

NOT FOR CONSTRUCTION

SECTION 02790 – POURED RUBBER SAFETY SURFACE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This section includes:

1. Resilient playground surfacing poured-in-place system. Provide all necessary materials, labor, tools and equipment to perform the work included in the section for the installation of the poured-in-place playground surfacing.
2. Aggregate drainage base for permeable poured in place system.

- B. Related Sections include the following:

1. Division 2 Section 02881 "Custom Playground Equipment"
2. Division 2 Section 02882 "Playground Equipment"
3. Division 2 Section 02300 "Earthwork"
4. Division 3 Section 03100 "Concrete Forms and Accessories"
5. Division 3 Section 03200 "Concrete Reinforcement"

1.3 SUBMITTALS

- A. General: Refer to and comply with _____ for procedures and other submittal criteria.
- B. Manufacturer's Product Literature and Specification Data.
- C. Shop Drawings: A Shop drawing of the proposed safety surfacing layout shall be drawn in 1/4" = 1'-0" scale (unless otherwise specified by the Lead Landscape Architect) and shall clearly show the following details: size of distinct colored areas, size of cut pieces, if any; location of all mechanical anchors, rods, or clips; type of adhesive to be used; and exact location of all play equipment, boulders, posts, springs or other support systems. Drawing shall also delineate variations of cushion course thicknesses associated with use zone Critical Fall Heights. As-built deviations from the proposed safety surfacing layout made during installation shall be approved in the field by the Lead Landscape Architect in writing on the shop drawing.
- D. Impact Attenuation Test Certification: ASTM F1292-04 (or latest issue) for the poured-in-place system to be installed in compliance with the Critical Fall Height as determined by the Playground Equipment according to ASTM F1487.
 1. Submit Testing of All Performance requirements including surface performance parameters, performance criterion, critical fall height of installed playground surfaces, (including wet/frozen test) and performance of installed playground surfaces to standards stated in the specifications.

NOT FOR CONSTRUCTION

2. All testing requirements stated in Installed Surface Performance Test (field test) and a minimum of 3 additional tests for each small mound and 12 additional tests for the large mound with slide. The total number of tests shall not be less than 1 test per 500 SF of surfacing.
 3. The critical fall height(s) used in this test shall be the height(s) associated with individual play elements and supplied by the Play Equipment Manufacturer. Test submittals must clearly state that test was performed over the seam and anchoring system, and on the body of the tile. Critical fall height of a piece of equipment is typically the distance between the highest designated playing surface and the protective surface beneath it. Surfaced areas in general shall meet or exceed a 5 foot fall height rating. In areas of swings, surface shall have at least a 10 foot drop height rating.
- E. Certification of compliance with ASTM F1951 - 09b (or latest issue), Standard Specification for Determination of Accessibility of Surface Systems Under and Around Playground Equipment
- F. Weathering (Aging) Test Certification – Samples of the surface material shall be tested according to the criteria set forth in ASTM G 155-05a Standard Practice for Operating Xenon Arc Light Apparatus for Exposure of Non-Metallic Materials under the following conditions:
1. 63 degrees centigrade temperature,
 2. 0.35 Watts/ sq meter Irradiance,
 3. 102 minute light cycle followed by an 18 minute salt spray exposure
 4. Test samples prior to test cycle and at 1,000, 2,000, 4,000, 6,000 and 10,000 hrs for tensile strength (psi) and tensile elongation (%). Test results of exposed samples shall not be less than 80% of test results prior to testing. An exposed sample shall be re-tested in compliance with ASTM F1292-04 at 72oF only. A peak deceleration reading not exceeding 200G's shall be maintained. HIC testing is not required for re-testing.
- G. Slip Resistance Test Certification - When using the Horizontal Dynamometer Pull-Meter in accordance with ASTM C 1028 Standard Test for Determining the Static Coefficient of Friction of Ceramic Tile and Other Like Surfaces by Horizontal Dynamometer Pull-Meter Method. the coefficient of friction of not less than 0.8 when dry and 0.6 when wet (or BPN of not less than 54 when wet for ASTM test E 303).
- H. Flammability Test Certification - Surface shall comply with the standards set forth in ASTM D2859 Standard Test Method for Ignition Characteristics of Finished Textile Floor Covering Material. A minimum of 7 out of 8 tests shall pass.
- I. Submit manufacturer's written instructions for recommended maintenance practices.
- J. Installer Certification. Installer must be trained and certified by the manufacturer. Installer's certification on manufacturer's letterhead shall be submitted to the Lead Landscape Architect.

