

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

*Specifier Note: **The enclosed requirements are intended for indoor installations over concrete** (or in some cases over wood). 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. Guide specifications for outdoor installations, or indoor installations over asphalt, can be obtained from the Technical Department at Mondo America, Inc.*

*Specifier Note: This Guide Specification describes the Resilient Athletic Flooring 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. Resilient Athletic Flooring.
- B. Accessories required for installation, line marking (if specified), maintenance and repair.

**1.1.2 Related Requirements**

*Specifier Note: The following CSI sections serve as a guide to what is essential information needed to determine the acceptability of the site conditions required for the installation of Resilient Athletic Flooring. 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 Association(s)**

*Specifier Note: When applicable, specify desired Association(s) for required level of competition. Specifier may omit or add any Association he/she deems necessary.*

- A. Canadian Collegiate Athletic Association (CCAA).
- B. National Collegiate Athletic Association (NCAA).
- C. National Federation of State High School Association (NFHS).
- D. International Tennis Federation (ITF).

**1.2.2 ASTM International (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 E1643: Standard Practice for Selection, Design, Installation, and Inspection of Water Vapor Retarders Used in Contact with Earth or Granular Fill Under Concrete Slabs.
- F. ASTM E1745: Standard Specification for Water Vapor Retarders Used in Contact with Soil or Granular Fill under Concrete Slabs.
- G. ASTM F387: Standard Test Method for Measuring Thickness of Resilient Floor Covering With Foam Layer.
- H. ASTM F710: Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring.
- I. ASTM F925: Standard Test Method for Resistance to Chemicals of Resilient Flooring.
- J. ASTM F1514: Standard Test method for Measuring Heat Stability of Resilient Flooring by Color Change.
- K. ASTM F1515: Standard Test Method for Measuring Light Stability of Resilient Flooring by Color Change.
- L. ASTM F1869: Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride.
- M. ASTM F2170: Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes.
- N. ASTM F3010: Standard Practice for Two-Component Resin Based Membrane-Forming Moisture Mitigation Systems for Use Under Resilient Floor Coverings.

**1.2.3 State of California (CA)**

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

**1.2.4 European Committee for Standardization (CEN)**

- A. 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.

**1.2.5 Grenelle Environment Forum**

- A. Decree № 2011-321. French decree on labeling requirement for construction materials, wall and floor coverings, and paint and varnishes, as it pertains to their emissions of volatile pollutants.

**1.2.6 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.

**1.2.7 International Organization for Standardization (ISO)**

- A. ISO 9001: Quality management systems – Requirements.
- B. ISO 14001: Environmental management systems – Requirements with guidance for use.
- C. ISO 16000-9: Indoor air - Part 9: Determination of the emission of volatile organic compounds from building products and furnishing - Emission test chamber method.

### 1.3 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](http://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).*

#### 1.3.1 Action Submittals

- A. Upon Owner request, provide a copy of Original Equipment Manufacturer (OEM)'s ISO 9001 and ISO 14001 certificates.
- B. Provide current printed technical data sheets (TDS) and guide specifications from manufacturer for all Products Supplied.
- C. Provide one (1) sample of each color of Resilient Athletic Flooring specified, for verification and approval.
- D. If line painting has been specified and upon Owner request, Flooring Contractor/Line Marker to provide samples of available paint colors for selection and approval.
- E. As necessary, General Contractor to provide shop drawings prepared for the project that illustrate layouts, details, dimensions and other pertinent data useful to the Flooring Contractor and/or Line Marker.

#### 1.3.2 Informational Submittals

*Specifier Note: When applicable, indicate to Flooring Contractor/Line Marker if line marking must meet Association requirements and provide current copy of guidelines for application with the Informational Submittals.*

- A. Provide Manufacturer's current printed substrate surface preparation guidelines.
- B. Provide Manufacturer's current printed installation guidelines for Products Supplied.

#### 1.3.3 Closeout Submittals

- A. Provide Manufacturer's current printed maintenance guidelines for Manufactured Product.
- B. Provide a numbered certificate of the current printed Mondo Limited Material Warranty for the Manufactured Product installed.

#### 1.3.4 Maintenance Material Submittals

- A. It is highly recommended to purchase extra stock material from the original dye lot used, for the purpose of facility operations and maintenance (approximately 2% of the total floor surface for each color of Manufactured Product specified).

