

TotTurf® Thermal Plastic Poured in Place Surface Specifications

PART 1 – General

1.01 POURED IN PLACE PLAYGROUND SURFACING

TotTurf® poured in place rubber playground surfacing shall consist of a polyurethane binder mixed with 100% recycled, shredded tire material which will make up the Cushion Layer. The Cushion Layer is capped with TPV (Thermal Plastic Vulcanized) granules mixed with a polyurethane binder creating the Wear Course. Robertson Industries, Inc. surfaces comply with ADA and CPSC guidelines as well as ASTM Standards. TotTurf® is certified by IPEMA, a third party testing organization for playground surfaces and equipment.

1.02 PERFORMANCE REQUIREMENTS

- A. Area Safety: Poured in place within playground equipment use zones shall meet or exceed the performance requirements of the CPSC, ADA and Fall Height Test ASTM F 1292-04. The surface must yield both a peak deceleration of no more than 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 portion of play equipment being installed as shown on drawings.

- B. Accessibility: **NOTE: Children’s outdoor play areas shall be in compliance with the Uniform Federal Accessibility Standards (UFAS) FED-STD-795 and the Architectural and Engineer Instructions (9AEI) Design Criteria. The requirements of the Americans with Disabilities Act Accessibility Guidelines (ADAAG) 28 CFR Part 36 that provide equal or greater accessibility than the requirements of UFAS must also be met in children’s outdoor play areas.**

- C. Poured in place surfaces intended to serve as accessible paths of travel for persons with disabilities shall be firm, stable and slip resistant, and shall meet the requirements of ASTM F 1951- 08 and ASTM F 1292-04.

- D. Poured in place surfaces shall be manufactured and installed by trained, experienced company employees or certified installers who have successfully completed the “Certified Installers Training Program” required by Robertson Industries.

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E. Submittals: The following shall be submitted:

1. One original hard copy of the submittal package will be provided. Additional hard copies are available by request. All specifications, details and testing data can be found on TotTurf® website www.TotTurf.com.
2. Manufacturer's descriptive data and installation instructions.
3. Manufacturer's details showing depths of Wear Course and sub-base materials, anchoring systems and edge details.
4. Upon request, a listing of installations where products similar to those proposed for use have been installed and have been in service for a minimum period of 3 years. This list shall include owner or purchaser, address of installation, date of installation, contact person, and phone number.
5. A signed statement by an authorized official certifying that the surfacing system meets the requirements of ASTM-F1292-04 for a head-first fall from the highest accessible portion of the specified playground equipment.
6. A signed statement from the manufacturer of the poured in place surfacing attesting that all materials under this section shall be installed only by Manufacturer's Trained and certified Installers. (Verification of training using .5-1.5mm TPV product for a minimum of 1yr required)
7. A certificate of Insurance shall be provided by Robertson Industries, Inc. for poured in place surfacing for use as playground safety surfacing, covering both general and product liability of not less than \$1,000,000 for each occurrence, \$2,000,000 general aggregate, with an excess/umbrella liability of \$25,000,000. The issuing underwrite shall be AA rated.
8. Upon request, 2 inch X 3 inch (60mm x 80 mm) samples of the proposed material for this project.
9. IPEMA certification mandatory. For California installations, verification of California Contractors License C61-D-12 under "MANUFACTURERS NAME" (license under other contractors name not acceptable) doing poured in place installations in California for 5 years or more.

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- F. Delivery, Storage and Handling: Materials and equipment shall be delivered and stored in accordance with the manufacturer's recommendations.

- G. Project Site Conditions: Poured in Place surfacing must be installed on a dry sub-surface, with no prospect of rain within the initial drying period, and within the recommended temperature range of the manufacturer. Installation in weather condition of extreme heat, less than 55 degrees (F), and/or high humidity may affect cure time, and the structural integrity of the final product. Immediate surrounding sites must be reasonably free of dust conditions or this could affect the final surface look. The manufacturer's Service Center Manager reserves the right to control the installation based on such factors without penalty to Robertson Industries, Inc.

- H. Sequencing and Scheduling: Poured in place surfacing shall be installed after all playground equipment, shade structures, signs and any other items that will be within the surfacing area. Surface installation coordinated by a Robertson Industries, Inc. representative.

- I. Warranty: Poured in place surface shall maintain required impact attenuation characteristics and be guaranteed against defects in workmanship AND material for a limited Five (5) year period or as specified and agreed upon per alternate contract. Warranty will be specific to maintenance requirements and performance standards of completed product.

