

09652 RESILIENT TILE FLOORING

SPECIFIER:

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PART 1 GENERAL

1.1 SUMMARY

- A. This Section includes provision for the installation of resilient tile flooring, including accessories and resilient base molding, and the preparation of the substrate surfaces over which these materials will be installed.

1.2 RELATED SECTIONS

- A. Coordinate resilient tile flooring with the following:
 - 1. 03300 Cast-in-Place Concrete.
 - 2. 15421 Drains and Cleanouts.
 - 3. 16132 Floor Boxes.

1.3 REFERENCES

- A. American Society for Testing and Materials (ASTM). Latest publication for:
 - 1. D2047 - Standard Test Method for Static Coefficient of Friction of Polish-Coated Flooring Surfaces, as Measured by the James Machine.
 - 2. E84 - Standard Test Method for the Surface Burning Characteristics of Building Materials.
 - 3. E648 - Critical Radiant Flux of Floor-Coverings Systems Using a Radiant Heat Energy Source.
 - 4. E662 - Standards Test Method for Specific Optical Density of Smoke Generated by Solid Materials.
 - 5. F510 - Standards Test Method for Resistance to Abrasion of Resilient Floor Coverings Using an Abrader with a Grid Feed Method.
 - 6. F710 - Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring.
 - 7. F1066 - Standard Specifications for Vinyl Composition Floor Tile (VCT).
 - 8. F1700 - Standard Specifications for Solid Vinyl Tile.
 - 9. F1861 - Standard Specifications for Resilient Wall Base.
 - 10. F1869 - Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subflooring Using Anhydrous Calcium Chloride.
 - 11. F1914 - Standard Test Method Short-Term Indentation and Residual Indentation of Resilient Floor Covering.
 - 12. F2170 - Test Method for Determining Relative Humidity in Concrete Floor Slabs Using In Situ Probes.
 - 13. F2195 - Standard Specification for Linoleum Tile Floor Covering.
 - 14. F2199 - Standard Test Method for Determining Dimensional Stability of Resilient Floor Tile after Exposure to Heat.

15. F2420 - Standard Test Method for Determining Relative Humidity on the Surface of Concrete Floor Slabs Using Relative Humidity Probe Measurement.

- B. Florida Building Code (FBC).
- C. Americans with Disabilities Act (ADA).
- D. Resilient Floor Covering Institute (RFCI) - Recommended Installation Practice for Resilient Flooring.
- E. All references indicating to follow manufacturer's instructions shall imply using the latest manufacturer's published information.

1.4 SUBMITTALS

- A. Initial Submittals: Submit and obtain approval from A/E and M-DCPS, before making other submittals:
 - 1. Text of Special Warranties, on manufacturer's and installer's corporate letterheads, as will be signed at completion, including warranty duration.
 - 2. Certification of Installer: Submit resilient tile manufacturer's certification of its installer.
- B. Product Data: Submit manufacturer's technical data for each type of product to be used, including resilient tile, flooring adhesives, sealers, accessories, etc., describing physical and performance characteristics, sizes, patterns and colors available for each.
- C. Provide manufacturer's printed documentation indicating compliance with slip-resistant (Static Coefficient of Friction) required by ADA and applicable Codes, for the area of intended use.
- D. Shop Drawings: Indicate tile layout, borders and patterns.
- E. Submit manufacturer's Material Safety Data Sheet (MSDS) indicating VOC content of all products.
- F. Certification for Fire Test and Smoke Performance: Submit to A/E and M-DCPS, certification from an independent testing laboratory acceptable to authorities having jurisdiction that resilient flooring complies with fire test and smoke performance requirements.
- G. Samples for Initial Selection Purposes: Submit manufacturer's standard color charts in form of actual sections of resilient flooring, including accessories, showing full range of colors and patterns available, for each type of resilient flooring required.
- H. Samples: Submit two full size tile samples, illustrating color and pattern for each color selected by A/E.
- I. Submit two 12" long samples of base and edge trim material for each color specified.
- J. Manufacturer's Adhesives Certification: Submit certification that adhesives are compatible with flooring and substrate and are recommended for intended use.

