

PLAYGROUND SURFACING - POURED RUBBER



PART 1 - GENERAL

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1.01 SECTION INCLUDES

- A. Poured in place and trowelled resilient playground surfacing.
- B. Related work, sub-grade preparation.
- C. Related Sections:
 - 1. Section 31 22 00, Earthwork.
 - 2. Section 32 13 13, Sitework Concrete.

1.02 REFERENCES

- A. ADAAG- Americans with Disabilities Act, 1990, Titles II.
- B. ASTM F1292 Standard Specification for Impact Attenuation of Surface Systems Under and Around Playground Equipment.
- C. ASTM E108 - Fire Test. Product shall exhibit a minimum result of a Class A Rating.
- D. ASTM F1487 - Standard Consumer Safety Performance Specification for Playground Equipment for Public Use
- E. ASTM F1951/PS83 - Determination of Accessibility of Surface Systems Under and Around Playground Equipment.
- F. ASTM E303, Skid Resistant Test Data.
- G. CPSC – Consumer Products Safety Commission, Handbook for Public Playground Safety #325, Current Edition.

SUBMITTALS

1.03

- A. Manufacturer's Product Literature and Specification Data.
- B. ASTM F1292 - Impact Attenuation Test Certification for the poured-in-place system to be installed in compliance with the Critical Fall height as determined by the Playground Equipment to be installed in conjunction with the poured-in-place surfacing system.
- C. Color: Selected from manufacturer's color chart. Choice by Owner to be determined prior to installation.

- D. Manufacturer's Installation Instructions and Procedures: Indicate substrate requirements and installation methods.
- E. Plan of equipment layout indicating location, footings and color patterns. Inclusive of drainage structures.

1.04 QUALITY ASSURANCE

- A. Qualifications: Utilize an installer approved and trained by the manufacturer of the playground surfacing system, having experience with other projects of the scope and scale of the work described in this section.
- B. Certifications: Certification by manufacturer that installer is an approved applicator of the playground surfacing system.
- C. International Play Equipment Manufacturers Association (IPEMA) certified.

1.05 REGULATORY REQUIREMENTS

- A. Materials and play areas shall comply with the requirements of ASTM F1951.

1.06 DELIVERY, STORAGE & HANDLING

- A. A. General: Comply with Division 1 Product Requirement Section.
- B. B. Delivery: Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact.
- C. C. Storage and Protection: Store materials protected from exposure to harmful environmental conditions and at a minimum temperature of 40 degrees F (4 degrees C) and a maximum temperature of 90 degrees F (32 degrees C).

1.07 WARRANTY

- A. Statement of Warranty for a minimum two-year period, Full Warranty, labor and materials. Detailed Warranty Claim requirements of the Owner and specific procedures to be followed by the manufacturer in terms of response and repair of warranty claims.

1.08 EXTRA MATERIALS

- A. Furnish extra materials described below that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 - 1. Repair Kits: Full size units for each color provided

PART 2 - PRODUCTS

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2.02 SYSTEM DESCRIPTION

- A. 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 150.
 - b. Head Injury Criteria: Less than 850.
 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.

2.03 MATERIALS

- A. Description: Dual durometer poured-in-place system with wearing layer upper membrane and an underlying impact attenuation cushion layer. The finished surface shall be porous, and capable of being installed at varying thickness to comply with Critical Fall height requirements of playground equipment installed in conjunction with the surface.
- B. Materials: The surface shall be manufactured from EPDM and SBR rubber compounds mixed with a 100 percent MDI (Diisocyanate) based Polyurethane Resin. Polyurethane containing any TDI (Toluene Diphenyl Isocyanate) shall not be allowed due to environmental regulations.
- C. Cushion Layer shall be a mixture of 3/8" shredded and a 1mm-3mm SBR rubber particles of heterogeneous distribution (50/50 mixture) bonded by a polyurethane binder applied to 100 percent of the rubber and installed to a designated thickness as required by the Consumer product Safety's Commission's Guidelines and ASTM F1292 Test Criteria. Thickness of Cushion layer varies according to CPSC Guideline depending on height of fall for tallest equipment.
1. Material: Blend of 100% recycled SBR (styrene butadiene rubber) and urethane.
 2. Thickness: Various
 3. Formulation Components: Blend of strand and granular material.

