

SECTION 09651 - RESILIENT FLOOR TILE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Contract Drawings and general provisions of the Construction Contract, including Contract Clauses and Conditions (CC &C), Supplemental Contract Clauses and Conditions, and Division 1 sections of these Contract Specifications, apply to work of this Section.
- B. Related Sections include the following:
 - 1. Refer to Section 09622, "Resilient Athletic Flooring" for resilient floor tile for use in athletic-activity or support areas.
 - 2. Refer to Section 09654, "Linoleum Floor Coverings" for linoleum floor tile.
 - 3. Refer to Section 16060, "Grounding and Bonding" for connecting grounding strips to ground.

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Vinyl composition tile (VCT).
 - 2. Rubber floor tile.
 - 3. Resilient stair accessories.
 - 4. Static-dissipative vinyl composition tile (VCT).
 - 5. Resilient wall base and accessories.
 - 6. Resilient molding accessories.

1.3 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Samples for Verification: Full-size units of each color and pattern of resilient floor tile required.
 - 1. Resilient Wall Base and Accessories: Manufacturer's standard-size Samples, but not less than 12 inches (300 mm) long, of each resilient product color and pattern required.
- C. LEED Submittals (For N.O.B. ONLY):
 - 1. Credit EQ 4.1: Manufacturers' product data for adhesives, including printed statement of VOC content.
 - 2. Credits MR 4.1 and MR 4.2: Product Data highlighting recycled content of materials installed. Include the percentage of post-consumer and post-industrial recycled content of materials.
- D. Maintenance Data: For resilient products to include in maintenance manuals.

1.4 QUALITY ASSURANCE

- A. Installer Qualifications: A qualified installer who employs workers for this Project that are competent in techniques required by manufacturer for static-control floor covering installation indicated.
- B. 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. Critical Radiant Flux Classification: Class I, not less than 0.45 W/sq. cm per ASTM E 648.
 - 2. Smoke Density: Less than 450 per ASTM E 662.
- C. Static-Control Properties: Provide floor coverings with static-control properties indicated as determined by testing identical products per test method indicated by an independent testing and inspecting agency.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. 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 10 deg C or more than 32 deg C. Store tiles on flat surfaces.

1.6 PROJECT CONDITIONS

- A. Maintain temperatures within range recommended by manufacturer, but not less than 21 deg C or more than 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 postinstallation period, maintain temperatures within range recommended by manufacturer, but not less than 13 deg C or more than 35 deg C.
- C. Close spaces to traffic during floor covering installation.
- D. Close spaces to traffic for 48 hours after floor covering installation.
- E. Do not install resilient flooring over concrete slabs until slabs have been cured and are sufficiently dry to bond with adhesive and concrete slabs have pH range recommended by resilient flooring manufacturer.

1.7 SEQUENCING AND SCHEDULING

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

PART 2 - PRODUCTS

2.1 COLORS AND PATTERNS

- A. Colors and Patterns: As selected by from manufacturer's full range; or as indicated on Finish Schedule.

2.2 VINYL COMPOSITION TILE (RESILIENT TILE FLOORING: RT)

- A. Vinyl Composition Tile (VCT): ASTM F 1066, asbestos free.
- B. Basis-of-Design Product: The design for the VCT is based on Brushwork™ Premium Visual Tile, as manufactured by Mannington Mills, Inc. Subject to compliance with requirements, provide the named product or an approved equivalent by one of the following:
 - 1. Armstrong World Industries, Inc.
 - 2. Tarkett Inc.
- C. Class: 2 (through-pattern tile).
- D. Wearing Surface: Smooth.
- E. Thickness: 3.2 mm.
- F. Size: 305 by 305 mm.
- G. Fire-Test-Response Characteristics:
 - 1. Critical Radiant Flux Classification: Class I, not less than 0.45 W/sq. cm per ASTM E 648.
- H. Colors: As selected from manufacturer's full range, or as indicated on Finish Schedule.

