

# ICC-ES Evaluation Report

**ESR-4776**


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<p><b>DIVISION: 08 00 00— OPENINGS</b></p> <p><b>Section: 08 62 00—Unit Skylights</b></p>	<p><b>REPORT HOLDER:</b> <b>KINGSPAN LIGHT + AIR LLC</b></p>	<p><b>EVALUATION SUBJECT:</b> <b>SERIES 1100 SKYLIGHTS</b></p>	
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## 1.0 EVALUATION SCOPE

### 1.1 Compliance with the following codes:

- 2021 and 2018 [International Building Code® \(IBC\)](#)

### Properties evaluated:

- Structural
- Air infiltration
- Water penetration resistance
- Durability

### 1.2 Evaluation to the following green standard:

- 2020, 2015 and 2012 ICC 700 [National Green Building Standard™](#) (ICC 700-2020, ICC 700-2015 and ICC 700-2012)

### Attributes verified:

See Section 3.0

## 2.0 USES

The Series 1100 skylights are plastic-glazed non-operable unit skylights complying with IBC Sections 2405 and 2610.

## 3.0 DESCRIPTION

The Series 1100 skylights consist of aluminum curb mounted skylights (ALX-CM, ALTX-CM, ALX-LV-CM, and ALIX-SF models). The ALX-LV-CM model includes a galvanized steel vortex venting base, and the ALIX-SF model includes an aluminum self-flashing base. The ALTX models are similar to the ALX models but include a Poured-and-Debridged (P&DB) thermal break system. All models are available in single, double, or triple-layer configurations.

The ALX-CM-1, ALTX-CM-1, ALX-LV-CM-1, and ALIX-SF-1 models consist of a monolithic polycarbonate dome or prismatic polycarbonate dome, aluminum retainer cap, and aluminum curb frame.

The ALX-CM-2, ALTX-CM-2, ALX-LV-CM-2, and ALIX-SF-2 models consist of a monolithic polycarbonate exterior dome, prismatic acrylic or polycarbonate interior dome or polycarbonate glazing panel, aluminum retainer cap, and aluminum curb frame.

The ALX-CM-3, ALTX-CM-3, ALX-LV-CM-3, and ALIX-SF-3 models consist of a monolithic polycarbonate exterior dome, prismatic acrylic or polycarbonate middle dome, prismatic acrylic or polycarbonate interior dome or polycarbonate glazing panel, aluminum retainer cap, and aluminum curb frame.

The monolithic polycarbonate domes are formed from the 0.118 inch (3 mm) thick TUFFAK® SK1 evaluated in [ESR-2728](#) or the 0.118 inch (3 mm) thick KILON monolithic sheet evaluated in [ESR-4744](#). The polycarbonate plastic sheets used to form the domes have a CC1 classification.

The prismatic polycarbonate domes are formed from the 0.156 inch (4 mm) thick TUFFAK® SK1 evaluated in [ESR-2728](#), the 0.134 inch (3.4 mm) thick KILON prismatic sheet evaluated in [ESR-4744](#), or the 0.114 inch (2.9 mm) thick KILON prismatic sheet. The polycarbonate plastic sheets used to form the domes have a CC1 classification.

The prismatic acrylic domes are formed from the 0.118 inch or 0.156 inch (3 mm or 4 mm) thick Optix® Acrylic Sheet evaluated in [ESR-2591](#). The acrylic sheets used to form the domes have a CC2 classification.

The polycarbonate glazing panels are the 0.63 inch (16 mm) thick PoliCarb® 3-wall or 5-wall evaluated in [ESR-3918](#) or the 0.63 inch (16 mm) thick Kilon 16 mm 7-wall evaluated in [ESR-4745](#). The glazing panels have a CC1 classification.

The aluminum components are manufactured from 6063-T5. Details for the skylights are noted in [Figures 1](#) through [7](#).

