

SECTION 09 65 19 - RESILIENT TILE FLOORING

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes:
 - 1. Vinyl composition tile (VCT).
 - 2. Luxury Vinyl Tile (LVT).
 - 3. Vestibule luxury vinyl tile (V-LVT).
 - 4. Resilient tile flooring adhesive.
 - 5. Trowelable leveling and patching compounds.

1.2 SUBMITTALS

- A. Product Data: For each product indicated.
- B. Samples: Manufacturer's standard size units (approximately 2-inch (51 mm) square) of each color and pattern of resilient floor tile required.

1.3 PROJECT CONDITIONS

- A. Maintain temperatures within range recommended by manufacturer, but not less than 70 deg F (21 deg C) or more than 95 deg F (35 deg C), 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 post-installation period, maintain temperatures within range recommended by manufacturer, but not less than 55 deg F (13 deg C) or more than 95 deg F (35 deg C).
- C. Close spaces to traffic during floor covering installation.

1.4 EXTRA MATERIALS

- A. Furnish one unopened box of each type, color, and pattern of floor tile installed that are packaged with protective covering for storage. Identify with labels describing contents and store with other extra materials.

1.5 WARRANTY

- A. Warranty information for resilient tile flooring is specified in Division 01 Section "Product Warranties."
 - 1. Verify that all products used for the flooring installation (tile, patch, leveling compound, adhesive, etc.) are compatible/acceptable by each manufacturer and will not void any warranties.

PART 2 - PRODUCTS

2.1 VINYL COMPOSITION TILE

- A. Vinyl Composition Tile (VCT): ASTM F 1066.
 - 1. Products: Refer to Division 01 Interior Finishes and Colors Sections
 - 2. Critical Radiant Flux Classification: Class I, not less than 0.45 W/sq. cm per ASTM E 648.
 - 3. Smoke Developed: ASTM E 662 450 or less.
 - 4. Size: 12 inches (305 mm) by 12 inches (305 mm) unless otherwise indicated.
 - 5. Thickness: 0.125 inches (3.2 mm) overall (nominal).

2.2 LUXURY VINYL TILE

- A. Luxury Vinyl Tile (LVT): ASTM F 1700 Class III, Type B.
 - 1. Products: Refer to Division 01 Interior Finishes and Colors Sections.
 - 2. Critical Radiant Flux Classification: Class I, not less than 0.45 W/sq. cm per ASTM E 648.
 - 3. Smoke Developed: ASTM E 662 450 or less.
 - 4. Size: As specified in Division 01 Section "Décor Interior Finishes and Colors."
 - 5. Thickness: 0.125 inches (3.2 mm) overall (nominal).
- B. Vestibule Luxury Vinyl Tile (V-LVT): ASTM F 1700.
 - 1. Product: Refer to Division 01 Interior Finishes and Colors Sections.
 - a. Contact: Refer to Division 01 Section "Vendor Contact List."
 - b. No substitutions allowed.
 - 2. Gauge: 2.5 mm, wear layer 0.7mm.
 - 3. Size: 152 mm by 914 mm.
 - 4. Lifetime polish free.
 - 5. Static Coefficient of Friction (ASTM D2047): Less than 0.5.
 - 6. 100 percent recyclable and contains average 40 percent recycled material.

