SECTION 096500

RESILIENT FLOORING

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**NOTE TO SPECIFIER**

*Use this Specification Section for Mail Processing Facilities.*

***This is a Type 2 Specification with primarily editable text; therefore, most of the text can be edited, but there is some required text which is noted within the Section with a “Note to Specifier.” Do not revise these paragraphs without an approved Deviation from USPS Headquarters, Facilities Program Management, through the USPS Project Manager.***

*For Design/Build projects, do not delete the Notes to Specifier in this Section so that they may be available to Design/Build entity when preparing the Construction Documents.*

*For the Design/Build entity, this specification is intended as a guide for the Architect/Engineer preparing the Construction Documents.*

*The MPF specifications may also be used for Design/Bid/Build projects. In either case, it is the responsibility of the design professional to edit the Specifications Sections as appropriate for the project.*

*Text shown in brackets must be modified as needed for project specific requirements.* *See the “Using the USPS Guide Specifications” document in Folder C for more information.*

*The last date that USPS revised this standard specification section occurs in two places, at the end of this section and in the Table of Contents. If the date in this section matches the date in the Table of Contents, then you are using the latest version. Do not delete or revise the “last revised” date at the end of the section during the development of the Project Manual.*

*The footer in this section should be edited to replace the text, “USPS MPF SPECIFICATION” with the project name, and the blank date in the center should be replaced with the submission date, for interim design reviews, or the issue date of the completed Project Manual.*

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1. GENERAL
	1. SUMMARY
		1. Section Includes:
			1. Resilient tile flooring.
			2. Resilient base.
		2. Related Documents: The Contract Documents, as defined in Section 011000 - Summary of Work, apply to the Work of this Section. Additional requirements and information necessary to complete the Work of this Section may be found in other documents.
		3. Related Sections: Related work specified elsewhere includes but may not be limited to
			1. Section 017704 - Closeout Procedures and Training.
			2. Section 033000 - Cast-In-Place Concrete.
			3. Section 123504 - Postal Casework.
	2. REFERENCES
		1. American Society for Testing and Materials (ASTM):
			1. ASTM F710
			2. ASTM F1066
			3. ASTM 1869-98 ASTM F2170-02
			4. ASTM F2170-02
			5. ASTM F2195
		2. Manufacturer’s Guides:
			1. Armstrong Installation Systems Guide F-5061
			2. Mannington Guide for Installation/Maintenance 151209.
			3. Johnsonite Installation and Maintenance Instructions 050212.
	3. SUBMITTALS
		1. Section 013300 - Submittal Procedures: Procedures for submittals.
		2. Product Data: Data describing physical and performance characteristics; including sizes, patterns and colors including manufacturer's product sheet.
		3. Shop Drawings: Submit shop drawings showing layout, profiles, and product components, including anchorage, accessories, finish colors, patterns and textures.
		4. Samples: Submit selection and verification samples for finishes, colors, and textures.
		5. Quality Assurance Submittals: Submit the following:
			1. Test Reports: Certified test reports showing compliance with specified performance characteristics and physical properties.
			2. Certificates: Product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria, and physical requirements.
			3. Manufacturer's Instructions: Manufacturer's installation instructions.
		6. Closeout Submittals: Submit the following:
			1. Operation and Maintenance Data: Operation and maintenance data for installed products in accordance with Division 1 Closeout Submittals (Maintenance Data and Operation Data) Section. Include methods for maintaining installed products, and precautions against cleaning materials and methods detrimental to finishes and performance.
			2. Warranty: Warranty documents specified herein.
	4. QUALITY ASSURANCE
		1. Installer Qualifications: Company specializing in performing work of this Section with minimum 5 years documented experience.
			1. Engage installer certified, as a “manufacturer’s approved mechanic.”
			2. Certificate: When requested, submit certificate indicating qualification.
		2. Regulatory Requirements:
			1. Critical Radiant Flux in Accordance with ASTM E 684: More than 0.45 Watts per square centimeter.
			2. Specific Optical Smoke Density in Accordance with ASTM E 662: Less than 450.
	5. DELIVERY, STORAGE, AND HANDLING
		1. Section 016000 - Product Requirements: Transport, Handle, Store, and Protect Products.
		2. Ordering: Comply with manufacturer’s ordering instructions and lead time requirements to avoid construction delays.
		3. Deliver tiles and installation accessories to site in original manufacturer's unopened cartons and containers each bearing names of product and manufacturer, project identification, and shipping and handling instructions.
		4. Storage and Protection: Store materials protected from exposure to harmful weather conditions and at temperature and humidity conditions recommended by manufacturer.
			1. Material should be stored in areas that are fully enclosed, weathertight with the permanent HVAC system set at a uniform temperature of at least 68 degrees F (20 degrees C) for 72 hrs. prior to and during installation.
			2. Store tiles on flat surfaces.
	6. PROJECT CONDITIONS OR SITE CONDITIONS
		1. Jobsite Requirements:
			1. Environmental Requirements/Conditions: In accordance with manufacturer's recommendations, areas to receive flooring shall be clean, fully enclosed, weather tight with the permanent HVAC set at a uniform temperature of at least 68 degrees F. The flooring material should be conditioned in the same manner. Maximum temperature should not exceed 100 degrees F after installation.
			2. Temperature Requirements: Maintain air temperature in spaces where products will be installed for time period before, during, and after installation as recommended by manufacturer.
				1. Temperature Conditions: 68 degrees F (20 degrees C) for 72 hours prior to, during and after installation.
			3. Field Measurements: Verify actual measurements/openings by field measurements before fabrication; show recorded measurements on shop drawings. Coordinate field measurements and fabrication schedule with construction progress to avoid construction delays.
	7. SEQUENCING AND SCHEDULING
		1. Finishing Operations: Install tile flooring after finishing operations, including painting and ceiling operations, have been completed.
		2. Concrete Curing: Do not install tile flooring over concrete substrates until substrates have cured and are dry to bond with adhesive as determined by resilient flooring manufacturer's recommended bond, moisture test, and pH test.
	8. WARRANTY
		1. Manufacturer's Warranty: Submit, for Owner's acceptance, manufacturer's standard warranty document executed by authorized company official. Manufacturer's warranty is in addition to, and not a limitation of, other rights Owner may have under Contract Documents.
			1. Warranty Period: Five (5) year limited warranty commencing on Date of Substantial Completion.
	9. MAINTENANCE
		1. Section 017704 - Closeout Procedures and Training: Procedures for closeout submittals.
		2. Extra Materials:
			1. Provide 1 box of extra floor tiles for each tile type, panel, and color.
			2. Deliver to Owner extra materials from same production run as products installed. Package products with protective covering and identify with descriptive labels.
2. PRODUCTS

