SECTION 09 65 19
RESILIENT TILE FLOORING

SPEC WRITER NOTES:
1. Delete between // // if not applicable to project. Also delete any other item or paragraph not applicable in the section and renumber the paragraphs.
2. Specify type, color, size, thickness, and finish of tile in Section 09 06 00, SCHEDULE FOR FINISHES.
3. Show floor patterns on drawings.

PART 1 - GENERAL

1.1 DESCRIPTION:

A. This section specifies the installation of // solid vinyl tile flooring, // // luxury vinyl tile, // //vinyl composition tile,// // rubber tile,// // linoleum tile // and accessories required for a complete installation.

1.2 RELATED WORK:

//A. Sustainable Design Requirements: Section 01 81 13, SUSTAINABLE DESIGN REQUIREMENTS. //

B. Resilient Base: Section 09 65 13, RESILIENT BASE AND ACCESSORIES.

C. Subfloor Testing and Preparation: Section 09 05 16, SUBSURFACE PREPARATION FOR FLOOR FINISHES.

D. Removal of Existing Construction Containing Asbestos: Section 02 82 13.19, ASBESTOS FLOOR TILE AND MASTIC ABATEMENT.

E. Color, Pattern and Texture for Resilient Tile Flooring and Accessories: Section 09 06 00, SCHEDULE FOR FINISHES.

1.3 SUBMITTALS:

A. Submit in accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES.

//B. Sustainable Design Submittals as described below: //

//1. Volatile organic compounds per volume as described in PART 2 - PRODUCTS.//

//2. Postconsumer and preconsumer recycled content as described in PART 2 - PRODUCTS.// //

C. Manufacturer's Literature and Data:

1. Description of each product.
2. Resilient material manufacturer’s recommendations for adhesives, underlayment, primers, and polish.

3. Application, installation and maintenance instructions.

D. Samples:

1. Tile: Each type, color, thickness and finish.
2. Edge Strips: Each type, color, thickness and finish.
3. Feature Strips: Each type, color, thickness and finish.

E. Shop Drawings:

1. Layout of patterns as shown on the construction documents.
2. Edge strip locations showing types and detail cross sections.

F. Test Reports:

1. Abrasion resistance: Depth of wear for each tile type and color and volume loss of tile, certified by independent laboratory. Tested per ASTM F510/F510M.
2. Moisture and pH test results as per Section 09 05 16, SUBSURFACE PREPARATION FOR FLOOR FINISHES.

1.4 DELIVERY:

A. Deliver materials to the site in original sealed packages or containers, clearly marked with the manufacturer's name or brand, type and color, production run number and date of manufacture.

B. Materials from containers which have been distorted, damaged or opened prior to installation are not acceptable.

1.5 STORAGE:

A. Store materials in a clean, dry, enclosed space off the ground, protected from harmful weather conditions and at temperature and humidity conditions recommended by the manufacturer. Protect adhesives from freezing. Store flooring, adhesives, and accessories in the spaces where they will be installed for at least 48 hours before beginning installation.

1.6 QUALITY ASSURANCE:

A. Installer Qualifications: A company specializing in installation with minimum three (3) years’ experience and employs experienced flooring installers who have retained, and currently hold, an INSTALL Certification, or a certification from a comparable certification program.

1. Installers to be certified by INSTALL or a comparable certification program with the following minimum criteria:
   a. US Department of Labor approved four (4) year apprenticeship program, 160 hours a year.
   b. Career long training.

c. Manufacturer endorsed training.

d. Fundamental journeyman skills certification.

SPEC WRITER NOTE: Mock-up must be approved by Contracting Officer Representative (COR) in the project's design stage before including requirement in specification.

//B. Mockup: Build floor tile mockup to verify selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.