2.3 INSTALLATION MATERIALS

- A. Moisture Mitigation and Primer (For Areas Other than Vestibule Flooring: ASTM F3010, Solvent-free two-part epoxy.
1. General: Provide for areas where RH levels are tested higher than recommended for adhesives needed exhibiting MVER up to 16 lbs and RH up to 100 percent to suitable levels before applying underlayment.
 2. Product: As recommended by resilient flooring adhesive manufacturer.
 - a. Submit product data, resilient flooring adhesive manufacturer approval, and concrete testing results to Architect and Owner for approval.
 3. Volumes Solids: 100 percent.
 4. Minimum Dry Film Thickness: 10 mils (0.254 mm) per coat.
 5. Walkable: 2 to 3 hours
 6. Compressive Strength: Minimum 5,500 psi (385 kg/cm²) at 28 days, ASTM C109M.
 7. Flexural Strength: 1,200 psi (84 kg/cm²) at 28 days, ASTM C348.
 8. VOC Content: 0 grams per liter.
- B. Trowelable Leveling and Patching Compounds: Latex-modified, portland cement based or blended hydraulic cement-based formulation provided or approved by resilient product manufacturer for applications indicated.
1. Products: As manufactured or recommended by resilient flooring adhesive manufacturer and resilient product manufacturer.
 - a. Submit product data and resilient flooring adhesive and resilient product manufacturer approval to Architect and Owner for approval.
 - b. Submit moisture mitigation and primer manufacturer approval as applicable to Architect and Owner for approval.
 2. Alternate Product: For use with Henry adhesives:
 - a. ARDEX Americas; ARDEX MRF.
- C. Trowelable Leveling and Patching Compound for Vestibule Luxury Vinyl Tile (V-LVT): Polymer-modified, Portland/CSA cement-based formulation.
1. Product: Aquaflex, Inc.; Patch and Skim mixed with Aquaflex 1+1 Polymer.
 - a. No substitutions allowed.
 2. Solids: 100 percent.
 3. VOC Content: 0 g/L
- D. Adhesives:
1. **AD-1** - Adhesive for Vinyl Composition Tile (VCT): Water-based/latex resin, water-resistant type with 50 g/L VOC content or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24) as recommended by manufacturer to suit resilient products and substrate conditions indicated and to assure full warranty protection.

- a. General: Provide product manufactured by or approved by resilient flooring manufacturer.
 - b. Products:
 - 1) AHF Products, LLC; Armstrong Flooring Brand; S-515 Floor Tile Adhesive.
 - 2) Tarkett North America; Tarkett 100 Clear Thin Spread Adhesive
 - c. Traffic Restrictions (Cure Time): Allow at least 24 hours for foot traffic and 72 hours for rolling traffic after installation of flooring.
 - d. Cleaning Restrictions: Floors may be wet washed or auto-scrubbed a minimum of 96 hours after installation.
2. **AD-2** - Adhesive for Luxury Vinyl Tile (LVT): Modified urethane with VOC Content of less than 14 g/L; calculated and reported, SCAQMD 1168 recommended by manufacturer to suit LVT resilient products and substrate conditions indicated and to assure full warranty protection.
 - a. General: Provide product manufactured by or approved by resilient flooring manufacturer.
 - b. Products:
 - 1) AHF Products, LLC; Armstrong Flooring Brand; S-1000 Adhesive.
 - 2) Henry; A Brand of Ardex Americas; 647 PlumPro.
 - 3) Mohawk Group; Performance Accessories Collection, Total Bond Resilient Flooring Adhesive.
 - c. Installation Requirements: Adhesive requires rolling the floor in two directions with a **100-lb. (45 kg)** roller per manufacturer's instructions after installation of tile.
 - d. Traffic Restrictions (Cure Time): Allow at least 3 hours for light foot traffic, 4 hours for heavy foot traffic, 6 hours for shopping carts (**150 lbs. (68 kg)**) and 8 hours for heavy rolling loads after installation of flooring.
 - e. Cleaning Restrictions: Floor may be wet washed or auto-scrubbed the minimum number of hours as recommended by flooring adhesive manufacturer, but no less than 6 hours after installation and rolling floor.
3. **AD-3** - Adhesive for Vestibule Luxury Vinyl Tile (V-LVT):
 - a. Liquid Adhesive: 100 percent solids, zero VOC, moisture curable flooring adhesive.
 - 1) Product: Aquaflex, Inc.; Aquaflex Waterproof Adhesive.
 - a) No substitutions allowed.
 - 2) Installation Requirements: Adhesive requires rolling the floor in two directions with a **100-lb. (45 kg)** roller per manufacturer's instructions after installation of tile.
 - 3) Traffic Restrictions (Cure Time): Allow at least 3 hours for foot traffic and 12 hours for rolling traffic after installation of flooring.

