UNIFIED FACILITIES GUIDE SPECIFICATIONS

References are in agreement with UMRL dated July 2023
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SECTION 09 62 38

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08/17, CHG 1: 08/18

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USACE / NAVFAC / AFCEC / NASA	**UFGS-09 62 38 (August 2017)**
	Change 1 - 08/18

Preparing Activity: USACE	**Superseding**
	UFGS-09 62 38 (November 2012)

UNIFIED FACILITIES GUIDE SPECIFICATIONS

References are in agreement with UMRL dated July 2023
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SECTION 09 62 38

STATIC-CONTROL FLOORING
08/17, CHG 1: 08/18

****
NOTE: This guide specification covers the requirements for static-control resilient flooring over a concrete surface and static-control carpet over concrete or access flooring.

Adhere to UFC 1-300-02 Unified Facilities Guide Specifications (UFGS) Format Standard when editing this guide specification or preparing new project specification sections. Edit this guide specification for project specific requirements by adding, deleting, or revising text. For bracketed items, choose applicable item(s) or insert appropriate information.

Remove information and requirements not required in respective project, whether or not brackets are present.

Comments, suggestions and recommended changes for this guide specification are welcome and should be submitted as a Criteria Change Request (CCR).
****

PART 1 GENERAL

1.1 REFERENCES

****
NOTE: This paragraph is used to list the publications cited in the text of the guide specification. The publications are referred to in the text by basic designation only and listed in this paragraph by organization, designation, date, and title.

Use the Reference Wizard's Check Reference feature when you add a RID outside of the Section's Reference Article to automatically place the reference in the Reference Article. Also use the

Reference Wizard's Check Reference feature to update the issue dates.

References not used in the text will automatically be deleted from this section of the project specification when you choose to reconcile references in the publish print process.

****

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

AMERICAN ASSOCIATION OF TEXTILE CHEMISTS AND COLORISTS (AATCC)

AATCC 16	(2004; E 2008; E 2010) Colorfastness to Light
AATCC 107	(2013) Colorfastness to Water
AATCC 165	(2013) Colorfastness to Crocking: Textile Floor Coverings - Crockmeter Method

ASTM INTERNATIONAL (ASTM)

ASTM D5793	(2018) Standard Test Method for Binding Sites Per Unit Length or Width of Pile Yarn Floor Coverings
ASTM D5848	(2020) Standard Test Method for Mass Per Unit Area of Pile Yarn Floor Coverings
ASTM D6859	(2011) Standard Test Method for Pile Thickness of Finished Level Pile Yarn Floor Coverings
ASTM E648	(2019a) Standard Test Method for Critical Radiant Flux of Floor-Covering Systems Using a Radiant Heat Energy Source
ASTM F150	(2006; R 2013) Standard Test Method for Electrical Resistance of Conductive and Static Dissipative Resilient Flooring
ASTM F1344	(2021a) Standard Specification for Rubber Floor Tile
ASTM F1700	(2020) Standard Specification for Solid Vinyl Floor Tile
ASTM F1859	(2021a) Standard Specification for Rubber Sheet Floor Covering Without Backing
ASTM F1861	(2021) Standard Specification for Resilient Wall Base
ASTM F1869	(2022) Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride

ASTM F2170	(2019a) Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes

CALIFORNIA DEPARTMENT OF PUBLIC HEALTH (CDPH)

CDPH SECTION 01350	(2017; Version 1.2) Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources using Environmental Chambers

CARPET AND RUG INSTITUTE (CRI)

CRI 104	(2015) Carpet Installation Standard for Commercial Carpet
CRI 105	(2015) Carpet Installation Standard for Residential Carpet
CRI Green Label Plus	(2017) Green Label Plus Quality Manual

ELECTROSTATIC DISCHARGE ASSOCIATION (ESD)

ESD S6.1	(2019) Standard for the Protection of Electrostatic Discharge Susceptible Items – Grounding

GREEN SEAL (GS)

GS-36	(2013) Adhesives for Commercial Use

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION (ISO)

ISO 2551	(2020) Textile Floor Coverings and Textile Floor Coverings in Tile Form-Determination of Dimensional Changes Due to the Effects of Varied Water and Heat Conditions and Distortion Out of Plane

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

NFPA 99	(2021; TIA 20-1; TIA 21-2) Health Care Facilities Code

RESILIENT FLOOR COVERING INSTITUTE (RFCI)

FLOORSCORE	FLOORSCORE IAQ Certification

SCIENTIFIC CERTIFICATION SYSTEMS (SCS)

SCS	SCS Global Services (SCS) Indoor Advantage

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT (SCAQMD)

SCAQMD Rule 1168	(2017) Adhesive and Sealant Applications

UNDERWRITERS LABORATORIES (UL)

UL 2818	(2022) GREENGUARD Certification Program For Chemical Emissions For Building Materials, Finishes And Furnishings

1.2 SCHEDULING

Schedule static-control flooring work after any other work which would damage the finished surface of the flooring.