1. Size: 9.3 sq. m (100 sq. ft.) for each type, color, and pattern. Locations as indicated on construction documents.
2. Contracting Officer Representative (COR) approved mockup may become part of the completed Project if undisturbed at time of Substantial Completion. //

C. Furnish product type materials from the same production run.

1.7 WARRANTY:

A. Construction Warranty: Comply with FAR clause 52.246-21, "Warranty of Construction".

1.8 APPLICABLE PUBLICATIONS:

A. The publications listed below form a part of this specification to the extent referenced. The publications are referenced in the text by the basic designation only.

B. ASTM International (ASTM):

D2047-11.....Test Method for Static Coefficient of Friction of Polish-Coated Flooring Surfaces as Measured by the James Machine

D2240-05(R2010).....Test Method for Rubber Property—Durometer Hardness

D4078-02(R2008).....Water Emulsion Floor Finish

E648-14c.....Critical Radiant Flux of Floor Covering Systems Using a Radiant Energy Source

E662-14.....Specific Optical Density of Smoke Generated by Solid Materials

E1155/E1155M-14.....Determining Floor Flatness and Floor Levelness Numbers

F510/F510M-14.....Resistance to Abrasion of Resilient Floor Coverings Using an Abrader with a Grit Feed Method

F710-11.....Preparing Concrete Floors to Receive Resilient Flooring

F925-13.....Test Method for Resistance to Chemicals of Resilient Flooring

F1066-04(R2014).....Vinyl Composition Floor Tile

F1344-12(R2013).....Rubber Floor Tile

F1700-13a.....Solid Vinyl Floor Tile

F1869-11.....Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride

F2170-11.....Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in Situ Probes

F2195-13.....Linoleum Floor Tile

C. Code of Federal Regulation (CFR):

40 CFR 59.....Determination of Volatile Matter Content, Water Content, Density Volume Solids, and Weight Solids of Surface Coating

D. International Standards and Training Alliance (INSTALL):

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS:

A. Provide adhesives, underlayment, primers, and polish recommended by resilient floor material manufacturer.

B. Critical Radiant Flux: 0.45 watts per sq. cm or more, Class I, per ASTM E648.

C. Smoke Density: Less than 450 per ASTM E662.

D. Slip Resistance – Not less than 0.5 when tested with ASTM D2047.

SPEC WRITER NOTES:
1. When vinyl composition tile is used, 3.2 mm (1/8 inch) thick should be utilized in high traffic area installations.
2. Solid color tiles are tiles with uniform color throughout. These are recommended for use as an accent only in small quantities and not as the floor field color. These tiles do not hide soiling well and show scratches easily.
3. Through pattern tiles are tiles with patterning distributed through the entire thickness.
4. Specify special slip resistant tile adjacent to wet areas such as Hydro Physical Therapy, scrub areas, and

shower rooms. Slip resistant ceramic tile is required in wet areas.

2.2 RUBBER TILE:

A. Tile Standard: ASTM F1344, // Class I-A, homogeneous rubber tile, solid color // // Class I-B, homogeneous rubber tile, through mottled // // Class II-A, laminated rubber tile, solid-color wear layer // // Class II-B, laminated rubber tile, mottled water layer //.

B. Hardness: // Not less than 85 as required by ASTM F1344 // // Manufacturer's standard hardness //, measured using Shore, Type A durometer per ASTM D2240.

C. Wearing Surface: // Smooth // // Textured // // Molded pattern //.

1. Molded-Pattern Figure: // Raised discs // // Raised squares // // //.

D. Thickness: // 3.2 mm (0.125 inch) // // //.

E. Size: // 305 x 305 mm (12 x 12 inches) // // 610 x 610 mm (24 x 24 inches) // // //.

F. Seamless-Installation Method: // Heat welded // // Chemically bonded // // //.

2.3 LINOLEUM TILE:

A. ASTM F2195.

B. Tile to consist of a homogeneous layer of a mixture of linoleum cement (binder in linoleum consisting of a mixture of linseed oil, pine rosin, fossil, or other resins or rosins, or an equivalent oxidized oleoresinous binder), cork and/or wood flour, mineral fillers, and pigments bonded to a polyester backing.

