

**SECTION 02 79 1  
HYBRID SAFETY SURFACING**

**PART 1 GENERAL**

**1.01 REFERENCE STANDARDS**

- A. ASTM C501 - Standard Test Method for Relative Resistance to Wear of Unglazed Ceramic Tile by the Taber Abraser; 2021.
- B. ASTM D412 - Standard Test Methods for Vulcanized Rubber and Thermoplastic Elastomers--Tension; 2016 (Reapproved 2021).
- C. ASTM D573 - Standard Test Method for Rubber — Deterioration in an Air Oven; 2004 (Reapproved 2025).
- D. ASTM D624 - Standard Test Method for Tear Strength of Conventional Vulcanized Rubber and Thermoplastic Elastomers; 2000 (Reapproved 2020).
- E. ASTM D2047 - Standard Test Method for Static Coefficient of Friction of Polish-Coated Flooring Surfaces as Measured by the James Machine; 2017.
- F. ASTM D2859 - Standard Test Method for Ignition Characteristics of Finished Textile Floor Covering Materials; 2016 (Reapproved 2021).
- G. ASTM D3676 - Standard Specification for Rubber Cellular Cushion Used for Carpet or Rug Underlay; 2018 (Reapproved 2024).
- H. ASTM E303 - Standard Test Method for Measuring Surface Frictional Properties Using the British Pendulum Tester; 2022.
- I. ASTM F1292 - Standard Specification for Impact Attenuation of Surfacing Materials Within the Use Zone of Playground Equipment; 2022.

**1.02 1.1 SECTION INCLUDES**

- A. A. Resilient, interlocking, playground safety surfacing tiles.
  - 1. 1.2 RELATED SECTIONS
- B. A. Section 32 13 13 - Concrete Paving
- C. B. Section 32 12 16 - Asphalt Paving
- D. C. Section 32 18 16.13 – Poured-in-Place Playground Surfacing.
- E. D. Section 11 68 13– Playground Equipment.

**E. SECTION 11 68 33 – OUTDOOR EXERCISE EQUIPMENT**

**F. SECTION 03300 (03 30 00) – CAST-IN-PLACE CONCRETE: CONCRETE SUBSURFACE.**

**1.3 REFERENCES**

- A. A. ASTM C 67 – Standard Test Method Methods for Sampling and Testing Brick and Structural Clay Tile.
- B. B. ASTM C501 – Standard Test Method for Relative Resistance to Wear of Unglazed Ceramic Tile by the Taber Abrader.
- C. C. ASTM D412 – Standard Test Methods for Vulcanized Rubber and Thermoplastic Elastomers--Tension.

**D. ASTM D573 – STANDARD TEST METHOD FOR RUBBER-DETERIORATION IN AN AIR OVEN.**

- A. E. ASTM D624 – Standard Test Method for Tear Strength of Conventional Vulcanized Rubber and Thermoplastic Elastomers.
- B. F. ASTM D2047 – Standard Test Method for Static Coefficient of Friction of Polish-Coated Floor Surfaces as Measured by the James Machine.
- C. G. ASTM D2859 – Standard Test Method for Ignition Characteristics of Finished Textile Floor Covering Materials.

- D. H. ASTM D3676 – Standard Specification for Rubber Cellular Cushion Used for Carpet or Rug Underlay.
- E. I. ASTM E303 – Standard Test Method for Measuring Surface Frictional Properties Using the British Pendulum Tester.
- F. J. ASTM F1292 – Standard Specification for Impact Attenuation of Surface Systems Under and Around Playground Equipment.
- G. K. US Consumer Product Safety Commission (CPSC) Handbook for Playground Safety.

#### **1.4 SUBMITTALS**

- A. A. Comply with Section 01 33 00 – Submittal Procedures.
- B. B. Product Data: Submit manufacturer's product data, including installation and subsurface instructions.
- C. C. Samples: Submit manufacturer's sample of 1 full tile.
- D. D. Test Reports: Submit certified test reports from qualified independent testing agency indicating results of the following tests:
  - 1. 1. Impact Attenuation: ASTM F1292.
  - 2. 2. Freeze Thaw: ASTM C 67.
  - 3. 3. Rubber Deterioration/Air Oven: ASTM D573.
  - 4. 4. Slip Resistance: ASTM D2047 and E 303.
  - 5. 5. Tensile Strength: ASTM D412.
  - 6. 6. Elongation at Break: ASTM D412.
  - 7. 7. Tear Strength: ASTM D624.
  - 8. 8. Peak Load: ASTM D624.
  - 9. 9. Density: ASTM D3676.
  - 10. 10. Taber Abrasion: ASTM C501.
  - 11. 11. Flammability: ASTM D2859.
- E. E. Certificate of Compliance: Submit manufacturer's certificate of compliance indicating materials comply with specified requirements.
- F. F. Manufacturer's Project References:
  - 1. 1. Submit list of 15 successfully completed projects.
  - 2. 2. Include project name and location, name of architect, and type and quantity of playground safety surfacing tiles furnished.
- G. G. Installer's Project References:
  - 1. 1. Submit copy of manufacturer issued installation certification
- H. H. Maintenance Instructions: Submit manufacturer's maintenance and cleaning instructions.
- I. I. Warranty: Submit manufacturer's standard warranty.

