

*Specifier Note: This Specification has been created to assist in preparing a Project or Master Specification. It follows guidelines established by Construction Specifications Institute (CSI) and can be used with most Master Specifications with simple editing.*

*Specifier Note: The enclosed requirements are intended for indoor installations over concrete. If the provisions described herein are adopted for installations outdoors or over asphalt, Mondo's Warranty will be null and void and the Specifier will be held liable. Specifications for outdoor applications or indoor applications over asphalt may be obtained from the Technical Department at Mondo America, Inc.*

*Specifier Note: This Specification describes the athletic surfacing to be installed. The number and title of the section may be changed, if the Specifier deems necessary, but in any circumstance it will belong to the general CSI Section 09 65 00: Resilient Flooring.*

## **SECTION 09 65 66 Resilient Athletic Flooring**

### **1. PART 1 – GENERAL**

#### **1.1. SUMMARY**

##### **1.1.1. Products Supplied**

- A. Athletic Surfacing – Prefabricated synthetic rubber track surfacing.
- B. Adhesive and accessories required for installation, maintenance and repair.

##### **1.1.2. Related Requirements**

*Specifier Note: These sections serve as a guide to what is essential information needed to determine the acceptability of the site conditions required for the installation of athletic surfacing. The Specifier may choose to include other sections he/she deems necessary.*

- A. Section 02 25 00 – Existing Material Assessment.
- B. Section 03 05 00 – Common Work Results for Concrete.
- C. Section 06 05 00 – Common Work Results for Wood, Plastics, and Composites.
- D. Section 07 05 00 – Common Work Results for Thermal and Moisture Protection.
- E. Section 07 10 00 – Dampproofing and Waterproofing.

#### **1.2. REFERENCES**

##### **1.2.1. American Society for Testing & Materials (ASTM)**

- A. ASTM D412: Standard Test Methods for Vulcanized Rubber and Thermoplastic Elastomers—Tension.
- B. ASTM D2240: Standard Test Method for Rubber Property (Durometer Hardness).
- C. ASTM D3389: Standard Test Method for Coated Fabrics Abrasion Resistance (Rotary Platform Abrader).
- D. ASTM E648: Standard Test Method for Critical Radiant Flux of Floor Covering Systems Using a Radiant Heat Energy Source.
- E. ASTM E662: Standard Test Method for Specific Optical Density of Smoke Generated by Solid Materials.
- F. ASTM E1643: Standard Practice for Selection, Design, Installation, and Inspection of Water Vapor Retarders Used in Contact with Earth or Granular Fill Under Concrete Slabs.

- G. ASTM E1745: Standard Specification for Water Vapor Retarders Used in Contact with Soil or Granular Fill under Concrete Slabs.
- H. ASTM F387: Standard Test Method for Measuring Thickness of Resilient Floor Covering With Foam Layer.
- I. ASTM F710: Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring.
- J. ASTM F925: Standard Test Method for Resistance to Chemicals of Resilient Flooring.
- K. ASTM F970: Standard Test Method for Static Load Limit.
- L. ASTM F1514: Standard Test Method for Measuring Heat Stability of Resilient Flooring by Color Change.
- M. ASTM F1515: Standard Test Method for Measuring Light Stability of Resilient Flooring by Color Change.
- N. ASTM F1869: Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride.
- O. ASTM F2170: Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes.

**1.2.2. State of California (CA)**

- A. Section 01350: Standard Method for the Testing and Evaluation of Volatile Organic Compound Emissions from Indoor Sources Using Environmental Chambers.

**1.2.3. European Committee for Standardization (CEN- Comité Européen de Normalisation)**

- A. EN 14810: Surfaces for sports areas – Determination of spike resistance.

**1.2.4. GREENGUARD Environmental Institute (GEI)**

- A. GREENGUARD Certification: Compliant with stringent emission levels for over 360 VOCs, plus a limit on the total of all chemical emissions combined (TVOC).
- B. GREENGUARD Gold: Compliant with safety factors to account for sensitive individuals (such as children and the elderly) and ensures that a product is acceptable for use in environments such as schools and healthcare facilities.

