

## TotTurf® Thermal Supreme Poured in Place Surface Specifications

### PART 1 - GENERAL

#### 1.01 Poured In Place Playground Surfacing

TotTurf® Thermal Supreme Poured in Place rubber playground surfacing shall consist of a polyurethane binder mixed with 100% recycled, shredded tire buffings which will make up the Cushion Layer. The Cushion Layer is capped with TPV rubber granules mixed with an Aliphatic 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: TotTurf® Thermal Supreme Poured in Place surfacing within the 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. TotTurf® Thermal Supreme 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- 99 and ASTM F 1292-4.
- D. TotTurf® Thermal Supreme Poured in Place surfaces shall be manufactured and installed by trained, experienced company employees.
- 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.
  - 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. 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.
  - 5. A signed statement from the manufacturer of the Poured in Place surfacing attesting that all materials under this section shall be installed only by the Manufacturer's Trained Installers.

6. 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 \$5,000,000 with an umbrella form of \$25,000,000. The issuing underwrite shall be AA rated.
  7. Upon request, 2 inch X 3 inch (60mm x 80 mm) samples of the proposed material for this project.
  8. IPEMA certification mandatory.
- F. Delivery, Storage and Handling: Materials and equipment shall be delivered and stored in accordance with the manufacturer's recommendations.
- G. Project Site Conditions: TotTurf® Thermal Supreme 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 of the site must be reasonably free of dust conditions as this could affect the final surface appearance. 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: TotTurf® Thermal Supreme Poured in Place surfacing shall be installed after all playground equipment, shade structures, signs and any other items within the surfacing area. Surface installation will be coordinated by a Robertson Industries, Inc. representative.
- I. Warranty: TotTurf® Thermal Supreme 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 Supreme, manufactured and installed by Robertson Industries, Inc., Telephone: 800-858-0519.

### **2.01 Product Scope**

- A. Poured in Place Surface: The TotTurf® Thermal Supreme Poured in Place surface shall consist of 100 percent recycled shredded tire material mixed with a polyurethane and capped with a TPV granule mixed with an Aliphatic binder.
- B. It shall consist of a uniform material manufactured in such a way that the top portion meets the requirements specified herein for wear surface.
- 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 – 2.0 mm in thickness by 3.0 mm – 20 mm in length.
- C. Foam or 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 Blends now available: Cancun, Arizona Gold, Sherwood Forest, Blue Moon and California Dream'n. See website ([www.totturf.com](http://www.totturf.com)).
- B. Wear Course shall consist of Thermal Plastic Vulcanized (TPV) granules with Aliphatic binder formulated to produce an even, uniform, seamless surface up to 2000 square feet. (Contact sales representative for seamless pads over 2000 square feet)
- C. TPV material shall be angular granules with a (Shore A) hardness of 65°A ±5 and particle size between .5-1.5mm. Binder shall be not less than 22 percent of the total weight of TPV material used in the wear surface, and shall provide 100 percent coating of the particles.
- D. Thickness of Wear Course shall be a minimum ½ inch (2.5 mm).
- E. The Wear Course shall be porous.

## 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 modify the type of urethane required to match extreme weather conditions. Substitutions must be equal to or exceed Aliphatic quality.

## 2.05 Materials

- A. **Wear Course- TPV Granules:**
  - Manufacturer: Rosehill Polymers
  - As distributed by: Robertson Industries, Inc. - (800) 858-0519
  - Location Used: Playground Area

- B. **Cushion Layer – TotTurf Shredded SBR**  
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
- F. **Binder- Voramer MR 1160**  
Manufacturer: Dow Chemical  
As distributed by: Robertson Industries, Inc. - (800) 858-0519  
Location Used: Playground Area
- G. **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 Owner's 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 a Poured in Place surfacing is installed, verify that concrete Sub-base has cured and that all concrete curing compounds and other deleterious substances that might adversely affect adhesion have been removed. Surface shall be clean and dry.
- D. Drainage: Verify that sub-surfacing drainage, if required, has been installed to provide positive drainage.

### 3.02 Installation

- A. TotTurf® Thermal Supreme 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 surfacing shall be seamless up to *2,000 square feet* per day and completely bonded to a concrete sub base. Material shall cover all foundations and fill around all elements penetrating the surface.
- B. Cushion Layer: Whenever practical, cushion layer of the 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 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 wear course 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 a solid color pad. Consult with manufacturer for specific applications.
- D. Perimeter Keyway: Concrete/asphalt perimeter keyway must be saw cut to size indicated on plans, or formed during pour, with surfacing rolled down inside keyway void. Primer adhesive must be applied to all sides of the void. When connecting to a concrete curb or boarder the hardened edge shall be primed with adhesive and the final 2" shall be tapered to allow the wear surface material to be a minimum of 1" thick where it joins the concrete edge.
- E. Thickness: Construction methods, such as the use of measured screeds 1/16 inch (1.0 mm) thicker than the required surfacing depth, shall be employed to ensure that 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 TotTurf® Thermal Supreme 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 TotTurf® Thermal Supreme 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.