Specifier Notes: This product guide specification is written according to the Construction Specifications Institute (CSI) Format, including *MasterFormat* (2020 Edition), *SectionFormat,* and *PageFormat,* contained in the CSI *Manual of Practice*.

The section must be carefully reviewed and edited by the Architect to meet the requirements of the project and local building code. Coordinate with other specification sections and the drawings. Specifiers should be aware that ESD compliance requirements should be carefully considered for future needs.

Delete all "Specifier Notes" when editing this section.

SAMPLE SPECIFICATION

SECTION 09 67 33
ESD SWCNT Based Electrostatic Dissipative Coating System
Corrosion Resistant Urethane

Specifier Notes: This section covers APF Stat-Rez® NANOWISE TECHNOLOGY™ Nanotechnology Static Dissipative Flooring System.

APF Stat-Rez® NanoWISE™ is a two-component ESD chemical resistant urethane (CRU) coating designed to impart electrostatic control properties to a variety of substrates, including non-conductive coatings or overlayment systems and concrete.

Consult APF for assistance in editing this section for the specific application.

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Chemical Resistant Urethane (CRU) static control flooring for interior concrete surfaces requiring protection from static discharge.

1.2 RELATED SECTIONS

A. Section 03 30 00 - Cast-in-Place Concrete.

B. Section 03 01 00 - Concrete Rehabilitation.

C. Section 03 39 00 – Concrete Curing

1.3 REFERENCES

A. ASTM D 4060 – Abrasion Resistance Polymer Surface Coatings

B. ASTM D 4258 – Surface Cleaning Concrete for Coating.

C . ASTM D 4259 – Abrading Concrete.

D. ICRI Guideline 03732 – Selecting and Specifying Concrete Surface Preparation for Sealers, Coatings and Polymer Overlays.

E. ANSI S20.20-2014 – Protection Of Electrical And Electronic Parts, Assemblies And Equipment (Excluding Electrically Initiated Explosive Devices)

F. ANSI S7.1-2020 Floor Materials – Flooring Systems Resistive Characterization

G. ASTM F150(06) 2018 Standard Test Method For Electrical Resistance Of Conductive And Static Dissipative Resilient Flooring

1.4 SUBMITTALS

A. Comply with Section 01330 – Submittal Procedures.

B. Product Data: Submit manufacturer's product data, including physical properties and colors available.

C. Maintenance Instructions: Submit manufacturer's maintenance instructions, including maintenance procedures and materials, procedures for stain removal and surface repair, and recommended schedule for cleaning.

1.5 QUALITY ASSURANCE

A. Qualifications:
1. Applicator: Use applicator experienced in application of specified materials for a minimum of 5 years on projects of similar size and complexity. Provide list of completed projects including project name and location, name of architect, name of material manufacturer, and approximate quantity of materials applied.
2. Applicator's Personnel: Employ only persons trained for application of specified materials.

B. Pre-application Meeting: Convene a pre-application meeting two [2] weeks before start of application of floor coating. Require attendance of parties directly affecting work of this section, including Contractor, Architect, applicator, and manufacturer's representative. Review surface preparation, priming, application, curing, protection, and coordination with other work.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Delivery: Deliver materials to site in manufacturer's original, unopened containers and packaging, with labels clearly identifying product name, manufacturer, batch or lot number, and date of manufacture. Observe Manufacturer’s limitations on shelf life and special shipping and storage conditions.

B. Storage: Store materials in accordance with manufacturer's instructions.
1. Keep containers sealed until ready for use.
2. Do not subject material to freezing; do not apply material that has been subjected to freezing. Material subjected to freezing shall be separated from inventory and destroyed by mixing all three components. The solid reacted product shall be disposed of in environmentally sound and regulatory compliant manner.

Handling: Protect materials during handling and application to prevent damage or contamination.

1.7 SITE CONDITIONS

A. Do not apply materials if floor or air temperature is below 55ºF/12ºC or above 85ºF/30ºC.

B. Do not apply materials if relative humidity is above 85 percent or within 5º of dew point at time of application.

C. Utilities, including electric, water, heat and finished lighting to be supplied by General Contractor

D. Maintain room temperature between 50°F – 85°F (10°C - 30°C) for 48 hours before, during and 48 hours after installation, or until cured.

