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**DIVISION 9 Finishes - SECTION 09 65 66 Resilient Athletic Flooring
Ecofit Athletic Rubber Sheet Flooring Patent No. 9,096,045 B2**

PART 1.0- GENERAL

1.1 SUMMARY

- A. The work of this section includes:
 - 1. Ecofit – Fusion Bonded, Athletic Rubber, Roll Flooring
 - 2. Adhesives
- B. Related Sections: Section(s) related to this section include:
 - 1. Concrete Substrate: Division 3 Concrete Section(s)
 - 2. Plywood Substrate: Division 6

1.2 REFERENCES

- A. Standards listed by reference, including revisions by issuing authority, form a part of this specification section to extent indicated. Standards listed are identified by issuing authority, authority abbreviation, designation number, title, or other designation established by issuing authority. Standards subsequently referenced herein are referred to by issuing authority abbreviation and standard designation.
- B. American Society for Testing and Materials (ASTM):
 - 1. ASTM D2047: Standard Test Method for Static Coefficient of Friction of Polish-Coated Floor Surfaces as measured by the James Machine
 - 2. ASTM D2240: Standard Test Method for Rubber Property (Durometer Hardness)
 - 3. ASTM D5116 Standard Guide for Small-Scale Environmental Chamber Determinations of Organic Emissions From Indoor Materials/Products
 - 4. ASTM E648: Standard Test Method for Critical Radiant Flux of Floor-Covering Systems Using a Radiant Heat Energy Source
 - 5. ASTM E662: Standard Test Method for Specific Optical Density of Smoke Generated by Solid Materials
 - 6. ASTM E1745: Standard Specification for Water Vapor Retarders Used in Contact with Soil or Granular Fill under Concrete Slabs
 - 7. ASTM F710 Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring
 - 8. ASTM F970: Standard Test Method for Static Load Limit
 - 9. ASTM F1869 Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride
 - 10. ASTM F2170 Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes
 - 11. ASTM F2772: Standard Specification for Athletic Performance Properties of Indoor Sports Floors Systems
 - a. ASTM F2569: Test Method for evaluating the force reduction properties
 - b. EN 12235: Determination of verticle ball rebound behavior

12. ASTM G21: Standard Practice for Determining Resistance of Synthetic Polymer Materials to Fungi
- C. European Committee for Standardization (EN)
 1. EN 12235: Determination of verticle ball rebound behavior
- D. Deutsche Industrial Norms (DIN)
 1. DIN 18032-2: This pre-standard describes the requirements for the sports and protective functions of floors for sporting activities in halls for gymnastics, games, and multi-purpose use, as well as their technical characteristics. Testing is also covered.

1.3 SYSTEM DESCRIPTION

- A. Performance Requirements: Provide fusion bonded, dual layer, rubber sheet flooring which has been manufactured and installed to maintain performance criteria stated by manufacturer, without defects, damage, or failure.

1.4 SUBMITTALS

- A. General: Submit listed submittals in accordance with Conditions of the Contract and Division 1 Submittal Procedures Section.
- B. LEED: Provide documentation of how the requirements for credit will be met.
 1. List of proposed materials with recycled content. Indicate pre-consumer and post-consumer content.
 2. Product data and certification letter, indicating percentage of recycled content for both pre-consumer and post-consumer content.
 3. Recycled content is defined in accordance with the International Organization for Standardization (ISO) document, ISO 14021 Environmental labels and declarations.
 - a. Post-consumer material - waste materials diverted from the waste stream after consumer or commercial use.
 - b. Pre-consumer material - materials diverted from the waste stream during the manufacturing process. Excluded are regrind, rework, and scrap.
- C. Product Data: Submit product data, including manufacturer's guide specifications product sheet, for specified products.
- D. Shop Drawings: Submit shop drawings showing layout, profiles, and product components, including anchorage, accessories, finish colors, patterns, and textures.
- E. Samples: Submit selection and verification samples for finishes, colors, and textures.
- F. Quality Assurance Submittals: Submit the following.
 1. Certificates: If required, certification of performance characteristics specified in this document shall be provided by the manufacturer.
 2. Manufacturer's Instructions: Manufacturer's installation and maintenance instructions.

Specifier Note: Coordinate paragraph below with Part 3.5 Field Quality Requirements Article herein. Retain or delete as applicable.

3. Manufacturer's Field Reports: Manufacturer's field reports specified herein.
- G. Closeout Submittals: Submit the following:
 1. Operation and Maintenance Data: Operation and maintenance data for installed products in accordance with Division 1 Closeout Submittals (Maintenance Data and Operational Data) Section. Include methods for maintaining installed products and precautions against cleaning materials and methods detrimental to finishes and performance.
 2. Warranty: Warranty documents specified herein.

