SECTION 093023 - GLASS MOSAIC TILING

Revise this Section by deleting and inserting text to meet Project-specific requirements.

Verify that Section titles referenced in this Section are correct for this Project's Specifications; Section titles may have changed.

1. GENERAL
	* + 1. RELATED DOCUMENTS
				1. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
			2. SUMMARY
				1. Section Includes:

Glass tile.

Tile backing panels.

Waterproof membrane[**for thinset applications**].

* + - * 1. Related Requirements:

Retain subparagraphs below to cross-reference requirements Contractor might expect to find in this Section but are specified in other Sections.

[**Section 071326 "Self-Adhering Sheet Waterproofing"**] [**Section 071353 "Elastomeric Sheet Waterproofing"**] [**Section 071354 "Thermoplastic Sheet Waterproofing"**] [**Section 071416 "Cold Fluid-Applied Waterproofing"**] for waterproofing under thickset mortar beds.

Section 079200 "Joint Sealants" for sealing of expansion, contraction, control, and isolation joints in tile surfaces.

Delete first subparagraph if scratch coat is specified in this Section.

Section 092400 "Cement Plastering" for scratch coat for thickset mortar setting-bed installations.

Delete first subparagraph below if cementitious backer units are specified in this Section. See the Evaluations.

Section 092613 "Gypsum Veneer Plastering" for cementitious backer units.

Delete first option in subparagraph below if cementitious backer units are specified in this Section. See the Evaluations.

Section 092900 "Gypsum Board" for glass-mat, water-resistant backer board.

* + - 1. DEFINITIONS
				1. General: Definitions in the ANSI A108 series of tile installation standards and in ANSI A137.2 apply to Work of this Section unless otherwise specified.
				2. ANSI A108 Series: ANSI A108.01, ANSI A108.02, ANSI A108.1A, ANSI A108.1B, ANSI A108.1C, ANSI A108.4, ANSI A108.5, ANSI A108.6, ANSI A108.9, ANSI A108.10, ANSI A108.11, ANSI A108.13, ANSI A108.14, ANSI A108.15, ANSI A108.16, and ANSI A108.17, which are contained in its "Specifications for Installation of Ceramic Tile."

Retain terms that remain after this Section has been edited for a project. Coordinate with tile sizes used in "Tile Products" Article.

* + - * 1. Face Size: Actual tile size, excluding spacer lugs.
				2. Module Size: Actual tile size plus joint width indicated.
			1. PREINSTALLATION MEETINGS

Retain "Preinstallation Conference" paragraph below if Work of this Section is extensive or complex enough to justify a conference.

* + - * 1. Preinstallation Conference: Conduct conference at Project site.

Review requirements in ANSI A108.01 for substrates and for preparation by other trades.

* + - 1. SUBMITTALS
				1. General: Submittals for this section are subject to the re-evaluation fee identified in Article 4 of the General Conditions.
				2. Manufacturer’s installation instructions shall be provided along with product data.
				3. Submittals shall be provided in the order in which they are specified and tabbed (for combined submittals).
				4. Product Data: For each type of product.
				5. Sustainable Design Submittals:

Retain "Shop Drawings" paragraph below if tile installations are complex enough to justify Shop Drawings.

* + - * 1. Shop Drawings: Show locations of each type of tile and tile pattern. Show widths, details, and locations of expansion, contraction, control, and isolation joints in tile substrates and finished tile surfaces.
				2. Samples for Initial Selection: For tile, grout, and accessories involving color selection.

Delete "Samples for Initial Selection" paragraph above if colors and other characteristics are preselected and specified or scheduled. Retain "Samples for Verification" paragraph below with or without above. Revise list of Samples below to correspond with products specified.

* + - * 1. Samples for Verification:

Retain one of two subparagraphs below.

Full-size units of each type and composition of tile and for each color and finish required.[**For glass mosaic tile in color blend patterns, provide full sheets of each color blend.**]

Assembled samples mounted on a rigid panel, with grouted joints, for each type and composition of tile and for each color and finish required. Make samples at least [**12 inches square**] [**36 inches square**], but not fewer than four tiles. Use grout of type and in color or colors approved for completed Work.

Coordinate "Qualification Data" paragraph below with qualification requirements in "Quality Assurance" Article.

* + - * 1. Qualification Data: For Installer.

Name of each person who will be performing the work, trade certificates, and their employer’s name, business address, and telephone number.

Names and addresses of 3 similar projects that each person has worked on during the past 5 years.

Certificates in "Master Grade Certificates" paragraph below are issued by manufacturers, indicating type and grade of tile according to ANSI A137.1 and that tile complies with this standard. Delete if not required or not available, as may be the case with imported tile.

* + - * 1. Master Grade Certificates: For each shipment, type, and composition of tile, signed by tile manufacturer and Installer.

Retain "Product Certificates" paragraph below to require submittal of product certificates from manufacturers.

* + - * 1. Product Certificates: For each type of product.

 Retain option if needed to establish compliance of products with characteristics specified.

* + - * 1. Product Test Reports: For tile-setting and -grouting products.
			1. MAINTENANCE MATERIAL SUBMITTALS
				1. Furnish extra materials that match and are from same production runs as products installed and that are packaged with protective covering for storage and identified with labels describing contents.

Tile Units:  Furnish quantity of full-size units equal to 3 percent of amount installed for each type, composition, color, pattern, and size indicated.

Grout: Furnish quantity of grout equal to 3 percent of amount installed for each type, composition, and color indicated.

* + - 1. QUALITY ASSURANCE
				1. Installer Qualifications:

Installer employs only Ceramic Tile Education Foundation Certified Installers or installers recognized by the U.S. Department of Labor as Journeyman Tile Layers for Project.

Installer employs at least one installer for Project that has completed the Advanced Certification for Tile Installers (ACT) certification for installation of [**mud floors**] [**mud walls**] [**membranes**] [**shower receptors**] [**and**] [**large format tile**].

* + - * 1. Mockups: Build mockups to verify selections made under Sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.

Build mockup of[**each type of**] glass tile installation.

Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

* + - 1. DELIVERY, STORAGE, AND HANDLING
				1. Deliver and store packaged materials in original containers with seals unbroken and labels intact until time of use. Comply with requirements in ANSI A137.2 for labeling tile packages.
				2. Store tile and cementitious materials on elevated platforms, under cover, and in a dry location.
				3. Store aggregates where grading and other required characteristics can be maintained and contamination can be avoided.
				4. Store liquid materials in unopened containers and protected from freezing.
			2. FIELD CONDITIONS
				1. Environmental Limitations: Do not install tile until construction in spaces is complete and ambient temperature and humidity conditions are maintained at the levels indicated in referenced standards and manufacturer's written instructions.
1. PRODUCTS

Manufacturers and products listed in SpecAgent and MasterWorks Paragraph Builder are neither recommended nor endorsed by the AIA or Deltek. Before inserting names, verify that manufacturers and products listed there comply with requirements retained or revised in descriptions and are both available and suitable for the intended applications.

* + - 1. MANUFACTURERS
				1. Source Limitations for Tile: Obtain tile of each type and color or finish from single source or producer.

Obtain tile of each type and color or finish from same production run and of consistent quality in appearance and physical properties for each contiguous area.

* + - * 1. Source Limitations for Setting and Grouting Materials: Obtain ingredients of a uniform quality for each mortar, adhesive, and grout component from single manufacturer and each aggregate from single source or producer.

Obtain setting and grouting materials, except for unmodified Portland cement and aggregate, from single manufacturer.

Obtain waterproof membrane, except for sheet products, from manufacturer of setting and grouting materials.

* + - * 1. Source Limitations for Other Products: Obtain each of the following products specified in this Section from a single manufacturer:

Waterproof membrane.

Joint sealants.

Cementitious backer units.

* + - 1. PRODUCTS, GENERAL

Revise or delete "ANSI Glass Tile Standard" paragraph below if another standard is used to specify tile products.

* + - * 1. ANSI Glass Tile Standard: Provide glass tile that complies with ANSI A137.2 for types and other characteristics indicated.
				2. ANSI Standards for Tile Installation Materials: Provide materials complying with ANSI A108.02, ANSI standards referenced in other Part 2 articles, ANSI standards referenced by TCNA installation methods specified in tile installation schedules, and other requirements specified.
				3. Factory Blending: For tile exhibiting color variations within ranges, blend tile in factory and package so tile units taken from one package show same range in colors as those taken from other packages and match approved Samples.
				4. Mounting: For factory-mounted tile, provide back- or edge-mounted tile assemblies as standard with manufacturer unless otherwise indicated.

Retain subparagraph below if tile is used on exteriors or in wet areas. According to ANSI A137.2, manufacturers must specify whether back- or edge-mounted tile assemblies are suitable for these installations, because mounting materials decrease contact area of setting material to tile, and mounting materials may not be as strong or as waterproof as setting materials.

Where tile is indicated for installation [**on exteriors**] [**or**] [**in wet areas**], do not use back- or edge-mounted tile assemblies unless tile manufacturer specifies in writing that this type of mounting is suitable for installation indicated and has a record of successful in-service performance.

* + - 1. TILE PRODUCTS

Copy paragraphs below and re-edit for each type of tile required. Insert number to complete drawing designation. Use these designations on Drawings to show where each glass tile type is required.

Descriptions used in glass tile type paragraphs below are based on categories and requirements in ANSI A137.2. Large format tiles have a surface area greater than 8.95 sq. inches (5776 sq. mm).

* + - * 1. Glass Tile Type[**GT-**<**#**>]: Large format glass tile, [**cast**] [**fused**] [**low temperature**].

[Manufacturers:](http://www.specagent.com/Lookup?ulid=9352) Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:

[American Olean; a division of Dal-Tile Corporation](http://www.specagent.com/Lookup?uid=123457138454).

[Crossville, Inc](http://www.specagent.com/Lookup?uid=123457138455).

[Florida Tile, Inc](http://www.specagent.com/Lookup?uid=123457138456).

Approved equivalent.

Face Size: [**3 by 3 inches**] [**4 by 4 inches**] [**4-1/4 by 4-1/4 inches**].

Standard glass tiles are made to specific tolerances; natural glass tiles are made with inherent variations in size.

Sizing Category: [**Standard**] [**Natural**].

“Aesthetic Class” has to do with shade variations from one tile to the next. V0 = Very Uniform Appearance; V1 = Uniform Appearance; V2 = Slight Variation; V3 = Moderate Variation; V4 = Substantial Variation.

Aesthetic Class: [**V0**] [**V1**] [**V2**] [**V3**] [**V4**].

Tile Color and Pattern: [**As indicated by manufacturer's designations**] [**Match Director’s Representative's sample**] [**As selected by Director’s Representative from manufacturer's full range**].

Grout Color: [**As indicated by manufacturer's designations**] [**Match Director’s Representative's sample**] [**As selected by Director’s Representative from manufacturer's full range**].

Mosaic glass tiles have a surface area greater than 0.68 sq. inch (441 sq. mm) but less than or equal to 8.95 sq. inches (5776 sq. mm).

* + - * 1. Glass Tile Type[**GT-**<**#**>]: Factory-mounted mosaic glass tile, [**cast**] [**fused**] [**low temperature**].

[Manufacturers:](http://www.specagent.com/Lookup?ulid=9353) Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:

[American Marazzi Tile, Inc](http://www.specagent.com/Lookup?uid=123457138460).

[American Olean; a division of Dal-Tile Corporation](http://www.specagent.com/Lookup?uid=123457138461).

[Crossville, Inc](http://www.specagent.com/Lookup?uid=123457138462).

Approved equivalent.

Module Size: [**1/2 by 2 inches**] [**1/2 by 3 inches**] [**5/8 by 1-1/4 inches**] [**1 by 1 inch**] [**1 by 2 inches**] [**2 by 2 inches**] [**2 by 4 inches**].

Standard glass tiles are made to specific tolerances; natural glass tiles are made with inherent variations in size.

Sizing Category: [**Standard**] [**Natural**].

“Aesthetic Class” has to do with shade variations from one tile to the next. V0 = Very Uniform Appearance; V1 = Uniform Appearance; V2 = Slight Variation; V3 = Moderate Variation; V4 = Substantial Variation.7890-=

Aesthetic Class: [**V0**] [**V1**] [**V2**] [**V3**] [**V4**].

Tile Color and Pattern: [**As indicated by manufacturer's designations**] [**Match Director’s Representative's sample**] [**As selected by Director’s Representative from manufacturer's full range**].

Grout Color: [**As indicated by manufacturer's designations**] [**Match Director’s Representative's sample**] [**As selected by Director’s Representative from manufacturer's full range**].

Miniature mosaic glass tile have a surface area less than or equal to 0.68 sq. inch (441 sq. mm).

