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## Legacy report on the 1997 *Uniform Building Code*™

**DIVISION: 08—DOORS AND WINDOWS**  
**Section: 08620—Unit Skylights**

### ODL PLASTIC AND GLASS SKYLIGHTS

**ODL INC.**  
**215 EAST ROOSEVELT AVENUE**  
**ZEELAND, MICHIGAN 49464**

#### 1.0 SUBJECT

ODL Plastic and Glass Skylights.

#### 2.0 DESCRIPTION

##### 2.1 Materials:

**2.1.1 Acrylic Plastic:** Domes are formed from single sheets of CC2 acrylic plastic. Optix acrylic sheets (ER-5411), Lucite CP acrylic (ER-4900) or Plexiglass MC or V acrylic sheets (ER-1084) are used. Single- and double-glazed units are available in skylight series TS, OS, CC, OC, SF, PF and EC. EZ Tube skylights incorporate single-glazed domes injection-molded from Lucite resins (ER-4900). These units are illustrated in Figures 1, 2 and 5.

**2.1.2 Glass:** The series GC, NC and GS glass units are double-glazed with a  $\frac{1}{8}$ -inch-thick (3.2 mm) tempered glass outer face,  $\frac{1}{2}$ -inch (12.7 mm) air space and  $\frac{1}{4}$ -inch-thick (6.4 mm) laminated glass inner face. The laminated glass consists of two plies of 0.110-inch-thick (2.79 mm) annealed glass and a 0.030-inch-thick (0.76 mm) polyvinyl butyral interlayer. These units are illustrated in Figure 3.

**2.1.3 Gasketing Materials:** Vinyl gasketing with nonmigrating plasticizers and butyl gasketing are used to seal all glazing.

**2.1.4 Frame Materials:** Type 6063-T5 or -T6 aluminum is used for all extruded frame aluminum members, with a minimum  $\frac{1}{16}$ -inch (1.6 mm) thickness. All corners are either continuously welded or are reinforced with zinc alloy angles attached with two  $\frac{1}{2}$ -inch-long (12.7 mm), No. 8, Type AB sheet metal screws. Aluminum retainers are used to secure the glazing to the base frame. The retainers are attached to the base frame using minimum  $\frac{3}{8}$ -inch-long (9.5 mm), No. 8, Type AB panhead or hexhead TEK screws.

**2.1.5 EZ Tube Skylights:** EZ Tube skylights are tubular skylights consisting of a dome, self-flashing curb, adjustable tubes, extension tubes, and diffuser. See Figure 5. Model SCA uses a  $\frac{1}{8}$ -inch-thick (3.2 mm) ethylene propylene alloy curb. Models SCF and SCM use a  $\frac{1}{16}$ -inch-thick (1.6 mm) aluminum curb. Model SCF incorporates a 0.045-inch-thick

(1.1 mm) aluminum dome retainer, illustrated in Figure 5. The tubes have a 0.020-inch-thick (0.51 mm) reflective film interior finish that has a Class I flame-spread classification and a smoke-developed rating not exceeding 450 when tested in accordance with UBC Standard 8-1. The dome is attached to the curb with four field-installed,  $\frac{3}{4}$ -inch-long (19.1 mm), No. 8,  $\frac{3}{8}$ -inch-diameter-head (9.5 mm), panhead stainless steel screws with No. 8 [0.040 inch (1.0 mm) by  $\frac{3}{8}$ -inch-diameter (9.5 mm) rubber-backed stainless steel washers.

#### 2.2 Skylight Styles:

Skylight models, sizes, dome thicknesses, dome rises, and fastener requirements are described in Table 1. EZ Tube skylight models are described in Table 2.

