

SECTION 096500 - RESILIENT 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 plank.
 - 2. Vinyl composition floor tile.
 - 3. Resilient base.
 - 4. Resilient stair accessories.
 - 5. Resilient molding accessories.
 - 6. Flooring in elevator.
 - 7. Skim coating of existing floors where previous flooring material has been removed.
 - 8. Independent testing of concrete.

1.3 SUBMITTALS

- A. General: Submit in accordance with Division 01 Section "Submittal Procedures."
- B. Product Data: For each type of product indicated.
 - 1. Installation Adhesive: Include printed statement of VOC content.
- C. Shop Drawings: For each type of resilient flooring. Include resilient flooring layouts, edges, columns, doorways, enclosing partitions, built-in furniture, cabinets, cutouts, and the following:
- D. Samples for Initial Selection: For each type of product indicated.
 - 1. Resilient Accessories: Actual pieces of strips of resilient base showing full range of colors available for each product exposed to view.
- E. Test Results: Provide results of specified alkalinity and adhesion tests, calcium chloride moisture tests, and relative humidity tests specified. Include manufacturer's written moisture requirements for each resilient flooring type specified.
- F. Maintenance Data: For each type of flooring product to include in maintenance manuals.

1.4 QUALITY ASSURANCE

- A. Fire-Test-Response Characteristics: 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.

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.

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- B. Store resilient flooring 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 floor tiles on flat surfaces and rolls upright.

1.6 PROJECT CONDITIONS

- A. Radiant heat in floor slabs shall operate continuously for a minimum of two weeks before testing for moisture content and before the application of floor coverings.
- B. Maintain ambient temperatures within range recommended by manufacturer, but not less than 70 deg F or more than 95 deg F, in spaces to receive resilient flooring during the following time periods:
 - 1. 48 hours before installation.
 - 2. During installation.
 - 3. 48 hours after installation.
- C. 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. Radiant heat shall have run for a minimum of two weeks before the installation of flooring.
- D. Until Substantial Completion, maintain ambient temperatures within range recommended by manufacturer, but not less than 55 deg F or more than 95 deg F.
- E. Close spaces to traffic during resilient flooring installation and for 48 hours after installation.
- F. Install resilient flooring after other finishing operations, including painting, have been completed.

PART 2 - PRODUCTS

2.1 SOLID VINYL FLOOR PLANK

- A. Solid Vinyl Floor Plank, F-3: ASTM F 1700; urethane wear layer with aluminum oxide cured by an ultraviolet UV process.
 - 1. Product: Mannington Mills, Inc.; Nature's Paths Vinyl Plank.
 - a. Colors: Heritage Cherry Natural, No. 12105 and Heritage Cherry Select, No. 12103; locate as indicated.
 - 2. Class: Class III, printed film vinyl plank.
 - 3. Type: Type B, embossed surface.
 - 4. Overall Thickness: 0.100 inch.
 - 5. Wear Layer Thickness: 0.020 inch.
 - 6. Nominal Size: 3 by 36 inches.
 - 7. Seaming Method: Standard.

2.2 VINYL COMPOSITION FLOOR TILE

- A. Vinyl Composition Floor Tile, F-1: ASTM F 1066.
 - 1. Product: Mannington Mills, Inc.; Brushwork.
 - 2. Class: Class 2, through-pattern tile.
 - 3. Wearing Surface: Smooth.
 - 4. Thickness: 0.125 inch.
 - 5. Size: 12 by 12 inches.
 - 6. Colors and Patterns: As selected by Architect from manufacturer's full range of colors.

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2.3 RESILIENT WALL BASE

- A. Resilient Base, B-1 & B-1A: ASTM F 1861.
 - 1. Manufacturer: Johnsonite.
 - 2. Material Requirement: Type TP (rubber, thermoplastic).
 - 3. Manufacturing Method: Group I (solid, homogeneous).
 - 4. Style: Cove (base with toe).
 - 5. Minimum Thickness: 0.125 inch.
 - 6. Height:
 - a. B-1: 6 inch.
 - b. B-1A: 4 inch.
 - 7. Lengths: Coils in manufacturer's standard length.
 - 8. Outside Corners: Job formed.
 - 9. Inside Corners: Job formed.
 - 10. Colors and Patterns: As selected by Architect from manufacturer's full range of colors.