### 1.4 QUALITY ASSURANCE

- A. Resilient Athletic Flooring must be manufactured in an ISO 9001 and ISO 14001 certified plant.
- B. Manufacturer must have a minimum of fifteen (15) years of experience in the manufacturing of prefabricated resilient rubber flooring.
- C. Manufactured Product must have undergone a vulcanization process; factory lamination should not be accepted as equivalent.
- D. Flooring Contractor to be recognized and approved by the Manufacturer.
- E. Flooring Contractor to have completed at least ten (10) multipurpose/track and field facilities in North America, and that have been properly certified (when applicable) to meet specified Association requirements for desired level of competition.

- F. Flooring Contractor 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. Flooring Contractor is responsible for immediately advising the Owner, in writing, of any restrictions or anticipated difficulty.
- G. Installer must be approved by the Flooring Contractor and must have performed installations of the same scale in the last three (3) years.
- H. Flooring Contractor must ensure that a designated Project Manager or Superintendent be on site every day to supervise the installation of the Manufactured Product. Substitution of Project Manager or Superintendent shall not be permitted.
- I. If line marking is specified, the Line Marker shall be approved by the Flooring Contractor. Painting must be done by professionals with proper experience and qualifications to effectively perform the work; Line Marker to have painted a minimum of twenty (20) multipurpose/track and field facilities in North America, and that have been properly certified (when applicable) to meet specified Association requirements for desired level of competition.
- J. Bond tests are highly recommended. When requested by Owner, specify materials needed for desired size of mock-up installation; always follow the same procedures and use the same materials that have been specified for the actual project. The Owner will be responsible for deeming the mock-up acceptable.

- Minimum mock-up size: 12 inch by 12 inch (30 cm by 30 cm)

### **1.5 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 Resilient Athletic Flooring 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). Materials must be delivered to site a minimum of 24 hours before work is scheduled to begin so that they may acclimate.
- 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 delivery, storage and handling (i.e. dents/scratches, excessive compression or warping, chipped edges, etc.).

### **1.6 SITE CONDITIONS**

- A. The General Contractor or Construction Manager shall be responsible for ensuring all site conditions meet the Manufacturer's requirements, as referenced herein at sections 3.2 and 3.3. Refer to current version of ASTM F710 for additional information.
- B. Concrete slabs, on or below grade, must be installed over a permanent effective vapor retarder, respecting current versions of the standard practice ASTM E1643 and the standard specification 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 mil (0.010 in).
- C. No sealers or curing compounds are applied to or mixed into the concrete (refer to Section 03 05 00 – Common Work Results for Concrete of Division 3).
- D. Installation of the Resilient Athletic Flooring to be carried out no sooner than the specified curing time of the concrete (normal density concrete curing time is approximately 28 days for development of design strength, having a minimum 3500 psi or 25 MPa in compressive strength).

- E. Substrate surface must be free of all contaminants that can inhibit bond (paint, wax, dust, oil or grease, sealer, curing compound, solvent, asphalt, old adhesive residues, etc.). All contaminants must be removed from the surface via mechanical abatement. Use of abatement chemicals is not recommended.
- F. Concrete must have a smooth finish, proper density and be highly compacted with a tolerance of 1/8<sup>th</sup> of an inch in a 10-foot 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 the current version of ASTM F2170 (in situ probes). Moisture vapor emissions from the concrete slab must not exceed the tolerance of the adhesive specified, in accordance with the current version of ASTM F1869 (anhydrous calcium chloride). Where tolerances are exceeded and a moisture mitigation system will be specified, refer to ASTM F3010.
- H. If installing over a wood base, 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 stable room and substrate temperatures prior to moisture testing and Resilient Athletic Flooring installation, during the installation, as well as a minimum of 48 hours after the Resilient Athletic Flooring has been completely installed. Recommended ambient temperature range is between 65°F and 86°F (18°C and 30°C) and recommended ambient humidity range is between 35% and 55%.
- J. Installation of Resilient Athletic Flooring will 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 Resilient Athletic Flooring.

