

FlexGround FlexTop 1.5"

Poured In Place Safety Surfacing

Manufacturer's Specifications

This document provides the specifications for a poured in place safety surfacing re-top system composed of a wearing layer upper membrane and an underlying impact attenuation cushion layer.

There are variations in the final specifications as required by the Client.

PART 1 – GENERAL

1.01 Work Included

Provide all labor, materials, and tools necessary for the complete installation of a poured in place safety surfacing system as outlined in these specifications. The system should consist of but not necessarily be limited to the following:

- A. Section includes: Resilient playground surfacing poured-in-place system.
- B. Related work: Playground equipment and resilient playground surfacing sub base.
- C. Quality Assurance: Manufacturer should have manufactured and installed playground poured-in-place safety surfaces for a minimum of 3 years. The installation of the poured-in-place product should be completed by FLEXGROUND. Manufacturer's detailed installation procedures should be submitted to the Architect and made part of the Bid Specifications.

1.02 Submittals

Prospective manufacturers and/or installers of the poured in place safety surfacing system should be required to comply with the following:

- D. The manufacturer must be experienced in the manufacturing of a poured in place safety surfacing system and provide references of five (5) specific installations in the last three (3) years.
- E. The installer must provide competent workmen skilled in this specific type of poured in place safety surfacing system installation. The designated supervisory personnel on the project must be competent in the installation of this material, including mixing of the materials, and spreading and compacting the materials correctly.
- F. Manufacturer should provide written instructions for recommended maintenance practices.
- G. Manufacturer should submit color samples for customer verification.

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1.03 Definitions

- A.** EPDM granules: EPDM rubber (ethylene propylene diene monomer (M-class) rubber), a type of synthetic rubber, is an elastomer characterized by a wide range of applications. The M refers to its classification in ASTM standard D-1418; the M class includes rubbers having a saturated chain of the polymethylene type.
- B.** Critical Fall Height: A critical fall height (CFH) is the maximum height of fall from play equipment to the ground. It is important to note that safety surfaces do not prevent injury but aim to lessen the severity of any injury that may occur on falls from height.
- C.** Fall Height: Fall height is a measurement defined as the vertical distance between a designated play surface and the protective surfacing beneath it.
- D.** TPV: Thermoplastic Vulcanized Elastomer. Developed using resin and synthetic rubber with higher UV stabilization.
- E.** SBR: Styrene-butadiene or styrene-butadiene rubber (SBR) describe families of synthetic rubbers derived from styrene and butadiene.

1.04 ASTM Testing Standards – FlexGround Standard meets or exceeds all required ASTM standards below.

- A.** ASTM D624 Standard Test Method for Tear Strength of Conventional Vulcanized Rubber and Thermoplastic Elastomers.
- B.** ASTM D2859 Standard Test Method for Flammability of Finished Textile Floor Covering Materials
- C.** ASTM E303 Standard Test Method for Measuring Surface Frictional Properties Using the British Pendulum Tester
- D.** ASTM F1292 Standard Specification for Impact Attenuation of Surface Systems Under and Around Playground Equipment
- E.** ASTM F1951 Standard Specification for Determination of Accessibility of Surface Systems Under and Around Playground Equipment
- F.** ASTM C1028 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 D2047
- G.** ASTM D412 Standard Test Methods for Vulcanized Rubber and Thermoplastic Rubbers and Thermoplastic Elastomers- Tension

1.05 Warranty and Maintenance

The bidder and/or poured in place safety surfacing manufacturer must provide the following:

- A. The poured in place safety surfacing manufacturer should provide a warranty to the owner that covers defects in materials and workmanship of the rubber for a period of 2 years from the date of Substantial Completion.
- B. The manufacturer's warranty should include general wear and tear. The warranty should specifically exclude vandalism, acts of War and acts of God beyond the control of the owner or the manufacturer.
- C. The bidder should provide a warranty to the owner that covers defects in the installation workmanship, and further warrant the installation was done in accordance with the manufacturer's recommendations.
- D. All poured in place warranties should be limited to repair or replacement of the affected areas and should include all necessary materials, labor, transportation costs, etc. to complete said repairs. All warranties are contingent on the full payment by the owner of all pertinent invoices.
- E. The installer should clean the jobsite of excess materials and if necessary backfill any excavation around the perimeter with earth or other appropriate fill material.
- F. The manufacturer should instruct the owner's personnel on proper maintenance and repair of the FLEXTOP safety surface.