2.4 VINYL COMPOSITION TILE:

A. Tile Standard: ASTM F1066, // Class 1, solid-color // // Class 2, through-pattern // // Class 3, surface-pattern // tile.

B. Wearing Surface: // Smooth // // Embossed //.

C. Thickness: // 3.2 mm (0.125 inch) // // //.

D. Size: // 305 x 305 mm (12 x 12 inches) // // //.

//E. Slip Resistant. //

2.5 SOLID VINYL-TILE:

A. Tile Standard: ASTM F1700.

1. Class: // Class I, monolithic vinyl tile // // Class II, surface-decorated vinyl tile //.

2. Type: // A, smooth surface // // B, embossed surface //.

B. Thickness: // 2.0 mm (0.080 inch) // // 2.5 mm (0.100 inch) // // 3.0 mm (0.120 inch) // // 3.2 mm (0.125 inch) // // //.

C. Size: // 305 x 305 mm (12 x 12 inches) // // 457 x 457 mm (18 x 18 inches) // // 610 x 610 mm (24 x 24 inches) // // 914 x 914 mm (36 x 36 inches) // // 76 x 914 mm (3 x 36 inches) // // //.

D. Seamless-Installation Method: // Heat welded // // Chemically bonded // // //.

2.6 LUXURY VINYL TILE:

A. ASTM F1700, Class III, Printed Film Vinyl Tile, Type // A // // B //.

B. Thickness: 12 mil (1/8 inch) // //.

C. Size: // //.

D. Provide products with recycled content with not less than // 30 // // // percent.

//E. Chemical Resistance: ASTM F925; pass. //

2.7 ADHESIVES:

A. Provide water resistant type adhesive for flooring, base and accessories as recommended by the manufacturer to suit substrate conditions. // VOC content to be less than the 50 grams/L when calculated according to 40 CFR 59 (EPA Method 24). // Submit manufacturer’s descriptive data, documentation stating physical characteristics, and mildew and germicidal characteristics.

2.8 PRIMER FOR CONCRETE SUBFLOORS:

A. Provide in accordance with Section 09 05 16, SUBSURFACE PREPARATION FOR FLOOR FINISHES.

2.9 LEVELING COMPOUND FOR CONCRETE FLOORS:

A. Provide cementitious products with latex or polyvinyl acetate resins in the mix in accordance with Section 09 05 16, SUBSURFACE PREPARATION FOR FLOOR FINISHES.

SPEC WRITER NOTES:
1. The VA prefers no-wax maintenance.
2. Pre-waxed flooring and flooring that does not require wax need not be waxed after installation if properly protected.

2.10 POLISH AND CLEANERS:

A. Cleaners: As recommended in writing by floor tile manufacturer.

B. Polish: ASTM D4078.

SPEC WRITER NOTE: Verify that mouldings are shown on construction documents.

2.11 MOULDING:

A. Provide tapered mouldings of // vinyl // // rubber // // //-colored anodized aluminum // // clear anodized aluminum // and types as indicated on the construction documents for both edges and transitions of flooring materials specified. Provide vertical lip on moulding of maximum 6 mm (1/4 inch). Provide bevel change in level between 6 and 13 mm (1/4 and 1/2 inch) with a slope no greater than 1:2.

B. Fasteners for Aluminum Mouldings: Stainless steel of type required for substrate condition.

PART 3 - EXECUTION

3.1 ENVIRONMENTAL REQUIREMENTS:

A. Maintain flooring materials and areas to receive resilient flooring at a temperature above 20 degrees C (68 degrees F) for three (3) days before application, during application and two (2) days after application, unless otherwise directly by the flooring manufacturer for the flooring being installed. Maintain a minimum temperature of 13 degrees C (55 degrees F) thereafter. Provide adequate ventilation to remove moisture from area and to comply with regulations limiting concentrations of hazardous vapors.

