



**WMU Design Guidelines Instructions:** These guidelines are to be used by the Design Professional to inform the design process and outline WMU-specific desires for University projects. Text appearing in blue indicates a WMU design guideline which must be met for all campus projects unless approved in writing by the University. Blue text that is struck out indicates products or practices that are **not** acceptable, and shall not be included unless similarly approved. Any text remaining in black is to be edited by the Design Professional as part of the normal specifications-writing process. Guidelines language shall be included in the project specifications and their intent incorporated into the drawings.

## SECTION 09 6519 - RESILIENT TILE FLOORING

### PART 1 - GENERAL

#### 1.1 SUMMARY

##### A. Section Includes:

1. Solid vinyl floor tile.
2. Rubber floor tile.
3. Vinyl composition floor tile.
4. Resilient terrazzo floor tile.

#### 1.2 ACTION SUBMITTALS

##### A. Product Data: For each type of product.

**Designer Note:** For projects seeking LEED certification, include sustainable design submittals as required.

##### B. Sustainable Design Submittals:

1. <Double click to insert sustainable design text for adhesives.>
2. <Double click to insert sustainable design text for chemical bonding compound.>
3. <Double click to insert sustainable design text for sealants.>
4. <Double click to insert sustainable design text for flooring.>
5. <Double click to insert sustainable design text for environmental product declarations.>

##### C. Shop Drawings: For each type of resilient floor tile.

1. Include floor tile layouts, edges, columns, doorways, enclosing partitions, built-in furniture, cabinets, and cutouts.
2. Show details of special patterns.

##### D. Samples: Full-size units of each color, texture, and pattern of floor tile required.

1. For heat-welding bead, manufacturer's standard-size Samples, but not less than [9 inches] **<Insert dimension>** long, of each color required.

##### E. Samples for Initial Selection: For each type of floor tile indicated.



## WMU Design Guidelines

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- F. Samples for Verification: Full-size units of each color and pattern of floor tile required.
  - 1. For heat-welding bead, manufacturer's standard-size Samples, but not less than **[9 inches]** <Insert dimension> long, of each color required.
- G. Welded-Seam Samples: For seamless-installation technique indicated and for each floor covering product, color, and pattern required; with seam running lengthwise and in center of **[6-by-9-inch]** <Insert dimensions> Sample applied to a rigid backing and prepared by Installer for this Project.
- H. Product Schedule: For floor tile. **[Use same designations indicated on Drawings.]**

### 1.3 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Installer.

### 1.4 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For each type of floor tile to include in maintenance manuals.

### 1.5 MAINTENANCE MATERIAL SUBMITTALS

**Designer Note:** The amount of attic stock is determined on a project-by-project basis. This needs to be discussed with WMU during the design phases of the project, including where the extra materials will be stored.

- A. Furnish extra materials, from the same product run, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
  - 1. Floor Tile: Furnish one box for every **[50]** <Insert number> boxes or fraction thereof, of each type, color, and pattern of floor tile installed.

### 1.6 QUALITY ASSURANCE

- A. Installer Qualifications: An entity that employs installers and supervisors who are competent in techniques required by manufacturer for floor tile installation and seaming method indicated.
  - 1. Engage an installer who employs workers for this Project who are trained or certified by floor tile manufacturer for installation techniques required.
- B. Mockups: Build mockups to verify selections made under Sample submittals, to demonstrate aesthetic effects, and to set quality standards for materials and execution.
  - 1. Coordinate mockups in this Section with mockups specified in other Sections.
    - a. Size: Minimum 100 sq. ft. for each type, color, and pattern **[in locations indicated]** **[in locations directed by Architect]** <Insert locations>.



2. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
3. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

### 1.7 DELIVERY, STORAGE, AND HANDLING

- A. Store floor tile 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.

