SECTION 096519 - RESILIENT TILE FLOORING

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:

Solid vinyl floor tile.

Rubber floor tile.

Vinyl composition floor tile.

Resilient terrazzo floor tile.

* + - 1. SUBMITTALS
				1. 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 required.

* + - * 1. Shop Drawings: For each type of resilient floor tile.

Include floor tile layouts, edges, columns, doorways, enclosing partitions, built-in furniture, cabinets, and cutouts.

Show details of special patterns.

Retain "Samples" paragraph below for single-stage Samples, with a subordinate list if applicable. Retain "Samples for Initial Selection" and "Samples for Verification" paragraphs for two-stage Samples.

* + - * 1. Samples: Full-size units of each color, texture, and pattern of floor tile required.

For heat-welding bead, manufacturer's standard-size Samples, but not less than **9 inches** long, of each color required.

* + - * 1. Samples for Initial Selection: For each type of floor tile indicated.
				2. Samples for Verification: Full-size units of each color and pattern of floor tile required.

For heat-welding bead, manufacturer's standard-size Samples, but not less than **9 inches** long, of each color required.

Large-size solid vinyl or rubber floor tile is sometimes specified for seamless installation. Retain "Welded-Seam Samples" paragraph below for heat-welded seams or chemically bonded seams.

* + - * 1. Welded-Seam Samples: For seamless-installation technique indicated and for each floor covering product, color, and pattern required; with seam running lengthwise and in center of **6-by-9-inch** Sample applied to a rigid backing and prepared by Installer for this Project.
				2. Product Schedule: For floor tile.[**Use same designations indicated on Drawings.**]
			1. CLOSEOUT SUBMITTALS
				1. Maintenance Data: For each type of floor tile to include in maintenance manuals.
			2. MAINTENANCE MATERIAL SUBMITTALS
				1. Furnish extra materials[**, from the same product run,**] that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

Revise "Floor Tile" subparagraph below to suit Project.

Floor Tile: Furnish one box for every [**50**] <**Insert number**> boxes or fraction thereof, of each type, color, and pattern of floor tile installed.

* + - 1. QUALITY ASSURANCE
				1. Installer Qualifications: An entity that employs installers and supervisors who are competent in techniques required by manufacturer for floor tile installation and seaming method indicated.

Not all manufacturers train or certify installers. Before retaining subparagraph below, verify availability with manufacturers; retain with "Qualification Data" paragraph in "Informational Submittals" Article.

Engage an installer who employs workers for this Project who are trained or certified by floor tile manufacturer for installation techniques required.

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

Coordinate mockups in this Section with mockups specified in other Sections.

Size: Minimum 100 sq. ft. for each type, color, and pattern [**in locations indicated**] [**in locations directed by Director’s Representative**] <**Insert locations**>.

Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Director’s Representative specifically approves such deviations in writing.

* + - 1. DELIVERY, STORAGE, AND HANDLING
				1. Store floor tile and installation materials in dry spaces protected from the weather, with ambient temperatures maintained within range recommended by manufacturer, but not less than 50 deg F or more than 90 deg F Store floor tiles on flat surfaces.
			2. FIELD CONDITIONS

Ambient temperature range for installation varies among manufacturers. Consult manufacturers for recommendations and revise first paragraph below to suit Project.

* + - * 1. Maintain ambient temperatures within range recommended by manufacturer, but not less than **70 deg F** or more than **95 deg F** in spaces to receive floor tile during the following periods:

48 hours before installation.

During installation.

48 hours after installation.

* + - * 1. After installation and until Substantial Completion, maintain ambient temperatures within range recommended by manufacturer, but not less than **55 deg F** more than **95 deg F**.
				2. Close spaces to traffic during floor tile installation.
				3. Close spaces to traffic for 48 hours after floor tile installation.
				4. Install floor tile after other finishing operations, including painting, have been completed.
1. PRODUCTS
	* + 1. PERFORMANCE REQUIREMENTS

Retain "Fire-Test-Response Characteristics" paragraph below if fire-test-response testing is required by authorities having jurisdiction. In most building codes, resilient flooring is exempt from fire-test-response requirements. See "Fire-Test-Response Characteristics" Article in the Evaluations for additional information.