* + - * 1. Glass Tile Type[**GT-**<**#**>]: Factory-mounted miniature mosaic glass tile, [**cast**] [**fused**] [**low temperature**].

[Manufacturers:](http://www.specagent.com/Lookup?ulid=9354) Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:

[American Marazzi Tile, Inc](http://www.specagent.com/Lookup?uid=123457138473).

[American Olean; a division of Dal-Tile Corporation](http://www.specagent.com/Lookup?uid=123457138474).

[Crossville, Inc](http://www.specagent.com/Lookup?uid=123457138475).

[Florida Tile, Inc](http://www.specagent.com/Lookup?uid=123457138477).

Approved equivalent.

Module Size: [**1/2 by 1/2 inch**] [**1/2 by 1 inch**] [**5/8 by 5/8 inch**] [**3/4 by 3/4 inches**].

Standard glass tiles are made to specific tolerances; natural glass tiles are made with inherent variations in size.

Sizing Category: [**Standard**] [**Natural**].

“Aesthetic Class” has to do with shade variations from one tile to the next. V0 = Very Uniform Appearance; V1 = Uniform Appearance; V2 = Slight Variation; V3 = Moderate Variation; V4 = Substantial Variation.

Aesthetic Class: [**V0**] [**V1**] [**V2**] [**V3**] [**V4**].

Tile Color and Pattern: [**As indicated by manufacturer's designations**] [**Match Director’s Representative's sample**] [**As selected by Director’s Representative from manufacturer's full range**].

Grout Color: [**As indicated by manufacturer's designations**] [**Match Director’s Representative's sample**] [**As selected by Director’s Representative from manufacturer's full range**].

* + - 1. TILE BACKING PANELS
				1. Cementitious Backer Units: ANSI A118.9 or ASTM C1325, Type A, in maximum lengths available to minimize end-to-end butt joints.

[Products:](http://www.specagent.com/Lookup?ulid=277) Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to the following:

[Custom Building Products](http://www.specagent.com/Lookup?uid=123457138518); WonderBoard® Lite Backerboard.

[Georgia-Pacific Gypsum LLC](http://www.specagent.com/Lookup?uid=123457138520); DensShield® Tile Backer.

[USG Corporation](http://www.specagent.com/Lookup?uid=123457138522); DUROCK Cement Board.

Approved equivalent.

Coordinate thickness in "Thickness" subparagraph below with products selected.

Thickness: [**1/2 inch**] [**5/8 inch**] [**As indicated**].

* + - 1. WATERPROOF MEMBRANE

ANSI A118.10 specifies waterproof membranes for use under thinset tile installations.

* + - * 1. General: Manufacturer's standard product, selected from the following, that complies with ANSI A118.10 and is recommended by the manufacturer for the application indicated. Include reinforcement and accessories recommended by manufacturer.
				2. Chlorinated Polyethylene Sheet: ASTM D4068; Nonplasticized, chlorinated polyethylene faced on both sides with nonwoven polyester fabric.

[Products:](http://www.specagent.com/Lookup?ulid=9324) Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to the following:

[Noble Company (The)](http://www.specagent.com/Lookup?uid=123457138377); Chloraloy®.

Approved equivalent.

Nominal Thickness: 0.030 inch.

Nominal Thickness: 0.040 inch.

* + - * 1. Polyethylene Sheet: Polyethylene faced on both sides with fleece webbing; 0.008-inch minimum nominal thickness.

[Products:](http://www.specagent.com/Lookup?ulid=9326) Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to the following:

Mapei Corporation; Mapeguard® WP 200.

[Schluter Systems L.P](http://www.specagent.com/Lookup?uid=123457138384); KERDI.

[Schönox; HPS North America, Inc](http://www.specagent.com/Lookup?uid=123457138386).; Schonox AB.

Approved equivalent.

* + - * 1. Fabric-Reinforced, Fluid-Applied Membrane: System consisting of liquid-latex rubber or elastomeric polymer and continuous fabric reinforcement.

[Products:](http://www.specagent.com/Lookup?ulid=9328) Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to the following:

[Boiardi Products Corporation; a QEP company](http://www.specagent.com/Lookup?uid=123457138393); Elastiment 344 Reinforced Waterproofing and Anti-Fracture/Crack Suppression Membrane.

[Custom Building Products](http://www.specagent.com/Lookup?uid=123457138396); Custom® 9240 Waterproofing and Anti­Fracture Membrane.

[Laticrete International, Inc](http://www.specagent.com/Lookup?uid=123457138397).; LATICRETE 9235 Waterproofing Membrane.

[MAPEI Corporation](http://www.specagent.com/Lookup?uid=123457138398); Mapelastic 315.

[Summitville Tiles, Inc](http://www.specagent.com/Lookup?uid=123457138401).; S-9000.

Approved equivalent.

* + - * 1. Fluid-Applied Membrane: Liquid-latex rubber or elastomeric polymer.

[Products:](http://www.specagent.com/Lookup?ulid=9329) Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to the following:

[Boiardi Products Corporation; a QEP company](http://www.specagent.com/Lookup?uid=123457138407); Elastiment 644 Membrane Waterproofing System.

[Custom Building Products](http://www.specagent.com/Lookup?uid=123457138411); RedGard® Waterproofing and Crack Prevention Membrane.

[Laticrete International, Inc](http://www.specagent.com/Lookup?uid=123457138413).; Laticrete Hydro Ban®.

[MAPEI Corporation](http://www.specagent.com/Lookup?uid=123457138414); [**Mapelastic WaterStop**][**Mapelastic AquaDefense**] [**Mapelastic HPG**].

Approved equivalent.

* + - * 1. Latex-Portland Cement Waterproof Mortar: Flexible, waterproof mortar consisting of cement-based mix and latex additive.

[Products:](http://www.specagent.com/Lookup?ulid=9330) Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to the following:

[Boiardi Products Corporation; a QEP company](http://www.specagent.com/Lookup?uid=123457138423); Elastiment 323 Cement Based Waterproofing, Anti-Fracture/Crack Suppression Membrane.

[Laticrete International, Inc](http://www.specagent.com/Lookup?uid=123457187684).; Laticrete Hydro Ban® Cementitious Waterproofing Membrane.

[MAPEI Corporation](http://www.specagent.com/Lookup?uid=123457138425); Mapelastic Turbo.

Approved equivalent.

