



ICC Evaluation Service, Inc.
www.icc-es.org

Business/Regional Office ■ 5360 Workman Mill Road, Whittier, California 90601 ■ (562) 699-0543
Regional Office ■ 900 Montclair Road, Suite A, Birmingham, Alabama 35213 ■ (205) 599-9800
Regional Office ■ 4051 West Flossmoor Road, Country Club Hills, Illinois 60478 ■ (708) 799-2305

Legacy report on the 1997 Uniform Building Code™

DIVISION: 07—THERMAL AND MOISTURE PROTECTION
Section: 07570—Coated Foam Roofing

POLYURETHANE FOAM PLASTIC ROOF-COVERING SYSTEMS

SWD URETHANE COMPANY
222 SOUTH DATE STREET
MESA, ARIZONA 85210

1.0 SUBJECT

SWD Polyurethane Foam Plastic Roof-covering Systems.

2.0 DESCRIPTION

2.1 General:

SWD Urethane Company's roof-covering systems consist of spray-applied polyurethane foam plastic and elastomeric coatings. System descriptions, including fire classifications, are in Table 1 of this report.

2.2 Materials:

2.2.1 SWD 125-2.5-3.0: The polyurethane foam plastic is available in a nominal density of 2.5 to 3.0 pcf (40 to 48 kg/m³), applicable to 1- to 4-inch (25 to 102 mm) thicknesses. The foam plastic is formulated in an "A" compound and a "B" compound and is packaged in 5- and 55-gallon (18.9 and 208 L) containers. The products have a six-month shelf life when stored in a cool and dry place. The material complies as a spray-applied polyurethane foam plastic insulation for roofing applications in accordance with the ICC-ES Acceptance Criteria for Foam Plastic Insulation (AC12). SWD 125 is typically applied in 1- to 2-inch (25 to 51 mm) thicknesses.

2.2.2 SWD 1929 F Coating: The single-component, water-based, acrylic, elastomeric coating, used as a base and top coat over the foam plastic, is available in gray, buff, or white colors and has a six-month shelf life when stored in unopened containers at 50°F to 80°F (10°C to 26.7°C).

2.2.3 SWD-1000: The black-colored, neoprene-based primer coat has a six-month shelf life when stored in unopened containers at 75°F (23.8°C).

2.2.4 Ever-Gard Roof Mix: The Ever-Gard roof mix is a cementitious material that consists of dry mix, acrylic and colloid. The product has a one-year shelf life when stored in unopened containers at 50°F to 80°F (10°C to 26.7°C).

2.3 Deck Preparation:

All parapets, crickets and valleys must be flashed in accordance with Section 1509 of the 1997 Uniform Building

Code™ (UBC). See Figure 1. The substrate must be free of all grease, oil, moisture, loose particles and other deleterious materials. Where precast concrete planks are encountered, all joints between planks must be taped with minimum 1 1/2-inch-wide (38 mm) roofing tape identified as DT-100. Where wood decks are permitted, the decks may be covered with a vapor barrier in accordance with the manufacturer's specifications and with the approval of the code official.

2.4 Foam Plastic Application:

Prior to foam plastic application, the substrate must be primed by spray application of Primer SWD-1000 at the rate of 250 square feet per gallon (1534 m²/L), yielding a 2-mil (0.051 mm) dry-film thickness. The primer is applied at a minimum temperature of 40°F (4.4°C) and is allowed to cure for a minimum of two hours prior to the foam plastic application. The foam plastic is then applied to the clean, primed substrate and must not be applied where ice, moisture or frost is present. The ambient temperature range during application must be between 40°F and 100°F (4.4°C and 37.7°C), with a maximum roof temperature of 160°F (71°C). Wind velocities at time of application must not exceed 15 miles per hour (24 km/h) unless adequate wind barriers are provided. The polyurethane foam plastics are two-component liquid materials applied at a ratio of 1:1 by volume in layers 1/4 inch to 1 1/2 inches (6.4 to 38 mm) thick. Layers must be allowed to cure at least 15 seconds before additional layers are applied.

2.5 Coating Application:

2.5.1 SWD 1929 F and SWD-1000: The roof coatings must be applied between 2 and 72 hours subsequent to the foam plastic application. The foam plastic must be dry, clean and free of contaminants and moisture. Where foam plastic oxidation has occurred, the oxidation must be removed with a stiff broom before the coating operation goes forward. The acceptable application temperatures range from 50°F to 140°F (10°C to 60°C). The base coating must cure at least 24 hours before the top coating is applied. The top coating must also cure for a minimum of 24 hours.

2.5.2 Ever-Gard Roof Mix: No. 6 crushed limestone, at 64 pounds per 100 square feet (3.1 kg/m²), must be embedded into the top coating. The top coat must be covered with Ever-Gard roof mix, applied at the rate of one batch per 100 square feet (9.3 m²), to a 40-mil (1 mm) thickness. One batch consists of 40 pounds (18 kg) of dry mix, 4 1/2 gallons (17 L) of water, 1/2 gallon (1.9 L) of Ever-Gard acrylic resin and 3/4 ounce (22 mL) of Colloid 60.

