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**DIVISION 9 Finishes: SECTION 09 65 66 Resilient Athletic Flooring
Ecore Athletic Performance Rolls and Interlocking Tiles – Vulcanized Composition Rubber Flooring
Patent No. RE 9,096,045 B2**

PART 1.0 – GENERAL

1.1 SUMMARY

A. The work of this section includes:

1. Ecore Athletic Performance Vulcanized Composition Rubber Rolls and Interlocking Tiles
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 D412: Test method used to evaluate the tensile (tension) properties of rubber.
2. ASTM F137: Standard Test Method for Flexibility of Resilient Flooring Materials with Cylindrical Mandrel Apparatus.
3. ASTM C518: Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus.
4. ASTM D2047: Standard Test Method for Static Coefficient of Friction of Polish-Coated Floor Surfaces as measured by the James Machine.
5. ASTM D2859: Standard Test Method for Ignition Characteristics of Finished Textile Floor Covering Materials.
6. ASTM D5116: Standard Guide for Small-Scale Environmental Chamber Determinations of Organic Emissions from Indoor Materials/Products.
7. ASTM D3389: Standard Test Method for Coated Fabrics Abrasion Resistance.
8. ASTM F970: Standard Test Method for Static Load Limit.
9. ASTM F1514: Standard Test Method for Measuring Heat Stability of Resilient Flooring by Color Change.
10. ASTM F1515: Standard Test Method for Measuring Light Stability of Resilient Flooring by Color Change
11. ASTM F925: Standard Test Method for Resistance to Chemicals of Resilient Flooring

12. ASTM F2170 Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes.
13. ASTM F2753: Standard Practice to Evaluate the Effect of Dynamic Rolling Load over Resilient Floor Covering System.
14. ASTM F710: Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring.
15. ASTM F2772: Standard Specification for Athletic Performance Properties of Indoor Sports Floors.

C. Leadership in Energy and Environmental Design – LEED™

1. International Organization for Standardization™ document, ISO 14021 - Provides guidance on the terminology, symbols, testing, and verification methodologies that an organization should use for self-declaration of the environmental aspects of its products and services.

1.3 SYSTEM DESCRIPTION

- A. Performance Requirements: Provide vulcanized composition rubber resilient 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 vulcanized composition rubber content. Indicated pre-consumer and post-consumer content.
 2. Product data and certification letter indicating percentage of vulcanized composition content for both pre-consumer and post-consumer content.
 3. Recycled content is defined in accordance with the International Organization for Standardization 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 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. Repetitive statements should be avoided.

- 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. (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 term) 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.

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

1. Quantity: Furnish quantity of recycled rubber 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 the finished floor surface.

PART 2.0 – PROPRIETARY MANUFACTURER/PRODUCTS

Specifier Note: Retain article below for proprietary method specification. Add protect 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

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

2.2 PROPRIETARY PRODUCT(S)

- A. Ecore Athletic Performance Rolls and Interlocking Tiles and Adhesives manufactured by Ecore for indoor fitness applications
 1. Ecore Athletic Performance **Motivate** Rolls with a 5mm 6015H underlayment and a 2.5 mm EPDM surface wear layer.
 2. Ecore Athletic Performance **Rally Rolls** with a 12mm 4735 underlayment and a 2.5 mm EPDM surface wear layer.
 3. Ecore Athletic Performance **Rally Interlocking Tiles** with a 12mm 4735 underlayment and a 2.5 mm EPDM surface wear layer.
 4. Ecore Athletic Performance **Beast** Rolls with an 8mm 8032 underlayment and a 2.5 mm EPDM surface wear layer.
 5. Ecore Athletic Performance **Monster** Rolls with an 8mm 8032 underlayment and a 2.5 mm EPDM surface wear layer, field united to a 12mm 4735 base Layer.
 6. E-Grip III™ one-component polyurethane adhesive

2.3.1 Performance **Motivate** Rolls

Stacked Performance **Motivate Rolls with itstru-5 Technology
5mm - 6015H Underlayment / 2.5 mm Surface Wear Layer**

Made from a formulation of high quality post-consumer vulcanized composition rubber granules encapsulated in a wear and water-resistant elastomeric network with a fusion bonded reprocessed ColorMill™ EPDM surface wear layer.