4. **AD-4:** Adhesive for Vinyl Composition Tile (VCT) and Luxury Vinyl Tile (LVT) for Use with Remodel Phasing Requiring Near Immediate Foot Traffic/Use:
 - a. General: Provide product manufactured by or approved by resilient flooring manufacturer.
 - 1) AHF Products, LLC; Armstrong Flooring Brand; Flip Spray Adhesive.
 - 2) Tarkett North America; Tarkett SpraySmart 901 Spray Adhesive100.
 - 3) Mohawk Group; MS160 Aerosol Resilient Adhesive.
 - b. Coverage:
 - 1) Vinyl Composition Tile (VCT): Do not exceed 185 sq. ft. (17 sq.m) per 22 oz. (0.65 l) can.
 - 2) Luxury Tile (LVT): Do not exceed 150 sq. ft. (14 sq. m) per 22 oz. (0.65 l) can.
 - c. VOC Content: 0 g/L.
 - d. Traffic Restrictions (Cure Time): After rolling, immediately after installation of flooring.
 - e. Cleaning Restrictions: Floors may be wet washed or auto-scrubbed a minimum of 72 hours after installation.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions where installation of resilient products will occur, with installer present, for compliance with manufacturer's requirements. Verify that substrates and conditions are satisfactory for resilient product installation and comply with requirements specified.
 1. Prior to existing floor tile removal, identify on a floor covering plan locations of the following conditions:
 - a. Failure of underlayment.
 - b. Burning of tile during floor care
 - c. Telescoping of construction joints through existing tile.
 - d. Telescoping of other imperfections through existing tile.

3.2 PREPARATION

- A. Prepare substrates according to manufacturer's written recommendations to ensure adhesion of resilient products.
 1. Refer to Division 02 Section "Resilient Floor Tile and Mastic Removal" for existing adhesive removal requirements.
- B. Concrete Substrates: Prepare according to ASTM F 710 and ASTM F3191 (porosity).

1. Concrete substrate must be deemed porous per ASTM F3191. Place a bead of water on the concrete surface about the size of a dime and observe. If the water absorbs into the concrete with-in 1 minute it is porous, if it does not absorb, provide additional sanding, abrasive work, or other measures to insure proper porosity.
2. Provide dry, clean, smooth and structurally sound concrete substrate free of depressions, scale, or foreign deposits.
 - a. Provide surface free of dust, solvents, varnish, paint, wax, oil, grease, sealers, curing compounds, residual adhesive, adhesive removers, and other foreign materials that might affect the adhesion of resilient flooring to the substrate or cause a discoloration of the flooring from below.
 - b. Do not use spray paints, permanent markers, or other indelible ink markers to write on the back of the flooring material or mark the substrate as they could bleed through, telegraphing up to the surface and permanently staining the flooring material.
 - c. Mechanically remove any contaminants that are present on the substrate prior to the installation of the flooring material.
 - 1) In renovation or remodel work, remove any existing adhesive residue so that 100 percent of the overall area of the original substrate is exposed when installing LVT. Do not use solvents. Refer to Division 2 Section " Resilient Floor Tile and Mastic Removal" for adhesive removal procedures.
3. Alkalinity and Adhesion Testing: Perform tests recommended by manufacturer. Proceed with installation only after substrates pass testing.
4. Moisture Testing (Not Required for Vestibules or LVT installed with adhesive AD-3):
 - a. Perform tests recommended by manufacturer using one of the following methods. Proceed with installation only after substrates pass testing:
 - 1) Percent Relative Humidity (RH) in Concrete Slabs (Preferred Method): Conduct testing for internal relative humidity of concrete slabs in strict accordance with the latest edition of ASTM F 2170, "Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes."
 - 2) Moisture Vapor Emission (MVER) Test: Conduct MVER tests in accordance with the latest edition of ASTM F 1869, "Standard Test Method for Measuring Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride." Before conducting tests, remove any curing agents or residues down to bare concrete. Perform calcium chloride tests only on ordinary concrete floors. Tests are not applicable on lightweight concrete, smoothing or leveling compounds, gypsum underlayments, or other fills.
- C. Repair, as required, damaged existing substrates as identified by Contractor on a floor covering plan.
- D. Provide additional floor prep for spray applied adhesives including but not limited to cleaning, locating imperfections that would telegraph through the applied tile.
- E. Use trowelable leveling and patching compound to fill cracks, holes, and depressions in substrates.

