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## PRODUCT GUIDE SPECIFICATION

Specifier Notes: This product guide specification is written according to the Construction Specifications Institute (CSI) 3-Part Format, including Master Format, Section Format, and Page Format, as described in The Project Resource Manual—CSI Manual of Practice.

The section must be carefully reviewed and edited by the Architect to meet the requirements of the project and local building code. Coordinate this section with other specification sections and the Drawings. Delete all “Specifier Notes” when editing this section.

Section numbers and titles are from Master Format 1995 Edition, with numbers and titles from Master Format 2004 Edition in parentheses. Delete version not required.

### SECTION 02791 (32 18 16.13)

## PLAYGROUND SURFACING TILES

Specifier Notes: This section covers sofSURFACES’ duraSAFE Series, resilient, interlocking, playground safety surfacing tiles. Consult sofSURFACES for assistance in editing this section for the specific application.

## **PART 1 GENERAL**

### **1.1 SECTION INCLUDES**

- A. Resilient, interlocking, playground safety surfacing tiles.

### **1.2 RELATED SECTIONS**

Specifier Notes: Edit the following list of related sections as required for the project. List other sections with work directly related to this section.

Include the section number and title of the following two Division 2 (Division 32) sections, if they are referenced in this section.

- A. Section 02 \_\_\_\_\_ (32 \_\_\_\_ \_\_\_\_ ) – \_\_\_\_\_ : Granular aggregate subsurface.
- B. Section 02 \_\_\_\_\_ (32 \_\_\_\_ \_\_\_\_ ) – \_\_\_\_\_ : Asphalt subsurface.
- C. Section 02792 (32 18 16.13) – Poured-in-Place Playground Surfacing.
- D. Section 02880 (11 68 13) – Playground Equipment.
- E. Section 03300 (03 30 00) – Cast-in-Place Concrete: Concrete subsurface.

### **1.3 REFERENCES**

Specifier Notes: List standards referenced in this section, complete with designations and titles. This article does not require compliance with standards but is merely a listing of those used.

- A. ASTM C 67 – Standard Test Method Methods for Sampling and Testing Brick and Structural Clay Tile.
- B. ASTM C 501 – Standard Test Method for Relative Resistance to Wear of Unglazed Ceramic Tile by the Taber Abrader.

- C. ASTM D 412 – Standard Test Methods for Vulcanized Rubber and Thermoplastic Elastomers--Tension.
- D. ASTM D 573 – Standard Test Method for Rubber-Deterioration in an Air Oven.
- E. ASTM D 624 – Standard Test Method for Tear Strength of Conventional Vulcanized Rubber and Thermoplastic Elastomers.
- F. ASTM D 2047 – Standard Test Method for Static Coefficient of Friction of Polish-Coated Floor Surfaces as Measured by the James Machine.
- G. ASTM D 2859 – Standard Test Method for Ignition Characteristics of Finished Textile Floor Covering Materials.
- H. ASTM D 3676 – Standard Specification for Rubber Cellular Cushion Used for Carpet or Rug Underlay.
- I. ASTM E 303 – Standard Test Method for Measuring Surface Frictional Properties Using the British Pendulum Tester.
- J. ASTM F 1292 – Standard Specification for Impact Attenuation of Surface Systems Under and Around Playground Equipment.
- K. US Consumer Product Safety Commission (CPSC) Handbook for Playground Safety.

#### **1.4 SUBMITTALS**

- A. Comply with Section 01330 (01 33 00) – Submittal Procedures.
- B. Product Data: Submit manufacturer's product data, including installation and subsurface instructions.
- C. Samples: Submit manufacturer's sample of 1 full tile.

- D. Test Reports: Submit certified test reports from qualified independent testing agency indicating results of the following tests:
  - 1. Impact Attenuation: ASTM F 1292.
  - 2. Freeze Thaw: ASTM C 67.
  - 3. Rubber Deterioration/Air Oven: ASTM D 573.
  - 4. Slip Resistance: ASTM D 2047 and E 303.
  - 5. Tensile Strength: ASTM D 412.
  - 6. Elongation at Break: ASTM D 412.
  - 7. Tear Strength: ASTM D 624.
  - 8. Peak Load: ASTM D 624.
  - 9. Density: ASTM D 3676.
  - 10. Taber Abrasion: ASTM C 501.
  - 11. Flammability: ASTM D 2859.
  
