

Specifier Note: This Specification has been created to assist in preparing a Project or Master Specification. In accordance with Construction Specifications Institute (CSI)'s MasterFormat®, this Specification can be used with most master specifications following simple editing.

Specifier Note: The enclosed requirements are intended for outdoor installations over asphalt. If the provisions described herein are adopted for installations indoors or over another type of base, Mondo's Limited Material Warranty will be null and void and the Specifier will be held liable. Specifications for indoor applications or outdoor applications over concrete may be obtained from the Technical Department at Mondo America, Inc. (United States 1-800-361-3747 • Canada 1-800-663-8138).

Specifier Note: This Specification describes the Synthetic Resilient 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 32 18 00: Athletic and Recreational Surfacing.

SECTION 32 18 16 SYNTHETIC RESILIENT SURFACING

PART 1 GENERAL

1.01 SUMMARY

1. This section covers all labor and materials required to install prefabricated Synthetic Resilient Surfacing.
2. Full knowledge and understanding of all drawings, specifications, general provisions of the bidding documents and related foundation and utilities work is required of the Surfacing Contractor (SC).
3. The General Contractor (GC) is responsible for the installation, if any, of the subbase works, drainage systems and asphalt base works, designed by others, to corrected levels and as is detailed in the project drawings and Master Specifications.
4. The GC is responsible for the purchase and installation, or reinstallation, of any inground sports equipment, as is required.
5. The GC is responsible for ensuring the subbase, base and/or existing surface to receive the Synthetic Resilient Surfacing, as well as all inground sports equipment, meet the specifications of the various manufacturers.
6. The SC is responsible for the purchase and installation of Synthetic Resilient Surfacing, as is detailed in the Project Drawings and Master Specifications.
7. If line marking is specified, the SC is responsible for all line markings, as is detailed in the Project Drawings and Master Specifications, and per specified requirements for the sport(s) intended.

A. Products Supplied and Installed by SC:

1. Synthetic Resilient Surfacing: prefabricated vulcanized rubber athletic surfacing.
2. Accessories required for installation, line marking (if specified), maintenance and repair.

B. Related Requirements:

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

1. Division 02 00 00 – Existing Conditions
2. Section 11 66 00 – Athletic Equipment
3. Division 31 00 00 – Earthwork

4. Division 32 00 00 – Exterior Improvements
5. Section 32 10 00 – Bases, Ballasts, and Paving
6. Section 32 12 16.36 – Athletic Asphalt Paving
7. Division 33 00 00 – Utilities

1.02 REFERENCES

A. ASTM International (ASTM):

1. ASTM D412: Standard Test Methods for Vulcanized Rubber and Thermoplastic Elastomers—Tension.
2. ASTM D2240: Standard Test Method for Rubber Property (Durometer Hardness).
3. ASTM D3389: Standard Test Method for Coated Fabrics Abrasion Resistance (Rotary Platform Abrader).
4. ASTM F387: Standard Test Method for Measuring Thickness of Resilient Floor Covering With Foam Layer.
5. ASTM F925: Standard Test Method for Resistance to Chemicals of Resilient Flooring.
6. ASTM F1514: Standard Test Method for Measuring Heat Stability of Resilient Flooring by Color Change.

B. European Committee for Standardization (CEN):

1. EN 13036-4: Road and airfield surface characteristics. Test methods - Part 4: Method for measurement of slip/skid resistance of a surface: The pendulum test.

C. International Organization for Standardization (ISO):

1. ISO 9001: Quality Management Systems - Requirements.
2. ISO 14001: Environmental management systems – Requirements with guidance for use.

1.03 SUBMITTALS

Specifier Note: The following are typical submittals. The Specifier may choose to include other submittals he/she deems necessary. Technical and warranty information is available for download at www.mondoworldwide.com or may be obtained from the Technical Department at Mondo America, Inc. (United States 1-800-361-3747 • Canada 1-800-663-8138).