* + - 1. SETTING MATERIALS
				1. Portland Cement Mortar (Thickset) Installation Materials: ANSI A108.02; use white cement unless otherwise indicated.

Cleavage Membrane: Asphalt felt, ASTM D226, Type I (No. 15); or polyethylene sheeting, ASTM D4397, 4.0 mils thick.

Retain "Reinforcing Wire Fabric" subparagraph below for reinforced mortar bed.

Reinforcing Wire Fabric: Galvanized, welded-wire fabric, 2 by 2 inches by 0.062-inch diameter; comply with ASTM A185 and ASTM A82, except for minimum wire size.

Retain "Expanded Metal Lath" subparagraph below for portland cement plaster scratch coat. Delete if scratch coat is specified in Section 092400 "Cement Plastering."

Expanded Metal Lath: Diamond-mesh lath complying with ASTM C847.

Base Metal and Finish for Interior Applications: Uncoated or zinc-coated (galvanized) steel sheet, with uncoated steel sheet painted after fabrication into lath.

Base Metal and Finish for Exterior Applications: Zinc-coated (galvanized) steel sheet.

Configuration over Studs and Furring: Flat.

Configuration over Solid Surfaces: Self-furring.

Weight: [**2.5 lb/sq. yd.**] [**3.4 lb/sq. yd.**].

ANSI standards for glass tile installation recommend using white cement for translucent glass tile.

* + - * 1. Modified Dry-Set Mortar (Thinset): ANSI A118.4; white, unless otherwise indicated.

[Products:](http://www.specagent.com/Lookup?ulid=12350) Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to the following:

[Custom Building Products](http://www.specagent.com/Lookup?uid=123457138500); FlexBond® Premium Crack Prevention Thin­set Mortar.

[Laticrete International, Inc](http://www.specagent.com/Lookup?uid=123457138502).; Laticrete 253 Gold.

[MAPEI Corporation](http://www.specagent.com/Lookup?uid=123457138503); Ultraflex 3.

[Summitville Tiles, Inc](http://www.specagent.com/Lookup?uid=123457138506).; S-1100 Multi-Purpose Premium Thin Set Latex Mortar.

Approved equivalent.

Provide prepackaged, dry-mortar mix containing dry, redispersible, vinyl acetate or acrylic additive to which only water must be added at Project site.

See the Evaluations for discussion on difference between normal and nonsagging mortar.

For wall applications, provide mortar that complies with requirements for nonsagging mortar in addition to the other requirements in ANSI A118.4.

* + - * 1. Improved Modified Dry-Set Mortar (Thinset): ANSI A118.15; white, unless otherwise indicated.

[Products:](http://www.specagent.com/Lookup?ulid=12357) Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to the following:

[Custom Building Products](http://www.specagent.com/Lookup?uid=123457138512); Glass Tile Premium Thin-Set Mortar.

[Laticrete International, Inc](http://www.specagent.com/Lookup?uid=123457138513).; Laticrete 254 Platinum.

[MAPEI Corporation](http://www.specagent.com/Lookup?uid=123457138514); Ultraflex 3.

Approved equivalent.

Provide prepackaged, dry-mortar mix containing dry, redispersible, vinyl acetate or acrylic additive to which only water must be added at Project site.

See the Evaluations for discussion on difference between normal and nonsagging mortar.

For wall applications, provide mortar that complies with requirements for nonsagging mortar in addition to the other requirements in ANSI A118.15.

* + - * 1. Water-Cleanable, Tile-Setting Epoxy: ANSI A118.3.

[Products:](http://www.specagent.com/Lookup?ulid=9345) Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to the following:

[Custom Building Products](http://www.specagent.com/Lookup?uid=123457138437); EBM­Lite™ Premium Epoxy Bonding Mortar — 100% Solids.

[Laticrete International, Inc](http://www.specagent.com/Lookup?uid=123457138439).; Laticrete Latapoxy® 300 Adhesive.

[MAPEI Corporation](http://www.specagent.com/Lookup?uid=123457138440); Kerapoxy 410.

[Summitville Tiles, Inc](http://www.specagent.com/Lookup?uid=123457138443).; S-300 Epoxy Setting Adhesive.

Approved equivalent.

Type II organic adhesive is also available but is suitable only for interior ceilings and walls subject to dry, light service or limited water exposure. Organic adhesives are not typically recommended for use with glass tile but may be needed for certain low-temperature-coated tiles. Consult tile and adhesive manufacturer.

* + - * 1. Organic Adhesive: ANSI A136.1, Type I.

[Products:](http://www.specagent.com/Lookup?ulid=9346) Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to the following:

[Custom Building Products](http://www.specagent.com/Lookup?uid=123457138315); OmniGrip® Premium Lightweight Tile Adhesive.

[Laticrete International, Inc](http://www.specagent.com/Lookup?uid=123457138317).; LATICRETE 15 Premium Mastic.

[MAPEI Corporation](http://www.specagent.com/Lookup?uid=123457138318); Type 1.

Approved equivalent.

* + - 1. GROUT MATERIALS

Grout in "Sand-Portland Cement Grout" paragraph below is field-mixed portland cement and fine-graded sand. Delete if only prepackaged products are acceptable or if sanded grout is not required. Sanded grout is generally used for tile installed with joint widths of 1/8 inch (3.2 mm) or wider.

* + - * 1. Sand-Portland Cement Grout: ANSI A108.10, consisting of white or gray cement and white or colored aggregate as required to produce color indicated.

Grouts in "Standard Cement Grout" and "High-Performance Tile Grout" paragraphs below are prepackaged products and are available either sanded or unsanded. Sanded grout is generally used for tile installed with joint widths of 1/8 inch (3.2 mm) or wider; unsanded grout is generally used for tile installed with joint widths of 1/8 inch (3.2 mm) or narrower.

* + - * 1. Standard Cement Grout: ANSI A118.6; with antimicrobial enhanced properties.

[Products:](http://www.specagent.com/Lookup?ulid=9347) Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to the following:

[Custom Building Products](http://www.specagent.com/Lookup?uid=123457138328); Fusion Pro® Single Component® Grout.

[Laticrete International, Inc](http://www.specagent.com/Lookup?uid=123457138330).; Keracolor® U.

[MAPEI Corporation](http://www.specagent.com/Lookup?uid=123457138331); Ultracolor® Plus FA.

[Summitville Tiles, Inc](http://www.specagent.com/Lookup?uid=123457138333).; S-687 Fungus and Mildew Resistant Unsanded Grout.

