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StaticWorx, Inc., P.O. Box 1556, VT 05495

Tel: 617-923-2000 Fax: 617-467-5871

[info@staticworx.com](mailto:info@staticworx.com) [staticworx.com](https://staticworx.com/)

**DIVISION 09 - FINISHES**

**SECTION 096500 RESILIENT FLOORING**

**StaticWorx ECLIPSE EC 2 mm**

M ESD Flooring

This document is provided to assist in the preparation of a Project or Master Specification and has been formatted in accordance with the Construction Specifications Institute (CSI)’s MasterFormat ® .

## **PART 1 - GENERAL**

* 1. **GENERAL PROVISIONS**

1. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 01 - GENERAL REQUIREMENTS which are hereby made a part of this Section of the Specifications.

**1.2 DESCRIPTION OF WORK**

1. Work Included: Provide labor, materials, and equipment necessary to complete the work of this Section, including but not limited to the following:
2. Resilient tile flooring for commercial traffic.
3. Resilient sheet flooring for commercial traffic.
4. Resilient sheet flooring for commercial traffic with pre-applied adhesive.
5. Resilient tile flooring for special fire requirements.
6. Resilient tile flooring for extra heavy traffic, ice skate, and golf spike resistant.
7. Resilient tile flooring for pre-installed raised access flooring, or releasable application.
8. Resilient tile flooring for electrostatic dissipative protection.
9. Resilient sheet flooring for electrostatic dissipative protection.
10. Resilient stair treads (one-piece nosing, tread, and riser).
11. Resilient stair accessories.
12. Resilient wall base, sanitary base, and accessories.
13. Substrate preparation.
14. Related Work: The following items are not included in this Section and are specified under the designated Sections:
15. Section 033000 CAST-IN-PLACE CONCRETE for concrete substrate; slab surface tolerances; vapor retarder for applications on or below grade; requirement for 83/90-degree riser and tread edge angle for stair tread and nosings.
16. References (Industry Standards):
17. American Association of Textile Chemists and Colorists (AATCC):
18. AATCC 134 Electrostatic Propensity of Carpets
19. American National Standards Institute (ANSI):
20. ANSI ESD STM97.2 Floor Materials and Footwear – Voltage Measurement on a Person
21. ASTM International (ASTM):
22. ASTM C518 Standard Test Method for Steady State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus
23. ASTM D412 Standard Test Methods for Vulcanized Rubber and Thermoplastic Elastomers—Tension
24. ASTM D2047 Standard Test Method for Static Coefficient of Friction of Polish-Coated Floor Surfaces as Measured by the James Machine
25. ASTM D2240 Standard Test Method for Rubber Property—Durometer Hardness
26. ASTM D3389 Standard Test Method for Coated Fabrics Abrasion Resistance (Rotary Platform Abrader)
27. ASTM D6499 Standard Test Method for the Immunological Measurement of Antigenic Protein in Hevea Natural Rubber (HNR) and its Products
28. ASTM E84 Standard Test Method for Surface Burning Characteristics of Building Materials
29. ASTM E492 Standard Test Method for Laboratory Measurement of Impact Sound Transmission Through Floor-Ceiling Assemblies Using the Tapping Machine
30. ASTM E648 Standard Test Method for Critical Radiant Flux of Floor Covering Systems Using a Radiant Heat Energy Source
31. ASTM E662 Standard Test Method for Specific Optical Density of Smoke Generated by Solid Materials
32. ASTM E1745 Standard Specification for Water Vapor Retarders Used in Contact with Soil or Granular Fill under Concrete Slabs
33. ASTM E2179 Standard Test Method for Laboratory Measurement of the Effectiveness of Floor Coverings in Reducing Impact Sound Transmission Through Concrete Floors
34. ASTM E2180 Standard Test Method for Determining the Activity of Incorporated Antimicrobial Agent(s) in Polymeric or Hydrophobic Materials
35. ASTM F150 Standard Test Method for Electrical Resistance of Conductive and Static Dissipative Resilient Flooring
36. ASTM F386 Standard Test Method for Thickness of Resilient Flooring Materials Having Flat Surfaces
37. ASTM F710 Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring
38. ASTM F925 Standard Test Method for Resistance to Chemicals of Resilient Flooring
39. ASTM F970 Standard Test Method for Measuring Recovery Properties of Floor Coverings after Static Loading
40. ASTM F1344 Standard Specification for Rubber Floor Tile
41. ASTM F1482 Standard Practice for Installation and Preparation of Panel Type Underlayments to Receive Resilient Flooring
42. ASTM F1514 Standard Test Method for Measuring Heat Stability of Resilient Flooring by Color
43. ASTM F1515 Standard Test Method for Measuring Light Stability of Resilient Flooring by Color Change
44. ASTM F1859 Standard Specification for Rubber Sheet Floor Covering Without Backing
45. ASTM F1860 Standard Specification for Rubber Sheet Floor Covering with Backing
46. ASTM F1861 Standard Specification for Resilient Wall Base
47. ASTM F2055 Standard Test Method for Size and Squareness of Resilient Floor Tile by Dial Gage Method
48. ASTM F2169 Standard Specification for Resilient Stair Treads
49. ASTM F2170 Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes
50. ASTM F2199 Standard Test Method for Determining Dimensional Stability and Curling Properties of Resilient Flooring after Exposure to Heat
51. ASTM F2753 Standard Practice to Evaluate the Effect of Dynamic Rolling Load over Resilient Floor Covering System
52. ASTM F3010 Standard Practice for Two-Component Resin Based Membrane-Forming Moisture Mitigation Systems for Use Under Resilient Floor Coverings
53. ASTM G21 Standard Practice for Determining Resistance of Synthetic Polymeric Materials to Fungi
54. European Standards (EN):
55. DIN EN 1399 Resilient floor coverings - Determination of resistance to stubbed and burning cigarettes
56. Federal Test Method Standard (FTMS):
57. FTMS 101C 4046 Electrostatic Decay
58. International Organization for Standardization (ISO):
59. ISO 10140-3 Laboratory measurement of sound insulation of building elements—Part 3: Measurement of impact sound insulation
60. ISO 26987 Determination of staining and resistance to chemicals
61. National Fire Protection Association (NFPA):
62. NFPA 253 Standard Method of Test for Critical Radiant Flux of Floor Covering Systems Using a Radiant Heat Energy Source
63. Standards Council of Canada (SCC):
64. CAN/ULC-S102.2 Standard Method of Test for Surface Burning Characteristics of Flooring, Floor Coverings, and Miscellaneous Materials and Assemblies

