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**DIVISION 9 Finishes: SECTION 09 65 66 Resilient Athletic Flooring
Ecosmash Tile – Recycled Rubber Molded Tiles**

PART 1.0 – GENERAL

1.1 SUMMARY

- A. The work of this section includes:
1. Ecore Commercial Flooring Recycled Rubber Molded Tiles
 2. Quad Blok Connectors
 3. 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 Standard Test Methods for Vulcanized Rubber and Thermoplastic Rubbers and Thermoplastic Elastomers – Tension
 2. ASTM D2047 Standard Test Method for Static Coefficient of Friction of Polish-Coated Floor Surfaces as measured by the James Machine
 3. ASTM F925 Standard Test Method for Resistance to Chemicals of Resilient Flooring
 4. ASTM C423 Standard Test Method for Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method
 5. ASTM E492 Standard Test Method for Laboratory Measurement of Impact Sound Transmission Through Floor-Ceiling Assemblies Using the Tapping Machine
 6. ASTM E413 Classification for Rating Sound Insulation
 7. ASTM E2179 Standard Test Method for Laboratory Measurement of the Effectiveness of Floor Coverings in Reducing Impact Sound Transmission Through Concrete Floors
 8. ASTM E2129 Standard Practice for Data Collection for Sustainability Assessment of Building Products
 9. ASTM D5116 Standard Guide for Small-Scale Environmental Chamber Determinations of Organic Emissions From Indoor Materials/Products
 10. ASTM D297 Standard Practice for Rubber Products – Chemical Analysis

11. ASTM D395 Standard Test Methods for Rubber Property – Compression Set
 12. ASTM F710 Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring
 13. ASTM F1869 Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride
 14. ASTM F2170 Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes
- C. Collaborative of High Performance Schools (CHPS) Section 01350
1. Low-emitting materials criteria for use in a typical classroom
- D. South Coast Air Quality Management District (SCAQMD) Rule #1168
1. VOC standards for adhesive and sealant applications
- E. 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. 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 manufacture'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@ecoreintl.com

2.2 PROPRIETARY PRODUCT(S)

- A. Ecosmash Tile Recycled Rubber Molded Tiles and Adhesives manufactured by Ecore, for indoor fitness applications.
 1. Ecosmash Tile Recycled Rubber Molded Tiles
 2. Ecosmash Quad Blok Connector
 3. E-Grip III, a one-component polyurethane adhesive

2.3.1 2-1/2" Ecosmash Tile Recycled Rubber Molded Tiles

- A. Product Name: The factory molded modular surfacing system furnished under this specification shall be Ecore's Ecosmash Tile Recycled Rubber Molded Tiles.
- B. Physical: 2-1/2" Ecosmash Tile configurations consist of a high density, wear surface; cylindrical support feet that allow underside cable routing, maximum resiliency, and water drainage.
- C. Material: Made from 100% recycled SBR (Styrene-Butadiene Rubber) tire rubber, and ColorMill® EPDM granules bound in both underlayment and wear surfaces with a wear and weather resistant polyurethane.
- E. Tile Dimension: Ecore's Ecosmash Tile shall be 24" x 24" and an overall thickness of 2-1/2".
- F. Tile Weight: 27.8 pounds nominal
- G. Tile Standard Tolerances: Width: $\pm 1/8$ "
Thickness: $\pm 1/8$ "
- H. Colors: Specify color from manufacturer's standard colors, custom colors, or special logo/graphic inlays.
- I. Wear Surface Density: 60.0 lbs/cu. ft. min.
- J. Coefficient of Thermal Expansion: 1.10×10^{-3} in./ft.-°F
- K. Void Volume: 13% min.
- L. Water Permeation Rate: 0.045 cm./sec.
- M. Tear Resistance: 13.13 kN/m (surface layer)
(ASTM D624, Die C)
- N. Abrasion: 1 or 0.20 mg loss/cycle (2000 cycles, H18Wheels)
(ASTM D3389)
- O. Tensile Strength: 200lb/in² min. (surface layer)
(ASTM D412)
- Q. Coefficient of Friction: > 0.9 (surface Layer)
(ASTM D2047)
- R. Chemical Resistance: 5% Acetic Acid, no change
70% Isopropyl Alcohol: no change
5% Sodium Hydroxide: no change
5% Hydrochloric Acid: no change
5% Ammonia: no change
Bleach; no change
5% Phenol: no change
Sulfuric Acid: no change
(surface layer)
- S. Noise Reduction Coefficient: (ASTM C423) 0.25

T. Impact Insulation Class: (ASTM E492)	59 Tested on 6" slab, no ceiling
U. Delta IIC: (ASTM E2179)	29
W. Sustainability: (ASTM E2129)	data collected
X. VOC Washington State IAQ Test: (ASTM D5116)	pass
Y. CHPS/CA 01350: (ASTM D5116)	pass
Z. Flammability (ASTM D2859)	Pass

2.3.2 Quad Blok 8" x 8" Ecosmash Tile Connection System

A. Product Name:	Quad Blok 8" x 8"
B. Material	Quad Blok is a formulation of high quality post-consumer recycled rubber granules encapsulated in a wear and water-resistant elastomeric network.
C. Material	Made from 100% post-consumer recycled rubber.
D. Quad Blok Dimension	8" x 8" x 11/16" (20.32 cm x 20.32 cm x 17mm) at 72° F
E. Quad Blok Weight	.70 lbs. each
F. Colors	Black
G. Density (ASTM D297)	46 lbs. / cu. Ft. minimum
H. Tensile Strength (ASTM D412, Die C)	116 psi. minimum
H. Elongation (ASTM D412, Die C)	74% minimum
I. Compression	@50 psi – 15% @100 psi – 28% @200 psi – 45%
J. Shore A Hardness (ASTM D2240)	50 +/- 5points

K. Tear Strength (ASTM D624, DIE C)	30 PPI
L. Flexibility (ASTM F147)	0 -1 Factor
M. Compression Set B (ASTM D395)	26% (25% deflection, 22 hours, 158° F)
N. Compression Set (Foam) (ASTM D395)	19% (50% deflection, 22 hours, 158° F)

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. Calcium Chloride Test: (ASTM F1869)	Maximum 5.5 lbs per 1,000 sq. ft. in 24 hrs.
K. Relative Humidity (RH) Test (ASTM F2170)	Maximum 85%
L. Flashpoint:	> 500° F
M. Shelf Life:	12 months
N. Working Time:	30-40 minutes

O. Trowel:	1/16" x 1/16" x 1/16" square notch 1/8" x 1/8" x 1/8" square notch 10.1 ounce cartridge tube
P. 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" 10 Quad Bloks per cartridge
Q. 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 manufacturers Installation Manual for installation procedures and techniques for Ecosmash Tiles - 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