

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes ESD / Static Control Flooring

1.02 REFERENCED DOCUMENTS

A. ASTM International:

1. F 1700 Standard Specification for Solid Vinyl Floor Tile
2. E 648 Standard Test Method for Critical Radiant Flux of Flooring Systems Using a Radiant Energy Source
3. E 662 Test Method for Specific Optical Density of Smoke Generated by Solid Materials.
4. F 925 Standard Test Method for Resistance to Chemicals of Resilient Flooring.
5. F 1516 Standard Test Method for Measuring Light Stability of Resilient Flooring by Color Change
6. F 970 Standard Test Method for Static Load Limit.
7. D2047 Standard Test Method for Static Coefficient of Friction as Measured by the James Machine.
8. F 710 Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring.
9. F 1482 Standard Guide to Wood Underlayment Products Available for Use Under Resilient Flooring
10. D 570 Standard Test Method for Water Absorption of Plastics
11. F 2055 Standard Test Method for Size and Squareness of Resilient Floor Tile by Dial Gage Method
12. F 510 Standard Test Method for Resistance to Abrasion of Resilient Floor Coverings Using an Abrader with a Grit Feed Method
13. E 595 Standard Test Method for Total Mass Loss and Collected Volatile Condensable Material from Outgassing in a Vacuum Environment
14. G 21 Standard Practice for Determining Resistance of Synthetic Polymeric Materials to Fungi
15. E 1428 Standard Test Method for Evaluating the Performance of Antimicrobials in or on Polymeric Solids Against Staining by Streptococcus reticulum (A Pink Stain Organism)
16. F 150 Standard Test Method for Electrical Resistance of Conductive and Static Dissipative Resilient Flooring

B. Other Referenced Documents

1. National Fire Protection Association (NFPA) 253 Test Method for Critical Radiant Flux of Floor Covering Systems Using a Radiant Energy Source.
2. National Fire Protection Association (NFPA) 258 Test Method for Specific Density of Smoke Generated by Solid Materials.
3. California State Title 24, Section 3306 (r)
4. Underwriters Laboratories Inc: UL 779 Standard for Electrically Conductive Floorings
5. American National Standards Institute - ANSI ESD S7.1 Floor Materials—Resistive Characterization of Materials
6. Federal Standard/Specification FED-STD-209E Airborne Particulates, Cleanliness Classes in Clean rooms and Clean Zones
7. European Norm EN 425 Resilient and laminate floor coverings. Castor chair test
8. National Fire Protection Association (NFPA) 99: Standard for Health Care Facilities

1.03 SUBMITTALS

A. Product Data: Submit product data, including manufacturer's specification summary sheet for specified products

B. Shop Drawings: Submit shop drawings showing layout, finish colors, patterns and textures.

C. Samples: Submit selection and verification samples for finishes, colors, and textures.

D. Quality Assurance Submittals: Submit the following:

1. Test Reports: Certified test reports showing compliance with specified performance characteristics and physical properties.
2. Manufacturer's Instructions: Manufacturer's installation and maintenance instructions.

E. Submit the following:

1. Maintenance Data: Maintenance data for installed products in accordance with Division 1 sections. Include methods for maintaining installed products, and precautions against cleaning materials and methods detrimental to finishes and performance.
2. Warranty: Warranty documents specified herein.

1.04 QUALITY ASSURANCE

A. Installer Qualifications: Installer experienced in performing work of this section who has specialized in installing work similar to that required for this project.

B. Regulatory Requirements

1. Fire Performance characteristics: Provide resilient ESD / Static Control Solid Vinyl Floor Tile with the following Fire performance characteristics as determined by testing products in accordance with ASTM method (and NFPA method) indicated below by a certified testing laboratory or another testing and inspecting agency acceptable to authorities having jurisdiction.
 - a. ASTM E 648 (NFPA 253), Critical Radiant Flux of Floor Covering Systems: Class 1, Greater than 0.45 w/cm²
 - b. ASTM E 662 (NFPA 258), Specific Optical Density of Smoke Generated by Solid Materials: Passes, ($\leq$ 450)

