SECTION 13 49 23
RADIO FREQUENCY FLOOR SHIELDING FOR TELECOMMUNICATION AND SECURITY

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Moisture mitigation system.

B. Liquid-applied self-leveling floor underlayment.

C. Adhesives

D. SCIF - RF Shielding

1.02 RELATED SECTIONS

A. Section 03 1456 - Hydraulic Cement Underlayment

B. Section 09 0561 - Common Work Results for Flooring Preparation

C. Section 90 0561.13 - Moisture Vapor Emission Control

D. Section 27 4113 - RF Shielding

1.03 REFERENCES

A. ASTM F710 - "Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring".

B. ASTM C1708 - "Standard Test Method for Self-Leveling Mortars Containing Hydraulic Cements".

C. ASTM 2170 - "Standard Test Method for Determining Relative Humidity in Concrete Slabs Using in-situ Probes".

D. ASTM F1869 - "Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride".

E. ASTM C150 - "Standard Specification for Portland Cement".

F. ASTM C472 - "Standard Test Methods for Physical Testing of Gypsum, Gypsum Plasters and Gypsum Concrete".

G. RFCI (RWP) - Recommended Work Practices for Removal of Resilient Floor Coverings; Resilient Floor Covering Institute; October 2011.

H. IEEE 299-2006 - IEEE Standard Method for Measuring the Effectiveness of Electromagnetic Shielding Enclosures.

I. ICD/ICS 705 - Physical and Technical Security Standards for Sensitive Compartmented Information Facilities.

1.04 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Visual Observation Report: For existing floor coverings to be removed.

C. Product Data: Provide manufacturer's data sheets documenting physical characteristics and product limitations of underlayment materials. Include information on surface preparation, environmental limitations, and installation instructions.

D. Adhesive Bond and Compatibility Test Report.

1.05 QUALITY ASSURANCE

A. Applicator Qualifications: Company specializing in performing the work of this section, and must be certified by the manufacturer. Contact Drew Jubis for a list of approved applicators. 570-814-4677 drew.jubis@uzin-utz.com

1.06 DELIVERY, STORAGE, AND HANDLING

A. Store all products indoors in original unopened packaging. Keep all materials dry and away from direct sun exposure in moderate conditions between temperatures of 50 °F to 90 °F (10 °C to 32 °C).

1.07 FIELD CONDITIONS

A. Maintain ambient temperature in spaces where concrete testing is being performed, and for at

least 48 hours prior to testing, at not less than 65 degrees F (18 degrees C) or more than 85 degrees F (30 degrees C).

B. Maintain relative humidity in spaces where concrete testing is being performed, and for at least 48 hours prior to testing, at not less than 40 percent and not more than 60 percent.

1.08 WARRANTY

A. All UZIN materials are provided with our limited 10-year warranty.

B. Warranties for each product will be covered by their respective manufacturers.

1.09 DEFINITIONS

A. Hereinafter “Radio Frequency Shielding” is also called “Faraday cage”, “RF enclosure”, ”TEMPEST SCIF”, “Protective Technical Barrier” or “RF shielding”.

B. Hereinafter “SCIF-USx” is the entire RF shielded floor system, comprised of Uzin Utz and Xalon RF Shielding Systems products. This does not include the finished floor’s Top Wear Layer or the adhesive there of.

C. Hereinafter “Top Wear Layer” is a standard resilient floor covering. This system is designed to receive all standard resilient floor coverings (vinyl composite tile, luxury vinyl, ESD tile, carpet squares, ESD carpet squares, etc.). Contact Drew Jubis if any other floor coverings are to be used. 570-814-4677 drew.jubis@uzin-utz.com

1.10 SCIF - RF SHIELDING PERFORMANCE

A. Hereinafter the SCIF-USx RF shielded floor system is offered in two standard performance levels:

1. SCIF-USx (XFS60) with RF shielding effectiveness of 60dB from 200KHz to 18GHz or 60dB from 10KHz to 18GHz (E-field Only)
2. SCIF-USx (XFS80) with RF shielding effectiveness of 80dB from 800KHz to 18GHz or 80dB from 10KHz to 18GHz (E-Field Only)
3. RF shielding effectiveness performance levels tested per IEEE-299

PART 2 PRODUCTS

2.01 MANUFACTURER

A. Uzin Utz North America, Inc.

14509 E 33rd Place, Unit G, Aurora, CO 80011

866-505-4810 www.us.uzin.com

Drew Jubis - Director of Regional Sales 570-814-4677 drew.jubis@uzin-utz.com

B. Xalon RF Shielding Systems

21100 Morewood Pkwy, Rocky River, OH 44116

1-833-XalonRF or 833-925-6673 www.xalonrf.com

Vince Thomascik – Sales Manager 440-263-1275 vthomascik@xalonrf.com

C. R. A. Mayes Company, Inc.

499 S White Tail Dr. Franktown, CO 80116-8828

303-761-9447 www.ramayes.com

Eric Evans – CEO/Physicist & RF Shielding Systems Designer eric.evans@ramayes.com

D. Substitution requests will not be considered.

2.02 MATERIALS

A. Detailed specifications for each layer of the SCIF-USx RF shielded floor system, presented from the top down, including:

1. Top Wear Layer: Types of finished flooring (vinyl composite tile, luxury vinyl, ESD tile, carpet squares, ESD carpet squares, etc.).