- E. Certificate of Compliance: Submit manufacturer's certificate of compliance indicating materials comply with specified requirements.
  
- F. Manufacturer's Project References:
  - 1. Submit list of 15 successfully completed projects.
  
  - 2. Include project name and location, name of architect, and type and quantity of playground safety surfacing tiles furnished.
  
- G. Installer's Project References:
  - 1. Submit copy of manufacturer issued installation certification
  
- H. Maintenance Instructions: Submit manufacturer's maintenance and cleaning instructions.
  
- I. Warranty: Submit manufacturer's standard warranty.

## **1.5 QUALITY ASSURANCE**

- A. Manufacturer's Qualifications: Manufacturer shall meet a minimum of 1 of the following 2 requirements.
  - 1. Continuously engaged in manufacturing of playground safety surfacing tiles of similar type to that specified, with a minimum of 10 years successful experience.
  - 2. Furnished a minimum of 15,000,000 square feet of playground safety surfacing tiles of similar type to that specified.
  
- B. Installer's Qualifications:

1. Certified by manufacturer for installation of playground safety surfacing tiles.
2. Approved by manufacturer.

## **1.6 DELIVERY, STORAGE, AND HANDLING**

- A. Delivery: Deliver materials to site in manufacturer's original, unopened containers and packaging, with labels clearly identifying product name and manufacturer.
- B. Storage:
  1. Store materials in accordance with manufacturer's instructions.
  2. Playground Safety Surfacing Tiles:
    - a. Store tiles in a dry area at a minimum temperature of 50 degrees F (10 degrees C) for a minimum of 72 hours before installation.
    - b. Protect tiles from direct sunlight before installation.
  3. Adhesive: Store adhesive in a dry area at a minimum temperature of 50 degrees F (10 degrees C).
- C. Handling: Protect materials during handling and installation to prevent damage.

## **1.7 ENVIRONMENTAL REQUIREMENTS**

- A. Tile Temperature: Ensure surface temperature of playground safety surfacing tiles is a minimum of 50 degrees F (10 degrees C) at time of installation.
- B. Air Temperature: Ensure air temperature is a minimum of 40 degrees F (4 degrees C) for a minimum of 24 hours before and during installation.
- C. Tile or Air Temperatures: Consult manufacturer's installation instructions for modified installation procedure when tile or air temperatures are above 85 degrees F (29 degrees C).

## **1.8 WARRANTY**

- A. Materials and Workmanship: Playground safety surfacing tiles shall be warranted for defects in materials and workmanship for the lifetime of the playground.
- B. Performance: duraSAFE Rubber Playground Tiles shall be warranted to meet drop height performance requirements of ASTM F 1292 for the lifetime of the surfacing product.

## PART 2 PRODUCTS

### 2.1 MANUFACTURER

- A. sofSURFACES Inc., 4393 Discovery Line, Petrolia, ON Canada N0N 1R0.  
Toll Free (800) 263-2363. Phone (519) 882-8799. Fax (519) 882-2697  
Website: [www.sofSURFACES.com](http://www.sofSURFACES.com). E-mail [info@sofSURFACES.com](mailto:info@sofSURFACES.com).

Specifier Notes: If a local representative is to be the key contact for questions and/or pricing their name and contact information should be included here.

### 2.2 RUBBER PLAYGROUND TILES

- A. Tiles: duraSAFE Rubber Playground Tiles

Specifier Notes: Specify duraSAFE Plus Series or Premium Series Rubber Playground Tiles. Specify Plus series on general applications where custom color combinations are not a primary design requirement. Specify Premium series when increased color stability or a wider range in color options and specific fire ratings are desired. Consult sofSURFACES for assistance in determining a required series.