1.3 SUBMITTALS

****
NOTE: Review submittal description (SD) definitions in Section 01 33 00 SUBMITTAL PROCEDURES and edit the following list, and corresponding submittal items in the text, to reflect only the submittals required for the project. The Guide Specification technical editors have classified those items that require Government approval, due to their complexity or criticality, with a "G." Generally, other submittal items can be reviewed by the Contractor's Quality Control System. Only add a "G" to an item, if the submittal is sufficiently important or complex in context of the project.

For Army projects, fill in the empty brackets following the "G" classification, with a code of up to three characters to indicate the approving authority. Codes for Army projects using the Resident Management System (RMS) are: "AE" for Architect-Engineer; "DO" for District Office (Engineering Division or other organization in the District Office); "AO" for Area Office; "RO" for Resident Office; and "PO" for Project Office. Codes following the "G" typically are not used for Navy, Air Force, and NASA projects.

The "S" classification indicates submittals required as proof of compliance for sustainability Guiding Principles Validation or Third Party Certification and as described in Section 01 33 00 SUBMITTAL PROCEDURES.

Choose the first bracketed item for Navy, Air Force and NASA projects, or choose the second bracketed item for Army projects.
****

Government approval is required for submittals with a "G" or "S" classification. Submittals not having a "G" or "S" classification are [for Contractor Quality Control approval.][for information only. When used, a code following the "G" classification identifies the office that will review the submittal for the Government.] Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-03 Product Data

Static-Control Resilient Flooring; G[, [_____]]

[Recycled content for Conductive Vinyl Tile; S]

[Recycled content for Conductive Rubber Tile; S]

[Recycled content for Conductive Rubber Sheet Flooring; S]

[Recycled content for Static-Dissipative Vinyl Tile; S]

[Recycled content for Static-Control Carpet; S]

Accessories; G[, [_____]]

Adhesives; G[, [_____]]

Warranty

SD-04 Samples

Static-Control Resilient Flooring; G[, [_____]]

Static-Control Carpet; G[, [_____]]

Moldings; G[, [_____]]

Special Treatment Materials; G[, [_____]]

Accessories; G[, [_____]]

SD-06 Test Reports

Fire Resistance

Moisture, Alkalinity and Bond

Testing

SD-07 Certificates

[Indoor Air Quality for Conductive Vinyl Tile; S]

[Indoor Air Quality for Conductive Rubber Tile; S]

[Indoor Air Quality for Conductive Rubber Sheet Flooring; S]

[Indoor Air Quality for Static-Dissipative Vinyl Tile; S]

[Indoor Air Quality for Static-Dissipative Rubber Tile; S]

[Indoor Air Quality for Static-Control Carpet; S]

[Indoor Air Quality for Adhesives; S]

Qualifications of Applicator

SD-08 Manufacturer's Instructions

Static-Control Resilient Flooring; G[, [_____]]

Accessories; G[, [_____]]

SD-10 Operation and Maintenance Data

Static-Control Resilient Flooring; G[, [_____]]

Accessories; G[, [_____]]

1.3.1 Samples

1.3.1.1 Static-Control Resilient Flooring

Submit [three][_____] samples of each indicated color and type of flooring, base, moldings, and accessories sized a minimum 60 by 100 mm 2-1/2 by 4 inch.

1.3.1.2 Static-Control Carpet

Submit [three][_____] "Production Quality" samples 450 by 450 mm 18 by 18 inches of each carpet proposed for use, showing quality, pattern, and color specified.

1.3.1.3 Moldings

Submit [three][_____] pieces of each type at least 300 mm 12 inches long.

1.3.1.4 Special Treatment Materials

Submit [three][_____] samples showing system and installation method.

1.3.1.5 Operations and Maintenance Data

a. Submit Data Package 1 in accordance with Section 01 78 23 OPERATION AND MAINTENANCE DATA.

b. Submit [three][_____] copies of manufacturer's maintenance instructions for each type of flooring material describing recommended type of cleaning equipment and materials, spotting and cleaning methods, and cleaning cycles.

1.4 CERTIFICATIONS

1.4.1 Indoor Air Quality Certifications

1.4.1.1 Floor Covering Materials

Provide [Conductive Vinyl Tile][Conductive Rubber Tile][Conductive Rubber Sheet Flooring][Static-Dissipative Vinyl Tile][Static-Dissipative Rubber Tile] and wall base products certified to meet indoor air quality requirements by FLOORSCORE, UL 2818 (Greenguard) Gold, SCS Global Services Indoor Advantage Gold or provide certification or validation by other third-party programs that products meet the requirements of this Section. Provide [Static-Control Carpet] certified to meet indoor air quality requirements by UL 2818 (Greenguard) Gold, SCS Global Services Indoor Advantage Gold, CRI Green Label Plus or provide certification or validation by other third-party program that products meet the

requirements of this Section. Provide current product certification documentation from certification body.