- B. Contoured Resilient Wall Base, B-2: ASTM F 1861, resilient base formed to replicate routed wood molding profiles and having the following characteristics:
 - 1. Product: Johnsonite; Millwork Wall Finishing System, Inflection Profile.
 - 2. Type (Material Requirement): TP (rubber, thermoplastic).
 - 3. Group (Manufacturing Method): I (solid).
 - 4. Thickness: 3/8-inch at thickest point.
 - 5. Height: 5-1/4- inches.
 - 6. Inside and Outside Corners: Job formed.
 - 7. Colors: As selected by Architect from manufacturer's full range of colors.

2.4 RESILIENT STAIR ACCESSORIES

- A. Resilient Stair Treads: ASTM F 2169; with contrasting solid rubber insert for visually impaired.
 - 1. Product: Johnsonite; Roundel Rubber Stair Treads, VIRTRS-SQ.
 - a. Colors and Patterns: Tread/riser color and insert color as selected by Architect from manufacturer's full range of colors.
 - 2. Material Requirement: Type TP (rubber, thermoplastic).
 - 3. Surface Design: Class 2, Pattern; raised square design.
 - 4. Manufacturing Method: Group 2, tread with contrasting color for the visually impaired.
 - 5. Nosing Style: Square, adjustable to cover angles between 60 and 90 degrees.
 - 6. Nosing Height: 1-7/8 inches.
 - 7. Thickness: 1/4 inch and tapered to back edge.
 - 8. Size: Lengths and depths to fit each stair tread in one piece or, for treads exceeding maximum lengths manufactured, in equal-length units.

2.5 RESILIENT MOLDING ACCESSORY

- A. Resilient Molding Accessory:
 - 1. Manufacturer: Johnsonite.

- B. Material: Vinyl.

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- C. Transition Strips: The following product identification numbers are for products manufactured by Johnsonite. Provide listed products or equal from one of listed manufacturers.
 - 1. Carpet to Resilient: No. CTA-XX-D.
 - 2. Resilient to Concrete: No. RRS-XX-C.
 - 3. Carpet to Concrete: No. EG-XX-G.
- D. Colors and Patterns: As selected by Architect from manufacturer's full range of colors.

2.6 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 manufacturer for applications indicated.
 - 1. Product: Ardex; SD-F Feather Finish.
- C. Adhesives: Premium grade, water-resistant type recommended by manufacturer to suit floor tile 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: Not more than 50 g/L.
 - b. Rubber Floor Adhesives: Not more than 60 g/L.
 - c. Cove Base Adhesives: Not more than 50 g/L.
- 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.
- E. Floor Stripper for Solid Vinyl Floor Plank: Floor stripper as recommended by solid vinyl flooring manufacturer to remove mold release agent on solid vinyl flooring.

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

3.2 PREPARATION

- A. Prepare substrates according to manufacturer's written instructions to ensure adhesion of resilient products.
- B. Concrete Substrates: 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

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- 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 test. Field technician shall be International Concrete Repair Institute (ICRI) certified to a Grade 1, Moisture Testing Technician level. Testing shall be conducted as follows:
 - 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 the tests at rate of not less than 1 test/1000 sq. ft. of floor area.
 - c. Provide additional tests at floors with radiant heat after 2 weeks of heat operation.
 3. Alkalinity and Adhesion Testing: Perform tests recommended by manufacturer. Proceed with installation only after substrates pass testing.
 4. Moisture Testing: Perform tests recommended by manufacturer and as follows.
 - a. Anhydrous Calcium Chloride Test: Perform test in accordance with ASTM F 1869, except area of CaCl₂ dish shall not be deducted.
 - b. Relative Humidity Test: Perform test using in situ probes, ASTM F 2170.
 - 1) Locate radiant heat tubing in test location before drilling holes for probes.
 - c. 80 percent of the moisture tests conducted shall be relative humidity tests.
 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, or greater if permitted by the flooring manufacturer, and manufacturer's requirements for alkalinity and adhesion are met.
- 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. Existing Floor Slabs: Scrape and remove adhesive from floor where existing floor covering are removed. Trowel apply underlayment compound over entire floor to smooth substrate surface and prevent telegraphing of surface irregularities. Level and smooth over trench cut areas to prevent telegraphing of trench cut and patching through finish flooring.
- E. Fill cracks, holes, and depressions in substrates with trowelable leveling and patching compound and remove bumps and ridges to produce a uniform and smooth substrate.
- F. Do not install resilient flooring until it is same temperature as space where it is to be installed.
 1. Move resilient products and installation materials into spaces where they will be installed at least 48 hours in advance of installation.
- 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 RESILIENT FLOORING INSTALLATION, GENERAL
- A. Install in accordance with manufacturer's written instructions and requirements of this Section.
 - B. Scribe, cut, and fit flooring to butt neatly and tightly to vertical surfaces and permanent fixtures including built-in furniture, cabinets, pipes, outlets, edgings, door frames, thresholds, and nosings.