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**NOTE TO SPECIFIER**

\*\*Required: Do not revise the manufacturers, products, and colors as noted below without an approved Deviation from USPS Headquarters, Facilities Program Management, through the USPS Project Manager.

For administrative areas, other colors can be selected from the manufacturers’ standard colors, but only with an approved Deviation.

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* 1. MANUFACTURERS
		1. Tile: Subject to compliance with project requirements, manufacturers offering specified items which may be incorporated in the Work include the following:
			1. Armstrong World Industries, Lancaster, PA; Representative Contact: Lien Chu (800) 356-9301 ext. 8274.
			2. Mannington Commercial, Calhoun, GA (800) 241-2262
			3. Johnsonite, Donna Heffernan Sission (703) 250-0714
		2. Wall Base: Subject to compliance with project requirements, manufacturers offering specified items which may be incorporated in the Work include the following:
			1. Allstate Rubber Corporation, Ozone Park, NY (718) 526-7890.
			2. Armstrong World Industries, Lancaster, PA (800) 448-1405.
			3. Vinyl Plastics, Inc., Sheboygan, WI (800) 874-4240.
	2. MATERIALS
		1. Floor Tile
			1. Armstrong Excelon VCT , ASTM F1066 Class 2
				1. Size: 12 inch x 12 inch
				2. Thickness: 1/8 inch (3.1750 mm)
				3. Style and Color:

RFT-1: #51915 Charcoal

RFT-2: #51904 Sterling

* + - 1. Mannington Commercial Essentials - VCT
				1. Size: 12 inch x 12 inch
				2. Thickness: 0.080 in (2.0 mm)
				3. Style and Color:

RFT-1: #179 Dark Bark

RFT-2: #102 Stone Gray

* + - 1. Johnsonite / Tarkett – Azrock Collection - VCT
				1. Size: 12 inch x 12 inch
				2. Thickness: 0.080 in (2.0 mm)
				3. Style and Color:

