Specifier Note: the following CSI (Construction Specifications Institute) section describes the resilient flooring system to be installed over concrete, for the specific project. 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 16 and/or 09 65 19
Resilient Sheet Flooring and/or Resilient Tile Flooring

1 PART 1 – GENERAL

1.1 SUMMARY

1.1.1 Products Supplied

A. Resilient (rubber) flooring.
B. Adhesive and accessories required for installation, maintenance and repair.

1.1.2 Related Requirements

Specifier Note: the following CSI sections of the project manual are a guide to what is the essential information needed to determine the acceptability of the site conditions and details of the installation of MONDO products. 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 D2047: Standard Test Method for Static Coefficient of Friction of Polish-Coated Floor Surfaces as measured by the James Machine.
C. ASTM D2240: Standard Test Method for Rubber Property (Durometer Hardness).
D. ASTM D3389: Standard Test Method for Coated Fabrics Abrasion Resistance (Rotary Platform Abrader).
E. ASTM E648: Standard Test Method for Critical Radiant Flux of Floor Covering Systems Using a Radiant Heat Energy Source.
F. ASTM E662: Standard Test Method for Specific Optical Density of Smoke Generated by Solid Materials.

G. 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.
H. ASTM E1745: Standard Specification for Water Vapor Retarders Used in Contact with Soil or Granular Fill under Concrete Slabs.
I. ASTM F710: Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring.
J. ASTM F970: Standard Test Method for Static Load Limit.
K. ASTM F1344: Standard Specification for Rubber Floor Tile (sections 7.1-7.6, 8.4-8.6).
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 F1859: Standard Specification for Rubber Sheet Floor Covering without Backing (sections 7.1-7.6, 8.4-8.6).
O. ASTM F1869: Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride.
P. ASTM F2170: Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes.
Q. ASTM G21: Standard Practice for Determining Resistance of Synthetic Polymeric Materials to Fungi.

1.2.2 Italian Organization for Standardization (UNI- *Ente Nazionale Italiano di Unificazione*)

A. UNI EN 425: Resilient and laminate floor coverings. Castor chair test.

1.2.3 Deutsches Institut für Normung (DIN)

A. DIN 52210: Testing of acoustics in buildings; airborne impact and sound insulation; measurement of level difference.

1.2.4 International Organization for Standardization (ISO)

A. ISO 9001: Quality Management Systems - Requirements.

1.3 SUBMITTALS

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

A. Provide Manufacturer's current printed data sheets on specified products (flooring, adhesives, accessories, etc.).
B. Provide samples, 6 inches x 6 inches, for verification of such characteristics as color, texture and finish for each specified resilient flooring product.
C. As necessary, provide shop drawings prepared for project illustrating layouts, details, dimensions and other data.

1.3.1 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 specified, provide current heatwelding instructions, as published by the Manufacturer.

1.3.2 Closeout Submittals

A. Provide Manufacturer's current maintenance guidelines as published by the Manufacturer.
B. Provide Manufacturer's current standard warranty as published by the Manufacturer.

1.3.3 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 and ISO 14001.
B. Manufacturer must have experience in the manufacturing of prefabricated rubber flooring.
C. Installer must have performed installations of the same scale in the last three (3) years.
D. Installer to be recognized and approved by the rubber flooring Manufacturer.

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

E. 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 containers 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. Store tiles on a clean, dry, flat surface, carefully protecting corners and edges from all possible damage and from exposure to harmful weather conditions.
C. Recommended environmental condition for storage is a minimum of 55°F (13°C).
D. 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 rubber athletic flooring Manufacturer, as referenced herein at sections 3.2 and 3.3.
B. Maintain a stable room and subfloor temperature for a period of 48 hours prior, during and 48 hours after installation. Recommended range: 65°F to 86°F (18°C to 30°C). It is recommended that the HVAC (Heating, Ventilating and Air Conditioning) unit be operational.

C. 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).
D. Moisture and alkalinity tests must be performed. Moisture vapor emissions from the concrete slab must not exceed the tolerance of the adhesive specified, in accordance with ASTM F1869 (anhydrous calcium chloride). Relative humidity of the concrete slab must not exceed the tolerance of the adhesive specified, in accordance with ASTM F2170 (in situ probes). The pH of the concrete slab must be between 7 and 10.
E. Installation of rubber flooring will not commence unless all other trades in the building are completed. 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 rubber flooring.

1.7 WARRANTY

A. Provide Manufacturer's current standard warranty.
B. The resilient rubber flooring is warranted to be free from manufacturing defects for a period of one (1) year from the date of shipment from the Manufacturer.
C. The resilient rubber flooring is warranted against excessive wear under normal usage for a period of ten (10) years from the date installation.