A. Action Submittals:

1. SC to provide current printed data sheets for all Products Supplied.
2. Provide three (3) samples, 6" x 6", for verification of such characteristics as color, texture and finish for each Manufactured Product. Separate samples are required for each color that will be installed. Samples must be representative of Manufactured Product specified, and must be submitted and approved by the Architect prior to bidding. During installation, samples will be used for quality comparison with the installed product.
3. If line marking is specified, provide samples of available paint colors for selection and approval.
4. Provide written requirements for the base, the installation of the Manufactured Product, the painting of the Manufactured Product (when specified), respecting any requirements of the sport(s). Indicate any adverse conditions that may limit the installation or affect its quality, such as limiting temperature/climatic conditions.
5. SC to provide a list of at least ten (10) completed Synthetic Resilient Surfacing projects having utilized the same or similar Manufactured Product as specified.
6. SC to provide copies of the ISO 9001 and ISO 14001 certifications from the Manufacturer's plant where the Synthetic Resilient Surfacing was produced.
7. As necessary, provide shop drawings prepared for project illustrating layouts, details, dimensions and other data, including layouts for line markings when specified.

B. Informational Submittals:

1. SC to provide Owner a copy of the Manufacturer's current printed standard Limited Material Warranty for the Manufactured Product.
2. SC to provide Owner a copy of Manufacturer's current printed outdoor asphalt base surface preparation guidelines.
3. SC to provide Owner a copy of Manufacturer's current printed installation guidelines for all Products Supplied, including line marking when specified.

C. Closeout Submittals:

1. If line marking has been specified, it is to the discretion of the Owner to request that the SC submit to the Owner a certification of accuracy submitted by a registered Engineer or Surveyor upon completion of all line markings. The Engineer or Surveyor shall certify the actual line markings on the Synthetic Resilient Surfacing, not the line markers drawings or computations. The document shall state that the line markings and layout meets the requirements of the drawings and Master Specification.
2. SC to provide Owner a copy of the registered warranty certificate from the Manufacturer for the Manufactured Product.
3. SC to provide Owner a copy of the Manufacturer's current printed maintenance guidelines for the Manufactured Product.

D. Maintenance Materials Submittals:

1. Provide extra stock materials from original dye lots, for use in facility operations and maintenance (approximately 2% of the total floor surface for each color, surface texture and format of Manufactured Product).

1.04 QUALITY ASSURANCE

A. SC, Installer and Line Marker Qualifications:

1. SC shall be fully acquainted with the existing facility and utilities and shall fully understand the difficulties and restrictions attending the execution of the work under contract. SC to advise the Owner of any restrictions or anticipated difficulty, before submitting bids.
2. SC must be recognized and approved by the Manufacturer.
3. Installer must be approved by SC and must have performed same scale installations in the last three (3) years.
4. SC is required to use approved technicians for the installation. Local laborers may be hired for non-technical work only.
5. SC must ensure that a designated Project Manager/Superintendent be on site every day to supervise the installation of the Synthetic Resilient Surfacing. Substitutions of Project Manager/Superintendent shall not be permitted.
6. If line marking is specified, the Line Marker shall be approved by the SC. Painting must be done by professionals with proper experience and qualifications to effectively perform the work; all line markings shall be spray applied under the direction of the qualified Line Marker, having painted a minimum of twenty (20) synthetic rubber surfaces to meet the rules and requirements of the sport(s), as specified.
7. Installation of a 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 dimensions as instructed by Owner or Architect.
8. All machinery and materials used must be only those approved by the Owner and Manufacturer.

B. Manufacturer Qualifications:

1. Manufacturer must be certified ISO 9001 and ISO 14001.

2. Manufacturer must have a minimum of twenty (20) years of experience in the manufacturing of prefabricated Synthetic Resilient Surfacing.
3. Manufactured Product must have undergone a vulcanization process; factory lamination will not be accepted as equivalent.

