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ICC-ES Evaluation Report

ESR-2785

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DIVISION: 07 00 00—THERMAL AND MOISTURE PROTECTION
Section: 07 14 00—Fluid-Applied Waterproofing
Section: 07 18 13—Pedestrian Traffic Coatings

DIVISION: 09 00 00—FINISHES
Section: 09 30 00—Tiling

REPORT HOLDER:

POLYCOAT PRODUCTS
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EVALUATION SUBJECT:

POLYCOAT PRODUCTS WALKING DECK SYSTEM, POLYCOAT-AQUATIGHT® UNDERLAYMENT WATERPROOFING SYSTEM, POLYTUFF SYSTEMS INTERNATIONAL WALKING DECK SYSTEM AND POLYTUFF SYSTEMS INTERNATIONAL FLEXIDECK® P-TW UNDERLAYMENT WATERPROOFING SYSTEM

ADDITIONAL LISTEE:

POLY-TUFF SYSTEMS INTERNATIONAL
8550 WEST DESERT INN ROAD, SUITE 102-451
LAS VEGAS, NEVADA 89117

1.0 EVALUATION SCOPE

Compliance with the following codes:

- 2006 *International Building Code*® (IBC)
- 2006 *International Residential Code*® (IRC)
- 2006 *International Plumbing Code*® (IPC)
- 2006 IAPMO *Uniform Plumbing Code*™ (IAPMO UPC)
- 1997 *Uniform Building Code*™ (UBC)

Properties evaluated:

- Waterproofing
- Durability
- Wind resistance
- Fire classification
- Fire-resistance-rated construction

2.0 USES

The walking deck systems described in Tables 1 and 2 are for use directly over plywood and concrete substrates. When installed in accordance with this report, the walking decks comply with IBC Section 1505, IRC Section R902 and UBC Section 1504.1 as Class A or Class B roof coverings.

The Polycoat-Aquatight® and Flexideck® P-TW Underlayment Systems are liquid-applied waterproofing systems that cure to a monolithic, elastomeric membrane for use as an underlayment for ceramic tile. The systems are also used as shower sub-pan lining materials in accordance with the IPC and the IAMPO UPC.

3.0 DESCRIPTION

3.1 Materials:

The shelf life of all liquid materials and components described in this report is one year from the date of manufacture, when the components are stored at 75°F (24°C) in factory-sealed containers.

3.1.1 Primers:

3.1.1.1 PolyPrime 21 Primer: This is a two-component, 100 percent solids, epoxy primer available in 3- and 15-gallon (11.3 and 56.8 L) kits. The A-to-B mixing ratio of the two components is 2-to-1 by volume.

3.1.1.2 PolyPrime 2180 Primer: This is a two-component, solvent-based epoxy primer available in 2- and 10-gallon (7.6 and 37.8 L) kits. The A-to-B mixing ratio of the two components is 1-to-1 by volume.

3.1.1.3 PolyPrime U22 Primer: This is a two-component, solvent-free polyurethane primer available in 2- and 10-gallon (7.6 and 37.8 L) kits. The A-to-B mixing ratio of the two components is 1-to 1-by volume.

3.1.1.4 PolyPrime U25 Primer: This is a two-component, solvent-based polyurethane primer available in 2- and 10-gallon (7.6 and 37.8 L) kits. The A-to-B mixing ratio of the two components is 1-to 1-by volume.

3.1.1.5 Enviro-Grip® EP #1: This is a two-component, 100 percent solids, epoxy primer available in 3- and 15-gallon (11.3 and 56.8 L) kits. The A-to-B mixing ratio of the two components is 2-to 1-by volume.

3.1.1.6 Enviro-Grip® EP #2: This is a two-component, solvent-based epoxy primer available in 2- and 10-gallon (7.6 and 37.8 L) kits. The A-to-B mixing ratio of the two components is 1-to-1 by volume.

3.1.1.7 Enviro-Grip® PU #3: This is a two-component, solvent-free polyurethane primer available in 2- and 10-gallon (7.6 and 37.8 L) kits. The A-to-B mixing ratio of the two components is 1-to 1-by volume.

3.1.1.8 Enviro-Grip® PU #4: This is a two-component, solvent-based polyurethane primer available in 2- and 10-gallon (7.6 and 37.8 L) kits. The A-to-B mixing ratio of the two components is 1-to-1 by volume.