RFT-1: #V228 Peppery

RFT-2: #V220 Cast Pewter

* + 1. Wall Base:
			1. Height: 4 inches
			2. Thickness: 1/8 inch.
			3. Coved.
			4. Length: Roll.
			5. Material/Color: Black
	1. ACCESSORIES
		1. Subfloor Filler: Latex underlayment, mixed with undiluted latex liquid furnished by the selected manufacturer.
			1. Underlayment and Patching Compound: Refer to Section 033000 Cast-In-Place Concrete for portland cement based underlayments and patching compounds.
		2. Primers and Adhesives: Waterproof; clear; of types as approved by resilient flooring manufacturer for specific material and substrates encountered. Zero VOC.
		3. Base Accessories: Premolded end stops and internal, and external corners of same material, size, and color as base.
		4. Expansion Joint Covers: Refer to other specification section for expansion joint covers to be used with resilient flooring.
1. EXECUTION
	1. EXAMINATION
		1. Section 017300 - Execution: Verification of existing conditions before starting work.
		2. Verification of Conditions: Verify that field measurements, surfaces, substrates, and conditions are as required, and ready to receive Work and are acceptable for product installation in accordance with manufacturer’s instructions.
		3. Report in writing to Contracting Officer prevailing conditions that will adversely affect satisfactory execution of the Work of this Section. Do not proceed with Work until unsatisfactory conditions have been corrected.
		4. By beginning Work, Contractor accepts conditions and assumes responsibility for correcting unsuitable conditions encountered at no additional cost to the United States Postal Service.
		5. Material Inspection: In accordance with manufacturer's installation requirements, visually inspect materials prior to installation. Material with visual defects shall not be installed and shall not be considered as a legitimate claim.
	2. PREPARATION
		1. Adjacent Surfaces Protection: Protect adjacent work areas and finish surfaces from damage during product installation.
		2. Surface Preparation:
			1. General: Prepare floor substrate in accordance with manufacturer's instructions.
			2. Floor Substrate: Prepare floor substrate to be smooth, rigid, flat, level, permanently dry, clean and free of foreign materials such as dust, paint, grease, oils, solvent, curing and hardening compounds, sealers, asphalt and old adhesive residue.
			3. Concrete Floor Substrate: Concrete floor substrate shall have a minimum compressive strength of 3500 psi. Refer to Division 3 Concrete sections for patching and repairing crack materials, and leveling compounds with Portland cement based compounds. Do not use or install flooring over gypsum based leveling or patching materials
			4. Reference Standard: Comply with ASTM F 710 Practice for Preparing Concrete Floors and Other Monolithic Floors to Receive Resilient Flooring.
		3. Concrete Moisture Test:
			1. ASTM F1869-98 Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Sub floor Using Anhydrous Calcium Chloride: The moisture emission from the concrete shall not exceed 5.0 lbs. per 1000 sq. ft. in 24 hrs (verify using the calcium chloride test as per ASTM F 1869-98). A diagram of the area showing the location and results of each test shall be submitted to the Contracting Officer. If the test results exceed the limitations, the installation shall not proceed until the problem has been corrected.
			2. ASTM F2170-02 Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes. The relative humidity measured from the center of the concrete slab should not exceed 75%. If the test results exceed the limitations, the installation must not proceed until the problem has been corrected.
			3. The test area shall be conditioned with the permanent HVAC system set at a uniform temperature of at least 68 degrees F (20 degrees C) for 72 hrs prior to and during testing.
		4. Concrete pH Test: Perform pH tests on concrete floors regardless of the age or grade level. If the pH is greater than 10, it must be neutralized prior to beginning the installation.
		5. Prohibit traffic until filler is cured.
		6. Vacuum clean substrate.
	3. INSTALLATION - TILE FLOORING
		1. Install resilient tile flooring in accordance with manufacturer's published instructions referenced above.
			1. Installation environment should be conditioned to a constant temperature and humidity conditions. Site should have permanent windows and doors, fully enclosed, weather tight with permanent HVAC system (not temporary) set at a uniform temperature of at least 68 degrees F (20 degrees C) for 72 hours prior to, during, and 72 hours after installation.
		2. Open number of floor tile cartons to provide quantity of flooring material required to cover each area; mix tile pieces to ensure shade variations do not occur within any one area.
		3. Spread only enough adhesive to permit installation of floor materials before initial set.
		4. Set flooring in place, press with a 150 pound resilient flooring roller to attain full adhesion.
		5. Lay flooring from center marks established parallel to building walls.
			1. Allow minimum 1/2 full size tile width at room or area perimeter.
			2. Adjust tile layout as required to avoid use of units less than 1/2 tile.
		6. Terminate flooring at centerline of door openings where adjacent floor finish is dissimilar. Where flooring continues through door opening, continue established pattern with no interruption.
		7. Install edge strips at unprotected or exposed edges where flooring terminates.
		8. Scribe flooring to walls, columns, cabinets, floor outlets, and other appurtenances to produce tight joints.
		9. Extend flooring into toe spaces, door reveals, closets, and similar openings.
		10. Do not install resilient flooring over expansion joints. Use expansion joint covers manufactured for use with resilient flooring. Refer to other specification sections for expansion joint covers.
		11. Adhere resilient flooring to flooring substrate without producing open cracks, voids, raising and puckering at joints, telegraphing of adhesive spreader marks, or other surface imperfections in completed flooring installation.
			1. Use adhesive applied to substrate in compliance with flooring manufacturer’s recommendations, including those for trowel notching, adhesive mixing, and adhesive open and working times.
		12. The specified resilient tiles are factory finished; no finishing is required after installation. Refer to manufacturer’s instructions referenced in Paragraph 1.2.B for detailed recommendations for initial and restorative maintenance.
		13. Wait at least 5 days after installation before conducting wet cleaning. Scrub floor with a neutral pH detergent/cleaner.
	4. INSTALLATION - BASE
		1. Install wall base in accordance with manufacturer's published instructions.
		2. Fit joints tight and vertical. Maintain minimum measurement of 18 inches between joints.
		3. Miter internal corners. At external corners, use premolded units. At exposed ends, use premolded units.
		4. Install wall base on solid backing. Bond tight to wall and floor surfaces.
		5. Apply the base to the cabinet toe kicks. If necessary, use a hot air gun to make the base pliable enough to turn the corners of the toe kick. Minimize or eliminate base seams on the toe kick. If the cabinet butts into a wall, start the base where the wall and cabinet meet and continue around the exposed area of the toe kick.