C. Single-Source Responsibility: Obtain floor tile and manufacturer's recommended adhesive from a single supplier.

- D. Pre-Installation Meetings: Conduct pre-installation meeting to verify project requirements, Manufacturer's conditions, recommended adhesive depending on product, substrate type and type of installation, manufacturer's installation instructions and manufacturer's warranty requirements. Comply with requirements in Division 1.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. General: Comply with requirements in Division 1.
- B. Ordering: Comply with manufacturer's ordering instructions and lead-time requirements to avoid construction delays.
- C. Delivery: Deliver materials in manufacturer's original, unopened, undamaged containers with Identification labels intact.
- D. Storage and Protection: Store materials protected from exposure to harmful weather conditions and acclimated to site conditions at temperature and humidity conditions recommended by manufacturer.

1.06 PROJECT CONDITIONS

- A. Environmental Requirements/Conditions: In accordance with manufacturer's recommendations, areas to receive ESD / Static Control Flooring tile shall be clean, fully enclosed, weather tight with the permanent HVAC set at a uniform temperature of 65-85 degrees F for 48 hours prior to, during and thereafter installation of ESD / Static Control Flooring. ESD / Static Control Flooring and adhesive shall be conditioned in the same manner. ESD / Static Control Flooring must be unboxed at least 48 hours prior to installation in the areas in which it will be installed.
- B. Existing Conditions: [Specify existing conditions affecting product use and installation]

1.07 SEQUENCING AND SCHEDULING

- A. Finishing Operations: Install ESD / Static Control Flooring after finishing operations, including, painting and ceiling operations etc., have been completed.

1.08 WARRANTY

- A. Manufacturer's Materials Warranty: Submit, for Owner's acceptance, manufacturer's standard warranty document. Manufacturer's warranty is in addition to, and not a limitation of, other rights Owner may have under Contract Documents. Warranty to commence on Date of Substantial Completion. Notice of any defect must be made in writing to manufacturer within thirty (30) days after buyer learns of the defect
 1. One year limited warranty for manufacturing defects.
 2. Ten year Limited Wear Warranty. ESD / Static Control Flooring will not wear out for a period of ten (10) years, if installed, maintained, and used strictly in accordance with Roppe's written instructions, and under normal wear and traffic conditions for which it was designed.
 3. Lifetime warranty for conductive properties.
 4. Do not use in, around or near commercial kitchens.

1.09 MAINTENANCE

- A. Extra Materials: Deliver to Owner extra materials from same production run as products installed. Package products with protective covering and identify with descriptive labels. Comply with Division 1 Closeout Submittals (Maintenance Materials) Section.
 1. Quantity: Furnish quantity of floor tile equal to 5% of amount to be installed.
 2. Delivery, Storage and Protection: Comply with Owner's requirements for delivery, storage and protection of extra materials.
- B. Maintenance of finished floor covering to be conducted per Manufacturer's Maintenance Guide.

PART 2 PRODUCTS

Specifier Note: Retain article below for proprietary method specification. Add product attributes performance characteristics, material standards, and descriptions as applicable. Use of such phrases as "Or Equal" or "Or Approved Equal," or similar phrases may cause ambiguity in specifications. Such phrases require verification (procedural, legal, and regulatory) and assignment of responsibility for determining "Or Equal" products.

2.01 ESD / STATIC CONTROL FLOORING

- A. Manufacturer: Roppe Corporation
 1. Contact: P.O. Box 1158 Fostoria, Ohio USA 44830-1158
Phone: (419) 435-8546 Fax: (419) 435-1056
- B. Test results:
 1. ASTM F-1700 Solid Vinyl Floor Tile, Class 1, Type A Meets all test requirements
 2. UL 992, Surface Flame Propagation: Passes, < 2.0
 3. ASTM F 925, Resistance to Chemicals: Passes, List of chemicals available
 4. ASTM D 570, Water Absorption of Plastics: < 0.15%
 5. ASTM D 2047, Static Coefficient of Friction (neoloite sensors) > 0.50
 6. ASTM F 970, Modified to 2000 psi: pass
 7. ASTM F 1515, Light Stability: Passes
 8. ASTM E 595, Outgassing: Excellent

9. FED-STD-209E, Airborne Particulate Cleanliness: Excellent
10. EN 425, Castor Chair Test: Passes
11. ASTM F 510, Abrasion Resistance: Excellent
12. ASTM G 21, Resistance of Synthetic Polymeric Materials to Fungi: Excellent resistance.
13. ASTM E 1428, Staining by Streptococcus Reticulum (A Pink Stain Organism): 0, No stain
14. Federal Standard Test Method 101C, Method 4046(101c), Static Decay: Passes, 5000 volts to 0 volts are < 0.01 second.

