SECTION 096516 - RESILIENT SHEET FLOORING

Revise this Section by deleting and inserting text to meet Project-specific requirements.

Verify that Section titles referenced in this Section are correct for this Project's Specifications; Section titles may have changed.

1. GENERAL

There are three main sub-types of vinyl sheet flooring: Homogeneous, Inlaid, and Heterogeneous. Homogeneous is the best in gouge and abrasion resistance and has the highest static load limit (approx. 750 psi). It is mainly used in healthcare settings like operating rooms. Inlaid is the most economical and has static load limits of approx. 500 psi. Heterogeneous has similar properties to Homogeneous but is used when a variety of visual elements is desired.

* + - 1. SUMMARY
				1. Section Includes:

Unbacked vinyl sheet flooring is Homogeneous. Use ASTM F 1913.

Unbacked vinyl sheet flooring.

Backed vinyl sheet flooring is either Inlaid or Heterogeneous. Use ASTM F 1303. See Evaluations

Vinyl sheet flooring with backing.

Unbacked rubber sheet flooring.

* + - 1. SUBMITTALS
				1. General: Submittals for this section are subject to the re-evaluation fee identified in Article 4 of the General Conditions.
				2. Manufacturer’s installation instructions shall be provided along with product data.
				3. Submittals shall be provided in the order in which they are specified and tabbed (for combined submittals).
				4. Product Data: For each type of product.
				5. Sustainable Design Submittals:

Retain "Shop Drawings" paragraph below if required.

* + - * 1. Shop Drawings: For each type of resilient sheet flooring.

Include sheet flooring layouts, locations of seams, edges, columns, doorways, enclosing partitions, built-in furniture, cabinets, and cutouts.

Show details of special patterns.

Retain "Samples" paragraph below for single-stage Samples, with a subordinate list if applicable. Retain "Samples for Initial Selection" and "Samples for Verification" paragraphs for two-stage Samples.

* + - * 1. Samples: For each exposed product and for each color, texture, and pattern specified, in manufacturer's standard size, but not less than 6-by-9-inch sections.

For heat-welding bead, manufacturer's standard-size Samples, but not less than 9 inches long, of each color required.

* + - * 1. Samples for Initial Selection: For each type of resilient sheet flooring indicated.
				2. Samples for Verification: For each type of resilient sheet flooring, in manufacturer's standard size, but not less than 6-by-9-inch sections of each color, texture, and pattern required.

For heat-welding bead, manufacturer's standard-size Samples, but not less than 9 inches long, of each color required.

Resilient sheet flooring is usually specified for seamless installation. Retain "Welded-Seam Samples" paragraph below for heat-welded seams or chemically bonded seams.

* + - * 1. Welded-Seam Samples: For seamless-installation technique indicated and for each resilient sheet flooring product, color, and pattern required; with seam running lengthwise and in center of 6-by-9-inch Sample applied to a rigid backing and prepared by Installer for this Project.
				2. Product Schedule: For resilient sheet flooring. Use same designations indicated on Drawings.

Coordinate "Qualification Data" paragraph below with "Quality Assurance" Article.

* + - * 1. Qualification Data: For Installer.
			1. CLOSEOUT SUBMITTALS
				1. Maintenance Data: For each type of resilient sheet flooring to include in maintenance manuals.
			2. QUALITY ASSURANCE
				1. Installer Qualifications: An entity that employs installers and supervisors who are competent in techniques required by manufacturer for resilient sheet flooring installation and seaming method indicated.

Not all manufacturers train or certify installers. Before retaining subparagraph below, verify availability with manufacturers; retain with "Qualification Data" paragraph in "Informational Submittals" Article.

Engage an installer who employs workers for this Project who are trained or certified by resilient sheet flooring manufacturer for installation techniques required.

* + - * 1. Mockups: Build mockups to verify selections made under Sample submittals, to demonstrate aesthetic effects, and to set quality standards for materials and execution.

Coordinate mockups in this Section with mockups specified in other Sections.

Size: Minimum 100 sq. ft. for each type, color, and pattern [**in locations indicated**] [**in locations directed by Director’s Representative**].

Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Director’s Representative specifically approves such deviations in writing.

Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

* + - 1. DELIVERY, STORAGE, AND HANDLING
				1. Store resilient sheet flooring 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 rolls upright.
			2. FIELD CONDITIONS

Ambient temperature range for installation varies among manufacturers. Consult manufacturers for recommendations and revise first paragraph below to suit Project.

* + - * 1. Maintain ambient temperatures within range recommended by manufacturer, but not less than 70 deg F or more than 85 deg F, in spaces to receive resilient sheet flooring during the following periods:

48 hours before installation.