NOT FOR CONSTRUCTION

1.4 QUALITY ASSURANCE

- A. All safety surface materials and installation shall meet the latest suggested guidelines published in the "Handbook for Public Playground Safety" by The U.S. Consumer Product Safety Commission (C.P.S.C.), and The American Society for Testing and Materials (ASTM) as outlined above.
- B. The installation of the poured-in-place product shall be completed by Playtop® Certified Contractors or by the Playtop® Company. Manufacturer's detailed installation procedures shall be submitted to the Landscape Architect and made part of the Bid Specifications.
- C. The safety surfacing shall be installed as soon as possible after the play equipment installation is complete. The Contractor shall be responsible for temporarily barricading the Play Equipment prior to completion of the safety surfacing installation.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Playtop L.L.C. with Nikegrind; 272 Main Street, Wadsworth, Ohio 44281, 330-835-8352 inquiries@platop.com

2.2 MATERIALS

- A. Playtop® poured-in-place system with Nikegrind.
 - 1. Description: A dual poured-in-place system with a 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.
 - 2. Wearing surface shall be manufactured from Playtop® colored rubber pebbles mixed with Nikegrind.
 - 3. Cushion Course shall be a mixture of black recycled SBR rubber tires.
- B. Aggregate Drainage Base Course

NOT FOR CONSTRUCTION

1. The aggregate used to construct the foundation layer should be graded crushed rock, compacted and regulated to a finished thickness to suit site conditions in accordance with the contract drawings.
2. The base course should comply with manufacturer's specification and should be one of the following stone sizes, conforming to the following:
 - a) AASHTO No. 2: 2-in to 1-in uniformly graded coarse aggregate, with a wash loss of no more than 0.5%, AASHTO size number 2 per AASHTO Specifications, Part I, 19th Ed., 1998, or later and shall have voids 40% as measured by ASTM-C29 and have the following gradation:

U.S. Standard Sieve Size	Percent Passing
3-in (76.2 mm)	100
2 ½-in (63.5 mm)	90-100
2-in (50.8 mm)	35-70
1 ½-in (38.1 mm)	0-15
¾-in (19.1 mm)	0-5
No. 4 (4.75 mm)	0

- b) AASHTO No. 57: The drainage stone shall be AASHTO No. 57 stone, ranging in diameter from 4.75 mm to 1" with 25 to 60% by weight smaller than ½" diameter, and shall be clean and free of debris.
- c) Recycled Material consisting of at least ninety five percent (95%) by weight of the following:
 1. Recycled Portland Cement Concrete Aggregate or
 2. Recycled Portland Cement Concrete Aggregate mixed with Stone or Gravel.

PART 3 - EXECUTION

3.1 SITE PREPARATION

- A. Installation of all types shall be in accordance with CPSC guidelines and manufacturers installation instructions approved by the Lead Landscape Architect. The safety surfacing should not create new hazards; hence, all installations shall be done as carefully as possible in a neat and workmanlike manner. Temperature must remain above 50 F throughout the installation and curing process. Site must be secured against vandalism during installation and curing process.
- B. Site Grading: For an on grade installation, the finished height of the Playtop® surface will be equal to the perimeter grade but not more than one quarter inch higher unless approved by the Lead Landscape Architect. An above grade installation will usually require the use of transition ramps around the perimeters of the area to transit smoothly back to the floor elevation, unless the site terminates at a wall or other vertical surface. For site drainage, when preparing a new hard base, a minimum slope of one inch per ten feet of run should be applied to the finished surface with slope toward the drain basin, drain trough, or down grade of the site. Since Playtop® surfaces are permeable, base drainage must be provided at the slab or floor level for below ground installations.
- C. Concrete Base Construction: For concrete surfaces, shot blast, acid etch or power scarify as required to remove all paints, sealers and contaminants to obtain optimum bond of the Cushion Layer to the concrete. Remove sufficient material to provide a sound surface, free of glaze, efflorescence, or form release agents. Remove grease, oil, and other penetrating contaminants.