2. Layer 12: UZIN SCIF - Texas, Floor Leveling Compound.
3. Layer 11: UZIN SCIF - Colorado, Non-Porous Primer.
4. Layer 10: UZIN SCIF - New Jersey, Urethane Isolation Barrier.
5. Layer 9: Xalon XPS80 or XPS60 Galvanized Steel Panels, 4ft x 8ft, or 4ft x 4ft.
6. Layer 8: UZIN SCIF - Alabama, 2-Component Polyurethane Adhesive.
7. Layer 7: Xalon XFT14 or XFT50 four-inch-wide RF shielded seaming tape.
8. Layer 6: Xalon L-Flashing - Xalon XLF- (in. wide) x (in. high) x (in. long)
9. Layer 5: Xalon XPS80 or XPS60 Galvanized Steel Panels, 4ft x 8ft or 4ft x 4ft.
10. Layer 4: UZIN SCIF - Alabama, 2-Component Polyurethane Adhesive.
11. Layer 3: UZIN SCIF - Texas, Floor Leveling Compound.
12. Layer 2: UZIN SCIF - Colorado, Non-Porous Primer.
13. Layer 1: UZIN SCIF - Missouri, Moisture Vapor Retarder.

B. Third Party Testing:
1. System has been tested to ensure SCIF compliance.

PART 3 EXECUTION

3.01 REMOVAL OF EXISTING FLOOR COVERING

A. Comply with local, State, and federal regulations and recommendations of RFCI Recommended Work Practices for Removal of Resilient Floor Coverings, as applicable to floor covering being removed.

B. Dispose of removed materials in accordance with local, State, and federal regulations and as specified.

3.02 EXAMINIATION

A. Verify that substrate surfaces are clean, dry, unfrozen, do not contain petroleum byproducts, or other compounds detrimental to underlayment material bond to substrate.

3.03 PREPARATION

A. The subfloor must be structurally sound, solid, dry, free from active cracks, clean, and free of all contaminants, including but not limited to dust, grease, oil, paint, wax, curing, and sealing compounds, or cleaning solution residue that would impair adhesion.

B. Mechanically prepare and clean the surface by grinding, shot blasting, or sanding, and thoroughly vacuum off all loose material and dust following OSHA recommended guidelines. Do not use sweeping compounds.

C. Any weakly bonded or soft surface material, such as loose patching compounds, leveling compounds, floor coverings, or coatings, must be removed.

D. Do not apply this product over any acid-etched or chemically abated adhesive surfaces.

3.04 MOISTURE VAPOR TESTING

A. Perform testing according to ASTM F2170. Provide 3 tests for the first 1,000 sq.ft. of floor area plus 1 additional test for each 1,000 sq.ft. thereafter.

B. Relative Humidity Test: Using in situ probes, follow ASTM F2170. Proceed with installation only if the substrate is within spec of the underlayment, adhesive, and finished floor covering manufacturers' limitations.

C. For concrete substrates with high residual moisture, use UZIN SCIF - Missouri Premium Moisture Vapor Retarder / Surface Strengthener (Reference Section 090561.13).

3.05 ALKALINITY TESTING

A. The following procedure is the equivalent of that described in ASTM F710, repeated here for the Contractor's convenience.

B. Use a wide range alkalinity (pH) test paper, its associated chart, and distilled or deionized water.

C. Place several drops of water on a clean surface of concrete, forming a puddle approximately 1

inch (25 mm) in diameter. Allow the puddle to set for approximately 60 seconds, then dip the alkalinity (pH) test paper into the water, remove it, and compare immediately to chart to determine alkalinity (pH) reading.

D. In the event that test values exceed floor covering manufacturer's limits, perform remediation as indicated. In the absence of manufacturer limits, perform remediation if alkalinity (pH) test value is over 10.

3.06 APPLICATION

A. Install epoxy, primer, underlayment and adhesives in accordance with manufacturer's instructions. Always refer to the most current product information at us.uzin.com.

B. Floor Flatness (FF) requirement is floor measurement of 35 or greater. For more information visit dipstick.com.

C. Install metal panels and flashing in accordance with manufacturer’s instructions. Always refer to the most current product information at xalonrf.com.

D. Ensure metal products are clean and clear of any manufacturing oils or chemicals prior to installation.

E. Consult RA Mayes to address any penetrations in the existing concrete floor system, like floor drains, plumbing or electrical conduit, etc.

F. Any deviations from this specified system need the written approval of Uzin Utz North America and RA Mayes.

3.07 ADHESIVE BOND AND COMPATIBILITY TESTING

A. Comply with requirements and recommendations of floor covering manufacturer.

3.08 PROTECTION

A. Protect against direct sunlight, heat, and wind; prevent rapid drying to avoid shrinkage and cracking.

B. Do not permit traffic over unprotected floor underlayment surfaces.

3.09 ANCHORS AND DRILLINGS

A. Consult RA Mayes to address any anchoring or drilling to the finished SCIF-USx RF shielded floor system.

END OF SECTION