During installation.

48 hours after installation.

* + - * 1. Condition flooring materials by placing them in the spaces where they will be installed for at least 48 hours prior to installation.
				2. After installation and until Substantial Completion, maintain ambient temperatures within range recommended by manufacturer, but not less than 55 deg F or more than 95 deg F.
				3. Close spaces to traffic during resilient sheet flooring installation.
				4. Close spaces to traffic for 48 hours after resilient sheet flooring installation.
				5. Install resilient sheet flooring after other finishing operations, including painting, have been completed.
1. PRODUCTS

Manufacturers and products listed in SpecAgent and Masterworks Paragraph Builder are neither recommended nor endorsed by the AIA or Deltek. Before inserting names, verify that manufacturers and products listed there comply with requirements retained or revised in descriptions and are both available and suitable for the intended applications.

* + - 1. PERFORMANCE REQUIREMENTS

Retain "Fire-Test-Response Characteristics" paragraph below if fire-test-response testing is required by authorities having jurisdiction. In most building codes, resilient flooring is exempt from fire-test-response requirements. See "Fire-Test-Response Characteristics" Article in the Evaluations for additional information.

* + - * 1. Fire-Test-Response Characteristics: For resilient sheet flooring, as determined by testing identical products according to ASTM E648 or NFPA 253 by a qualified testing agency.

Critical Radiant Flux Classification: Class I, not less than 0.45 W/sq. cm.

* + - 1. UNBACKED VINYL SHEET FLOORING <**Insert drawing designation**>

Copy this article and re-edit for each product.

Insert drawing designation. Use these designations on Drawings to identify each product.

* + - * 1. [Manufacturers:](http://www.specagent.com/Lookup?ulid=7592) Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:

[Armstrong Flooring, Inc](http://www.specagent.com/Lookup?uid=123457174392).

[Gerflor](http://www.specagent.com/Lookup?uid=123457061247).

[Mannington Mills, Inc](http://www.specagent.com/Lookup?uid=123457061249).

Approved equivalent.

* + - * 1. Product Standard: ASTM F1913.
				2. Thickness: 0.080 inch.
				3. Wearing Surface: [**Smooth**] [**Embossed**].
				4. Sheet Width: As standard with manufacturer.

Retain "Seamless-Installation Method" paragraph below if required. Where manufacturers offer both types of seamless installation methods, they generally recommend the appearance and performance of seamless installations produced using heat-welded seams rather than those produced using chemically bonded seams. See "Product Characteristics" Article in the Evaluations for a discussion of seamless installation.

* + - * 1. Seamless-Installation Method: Heat welded.

Retain "Colors and Patterns" paragraph below if colors and patterns are not indicated in a separate schedule.

* + - * 1. Colors and Patterns: [**As indicated by manufacturer's designations**] [**Match Director’s Representative's samples**] [**As selected by Director’s Representative from manufacturer's full range**].
			1. VINYL SHEET FLOORING WITH BACKING <**Insert drawing designation**>

Copy this article and re-edit for each product.

Insert drawing designation. Use these designations on Drawings to identify each product.

* + - * 1. [Manufacturers:](http://www.specagent.com/Lookup?ulid=7593) Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:

[Armstrong Flooring, Inc](http://www.specagent.com/Lookup?uid=123457180754).

[Gerflor](http://www.specagent.com/Lookup?uid=123457061227).

[Mannington Mills, Inc](http://www.specagent.com/Lookup?uid=123457061229).

[Shaw Contract Group; a Berkshire Hathaway company](http://www.specagent.com/Lookup?uid=123457061236).

Approved equivalent.

* + - * 1. Product Standard: ASTM F1303.

Type (Binder Content): Type II, minimum binder content of 34 percent.

Wear-Layer Thickness: Grade 1.

Overall Thickness: 0.080 inch minimum.

Interlayer Material: [**Foamed plastic**] [**None**].

Backing Class: [**Class A (fibrous)**] [**Class B (nonfoamed plastic)**] [**Class C (foamed plastic)**].

* + - * 1. Wearing Surface: [**Smooth**] [**Embossed**] [**Smooth with embedded abrasives**] [**Embossed with embedded abrasives**].
				2. Sheet Width: As standard with manufacturer.

Retain "Seamless-Installation Method" paragraph below for seamless installation. Where manufacturers offer both types of seamless installation methods, they generally recommend the appearance and performance of seamless installations produced using heat-welded seams rather than those produced using chemically bonded seams. See "Product Characteristics" Article in the Evaluations for a discussion of seamless installation.