##### 2.2.1 Mounting Options:

**2.2.1.1 Curb-mounted:** These skylights are designed for mounting on nominal 2-inch-wide wood curbs supported on wood framing. The curb must allow the plastic portion of plastic skylights to be a minimum of 4 inches (102 mm) above the plane of the roof. Roof slope for plastic skylights is 3:12 (25% slope), minimum. The minimum roof slope for glass skylights is 15 degrees from the horizontal, and these units must be mounted a minimum of 4 inches (102 mm) above the plane of the roof when the roof slope is less than 45 degrees from the horizontal. Roof coverings are removed 12 inches (305 mm) beyond openings, and reset after the skylight is in place. Curbs are attached to roof framing using No. 10,  $1\frac{1}{2}$ -inch-long (38 mm) wood screws, or nails providing equivalent withdrawal resistance. The curb must be flashed with minimum No. 26 gage [0.019 inch (0.48 mm)] galvanized steel set in mastic. Flashing installation must comply with Section 1508 of the 1997 *Uniform Building Code*™ (UBC). To attach the skylight, a  $\frac{1}{2}$ -inch (12.7 mm) bead of mastic is applied to the top of the curb. The aluminum skylight frame is then fastened directly to the wood curb with either  $1\frac{1}{2}$ -inch-long (38 mm), No. 10 wood screws or  $1\frac{1}{2}$ -inch (38 mm), No. 11 gage roofing nails through each nail hole in the mounting flange. Fasteners are aluminum or stainless, aluminized or galvanized steel. The curb-mounted option is illustrated in Figure 4.

**2.2.1.2 Self-flashing Curb:** These skylights are designed for mounting directly to minimum  $\frac{1}{2}$ -inch-thick (12.7 mm) wood roof decking. Openings in the roof deck must be supported by framing. Self-flashing curb skylights have an integral aluminum base frame, eliminating the need for a jobsite-built wood curb. The acrylic plastic and glass glazing portions of the skylights must be a minimum of 4 inches (102 mm) above the plane of the roof. Roof coverings are removed 12 to 18 inches (305 to 457 mm) beyond the opening, and

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reset after the skylight is in place. A band of mastic,  $\frac{1}{4}$  inch (6.4 mm) thick by 4 inches (102 mm) wide, is applied around the opening,  $\frac{1}{2}$  inch (12.7 mm) away from the opening. The skylight is then pressed onto the mastic and is fastened through the wood deck to the framing with  $1\frac{1}{2}$ -inch-long (12.7 mm), No. 10, Type AB panhead or hexhead TEK screws formed from aluminum or stainless, aluminized or galvanized steel. A 4- to 6-inch (102 to 152 mm) band of mastic is applied around the curb/base, covering the flange-to-deck juncture. The self-flashing curb option is illustrated in Figure 4.

**2.2.1.3 EZ Tube:** The skylights are prepackaged for field installation, with all components, attachments and instructions in the shipping carton. A  $10\frac{1}{2}$ - or  $14\frac{1}{2}$ -inch-diameter (267 or 368 mm) hole is cut in the minimum  $\frac{1}{2}$ -inch-thick (12.7 mm) roof sheathing and minimum  $\frac{1}{2}$ -inch-thick (12.7 mm) gypsum wallboard ceiling below the attic space. The skylight base is attached to the roof sheathing with six No. 8 or No. 10 by 2-inch-long (51 mm) stainless steel sheet-metal screws with 0.045-inch-thick-by-1-inch-diameter (11.1 mm by 25.4 mm) steel washers; see Table 2 for fastener requirements. The 10- or 14-inch-diameter (254 or 356 mm) reflective tube is then inserted into the base, and a foam sealant tape is applied between the base and the aluminum tube. The EZ Tube terminates at the ceiling into a ceiling ring installed with four No. 6 by 1-inch-long (25 mm) drywall screws. The light diffuser is then twisted onto the ceiling ring. Installation details are illustrated in Figure 5. Minimum and maximum roof slopes are  $\frac{1}{4}$ :12 and 12:12 (2% slope and 100% slope), respectively.