- K. Provider manufacturer's installation instructions, including special procedures and perimeter conditions requiring special attention.
- L. Closeout Submittals: Submit the following:
 - 1. Executed Special Warranties described below.
 - 2. Manufacturer's written verification that installer has followed manufacturer's installation instructions.
 - 3. Maintenance Manuals (at closeout): Two copies of the manufacturer's recommended maintenance practices for each type of resilient tile flooring that is installed. Include methods for maintaining installed products, recommended maintenance materials, suggested schedule for cleaning and refinishing, and precautions against cleaning material and methods detrimental to finishes and performance.
 - 4. Copy of transmittal letter signed by the M-DCPS Project Manager, indicating receipt of all extra stock materials called for in this document.
- M. When removal and recycling of existing flooring materials is part of the Contract, provide A/E and M-DCPS proper documentation indicating compliance with recycling requirements.

1.5 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Have at least 15 years production experience with resilient tile flooring and accessories similar to type specified.
- B. Installer Qualifications: Certified, or trained and approved by the flooring manufacturer, having at least 5 years of experience in the installation of the specified products. Installer shall have completed at least three projects of similar magnitude, complexity and materials, and provide A/E and M-DCPS with references including contact names and telephone numbers.
- C. Prior to commencing any resilient tile work, maintain ambient temperature as required by product manufacturers for a minimum of 72 hours prior to, during and 96 hours after installation of materials.
- D. Do not commence work until concrete slabs are sufficiently dry to achieve bond with adhesive. Follow resilient tile manufacturer's instructions and perform Bond test, Moisture tests, pH tests and Vapor Emission tests in accordance with ASTM Standards indicated. Submit test results to A/E and M-DCPS for review prior to the start of work.
- E. Install resilient flooring and accessories after other work, including painting, have been completed.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Resilient tile flooring, and all related accessories, shall be stored in weather protected, clean, dry areas, containing constant ambient conditions within limits specified by product manufacturers. Storage conditions must prevent product distortion.
- B. Store resilient tile, and all related accessories, 3 days prior to installation, in area of installation to achieve temperature stability.

1.7 PERFORMANCE REQUIREMENTS

- A. Meet or exceed minimum static coefficients of friction (SCoF) in compliance with ADA, following ASTM D2047.
- B. Through-Pattern: The colors and pattern appearing on the tile surface shall extend homogeneously through the entire thickness of the tile in a reasonably uniform pattern visible at each depth to which the tile is abraded.

1.8 SPECIAL WARRANTIES

- A. By Manufacturer: In addition to the warranty and the correction of work requirements of the General Conditions, provide a written and signed Special Warranty from the resilient flooring manufacturer, endorsed by Contractor, to provide all labor and materials necessary to correct manufacturing defects in resilient tile and base work as follows:
 - 1. Non-prorated, for 5 years after date of Substantial Completion of the Work.
 - 2. Agreeing to correct by replacing with new material, any flooring having manufacturing defects such as tile or base that changes color, chalks, shrinks, crumbles or exhibits brittleness or excessive indentation due to manufacturing defect.
- B. By Installer: In addition to the warranty and correction of work requirements of the General Conditions, provide a written and signed Special Warranty from the resilient flooring and base installer, endorsed by Contractor, to correct defects in the installation of the resilient tile and base work as follows:
 - 1. For 2 years after date of Substantial Completion of the Work.
 - 2. Agree to correct, by replacing using new material, all work showing defects such as loss of adhesion of flooring to concrete, or of base to floor and wall surfaces; adhesive squeeze-up; or any opening-up of the initial tight fit of flooring joints. This shall include, at no additional cost to M-DCPS, the labor necessary to move any furniture, equipment, etc. to access areas that require correction, and then placing back to their original locations, all items that were moved.

1.9 EXTRA STOCK

- A. Provide extra stock in manufacturer un-opened boxes of each tile and base that match the products installed for future repairs by the school staff. Provide a minimum of 1% or one full un-opened box, whichever is greater of all products (type, color, and pattern).

