

**SECTION 09 65 00 RESILIENT
FLOORING & ACCESSORIES**

PART 1 – INTRODUCTION

1.1 General

- A. This section serves as a specification guideline for providing project design services for the Florida State University (FSU). The design professional shall provide construction documents for related projects and products which comply with the requirements and recommendations contained herein. Any request for clarification or to vary from the section requirements shall be directed to the FSU Project Manager.
- B. The design professional and contractor shall comply with all resilient floor specification requirements stated herein. No variance from these guidelines shall be approved during the shop drawing process without prior written approval from the FSU Project Manager.
- C. Resilient Flooring Design Goals:
 - 1. Sustainability - It is in the best interest of Florida State University and our environment to utilize products that promote sustainability. Sustainability refers to the longevity of a product, the amount of recycled content, and if the product can be recycled at the end of its life.
 - 2. Maintenance – It is in the best interest of Florida State University and our environment to utilize products with low maintenance. Maintenance refers to the initial and routine maintenance of applying a polish, wax, sealant or other type of topical finish; Limiting the amount of time and chemicals used to maintain the floor while not inhibiting its longevity.
- D. Select colors and patterns that conceal scratches. White and off-white colors are not recommended. Luxury vinyl tile (LVT) with dark colors tend to show scratches more than medium or light colors. Solid color choices shall be limited to accent areas.
- E. Resilient tile and sheet install direction, pattern, and seaming shall be clearly addressed in the drawings and specifications.
 - 1. Most manufacturers recommend installing square or rectangular tiles in an ashlar or brick method (not monolithic) to avoid misalignment of tile edges due to sub floor irregularities.
- F. Transitions and moldings shall be clearly addressed in the drawings and specifications.
- G. Expansion joint details, where required, shall be clearly addressed in the drawings and specifications. Expansion joints shall not be filled with underlayment and must be properly detailed with approved covers.
- H. Carefully address new and existing furniture glides and casters, if applicable, to ensure they are the correct type for the flooring type specified.
- I. Specify resilient flooring products and adhesives that do not contain asbestos.

- J. Resilient floors are not allowed at building entrances, provide suitable finish flooring or walk-off carpeting where required.
- 1.2 **Product Selection**
- A. The design professional shall submit, no later than the submission of the 50% construction documents, schedule information regarding floor tile location, color, material, size, gauge, as well as similar information for base and edging.
 - 1. The University must approve all resilient flooring and related products. Samples of all resilient flooring and related products as well as manufacturer's product literature must be submitted to and approved by the University prior to the 100% construction document submittal.
 - B. See Part 3 – Products for additional requirements and recommendations for specific products.
- 1.3 **General Installation Guidelines**
- A. The FSU Project Manager shall coordinate an installation schedule with the owner's representative and the contractor to minimize disturbance of the department's operations.

PART 2 – GENERAL

2.1 Summary

- A. This section includes resilient tile flooring, resilient sheet flooring, resilient wall base, resilient stair coverings, resilient transitions, and related accessories. This section does not include Resilient Athletic Flooring category 09.65.66

2.2 Related Sections

- A. Section 09 68 00 Carpeting, Part 3.3 Entryway Flooring.

2.3 Submittals

- A. Product Data: Provide manufacturers complete product data for each type of resilient flooring material, underlayment, adhesive, and other installation accessories as required. Including:
 - 1. Product data and test results as required in section 2.8 and part 3 of this specification.
 - 2. Product data related to adhesive and other installation accessories.
 - 3. Indicate type of installation method (glue down, floating, click lock, etc.)
 - 4. Sub floor preparation requirements and instructions.
- B. Shop Drawings: Provide shop drawings, if required in construction documents, indicating seam locations, layout or pattern, tile install direction (quarter turn, ashlar, random, etc.) and sheet pattern direction for the design professional's approval.
- C. Samples: Provide samples for verification purposes in the manufacturer's standard size, showing full range of color, texture, and pattern variations expected. Prepare samples from the same material to be supplied to the owner, when required by the project.
- D. Warranties: The resilient flooring manufacturer shall provide copies of their sample warranties with their bids.

2.4 Closeout Submittals:

- A. **Maintenance Data:** Submit manufacturer's recommended cleaning and stain removal procedures and maintenance schedule.
- B. **Warranty:** Must include "proof of purchase" indicating original purchaser, installer, install dates, etc. as required by manufacturer to maintain proof of warranty. See also 2.10 Warranties.
- C. **Recycled Material:** Submit the recycled material verification form provided by the designated recycling service provider. See also Part 2.7 Reclaiming Process
- D. **Moisture Testing:** Submit moisture testing results. See also Part 4.1 Subfloor Preparation, Section C Moisture testing.