C. Slopes & Tolerances:

1. The maximum lateral inclination permitted for the outdoor athletic area across the full width of the area shall not exceed 1:50 (2%), and the minimum lateral inclination shall be no less than 0.6%.
2. The maximum overall downward inclination permitted in the inner direction for the athletic area, measured over the full length of any straight distance, shall not exceed 1:1000 (0.1%).
3. Depressions cannot exceed 3 mm under a 1 m straight edge or 6 mm under a 4 m straight edge.
4. These requirements are assumed to reflect the status quo of the existing area configuration; should any areas proves to be noncompliant, remedial works will be subject to repair by the GC or other, this work is not the responsibility of the SC.
5. At the completion of the construction of the base, the GC shall supply to the SC a topographic survey confirming that the elevations/slopes of the base meet the requirements and/or the specifications. The GC will provide adequate test results verifying that the installed asphalt is to required specification. The asphalt testing and topographic survey is for the account of the GC.

1.05 DELIVERY, STORAGE AND HANDLING

- A. Products Supplied must be delivered in Manufacturer's original, unopened and undamaged packaging with identification labels intact.
- B. Products Supplied must be protected from exposure to harmful weather conditions and must be safely stored on a clean, dry, flat surface. Store rolls of Synthetic Resilient Surfacing upright.
- C. Climate controlled storage is recommended. Storage temperature must not be below 40°F (4°C) and must not exceed 100°F (38°C).
- D. Avoid storing Manufactured Product for extended periods of time or additional material trimming may be required.
- E. Products Supplied need not suffer damage during handling (i.e. dents/scratches, edge chipping, excessive warping, etc.).

1.06 SITE CONDITIONS

- A. The GC shall be responsible for ensuring required drainage and base works. The GC will provide a technician on-site during sub-contract installations through the completion of the contract. The surfacing areas must drain properly and be free of bumps and/or depressions.
- B. The GC or Construction Manager shall be responsible for ensuring all site conditions meet the requirements of the Manufacturer, as referenced herein at sections 3.02 and 3.03.
- C. The SC will provide a technician who will review the asphalt specification, as supplied by the GC, making sure the specification is acceptable and verifying the suitability of the HMAC (hot mix asphalt concrete) after installation.
- D. Any concrete works are the responsibility of the GC. If Manufactured Product will be glued to concrete in designated areas, then GC must verify with the Manufacturer all requirements for curing compound/agents, and any special moisture tests or treatments necessary.

- E. Installation of the Products Supplied shall not take place until the completion of adjacent or concurrent construction operations which generate dust, airborne abrasives, or any other by-product that, in the opinion of the Owner or Manufacturer, would be harmful to the Manufactured Product.
- F. GC is responsible for maintaining a secure and clean working area before, during and after the installation of the Synthetic Resilient Surfacing.

1.07 WARRANTY

- A. The Manufactured Product is warranted to be free from manufacturing defects for a period of one (1) year from the date that is within 90 days from shipment from the Manufacturer, per the terms and conditions of the Manufacturer's written Limited Material Warranty.
- B. The Manufactured Product is warranted against excessive wear under normal usage for a period of ten (10) years from the date that is within 90 days from shipment from the Manufacturer, per the terms and conditions of the Manufacturer's written Limited Material Warranty.
- C. Refer to current copy of Manufacturer's written Limited Material Warranty for all terms and conditions, which shall be obtained directly from Manufacturer. In no event shall any warranties provided by any third parties (including distributors, insurance and/or private label providers) be considered a valid.

PART 2 PRODUCTS

2.01 MANUFACTURED PRODUCT

- A. Manufacturer:
 - 1. Mondo S.p.A., Piazzale E. Stroppiana, 1, 12051 Alba, Fraz. Gallo – Italia.
- B. Description:

Specifier Note: Specify color(s) and width(s) required. Manufactured Product width and length to minimize joints in all areas; when possible side joints to be located under line markings (if specified).

