

## **SECTION 32 18 16.13 PLAYGROUND RESILIENT SURFACING TOTTURF PIP 1.5” RENEW**

### **PART 1 – GENERAL**

#### **1.01 POURED IN PLACE PLAYGROUND SURFACING**

Robertson Industries, Inc. EPDM poured in place rubber playground surfacing shall consist of a polyurethane binder mixed with recycled rubber, which will make up the attenuation cushion layer. The attenuation cushion layer is capped with EPDM rubber 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. Robertson Industries, Inc. 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 F1292-18. 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. *IPEMA certification is required. (ASTM F1292-18 section 4.3.3: The laboratory test used to determine critical fall height shall have been conducted on surfacing material samples identical in design, materials, components, and thickness and manufactured as the installed playground surface).*
  
- B. Testing: NOTE: Critical Fall Height of Five (5), Six (6) and Eight (8) feet have been tested in accordance with Section 15 – Critical Fall Height Test Procedure of ASTM F1292-18.
  
- C. Accessibility: NOTE: Children’s outdoor play areas shall be in compliance with the Uniform Federal Accessibility Standards 9UFAS) 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.
  
- D. Poured in place surfaces intended to serve as accessible paths of travel for persons with disabilities shall be firm, stable, slip resistant, and shall meet the requirements of

ASTM F1951-14 and ASTM F1292-18.

### **1.03 APPLICABLE STANDARDS**

ASTM International:

- A. ASTM D2047 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 C1028
- B. ASTM D412 Standard Test Methods for Vulcanized Rubber and Thermoplastic Rubbers and Thermoplastic Elastomers – Tension
- C. ASTM D624 Standard Test Method for Tear Strength of Conventional Vulcanized Rubber and Thermoplastic Elastomers.
- D. ASTM D2859 Standard Test Method for Flammability of Finished Textile Floor Covering Materials.
- E. ASTM E303 Standard Test Method for Measuring Surface Frictional Properties using the British Pendulum Tester.
- F. ASTM F1292-18 Standard Specification for Impact Attenuation of Surfacing Materials within the Use Zone of Playground Equipment.
- G. ASTM F1951 Standard Specification for Determination of Accessibility of Surface Systems under and around Playground Equipment.
- H. ASTM F2479-12 Standard Specification for Purchase, Installation and Maintenance

**1.04** 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, Inc.

### **1.05 Submittals: The Following shall be submitted:**

- 1. One original hard copy of the submittal package will be provided. Additional copies are available by request. All specifications/details/testing data can be obtained from your sales representative or found on the Robertson Industries, Inc. website [www.totturf.com](http://www.totturf.com).
- 2. Products submitted as equal must include copies of manufacturer’s written Specifications and warranty.
- 3. Manufacturer’s descriptive data and installation instructions.
- 4. Manufacturer’s details showing depths of Wear course and sub-base materials, anchoring systems and edge details.
- 5. Upon request, a listing of at least five 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.

6. A signed statement by an authorized official certifying that the surfacing system meets the requirements of ASTM F1292-18 for a head-first fall from the highest accessible portion of the specified playground equipment.
  7. 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.
  8. A certificate of Insurance shall be provided by Robertson Industries, Inc. for poured in place surfacing for use as playground safety surfacing, covering 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 underwriter shall be AA rated.
  9. Upon request, samples of the proposed material for this project.
- 1.06** Delivery, Storage and Handling: Materials and equipment shall be delivered and stored in accordance with the manufacturer's recommendations.
- 1.07** 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 conditions of extreme heat, cold (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.
- 1.08** The manufacturer's Service Center Manager reserves the right to control the installation based on such factors without penalty to Robertson Industries, Inc
- 1.09** 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.
- 1.10** Surface installation is coordinated by a Robertson Industries, Inc. representative.

- 1.11** Warranty: Warranty is focused on product safety (ASTM F1292-18) and accessibility (ASTM 1951-14) and does not cover normal wear and tear. Urethane roll coats are highly recommended to protect the warranty of this product. Product is guaranteed against defects in workmanship and material for a limited time of two years unless otherwise specified.

## **PART 2 – PRODUCTS**

Safety Surfacing shall consist of synthetic materials meeting the requirements of this specification. The type of safety surfacing shall be Robertson Industries, Inc. EPDM, manufactured and installed by Robertson industries, Inc., a PLAYCORE company, telephone 800-858-0519.

### **2.01 PRODUCT SCOPE**

- A. Poured in Place Surface: The poured in place surface shall consist of recycled rubber mixed with a polyurethane and capped with EPDM rubber granules and mixed with polyurethane.
- 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 safety surfacing shall be a poured-in-place system and shall be indicated on the drawings.

### **2.02 ATTENUATION CUSHION LAYER SECTION**

- A. Impact Attenuation Cushion Layer: Cushion Layer consists of these materials; recycled styrene butadiene rubber (SBR) and/or Cryogenic crumb rubber and/or pre consumer postindustrial reclaimed scrap rubber adhered with 100% 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. Chunk Premium Black Rubber Granules are 5/8” granules: This rubber is pre-consumer, post-industrial, reclaimed rubber granulated through a 5/8” screen and contains less than 2% dust.
- D. SBR Crumb Rubber (5-9 Mesh) using sieve analysis ASTM D5644 with a fiber content of .1% or less mixed in.
- E. Binder shall be between 7-12% percent of the total weight of the material and shall provide 100 percent coating of the particles.
- F. The attenuation cushion Layer shall be compatible with the Wear course and must meet the requirements herein for impact attenuation.

