

**SECTION 09 65 16  
RESILIENT SHEET FLOORING**

SPEC WRITER NOTE: Delete text between  
// \_\_\_\_\_ // not applicable to project.  
Edit remaining text to suit project.

**PART 1 - GENERAL**

**1.1 SUMMARY**

A. Section Includes:

1. Resilient sheet flooring (RSF) with chemically welded seams // and integral cove base //.
2. Welded seam sheet flooring (WSF) with heat welded seams // and integral cove base //.

**1.2 RELATED REQUIREMENTS**

SPEC WRITER NOTE: Update and retain  
references only when specified elsewhere  
in this section.

- A. Adhesive VOC Limits: Section 01 81 13, SUSTAINABLE CONSTRUCTION REQUIREMENTS.
- B. Color, Pattern and Texture: Section 09 06 00, SCHEDULE FOR FINISHES.
- C. Resilient Base over Base of Lockers, Equipment and Casework: Section 09 65 13, RESILIENT BASE AND ACCESSORIES.
- D. Resilient Base Required Over Metal Base of Casework: Section 12 31 00, MANUFACTURED METAL CASEWORK.

**1.3 APPLICABLE PUBLICATIONS**

- A. Comply with references to extent specified in this section.
- B. ASTM International (ASTM):
  1. D4259-88(2012) - Abrading Concrete.
  2. E648-15e1 - Standard Test Method for Critical Radiant Flux of Floor-Covering Systems Using a Radiant Heat Energy Source.
  3. E662-15a - Standard Test Method for Specific Optical Density of Smoke Generated by Solid Materials.
  4. F1303-04(2014) - Sheet Vinyl Floor Covering with Backing.
  5. F1860-14 - Rubber Sheet Floor Covering With Backing.
  6. F1913-04(2014) - Vinyl Sheet Floor Covering Without Backing.
- C. International Concrete Repair Institute (ICRI):
  1. 310.2R-13 - Selecting and Specifying Concrete Surface Preparation for Sealers, Coatings, and Polymer Overlays, and Concrete Repair.

## D. SCS Global Services (SCS):

1. FloorScore.

**1.4 SUBMITTALS**

## A. Submittal Procedures: Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES.

1. Show size, configuration, and fabrication and installation details.

## B. Manufacturer's Literature and Data:

1. Description of each product.
2. // Application // Installation // instructions.
3. Warranty.

## C. Samples:

1. Sheet material, 38 mm by 300 mm (1-1/2 inch by 12 inch), of each color and pattern with welded seam using specified welding rod // 300 mm (12 inches) square for each type, pattern and color //.
2. Cap strip and fillet strip, 300 mm (12 inches) for integral base.
3. Shop Drawings and Certificates: Layout of joints showing patterns where joints are expressed, and type and location of obscure type joints. Indicate orientation of directional patterns.
4. Certificates: Quality Control Certificate Submittals and lists specified in paragraph, QUALIFICATIONS.
5. Edge strips: 150 mm (6 inches) long each type.
6. Primer: Pint container, each type.

## D. Sustainable Construction Submittals:

SPEC WRITER NOTE: Retain sustainable construction submittals appropriate to product.

## 1. Low Pollutant-Emitting Materials:

- a. Sheet Flooring: Submit FloorScore label.
- b. Identify volatile organic compound types and quantities.

## E. Certificates: Certify // each product complies // products comply // with specifications.

1. Heat welded seaming is manufacturer's prescribed method of installation.

## F. Qualifications: Substantiate qualifications comply with specifications.

1. Manufacturer // with project experience list //.
2. Installer // with project experience list //.

## 1.5 QUALITY ASSURANCE

A. Installer Qualifications: A company specializing in installation with minimum three (3) years' experience and employs experienced flooring installers who have retained, and currently hold, an INSTALL Certification, or a certification from a comparable certification program.

1. Installers to be certified by INSTALL or a comparable certification program with the following minimum criteria:

- a. US Department of Labor approved four (4) year apprenticeship program, 160 hours a year.
- b. Career long training.
- c. Manufacturer endorsed training.
- d. Fundamental journeyman skills certification.

SPEC WRITER NOTE: Mock-up must be approved by Contracting Officer Representative (COR) in the project's design stage before including requirement in specification.

B. // Mockup: Build floor tile mockup to verify selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution

1. Size: 9.3 sq. m (100 sq. ft.) for each type, color, and pattern. Locations as indicated on construction documents.

2. Contracting Officer Representative (COR) approved mockup may become part of the completed Project if undisturbed at time of Substantial Completion. //

C. Furnish product type materials from the same production run.

## 1.6 DELIVERY

- A. Deliver products in manufacturer's original sealed packaging.
- B. Mark packaging, legibly. Indicate manufacturer's name or brand, type, // color, // production run number, and manufacture date.
- C. Before installation, return or dispose of products within distorted, damaged, or opened packaging.

## 1.7 STORAGE AND HANDLING

- A. Store products indoors in dry, weathertight // conditioned // facility.
- B. Protect products from damage during handling and construction operations.