- 1. Sportflex M is prefabricated synthetic resilient rubber surfacing, 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.
- 2. Manufactured in two layers which are vulcanized together. The shore hardness of the top layer will be greater than that of the bottom layer; shore hardness of layers to be recommended by the Manufacturer and the limits specified.
- 3. Thickness: 0.394 in. (10 mm).
- 4. Colors: Provided in standard, solid background colors. Consult available colors for outdoor applications.
- 5. Surface Texture: ATS embossing.
- 6. Format: Sheets available in widths from 3' (0.92 m) to 6' (1.83 m) and 49'2" (15 m) long [min. 19'8" (6 m)/max. 52'5" (16 m)].

C. Performance:

Specifier Note: Results may vary slightly between production runs, due to manufacturing tolerances and testing methods/equipment used by laboratories during analysis. However, Manufactured Product must always meet the minimum requirements listed.

1. Performance of Manufactured Product to conform to the following criteria:

Performance Criteria	Test Methods	Requirements	Results*
Elongation at Break	ASTM D412	≥100%	≥163%
Tensile Strength	ASTM D412	≥75 psi	≥168 psi
Hardness of wear layer (Shore A durometer)	ASTM D2240	55 ±5	60
Hardness of backing (Shore A durometer)	ASTM D2240	40 ±5	45
Abrasion Resistance (H18 wheel, 1000g, 1000 cycles)	ASTM D3389	≤2.0 g	≤1.2 g
Thickness	ASTM F387	10 mm (±0.3 mm)	10 mm (±0.3 mm)
Resistance to Chemicals	ASTM F925	≤ Slight Change	Compliant
Heat Stability	ASTM F1514	≤8.0 ΔE	Compliant
Slip/Skid Resistance (Dry)	EN 13036-4	80-110	90
Slip/Skid Resistance (Wet)	EN 13036-4	55-110	79

*Results obtained from manufacturing controls can vary between production lots and do not constitute representations or warranties as to any particular production lot. Mondo reserves the right to modify product design and/or specifications at any time without notice.

D. Limitations:

1. Athletic footwear with spikes is **NOT** permitted onto Sportflex M, as the surface is not spike resistant. Refer to one of Mondo's approved surfacing products for such use.

E. Materials:

1. Provide Sportflex M, as manufactured by Mondo S.p.A. or approved equal.
2. Provide Synthetic Resilient Surfacing, as specified in section 2.01 B. Description.

2.02 ACCESSORIES

Specifier Note: Accessories should be specified in accordance with the project requirements.

1. Provide adhesive certified by Manufacturer: Mondo PU 100 polyurethane adhesive (color-coordinated adhesive available for seaming). For suitability, recommendations and use, please refer to Manufacturer's current printed adhesive guidelines.
2. Any substrate surface patching or levelling compound(s) to be supplied or recommended/approved by Manufacturer.
3. If line markings are specified, all painting products are to be supplied or recommended/approved by Manufacturer.

PART 3 EXECUTION**3.01 INSTALLERS**

- A. Refer to section 1.04 of this document for information on installers.

3.02 EXAMINATION

- A. SC to review bidding documents and specifications, verify suitability of installation by GC's sub-contractors, the asphalt base and any in-ground equipment.
- B. Prior to installation, SC to verify that the surfacing areas drain properly and are free of bumps and/or depressions.
- C. Prior to installation, SC to obtain confirmation that the asphalt and/or concrete have been installed per specification. If applicable, confirm concrete surfaces are free from bond inhibitors and confirm acceptable moisture levels, prior to gluing down the Synthetic Resilient Surfacing.
- D. GC to confirm completion of adjacent or concurrent construction operations, prior to installation of Synthetic Resilient Surfacing.
- E. GC is responsible for maintaining a secure and clean working area before, during and after the installation of the Synthetic Resilient Surfacing.

