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This document utilizes the Construction Specifications Institute (CSI) Manual of Practice, including Master Format, Section Format and Page Format. Further this document utilizes manufacturer specific guidelines using the proprietary method of specifying (per Project and Master Guide Specifications).

Optional text indicated by brackets []; Delete optional text in final copy of specification.

This document further specifies ESD Conductive / Dissipative textile flooring marketed under the ZeroStat brand name, distributed by Ground Zero Electrostatics, Inc. and manufactured by Ground Zero Electrostatics Certified Flooring Mills and, or Compounders. Revise the document section numbers and title (below) to suit your projects requirements, specification practices and section content.

Please refer to CFI Master Format for other section numbers and titles including 09600 Flooring and 09650 Resilient Flooring.

SECTION 09660
Static Control Flooring
ZeroStat ESD permanently conductive carpeting
(with anti-static PVC backing when supplied in tile form)

PART 1, GENERAL

1.01 SUMMARY

A. Conductive / Dissipative carpeting available in roll goods and tiles including:

1. Full spread adhesive installation method.
2. Full spread pressure sensitive / releasable adhesive installation (for raised access installations)
3. URAS textile reinforced releasable adhesive installation.

Specifier Note: Revise paragraph below to suit project requirements. Add section numbers and titles per CSI Master Format specifiers practice.

B. Related sections include:

1. Concrete: Refer to Div 3 Concrete Sections for cast-in-place concrete, toppings and underlayment.
2. Wood Subflooring: Refer to Div 6 Carpentry Section for wood Subflooring and wood underlayment.
3. Resilient Flooring Accessories: Refer to Div 9 (Finishes Sections) for wall bases, reducer strips, metal edge strips and other flooring accessories.

Specifier Note: Articles below may be omitted when specifying manufacturers proprietary products and recommended installation methods. However, retain reference articles as listed below if specifying products and installation by industry reference standard. If retained, list the standard(s) referenced in this section, indicate issuing authority name, acronym, standard designation and title. Establish policy for indicating edition date of referenced standard(s). "Conditions of Contract" or Division 1 References Section may establish date of standards referenced in this section.

1.02 REFERENCES

A: ASTM (American Society of Testing and Materials):

1. ASTM 423-90 (test method for sound absorption of flooring).
2. ASTM E 648-88 (test method for critical radiant flux of floor covering utilizing radiant energy source).
3. ASTM E 662-83 (test method for specific density of smoke as generated by solid materials).
4. ASTM F 150-91 (test method for electrical resistance of conductive and dissipative resilient flooring).
5. ASTM F 710-86 (preparation of concrete or monolithic floors prior to receiving flooring).

B: DOD Specifications (Department of Defense):

1. DOD HDBK263A, section 40.1.2

C: NFPA (National Fire Protection Association):

1. NFPA 99-1993 Standards for Health Care Facilities.
2. NFPA 253-1984 (critical radiant flux of floor covering systems using a radiant energy source).
3. NFPA 258-1998 (test method for specific density of smoke as generated by solid materials).

D: FTS (Federal Test Standard):

1. FTS 101C, Method 4046 (charge decay time).

E. AATCC (American Association of Textile Colorist and Chemist):

1. AATCC 134 (static propensity).

F. EOS/ESD (Electrical Overstress / Electrostatic Discharge Association).

1. EOS / ESD S7.1, 1994 (floor material characterization of materials).

Specifier Note: Article below should be restricted to statements describing design or performance requirements and functional (not dimensional) tolerances of complete system. Limit descriptions to composite and operational properties to extent necessary to link multiple components of a system and to interface with other systems.

1.03 SYSTEM DESCRIPTION

A. Performance Requirements: Provide flooring that has been manufactured, fabricated and installed to maintain performance criteria certified by Ground Zero Electrostatics, Inc without damage, defects or failure.

Specifier Note: Article below includes submittal of relevant data to be furnished by Contractor before, during or after construction. Coordinate this article with Architect's and Contractors duties and responsibilities in "Conditions of Contract" and Division 1 Submittal Procedures Section.

1.04 SUBMITTALS

A. General: Submit listed submittals in accordance with "Conditions of the Contract" and Division 1 Submittal Procedures Section.

B. Product Data: Submit product data, including Ground Zero Spec Data product sheet for specified products.

C. Shop Drawings: Submit shop drawings showing layout, profiles and product components including anchorage, accessories, finish colors, patterns and textures.

