

SECTION 32 18 16
Playground Protective Surfacing

PART 1 - GENERAL

1.1 Description

- A. This Section specifies materials and procedures for furnishing and installing rubber tile playground surfacing system and poured-in-place playground surfacing system, as shown on the Drawings and described herein.

1.2 Related Work:

- A. Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA AND SAMPLES
B. Section 01 74 19, CONSTRUCTION WASTE MANAGEMENT
C. Section 12 93 00, SITE FURNISHINGS
D. Section 32 05 23, CEMENT AND CONCRETE FOR EXTERIOR IMPROVEMENTS

1.3 References

A. Manufacturer's Instructions:

1. Where required in the Specifications that materials, products, processes, equipment or the like to be installed or applied in accordance with manufacturer's instructions, directions or specifications, or words to this effect, it shall be constructed to mean that said application or installation shall be in strict accordance with printed instructions furnished by the manufacturer of the material for use under conditions similar to those at the job site.

B. American Society for Testing and Materials (ASTM):

1. ASTM D412 Standard Test Methods for Vulcanized Rubber and Thermoplastic Rubbers and Thermoplastic Elastomers-Tension
2. ASTM D624 Standard Test Method for Tear Strength of Conventional Vulcanized Rubber and Thermoplastic Elastomers
3. ASTM D2047 Standard Test Method for Static Coefficient of Friction of Polish-Coated Floor Surfaces as Measured by the James Machine
4. ASTM D2859 Standard Test Method for Flammability of Finished Textile Floor Covering Materials
5. ASTM E303 Standard Test Method for Measuring Surface Frictional Properties Using the British Pendulum Tester
6. ASTM F1292 Standard Specification for Impact Attenuation of Surface Systems Under and Around Playground Equipment
7. ASTM F1951 Standard Specification for Determination of Accessibility of Surface Systems Under and Around Playground Equipment

1.4 System Description

A. Rubber tile playground surfacing system performance requirements:

Provide a single layer rubber tile playground surfacing system which has been designed, manufactured and installed to meet the following criteria:

1. Shock Attenuation (ASTM F1292):

- a. Gmax - Less than 200.
- b. Head Injury Criteria - Less than 1000.

2. Flammability (ASTM D2859) - Pass.

3. Tensile Strength (ASTM D412) - 60 psi (413 kPa).

4. Tear Resistance (ASTM D624) - 140%.

5. Water Permeability: 0.4 gal/yd²/second.

6. Accessibility: Comply with requirements of ASTM F1951.

1. Poured-in-place playground surfacing system performance requirements: Provide a 2 layer rubber-urethane playground surfacing system which has been designed, manufactured and installed to meet the following criteria:

1. Shock Attenuation (ASTM F1292):

- a. Gmax: Less than 200.
- b. Head Injury Criteria: Less than 1000.

2 Flammability (ASTM D2859): Pass.

3. Tensile Strength (ASTM D412): 60 psi (413 kPa).

4. Tear Resistance (ASTM D624): 140%.

5. Water Permeability: 0.4 gal/yd²/second.

6. Accessibility: Comply with requirements of ASTM F1951.

1.5 Submittals

A. Submit in accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES.

- 1. Manufacturer's product data and installation instructions
- 2. Manufacturer's standard verification samples of 9" x 9" minimum
- 3. Qualifications of the Contractor and poured-in place playground surfacing installer.
- 4. Warranty documents (Closeout submittal)

1.6 Quality Assurance

A. Contractor shall have experience with a minimum of three (3) projects of similar scope and complexity, completed within the last three years. Provide certification of qualification and a description of scope, size

and budget of each project, as well as client's name and phone number.

2. Poured-in-place playground surfacing installer shall be trained by the manufacturer of the playground surfacing system and certified as an approved applicator of the playground surfacing system.

1.7 Delivery, Handling, and Storage

- A. Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact.
- B. Store materials protected from exposure to harmful environmental conditions and at a minimum temperature of 20 degrees F (-7 degrees C) and a maximum temperature of 100 degrees F (38 degrees C).

1.8 Project/Site Conditions

- A. Install surfacing system when minimum ambient temperature is 40 degrees F (1 degree C) and maximum ambient temperature is 90 degrees F (32 degrees C). Do not install in steady or heavy rain.

1.9 Warranty

- A. The Contractor shall remedy any defect due to faulty materials or workmanship and pay for any damage to other work resulting there from within a period of one (1) year from final acceptance. Further the Contractor will provide all manufacturers' warranties covering the playground protective surfacing materials and system.
- B. Manufacturer's Warranty:
 1. Rubber tile playground surfacing: 5 years
 2. Poured-in-place playground surfacing: 10 years

PART 2 - PRODUCTS

2.1 Rubber Tile Playground Surfacing System

- A. Product: PlayBound Tile, manufactured by Surface America, Inc. (800-999-5555, <http://www.surfaceamerica.com/>) or approved equal
- B. Material: 100% post-consumer recycled SBR (Styrene Butadiene Rubber) and pigmented polyurethane
- C. Dimensions: 24" x 24"
- D. Thickness and Weight: 2 3/8", 36 lb.
- E. Color: Gray
- F. Dry Static Coefficient of Friction (ASTM D2047): 1.0.
- G. Wet Static Coefficient of Friction (ASTM D2047): 0.9.

