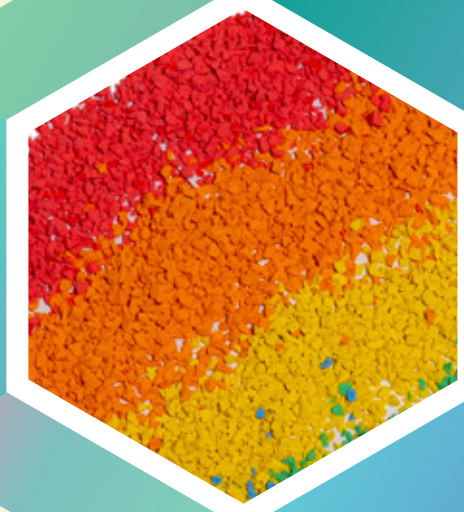
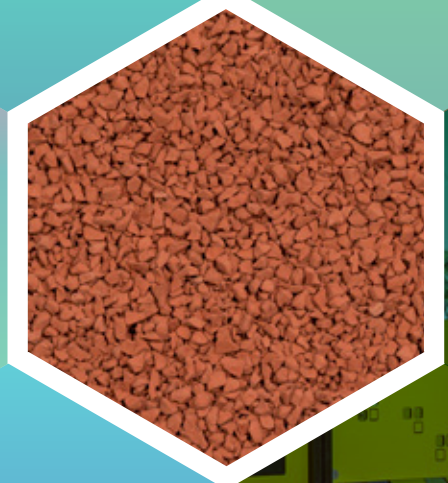
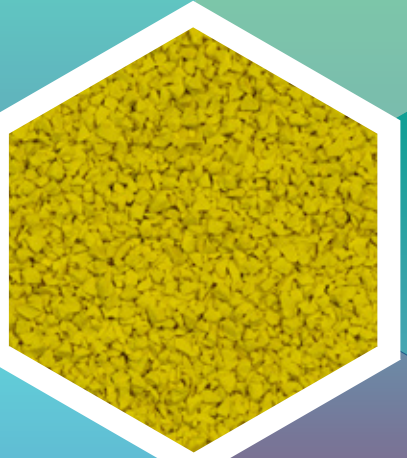
SUNFLEX POURED RUBBER SURFACING INSTALLATION GUIDE

Sun-Flex®
Rubber Flooring







Premium Sunflex **EPDM Rubber Granules** of superior performance.

PART 1 – OVERVIEW

1.0 WORK SCOPE

(A) Provide the labour, materials, and equipment required to install the poured-in-place, resilient surfacing system as detailed in the drawings and outlined in this document.

(B) The scope of work encompasses, but is not restricted to, the following: layout; excavation; backfill; supplying and installing base material; supplying and installing poured-in-place, resilient surfacing, along with all other related tasks to ensure a comprehensive resilient surfacing system.

(C) The poured-in-place playground surfacing will be composed of a polyurethane binder blended with recycled rubber, forming the attenuation cushion layer. The attenuation cushion layer is topped with EPDM granules, blended with a polyurethane binder to form the Wear Course.

(D) Surfaces must adhere to ADA, CPSC, ISO guidelines, in addition to meeting ASTM Standards. The manufacturer will obtain certification from IPEMA, an independent testing organisation specialising in playground surfaces and equipment.

1.2 PERFORMANCE REQUIREMENTS

(A) Area Safety: Poured in place within playground use zones must comply with or surpass the performance standards set by the CPSC, ADA, and Fall Height Test ASTM F1292-18. The surface is required to achieve a peak deceleration not exceeding 200 G-max and a Head Injury Criteria (HIC) value of no more than 1,000 for a head-first fall from the highest accessible part of the play equipment as illustrated in the drawings. IPEMA certification is essential.

(B) The laboratory test for determining critical fall height must be performed on surfacing material samples that are identical in design, materials, components, and thickness to those used in the installed playground surface, as outlined in ASTM F1292-18, section 15.

(C) Inclusivity: IMPORTANT: Outdoor play areas for children must adhere to the Uniform Federal Accessibility Standards (UFAS) FED-STD-795 and the Architectural and Engineer Instructions (9AEI) Design Criteria.

(D) The stipulations outlined in the Americans with Disabilities Act. Children's outdoor play areas must also adhere to the Accessibility Guidelines (ADAAG) 28 CFR Part 36, ensuring equal or greater accessibility than the requirements of UFAS.

(E) Surfaces that are poured in place and designed to provide accessible pathways for individuals with disabilities must be firm, stable, and slip-resistant, adhering to the standards set forth in ASTM F 1951-14 and ASTM F1292-18.

1.3 APPLICABLE STANDARDS

(A) ASTM International

(B) ASTM D2047- Standard test method for determining the static coefficient of friction of ceramic tile and other like surfaces by the horizontal dynamometer pull meter method. This standard replaces ASTM C1028.

(C) ASTM D412 – Standard test methods for vulcanized rubber and thermoplastic rubber sand thermoplastic elastomers-tension.