1.4.1.2 Adhesives

Provide products certified to meet indoor air quality requirements by UL 2818 (Greenguard) Gold, SCS Global Services Indoor Advantage Gold or provide certification or validation by other third-party programs that products meet the requirements of this Section. Provide current product certification documentation from certification body.

1.5 EXTRA MATERIALS

Provide extra material from same dye lot for future maintenance. Provide a minimum of [_____] percent of total square meters square yards of each flooring and base type, pattern, and color.

1.6 QUALITY ASSURANCE

The flooring manufacturer will approve the Qualifications of Applicator and certify that he/she has a minimum of 3 years of experience in the application of the materials to be used.

1.7 DELIVERY, STORAGE, AND HANDLING

Deliver materials to the building site in original unopened containers bearing the manufacturer's name, style name, pattern color name and number, size, production run, project identification, handling instructions and related information. Observe ventilation and safety procedures specified in the Safety Data Sheets (SDS). Do not store flooring near materials that may off-gas or emit harmful fumes, such as kerosene heaters, fresh paint, or adhesives.

1.7.1 Static-Control Resilient Flooring

Store materials in a clean, dry, secure, and well-ventilated area free from strong contaminant sources and residues with ambient air temperature range as recommended by the manufacturer but not less than 20 degrees C 68 degrees F or more than 30 degrees C 85 degrees F. Stack materials according to manufacturer's recommendations. Protect materials from the direct flow of heat from hot-air registers, radiators and other heating fixtures and appliances.

1.7.2 Static-Control Carpet

Remove materials from packaging and store them in a clean, dry, well ventilated area protected from damage, soiling, and moisture, and maintain at a temperature range as recommended by the manufacturer but not less than 16 degrees C 60 degrees F or more than 32 degrees C 90 degrees F for 2 days prior to installation.

1.8 ENVIRONMENTAL CONDITIONS

Provide temporary ventilation during work of this section.

1.8.1 Static-Control Resilient Flooring

Maintain areas in which resilient flooring is to be installed at a temperature range as recommended by the manufacturer but not less than 20

degrees C 68 degrees F or more than 30 degrees C 85 degrees F for 3 days before application, during application and 2 days after application, unless otherwise directed by the flooring manufacturer for the flooring being installed. Maintain a minimum temperature range as recommended by the manufacturer but not less than 13 degrees C 55 degrees F thereafter for the duration of the contract. Provide adequate ventilation to remove moisture from area and to comply with regulations limiting concentrations of hazardous vapors.

1.8.2 Static-Control Carpet

Maintain areas in which carpeting is to be installed at a temperature range as recommended by the manufacturer but not less than 16 degrees C 60 degrees F or more than 32 degrees C 90 degrees F for 2 days before installation, during installation, and for 2 days after installation. Maintain a minimum temperature range as recommended by the manufacturer but not less than 13 degrees C 55 degrees F thereafter for the duration of the contract. Do not permit traffic or movement of furniture or equipment in carpeted area for 24 hours after installation.

1.9 WARRANTY

1.9.1 Static-Control Resilient Flooring

Provide manufacturer's standard performance guarantees or warranties including a five year wear warranty and ten year conductivity warranty.

1.9.2 Static-Control Carpet

Provide manufacturer's standard performance guarantees or warranties including a minimum two years for material and workmanship and ten years for wear, static control, tuft bind and delamination.

PART 2 PRODUCTS

2.1 STATIC-CONTROL RESILIENT FLOORING

****

NOTE: Consider the function of the room, User requirements and consult with the project electrical engineer when determining the type of flooring that is appropriate.

Street shoes generate static electricity with all finish flooring types. Dependent on the function of the room and flooring material specified, special footwear may be required. The special footwear and flooring should be tested as a whole system. Verify with the user if and what type of special footwear will be used (such as ESD shoes or conductive heel straps). If the proper special footwear will not be worn on the static-control floor, a type of static-control flooring that provides very low static generation without special footwear should be specified. This type of flooring, such as static-control carpet, may be appropriate for mission critical areas such as 911 centers, call centers and air traffic control areas. Rooms requiring special handling considerations for

electronic devices (for handling, repair, manufacturing and assembly) due to extreme device sensitivity (sometimes called Class 0) may require an alternative static-control flooring and footwear system that is also very low charging; additional research to determine appropriate flooring type is required. In this instance, extreme device sensitivity (or Class 0) is defined as having a HBM (Human Body Model) or CDM (Charged-Device Model) threshold less than 250 volts.

This specification does not address testing of flooring and footwear together. This is testing which is not the responsibility of the Contractor. User is encouraged to test flooring and footwear together in method as referenced in ESD S20.20.