B. Do not install flooring until building is permanently enclosed and wet construction in or near areas to receive tile materials is complete, dry and cured.

SPEC WRITERS NOTE:
1. Include Section 09 05 16, SUBSURFACE PREPARATION FOR FLOOR FINISHES in specifications manual for preparation and testing procedures of concrete and other subsurface conditions required before installation of flooring.

3.2 SUBFLOOR TESTING AND PREPARATION:

A. Prepare and test surfaces to receive resilient tile and adhesive as per Section 09 05 16, SUBSURFACE PREPARATION FOR FLOOR FINISHES.

//1. Remove existing resilient floor and existing adhesive. //

B. Prepare concrete substrates in accordance with ASTM F710.

//C. Perform work regarding removal of flooring and adhesive containing asbestos as specified in Section 02 82 13.19, ASBESTOS FLOOR TILE AND MASTIC ABATEMENT. //

3.3 INSTALLATION:

A. Install in accordance with manufacturer's instructions for application and installation unless specified otherwise.

B. Mix tile from at least two containers. An apparent line either of shades or pattern variance is not acceptable.

C. Tile Layout:

1. If layout is not shown on construction documents, lay tile symmetrically about center of room or space with joints aligned.
2. Vary edge width as necessary to maintain full size tiles in the field, no edge tile to be less than 1/2 the field tile size, except where irregular shaped rooms make it impossible.
3. Place tile pattern in the same direction; do not alternate tiles unless specifically indicated in the construction documents to the contrary. // Match tile installation to approved mockup. //

D. Application:

1. Adhere floor tile 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.
2. Scribe, cut, and fit floor tiles to butt neatly and tightly to vertical surfaces and permanent fixtures including built-in furniture, cabinets, pipes, outlets, and door frames.
3. Extend floor tiles into toe spaces, door reveals, closets, and similar openings. Extend floor tiles to center of door openings.
4. Roll tile floor with a minimum 45 kg (100 pound) roller.

E. Seal joints at pipes with sealants in accordance with Section 07 92 00, JOINT SEALANTS.

F. Installation of Edge Strips:

1. Locate edge strips under center line of doors unless otherwise shown on construction documents.
2. Set resilient edge strips in adhesive. Anchor metal edge strips with anchors and screws.
3. Where tile edge is exposed, butt edge strip to touch along tile edge.
4. Where thin set ceramic tile abuts resilient tile, set edge strip against floor file and against the ceramic tile edge.

SPEC WRITER NOTES:
1. Vinyl composition tile requires polishing for protection, ease of maintenance, and an overall attractive appearance.

2. Coordinate any requirements for application of polish/floor finish with the COR.
3. Note that applied finish coatings may affect performance, slip resistant properties and may cause damage to the floor. Coordinate finish coatings with manufacturer.
4. Modify paragraph accordingly.

3.4 CLEANING AND PROTECTION:

A. Clean adhesive marks on exposed surfaces during the application of resilient materials before the adhesive sets. Exposed adhesive is not acceptable.

B. Keep traffic off resilient material for a minimum 72 hours after installation.

C. Clean flooring as recommended in accordance with manufacturer's printed maintenance instructions and within the recommended time frame. As required by the manufacturer, apply the recommended number of coats and type of polish and/or finish in accordance with manufacturer's written instructions.

D. When construction traffic occurs over tile, cover resilient materials with reinforced kraft paper properly secured and maintained until removal is directed by COR. At entrances and where wheeled vehicles or carts are used, cover tile with plywood, hardboard, or particle board over paper, secured and maintained until removal is directed by COR.

E. When protective materials are removed and immediately prior to acceptance, replace damaged tile and mouldings, re-clean resilient materials.

3.5 LOCATION:

A. Unless otherwise indicated in construction documents, install tile flooring, under areas where casework, laboratory and pharmacy furniture and other equipment occur.

B. Extend tile flooring for room into adjacent closets and alcoves.

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