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This Manu-Spec[®] utilizes the Construction Specifications Institute (CSI) *Project Resource Manual* (PRM), including *MasterFormat™*, *SectionFormat™* and *PageFormat™*. A Manu-Spec is a manufacturer specification using the proprietary method of specifying applicable to project specifications and master guide specifications. Optional text is indicated by brackets []; delete optional text in final copy of specification. Specifier notes precede specification text; delete notes in final copy of specification. Trade/brand names with appropriate product model numbers, styles and types are used in specifier notes and in the specification text article titled "Acceptable Material." Metric conversion, where used, is soft metric conversion.

This MANU-SPEC specifies interlocking recycled rubber flooring tile and rolled flooring and accessories suited for use as flooring in fitness centers.

SECTION 09 65 66 RESILIENT ATHLETIC FLOORING

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes: This Section specifies interlocking rubber flooring tile and rolled flooring with high recycled content and accessories.

Specifier Note: Revise paragraph below to suit project requirements. Add section numbers and titles per CSI MasterFormat and specifier's practice.

- B. Related Requirements:

Specifier Note: Include in this paragraph only those sections and documents that directly affect the work of this section. If a reader of this section could reasonably expect to find a product or component specified in this section, but it is actually specified elsewhere, then the related section number(s) should be listed in the subparagraph below. Do not include Division 00 documents or Division 01 sections, as it is assumed all technical sections are related to all project Division 00 documents and Division 01 sections to some degree. Refer to other documents with caution, as referencing them may cause them to be considered part of the contract.

1. Section [___].

1.2 REFERENCES

Specifier Note: List retained standard(s) referenced in this section alphabetically. Indicate issuing authority name, acronym, standard designation and title. Establish policy for indicating edition date of standard referenced and update as applicable. Contract Conditions Section 01 42 00 - References may be used to establish the edition date of standards. This paragraph does not require compliance with standard(s). It is a listing of all references used in this section. Only include here standards referenced in the body of the specification in PARTS 1, 2 or 3. Do not include references to building codes at any level.

- A. Reference Standards:

1. ASTM International (ASTM).
 - a. ASTM C501 Standard Test Method for Relative Resistance to Wear of Unglazed Ceramic Tile by the Taber Abraser.
 - b. ASTM D297 Standard Test Methods for Rubber Products—Chemical Analysis.
 - c. ASTM D395 Standard Test Methods for Rubber Property—Compression Set.
 - d. ASTM D412 Standard Test Methods for Vulcanized Rubber and Thermoplastic Elastomers—Tension.

- e. ASTM D575 Standard Test Methods for Rubber Properties in Compression.
- f. ASTM D624 Standard Test Method for Tear Strength of Conventional Vulcanized Rubber and Thermoplastic Elastomers.
- g. ASTM D1894 Standard Test Method for Static and Kinetic Coefficients of Friction of Plastic Film and Sheeting.
- h. ASTM D2240 Standard Test Method for Rubber Property—Durometer Hardness.
- i. ASTM D3763 Standard Test Method for High Speed Puncture Properties of Plastics Using Load and Displacement Sensors.
- j. ASTM E648 Standard Test Method for Critical Radiant Flux of Floor-Covering Systems Using a Radiant Heat Energy Source.
- k. ASTM F36 Standard Test Method for Compressibility and Recovery of Gasket Materials.
- l. ASTM F137 Standard Test Method for Flexibility of Resilient Flooring Materials with Cylindrical Mandrel Apparatus.
- m. ASTM F925 Standard Test Method for Resistance to Chemicals of Resilient Flooring.
- n. ASTM F970 Standard Test Method for Static Load Limit.
- o. ASTM F2170 Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes.
- 2. Consumer Product Safety Commission (CPSC).
 - a. Part 1630 Standard for the Surface Flammability of Carpets and Rugs (FF 1-70).
- 3. South Coast Air Quality Management District (SCAQMD).
 - a. Rule 1168 Adhesive and Sealant Applications.
- 4. US Green Building Council (USGBC).
 - a. LEED V4 LEED (Leadership in Energy and Environmental Design): Green Building Rating System Reference Guide for Building Design and Construction.

Specifier Note: Article below includes submittal of relevant data to be furnished by Contractor before, during or after construction. Coordinate this article with Architect's and Contractor's duties and responsibilities in Contract Conditions and Section 01 33 00 - Submittal Procedures.

