SECTION 09650

RESILIENT FLOORING

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes the following:

1. Vinyl composition tile (VCT).
2. Resilient wall base.
3. Rubber stair treads
4. Sealing and waxing all resilient flooring.

B. Items specified, but not supplied in this section:

1. Static Dissipative tile, supplied and installed in section 10270 - Access Flooring.

C. Related Sections:

1. Section 03300 - Cast-In-Place Concrete: Concrete substrate to receive resilient products.
2. Section 03530 - Concrete Toppings.

1.2 PERFORMANCE REQUIREMENTS

A. Static Coefficient of Friction: All resilient flooring materials shall be "slip-resistant" meeting the requirements of ASTM C-1028 for the following values:

1. Level Surfaces: Minimum of 0.6.

B. Static Dissipative Resilient Tile Flooring shall meet the following electrical properties when installed according to manufacturer's instructions with the required adhesive:

1. ASTM F 150 (Electrical Resistance) between 10^6 and 10^9 ohms.
2. Federal Test Method 4046 [101C] (Static Decay) 5000 volts to zero in less than 0.2 second.
3. AATCC-134 (Static Generation) less than 100 volts with conductive footwear at 20% relative humidity.

1.3 SUBMITTALS

A. Product Data: Submit manufacturer's product literature and delivery, storage, handling, and installation instructions for each type of resilient flooring, accessory item, and installation material required. Include methods of installation for each type of substrate.

1. Submit written data on physical characteristics and flame resistance characteristics.
2. Submit written recommendations from resilient flooring manufacturers on resilient flooring adhesive.

B. Samples for Verification: Provide 2 samples of each different color and pattern of resilient material to be used, showing full range of variations expected in these characteristics.

1. Vinyl Composition Tile: Full-size tiles.

2. Wall Base and Accessories: 12-inch-long sections.

C. Heat-Welded Seam Samples: For each flooring product and welding bead color and pattern combination 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. Heat glazing is required in sample.

D. Acceptance of Substrate: Provide letter of substrate acceptance, signed by Contractor, Manufacturer and Installer.

1. Manufacturer, Contractor and Installer shall review substrate testing including results of ASTM F 1869 and bond and adhesion test reports and any other tests required by manufacturer prior to accepting substrate.

E. Bond and Adhesion Test Reports: Submit certified test data and reports on bond and moisture tests for concrete subfloors. Distribute copies to Installer, resilient flooring manufacturer, Contractor, adhesive manufacturer, and construction manager for review prior to installation.

F. Maintenance Data: For resilient products to include in maintenance manuals.

1.4 QUALITY ASSURANCE

A. Single-Source Responsibility: Obtain each type, color, and pattern of resilient material from a single source. Provide each type of resilient material and associated primer, leveling compound and adhesive as produced or recommended by a single manufacturer.

B. Production Quality Control: Assure consistent appearance by providing each pattern and color of flooring and base (including end stops and corner units) from a single production run or dye lot for each room or space.

C. Fire Performance Characteristics: Provide flooring with the following characteristics as determined by testing by UL or another testing and inspecting agency acceptable to authorities having jurisdiction.

1. Critical Radiant Flux: 0.45 watts per sq. cm or more per ASTM E 648.
2. Flame Spread: 75 or less per ASTM E 84.
3. Smoke Density: 450 or less per ASTM E 662.

D. Preinstallation Conference: Conduct conference at Project site to comply with requirements in Division 1.

1. Inspect condition of substrate and other preparatory work performed by other trades. Discuss any corrections required to substrates or other work required for installation of resilient flooring(s).
2. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
3. Review special resilient flooring designs and patterns.
4. Review dust-control procedures.
5. Review weather and forecasted weather conditions and procedures for coping with unfavorable conditions.

1.5 DELIVERY, STORAGE, AND HANDLING

A. **Delivery:** Deliver resilient materials and installation accessories to Project site in manufacturer's unopened cartons and containers each bearing names of product and manufacturer, Project identification, and shipping and handling instructions.

B. **Store** resilient products 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.
   1. Store tiles on flat surfaces.
   2. Move resilient materials and installation accessories into spaces where they will be installed at least 48 hours in advance of installation.

1.6 PROJECT CONDITIONS

A. **Maintain** 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 time periods:
   1. 48 hours before installation.
   2. During installation.
   3. 48 hours after installation.

B. **Installation Conditions:** Do not install resilient materials until they are at the same temperature as the space where they are to be installed.
   1. Close spaces to traffic during flooring installation.
   2. Install resilient materials and accessories after other finishing operations, including painting, have been completed.
   3. Install resilient materials over concrete slabs and underlayment compounds until that sufficiently dry to bond with adhesive as determined by manufacturer's recommended bond and moisture test.