## **1.7 LIMITED WARRANTY**

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

## **2 PART 2 – PRODUCTS**

### **2.1 MANUFACTURED PRODUCT**

#### **2.1.1 Manufacturer**

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

### 2.1.2 Description

*Specifier Note: Specify color(s) and width(s) required. Manufactured Product width and length to minimize joints in all areas. If line markings is specified, side and/or head joints to be located under line markings whenever possible.*

- A. Sportflex M is prefabricated rubber athletic flooring, 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 system of differential elasticity between top surface and base, as manufactured by Mondo S.p.A.
- B. Manufactured in two layers which are vulcanized together. The shore hardness of the wear layer (top layer) will be greater than that of the bottom layer; shore hardness of layers to be recommended by the Manufacturer and shall respect the requirements specified.
- C. Thickness: 0.394 in. (10 mm).
- D. Colors: Available in standard, solid background colors. Consult standard colors for indoor applications.
- E. Surface Texture: ATS embossing.
- F. Format: Sheets available in widths from 3' (0.92 m) to 6' (1.83 m) and with an average length of 49'2" (15 m) long [minimum 19'8" (6 m)/maximum 52'5" (16 m)].

### 2.1.3 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 requirements column listed in the table below. WARNING: Any result posted regarding fire safety and any indoor air quality certificate awarded only applies to indoor installations over concrete, and to Mondo products designed for this purpose.*

- A. When applicable, refer to Association performance requirements for desired level of competition.
- B. Performance of Manufactured Product to conform to the listed Requirements:

| Performance Criteria                                | Test Methods  | Requirements                            | Results*                                |
|---|---------------|---|---|
| Elongation at Break                                 | ASTM D412     | ≥100%                                   | >160%                                   |
| Tensile Strength                                    | ASTM D412     | ≥75 psi                                 | >140 psi                                |
| Hardness of wear layer (Shore A durometer)          | ASTM D2240    | 55 ±5                                   | 55 ±5                                   |
| Hardness of backing (Shore A durometer)             | ASTM D2240    | 40 ±5                                   | 40 ±5                                   |
| Abrasion Resistance (H18 wheel, 1000g, 1000 cycles) | ASTM D3389    | ≤2.0 g                                  | ≤1.2 g                                  |
| Critical Radiant Flux                               | ASTM E648     | ≥0.1 W/cm <sup>2</sup>                  | ≥0.45 W/cm <sup>2</sup> (Class 1)       |
| Thickness   | ASTM F387     | 10 mm (±0.3 mm)<br>0.394 in (±0.011 in) | 10 mm (±0.3 mm)<br>0.394 in (±0.011 in) |
| Resistance to Chemicals**                           | ASTM F925     | ≤ Slight Change                         | Compliant                               |
| Heat Stability                                      | ASTM F1514    | ≤8.0 ΔE                                 | Compliant                               |
| Light Stability                                     | ASTM F1515    | ≤8.0 ΔE                                 | Compliant                               |
| Slip/Skid Resistance (Dry)                          | EN 13036-4    | 80-110                                  | 90                                      |
| Slip/Skid Resistance (Wet)                          | EN 13036-4    | 55-110                                  | 79                                      |
| Indoor Air Quality: CA 01350                        | CA: V1.2-2017 | Compliant                               | Compliant                               |
| Indoor Air Quality: Greenguard Certification        | CA: V1.2-2017 | Compliant                               | Compliant                               |
| Indoor Air Quality: Greenguard Gold                 | CA: V1.2-2017 | Compliant                               | Compliant                               |
| Indoor Air Quality: French Decree N° 2001-321       | ISO 16000-9   | Compliant                               | Compliant                               |

\*Result from third-party testing can vary between production lots, laboratories and methods, and as such 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.

\*\*For the complete list of chemicals tested, concentrations and contact time, please communicate with Mondo's Technical Department.

#### **2.1.4 Limitations**

- A. Sportflex M is not resistant to athletic footwear with spikes.

#### **2.1.5 Materials**

- A. Resilient Athletic Flooring: Sportflex M manufactured by Mondo S.p.A., as specified in section 2.1.2 Description.