Approved equivalent.

* + - * 1. High-Performance Tile Grout: ANSI A118.7.

[Products:](http://www.specagent.com/Lookup?ulid=9348) Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to the following:

[Custom Building Products](http://www.specagent.com/Lookup?uid=123457138343); Prism® Ultimate Performance Grout.

[Laticrete International, Inc](http://www.specagent.com/Lookup?uid=123457138345).; Laticrete Permacolor® Grout.

[MAPEI Corporation](http://www.specagent.com/Lookup?uid=123457138346); Ultracolor® Plus FA.

[Summitville Tiles, Inc](http://www.specagent.com/Lookup?uid=123457138349).; S-730 ProMax Grout.

Approved equivalent.

Polymer Type: Ethylene vinyl acetate or acrylic additive, in dry, redispersible form, prepackaged with other dry ingredients.

* + - * 1. Water-Cleanable Epoxy Grout: ANSI A118.3.

[Products:](http://www.specagent.com/Lookup?ulid=9349) Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to the following:

[Custom Building Products](http://www.specagent.com/Lookup?uid=123457138357); CEG-IG 100% Solids Industrial Grade Epoxy Grout.

[Laticrete International, Inc](http://www.specagent.com/Lookup?uid=123457138359).; Laticrete Spectralock® 2000 IG.

[MAPEI Corporation](http://www.specagent.com/Lookup?uid=123457138360); Kerapoxy® IEG CQ.

[Summitville Tiles, Inc](http://www.specagent.com/Lookup?uid=123457138363).; S-600 Setting & Grouting Epoxy.

Approved equivalent.

* + - 1. MISCELLANEOUS MATERIALS

Delete "Trowelable Underlayments and Patching Compounds" paragraph below if tile is not applied over concrete substrates.

* + - * 1. Trowelable Underlayments and Patching Compounds: Latex-modified, portland cement-based formulation provided or approved by manufacturer of tile-setting materials for installations indicated.
				2. Vapor-Retarder Membrane: Polyethylene sheeting, ASTM D4397, 4.0 mils thick.

Retain "Metal Edge Strips" paragraph below if metal edge strips are required at junction with other finishes; revise if metal edge control joints are required.

* + - * 1. Metal Edge Strips: Angle or L-shaped, height to match tile and setting-bed thickness; [**half-hard brass**] [**white zinc alloy**] [**nickel silver**] [**stainless steel, ASTM A276 or ASTM A666, 300 Series**] exposed-edge material.

[Manufacturers:](http://www.specagent.com/Lookup?ulid=9351) Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:

Blanke Corporation; [www.blankecorp.com](http://www.blankecorp.com).

Dural; us.dural.com.

Schluter Systems L.P.; [www.schluter.com](http://www.schluter.com).

Approved equivalent.

* + - * 1. Tile Cleaner: A neutral cleaner capable of removing soil and residue without harming tile and grout surfaces, specifically approved for materials and installations indicated by tile and grout manufacturers.
				2. Grout Sealer: Manufacturer's standard product for sealing grout joints and that does not change color or appearance of grout.

[Manufacturers:](http://www.specagent.com/Lookup?ulid=9351) Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:

ColorSealPro; [www.colorsealpro.com](http://www.colorsealpro.com).

[Laticrete International, Inc](http://www.specagent.com/Lookup?uid=123457194629).

Modern Stone Technologies; [www.modernstonecare.com](http://www.modernstonecare.com).

Approved equivalent.

* + - 1. MIXING MORTARS AND GROUT
				1. Mix mortars and grouts to comply with referenced standards and mortar and grout manufacturers' written instructions.
				2. Add materials, water, and additives in accurate proportions.
				3. Obtain and use type of mixing equipment, mixer speeds, mixing containers, mixing time, and other procedures to produce mortars and grouts of uniform quality with optimum performance characteristics for installations indicated.
1. EXECUTION
	* + 1. EXAMINATION

Coordinate substrate tolerances, finishes, and curing methods specified in Section 033000 "Cast-in-Place Concrete" with requirements in the ANSI A108 series of tile installation standards.

* + - * 1. Examine substrates, areas, and conditions where tile will be installed, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.

Verify that substrates for setting tile are firm; dry; clean; free of coatings that are incompatible with tile-setting materials, including curing compounds and other substances that contain soap, wax, oil, or silicone; and comply with flatness tolerances required by ANSI A108.01 for installations indicated.

Verify that concrete substrates for tile floors installed with [**adhesives**] [**bonded mortar bed**] [**or**] [**thinset mortar**] comply with surface finish requirements in ANSI A108.01 for installations indicated.

Verify that surfaces that received a steel trowel finish have been mechanically scarified.

Verify that protrusions, bumps, and ridges have been removed by sanding or grinding.

Verify that installation of grounds, anchors, recessed frames, electrical and mechanical units of work, and similar items located in or behind tile has been completed.

Verify that joints and cracks in tile substrates are coordinated with tile joint locations; if not coordinated, adjust joint locations in consultation with Director’s Representative.

* + - * 1. Proceed with installation only after unsatisfactory conditions have been corrected.
			1. PREPARATION
				1. Where indicated, prepare substrates to receive waterproof membrane by applying a reinforced mortar bed that complies with ANSI A108.1A and is sloped 1/4 inch per foot toward drains.
				2. Blending: For tile exhibiting color variations, verify that tile has been factory blended and packaged so tile units taken from one package show same range of colors as those taken from other packages and match approved Samples. If not factory blended, either return to manufacturer or blend tiles at Project site before installing.
			2. INSTALLATION OF GLASS TILE
				1. Comply with TCNA's "Handbook for Ceramic, Glass, and Stone Tile Installation" for TCNA installation methods specified in tile installation schedules. Comply with parts of the ANSI A108 series "Specifications for Installation of Ceramic Tile" that are referenced in TCNA installation methods, specified in tile installation schedules, and apply to types of setting and grouting materials used.
				2. Extend tile work into recesses and under or behind equipment and fixtures to form complete covering without interruptions unless otherwise indicated. Terminate work neatly at obstructions, edges, and corners without disrupting pattern or joint alignments.
				3. Accurately form intersections and returns. Perform cutting and drilling of tile without marring visible surfaces. Carefully grind cut edges of tile abutting trim, finish, or built-in items for straight aligned joints. Fit tile closely to electrical outlets, piping, fixtures, and other penetrations so plates, collars, or covers overlap tile.