## 2.03 WEAR COURSE

- A. Wear course shall consist of Ethylene Propylene Diene Monomer (EPDM) granules with polyurethane binder formulated to produce an even, uniform seamless surface up to 2000 square feet.
- B. EPDM shall be peroxide cured with an EPDM content of 24% percent and shall include a Processing aid to prevent hardness with 26% poly content to maintain dynamic testing characteristics, weatherization and UV stability.
- C. ASTM D 2240 (Shore A) hardness of 55-65, not less than 26% percent rubber hydrocarbons.
- D. Size of EPDM granules shall be 1.5-4 mm across. 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.
- E. Thickness of Wear course shall be a minimum ½” inch (12.7 mm).
- F. The Wear course shall be porous.
- G. The poured in place surface should be installed between the temperatures of 55°F to 105°F, and there should not be a fluctuation greater than 30°F during the installation or curing time.

## 2.04 BINDER

- A. No Toluene Diphenyl Isocyanate (TDI) shall be used. Aromatic or Aliphatic urethanes are to 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 original quality.

## 2.05 MATERIALS

### A. Wear course – EPDM Granules and/or TPV Granules

Manufacturer: Soflex Rubber and Urethane Sdn. Bhd.  
Rosehill Polymers.

As Distributed by: Nantong Hongfei Rubber products Co. LTD  
Robertson Industries, Inc. (800) 858-0519  
Location Used: Playground Area

**B. Attenuation Cushion Layer – Robertson Industries Inc. Shredded and/or Chunk Rubber**

As Distributed by: Robertson Industries Inc. (800) 858-0519  
Location Used: Playground Area

**C. Binder – Aromatic VORAMER MR Products**

Manufacturer: DOW Chemical  
As Distributed by: Robertson Industries Inc. (800) 858-0519  
Location Used: Playground Area

**D. Binder – Aromatic Urethane *Stobielast® S 1020***

Manufacturer: Stockmeier Urethanes, USA, Inc.  
As Distributed by: Robertson Industries, Inc. (800) 858-0519  
Location Used: Playground Area

**E. Binder – Aliphatic Urethane Premium, Non-Ambering**

Manufacturer: Accella Polyurethane Systems  
As Distributed by: Robertson Industries Inc. (800) 858-0519  
Location Used: Playground Area

**F. Chunk Premium Black Rubber Granules**

Manufacturer: American Recycling Center, Inc. (989) 725-5100  
655 Wabasse Drive  
Owosso, MI 48867  
As Distributed by: Robertson Industries Inc. (800) 858-0519  
Location Used: Playground Area

**PART 3 – EXECUTION**

**3.01 SITE CONDITION**

- A. Existing Surface: Verify that the existing rubber surface is stable and appropriate for additional new attenuation cushion layer to be applied. Areas in the existing rubber surface that are severely cracked or vacant must be repaired prior to the addition of the new attenuation cushion layer.

- B. Sub Surface Base: Verify that the existing subbase materials of aggregate, concrete or asphalt exists in the original installed condition. If sub surface base material is damaged or vacant it must be repaired/re-installed prior to installation of new attenuation cushion layer.
- C. Drainage: Verify that the existing surface provides positive drainage prior to the installation of 1.5 ReNew Surfacing.

### 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 manufacturer's recommendations. Installation of surfacing shall be seamless up to *2,000 square feet* per day and completely bonded to concrete or subbase. Material shall cover all foundations and fill around all elements penetrating the surface.
- B. Attenuation cushion layer: Whenever practical, attenuation 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, stop the seam (see detail) and fully coat the stop 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 thickness shall be 0.5 inch and must be high quality peroxide cured EPDM granules. Wear surface shall be bonded to attenuation cushion layer. If necessary, additional primer will be used between the attenuation cushion layer and wear course. Apply adhesive to attenuation 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 topcoat of urethane before being placed into use. Butt joint seams are not acceptable except for repairs. Under special conditions and with the owner's written approval, seams may be permitted in same color pad. Consult with manufacturer for specific applications.
- D. Perimeter: The perimeter of the existing rubber surface shall be removed 12 inches from the bordering hard edge. New attenuation cushion layer and wear course to be applied to satisfy a less than 6% ADA slope.

- E. Thickness: Construction methods such as the use of measured screeds or guides shall be employed to ensure that 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 installers shall work to minimize excessive adhesive on adjacent surfaces or play equipment. Spills of excess adhesive shall be promptly cleaned.
- G. Protection: The 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 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.
- I. Requirements as specified herein.
- J. There is no guarantee that ReNew 1.5" Retop will improve ASTM F1292-18 HIC criteria. If surface safety is in question, owner may elect to perform ASTM F1292- 18 field testing prior to installation of additional surface.

**END OF SECTION**