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**DIVISION 9 Finishes: SECTION 09 65 66 Resilient Athletic Flooring
Ecore Athletic TurfX– Recycled Rubber Sheet Flooring**

PART 1.0 – GENERAL

1.1 SUMMARY

A. The work of this section includes:

1. Ecore Athletic TurfX.
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 D1335 Tuft Bind
2. ASTM D5034 Tear Strength
3. ASTM F2765 Lead Content
4. ASTM D1577 Total Yarn Linear Density
5. ASTM D2256 Yarn Breaking Strength
6. ASTM D7138 Yarn Melting Point
7. ASTM D2047: Standard Test Method for Static Coefficient of Friction of Polish-Coated Floor Surfaces as measured by the James Machine.
8. ASTM D5116: Standard Guide for Small-Scale Environmental Chamber Determinations of Organic Emissions from Indoor Materials/Products.
9. ASTM F925: Standard Test Method for Resistance to Chemicals of Resilient Flooring
10. ASTM F1514: Standard Test Method for Measuring Heat Stability of Resilient Flooring by Color Change
11. ASTM F2772: Standard Specification for Athletic Performance Properties of Indoor Sports Floor Systems.
12. ASTM D2859 Flammability
13. ASTM F355 Impact Attenuation .
14. ASTM F2170 Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes.

C. ASTM F2772: Standard Specification for Athletic Performance Properties of Indoor Sports Floors
South Coast Air Quality Management District (SCAQMD) Rule #1168
(VOC standards for adhesive and sealant applications)

1. VOC standards for adhesive and sealant applications
- D. 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 recycled 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 recycled content. Indicated 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 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. 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 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 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 TurfX and Adhesives, manufactured by Ecore, for indoor fitness applications.
 1. Ecore TurfX, consisting of a 12mm 4735 underlayment, installed under a 25mm polyethylene turf surface wear layer
 2. E-Grip III, a one-component polyurethane adhesive.

2.3.1 Ecore Athletic TurfX System.

<p>TurfX consisting of a 12mm 4735 Base Layer, field-united with a 25mm Polyethylene Turf Surface Wear Layer.</p> <p>Total system thickness of approximately 37mm.</p> <p>Underlayment made from a formulation of high quality post-consumer recycled rubber granules encapsulated in a wear and water-resistant elastomeric network which is field-united to a 25mm polyethylene turf surface wear layer.</p>		
Performance Criteria	Test Method	Result
Tuft Bind	ASTM D-1335	>8 lbs.
Tear Strength Average	ASTM D-5034	>200 lbs.
Lead Content	ASTM F-2765	<50 ppm
Total Yarn Linear Density	ASTM D-1577	12,240 Denier
Yarn Breaking Strength	ASTM D-2256	>19 lbs.
Yarn Melting Point	ASTM D-7138	248 F°
Flammability	ASTM D-2859 (Pill Test)	Pass

Coefficient of Friction	ASTM D 2047	0.35
V.O.C. Compliant	ASTM D 5116	Pass
Chemical Resistance	ASTM F-925	Pass
Resistance to Heat	ASTM F 1514	$\Delta E < 0.8$
Vertical Deflection / Deformation	Deltec	6.8mm
Force Reduction	Deltec	59.6%
Energy Restitution	Deltec	32.8%
Turf Sheet Dimension	Manufacturer	15' wide by custom length. Minimum length 10LF, maximum length 150LF.
4735 Sheet Dimension	Manufacturer	4' wide by custom length. Minimum length 25LF.
Standard Tolerance Width	Manufacturer	+3/4" -0"
Standard Tolerance Length	Manufacturer	+1% -0"
25mm Turf Weight	Manufacturer	1.5 lbs/sf
12mm 4735 Weight	Manufacturer	1.7 lbs/sf
Total Sheet Weight	Manufacturer	3.2 lbs/sf

2.3.3 E-Grip III one-component polyurethane adhesive

- A. Product Name: One-part urethane adhesive under this specification shall be Ecore's 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 urethane
- D. Adhesive Cure System: Moisture cured
- E. Weight: 4 gallon pail-56 lbs, 2 gallon pail-28lbs, 10.1 oz cartridge
- F. Color: Medium grey
- G. VOC Content: 0 lb/gal calculated
- H. Freeze/Thaw: Stable
- I. Application Temperature: 40° F - 100° F
- J. Relative Humidity (RH) Test (ASTM F2170) Maximum 85%
- 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 1/8" x 1/8" x 1/8" square notch
O. 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"
P. SCAQMD Rule #1168	0 lb./gal. calculated

2.02 PRODUCT SUBSTITUTIONS

- A. Substitutions: No substitutions permitted.

2.03 RELATED MATERIALS

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

2.04 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.

3.01 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.

3.02 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 manufacturer's instructions.

3.03 PREPARATION

- A. Surface Preparation: [Specify applicable product preparation requirements.]

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

3.04 ERECTION / INSTALLATION / APPLICATION / CONSTRUCTION

- A. Recycled Rubber Flooring Installation: Comply with Ecore Athletic Installation Manual for installation procedures and techniques for TurfX - recycled 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.

3.05 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.]

3.06 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.

3.07 PROTECTION

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

3.08 SCHEDULES

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

END OF SECTION