If accent tile is used, verify tile thicknesses and retain first paragraph below if necessary. If difference in thickness is significant, consider providing a thicker substrate under thinner tile.

* + - * 1. Where accent tile differs in thickness from field tile, vary setting-bed thickness so that tiles are flush.
				2. Jointing Pattern: Lay tile in grid pattern unless otherwise indicated. Lay out tile work and center tile fields in both directions in each space or on each wall area. Lay out tile work to minimize the use of pieces that are less than half of a tile. Provide uniform joint widths unless otherwise indicated.

Retain first subparagraph below for mounted tile.

For tile mounted in sheets, make joints between tile sheets same width as joints within tile sheets so joints between sheets are not apparent in finished work.

* + - * 1. Joint Widths: Unless otherwise indicated, install tile with the following joint widths:

Joint widths in subparagraphs below are examples only. Coordinate joint widths with grout selections and module sizes specified in "Tile Products" Article.

Large Format Glass Tile: 1/16 inch.

Mosaic Glass Tile: 1/16 inch.

Miniature Mosaic Glass Tile: 1/16 inch.

Retain first paragraph below for wainscots. Verify that instruction agrees with detailing.

* + - * 1. Lay out tile wainscots to dimensions indicated or to next full tile beyond dimensions indicated.

Refer to TCNA's "Handbook for Ceramic, Glass, and Stone Tile Installation" and to the ANSI A108 series of tile installation standards for data on expansion joints. These standards require that joint locations be indicated on Drawings.

* + - * 1. Expansion Joints: Provide expansion joints and other sealant-filled joints, including control, contraction, and isolation joints, where indicated. Form joints during installation of setting materials, mortar beds, and tile. Do not saw-cut joints after installing tiles.

Where joints occur in concrete substrates, locate joints in tile surfaces directly above them.

* + - * 1. Metal Edge Strips: Install at locations indicated.
				2. Grout Sealer: Apply grout sealer to grout joints according to grout-sealer manufacturer's written instructions. As soon as grout sealer has penetrated grout joints, remove excess sealer and sealer from tile faces by wiping with soft cloth.
			1. INSTALLATION OF TILE BACKING PANEL
				1. Install panels and treat joints according to ANSI A108.11 and manufacturer's written instructions for type of application indicated.
			2. INSTALLATION OF WATERPROOFING
				1. Install waterproof membrane to comply with ANSI A108.13 and manufacturer's written instructions to produce waterproof membrane of uniform thickness that is bonded securely to substrate.
				2. Allow waterproof membrane to cure and verify by testing that it is watertight before installing tile or setting materials over it.
			3. CLEANING AND PROTECTING
				1. Cleaning: On completion of placement and grouting, clean all tile surfaces so they are free of foreign matter.

Remove grout residue from tile as soon as possible.

Clean grout smears and haze from tile according to tile and grout manufacturer's written instructions but no sooner than 10 days after installation. Use only cleaners recommended by tile and grout manufacturers and only after determining that cleaners are safe to use by testing on samples of tile and other surfaces to be cleaned. Protect metal surfaces and plumbing fixtures from effects of cleaning. Flush surfaces with clean water before and after cleaning.

Remove temporary protective coating by method recommended by coating manufacturer and that is acceptable to tile and grout manufacturer. Trap and remove coating to prevent drain clogging.

* + - * 1. Protect installed tile work with kraft paper or other heavy covering during construction period to prevent staining, damage, and wear. If recommended by tile manufacturer, apply coat of neutral protective cleaner to completed tile walls.
				2. Before final inspection, remove protective coverings and rinse neutral protective cleaner from tile surfaces.
			1. EXTERIOR GLASS TILE INSTALLATION SCHEDULE

"Glass Tile Installation" subparagraphs in this article are based on TCNA installation methods. Have a copy of TCNA's "Handbook for Ceramic, Glass, and Stone Tile Installation" at hand while revising this schedule. Not all exterior installation methods in the "TCNA Handbook" are included in this schedule; insert others if required.

Glass tile installation designations in this article can be used on Drawings. If substrate descriptions are sufficient to indicate where each installation type is required, tile-type designations can be indicated on Drawings instead of tile installation designations, and tile types can be deleted from tile installation subparagraphs. If tile installation designations are used on Drawings and more than one tile type is required for a particular installation method, copy and re-edit an installation subparagraph for each tile type.

* + - * 1. Exterior Wall Installations, Masonry or Concrete:

Glass Tile Installation <**Insert designation**>: TCNA W201 and [**ANSI A108.14**] [**ANSI A108.15**] [**ANSI A108.16**]; cement mortar bed (thickset) on metal lath[**over vapor-retarder membrane**].

Glass Tile Type: <**Insert tile-type designation**>.

Bond Coat: [**Standard dry-set**] [**Modified dry-set**] [**Improved modified dry-set**] mortar.

Grout: [**Sand-portland cement**] [**Standard sanded cement**] [**Standard unsanded cement**] [**High-performance sanded**] [**High-performance unsanded**] grout.

Glass Tile Installation <**Insert designation**>: TCNA W202; thinset mortar[**over waterproof membrane**].

Glass Tile Type: <**Insert tile-type designation**>.

Thinset Mortar: [**Standard dry-set**] [**Modified dry-set**] [**Improved modified dry-set**] mortar.

Grout: [**Sand-portland cement**] [**Standard sanded cement**] [**Standard unsanded cement**] [**High-performance sanded**] [**High-performance unsanded**] grout.

* + - 1. INTERIOR GLASS TILE INSTALLATION SCHEDULE

"Glass Tile Installation" subparagraphs in this article are based on TCNA installation methods. Have a copy of TCNA's "Handbook for Ceramic, Glass, and Stone Tile Installation" at hand while revising this schedule. Not all interior installation methods in the "TCNA Handbook" are included in this schedule; insert others if required.

Glass tile installation designations in this article can be used on Drawings. If substrate descriptions are sufficient to indicate where each installation type is required, tile-type designations can be indicated on Drawings instead of tile installation designations, and glass tile types can be deleted from tile installation subparagraphs. If tile installation designations are used on Drawings and more than one tile type is required for a particular installation method, copy and re-edit an installation subparagraph for each tile type.

* + - * 1. Interior Wall Installations, Masonry or Concrete:

Glass Tile Installation <**Insert designation**>: TCNA W202; thinset mortar.

Glass Tile Type: <**Insert tile-type designation**>.

