratch coat, mortar, bond coat and grout in accordance with all provisions of ANSI A108.1A. Furnish ceramic tiles of the size and colors, finish and mounting shown on the plans and in accordance with ANSI 137.1.

3.1.1. **Ceramic Tile (Field) and Ceramic Tile (Patterned).** Furnish tiles of the size, surface finish, patterns, colors and mounting shown on the plans.

3.1.2. **Ceramic Tile Mosaic** Furnish ceramic mosaic tiles of the size and mounting specified in the plans. Furnish tile sheets labeled and numbered as needed for assembly.

3.2. **Glass Tile.** Furnish glass tile, scratch coat, mortar, bond coat and grout in accordance with all provisions of ANSI A108.14.

3.2.1. **Glass Tile (Field) and Glass Tile (Patterned).** Furnish glass tiles of the size, surface finish, patterns colors and mounting shown on the plans.

3.2.2. **Glass Tile (Mosaic)** Furnish glass mosaic tiles of the size specified in the plans, face-mounted on paper sheets or pre-mounted on aluminum panels. Furnish tile sheets or panels labeled and numbered as needed for assembly.

3.3. **Water.** Furnish mixing water in accordance with Item 421.2.5. Water.

3.4. **Mortar.** Furnish Polymer fortified thin-set mortar for exterior installation of ceramic and glass tile meeting ANSI 118.5 and ANSI 118.11 such as Custom Building Products "Glass Tile Thin-Set Mortar", Laticrete "254 Platinum", Custom Building Products "Porcelain Tile Fortified Thin-Set Mortar" or approved equal.

3.5. **Grout.** Furnish grout in the color specified in the plans or directed by the District Landscape Architect.

- 3.5.1. **Grout For Ceramic Tiles.** Furnish a factory prepackaged mixture of polymer modified, Portland cement grout such as Laticrete "PermaCOLOR", Custom Building Products "Prism", "Polyblend", Mapei "Ultracolor Plus" or approved equal. Select sanded or unsanded grout in accordance with ANSI A118.6.
- 3.5.2. **Grout For Glass Tiles.** Furnish a factory prepackaged mixture of polymer modified, Portland cement grout such as Laticrete "SpectraLOCK PRO" or approved equal.
- 3.6. **Sanded or Unsanded Grout.** Select sanded or unsanded grout in accordance with ANSI 108.14.7 and ANSI 118.6. Sanded grout is required for applications including paper-faced glass tile when recommended by the glass tile manufacturer.
- 3.7. **Grout Sealer.** Furnish grout sealer such as Custom Building Products "SurfaceGuard", Aquamix "Sealers Choice" or approved equal.
- 3.8. **Pre-Mounted Mural Panels.** The contractor may elect to purchase glass tile mosaic murals pre-mounted to aluminum backer by the glass tile manufacturer rather than apply paper face-mounted tile sheets directly to concrete substrate. This method is optional. The bid price will not be adjusted for selecting this method.
- 3.8.1. **Aluminum Panel Creation.** The aluminum panel is cut by the manufacturer to required size and its surface is prepared for the mosaic mural to bond properly. The 3/8" x 3/8" mosaic mural tiles are adhered to the aluminum panel by the manufacturer with Latapoxy 300 from Laticrete.
- 3.8.2. **Grout.** Once mosaic mural is perfectly adhered to aluminum panel, the manufacturer grouts mosaics with SpectraLOCK PRO Grout from Laticrete and cleaned.
- 3.8.3. **Panel Sizes.** Depending on mural dimensions, the manufacturer may send mural as one independent piece or several sections. Total thickness of the aluminum panels including aluminum backing, adhesive and mosaic tile shall be 3/8 inch.
- 3.8.4. **Mounting Holes and Filler Tiles.** Finished mosaic aluminum panel shall be perforated and indented by the manufacturer to leave enough space for the adhesive (Latapoxy 300) and mosaic pieces to level in perfectly. The number of mounting voids depends on weight of mural. Extra mosaic pieces shall be taped on each mural void for installer to cover expansion screw heads once wall has been drilled and screws are on site.
- 3.8.5. **Panel Mounting Directions from Manufacturer.** Manufacturer shall identify the specific locations where installer installers should apply adhesive to mounting surface.
- 3.8.6. **Material for Final Grouting.** To insure exact match, manufacturer shall send with murals an adequate quantity of grout to be used by installer for final grouting.

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#### 4. CONSTRUCTION METHODS

Install ceramic tile in accordance with all provisions of ANSI A108.1A. Install glass tile in accordance with all provisions of ANSI A108.14. Do not place skim coat, bond coat, grout or grout sealer when ambient air temperature may drop below 50°F before the 72 hour cure is complete. Do not set tiles over expansion or control joints. Insure a flat surface with no more than 1/16 inch variation in 5' any direction. When installing glass tile, refer to tile manufacturer's instructions and provide a copy to the project inspector.

- 4.1. **Design.** The Department will furnish artwork for "Ceramic Tile Mosaic" and "Glass Tile Mosaic" as shown on plans. Artwork will be in the form of computer generated image files. Submissions will include a full resolution master image and a simulated mosaic image for each mural. The simulated mural will be scaled to tile size and color palette based on the limited palette of possible tile colors. The simulated mural shall be used as a match-proof for color depth and image clarity for digital proof submissions and the finished mural. Design mosaics from the supplied artwork and as shown on the plans. Submit digital mosaic design proofs for approval before assembling paper face tile sheets.