## 2.2.2 Operating Options:

**2.2.2.1 Fixed:** Nonopenable skylights.

**2.2.2.2 Openable:** Each openable skylight has a removable insect screen. The operating mechanism is a lock-chain system of hardened steel with zinc die-cast cover and hardware. The handle should be located at the lowest point in the opening.

Large openable units have stabilizer springs mounted on the sides.

## 2.3 Allowable Loads:

The roof live, snow and wind uplift loads are as follows:

MODEL	LIVE OR SNOW LOAD (psf)	WIND UPLIFT LOAD (psf)
CC, EC, GC, GS, NC, OC, OS, TS, SF, PF	20	20
EZ Tube (except for 14 SCA)	100	100
EZ Tube 14 SCA	100	50

For SI: 1 psf = 47.88 Pa.

## 2.4 Identification:

All skylights are labeled with the manufacturer's name (ODL Incorporated) and address, model number, evaluation report number (ER-3933) and a safety label complying with Class I, ANSI Z 35.1-1972. Plastic skylights are also labeled with the CC2 classification and thickness of the outer dome. Glass skylights are labeled in accordance with Section 2402 of the UBC.

## 3.0 EVIDENCE SUBMITTED

Data in accordance with the ICC-ES Acceptance Criteria for Plastic Skylights (AC16), dated October 2003; the ICC-ES Interim Criteria for Sloped Glass Glazing in Solariums, Patio Covers and Prefabricated Skylights (AC17), dated April 1991; and the ICC-ES Interim Criteria for Skylights with Plastic Frames (AC79), dated April 1994; and a quality control manual.

## 4.0 FINDINGS

**That the ODL skylights described in this report comply with the 1997 *Uniform Building Code*™ (UBC), subject to the following conditions:**

- 4.1 The skylights are manufactured and installed in accordance with this report and the manufacturer's instructions.
- 4.2 The roof live, snow and wind uplift loads are as set forth in Section 2.3 of this report.
- 4.3 Skylight dimensions are as set forth in Table 1.
- 4.4 Skylights are used only on wood roof construction.
- 4.5 The plastic skylights are installed in accordance with Section 2603.7 of the UBC.
- 4.6 The glass skylights are installed in accordance with Section 2409 of the UBC.
- 4.7 EZ Tube skylights are limited to installation in R-3 occupancies with nonrated roof coverings, installed with a minimum roof slope of 3:12 (25%) and maximum roof slope of 12:12 (100% slope).

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

TABLE 1—PLASTIC AND GLASS SKYLIGHTS

MODEL BASE NUMBER	INSIDE CURB DIMENSIONS (inches)	OUTER DOME THICKNESS (inch)	PLASTIC DOME RISE (inches)	NUMBER OF SKYLIGHT TO CURB/DECK FASTENERS	SERIES DESIGNATION										
					TS	CC	EC	OS	OC	GC	GS	NC	SF	PF	
2424	21 x 21	0.100	5	8		X									
2436	21 x 33	0.100	5	10		X									
2448	21 x 45	0.100	5	12		X									
2828	22 <sup>1</sup> / <sub>2</sub> x 22 <sup>1</sup> / <sub>2</sub>	0.100	5	8	X	X	X	X	X	X	X	X	X	X	X
2840	22 <sup>1</sup> / <sub>2</sub> x 34 <sup>1</sup> / <sub>2</sub>	0.100	5	10	X	X	X	X	X	X	X				
2852	22 <sup>1</sup> / <sub>2</sub> x 46 <sup>1</sup> / <sub>2</sub>	0.100	5	12	X	X	X	X	X	X	X	X	X	X	X
3636	30 <sup>1</sup> / <sub>2</sub> x 30 <sup>1</sup> / <sub>2</sub>	0.100	6	12	X	X	X	X	X	X	X	X			
3652	30 <sup>1</sup> / <sub>2</sub> x 46 <sup>1</sup> / <sub>2</sub>	0.125	6	14						X	X	X			
4042	34 <sup>1</sup> / <sub>2</sub> x 46 <sup>1</sup> / <sub>2</sub>	0.125	6	12	X										
4848	45 x 45	0.125	8	16		X									
5252	46 <sup>1</sup> / <sub>2</sub> x 46 <sup>1</sup> / <sub>2</sub>	0.125	7	16						X	X				
	46 <sup>1</sup> / <sub>2</sub> x 46 <sup>1</sup> / <sub>2</sub>	0.125	8	16	X	X	X								

For SI: 1 inch = 25.4 mm.