NOT FOR CONSTRUCTION

Concrete will have a pitch of 0.10 inches per foot and should not have low areas that will hold water under the system. All hard base systems shall be sloped to meet ADA guidelines.

- D. Compacted Aggregate Base Foundation Material Construction: Where Playtop® Safety Surface is not to be installed over a concrete base as indicated on the Contract Drawings, use Compacted Aggregate Base Foundation Material Construction.
 - 1. Aggregate Drainage Base Course as specified, shall be installed and compacted as a base for the safety system.
- E. The foundation layer should be laid with local deviations no greater than 1/4" under a 10ft straight edge in any direction.

3.2 INSTALLATION

- A. Install product according to all manufacturer instructions.
- B. Installation Supervisor should select the appropriate binder measure for the mixing ratio required by reference to the information sheet 'Playtop Material Coverage'. The mixer operative should then run the mixer unit until the correct mix is achieved - as confirmed by Installation Supervisor's visual inspection.
- C. During installation, the mixer operative must ensure that the correct mixing ratios are maintained. It is imperative that binder measures/ratios are regularly checked by weighing and re-calibrated as necessary.
- D. Playtop base layer is laid between laths appropriate to the depth required by use of a screed bar and finished by light roller to produce a level uniform surface. Installed depths should be checked regularly by use of depth gauges – a minimum of one check per 10 square meters.
- E. The Playtop base layer should be laid to accommodate the 15 mm Playtop wearing layer however at a minimum of 50 mm from perimeter, the base layer should be graded down to expose at least 20 mm of internal curb face to create a strong "edge wedge" detail.
- F. Inaccessible areas should be installed by hand using a float.
- G. Where a chase is required at the perimeter, the edge detail will also be completed by hand. As described in Section 2 above.
- H. Where pedestrian access is necessary for the installation of the Playtop wearing layer, the base layer should be allowed to cure for approximately 6 hours (or at least until such time as it is possible to walk on it without damaging the surface). However for small areas, where installation can be carried out without walking on the base layer, the Playtop wearing layer may be installed prior to the base layer fully curing. In such cases special care must be taken not to disturb the level or integrity of the uncured base layer.
- I. Before starting installation of the Playtop wearing layer, the Installation Supervisor should inspect the condition of the base layer. Any defects discovered should be rectified. In addition the installer shall

check the condition of laths, screed bars and depth gauges to confirm that the selected laths are correct to provide a 15mm finished depth.

- J. The Playtop wearing layer is laid between laths and leveled to a uniform depth using a screed bar.
- K. Inaccessible areas and perimeters should be installed by hand using a float.
- L. The Playtop wearing layer is finished by light roller to produce a regular smooth compacted surface. The roller must be kept clean at all times and an approved release agent applied to prevent rubber granules sticking to it.
- M. Installed depth should be checked regularly by use of a depth gauge – a minimum of one check per 10 square meters installed is recommended.
- N. The use of electrically (or gas) heated trowels and rollers is permitted provided that their surface temperature does not exceed 40° centigrade.

3.3 CLEANING AND DEMONSTRATION

- A. The contractor shall clean the jobsite of excess materials and if necessary backfill any excavation around the perimeter with earth or other appropriate fill material.
- B. The contractor shall instruct the owner's personnel on proper maintenance and repair of the Playtop® soft surface.

END OF SECTION

NOT FOR CONSTRUCTION