SECTION 09 6519 - RESILIENT TILE FLOORING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Solid vinyl floor tile.
2. Rubber floor tile.
3. Vinyl composition floor tile.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. LEED Submittals:

1. Product Data for Credit IEQ 4.1: For adhesives, sealants and chemical-bonding compounds, documentation including printed statement of VOC content.
2. Product Data for Credit IEQ 4.3: For adhesives and chemical-bonding compounds, documentation including printed statement of VOC content.
3. Product Data for Credit IEQ 4.3: For resilient tile flooring, documentation from an independent testing agency indicating compliance with the FloorScore standard.

C. Shop Drawings: For each type of floor tile. Include floor tile layouts, edges, columns, doorways, enclosing partitions, built-in furniture, cabinets, and cutouts.

1. Show details of special patterns.

D. Samples: Full-size units of each color and pattern of floor tile required.

1. For heat-welding bead, manufacturer's standard-size Samples, but not less than 9 inches (230 mm) long, of each color required.

E. Samples for Initial Selection: For each type of floor tile indicated.

F. Samples for Verification: Full-size units of each color and pattern of floor tile required.

1. For heat-welding bead, manufacturer's standard-size Samples, but not less than 9 inches (230 mm) long, of each color required.

G. Welded-Seam Samples: For seamless-installation technique indicated and for each flooring product, color, and pattern required; with seam running lengthwise and in center of 6-by-9-inch (150-by-230-mm) Sample applied to a rigid backing and prepared by Installer for this Project.

H. Product Schedule: For floor tile. Use same designations indicated on Drawings.

1.4 INFORMATIONAL SUBMITTALS

A. Qualification Data: For Installer.

1.5 CLOSEOUT SUBMITTALS

A. Maintenance Data: For each type of floor tile to include in maintenance manuals.

1.6 MAINTENANCE MATERIAL SUBMITTALS

A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Floor Tile: Furnish one box for every 50 boxes or fraction thereof, of each type, color, and pattern of floor tile installed.

1.7 QUALITY ASSURANCE

A. Comply with the most current edition of the Northwestern University Design Standards.

B. Installer Qualifications: A qualified installer who employs workers for this Project who are competent in techniques required by manufacturer for floor tile installation and seaming method indicated.

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

1.8 DELIVERY, STORAGE, AND HANDLING

A. 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 65 deg F or more than 85 deg F. Store floor tiles on flat surfaces.

1.9 FIELD CONDITIONS

A. Maintain ambient temperatures within range recommended by manufacturer, but not less than 65 deg F or more than 85 deg F, in spaces to receive floor tile during the following time periods:

1. 48 hours before installation.
2. During installation.
3. 48 hours after installation.

B. After installation and until Substantial Completion, maintain ambient temperatures within range recommended by manufacturer, but not less than 55 deg F or more than 85 deg F.

C. Close spaces to traffic during floor tile installation.

D. Close spaces to traffic for 48 hours after floor tile installation.

E. Install floor tile after other finishing operations, including painting, have been completed.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Fire-Test-Response Characteristics: For resilient tile flooring, as determined by testing identical products according to ASTM E 648 or NFPA 253 by a qualified testing agency.

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

B. FloorScore Compliance: Resilient tile flooring shall comply with requirements of FloorScore certification.

2.2 SOLID VINYL FLOOR TILE

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Armstrong World Industries, Inc.
2. Burke Mercer Flooring Products; a division of Burke Industries Inc.
3. Flexco.
4. Roppe Corporation, USA.
5. Shaw Contract Group; a Berkshire Hathaway company.

B. Tile Standard: ASTM F 1700.

1. Class: Class I, monolithic vinyl tile.
2. Type: A, smooth surface.

C. Thickness: 0.125 inch (3.2 mm).

D. Size: [**12 by 12 inches (305 by 305 mm)**] [**18 by 18 inches (457 by 457 mm)**] [**24 by 24 inches (610 by 610 mm)**] [**36 by 36 inches (914 by 914 mm)**] [**3 by 36 inches (76 by 914 mm)**].

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

F. Colors and Patterns: As selected by Architect from full range of industry colors.

G. Test Data:

1. Flexibility, ASTM F 137: Passes with no cracks/breaks around 1 inch mandrel.
2. Dimensional Stability, ASTM F 2199: 0.020 in./lin. ft maximum.
3. Resistance to heat, ASTM F 1514: Passes with $\Delta E \leq 8$.
4. Resistance to light, ASTM F 1515: Passes with $\Delta E \leq 8$.
5. Static Coefficient of Friction, ASTM D 2047: Minimum 0.6 SCOF.

6. Resistance to Chemicals, ASTM F 925: Passes.
7. Static Load Limit, ASTM F 970: Passes 250 psi with no greater than 0.005 inch residual indentation.
8. Residual Indentation. ASTM F 1914: Passes.

2.3 RUBBER FLOOR TILE

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Flexco.
2. Johnsonite; A Tarkett Company.
3. Mondo America Inc.
4. Nora Rubber Flooring, Freudenberg Building Systems, Inc.
5. R.C.A. Rubber Company (The).
6. Roppe Corporation, USA.