TABLE 2—EZ TUBE SKYLIGHTS

MODEL NUMBER	INSIDE DIAMETER OF CURB (inches)	OUTER DOME THICKNESS (inch)	NUMBER OF SKYLIGHT-FLASHING-TO-DECK FASTENERS	
			Number	Size
EZ 14 SCF EZ 14 SCM	14 <sup>1</sup> / <sub>2</sub>	0.100	6	No. 10
EZ 14 SCA	14 <sup>1</sup> / <sub>4</sub>	0.100	6	No. 8
EZ 10 SCF EZ 10 SCM EZ 10 SCA	10 <sup>1</sup> / <sub>2</sub>	0.100	6	No. 10

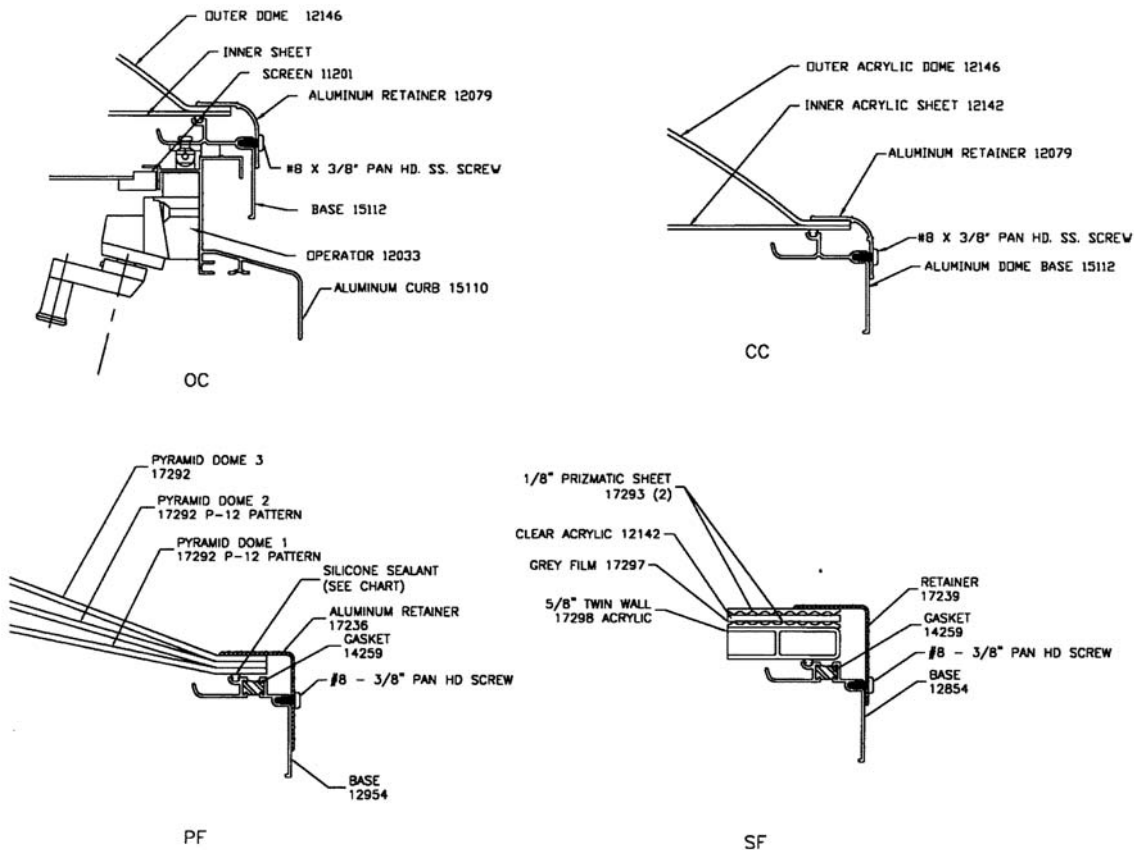
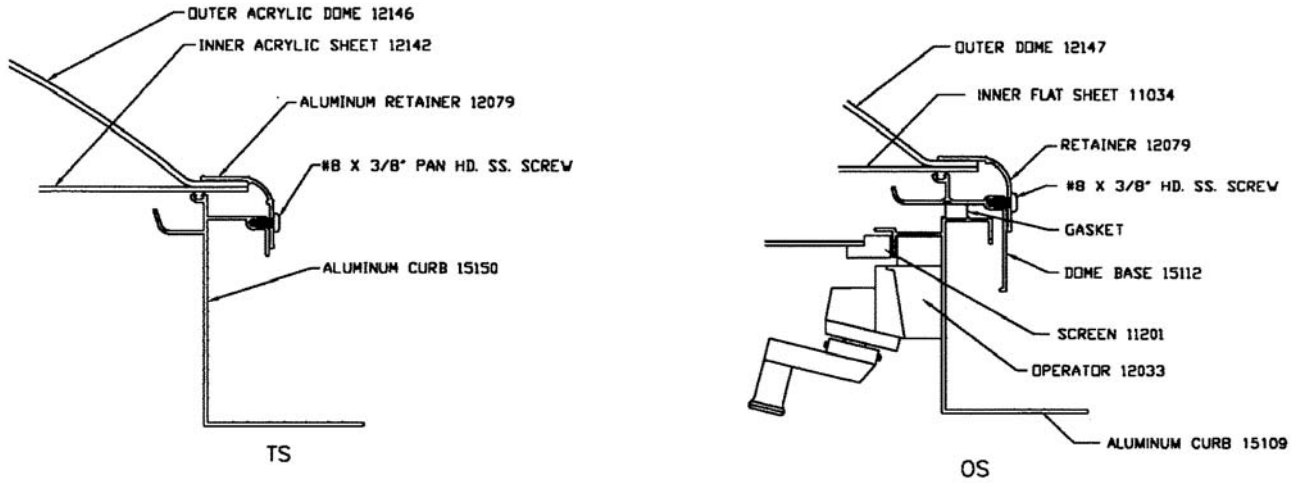


FIGURE 1—ODL CURB-MOUNTED PLASTIC SKYLIGHTS



For SI: 1 inch = 25.4 mm.

