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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 *MasterFormat*, *SectionFormat*, and *PageFormat*, 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 *MasterFormat* 1995 Edition, with numbers and titles from *MasterFormat* 2004 Edition in parentheses. Delete version not required.

SECTION 02791 (32 18 16.13)

PLAYGROUND SURFACING TILES

Specifier Notes: This section covers SofSURFACES "SofTILE KrosLOCK" 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 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 Abraser.
- C. ASTM D 395 – Standard Test Methods for Rubber Property--Compression Set.
- D. ASTM D 412 – Standard Test Methods for Vulcanized Rubber and Thermoplastic Elastomers--Tension.
- E. ASTM D 573 – Standard Test Method for Rubber-Deterioration in an Air Oven.
- F. ASTM D 624 – Standard Test Method for Tear Strength of Conventional Vulcanized Rubber and Thermoplastic Elastomers.
- G. ASTM D 1667 – Standard Specification for Flexible Cellular Materials-Vinyl Chloride Polymers and Copolymers (Closed-Cell Foam).
- H. ASTM D 2047 – Standard Test Method for Static Coefficient of Friction of Polish-Coated Floor Surfaces as Measured by the James Machine.
- I. ASTM D 2240 – Standard Test Method for Rubber Property—Durometer Hardness.
- J. ASTM D 2859 – Standard Test Method for Ignition Characteristics of Finished Textile Floor Covering Materials.
- K. ASTM D 3676 – Standard Specification for Rubber Cellular Cushion Used for Carpet or Rug Underlay.

Specifier Notes: Include ASTM E 108 when specifying Premium series playground safety surfacing tiles.

- L. ASTM E 108 – Standard Test Methods for Fire Tests of Roof Coverings.
- M. ASTM E 303 – Standard Test Method for Measuring Surface Frictional Properties Using the British Pendulum Tester.
- N. ASTM F 1292 – Standard Specification for Impact Attenuation of Surface Systems Under and Around Playground Equipment.
- O. 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. Compression Deflection: ASTM D 1667.
 - 6. Compression Set: ASTM D 395.
 - 7. Tensile Strength: ASTM D 412.
 - 8. Elongation at Break: ASTM D 412.
 - 9. Tear Strength: ASTM D 624.
 - 10. Wear surface density (durability).
 - 11. Durometer Hardness: ASTM D 2240.
 - 12. Density Foam: ASTM D 3676.
 - 13. Taber Abrasion: ASTM C 501.

Specifier Notes: Include ASTM E 108 test results when specifying Premium series playground safety surfacing tiles.

- 14. Flammability: ASTM D 2859 and E 108.
- 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 list of 15 successfully completed projects.
2. Include project name and location, name of architect, and type and quantity of playground safety surfacing tiles installed.
3. 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 5,000,000 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 10 years from date of completed installation.
- B. Performance: Playground safety surfacing tiles shall be warranted to meet drop height performance requirements of ASTM F 1292 for 10 years from date of completed installation.

PART 2 PRODUCTS

2.1 MANUFACTURER

- A. SofSURFACES, Inc., 4393 Discovery Line, PO Box 239, Petrolia, Ontario N0N 1R0, Canada. Toll Free (800) 263-2363. Phone (519) 882-8799. Fax (519) 882-2697. Website www.sofsurfaces.com. E-mail alltinfo@sofsurfaces.com.

2.2 PLAYGROUND SURFACING TILES

- A. Tiles: "SofTILE KrosLOCK".

Specifier Notes: Specify Plus or Premium series playground safety surfacing tiles.

Specify Plus series on general applications where custom color combinations are not a primary design requirement. Specify Premium series when increased color stability and a wider range in color options are desired. Consult SofSURFACES for assistance in determining required series.

1. Series: [Plus] [Premium].
2. Description: Resilient, interlocking, playground safety surfacing tiles.
3. Compliance: Meet or exceed CPSC guidelines for impact attenuation.
4. Material: Compression-molded, recycled rubber and binding agents.
5. Tile Locking: U-shaped male and female configuration on all 4 sides to lock tiles to adjacent tiles.
6. Top Edges: Chamfered.
7. Tile Bottom: Hollow core stanchion pattern.
8. Wear Layer:

Specifier Notes: Specify wear layer for Plus or Premium series playground safety surfacing 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: Virgin EPDM rubber granules. Minimum 0.250 inch thick.
9. Size: 24 inches by 24 inches, plus or minus 1/8 inch.

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 4 Feet: 2.00 inches.
 - b. Critical Fall Height 5 Feet: 3.00 inches.
 - c. Critical Fall Height 6 Feet: 3.25 inches.
 - d. Critical Fall Height 7 Feet: 3.50 inches.
 - e. Critical Fall Height 8 Feet: 4.00 inches.
 - f. Critical Fall Height 10 Feet: 4.25 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:
 - 1) 2.00-Inch Thickness: 24.00 pounds.
 - 2) 3.00-inch Thickness: 25.85 pounds.
 - 3) 3.25-Inch Thickness: 27.15 pounds.
 - 4) 3.50-Inch Thickness: 28.25 pounds.
 - 5) 4.00-Inch Thickness: 34.50 pounds.
 - 6) 4.25-Inch Thickness: 33.00 pounds
 - b. Premium Series:
 - 1) 2.00-Inch Thickness: 25.00 pounds.
 - 2) 3.00-Inch Thickness: 26.85 pounds.
 - 3) 3.25-Inch Thickness: 28.15 pounds.
 - 4) 3.50-Inch Thickness: 29.25 pounds.
 - 5) 4.00-Inch Thickness: 35.50 pounds.
 - 6) 4.25-Inch Thickness: 34.00 pounds.