Heat welding adds cost to a project and is often reserved for clean rooms and wet lab type applications. Tile 305 mm x 305 mm 12 inches x 12 inches in size is not normally heat welded, 610 mm x 610 mm 24 inches x 24 inches tile is occasionally heat welded and 915 mm x 915 mm 36 inches x 36 inches tile is more typically used for heat weld applications.

This specification does not address applications requiring static-control during explosives handling. For this application, the designer is encouraged to research DOD 4145.26-M to determine the specific requirement of explosive handling versus static mitigation for electronic parts handling.

****

2.1.1 Conductive Resilient Flooring

2.1.1.1 Conductive Vinyl Tile

Conductive vinyl tile must be a homogeneous vinyl product and conform to ASTM F1700. Provide electrical resistance from surface to surface and surface to ground between 25,000 ohms (2.5 x 10 to the 4th) and 1,000,000 ohms (1.0 x 10 to the 6th) when tested in accordance with ASTM F150. Tile must be [300][600][900][_____] mm [12][24][36][_____] inches square and 3.2 mm1/8 inch thick.[Tile must be pre-grooved for heat welding of seams. As required, provide welding rods as recommended by the manufacturer.]

****

NOTE: Use materials with recycled content where appropriate for use. Verify suitability, availability within the region, cost effectiveness and adequate competition before specifying product recycled content requirements.

Research shows the product is available among US national manufacturers above the minimum recycled content shown. Some manufacturers and regions have higher percentages.

****

[Provide Conductive Vinyl Tile containing a minimum of 10 percent recycled content. Provide data identifying percentage of recycled content for Conductive Vinyl Tile.]

****

NOTE: Include the last bracketed sentence requiring products with indoor air quality certifications when product will be located in offices or classrooms.

****

[Provide certification of indoor air quality for Conductive Vinyl Tile.]

2.1.1.2 Conductive Rubber Tile

****

NOTE: Some rubber flooring is not resistant to oil and grease and can perform poorly against certain reagents and stain spills. Determine project needs, research available product and add verbiage to paragraph if rubber flooring needs to be resistant to oil and grease and perform against certain reagents and stain spills.

Research available sizes and thicknesses since not all manufacturers offer all sizes and thicknesses. The following thicknesses of rubber flooring are recommended for the traffic type shown: 2.0 mm 0.080 inch thickness - low traffic; 2.5 mm 0.100 inch thickness - medium traffic; 3 mm 0.118 inch thickness or greater - heavy traffic.

Ingredients in rubber flooring may include either natural rubber or synthetic materials. Natural rubber is a renewable raw material that is extracted from the sap of the tropical rubber plant without harming the plant.

****

Provide conductive rubber tile conforming to ASTM F1344 Class 1 homogeneous, Type B (through mottled) with a [smooth][or][hammered] surface. Provide electrical resistance from surface to surface and surface to ground between 25,000 ohms (2.5 x 10 to the 4th) and 1,000,000 ohms (1.0 x 10 to the 6th) when tested in accordance with ASTM F150. Provide tile [300][_____] mm [24][_____] inches square and [2.0][_____]mm thick.

****

NOTE: Use materials with recycled content where appropriate for use. Verify suitability, availability within the region, cost effectiveness and adequate competition before specifying product recycled content requirements.

Research shows the product is available among US national manufacturers above the minimum recycled content shown. Some manufacturers and regions have higher percentages.

****

[Provide Conductive Rubber Tile containing a minimum of 10 percent recycled content. Provide data identifying percentage of recycled content for Conductive Rubber Tile.]

****

NOTE: Include the last bracketed sentence requiring products with indoor air quality certifications when product will be located in offices or classrooms.

****

[Provide certification of indoor air quality for Conductive Rubber Tile.]

2.1.1.3 Conductive Rubber Sheet Flooring

****

NOTE: Some rubber flooring is not resistant to oil and grease and can perform poorly against certain reagents and stain spills. Determine project needs, research available product and add verbiage to paragraph if rubber flooring needs to be resistant to oil and grease and perform against certain reagents and stain spills.

The following thicknesses of rubber flooring are recommended for the traffic type shown: 2.0 mm 0.080 inch thickness - low traffic; 2.5 mm 0.100 inch thickness - medium traffic; 3 mm 0.118 inch thickness or greater - heavy traffic.

Research available widths. Manufacturer's widths vary and not all manufacturers offer all sizes.

****

Provide conductive rubber sheet flooring conforming to ASTM F1859 (flooring without backing), Type I homogeneous. Provide electrical resistance from surface to surface and surface to ground between 25,000 ohms (2.5 x 10 to the 4th) and 1,000,000 ohms (1.0 x 10 to the 6th) when tested in accordance with ASTM F150. Provide tile [1200][_____] mm [4][_____] feet wide and [2.0][_____] mm thick.

****

NOTE: Use materials with recycled content where appropriate for use. Verify suitability, availability within the region, cost effectiveness and adequate competition before specifying product recycled content requirements.