The attributes of the skylights have been verified as conforming to the requirements of (i) ICC 700-2020 Sections 701.4.3.4 and 11.701.4.3.4; (ii) ICC 700-2015 Section 701.4.3.3, 11.701.4.3.4 and 12.1.701.4.3.4; and ICC 700-2012 Section 701.4.3.3, 11.701.4.3.3 and 12.1.701.4.3.3 for fenestration air leakage. Note that decisions on compliance for those areas rest with the user of this report. The user is advised of the project-specific provisions that may be contingent upon meeting specific conditions, and the verification of those conditions is outside the scope of this report. These codes or standards often provide supplemental information as guidance.

## 4.0 DESIGN AND INSTALLATION

### 4.1 Design:

**4.1.1 Allowable Loads:** The allowable loads are expressed as performance grade (PG) rating values. Under the IBC, the PG rating value must be greater than or equal to the maximum load on the skylight required by IBC Section 2405.5. Allowable positive and negative PG rating values for the Series 1100 skylights are noted in [Table 1](#).

**4.1.2 Air Infiltration:** When tested at an air pressure differential of 1.57 psf (75 Pa), the skylights have an air leakage rate of less than 0.3 cfm/ft<sup>2</sup> (1.5 L/s\*m<sup>2</sup>).

### 4.2 Installation:

The skylight must be attached to the wood curb with a No. 10 SAE Grade 2/ASTM A307 hex head screw, or equivalent, in each mounting hole provided in the skylight frame, with the fastener length being sufficient to penetrate the wood curb a minimum of 1½ inches (38 mm). The skylight must be attached to the metal curb with a No. 12 SAE Grade 2/ASTM A307 hex head screw, or equivalent, See [Table 2](#) for the required number of fasteners.

The metal curb-mounted skylights must be installed on either a minimum 0.04-inch (1.02 mm) thick ASTM A36 galvanized steel vented vortex base or a minimum 0.064-inch (1.63 mm) 5052-H32 Aluminum self-flashing base. The wood curb-mounted skylights must be installed on framing of minimum 2-by-6 lumber with a minimum 0.42 specific gravity, sized to the inside dimension noted in [Table 1](#) and of a height sufficient so that the plastic glazing is a minimum of 4 inches (102 mm) above the plane of the roof.

The curbs must have a square and level mounting surface. A ½-inch-diameter (12.7 mm) bead of butyl sealant, silicone sealant, or an equivalent must be applied to the top surface of the curb or deck before the skylight is set in place.

Wood curb-mounted skylights must have the gap between the skylight frame and the curb fully shimmed. Flashing must comply with, and be installed in accordance with, IBC Section 1507.

Additional details for wood curb-mounted units are provided in [Figures 1](#) through [5](#); for curb-mounted units with a vented vortex base; see [Figure 6](#); for curb-mounted units with a self-flashing base, see [Figure 7](#).

## 5.0 CONDITIONS OF USE:

The Series 1100 skylights described in this report complies with, or is a suitable alternative to what is specified in, those codes listed in Section 1.0 of this report, subject to the following conditions:

- 5.1 The skylights must be installed in accordance with this report, Sections 2405.4 and 2610 of the IBC, as applicable, and the manufacturer's published installation instructions. In the event of a conflict between this report and the manufacturer's published installation instructions, this report governs.
- 5.2 The manufacturer's installation instructions must be available at the jobsite during installation.
- 5.3 The use of skylights as components of fire-resistance-rated assemblies is outside the scope of this report.
- 5.4 The attachment of the curbs to the supporting structure is outside the scope of this report.
- 5.5 The skylights are manufactured in Santa Ana, California under a quality control program with inspections by ICC-ES.

## 6.0 EVIDENCE SUBMITTED

Data in accordance with the [ICC-ES Acceptance Criteria for Plastic Glazed Skylights \(AC16\)](#), dated April 2020 (editorially revised August 2020).