Thinset Mortar: [**Standard dry-set**] [**Modified dry-set**] [**Improved modified dry-set**] mortar.

Grout: [**Sand-portland cement**] [**Standard sanded cement**] [**Standard unsanded cement**] [**High-performance sanded**] [**High-performance unsanded**] [**Water-cleanable epoxy**] grout.

Glass Tile Installation <**Insert designation**>: TCNA W211 and [**ANSI A108.14**] [**ANSI A108.15**] [**ANSI A108.16**]; cement mortar bed (thickset) bonded to substrate.

Glass Tile Type: <**Insert tile-type designation**>.

Bond Coat: [**Standard dry-set**] [**Modified dry-set**] [**Improved modified dry-set**] mortar.

Grout: [**Sand-portland cement**] [**Standard sanded cement**] [**Standard unsanded cement**] [**High-performance sanded**] [**High-performance unsanded**] [**Water-cleanable epoxy**] grout.

Glass Tile Installation <**Insert designation**>: TCNA W221 and [**ANSI A108.14**] [**ANSI A108.15**] [**ANSI A108.16**]; cement mortar bed (thickset) on metal lath [**over cleavage membrane**] [**over waterproof membrane**].

Glass Tile Type: <**Insert tile-type designation**>.

Bond Coat: [**Standard dry-set**] [**Modified dry-set**] [**Improved modified dry-set**] mortar.

Grout: [**Sand-portland cement**] [**Standard sanded cement**] [**Standard unsanded cement**] [**High-performance sanded**] [**High-performance unsanded**] [**Water-cleanable epoxy**] grout.

Glass Tile Installation <**Insert designation**>: TCNA W222 and [**ANSI A108.14**] [**ANSI A108.15**] [**ANSI A108.16**]; one-coat cement mortar bed (thickset) on metal lath [**over cleavage membrane**] [**over waterproof membrane**].

Glass Tile Type: <**Insert tile-type designation**>.

Bond Coat: [**Standard dry-set**] [**Modified dry-set**] [**Improved modified dry-set**] mortar.

Grout: [**Sand-portland cement**] [**Standard sanded cement**] [**Standard unsanded cement**] [**High-performance sanded**] [**High-performance unsanded**] grout.

Note that TCNA W223 requires smooth substrate because of thickness limitations of organic adhesives; some masonry surfaces will not be suitable.

Glass Tile Installation <**Insert designation**>: TCNA W223; organic adhesive.

Glass Tile Type: <**Insert tile-type designation**>.

Grout: [**Sand-portland cement**] [**Standard sanded cement**] [**Standard unsanded cement**] [**High-performance sanded**] [**High-performance unsanded**] grout.

* + - * 1. Interior Wall Installations, Wood or Metal Studs or Furring:

Glass Tile Installation <**Insert designation**>: TCNA W221 and [**ANSI A108.14**] [**ANSI A108.15**] [**ANSI A108.16**]; cement mortar bed (thickset) [**over cleavage membrane**] [**over waterproof membrane**] on solid backing.

Glass Tile Type: <**Insert tile-type designation**>.

Bond Coat: [**Standard dry-set**] [**Modified dry-set**] [**Improved modified dry-set**] mortar.

Grout: [**Sand-portland cement**] [**Standard sanded cement**] [**Standard unsanded cement**] [**High-performance sanded**] [**High-performance unsanded**] [**Water-cleanable epoxy**] grout.

Glass Tile Installation <**Insert designation**>: TCNA W222 and [**ANSI A108.14**] [**ANSI A108.15**] [**ANSI A108.16**]; one-coat cement mortar bed (thickset) [**over cleavage membrane**] [**over waterproof membrane**] on solid backing.

Glass Tile Type: <**Insert tile-type designation**>.

Bond Coat: [**Standard dry-set**] [**Modified dry-set**] [**Improved modified dry-set**] mortar.

Grout: [**Sand-portland cement**] [**Standard sanded cement**] [**Standard unsanded cement**] [**High-performance sanded**] [**High-performance unsanded**] [**Water-cleanable epoxy**] grout.

Glass Tile Installation <**Insert designation**>: TCNA W223; organic adhesive on solid backing.

Glass Tile Type: <**Insert tile-type designation**>.

Grout: [**Sand-portland cement**] [**Standard sanded cement**] [**Standard unsanded cement**] [**High-performance sanded**] [**High-performance unsanded**] grout.

Note that TCNA W231/W241 is for cleavage membrane and lath applied directly to studs or furring without solid backing. If retaining first "Glass Tile Installation" subparagraph below, retain one of three options for ANSI standard.

Glass Tile Installation <**Insert designation**>: TCNA W231/W241 and [**ANSI A108.14**] [**ANSI A108.15**] [**ANSI A108.16**]; cement mortar bed (thickset).

Glass Tile Type: <**Insert tile-type designation**>.

Bond Coat: [**Standard dry-set**] [**Modified dry-set**] [**Improved modified dry-set**] mortar.

Grout: [**Sand-portland cement**] [**Standard sanded cement**] [**Standard unsanded cement**] [**High-performance sanded**] [**High-performance unsanded**] grout.

Glass Tile Installation <**Insert designation**>: TCNA W242; organic adhesive on gypsum board.

Glass Tile Type: <**Insert tile-type designation**>.

Grout: [**Sand-portland cement**] [**Standard sanded cement**] [**Standard unsanded cement**] [**High-performance sanded**] [**High-performance unsanded**] grout.

Glass Tile Installation <**Insert designation**>: TCNA W243; thinset mortar on gypsum board.

Glass Tile Type: <**Insert tile-type designation**>.

Thinset Mortar: [**Standard dry-set**] [**Modified dry-set**] [**Improved modified dry-set**] mortar.

Grout: [**Sand-portland cement**] [**Standard sanded cement**] [**Standard unsanded cement**] [**High-performance sanded**] [**High-performance unsanded**] grout.

Glass Tile Installation <**Insert designation**>: TCNA W244C or TCNA W244F; thinset mortar on cementitious backer units or fiber-cement backer board[**over vapor-retarder membrane**].

Glass Tile Type: <**Insert tile-type designation**>.

Thinset Mortar: [**Standard dry-set**] [**Modified dry-set**] [**Improved modified dry-set**] mortar.

Grout: [**Sand-portland cement**] [**Standard sanded cement**] [**Standard unsanded cement**] [**High-performance sanded**] [**High-performance unsanded**] [**Water-cleanable epoxy**] grout.