FIGURE 2—ODL SELF-FLASHING SKYLIGHTS

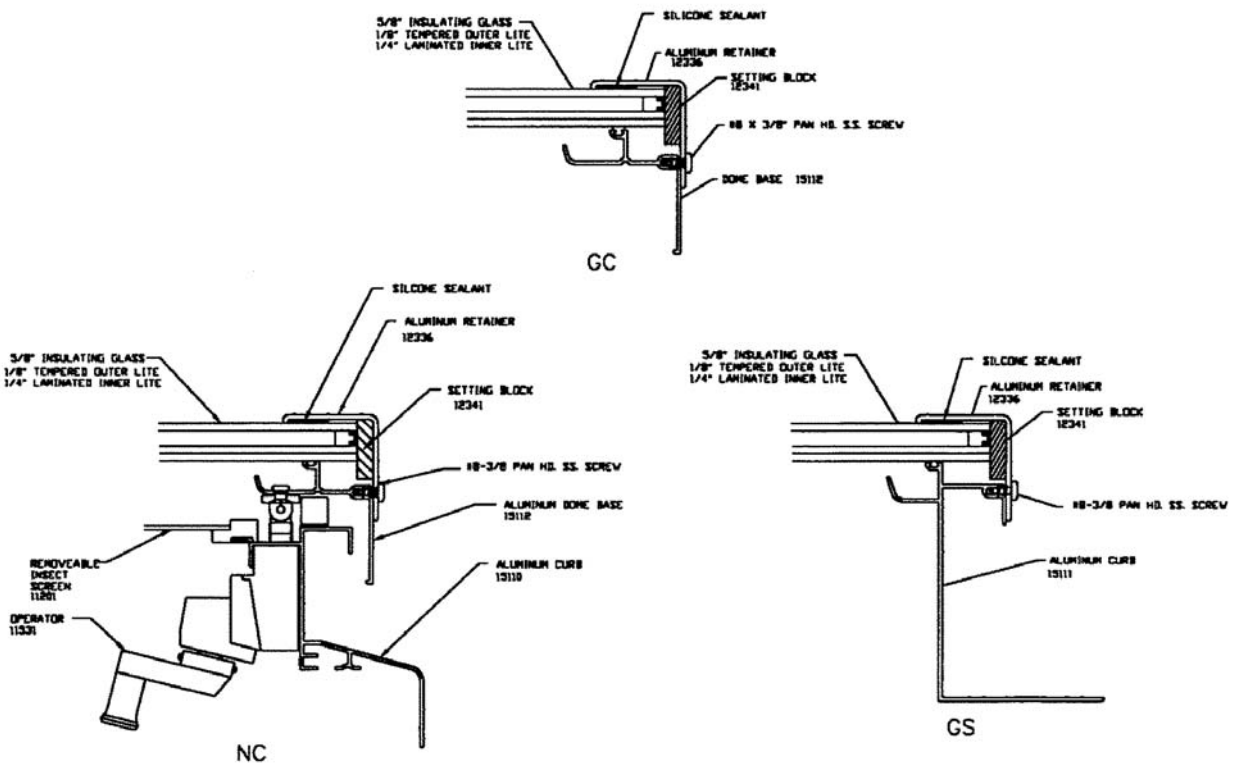
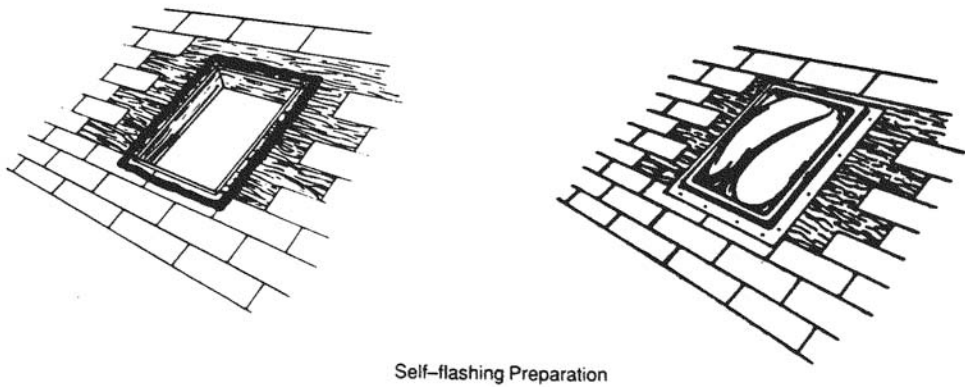
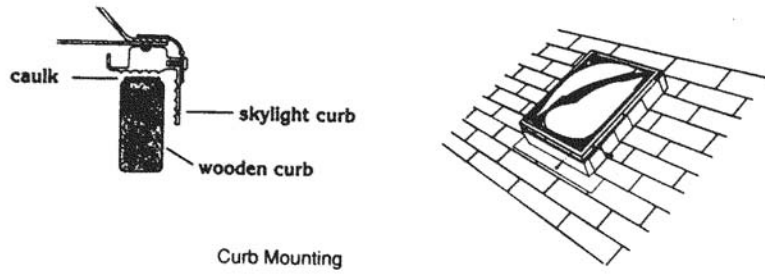