C. **After postinstallation period,** maintain temperatures within range recommended by manufacturer, but not less than 55 deg F or more than 95 deg F.
   1. Close spaces to traffic for 48 hours after floor covering installation.

1.7 EXTRA MATERIALS

A. **Furnish extra materials** described below that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
   1. Floor Tile: Furnish 1 box for every 50 boxes or fraction thereof, of each type, color, and pattern of floor tile installed.
   2. Resilient Wall Base and Accessories: Furnish not less than 10 linear feet (3 linear m) for every 500 linear feet (150 linear m) or fraction thereof, of each type, color, pattern, and size of resilient product installed.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. **Available Products:** Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the products shown on the INTERIOR FINISH LEGEND , Sheet A700, of the Drawings..

2.2 COLORS AND PATTERNS

A. Colors, Sizes and Patterns: As indicated by manufacturer's designations on the Drawings.

2.3 VINYL COMPOSITION TILE

A. **Vinyl Composition Tile** shall have a nominal total thickness of 1/8 in. (3.2 mm), 12 in. x 12 in. (305 mm x 305 mm), composed of polyvinyl chloride resin binder, plasticizers, fillers, and pigments with colors and texture dispersed uniformly throughout the thickness of the wear layer. Vinyl composition tile shall conform to the requirements of ASTM F 1066, Class 3 – surface pattern

1. Fire-Test-Response Characteristics:
    a. Critical Radiant Flux Classification: Class I, not less than 0.45 W/sq. cm per ASTM E 648.

B. **Static Dissipative Tile** shall have a nominal total thickness of 1/8 in. (3.2 mm), 12 in. x 12 in. (305 mm x 305 mm), composed of polyvinyl chloride resin binder, fillers, pigments, and antistatic additive with colors and texture dispersed uniformly throughout its thickness. Vinyl composition tile shall meet size, thickness, indentation, impact, dimensional stability, resistance to chemicals, and squareness requirements of ASTM F 1066, Class 2 – through pattern

2.4 RUBBER WALL BASE

A. **Wall Base:** ASTM F 1861

B. **Shapes:** Cove base and straight base as shown on Drawings

C. **Colors and Manufacturer:** As shown on Drawings

2.5 RESILIENT STAIR ACCESSORIES

A. **Raised Profile One-Piece, Tread/Riser Combination Stair Treads**

B. **Material:** Rubber, Composition A.

C. **Surface Design:** Type 2 design: Raised-square pattern.

D. **Stair Treads** shall have a tapering thickness gauge of .210" (5.33 mm) to .153" (3.89 mm) across a 13" (33 cm) tread depth with a 7" (17.8 cm) integral riser. They shall have a square nosing and the nose shall have a depth of 2" (5.08 mm) and the underside hinged to accommodate various ADA recommended stair pan angles

E. **Size:** Lengths and depths to fit each stair tread in one piece.

F. **Stringers:** Of same thickness as risers, height and length after cutting to fit risers and treads and to cover stair stringers; produced by same manufacturer as treads and recommended by manufacturer for installation with treads.

G. **Fire-Test-Response Characteristics:**

1. Critical Radiant Flux Classification: Class I, not less than 0.45 W/sq. cm per ASTM E 648.

2.6 RESILIENT MOLDING ACCESSORY

A. Description: Reducer strips, cap strips, transition pieces and alike as required to complete the project. Provide products from the following:

1. Burke Mercer Flooring Products.
2. Johnsonite.
3. Roppe Corporation.
4. Approved equal.

B. Material: Vinyl.

2.7 INSTALLATION MATERIALS

A. **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.

B. **Adhesives:** Water-resistant type recommended by manufacturer to suit resilient products and substrate conditions indicated.

1. Provide Armstrong S-202 Static Dissipative Tile Adhesive with 2 in. (5.08 cm) wide x 24 in. (60.96 cm) long copper ground-connection strips under the tile and Armstrong S-725 Wall Base Adhesive at the wall base as recommended by the flooring manufacturer

C. **Heat-Welding Bead:** Solid-strand product recommended by resilient flooring manufacturer for heat-welding seams.

PART 3 - EXECUTION

3.1 EXAMINATION

A. **Examine substrates**, with Installer present, where installation of resilient material will occur, to verify that substrates and conditions are satisfactory for installation and comply with resilient material manufacturer's requirements and those specified in this Section.

B. **Substrate Conditions:** Inspect application surfaces to determine that they are satisfactory. Substrates shall be smooth and free from defects impairing performance or appearance of the installed materials. Application surfaces shall be:

1. Straight and true to plane within 1/8" in 8 feet, without local irregularities and abrupt changes in plane which could telegraph through new materials.
2. Smooth and free from cracks, holes, ridges and similar defects.
3. Clean and free from foreign materials including incompatible curing compounds, paint, oils, waxes, sealers, grease and similar substances which would prevent adhesive bond.

