

FlexGround FlexGrass

Premier Turf

Poured In Place Safety Surfacing

Manufacturer's Specifications

This document provides the specifications for a Synthetic Grass Safety System composed of Envirofill infill placed into a tufted polyethylene fiber component installed over a poured in place cushion with a 4" ABC Type II compacted rock or concrete sub base.

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

PART 1 – GENERAL

1.01 Work Included

Provide all labor, materials, equipment, and tools necessary for the complete installation of a synthetic grass infill system as outlined in these specifications and a specially formulated coated, clean, dust free and specially sized silicon dioxide bead. The system should consist of but not necessarily be limited to the following:

- A. A vertical draining field base consisting of a four-inch layer of ABC Type II aggregate compacted to 95%.
- B. A complete synthetic grass system, consisting of:
 - i. A 1-¼" long proprietary polyethylene yarn formulation for superior wear resistance and a secondary proprietary polyethylene thatch yarn formulation.
 - ii. The system should be tufted with a minimum of 60 ounces of yarn per square yard and include a minimum of 20 ounces of urethane secondary backing per square yard.
 - iii. The stitch count shall be a minimum of 13.5 per 3".
 - iv. The machine gauge shall be 3/8".
 - v. Total fabric weight shall be at least 80 ounces per yard.
 - vi. The finished product should also include perforations to ensure maximum drainage.
- C. An infill system, consisting of a specially formulated coated, clean, dust free and specially sized silicon dioxide bead (Envirofill or Herofill).

ARIZONA

Lic #288687 & 283192
602.954.0000

CALIFORNIA

Lic #1003439
916.474.5431

NEVADA

Lic #0076764 & 0077757
702.303.8701

- D. This shall be a 100% nail free system with installation by adhesive only. An edging system consisting of minimum 2" thick by 6" wide rubber or concrete glue down strip around the perimeter and encompassing any protrusions in the turf area.
- E. Quality Assurance: Manufacturer should have manufactured and installed synthetic grass surfaces for a minimum of 5 years. The installation of the synthetic grass 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 turf should be required to comply with the following:

- A. The manufacturer should submit durability, UV and performance testing information on the grass fiber.
- B. The turf manufacturer must be experienced in the manufacture of a no nail synthetic grass system and provide references of five (5) specific installations in the last three (3) years.
- C. The turf installer must provide competent workmen skilled in no nail synthetic grass installation. Installers must be company-trained employees and may not be third party installers or subcontractors. The designated supervisory personnel on the project must be competent in the installation of this material, including gluing seams and proper installation of the infill mixture.
- D. Installation should be in accordance with ASTM F1292 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 (if any).
- E. IPEMA Certification specific to poured in place rubber and synthetic grass safety systems.
- F. Manufacturer should provide written instructions for recommended maintenance practices.
- G. Manufacturer should submit samples for customer verification. Samples shall include two 6" x 6" samples of 1" cushion layer topped with synthetic turf (a 1.5" system) and attached with turf adhesive.

1.03 Definitions

- A. 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.
- B. Fall Height: Fall height is a measurement defined as the "vertical distance between a designated play surface and the protective surfacing beneath it.
- C. 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 the turf manufacturer must provide the following:

- A. The turf manufacturer should provide a warranty to the owner that covers defects in materials and workmanship of the turf for a period of **FIVE (5) years** from the date of Substantial Completion. An **EIGHT (8) year "UV stabilization"** warranty should be included in the warranty.
- B. The manufacturer's warranty should include general wear and damage caused from UV degradation. The warranty should specifically exclude vandalism, acts of War and acts of Nature beyond the control of the owner of the manufacturer.
- C. All turf 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.
- D. The bidder should provide a maintenance program to the owner. The warranty should be subject to compliance with said maintenance program.

PART 2 –FLEXGRASS MATERIAL

The synthetic turf material and resilient cushion should be in accordance with the following:

- A. A poured in place system with a synthetic grass wearing layer upper membrane and an underlying impact attenuation cushion layer. The finished surface should be porous and capable of being

installed at varying thickness to comply with Critical Fall Height requirements of playground equipment.