3.03 PREPARATION

Specifier Note: The outdoor asphalt base is to be prepared according to Manufacturer's current printed guidelines; it is recommended that the Specifier review said guidelines. A copy of the outdoor asphalt base preparation guidelines can be obtained from the Technical Department at Mondo America, Inc. (United States 1-800-361-3747 • Canada 1-800-663-8138). The guidelines are considered common practice for the preparation and verification of asphalt base surfaces that will receive Synthetic Resilient Surfacing, and as such should not be omitted or altered in any case.

- A. General Contractor (GC):
 - 1. GC is responsible for the installation, if any, of subbase works, drainage systems and asphalt base works, designed by others, to corrected levels, per the requirements detailed in the project drawings and specifications.
 - 2. Prepare asphalt base surface in accordance with Manufacturer's current printed guidelines.
- B. Surfacing Contractor (SC):
 - 1. SC is required to have a Technical Representative verify the suitability of the installed asphalt base, prior to the installation of the Synthetic Resilient Surfacing.

3.04 INSTALLATION

Specifier Note: Products Supplied are to be installed following their current printed guidelines; it is recommended that the Specifier review said guidelines. Copies of all installation guidelines for Products Supplied can be obtained from the Technical Department at Mondo America, Inc. (United States 1-800-361-3747 • Canada 1-800-663-8138). Installation procedures may be altered to accommodate special project needs, as deemed necessary by the Specifier and after he/she has consulted the Technical Department at Mondo America, Inc. to ensure suitability. When applicable, respect specified Association current rules and regulations for desired level of competition.

- A. Weather and Climate:
 - 1. If in the opinion of the SC, Manufacturer or Owner, weather and climatic conditions are having or will have an adverse effect on the installation; work shall be delayed until the adverse condition has passed.

B. General Contractor (GC):

1. If any, GC is to purchase and install or adjust all existing fixtures and structures, and all existing inground sports equipment. Refer to CSI Section 11 66 00 – Athletic Equipment. It shall be the GC's responsibility to see that each item is supplied and installed and/or adjusted as per the Manufacturer's specifications, respecting specified rules of the sport(s) when applicable. Any item where Synthetic Resilient Surfacing must be installed up to or on top of must be installed prior to the installation of the Synthetic Resilient Surfacing.

C. Surfacing Contractor (SC):

1. SC to sufficiently clean down all areas to be surfaced and protect all areas not to receive Synthetic Resilient Surfacing.
2. SC to install rolls of Synthetic Resilient Surfacing following Manufacturer's current printed guidelines and respecting the requirements of the Master Specification.
3. SC to install all Accessories following Manufacturer's current printed guidelines.
4. SC must provide a technical representative on-site for any technical services during the installation of the Synthetic Resilient Surfacing.

D. Line Marker (If Painting Is Specified):

1. Line Marker to paint all line markings following Manufacturer's current printed painting procedure.
2. All line markings shall be spray applied.
3. Line Marker to paint all line markings following specified requirements for the sport(s), as per the drawings and the Master Specification.

3.05 REPAIR

- A. Refer to section 1.03, point D.-1, for extra stock materials. Repair material must come from the same original dye lot as the Manufactured Product initially installed.
- B. Repairs are to be performed by SC's professionally qualified installers/technicians only.

3.06 CLEANING

- A. It is highly recommended to wait at least 6 months before performing the initial wash of Synthetic Resilient Surfacing installed outdoors. This allows the natural paraffins within the Manufactured Product to migrate to its surface. In any case, the initial wash should not occur before a minimum of 72 hours after the material has been fully installed, and a minimum of 30 days when the surface has received newly painted lines, so that the paint has time to properly cure.
- B. Always maintain the Synthetic Resilient Surfacing following Manufacturer's current printed guidelines.

3.07 PROTECTION

- A. As needed, protect Synthetic Resilient Surfacing with 1/8" Masonite during and after the installation, prior to acceptance by the Owner.

END OF SECTION