3.2 PREPARATION

A. **Prepare substrates** according to manufacturer’s written recommendations 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. Alkalinity and Adhesion Testing: Perform tests recommended by manufacturer. Proceed with installation only after substrates pass testing.
3. Moisture Testing:
   a. Perform anhydrous calcium chloride test, ASTM F 1869. Proceed with installation only after substrates have maximum moisture-vapor-emission rate of 3 lb of water/1000 sq. ft. in 24 hours.
   b. Perform tests recommended by manufacturer. Proceed with installation only after substrates pass testing.

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

D. **Remove ridges** and surface irregularities by grinding or sanding.

E. **Use trowelable leveling** and patching compound to fill cracks, holes, and depressions in substrates.

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.

H. **Apply primer,** if recommended by adhesive manufacturer, prior to applying adhesive. Apply according to manufacturer's directions.

I. **Proceed with installation** only after unsatisfactory conditions have been corrected.

3.3 TILE INSTALLATION

A. **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. Conform to specific pattern, layout and work points indicated on Drawings, where shown.
2. Lay tiles square with room axis.

B. **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).

C. **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.

D. **Extend tiles** into toe spaces, door reveals, closets, and similar openings.

E. **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, nonstaining marking device.

F. 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.

1. Hand roll resilient materials where required by manufacturer.
2. Scribe, cut, and fit resilient materials to butt tightly to vertical surfaces, permanent fixtures, built-in furniture including cabinets, pipes, outlets, edgings, thresholds, and nosings.

G. Static Dissipative Tile: Install copper grounding strips into adhesive in strict accordance with manufacturer's written instructions.

3.4 RESILIENT WALL BASE INSTALLATION

A. Apply wall base to walls, columns, pilasters, casework and cabinets in toe spaces, and other permanent fixtures in rooms and areas where base is required.

B. Install wall base in lengths as long as practicable without gaps at seams and with tops of adjacent pieces aligned.

C. Tightly adhere wall base to substrate throughout length of each piece, with base in continuous contact with horizontal and vertical substrates.

D. Do not stretch wall base during installation.

E. Premolded Corners: Install premolded corners before installing straight pieces.

F. Job-Formed Corners:

1. Outside Corners: Use straight pieces of maximum lengths possible. Form without producing discoloration (whitening) at bends. Shave back of base at points where bends occur and remove strips perpendicular to length of base that are only deep enough to produce a snug fit without removing more than half the wall base thickness.
2. Inside Corners: Use straight pieces of maximum lengths possible. Form by cutting an inverted V-shaped notch in toe of wall base at the point where corner is formed. Shave back of base where necessary to produce a snug fit to substrate.

3.5 RESILIENT ACCESSORY INSTALLATION

A. Resilient Stair Accessories:

1. Use stair-tread-nose filler to fill nosing substrates that do not conform to tread contours.
2. Tightly adhere to substrates throughout length of each piece.

B. Resilient Molding Accessories: Butt to adjacent materials and tightly adhere to substrates throughout length of each piece. Install reducer strips at edges of floor coverings that would otherwise be exposed.

3.6 CLEANING AND PROTECTION

A. Perform the following operations using materials and methods recommended by the manufacturer 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.

a. Do not wash surfaces until after time period recommended by manufacturer.

B. **Protect resilient products** from mars, 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.

1. Apply protective floor polish to horizontal surfaces that are free from soil, visible adhesive, and surface blemishes if recommended in writing by manufacturer.
   a. Use products recommended by manufacturer
   b. Use commercially available product acceptable to manufacturer.
   c. Coordinate selection of floor polish with Owner's maintenance service.
2. Cover products installed on horizontal surfaces with undyed, untreated building paper until Substantial Completion.
3. Do not move heavy and sharp objects directly over surfaces. Place hardboard or plywood panels over flooring and under objects while they are being moved. Slide or roll objects over panels without moving panels.
4. Provide Armstrong S-392 Static Dissipative Tile Polish for application as initial maintenance finish.

3.7 COMPLETION

A. **Completed work** shall be clean and uniform, with joints aligned. Resilient materials, including edge strips, shall be permanently and fully adhered.

1. Remove and replace with new materials, resilient items that are damaged, defective, improperly installed, and installed on substrates, which were improperly prepared.
2. Acceptably repair and clean, or remove and replace with new materials other items damaged, soiled or stained by work of this Section. Architect shall determine what items need to be replaced.

END OF SECTION