PART 2 – FLEXTOP MATERIAL

The FLEXTOP poured in place safety surfacing system should be in accordance with the following:

- A. A dual durometer poured in place system with a wearing layer upper membrane and an underlying impact attenuation cushion layer. The finished surface should be porous.
- B. FLEXGROUND primer is a 100% solids urethane primer/sealer. It is designed with low viscosity and penetrating abilities making this an ideal priming urethane.
- C. The cushion layer should be a mixture of black recycled SBR rubber buffings mixed with a 100% solids moisture cured MDI Polyurethane binder or aliphatic (100 pounds of SBR rubber buffings to 12 pounds of binder) installed at the appropriate thickness. As an upgrade, or if recycled SBR rubber buffings are not available, 5/8" chunk rubber with correct amount of urethane for impact attenuation and longevity may be used. **Chunk rubber shall not include SBR derived from rubber tires.** It must be high quality preconsumer recycled rubber containing EPDM. The cushion layer should be porous.
- D. The FLEXTOP wearing surface should be manufactured from a mixture of a 1-3 mm virgin peroxide cured Ethylene Propylene Diene Monomer (EPDM) rubber granules or manufactured from 1-4 mm Thermoplastic Vulcanized (TPV) virgin colored rubber mixed with 100% solids moisture cured Polyurethane binder bonded by FLEXGROUND binder, 100% solids moisture cured Polyurethane

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binder (110 pounds of EPDM/TPV to 20 pounds of binder), and applied to a minimum thickness of ½" (12.7 mm) over the cushion layer.

- E. The system color should be selected from Manufacturer's Color Chart by owner prior to bid.

PART 3 – EXISTING RUBBER PREPARATION

The FLEXTOP site preparation and base should be in accordance with the following:

- A. Major damage to existing pad shall be repaired prior to application of FLEXTOP.
- B. Excavate existing rubber surface 6-24" along entire edge. Cuts shall be made at a 45 degree angle.

PART 4 – EXECUTION AND INSTALLATION

The poured in place safety surfacing installer should strictly adhere to the installations procedures outlined under these sections. Any variance from these requirements should be accepted in writing by the manufacturer's onsite representative, and submitted to the architect/owner, verifying that the changes do not in any way affect the warranty.

4.01 Perimeter

- A. A urethane primer should be applied to concrete, asphalt or wood surfaces at a rate of 200-250 square feet per gallon. The entire area does not need to be primed at once, instead, prime about 700 square feet at a time. This procedure should be continued until all areas are complete.
- B. The urethane primer should be applied to any playground equipment that will be surrounded by the poured in place safety surfacing system.

4.02 Cushion Layer

- A. The components of the poured in place safety surfacing should be mixed on site in a mixer to ensure a comprehensive mix according to manufacturer's instructions.
- A. The cushion layer comprised of SBR buffings shall be mixed with the MDI moisture cure polyurethane binder at a rate of 12% of the total weight of the material thoroughly so that the binder is evenly dispersed into the rubber base.
- B. The cushion layer comprised of non-tire derived SBR & EPDM Chunk Rubber shall be mixed with the appropriate amount of urethane so that the binder is evenly dispersed into the rubber base.
- C. The cushion layer mix should then be spread and troweled to the desired depth and allow to cure for 24 hours.

4.03 Wear Course Layer

- A. The wear course layer should be mixed with 1-3 mm EPDM or 1-4 mm TPV granules and urethane binder at a rate of 20% of the total weight of the materials so the granules are covered thoroughly and evenly.
- B. The wear course layer mix should be spread and trowelled over cushion layer to a depth of a half inch ($\frac{1}{2}$ ") and must terminate flush with connecting surface.
- C. Where seams are required due to color change, a step configuration will be constructed to maintain wear surface integrity.
- D. The finished texture should be slip resistant, smooth and even.
- E. The poured in place surface should be allowed to cure for 24-72 hours or until dry to the touch.

PART 5 – SITE (GENERAL)

- A. Trailer/ Large truck access will be necessary for the installation. In the case that access for trailer/truck is not available the owner or general contractor will be responsible for transporting material to the job site.
- B. Crew is responsible for protecting the surface only while on site. General Contractor or owner shall be responsible for the security of the surfacing overnight during installation, as well as during the surfacing's curing period upon completion of the install.
- C. Crew will leave site clean and shall remove all trash and debris.
- D. Owner/General contractor shall provide a dumpster for all waste and trash.

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