PART 1 GENERAL

1.1 SUMMARY

A. Section includes all labor, materials and equipment necessary for the provision of a poured-in-place playground safety surface where indicated on the drawings.

B. Related Sections:
   1. 02200 - Earthwork
   2. 03300 - Cast-in-Place Concrete
   3. 02860 - Primary Play Area Equipment

1.2 REFERENCES

A. American Society for testing and Materials (ASTM):
   2. F1292 Impact Attenuation.
   3. F1951 Accessibility.
   5. D2859 Flammability.
   6. D412 & D624 Strength.
   7. UPITT TEST for Combustion Product Toxicity.

1.3 SYSTEM DESCRIPTION

A. Playground safety surface system shall provide for resilient, seamless rubber surface installed over a concrete slab, and meeting the following requirements:
   1. Fall protection as required by Federal and State Statues, Standards, Regulations and reference materials noted herein.
   2. Accessibility as required by Federal and State Statutes, Standards and Regulations.
   3. Surfaces intended to serve as accessible paths of travel shall be firm, stable and slip-resistant and as required by Federal and State Statutes, Standards and Regulations.
1.4 SUBMITTALS

A. Product Data: Submit manufacturer's descriptive literature, specifications and application instructions.

B. Shop Drawing showing dimensions and layout of the surface with detailed edge conditions and any special requirements indicated on the Contract Drawings. Include a sample of the surface material, minimum 3 inches in diameter in the full depth of the section required by the Contract Drawings in the colors indicated.

C. Product Samples: One sample of safety surface (minimum 6" x 6") with color chart of available colors for selection.

D. Test reports showing compliance with the references listed previously. Test results shall be certified and submitted on the letterhead of an independent test lab.

E. Warranty: Special warranty specified in this Section.

F. Safety surfacing manufacturer's written acceptance of substrate installation prior to commencement of safety surfacing system.

1.5 QUALITY ASSURANCE

A. Manufacturer Qualifications: Submit a list of 10 similar projects constructed in the South Florida area by the manufacturer over the last 5 years.

B. Installer Qualifications:
   1. Only installers approved by the safety surfacing manufacturer will be considered for qualification.
   2. Approved installer shall have been qualified by the safety surfacing manufacturer as knowledgeable in all phases of the safety surface installation.
   3. Approved installer must have three (3) years of experience installing safety surface systems and submit a list of five projects/references as a prequalification requirement. At least one of the five projects/references must be of equal size, quantity and magnitude to this project as a prequalification requirement. M-DCPS has the option to personally inspect the projects/references and accept or reject any of the installers prior to bid time as a prequalification requirement.
   4. Installer Qualifications: Provide Letter of Certification that installer is acceptable to the safety surfacing manufacturer prior to award of the safety surfacing contract.

C. Provide Certification indicating that all products meet or exceed the specified requirements.

D. Product/Equipment Data and Material Test Reports Degree of Compliance: Where more than one standard, code, regulation or contract provision has a bearing on materials and/or installation requirements, the materials and installation shall be installed following the strictest requirements of each standard or provision. Each standard shall be understood to be a minimum requirement.

E. Test Results:
1. **ASTM F 1292**: Safety Surface shall be stable and slip resistant to comply with all requirements set forth in the Americans with Disabilities Act (ADA). Surfacing within playground equipment use zones shall meet or exceed the performance requirements of CPSC, ASTM F 1292 and CSA Z614-98 that a surface yield both a peak deceleration of no more than 200 g’s 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.

   a. For surfaces manufactured for the purpose of playground safety surface, the impact attenuation performance shall be documented by a certificate of compliance.

   b. The test report must be for surfacing over the specified base and state the total depth of the surfacing system required for the fall heights on this project.

2. **ASTM F1951 - Accessibility of Surface Systems**: All playground surfacing products must pass testing to ensure wheelchair access under and around playground equipment as required by American Disabilities Act.

3. **ASTM D2859 - Flammability of Finished Floor Cover**: Product shall pass flammability.

4. **ASTM D412 - Tensile Strength**: Minimum 60 PSI.

5. **ASTM D624 - Tear Resistance**: Minimum 140%.

6. **Permeability**: The system must be porous to provide proper positive drainage.

F. Certify that all products used shall be asbestos-free.

G. Pre-installation Conference: Prior to start of work, the safety surface manufacturer’s representative shall request from the A/E and M-DCPS Project Manager, a pre-installation conference to discuss the procedures that will be followed by the installer in the installation of the poured-in-place surface.

1.6 **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 manufacturer’s written instructions and warranty requirements.

1.7 **DELIVERY, STORAGE AND HANDLING**

A. Store and protect materials on site, and keep clean and free of foreign materials. Any damaged items shall be replaced at no additional cost to M-DCPS.

1.8 **COORDINATION**

A. Coordinate installation of playground surface systems with installation of playground equipment specified in Division 2 Section "Playground Equipment and Structures."

1.9 **WARRANTY**

A. Special Warranty: Provide a manufacturer's non-pro-rated warranty in which the manufacturer agrees to repair or replace components of playground surface system that fail in materials or workmanship within the specified warranty period.

   1. Failures include, but are not limited to, the following:
2. Warranty shall not be conditioned on M-DCPS providing periodic application of sealers or other coatings, or any other type of periodic maintenance, to the wear course during the warranty period. If such coatings are required during the warranty period, they shall be provided by the installer at no additional cost to M-DCPS.