* + - * 1. Fire-Test-Response Characteristics: For resilient floor tile, as determined by testing identical products according to ASTM E648 or NFPA 253 by a qualified testing agency.

Critical Radiant Flux Classification: Class I, not less than 0.45 W/sq. cm.

* + - 1. SOLID VINYL FLOOR TILE <**Insert drawing designation**>

Copy this article and re-edit for each product.

Insert drawing designation. Use these designations on Drawings to identify each product.

* + - * 1. Tile Standard: ASTM F1700.

Class: [**As indicated by product designations**] [**Class I, Monolithic Vinyl Tile**] [**Class II, Surface-Decorated Vinyl Tile**] [**Class III, Printed Film Vinyl Tile**].

Type: [**A, Smooth Surface**] [**B, Embossed Surface**].

* + - * 1. Thickness: [**0.080 inch** ] [**0.100 inch**] [**0.120 inch**] [**0.125 inch**] <**Insert dimension**>.

Tiles do not have to be square shaped. If other shapes are required, insert requirements in "Size" paragraph below.

* + - * 1. Size: [**12 by 12 inches**] [**18 by 18 inches**] [**24 by 24 inches**] [**36 by 36 inches**] [**3 by 36 inches**] <**Insert dimensions**>.

Retain "Seamless-Installation Method" paragraph below for seamless installation. Generally, only some large-size tiles can be heat welded or chemically bonded. See "Product Characteristics" Article in the Evaluations for a discussion of seamless installation.

* + - * 1. Seamless-Installation Method: [**Heat welded**] [**Chemically bonded**] <**Insert requirements**>.

Retain "Color and Patterns" paragraph below if colors and patterns are not indicated in a separate schedule.

* + - * 1. Colors and Patterns: [**As indicated by manufacturer's designations**] [**Match Approved samples**] <**Insert colors and patterns**>.

The following is specific tile required by The Office Of Children and Family Services.

* + - * 1. Vinyl Tile Flooring: FS L-F-475, Type II, Grade A, through-wearing- surface pattern; 36 inch x 36 inch tiles, minimum 3/16 inch overall thickness.

Patterns and Colors: Mohawk Group Hot & Heavy Series, Recycled vinyl tile flooring, Pattern is as shown on drawings and color to be Bolder 925 Pebble as selected from manufacturer's standard.

* + - 1. RUBBER FLOOR TILE <**Insert drawing designation**>

Copy this article and re-edit for each product.

Insert drawing designation. Use these designations on Drawings to identify each product.

* + - * 1. Tile Standard: ASTM F1344, [**Class I-A, Homogeneous Rubber Tile, solid color**] [**Class I-B, Homogeneous Rubber Tile, through mottled**] [**Class II-A, Laminated Rubber Tile, solid-color wear layer**] [**Class II-B, Laminated Rubber Tile, mottled wear layer**].

See "Rubber Floor Tile" Article in the Evaluations for a discussion of hardness values.

* + - * 1. Hardness: [**Grade 1, minimum hardness of 85**] [**Grade 2, minimum hardness of 70**] [**Manufacturer's standard hardness**], measured using Shore, Type A durometer according to ASTM D2240.
				2. Wearing Surface: [**Smooth**] [**Textured**] [**Molded pattern**].

Molded-Pattern Figure: [**Raised discs**] [**Raised squares**] <**Insert pattern**>.

For molded-pattern (raised-pattern) rubber tile, overall thickness is generally measured at the thickest cross-sectional area of the flooring product. Revise "Thickness" paragraph below to include overall thickness for molded-pattern rubber tile.

* + - * 1. Thickness: [**0.125 inch**] <**Insert dimension**>.
				2. Size: [**12 by 12 inches**] [**24 by 24 inches**] <**Insert dimensions**>.

Retain "Seamless-Installation Method" paragraph below for seamless installation. Generally, only some large-size tiles can be heat welded or chemically bonded. See "Product Characteristics" Article in the Evaluations for a discussion of seamless installation.