1.5 QUALITY ASSURANCE

A. Qualifications:

1. Installer Qualifications: Installer experienced in performing work of this section, who has specialized in installation of work similar to that required for this project.
 - a. Certificate: When requested, submit certificate indicating qualification.
2. Manufacturer's Qualifications: Manufacturer capable of providing field service representation during construction and approving application method.

Specifier Note: Paragraph below should list obligations for compliance with specific code requirements particular to this section. General statements to comply with a particular code are typically addressed in Conditions of Contract and Division 1 Regulatory Requirements Section. Regulatory Requirements: [specify applicable requirements of regulatory agencies].

B. Mock-Ups: Install at project site a job mock-up using acceptable products and manufacturer-approved installation methods. Obtain owner and architect's acceptance of finish color, texture and pattern, and workmanship standard. Comply with Division 1 Quality Control (Mock-Up Requirements) Section.

1. Mock-Up Size: [specify mock-up size].
2. Maintenance: Maintain mock-up during construction for workmanship comparison; remove and legally dispose of mock-up when no longer required.
3. Incorporation: Mock-up may be incorporated into final construction upon owner's approval.

C. Pre-installation Meetings: Conduct pre-installation meeting to verify project requirements, substrate conditions, manufacturer's instructions, and manufacturer's warranty requirements. Comply with Division 1 Project Management and Coordination (Project Meetings) Section.

D. Pre-installation Testing: Conduct pre-installation testing as follows [specify substrate testing; consult with flooring manufacturer].

1.6 DELIVERY, STORAGE & HANDLING

- A. General: Comply with Division 1 Product Requirements Sections.
- B. Ordering: Comply with manufacturer's ordering instructions and lead time requirements to avoid construction delays.
- C. Delivery: Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact.
- D. Storage and Protection: Store materials at temperature and humidity conditions recommended by manufacturer and protect from exposure to harmful weather conditions.

1.7 PROJECT CONDITIONS

- A. Temperature Requirements: Maintain air temperature in spaces where products will be installed for time period before, during, and after installation, as recommended by manufacturer.
- B. Field Measurements: Verify actual measurements/openings by field measurements before fabrication; show recorded measurements on shop drawings. Coordinate field measurements and fabrication schedule with construction progress to avoid construction delays.

1.8 WARRANTY

- A. Project Warranty: Refer to Conditions of the Contract for project warranty provisions.
- B. Manufacturer's Warranty: Submit, for owner's acceptance, manufacturer's standard warranty document executed by authorized company official. Manufacturer's warranty is in addition to, and not a limitation of, other rights owner may have under Contract Documents.

Specifier Note: Coordinate paragraph below with manufacturer's warranty requirements.

1. Warranty Period: Specify 5 years commencing on Date of Substantial Completion.

1.9 MAINTENANCE

- A. Extra Materials: Deliver to owner extra materials from same production run as products installed. Package products with protective covering and identify with descriptive labels. Comply with Division 1 Closeout Submittals (Maintenance Materials) Section.
 - 1. Quantity: Furnish quantity of resilient flooring units equal to [specify %] of amount installed.
 - 2. Delivery, Storage, and Protection: Comply with owner's requirements for delivery, storage, and protection of extra materials.
 - 3. Cleaning: Furnish flooring manufacturer's neutral cleaner for initial cleaning and maintenance of finished floor surface.

PART 2.0 - PROPRIETARY MANUFACTURER/PRODUCTS

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

2.1 MANUFACTURER: Ecore International

- A. Address: 715 Fountain Ave., Lancaster, PA 17601; Telephone: (800) 322-1923, (717) 295-3400; Fax: (717) 295-3414; Email: info@ecoreintl.com

2.2 DISTRIBUTOR: Ecore Commercial Flooring

- A. Address: 119 South Tree Drive, Lancaster, PA 17603; Telephone: (877) 258-0843, (717) 299-5035; Fax: (717) 394-1937; Email: info@ecorecommercialflooring.com

2.3 PROPRIETARY PRODUCT(S)

- A. Flooring and adhesives manufactured by Ecore International for commercial applications.
 - 1. ECOfit **Rolls** with **itstru-5** technology. Consisting of a 5mm underlayment with a 3.2mm EPDM surface wear layer.
 - 2. E-Grip™ III a single-component, zero-VOC, urethane adhesive