#### **1.5 QUALITY ASSURANCE**

- A. A. Manufacturer's Qualifications: Manufacturer shall meet a minimum of 1 of the following 2 requirements.
  - 1. 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. 2. Furnished a minimum of 15,000,000 sq feet of playground safety surfacing tiles of similar type to that specified.
- B. B. Installer's Qualifications:
  - 1. 1. Certified by manufacturer for installation of playground safety surfacing tiles.
  - 2. 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:
  - 2. 1. Store materials in accordance with manufacturer's instructions.
  - 3. 2. Playground Safety Surfacing Tiles:
    - a. a. Store tiles in a dry area at a minimum temperature of 50 degrees Fahrenheit for a minimum of 72 hours before installation.
    - b. b. Protect tiles from direct sunlight before installation.
  - 4. 3. Adhesive: Store adhesive in a dry area at a minimum temperature of 50 degrees Fahrenheit.
    - a. C. Handling: Protect materials during handling and installation to prevent damage.

## 1.7 ENVIRONMENTAL REQUIREMENTS

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

## 1.8 WARRANTY

- A. A. Materials and Workmanship: Playground safety surfacing tiles shall be warranted for defects in materials and workmanship for the lifetime of the playground.
- B. B. Performance: duraSAFE Rubber Playground Tiles shall be warranted to meet drop height performance requirements of ASTM F1292 for the lifetime of the surfacing product.

## PART 2 PRODUCT

### 11.01 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). Local Rep is Issac Harvey, office phone 800.263.2363, cell phone 928.304.6974 [i.harvey@sofSURFACES.com](mailto:i.harvey@sofSURFACES.com)
- B. Or an Equal Product.

### 2.2 RUBBER PLAYGROUND TILES

#### A. TILES: DURASAFE RUBBER PLAYGROUND TILES – COLOR(S) SHALL BE TBD.

- 1. 1. Series: Premium 95% Color EPDM Skin Series Blends
- 2. 2. Description: Resilient, playground safety surfacing tiles.
- 3. 3. Compliance: Meet and exceed CPSC guidelines for impact attenuation.
- 4. 4. Material: Compression-molded, recycled rubber and binding agents.
- 5. 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. 6. Top Edges: Chamfered.
- 7. 7. Tile Sides: Proprietary edge-cut (glue channel) system for maximum seam adhesion.
- 8. 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. 9. Tile Bottom: Hollow core stanchion pattern.

#### WEAR LAYER FOR PREMIUM SERIES RUBBER PLAYGROUND TILES.

- a. Premium Series: Laminated EPDM Virgin rubber granules. Minimum 0.125 inch thick.
- 2. 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".

**SPECIFY THICKNESS OF THE PLAYGROUND SAFETY SURFACING TILES BASED ON THE CRITICAL FALL HEIGHT (CFH). CONSULT SOFSURFACES FOR ASSISTANCE IN DETERMINING REQUIRED THICKNESS.**

1. 10. Thickness:
    - a. a. Critical Fall Height of 3 Feet: 2.00 inches.
    - b. b. Critical Fall Height of 4 Feet: 2.25 inches.
    - c. c. Critical Fall Height of 5 Feet: 2.75 inches.
    - d. d. Critical Fall Height of 6 Feet: 3.25 inches.
    - e. e. Critical Fall Height of 7 Feet: 3.75 inches.
    - f. f. Critical Fall Height of 8 Feet: 4.25 inches.
    - g. g. Critical Fall Height of 9 Feet: 4.75 inches
    - h. h. Critical Fall Height of 10 Feet: 5.00 inches.
    - i. i. Critical Fall Height of 11 Feet: 5.25 inches.
    - j. j. Critical Fall Height of 12 Feet: 5.25 inches.
  2. 11. Minimum Weight Each Tile:
    - a. b. Premium Skin Series Color Blends (all blends):  
95% Color: Sedona
      - 1) 1) 2.00-Inch Thickness (3' Fall Height): 25.00 pounds.
      - 2) 2) 2.25-Inch Thickness (4' Fall Height): 25.75 pounds.
      - 3) 3) 2.75-inch Thickness (5' Fall Height): 27.35 pounds.
      - 4) 4) 3.25-Inch Thickness (6' Fall Height): 29.45 pounds.
      - 5) 5) 3.75-Inch Thickness (7' Fall Height): 31.89 pounds.
      - 6) 6) 4.25-Inch Thickness (8' Fall Height): 35.31 pounds.
      - 7) 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.
  3. 12. Colors
    - a. a. Premium Skin Series:  
95% Color: Sedona.
- B. Test Results:**
1. 1. Impact Attenuation, ASTM F1292:
    - a. a. G-Max Score: Less than 125.
    - b. b. Head Injury Criteria (HIC) Score: Less than 700.
  2. 2. Freeze Thaw, ASTM C 67: No deterioration.
  3. 3. Rubber Deterioration/Air Oven, ASTM D573: No deterioration.
  4. 4. Slip Resistance:
    - a. a. ASTM E303:
      - 1) 1) Dry: 51 minimum.
      - 2) 2) Wet: 44 minimum.
    - b. b. ASTM D2047:
      - 1) 2) Premium: 0.601.