### 1.8 FIELD CONDITIONS

- A. Maintain ambient temperatures within range recommended by manufacturer, but not less than **[70 deg F] <Insert temperature>** or more than **[95 deg F] <Insert temperature>**, in spaces to receive floor tile during the following periods:
  1. 48 hours before installation.
  2. During installation.
  3. 48 hours after installation.
- B. After installation and until Substantial Completion, maintain ambient temperatures within range recommended by manufacturer, but not less than **[55 deg F] <Insert temperature>** or more than **[95 deg F] <Insert temperature>**.
- C. Close spaces to traffic during floor tile installation.
- D. Close spaces to traffic for 48 hours after floor tile installation.
- E. Install floor tile after other finishing operations, including painting, have been completed.

## PART 2 - PRODUCTS

### 2.1 PERFORMANCE REQUIREMENTS

- A. Fire-Test-Response Characteristics: For resilient floor tile, as determined by testing identical products according to ASTM E648 or NFPA 253 by a qualified testing agency.
  1. Critical Radiant Flux Classification: Class I, not less than 0.45 W/sq. cm.
- B. <Double click to insert sustainable design text for flooring.>

### 2.2 SOLID VINYL FLOOR TILE **<Insert drawing designation>**

- A. <Double click here to find, evaluate, and insert list of manufacturers and products.>



## WMU Design Guidelines

- B. Tile Standard: ASTM F1700.
1. Class: ~~[As indicated by product designations]~~ Class I, Monolithic Vinyl Tile ~~[Class II, Surface Decorated Vinyl Tile]~~ ~~[Class III, Printed Film Vinyl Tile]~~.

**Designer Note:** WMU prefers a smooth surface tile for ease of maintenance where appropriate.

2. Type: **[A, Smooth Surface]** **[B, Embossed Surface]**.
- C. Thickness: ~~[0.080 inch]~~ ~~[0.100 inch]~~ ~~[0.120 inch]~~ 0.125 inch.
- D. Size: **[12 by 12 inches]** **[18 by 18 inches]** **[24 by 24 inches]** **[36 by 36 inches]** **[3 by 36 inches]** <Insert dimensions>.
- E. Seamless-Installation Method: **[Heat welded]** **[Chemically bonded]** <Insert requirements>.
- F. Colors and Patterns: **[As indicated by manufacturer's designations]** **[Match Architect's samples]** <Insert colors and patterns>.

### 2.3 RUBBER FLOOR TILE <Insert drawing designation>

- A. <Double click here to find, evaluate, and insert list of manufacturers and products.>
- B. 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 wear layer]~~.
- C. Hardness: ~~[Grade 1, minimum hardness of 85]~~ ~~[Grade 2, minimum hardness of 70]~~ **Manufacturer's standard hardness**, measured using Shore, Type A durometer according to ASTM D2240.

**Designer Note:** WMU prefers a smooth wearing surface for ease of maintenance where appropriate.

- D. Wearing Surface: **[Smooth]** **[Textured]** **[Molded pattern]**.
1. Molded-Pattern Figure: **[Raised discs]** **[Raised squares]** <Insert pattern>.
- E. Thickness: 0.125 inch.
- F. Size: **[12 by 12 inches]** **[24 by 24 inches]** <Insert dimensions>.
- G. Seamless-Installation Method: **[Heat welded]** **[Chemically bonded]** <Insert requirements>.
- H. Colors and Patterns: **[As indicated by manufacturer's designations]** **[Match Architect's samples]** <Insert colors and patterns>.

### 2.4 VINYL COMPOSITION FLOOR TILE <Insert drawing designation>

- A. <Double click here to find, evaluate, and insert list of manufacturers and products.>
- B. Tile Standard: ASTM F1066, Class 1, solid color or Class 2, through pattern ~~[Class 3, surface pattern]~~.



**Designer Note:** WMU prefers a smooth wearing surface for ease of maintenance where appropriate.

- C. Wearing Surface: **[Smooth] [Embossed]**.
- D. Thickness: 0.125 inch.
- E. Size: 12 by 12 inches.
- F. Colors and Patterns: **[As indicated by manufacturer's designations] [Match Architect's samples] <Insert colors and patterns>**.