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

E. Quality Assurance Submittals: Submit the following:

1. Test Reports: Certified test reports Showing compliance with specified performance characteristics and physical properties.
2. Certificates: Product certificates from manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.
3. Manufacturers Instructions: Manufacturers installation instructions.

Specifier Note: Coordinate paragraph below with part 3 Field Quality Requirements Article herein. Retain or delete as applicable.

4. Manufacturers Field Reports specified herein.

E. Closeout Submittals: Submit the following:

1. Operation and Maintenance Data: Operation and maintenance data for installed products in accordance with Division 1 Close Out Submittals (maintenance and operation data section). Include methods for maintaining installed product and precautions against cleaning and methods detrimental to static control performance
2. Warranty: Warranty documents specified herein.

Specifier Note: Article below should include prerequisites, standards, limitations and criteria, which establish an overall level of quality for products and workmanship for this section. Coordinate below article with Division 1 Quality Assurance Section.

1.05 QUALITY ASSURANCE

A. Installer Qualifications: Installer experienced in performing work of this section who has experience in installation of work similar to that required for this project. Installer should submit certification indication qualifications.

Specifier Note: Paragraph below should list obligations for compliance with a specific code requirement particular to this section. General statements to comply with a particular code are typically addressed in "Conditions of Contract" and Division 1 Regulatory Section. Repetitive statements should be avoided.

B. Regulatory Requirements:

1. Fire Performance Characteristics. Provide resilient vinyl tile flooring with the following fire performance characteristics as determined by testing products in accordance with ASTM or another certified testing and inspection agency acceptable to authorities having jurisdiction:

- a. Class 1 rating per NFPA 253 (ASTM 648, critical radian flux).
- b. Class 2 rating per BS: 476, part 7; 1978
- c. Flame spread 0 per AS 1530.3
- d. B1 Rating per DIN 4102

Specifier Note: Retain paragraph below for erected assemblies (either on site or off site) required for review of construction, coordination of work of several sections, testing and observation of operation. Mock-ups, when accepted or approved establish standards by which work can be judged. Coordinate below with Division 1 Quality Control Mock-Up Requirements Sections).

C. Mock-Ups: Install at project site a mock-up using acceptable products and manufacturer approved installation methods. Obtain Owners and Architect's acceptance of finish color, texture and pattern as well as workmanship standards. Comply with Division 1 Quality Control (Mock-Up Requirements Section).

Specifier Note: Edit paragraph below to specify mock-up size.

- 1. Mock-up size: [specify mock-up size.]
- 2. Maintenance: Maintain mock-up during construction for workmanship comparison.
- 3. Incorporation: Mock-up may be incorporated into final construction upon owner's approval.

Specifier Note: Coordinate paragraph below with Division 1 Project Management and Coordination (Project Meetings) Section.

D. Pre-Installation Meeting: Conduct pre-installation meeting to verify project requirements, substrate conditions, manufacturers installation instructions and manufacturers warranty requirements. Comply with Division 1 Project Managements and Coordination (Project Meetings) Section.

E. Pre-Installation Testing: Conduct pre-installation testing as follows: [specify testing.]

Specifier Note: Article below should include special and unique requirements. Coordinate article below with Division 1 Product Requirements Section.

1.06 DELIVERY, STORAGE AND HANDLING

A. General: Comply with Division 1 Product Requirements Sections.

B: Ordering: Comply with manufacturers ordering instructions and lead-time requirements to avoid construction delays.

C: Delivery: Deliver materials in manufacturers original, unopened, undamaged containers with Identification Labels intact.

D: Storage and Protection: Store materials protected from exposure to harmful weather conditions at temperature and humidity conditions recommended by the manufacturer.

- 1. Materials should be stored in area's that are fully enclosed and weather-tight with the permanent HVAC system set at a uniform temperature of at least 68 degrees F (20 degrees C) for 72 hours prior to, during and after installation.

1.07 PROJECT CONDITIONS

A. Environmental Requirements / Conditions: In accordance with manufacturers recommendations: Area's to receive flooring shall be clean, fully enclosed and weather-tight with the permanent HVAC set at a uniform temperature of at least 68 degrees F. The flooring material shall be conditioned in the same manor. Maximum temperature should not exceed 100 degrees F after installation.