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**NOTE TO SPECIFIER**

\*\*Required: Do not revise SITE ENVIRONMENTAL PROCEDURES without an approved Deviation from USPS Headquarters, Facilities Program Management, through the USPS Project Manager.

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* 1. SITE ENVIRONMENTAL PROCEDURES
		1. Indoor Air Quality:
			1. Temporary ventilation: As specified in Section 013543 - Environmental Procedures.
				1. Ventilate products prior to installation. Remove from packaging and ventilate in a secure, dry, well-ventilated space free from strong contaminant sources and residues. Provide a temperature range of minimum 60 degrees F to maximum 90 degree F continuously for minimum 72 hours. Do not ventilate within limits of Work unless otherwise approved by USPS Contracting Officer.
	2. FIELD QUALITY CONTROL
		1. Section 014000 - Quality Requirements: Field inspection.
			1. Manufacturer's Field Services: Upon Owner's request and with at least 2-3 week notice, provide manufacturer's field service consisting of product use recommendations and periodic site visit for inspection of product installation in accordance with manufacturer's instructions.
		2. Inspect resilient flooring and base installation, pattern, layout, and attachment to substrate.
	3. CLEANING
		1. Section 017300 - Execution: Cleaning installed Work.
		2. Remove temporary coverings and protection of adjacent work areas. Repair or replace damaged installed products. Clean installed products in accordance with manufacturer's instructions prior to owner's acceptance. Remove construction debris from project site and legally dispose of debris.
			1. Remove visible adhesive and other surface blemishes using cleaning methods recommended by tile floor manufacturer.
			2. Sweep and vacuum floor after installation.
			3. Do not wash floor until after time period recommended by tile flooring manufacturer.
			4. Damp mop tile flooring to remove black marks and soil.
	4. PROTECTION
		1. Protection: Protect installed product and finish surfaces from damage during construction. Remove and legally dispose of protective covering at time of Substantial Completion.
	5. INITIAL MAINTENANCE PROCEDURES FOR LINOLEUM.
		1. Drying Room Film: Expose installed linoleum to either natural or artificial light to allow "drying room film" (the yellow film is a natural occurrence of the oxidation of the linseed oil in linoleum products) on installed linoleum flooring to disappear prior to initiating temporary protection procedures.

END OF SECTION

USPS MPF Specification Last Revised: 10/1/2022