1.3 SUBMITTALS

- A. Make submittals in accordance with [Section 01 33 00 - Submittal Procedures].
- B. Product Data: Indicate sizes, profiles, surface finishes and include:
 - 1. Product characteristics including VOCs.
 - 2. Performance criteria.
 - 3. Material Safety Data Sheets (MSDS).
- C. Samples: One [3 × 3] inch long sample of [rubber tile] [rolled rubber flooring] illustrating thickness, color and surface finish.
- D. Test Reports: Certified test reports showing compliance with specified performance characteristics and physical properties.
- E. Certificates: Product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.
- F. Manufacturer's Field Reports: Submit manufacturer's field reports within 3 days of each manufacturer representative's site visit and inspection.

Specifier Note: Coordinate Article below with Contract Conditions and with Section 01 78 36 - Warranties.

- G. Installer's Experience: Submit verification of evidence of work similar to the work of this section.
- H. Warranty: Fully executed, issued in [Owner's] name and registered with manufacturer, including:
 - 1. Manufacturer's [1-year] warranty covering defects in materials from date of substantial completion.

Specifier Note: Retain the following only if specifying for a LEED project. Specify only the technical submittal requirements necessary to achieve the credits desired for this project.

- I. Sustainable Design (LEED) Submittals:
 - 1. LEED Submittals: In accordance with Section [01 35 21 – LEED Requirements].
 - 2. Submit verification for items when appropriate as follows:

Specifier Note: Retain the following paragraph only if adhesives and sealers are used.

- a. EQ4.1 for low VOC [adhesives] [and] [sealers].
- b. MR4.1 for recycled content of 10% minimum.

- c. MR4.2 for recycled content of 20% minimum.

Specifier Note: Retain the following paragraph only if materials are sourced within 500 miles of project.

- d. MR 5.1 and MR5.2 for regional materials.

1.4 CLOSEOUT SUBMITTALS

- A. Maintenance Data: Manufacturer's instructions on care and cleaning of resilient athletic flooring.

1.5 QUALITY ASSURANCE

- A. Installer: Experienced in performing work similar to work of this section.

1.6 DELIVERY, STORAGE & HANDLING

- A. Deliver store and handle materials in accordance with manufacturer's written instructions.
 - 1. Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact and product name and manufacturer clearly visible, and in sizes to suit project.
- B. Store materials protected from exposure to harmful environmental conditions, clean, dry, frost-free and at recommended temperature and humidity levels.

1.7 WARRANTY

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

PART 2 PRODUCTS

Specifier Note: Add product attributes performance characteristics, material standards and descriptions in other articles as applicable. Avoid the use of such phrases as "or equal," "approved equal" or similar phrases may cause ambiguity in specifications and create risk exposure for sub-standard products. Such phrases require verification (procedural, legal and regulatory) and assignment of responsibility for determining "or equal" products.

2.1 MANUFACTURER

- A. Athletic Textiles, LLC; 5700 Granite Parkway, Plano, TX 75024; Phone: (877) 401-2298, (262) 201-6677; Email: info@syntheticturf.com; Web: www.syntheticturf.com.

2.2 PERFORMANCE REQUIREMENTS

- A. Static Load Limit to ASTM F970: 0.0016 inches maximum residual compression.
- B. Indoor Abrasion to ASTM C501: 0.24% maximum material loss.
- C. Coefficient of Friction to ASTM D1894:
 - 1. Dry: 1.33.
 - 2. Wet: 1.56.
- D. Flammability and Flame Spread to CSPC FF1-70: Pass.
- E. Durometer Shore "A" Hardness to ASTM D2240: 60 minimum.
- F. Critical Radiant Flux to ASTM E648: 0.1 W/m² maximum.
- G. Resistance to Chemical Attach to ASTM F925:
 - 1. Ammonia: No surface attack or color change.
 - 2. Disinfectant Alcohol: No surface attack or color change.
 - 3. Laundry detergent and human sweat solution: No surface attack or color change.
- H. Impact Resistance to ASTM D3763: 20 ft/lbs absorbed energy at rupture.
- I. Compressibility at 100 psi to ASTM F36: 12% maximum.
 - 1. Recovery after compression: 85% minimum.
- J. Tensile (tension) Strength to ASTM D412:
 - 1. With grain: 600 psi.