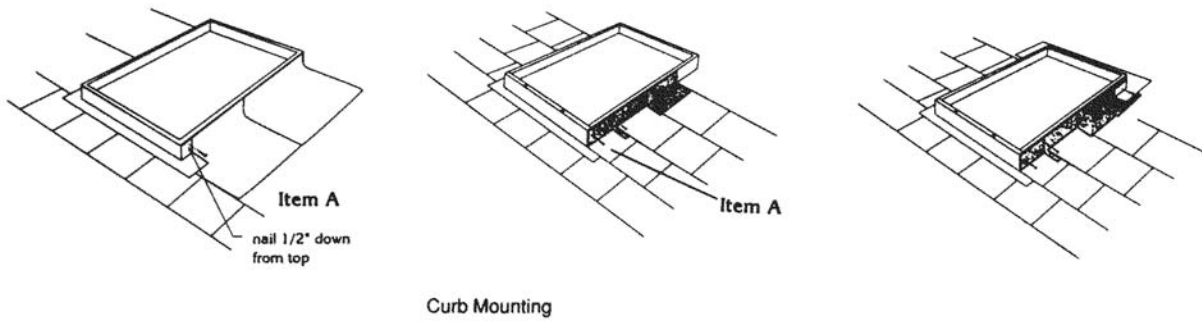
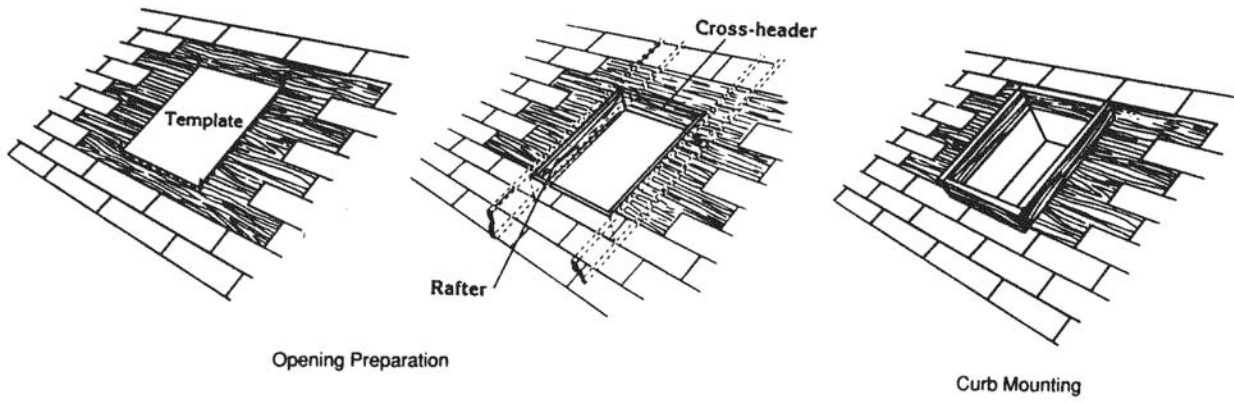
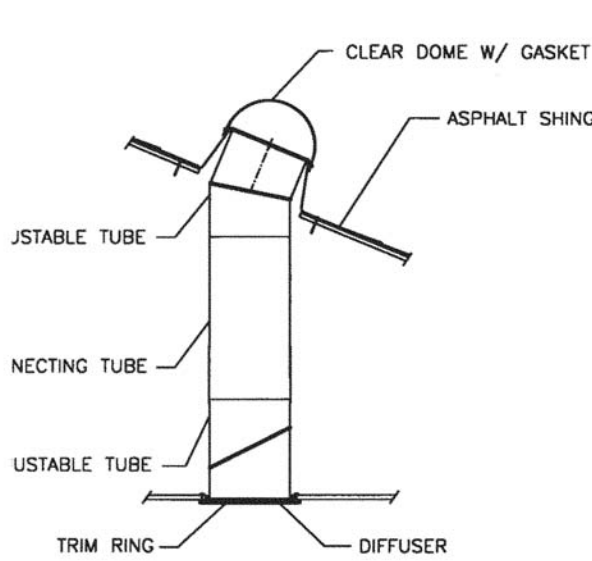