Research shows the product is available among US national manufacturers above the minimum recycled content shown. Some manufacturers and regions have higher percentages.

****

[Provide Conductive Rubber Sheet Flooring containing a minimum of 5 percent recycled content. Provide data identifying percentage of recycled content for Conductive Rubber Sheet Flooring.]

****

NOTE: Include the last bracketed sentence requiring products with indoor air quality certifications when product will be located in offices or classrooms.
****

[Provide certification of indoor air quality for Conductive Rubber Sheet Flooring.]

2.1.2 Static-Dissipative Resilient Flooring

2.1.2.1 Static-Dissipative Vinyl Tile

Static-dissipative vinyl tile must be a homogeneous vinyl product and conform to ASTM F1700. Provide electrical resistance from surface to surface and surface to ground between 1,000,000 ohms (1.0 x 10 to the 6th) and 1,000,000,000 ohms (1.0 x 10 to the 9th) when tested in accordance with ASTM F150. Tile must be [300][600][900][_____] mm [12][24][36][_____] inches square and 3.2 mm 1/8 inch thick.[Tile must be pre-grooved for heat welding of seams. As required, provide welding rods as recommended by the manufacturer.]
****
NOTE: Use materials with recycled content where appropriate for use. Verify suitability, availability within the region, cost effectiveness and adequate competition before specifying product recycled content requirements.

Research shows the product is available among US national manufacturers above the minimum recycled content shown. Some manufacturers and regions have higher percentages.
****

[Provide Static-Dissipative Vinyl Tile containing a minimum of 10 percent recycled content. Provide data identifying percentage of recycled content for Static-Dissipative Vinyl Tile.]
****
NOTE: Include the last bracketed sentence requiring products with indoor air quality certifications when product will be located in offices or classrooms.
****

[Provide certification of indoor air quality for Static-Dissipative Vinyl Tile.]

2.1.2.2 Static-Dissipative Rubber Tile

Static-dissipative rubber tile conforming to ASTM F1344 Class 1 homogeneous, [Type A (solid color)][Type B (through mottled)]. Provide a [smooth][hammered] surface. Provide electrical resistance from surface to surface and surface to ground between 1,000,000 ohms (1.0 x 10 to the 6th) and 1,000,000,000 ohms (1.0 x 10 to the 9th) when tested in accordance with ASTM F150. Provide tile [300][600][900][_____] mm [18][24][36][_____] inches square and [2.0][3.5][_____]mm thick.

[Provide certification of indoor air quality for Static-Dissipative Rubber

Tile.]

2.2 STATIC-CONTROL CARPET

****

NOTE: Consider the function of the room, User requirements and consult with the project electrical engineer when determining the type of flooring that is appropriate.

Street shoes generate static electricity with all finish flooring types. Dependent on the function of the room and flooring material specified, special footwear may be required. The special footwear and flooring should be tested as a whole system. Verify with the user if and what type of special footwear will be used (such as ESD shoes or conductive heel straps). If the proper special footwear will not be worn on the static-control floor, a type of static-control flooring that provides very low static generation without special footwear should be specified. This type of flooring, such as static-control carpet, may be appropriate for mission critical areas such as 911 centers, call centers and air traffic control areas. Rooms requiring special handling considerations for electronic devices (for handling, repair, manufacturing and assembly) due to extreme device sensitivity (sometimes called Class 0) may require an alternative static-control flooring and footwear system that is also very low charging; additional research to determine appropriate flooring type is required. In this instance, extreme device sensitivity (or Class 0) is defined as having a HBM (Human Body Model) or CDM (Charged-Device Model) threshold less than 250 volts.

This specification does not address testing of flooring and footwear together. This is testing which is not the responsibility of the Contractor. User is encouraged to test flooring and footwear together in method as referenced in ESD S20.20.

If more than one carpet type is required for a project, a separate paragraph will be used for each carpet type. Each carpet type will be designated with a letter or number symbol. Use the same designations to key carpets to locations on the drawings and in Section 09 06 00 SCHEDULES FOR FINISHES.

ADA Requirements: Carpet must be securely attached; have a firm backing; and have a level loop, textured loop, level cut pile, or level cut/uncut pile texture. The maximum thickness should be 13 mm 1/2 inch. Fasten exposed edges of carpet to floor surfaces and have trim along the entire length of the exposed edge.

Nylon fiber is typically abrasion resistant and durable in all pile configurations using filament fiber, has good stain removal characteristics, and is recommended for commercial installations.
****

Provide first quality carpet; free of visual blemishes, streaks, poorly dyed areas, fuzzing of pile yarn, spots or stains, and other physical and manufacturing defects. Provide carpet materials and treatments as reasonably non-allergenic and free of other recognized health hazards. Provide a static control construction on all grade carpets which gives adequate durability and performance.
****

NOTE: Use materials with recycled content where appropriate for use. Verify suitability, availability within the region, cost effectiveness and adequate competition before specifying product recycled content requirements.