### **2.2 ACCESSORIES**

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

- A. Adhesive certified by Manufacturer: Mondo PU 105 (polyurethane) over concrete (or wood when applicable). For suitability, recommendations and use, please refer to the specified adhesive's current printed technical data sheet. In some cases, Mondo EP 55 (epoxy) may be used in areas that have not been specified to receive Everlay, that will not be subject to surface impacts (such as falling free weights), and that will not have heavier dynamic loads (such as bleachers). For acceptable installations over Mondo Everlay products (where surface impacts and heavier dynamic loads are not a concern), please consult Mondo's Technical Department for current adhesive recommendations for these products.
- B. Portland cement based patching or leveling compound to be recommended/approved by Manufacturer.
- C. If line marking is specified, all painting products are to be recommended/approved by 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 Resilient Athletic Flooring installation.*

- A. Prior to Resilient Athletic Flooring installation, ensure substrate is ready to receive resilient flooring and has been prepared according to Manufacturer's current substrate surface preparation guidelines. Refer to current version of ASTM F710 for complimentary information.
- B. Ensure that concrete slabs, on or below grade, are installed over a permanent effective vapor retarder, respecting current versions of the standard practice ASTM E1643 and the standard specification 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 mil (0.010 in).
- 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. Installation of the Resilient Athletic Flooring to be carried out no sooner than the specified curing time of the concrete (normal density concrete curing time is approximately 28 days for development of design strength, having a minimum 3500 psi or 25 MPa in compressive strength).

- E. Ensure that concrete surface is free of any contaminant that could inhibit bond (paint, wax, dust, oil or grease, sealer, curing compound, solvent, asphalt, old adhesive residues, etc.). All contaminants must be removed from the surface via mechanical abatement. Use of abatement chemicals is not recommended.
- F. Confirm concrete has a smooth finish, proper density and is highly compacted with a tolerance of 1/8<sup>th</sup> of an inch in a 10-foot radius (3.2 mm in a 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 the current version of ASTM F2170 (in situ probes). Moisture vapor emissions from the concrete slab must not exceed the tolerance of the adhesive specified, in accordance with the current version of ASTM F1869 (anhydrous calcium chloride). Where tolerances are exceeded and a moisture mitigation system will be specified, refer to ASTM F3010.
- H. If installing over a wood base, 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. Ensure room and substrate temperatures are maintained prior to moisture testing and Resilient Athletic Flooring installation, during the installation, as well as a minimum of 48 hours after the Resilient Athletic Flooring has been completely installed. Recommended ambient temperature range is between 65°F and 86°F (18°C and 30°C) and recommended ambient humidity range is between 35% and 55%.
- J. Installation of Resilient Athletic Flooring will 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 ensure that a secure and clean working area is maintained before, during and after the installation of the Resilient Athletic Flooring.

### 3.3 PREPARATION

*Specifier Note: The surface of the concrete (or wood when specified) is to be prepared according to Manufacturer's current printed guidelines; it is recommended that the Specifier review said guidelines. A copy of the substrate surface 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 concrete substrates that will be receiving Resilient Athletic Flooring, and as such should not be omitted or altered in any case.*

- A. Prepare concrete substrate surface (or wood when applicable) in accordance with Manufacturer's current printed guidelines.

### 3.4 INSTALLATION

*Specifier Note: Products Supplied are to be installed following the manufacturer's 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, refer to Association rules and regulations for desired level of competition.*

- A. Install sheets of Resilient Athletic Flooring following Manufacturer's current printed guidelines.



- B. Install all accessories following Manufacturer's current printed guidelines.
- C. If line painting has been specified, Line Marker to paint all lines following the manufacturer's current printed guidelines, respecting any drawing(s) and the Project/Master Specification requirements. All lines markings shall be spray-applied.

### **3.5 REPAIR**

- A. Refer to section 1.3.4 Maintenance Materials. Repair material must come from the same original dye lot as initially installed Resilient Athletic Flooring.
- B. Repairs are to be performed by Flooring Contractor's qualified installers/technicians only.

### **3.6 CLEANING**

- A. Always wait at least a minimum of 72 hours after the Resilient Athletic Flooring has been completely installed before performing initial maintenance. Always maintain the Resilient Athletic Flooring following Manufacturer's current printed guidelines.
- B. For surfaces having received newly painted lines, wait a minimum of 30 days after the application of the paint to ensure its proper curing before going over the surface with a scrubber/scrubbing the lines.

### **3.7 PROTECTION**

- A. As needed, protect Resilient Athletic Flooring with 1/8<sup>th</sup> inch Masonite during and after the installation, prior to acceptance by Owner.
- B. Preserve the integrity of the installation and protect against direct sunlight/UV exposure; always ensure that windows and glass doors have inherent UV protection and/or are fitted with blinds/UV film.