## 2.5 RESILIENT TERRAZZO FLOOR TILE <Insert drawing designation>

- A. Resilient Terrazzo Floor Tile: Marble or granite chips embedded in flexible, thermoset-polyester-resin matrix; electrically nonconductive and chemical, oil, and corrosion resistive, with smooth wearing surface and manufacturer's standard factory-applied, protective coating.
  - 1. <Double click here to find, evaluate, and insert list of manufacturers and products.>
- B. Thickness: **[1/8 inch] [3/16 inch]**.
- C. Size: **[12 by 12 inches] [24 by 24 inches] [24 by 48 inches]**.
- D. Seamless-Installation Method: Chemically bonded.
- E. Accessories:
  - 1. Base: **[3 inches] [4 inches] [6 inches]** tall.
    - a. Type: **[Sanitary, coved] [Straight]**.
  - 2. Divider strips.
  - 3. **<Insert accessory>**.
- F. Colors and Patterns: **[As indicated by manufacturer's designations] [Match Architect's samples] <Insert colors and patterns>**.

## 2.6 INSTALLATION MATERIALS

- A. Trowelable Leveling and Patching Compounds: Latex-modified, portland-cement-based or blended hydraulic-cement-based formulation provided or approved by floor tile manufacturer for applications indicated.
- B. Adhesives: Water-resistant type recommended by floor tile and adhesive manufacturers to suit floor tile and substrate conditions indicated.
  - 1. <Double click to insert sustainable design text for flooring adhesive.>
  - 2. <Double click to insert sustainable design text for adhesives.>



## WMU Design Guidelines

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- C. Seamless-Installation Accessories:
  - 1. Heat-Welding Bead: Manufacturer's solid-strand product for heat welding seams.
    - a. Colors: **[As selected by Architect from manufacturer's full range to contrast with floor tile] [Match floor tile] <Insert colors>**.
  - 2. Chemical-Bonding Compound: Manufacturer's product for chemically bonding seams.
  - 3. <Double click to insert sustainable design text for VOC content of chemical bonding compound.>
  - 4. <Double click to insert sustainable design text for low-emitting chemical bonding compound.>
- D. Floor Polish: Provide protective, liquid floor-polish products recommended by floor tile manufacturer.
- E. Joint Sealant for Resilient Terrazzo Floor Tile: Silicone sealant of type and grade recommended in writing by floor tile manufacturer to suit resilient terrazzo floor tile.
  - 1. <Double click to insert sustainable design text for sealants.>
  - 2. <Double click to insert sustainable design text for sealants.>
  - 3. Joint-Sealant Color: **[White] [As selected by Architect from manufacturer's full range to match floor tile] [Match floor tile] <Insert color>**.
- F. Sealers and Finish Coats for Resilient Terrazzo Floor Tile: Products recommended by floor tile manufacturer for resilient terrazzo floor tile.

### 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.
  - 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 floor tile.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

#### 3.2 PREPARATION

- A. Prepare substrates according to floor tile manufacturer's written instructions to ensure adhesion of resilient products.
- B. Concrete Substrates: Prepare according to ASTM F710.
  - 1. Verify that substrates are dry and free of curing compounds, sealers, and hardeners.



## WMU Design Guidelines

2. Remove substrate coatings and other substances that are incompatible with adhesives and that contain soap, wax, oil, or silicone, using mechanical methods recommended by floor tile manufacturer. Do not use solvents.
3. Alkalinity and Adhesion Testing: Perform tests recommended by floor tile manufacturer. Proceed with installation only after substrate alkalinity falls within range on pH scale recommended by manufacturer in writing, but not less than 5 or more than [9] [10] <Insert number> pH.