C. Product Warranty: Manufacturer's one year limited warranty for manufacturing defects, Ten year warranty against wear if installed, maintained, and used strictly in accordance with Roppe's written instructions, and under normal wear and traffic conditions for which it was designed, lifetime warranty for conductive properties.

D. Thickness: 1/8" (3.175 mm)

E. Size (select one)

1. 12" x 12" {304.8mm x 304.8mm}
2. 24" x 24" {609.6mm x 609.6mm}
3. 36" x 36" {914.4mm x 914.4mm}
4. 24" x 24" {609.6mm x 609.6mm} with pre-grooved edges for Roppe Unitized Installation with heat welded seams using Roppe vinyl welding bead, 0.160" in diameter, color [insert color name and #].
5. 36" x 36" {914.4mm x 914.4mm} with pre-grooved edges for Roppe Unitized Installation with heat welded seams using Roppe vinyl welding bead, 0.160" in diameter, color [insert color name and #].

F. Proprietary Product(s): (select one)

1. Roppe Stat Protect Conductive Solid Vinyl Floor Tile, color [insert color name and #]
 - a. Electrical resistance per ASTM F 150, UL779 (UL Listed No. 22L9), ANSI/ESD S7.1: 2.5 x 10⁴ to 1 x 10⁶;
 - b. AATCC 134, Static Propensity: Passes, < 5 volts
 - c. For grounded installation, specify 1" wide x 0.004" thick x 18" long copper foil strips.
2. Roppe StatDefend Static Dissipative Solid Vinyl Floor Tile, color [insert color name #]
 - a. Electrical resistance per ASTM F 150, UL779 (UL Listed No. 22L9), ANSI/ESD S7.1: 1 x 10⁶ to 1 x 10⁸
 - b. AATCC 134, Static Propensity: Passes, < 20 volts

PART 3 EXECUTION

3.01 MANUFACTURER'S INSTRUCTIONS

A. Compliance: Comply with manufacturer's requirements as published in Roppe installation instructions.

B. Adhesive (Select one):

1. Roppe ROP605 two-part ESD epoxy for areas subjected to rolling loads, lateral shear stress and over non-porous substrates including but not limited to metal.
2. Roppe ROP604 single-part ESD acrylic adhesive.

3.02 EXAMINATION

A. Site Verification of Conditions: Confirm substrate conditions (which have been previously addressed under other sections) are acceptable for product installing in accordance with manufacturer's instructions.

B. Material Inspection: In accordance with manufacturer's installing requirements, visually inspect materials prior to installing. Material with visual defects shall not be installed.

3.03 PREPARATION

A. Adjacent Surfaces Protection: Protect adjacent work areas and finish surfaces from damage while installing.

B. Surface Preparation, General: Prepare substrate in accordance with manufacturer's instructions.

C. Substrate: Prepare substrate to be free of paint, old adhesive, sealers, coatings, finishes, dirt, film-forming curing compounds, or other substances which may affect the adhesion of floor covering to the substrate.

1. Concrete Substrate: Reference Standard ASTM F 710 Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring.
 - a. Concrete Moisture Test: Per ASTM F 710 section 5, persons or testing agencies with experience in concrete moisture testing shall perform moisture tests on concrete regardless of its age or grade level or history of use, with a minimum of three tests for the first 1000 square feet and one additional test for each 1000 square feet or fraction thereof. A diagram of the area showing the location and results of each test shall be dated and submitted to the architect, general contractor and/or end user. If the test results exceed the floor covering manufacturer's limits, installing shall not commence until results conform to limits.
 - b. Concrete pH Test: Perform pH tests on concrete regardless of its age or grade level or history of use. Readings below 7.0 and above 10.0 can adversely affect resilient flooring or adhesives, or both. If the test results exceed the floor covering manufacturer's limits, installing shall not commence until results conform to limits.