PART 2 PRODUCTS

2.1 GENERAL REQUIREMENTS

- A. Radiant panel fire test: Class I Rating per NFPA 253; Critical radiant flux of at least 0.45 W/cm sq.; ASTM E648.
- B. Smoke density test: Optical density <450 per NFPA; ASTM E662.
- C. Dimensional stability: <0.2% change; ASTM F2199.

- D. Compliance with ASTM F1066, Class 2, Through-Pattern.
- E. Indentation Limit: 0.0006 - 0.0015 in. at 77° for 1 minute; ASTM F1914.
- F. Static Coefficient of Friction (SCoF): Shall comply with ADA and applicable Code requirements for intended area of use.

SPECIFIER: Select resilient flooring materials and color patterns from the following manufacturers to match M-DCPS accepted color board and edit to suit requirements.

2.2 MATERIALS - VINYL COMPOSITION TILE (VCT)

- A. Description: Vinyl composition tile comprised of resins with fillers and pigments, formed into homogeneous tile in a marbled or speckled through-pattern.
 - 1. Size: 12 in. x 12 in.
 - 2. Gauge: 0.125 in.
 - 3. Finish: Prepped and polished as called for in this document.
- B. Product / Manufacturer:
 - 1. Excelon Imperial Texture, by Armstrong.
 - 2. Azrock VCT, by Tarkett.
 - 3. Fortress Elements, by American Biltrite.
 - 4. Equal product in quality and performance as approved by A/E and M-DCPS.

2.3 MATERIALS - LINOLEUM TILE

- A. Description: Homogeneous linoleum tile consisting of linseed oil, wood flour, rosin binders, and organic pigments, mixed and calendered onto a polyester backing to ensure optimum dimensional stability. Pattern and color shall extend throughout total thickness of material.
 - 1. Size: 13 in. X 13 in. (approx.)
 - 2. Gauge: 0.080 in. (2 mm)
 - 3. Finish: Factory applied pre-finish coating.
- B. Product / Manufacturer:
 - 1. Marmoleum Composition Tile (MCT) with TopShield² finish, by Forbo Flooring Inc.
 - 2. Equal product in quality and performance as approved by A/E and M-DCPS.

2.4 MATERIALS – SPECIALTY RESILIENT TILE – SLIP RETARDANT

- A. Slip-resistant tile for use in interior dry areas such as ramps that require an extra measure of safety. Tile color and pattern shall extend throughout total thickness of material.
 - 1. Size: 12 in. x 12 in.
 - 2. Gauge: 0.125 in.
 - 3. Finish: Fast Start Factory Finish.

4. Color/Pattern: As approved by A/E and M-DCPS.
5. Installation: Full Spread Adhesive per manufacturer's written instructions.

B. Product / Manufacturer:

1. Safety Zone, by Armstrong.
2. Equal product in quality and performance as approved by A/E and M-DCPS.

SPECIFIER: "Luxury Solid Vinyl" tiles, planks, or sheet flooring may be considered only with prior written approval from M-DCPS Facilities Design and Standards and only on a per project basis. Material and color patterns shall be meet the following standards, and match M-DCPS accepted color board.

2.5 MATERIALS – LUXURY SOLID VINYL

A. Material shall comprise of a tough, clear, vinyl wear layer protecting a high-fidelity print layer on a solid vinyl backing. Product shall meet the following minimum requirements:

1. Minimum 10year warranty for manufacturing defects and minimum 10year wear warranty.
2. Overall Thickness: minimum 0.096 inch (2.5 mm).
3. Wear Layer Thickness: minimum 20 mils (0.5mm).
4. Size, Color and Patterns: As selected by A/E.
5. Specification (ASTM F-1700): Class III, Type A (Smooth) or Type B (Embossed).
6. Wear Group Classification (EN685) 23/33/42
7. Abrasion Resistance (EN660) Group T or higher
8. Static Load Limit (ASTM970): Modified @ 1000PSI
9. Heat Stability (ASTM F-1514): Passes
10. Stain & Chemical Resistance (ASTM F-925): Passes
11. Light Stability (ASTM F1515): >6, Passes
12. Flexibility (ASTM F137): Passes
13. Castor Chair Resistance EN 425
14. Electrostatic Performance EN 1815 ISO6356 <2KV
15. Emissions CDPH Section 01350, DIBt/AgBB, AFSSET: Passes