2.3 RUBBER FLOOR TILE (RB)

- A. Rubber Floor Tile: ASTM F 1344.
- B. Basis-of-Design Product: The design for the rubber floor tile is based on Hammered Surface Rubber Floor Tile (HRT), as manufactured by Johnsonite, Inc. Subject to compliance with requirements, provide the named product or an approved equivalent by one of the following:
 - 1. Nora Rubber Flooring, Freudenberg Building Systems, Inc.
 - 2. Roppe Corporation.
- C. Class: I-B (homogeneous rubber tile, through mottled).
- D. Hardness: Manufacturer's standard hardness, measured using Shore, Type A durometer per ASTM D 2240.
- E. Wearing Surface: Textured.
- F. Thickness: 3.2 mm.

- G. Size: 610 by 610 mm.
- H. Color and Pattern: As indicated on Finish Schedule, or as selected by Architect from manufacturer's standard range.
- I. Fire-Test-Response Characteristics:
 - 1. Critical Radiant Flux Classification: Class I; not less than 0.45 W/sq. cm per ASTM E 648.

2.4 RESILIENT STAIR ACCESSORIES

- A. Treads: FS RR-T-650.
- B. Basis-of-Design Product: The design for the integral resilient stair treads/risers is based on Visually-Impaired Hammered Surface Texture Rubber Stair Treads (VIHTR), as manufactured by Johnsonite, Inc. Subject to compliance with requirements, provide the named product or an approved equivalent by one of the following:
 - 1. Nora Rubber Flooring, Freudenberg Building Systems, Inc.
 - 2. Roppe Corporation.
- C. Material: Rubber, Composition A.
- D. Surface Design: Type 2 design (designed).
 - 1. Type 2 Design: Hammered Surface Texture.
 - 2. Solid Rubber Contrasting Insert Strips: 50.8 mm wide; One strip per tread and one strip at the top of landings. Color as indicated on Finish Schedule. "VIHTRS," as manufactured by Johnsonite, Inc.
- E. Nosing Style: Square.
- F. Nosing Height: 38 mm.
- G. Thickness: 5.33 to 2.87 mm.
- H. Size: Lengths and depths to fit each stair tread in one piece or, for treads exceeding maximum lengths manufactured, in equal-length units.
- I. Risers: Smooth, flat, integral with treads; produced by same manufacturer as treads and recommended by manufacturer for installation with treads.
- J. Rubber Landings: Same composition as integral tread and risers.
- K. Stringers: Painted.

2.5 STATIC-DISSIPATIVE RESILIENT FLOOR COVERINGS (RTA)

- A. Static-Dissipative Vinyl Composition Tile (VCT): ASTM F 1066 (VCT, nonasbestos formulated), Class 2 (through-pattern tile); tiles 300 by 300 mm, 3.2 mm thick.

1. Products: Subject to compliance with requirements, provide the following product:
 - a. Excelon SDT; Armstrong World Industries, Inc.
 - B. Static-Control Properties:
 1. Electrical Resistance: Test per ASTM F 150 with 100-V applied voltage ESD-S7.1.
 - a. Average greater than 1 megohm and less than or equal to 1000 megohms when test specimens are tested surface to ground.
 - b. Average no less than 1 megohm and less than or equal to 1000 megohms when installed floor coverings are tested surface to ground.
 2. Static Generation: Less than 300 V when tested per AATCC-134 at 20-percent relative humidity with conductive footwear.
 3. Static Decay: 5000 to 0 V in less than 0.25 seconds when tested per FED-STD-101/4046.1.
 - C. Color: As indicated on Finish Schedule.
- 2.6 RESILIENT WALL BASE (RB)
- A. Wall Base: ASTM F 1861.
 - B. Basis-of-Design Product: The design for the resilient wall base is based on Tightlock Rubber Wall Base, as manufactured by Johnsonite, Inc. Subject to compliance with requirements, provide the named product or an approved equivalent by one of the following:
 1. Nora Rubber Flooring, Freudenberg Building Systems, Inc.
 2. Roppe Corporation.
 - C. Type (Material Requirement): TS (rubber, vulcanized thermoset).
 - D. Group (Manufacturing Method): I (solid, homogeneous).
 - E. Style: Straight (toeless) for all carpeted areas and cove base with small toe lip _ elsewhere.
 - F. Minimum Thickness: 3.2 mm.
 - G. Height: 82.55 mm, minimum.
 - H. Lengths: Cut lengths coils in standard length.
 - I. Outside Corners: Job formed or premolded.
 - J. Inside Corners: Job formed or premolded.
 - K. Surface: Smooth.