* + - * 1. Seamless-Installation Method: [**Heat welded**] [**Chemically bonded**] <**Insert requirements**>.

Retain "Colors and Patterns" paragraph below if colors and patterns are not indicated in a separate schedule.

* + - * 1. Colors and Patterns: [**As indicated by manufacturer's designations**] [**Match Approved samples**] <**Insert colors and patterns**>.
			1. VINYL COMPOSITION FLOOR TILE <**Insert drawing designation**>

Copy this article and re-edit for each product.

Insert drawing designation. Use these designations on Drawings to identify each product.

* + - * 1. Tile Standard: ASTM F1066, [**Class 1, solid color**] [**Class 2, through pattern**] [**Class 3, surface pattern**].
				2. Wearing Surface: [**Smooth**] [**Embossed**].

A limited number of products are available in 3/32- and 3/16-inch thicknesses; if applicable, insert in "Thickness" paragraph below.

* + - * 1. Thickness: [**0.125 inch**] <**Insert dimension**>.
				2. Size: 12 by 12 inches.

Retain "Colors and Patterns" paragraph below if colors and patterns are not indicated in a separate schedule.

* + - * 1. Colors and Patterns: [**As indicated by manufacturer's designations**] [**Match Approved samples**] <**Insert colors and patterns**>.
			1. RESILIENT TERRAZZO FLOOR TILE <**Insert drawing designation**>

Copy this article and re-edit for each product.

Insert drawing designation. Use these designations on Drawings to identify each product.

* + - * 1. Resilient Terrazzo Floor Tile: Marble or granite chips embedded in flexible, thermoset-polyester-resin matrix; electrically nonconductive and chemical, oil, and corrosion resistive, with smooth wearing surface and manufacturer's standard factory-applied, protective coating.
				2. Thickness: [**1/8 inch**] [**3/16 inch**].

12-by-12-inch tiles are available from Stonhard. 24-by-24-inch and 24-by-48 inch tiles are available from Mats and can be chemically welded for a seamless installation.

* + - * 1. Size: [**12 by 12 inches**] [**24 by 24 inches**] [**24 by 48 inches**].

Retain "Seamless-Installation Method" paragraph below for seamless installation. See "Product Characteristics" Article in the Evaluations for a discussion of seamless installation.

* + - * 1. Seamless-Installation Method: Chemically bonded.
				2. Accessories:

Base: [**3 inches**] [**4 inches**] [**6 inches** ] tall.

Type: [**Sanitary, coved**] [**Straight**].

Divider strips.

<**Insert accessory**>.

Retain "Colors and Patterns" paragraph below if colors and patterns are not indicated in a separate schedule.

* + - * 1. Colors and Patterns: [**As indicated by manufacturer's designations**] [**Match Approved samples**] <**Insert colors and patterns**>.
			1. INSTALLATION MATERIALS
				1. Trowelable Leveling and Patching Compounds: Latex-modified, portland-cement-based or blended hydraulic-cement-based formulation provided or approved by floor tile manufacturer for applications indicated.
				2. Adhesives: Water-resistant type recommended by floor tile and adhesive manufacturers to suit floor tile and substrate conditions indicated.
				3. Seamless-Installation Accessories:

Heat-Welding Bead: Manufacturer's solid-strand product for heat welding seams.

Colors: [**As selected by Director’s Representative from manufacturer's full range to contrast with floor tile**] [**Match floor tile**] <**Insert colors**>.

Chemical-Bonding Compound: Manufacturer's product for chemically bonding seams.

Retain "Floor Polish" paragraph below for use with most vinyl composition floor tile and some solid vinyl floor tile. Liquid floor polish is generally used instead of paste wax. See "Maintenance Procedures" Article in the Evaluations for additional information.

* + - * 1. Floor Polish: Provide protective, liquid floor-polish products recommended by floor tile manufacturer.

Retain "Joint Sealant for Resilient Terrazzo Floor Tile" paragraph below for resilient terrazzo floor tile by Stonhard.