2. Against grain: 450 psi.
- K. Tear Strength to ASTM D624:
 1. With grain: 150 psi.
 2. Against grain: 120 psi.
- L. Compressive Flexibility to ASTM F137.
- M. Compressive Deformation Set to ASTM D395, Method B, 22 hours at 158 degrees F:
 1. At 25% deflection: 40% deformation.
 2. At 50% deflection: 30% deformation.
- N. Compression Endurance to ASTM D575, 10,000 fatigue cycles with 500 lbs load at 50% displacement: 5% set.

2.3 DESCRIPTION

- A. Interlocking high recycled content flooring tile and **rolled flooring**.

2.4 MATERIALS

- A. Flooring Tile:
 1. Composition: 100% post consumer rubber with urethane binder.
 2. Density to ASTM D297: 64 lbs/cubic foot.
 3. Size: 3 × 3 feet.
 4. Thickness: [1/4] [3/8] [1/2] inches.

Specifier Note: Retain and edit the following paragraph to suit the project requirements.

5. Color: Black [unspeckled] [speckled] [Blue] [Brick Red] [Gold] [Green] [Grey] [Lipstick Red] [Orange] [Purple] [Raspberry] [Tan] [Teal] [White] [Yellow].
 6. Acceptable material: **Athletic Textiles' Kodiak Rolled Rubber Flooring** 3 × 3 Everlock Premium Interlocking Tiles.
- B. Sheet Flooring:
 1. Composition: 100% post consumer rubber with urethane binder.
 2. Density to ASTM D297: 64 lbs/cubic foot.
 3. Size: 4 feet wide roll.
 4. Thickness: [1/4] [5/16] [3/8] [1/2] inches.

Specifier Note: Retain and edit the following paragraph to suit the project requirements. Choose “unspeckled for Solid Black colors. Choose 90% speckled for “Green Machine,” “Grey Force,” “Harvest Plain” and “Ocean Wave” flooring colors. Choose 10% speckled for all other colors. Contact the manufacturer for custom colors. Custom colors are available with minimum size orders.

5. Color: [Unspeckled] [[10%] [90%] speckled] [Blue] [Brick Red] [Bright Red] [Gold] [Green] [Green Machine] [Grey] **[Grey Force]** [Harvest Plain] [Ocean Wave] [Orange] [Purple] [Raspberry] [Tan] [Teal] [White] [Yellow].
6. Acceptable material: Athletic Textiles' Kodiak Rolled Rubber Flooring.

2.5 DESCRIPTION

- A. Interlocking high recycled content flooring tile and rolled flooring.

2.6 MATERIALS

- A. Flooring Tile:
 1. Composition: 100% post consumer rubber with urethane binder.
 2. Density to ASTM D297: 64 lbs/cubic foot.
 3. Size: 3 × 3 feet.
 4. Thickness: [1/4] **[3/8]** [1/2] inches.

Specifier Note: Retain and edit the following paragraph to suit the project requirements.

5. Color: [Unspeckled] [speckled] [Blue] [Brick Red] [Gold] [Green] [Grey] [Lipstick Red] [Orange] [Purple] [Raspberry] [Tan] [Teal] [White] [Yellow].
 6. Acceptable material: Athletic Textiles' Kodiak Rolled Rubber Flooring 3 × 3 Everlock Premium Interlocking Tiles.
- B. Sheet Flooring:
 1. Composition: 100% post consumer rubber with urethane binder.
 2. Density to ASTM D297: 64 lbs/cubic foot.

3. Size: 4 feet wide roll.
4. Thickness: [1/4] [5/16] [3/8] [1/2] inches.

Specifier Note: Retain and edit the following paragraph to suit the project requirements. Choose “unspeckled for Solid Black colors. Choose 90% speckled for “Green Machine,” “Grey Force,” “Harvest Plain” and “Ocean Wave” flooring colors. Choose 10% speckled for all other colors. Contact Athletic Textiles, LLC for custom colors. Custom colors are available with minimum size orders.

5. Color: [Unspeckled] [[10%] [90%] speckled] [Blue] [Brick Red] [Bright Red] [Gold] [Green] [Green Machine] [Grey] [Grey Force] [Harvest Plain] [Ocean Wave] [Orange] [Purple] [Raspberry] [Tan] [Teal] [White] [Yellow].
6. Acceptable material: Athletic Textiles’ Kodiak Rolled Rubber Flooring 4 feet wide Rolled Rubber Flooring.