B. Temperature Requirements: Maintain air temperature in spaces where products will be installed for a time period before, after during and after installation as recommended by the manufacturer.

1. Temperature Conditions: 68 degrees F (20 degrees C) for 72 hours prior to, during and after installation.

C. Existing Conditions: [Specify existing conditions affecting product use and installation.]

D. Field Measurements: Verify actual measurements / openings by field measurements before fabrication; show recorded measurements and fabrication schedule with construction progress to avoid construction delays.

Specifier Note: Article below is a combination of two CSI Section Format article titles.

1.08 SEQUENCING AND SCHEDULING

A. Finishing Operations: Install tile flooring after finishing operations including painting and ceiling operations have been completed.

B. Concrete Curing: Do not install ESD carpeting over substrates until substrates have cured and are dry to bond with adhesive as determined by Ground Zero Electrostatics' recommended bond, moisture test and PH test.

Specifier Note: Coordinate article below with the "Conditions of the Contract for Construction." If other "Conditions" are used for the project, revise article below accordingly.

1.09 WARRANTY

A. Project Warranty: Refer to "Conditions of the Contract" for project Warranty conditions.

B. Manufacturers Warranty: Submit for owner's acceptance, manufacturers standard warranty document executed by authorized company official. Manufacturers warranty is in addition to, and not a limitation of other right Owner may have under Contract Documents.

Specifier Note: Coordinate paragraph below with the manufacturers warranty requirements.

1. Warranty Period:

- Fifteen (15) year limited wear warranty, heavy commercial, class III; lifetime warranty on conductivity and electrical performance commencing on the Date of Substantial Completion.
- Fifteen (15) year limited warranty against stain removal.
- Fifteen (15) year limited warranty against colorfastness due to UV lighting and Atmospheric contaminates.
- Fifteen (15) year limited warranty against fiber wear.
- Lifetime limited warranty on electrical performance and conductivity.

Specifier Note: Coordinate article below with Division 1 Closeout Submittal (Maintenance Materials) Section.

1.10 MAINTENANCE

A. Extra Materials: Deliver to owner extra materials from same production run as products installed. Package products with a protective covering and identify with descriptive labels. Comply with Division 1 Closeout Submittals (Maintenance materials) Section.

Specifier Note: Revise paragraph below specifying size and percentage as required for project.

1. Quantity: Furnish quantity of flooring units equal to 5% of amount installed.
2. Delivery, Storage and Protection: Comply with owner's requirements for delivery, storage and protection of extra materials.

PART 2 PRODUCTS

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

2.10 ZeroStat ESD conductive / dissipative permanently conductive carpeting (with anti-static PVC backing when supplied in tile form)

A. Manufacturer: Ground Zero Electrostatics and / or Ground Zero Approved Carpet Mill.

Specifier Note: Paragraph below is an addition to CSI Section Format and a supplement to MANU-SPEC. Retain or delete paragraph below per project requirements and Specifier 's practice.

1. Contact: Ground Zero Electrostatics Inc
Cedar Village Executive Offices
4916 26th Street West, Suite 100
Bradenton, FL 34207
Toll Free: 877-463-9376
Phone: 941-751-7581
Fax: 941-751-7586
2. Representative Contact: [Specify representative contact information]

B. Proprietary Products: ZeroStat ESD conductive / dissipative permanently conductive carpeting (with anti-static PVC backing when supplied in tile form) and specialty conductive adhesives.

Description: ZeroStat ESD conductive / dissipative permanently conductive carpeting

Color Options: Ten
Pile Fiber: 100% Aquafil Alto Chroma
Dye Method: Solution Dye Technology
Surface Texture: Dense tufted, textured loop
Anti-Soil Treatment: Anti-Stain Resist at yarn extrusion.
Pile Height: 0.125"
Machine Gauge: 1/10"
Stitch Count: 10 SPI
Tufts: 100
Yarn Construction: Solution Dyed twisted 2/2 ply, continuous 44 denier conductive fiber in every end

Fiber Weight: Yarn oz./sq. yd, Fundamentals 20 oz, Premier 26 oz, Elite 30 oz.
Fully Recyclable: Yes
Primary Backing: Woven synthetic
Secondary Backing (broadloom): Action Back, total weight 52 oz/sy min
Secondary Backing (tiles): Fiberglass reinforced static dissipative PVC, total weight 134 oz/sy min.
Broadloom Width: 12' 6" and 6' 3"
Tile Sizes: 18", 24" 36" (6' lengths available in 18", 24" and 36" widths).