2.6 Wind Uplift Resistance:

Installations described in this report are limited to areas with a maximum basic wind speed of 80 mph (129 k/h), Exposure

ICC-ES legacy reports are not to be construed as representing aesthetics or any other attributes not specifically addressed, nor are they to be construed as an endorsement of the subject of the report or a recommendation for its use. There is no warranty by ICC Evaluation Service, Inc., express or implied, as to any finding or other matter in this report, or as to any product covered by the report.



B, on roofs not exceeding 40 feet (12 192 mm) above grade. Perimeter flashing, detailed in Figure 1, requires minimum 2-by-6 wood nailers anchored to concrete or masonry with $\frac{1}{2}$ -inch-diameter (12.7 mm) bolts spaced 4 feet (1219 mm) on center, 2 feet (610 mm) on center at corners and up to a maximum of 8 feet (2438 mm) from corners. To fasten nailers to steel, $\frac{3}{4}$ -inch-diameter (19.1 mm) steel bolts are required; No. 10 screws in two rows spaced 24 inches (610 mm) on center may be used to attach nailers to steel deck. For nailer attachments to wood, $\frac{1}{4}$ -inch-diameter (6.4 mm) lag screws in two staggered rows, spaced 24 inches (610 mm) on center, are required at corners; spacing is reduced to 12 inches (305 mm) on center, and a maximum of 8 feet (2438 mm) from corners. The metal flashing shall be minimum No. 26 gage [0.0179 inch (0.45 mm)] base-metal thickness galvanized or stainless steel. The hook strip shall be minimum No. 24 gage [0.0239 inch (0.6 mm)]. Flashing ends shall be lapped 2 inches (51 mm) and set in approved plastic roofing cement or covered with a 4-inch-wide (102 mm) plate. The flashing must be fastened to the nailer with minimum $1\frac{1}{4}$ -inch-long (35 mm) deformed shank, galvanized steel roofing nails with minimum $\frac{3}{16}$ -inch-diameter (4.8 mm) heads, 1 inch (25 mm) from the edge at 4 inches (102 mm) on center. The hook strip must be attached to wood with nails or $\frac{3}{4}$ -inch-long (19.1 mm), No. 8 wood screws at 16 inches (406 mm) on center. For concrete or masonry parapet walls, flashing must be set in a masonry joint or attached with anchors rated at 200 pounds (890 N) tension, penetrating a minimum of 1 inch (25 mm), at 36 inches (914 mm) on center.

2.7 Identification:

All material drums and containers are identified by the SWD Urethane Company name and address, product designation, the evaluation report number (ER-3182), shelf life, batch number, and the name of the inspection agency (Underwriters Laboratories Inc.).

3.0 EVIDENCE SUBMITTED

Data in accordance with the Acceptance Criteria for Membrane Roof-covering Systems (AC75), dated June 2003, and the Acceptance Criteria for Foam Plastic Insulation (AC12), dated February 2005; and a quality control manual.

4.0 FINDINGS

That the SWD Urethane Company Polyurethane Foam Plastic Roof-covering Systems described in the report comply with the 1997 *Uniform Building Code*TM (UBC), subject to the following conditions:

- 4.1 All system components are prepared and applied by personnel trained by the SWD Urethane Company.**
- 4.2 The roof-covering system is applied in accordance with this report and the manufacturer's instructions. Where discrepancies occur between this report and the manufacturer's instructions, this report shall govern.**
- 4.3 Where moderate or heavy foot traffic occurs, such as for maintenance of equipment, the roof system must be adequately protected to prevent rupture or wearing of surface.**
- 4.4 Where wood structural panel sheathing in accordance with Section 2602.5.3 of the UBC, or noncombustible cementitious substrates, are provided, a thermal barrier is not required.**
- 4.5 All SWD system components are produced at 539 South Drew Street, Mesa, Arizona, under a quality control program with inspections by Underwriters Laboratories Inc. (AA-668).**

This report is subject to re-examination in two years.