## 7.0 IDENTIFICATION

- 7.1 The skylights are labeled with the Kingspan Light + Air name and address and the evaluation report number (ESR-4776).
- 7.2 The report holder's contact information is the following:

**KINGSPAN LIGHT + AIR LLC**  
**28662 NORTH BALLARD DRIVE**  
**LAKE FOREST, ILLINOIS 60045**  
**(847) 816-1060**  
[www.kingspanlightandair.us](http://www.kingspanlightandair.us)

**TABLE 1—DIMENSIONAL DETAILS AND PERFORMANCE GRADES FOR SERIES 1100 SKYLIGHTS (ALX-CM, ALTX-CM, ALX-LV-CM, AND ALIX-SF MODELS)**

MODEL NO.	INSIDE CURB DIMENSIONS (inches)	OUTER DOME THICKNESS (inches)	DOME RISE (inches)	PERFORMANCE GRADE (PG) (psf)	
				PG <sub>pos</sub> (inward forces)	PG <sub>neg</sub> (outward forces)
4848	48 x 48	0.118	13	30	30
4896	48 x 96	0.118 0.134 or 0.156 (prismatic polycarbonate)	13	30	30
6072	60 x 72	0.118	13	30	30

**TABLE 2—FASTENER SCHEDULE FOR SERIES 1100 SKYLIGHTS**

MODEL NO.	NUMBER OF RETAINER FASTENERS <sup>1</sup>	NUMBER OF SKYLIGHT MOUNTING FASTENERS <sup>2</sup>
4848	20	20
4896	28	28
6072	26	26

<sup>1</sup>Aluminum frame to aluminum retainer fasteners are No. 12 Tek or Machine Bolt (zinc plated steel) screws.

<sup>2</sup>Metal flange to wood curb (shear) fasteners to attach skylights to wood curbs with specific gravity of 0.42, are No. 10 hex head screws having sufficient length to penetrate the wood curb a minimum of 1½ inches. Metal flange to metal curb (shear) fasteners to attach skylights to metal curbs are No. 12 hex head screws.

ALUMINUM CURB MOUNTED SKYLIGHT

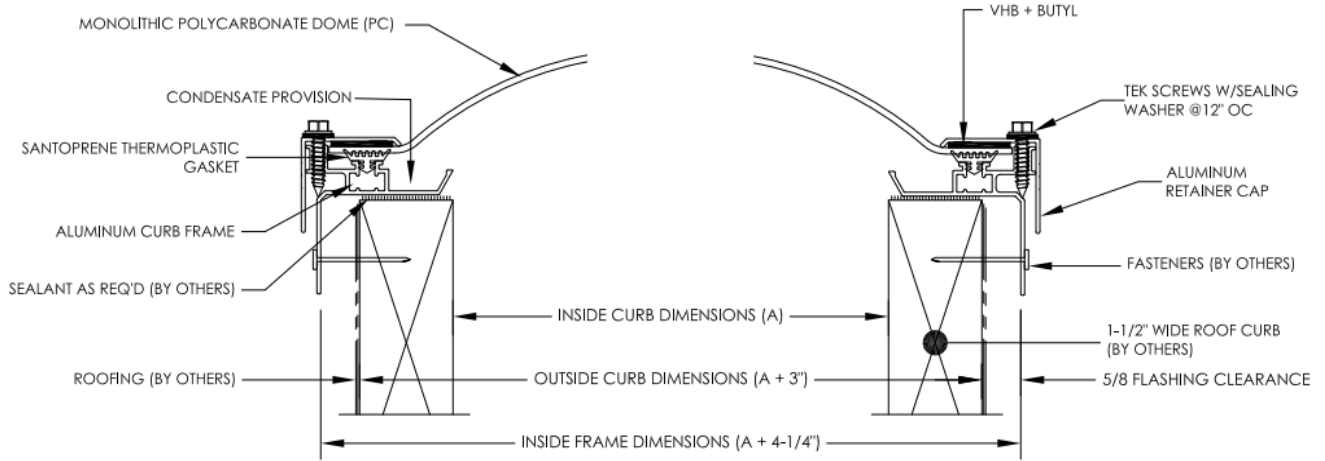


FIGURE 1—ALX-CM-1 ALUMINUM CURB MOUNTED SKYLIGHT DETAILS (WITH SMOOTH DOME)<sup>1</sup>

<sup>1</sup>Applicable to Model No. 4848, 4896 and 6072.