3.1.2 Membranes:

3.1.2.1 PolyKarpet® SL-660: PolyKarpet® SL-660 is a solvent-free, water-curable, polyurethane mixture that is mixed with water at a ratio of 5 gallons (18.9 L) of mixture to 1.25 gallons (4.73 L) of water to produce the PolyKarpet® SL-660 membrane. It is available in 5-gallon (18.9 L) pails.

3.1.2.2 PolyCoat PC-440: PolyCoat PC-440 is a single-component, polyurethane elastomeric mixture that is applied, without dilution, as the base membrane. It is available in 5-gallon (18.9 L) pails and 55-gallon (208.2 L) drums.

3.1.2.3 PolyCoat PC-440 SF: PolyCoat PC-440 SF is a single-component, solvent-free, polyurethane elastomeric mixture that is applied, without dilution, as the base membrane. It is available in 5-gallon (18.9 L) pails.

3.1.2.4 P-Tuff® Base: P-Tuff® Base is a single-component, water-catalyzed, polyurethane elastomeric mixture that is applied, without dilution, as the base membrane. This membrane material is also used as a caulking material to fill cracks and joints in the substrate. It is available as P-Tuff® SLV Solvenated Base Membrane or, solvent-free, as P-Tuff® Classic or P-Tuff® Flex. P-Tuff® Base Membrane is mixed with water at a mixing ratio of 2.5 gallons (9.5 L) of P-Tuff® Base Membrane material to 2.5 quarts (2.4 L) of water, to yield a material called P-Tuff® Mixed Membrane Material (P-Tuff® MMM). The P-Tuff® products are available in 5-gallon (18.9 L)containers

3.1.3 Surface-protection Coatings:

3.1.3.1 PolyGlaze 400 FR: This is a two-part, moisture-cured, aliphatic polyester polyurethane coating. It is available in 6-gallon (22.7 L) kits. The powder-to-liquid mixing ratio is 1-to-5 by volume.

3.1.3.2 PolyGlaze 400: This is a single-component, moisture-cured, aliphatic polyester polyurethane coating. It is available in 1- and 5-gallon (3.8 and 18.9 L) pails.

3.1.3.3 Polycoat-Staingard 1110: This is a two-component, liquid-applied, aliphatic polyester polyurethane coating. It is available in 1- and 5-gallon (3.8 and 18.9 L) kits.

3.1.3.4 Poly-I-Gard® 246: This is a single-component, moisture-cured, urethane basecoat and surface-protection coating. It is available in 5-gallon (18.9 L) pails and 55-gallon (208.2 L) drums. The Poly-I-Gard® 246 is used with an accelerator as described in Section 3.1.4.3.

3.1.3.5 Poly-I-Gard® 246 SF: This is a single-component, moisture-cured, solvent-free, urethane basecoat and surface protection coating. It is available in 5-gallon (18.9 L) pails and 55-gallon (208.2 L) drums. The Poly-I-Gard® 246 SF is used with an accelerator as described in Section 3.1.4.3.

3.1.3.6 Topshield® EST: This is a single-component, moisture-cured, aliphatic polyester polyurethane coating. It is available in 1- and 5-gallon (3.8 and 18.9 L) pails.

3.1.3.7 Topshield® EST-FR: This is a two-part, moisture-cured, aliphatic polyester polyurethane coating. It is available in 6-gallon (22.7 L) kits. The powder-to-liquid mixing ratio is 1-to-5 by volume.

3.1.4 Accelerators, Hardeners, and Catalysts:

3.1.4.1 PolyCoat PC-50 Thickener/Accelerator: This is a proprietary liquid catalyst used to accelerate and thicken the PolyCoat PC-440 and PolyCoat PC-440 SF elastomeric waterproofing membranes. Thickened PolyCoat PC-440 and PolyCoat PC-440 SF membranes may be used as caulking pastes to fill cracks. PolyCoat PC-50 is available in 1-quart (0.95 L) and 1-gallon (3.8 L) containers. The mixing ratio is 1 quart (0.95 L) of PolyCoat PC-50 to 5 gallons (18.9 L) of base membrane.

3.1.4.2 PolyCoat PolyGlaze Hardener: This is a liquid accelerator used in the PolyGlaze 400 FR, PolyGlaze 400, Poly-I-Gard® 246, and Poly-I-Gard® 246 SF surface-protection coatings. It is available in 1-quart (0.95 L) and 1-gallon (3.6 L) containers. Maximum mixing ratio is 1 quart (0.95 L) of hardener to 5 gallons (18.9 L) of surface-protection coatings.