- B. The cushion layer should be comprised of one of the following (as per specification or owner selection):
- i. Non-tire derived SBR & EPDM Chunk Rubber, and shall be mixed with the appropriate amount of urethane so that the binder is evenly dispersed into the rubber base. Cushion layer shall not contain any tire-derived SBR.
 - ii. 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.
- C. Synthetic Turf shall be:
- i. A 1-¼" long proprietary polyethylene yarn formulation for superior wear resistance and a secondary proprietary polyethylene thatch yarn formulation.
 - ii. The system should be tufted with a minimum of 60 ounces of yarn per square yard and include a minimum of 20 ounces of urethane secondary backing per square yard.
 - iii. The stitch count shall be a minimum of 13.5 per 3".
 - iv. The machine gauge shall be 3/8".
 - v. Total fabric weight shall be at least 80 ounces per yard.
 - vi. The finished product should also include perforations to ensure maximum drainage. Non-perforated systems should not be acceptable alternates for purposes of this specification.
- D. The turf should be delivered in 15' wide rolls.
- E. All lines, numbers and markings indicated on plans should be permanently inlaid. Painted lines should not be an acceptable alternative for purposes of this specification.
- F. The fiber should be green in color to simulate natural grass as closely as possible and treated with UV inhibitor, guaranteed a minimum of eight years.
- G. The infill system should be Envirofill or Herofill and consist of color coated, clean, dust free and specially sized silicon dioxide beads.
- H. Latex backed turf shall not be acceptable. All adhesives must also be latex free.
- I. Standard of Quality should be FlexGrass Premier Turf no nail system as built by FlexGround, LLC

Contact:
FlexGround
Sandi Walsh
916-275-3588

PART 3 – SITE PREPARATION AND BASE

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

- A. The sub-base will have a slope of 2%.
- B. The base aggregate should consist of a minimum of four inches (4") free-draining stone compacted to 95%. Finish slope of porous aggregate should be 2% from the centerline of the area to the perimeter, and the grade should not vary more than a quarter inch (¼") in ten feet (10').
- C. The sub base should be installed in two inch (2") lifts to appropriate thickness.
- D. The sub-base should be compacted using vibrating tamper, to approximately 95% Proctor density.
- E. The sub-grade should no longer have any vegetation.
- F. 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. Concrete and asphalt sub base is acceptable.
- J. For older 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.
- K. For concrete surfaces, shot blast, acid etch or power scarify as required to obtain optimum bond of the cushion layer to the concrete is required. Remove sufficient material to provide a sound surface, free of glaze, efflorescence, or form release agents. Remove grease, oil, and other penetrating contaminants.
- L. For concrete or asphalt surface that is not enclosed (i.e. a curb to curb pour), the concrete shall have keyway cuts 1.5" wide by 1.5" deep so that the system can be bull nosed down into the notch area.

PART 4 – EXECUTON AND INSTALLATION

The turf 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 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 shall be comprised of non-tire derived SBR & EPDM **Chunk Rubber**, and 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.

4.02 Synthetic Turf Layer

- A. The synthetic grass should be cut and laid out across the area, and utilizing standard state-of-the-art gluing procedures, each roll should be seamed to the next.
- B. The edge of the synthetic turf should be glued directly with full contact to the glue down strip around the perimeter and any protrusions of the turf area.
- C. This is a 100% glued installation. Sewing of seams or nailing of edges will not be permitted. A strip of seam tape should be used to seam the rolls of material. The specified glue should be a one part urethane adhesive (SeamTight) as manufactured by FlexGround, LLC. Tempe, AZ 85281.

4.03 Infill

- A. The infill material shall be Envirofill or Herofill (no substitutions will be permitted) and should be spread evenly with a large fertilizer type spreader. The infill will be spread in strict accordance with the turf installer's specifications.
- B. Between each application of infill, the field area should be brushed with a motorized rotary nylon broom. Minimum infill depth should be .50 inches.
- C. Caution: Too much fiber exposed (not enough infill) will cause the fibers to mat or crush with heavy foot traffic. This will lead to premature wearing of the fiber and will void any manufacturer's warranty. No Crumb Rubber shall be used as infill.

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.