ALUMINUM CURB MOUNTED SKYLIGHT

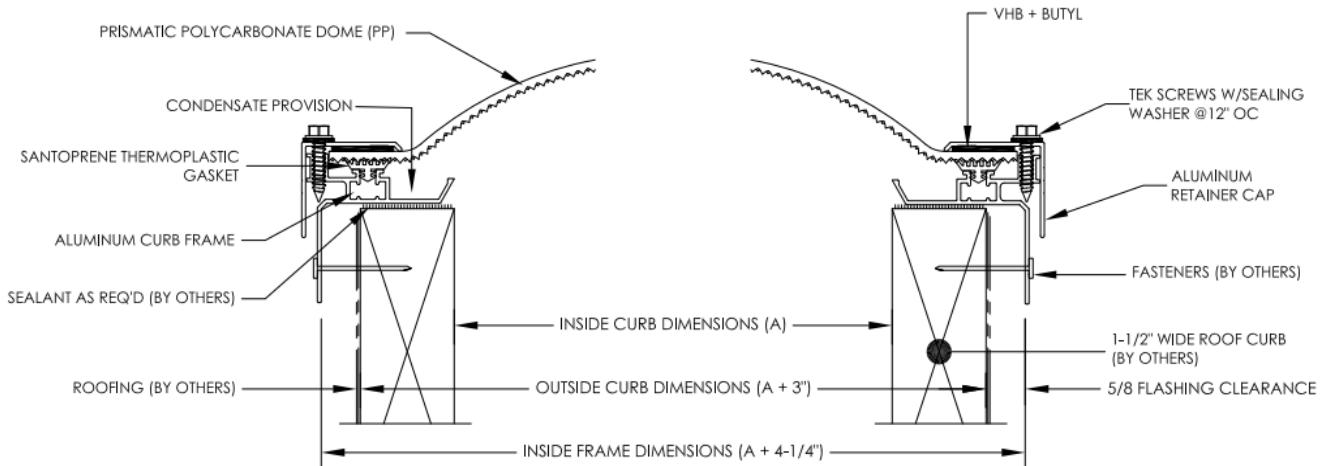


FIGURE 2—ALX-CM-1 ALUMINUM CURB MOUNTED SKYLIGHT DETAILS (WITH PRISMATIC DOME)<sup>1</sup>

<sup>1</sup>Applicable to Model No. 4896.