Research shows the product is available among US national manufacturers above the minimum recycled content shown. Some manufacturers and regions have higher percentages.
****

[Provide Static Control Carpet containing a minimum of 40 percent recycled content. Provide data identifying percentage of recycled content for Static-Control Carpet.]
****

NOTE: Include the last bracketed sentence requiring products with indoor air quality certifications when product will be located in offices or classrooms.
****

[Provide certification of indoor air quality for Static-Control Carpet.]

2.2.1 Physical Characteristics

2.2.1.1 Carpet Construction

Tufted

2.2.1.2 Type

Modular tile [600 by 600][_____] mm square [24 by 24][_____] inch square with 0.15 percent growth/shrink rate in accordance with ISO 2551.

2.2.1.3 Pile Type

[Level-loop][Multilevel loop][_____]

2.2.1.4 Pile Fiber

Commercial 100 percent branded (federally registered trademark) nylon continuous filament

2.2.1.5 Conductive Fiber

Provide a continuous conductive fiber as recommended by the manufacturer in every tuft.

2.2.1.6 Gauge

Minimum [_____] mm inch in accordance with ASTM D5793.

2.2.1.7 Stitches

Minimum [_____] per square meter square inch

2.2.1.8 Surface Pile Weight

Minimum [_____] kg/square meter ounces per square yard. This does not include weight of backings. Determine weight in accordance with ASTM D5848.

2.2.1.9 Pile Thickness

Minimum [_____] mm inch in accordance with ASTM D6859.

2.2.1.10 Pile Density

****
NOTE: Pile Density = 36 x Pile Weight/Pile Thickness.
****

Minimum [_____]

2.2.1.11 Dye Method

[Solution dyed][_____]

2.2.1.12 Backing System

Provide conductive backing system of synthetic material as recommended by the carpet manufacturer.

2.2.2 Static-Control Carpet Performance Requirements

2.2.2.1 Electrical Resistance

****
NOTE: Coordinate acceptable measurement ranges for project with the project Electrical Engineer.
****

Provide electrical resistance from surface to surface and surface to ground between [25,000 ohms (2.5 x 10 to the 4th) and 100,000,000 ohms (1.0 x 10 to the 8th) ohms][_____] when tested in accordance with NFPA 99.

2.2.2.2 Tuft Bind

Provide tuft bind force required to pull a tuft or loop free from carpet backing with a minimum 40 N 10 pound average force for loop pile.

2.2.2.3 Colorfastness to Crocking

Comply dry and wet crocking with AATCC 165 and with a Class 4 minimum rating on the AATCC Color Transference Chart for all colors.

2.2.2.4 Colorfastness to Light

Comply colorfastness to light with AATCC 16, Test Option E "Water-Cooled Xenon-Arc Lamp, Continuous Light" and with a minimum 4 grey scale rating after 40 hours.

2.2.2.5 Colorfastness to Water

****
NOTE: Include the following test when specifying carpet constructed of yarn dyed fibers.
****

Comply colorfastness to water with AATCC 107 and with a minimum 4.0 gray scale rating and a minimum 4.0 transfer scale rating.

2.2.2.6 Delamination Strength

Provide delamination strength for tufted carpet with a secondary back of minimum 440 N/m 2.5 lbs/inch.

2.3 WALL BASE

2.3.1 Resilient Base

****
NOTE: Delete this paragraph if Section 09 65 00 RESILIENT FLOORING is used, it also specifies resilient base.

Job formed corners are recommended. The return on preformed corners is not always long enough to hold the piece in place and the corners can be knocked off during vacuuming and other cleaning operations.

Base is available in different lengths ranging from 1220 mm 4 feet pieces to 30,480 mm 100 feet or 36576 mm 120 feet rolls. Availability and roll lengths vary dependent on manufacturer. Identify required length if it impacts design intent. Some manufacturers of Type TS (vulcanized thermoset rubber) base offer only 1220 mm 4 feet lengths and not roll goods.
****

Resilient base must conform to ASTM F1861, [[Type TS (vulcanized thermoset rubber)][,][or][Type TP (thermoplastic rubber)]][, or][Type TV (thermoplastic vinyl)], [Style A (straight - installed with carpet)][,][and][Style B (coved - installed with resilient flooring)]. Provide [100] [150] mm [4][6] inch high and a minimum 3 mm 1/8 inch thick wall base. Provide [preformed][job formed] corners in matching height, shape, and color.

2.3.2 Self-Coving

Self-coving must consist of static-control resilient flooring over a cove stick and must have [cove cap][and metal corner] as recommended by the manufacturer of the flooring. Self-coving base material must be same as floor material.

2.4 ADHESIVES

Provide conductive adhesive as recommended by the manufacturer of the static-control flooring [and self-coving base]. Provide conductive adhesive for carpet tile that is also releasable as recommended by the manufacturer. Provide adhesive for wall base as recommended by the wall base manufacturer.