B. Manufacturer / Product

1. Mannington / Amtico
 - a. Spacia Collection
 - b. Natures Path Collection
 - c. Crown Collection
 - d. Access Collection
2. Patcraft
 - a. Stratified+
 - b. Timber Grove II (20 Mil)
 - c. Typography
 - d. Set in Concrete

3. Armstrong:
 - a. Parallel Collection LVT
 - b. Natural Creation LVT
4. Other products of equal quality and performance as approved by A/E and M-DCPS.

2.6 MATERIALS - RESILIENT BASE

- A. Description: Rubber (not vinyl). Provide in long rolls and cut as needed.
 1. Height: 4 in. unless 6 in. is shown on the Drawings.
 2. Profile: Per ASTM F1861, Type TS, Group 1, Style B (cove bottom) except where Style A (straight bottom) is shown on Drawings.
 3. Outside and inside corners: Do not use pre-molded corner pieces. Instead follow resilient base installation instructions.
 4. Color: As selected by A/E from the base manufacturer's full palette of colors.
- B. Base adhesive: Waterproof, non-toxic, low-VOC, light colored, formulated for maximum adhesion of rubber base and in compliance with manufacturer's requirements.
- C. Manufacturer: Burke Mercer, Flexco, Johnsonite, Roppe or Mannington.

2.7 ACCESSORIES

- A. Leveling Compound: Polymer-fortified cementitious compound with low VOC and as recommended by flooring manufacturer.
- B. Primers and Tile Adhesive: Waterproof, antimicrobial, non-toxic low-VOC, non-staining, as recommended by tile manufacturer.
- C. Rubber Transition and Edge Strips: Per manufacturer's instructions, gently tapered profile, at least 2 in. wide, matching resilient tile thickness. Color as selected by A/E from manufacturer's standard colors. Provide units of maximum length to minimize number of joints. Manufactured by Burke Mercer, Flexco, Johnsonite, Roppe or Mannington.
- D. Metal Edge Strips: Of width shown on Plans and of required thickness to protect edge of resilient flooring. Provide units of maximum length available lengths to minimize number of joints, as produced by Pemko, Schluter or Zero.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify substrate conditions and lower wall surfaces are free from debris and are acceptable for product installation in accordance with manufacturer's instructions.
- B. Visually inspect all materials prior to installation. Material with visual defects shall not be installed.

3.2 PREPARATION

- A. Protect adjacent work areas and finish surfaces from damage during product installation.
- B. Prepare floor substrate in accordance with manufacturer's instructions.
- C. Substrates shall be sound, smooth, flat, permanently dry, clean and free of all foreign materials including, but not limited to, dust, paint, grease, oils and solvents, curing and hardening compounds, sealers, asphalt and old adhesive residue. Vacuum substrate to ensure surface is clean and meets manufacturer's instructions.
- D. Perform Concrete Moisture tests, Alkalinity pH tests, and Hydrostatic Pressure tests in accordance with manufacturer's instructions and applicable ASTM Standards referenced in this document. All tests shall be performed by a certified testing firm at no additional cost to M-DCPS. Conduct a minimum of one test of each type for every 1,000 square feet of building area, or more frequently if required by the manufacturer's instructions. These tests shall be conducted on all concrete floors regardless of their age, grade level or the presence of existing flooring. A diagram of the areas showing the location and results of each test shall be submitted to the A/E and M-DCPS for their review. Installation of the resilient tile shall commence only after all test results indicate that conditions of the substrate comply with manufacturer's written instructions.
- E. Perform Bond tests of substrate in accordance with manufacturer's instructions.
- F. Remove ridges and bumps from sub floors and, using a patching compound recommended by the resilient tile manufacturer, fill minor low spots, cracks, holes or other defects, to achieve a smooth, flat and hard surface.
- G. Prior to application, apply a concrete slab primer if recommended by resilient tile manufacturer. Apply adhesive in compliance with manufacturer's written instructions.