E. At the time of application ensure the minimum substrate temperature is above 50°F (10°C) and the substrate temperature is 5°F (3°C) above the measured dew point.

F. Erect suitable barriers and post legible signs at points of entry to prevent traffic and trades from entering the work area during application and cure period of the floor.

G. Protection of finished floor from damage by subsequent trades shall be the responsibility of the General Contractor.

1.8 WARRANTY

A. Provide a warranty covering defective materials and manufacturing workmanship for a period of [one] year after date of installation. Provide a five [5] year electrical properties only warranty in accordance with manufacturer printed instructions and technical information.

PART 2 PRODUCTS

2.1 MANUFACTURER

A. Approved Manufacturer shall be Arizona Polymer Flooring, Inc. Div. ICP Group, 4565 W Watkins St., Phoenix, AZ 85043
(800) 562-4921 www.apfepoxy.com

2.2 MATERIALS

2.2.1 CUF-1 Standard static dissipative flooring system

A. Primer/Isolation Layer: APF Epoxy 400

1. VOC 70 g/l
2. Apply in one [1] coat of 8 mils (0.20mm), 200 sq. ft. per gallon over existing epoxy resinous Flooring, or as required to completely seal the substrate. Do not apply to existing polyurethane or methyl methacrylate existing surfaces.
3. Color: Apply as clear.

B. APF® Stat-Rez® 275 Chemical Resistant Urethane Nano Static Dissipative Wear Layer

1. Two-component, ESD Chemical Resistant Urethane Coating designed as the wear layer for APF® Stat-Rez Nano ESD Systems to be used in environments where it is necessary to reduce the damaging effects of electrostatic discharge (ESD) and provide a reflective, chemical resistant surface. Resinous flooring system shall utilize only single-wall, carbon nanotube (SWCNT) technology as conductive element.
2. Abrasion Resistance ASTM D4060: CS17 wheel, <45 mg./1000 cycles.
3. VOC <42 g/l
4. Flooring system shall conform to ANSI ESD S20.20 - 2014 *Protection of Electrical and Electronic Parts, Assemblies and Equipment (Excluding Electrically Initiated Explosive Devices)* §8.2, Table 2, Product Qualification in conjunction with compliant footwear.
6. Surface electrical resistance shall be ≤1.0 x 10^7 ohms when measured in accordance with ANSI ESD STM S7.1 [Alternately; ASTM F150]
5. Product shall have shelf life after date of manufacture of one [1] year in unopened factory sealed containers.
6. APF® Stat-Rez Nano 275 Color: _____ [Refer to APF® Stat-Rez Nano color chart]
7. Applied thickness: Apply in **two [2]** coats 4 - 6 mils each coat (266 – 400 sq. feet per mixed gallon.) Apply second coat after first coat has fully cured, but within the permissible recoat time stated in the Manufacturer's published technical data. Product shall be unaffected by minor variations in applied thickness.

PART 3 EXECUTION

3.1 EXAMINATION

A. Examine surfaces to receive APF® Stat-Rez Nano 275 System. Notify Architect if surfaces are not acceptable. Do not begin surface preparation or application until unacceptable conditions have been corrected.

B. Do not apply to unsound concrete, asphaltic or bitumen membranes, glazed or vitrified brick and tile, soft wood, aluminum, copper or fiberglass reinforced polyester/vinyl ester composites.

3.2 SURFACE PREPARATION

A. Prepare concrete surfaces in accordance with manufacturer's instructions and ASTM D 4258.

B. Remove dirt, oil, grease, wax, laitance, curing compounds, water-soluble concrete hardeners, and other surface contaminants.

