

# ATTACHMENT "G"

## Playground Safety Surfacing Specification

### Pour-in-Place

#### PART 1 – GENERAL

##### 1.1 DESCRIPTION

- A. Dual-density, resilient, seamless, pour-in-place, playground safety surfacing.

##### 1.2 RELATED DOCUMENTS

- A. Maintenance and Cleaning Instructions
- B. Warranty
- C. Aggregate Subsurface Specification (see end of specification)
- D. Concrete Subsurface Requirements
- E. Asphalt Subsurface Requirements

##### 1.3 REFERENCES

- A. US Consumer Product Safety Commission (CPSC) Public Playground Safety Handbook
- B. ASTM F1292-09: Standard Specification for Impact Attenuation of Surface Systems Under and Around Playground Equipment
- C. ASTM F1951-09: Standard Specification for Determination of Accessibility of Surface Systems Under and Around Playground Equipment

##### 1.4 SUBMITTALS

- A. Product Data: Submit manufacturer's specification
- B. Samples: Submit manufacturer's samples of pour-in-place playground safety surfacing showing texture, color, and thickness.
- C. Manufacturer's Project References:
  - 1. Submit list of successfully completed projects.
  - 2. Include project name and location, name of owner, and type and quantity of poured-in-place playground safety surfacing furnished.
- D. Maintenance and Cleaning Instructions: Submit manufacturer's maintenance and cleaning instructions.
- E. Warranty: Submit manufacturer's warranty.

##### 1.5 QUALITY ASSURANCE

- A. Manufacturer's Qualifications:
  - 1. Continuously engaged in manufacturing of pour-in-place playground safety surfacing of similar type to that specified.
  - 2. Furnished a minimum of 10,000 square feet of pour-in-place playground safety surfacing of similar type to that specified within the past 6 months.

##### 1.6 DELIVERY, STORAGE, AND HANDLING

- A. Delivery: Deliver materials to site in manufacturer's original, unopened containers and packaging, with labels clearly identifying product name and manufacturer.
- B. Storage: Store materials in a dry area at a minimum temperature of 40 degrees F.
- C. Handling: Protect materials during handling and installation to prevent damage or contamination.

## 1.7 ENVIRONMENTAL REQUIREMENTS

- A. Material Temperature: Ensure material temperature is a minimum of 40 degrees F at time of installation.
- B. Air Temperature: Ensure air temperature is a minimum of 40 degrees F for a minimum of 24 hours before, during, and a minimum of 72 hours after installation.
- C. Precipitation: Ensure no prospect of precipitation during and a minimum of 72 hours after installation

## 1.8 LIMITATIONS

- A. The following chemicals may cause damage to the pour-in-place playground safety surfacing and should be avoided: disinfectants, concentrated chlorine bleach, gasoline, diesel fuel, hydraulic and lubricating oils, acids and organic solvents.
- B. Dissolved minerals and other chemicals such as hydrochlorides from water play areas, pool surrounds, and similar applications may cause surface discoloration.

## 1.9 WARRANTY

- A. A ten (10) year warranty from the date of completion of installation shall be provided against defects in materials and workmanship.

## PART 2 – PRODUCTS

### 2.1 POUR-IN-PLACE PLAYGROUND SAFETY SURFACING

- A.
  - 1. Description: Dual-density, resilient, seamless, pour-in-place, playground safety surfacing.
  - 2. Compliance: Meet or exceed CPSC guidelines for impact attenuation.
  - 3. Material: SBR rubber shreds and EPDM rubber granules mixed with binding agent.
  - 4. Binding Agent: 100 percent solids polyurethane.
  - 5. Lower Base/Impact Course: Mixture of black SBR rubber shreds and binding agent.
    - a. Binder to Rubber Ratio: Approximately 15 pounds of binder to 100 pounds of rubber.
    - b. Thickness: Sufficient to meet impact attenuation requirements as determined by designated fall height of playground equipment.
  - 7. Upper Wear/Cap Course: Mixture of colored and/or black EPDM rubber granules and binding agent.
    - a. Binder to Rubber Ratio: Approximately 20.5 pounds of binder to 100 pounds of rubber.
    - b. Thickness: 0.5 inch, minimum.
  - 8. Total Thickness: From 1.5 inches to 5 inches as determined by designated fall height of playground equipment.
  - 9. Colors: Provide UV Stable Standard color combinations and/or Custom color combinations.
- B. Test Results:
  - 1. ASTM F1292-09, Gmax < 200, HIC < 1000
  - 2. ASTM F1951-09, Pass
  - 3. ASTM C1028-07, Dry > 0.80, Wet > 0.50
  - 4. ASTM E303-93, Wet BPN average of both directions between 40 and 60
  - 5. ASTM D2859, Pass
  - 6. ASTM D412, Average tensile strength > 60 psi, average elongation > 30%
  - 7. ASTM D624, Average lbs/force at rupture > 16, average thickness > .5", average tear strength > 28 lbs/force/inch
  - 8. ASTM D2240, Average change between 4% and 5

## **PART 3 – EXECUTION**

### **3.1 EXAMINATION**

- A. Examine areas to receive pour-in-place playground safety surfacing. Ensure all applicable site work, including subsurface preparation, fencing, playground equipment installation and all other relevant work, has been completed. Notify owner if areas are not acceptable. Do not begin installation until unacceptable conditions have been corrected.