(D) ASTM D624 - Standard test method for tear strength of conventional vulcanized rubber and thermoplastic elastomers.

(E) ASTM D2859 – Standard test method for flammability of finished textile floorcovering materials.

(F) ASTM E303 – Standard test method for measuring surfacing frictional properties using the British Pendulum tester.

(G) ASTM F1292-18 – Standard specification for impact attenuation of surface systems under and around playground equipment.

(H) ASTM F1951 – Standard specification for determination of accessibility of surface systems under and around playground equipment.

1.4 Poured in place surfaces must be produced and installed by personnel who are both trained and experienced, specifically company employees or certified installers who have successfully completed the "Certified Installers Training Program" or possess comparable experience exceeding three years.

PART 2-PRODUCTS

2.0 Product Scope

(A) The poured in place surface will comprise a blend of recycled rubber combined with a polyurethane binder, subsequently topped with Sunflex EPDM granules that are mixed with either an aliphatic or aromatic binder.

(B) The composition shall be of a consistent material crafted to ensure that the upper section adheres to the stipulated criteria for the wear surface as outlined herein.

(C) The safety surfacing shall be a poured-in-place system, as specified in the drawings.

2.1 ATTENUATION BOTTOM/CUSHION LAYER SECTION

(A) The impact attenuation cushion layer is composed of materials such as recycled styrene butadiene rubber (SBR) and/or cryogenic crumb rubber, which are bonded together with a 100% solids polyurethane binder to create a resilient and porous substance.

(B) The thickness of SBR strands may range from 0.5 mm to 2.0 mm, with lengths varying between 3.0 mm and 20 mm.

(C) Chunk Premium Black Rubber Granules consist of 5/8" granules. This material is derived from pre-consumer, post-industrial reclaimed rubber, processed through a 5/8" screen, and contains less than 2% dust.

(D) The SBR Crumb Rubber (5-9 Mesh) is subjected to sieve analysis in accordance with ASTM D5644, exhibiting a fibre content of 0.1% or less incorporated within the mixture.

(E) The binder must constitute 18-20% of the overall weight of the material, ensuring complete coverage of the particles.

(F) The attenuation cushion layer must exhibit compatibility with the wear course and adhere to the specified requirements for impact attenuation as outlined herein.

2.2 WEAR/TOP COURSE LAYER

(A) The wear course will comprise Ethylene Propylene Diene Monomer (EPDM) granules combined with a polyurethane binder, meticulously designed to yield a consistent, uniform, and seamless surface. The installation of surfacing must be executed in a seamless manner, unless an alternative arrangement has been mutually agreed upon by the owner.

(B) EPDM will undergo peroxide curing, featuring an EPDM content of 20-23%. Additionally, it will incorporate a processing aid to mitigate hardness, alongside 20-23% poly content to preserve dynamic testing characteristics, weatherization, and UV stability.

(C) ASTM D2240 (Shore A) hardness of 55-65, not less than 26 percent rubber hydrocarbons.

(D) Size of EPDM granules shall be 1-4mm across. Binder shall be not less than 20% of total weight of rubber used in the wear surface and shall provide 100% coating of the particles.

(E) Thickness of wear course shall be a minimum .5” (12.7 mm).

(F) The wear course shall be porous.

2.3 POLYURETHANE BINDER

(A) No Toluene Diphenyl Isocyanate (TDI) shall be used.

(B) No filler materials shall be used in urethane such as plasticizers and the catalyzing agent shall contain no heavy metals.

(C) Polyurethane Binder percentage should be total 20% of the epdm rubber granules/SBR weight.

(D) Manufacturer is permitted to modify the type of urethane required to match extreme weather conditions. Substitutions must be equal to or exceed original quality.

PART 3 – SITE/PROJECT/LOCATION EXECUTION

3.0 – SITE PREPARATION

(A) Completed Grade/Slope: Confirm that the final elevations or surrounding areas align with the specifications outlined in the architectural or site plans, that the correct sub-grade elevation has been set for the installation of the safety surface, and that the subsurface has been constructed in accordance with the architectural, site, or equipment plans, while adhering to the requirements for accessibility and use zones.

(B) The tolerance for the aggregate sub-base must be maintained within a depth of 0.5 inches. Ensure that the aggregate sub-base has achieved complete compaction. According to the guidelines set forth by the ADA: Compacted aggregate sub-base consists of 4 inches of 0.75-inch minus irregular stone, incorporating fines that are compacted to 95% in 2-inch watered lifts.

(C) The tolerance for the concrete or bituminous sub-base shall be maintained at .125” (3.0 mm) over a span of 10’ (3050 mm). According to the guidelines set forth by the ADA: Concrete should be a minimum of 3" to 4" thick, with a compressive strength of at least 2500 PSI. The curing period for concrete should extend for a duration of 7 days before the application of the attenuation cushion layer is undertaken. The curing period for concrete must extend to 21 days if the wear course is to be applied directly to the concrete surface. Should in situ surfacing be implemented, it is imperative to ascertain

that the concrete sub-base has adequately cured (with all areas typically exhibiting a white hue after approximately 7 days) and that any concrete curing compounds or other harmful substances that could negatively impact adhesion have been thoroughly eliminated. The surface must be devoid of any contaminants and thoroughly dry.