2. Color(s): As selected by Architect from Manufacturers standard colors.
3. Adhesive: Ground Zero Inc, GZ C-2000 liquid conductive adhesive for permanent application over concrete substrate or GZ C-2000-R liquid conductive pressure sensitive adhesive for releasable application over raised access flooring or URAS fiber reinforced conductive releasable adhesive for various applications where a deployable application is preferred.
4. Electrical Resistance: 5.0 X E04 to 2.1 X 10E06 RTG (conductive variety) or 1.0E06 to 7.3E07 RTG (static dissipative variety). Electrical resistance tested via EOS/ESD 7.1

Specifier Note: Paragraph below is an addition to CSI Section Format and a supplement to Manu-Spec. Retain or delete paragraph below per project requirements and Specifier 's practice.

D. Product Criteria Forms: Refer to Product Criteria Forms as an attachment to this section

1. Product Forms: Subject to compliance with specified requirements, provide products specified in Ground Zero Product Data Sheets for selected materials.

Specifier Note: Edit article below to suit project requirements. If substitutions are permitted, edit text below. Add text to refer to Division 1 Project Requirements (Product Substitutions Procedures) Section.

2.02 PRODUCT SUBSTITUTIONS

A. Substitutions: No substitutions permitted.

Specifier Note: Add article below for alternates required for project; state work covered. Coordinate with part 1 General Summary Article herein, applicable Division 1 Sections and other Bid and Contract Documents.

2.03 RELATED MATERIALS

A. Related Materials: Refer to "Other" sections for related materials as follows:

1. Underlayment and Patching Compounds: Refer to Division 3 Concrete sections for Portland cement-based underlayment and patching compounds.
2. ESD carpeting accessories: Refer to Division 9 (Finishes) Sections for accessories.

2.04 SOURCE QUALITY:

A. Source Quality: Obtain flooring product materials from a single supplier.

PART 3 EXECUTIONS

Specifier Note: Article below is an addition to CSI Section Format and a supplement to Manu-Spec. Revise article below to suit project requirements and specifiers practice.

3.01 MANUFACTURERS INSTRUCTIONS

A. Compliance: Comply with manufacturers product data, including product technical bulletins as posted at http://www.gndzero.com/techdocs_floor_zerostat_carpet.html, product catalog instructions and product carton instructions for installation.

3.02 EXAMINATION

A. Site Verification of conditions: Verify substrate conditions (which have been previously installed under other sections) are acceptable for product installation in accordance with manufacturers instructions.

B. Material Inspection: In accordance with manufacturers installation requirements, visually inspect materials prior to installation. Materials with visual defects shall not be installed and shall not be considered as a legitimate claim.

3.03 PREPARATION

A. Adjacent Surface Protection: Protect adjacent work areas and finish surfaces from damage during product installation.

B. Surface Preparation:

1. General: Prepare floor substrate in accordance with manufacturers instructions as posted at http://www.gndzero.com/techdocs_floor_zerostat_carpet.html
2. Floor Substrate: Prepare floor substrate to be smooth, rigid, flat, level, permanently dry, clean and free of foreign materials such as dust, paint, grease, oils, solvents, curing and hardening compounds, sealers, asphalt and old adhesives.
3. Concrete Floor Substrate: Concrete floor substrate shall have a minimum compressive strength of 3,500 PSI. Refer to Division 3 (Concrete) sections for patching and repairing cracked materials and leveling compounds with Portland cement based compounds. Do not install flooring over Gypsum based leveling or patching materials.

C. Concrete Moisture Test: Perform moisture test on concrete floors regardless of the age or grade level with a minimum of three tests for the first 1000 sq/ft. The test shall be of the Calcium Chloride variety. One test shall be conducted for every 1000 sq/ft of the flooring. The testing shall be conducted around the perimeter of the room, at columns and where moisture may be evident. The moisture emissions from the concrete shall not exceed 8.0 lbs per 1000 sq/ft in 24 hours. For the most accurate results the weight of the Calcium Chloride dish shall be made on the job site at the start and end of each test. A diagram of the area showing the location and results of each test shall be submitted to the Architect, General Contractor and End User. If the tests exceed the limitations the installation shall not proceed until the problem has been corrected.