**1.2.5. International Association of Athletics Federation (IAAF)**

- A. Inspection and testing procedures based on the current edition of the IAAF Track and Field Facilities Manual.

**1.2.6. International Organization for Standardization (ISO)**

- A. ISO 9001: Requirements for Quality Management Systems.

**1.3. SUBMITTALS**

*Specifier Note: the following are typical submittals. The Specifier may choose to include other submittals he/she deems necessary.*

**1.3.1. Action Submittals**

- A. Provide Manufacturer's current printed data sheets on specified products (athletic surfacing, adhesive, accessories, etc.).
- B. Provide a copy of the current IAAF product certificate verifying that the product is on the current list of IAAF certified track surfacing products.
- C. Provide samples, 6 inches x 6 inches, for verification of such characteristics as color, texture and finish for each specified athletic surfacing product.

- D. Surfacing Contractor shall submit a signed letter that the athletic surfacing has no measurable traces of heavy metals, leachable mercury, and any other hazardous materials identified by the EPA. Prior to installation, Surfacing Contractor shall provide an 8" x 10" sample of the athletic surfacing, for testing by the Owner's independent laboratory, in order to verify the above submittal and establish parameters against which random spot tests by the Owner's agent can be performed during installation for comparison.
- E. As necessary, provide drawings prepared for project illustrating layouts, details, dimensions and other data.
- F. If line painting is specified, provide samples of available paint colors for selection and approval.

**1.3.2. Informational Submittals**

- A. Provide current subfloor preparation guidelines, as published by the Manufacturer.
- B. Provide current installation guidelines, as published by the Manufacturer.
- C. If line painting is specified, provide current line painting guidelines, as published by the Manufacturer.

**1.3.3. Closeout Submittals**

- A. Provide current maintenance guidelines, as published by the Manufacturer.
- B. Provide current standard warranty, as published by the Manufacturer.

**1.3.4. Maintenance Material Submittals**

- A. Provide extra stock materials for use in facility operation and maintenance. Provide amount of approximately 2% of the total floor surface, of each type, color and dye lot.

**1.4. QUALITY ASSURANCE**

- A. Manufacturer must be certified ISO 9001.
- B. Manufacturer must have a minimum of fifteen (15) years of experience in the manufacturing of prefabricated synthetic rubber track surfacing.
- C. In cases where the athletic surfacing will be used for an indoor competition track, Manufacturer must have a minimum of 10 completed tracks that have been certified to meet IAAF rules and regulations.
- D. Surfacing Contractor to be recognized and approved by the Manufacturer.
- E. Surfacing Contractor shall submit an affidavit attesting that the athletic surfacing to be installed meets the requirements defined in the Manufacturer's currently published specifications and any modifications outlined in these technical specifications prior to the commencement of any work.
- F. Installer must be approved by Surfacing Contractor and must have performed same scale installations in the last three (3) years.
- G. Surfacing Contractor must ensure that a designated Project Manager/Superintendent be on site everyday to supervise the installation of the athletic surfacing. Substitution of Project Manager/Superintendent shall not be permitted.
- H. If line painting is specified, painting must be done by professionals with proper experience and qualifications to effectively perform the work.

Specifier Note: Specify mock-up dimensions as instructed by Owner or Architect.

- I. Installation of mock-up is highly recommended and must be deemed acceptable by Owner and Architect. Mock-up is to be installed following the same procedures and utilizing the same specified materials that will be used for the actual project.

- Mock-up size: [XX" x XX" (XX cm x XX cm)].

**1.5. DELIVERY, STORAGE AND HANDLING**

- A. Materials must be delivered in Manufacturer's original, unopened and undamaged packaging with identification labels intact.
- B. Store sheet goods upright on a clean, dry, flat surface protected from all possible damage and from exposure to harmful weather conditions.
- C. Avoid storing materials for extended periods of time or additional material trimming may be required.
- D. Recommended environmental condition for storage is a minimum of 55°F (13°C).
- E. Material need not suffer damage during handling (i.e. edge chipping, excessive warping, etc.).