3. Warranty Period: Five years, non-pro-rated, from Date of Substantial Completion.

PART 2 PRODUCTS

2.1 MANUFACTURERS/PRODUCTS

A. CHILD SAFE PRODUCTS - Poured-in-Place
   7390 Central Industrial Drive
   Riviera Beach, FL 33404

B. GAMETIME - GT Impax
   150 PlayCore Drive SE
   Fort Payne, Alabama 35967

C. NO FAULT SPORT GROUP - No Fault Safety Surface
   3112 Valley Creek Drive, Suite C
   Baton Rouge, Louisiana 70808

D. SURFACE AMERICA, INC. - Playbound
   PO Box 157
   Williamsville, NY 14231

2.2 GENERAL

A. The playground safety surface shall be a poured-in-place composition of recycled rubber sizings and granular material set in 2 courses:

1. The first course shall be the Cushion Course composed of recycled rubber sizings, SBR, or EPDM select rubber bound in a polyurethane binder selected by the manufacturer, screeded and hand trowelled in a seamless application to required thicknesses to be determined in accordance with the applicable references noted above. Minimum thickness shall be 1-1/2”.

2. The second course shall be the Wear Course, 3/8” minimum thickness, composed of EPDM pigmented synthetic granular rubber only (1-3 mm peroxide cured) with a minimum EPDM content of 25% by weight and certified letter from manufacturer stating this content. All rubber shall remain consistent in gradation and size and the cap will be poured-in-place to maintain a seamless application.

3. The minimum overall thickness of the finished rubberized surface shall be 1-7/8”.

B. The Polyurethane Primer and Binder shall be 100% single component polyurethane binding agent compatible with and as provided by the safety surfacing manufacturer.
PART 3 EXECUTION

3.1 GENERAL

A. Install concrete slab where indicated on the drawings and in accordance with requirements of Section 03300 - Cast-in-Place Concrete.

B. The safety surfacing shall be installed after playground equipment is installed and the concrete slab has been inspected and approved by the Manufacturer/Installer of the safety surfacing.

C. Ensure that concrete substrate has been allowed to cure at least seven days. Verify cure time with safety surfacing manufacturer.

D. Concrete subsurface shall have a minimum slope of 2% to provide positive drainage towards the edges of the slab, and shall vary no more than 1/8 inch when measured in any direction with a 10-foot straight edge.

***************************************************************************************************

Note to Specifier: The substrate for the safety surfacing shall be a cast-in-place concrete slab complying with requirements of Section 03300. Each safety surfacing manufacturer has drainage and surface variation tolerances. Any remedial work required to meet tolerances required by the safety surfacing manufacturer would be considered base contract and must be performed before proceeding with the work specified in this Section at no additional cost to M-DCPS.

The design of the substrate slab shall include a concrete curb around the entire perimeter of the poured-in-place rubberized surface. The concrete curb shall contain cut-outs to permit proper drainage of any moisture that may penetrate the rubberized surface. When the rubberized surface is placed against a concrete slab such as a sidewalk, or a vertical surface such as a wall, the edge condition of the concrete substrate slab shall be designed to drain away from the area, any moisture that may accumulate below the rubberized surface.

***************************************************************************************************

E. Edge Treatment: Provide a concrete curb edge around entire perimeter of the rubberized safety surface. Provide drainage cut-outs 3-inch wide x full depth of rubberized surface, around entire perimeter of concrete curb edge. Bottom of drainage cut-outs shall be flush with top of the concrete slab substrate. Drainage cut-outs shall be spaced to meet manufacturer's requirements, but shall not be spaced greater than 3 feet on-center. Finished elevation of the concrete curb shall be flush with the finished elevation of the rubberized surface placed directly adjacent to it. When the rubberized surface is placed against a concrete slab such as a sidewalk, or a vertical surface such as a wall, the concrete substrate slab shall be designed to drain any moisture that may accumulate below the rubberized surface, away from the area.

3.2 INSPECTION

A. Do not proceed with the work of this section until conditions detrimental to the proper and timely completion of the work have been corrected in an acceptable manner.
B. Installation of the safety surfacing shall mean that the Manufacturer/Installer of the rubberized surfacing has accepted the condition of the concrete slab substrate.

3.3 INSTALLATION OF SEAMLESS PLAYGROUND SURFACE SYSTEMS

A. Seamless Surface: Mix and apply components of safety surfacing system according to manufacturer’s written instructions.

1. Substrate Primer: Apply over prepared concrete substrate at manufacturer’s standard spreading rate for concrete.
2. Cushion 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. Thicknesses shall vary as necessary to comply with fall heights referenced above.
3. Intercoat Primer: Over cured cushion course, apply primer at manufacturer’s standard spreading rate.
4. Wear Course: Spread over primed base course to form a uniform layer applied at manufacturer’s standard spreading rate in one continuous operation and, except where color changes, with a minimum of cold joints.
   a. Finish surface to produce manufacturer’s standard wearing-surface texture.
   b. Where colored pattern or graphics are indicated, place adjacent colored material as soon as placed colored material is sufficiently cured, using primer or adhesive if required by manufacturer’s written instructions.

3.4 FIELD QUALITY CONTROL

A. Testing Services: The installer shall certify through testing and inspection of completed application of surface system in accordance with ASTM F 1292.

B. Remove and replace surface system where test results indicate that it does not comply with requirements.

C. Additional testing and inspecting, at the installer’s expense, may be performed to determine compliance of replaced or additional work with all requirements.

3.5 PROTECTION

A. Installer shall provide protection to the rubberized surface to prevent traffic over the surface for not less than 48 hours after installation.

3.6 MAINTENANCE/REPAIR

A. The manufacturer shall provide written maintenance instructions for the use by the M-DCPS Maintenance Staff and provide demonstration and instruction on the maintenance of the installed surface.