2.5 Attic Stock:

- A. **Required Overages:** Each project requires a percentage of USEABLE overage of the installed area, as listed below, for each type, color, and pattern; delivered, wrapped, and labeled. Floor manufacturer shall include the required amount of overage in their bids as follows:
 - 1. Resilient tile and sheet:
 - Less than 1000 sf ordered = 10% but not less than one box
 - 1000 – 5000 sf ordered = 5% but not less than 100 sf
 - More than 5000 sf ordered = 3% but not less than 250 sf
 - Sheet goods must be supplied in the largest roll width available and overage should be one single piece meeting the percentages above.
 - 2. Resilient wall base, stair coverings and related accessories:
 - Less than 1000 If ordered = 10%
 - 1000 – 5000 If ordered = 5% but not less than 100 If
 - More than 5000 If ordered = 3% but not less than 250 If
 - Wall base must be supplied in coils, not 4-foot strips

2.6 Pre-installation Coordination:

- A. **Sub-floor Verification:** The contractor shall visit the site and familiarize him or herself with the work to be accomplished. If verification of sub-flooring is required, the contractor shall, upon approval from the FSU Project Manager, remove a section of the existing flooring material as required and then patch and repair the section to match the original condition.
- B. **Pre-installation Meeting:** A pre-installation conference shall be held prior to the removal of existing floor (if applicable) and subfloor preparation. The meeting shall include representatives from FSU Building Services, the sub-contractor that is installing, general contractor or construction manager, design professional and the FSU Project Manager. The following items shall be discussed:
 - 1. Review existing conditions, presence of hazardous materials, existing floor removal, and sub floor preparation required.
 - 2. Review installation requirements previously submitted including installation method and direction, adhesives, transitions, and seaming.
 - 3. Substrate moisture testing results shall be discussed, see Part 4.1 Sub floor preparation, Section C Moisture testing.

2.7 Reclaiming Process:

A. Recycling: All resilient floor waste shall be recycled per the options listed below.

1. LEED Projects: Follow the design professional's LEED specification for removal and recycling of any resilient floor waste. If this option is not specifically addressed in a LEED project than option 2 shall be followed and included in the specifications and construction documents.
2. Non-LEED Projects: The following procedure shall be noted in the specifications and construction documents if provided. If these documents are not required, the following shall be discussed prior to bidding and/or receiving quotes:
 - a) The contractor is responsible for removing resilient floor waste for recycling using the services of Marpan Recycling, Tallahassee, FL
 - b) The contractor is responsible for obtaining documentation from Marpan detailing the amount or weight of the material that was able to be recycled. A recycled material verification form shall be supplied to the FSU Project Manager at close out.

2.8 Quality Assurance

A. Fire Performance Characteristics: Provide resilient flooring meeting or exceeding the following fire performance characteristics or the current requirements of the authority having jurisdiction, whichever is more restrictive.

1. Critical Radiant Flux:

- a) Test Method: ASTM E-648; NFPA 253.
- b) Rating: Class II minimum

B. Static Load (ASTM F970): All floors must have a minimum PSI of 250.

1. High traffic areas: corridors, lobbies, assemblies, classrooms, dining areas, lounges, elevators, and rolling zones require flooring materials with a preferred static load limit greater than 250 PSI.

C. Maintenance Requirements: Flooring materials requiring a polish, wax, sealant, or other type of topical finish shall not be specified on new projects. Flooring that requires a polish, wax sealer, or other topical finish shall ONLY be specified on renovation projects which require patching and/or matching existing flooring materials.

D. Installer Qualifications: Sub-contractors labor force shall be approved by the flooring manufacturer and demonstrate a minimum of five (5) years of experience with similar materials, quantities, and complexity.

2.9 Delivery, Storage, and Handling

A. Deliver materials to site in original sealed factory wrap, clearly marked with the manufacturer's number, type, color, production run number, and manufacture date.

B. Store materials in watertight and dry storage facility. Rolled goods are to be stood upright.

C. Move materials into the space where they will be installed at least 48 hours in advance of installation. The permanent HVAC system should be fully operational and set to the minimum temperature and relative humidity as required by the manufacturer.

