

## **SECTION 096536 - STATIC-CONTROL RESILIENT 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. Static-control, solid vinyl floor tile.
- B. Related Requirements:
  - 1. Section 096513 "Resilient Base and Accessories" for resilient base, reducer strips, and other accessories installed with static-control resilient flooring.

#### **1.3 PREINSTALLATION MEETINGS**

- A. Preinstallation Conference: Conduct conference at Project site.
  - 1. Review methods and procedures related to static-control resilient flooring including, but not limited to, the following:
    - a. Examination and preparation of substrates to receive static-control resilient flooring.
    - b. Installation techniques required for specified products.

#### **1.4 ACTION SUBMITTALS**

- A. Product Data: For each type of product.
- B. Shop Drawings: For each type of static-control resilient flooring. Include floor-covering layouts, edges, columns, doorways, enclosing partitions, built-in furniture, cabinets, and cutouts.
  - 1. Show details of special patterns.

2. Show locations of inscribed maintenance floor tiles in conductive, solid vinyl floor tile installation areas.
  3. Show grounding locations of grounding strips and connections.
- C. Product Schedule: For static-control resilient flooring.[ Use same designations indicated on Drawings.]

### **1.5 INFORMATIONAL SUBMITTALS**

- A. Product Test Reports: For static-control resilient flooring, for tests performed by a qualified testing agency.

### **1.6 CLOSEOUT SUBMITTALS**

- A. Maintenance Data: For each type of static-control resilient flooring to include in maintenance manuals.

### **1.7 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 Tile: Furnish one box for every 50 boxes, or fraction thereof, of each type, color, and pattern of floor tile installed.

### **1.8 QUALITY ASSURANCE**

- A. Installer Qualifications: A qualified installer who employs workers for this Project who are competent in installation techniques required by manufacturer for specified static-control resilient flooring.
1. Engage an installer who employs workers for this Project who are trained or certified by manufacturer for installation techniques required for specified products.

### **1.9 DELIVERY, STORAGE, AND HANDLING**

- A. Store static-control resilient flooring and installation materials in dry spaces protected from the weather, with ambient temperatures maintained within range recommended in writing by manufacturer, but not less than 50 deg F or more than 90 deg F.
1. Floor Tile: Store on flat surfaces.

2. Sheet Floor Covering: Store rolls upright.

## **1.10 PROJECT CONDITIONS**

- A. Maintain ambient temperatures in spaces to receive static-control resilient flooring within range recommended by manufacturer, but not less than 70 deg F or more than 85 deg F, during the following time periods:
  1. Period recommended in writing by manufacturer before installation.
  2. During installation.
  3. Period recommended in writing by manufacturer after installation.
- B. Until Substantial Completion, maintain ambient temperatures in installation areas within range recommended by manufacturer, but not less than 55 deg F or more than 95 deg F.
- C. Close spaces to traffic during static-control resilient flooring installation.
- D. Close spaces to traffic for period recommended in writing by manufacturer after static-control resilient flooring installation.
- E. Install static-control resilient flooring after other finishing operations, including painting, have been completed.

## **PART 2 - PRODUCTS**

### **2.1 STATIC-CONTROL, SOLID VINYL FLOOR TILE <RT##>**

- A. Manufacturers: Subject to compliance with requirements, provide products by the following:
  1. American Biltrite.
  2. Flexco.
  3. Forbo Industries, Inc.
  4. Gerflor.
  5. Johnsonite; a Tarkett company.
  6. Julie Industries.
  7. LG Hausys.
  8. Polyflor, Ltd.; distributed by Gerbert Limited.
  9. Roppe Corporation, USA.
  10. StaticStop; a division of SelecTech, Inc.
  11. Staticworx.
  12. VPI Corporation.
- B. Source Limitations: Obtain floor tile from single source from single manufacturer.