12. Colors:

Specifier Notes: Specify colors for Plus or Premium series playground safety surfacing tiles. Any combination of Premium series colors can be used to create a speckled appearance. Consult SofSURFACES for availability of custom colors.

- a. Plus Series: [Terra Cotta] [Turf Green] [Black] [Blue] [Beige] [Brown] [Grey] [_____] [As indicated on the Drawings].
- b. Premium Series: [Black] [Green] [Blue] [Grey] [Terra Cotta] [Pearl] [Beige] [Brown] [_____] [As indicated on the Drawings].

Specifier Notes: Specify percent of color in relation to percent of black for Premium series.

- 1) Percent Color: [25 percent color, 75 percent black] [50 percent color, 50 percent black] [75 percent color, 25 percent black] [90 percent color, 10 percent black].

B. Test Results:

1. Impact Attenuation, ASTM F 1292:
 - a. g-max Score: Less than 150.
 - b. Head Injury Criteria (HIC) Score: Less than 750.
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: 102.
 - 2) Wet: 62.
 - b. ASTM D 2047:
 - 1) Dry: 0.81.
 - 2) Wet: 0.82.
5. Compression Deflection, ASTM D 1667: 29.5 psi to 25 percent compression.
6. Compression Set, ASTM D 395: 4.37 percent permanent set.

Specifier Notes: Specify test results for Plus or Premium series playground safety surfacing tiles.

7. Tensile Strength, ASTM D 412:
 - a. Plus Series: 135 psi.
 - b. Premium Series: 99.8 psi.
8. Elongation at Break, ASTM D 412: 165 percent.
9. Tear Strength, ASTM D 624:
 - a. Plus Series: 60 lbs/in.
 - b. Premium Series: 45 lbs/in.
10. Flammability:
 - a. Burning Pill, ASTM D 2859: Pass.

Specifier Notes: Include the following test result when specifying Premium series playground safety surfacing tiles.

- b. Roof Covering, ASTM E 108: Class A.
11. Durometer Hardness, ASTM D 2240:
 - a. Plus Series: 50 points.
 - b. Premium Series: 56 points.
12. Density Foam, ASTM D 3676:
 - a. Plus Series: 51 pcf.
 - b. Premium Series: 66.5 pcf.
13. Taber Abrasion, Wear index, ASTM C 501:
 - a. Plus Series: 140
 - b. Premium Series: 110

2.3 ACCESSORIES

A. Corners:

1. Prefabricated outside and inside corners.

2. Material: Same as playground safety surfacing tiles.

B. Ramps:

1. Prefabricated Ramps: "SofRAMP Jr."
2. Prefabricated ADA-Compliant Ramps: "SofRAMP ADA".
3. Material: Same as playground safety surfacing tiles.

C. Edging:

1. Prefabricated Bull Nose Curb Edging: "SofCURB".
2. Material: Same as playground safety surfacing tiles.

D. Adhesive: Furnished by manufacturer.

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 support and drainage for playground safety surfacing tiles.

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

Due to the porosity of the SofTILE KrosLOCK playground safety surfacing 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 slope 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 28 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 not be used** between a concrete subsurface and the base of the playground safety surfacing tiles.

D. 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.

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 28 days old.
4. Test asphalt for moisture in accordance with manufacturer's instructions to ensure it has sufficiently cured and is dry.
5. Power wash existing asphalt in accordance with manufacturer's instructions.

Specifier Notes: Include the following paragraph when adhesive **will not be used** between an asphalt subsurface and the base of the playground safety surfacing tiles.

F. 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.

- G. Variations in Elevation: Repair variations in elevation of completed subsurface greater than plus or minus 1/4 inch over 10 feet in any direction.

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.

Specifier Notes: Installing tiles in a single installation session is not always possible, due to such items as project size and weather conditions. Consult SofSURFACES for additional information.

- D. Install tiles in single installation session, if possible.
- E. Layout in advance tiles to be installed in single installation session.

- F. Apply adhesive in accordance with manufacturer's instructions for tile-to-tile and perimeter tile-to-base installation.

3.4 FIELD QUALITY CONTROL

- A. After-Installation Inspection:
 1. Provide third-party inspection of playground safety surfacing tiles within 30 days of installation.
 2. Conduct inspection by National Recreation and Parks Association/National Playground Safety Institute (NRPA/NPSI) Certified Playground Safety Inspector (CPSI).
 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 playground safety surfacing tiles from foot traffic for a minimum of 12 hours after installation.
- B. Protect completed tiles from damage during construction.

END OF SECTION