SECTION 09650 - RESILIENT FLOORING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.02 SUMMARY

A. This Section includes the following:
   1. Rubber floor tile.
   2. Vinyl composition tile (VCT).
   3. Resilient stair treads and risers.
   4. Resilient wall base, reducer strips, and other accessories.
   5. Independent moisture testing of concrete.

1.3 SUBMITTALS

A. General: Submit in accordance with Section 01330.

B. Product Data: For each type of product indicated. Include printed statement of VOC content and chemical components for adhesives.

C. Samples: For each type of product indicated. Samples shall be in form of manufacturer's color charts consisting of the following:
   1. Resilient Accessories: Color charts consisting of strips of resilient base showing the full range of colors available for each product exposed to view.

D. Test Results: Provide results of specified alkalinity and adhesion tests, calcium chloride moisture tests, and relative humidity test for each resilient flooring type specified. Include manufacturer's written moisture requirements for each resilient flooring type specified.

E. Product Certifications: Signed by resilient flooring manufacturer of products supplied that comply with the specifications and local regulations controlling the use of volatile organic compounds (VOC's).

F. Qualification Data: For Installer of sheet vinyl flooring.

G. Maintenance Data: For resilient products to include in maintenance manuals, provide cleaning and sealing requirements.

1.4 QUALITY ASSURANCE

A. Fire-Test-Response Characteristics: Provide products identical to those tested for fire-exposure behavior per test method indicated by a testing and inspecting agency acceptable to authorities having jurisdiction.
   1. Smoke Density: Less than 450 per ASTM E 662.
   2. Critical Radiant Flux: 0.45 watts per sq. cm or more per ASTM C 648.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Deliver resilient flooring materials and installation accessories to Project site in original manufacturer's unopened cartons and containers each bearing name 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. Store tiles on flat surfaces and rolls upright.

C. Move flooring materials and accessories and installation products into spaces where they will be installed at least 48 hours in advance of installation. Do not install flooring materials until they are at the same temperature as the space where they are to be installed.

1.6 PROJECT CONDITIONS

A. Maintain ambient and substrate temperatures within range recommended by manufacturer, but not less than 70 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, unless manufacturer's written recommendations specify a longer time period.

B. After postinstallation period, maintain temperatures within range recommended by manufacturer, but not less than 55 deg F or more than 95 deg F.

C. Close spaces to traffic during floor covering installation.

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

1.7 SEQUENCING AND SCHEDULING

A. Install resilient products after other finishing operations, including painting, have been completed.

B. Do not install flooring over concrete slabs until slabs have cured and are sufficiently dry to bond with adhesive as determined by manufacturer's recommended bond and moisture test.

PART 2 - PRODUCTS

2.1 RUBBER FLOOR TILE

A. Rubber Floor Tile, R1: ASTM F 1344.
1. Product: Roundel Rubber Floor Tile; Johnsonite.
2. Class: I-A (homogeneous rubber tile, solid color).
3. Hardness: Manufacturer's standard hardness, measured using Shore, Type A durometer per ASTM D 2240.
   a. Wearing Surface: Textured. Bamboo texture.
4. Thickness: 0.125 inch.
5. Size: 24 by 24 inches.
6. Fire-Test-Response Characteristics:
   a. Critical Radiant Flux Classification: Class I, not less than 0.45 W/sq. cm per ASTM E 648.

2.2 VINYL COMPOSITION TILE

A. Vinyl Composition Tile, VCT1 & VCT2: ASTM F 1066.
1. Product: Essentials; Mannington Mills, Inc.
   a. Color: As indicated in Interior Finish Legend.
2. Class: 2 (through-pattern tile).
3. Wearing Surface: Smooth.
4. Thickness: 0.125 inch.
5. Size: 12 by 12 inches.
6. Fire-Test-Response Characteristics:
   a. Critical Radiant Flux Classification: Class I, not less than 0.45 W/sq. cm per ASTM E 648.
7. Finish: Topshield Finish

2.4 RESILIENT WALL BASE

A. Wall Base, VCB1: ASTM F 1861.
1. Manufacturer: Johnsonite.
2. Type (Material Requirement): TV (vinyl).
3. Group (Manufacturing Method): I (solid).
4. Style: Cove (with top-set toe); straight (toeless) for carpeted locations.
5. Minimum Thickness: 0.125 inch.
6. Height: 4 inches.
7. Lengths: Coils in manufacturer's standard length.
8. Outside Corners: Job formed.
9. Inside Corners: Job formed.
10. Surface: Smooth.
11. Color: Refer to finish legend.

2.5 RESILIENT STAIR ACCESSORIES

A. Treads/Riser Combination, R1: FS RR-T-650; one-piece tread/riser combination with carborundum strip of contrasting color at the nose of the tread for visually impaired.
1. Products: Johnsonite; VIBMTR.

B. Material: Rubber, Composition A.

C. Surface Design: Type 2 design (designed).
   1. Type 2 Design: Raised pattern.
   2. Abrasive Strips: 2 inch wide carborundum strip of contrasting color; color selected by Architect.

D. Nosing Style: Square, adjustable to cover angles between 60 and 90 degrees .

E. Nosing Height: 2 inches.

F. Thickness: 1/4 inch.

G. Size: Lengths and depths to fit each stair tread in one piece or, for treads exceeding maximum lengths manufactured, in equal-length units.

