

ITEM 615.4200XX11 – SAFETY SURFACE MATS (NYCDPR)

DESCRIPTION

This work includes furnishing and installing the specified type of Safety Surface Mats (NYCDPR) in accordance with the contract documents and as directed by the Engineer.

MATERIALS

The following ASTM specifications shall apply:

Standard Test Methods for Sampling and Testing Brick and Structural Clay Tile	ASTM C67
Standard Test Method for Rubber - Deterioration in an Air Oven	ASTM D573
Standard Test Methods for Measuring Surface Frictional Properties using the British Pendulum Tester	ASTM E303
Standard Test Method for Critical Radiant Flux of Floor Covering Systems Using a Radiant Heat Energy Source	ASTM E648
Standard Test Method for Impact Attenuation of Playing Surface Systems and Materials	ASTM F1292
Standard Specification for Determination of Accessibility of Surface Systems Under and Around Playground Equipment	ASTM F1951

Mats shall be utilized according to drop height criteria, per NYCDPR play area type, as follows:

- Tot unit play areas shall be surfaced with mats which meet or exceed 1.5 meter drop height criteria;
- 3.0 meter high play swing areas shall be surfaced with mats which meet or exceed 3.0 meter drop height criteria;
- All other areas shall be surfaced with mats which meet or exceed 2.4 meter drop height criteria.

Molded Rubber Mats: Safety surfacing shall be a waffle type compression molded rubber mat with an abrasion resistant surfacing and ribs underneath which will provide an air entrained cushion. Each material shall be of a thickness necessary to meet or exceed the standards and testing requirements as stated in this specification. Color shall be as shown in the contract documents.

Compression molded synthetic rubber mats shall consist of a minimum 6 mm thick abrasion resistant top membrane with a cushion-course rib system underneath. Material shall not have more than 1.5 mm surface distortion and shall be of uniform specified color and appearance.

Safety surfacing shall be one of the following products subject to conformance with all testing criteria:

EZ Fall

SpectraLock

ITEM 615.4200XX11 – SAFETY SURFACE MATS (NYCDPR)

As Manufactured by
Mitchell Rubber Products, Inc.
10220 San Sevaine Way
Mira Loma, CA 91752-1100
800-453-7526

www.mitchellrubber.com/safety-surfacing.html

As Manufactured by
Play Safe Surfaces, LTD.
3 Laurel Lane
Syosset, NY 11791
516-677-9240

www.playsafeny.com

SaferZone tiles

As Manufactured by
Sutcliffe Play Limited
West Yorkshire WF9 1JS
+44(0)-1977-653-200

www.sutcliffeplay.co.uk

Or equal as approved by Engineer.

Premolded synthetic polyurethane safety surfacing consisting of rubber crumbs bound together with a polyurethane binder and/or poured in place safety surfacing are not acceptable under this specification.

STANDARDS: All safety surface material shall meet the latest 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 below.

TESTS: Safety surfacing must meet the following test requirements and criteria:

1. Shock Absorbency - When tested in accordance with ASTM F1292, Test Method F355-10a, Procedure C (Metal Headform), the surface shall not impart to the headform upon impact, a peak deceleration exceeding 200 times the acceleration due to gravity (200G's) and shall not exceed 1000 Head Injury Criteria (HIC). Test submittals must clearly state that test was performed over the seam and anchoring system, and on the body of the tile. The drop height(s) used in this test shall be the height(s) as noted on the contract drawings.
2. Weathering (Aging) - After being subject to fifty (50) freeze-thaw cycles in accordance with ASTM C67, 9. Freezing and Thawing, and after being subject to 93°C for 7 days in accordance with ASTM D573-04, the same sample shall be re-tested in compliance with ASTM F1292 at 22°C only. A peak deceleration reading not exceeding 200G's shall be maintained. HIC testing is not required for re-testing.
3. Slip Resistance - When using the "British Pendulum Skid Resistance Tester" in accordance with ASTM E303, the wet-dynamic reading shall not be less than 40.