* + - * 1. Joint Sealant for Resilient Terrazzo Floor Tile: Silicone sealant of type and grade recommended in writing by floor tile manufacturer to suit resilient terrazzo floor tile.

Joint-Sealant Color: [White] [As selected by Director’s Representative from manufacturer's full range to match floor tile] [Match floor tile] <Insert color>.

Retain "Sealers and Finish Coats for Resilient Terrazzo Floor Tile" paragraph below for resilient terrazzo floor tile.

* + - * 1. Sealers and Finish Coats for Resilient Terrazzo Floor Tile: Products recommended by floor tile manufacturer for resilient terrazzo floor tile.
1. EXECUTION
	* + 1. EXAMINATION

Coordinate requirements specified in other Sections for substrate construction and tolerances to ensure that they are appropriate for floor tile.

* + - * 1. Examine substrates, with Installer present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.

Verify that finishes of substrates comply with tolerances and other requirements specified in other Sections and that substrates are free of cracks, ridges, depressions, scale, and foreign deposits that might interfere with adhesion of floor tile.

* + - * 1. Proceed with installation only after unsatisfactory conditions have been corrected.
			1. PREPARATION

Extensive surface preparation is required over substrates from which existing flooring has been removed. Requirements vary among manufacturers. Insert requirements to suit Project.

* + - * 1. Prepare substrates according to floor tile manufacturer's written instructions to ensure adhesion of resilient products.
				2. Concrete Substrates: Prepare according to ASTM F710.

Verify that substrates are dry and free of curing compounds, sealers, and hardeners.

Remove substrate coatings and other substances that are incompatible with adhesives and that contain soap, wax, oil, or silicone, using mechanical methods recommended by floor tile manufacturer. Do not use solvents.

Alkalinity and Adhesion Testing: Perform tests recommended by floor tile manufacturer. Proceed with installation only after substrate alkalinity falls within range on pH scale recommended by manufacturer in writing, but not less than 5 or more than [**9**] [**10**] <**Insert number**> pH.

Retain "Moisture Testing" subparagraph below; excessive moisture vapor can cause failure of resilient products adhered to concrete. ASTM F1869 (anhydrous calcium chloride test) and ASTM F2170 (relative humidity test) both recommend one test per 1000 sq. ft., but no fewer than three tests per test area.

Moisture Testing: Perform tests so that each test area does not exceed [**200 sq. ft.**] [**1000 sq. ft**] <**Insert area**>, and perform no fewer than three tests in each installation area and with test areas evenly spaced in installation areas.

Retain "Anhydrous Calcium Chloride Test" or "Relative Humidity Test" subparagraph below, or both.

When tested according to ASTM F1869, a maximum moisture-emission level of 3 lb of water/1000 sq. ft. of slab area in a 24-hour period is generally accepted in resilient flooring industry.

Anhydrous Calcium Chloride Test: ASTM F1869. Proceed with installation only after substrates have maximum moisture-vapor-emission rate of [**3 lb of water/1000 sq. ft.**] <**Insert rate**> in 24 hours.

Relative Humidity Test: Using in-situ probes, ASTM F2170. Proceed with installation only after substrates have a maximum [**75**] <**Insert number**> percent relative humidity level measurement.

Retain "Access Flooring Panels" paragraph below for floor tile installed on access flooring.

* + - * 1. Access Flooring Panels: Remove protective film of oil or other coating using method recommended by access flooring manufacturer.
				2. Fill cracks, holes, and depressions in substrates with trowelable leveling and patching compound; remove bumps and ridges to produce a uniform and smooth substrate.
				3. Do not install floor tiles until materials are the same temperature as space where they are to be installed.

At least 48 hours in advance of installation, move resilient floor tile and installation materials into spaces where they will be installed.

* + - * 1. Immediately before installation, sweep and vacuum clean substrates to be covered by resilient floor tile.
			1. FLOOR TILE INSTALLATION
				1. Comply with manufacturer's written instructions for installing floor tile.
				2. Lay out floor tiles from center marks established with principal walls, discounting minor offsets, so tiles at opposite edges of room are of equal width. Adjust as necessary to avoid using cut widths that equal less than one-half tile at perimeter.