ALUMINUM CURB MOUNTED SKYLIGHT

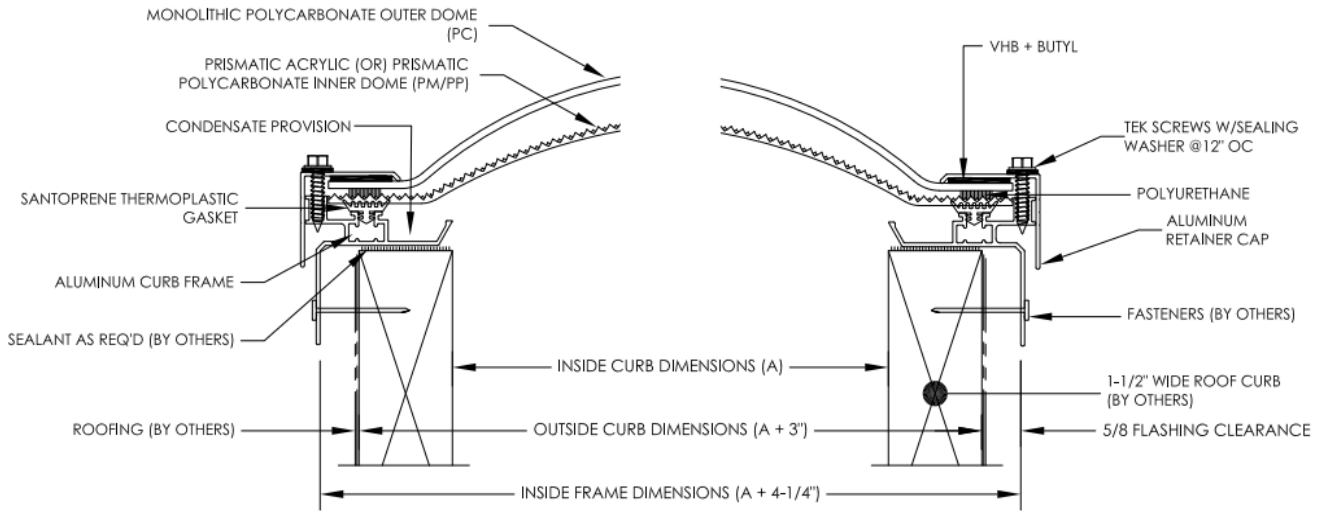


FIGURE 3—ALX-CM-2 ALUMINUM CURB MOUNTED SKYLIGHT DETAILS (WITH INTERIOR DOME)<sup>1</sup>

<sup>1</sup>Applicable to Model No. 4848, 4896 and 6072.

ALUMINUM CURB MOUNTED SKYLIGHT

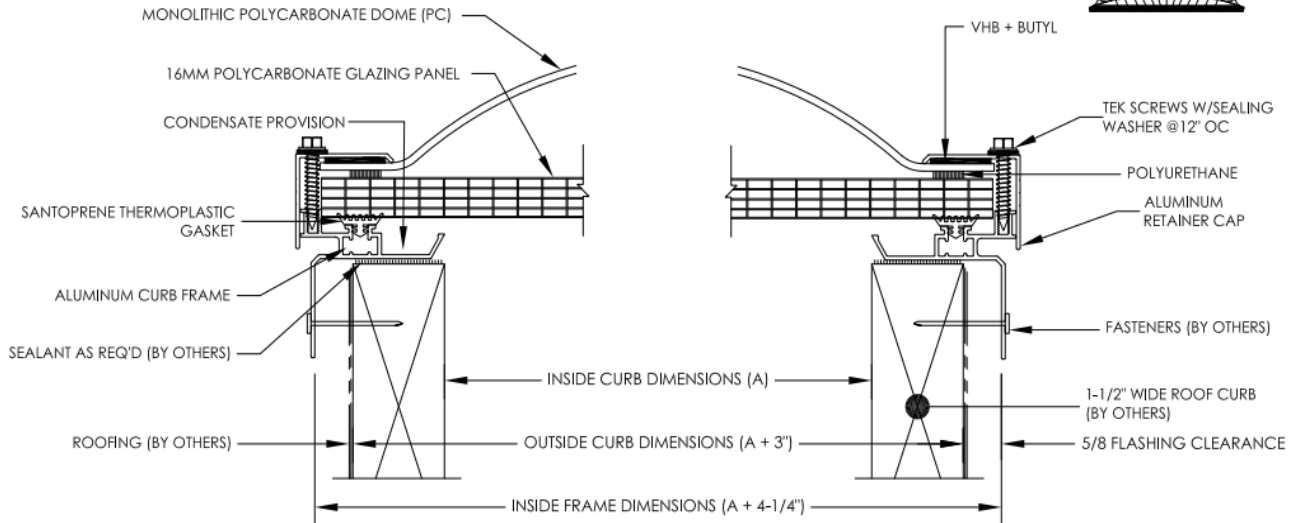
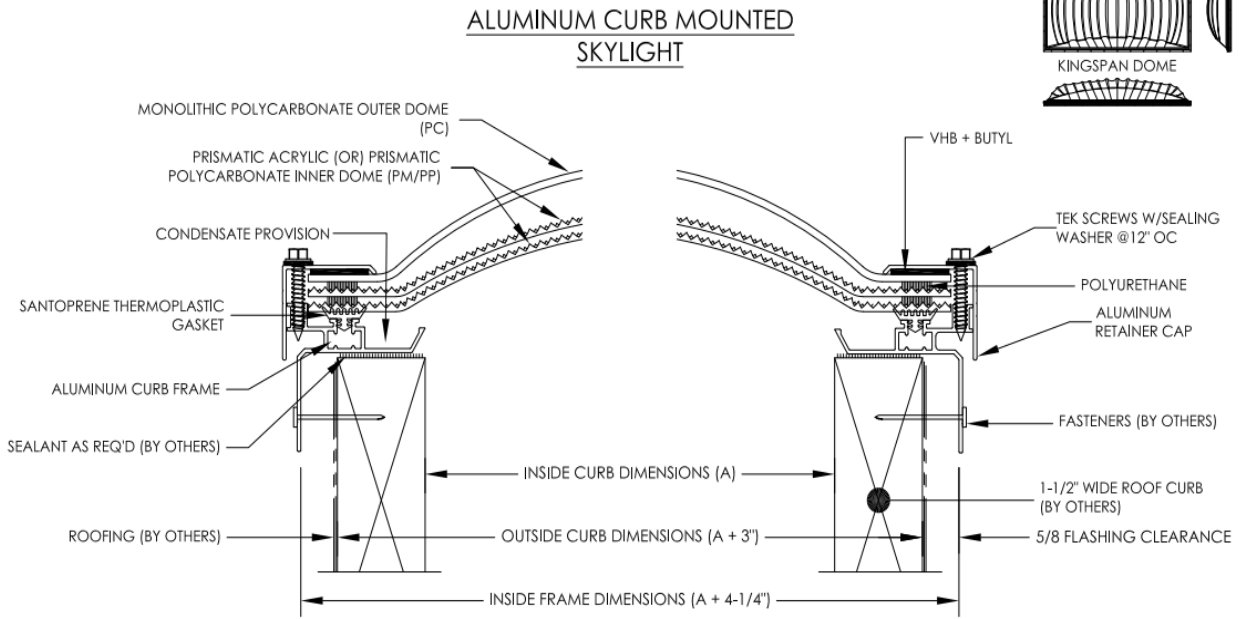