PART 2 – PRODUCTS

Safety surfacing shall consist of synthetic materials meeting the requirements of this specification. The type of safety surfacing shall be TotTurf® Thermal Plastic, AVAILABLE THROUGH TotTurf® by Robertson Industries, Inc, 800/858-0519

2.01 Product Scope

- A. Poured in Place Surface: The poured in place surface shall consist of 100 percent recycled shredded tire material mixed with a polyurethane binder and capped with TPV granules also mixed with a polyurethane binder.

- B. It shall consist of a uniform material manufactured in such a way that the wear course meets the requirements specified herein for a wear surface.

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- C. The type of safety surfacing shall be a poured-in-place system and shall be indicated on the drawings.

2.02 Cushion Layer Section

- A. Impact Attenuating Cushion Layer: Cushion Layer consists of shredded styrene butadiene rubber (SBR) adhered with a 100 percent solids polyurethane binder to form a resilient porous material.
- B. Strands of SBR may vary from 0.5 mm – 10.0 mm in thickness by 3.0 mm – 60 mm in length (3.0 – 5.0mm Not Acceptable). Cushion material will have at least 10% SBR Ambient Crumb Rubber (5-9 Mesh) using sieve analysis ASTM D 5644 and a Fiber Content of .1% or less mixed in.
- C. Foam or standard rubber granules are not to be permitted in Cushion Layer
- D. Binder shall be between 10-14 percent of the total weight of the material, and shall provide 100 percent coating of the particles.
- E. The Cushion Layer shall be compatible with the Wear Course and must meet requirements herein for impact attenuation.

2.03 Wear Course

- A. The following are new TotTurf® Custom Colors available: Cancun, Arizona Gold, Sherwood Forest, Blue Moon and California Dream'n. (See TotTurf® .com)
- B. Wear Course shall consist of Thermal Plastic Vulcanized (TPV) granules with an Aromatic binder formulated to produce an even, uniform, seamless surface up to 2000 square feet.
- C. TPV shall be angular granules with a (Shore A) hardness of 65°A ±5 and particle size between 1-4mm. Aromatic binder shall be not less than 20 percent of total weight of rubber used in the wear surface, and shall provide 100 percent coating of the particles.
- D. Thickness of the Wear Course shall be ½" – 5/8" (minimum ½ inch 12.7 mm).
- E. The Wear Course shall be porous.
- F. See the TotTurf® Thermal Supreme PIP Specification for the TPV High Density wear resistant inserts under the swings.

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2.04 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. Weight of polyurethane shall be no less than 8.5 lbs/gal (1.02 Kg/1) and no more than 9.5 lbs/gal (1.14 Kg/1)
- D. Manufacturer is permitted to substitute the type of urethane required to match extreme weather conditions. Substitutions must be equal to, or exceed the material specified in this document.

MATERIALS

- A. **Wear Course- TPV & Thermal Supreme TPV Granules:**
Manufacturer: Rosehill Polymers
As distributed by: Robertson Industries, Inc. - (800) 858-0519
Location Used: Playground Area
- B. **Cushion Layer – TotTurf® Shredded SBR Mixture**
As distributed by: Robertson Industries, Inc. - (800) 858-0519
Location Used: Playground Area
- C. **Binder – VORAMER MR 1099- extreme heat and humidity conditions**
Manufacturer: Dow Chemical
As distributed by: Robertson Industries, Inc. - (800) 858-0519
Location Used: Playground Area
- D. **Binder – VORAMER MR 1105- normal weather conditions**
Manufacturer: Dow Chemical
As distributed by: Robertson Industries, Inc. - (800) 858-0519
Location Used: Playground Area
- E. **Binder- Voramer MR 1108- humid conditions**
Manufacturer: Dow Chemical
As distributed by: Robertson Industries, Inc. - (800) 858-0519
Location Used: Playground Area

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- F. **Binder- Voramer MR 1160**
Manufacturer: Dow Chemical
As distributed by: Robertson Industries, Inc. - (800) 858-0519
Location Used: Playground Area
- G. **Binder- Ryvec BFLV-5**
Manufacturer: Ryvec Inc.
As distributed by: Robertson Industries, Inc. - (800) 858-0519
Location Used: Playground Area
- H. **Binder- Ryvec BFLV-6**
Manufacturer: Ryvec Inc.
As distributed by: Robertson Industries, Inc. - (800) 858-0519
Location Used: Playground Area
- I. **Binder- Aliphatic**
Manufacturer: Marchem Pacific, Inc.
As distributed by: Robertson Industries, Inc. - (800) 858-0519
Location Used: Playground Area