3.1.4.3 Poly-I-Gard® 246 Accelerator: This accelerator must be added at a rate of 8 ounces (0.24 L) per 5 gallons (18.9 L) of Poly-I-Gard® 246 or Poly-I-Gard® 246 SF.

3.1.4.4 Quick-N-Cure Catalyst: This is a proprietary, organometallic catalyst used in the PolyKarpet® SL-660 base membrane. The mixing ratio is one to three vials (20 to 60 grams) of Quick-N-Cure to 5 gallons (18.9 L) of PolyKarpet® SL-660 base membrane.

3.1.4.5 Topshield® Accelerator: This is a liquid accelerator used in the Topshield® EST and Topshield® EST-FR surface-protection coatings. The maximum mixing ratio is 1 quart (0.95 L) of the accelerator to 5 gallons (18.9 L) of surface-protection coating. The accelerator is available in 1-quart (0.95 L) and 1-gallon (3.8 L) containers.

3.1.4.6 P-Tuff® Catalyst: The P-Tuff® Catalyst is a proprietary, organometallic catalyst used in the P-Tuff® Base Membrane material. The maximum mixing ratio is three vials (60 grams) of catalyst to 5 gallons (18.9 L) of P-Tuff® Base Membrane material.

3.1.5 Fiberglass Straight Jacket Tape: This fiberglass tape is available in rolls 4 inches (102 mm) wide by 150 feet (45.7 m) long and is used as reinforcement over joints and cracks in plywood.

3.1.6 Nonwoven Polyester Tape: This nonwoven tape is available in rolls 3 inches (76 mm) wide by 300 feet (91.4 m) long and is used as reinforcement over joints and cracks in concrete.

3.1.7 Surface Texture:

3.1.7.1 Rounded Sand: This is washed, dry, rounded crystal silica sand, having a maximum 16 or 20 mesh size and a minimum hardness of 6.5 Moh, used for walking decks.

3.1.7.2 Angular Sand: This is washed, dry, angular, cracked crystal silica sand, 16 mesh (0.0469 in, 1.19 mm) and with a minimum hardness of 6.5 Moh, used under ceramic tiles and shower pans.

3.1.7.3 Rubber Granules: These 14-30 mesh rubber granules are used with the PolyCoat and Polytuff assemblies.

3.2 Substrates:

3.2.1 Plywood: Depending on the PolyCoat and Polytuff materials applied to the substrate, plywood substrates must be minimum of $^{19}/_{32}$,- $^{5}/_{8}$,- $^{21}/_{32}$- or $^{3}/_{4}$- inch-thick (15.1, 15.9, 16.7 or 19.1mm) exterior-grade plywood with tongue-and-groove edges or blocked edges, complying with U.S. Department of Commerce PS-1 or PS-2 (UBC Standard 23-2 or Standard 23-3). See Tables 1 and 2 for plywood thickness requirements.

3.2.2 Concrete: Concrete substrates must comply with the requirements of the applicable code.

4.0 INSTALLATION

4.1 General:

The systems must be installed in accordance with the manufacturer's published installation instructions, the applicable code and this report. The manufacturer's installation instructions and this report must be available on the jobsite at all times during installation.

4.2 Walking Decks:

4.2.1 Preparation of Substrates:

4.2.1.1 General: Installation is limited to when the weather is dry and the ambient temperature is above 45°F (7.2°C). Materials must not be applied if precipitation is occurring or expected. Concrete or plywood substrates must be free of all contamination that may impair proper bonding. Substrates must be sloped a minimum of $^1/_4$ inch (6.4 mm) per foot (305 mm) (2.1 percent) for drainage, and must be primed with the applicable primer specified in Table 1 prior to application of the membrane and surface-protection materials. New plywood substrates do not require primer.

4.2.1.2 Concrete: Concrete substrates must be clean, dry and free of standing water. All joints and cracks must be caulked flush with substrate, and all high spots cut or ground off, to provide a smooth, even surface. Before the material is applied, the substrate is swept or blown clean to remove dust or foreign material. Paint, grease and oil must be removed either by grinding or shot-blasting, and new concrete surfaces must be shot-blasted. Large areas to be covered must have control joints at intervals not to exceed 20 feet (6096 mm) on center.

Control joints are cut in accordance with the applicable concrete design standard and are then caulked.

4.2.1.3 Plywood: Plywood must be installed in accordance with the applicable code. The plywood surface must be clean, dry and free of all foreign materials such as paint, grease, oil and dust. Cracks in the plywood, and all panel butt joints, must be sealed using a polyurethane caulking compound.