Provide non-aerosol adhesive products used on the interior of the building (defined as inside of the weatherproofing system) that meet either emissions requirements of CDPH SECTION 01350 (use the office or classoom requirements, regardless of space type) or VOC content requirements of SCAQMD Rule 1168. Provide aerosol adhesives used on the interior of the building that meet either emissions requirements of CDPH SECTION 01350 (use the office or classoom requirements, regardless of space type) or VOC content requirements of GS-36. Provide certification or validation of indoor air quality for adhesives.

2.5 MOLDINGS

Provide heavy duty tapered moldings of [[vinyl][or][rubber]] [[_____]-colored anodized aluminum][clear anodized aluminum] and types as recommended by flooring manufacturer for both edges and transitions of flooring materials specified. Provide vertical lip on molding of maximum 6 mm 1/4 inch. Provide bevel change in level between 6 and 13 mm 1/4 and 1/2 inch with a slope no greater than 1:2. Provide [_____] color to match [resilient base][_____].

2.6 ACCESSORIES

Use accessories recommended by the manufacturer of the flooring.

2.7 ELECTRICAL GROUND CONNECTION

****

NOTE: The static-control resilient flooring is installed in a conductive adhesive. The floor system is grounded to an external ground by a short grounding strip, usually on a room-by-room basis. Designer must provide for connection to an external ground and should coordinate with static-control flooring manufacturers during design stage regarding connections to external ground. Designer will show ground connection to the external ground on the drawings.

****

Provide an electrical ground connection that meets the requirements of ESD S6.1. Connection between the static-control floor system and the external grounding system must be provided. Contact with the static-control floor system must be with conductive grounding strip and must have the greater of the following: a minimum contact area of 5800

square mm 9 square inch or the dimensions recommended by the manufacturer. Provide the grounding conductor recommended by the manufacturer of the flooring. Connect and install the grounding conductor as recommend by the flooring manufacturer.

2.8 MANUFACTURER'S COLOR, PATTERN AND TEXTURE

****

NOTE: Coordinate editing of color reference sentence(s) with the Government. Generally the Section 09 06 00 SCHEDULES FOR FINISHES or drawings are used when the project is designed by an Architect or Interior designer. Select color from manufacturer's standard colors or identified in this specification only when the project has minimal finishes.

When the government directs that color be located in the drawings, a note will be added that states: "Where color is shown as being specific to one manufacturer, an equivalent color by another manufacturer may be submitted for approval. Manufacturers and materials specified are not intended to limit the selection of equal colors from other manufacturers. The word "color" as used herein includes surface color and pattern."

When more than one type, pattern or color is specified identify location.

When a manufacturer's name, stock number, pattern, and color is specified for color, be certain that the product conforms to the specification, as edited.

****

Provide color, pattern and texture [in accordance with Section 09 06 00 SCHEDULES FOR FINISHES][as indicated][_____]. Provide flooring in any one continuous area or replacement of damaged flooring in continuous area from same production run with same shade and pattern.

2.9 FIRE RESISTANCE TESTING REQUIREMENTS

****

NOTE: Choice of critical radiant flux level as it applies to building type and area of application will be made in accordance with the latest edition of UFC 3-600-01 and NFPA 101. Wherever the use of Class II (0.22) watts finish is required, Class I (0.45) watts will be permitted. Critical radiant flux will be a minimum average of 0.45 watts when used in corridors in bachelor enlisted quarters, bachelor officer quarters, hospital, child care centers, temporary lodging facilities, and new construction detention and correctional facilities. Generally the critical radiant flux will be a minimum of 0.22 for corridors of other type facilities. Where an approved automatic sprinkler system is installed, Class II interior floor finish may be used where Class I floor finish is required, and where Class II is required, no critical radiant

flux rating is required.
****

Provide a minimum average critical radiant flux of [0.22][0.45] watts per square centimeter for flooring in corridors and exits when tested in accordance with ASTM E648.

PART 3 EXECUTION

3.1 SURFACE PREPARATION

****
NOTE: Curing and sealing compounds should not be used on concrete surfaces to receive static-control resilient flooring. If a curing compound is required, it must be coordinated for compatibility with the flooring adhesive and approved by the flooring manufacturer.
****

Before any work under this section is begun, defects such as rough or scaling concrete, low spots, high spots, and uneven surfaces must be corrected, and damaged portions of concrete slabs must be repaired in accordance with flooring manufacturer's recommended instructions. Floor must be in a level plane with a maximum variation of 3 mm 1/8 inch every 3 m 10 feet, except where indicated as sloped. Repair cracks and irregularities and prepare the subfloor in accordance with flooring manufacturer's recommended instructions. Curing and sealing compounds should not be used on concrete surfaces to receive flooring unless they have been tested and approved by the flooring manufacturer. In addition, remove paint, varnish, oils, release agents, sealers, waxes, and adhesives, as required by the flooring product in accordance with manufacturer's printed installation instructions. If a curing compound is required, it must be coordinated for compatibility with the flooring adhesive.