- 4.2. **Concrete Substrate.** Concrete substrate shall be smooth and planar. Surface must be cured 28 days before tile may be applied. To remove all surface oil and provide a mechanical bond, roughen substrate with a heavy sandblast followed by water blast washing. Install tile in accordance with TCA Handbook Method P601, W201 or W202. A clean, roughened surface will suffice as scratch coat on Class C concrete surfaces. Dampen concrete before applying skim coat or thin-set mortar.
- 4.3. **Skim Coat.** Apply a skim coat as needed to meet the flatness requirement. Apply mortar to the vertical surface with the flat side of a 1/4" x 3/8" square notch trowel. Key (burn) mortar into the substrate to obtain 100% contact. Apply additional mortar with the notched side of the trowel horizontally to the substrate. Trowel ridges should "stand up". Keep skim coat damp while curing. Placing Ceramic Tile Mosaic or Glass Tile Mosaic Sheets.
- 4.4. **Placing Ceramic Tile Mosaic or Glass Tile Mosaic Sheets.**
- 4.4.1. **Lofting.** Lofting is laying out the mosaic on a clean, dry surface, paper side down. Place sheets so that they fit tightly together. Measure to insure the mosaic fits the space for which it is designed. Protect the sheets from moisture such as a damp concrete slab. Protect the sheets from the direct heat of the sun. Either condition could cause the tile to come loose from the paper face. Install sheets from the loft one by one, in order, from bottom to top or as specified by manufacturer.
- 4.4.2. **Joints.** Place control joints in accordance with TCA Handbook Movement Joint Design Essentials EJ171 or as shown on plans.
- 4.4.3. **Thin-set Bond Coat.** Key mortar into the substrate to obtain 100% contact. Horizontally comb fresh mortar with notched trowel. Back-butter with exactly 1/2" of grout measured to face of tile just before setting each tile sheet in place. Limit time to back-butter and install each sheet to between 30 and 60 seconds.
- 4.4.4. **Box Screed.** For large installations a box screed is required to backbutter each sheet evenly with grout measuring 1/2" to face of tile. Limit the area of working bond coat to insure sheets are applied before mortar has glazed over from exposure to sun and wind.
- 4.4.5. **Tile Setting.** Fit sheets together tightly. Tap sheets into place and smooth joint lines before pulling the paper, insuring sheet joints disappear and a complete bond between the bond coat and the back-butter is achieved. After partial cure remove paper. Tap and rub tiles using a truly flat, dense hardwood smoothing block until the mosaic face is flat and smooth. Avoid dislodging tiles or warping grout lines.
- 4.4.6. **Breaks in Installation.** Make every effort to complete each installation in one session. When that is impossible, cut clean the mortar extending past the edges of installed sheets back to the skim coat to ensure proper fit of the next cycle's work.
- 4.4.7. **Cleaning and Grouting.** Clean all cement and glue scum from the face of the tile prior to grouting. Acid can damage grout color, adjacent concrete, painted or metal surfaces. If acid is used ensure it does no damage. Use the same color grout as the back-butter.
- 4.4.8. **Curing and Sealing.** Apply grout sealer no sooner than 72 hr. or more than 30 days after grout is placed.
- 4.5. **Attaching Pre-mounted Mural Panels.** Attach pre-mounted glass tile mosaic mural panels to wall by the method called for in the plans.
- 4.5.1. **Screw panels to wall.** Where murals are noted in the plans to be temporarily affixed finished mosaic aluminum panel shall be attached to wall with screws only. Finished mosaic aluminum panel are pre-perforated by the manufacturer to be mounted on jobsite with expansion screws. The installer shall recess expansion screws leaving enough space for the adhesive (Latapoxy 300) and mosaic pieces to level-in perfectly.

- 4.5.2. **Glue and Screw Aluminum Panel to Wall.** Where murals are noted in the plans to be permanently affixed finished mosaic aluminum panel shall be adhered to wall surface with Latapoxy 310. The adhesive shall be applied to 10 percent of the wall surface at specific points identified by the manufacturer and panels screwed in place. The installer shall recess expansion screws leaving enough space for the adhesive (Latapoxy 300) and mosaic pieces to level-in perfectly.
- 4.5.3. **Filling screw void with tile.** Extra mosaic pieces taped on each mural void shall be adhered in place with Latapoxy 300 by the installer on site to cover expansion screw heads once wall has been drilled and the mural screwed in place.
- 4.5.4. **Applying Final Grout.** A final grouting is required for murals installed in sections to fill joint separations between panels and provide a homogeneous finish. Use the same grout used in the panel manufacture.

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**5. MEASUREMENT**

This Item will be measured by the square foot of tile installed or murals by the each.

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**6. PAYMENT**

The work performed and materials furnished in accordance with this Item and measured as provided under "Measurement" will be paid for at the unit price bid for "Ceramic Tile" of the type specified or "Glass Tile" of the type specified. This price is full compensation for equipment, labor, fuel, materials, tools, and incidentals.