2.10 Warranties

- A. **Manufacturer:** Submit, for the University's acceptance, manufacturer's standard warranty document executed by the authorized company official. Manufacturer's warranty is in addition to, and not a limitation of, other rights the University may have under the condition of the contract documents. Below are the warranties the University requires where applicable:
1. Sheet Vinyl & Solid Vinyl Tile: minimum 10-year commercial warranty, high traffic areas require products warranted for 20-years. High traffic areas are defined in Part 2.8 Quality Assurance, section B, number 1.
 2. Vinyl Composition Tile (VCT), Rubber Tile, Rubber Sheet, & Resilient Stair treads: minimum 5-year commercial warranty
 3. Resilient Wall Base: minimum 2-year commercial warranty
 4. Resilient Accessories: minimum 1-year warranty for defects
- B. **Contractor/Installer Warranty:** The contractor shall provide the University a written warranty guaranteeing all work performed under the contract for a period of one year after the date of substantial completion. In this written guarantee, the contractor shall agree to make all repairs or corrections required to maintain the completed work in first class condition for the one-year period at no cost to the University. If subcontractors are involved in this project, a similar written guarantee shall be furnished by each subcontractor covering his portion of the work. Subcontractors' warranties will not relieve the general contractor of any warranty responsibility.

PART 3 – PRODUCTS

3.1 General

- A. All resilient flooring and accessories shall be of the same millrun to maintain consistency.

3.2 Entryway Flooring

- A. Entryway Flooring: required at building entrances. See 2.2 related sections.

3.3 Resilient Tile Flooring

- A. Vinyl Composition Tile (VCT) or Vinyl Enhanced Tile (VET): Less than 34% vinyl content. Composition tile that requires initial and/or routine polish shall ONLY be specified on renovation projects that require patching/ matching to existing conditions.

1. Comply with ASTM F1066.
 - Class 1 (Solid Color) or Class 2 (Through Pattern)
2. Color and Pattern uniformly distributed through thickness.
3. Other composition tile, such as Quartz (Upofloor & Altro), that do not require initial and/or routine polish may be specified for new or renovation projects.

- B. Polyolefin Composition Floor Tile:

1. Comply with ASTM 3009.
 - Class 1 Solid Color
 - Class 2 Through Pattern
 - Class 3 Surface Pattern
2. No initial or routine polish, wax, sealer, or other topical finish shall be required.

- C. Solid Vinyl Tile (SVT): More than 34% vinyl content

1. Comply with ASTM 1700.
 - Class I – Monolithic, homogeneous
 - Class II – Surface decorated, heterogeneous, inlaid
 - Class III – Printed film, luxury vinyl tile (LVT), or enhanced resilient tile (ERT)
2. Class III shall have a minimum 20 mil wear layer. High traffic areas are required to have a minimum 30 mil wear layer. High traffic areas are defined in Part 2.8 Quality Assurance, section B, number 1.
3. High traffic areas require a urethane wear layer that is reinforced with an aggregate. Acceptable forms of aggregate are ceramic beads, quartz, aluminum oxide, or diamond technology. The hardness of the coating increases respectively.
4. No initial or routine polish, wax, sealer, or other topical finish shall be required.
5. NOT recommended for: areas with spiked shoe traffic (cleats)

D. Linoleum Tile:

Note that Linoleum will yellow or Amber due to the drying room process. Some colors, such as blue and gray, show the yellowing more than others. Exposure to natural and artificial light will typically cause the yellowing to disappear.

1. Comply with ASTM F2195.
2. No initial or routine polish, wax, sealer, or other topical finish shall be required.
3. NOT recommended for: high traffic areas or areas subject to standing liquids.

E. Rubber Tile:

1. Comply with ASTM F1344 or ASTM F3041 Bonded Crumb Rubber.
 - ASTM F1344 shall be type I – Homogeneous only
 - ASTM F3041 shall be type II - tile
2. No initial or routine polish, wax, sealer, or other topical finish shall be required.
3. Athletic flooring is not included in this section
4. NOT recommended for: areas exposed to animal fat, grease, and vegetable oils, such as commercial kitchens, unless specifically designed and approved for petroleum hydrocarbons.

F. PVC Free Tile:

Floor tiles not categorized by ASTM as Vinyl, Linoleum, or Rubber shall meet all the requirements listed for VCT and/or SVT as applicable except for the listed ASTM requirements. Currently ASTM does not have a PVC free standard, except for Polyester and Polyolefin Composition Tile, however not every PVC free flooring utilizes polyester or polyolefin in the composition.

1. No initial or routine polish, wax, sealer, or other topical finish shall be required.

G. Resilient Tile Adhesive: Provide adhesive approved by the manufacturer for intended use condition. Pressure sensitive adhesive shall be used in most cases with the exceptions noted below.