4.2.2 Installation of Flashing: All door thresholds, jambs, posts, walls, scuppers and fascia must have metal flashing in accordance with the applicable code. Flashing must comply with IBC Section 1503.2, IRC Section R903.2 or UBC Section 1509, as applicable.

4.2.3 Application of Systems: Application of systems recognized in this report must comply with the manufacturer's published installation instructions and this report.

4.2.3.1 Polycoat System: System details and application rate of products are shown in Table 1. For details on system installation, refer to Polycoat's Technical Data Sheets and System Details.

4.2.3.2 Polytuff System: System details and application rates of products are shown in Table 2. For details on system installation, refer to Polytuff's Technical Data Sheets and System Details.

4.2.4 Method of Repair: Damaged areas are permitted to be repaired by cutting or grinding out an area extending 6 inches (152 mm) beyond the damage; cleaning with a urethane-active solvent; and applying the primer, base membrane, and topcoats in the same manner as described in the published installation instructions and this report.

4.2.5 One-hour Fire-resistance-rated Construction: The Polydeck® 355, Polydeck® 400, Polydeck® 600, Polydeck® 610, Flexideck® P-A and Flexideck® P-B walking deck systems, as described in Tables 1 and 2, are permitted to be substituted for the double wood floor described in Assembly 13 of IBC Table 720.1(3) or Assembly 13 of UBC Table 7-C, when installed in accordance with this report over $^3/_4$-inch-thick (19 mm), Exterior 1 plywood supported by minimum 2-by-10 joists spaced a maximum of 16 inches (406 mm) on center.

4.2.6 Roof Covering Fire Classification: When installed in accordance with this report, the assemblies have the fire classifications noted in Tables 1 and 2.

4.2.7 Wind Resistance: The maximum allowable wind resistance pressure is limited by the capacity of the roof deck construction. The roof deck must be designed to withstand wind pressures in accordance with IBC Section 1609.5.1. For jurisdictions adopting the UBC, installation is limited to areas subject to a maximum basic wind speed (fastest mile) of 80 mph (129 km/h) on structures a maximum of 40 feet (12 192 mm) in height in Exposure B areas.

4.3 Ceramic Tile Underlayment and Shower Sub-pan Lining:

4.3.1 Preparation of Substrates: See Section 4.2.1.

4.3.2 Application of Systems: See Section 4.2.3 and Tables 1 and 2.

4.3.3 Method of Repair: See Section 4.2.4.

5.0 CONDITIONS OF USE

The products described in this report comply with, or are suitable alternatives to what is specified in, those codes listed in Section 1.0 of this report, subject to the following conditions:

5.1 Installation must comply with this report, the manufacturer's published installation instructions and the applicable code. If there is a conflict between the manufacturer's published installation instructions and this report, this report governs.

5.2 The products are manufactured in Santa Fe Springs, California, under a quality control program with inspections by ICC Evaluation Service, LLC.

6.0 EVIDENCE SUBMITTED

6.1 Polycoat and Polytuff Walking Deck Systems: Data in accordance with the ICC-ES Acceptance Criteria for Walking Decks (AC39), dated February 2010.

6.2 Polycoat-Aquatight® and Flexideck® P-TW Underlayment Waterproofing Systems: Data in accordance with the ICC-ES Acceptance Criteria for Waterproof Membranes for Flooring and Shower Lining (AC115), dated June 2003 (editorially revised August 2008).

7.0 IDENTIFICATION

Individual containers of each component bear a label indicating the name and address of the manufacturer (Polycoat Products), the product designation, the evaluation report number (ESR-2785), shelf life information in the form of an expiration date, and the name of the inspection agency (ICC-ES).