**1.8 FIELD CONDITIONS**

A. Environment:

1. Work Area Ambient Temperature Range: Minimum 18 to 38 degrees C (65 to 100 degrees F) continuously, beginning 48 hours before installation. Maintain room temperature above 18 degrees C (65 degrees F) after installation.
2. Install products when building is permanently enclosed and when wet construction is completed, dried, and cured.

**1.9 WARRANTY**

SPEC WRITER NOTE: Always retain construction warranty. FAR includes Contractor's one year labor and material warranty.

- A. Construction Warranty: FAR clause 52.246-21, "Warranty of Construction."

SPEC WRITER NOTE: Specify extended manufacturer's warranties for materials only.

- B. Manufacturer's Warranty: Warrant resilient sheet flooring against material and manufacturing defects.

SPEC WRITER NOTE: Specify customarily available warranty period for specified products.

1. Warranty Period: 2 years.

**PART 2 - PRODUCTS**

**2.1 SYSTEM PERFORMANCE**

A. Sheet Flooring:

1. Critical Radiant Flux: ASTM E648; 0.45 watts per sq.cm or more, Class I.
2. Smoke Density: ASTM E662; less than 450.

**2.2 PRODUCTS - GENERAL**

- A. Basis of Design: Section 09 06 00, SCHEDULE FOR FINISHES.
- B. Provide vinyl sheet color and pattern from one production run.
- C. Sustainable Construction Requirements:

## SPEC WRITER NOTE:

1. Section 01 81 13, SUSTAINABLE CONSTRUCTION REQUIREMENTS includes comprehensive product list setting VOC limits for low-emitting materials.
2. Retain subparagraphs applicable to products specified in this section.

1. Low Pollutant-Emitting Materials: Comply with VOC limits specified in Section 01 81 13, SUSTAINABLE CONSTRUCTION REQUIREMENTS for the following products:
  - a. Flooring Adhesives and Sealants.
  - b. Vinyl Sheet Flooring.

**2.3 RESILIENT SHEET FLOORING**

SPEC WRITER NOTE: Use unbacked vinyl sheet flooring where pattern is throughout sheet thickness.

- A. Resilient Sheet Flooring (RSF): ASTM F1913; Vinyl, without backing.
  1. Wear Surface: Smooth.
  2. Thickness: 2 mm (0.080 inches).

SPEC WRITER NOTE: Use backed vinyl sheet flooring with clear wear surface over decorative print providing aesthetic effect.

- B. Resilient Sheet Flooring (RSF): ASTM F1303; Type II, Grade 1, vinyl, with backing.
  1. Wear Surface: Smooth.
  2. Wear Layer Thickness: Minimum 0.51 mm (0.020 inches).
  3. Total Thickness: 2 mm (0.080 inches).
- C. Sheet Size: Provide maximum size sheet produced by manufacturer to minimize joints.
  1. Minimum Width: 1200 mm (48 inches).

**2.4 WELDED SEAM SHEET FLOORING**

SPEC WRITER NOTE: Type II includes intermediate layers between wear layer and backing intended to improve performance. Coordinate with basis of design product selection.

- A. Welded Seam Sheet Flooring (WSF): ASTM F1860; // Type I // Type II // rubber, with backing.

1. Wear Surface: Smooth.
  2. Wear Layer Thickness: Minimum 1.0 mm (0.040 inches).
  3. Total Thickness: 2 mm (0.080 inches).
- B. Sheet Size: Provide maximum size sheet produced by manufacturer to minimize joints.
1. Minimum Width: 1200 mm (48 inches).

## 2.5 ACCESSORIES

- A. Bonding Chemical: Flooring manufacturer's standard seam bonding chemical.
- B. Welding Rod: Flooring manufacturer's standard, in color matching field color of sheet flooring.
- C. Adhesives: Water resistant type recommended by flooring manufacturer to suit application.
- D. Base Accessories:
1. Fillet Strip: 19 mm (3/4 inch) radius fillet strip compatible with flooring material.
  2. Cap Strip: // Zero edge // J-Shape // extruded flanged reducer strip compatible with flooring material approximately 25 mm (1 inch) exposed height with 13 mm (1/2 inch) flange.
- E. Leveling Compound:
1. Provide cementitious type with latex or polyvinyl acetate resins additive.
- F. Primer:
1. Type recommended by adhesive or flooring manufacturer.
- G. Edge Strips:
1. Extruded aluminum, mill finish, mechanically cleaned.
  2. 28 mm (1-1/8 inch) wide, 6 mm (1/4 inch) thick, bevel one edge to 3 mm (1/8 inch) thick.
  3. Drill and counter sink edge strips for flat head screws. Space holes near ends and approximately 225 mm (9 inches) on center.
  4. Fasteners: Stainless steel, type to suit application.
- H. Sealant:
1. As specified in Section 07 92 00, JOINT SEALANTS.
  2. Compatible with flooring.

SPEC WRITER NOTE: Polish is not recommended for rubber flooring.