D. Concrete pH Test: Perform pH test on concrete regardless of age or grade level. If the pH is greater than 10 it must be neutralized prior to beginning the installation.

E. Wood Floor Substrates: prepare wood subfloor substrate to be rigid, double construction with a one inch minimum thickness, free from harmful movement and have at least 18 inches of well ventilated air space below. Do not install flooring over wooden subfloors built on sleepers over, below or on grade concrete floors.

1. Refer to Division 6 Carpentry sections for wood subfloor construction.

Specifier Note: Coordinate article below with manufacturers recommended installation details and requirements.

3.04 INSTALLATION

A. Full Spread Adhesive and URAS Releasable Adhesive Installation: Comply with instructions on installation as posted at http://www.gndzero.com/techdocs_floor_zerostat_carpet.html.

B. Installation Addendums not listed at above site address:

1. Where demountable partitions and other items are indicated for installation on top of finished flooring, install flooring prior to installation of said items.
2. Cut / fit, flooring materials to butt lightly to vertical surfaces, permanent fixtures and built-in furniture, including pipes, outlets, edgings, thresholds, nosing and cabinets.
3. Extend flooring materials into toe spaces, door reveals, closets and similar openings.
4. Install flooring materials on covers for telephones, electrical ducts and similar items occurring within floor finish areas. Maintain overall continuity of color and pattern with pieces of flooring installed on these covers observing potential directional pattern of carpeting.
5. Test installed floor in accordance with EOS/ESD S7.1 and as required by end user specifications (if any).

C. Finish Flooring Patterns: Lay floor coverings in same direction.

3.05 FIELD QUALITY REQUIREMENTS

Specifier Note: Edit paragraph below. Establish number and duration of periodic site visits with Owner and Ground Zero ElectroStatics, Inc. Consult with Ground Zero ElectroStatics, Inc for services required. Coordinate paragraph below with Division 1 Quality Assurance Section and Part 1 Quality Assurance Submittals herein. Delete if not required.

A. Ground Zero ElectroStatics Inc Field Services: Upon Owners request and with at least a 1 week notice, provide field service consisting of product use recommendations and periodic site visits for inspection of product installation and certification of electrical resistance of finished flooring installation.

1. Site Visits: [Specify number and duration of periodic site visits]

Specifier Note: Coordinate article below with Division 1 Execution Requirements (Cleaning) Section.

3.06 CLEANING

A. Cleaning: Remove temporary coverings and protection from adjacent work areas. Repair or replace damaged installed products. Clean installed carpeting in accordance with Ground Zero ElectroStatics' Inc instructions prior to owner's acceptance. Remove construction debris from project site and legally dispose of debris.

1. Remove visible adhesive and other surface blemishes using cleaning recommendations provided by Ground Zero ElectroStatics, Inc.
2. Vacuum floor after installation.

3. Do not utilize chemical cleaning agents or water extraction cleaning methods on esd carpeting until after time period recommended by Ground Zero ElectroStatics, Inc.

Specifier Note: Coordinate article below with Division 1 Execution Requirements Section.

3.07 PROTECTION

A. Protection: Protect installed finished product and finish surfaces from damage during construction. Remove and legally dispose of protective coverings at time of Substantial Completion.

3.08 INITIAL MAINTENANCE PROCEDURES

Specifier Note: Add or Delete article below according to your project requirements.

A. General: Include in Contract Sum Amount cost for initial maintenance procedures and execute procedures after flooring installation as recommended by Ground Zero ElectroStatics' Inc.

Specifier Note: Retain article below to suit project requirements. CSI Page Format allows for schedules, forms and tables to be located at end of section. Article may be used to describe specific criteria requirements of similar products and equipment.

3.09 SCHEDULES AND (PRODUCT CRITERIA) FORMS

Specifier Note: Retain paragraph below to suit project requirements. Reference a schedule or include a schedule as an attachment, which indicates where to locate products and equipment.

A. Schedules: [Specify reference to applicable schedules]

Specifier Note: Retain paragraph below to suit project requirements. Include form as an attachment, which indicated product criteria.

B. Product Criteria Forms Attachments: Refer to Product Criteria Form(s) [No.] of [No.], Dated [Specify Date], attached herein.

END OF SECTION