TABLE 1—POLYCOAT SYSTEMS

Item No.	System	COMPONENTS					ROOF CLASSIFICATION		
		Treatment of Joints/Cracks in Substrate	Primer	Base Membrane	Surfacing Material	Finish Coat	Substrate	Max. Slope (inch per horizontal foot)	Fire Classification (UBC)
1.1	Polydeck 400	PC-440 or PC-440 SF combined with PC-50 as caulking paste and Straight Jacket tape for reinforcement	Polyprime 21, 2180, U22, or U25 1 gal. (mixture of Side A & Side B) per 300 sq. ft. Minimum Dry Mil: 3	First Coat: PC-440 or PC-440 SF 3 gal. per 100 sq. ft. Minimum Dry Mil: 33 Second Coat: PC-440 or PC-440 SF 1½ gal. per 100 sq. ft. Minimum Dry Mil: 16	Rounded Sand 100 lbs. per 100 sq. ft.	First Coat: Polyglaze 400 FR 1¼ gal. per 100 sq. ft. Minimum Dry Mil: 13 Second Coat: PolyGlaze 400 ¾ gal. per 100 sq. ft. Minimum Dry Mil: 8	$^{3}/_{4}$ or $^{21}/_{32}$-inch Plywood	¼	A
							Concrete	¼	A
1.2	Polydeck 410	Same as Item 1.1	Same as Item 1.1	First Coat: PC-440 or PC-440 SF 2½ gal. per 100 sq. ft. Minimum Dry Mil: 27 Second Coat: PC-440 or PC-440 SF 1½ gal. per 100 sq. ft. Minimum Dry Mil: 16	Same as Item 1.1	First Coat: Polyglaze 400 FR 1¼ gal. per 100 sq. ft. Minimum Dry Mil: 13 Second Coat: Polycoat-Staingard 1110 ½ gal. per 100 sq. ft Minimum Dry Mil: 5	$^{3}/_{4}$ or $^{21}/_{32}$-inch Plywood	¼	A
							Concrete	¼	A
1.3	Polydeck 355	Same as Item 1.1	Same as Item 1.1	First Coat: PC-440 or PC-440 SF 2 gal. per 100 sq. ft. Minimum Dry Mil: 22 Second Coat: PC-440 or PC-440 SF 1 gal. per 100 sq. ft. Minimum Dry Mil: 11	Same as Item 1.1	First Coat: Polyglaze 400 ¾ gal. per 100 sq. ft. Minimum Dry Mil: 8 Second Coat: PolyGlaze 400 ¾ gal. per 100 sq. ft. Minimum Dry Mil: 8	$^{5}/_{8}$ or $^{19}/_{32}$-inch Plywood	¼	B
							Concrete	¼	A
1.4	Polydeck 365	Same as Item 1.1	Same as Item 1.1	Same as Item 1.3	Same as Item 1.1	First Coat: Polycoat-Staingard 1110 ¾ gal. per 100 sq. ft. Minimum Dry Mil: 8	$^{5}/_{8}$ or $^{19}/_{32}$-inch Plywood	¼	B
							Concrete	¼	A
1.5	PolyKarpet® 600	PolyKarpet SL-660 Mixture as a caulking paste and Straight Jacket tape for reinforcement	Same as Item 1.1	First Coat: PolyKarpet® SL-660 3 gal. per 100 sq. ft. Minimum Dry Mil: 36 Second Coat: PolyKarpet® SL-660 1 gal. per 100 sq. ft. Minimum Dry Mil: 12	Rounded Sand 100 lbs. per 100 sq. ft.	First Coat: Polyglaze 400 FR 1¼ gal. per 100 sq. ft. Minimum Dry Mil: 13 Second Coat: Polyglaze 400 ¾ gal. per 100 sq. ft. Minimum Dry Mil: 8	$^{3}/_{4}$ or $^{21}/_{32}$-inch Plywood	¼	A
							Concrete	¼	A
1.6	PolyKarpet® 610	Same as Item 1.5	Same as Item 1.1	First Coat: PolyKarpet® SL-660 4 gal. per 100 sq. ft. Minimum Dry Mil: 48	Rubber Granules 10 lbs. per 100 sq. ft.	First Coat: Polyglaze 400 FR 1¼ gal. per 100 sq. ft. Minimum Dry Mil: 13 Second Coat: Polyglaze 400 ¾ gal. per 100 sq. ft. Minimum Dry Mil: 8	$^{5}/_{8}$ or $^{19}/_{32}$-inch Plywood	¼	B
							Concrete	¼	A
1.7	Poly-I-Gard® 246	Same as Item 1.1	Polyprime 21 or 2180 1 gal. (mixture of Side A & Side B) per 300 sq. ft. Minimum Dry Mil: 3	First Coat: Poly-I-Gard® 246 1¼ gal. per 100 sq. ft. Minimum Dry Mil: 14 Optional coat: Poly-I-Gard® 246 1 gal. per 100 sq. ft. Broadcast Rounded Sand 10 lbs. per 100 sq. ft. Second Coat: Poly-I-Gard® 246 1 gal. per 100 sq. ft. Minimum Dry Mil: 11	Rounded Sand 10 lbs. per 100 sq. ft.	Final Coat: Poly-I-Gard® 246 1¼ gal. per 100 sq. ft. Minimum Dry Mil: 14	Concrete	¼	A
1.8	Poly-I-Gard® 246 SF	Same as Item 1.1	Polyprime 21 1 gal. (mixture of Side A & Side B) per 300 sq. ft. Minimum Dry Mil: 3	First Coat: Poly-I-Gard® 246 SF 1 gal. per 100 sq. ft. Minimum Dry Mil: 16 Optional coat: Poly-I-Gard® 246 SF 1 gal. per 100 sq. ft. Broadcast Rounded Sand 10 lbs. per 100 sq. ft. Second Coat: Poly-I-Gard® 246 SF 1 gal. per 100 sq. ft. Minimum Dry Mil: 16	Rounded Sand 10 lbs. per 100 sq. ft.	Final Coat: Poly-I-Gard® 246 SF 1 gal. per 100 sq. ft. Minimum Dry Mil: 16	Concrete	¼	A
1.9	Polycoat-Aquatight® Ceramic Tile Underlayment	Same as Item 1.1	Polyprime 21 or Polyprime U22 1 gal. (mixture of Side A & Side B) per 300 sq. ft. Minimum Dry Mil: 3	First Coat: PC-440 SF 3 gal. per 100 sq. ft. Minimum Dry Mil: 48 Second Coat: PC-440 SF 1½ gal. per 100 sq. ft. Minimum Dry Mil: 24	Angular Cracked Silica Sand till refusal	For Floors: Ceramic tile or dimensional stone For Showers: shower lining	N/A	N/A	N/A

