

SafetyStep TD Technical Comparison Sheet

Summary: Both systems meet Federal and state requirements for Tactile/Detectable Warning Systems. Safety Step system equals or exceeds performance requirements for function and appearance. Safety Step system excels at ease and precision of installation, including complex geometries and accommodation of obstacles and other site features. While Armor-Tile may be stronger in some regards, SSTD is more easily maintained and provides outstanding life cycle performance.

	Armor-Tile TM SA	SafetyStep TD	Comments:
System Type:	Rigid plastic tiles	Flexible mat with wear-resistant coating	
Material:	Epoxy polymer composition	Polymer-modified concrete with fiberglass reinforcing	Both are polymer composites
Coating:	Factory-applied UV-stabilized coating.	Field-applied system consisting of pigmented acrylic sealer and clear acrylic sealer. [UV resistance – awaiting information]	SSTD coating can be reapplied if necessary. Refinishability of Armor-Tile not stated.
Installation:	Tile is partially bonded to substrate with adhesives (example: 24"X48" tile is bonded on 50% of its surface). ¼" anchor fasteners must be added for secure anchoring.	Bonded to concrete substrate on 100% of area by flexible acrylic resins.	Compatibility of SSTD material to concrete and asphalt substrates allows adhesives to bond equally well to both mat and substrate
Dimensions:	Tile sizes from 1'x1' min. to 3'x5' max.	Mats up to 3'x12'; custom sizes also available. Mat is field-trimmed to size.	SSTD mats are easily trimmed to fit installation exactly. Large mats require fewer joints.
Fitting:	Beveled edges must be cut off to maintain uniform dome spacing in adjoining tiles.	Mats can be abutted with visually seamless result.	
Field Cutting:	Requires diamond blade in power tools.	Can be trimmed to size and shape with razor-knife	Ability to freeform trim SSTD mat allows easier matching of dome pattern across angled cuts, precise fit of curves, fitting around obstacles, etc.
Available Colors:	ADA compliant. 9 colors. No custom colors.	ADA compliant. 6 colors. Custom colors available.	
Daylight Reflectance:	Not stated	ASTM D1347: Pass	SSTD overcoat material is also widely used in traffic control applications and has demonstrated excellent reflective properties, an important safety property for the partially-sighted.
Dome Design, Size, and Spacing:	ADA compliant	ADA compliant	

	Armor-Tile TM SA	SafetyStep TD	Comments:
Water Absorption:	ASTM D570 Water Absorption of Plastics: 0.05%.	ASTM D570 Water Absorption of Plastics: 6.5%	SSTD's breathability is an advantage that outweighs its greater absorptivity. Impervious plastic tiles have no way to expel moisture trapped beneath them, and can buckle and delaminate. The SSTD system allows moisture to dissipate, no matter how it entered, maintaining the integrity of the surface.
Water Vapor Transmission:	Not stated.	ASTM E96 Test Methods for Water Vapor Transmission of Materials: PERM = .958	
Non-Slip Surface:	Minimum of 40 - 90° raised points 0.045" high, per square inch	Bonded application of #30 or #20 silver silica sand over entire field and domes.	
Slip Resistance:	ASTM C1028 Static Coefficient of Friction of Ceramic Tile and Other Like Surfaces by the Horizontal Dynamometer Pull-Meter Method. The combined wet and dry static co-efficients of friction: 0.80 on top of domes and field area.	In addition to dome, system incorporates medium (#20 mesh) or fine (#30 mesh) graded silver silica sand into top coating.	Because dynamic slip resistance depends on many factors, ADA does not mandate a specific static coefficient of friction. (See ADA Standards for Accessible Design, Appendix A4.5 for discussion.)
Compressive Strength:	ASTM D695 Compressive Properties of Rigid Plastics: 28,000 psi.	ASTM C109 Compressive Strength of Hydraulic Cement Mortars (Using 2-in. or [50-mm] Cube Specimens): 5690 PSI	SSTD is a flexible system that effectively transfers loading directly to substrate. The surface has higher compressive strength than most concrete paving.
Tensile Strength:	ASTM D638-03 Tensile Properties of Plastics: 19,000 psi	ASTM C190-85 Tensile Strength of Hydraulic Cement Mortars: 855 PSI	Rigid tile system requires flexural strength to prevent cracking under loading if tile is unevenly bedded. SSTD system conforms to substrate and can elongate to accommodate thermal expansion or normal shrinkage cracking of substrate, reducing need for tensile and flexural strength.
Flexural Strength:	ASTM D790 Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials: 25,000 psi	1835 PSI	
Abrasion Resistance:	ASTM D2486 Scrub Resistance of Wall Paints: Average wear depth: 0.060 inches after 1000 abrasion cycles ASTM C501 Relative Resistance to Wear of Unglazed Ceramic Tile by the Taber Abraser: 500	ASTM D1242 Resistance of Plastic Materials to Abrasion: Thickness loss (mat only): 1.5%	SSTD installation can be recoated easily and economically if necessary.

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Fire Resistance:	ASTM E84 Surface Burning Characteristics of Building Materials: Flame spread less than 15.	ASTM E108 Fire Tests of Roof Coverings: Class A	In ASTM E84, the downward side of a material is exposed to flame, a situation which would almost never occur to a detectable dome surface applied to pavement. In ASTM E108, the top surface of a material is exposed to flame, a procedure more applicable to pavement applications.
Impact Resistance:	Gardner Impact to Geometry "GE" of the standard when tested by ASTM D5420-04 Standard Test Method for Impact Resistance of Flat, Rigid Plastic Specimen by Means of a Striker Impacted by a Falling Weight (Gardner Impact): "mean failure energy expressed as a function of specimen thickness of not less than 550 in. lbf/in. A failure is noted when a crack is visible on either surface or when any brittle splitting is observed on the bottom plaque in the specimen."	ASTM D3220 Specification for Reinforced Polyterephthalate Thermoplastic Molding and Extrusion Materials: No Cracking Impact Strength: 22 in/lbs	SSTD bonds to the concrete or asphalt surface beneath it, reducing the effects of surface cracking that may occur with impact.
Accelerated Weathering:	ASTM G155: At 3000 hours exhibits $\Delta E < 4.5$, as well as no deterioration, fading or chalking of surface of tile color No 33538	[Test Procedure?] 1500 Hours QUV No effect on film integrity	SSTD installation can be recoated easily and economically if necessary.
Warranty:	5 years	5 years	

Data from Armortile SA Guide Specification – Feb 2006, as found at www.armor-tile.com/truncated_dome-specifications/SA-Specifications.pdf, and video installation instructions on same website, July 2009.