FIGURE 4—ALX-CM-2 ALUMINUM CURB MOUNTED SKYLIGHT DETAILS (WITH INTERIOR GLAZING PANEL)<sup>1</sup>

<sup>1</sup>Applicable to Model No. 4848, 4896 and 6072.

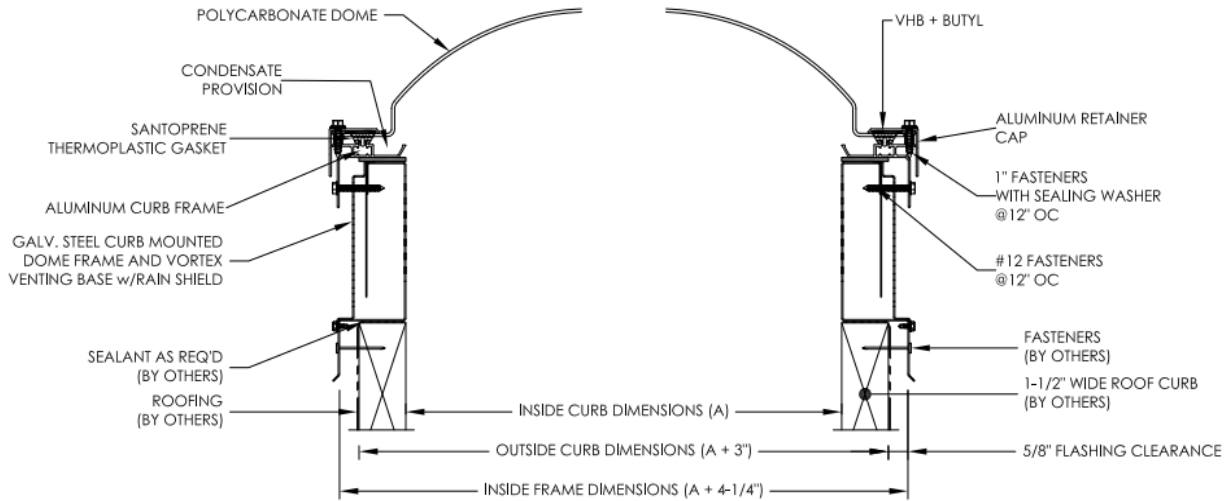
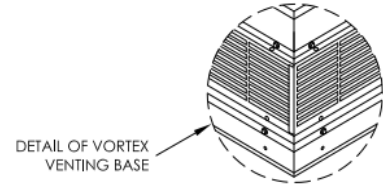