ITEM 615.4200XX11 – SAFETY SURFACE MATS (NYCDPR)

4. Flammability - When tested in accordance with ASTM E648, the material shall have a minimum critical radiant flux of 0.22 Watts/cm².
5. Accessibility – The surface safety mats chosen shall meet the minimum characteristics for factors that determine accessibility, as described in ASTM F1951.

Adhesives: Any variation from pre-approved adhesives must be submitted as per “Submittals”. The following adhesives have been pre-approved for specific applications:

“Epoxygrout” 2 Part Epoxy
U.S. Epoxy
268 Route 112
Patchogue, NY 11772
1-877-275-5673
<http://www.usepoxy.com/>

TB1739B Gel Cyanoacrylate Adhesive
Three Bond International Inc.
6184 Schumacher Park Drive
West Chester, OH 45069
1-513-779-7300
<http://www.threebond.com/>

Or equal as approved by Engineer.

“Epoxygrout” 2 Part Epoxy for plastic or rubber anchor to asphalt applications.

TB1739B Gel Cyanoacrylate Adhesive for rubber to rubber applications.

Extra Materials: The Contractor shall furnish (furnish only, not install) extra materials and deliver as directed by the Engineer as follows:

Additional 50 (fifty) rubber anchors or plugs

Submittals: All submittals shall be submitted prior to manufacture.

1. Materials - The Contractor shall submit duplicate samples of all materials to be used in the project, except adhesives already approved by this specification, for approval prior to purchasing the materials. In addition, the Contractor shall submit duplicate samples of manufacturer's installation instructions for all materials to be used in the project, including adhesives, for approval prior to purchasing the materials.
2. Samples - Samples of safety surface material shall be no larger than 300 mm by 300 mm and shall represent the colors, composition and thicknesses that will be used at each specific location in the project. Samples shall be accompanied by manufacturer's installation instructions and supporting certified test data showing that the material meets or exceeds the test requirements of this specification. Samples of adhesives and anchoring/attachment components shall be accompanied by product literature and Manufacturer's installation instructions.

ITEM 615.4200XX11 – SAFETY SURFACE MATS (NYCDPR)

CONSTRUCTION DETAILS

Submittals

1. Shop Drawings – The Contractor shall submit two (2) copies of the following shop drawings a minimum of four (4) weeks prior to the proposed installation.
 - A. The first drawing shall be a plan drawn at a scale of 1:50 (unless specified otherwise) and shall clearly show the following details:
 - actual size of mats or modular tiles;
 - size of transition pieces,
 - 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, posts, springs or other support systems.
 - B. The second drawing shall be a plan drawn at the same scale as the playground area layout plan in the contract documents and shall show the general limits of the fall zone and the no encroachment zone as described in the United States Consumer Product Safety Commission’s handbook (“Handbook for Public Playground Safety”). The plan shall clearly outline the limit of full thickness mats or tiles and the outside limit of transitional thickness mats or tiles. In addition, the outside edge of the safety surfacing must be sufficiently located within its surroundings so that the Engineer may analyze the circulation space around the surfacing. At least three distances from the outside edge of the safety surfacing to the closest, fixed features outside the safety surfacing area (curbs, walls, fences, benches, or trees) shall be shown.

Certifications, Warranties and Manufacturer’s Installation Instructions, Maintenance and Repair

1. Installer Certification - Installer must be trained and certified by the manufacturer. Installer’s certification on manufacturer’s letterhead shall be submitted to the Engineer.
2. Insurance Certificate - The Contractor shall furnish a Manufacturer’s Certificate of Product Liability Insurance for a minimum of one (1) million dollars (\$1,000,000.00) naming “New York State Department of Transportation” as Additional Insured. Insurance shall be for one (1) year, starting at the contract’s final inspection date.
3. Warrantee Against Shrinkage - The Contractor shall furnish a standard one (1) year manufacturer’s warrantee, enhanced as follows: For three (3) full years, starting from the date of Contract Final inspection, the Manufacturer agrees to reinstall or replace material which shrinks, creating a gap between mats of more than 12 mm. Measurement shall be performed in an ambient temperature of 22° C \pm 2° C.