Lay tiles [**square with room axis**] [**at a 45-degree angle with room axis**] [**in pattern indicated**] <**Insert requirements**>.

* + - * 1. Match floor tiles for color and pattern by selecting tiles from cartons in the same sequence as manufactured and packaged, if so numbered. Discard broken, cracked, chipped, or deformed tiles.

Lay tiles [**with grain running in one direction**] [**with grain direction alternating in adjacent tiles (basket-weave pattern)**] [**in pattern of colors and sizes indicated**].

If built-in items are required to be set on top of floor tile, indicate on Drawings and revise first paragraph below.

* + - * 1. Scribe, cut, and fit floor tiles to butt neatly and tightly to vertical surfaces and permanent fixtures including built-in furniture, cabinets, pipes, outlets, and door frames.
				2. Extend floor tiles into toe spaces, door reveals, closets, and similar openings. Extend floor tiles to center of door openings.
				3. Maintain reference markers, holes, and openings that are in place or marked for future cutting by repeating on floor tiles as marked on substrates. Use chalk or other nonpermanent marking device.

Retain first paragraph below for floor tile installed on floor covers.

* + - * 1. Install floor tiles on covers for telephone and electrical ducts, building expansion-joint covers, and similar items in installation areas. Maintain overall continuity of color and pattern between pieces of tile installed on covers and adjoining tiles. Tightly adhere tile edges to substrates that abut covers and to cover perimeters.

Revise first paragraph below if other-than-full-spread adhesive method is recommended by manufacturer for substrate and tile products.

* + - * 1. Adhere floor tiles to substrates using a full spread of adhesive applied to substrate to produce a completed installation without open cracks, voids, raising and puckering at joints, telegraphing of adhesive spreader marks, and other surface imperfections.

Retain "Seamless Installation" paragraph below if required.

* + - * 1. Seamless Installation:

Heat-Welded Seams: Comply with ASTM F1516. Rout joints and heat weld with welding bead to fuse sections permanently into a seamless flooring installation. Prepare, weld, and finish seams to produce surfaces flush with adjoining flooring surfaces.

Chemically Bonded Seams: Bond seams with chemical-bonding compound to fuse sections permanently into a seamless flooring installation. Prepare seams and apply compound to produce tightly fitted seams without gaps, overlays, or excess bonding compound on flooring surfaces.

* + - * 1. Resilient Terrazzo Accessories: Install according to manufacturer's written instructions.
			1. CLEANING AND PROTECTION
				1. Comply with manufacturer's written instructions for cleaning and protecting floor tile.
				2. Perform the following operations immediately after completing floor tile installation:

Remove adhesive and other blemishes from surfaces.

Sweep and vacuum surfaces thoroughly.

Damp-mop surfaces to remove marks and soil.

* + - * 1. Protect floor tile from mars, marks, indentations, and other damage from construction operations and placement of equipment and fixtures during remainder of construction period.

Before retaining "Floor Polish" paragraph below, verify manufacturer's written instructions for floor polish. Floor polish is used with most vinyl composition floor tile and some solid vinyl floor tile.

* + - * 1. Floor Polish: Remove soil, adhesive, and blemishes from floor tile surfaces before applying liquid floor polish.

Revise subparagraph below to suit products.

Apply [**one**] [**two**] [**three**] <**Insert requirements**> coat(s).

Retain "Joint Sealant" paragraph below for resilient terrazzo floor tile by Stonhard.

* + - * 1. Joint Sealant: Apply sealant to resilient terrazzo floor tile perimeter and around columns, at door frames, and at other joints and penetrations.

Retain "Sealers and Finish Coats" paragraph below for resilient terrazzo floor tile.

* + - * 1. Sealers and Finish Coats: Remove soil, visible adhesive, and surface blemishes from resilient terrazzo floor tile surfaces before applying liquid cleaners, sealers, and finish products.

Sealer: Apply two base coats of liquid sealer.

Finish: Apply [**two**] [**three**] <**Insert requirements**> coats of liquid floor finish.

* + - * 1. Cover floor tile until Substantial Completion.

END OF SECTION 096519