

BONDED UNITARY RUBBER PROTECTIVE PLAYGROUND SURFACING

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Unitary synthetic poured Single Density rubber seamless surface
- B. Related Sections:
 - 1. Division 31 Section "Earth Moving" for filling and grading and for [drainage course] [drainage/separation geo textiles] [and sub base courses].
 - 2. Division 33 Section "Sub drainage" for playground sub drainage system.

1.3 DEFINITIONS

- A. Critical Height: Standard measure of shock attenuation. According to CPSC No. 325, this means "the fall height below which a life-threatening head injury would not be expected to occur."

1.4 PERFORMANCE REQUIREMENTS

- A. Impact Attenuation: According to ASTM F1292-17a or latest version.
- B. Accessibility of Surface Systems: According to ASTM F 1951-08 or latest version.
- C. IPEMA certified: Product and crew chiefs must be IPEMA certified

1.5 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. LEED Submittals:

1. Product Data for Credit MR 4: For products having recycled content, documentation indicating percentages by weight of postconsumer and preconsumer recycled content. Include statement indicating cost for each product having recycled content.
- C. Shop Drawings: For each playground surface system, include materials, plans, cross sections, drainage, installation, and edge termination. Include patterns made by varying colors of surfacing. Include details of graphics.
- D. Samples for Initial Selection:
 1. Include similar samples of playground surface system and accessories involving color selection.
- E. Samples for Verification: For each type of playground surface system indicated.
 1. Minimum **6X6** Sample of synthetic rubber seamless surface.
- F. Product Schedule: For playground surface systems. [**Use same designations indicated on Drawings.**]

1.6 INFORMATIONAL SUBMITTALS

- A. Coordination Drawings: Plans, drawn to scale, on which the following items are shown and coordinated with each other, using input from Installers of the items involved:
 1. Extent of surface systems and use zones for equipment.
 2. Critical heights for playground surfaces and fall heights for equipment.
- B. Qualification Data: For qualified Installer and testing agency.
- C. Product Certificates: For each type of unitary synthetic playground surface system, from manufacturer.
- D. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, for each unitary synthetic playground surface system.
- E. Field quality-control reports.
- F. Warranty: Sample of Warranty. Minimum of 3 years not pro-rated

1.7 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For playground surface system to include in maintenance manuals.
- B. Material Certificates: Material certificates will be filled out and signed by specified manufacturer/supplier that specified materials were shipped and in proper amounts for square footage/thickness/color.

1.8 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1.9 QUALITY ASSURANCE

- A. Installer Qualifications: An employer of workers trained and approved by manufacturer. Crew Chief must be IPEMA Certified.
- B. Source Limitations: Obtain playground surface system materials, including primers and binders, from manufacturer specified
 - 1. Provide secondary materials including adhesives, primers, and repair materials of type and from source recommended by manufacturer of playground surface system materials.
- C. Standards and Guidelines: Comply with CPSC No. 325, "Handbook for Public Playground Safety"; ASTM F1292-17a; and ASTM F 1487.

1.10 PROJECT CONDITIONS

- A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit playground surface system installation to be performed according to manufacturers' written instructions and warranty requirements.

1.11 WARRANTY

- A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of playground surface system that fail in materials or workmanship within specified warranty period.

1. Failures include, but are not limited to, the following:
 - a. Reduction in impact attenuation.
 - b. Deterioration of surface and other materials beyond normal weathering and wear and tear.
2. Warranty Period: 3 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 UNITARY SYNTHETIC SINGLE-DENSITY SEAMLESS SURFACE <Insert drawing designation>

- A. **Surface System:** Poured-in-place, single layer system with wearing course over cushion course. Provide manufacturer's standard thickness for each layer as required for overall thickness indicated, tested for impact attenuation according to ASTM F1292-17a and for accessibility according to ASTM F 1951.

1. Products: Subject to compliance with requirements, provide the following:

Robertson Industries, Inc. TotTurf **Bonded**

2414 West 12th Street
Suite 5
Tempe, AZ 85281
800-858-0519 office
602-340-0402 fax
www.totturf.com

Manufacturer:

Midwest Elastomers, Inc.
700 Industrial Drive
PO Box 412
Wapakoneta, OH 45895
Phone: 419-738-5430
ER Phone: 419-230-7600
www.midwestelastomers.com

Impact Course: Minimum 1.75" thick using +4 SBR Mulch Buffings Sieves 12.5mm (0%) 20 Sieve (98-100%) and the pan (0-2%). Vibrant, attractive premium pigmented urethane colored coating on loose fill rubber landscape or pour in place mulch. Manufactured from 100% post-consumer waste tire containing no metal or lead. Weight/Packaging: Specific Gravity: 1.25g/cm³ (D-53217); Bulk Density: 20#/cu. ft. (D-1859). Rubber to urethane ratio shall be 18% or 9lbs or urethane per 50lbs of rubber.