**1.3 SUBMITTALS**

1. Product Data: Submit manufacturer's product data, installation instructions and maintenance guidelines for each material and accessory proposed for use.
2. Samples: Submit three representative samples of each product specified for verification.

**1.4 QUALITY ASSURANCE**

1. Manufacturer Qualifications: Provide resilient flooring manufactured by a firm with a minimum of 10 years’ experience with resilient flooring of type equivalent to those specified.
2. Manufacturer’s quality management system must have ISO 9001:2000 approval.
3. Provide resilient flooring products and accessories from one manufacturer to ensure compatibility.
4. Manufacturer shall be capable of providing technical training and technical field service representation.
5. Installer Qualifications: Acceptable to manufacturer of resilient flooring or INSTALL (International Standards & Training Alliance) resilient certified for the requirements of the project with a minimum of 4 years’ experience with resilient flooring of type equivalent to those specified.
   1. It is recommended to have a minimum of one installer per working party with the ability to provide proof of current credentials on request.
   2. Installers shall be able to exhibit proficient skills with flash cove detailing, both hot and cold-welding techniques, adhesives, specialty adhesive systems and seam cutting.
   3. The installing parties shall provide a submittal of their skills in the form of mock-ups of the specified material. These mock-ups will be accepted as proof of their skills and benchmarking for the proposed project.
6. Sustainable Design Requirements:
7. Flooring surfaces that are easily cleaned and do not require coatings, stripping, or use of chemicals that may be hazardous to human health.
8. Supply all required products that are CA 01350 compliant.
9. Flooring that contains no polyvinyl chloride or phthalate plasticizers.
10. Flooring that contains no halogenated polymers.
11. Flooring that contains no asbestos.