3.2 MOISTURE, ALKALINITY AND BOND TESTS

Determine the suitability of the concrete subfloor for receiving the flooring with regard to moisture content and pH level by moisture and alkalinity tests. Conduct moisture testing in accordance with ASTM F1869 or ASTM F2170, unless otherwise recommended by the flooring manufacturer. Conduct alkalinity testing as recommended by the flooring manufacturer. Determine the compatibility of the flooring adhesives to the concrete floors by a bond test in accordance with the flooring manufacturer's recommendations.

3.3 GENERAL INSTALLATION

Do not install building construction materials that show visual evidence of biological growth.

3.4 INSTALLATION OF STATIC-CONTROL RESILIENT TILE FLOORING

Install static-control resilient flooring, ground connections[, heat welded joints,] and accessories in accordance with the approved manufacturer's installation instructions. Tile lines and joints must be kept square, symmetrical, tight, and even. Tile at the perimeter of the

area to be finished may vary as necessary to maintain full-size tiles in the field, but no perimeter tile may be less than one-half the field tile size, except where irregular shaped rooms make it impossible. Tile must be cut, fitted, and scribed to walls, partitions, and projections after field flooring has been applied. Install grounding strips in accordance with manufacturer's installation instructions. Protect edges of flooring material meeting hard surface flooring with molding and install in accordance with the molding manufacturer's printed instructions.

3.5 INSTALLATION OF STATIC-CONTROL RESILIENT SHEET FLOORING

Install static-control resilient sheet flooring, ground connections[, heat welded joints] and accessories in accordance with manufacturer's printed installation instructions. Prepare and apply adhesives in accordance with manufacturer's printed directions. Provide square, symmetrical, tight, and even flooring lines and joints. Keep each floor in true, level plane, except where slope is indicated. Cut flooring to fit around all permanent fixtures, built-in furniture and cabinets, pipes, and outlets. Lay out sheets to minimize waste. Cut, fit, and scribe flooring to walls and partitions after field flooring has been applied. Finish joints flush, free from voids, recesses, and raised areas. Install grounding strips in accordance with manufacturer's installation instructions. Protect edges of flooring material meeting hard surface flooring with molding and install in accordance with the molding manufacturer's printed instructions.[Install flooring with an integral coved base.]

3.6 INSTALLATION OF STATIC-CONTROL CARPET

****
NOTE: When applicable to the project, coordinate method of installation of static-control carpet tile on raised access flooring with access flooring specification.
****

Install static-control carpet, ground connections and accessories in accordance with the approved manufacturer's installation instructions and CRI 104/CRI 105. Protect edges of carpet meeting hard surface flooring with molding and install in accordance with the molding manufacturer's printed instructions. Follow ventilation, personal protection, and other safety precautions recommended by the adhesive manufacturer. Continue ventilation during installation and for at least 72 hours following installation. Install modular tiles with [release][_____] adhesive and join together snugly. Lay tiles in [the same direction] [an alternating pattern] with accessibility to the subfloor where required. Install grounding strips in accordance with manufacturer's installation instructions.

3.7 INSTALLATION OF WALL BASE

3.7.1 Resilient Base

****
NOTE: Delete this paragraph if Section 09 65 00 RESILIENT FLOORING specifies resilient base.
****

Install wall base in accordance with manufacturer's printed installation instructions. Prepare and apply adhesives in accordance with

manufacturer's printed directions. Tighten base joints and make even with adjacent resilient flooring. Fill voids along the top edge of base at masonry walls with caulk. Roll entire vertical surface of base with hand roller, and press toe of base with a straight piece of wood to ensure proper alignment. Avoid excess adhesive in corners.

3.7.2 Self-Coving

The static-control resilient flooring must have a self-coving base and must be installed in accordance with the flooring manufacturer's printed installation instructions. Extend the self-cove up the walls, columns and pilasters [100][150] mm [4][6] inches. Terminate the coving with a cove cap. Place a cove stick at the floor-wall junction to support the coving at the bend. Provide self-cove [at room perimeter and at fixed vertical interruptions to the flooring][as indicated]. [Provide protective metal corners at outside and inside corners.]

3.8 CLEANING AND PROTECTION

The flooring must be cleaned in accordance with the manufacturer's recommendations. Flooring must be protected by a covering of heavy-duty building paper before foot traffic is permitted. Lap and secure edges of kraft paper protection to provide a continuous cover. Boardwalks must be placed over flooring in areas where subsequent building operations might damage the floor. Remove and replace flooring that becomes loose, broken, or curled prior to acceptance, or flooring that does not conform to resistance requirements of ASTM F150.

3.9 TESTING

Test the flooring in accordance with and conform to the requirements of ESD S6.1.

-- End of Section --