FIGURE 3—ODL GLASS SKYLIGHTS

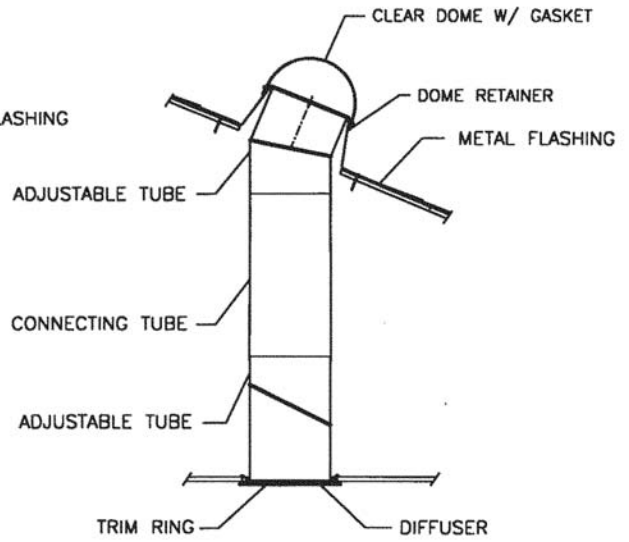


For SI: 1 inch = 25.4 mm.

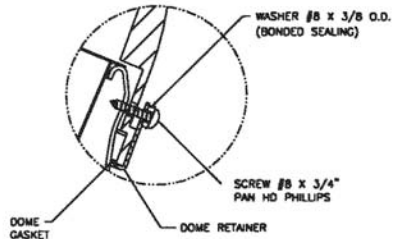
FIGURE 4—INSTALLATION DETAILS



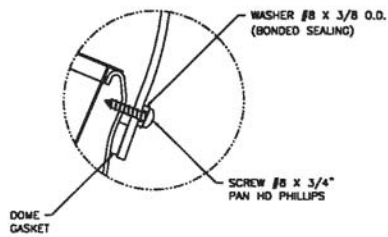
EZ 10 SCA  
EZ 14 SCA



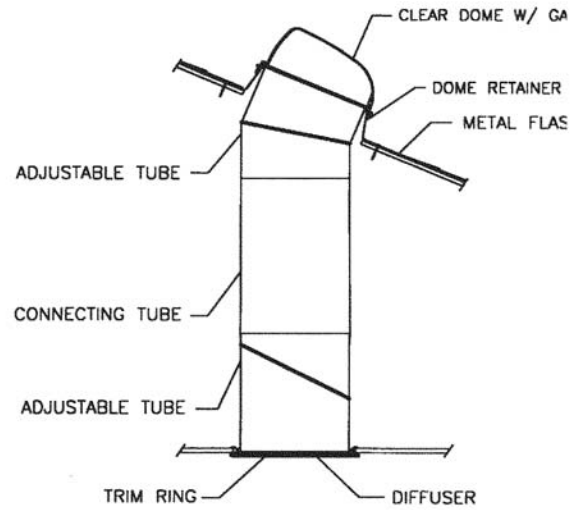
EZ 10 SCF (SHOWN)  
EZ 10 SCM (NO RETAINER)



MODEL SCF



MODEL SCM



EZ 14 SCF (SHOWN)  
EZ 14 SCM (NO RETAINER)

For SI: 1 inch = 25.4 mm.

FIGURE 5—EZ TUBE SKYLIGHTS