

## SECTION 09 65 16 - RESILIENT SHEET FLOORING

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section Includes:

- 1. Vinyl sheet floor covering, **[with] [and] [without]** backing.
- 2. Rubber sheet floor covering, **[with] [and] [without]** backing.

- B. Related Sections:

- 1. Section 09 65 13 "Resilient Base and Accessories" for resilient base, reducer strips, and other accessories installed with resilient floor coverings.
- 2. Section 09 65 19 "Resilient Tile Flooring" for resilient floor tile.

#### 1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated.

- B. LEED Submittals (Projects authorized for LEED certification only):

- 1. Product Data for Credit IEQ 4.1: For **[adhesives] [and] [chemical-bonding compounds]**, documentation including printed statement of VOC content.
- 2. Product Data for Credit IEQ 4.3: For adhesives **[and chemical-bonding compounds]**, documentation including printed statement of VOC content.
- 3. Product Data for Credit IEQ 4.3: For resilient sheet flooring, documentation from an independent testing agency indicating compliance with the FloorScore Standard.
- 4. Laboratory Test Reports for Credit IEQ 4: For adhesives **[flooring system] [and] [chemical-bonding compounds]**, documentation indicating that products comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."

- C. Shop Drawings: For each type of floor covering. Include floor covering layouts, locations of seams, edges, columns, doorways, enclosing partitions, built-in furniture, cabinets, and cutouts.

1. Show details of special patterns.
  - D. Samples for Initial Selection: For each type of floor covering indicated.
  - E. Samples for Verification: In manufacturer's standard size, but not less than [**6-by-9-inch (150-by-230-mm)**] <Insert size> sections of each different color and pattern of floor covering required.
    1. For heat-welding bead, manufacturer's standard-size Samples, but not less than [**9 inches (230 mm)**] <Insert dimension> long, of each color required.
  - F. Seam Samples: For seamless-installation technique indicated and for each floor covering product, color, and pattern required; with seam running lengthwise and in center of [**6-by-9-inch (150-by-230-mm)**] <Insert size> Sample applied to a rigid backing and prepared by Installer for this Project.
  - G. Product Schedule: For floor coverings. [ **Use same designations indicated on Drawings.**]
- 1.4 INFORMATIONAL SUBMITTALS
- A. Qualification Data: For qualified Installer.
- 1.5 CLOSEOUT SUBMITTALS
- A. Maintenance Data: For each type of floor covering to include in maintenance manuals.
- 1.6 MAINTENANCE MATERIAL SUBMITTALS
- A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
    1. Floor Covering: Furnish quantity not less than [**10 linear feet (3 linear m)**] <Insert length> for every [**500 linear feet (150 linear m)**] <Insert length> or fraction thereof, in roll form and in full roll width for each color, pattern, and type of floor covering installed.
- 1.7 QUALITY ASSURANCE
- A. Installer Qualifications: A qualified installer who employs workers for this Project who are competent in techniques required by manufacturer for floor covering installation [**and seaming method**] indicated.
    1. Engage an installer who employs workers for this Project who are trained or certified by floor covering manufacturer for installation techniques required.

- B. Fire-Test-Response Characteristics: As determined by testing identical products according to ASTM E 648 or NFPA 253 by a qualified testing agency.
  - 1. Critical Radiant Flux Classification: Class I, not less than 0.45 W/sq. cm.
- C. Mockups: Build mockups to verify selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.
  - 1. Build mockups for floor coverings including[ **resilient base and**] accessories.
    - a. Size: Minimum **100 sq. ft. (9.3 sq. m)** for each type, color and pattern [**in locations indicated**] [**in locations directed by Architect**] <Insert location requirements>.

#### 1.8 DELIVERY, STORAGE, AND HANDLING

- A. Store floor coverings 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 (10 deg C)** or more than **90 deg F (32 deg C)**. Store rolls upright.

#### 1.9 PROJECT CONDITIONS

- A. Maintain ambient temperatures within range recommended by manufacturer, but not less than [**70 deg F (21 deg C)**] <Insert temperature> or more than [**85 deg F (29 deg C)**] <Insert temperature>, in spaces to receive floor coverings during the following time periods:
  - 1. 48 hours before installation.
  - 2. During installation.
  - 3. 48 hours after installation.
- B. Until Substantial Completion, maintain ambient temperatures within range recommended by manufacturer, but not less than [**55 deg F (13 deg C)**] <Insert temperature> or more than [**95 deg F (35 deg C)**] <Insert temperature>.
- C. Close spaces to traffic during floor covering installation.
- D. Close spaces to traffic for 48 hours after floor covering installation.
- E. Install floor coverings after other finishing operations, including painting, have been completed.