2.7 ACCESSORIES

- A. Substrate Crack Filler: Cementitious self-leveling flooring compound suitable for use on [concrete] [wood] substrate and in accordance with flooring manufacturer’s written recommendations.
- B. Adhesive: One-component polyurethane-based, VOC free, industrial grade adhesive and with VOC to SCAQMD Rule 1168.

Specifier Note: Retain and edit the following paragraph to suit the project requirements. Contact the manufacturer to determine the correct adhesive for the project conditions before editing the choices in the following paragraph.

1. Acceptable material: s[Chemrex [Moisture Care Urethane Adhesive] [CX-941 Adhesive] [Mapei Eco Ultrabond 990] [Ultrabond 995] [Henry 971].

Higher moisture barrier adhesives may be required; contractor to test concrete if vapor drive exceeds 3lbs per 1000 sq. ft. in 24 hours. Ref: ASTM F2170 section.

PART 3 EXECUTION

3.1 INSTALLER

- A. Use only installers who have training and experience of work similar to the work of this section.

3.2 EXAMINATION

- A. Verification of Conditions: Verify that conditions of substrate previously installed under other Sections or Contracts are acceptable for overhead coiling door installation in accordance with manufacturer’s written recommendations.
 1. Visually inspect substrate in presence of Consultant.

Specifier Note: Retain the following Paragraph only if resilient athletic flooring is to be installed on a concrete substrate.

2. Concrete Slabs: Verify that concrete substrates are dry and moisture-vapor emissions are within acceptable levels in accordance with manufacturer’s written recommendations.

Specifier Note: Retain and edit the following Paragraph to meet project requirements. Excessive moisture vapor can cause failure of flooring systems installed on slabs-on-grade. ASTM F2170 (relative humidity test) recommends one test per 1000 square foot, but no fewer than three tests per test area.

- a. Moisture Testing: Perform tests [to ASTM F2170] so that each test area does not exceed 1000 ft², and perform no fewer than three tests in each installation area and with test areas evenly spaced in installation areas.
3. Inform Consultant of unacceptable conditions immediately upon discovery.

Specifier Note: Retain and edit the following Article to meet project requirements. Retain only those Paragraphs that are appropriate to the project.

3.3 PREPARATION

Specifier Note: Retain and edit the following Paragraph if resilient athletic flooring is being laid over an existing subfloor or substrate.

- A. Existing Substrates: Ensure substrate is smooth and level.
 1. Grind high spots and fill low spots to produce maximum 1/8 inch deviation in any direction when checked with 10 feet long straight edge.
 - a. Fill surface cracks and grooves using cement based patching or leveling compound.

Specifier Note: Retain and edit the following Paragraph if resilient athletic flooring is being laid to new concrete.

- B. New Concrete Substrate: Ensure concrete has cured 28 days minimum.
 - 1. Ensure substrate is smooth and level.
 - a. Grind high spots and fill low spots to produce maximum 1/8 inch deviation in any direction when checked with 10 feet long straight edge.
 - b. Fill surface cracks and grooves using cement based patching or leveling compound.
- C. Remove coatings, including curing compounds, and other substances on substrates using mechanical methods recommended by manufacturer. Do not use solvents.
- D. Broom or vacuum clean substrates to be covered immediately before product installation.
 - 1. After cleaning, examine substrates for moisture, alkaline salts, carbonation or dust.
- E. Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from Consultant.
 - 1. Starting installation of resilient athletic flooring implies substrate conditions are acceptable for Work of this Section.

Specifier Note: Retain the following paragraph when moisture in a concrete substrate will be cause for concern. Delete the paragraph if there are no moisture concerns.

- F. Seal concrete with moisture sealer using paint roller in accordance with flooring manufacturer's written recommendations.
 - 1. Apply sealer only after substrate is completely dry.

3.4 AMBIENT AND SUBSTRATE CONDITIONS

- A. Ensure ambient air and substrate are between 65 and 85 degrees F and between 15% and 55% relative humidity for 48 hours before, during, and 48 hours minimum after installation.