PART 3 – EXECUTION

3.01 SITE PREPARATION (OWNER OR OWNERS REPRESENTATIVE SHALL)

- A. Finished Grade: Verify that finished elevations of adjacent areas are as indicated on the drawings, that the appropriate sub-grade elevation has been established for the particular safety surface to be installed, and that the subsurface has been installed in a true, even plane, and sloped to drain as indicated in drawings. To conform with ADA guidelines there must not be more than a 2 percent slope.
- B. Sub base: Tolerance of concrete or bituminous sub base shall be within 1/8 inch (3.0 mm) in 10 feet (3050 mm). Tolerance of aggregate sub base shall be within 3/8 inch (10mm) in 10 ft (3050 mm). Verify that aggregate sub base has been fully compacted in 2" watered lifts to 95 percent or greater.
- C. Curing of Asphalt and Concrete: If poured in place surfacing is installed, verify that concrete Sub base has cured (All areas appear white in color usually between 3-7 days) and that all concrete curing compounds and other deleterious substances that might adversely affect adhesion have been removed. Surface shall be clean and dry.

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Asphalt cure time requires fourteen (14) days. Once the new asphalt has cured, it must be pressured washed prior to the surfacing being installed. The contractor shall be responsible for flooding the pad to insure proper slope and tolerance. Any areas holding enough water to cover a flat nickel shall be patched prior to arrival of our installation crews.

- D. Drainage: Verify that sub-surfacing drainage, if required, has been installed to provide positive drainage.

3.02 INSTALLATION

- A. Poured in Place Surfacing: Components of the poured in place surfacing shall be mixed on site in a rotating tumbler to ensure components are thoroughly mixed and are in accordance with manufactures recommendations. Installation of the surfacing shall be by a Robertson Industries, Inc. trained and Certified Crew Only. It will be seamless up to *2,000 square feet* per day and completely bonded to concrete of sub base. Material shall cover all foundations and fill around all elements penetrating the surface.)
- B. Cushion Layer: Whenever practical, cushion layer of surfacing material shall be installed in one continuous pour on the same day of up to 2,000 square feet. When a second pour is required, step the seam(see detail) and fully coat the step of the previous work with polyurethane binder to ensure 100 percent bond with new work. Apply adhesive in small quantities so that new cushion layer can be placed before the adhesive dries.
- C. Wear Course: Wear Course must be TPV (Thermal Plastic Vulcanized) granules. Wear surface shall be bonded to Cushion Layer. If necessary, additional primer will be used between the cushion layer and Wear Course. Apply adhesive to Cushion Layer in small quantities allowing the Wear Course to be applied before adhesive dries. Surface shall be hand troweled to a smooth, even finish. Except where the Wear Course is composed of differing color patterns, pour shall be continuous and seamless up to *2,000 square feet per day*. (Contact sales representative for seamless installations in excess of 2000 square feet) Where seams are required due to color change, size or adverse weather, a step configuration will be constructed to maintain Wear Course integrity. The edge of initial pour shall be coated with adhesive and wearing surface mixture shall be immediately applied. Pads with multiple seams are encouraged to include a top coat of urethane before being placed into use. Butt joint seams are not acceptable except for repairs. Under special conditions and with owners written approval seams may be permitted in same color pad. Consult with manufacturer for specific applications.

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- D. Perimeter: When installing over existing concrete/asphalt (see detail) perimeter must be saw cut to size indicated on plans (or formed during new pour) with surfacing rolled down inside void. Primer adhesive must be applied to all sides of the void.
- E. Thickness: Construction methods, such as the use of measured screeds or guides, shall be employed to ensure the full depth of specified surfacing material is installed. Surfacing system thickness throughout the playground equipment use zone shall be as required to meet the impact attenuation requirements specified herein.
- F. Clean Up: Manufacturer's installers shall work to minimize excessive adhesive on adjacent surfaces or play equipment. Spills of excess adhesive shall be promptly cleaned.
- G. Protection: The synthetic safety surface shall be allowed to fully cure in accordance with Manufacturer's instructions. The surface shall be protected by the owner from all traffic during the curing period of 48 hours or as instructed by the manufacturer.
- H. Manufacturer's Services: For poured in place safety surfacing, a manufacturer's representative who is experienced in the installation of playground safety surfacing shall be provided. The representative shall supervise the installation to ensure that the system meets the impact attenuation requirements as specified herein.
- I. Security & Waste Disposal_– Surface installation crew shall be responsible for the protection of surface during the installation process while on site only. Owner or general contractor shall be responsible for the protection of the surface during the curing period upon completion of the installation and overnight during the installation. Owner or general contractor shall be responsible for having a dumpster on site for all waste and debris. Failure to provide security and a dumpster will result in additional cost.
- J. Utilities & Access – Power and water must be available within 300 feet of installation. Site will require tractor-trailer access. In a case where tractor-trailer access is not possible, owner or general contractor shall be responsible for transporting materials from delivering carrier to the installation site.

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All specifications/details/testing data can be found on
TotTurf® website www.TotTurf.com.

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