1. For vestibule floors, prepare concrete surfaces prior to product application per ASTM F710 to smooth, porous and clean surface.
 - a. Maintain concrete substrate free of topical liquid water.
 - b. Use only mechanical methods to clean existing sub-floor.
 - c. Fill cracks, holes, and depressions with specified trowelable leveling and patching compound.
 - 1) Mix trowelable leveling and patching compound with manufacturer's proprietary polymer.
 - 2) Add contents polymer to pail provided plus an equivalent amount of water.
 - 3) To the liquid add the contents of the bag.
 - 4) Mix under agitation with a paddle attached to drill. Mix approximately less than 2 minutes to lump-free consistency.
 - 5) Do not add any additional water.
- F. Move resilient products and installation materials into spaces where they will be installed at least 48 hours in advance of installation.
 1. Do not install resilient products until they are same temperature as space where they are to be installed.
- G. Sweep and vacuum clean substrates to be covered by resilient products immediately before installation. After cleaning, examine substrates for moisture, alkaline salts, carbonation, and dust. Proceed with installation only after unsatisfactory conditions have been corrected.

3.3 TILE INSTALLATION

- A. Comply with manufacturer's current "Kroger Installation Recommendations" provide by contact listed in Section 01 64 00 "Vendor Contact List." Review/confirm any questions or concerns prior to the start of installation.
- B. Lay out 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 in pattern indicated.
- C. Match 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).
 2. Lay LVT plank flooring following directional arrows on back and vary the placement of the planks so that the end joints are at least **6 inches (152 mm)** from the next adjacent plank, and are not repeating a location more frequently than every six planks.
- D. Scribe, cut, and fit tiles to butt neatly and tightly to vertical surfaces and permanent fixtures including built-in furniture, cabinets, pipes, outlets, edgings, door frames, thresholds, and nosings.

- E. Extend tiles into toe spaces, door reveals, closets, and similar 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, non-staining marking device.
- G. Install tiles on covers for telephone and electrical ducts and similar items in finished floor areas. Maintain overall continuity of color and pattern with pieces of tile installed on covers. Tightly adhere tile edges to substrates that abut covers and to cover perimeters.
- H. Adhesive Application: Adhere 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. Additional Installation Requirements Using adhesive AD-3:
 - 1. After one hour, but no later than two hours after the flooring is installed, roll the entire floor with a 100-lb. (45 kg). roller in two directions
 - 2. Starting at the center and working toward the edges, roll the material in the direction of the trowel notches and then again in the opposite direction.
 - 3. Do not work on newly adhered flooring except to roll. If unavoidable, use a kneeling board.

3.4 CLEANING AND PROTECTION

- A. Perform the following operations immediately after completing resilient product installation:
 - 1. Remove adhesive and other blemishes from exposed surfaces.
 - 2. Sweep and vacuum surfaces thoroughly.
 - 3. Damp-mop surfaces to remove marks and soil with a neutral cleaner.
 - 4. Protective Polish:
 - a. VCT: Apply 2 coats protective polish in accordance with flooring manufacturer's instructions.
 - b. LVT/V-LVT: Protective polish is not required unless recommended by LVT/V-LVT manufacturer.
 - c. Do not wash, auto-scrub, or strip surfaces a minimum of five days after installation or application of protective polish.
- B. Washing and Auto-Scrubbing: As specified in Part 2 under individual adhesive cleaning restrictions.
- C. Protection: Protect resilient products from marks, marks, indentations, and other damage from construction operations and placement of equipment and fixtures during remainder of construction period. Use protection methods recommended in writing by manufacturer.

END OF SECTION 09 65 19