- C. Static-Control Properties: As determined by testing identical products in accordance with test method indicated by an independent testing and inspecting agency.
1. Electrical Resistance:
    - a. Material: Point-to-point and point-to-ground resistances between  $1 \times 10^6$  ohms and  $1 \times 10^8$  ohms when tested in accordance with ASTM F150 ESD STM7.1 UL 779 Insert requirements.
    - b. Material in Combination with a Person: Maximum Average resistance of Insert number ohms when tested in accordance with ESD STM97.1.
  2. Static Generation:
    - a. ESD STM97.2: Less than Insert number V when tested at 12 percent relative humidity with static-control footwear.
    - b. AATCC TM134: Less than Insert number V when tested at 20 percent relative humidity with static-control footwear.
  3. Static Decay: 5000 to 0 V in less than 0.25 seconds when tested in accordance with FED-STD-101C, Method 4046.1 Insert requirements.
- D. Critical Radiant Flux: 0.45 W/sq. cm 0.22 W/sq. cm or greater when tested in accordance with ASTM E648 or NFPA 253.
- E. Construction: ASTM F1700, Class I (monolithic), Type A (smooth surface) Manufacturer's standard, high-density vinyl resin with smooth surface Manufacturer's standard, high-density vinyl resin with smooth surface and backing for free-lay installation Insert requirements.
- F. Thickness: Manufacturer's standard, but not less than 0.08 inch 0.08 inch 0.13 inch Insert dimension.
- G. Size: 12 by 12 inches 24 by 24 inches 36 by 36 inches Insert dimensions.
- H. Seaming Method: Heat welded Chemically bonded Manufacturer's standard Insert requirements.
- I. Colors and Patterns: As indicated by manufacturer's designations Match Architect's sample As selected by Architect from manufacturer's full range Insert requirements.
- J. Maintenance Floor Tiles: Special floor tiles inscribed "Conductive floor. Do not wax."

## **2.2 INSTALLATION MATERIALS**

- A. Trowelable Leveling and Patching Compounds: Latex-modified portland cement or blended hydraulic-cement-based formulation provided or approved by manufacturer for applications indicated.
- B. Static-Control Adhesive: Provided or approved by manufacturer; type that maintains electrical continuity of floor-covering system to ground connection.
- C. Grounding Strips: Provided or approved by manufacturer; type and size that maintains electrical continuity of floor-covering system to ground connection.
- D. Seamless-Installation Accessories:
  - 1. Heat-Welding Bead: Solid-strand product of manufacturer for heat welding seams.
    - a. Color: As selected by Architect from manufacturer's full range to contrast with floor covering Match floor covering Insert color.
  - 2. Chemical-Bonding Compound: Product of manufacturer for chemically bonding seams.
- E. Integral-Flash-Cove Base Accessories:
  - 1. Cove Strip: 1-inch radius support strip provided or approved by manufacturer.
  - 2. Cap Strip: Square metal, vinyl, or rubber cap Tapered vinyl cap Insert requirements provided or approved by manufacturer.
  - 3. Corners: Metal inside and outside corners and end stops provided or approved by floor-covering manufacturer.
- F. Floor Polish: Provide protective, static-control liquid floor polish products recommended in writing by floor-covering manufacturer.

## **PART 3 - EXECUTION**

### **3.1 EXAMINATION**

- A. Examine substrates, with Installer and manufacturer's representative present, for compliance with requirements for 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 installation or static-control characteristics of floor coverings.

- C. Proceed with installation only after unsatisfactory conditions have been corrected.

### **3.2 PREPARATION**

- A. Prepare substrates in accordance with manufacturer's written instructions and with oversight by manufacturer's representative to ensure successful installation of static-control resilient flooring and electrical continuity of floor-covering systems.
- B. Concrete Substrates: Prepare in accordance with ASTM F710.
  - 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 floor-covering 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 in writing by manufacturer. Proceed with installation only after substrate alkalinity is not less than 6 or more than 8 pH unless otherwise recommended in writing by flooring manufacturer.
  - 4. 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.
    - a. 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.
    - b. Relative Humidity Test: Using in-situ probes, ASTM F2170. Proceed with installation only after substrates have a maximum 75 percent relative humidity level measurement.
- C. Access Flooring Panels: Remove protective film of oil or other coating using method recommended by access flooring manufacturer.
- D. 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.
- E. Do not install static-control resilient flooring until it is same temperature as space where it is to be installed.
  - 1. Move static-control resilient flooring and installation materials into spaces where they will be installed at least 48 hours in advance of installation.
- F. Sweep and vacuum substrates to be covered by static-control resilient flooring immediately before installation.