**Designer Note:** WMU requires moisture testing per product manufacturer's recommendations.

4. **Moisture Testing:** Perform tests so that each test area does not exceed [200 sq. ft.] [1000 sq. ft.] <Insert area>, and perform no fewer than three tests in each installation area and with test areas evenly spaced in installation areas.
  - a. **Anhydrous Calcium Chloride Test:** ASTM F1869. Proceed with installation only after substrates have maximum moisture-vapor-emission rate of [3 lb of water/1000 sq. ft.] <Insert rate> in 24 hours.
  - b. **Relative Humidity Test:** Using in-situ probes, ASTM F2170. Proceed with installation only after substrates have a maximum [75] <Insert number> percent relative humidity level measurement.
- C. **Access Flooring Panels:** Remove protective film of oil or other coating using method recommended by access flooring manufacturer.
- D. Fill cracks, holes, and depressions in substrates with trowelable leveling and patching compound; remove bumps and ridges to produce a uniform and smooth substrate.
- E. Do not install floor tiles until materials are the same temperature as space where they are to be installed.
  1. At least 48 hours in advance of installation, move resilient floor tile and installation materials into spaces where they will be installed.
- F. Immediately before installation, sweep and vacuum clean substrates to be covered by resilient floor tile.

### 3.3 FLOOR TILE INSTALLATION

- A. Comply with manufacturer's written instructions for installing floor tile.
- B. Lay out floor 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 [square with room axis] [at a 45-degree angle with room axis] [in pattern indicated] <Insert requirements>.
- C. Match floor 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 running in one direction] [with grain direction alternating in adjacent tiles (basket-weave pattern)] [in pattern of colors and sizes indicated].



## WMU Design Guidelines

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- D. 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.
- E. Extend floor tiles into toe spaces, door reveals, closets, and similar openings. Extend floor tiles to center of door openings.
- F. Do not bridge expansion joints with flooring material.
- G. For seams that occur at doorways, seam shall be centered under the door in its closed position.
- H. 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 marking device.
- I. Install floor tiles on covers for telephone and electrical ducts, building expansion-joint covers, and similar items in installation areas. Maintain overall continuity of color and pattern between pieces of tile installed on covers and adjoining tiles. Tightly adhere tile edges to substrates that abut covers and to cover perimeters.
- J. Adhere floor tiles 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.
- K. Seamless Installation:
  - 1. Heat-Welded Seams: Comply with ASTM F1516. Rout joints and heat weld with welding bead to fuse sections permanently into a seamless flooring installation. Prepare, weld, and finish seams to produce surfaces flush with adjoining flooring surfaces.
  - 2. Chemically Bonded Seams: Bond seams with chemical-bonding compound to fuse sections permanently into a seamless flooring installation. Prepare seams and apply compound to produce tightly fitted seams without gaps, overlays, or excess bonding compound on flooring surfaces.
- L. Resilient Terrazzo Accessories: Install according to manufacturer's written instructions.

### 3.4 CLEANING AND PROTECTION

- A. Comply with manufacturer's written instructions for cleaning and protecting floor tile.
- B. Perform the following operations immediately after completing floor tile installation:
  - 1. Remove adhesive and other blemishes from surfaces.
  - 2. Sweep and vacuum surfaces thoroughly.
  - 3. Damp-mop surfaces to remove marks and soil.
- C. Protect floor tile from mars, marks, indentations, and other damage from construction operations and placement of equipment and fixtures during remainder of construction period.
- D. Comply with manufacturer's recommended instructions for finishing the floor.
- E. Floor Polish: Remove soil, adhesive, and blemishes from floor tile surfaces before applying liquid floor polish.





1. Apply **[one]** **[two]** **[three]** **<Insert requirements>** coat(s).
- F. Joint Sealant: Apply sealant to resilient terrazzo floor tile perimeter and around columns, at door frames, and at other joints and penetrations.
- G. Sealers and Finish Coats: Remove soil, visible adhesive, and surface blemishes from resilient terrazzo floor tile surfaces before applying liquid cleaners, sealers, and finish products.
  1. Sealer: Apply two base coats of liquid sealer.
  2. Finish: Apply **[two]** **[three]** **<Insert requirements>** coats of liquid floor finish.
- H. Cover floor tile until Substantial Completion.

END OF SECTION 09 6519