* + - * 1. Seamless-Installation Method: Heat welded.

Retain "Colors and Patterns" paragraph below if colors and patterns are not indicated in a separate schedule.

* + - * 1. Colors and Patterns: [**As indicated by manufacturer's designations**] [**Match Director’s Representative's samples**] [**As selected by Director’s Representative from manufacturer's full range**].
			1. UNBACKED RUBBER SHEET FLOORING <**Insert drawing designation**>

Copy this article and re-edit for each product.

Insert drawing designation. Use these designations on Drawings to identify each product.

* + - * 1. [Manufacturers:](http://www.specagent.com/Lookup?ulid=7594) Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:

[Flexco; Roppe Holding Company](http://www.specagent.com/Lookup?uid=123457061239).

[Johnsonite; a Tarkett company](http://www.specagent.com/Lookup?uid=123457068809).

FlexiFlor; an SRP Industries Company.

[VPI Corporation](http://www.specagent.com/Lookup?uid=123457061243).

Approved equivalent.

* + - * 1. Product Standard: ASTM F1859.

Type: [**Type I, homogeneous rubber sheet floor covering**] [**Type II, heterogeneous (layered) rubber sheet floor covering**].

Thickness: .

See "Rubber Sheet Flooring" Article in the Evaluations for a discussion of hardness values.

Hardness: Not less than 85 per ASTM F1859.

* + - * 1. Wearing Surface: [**Smooth**] [**Textured**] [**Molded pattern**].

Molded-Pattern Figure: [**Raised discs**] [**Raised squares**].

* + - * 1. Sheet Width: As standard with manufacturer.

Retain "Seamless-Installation Method" paragraph below for seamless installation. Where manufacturers offer both types of seamless installation methods, they generally recommend the appearance and performance of seamless installations produced using heat-welded seams rather than those produced using chemically bonded seams. See "Product Characteristics" Article in the Evaluations for a discussion of seamless installation.

* + - * 1. Seamless-Installation Method: Heat welded.

Retain "Colors and Patterns" paragraph below if colors and patterns are not indicated in a separate schedule.

* + - * 1. Colors and Patterns: [**As indicated by manufacturer's designations**] [**Match Director’s Representative's samples**] [**As selected by Director’s Representative from manufacturer's full range**].
			1. INSTALLATION MATERIALS
				1. Trowelable Leveling and Patching Compounds: Latex-modified, portland-cement-based or blended hydraulic-cement-based formulation provided or approved by resilient sheet flooring manufacturer for applications indicated.
				2. Adhesives: Water-resistant type recommended by flooring and adhesive manufacturers to suit resilient sheet flooring and substrate conditions indicated.
				3. Seamless-Installation Accessories:

Heat-Welding Bead: Manufacturer's solid-strand product for heat welding seams.

Colors: Match flooring.

* + - * 1. Integral-Flash-Cove-Base Accessories:

Cove Strip: 1-inch radius provided or approved by resilient sheet flooring manufacturer.

Cap Strip: [**Square metal, vinyl, or rubber cap**] [**Tapered vinyl cap**] provided or approved by resilient sheet flooring manufacturer.

Retain "Corners" subparagraph below if applicable. Not all manufacturers' written installation instructions require metal inside and outside corners.

Corners: Metal inside and outside corners and end stops provided or approved by resilient sheet flooring manufacturer.

Retain "Floor Polish" paragraph below for use with most vinyl sheet flooring. Liquid floor polish is generally used instead of paste wax. See "Maintenance Procedures" Article in the Evaluations for additional information.

* + - * 1. Floor Polish: Provide protective, liquid floor-polish products recommended by resilient sheet flooring manufacturer.
1. EXECUTION
	* + 1. EXAMINATION

Coordinate requirements specified in other Sections for substrate construction and tolerances to ensure that they are appropriate for resilient sheet flooring.

* + - * 1. Examine substrates, with Installer present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.

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 resilient sheet flooring.

* + - * 1. Proceed with installation only after unsatisfactory conditions have been corrected.
			1. PREPARATION

Extensive surface preparation is required over substrates from which existing flooring has been removed. Requirements vary among manufacturers. Insert requirements to suit Project.

* + - * 1. Prepare substrates according to resilient sheet flooring manufacturer's written instructions to ensure adhesion of resilient sheet flooring.
				2. Concrete Substrates: Prepare according to ASTM F710.

Verify that substrates are dry and free of curing compounds, sealers, and hardeners.