3.5 INSTALLATION

- A. Install resilient athletic flooring in accordance with manufacturer's written recommendations.
- B. Install resilient flooring as one of the last steps in completing a space to avoid damage from concrete sanding, drywall, painting and other dust and debris.
- C. Avoid damage from heavy duty and construction traffic.
- D. Allow materials to reach ambient installation conditions for 24 hours minimum before start of installation.
- E. Interlocking Rubber Tile Installation:
 - 1. Make chalk line down center of room parallel to room length.
 - 2. Loose lay first tile at room center with edge lined up along chalk line.
 - 3. Loose lay first row of interlocking tiles down center chalk line for full length of room stopping one tile short of final perimeter edge.
 - 4. Use edge of center tile to lay second chalk line perpendicular to first.
 - 5. Loose lay first cross row of tiles along chalk line perpendicular to previously laid tile row for full width of room stopping one tile short of final perimeter edge.
 - 6. Loose lay remaining tiles except at perimeter.
 - 7. Measure each tile independently and trim to suit project requirements.
 - a. If cove base is not being used, cut tile 1/8 inch long and press down firmly to fit to wall.
- F. Rolled Rubber Flooring Installation:
 - 1. Make chalk line down center of room parallel to room length.

Specifier Note: If flooring is laid in open space without walls defining the space, it is recommended that an adhesive be used to ensure that flooring does not shift during use.

- 2. Lay first strip [using adhesive in accordance with flooring manufacturer's written recommendations] at room center with edge lined up along chalk line.
- 2. Lay subsequent strip [using adhesive in accordance with flooring manufacturer's written recommendations] on each side of center row stopping at perimeter row on each side of space.
 - a. Trim perimeter rows [where required] to meet project requirements.

3.6 FIELD QUALITY CONTROL

- A. Field Inspection: Coordinate field inspection in accordance with Section [01 45 00 Quality Control].

Specifier Note: Specify requirements if manufacturers are to provide field quality control with onsite personnel for instruction or supervision of product installation, application, erection, or construction. Manufacturer field reports are included under PART 1, Submittals.

B. Manufacturer's Services:

Specifier Note: Use the following Paragraphs only when manufacturer's field services are provided and are required to verify the quality of the installed components. Establish the number and duration of periodic site visits required by manufacturer and specify below. Contact Athletic Textiles, LLC to determine any costs associated with Technical Representatives providing manufacturer's field services. Delete if field services are not required.

1. Coordinate manufacturer's services with Section [01 45 00 - Quality Control].

Specifier Note: Delete the following paragraph if no costs are associated with manufacturer's services.

2. Arrange for payment for manufacturer's services.
3. Have manufacturer review work involved in handling, installation, protection, and cleaning of resilient athletic flooring, and submit written reports in acceptable format to verify compliance of work with contract conditions.
4. Manufacturer's Field Services: Provide manufacturer's field services consisting of product use recommendations and periodic site visits for product installation review in accordance with manufacturer's instructions.
 - a. Report any inconsistencies from manufacturer's recommendations immediately to Consultant.

Specifier Note: Edit the following paragraph to meet project requirements. Coordinate site visits with manufacturer or delete the paragraph and all of its subparagraphs if site visits are not required.

5. Schedule site visits to review work at stages listed:
 - a. After delivery and storage of resilient athletic flooring and when preparatory work on which work of this Section depends is complete, but before application begins.
 - b. Twice during progress of work at 25% and 60% complete.
 - c. Upon completion of Work, after cleaning is carried out.
 - d. Obtain reports within three days of review and submit immediately to Consultant.

3.7 CLEANING

- A. Perform daily progress cleaning.
 1. Leave work area clean at end of each day.
- B. Upon completion, remove surplus materials, rubbish, tools and equipment.
- C. Collect recyclable waste and dispose of at appropriate recycling facilities.
- D. Final Cleaning: Clean resilient athletic flooring using warm water and a few drops of mild dish washing detergent. For large areas, scrubbers such as NaceCare or equivalent are recommended; consult the manufacturer's cleaning instructions.

Specifier Note: Cotton mops will leave white fibers on the floor if used for cleaning.

1. Use synthetic mop. Do not use cotton mop.

Specifier Note: Specify protection methods completed after installation, but prior to acceptance by the owner. Include only statements unique to this Section. Coordinate the following Article with Section 01 76 00 - Protecting Installed Construction.

3.8 PROTECTION

- A. Protect applied resilient athletic flooring from damage, dust, concrete sanding, drywall, painting and other activities during construction.
- B. Repair or replace adjacent materials damaged by installation of resilient athletic flooring

END OF SECTION