H. 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: Flooring transition strips.
   1. Manufacturer: Johnsonite

B. Material: Vinyl.

C. Transition Strips: The following product identification numbers are for products manufactured by Johnsonite.
   1. Carpet to Resilient: No. CTA-XX-D.
   2. Resilient to Concrete: No. RRS-XX-C.
   3. Carpet to Concrete: No. EG-XX-G.

2.7 INSTALLATION MATERIALS

A. Concrete Slab Primer: Nonstaining type as recommended by flooring manufacturer.

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.

C. Adhesives (Cements): Premium Grade, water-resistant type recommended by manufacturer to suit resilient products and substrate conditions indicated.
   1. Use adhesives that comply with the following limits for VOC content when calculated according to South Coast Air Quality Management District Rule No. 1168:
      a. VCT Tile Adhesives: Not more than 50 g/L.
      b. Rubber Floor Adhesives: 60 g/L or less.
      c. Sheet Vinyl Flooring Adhesives: 50 g/L or less.
      d. Cove Base Adhesives: 50 g/L or less.
   2. Provide spray adhesive for VCT.

D. Stair-Tread-Nose Filler: Two-part epoxy compound recommended by resilient tread manufacturer to fill nosing substrates that do not conform to tread contours.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, with Installer present, for compliance with requirements for installation tolerances, moisture content, and other conditions affecting performance.
   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 resilient products.

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

3.2 PREPARATION

A. Prepare substrates according to manufacturer's written recommendations to ensure adhesion of resilient products.

B. Concrete Substrates: Verify that concrete slabs comply with ASTM F 710 and the following:
   1. Verify that substrates are dry and free of curing compounds, sealers, hardeners, and other materials whose presence would interfere with bonding of adhesive. Determine adhesion and dryness characteristics by performing bond and moisture tests recommended by flooring manufacturer, and with the specified requirements:
   2. An independent testing agency shall perform alkalinity and adhesion tests, calcium chloride moisture tests, and relative humidity tests.
      a. Maintain a minimum temperature of 70 deg F in spaces to receive flooring for at least 72 hours prior to and during the tests.
      b. Perform tests on concrete slabs to receive resilient flooring at the rate of 1 test/1000 sq. ft. of floor area for slabs-on-grade and 1 test/1000 sq. ft. of floor area for elevated slabs.
   3. Alkalinity and Adhesion Testing: Shall result in pH range recommended by flooring manufacturers when subfloor is wetted with potable water and pHydrion paper is applied. Perform pH tests on concrete floors regardless of age or grade level.
   4. Moisture Testing:
      a. Anhydrous Calcium Chloride Test: Perform tests in accordance with recommendations of flooring manufacturer and ASTM F 1869, except area of $CaCl^2$ dish shall not be deducted.
      b. Relative Humidity Test: Perform test using in situ probes, ASTM F 2170.
   5. Proceed with installation only after substrates have maximum moisture-vapor-emission rate of 3 lb of water/1000 sq. ft. in 24 hours, a maximum 75 percent relative humidity level measurement, and meet manufacturer's requirements for alkalinity and adhesion.

C. Remove 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. Use trowelable leveling and patching compound to fill cracks, holes, and depressions in substrates.

E. 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.

F. 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 RESILIENT FLOOR COVERING INSTALLATION, GENERAL

A. Install in accordance with floor covering manufacturer's written instructions and requirements of this Section.

B. Scribe, cut, and fit floor covering to butt neatly and tightly to vertical surfaces and permanent fixtures including built-in furniture, cabinets, pipes, outlets, edgings, door frames, thresholds, and nosings.

C. Extend floor covering into toe spaces, door reveals, closets, and similar openings.

D. Maintain reference markers, holes, and openings that are in place or marked for future cutting by repeating on floor covering as marked on substrates. Use chalk or other nonpermanent, nonstaining marking device.

E. Adhere floor coverings 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.

3.4 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. Install tiles square with room axis, unless otherwise indicated.

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. Verify pattern and grain direction with Architect prior to installation.

C. Hand roll tiles where required by tile manufacturer.

3.5 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. Provide on fronts and exposed sides and backs of floor-mounted casework. Where toe space is less than 4 inches, cut down base to proper height.

B. Install straight base before installation of carpet.

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

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

E. Do not stretch wall base during installation.

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. Adhere base to substrate with contact adhesive 12 inches each side of outside corner to properly hold base in permanent proper position in tight contact with wall. Base shall run continuous around corners with butt joints 12 inches minimum for corner

3.7 RESILIENT ACCESSORY INSTALLATION

A. Resilient Stair Accessories:

1. Apply stair accessories to stairs as indicated and according to manufacturer's installation instructions.
2. Clean backs of tread and lightly sand to ensure proper adhesion.
3. Use stair-tread-nose filler to fill nosing substrates that do not conform to tread contours.
4. Install treads with epoxy adhesive and roll until a firm bond has been obtained.
5. Tightly adhere to substrates throughout length of each piece.
6. Install treads and risers one piece, full width of stair tread.

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.

3.8 CLEANING AND PROTECTION

A. Perform the following operations immediately after completing resilient product installation:
1. Remove adhesive and other blemishes from exposed surfaces using cleaner recommended by resilient products manufacturers.
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. 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.

C. Final cleaning and buffing specified in Division 1 Section "Closeout Procedures."

END OF SECTION 09650