- D. Wearing Layer shall be a mixture of black or colored EPDM granules, 1mm-3mm, bonded by a polyurethane binder applied to 100 percent of the granules and applied to a thickness of 1/2 inch over the cushion layer. Color choices and blend ratios to be of colors selected by the Architect.
 - 1. Dry Static Coefficient of Friction (ASTM D2047): 1.0.
 - 2. Wet Static Coefficient of Friction (ASTM D2047): 0.9.
 - 3. Dry Skid Resistance (ASTM E303): 89.
 - 4. Wet Skid Resistance (ASTM E303): 57.
- DI. Finish Texture: Color to be selected by Architect.
- DII. Primer: Aromatic urethane resin.
- DIII. Geotextile Fabric: Geotextile membrane applied over compacted and graded substrate for aggregate substrate installation.
- DIV. Aggregate sub-base, permeable: Crushed Aggregate Base: 3/4 inch maximum grading, crushed rock and rock dust conforming to requirements of Section 200-2.2, SSPWC, or Permeable Material: CSS Caltrans Standard Specifications, Latest Edition, Section 68, Class 2.
- DV. MIXES
 - 1. A. Required mix proportions by weight:
 - 2. 1. Basemat: 16+% urethane (as ratio: 14% urethane divided by 86% rubber). 14% urethane, 86% rubber (based on entire rubber & urethane mix).
 - 3. 2. Top Surface: 22% urethane (ratio: 18% urethane divided by 82% rubber). 18% urethane, 82% rubber (based on entire rubber & urethane mix).

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Scarify and compact soil sub-base to 90%.
- B. Verify that substrate is graded, smooth and ready to receive work of this Section.
- C. Verify drainage system has been installed.
- D. Verify gradients and elevations of substrate are correct.
- E. Verify perimeter concrete curbing has been installed per Section 32 13 13.
- F. Install minimum 4 inch thick aggregate substrate, compacted to 90%, 1/4" in 10 feet maximum tolerance, installed in two 2-inch lifts grade to slope minimum 2%, install geotextile fabric over aggregate substrate.
- G. Coordinate with installation of playground equipment.

3.02 INSTALLATION

- A. Surface Preparation: Using a brush or short nap roller, apply primer to the substrate perimeter and any adjacent vertical barriers such as playground equipment support legs, curbs or slabs that will contact the surfacing system at the rate of 300 ft²/gal (7.5 m²/L).
- B. Install Shredded SBR cushion course and EPDM wearing surface system per manufacturer's instructions.
 - a. Over aggregate: Install play surfacing system over geotextile fabric over compacted aggregate substrate, slope to drain aggregate no less than 2 percent.
 - b. Basemat Installation:
 - 1) Using screeds and hand trowels, install the basemat at a consistent density of 29 pounds, 1 ounce per cubic foot (466 kg/m³) to the specified thickness.
 - 2) Allow basemat to cure for sufficient time so that indentations are not left in the basemat from applicator foot traffic or equipment.
 - 3) Do not allow foot traffic or use of the basemat surface until it is sufficiently cured.
 - c. Top Surface Installation:
 - 1) Using a hand trowel, install top surface at a consistent density of 58 pounds, 9 ounces per cubic foot (938 kg/m³) to a nominal thickness of 1/2" (12.7 mm).
 - 2) Allow top surface to cure for a minimum of 48 hours.
 - 3) 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.
 - 4) Do not allow foot traffic or use of the surface until it is sufficiently cured.
- C. Perimeter: As indicated on drawings and installed in accordance with Section 32 13 13:
 - 1. Flush with Exposed Concrete Perimeter Curb: Top of concrete curb to flush with finished surface, tooled rounded edges.
- D. Manufacturer shall have manufactured and installed playground poured-in-place surfacing systems to current ASTM F1292 Test Criteria for a minimum of 5 years. The installation of the poured-in-place product shall be completed by Manufacturer Certified Contractors or by direct employees of the Manufacturer's Installation Division. Manufacturer's detailed installation procedures shall be submitted to the Architect.
- E. Make necessary adjustments to system to accommodate playground equipment uprights installed into grade.
- F. Install play surfacing level abutting Path of Travel and each playground equipment.