ITEM 615.4200XX11 – SAFETY SURFACE MATS (NYCDPR)

4. Manufacturer's Recommended Installation Instructions and Maintenance and Repair Instructions - Installation, maintenance and repair of all types of safety surfacing, including adhesives, graffiti removal, etc. shall be per manufacturer's instructions. Instructions shall be submitted to the Engineer.

Installation: Installation of all types shall be in accordance with the U.S. Consumer Product Safety Commission guidelines and manufacturers installation instructions approved by the Engineer. The safety surfacing should not create new hazards; hence, all installations shall be done as carefully as possible in a neat and workmanlike manner.

If safety surfacing is to be installed in conjunction with new play equipment, then 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.

All safety surfacing shall either be recessed with the top flush with surrounding finish grade, or have a beveled perimeter transition piece along its entire open perimeter to allow for a smooth, easy transition between the surrounding finish grade and the level of the safety surfacing. Safety surfacing in swing areas shall be installed with full thickness to the fence or curb except in the entryway, which shall have a beveled edge.

Molded rubber mat installation must be by mechanical means of each individual tile. Adhesives to hold small, cut pieces of mat to pavement surface are unacceptable. Adhesives are only to be used with anchoring devices, transition piece, or caps as described in "Adhesives". Shop drawing shall clearly show that every piece is connected by mechanical means. The installation shall be vandal resistant and be firmly secured so that it cannot be pulled up from the playground surface.

Mats shall have either: a) all center tiles secured individually to the playground surface with vandal-resistant anchors, or b) mechanically locked together to prevent separation or removal of blocks from play area. The perimeter transition pieces shall be secured to the pavement with vandal-resistant anchors or approved adhesives.

Any anchoring system used shall not create "hard" spots within the surfacing which fails to meet the "Tests" requirement No. 1 (as described in this specification's materials section) and ASTM F1292. All plugs shall be installed flush with or slightly recessed (3 mm maximum) below the rest of the surfacing; plugs shall not protrude above the surrounding surfacing. All mats shall be installed so that they will be hand tight in hot weather. Necessary adjustments shall be made for installation in cool weather.

SPECIAL CONDITIONS - Where surfacing may cover a drain opening, the surfacing shall be drilled or slotted in a pattern matching the basin openings to allow for drainage. Where surfacing covers a basin or manhole, the Contractor shall drill six (6) 6 mm holes at an angle of

ITEM 615.4200XX11 – SAFETY SURFACE MATS (NYCDPR)

45° providing a vent for the basin or manhole. Surfacing shall be formed around tree pits and not cover granite block, provided that such elements are outside the fall zone.

Additional Testing: The State reserves the right to make any additional tests that they feel are necessary, and the Contractor shall furnish material when needed for testing.

METHOD OF MEASUREMENT

This work will be measured as the number of square meters of Safety Surface Mats (NYCDPR) satisfactorily furnished and installed. No deduction will be made for safety surfacing cut and removed for installation of posts.

BASIS OF PAYMENT

The unit price bid for each square foot of safety surface mat shall include the cost of all labor, materials, and equipment necessary to satisfactorily complete the work.

No extra payment will be made for furnishing and delivering the specified extra materials.

For purposes of payment, safety surfacing with colored speckles on black background will be considered black; safety surfacing with black speckles on colored background will be considered colored.

Payment will be made under:

Item No.	Item	Pay Unit
615.42000111	Black Safety Surfacing, (NYCDPR) 1.5 Meter Drop Height	Square Meter
615.42000211	Black Safety Surfacing, (NYCDPR) 2.4 Meter Drop Height	Square Meter
615.42000311	Black Safety Surfacing, (NYCDPR) 3.0 Meter Drop Height	Square Meter
615.42000411	Colored Safety Surfacing, (NYCDPR) 1.5 Meter Drop Height	Square Meter
615.42000511	Colored Safety Surfacing, (NYCDPR) 2.4 Meter Drop Height	Square Meter
615.42000611	Colored Safety Surfacing, (NYCDPR) 3.0 Meter Drop Height	Square Meter