### **3.3 INSTALLATION, GENERAL**

- A. Install static-control resilient flooring in accordance with manufacturer's written instructions and with oversight by manufacturer's representative.
- B. Extend grounding strips beyond perimeter of static-control resilient floor-covering surfaces to ground connections.
  - 1. For adhesively installed flooring, embed grounding strips in static-control adhesive.
- C. Scribe, cut, and fit static-control resilient flooring to butt neatly and tightly to vertical surfaces and permanent fixtures including built-in furniture, cabinets, pipes, outlets, and door frames.
  - 1. Extend static-control resilient flooring below built-in items and permanent, but movable, items that allow for a flexible layout where indicated on Drawings.
- D. Extend static-control resilient flooring into toe spaces, door reveals, closets, and similar openings.
- E. Extend static-control resilient flooring to center of door openings where flooring or color transitions occur.
- F. Maintain reference markers, holes, and openings that are in place or marked for future cutting by repeating on static-control resilient flooring as marked on substrates. Use chalk or other nonpermanent, nonstaining marking device.
- G. Install static-control resilient flooring on covers for telephone and electrical ducts, and similar items in installation areas. Maintain overall continuity of color and pattern with pieces of static-control resilient flooring installed on covers. Tightly adhere static-control resilient flooring edges to substrates that abut covers and to cover perimeters.
- H. Free-Lay Installation: Install static-control resilient flooring in accordance with manufacturer's written instructions for a completed installation without open cracks, raising and puckering at joints, and surface imperfections.
- I. Adhesive Installation: Adhere static-control resilient flooring to substrates using a full spread of static-control 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.
- J. Seamless Installation:

1. Heat-Welded Seams: Comply with ASTM F1516. Rout joints and heat weld with 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.
- K. Integral-Flash-Cove Base: Cove static-control flooring to dimension indicated on Drawings up vertical surfaces. Support static-control resilient flooring at horizontal and vertical junction with cove strip. Butt at top against cap strip.
1. Install metal corners at inside and outside corners according to manufacturer's written instructions.

### **3.4 INSTALLATION OF FLOOR TILE**

- A. Lay out floor tiles from center marks established with principal walls, discounting minor offsets, so floor tiles at opposite edges of room are of equal width. Adjust as necessary to avoid using cut widths that equal less than one-half floor tile at perimeter.
1. Lay floor tiles square with room axis.
- B. Match floor tiles for color and pattern by selecting floor tiles from cartons in same sequence as manufactured and packaged if so numbered. Discard broken, cracked, chipped, or deformed floor tiles.
1. Lay vinyl composition floor tiles with grain running in one direction.
- C. In each space where conductive, solid vinyl floor tile is installed, install maintenance floor tile identifying conductive floor tile in locations approved by Architect.

### **3.5 FIELD QUALITY CONTROL**

- A. Testing Agency: Owner will engage a qualified testing agency to test electrical resistance of static-control resilient flooring in accordance with ASTM F150 for compliance with requirements.
1. Arrange for testing after the following:
    - a. Static-control adhesives have fully cured.
    - b. Static-control resilient flooring has stabilized to ambient conditions.
    - c. Ground connections are completed.

2. Arrange for testing of static-control resilient flooring before and after performing floor polish procedures.
- B. Static-control resilient flooring will be considered defective if it does not pass tests and inspections.
- C. Prepare test and inspection reports.

### **3.6 CLEANING AND PROTECTION**

- A. Comply with manufacturer's written instructions for cleaning and protection of static-control resilient flooring.
- B. Perform the following operations immediately after completing static-control resilient flooring:
  1. Remove static-control adhesive from exposed surfaces.
  2. Remove dirt and blemishes from exposed surfaces.
  3. Sweep and vacuum surfaces thoroughly.
  4. Damp-mop surfaces to remove marks and soil.
- C. Protect static-control resilient flooring from mars, marks, indentations, and other damage from construction operations and placement of equipment and fixtures during remainder of construction period.
  1. Do not wax static-control resilient flooring.
  2. If recommended in writing by manufacturer, apply protective static-control floor polish formulated to maintain or enhance floor covering's electrical properties. Before polishing, do the following:
    - a. Ensure that static-control resilient flooring surfaces are free from soil, static-control adhesive, and surface blemishes.
    - b. Verify that both floor polish and its application method are approved by manufacturer and that floor polish will not leave an insulating film that reduces static-control resilient flooring's effectiveness for static control.
- D. Cover static-control resilient flooring and protect from rolling loads until Substantial Completion.

### **END OF SECTION**