**1.6. SITE CONDITIONS**

- A. The General Contractor or Construction Manager shall be responsible for ensuring all site conditions meet the requirements of the Manufacturer, as referenced herein at sections 3.2 and 3.3.
- B. Concrete subfloors on or below grade must be installed over a permanent effective vapor retarder, as per current versions of ASTM E1643 and ASTM E1745. The vapor retarder must be placed directly underneath the concrete slab, above the granular fill, as per Manufacturer's instructions. The vapor retarder must have a perm rating of 0.1 or less and must have a minimum thickness of 10 mils.
- C. No concrete sealers or curing compounds are applied or mixed with the subfloors (refer to Section 03 05 00 – Common Work Results for Concrete of Division 3).
- D. Installation to be carried out no sooner than the specified curing time of concrete subfloor (normal density concrete curing time is approximately 28 days for development of design strength). Refer to current version of ASTM F710.
- E. The subfloor surface must be free of any paint, wax, oil, grease, sealer, curing compound, solvent or any other contaminants that may inhibit bond. All contaminants must be removed from the surface via mechanical abatement.
- F. Smooth, dense finish, highly compacted with a tolerance of 1/8" in a 10 ft radius (3.2 mm in 3.05 m radius). Floor Flatness (FF) and Floor Levelness (FL) numbers are not recognized.
- G. Moisture and alkalinity tests must be performed on all concrete substrates, under in-service conditions. It is recommended to turn on the HVAC unit prior to performing moisture testing, in order to ensure stable testing conditions and accurate results. The concrete's surface pH should be between 7 and 10. Relative humidity of the concrete slab must not exceed the tolerance of the adhesive specified, in accordance with ASTM F2170 (in situ probes). Moisture vapor emissions from the concrete slab must not exceed the tolerance of the adhesive specified, in accordance with ASTM F1869 (anhydrous calcium chloride).
- H. If installing over wood subfloors, ensure exterior grade plywood with at least one good side, such as: APA (Engineered Wood Association) Exterior grade plywood (A-A Exterior, A-B Exterior or A-C Exterior) and CANPLY (Canadian Plywood Association) Exterior certified plywood (Canada: Grade G2S A-A or G1S A-C. USA: G2S A-A, A-B, B-B, or G1S A-C, B-C). There must be proper underfloor ventilation, plywood must be dry and should have a moisture content ranging between 6 and 12%, when measured with a quality wood moisture meter (electronic hygrometer).
- I. Maintain a stable room and subfloor temperature within the recommended range of 65°F to 86°F (18°C to 30°C), 48 hours prior to installation, during the installation, and 48 hours after the installation. Recommended ambient humidity control level is between 35 to 55%.
- J. Installation of athletic surfacing shall not commence until the building is enclosed and all other trades have completed their work. It is the General Contractor or Construction Manager's responsibility to maintain a secure and clean working area before, during and after the installation of the athletic surfacing.

**1.7. WARRANTY**

- A. Provide Manufacturer's current standard warranty.

- B. The synthetic track surfacing is warranted to be free from manufacturing defects for a period of five (5) years from the date of shipment from the Manufacturer.

## 2. PART 2 – PRODUCT

### 2.1. MANUFACTURED PRODUCTS

#### 2.1.1. Manufacturer

- A. MONDO S.p.A.: Piazzale E. Stroppiana, 1, 12051 Alba, Fraz. Gallo – Italy.

#### 2.1.2. Description

*Specifier Note: Specify color and width of athletic surfacing required for the project. Athletic surfacing width and length to minimize joints in all areas: use lane width material for all lanes, side joints to be located under line markings, ensuring a minimum of head joints; use full width material with no side joints in runways; and maximum width material in the D-zones to reduce the amount of joints in those areas.*