## PART 2 - PRODUCTS

### 2.1 PERFORMANCE REQUIREMENTS

- A. FloorScore Compliance: Resilient sheet flooring shall comply with requirements of FloorScore Standard.
- B. Low-Emitting Materials: Flooring system shall comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."

### 2.2 VINYL SHEET FLOOR COVERING

- A. **Products:** Subject to compliance with requirements, provide one of the following :
  - 1. [Armstrong World Industries, Inc.](#); <Medintech>.
  - 2. [Forbo Flooring, Inc.](#); Forza.
  - 3. [Tarkett, Inc.](#); Aria.
  - 4. Substitute: see section 01 25 00 – Substitution Procedures.
- B. Vinyl Sheet Floor Covering with Backing: ASTM F 1303.
  - 1. Type (Binder Content): Type II, minimum binder content of 34 percent.
  - 2. Wear-Layer Thickness: Grade 1.
  - 3. Overall Thickness: 1/8 inch minimum.
  - 4. Backing Class: Class A (fibrous) .
- C. Wearing Surface: Color and pattern throughout .
- D. Sheet Width: As standard with manufacturer .
- E. Seaming Method: Heat welded, solid vinyl bead, in color matching field color .
- F. Colors and Patterns: As selected by Architect from full range of industry colors.

### 2.3 RUBBER SHEET FLOOR COVERING

- A. **Products:** Subject to compliance with requirements, provide one of the following :
  - 1. [Johnsonite](#); Rondel Speckled.
  - 2. [PRF USA Inc.](#); Cosmo.
  - 3. [R.C.A. Rubber Company \(The\)](#); Flexi Flor.
  - 4. Substitute: see section 01 25 00 – Substitution Procedures.
- B. Rubber Sheet Floor Covering with Backing: ASTM F 1860.
  - 1. Type: Type I, homogeneous rubber sheet with backing .
  - 2. Wear-Layer Thickness: As standard with manufacturer .

3. Overall Thickness: 1/8 inch minimum.
  4. Backing Type: Fibrous) .
- C. Hardness: Not less than required by ASTM F 1860 .
- D. Wearing Surface: Color and pattern throughout.
1. Molded-Pattern Figure: Raised discs .
- E. Sheet Width: As standard with manufacturer .
- F. Seaming Method: Heat welded .
- G. Colors and Patterns: As selected by Architect from full range of industry colors.

#### 2.4 RESILIENT BASE

- A. Resilient Base: ASTM F 1861, Type TS rubber, vulcanized thermoset; top set style cove, and as follows:
1. Height: 4 inch.
  2. Thickness: 0.125 inch thick.
  3. Finish: Matte.
  4. Length: Roll
  5. Color: Black, unless otherwise indicated.
  6. Accessories: Premolded external corners and end stops.
  7. Manufacturers:
    - a. Johnsonite, Inc: [www.johnsonite.com](http://www.johnsonite.com).
    - b. Roppe Corp: [www.roppe.com](http://www.roppe.com).
    - c. Substitutions: See Section 01 60 00 – Product Requirements.

#### 2.5 INSTALLATION MATERIALS

- A. Trowelable Leveling and Patching Compounds: Latex-modified, portland cement based or blended hydraulic-cement-based formulation provided or approved by manufacturer for applications indicated.
- B. Adhesives: Water-resistant type recommended by manufacturer to suit floor covering and substrate conditions indicated.
1. Adhesives shall have a VOC content of not more than 50 g/L when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
  2. Adhesives shall comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."
- C. Seamless-Installation Accessories:

1. Heat-Welding Bead: Manufacturer's solid-strand product for heat welding seams.
    - a. Color: Match floor field covering .
  2. Chemical-Bonding Compound: Manufacturer's product for chemically bonding seams.
    - a. VOC Content: Not more than 510 g/L. when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
    - b. Bonding compound shall comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."
- D. Integral-Flash-Cove-Base Accessories:
1. Cove Strip: 1-inch (25-mm) radius provided or approved by manufacturer.
  2. Cap Strip: Square metal, vinyl, or rubber cap provided or approved by manufacturer.
  3. Corners: Metal inside and outside corners and end stops provided or approved by manufacturer.
- E. Floor Polish: Provide protective liquid floor polish products as recommended by manufacturer.

