

# **FLEXGROUND EnduraFlex Poured In Place Safety Surfacing**

## **Manufacturer's Specifications**

This document provides the specifications for a poured in place safety surfacing 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) 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 shall 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 shall have manufactured and installed playground poured-in-place safety surfaces for a minimum of 3 years, and meet current ASTM F-1292-09 Test Criteria. The installation of the poured-in-place product shall be completed by FLEXGROUND, LLC. Manufacturer's detailed installation procedures shall be submitted to the Architect and made part of the Bid Specifications.

#### **2) Submittals**

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

- a. 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.
- b. 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.
- c. Installation should be in accordance with ASTM F1292-09 for Impact Attenuation of surface system under and around playground equipment. The poured-in-place system to be installed in compliance with the Critical Fall Height as determined by the Playground Equipment to be installed in conjunction with the poured-in-place surfacing system.
- d. Product must be manufactured and installed by an entity or company wholly owned and operated by Arizona based principals. Such requirement shall extend to any "parent" company or entity.
- e. Manufacturer should provide written instructions for recommended maintenance practices.
- f. Manufacturer should submit color samples for customer verification.

### **PART 2 – ENDURAFLEX MATERIAL**

The ENDURAFLEX poured in place safety surfacing system shall 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 shall be porous and capable of being installed at varying thickness to comply with Critical Fall Height requirements of playground equipment installed in conjunction with the surface.

- b. FLEXGROUND primer is a 100% solids urethane primer/sealer. It is designed with a low viscosity and penetrating abilities makes this an ideal priming urethane.
- c. The cushion layer shall 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. The cushion layer shall be porous.
- d. The ENDURAFLEX wearing surface should be manufactured from 1-3 mm Thermoplastic Vulcanized (TPV) virgin colored rubber mixed with aliphatic urethane binder (110 pounds of TPV to 22 pounds of binder).
- e. The system color should be selected from Manufacturer's Color Chart by owner prior to bid.

### **PART 3 – SITE PREPARATION AND BASE**

The ENDURAFLEX site preparation and base shall be in accordance with the following:

- a. The sub-base will have a slope of 0.2%.
- b. The base aggregate shall consist of a minimum of four inches (4") free-draining stone compacted to 95%. Finish slope of porous aggregate should be 0.2% from the centerline of the area to the perimeter, and the grade should not vary more than a quarter inch ( $\frac{1}{4}$ ") in ten feet (10').
- c. The sub base shall be installed in two inch (2") lifts to appropriate thickness.
- d. The sub-base shall be compacted using vibrating tamper, to approximately 95% Proctor density.
- e. The sub-grade should no longer have any vegetation.
- f. Subgrade prior to aggregate installation: Sublevel grade is to be compacted prior to the ABC aggregate installation. Particular attention should be paid to areas of disturbed earth such as where footers for playground equipment enter the ground. Concrete should be poured to the top of sublevel surface.
- g. The poured in place safety surfacing manufacturer and architect will accept the aggregate base in writing prior to the installation of the poured in place system.
- h. Any alterations must be agreed between all parties.
- i. Hard Base Construction: For concrete surfaces, shot blast, acid etch or power scarify as required to obtain optimum bond of the Cushion Layer to the concrete. Remove sufficient material to provide a sound surface, free of glaze, efflorescence, or form release agents. Remove grease, oil, and other penetrating contaminants.

### **PART 4- EXECUTION AND INSTALLATION**

The poured in place safety surfacing installer shall strictly adhere to the installations procedures outlined under these sections. Any variance from these requirements shall 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.

#### **1) 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.

#### **2) 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.

- b. The cushion layer should be mixed with SBR buffings and the MDI moisture cure polyurethane binder at a rate of 12% of the total weight of the material thoroughly so that binder is evenly dispersed into the rubber base.
- c. The cushion layer mix should then be spread and trowelled to the desired depth and allow to cure for 24 hours.

### **3) Wear Course Layer**

- a. The wear course layer should be mixed with 1-3 mm TPV granules and aliphatic 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 to a depth of a half inch ( $\frac{1}{2}$ " ) immediately after the application of primer
- 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 – 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 shall provide a warranty to the owner that covers defects in materials and workmanship of the rubber for a period of five years from the date of Substantial Completion.
- b. The manufacturer's warranty shall include general wear and tear. The warranty shall specifically exclude vandalism, acts of War and acts of God beyond the control of the owner or the manufacturer.
- c. The bidder shall 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 shall be limited to repair or replacement of the affected areas and shall 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 shall 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 shall instruct the owner's personnel on proper maintenance and repair of the ENDURAFLEX safety surface.