B. Tile Standard: ASTM F 1344, Class I-B, homogeneous rubber tile, through mottled.

C. Hardness: Not less than 85 as required by ASTM F 1344, measured using Shore, Type A durometer per ASTM D 2240.

D. Wearing Surface: Smooth.

E. Thickness: 0.125 inch (3.2 mm).

F. Size: <**Insert dimensions**>.

G. Colors and Patterns: As selected by Architect from full range of industry colors.

H. Test Data:

1. Hardness, ASTM D 2240: Passes with minimum 85 shore A.
2. Abrasion Resistance, ASMT D 3389: Less than 1 gram loss after 1000 cycles.
3. Dimensional Stability, ASTM D 3389: Does not exceed 15%.
4. Squareness, ASTM F 2055: Maximum 0.010 inches.
5. Resistance to heat, ASTM F 1514: Passes with DE≤8.
6. Static Coefficient of Friction, ASTM D 2047: Minimum 0.8 SCOF.
7. Resistance to Chemicals, ASTM F 925: Passes.
8. Static Load Limit, ASTM F 970: Passes 250 psi with no greater than 0.005 inch residual indentation.

2.4 VINYL COMPOSITION FLOOR TILE

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Armstrong World Industries, Inc.
2. Azrock.
3. Congoleum Corporation.
4. Mannington.
5. Tarkett.

B. Tile Standard: ASTM F 1066, [**Class 1, solid-color**] [**Class 2, through-pattern**] [**Class 3, surface-pattern**] tile.

C. Wearing Surface: Smooth.

D. Thickness: 0.125 inch (3.2 mm).

E. Size: 12 by 12 inches (305 by 305 mm).

F. Colors and Patterns: As selected by Architect from full range of industry colors.

G. Test Data:

1. Dimensional Stability, ASTM D 3389: Does not exceed 0.024 inches per linear foot, maximum.
2. Resistance to heat, ASTM F 1514: Passes with ΔE≤8.
3. Squareness, ASTM F 2055: Maximum 0.010 inches.
4. Static Coefficient of Friction, ASTM D 2047: Minimum 0.5 SCOF.
5. Resistance to Chemicals, ASTM F 925: Passes.
6. Static Load Limit, ASTM F 970: Passes 150 psi with no greater than 0.005 inch residual indentation.
7. Residual Indentation. ASTM F 1914: Passes.

2.5 INSTALLATION MATERIALS

A. 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.

B. Adhesives: Water-resistant type recommended by floor tile and adhesive manufacturers to suit floor tile and substrate conditions indicated.

1. Adhesives shall comply with the following limits for VOC content:

a. Vinyl Composition Tile Adhesives: 50 g/L or less.
b. Rubber Floor Adhesives: 60 g/L or less.

C. Seamless-Installation Accessories:

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

a. Color: Match floor tile.

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

PART 3 - EXECUTION

3.1 EXAMINATION

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

1. 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.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Prepare substrates according to floor tile manufacturer's written instructions to ensure adhesion of resilient products.

B. Concrete Substrates: Prepare according to ASTM F 710.

1. Verify that substrates are dry and free of curing compounds, sealers, and hardeners.
2. 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.
3. 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 pH.
4. Moisture Testing: Proceed with installation only after substrates pass testing according to floor tile manufacturer's written recommendations, but not less stringent than the following:

a. Perform anhydrous calcium chloride test according to ASTM F 1869. Proceed with installation only after substrates have maximum moisture-vapor-emission rate of 3 lb of water/1000 sq. ft. (1.36 kg of water/92.9 sq. m) in 24 hours.
b. Perform relative humidity test using in situ probes according to ASTM F 2170. Proceed with installation only after substrates have a maximum 75 percent relative humidity level.

C. Fill cracks, holes, and depressions in substrates with trowelable leveling and patching compound; remove bumps and ridges to produce a uniform and smooth substrate.

D. Do not install floor tiles until they are the same temperature as the space where they are to be installed.

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

E. Immediately before installation, sweep and vacuum clean substrates to be covered by resilient floor tile.

3.3 FLOOR TILE INSTALLATION

A. Comply with manufacturer's written instructions for installing floor tile.

B. 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.

1. Lay tiles <**Insert requirements**>.

C. 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.

1. Lay tiles with grain direction alternating in adjacent tiles (basket-weave pattern).

D. 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.

E. Extend floor tiles into toe spaces, door reveals, closets, and similar openings. Extend floor tiles to center of door openings.

F. 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.

G. Install floor tiles on covers for telephone and electrical ducts, building expansion-joint covers, and similar items in finished floor 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.

H. Adhere floor tiles to flooring 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.

I. Seamless Installation:

1. Heat-Welded Seams: Comply with ASTM F 1516. Rout joints and heat weld with welding bead to permanently fuse sections into a seamless flooring. Prepare, weld, and finish seams to produce surfaces flush with adjoining flooring surfaces.

3.4 CLEANING AND PROTECTION

A. Comply with manufacturer's written instructions for cleaning and protecting floor tile.

B. Initial Cleaning and Sealing: Dry-mop, removing all dust and debris. Clean surface with a neutral cleaner using green pad and floor machine. Clean with a fine abrasive where necessary to remove any stains or cement smears. Clean edges, baseboards, door jambs, and corners using a Doodle Bug pad and holder with a green pad. Pick up all solutions using a wet/dry vacuum. Thoroughly rinse twice with clear water.

C. Sealing: Where required, apply two coats of water-based sealer and 3 coats of water-based finish using a fine strand rayon mop. Allow a minimum of 45 minutes between coats. All prior

coats shall be dry to the touch before any subsequent coats are applied. Apply first coat of sealer and first coat of finish wall to wall. Stop subsequent coats of sealer and finish 1-inch from baseboards, door jambs, and other vertical edges.

D. Protection: Cover floor surface, and protect from soiling, staining, marring, scratching, and other damage. Construction traffic, including foot traffic, is strictly prohibited on completed surface. Maintain protection until final completion unless floor is put into service at time of substantial completion.

END OF SECTION 09 6519