**1.5 DELIVERY, STORAGE, AND HANDLING**

1. Deliver materials in labeled packages. Store and handle in strict compliance with manufacturer's recommendations. Protect from damage due to weather, excessive temperatures, and construction operations.
2. Deliver materials sufficiently in advance of installation to condition materials to the required temperature for 48-hours prior to installation.

**1.6 PROJECT CONDITIONS**

1. The installation area must be fully enclosed, weather tight, and climate controlled between 63°F and 75°F and 40% to 60% ambient relative humidity (RH) for at least 48 hours prior, during and 72 hours after installation (do not use gas fueled blowers). Dew point must be avoided. The substrate must be at least 5°F above dew point to be considered acceptable.

**1.7 WARRANTY**

1. Provide manufacturer’s standard limited warranty for wear, defect, bond, and conductivity.

**PART 2 - PRODUCTS**

**2.1 ACCEPTABLE MANUFACTURER**

1. Basis-of-Design: StaticWorx, Inc., P.O. Box 1556., Williston, VT 05495; telephone 1-617-923-2000

RESILIENT SHEET FLOORING FOR ELECTROSTATIC DISSIPATIVE PROTECTION

1. Rubber Floor Sheet (ESD):

|  |  |  |
| --- | --- | --- |
| **Rubber sheet meets the following product construction specifications:** | | |
|  | Product Name: | **StaticWorx® Eclipse**TM **ec 2 mm** |
|  | ASTM Specification:  ASTM F1859 Standard Specification for Rubber Sheet Floor Covering Without Backing | Type I |
|  | Material Composition: | Vulcanized rubber with environmentally compatible color pigments that are free of toxic heavy metals like lead, cadmium, or mercury |
|  | Construction: | Homogeneous rubber compound with randomly placed conductive granules on surface |
|  | Limited Wear Warranty:  Conductivity Warranty: | 15 years  Lifetime |
|  | Color: | 2 standard colors |
|  | Surface: | Smooth |
|  | Back of Sheet: | Double-sanded smooth black |
|  | Material Dimensions (ASTM F1859): | 12 m by 1.22 m (~40 ft by 48 in), ≥ amount specified |
|  | Thickness (ASTM F386): ± 0.15 mm (± 0.006 in) is required | 2 mm (~0.08 in) |
|  | Substrate Preparation: | Per ASTM F710 and StaticWorx Installation Instructions |
|  | Installation Method: | Directional installation  Copper strip installation required; refer to StaticWorx Installation Instructions for details |
|  | Cleaning: | Cleaned and maintained effectively using water, StaticWorx buffing pads and a suitable cleaning machine, without the use of any factory and/or field-applied coatings. Also, without using any chemicals that may be hazardous or containing any teratogenic, mutagenic or any other ingredients known to be carcinogenic. Refer to StaticWorx Maintenance Guidelines for product specific details. |
|  | Shine: | Higher shine achieved by buffing without any artificial topical applied coatings. |
|  | Stain Removal: | Samples of the product must be provided for stain removal testing by the owner. Sample size must be 610 mm x 610 mm, pre-cleaned by manufacturer per published recommendations. Samples must have no coatings, sealers, floor finish or other manually or mechanically applied finish on the surface of the product. Stain testing must consist of application of common healthcare related disinfectants and chemicals to include, but not limited to, Betadine, Methylene Blue, Silver Nitrate, and alcohol-based hand sanitizer. Duration of test period must be no less than one week. Removal of chemicals must be in accordance with manufacturers published cleaning and maintenance recommendations. |
| **Rubber sheet meets the following performance standards:** | | |
|  | Flammability (E648/NFPA 253): ≥ 0.45 watts/sq cm for Class 1 is required | NBSIR 75 950, 1.0 |
|  | Smoke Density (ASTM E662): < 450 is required | NBS, 81 (flaming) and 22 (non-flaming) |
|  | Surface Burning (CAN/ULC-S102.2): | FSC1 of 60 and SD of 550 |
|  | Burn Resistance (DIN EN 1399): | Resistant to cigarette and solder burns |
|  | Slip Resistance (ASTM D2047): ≥ 0.5 is required | Static coefficient of friction, Neolite dry 0.92, Neolite wet 0.89 |
|  | Bacteria Resistance (ASTM E2180/ASTM G21): | Resistant to bacteria, fungi, and micro-organism activity |
|  | Latex Allergies (ASTM D6499): | Inhibition ELISA, results are below detection level |
|  | Sound Absorption (ASTM E2179/ISO 10140-3): | ∆ IIC 10, ∆ Lw 6 dB (compare only ∆ values) |
|  | Hardness (ASTM D2240): ≥ 85 is required | Shore type A, 95 |
|  | Static Load (ASTM F970): ≤ 0.005 in with 250 lbs is required | Residual compression of 0.003 in with 800 lbs |
|  | Rolling Load Limit (ASTM F2753): | ≤ 450 lbs/sq in, with no forklift traffic |
|  | Abrasion Resistance (ASTM D3389): ≤ 0.035 oz (1.0 g) is required | 1.1 lbs (500 g) load on H-18 wheel with 1000 cycles, 0.002 oz (0.07 g) weight loss |
|  | Elongation (ASTM D412): ≥ 300 lbs per sq in is required | Modulus @ 10% is 1,196.7 lbs per sq in |
|  | Heat Resistance (ASTM F1514): Avg. ∆E ≤ 8.0 is required | Easily achieved with all batches and regular maintenance |
|  | Static Generation (ANSI ESD S97.2): | < 20 Volts |
|  | Decay Time (FTM 101 C 4046): | < 0.25 (sec) |
|  | Conductivity (ASTM F150): | < 106 (ohms) When installed with StaticWorx approved adhesives |
|  | System resistance (ANSI/ESD S97.1) | < 3.5 x 107 |
|  | Indoor Air Quality: | CDPH 01350 compliant |
|  | LEED v4: | Contributes to multiple IEQ and MR credits |