1. Series: [Plus] [Premium 10% Color, 35% Color, 70% Color and 95% Color EPDM Skin Series Blends]
2. Description: Resilient, playground safety surfacing tiles.
3. Compliance: Meet and exceed CPSC guidelines for impact attenuation.
4. Material: Compression-molded, recycled rubber and binding agents.
5. Tile Locking: Tile Locking: U-shaped male and female locking mechanism on all 4 sides of the tile (patented KROSLOCK Tile Locking System) to support tile-to-tile adhesion while ensuring tiles are held in place.
6. Top Edges: Chamfered.
7. Tile Sides: Proprietary edge-cut (glue channel) system for maximum seam adhesion.
8. Wear Layer: Plus Series is compression molded to obtain optimum density and durability. Premium series features an EPDM blended skin for maximum color performance and wear durability.
9. Tile Bottom: Hollow core stanchion pattern.

Specifier Notes: Specify wear layer for Plus or Premium Series Rubber Playground Tiles.

- a. Plus Series: Combination of elongated SBR rubber and granulated crumb rubber. Pigmentation used to achieve color. Minimum 0.375 inch thick.
  - b. Premium Series: Laminated EPDM Virgin rubber granules. Minimum 0.125 inch thick.
9. Manufactured Size:  
Plus Series: 24 1/2" X 24 1/2" +/- 1/8". Installed Size: 24" X 24" or (24" Centers).  
Premium Series Blends: 24 3/8" X 24 3/8" +/- 1/8" Installed Size: 24.125" X 24.125".

Specifier Notes: Specify thickness of the playground safety surfacing tiles based on the critical fall height (CFH). Consult sofSURFACES for assistance in determining required thickness.

10. Thickness:
- a. Critical Fall Height of 3 Feet: 2.00 inches.
  - b. Critical Fall Height of 4 Feet: 2.25 inches.
  - c. Critical Fall Height of 5 Feet: 2.75 inches.
  - d. Critical Fall Height of 6 Feet: 3.25 inches.
  - e. Critical Fall Height of 7 Feet: 3.75 inches.
  - f. Critical Fall Height of 8 Feet: 4.25 inches.
  - g. Critical Fall Height of 9 Feet: 4.75 inches.
  - h. Critical Fall Height of 10 Feet: 5.00 inches.
  - i. Critical Fall Height of 11 Feet: 5.25 inches.
  - j. Critical Fall Height of 12 Feet: 5.25 inches.

Specifier Notes: Specify minimum weight of each tile based on Plus or Premium Series and required thickness.

11. Minimum Weight Each Tile:
- a. Plus Series Solid Colors: [Midnight Black] [Terracotta] [Turf Green] [Ocean Blue] [Saddle Brown] [Slate Gray]:
    - 1) 2.00-Inch Thickness (3' Fall Height): 24.16 pounds.
    - 2) 2.25-Inch Thickness (4' Fall Height): 25.00 pounds.
    - 3) 2.75-inch Thickness (5' Fall Height): 27.02 pounds.
    - 4) 3.25-Inch Thickness (6' Fall Height): 29.66 pounds.
    - 5) 3.75-Inch Thickness (7' Fall Height): 31.76 pounds.
    - 6) 4.25-Inch Thickness (8' Fall Height): 34.02 pounds.

- 7) 4.75-Inch Thickness (9' Fall Height): 36.91 pounds.
- 8) 5.00-Inch Thickness (10' Fall Height): 37.42 pounds.
- 9) 5.25-Inch Thickness (11' Fall Height): 39.82 pounds.
- 10) 5.25-Inch Thickness (12' Fall Height): 40.16 pounds.

b. Premium Skin Series Color Blends (all blends):

10% Color: [Black] [Blue] [Red] [Yellow] [Green] [Light Gray] [Medium Gray]  
 35% Color: [Pewter] [Ivory] [Pumpkin Spice] [Sapphire] [Shamrock] [Lava]  
 70% Color: [Smoke] [Aquamarine] [Forest Green] [Red Rock]  
 95% Color: [Sedona] [Sierra Brown] [Tuscan Red] [Denim] [Safari] [Graphite]  
 [Sangria] [Emerald Green] [Azure]