2.3.1 E-Grip III one-component urethane adhesive

- A. Product Name: The one-part urethane adhesive under this specification shall be Ecore's ECOsurfaces **E-Grip III** one-component urethane adhesive.
- B. Material: E-Grip III is a one-component urethane moisture cured, non-sag, permanently elastic adhesive that has excellent adhesion to elastomers, concrete, and wood and is engineered for indoor and outdoor applications.
- C. Adhesive Type: One-component moisture cured urethane
- D. Weight: 4 gallon pail-56 lbs, 2 gallon pail-28 lbs, 10.1 oz cartridges
- E. Color: Medium grey
- F. VOC Content: 0 lb/gal calculated
- G. Freeze/Thaw: Stable
- H. Application Temperature: 40° F - 100° F
- I. Calcium Chloride Test: Maximum 5.5 lbs per 1,000 sq. ft. in 24 hrs. (ASTM F1869)
- J. Relative Humidity (RH) Test: Maximum 85% (ASTM F2170)
- K. Flashpoint: > 500° F
- L. Shelf Life: 12 months
- M. Working Time: 30-40 minutes
- N. Trowel: 1/16" x 1/16" x 1/16" square notch
- O. Coverage Rate: 95 ft² / gal. – 1/16" x 1/16" x 1/16"
- P. SCAQMD Rule #1168: 0 lb./gal. calculated

2.3.2 ECOfit - Rolls with itstru-5 Fusion Bonded Rubber Athletic Flooring

<p>ECOfit Rolls</p> <p>With itstru-5 Technology</p> <p>5mm - 6015H Underlayment / 3.2mm Surface Wear Layer</p>		
<p>Made from a formulation of high-quality post-consumer recycled rubber granules encapsulated in a wear and water-resistant elastomeric network with a fusion bonded reprocessed ColorMill™ EPDM enhanced surface wear layer. Material surface shall contain ECOguard, water based protective polyurethane clear coat.</p>		
Performance Criteria	Test Method	Result
Tensile Strength	ASTM D 412	> 200 PSI
Flexibility ¼" Mandrel	ASTM F 137	Pass
Thermal Conductivity	ASTM C 518	> 0.4
Static Load Limit	ASTM F 970 @ 250PSI	0.004" Typical
Coefficient of Friction	ASTM D 2047	> 0.9
V.O.C. Compliant	ASTM D 5116	Yes
Color Stability	ASTM F-1515	Good
Chemical Resistance	ASTM F-925	Good
Standard Vertical Deformation	DIN 18032-2	0.7 mm
Deformation Trough W100	DIN 18032-2	0.0 mm
Rolling Load Limit	DIN 18032-2	1000 N
Ball Rebound	DIN 18032-2	99 %
Impact Resistance	DIN 18032-2	15 Nm
Remaining Indentation	DIN 18032-2	0.12 mm
Sheet Dimension	Manufacturer	4' wide by custom length. Maximum Length 100LF Minimum length 25LF
Standard Tolerance Width	Manufacturer	+ ¾" – 0"
Standard Tolerance Length	Manufacturer	+ 1% - 0"
Standard Tolerance Thickness	Manufacturer	+/- .6 mm
Standard Sheet Weight	Manufacturer	1.34 lbs/sf
Ball Rebound	EN 12235	Pass
Force Reduction	ASTM F2569 / EN 14808	Class 1

2.4 PRODUCT SUBSTITUTIONS

- A. Substitutions: No substitutions permitted.

2.5 RELATED MATERIALS

- A. Related Materials: Refer to other sections listed in Related Sections paragraph herein for related materials.

2.6 SOURCE QUALITY

- A. Source Quality: Obtain recycled rubber resilient flooring materials from a single manufacturer.

PART 3.0 - EXECUTION

Specifier Note: Revise article below to suit project requirements and specifier's practice.

3.1 MANUFACTURER'S INSTRUCTIONS

- A. Compliance: Comply with manufacturer's product data, including product technical bulletins, product catalog installation instructions, and product carton instructions for installation.

3.2 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 manufacturer's instructions.

3.3 PREPARATION

- A. Surface Preparation [specify applicable product preparation requirements]

Specifier Note: Coordinate article below with manufacturer's recommended installation details and requirements.

3.4 ERECTION/INSTALLATION/APPLICATION/CONSTRUCTION

- A. Fusion Bonded Rubber Flooring Installation: Comply with ECOfit Technical Manual for installation procedures and techniques.
- B. Finish Color/Textures/Patterns: [specify installation finishes coordinated with finishes specified in Part 2 Products].
- C. Related Products Installation: Refer to other sections listed in Related Sections paragraph herein for related products installation.

3.5 FIELD QUALITY REQUIREMENTS

Specifier Note: Edit paragraph below. Establish number and duration of periodic site visits with owner and manufacturer and specify below. Consult with manufacturer for services required. Coordinate paragraph below with Division 1 Quality Assurance Section and Part 1 Quality Assurance Submittals herein. Delete if manufacturer's field service is not required.

- A. Manufacturer's Field Services: Upon owner's request, provide manufacturer's field service, consisting of product use recommendations and periodic site visit for inspection of product installation, in accordance with manufacturer's instructions.

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

3.6 CLEANING

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

3.7 PROTECTION

- A. Protection: Protect installed product and finish surfaces from damage during construction.

Specifier Note: Retain article below to suit project requirements. Article may be used to describe specific criteria requirements of similar products or equipment.

3.8 SCHEDULES

Specifier Note: Retain article 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].

END OF SECTION