For **SI:** 1 gallon = 3.8 L, 1 sq. ft. = 0.093 sq. meters, 1 lb. = 4.45 N, 1 inch = 25.4 mm.

TABLE 2—POLYTUFF SYSTEMS INTERNATIONAL SYSTEMS

Item No.	System	COMPONENTS					ROOF CLASSIFICATION		
		Treatment of Joints/Cracks in Substrate	Primer	Base Membrane	Surfacing Material	Finish Coat	Substrate	Max. Slope (inch per horizontal foot)	Fire Classification (UBC)
2.1	Flexideck® P-A	Water-catalyzed P-Tuff® Mixed Membrane Material (MMM) as a caulking compound and Straight Jacket tape for reinforcement	Enviro-Grip® EP#1, Enviro-Grip® EP#2, Enviro-Grip® PU#3, or Enviro-Grip® PU#4 1 gal. per 300 sq. ft. Minimum Dry Mil: 3	First Coat: P-Tuff® MMM 3 gal. per 100 sq. ft. Minimum Dry Mil: 36 Second Coat: P-Tuff® MMM 1 gal. per 100 sq. ft. Minimum Dry Mil: 12	Rounded Sand 100 lbs. per 100 sq. ft.	First Coat: Topshield® EST-FR 1¼ gal. per 100 sq. ft. Minimum Dry Mil: 13 Second Coat: Topshield® EST ¾ gal. per 100 sq. ft. Minimum Dry Mil: 8	$^{3}/_{4}$- or $^{21}/_{32}$-inch Plywood	¼	A
							Concrete	¼	A
2.2	Flexideck® P-B	Same as Item 2.1	Same as Item 2.1	P-Tuff® MMM 4 gal. per 100 sq. ft. Minimum Dry Mil: 48	Rubber Granules	First Coat: Topshield® EST-FR 1¼ gal. per 100 sq. ft. Minimum Dry Mil: 13 Second Coat: Topshield® EST ¾ gal. per 100 sq. ft. Minimum Dry Mil: 8	$^{5}/_{8}$- or $^{19}/_{32}$-inch Plywood	¼	B
							Concrete	¼	A
2.3	Flexideck® P-TW Ceramic Tile Underlayment	Same as Item 2.1	Enviro-Grip® EP#1, or Enviro-Grip® PU#3 1 gal. per 300 sq. ft. Minimum Dry Mil: 3	P-Tuff® MMM 2½ gal. per 100 sq. ft. Minimum Dry Mil: 30	Angular Cracked Silica Sand till refusal	For Floors: Ceramic tile or dimensional stone For Showers: shower lining	N/A	N/A	N/A

For **SI:** 1 gallon = 3.8 L, 1 sq. ft. = 0.093 sq. meters, 1 lb. = 4.45 N, 1 inch = 25.4 mm.