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
Abrasion Resistance	ASTM D 3389 / EN 649	<1g, 100 cycles
Resistance to Heat	ASTM F 1514	Δ E, <8.0
Pill Test	ASTM D 2859	Pass
Vertical Deflection / Deformation	ASTM F 2772	0.73 mm
Surface Effect Slip Resistance	ASTM F 2772	Pass
Ball Rebound	ASTM F 2772	99.7%
Force Reduction	ASTM F 2772	12.6%
Sheet Dimension	Manufacturer	4' wide by custom length. 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	1.53 lbs/sf

2.3.2 Performance **Rally Rolls** (see next page for Rally *interlocking tiles*)

<p style="text-align: center;">Stacked Performance Rally Rolls 12mm – 4735 Underlayment / 2.5 mm Surface Wear Layer</p> <p>Made from a formulation of high quality post-consumer vulcanized composition rubber granules encapsulated in a wear and water-resistant elastomeric network with a fusion bonded reprocessed ColorMill™ EPDM surface wear layer.</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	0.009" 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
Abrasion Resistance	ASTM D 3389 / EN 649	<1g, 100 cycle
Resistance to Heat	ASTM F 1514	Δ E <8.0
Pill Test	ASTM D 2859	Pass
Vertical Deflection / Deformation	ASTM F 2772	2.66 mm
Surface Effect Slip Resistance	ASTM F 2772	Pass
Ball Rebound	ASTM F 2772	98.8%
Force Reduction	ASTM F 2772	35.7%
Sheet Dimension	Manufacturer	4' width by custom length. 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	2.34 lbs/sf

2.3.3 Performance **Rally Interlocking Tiles**

Stacked Performance Rally Rolls 12mm – 4735 Underlayment / 2.5 mm Surface Wear Layer		
<p>Made from a formulation of high quality post-consumer vulcanized composition rubber granules encapsulated in a wear and water-resistant elastomeric network with a fusion bonded reprocessed ColorMill™ EPDM surface wear layer.</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	0.009" 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
Abrasion Resistance	ASTM D 3389 / EN 649	<1g, 100 cycle
Resistance to Heat	ASTM F 1514	Δ E <8.0
Pill Test	ASTM D 2859	Pass
Vertical Deflection / Deformation	ASTM F 2772	2.66 mm
Surface Effect Slip Resistance	ASTM F 2772	Pass
Ball Rebound	ASTM F 2772	98.8%
Force Reduction	ASTM F 2772	35.7%
Tile Dimension	Manufacturer	23" x 23" Minimum Order 50 Tiles
Standard Tolerance Thickness	Manufacturer	+ .6 mm
Standard Sheet Weight	Manufacturer	2.34 lb/sf

2.3.3 Performance **Beast** Rolls

Stacked Performance Beast Rolls 8mm - 8032 Underlayment / 2.5mm Surface Wear Layer		
<p>Made from a formulation of high quality post-consumer vulcanized composition rubber granules encapsulated in a wear and water-resistant elastomeric network with a fusion bonded reprocessed ColorMill™ EPDM surface wear layer.</p>		
Performance Criteria	Test Method	Result
Tensile Strength	ASTM D 412	>200 PSI
Flexibility 1/4" mandrel	ASTM F 137	Pass
Thermal Conductivity	ASTM C 518	2.1 Btu-in/h-ft-F
Static Load Limit	ASTM F 970 @ 250PSI	0.004" Pass
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
Abrasion Resistance	ASTM D 3389 / EN 649	<1g, 1000 cycle
Resistance to Heat	ASTM F 1514	Δ E <8.0
Pill Test	ASTM D 2859	Pass
Vertical Deflection / Deformation	ASTM F 2772	0.5mm
Surface Effect Slip Resistance	ASTM F 2772	Pass
Ball Rebound	ASTM F 2772	100%
Force Reduction	ASTM F 2772	10%
Sheet Dimension	Manufacturer	4' wide by custom length. Minimum length 25LF
Standard Tolerance Width	Manufacturer	+3/4" -0"
Standard Tolerance Length	Manufacturer	+ 1% - 0"
Standard Tolerance Thickness	Manufacturer	+/- .6mm
Standard Sheet Weight	Manufacturer	2.4 lbs/sq ft