H. Dry Skid Resistance (ASTM E303): 89.

I. Wet Skid Resistance (ASTM E303): 57

J. Accessories:

1. Surface America EverGrip Adhesive
2. PlayBound Tile edge, transitional and or curb pieces, as needed

2.2 Poured-In-Place Playground Surfacing System

A. Product: PlayBound Poured-in-Place System, manufactured by Surface America, Inc. (800-999-5555, <http://www.surfaceamerica.com/>) or approved equal

B. PlayBound Poured-In-Place primer:

1. Material: Urathane

C. PlayBound Poured-In-Place basemat:

1. Material: Blend of 100% recycled SBR (styrene butadiene rubber) and urethane:
2. Thickness: 1 1/2"
3. Formulation Components: Blend of strand and granular material

D. PlayBound Poured-In-Place top surface:

1. Material: Blend of recycled EPDM (ethylene propylene diene monomer) rubber and aliphatic urethane binder
2. Thickness: Nominal 1/2", minimum 3/8", maximum 5/8"
3. Color: 50% Black/25% Royal Blue/25% Sky Blue
4. Dry Static Coefficient of Friction (ASTM D2047): 1.0
5. Wet Static Coefficient of Friction (ASTM D2047): 0.9
6. Dry Skid Resistance (ASTM E303): 89
7. Wet Skid Resistance (ASTM E303): 57

E. Mixes:

1. Required mix proportions by weight:

- a) Basemat: 16+% urethane (as ratio: 14% urethane divided by 86% rubber). 14% urethane, 86% rubber (based on entire rubber & urethane mix)
- b) Top Surface: 22% urethane (ratio: 18% urethane divided by 82% rubber). 18% urethane, 82% rubber (based on entire rubber & urethane mix)

PART 3 - EXECUTION

3.1 General

A. Install playground protective surfacing per the instruction and

recommendations of the playground surfacing manufacturer.

3.2 Examination

- A. Verify that substrate conditions are suitable for installation of the playground surfacing systems. New concrete must be fully cured.
- B. Do not proceed with installation until unsuitable conditions are corrected.
- C. Proper drainage is critical to the longevity of the playground protective surfacing system. Inadequate drainage will cause premature deterioration of the system, and void the manufacturer warranty.

3.3 Preparation

- A. Subsurface preparation
 - 1. Rubber tile playground surfacing system: Ensure the substrate is level or uniformly sloped since the surface variations will be telegraphed through the rubber tile surface.
 - 2. Poured-in-place playground surfacing system: Apply primer to the substrate perimeter and any adjacent vertical barriers such as playground equipment supporting legs, curbs, or slabs that will contact the surfacing system at the rate of 300 square feet per gallon.

3.4 Installation

- A. Do not proceed with playground surfacing installation until all applicable site work, including substrate preparation, playground equipment installation and other relevant work, has been completed.
- B. Rubber tile playground surfacing system:
 - 1. Lay rubber tiles in grid pattern. Avoid placement when large temperature swing during the time between adhesive application and final curing are expected, as gapping may result.
 - 2. Apply adhesive on substrate at a rate of approximately 65 square feet per gallon. Adhesive consumption will increase as substrate porosity increases.
 - 3. Apply adhesive to the bottom of the tile.
 - 4. Apply adhesive to the tile sides. Apply the adhesive to approximately 60 perimeter inches of the total 120 perimeter inches of the tile to allow for rainwater drainage.
 - 5. Maintain a straight line at the tile joints.
- C. Poured-in-place playground surfacing system:
 - 1. Basemat installation:
 - a) Install the basemat at a consistency of 29 pounds, 1 ounce per cubic foot to the specified thickness.

- b) Allow basemat to cure for sufficient time so that indentations are not left in the basemat from applicator, foot traffic or equipment.
 - c) Do not allow foot traffic or use of the basemat surface until it is sufficiently cured.
2. Primer application:
- a) Apply primer to the basemat perimeter and any adjacent vertical parries such as playground equipment support legs, curbs or slabs that will contact the surfacing system at the rate of 300 square feet per gallon.
3. Top surface installation:
- a) Install top surface at a consistent density of 58 pounds, 9 ounces per cubic foot to a nominal thickness of 1/2".
 - b) Allow top surface to cure for a minimum of 48 hours.
 - c) At the end of the minimum curing period, verify that the top surface is sufficiently dry and firm to allow foot traffic and use without damage to the surface.
 - d) Do not allow foot traffic or use of the surface until it is sufficiently cured.

3.5 Protection

- A. Adequately protect all installed playground surface from damage by subsequent construction operations. Damaged work shall be replaced.

3.6 Final Cleanup

- A. Remove all trash, debris, surplus materials and equipment from the project site when the work of this Section has been completed and at such time as directed by the Contracting Officer's Representative.

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