2. Wood Substrate: Per ASTM F1482, Wood subfloor/underlayment assemblies shall be double layer construction, with a total thickness of not less than 1".
 - a. There shall be minimum 18 inches of well-ventilated air space beneath all wood subfloors. Crawl spaces shall be insulated and protected by a moisture vapor barrier.
 - b. Do not install over "sleeper" underlayment systems or wood underlayment installed over concrete.
 - c. Do not install over Lauan panels, CCA Plywood, Fire rated plywood, plywood with knots, underlayment made of pine or other soft woods, particle board, Oriented Strand Board (OSB) MasoniteTM or other hardboard underlayment, hardwood flooring, textured or cushioned flooring, treated or otherwise coated wood material or other uneven or unstable substrates. Unacceptable surfaces shall be covered using a 1/4-inch or thicker panel underlayment per section d.
 - d. Wood Underlayments: Use only plywood underlayment that is warranted by the underlayment manufacturer for use as an underlayment for sheet vinyl floor covering in commercial applications. Do not use Lauan.
 - e. Refer to Division 6 Carpentry sections for wood subfloor construction.
 - f. Refer to manufacturer's installation instructions regarding installations over existing ceramic tile, cementitious terrazzo and metal.
 - g. Do not install over existing floor covering nor over substrates not approved by manufacturer.

3.04 INSTALLING

- A. Refer to Roppe installation instructions for ESD / Static Control Flooring for detailed specifications on installing.
 1. StatProtect grounded installation: To ground the conductive flooring to a known ground, use the 1" wide x 0.004" thick x 18" long copper foil strips, supplied by Roppe and place approximately 9" of the strip into the adhesive while it is wet in order to achieve a 100% transfer to the copper foil backing, under the tile nearest the ground point. Recommended adhesive is also to be applied to the front/face of the copper foil strip in order to achieve a 100% transfer from the front/face of the copper strip to the tile's backing. Refer to manufacturers instructions for details regarding grounded installations.
 2. Heat welded seams (select one)
 - a. The tile shall be formulated and pre-grooved for Roppe Unitized Installation. Roppe vinyl welding beads, 0.160" in diameter, shall be installed according to manufacturers instructions. Do not heat-weld for first 48 hours.
 - b. Seams shall be grooved to accept Roppe vinyl welding beads, 0.160" in diameter, which shall be installed according to manufacturer's instructions.
- B. Finish Floor Covering Designs: As selected by Architect.
- C. Accessories: Architect shall specify manufacturers' color coordinated accessories as required, including (but not limited to) Resilient wall base, stair nosing, reducers or other edgings, welding rods for heat welded seams.

3.05 FIELD QUALITY REQUIREMENTS

- A. Manufacturer's Field Services: Upon Owner's request and with minimum 72 hours notice, provide manufacturer's field service consisting of product use recommendations and periodic site visits to confirm installing of product is in accordance with manufacturer's instructions.
 1. Site Visits: [Specify number and duration of periodic site visits.]

3.06 CLEANING

- A. Cleaning: See Roppe maintenance instructions. 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.
- B. Floor finishes: Do not use floor finishes, sealers or waxes of any kind, as they may form an insulating layer on the tile surface and adversely affect the performance of the product

3.07 PROTECTION

- A. Protection: Protect installed product and finish surfaces from damage during construction. Remove and Legally dispose of protective covering at time of substantial completion.
- B. Keep foot traffic off new floor covering for first 48 hours.
- C. Keep furniture, fixtures and rolling traffic off for first 72 hours.
- D. No cleaning/buffing for first 72 hours.
- E. No heat welding for first 48 hours.

3.08 INITIAL MAINTENANCE PROCEDURES

- A. General: Include in contract sum cost for initial maintenance procedures and execution by professional maintenance personnel after floor covering has been installed for three days as specified in the Roppe maintenance instructions.