Trade name: Polyurethane Rubber Mulch Coating- Coloration Pigment (Proprietary)
Colors: Red, Green, Blue, Beige, Brown, Yellow

Composition/information on ingredients:

CAS #	Component	Percent (%)
1334-86-4	Carbon Black	< 50
1314-13-2	Zinc Oxide	1-5
26780-96-1	Trimethyl Dehydroquinoline, Homopolymer	< 3
9003-55-8	Styrene Butadiene Rubber	< 60
9006-04-6	Natural Rubber	< 40
9003-35-4	Phenol Formaldehyde Resin	< 5
64742-54-7	Heavy Paraffinic Distillate	< 20
137-26-8	Tetramethylthiuram Disulfide	< 4

2. **Binder:** No Toluene Diphenyl Isocyanate (TDI) shall be used. No filler materials shall be used in urethane such as plasticizers and the catalyzing agent shall contain no heavy metals. 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). Manufacturer is permitted to modify the type of urethane required to match extreme weather conditions. Substitutions must be equal to or exceed original quality, such as DOW Voramer MR 1105 and MR 1165 Urethanes.
3. Critical Height: [4 feet (1.2 m)] [5 feet (1.5 m)] [6 feet (1.8 m)] [7 feet (2.1 m)] [8 feet (2.4 m)] [As indicated] <Insert dimension>.
4. Overall Thickness: Not less than [as required for critical height indicated] [1-3/4 inches (4')] [2-1/4 inches (5')] [2-3/4 inches (6')] [3-1/4 inches (7')] [3-3/4 inches (8')]
5. Primer/Adhesive: Manufacturer's standard primer and weather-resistant, moisture-cured polyurethane adhesive suitable for unit, substrate, and location indicated.

6. Wearing Course Color(s): **[As indicated]**
 - a. Color **[Pattern]** **[Graphics]**: As indicated on Drawings.
- B. Leveling and Patching Material: Portland cement-based grout or epoxy- or polyurethane-based formulation suitable for exterior use and approved by playground surface system manufacturer.

PART 3 - EXECUTION

3.1 EXAMINATION:

Examine substrates and conditions, with Installer present, for compliance with requirements for maximum moisture content, sub grade and substrate conditions, drainage, and other conditions affecting performance of the Work. Drainage at the low end of the site is of the utmost importance. Any brick or concrete walls or curbs at the low end of the area to receive the play surface must have drainage access via weep holes. Weep holes must extend a minimum of 2 inches above the top of the new concrete slab and a minimum of 1/8" below the top of the new concrete slab. The latter is necessary because the rubber surfacing system is porous and water will permeate (drain downward) to the concrete slab.

- A. Hard-Surface Substrates: Verify that substrates are satisfactory for unitary playground surface system installation and that substrate surfaces are dry, cured, and uniformly sloped to drain within recommended tolerances according to playground surface system manufacturer's written requirements for cross-section profile.
 1. Asphalt Substrates: Verify that substrates are dry, sufficiently cured to bond with adhesive, free from surface defects, and free of dust, dirt, loose particles, grease, oil, and other contaminants incompatible with playground surface system or that may interfere with adhesive bond.
 2. Concrete Substrates: Verify that substrates are dry, free from surface defects, and free of laitance, glaze, efflorescence, curing compounds, form-release agents, hardeners, dust, dirt, loose particles, grease, oil, and other contaminants incompatible with playground surface system or that may interfere with adhesive bond. Determine adhesion, dryness, and acidity characteristics by performing procedures recommended in writing by playground surface system manufacturer.
 3. Stone Substrates: Verify that substrates are a minimum of 4" thick with proper drainage and compacted to 95%. Stone used shall be ¾ minus with screenings or suitable equivalent and shall vary no more than 1/8" within a 10 ft radius. Core drillings for equipment poles shall be filled flush to the top of the stone with concrete to prevent sinkholes after installation of PIP surface.

- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. General: Prepare substrates to receive surfacing products according to playground surface system manufacturer's written instructions. Verify that substrates are sound and without high spots, ridges, holes, and depressions.
- B. **[Concrete] [Asphalt][Stone]** Substrates: Provide sound surface free of laitance, efflorescence, curing compounds, and other contaminants incompatible with playground surface system.
 - 1. Repair unsatisfactory surfaces and fill holes and depressions.
 - 2. Mechanically scarify or otherwise prepare concrete substrates to achieve recommended degree of roughness.
 - 3. Saw cut **[concrete] [asphalt]** for terminal edges of playground surface systems as indicated.
 - 4. Treat control joints and other nonmoving substrate cracks to prevent telegraphing through playground surface system.
 - 5. Confirm slope and drainage are correct and in place.

3.3 INSTALLATION, GENERAL

- A. General: Comply with playground surface system manufacturer's written installation instructions. Install playground surface system over area and in thickness indicated.

3.4 INSTALLATION OF SEAMLESS PLAYGROUND SURFACE SYSTEMS

- A. Seamless Surface: Mix and apply components of playground surface system according to manufacturer's written instructions to produce a uniform, monolithic wearing surface and impact-attenuating system of total thickness indicated.
 - 1. Poured Impact/Wear Course: Spread evenly over primed substrate to form a uniform layer applied at manufacturer's standard spreading rate in one continuous operation, with a minimum of cold joints. Thickness of cushion course should meet ASTM F1292-17a guidelines and shall be a minimum of 1.75" thick.
 - 2. Edge Treatment: **[Flush] [Extended surface course] [Saw-cut base and vertical pour] [As indicated]**. Fully adhere edges to substrate with full coverage of substrate. Maintain fully cushioned thickness required to comply with safety performance requirements.

3.5 FIELD QUALITY CONTROL

- A. Testing Agency: [**Owner will engage**] [**Engage**] a qualified testing agency to perform tests and inspections.
- B. Testing Services: Testing and inspecting of completed applications of playground surface system shall take place according to ASTM F1292-17a or latest version.
- C. Remove and replace applications of playground surface system where test results indicate that it does not comply with requirements.
- D. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with requirements.

3.6 PROTECTION

- A. Provide protection of surface during curing process.

END OF DOCUMENT