1. Epoxy adhesive shall be used in areas subject to moisture such as flooring near water fountains, in a restroom, or near the coast where flooding may

- occur.
2. Epoxy adhesive shall also be used in areas subject to heavy rolling traffic, and point loads such as hospital beds, scissor lifts, or pallet jacks/trucks.
 3. Use low VOC adhesives.

3.4 Resilient Sheet Flooring

A. Sheet Vinyl: Heterogeneous, vinyl plastic wear layer with backing or PVC free wear layer with backing

1. Comply with ASTM F1303 for heterogeneous sheet vinyl (backing).
 - Type 1 or 2, Grade 1 (commercial) only allowed.
2. A minimum wear layer of 20 mils.
3. High traffic areas require a urethane wear layer that is reinforced with an aggregate. Acceptable forms of aggregate are listed under Part 3.3 Resilient Tile Flooring, section C, number 3
4. High traffic areas are defined in Part 2.8 Quality Assurance, section B, number 1.
5. Seams shall be heat welded as required by the manufacturer and application. Color of weld rod shall match adjacent floor color and be provided by floor manufacturer.
6. No initial or routine polish, wax, sealer, or other topical finish shall be required
7. NOT Recommended for: heavy rolling loads or high traffic areas unless a seamless application is required for hygienic reasons.

B. Sheet Vinyl: Homogenous, through color/pattern vinyl without backing

1. Comply with ASTM F1913 for homogeneous (no backing)
2. High traffic areas require a wear layer that is reinforced with an aggregate. Acceptable forms of aggregate are listed under Part 3.3 Resilient Tile Flooring, section C, number 3
3. High traffic areas are defined in Part 2.8 Quality Assurance, section B, number 1.
4. Seams shall be heat welded as required by the manufacturer and application. Color of weld rod shall match adjacent floor color and be provided by floor manufacturer.
5. No initial or routine polish, wax, sealer, or other topical finish shall be required
6. NOT Recommended for: heavy rolling loads or high traffic areas unless a seamless application is required for hygienic reasons.

C. Linoleum Sheet:

Note that Linoleum will yellow or Amber due to the drying room process. Some colors, such as blue and gray, show the yellowing more than others. Exposure to natural and artificial light will typically cause the yellowing to disappear.

1. Comply with ASTM F2034
2. Seams shall be heat welded or other methods as required by the manufacturer and application. Color of weld rod shall match adjacent floor color and be provided by floor manufacturer.
3. No initial or routine polish, wax, sealer, or other topical finish shall be required.
4. NOT recommended for: high traffic areas or areas subject to standing liquids.

D. Rubber Sheet:

1. Comply with ASTM F1859 (without backing), ASTM F1860 (with backing), or ASTM F3041 Bonded Crumb Rubber
 - ASTM F1859 & F 1860 shall be type I – Homogenous only
 - ASTM F3041 shall be type I - roll
2. Athletic flooring is not included in this section
3. No initial or routine polish, wax, sealer, or other topical finish shall be required.
4. NOT recommended for: areas exposed to animal fat, grease, and vegetable oils, such as commercial kitchens, unless specifically designed and approved for petroleum hydrocarbons.

E. PVC Free Sheet:

Sheet goods not categorized by ASTM as Vinyl, Linoleum or Rubber shall meet all the requirements listed for sheet vinyl except for the listed ASTM requirements.

1. No initial or routine polish, wax, sealer, or other topical finish shall be required.

F. Resilient Sheet Adhesive: Provide adhesive approved by the manufacturer for intended use condition. Pressure sensitive adhesive shall be used in most cases with the exceptions noted below.

1. Epoxy adhesive shall be used in areas subject to heavy rolling traffic and point loads such as hospital beds, scissor lifts, or pallet jacks/trucks.
2. Use low VOC adhesives.

3.5 Resilient Wall Base:

A. Rubber Wall Base:

1. Comply with ASTM F1861
 - Styles A (straight), B (cove), C (butt-to), or D (sculptured)
 - Type TS (thermoset rubber) or TP (thermoplastic rubber)
 - Group 1 solid (homogeneous) or group 2 layered (heterogeneous)
2. Continuous coil lengths or 8-foot sections ONLY, 4-foot sections are NOT allowed.

B. Resilient Wall Base Adhesive: Provide adhesive approved by the manufacturer and suitable for the intended substrate.

3.6 Resilient Stair Treads:

A. Rubber Stair Treads: Include treads and treads with integrated riser

1. Comply with ASTM F2169 for stair treads
 - Type TS (thermoset rubber) or TP (thermoplastic rubber)
 - Class 1 or 2 (smooth or pattern),
 - Group 1 (abrasive strip) or 2 (contrasting color for visually impaired)

B. Resilient Stair Tread Adhesive: Provide adhesive approved by the manufacturer and suitable for the intended substrate.