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- C. Extend flooring into toe spaces, door reveals, closets, and similar openings. Extend flooring to center of door 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. Install flooring 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 flooring edges to substrates that abut covers and to cover perimeters.

3.4 FLOOR TILE AND PLANK INSTALLATION

- A. Comply with manufacturer's written instructions for installing floor tile and floor plank.
- B. Lay out floor tiles and floor planks 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 and floor planks square with room axis, unless otherwise indicated.
- C. Match floor tiles and floor planks 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.
- D. Adhere floor tiles and floor planks 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. Tiles and planks shall be aligned straight with tight joints. Stagger the end joints of planks a minimum of 4 inches. Pay attention to the randomness of the plank layout to avoid establishing a repeating pattern.
- E. Hand roll tiles where required by tile manufacturer.

3.5 RESILIENT BASE INSTALLATION

- A. Comply with manufacturer's written instructions for installing resilient base.
- B. Apply resilient 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 base height, cut down base to proper height.
- C. Install straight base before installation of carpet.
- D. Install resilient base in lengths as long as practicable without gaps at seams and with tops of adjacent pieces aligned.
- E. Tightly adhere resilient base to substrate throughout length of each piece, with base in continuous contact with horizontal and vertical substrates.

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- F. Do not stretch resilient base during installation.
- G. On masonry surfaces or other similar irregular substrates, fill voids along top edge of resilient base with manufacturer's recommended adhesive filler material.
- H. Job-Formed Corners: Provide job-formed corners everywhere, except as noted, as follows:
 - 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.
- I. Contoured Resilient Wall Base: Saw cut inside and outside corners with electric miter saw. Corners shall be even and uniform with miters tight and aligned without gaps or openings. Glue inside and outside corners with contact bond adhesive applied to mitered surface areas.

3.6 RESILIENT ACCESSORY INSTALLATION

- A. Comply with manufacturer's written instructions for installing resilient accessories.
- B. Resilient Stair Accessories:
 - 1. Clean backs of tread and lightly sand to ensure proper adhesion.
 - 2. Use stair-tread-nose filler to fill nosing substrates that do not conform to tread contours.
 - 3. Install treads with epoxy adhesive and roll until a firm bond has been obtained.
 - 4. Tightly adhere to substrates throughout length of each piece.
 - 5. For treads installed as separate, equal-length units, install to produce a flush joint between units.
- C. Resilient Molding Accessories: Butt to adjacent materials and tightly adhere to substrates throughout length of each piece. Install reducer strips at edges of carpet and resilient floor coverings that would otherwise be exposed.

3.7 CLEANING AND PROTECTION

- A. Comply with manufacturer's written instructions for cleaning and protection of resilient floorings and accessories.
- B. Perform the following operations immediately after completing flooring installation:
 - 1. Remove adhesive and other blemishes from exposed surfaces using cleaner recommended by resilient floor covering 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.
 - 4. Not more than 7 days after completion of installation, apply 1 coat of sealer/ wax to a clean, dry VCT floor covering per manufacturer's requirements, protecting surface with uniform coating and gloss. Work shall be done by a floor care subcontractor.

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- C. Stripping of Solid Vinyl Floor Plank: Strip mold release agent from surface of solid vinyl flooring in accordance with manufacturer's written instructions. Scrub the floor with a recommended stripper diluted at a 1:5 dilution with clean water. Use a 175-rpm single disk machine equipped with either a brush for floors or a green pad. Pick up the stripping solution with a wet/dry vacuum and then rinse the floor with clear water. Do not allow the solution to dry or work its way beneath the flooring, which will result in adhesive failure. Allow flooring to dry thoroughly before exposing to traffic.
- D. Protect flooring 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.
- E. Final cleaning and buffing specified in Division 01 Section "Closeout Procedures."
- F. Cover resilient flooring with undyed, untreated building paper until Substantial Completion.
 - 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.

END OF SECTION 096500