**PART 3 - GENERAL**

**3.1 GENERAL CONTRACTOR RESPONSIBILITIES**

1. Supply a safe, climate-controlled building and subfloor as detailed in the StaticWorx Installation Instructions (available at www.staticworx.com)
2. A subfloor that meets the requirements of ASTM F710 Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring is required, or as detailed in the StaticWorx Installation Instructions.
3. A secure storage area that is fully enclosed, weather tight, and climate controlled between 63°F and 75°F and 40% to 60% ambient relative humidity (RH) for at least 48-hours prior and during the installation, so the flooring contractor can acclimate all materials.
4. An installation area that is fully enclosed, weather tight, and climate controlled between 63°F and 75° and 40% to 60% ambient relative humidity (RH) for at least 48-hours prior, during, and 72-hours after installation (do not use gas fueled blowers). If this is not possible, contact StaticWorx.
5. Areas with direct prolonged exposure to sunlight should be protected with the use of Low E glass doors, windows or facades that reduce the UV transmissions to less than 1%.
6. Areas of the flooring subjected to direct sunlight, for example through doors or windows, must be covered using blind, curtains, cardboard, or similar materials for 24-hours before, during, and for a period of 72-hours after the installation to allow StaticWorx “wet” adhesives to cure. Do not allow traffic when using wet set adhesives for a minimum of 12-hours and prohibit rolling loads for 72-hours. When using conductivedryfixTM, the flooring can be trafficked immediately with no restrictions. All flooring must be protected from damage during construction operations using Masonite, plywood, or a similar product. Before laying the panels, the flooring surface must be free of all debris. Lay panels so that they are edge to edge and tape the joints to prevent movement and debris entrapment. Inspect the flooring before covering and after removal for final acceptance.
7. Conduct post-installation cleaning immediately for installations using conductive dryfix. Refer to the appropriate StaticWorx Maintenance Guidelines for product specific details.

**3.2 FLOORING CONTRACTOR RESPONSIBILITIES**

1. Provide trained installers that have at least one of the following:
2. Approved by specified manufacturer (StaticWorx systems, Inc.) or INSTALL (International Standards & Training Alliance) certified for the requirements of the project.
3. It is recommended to have a minimum of one installer per working party with the ability to provide proof of current credentials on request.
4. An effective installation manager to manage the project, installers, and ensure that all the required procedures are followed as detailed in the StaticWorx Installation Instructions (available at www.StaticWorx.com).
5. Follow all requirements in the appropriate StaticWorx Installation Instructions or StaticWorx nTx Installation Instructions.

END OF SECTION