**FIGURE 5—ALX-CM-3 ALUMINUM CURB MOUNTED SKYLIGHT DETAILS<sup>1</sup>**

<sup>1</sup>Applicable to Model No. 4848, 4896 and 6072.



### SERIES 1100 KAT CURB MOUNTED ALUMINUM SKYLIGHT w/VORTEX VENTING BASE



**FIGURE 6—ALX-LV-CM CURB MOUNTED SKYLIGHT INSTALLATION DETAILS<sup>1</sup>**

<sup>1</sup>Applicable to Model No. 4848 and 4896.



SERIES 1100 KAT CURB MOUNTED  
ALUMINUM SKYLIGHT w/ALUMINUM  
SELF FLASHING BASE

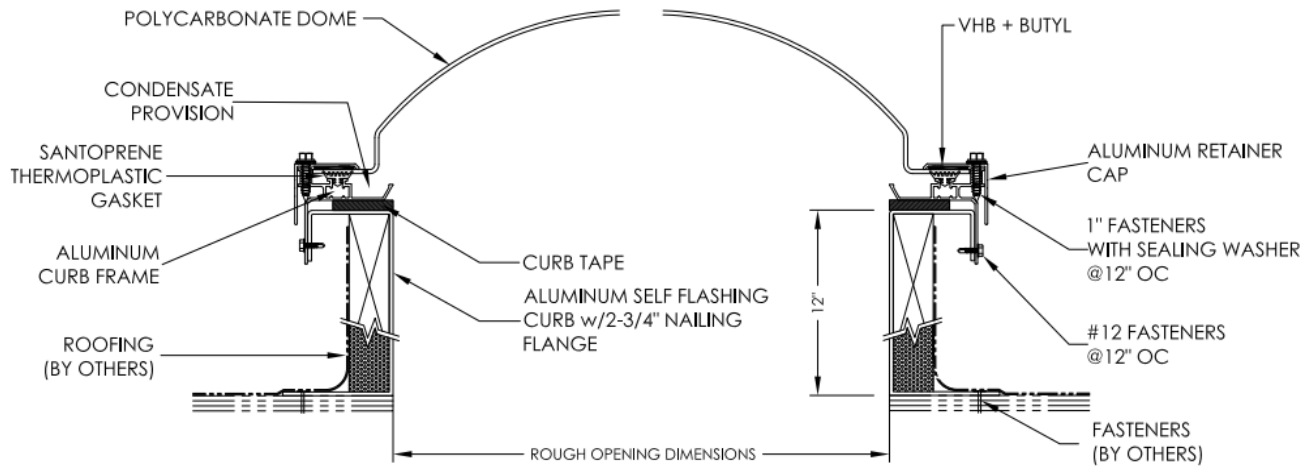


FIGURE 7—ALIX-SF CURB MOUNTED SKYLIGHT INSTALLATION DETAILS<sup>1</sup>

<sup>1</sup>Applicable to Model No. 4848, 4896, and 6072.