- 1) 2.00-Inch Thickness (3' Fall Height): 25.00 pounds.
- 2) 2.25-Inch Thickness (4' Fall Height): 25.75 pounds.
- 3) 2.75-inch Thickness (5' Fall Height): 27.35 pounds.
- 4) 3.25-Inch Thickness (6' Fall Height): 29.45 pounds.
- 5) 3.75-Inch Thickness (7' Fall Height): 31.89 pounds.
- 6) 4.25-Inch Thickness (8' Fall Height): 35.31 pounds.
- 7) 4.75-Inch Thickness (9' Fall Height): 38.75 pounds.
- 8) 5.00-Inch Thickness (10' Fall Height): 39.41 pounds.
- 9) 5.25-Inch Thickness (11' Fall Height): 39.75 pounds.
- 10) 5.25-Inch Thickness (12' Fall Height): 41.43 pounds.

12. Colors:

Specifier Notes: Specify colors for Plus or Premium Series rubber playground tiles. Any combination of colors within a series, can be used to create a unique appearance. Plus Series Solid colors may not be combined with Premium Series color blends. Custom color blends are available upon request. Consult soFSURFACES for pricing, availability and lead times.

a. Plus Series: [Midnight Black] [Terracotta] [Turf Green] [Ocean Blue] [Saddle Brown] [Slate Gray] [As indicated on the Drawings].

b. Premium Skin Series:

10% Color: [Black] [Blue] [Red] [Yellow] [Green] [Light Gray] [Medium Gray]  
 35% Color: [Pewter] [Ivory] [Pumpkin Spice] [Sapphire] [Shamrock] [Lava]  
 70% Color: [Smoke] [Aquamarine] [Forest Green] [Red Rock]  
 95% Color: [Sedona] [Sierra Brown] [Tuscan Red] [Denim] [Safari] [Graphite]  
 [Sangria] [Emerald Green] [Azure] [Other/Custom: \_\_\_\_\_ ]  
 [As indicated on the Drawings].

B. Test Results:

- 1. Impact Attenuation, ASTM F 1292:
  - a. G-Max Score: Less than 125.

- b. Head Injury Criteria (HIC) Score: Less than 700.
- 2. Freeze Thaw, ASTM C 67: No deterioration.
- 3. Rubber Deterioration/Air Oven, ASTM D 573: No deterioration.
- 4. Slip Resistance:
  - a. ASTM E 303:
    - 1) Dry: 51 minimum.
    - 2) Wet: 44 minimum.
  - b. ASTM D 2047:
    - 1) Plus: 0.533.
    - 2) Premium: 0.601.

Specifier Notes: Specify test results for Plus or Premium Skin Series playground surfacing tiles.

- 5. Tensile Strength, ASTM D 412:
  - a. Plus Series: 0.661 Mpa.
  - b. Premium Series: 331 psi
- 6. Elongation at Break, ASTM D 412:
  - a. Plus Series: 68.5 percent.
  - b. Premium Series: 119%
- 7. Tear Strength, ASTM D 624:
  - a. Plus Series: 2.2 kNm
  - b. Premium Series: 16.3 kNm
- 8. Flammability:
  - a. Burning Pill, ASTM D 2859: Pass.
- 9. Density, ASTM D 3676:
  - a. Plus Series: 817 kg/m<sup>3</sup>.
  - b. Premium Series: 859 kg/m<sup>3</sup>
- 10. Taber Abrasion, Wear index, ASTM C 501:
  - a. Plus Series: 205
  - b. Premium Series: 167

### **2.3 ACCESSORIES**

- A. Corners:
  - 1. Prefabricated outside and inside corners.
  - 2. Material: Same as rubber playground tiles.
- B. Ramps:
  - 1. Prefabricated Ramps: "sofRAMP".
  - 2. Prefabricated ADA-Compliant Ramps: "sofRAMP ADA".
  - 3. Material: Same as rubber playground tiles.

- C. Adhesive:
  - 1. Approved and furnished by manufacturer.
  - 2. Single-component, 100% solids, polyurethane.
  - 3. Waterproof and supplied in tube format.