**TEST RESULTS FOR DURASAFE PREMIUM SERIES TILES**

1. 5. Tensile Strength, ASTM D412:
  - a. a. Plus Series: 96 psi.
  - b. b. Premium Series: 331 psi
2. 6. Elongation at Break, ASTM D412:
3. a. Plus Series: 68.5 percent.
4. b. Premium Series: 119%
5. 7. Tear Strength, ASTM D624:
  - a. Plus Series: 2.2 kNm
  - b. Premium Series: 16.3 kNm
6. 8. Flammability:

- a. a. Burning Pill, ASTM D2859: Pass.
- 7. 9. Density, ASTM D3676:
  - a. a. Plus Series: 817 kg/m<sup>3</sup>.
  - b. b. Premium Series: 859 kg/m<sup>3</sup>
- 8. 10. Taber Abrasion, Wear index, ASTM C501:
  - a. a. Plus Series: 205
  - b. b. Premium Series: 167

## 2.3 ACCESSORIES

- A. A. Corners:
  - 1. 1. Prefabricated outside and inside corners.
  - 2. 2. Material: Same as rubber playground tiles.
- B. B. Ramps:
  - 1. 1. Prefabricated ADA-Compliant Ramps: "sofRAMP ADA".
  - 2. 2. Material: Same as rubber playground tiles.
- C. C. Adhesive:
  - 1. 1. Approved and furnished by manufacturer.
  - 2. 2. Single-component, 100% solids, polyurethane.
  - 3. 3. Waterproof and supplied in tube format.

## PART 3 EXECUTION

### 18.01 3.1 EXAMINATION

- A. 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

- 1. Prepare surface in accordance with manufacturer's instructions to ensure proper slope, support and drainage for playground safety surfacing tiles.
- B. B. Concrete surface:
  - 1. 1. Concrete surface shall be as specified in Section 32 13 13 Concrete Paving
  - 2. 2. Apply light broom finish.
  - 3. 3. Ensure concrete is sound with no loose material or cracks over 1/8 inch wide.
  - 4. 4. Ensure concrete is a minimum of 10 days old.
  - 5. 5. Test concrete for moisture in accordance with manufacturer's instructions to ensure it has sufficiently cured and is dry.
  - 6. 6. Power wash existing concrete in accordance with manufacturer's instructions.
- C. C. Asphalt surface:
  - 1. 1. Asphalt surface shall be as specified in Section 32 12 16 Asphalt Paving
  - 2. 2. Ensure asphalt is sound with no loose material or cracks over 1/8 inch wide.
  - 3. 3. Ensure asphalt is a minimum of 14 days old.
  - 4. 4. Test asphalt for moisture in accordance with manufacturer's instructions to ensure it has sufficiently cured and is dry.
  - 5. 5. Scarify existing asphalt in accordance with manufacturer's instructions.
  - 6. 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. A. Install playground safety surfacing tiles in accordance with manufacturer's instructions at locations indicated on the Drawings.
- B. B. Ensure prepared surface and tiles are dry and clean.
  - a. C. Layout tile surface in accordance with manufacturer's instructions.

- C. 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.
- D. In the event that a surface drain is to be covered by safety surface, the Manufacturer will supply a template which the Contractor shall use to field drill holes into the tile(s) that are to be placed over the drain.
- 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**

- 1. Test Equipment Operator Qualifications:
- 2. 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.**

- 1. Determine compliance with ASTM F1292, 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**

- 1. A. Protect completed tiles from damage during construction.
  - a. B. Protect playground safety surfacing tiles from foot traffic for a minimum of 12 hours after installation.

**END OF SECTION 02 79 1**