2.3.4 Performance **Monster** Rolls

<p align="center">Performance Monster Roll 8mm 8032 underlayment / 2.5 mm EPDM surface wear layer, field-united to a 12mm 4735 Base Layer</p> <p align="center">Total system thickness 22.5mm</p> <p>Made from a formulation of high quality post-consumer vulcanized composition rubber granules encapsulated in a wear and water-resistant elastomeric network with a fusion bonded reprocessed ColorMill™ EPDM surface wear layer.</p>		
Performance Criteria	Test Method	Result
Tensile Strength	ASTM D 412	200 psi min
Flexibility ¼" mandrel	ASTM F 137	Pass
Thermal Conductivity	ASTM C 518	1.3 Btu-in/h-ft-F
Static Load Limit	ASTM F 970 @ 250PSI	0.025"
Coefficient of Friction	ASTM D 2047	>0.8
V.O.C. Compliant	ASTM D 5116	Yes
Color Stability	ASTM F-1515	Δ E <8.0
Chemical Resistance	ASTM F-925	Pass
Abrasion Resistance	ASTM D 3389 / EN649	<1g, 100 cycle
Resistance to Heat	ASTM F 1514	Δ E <8.0
Pill Test	ASTM D 2859	Pass
Vertical Deflection / Deformation	ASTM F 2772	1.6 mm Pass
Surface Effect Slip Resistance	ASTM F 2772	Pass
Ball Rebound	ASTM F 2772	100 %
Force Reduction	ASTM F 2772	40%
Sheet Dimension	Manufacturer	4' wide by custom length. Minimum length 25LF
Standard Tolerance Width	Manufacturer	+3/4" -0"
Standard Tolerance Length	Manufacturer	+1% -0"
Standard Tolerance Thickness	Manufacturer	± .6 mm
Monster Roll with 8mm Wear Layer Weight	Manufacturer	2.4 lbs/sf
12mm Underlayment Weight	Manufacturer	1.7 lbs/sf
Total Sheet Weight	Manufacturer	4.1 lbs/sf

2.3.5 E-Grip III one-component polyurethane adhesive

Product Name	One-part urethane adhesive under this specification shall be Ecore's E-Grip III™ one-component urethane adhesive.
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.
Adhesive Type	One-component urethane
Adhesive Cure System	Moisture cured
Weight	4 gallon pail-56 lbs 2 gallon pail-28lbs 10.1 oz cartridge
Color	Medium Grey
VOC Content	0 lb/gal calculated
Freeze/Thaw	Stable
Application Temperature	40° F - 100° F
Relative Humidity (RH) Test (ASTM F2170)	Maximum 85%
Flashpoint	>500° F
Shelf Life	12 months
Working Time	30-40 minutes
Trowel	1/16" x 1/16" x 1/16" square notch 1/8" x 1/8" x 1/8" square notch
Coverage Rate	95 ft ² / gal. – 1/16" x 1/16" x 1/16" 60 ft ² / gal. – 1/8" x 1/8" x 1/8"
SCAQMD Rule #1168	0 lb./gal. calculated

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 vulcanized composition 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. Vulcanized Composition Rubber Flooring Installation: Comply with Ecore Athletic Installation Manual for installation procedures and techniques for Performance Collection Rolls and Interlocking Tiles - vulcanized composition rubber resilient flooring installation.
- 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 not required.

- A. Manufacturer's Field Services: Upon owner's request, provide manufacturer's field service consisting of product use recommendations and periodic site visits 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 finished surfaces from damage during construction.

3.8 SCHEDULES

- A. Schedules: [Specify reference to applicable schedules.]

END OF SECTION