Remove substrate coatings and other substances that are incompatible with adhesives and that contain soap, wax, oil, or silicone, using mechanical methods recommended by resilient sheet flooring manufacturer. Do not use solvents.

Alkalinity and Adhesion Testing: Perform tests recommended by resilient sheet flooring 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 10 pH.

Retain "Moisture Testing" subparagraph below; excessive moisture vapor can cause failure of resilient products adhered to concrete. ASTM F1869 (anhydrous calcium chloride test) and ASTM F2170 (relative humidity test) both recommend one test per 1000 sq. ft., but no fewer than three tests per test area.

Moisture Testing: Perform tests so that each test area does not exceed 1000 sq. ft., and perform no fewer than three tests in each installation area and with test areas evenly spaced in installation areas.

Retain "Anhydrous Calcium Chloride Test" or "Relative Humidity Test" subparagraph below, or both.

When tested according to ASTM F1869, a maximum moisture-emission level of 3 lb of water/1000 sq. ft. of slab area in a 24-hour period is generally accepted in resilient flooring industry.

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. in 24 hours.

Relative Humidity Test: Using in-situ probes, ASTM F2170. Proceed with installation only after substrates have a maximum 75 percent relative humidity level measurement.

* + - * 1. Fill cracks, holes, and depressions in substrates with trowelable leveling and patching compound; remove bumps and ridges to produce a uniform and smooth substrate.
				2. Do not install resilient sheet flooring until materials are the same temperature as space where they are to be installed.

At least 48 hours in advance of installation, move flooring and installation materials into spaces where they will be installed.

* + - * 1. Immediately before installation, sweep and vacuum clean substrates to be covered by resilient sheet flooring.
			1. RESILIENT SHEET FLOORING INSTALLATION
				1. Comply with manufacturer's written instructions for installing resilient sheet flooring.
				2. Unroll resilient sheet flooring and allow it to stabilize before cutting and fitting.
				3. Lay out resilient sheet flooring as follows:

Maintain uniformity of flooring direction.

Minimize number of seams; place seams in inconspicuous and low-traffic areas, at least 6 inches away from parallel joints in flooring substrates.

Match edges of flooring for color shading at seams.

Avoid cross seams.

If required, insert requirements for special patterns here.

If built-in items are required to be set on top of resilient sheet flooring, indicate on Drawings and revise first paragraph below.

* + - * 1. Scribe and cut resilient sheet flooring to butt neatly and tightly to vertical surfaces and permanent fixtures including built-in furniture, cabinets, pipes, outlets, and door frames.
				2. Extend resilient sheet flooring into toe spaces, door reveals, closets, and similar openings.
				3. Maintain reference markers, holes, and openings that are in place or marked for future cutting by repeating on resilient sheet flooring as marked on substrates. Use chalk or other nonpermanent marking device.

Retain first paragraph below for resilient sheet flooring installed on floor covers.

* + - * 1. Install resilient sheet flooring on covers for telephone and electrical ducts and similar items in installation areas. Maintain overall continuity of color and pattern between pieces of flooring installed on covers and adjoining flooring. Tightly adhere flooring edges to substrates that abut covers and to cover perimeters.
				2. Adhere resilient sheet flooring 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.

Retain "Seamless Installation" paragraph below if required.

* + - * 1. Seamless Installation:

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.

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.

* + - * 1. Integral-Flash-Cove Base: Cove resilient sheet flooring [**6 inches**] [**to dimension indicated**] up vertical surfaces. Support flooring at horizontal and vertical junction with cove strip. Butt at top against cap strip.

Retain subparagraph below for metal corners.

Install metal corners at inside and outside corners.

* + - 1. CLEANING AND PROTECTION
				1. Comply with manufacturer's written instructions for cleaning and protecting resilient sheet flooring.
				2. Perform the following operations immediately after completing resilient sheet flooring installation:

Remove adhesive and other blemishes from surfaces.

Sweep and vacuum surfaces thoroughly.

Damp-mop surfaces to remove marks and soil.

* + - * 1. Protect resilient sheet flooring from mars, marks, indentations, and other damage from construction operations and placement of equipment and fixtures during remainder of construction period.

Before retaining "Floor Polish" paragraph below, verify manufacturer's written instructions for floor polish. Floor polish is used with most vinyl sheet flooring.

* + - * 1. Floor Polish: Remove soil, adhesive, and blemishes from flooring surfaces before applying liquid floor polish.

Revise subparagraph below to suit products.

Apply [**one**] [**two**] [**three**] coat(s).

* + - * 1. Cover resilient sheet flooring until Substantial Completion.

END OF SECTION 096516