- A. MONDOTRACK is prefabricated synthetic rubber track surfacing with a honeycomb (elongated hexagon-shaped) design and engineered shock absorption layer for superior biomechanical properties and athlete comfort, calendered and vulcanized with a particular closed cell structure, based on special isoprenic rubbers, mineral fillers, stabilizing agents and pigmentation, highly resistant to UV rays and atmospheric agents, with a system of differential elasticity between top surface and base, as manufactured by MONDO S.p.A. or approved equal.
- B. Thickness: 0.531” (13.5mm).
- C. Vulcanized dual durometer construction: the shore hardness of the top layer (wear layer) will be greater than that of the bottom layer. Shore hardness of layers to be recommended by the Manufacturer and to respect limits specified.
- D. Wear layer must be a minimum thickness of 0.236” (6mm).
- E. Colors: Provided in standard solid background colors. Consult available indoor colors.
- F. Texture: Mondotrack embossing. Non-directional, irregular tessellation patterns with interconnected surface channels. Directional patterns shall be deemed unacceptable.
- G. Finish: Matte finish.
- H. Format: sheet goods are 49’ (15m) long [min. 19’ (6m), max. 52’ (16m)], with widths available from 3’ to 5’7” (0.92m to 1.70m).

#### 2.1.3. Performance

- A. Athletic surfacing shall exhibit high resistance to track spikes, cigarette burns and chemical agents.
- B. Performance of the athletic surfacing to conform to the following criteria:

Performance Criteria	Test Method	Result
Tensile Strength	ASTM D412	≥130psi
Elongation at Break	ASTM D412	≥120%
Hardness Shore A	ASTM D2240	55 ± 5 (wear layer) 40 ± 5 (backing)
Abrasion Resistance Taber (H18 Wheel, 1000 cycles, 1000g load)	ASTM D3389	<1.8g weight loss

Performance Criteria	Test Method	Result
Critical Radiant Flux	ASTM E648	≥0.45 W/cm <sup>2</sup> (Class 1)
Optical Density of Smoke	ASTM E662	<450
Thickness	ASTM F387	13.5 ± 0.3mm
Chemical Resistance	ASTM F925	No surface attacks
Static Load Limit (tested at 250psi)	ASTM F970	0.010in
Resistance to Heat	ASTM F1514	Compliant (≤8.0)
Resistance to Light	ASTM F1515	Compliant (≤8.0)
Spike Resistance	EN 14810	≤20 (ΔTr%) ≤20 (ΔEb%)
Coefficient of Friction	IAAF	≥47
Shock Absorption	IAAF	≥38%
Vertical Deformation	IAAF	2.2 ± 0.3
GREENGUARD Certification		Yes
GREENGUARD Gold		Yes
Indoor Air Quality	CA 01350	Compliant

**2.1.4. Limitations**

- A. As needed, request a copy and refer to Mondo's bulletin 11-001 Spike Recommendations for Super X and Mondotrack, for all instructions and safe use of footwear with track spikes on MONDOTRACK synthetic rubber track surfacing.

**2.1.5. Materials**

- A. Provide MONDOTRACK prefabricated synthetic rubber track surfacing, as manufactured by MONDO S.p.A. or approved equal.
- B. Provide athletic surfacing, as specified in section 2.1.2 Description.

**2.2. ACCESSORY PRODUCTS**

*Specifier Note: Specify adhesive suitable for application and intended use, as well as all accessories required for project.*

- A. Provide adhesive certified by Manufacturer: MONDO PU 105 polyurethane adhesive. For suitability, recommendations and use, please refer to adhesive instruction manual provided by Manufacturer. EP 55 epoxy adhesive may be used in areas that have not been specified to receive Everlay, and that will not be subject to surface impacts or heavier dynamic loads (such as bleachers).
- B. Patching or leveling compound to be supplied or recommended/approved by Manufacturer.
- C. If line painting is specified, all painting products are to be supplied or recommended/approved by the Manufacturer.

### 3. PART 3 – EXECUTION

#### 3.1. INSTALLERS

- A. Refer to section 1.4 of this document for information on installers.