(D) The curing period for asphalt sub-base necessitates a duration of 21 to 28 days. Upon the completion of the curing process for the new asphalt, it is imperative that a thorough pressure washing is conducted before the installation of the surfacing takes place. The contractor shall assume responsibility for inundating the pad to guarantee appropriate slope and tolerance. Any areas containing sufficient water to submerge a flat nickel must be addressed and patched before the arrival of our installation teams.

(E) Drainage: Confirm that the necessary sub-surfacing drainage has been implemented to ensure effective drainage.

3.1 – INSTALLATIONS

(A) Cast in Situ Surfacing: The elements of the poured-in-place surfacing must be combined on-site using a rotating tumbler to guarantee that the components are uniformly blended and comply with the manufacturer's specifications. The installation of surfacing shall be conducted seamlessly, achieving up to 2,000 square feet per day. The material must encompass all foundations and adequately fill around all elements that penetrate the surface.

(B) The attenuation cushion layer of surfacing material should, whenever feasible, be installed in a single continuous pour, covering an area of up to 2,000 square feet on the same day. In instances where a second pour becomes necessary, it is imperative to step the seam (refer to the detail) and thoroughly coat the step of the preceding work with polyurethane binder to guarantee a complete bond with the new work. Administer the adhesive in modest amounts to ensure the new attenuation cushion layer can be positioned prior to the adhesive's drying process.

(C) The wear course should consist of high-quality peroxide-cured EPDM granules. The wear surface is to be affixed to the attenuation cushion layer. If required, supplementary primer will be applied between the attenuation cushion layer and the wear course. Apply adhesive to the attenuation cushion layer in modest amounts, ensuring that the wear course can be applied prior to the adhesive's drying. The surface is to be meticulously hand troweled to achieve a smooth and uniform finish. Anticipate a continuous and seamless application covering up to 2,000 square feet per day. For seamless installations exceeding 2,000 square feet, please consult a sales representative. In instances where seams are necessitated by variations in colour, size, or challenging weather conditions, a step configuration will be meticulously designed to uphold the integrity of the wear course. The perimeter of the initial pour must be treated with adhesive, followed promptly by the application of the wearing surface mixture. Pads featuring multiple seams are advised to receive a topcoat of urethane prior to their utilisation. Butt joint seams are deemed unacceptable, save for instances of repair. Under specific circumstances and with the written consent of the Owner, seams may be allowed in the same colour pad. Engage with the manufacturer for tailored applications.

(D) The perimeter for installations atop existing concrete must be saw cut to create a keyway measuring 1” in depth and 1” in width, or alternatively, it may be formed during the pour, with the surfacing compacted into the void. It is essential to apply primer adhesive to every side of the void. In the process of establishing a connection to a concrete curb or border, it is imperative that the inner vertical edge is treated with adhesive. Furthermore, the last 2 inches of the attenuation cushion layer must be tapered, ensuring that the thickness of the wear surface material at the junction with the concrete is maintained between 1.5 and 2 inches.

(E) When laying new asphalt, it is advisable to incorporate a curb or similar border around the entire pad to effectively delineate the new surface from the surrounding ground materials. It is essential to apply primer adhesive to the inner vertical edge of the border prior to the installation of the poured in place surface.

(F) Asphalt: When overlaying existing asphalt, it is essential to execute a keyway cut measuring 1" in depth and 1" in width to facilitate a seamless taper for the poured material, ensuring it concludes with the mandated ADA slope.

(G) Thickness: It is imperative that construction techniques, including the application of measured screeds or guides, are utilised to guarantee the complete installation of the specified surfacing material at the required depth. The thickness of the surfacing system within the playground equipment use zone must be established to comply with the impact attenuation criteria outlined in this document.

(H) Clean Up: Manufacturer installers are expected to take measures to reduce the presence of excessive adhesive on surrounding surfaces or play equipment. Excess adhesive spills must be addressed and cleaned without delay.

(I) Protection: The safety surface must be permitted to completely cure in accordance with the Manufacturer's specifications. The owner is responsible for safeguarding the surface from all traffic for a minimum duration of 48 hours during the curing period, or as directed by the Manufacturer.

(J) Manufacturer Services: For poured-in-place safety surfacing, it is essential to provide a representative from the manufacturer who possesses extensive experience in the installation of playground safety surfacing. The representative will oversee the installation to guarantee that the system complies with the specified impact attenuation requirements outlined herein.

3.2- SITE AREA CLEAN UP

The premises must be maintained in a state of cleanliness, devoid of tools, refuse, and debris, as well as installation materials, on a daily basis. Products may be retained on the premises throughout the installation process, provided that suitable protective measures are implemented and sanctioned by the Owner's representative.

END OF SECTION