- I. Polish: Type recommended by flooring manufacturer to suit application and anticipated traffic.

### **PART 3 - EXECUTION**

#### **3.1 PREPARATION**

- A. Examine and verify substrate suitability for product installation.
- B. Protect existing construction and completed work from damage.

SPEC WRITER NOTE: Delete paragraph when project is new construction only.

- C. Remove existing sheet flooring to permit new installation.
  - 1. Do not use solvents for removing adhesives.
  - 2. Dispose of removed materials.
- D. Ensure interior finish work such as plastering, drywall finishing, concrete, terrazzo, ceiling work, and painting work is complete and dry before installation.
  - 1. Complete mechanical, electrical, and other work above ceiling line.
  - 2. Ensure heating, ventilating, and air conditioning systems are installed and operating in order to maintain temperature and humidity requirements.
- E. Correct substrate deficiencies.
  - 1. Fill cracks, pits, and dents with leveling compound.
  - 2. Grind, sand, or cut away protrusions. Grind high spots.
  - 3. Level flooring substrate to 3 mm (1/8 inch) maximum variation.
- F. Clean substrates. Remove contaminants capable of affecting subsequently installed product's performance.
  - 1. Mechanically clean concrete floor substrate according to ASTM D4259.
  - 2. Surface Profile: ICRI 310.2R CSP 3 to CSP 4.
- G. Perform flooring manufacturer's recommended bond, substrate moisture content, and pH tests.
- H. Broom or vacuum clean substrates immediately before flooring installation.
- I. Primer: Apply primer according to manufacturer's instructions.

#### **3.2 INSTALLATION - GENERAL**

- A. Install products according to manufacturer's instructions.

1. When manufacturer's instructions deviate from specifications, submit proposed resolution for Contracting Officer's Representative consideration.

### **3.3 INSTALLATION OF FLOORING**

- A. Flooring Layout:
  1. Arrange pattern in one direction // with side // and end // joints pattern matched.
  2. Extend flooring wall-to-wall, under cabinets, casework, laboratory and pharmacy furniture, and other equipment for seamless flooring installation.
  3. Arrange sheets to minimize seams.
  4. Locate seams in inconspicuous and low traffic areas, minimum 150 mm (6 inches) away from parallel joints in flooring substrates.
- B. Match edges of flooring for color shading and pattern at seams.
- C. Install flooring flush with adjacent floor finishes.
- D. Extend flooring into toe spaces, door reveals, closets, and similar openings.
- E. Install flooring fully adhered to substrate.
  1. Air pockets or loose edges are not acceptable.
  2. Trim sheet materials tight to flooring penetrations; seal joints at pipe with waterproof sealant specified in Section 07 92 00, JOINT SEALANTS.
- F. Butt joints tight, without gaps and bulges.
- G. Installation of Edge Strips:
  1. Install edge strips at flooring terminations and transitions to other floor finishes.
  2. Locate edge strips under center lines of doors unless otherwise indicated.
  3. Set edge strips in adhesive and mechanically fasten to substrate.

### **3.4 INTEGRAL COVE BASE INSTALLATION**

- A. Set preformed fillet strip at floor intersection with walls and other vertical surfaces.
- B. Extend flooring over fillet strip and // 100 mm (4 inches) // 150 mm (6 inches) // up wall surface.
- C. Form straight or radius internal and external corners to suit Application.
- D. Adhere base to wall surface.

- E. Terminate base exposed top edge with cap strip. Seal cap strip to wall with sealant.
- F. Weld joints as specified for flooring.

**3.5 HEAT WELDING**

- A. Heat weld joints of flooring and base using welding rod.
- B. Rout joint, insert welding rod into routed space, and fuse flooring and welding rods for seamless, watertight installation.
  - 1. Fuse joints for seamless weld.
- C. Finish joints flush, free from voids, and recessed or raised areas.

**3.6 CHEMICAL WELDING**

- A. Chemically weld joints of flooring and base using bonding chemical.
  - 1. Avoid excess bonding chemical and damage to flooring surfaces.
- B. Apply bonding chemical to fuse flooring for seamless, watertight installation.
- C. Finish joints flush, free from voids, and recessed or raised areas.

**3.7 CLEANING**

- A. Remove excess adhesive before adhesive sets.
- B. Clean and polish materials.
- C. Vacuum floor thoroughly.
- D. Perform initial maintenance according to flooring manufacturer's instructions.
  - 1. Delay washing flooring until adhesive is fully set and welded joints can contain wash water.

**3.8 PROTECTION**

- A. Protect flooring from traffic and construction operations.
- B. Keep traffic off sheet flooring for minimum 24 hours after installation.
- C. Cover flooring with reinforced kraft paper, and plywood or hardboard.
- D. Remove protective materials immediately before acceptance.
- E. Repair damage.

SPEC WRITER NOTE: Polish is not recommended for rubber flooring.

- F. Apply polish to // vinyl // flooring.
- G. Buff flooring to uniform sheen.

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