### **3.2 PREPARATION**

- A. Prepare subsurface in accordance with manufacturer's instructions to ensure proper support and drainage for pour-in-place playground safety surfacing. Finished elevations of subsurface shall be as indicated on the Drawings. Finished elevations of adjacent areas shall be as indicated on the Drawings. Subsurface shall be installed in a true, even plane and sloped to drain.
- B. Aggregate Subsurface: (see end of specification)

### **3.3 INSTALLATION**

- A. Install pour-in-place playground safety surfacing in accordance with manufacturer's instructions at locations indicated on the Drawings.
- B. Ensure prepared subsurface is dry, clean and free of any foreign or loose material.
- C. Bevel edges down to, or just below surrounding grade. Upper Wear/Cap Course shall maintain .05 inch minimum thickness over bevel.

### **3.4 PROTECTION**

- A. Do not allow foot traffic on pour-in-place playground safety surfacing until a minimum of 80 percent cure is obtained. (Estimated time to obtain 80 percent cure will range from 6 to 72 hours depending on temperature and humidity.)
- B. Protect completed pour-in-place playground safety surfacing from damage during installation and cure time.
- C. Protect completed pour-in-place playground safety surfacing from damage from subsequent construction activity.

### **3.5 MAINTENANCE AND CLEANING**

- A. Owner should maintain and clean pour-in-place playground safety surfacing in accordance with manufacturer's instructions

## **Pour-in-Place Aggregate Subsurface Specification**

- The playground safety surfacing installer shall prepare and install the aggregate subsurface.
- Evaluate existing drainage. If the installation area is lower than the adjacent grades and tends to collect water or if there is standing water on the subsurface, a subsurface water management system must be installed.
- Remove topsoil until solid, packed and stable subsoil is visible and level.
- Install 4" of aggregate. Aggregate should be state DOT road base or equivalent such as "crush and run". Aggregate shall consist of crushed rock composed of hard, fractured fragments free of clay coatings. Aggregate shall be produced from bed rock gravel, cobbles or boulders of uniform quality. Aggregate may also contain a blend or combination of crushed gravel, sand and fines.
- Slope subsurface 2% in order to ensure adequate water drainage.
- It is critical that the subsurface be properly compacted. Without adequate subsurface compaction, the planarity of playground safety surface will change as the subsurface planarity changes. Use a vibrating compactor to reach 95% standard proctor density. Complete multiple passes in both directions. Compaction can be assisted by soaking aggregate with water. Once aggregate has been compacted, a compaction test is recommended.
- Level subsurface aggregate to +/- 1/4" over 10' measured in any direction. The aggregate will likely have a size ranging from fines to 3/4". If there is difficulty in getting the subsurface smooth enough due to the larger pieces contained in the mix, install 1/4" minus granite screenings or "chips and dust" over the final compacted and leveled subsurface. This material is used to fill in the undulations in planarity of the compacted aggregate. Compact material as stated above.
- Inspect final compacted aggregate base. Playground safety surfacing installer shall inspect and approve that the subsurface meets the Pour-in-Place manufacturer's requirements for aggregate subsurface.

## **Loose Fill Border Timbers**

- Color: Black
- Borders shall be rotationally molded from 100 percent pre-consumer recycled polyethylene with ultraviolet (UV) light stabilizers and color molded in.
- Borders shall have three through holes for anchor stakes drilled through the part. The holes for the anchor stakes shall have a recess (.625") deep to allow for the head of the stake to be below the top surface.
- Overall size of the loose fill border panel shall be (5") wide x (77.0") long x (12") high and (5") wide x (29.0") long x (12") high. Borders shall have a (.5") radius on all outer edges and shall assemble in (6') and (2') increments.
- Anchor stakes shall be (.75") in diameter x (30") long and shall have a ring shank to aid in keeping the stake from backing out. Anchor stakes shall have a rounded head and a semi-core point and shall be hot dip galvanized after fabrication.
- Borders shall be black in color and may have a certain amount of color variation due to the blending of the pre-consumer recycled resin.
- Warranty Period : 3 Years

### **ADA Ramp for Borders**

- Color :Black
- Double sided ramp.
- Ramp shall be rotationally molded from 100 percent pre-consumer recycled polyethylene with ultraviolet (UV) light stabilizers and color molded in. It shall have an inner cavity of expanded rigid polyurethane foam. Steel run-out is fabricated from 11 gauge hot-rolled sheet steel, and shall be coated per PPLT PVC Specification.
- Warranty Period: 3 Years

### **Loose Fill Rubber Mulch**

- Products certified by IMPEA.
- ADA/ABA compliant: ASTM F1951
- Material and installation must comply with ASTM F1292, F1487, F1148, F3012
- Non-toxic, EPA compliant to be safe for children and the environment.
- Non-transferrable colors: Colors shall not leach from material.
- Install depth to meet fall height requirements, minimum 6" per IMPEA recommendations.

### **Geosynthetics**

- Weed-Control Barrier: Composite fabric geotextile consisting of woven, needle-punched polypropylene substrate bonded to a nonwoven polypropylene fabric, weighing not less than 4.8 oz./sq. yd.
- For installation underneath loose fill materials.