Glass Tile Installation <**Insert designation**>: TCNA W245 or TCNA W248; thinset mortar on glass-mat, water-resistant gypsum backer board.

Glass Tile Type: <**Insert tile-type designation**>.

Thinset Mortar: [**Standard dry-set**] [**Modified dry-set**] [**Improved modified dry-set**] mortar.

Grout: [**Sand-portland cement**] [**Standard sanded cement**] [**Standard unsanded cement**] [**High-performance sanded**] [**High-performance unsanded**] [**Water-cleanable epoxy**] grout.

* + - * 1. Bathtub Wall Installations with No Shower Head, Wood or Metal Studs or Furring:

Glass Tile Installation <**Insert designation**>: TCNA B413; [**thinset mortar**] [**organic adhesive**] on water-resistant gypsum board.

Glass Tile Type: <**Insert tile-type designation**>.

Delete "Thinset Mortar" subparagraph below if organic adhesive is used.

Thinset Mortar: [**Standard dry-set**] [**Modified dry-set**] [**Improved modified dry-set**] mortar.

Retain high-performance grout in "Grout" subparagraph below if organic adhesive and metal studs or furring are used.

Grout: [**Sand-portland cement**] [**Standard sanded cement**] [**Standard unsanded cement**] [**High-performance sanded**] [**High-performance unsanded**] grout.

* + - * 1. Bathtub/Shower Wall Installations, Wood or Metal Studs or Furring:

Glass Tile Installation <**Insert designation**>: TCNA B411 and [**ANSI A108.14**] [**ANSI A108.15**] [**ANSI A108.16**]; cement mortar bed (thickset)[**over vapor-retarder membrane**].

Glass Tile Type: <**Insert tile-type designation**>.

Bond Coat: [**Standard dry-set**] [**Modified dry-set**] [**Improved modified dry-set**] mortar.

Grout: [**Sand-portland cement**] [**Standard sanded cement**] [**Standard unsanded cement**] [**High-performance sanded**] [**High-performance unsanded**] grout.

Glass Tile Installation <**Insert designation**>: TCNA B412; [**thinset mortar**] [**organic adhesive**] [**water-cleanable, tile-setting epoxy**] on cementitious backer units or fiber-cement backer board.

Glass Tile Type: <**Insert tile-type designation**>.

Delete "Thinset Mortar" subparagraph below if organic adhesive or water-cleanable, tile-setting epoxy is used.

Thinset Mortar: [**Standard dry-set**] [**Modified dry-set**] [**Improved modified dry-set**] mortar.

Grout: [**Sand-portland cement**] [**Standard sanded cement**] [**Standard unsanded cement**] [**High-performance sanded**] [**High-performance unsanded**] [**Water-cleanable epoxy**] grout.

Glass Tile Installation <**Insert designation**>: TCNA B419; [**thinset mortar**] [**organic adhesive**] on coated glass-mat, water-resistant gypsum backer board.

Glass Tile Type: <**Insert tile-type designation**>.

Delete "Thinset Mortar" subparagraph below if organic adhesive is used.

Thinset Mortar: [**Standard dry-set**] [**Modified dry-set**] [**Improved modified dry-set**] mortar.

Grout: [**Sand-portland cement**] [**Standard sanded cement**] [**Standard unsanded cement**] [**High-performance sanded**] [**High-performance unsanded**] [**Water-cleanable epoxy**] grout.

* + - * 1. Shower Receptor and Wall Installations:

Glass Tile Installation <**Insert designation**>: TCNA B414 and [**ANSI A108.14**] [**ANSI A108.15**] [**ANSI A108.16**]; cement mortar bed (thickset).

Glass Tile Type: <**Insert tile-type designation**>.

Bond Coat: [**Standard dry-set**] [**Modified dry-set**] [**Improved modified dry-set**] mortar.

Grout: [**Sand-portland cement**] [**Standard sanded cement**] [**Standard unsanded cement**] [**High-performance sanded**] [**High-performance unsanded**] grout.

Glass Tile Installation <**Insert designation**>: TCNA B415; [**thinset mortar**] [**organic adhesive**] [**water-cleanable, tile-setting epoxy**] on [**waterproof membrane over cementitious backer units or fiber-cement backer board**] [**cementitious backer units or fiber-cement backer board over vapor-retarder membrane**].

Glass Tile Type: <**Insert tile-type designation**>.

Delete "Thinset Mortar" subparagraph below if organic adhesive or water-cleanable, tile-setting epoxy is used.

Thinset Mortar: [**Standard dry-set**] [**Modified dry-set**] [**Improved modified dry-set**] mortar.

Grout: [**Sand-portland cement**] [**Standard sanded cement**] [**Standard unsanded cement**] [**High-performance sanded**] [**High-performance unsanded**] [**Water-cleanable epoxy**] grout.

Glass Tile Installation <**Insert designation**>: TCNA B420; thinset mortar on [**waterproof membrane over coated glass-mat, water-resistant gypsum backer board**] [**coated glass-mat, water-resistant gypsum backer board over vapor-retarder membrane**].

Glass Tile Type: <**Insert tile-type designation**>.

Thinset Mortar: [**Modified dry-set**] [**Improved modified dry-set**] mortar.

Grout: [**Sand-portland cement**] [**Standard sanded cement**] [**Standard unsanded cement**] [**High-performance sanded**] [**High-performance unsanded**] [**Water-cleanable epoxy**] grout.

Glass Tile Installation <**Insert designation**>: TCNA B421; thinset mortar on waterproof membrane over solid backing.

Glass Tile Type: <**Insert tile-type designation**>.

Thinset Mortar: [**Modified dry-set**] [**Improved modified dry-set**] mortar.

Grout: [**Sand-portland cement**] [**Standard sanded cement**] [**Standard unsanded cement**] [**High-performance sanded**] [**High-performance unsanded**] grout.

Glass Tile Installation <**Insert designation**>: TCNA B422; thinset mortar on waterproof membrane with integrated bonding flange for bonded membranes.

Glass Tile Type: <**Insert tile-type designation**>.

Thinset Mortar: [**Standard dry-set**] [**Modified dry-set**] [**Improved modified dry-set**] mortar.

Grout: [**Sand-portland cement**] [**Standard sanded cement**] [**Standard unsanded cement**] [**High-performance sanded**] [**High-performance unsanded**] grout.

Insert additional paragraphs for ceilings, countertops, renovations, etc., to suit Project.

END OF SECTION 093023