1. Power tape and pressure sensitive tape installation methods are not allowed for stair treads.

3.7 Resilient Floor Covering Accessories:

- A. Floor Covering Accessories: Includes transitions, reducers, adapters, nosing, stringers, and risers
1. Homogeneous
 2. Power tape and pressure sensitive tape installation method not allowed for stair nosing

PART 4 – EXECUTION

4.1 Sub-floor Preparation

A. General:

1. Floors shall be free of all wax, grease, paint, oil or any other substance that would create adherence problems.
2. Holes, cracks, and other depressions in the existing floor slab shall be filled or patched and brought to a true plane with underlayment or patching compound approved by the flooring manufacturer.
3. Sub-floor irregularities shall be addressed properly to prevent excessive wear that would void the manufacturer's warranty.

- B. Subfloors: Concrete slab shall comply with ASTM F710. Wood subfloor shall comply with ASTM F1482

- C. Moisture Testing: perform the following tests as required by the flooring manufacturers for new and existing concrete floors. Do not proceed with installation if reading measurements exceed the limits specified by manufacturer. Moisture mitigation or special adhesive is required if test results exceed manufacturer's specified limits.

1. Moisture Vapor Emission Tests in accordance with ASTM F1869.
2. Concrete Internal Relative Humidity Test using situ probes in accordance with ASTM F2170.
3. 3rd party moisture testing is required for projects over 5,000 SF
4. Testing of sub-floor shall occur after the new concrete floor has fully cured, the building is permanently enclosed, and the HVAC system operating for the minimum time, temperature, and relative humidity as required by the flooring manufacturer.

- D. Primer: if required by manufacturer, prior to application of adhesive.

- E. Underlayment and Patching Compounds: Use only cementitious underlayments; patching compounds are used for filling cracks, holes, and leveling the floor. Provide as required and approved by flooring manufacturer.

4.2 Installation

- A. Removal & Installation: Comply with manufacturer's requirements, guidelines, and recommendations in order to maintain manufacturer's warranty, including but not limited to:

1. Removal of old adhesive, either mechanically or by encapsulation as required by manufacturer, prior to installing the new floor. See part 4.1 Sub-floor Preparation.
2. Preparation of sub floor. See Part 4.1 Sub-floor Preparation.
3. Base and molded corners shall be firmly adhered to walls and other vertical

surfaces with tight joints. Base throughout its entire length shall have its top and bottom edges in firm contact with the floor and walls. Base shall be scribed accurately to molded corners and to door frames.

4. Installing over existing resilient floors due to asbestos containing materials is decided by the University on a case by case basis. Approvals must be obtained in written format from the FSU Project Manager. If no project manager is assigned to the project than approval shall be obtained from FSU Building Services.
 - a. Remove existing wax or floor polish without chemicals and/or prime as required by the manufacturer of new flooring.
 - b. If existing floor is not asbestos containing material it shall always be removed prior to installation of new floor.

- B. Comply with the Resilient Floor Covering Institute's Recommended Work Practices.

4.3 Cleaning & Protection

- A. Initial Wet Cleaning: Wait at least 48 hours after installation, or longer as required by manufacturer and adhesive, before performing the initial wet cleaning process.

- B. Post installation: Comply with the following procedures after materials are installed:

1. Remove excess adhesive, seam sealer, paint and other surface blemishes using a cleaner recommended by the manufacturer.
2. Vacuum and remove all debris

- C. Protection: Provide floor protection as required by manufacturer after floor is installed. Including the following:

1. Restrict foot traffic immediately after installation for 72 hours or as required by manufacturer and adhesive.
2. Protect the floor with Ram Board or similar product approved by the manufacturer until construction is complete. Seams of protective cover shall be taped to prevent sand and other abrasive materials from damaging the floor.
3. Protect resilient floor during installation of furniture, furnishings, and equipment to prevent scratches from dragging or sliding items.
4. After protective materials are removed the floor should be inspected and any damage that occurred shall be repaired and the entire floor cleaned before acceptance.
5. Damage to the facility or surrounding property incurred by the contractor during any stage of resilient flooring installation shall be repaired and the damaged area restored to its original condition by the contractor at no expense to the University.

4.4 Close Out Procedure

- A. Submittals: The following items are to be submitted to the Owner at the end of the project:

1. See Part 2.4 Closeout Submittals
2. See Part 2.5 Attic Stock