3.3 INSTALLATION

- A. Install resilient tile and base following manufacturer's instructions, except as more stringently specified herein.
- B. Installing resilient tile:
 - 1. Install tile flooring with joints parallel to building lines. Lay out so that there is no less than a half tile width at sides of room. Scribe flooring to produce tight joints at items penetrating flooring. Use chalk or other non-permanent marking devices.
 - 2. Mix tile from separate boxes to ensure shade variations are consistent in tile placement.
 - 3. Where floor finishes are different on opposite sides of door, terminate flooring under centerline of door.
 - 4. Tightly cement resilient flooring to sub-base without open cracks, voids, raising and puckering at joints, telegraphing of adhesive spreader marks, or other surface imperfections. Hand-roll all resilient flooring areas with heavy roller in compliance with manufacturer's instructions, to attain full adhesion to substrate.
 - 5. Install edge strips where flooring terminates and at unprotected or exposed edges. Secure resilient strips with adhesive.
 - 6. At movable partitions, install flooring under partitions without interrupting floor pattern.

C. Installing resilient base:

1. Install base in lengths as long as practicable.
2. Apply wall base to walls, columns, pilasters, casework and other permanent fixtures in rooms or areas where base is required.
3. Tightly bond base to substrate throughout length of each piece, with continuous contact at horizontal and vertical surfaces.
4. Fit joints tightly and make vertical. Miter internal corners. At external corners, V-cut back of base, strip to 2/3 of its thickness and fold. Permanently form corners with no joint within 4 in. of corner.
5. Scribe and fit to door frames and other interruptions.
6. On masonry surfaces, or other similar irregular substrates, fill voids along top edge of resilient wall base with manufacturer's recommended adhesive filler material. Color of adhesive filler material is to match wall base color.

3.4 CLEANING AND PROTECTION

- A. Remove excess adhesive from floor, base and wall surfaces without damage using methods and cleaners recommended by resilient tile and base manufacturers.
- B. Sweep and vacuum floor after installation.
- C. Protect resilient tile from damage by fully covering with an appropriate clean durable material. The durability of the material shall be appropriate to the anticipated level of activity remaining in the area. Contractor is responsible for any damage to the floors and will be required to replace areas damaged prior to work completion. Floor protection shall remain in place until Substantial Completion, or all work in the area is completed, whichever occurs last. Upon approval of M-DCPS Project Manager, the protective covering shall be removed by the Contractor and properly disposed.
- D. Linoleum Tile Flooring: Perform initial maintenance "Starter Kit" procedures after completing flooring installation as recommended by linoleum flooring manufacturer.
- E. VCT Floor Polishing: Allow newly installed VCT flooring a minimum of 96 hours for setting and drying of the adhesive, prior to polishing. Clean and prep VCT flooring and apply 4 coats of 24-7® Extended Performance Floor Finish by National Chemical Laboratories (NCL) Inc., or other M-DCPS Plant/Custodial Operations approved high-quality commercial grade floor polish, following the manufacturer's published instructions. Floor polish shall meet ADA slip resistance coefficient for intended areas of application. Prior to application, provide A/E and M-DCPS the manufacturer's documentation indicating compliance with these requirements.
- F. Training: Provide M-DCPS School custodial staff a minimum of 2-hour training on the proper care and maintenance of new resilient floors as recommended by the flooring manufacturer. Training shall include actual use of cleaning materials and equipment recommend by the flooring manufacturer, to perform routine, periodic and restorative services to the resilient flooring. Training shall also identify methods that may be detrimental to the resilient floor finish, and its overall appearance.

END OF SECTION