### **PART 3 EXECUTION**

#### **3.1 EXAMINATION**

- A. Examine areas to receive playground safety surfacing tiles. Notify Architect if areas are not acceptable. Do not begin installation until unacceptable conditions have been corrected.

#### **3.2 PREPARATION**

- A. Prepare subsurface in accordance with manufacturer's instructions to ensure proper slope, support and drainage for playground safety surfacing tiles.

Specifier Notes: Specify subsurface of granular aggregate, concrete, or asphalt.

Due to the porosity of the duraSAFE playground tiles, it is critical that a proper subsurface drainage system be constructed, or the tile surface may not stay level and may ultimately become damaged due to hydraulic pressure.

Include the following sentence when a granular aggregate subsurface is required. Include the section number of the Division 2 section specifying the granular aggregate subsurface preparation. Ensure materials, compaction, thickness and slopes are clearly specified. Consult sofSURFACES for additional information.

- B. Granular Aggregate Subsurface: Compacted, granular aggregate subsurface shall be as specified in Section 02\_\_\_\_\_ (32 \_\_\_\_).

Specifier Notes: Include the following paragraph when adhesive will be used between a concrete subsurface and the base of the playground safety surfacing tiles.

- C. Concrete Subsurface:
  - 1. Concrete subsurface shall be as specified in Section 03300 (03 30 00).
  - 2. Apply light broom finish.
  - 3. Ensure concrete is sound with no loose material or cracks over 1/8 inch wide.

4. Ensure concrete is a minimum of 10 days old.
5. Test concrete for moisture in accordance with manufacturer's instructions to ensure it has sufficiently cured and is dry.
6. Power wash existing concrete in accordance with manufacturer's instructions.

Specifier Notes: Include the following paragraph when adhesive will be used between an asphalt subsurface and the base of the playground safety surfacing tiles.

- E. Asphalt Subsurface:
1. Asphalt subsurface shall be as specified in Section 02\_\_\_\_\_ (32 \_\_\_\_).
  2. Ensure asphalt is sound with no loose material or cracks over 1/8 inch wide.
  3. Ensure asphalt is a minimum of 14 days old.
  4. Test asphalt for moisture in accordance with manufacturer's instructions to ensure it has sufficiently cured and is dry.
  5. Scarify existing asphalt in accordance with manufacturer's instructions.
  6. Variations in Elevation: Where variations in elevation occur, please contact sofSURFACES for consultation. Transitional ramps must be adhered to asphalt surface – only once asphalt has been scarified in accordance with manufacturer's instructions.

### **3.3 INSTALLATION**

- A. Install playground safety surfacing tiles in accordance with manufacturer's instructions at locations indicated on the Drawings.
- B. Ensure prepared subsurface and tiles are dry and clean.
- C. Layout tile surface in accordance with manufacturer's instructions.
- D. Apply adhesive in accordance with manufacturer's instructions for tile-to-tile as well as tile-to-base for all keystone and strategic tile rows.
- E. Installation to be completed by a factory trained and certified installer.

### **3.4 FIELD QUALITY CONTROL**

- A. Installed Surface Performance Test: ASTM F1292
  1. Perform impact attenuation testing according to ASTM F1292 in presence of Owner's representative within 30 days of installation.
    - a. Confirm Impact Attenuation Performance of Surfacing Tiles:

1) g-max Score: Less than 125

2) Head Injury Criteria (HIC) Score: Less than 700

2. Test Equipment Operator Qualifications:

a. National Recreation and Parks Association/National Playground Safety Institute (NRPA/NPSI), Certified Playground Safety Inspector (CPSI).

b. Trained in the proper operation of Triax test equipment by competent agency.

3. Determine compliance with ASTM F 1292, unless otherwise specified in this section.

### **3.5 CLEANING**

A. Remove adhesive spills from playground safety surfacing tiles in accordance with manufacturer's instructions.

B. Clean tiles in accordance with manufacturer's instructions.

### **3.6 PROTECTION**

A. Protect completed tiles from damage during construction.

B. Protect playground safety surfacing tiles from foot traffic for a minimum of 12 hours after installation.

**END OF SECTION**