2 PART 2 – PRODUCT

2.1 MANUFACTURED PRODUCTS

2.1.1 Manufacturers

A. Mondo America Inc.:

I. North America Headquarters and Manufacturing Plant, 2655 Francis-Hughes, Laval, QC, Canada. Toll Free: USA 1 800 361-3747 or CAN: 1 800 663-8138

B. Mondo USA:

I. Mondo USA, 1100 East Hector Street, Suite 160, Conshohocken, PA.

2.1.2 Description

Specifier Note: specify color of product to be used in project.

A. MONDO ONE is prefabricated rubber flooring, as manufactured by MONDO AMERICA INC. or approved equal.
B. Thickness: 0.118'' (3mm)
C. Colors: provided in 29 standard colors.
D. Texture: smooth
E. Manufactured in single layer. Shore hardness to be recommended by the Manufacturer and the limits specified.
F. Material available in sheets: 6'2" (1.90m) wide and 32'8" (10m) long, and available in tiles: 24" x 24" (61cm x 61cm).

2.1.3 Performance

A. Product tested in accordance to ASTM F1859 (rubber sheets) and/or ASTM F1344 (rubber tiles).
B. Performance of the prefabricated rubber flooring to conform to the following criteria:

Performance Criteria	Test Method	Result
Modulus @ 10% Elongation	ASTM D412-06	≥ 500 psi
Tensile Strength	ASTM D412-06	≥ 1000 psi
Coefficient of Friction	ASTM D2047-04	≥ 0.80
Hardness Shore A	ASTM D2240-05	90 ± 5
Taber Abrasion	ASTM D3389-05	< 0.5g loss
Critical Radiant Flux	ASTM E648-06	≥ 0.45 W/cm^2, Class I
Optical Density of Smoke	ASTM E662-06	< 450
Chemical Resistance	ASTM F925	Good, No Surface Attack
Static Load Limit	ASTM F970-06	≤ 0.003 in. (tested at 250psi)
Heat Stability	ASTM F1514-03	Good
Light Stability	ASTM F1515-03	Good
Fungal Resistance Test	ASTM G21-96	No growth
Effect of Castor Chairs	UNI EN 425	Suitable with wheels type W.
Sound Absorption (Footfall)	DIN 52210	9db

2.1.4 Materials

A. Provide MONDO ONE prefabricated rubber flooring manufactured by MONDO AMERICA INC. or approved equal.
B. Provide rubber surface as specified in section 2.1.2 Description.

2.2 ACCESSORY PRODUCTS

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

A. Provide adhesive certified by the Manufacturer: MP 900 acrylic adhesive, PU 105 polyurethane adhesive or EP 55 epoxy adhesive. Refer to instruction manual of adhesives provided by rubber flooring Manufacturer for suitability.
B. Patching or leveling compound to be supplied and/or recommended/approved by rubber flooring Manufacturer.
C. If specified, heat welding thread to be supplied and/or recommended/approved by rubber flooring 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 installation of the primary product.

A. Concrete subfloors to be placed a minimum of twenty-eight (28) days prior to the installation of rubber flooring.
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. The underlayment is adequate (if installing over wood subfloors, Mondo only recommends APA (Engineered Wood Association) Exterior grade plywood or CANPLY Exterior Certified plywood (Group 1, CC type).
E. It is recommended that the HVAC (Heating, Ventilating and Air Conditioning) unit be operational to reflect in-service conditions.
F. Moisture and alkalinity tests must be performed. Moisture vapor emissions from the concrete slab must not exceed the tolerance of the adhesive specified, in accordance with ASTM F1869 (anhydrous calcium chloride). Relative humidity of the concrete slab must not exceed the tolerance of the adhesive specified, in accordance with ASTM F2170 (in situ probes). The pH of the concrete slab must be between 7 and 10.
G. 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.

3.3 PREPARATION

Specifier Note: subfloors are to be prepared according to Manufacturer's written instructions. It is recommended that the Specifier review the preparation process from the Manufacturer's printed recommendations given to him/her by the Technical Department of MONDO AMERICA INC. The following are considered common practice subfloor preparation to receive floor finishing products, and as such should not be omitted or altered in any case.

3.3.1 Subfloors

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

3.4 INSTALLATION

Specifier Note: products are to be installed according to Manufacturer's written instructions. It is recommended that the Specifier review the installation process from the Manufacturer's printed installation manual or from the installation procedures given to him/her by the Technical Department of MONDO AMERICA INC. The following procedures may be altered in special project cases, as deemed necessary by the Specifier, and after having consulted the Technical Department of MONDO AMERICA INC.

3.4.1 Installation of Sheet Goods

A. Install rubber flooring in accordance with Manufacturer's current printed Installation Manual.

3.4.2 Heat Welding Seams (Optional for Sheet Goods)

A. If specified, weld seams in accordance with Manufacturer's current printed Installation Manual.

3.4.3 Installation of Tiles

A. Install rubber flooring in accordance with Manufacturer's current printed Installation Manual.

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. Initial cleaning should not be performed before a minimum of 72 hours after the rubber surface has been completely installed.
B. Maintain rubber flooring according to Manufacturer's current maintenance instructions for specified product.

3.7 PROTECTION

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