C. Remove sealers, finishes, and paints.

D. Remove unsound concrete by scarifying, sand blasting, shot blasting, or high-pressure water blasting.

E. Chemical Surface Preparation:

1. Chemical surface preparation (acid etching) is unacceptable and will void Manufacturer’s warranty.

F. Mechanical Surface Preparation:

1. Mechanically abrade concrete surface in accordance with manufacturer's instructions.
2. Leave concrete surface with an aggressive texture.
3. Remove concrete dust.
4. Conform to ASTM D 4259.
5. Surface profile shall conform to IRCI Guideline 03732
    a. CSP 3-4 for 10-30 mil systems.

3.3 CONTROL JOINTS, CRACKS

A. Provide repair and treatment of control joints and surface cracks utilizing manufacturer’s standard materials and installation details.

1. Control (contraction) joints and otherwise dynamically stable cracks shall be filled utilizing APF 300 Flex Paste.

3.4 APPLICATION

A. Repair concrete substrate as required using cementitious repair/resurfacer.

B. Do not add thinners to materials. No thinners shall be approved or allowed.

C. Install ground strips in accordance with Manufacturer’s written instructions found on Technical Document APF® Stat-Rez Nano 275 Product Data Sheet. In hazardous environments, provide one [1] positive ground point to the flooring system ground plane for every 1,000 sq. feet (100 m^2 contiguous floor surface, with a minimum of one positive connection for discreet contiguous room area.

D. Finish surface to be smooth, with uniform texture, free of surface defects, and without porous areas.

E. Follow Manufacturer’s recommendations on terminations and connections to walls, drains, doorways, columns, and floor-to-floor transitions.

3.4 CLEANUP

A. Remove masking, draping, and other protection from adjacent surfaces.

B. Remove remaining materials and debris from job site and dispose of them in according with local rules and regulations. Leave area in clean condition free of debris.

3.5 PROTECTION

A. Protect floor coating during curing from traffic and chemical spillage. Based on air & substrate temperature of 72ºF/22ºC

1. Foot Traffic: Minimum of 24 hours.
2. Light Traffic: 24 hours
3. Full Cure: 7 days

B. Testing: Static dissipative flooring system shall be tested immediately after floor coating is substantially cured to allow foot traffic without surface damage. Test in accordance with the specified standardized and industry accepted test method.

END OF SECTION

Warranty

ICP BUILDING SOLUTIONS GROUP, the owner of Arizona Polymer Flooring, warrants that the product is produced within specifications and is free from defect. No warranty shall be in effect
until ICP Building Solutions Group Terms and Conditions of Sales are met, including payment and cooperative promotional considerations. ICP Building Solutions Group warrants that the
covered product is free of defect and suitable for the specified purpose for a period of one (1) year from the date of shipment, provided the product is installed within its published shelf life,
in strict conformance with specifications, and/or written project-specific installation guidance from authorized representation. ICP Building Solutions Group warrants only when product is
handled, stored, mixed and applied in accordance with published recommendations. It is purchaser responsibility to initiate any claim against this warranty within a reasonable time. If
determined by ICP that the product does not meet this warranty, the liability of ICP Building Solutions Group shall be limited to refund of the purchase price or provision of replacement
product, neither needing to exceed the affected area as determined by a person authorized to perform technical representation for ICP Building Solutions Group. To obtain a replacement or
refund the customer must provide written notice containing full details of the non-conformity suspected. The purchaser, owner or their representative shall notify ICP Building Solutions
Group, in writing, within five (5) working days concerning any potential defect, or as needed before conditions deteriorate and increase repair costs. ICP Building Solutions Group reserves
the right to inspect the non-conforming material prior to replacement. ICP Building Solutions Group may in its discretion refund the purchase price received by ICP Building Solutions Group
in lieu of replacing the material. Except for the expressed warranty stated above, there are no other warranties, expressed or implied, including without limitation, any implied warranty of merchantability or fitness for purpose. ICP Building Solutions Group's obligation shall not extend beyond the obligations expressly undertaken above and ICP Building Solutions Group shall have no liability or responsibility to purchaser or any third party for any loss, cost, expense, damage or liability, whether direct or indirect, or for incidental or consequential damages. No customer, distributor, or representative of ICP Building Solutions Group is authorized to change or modify the published data sheets or this warranty in any way. No one is authorized to make oral warranties on behalf of ICP Building Solutions.