#### 3.2. EXAMINATION

*Specifier Note: The following must be ensured prior to the installation of the athletic surfacing.*

- A. Ensure that concrete subfloors on or below grade are installed over a permanent effective vapor retarder, as per current versions of ASTM E1643 and ASTM E1745. The vapor retarder must be placed directly underneath the concrete slab, above the granular fill, as per Manufacturer's instructions. The vapor retarder must have a perm rating of 0.1 or less and must have a minimum thickness of 10 mils.
- B. Installation to be carried out no sooner than the specified curing time of concrete subfloor (normal density concrete curing time is approximately 28 days for development of design strength). Refer to current version of ASTM F710.
- C. Ensure that no concrete sealers or curing compounds have been applied to or mixed into the concrete (refer to Section 03 05 00 – Common Work Results for Concrete of Division 3).
- D. Subfloor surface must be free of any paint, wax, oil, grease, sealer, curing compound, solvent or any other contaminants that may inhibit bond. All contaminants must be removed from the surface via mechanical abatement.
- E. Smooth, dense finish, highly compacted with a tolerance of 1/8" in a 10 ft radius (3.2 mm in 3.05 m radius). Floor Flatness (FF) and Floor Levelness (FL) numbers are not recognized.
- F. Moisture and alkalinity tests must be performed on all concrete substrates, under in-service conditions. It is recommended to turn on the HVAC unit prior to performing moisture testing, in order to ensure stable testing conditions and accurate results. The concrete's surface pH should be between 7 and 10. Relative humidity of the concrete slab must not exceed the tolerance of the adhesive specified, in accordance with ASTM F2170 (in situ probes). Moisture vapor emissions from the concrete slab must not exceed the tolerance of the adhesive specified, in accordance with ASTM F1869 (anhydrous calcium chloride).
- G. If installing over wood subfloors, ensure exterior grade plywood with at least one good side, such as: APA (Engineered Wood Association) Exterior grade plywood (A-A Exterior, A-B Exterior or A-C Exterior) and CANPLY (Canadian Plywood Association) Exterior certified plywood (Canada: Grade G2S A-A or G1S A-C. USA: G2S A-A, A-B, B-B, or G1S A-C, B-C). There must be proper underfloor ventilation, plywood must be dry and should have a moisture content ranging between 6 and 12%, when measured with a quality wood moisture meter (electronic hygrometer).
- H. Maintain a stable room and subfloor temperature within the recommended range of 65°F to 86°F (18°C to 30°C), 48 hours prior to installation, during the installation, and 48 hours after the installation. Recommended ambient humidity control level is between 35 to 55%.
- I. Installation of athletic surfacing shall not commence until the building is enclosed and all other trades have completed their work.

#### 3.3. PREPARATION

*Specifier Note: Subfloors are to be prepared according to Manufacturer's written instructions; it is recommended that the Specifier review all recommendations. A copy of the current Subfloor Preparation Guide can be obtained from the Technical Department at Mondo America, Inc. The following are considered common practice subfloor preparations to receive athletic surfacing, and as such should not be omitted or altered in any case.*

- A. Prepare concrete subfloor in accordance with Manufacturer's current printed Subfloor Preparation Guide.

**3.4. INSTALLATION**

*Specifier Note: Athletic surfacing is to be installed according to Manufacturer's written instructions; it is recommended that the Specifier review all recommendations. A copy of the current Indoor Track Installation procedures can be obtained from the Technical Department at Mondo America, Inc. The following procedures may be altered to accommodate special project cases, as deemed necessary by the Specifier and after he/she has consulted the Technical Department at Mondo America, Inc. to ensure suitability.*

- A. Install athletic surfacing sheet goods in accordance with Manufacturer's current printed Installation Manual.
- B. If line painting has been specified, prepare and paint athletic surfacing in accordance with Manufacturer's current Painting Instructions.

**3.5. REPAIR**

- A. Refer to section 1.3.4 for extra stock materials.
- B. Repair material must be from the same dye lot as material supplied for initial installation.
- C. Repairs are to be performed by qualified installers/technicians only.

**3.6. CLEANING**

- A. Always wait at least a minimum of 72 hours after the athletic surfacing has been completely installed before performing initial maintenance.
- B. For surfaces having received newly painted lines, **wait a minimum of 30 days after the application of the paint before scrubbing the surface.** This will allow proper curing of the paint.
- C. Always maintain athletic surfacing according to Manufacturer's current indoor maintenance instructions for specified product.

**3.7. PROTECTION**

- A. As needed, athletic surfacing can be protected with 1/8" Masonite during and after the installation, prior to acceptance by the Owner.