### PART 3 - EXECUTION

#### 3.1 EXAMINATION

- A. Examine substrates, with Installer present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.
- B. 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 floor coverings.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

#### 3.2 PREPARATION

- A. Prepare substrates according to manufacturer's written instructions to ensure adhesion of floor coverings.
- B. Concrete Substrates: Prepare according to ASTM F 710.
  1. Verify that substrates are dry and free of curing compounds, sealers, and hardeners.
  2. Remove substrate coatings and other substances that are incompatible with adhesives and that contain soap, wax, oil, or silicone, using mechanical methods recommended by manufacturer. Do not use solvents.

3. Alkalinity and Adhesion Testing: Perform tests recommended by manufacturer. Proceed with installation only after substrates pass testing.
4. Moisture Testing: Perform tests recommended by manufacturer[ **and as follows**]. Proceed with installation only after substrates pass testing.
  - a. Perform anhydrous calcium chloride test, ASTM F 1869. Proceed with installation only after substrates have maximum moisture-vapor-emission rate of **[3 lb of water/1000 sq. ft. (1.36 kg of water/92.9 sq. m)]** <Insert emission> in 24 hours.
  - b. Perform relative humidity test using in situ probes, ASTM F 2170. Proceed with installation only after substrates have a maximum **[75 percent]** <Insert acceptable percentage> relative humidity level measurement.
- C. Fill cracks, holes, and depressions in substrates with trowelable leveling and patching compound and remove bumps and ridges to produce a uniform and smooth substrate.
- D. Do not install floor coverings until they are same temperature as space where they are to be installed.
  1. Move floor coverings and installation materials into spaces where they will be installed at least 48 hours in advance of installation.
- E. Sweep and vacuum clean substrates to be covered by floor coverings immediately before installation.

### 3.3 FLOOR COVERING INSTALLATION

- A. Comply with manufacturer's written instructions for installing floor coverings.
- B. Unroll floor coverings and allow them to stabilize before cutting and fitting.
- C. Lay out floor coverings as follows:
  1. Maintain uniformity of floor covering direction.
  2. Minimize number of seams; place seams in inconspicuous and low-traffic areas, at least **6 inches (152 mm)** away from parallel joints in floor covering substrates.
  3. Match edges of floor coverings for color shading at seams.
  4. Avoid cross seams.
- D. Scribe and cut floor coverings to butt neatly and tightly to vertical surfaces, permanent fixtures, and built-in furniture including cabinets, pipes, outlets, and door frames.
- E. Extend floor coverings into toe spaces, door reveals, closets, and similar openings.
- F. Maintain reference markers, holes, or openings that are in place or marked for future cutting by repeating on floor coverings as marked on substrates. Use chalk or other nonpermanent marking device.

- G. Install floor coverings on covers for telephone and electrical ducts and similar items in installation areas. Maintain overall continuity of color and pattern between pieces of floor coverings installed on covers and adjoining floor covering. Tightly adhere floor covering edges to substrates that abut covers and to cover perimeters.
- H. Adhere floor coverings 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.
- I. Seamless Installation:
  - 1. Heat-Welded Seams: Comply with ASTM F 1516. Rout joints and use welding bead to permanently fuse sections into a seamless floor covering. Prepare, weld, and finish seams to produce surfaces flush with adjoining floor covering surfaces.
  - 2. Chemically-Bonded Seams: Bond seams with chemical-bonding compound to permanently fuse sections into a seamless floor covering. Prepare seams and apply compound to produce tightly-fitted seams without gaps, overlays, or excess bonding compound on floor covering surfaces.
- J. Integral-Flash-Cove Base: Cove floor coverings [**6 inches (152 mm)**] [**dimension indicated**] <Insert dimension> up vertical surfaces. Support floor coverings at horizontal and vertical junction by cove strip. Butt at top against cap strip.
  - 1. Install metal corners at inside and outside corners.

### 3.4 CLEANING AND PROTECTION

- A. Comply with manufacturer's written instructions for cleaning and protection of floor coverings.
- B. Perform the following operations immediately after completing floor covering installation:
  - 1. Remove adhesive and other blemishes from floor covering surfaces.
  - 2. Sweep and vacuum floor coverings thoroughly.
  - 3. Damp-mop floor coverings to remove marks and soil.
- C. Protect floor coverings from mars, marks, indentations, and other damage from construction operations and placement of equipment and fixtures during remainder of construction period.
- D. Floor Polish: Remove soil, visible adhesive, and surface blemishes from floor covering before applying liquid floor polish.
  - 1. Apply [**one**] [**two**] [**three**] <Insert requirement> coat(s).
- E. Cover floor coverings until Substantial Completion.

END OF SECTION 09 65 16