TABLE 1— NEW CONSTRUCTION

SYSTEM NO. ¹	FOAM PLASTIC TYPE AND DENSITY	FOAM PLASTIC THICKNESS (inches)	COATINGS			TOP SURFACING	MAXIMUM ROOF SLOPE ³ (inches per foot)	ROOF COVERING CLASSIFICATION
			Type	Application Rate (gal./100 sq. ft.)	DFT ² (mils)			
1	SWD 125 2.5-3.0	1-4	SWD 1929F	3.00	38	See Footnote 4	Unlimited	A
2 ⁵	SWD 125 2.5-3.0	1-4	SWD 1929F	3.00	38	See Footnote 4	0.5	B
3	SWD 125 2.5-3.0	1-4	SWD 1929F	Base 2.00 ⁴	25	Not required	4	A
				Top 1.00	13			
4	SWD 125 2.5-3.0	1-4	SWD 1929F	3.00	38	See Footnote 7	4	A
5	SWD 125 2.5-3.0	1-4	SWD 1929F	2.00	25	Not required ⁸	2	A
6	SWD 125 2.5-3.0	1-4	SWD 1929F	3.00	38	See Footnote 9	Unlimited	A
7	SWD 125 2.5-3.0	1-4	SWD 1929F	2.00	25	Not required ⁸	2	A
8	SWD 125 2.5-3.0	1-4	SWD 1929F	2.75	35	Not required ⁸	2	A
9	SWD 125 2.5-3.0	1-4	SWD 1929F	3.50	45	Not required ⁸	2	A
10 ⁵	SWD 125 2.5-3.0	1-4	SWD 1929F	3.00	38	See Footnote 9	2	B
11 ⁵	SWD 125 2.5-3.0	1-4	SWD 1929F	Base 2.00	25	Not required	2	B
				Top 1.00	13			
12 ⁵	SWD 125 2.5-3.0	1-4	SWD 1929F	1.50	19	See Footnote 7	0.5	B
13	SWD 125 2.5-3.0	1-4	SWD 1929F	2.00	25	Not required ⁸	0.5	B
14 ⁵	SWD 125 2.5-3.0	1-4	SWD 1929F	2.00	25	Not required ⁸	0.5	C

For SI: 1 pcf = 16 kg/m³, 1 inch = 25.4 mm, 1 gallon/100 square feet = 0.41 L/m², 1 mil = 0.0254 mm, 1 pound/100 square foot = 0.0488 kg/m², 1 inch/foot = 8.3% slope.

¹Except where noted, substrates must be noncombustible (concrete or steel). The thermal barrier is not required if the concrete or steel deck substrate is 1 inch (25.4 mm) thick, minimum, or 22 gage [0.0299 inch (0.75 mm)], respectively. A 4-inch-wide polyester tape to cover the flutes may be utilized in any of the noncombustible deck ratings.

²Dry film thickness.

³Minimum roof slope must be 1/4 inch (6.4 mm) per foot (305 mm) for drainage in accordance with Section 1506.1 of the UBC.

⁴The coating is surfaced with No. 11 roofing granules applied at the rate of 35 pounds per 100 square feet. No. 9 roofing granules may be used if the application rate of 30 pounds per 100 square feet is maintained.

⁵Substrate may be combustible. The thermal barrier is not required if the substrate is minimum 1/2-inch-thick wood structural panel sheathing or plywood bonded with exterior glue, with all board edges supported by blocking, tongue-and-groove joints or other approved type of edge supports. Blocking of other edge supports is not required when a thermal barrier complying with Section 2602.4 of the UBC, such as minimum 1/2-inch (12.7 mm) gypsum wallboard complying with ASTM C 36, separates the foam plastic from the interior.

⁶SWD 1929F is applied at the rate of 2 gallons per 100 square feet in one or two base coats, followed immediately by No. 11 roofing granules at 30 pounds per 100 square feet.

⁷The coating is surfaced with either No. 9 or No. 11 roofing granules applied at the rate of 30 pounds per 100 square feet.

⁸As an option, the systems that do not require No. 11 roofing granules may incorporate roofing granules or Ever-Gard Roof Mix. Section 2.6.2 describes Ever-Gard application and top surfacing requirements.

⁹The coating is surfaced with No. 11 roofing granules applied at the rate of 50 pounds per 100 square feet.

¹⁰SWD 1929F is applied at the rate of 2 gallons per 100 square feet, followed immediately by No. 11 roofing granules at 30 pounds per 100 square feet.

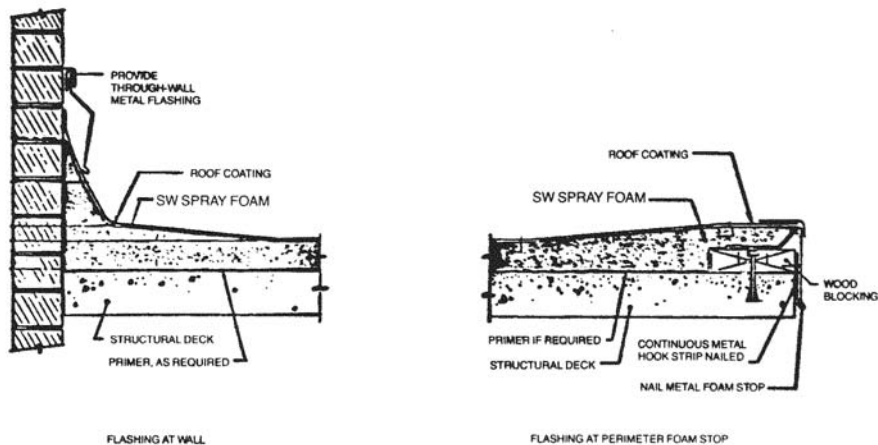


FIGURE 1—FLASHING DETAILS