2.7 RESILIENT MOLDING ACCESSORY

- A. Description: Carpet edge for glue-down applications, nosing for carpet, nosing for resilient floor covering, reducer strip for resilient floor covering, and joiner for tile and carpet.
- B. Material: Rubber.
- C. Profile and Dimensions: As indicated.
- D. Available Manufacturers:
 - 1. Burke Mercer Flooring Products.
 - 2. Johnsonite.
 - 3. Roppe Corporation.
 - 4. Approved equivalent.

2.8 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. Static-Control Adhesive: Adhesive product of floor covering manufacturer that produces conductive continuity of floor covering system.
- C. Adhesives: 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 40 CFR 59, Subpart D (EPA Method 24):
 - a. VCT Tile Adhesives: 50 g/L.
 - b. Cove Base Adhesives: 50 g/L.
 - c. Rubber Floor Adhesives: 60 g/L.
- D. Grounding Strips: Provided and approved by floor covering manufacturer and that produce conductive continuity of floor covering system to ground connection.
- E. Stair-Tread-Nose Filler: Two-part epoxy compound recommended by resilient tread manufacturer to fill nosing substrates that do not conform to tread contours.
- F. Maintenance Tiles: Provide the following if the manufacturer selected has maintenance tiles available; Special tiles inscribed "Conductive floor. Do not wax."

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.
 - 2. 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; and with oversight by manufacturer's representative to ensure adhesion of floor coverings and conductive continuity of static-dissipative tile.
- 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. Vinyl Composition Tile and Static-Dissipative Tile: Perform anhydrous calcium chloride test, ASTM F 1869. Proceed with installation only after substrates have maximum moisture-vapor-emission rate of 1.36 kg of water/92.9 sq. m in 24 hours.
 - b. Perform tests recommended by manufacturer. Proceed with installation only after substrates pass testing.
 - c. Perform moisture test at rate of three for the first 92.9 sq. m and one additional test for each 92.9 sq. m of new and existing floor area to be covered.
- 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 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. Lay tiles in pattern 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. 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. 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.
- G. 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.

3.4 STATIC-CONTROL FLOOR TILE INSTALLATION, GENERAL

- A. Arrange for manufacturer's representative to oversee installation of static-control resilient floor coverings.
- B. Embed grounding strips in static-control adhesive. Extend strips beyond perimeter of static-control resilient floor covering surfaces to ground points.
- C. In each space where conductive solid vinyl floor tile is installed, install maintenance tile identifying conductive floor tile in location approved by Project Director. Provide only if manufacturer has the maintenance tiles available.

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.
- B. Install wall base in lengths as long as practicable without gaps at seams and with tops of adjacent pieces aligned. No sections shall be less than 2000 mm unless dictated by wall length.
- 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. On masonry surfaces or other similar irregular substrates, fill voids along top edge of wall base with manufacturer's recommended adhesive filler material.
- F. Premolded Corners: Install premolded corners before installing straight pieces.
- G. 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.

3.6 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.

3.7 FIELD QUALITY CONTROL

- A. Testing: US Government will engage a qualified independent testing and inspecting agency to test electrical resistance of static-control resilient floor covering systems for compliance with requirements.
 - 1. Arrange for testing after installation adhesives have fully cured and floor covering systems have stabilized to ambient temperatures.
 - 2. Arrange for testing of floor coverings before and after performing polish procedures.

- B. Remove and replace static-control floor coverings where test results indicate that they do not comply with specified requirements.
- C. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.

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.
 - 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 wax static-control resilient floor coverings.
 - 2. If recommended in writing by static-control resilient floor tile manufacturer, apply protective static-control floor polish formulated to maintain or enhance tile's electrical properties to tile surfaces that are free from soil, adhesive, and surface blemishes.
 - a. Verify that both polish and its application method are approved by tile manufacturer and that polish will not leave an insulating film that reduces tile's effectiveness for static control.
 - 3. Apply protective floor polish to vinyl composition tile surfaces that are free from soil, visible adhesive, and surface blemishes if recommended in writing.
 - a. Coordinate selection of floor polish with Government's maintenance service.
 - 4. Cover products installed on horizontal surfaces with undyed, untreated building paper until Substantial Completion.
 - 5. 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.

END OF SECTION 09651