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ICC-ES Evaluation Report

ESR-3837

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This report is subject to renewal 10/2018.

DIVISION: 08 00 00—OPENINGS
SECTION: 08 62 00—UNIT SKYLIGHTS

REPORT HOLDER:

SKYCO SKYLIGHTS

2995 AIRWAY AVENUE, SUITE B
COSTA MESA, CALIFORNIA 92626

EVALUATION SUBJECT:

UNIT SKYLIGHT MODELS A-S-CM AND A-S1-CM



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DIVISION: 08 00 00—OPENINGS
Section: 08 62 00—Unit Skylights

REPORT HOLDER:

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EVALUATION SUBJECT:

UNIT SKYLIGHT MODELS A-S-CM and A-S1-CM

1.0 EVALUATION SCOPE

1.1 Compliance with the following codes:

- 2009 and 2006 *International Building Code*® (IBC)
- 2009 and 2006 *International Residential Code*® (IRC)
- 2013 *Abu Dhabi International Building Code* (ADIBC)[†]

[†]The ADIBC is based on the 2009 IBC. 2009 IBC code sections referenced in this report are the same sections in the ADIBC.

Properties evaluated:

- Structural
- Air infiltration
- Water penetration resistance
- Durability

1.2 Evaluation to the following green standard:

- 2015 and 2012 ICC 700 *National Green Building Standard*™ (ICC 700-2015 and ICC 700-2012)

Attributes verified:

- See Section 3.0

2.0 USES

The Skyco Skylights Models A-S-CM and A-S1-CM are plastic-glazed non-openable unit skylights complying with IBC Sections 2405 and 2610 and IRC Section R308.6.

3.0 DESCRIPTION

The Skyco Skylights unit skylight Models A-S-CM and A-S1-CM are glazed using parabolic-shaped domes formed from 0.118-inch-thick (3 mm) flat sheets of Class CC1 polycarbonate plastic described in ICC-ES report [ESR-1893](#). The domes are factory-attached to a 6063-T5 aluminum extruded frame with a 6063-T5 aluminum extruded retainer cap. The connection of Model A-S-CM is a snap-cap design between the frame and retainer cap,

while the Model A-S1-CM is a mechanically fastened design between the frame and retainer cap. The unit skylight may have a 0.098-inch-thick (2.5 mm) Class CC2 acrylic inner dome, as described in ICC-ES report [ESR-1260](#), when applicable. The unit skylight can be a curb mounted unit or self-flashing unit and available in 48-inch-wide-by-96-inch-long (1219 by 2438 mm). Details for the skylights are noted in Figures 1 through 5.

The attributes of the skylights have been verified as conforming to the provisions of ICC 700-2015 Sections 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 rating values, PG. Under the IBC, the PG rating values must be equal to, or greater than, the maximum loads required by IBC Section 2405.5.2. Under the IRC, the PG rating values must be equal to, or greater than, the maximum loads determined in accordance with IBC Section 2405.5.2, except the design wind forces must be as specified for skylights in IRC Section R301.2.1. See Tables 1 and 2 for allowable positive and negative PG rating values for both curb-mounted and self-flashing units installed with or without retainer fasteners, respectively.

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 0.30 cfm/ft² (1.5 L/s*m²) as required in Sections 402.4.4 and 502.4.1 of the 2009 *International Energy Conservation Code*® (IECC) or Sections 402.4.2 and 502.4.1 of the 2006 IECC.

4.2 Installation: Installation must be in accordance with the manufacturer's published installation instructions, this report, and Sections 2405 and 2610 of the IBC and Section R308.6 of the IRC, as applicable. In the event of conflict between this report and the manufacturer's published installation instructions, this report governs.

The curb-mounted skylights must be installed on a metal curb or wood curb made of minimum nominally 2-by lumber with a minimum 0.42 specific gravity, of a height sufficient so that the installation of the plastic dome is a minimum 4 inches (102 mm) above the plane of the

finished roof. The metal or wood curb and attachment to the roof structure must be designed to resist the appropriate code-prescribed loads. The self-flashing units are designed to mount directly to the roof deck assembly.

The curbs and/or roof deck must have a square and level mounting surface. A ½-inch-diameter (12.7 mm) 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.

The skylight must be attached to the wood curb with a 6d common nail, or equivalent, must be used in each mounting hole, with the fastener length being sufficient to penetrate the wood curb or wood deck framing member a minimum of 1½ inches (38mm). When the skylight must be attached to a metal or a self-flashing curb, a #10-16 corrosion-resistant slotted hex washer head screw with neoprene bonded steel washer, or equivalent, must be used in each mounting hole, with the screw length being sufficient to penetrate the metal or self-flashing curb or wood deck framing member a minimum of 1½ inches (38 mm).

Wood curb-mounted units must have the gap between the skylight frame and the wood curb fully shimmed. Flashing must comply with, and be installed in accordance with, IBC Section 1507 or IRC Section R905, as applicable.

Compatible sealant is applied over the mounting flange of the self-flashing units and covered with the roof covering in such a manner as to ensure a watertight seal.

Additional installation details for wood curb-mounted units are provided in Figures 1 and 2; for self-flashing unit installation details see Figure 3; for metal curb-mounted unit installation details, see Figure 4; and for louvered curb-mounted unit installation details, see Figure 5.

5.0 CONDITIONS OF USE

The Skyco Skylights unit skylight Models A-S-CM and A-S1-CM (Size 48" x 96") described in this report complies with, or are 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 manufacturer’s installation instructions must be available at the jobsite during installation.
- 5.2 The use of the skylights as components of fire-resistance-rated assemblies is outside the scope of this report.
- 5.3 Allowable loads do not exceed those noted in Tables 1 and 2 of this report. Snow loads are outside the scope of this report.
- 5.4 The skylights are manufactured in Costa Mesa, 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 2011 (editorially revised August 2013).

7.0 IDENTIFICATION

Each skylight is identified by a label noting the Skyco Skylights name and address, the evaluation report number (ESR-3837), the plastic classification (Class CC1/CC2), the plastic thickness before thermoforming, model designation, and date of manufacture. In addition to the identification label, a warning label complying with Class 1, ANSI Standard Z35.1 (warning of risk of fall) is applied to each skylight.

TABLE 1—DIMENSIONAL DETAILS AND PERFORMANCE GRADE FOR SKYCO SKYLIGHTS MODEL A-S-CM UNIT SKYLIGHTS WITH SKYPRO POLYCARBONATE PLASTIC SKYWAVE ARC DOMES¹

MODEL NO.	INSIDE CURB DIMENSIONS (inches)	DOME THICKNESS (INCH)	DOME RISE (INCHES)	PERFORMANCE GRADE, PG, AND ALLOWABLE LOADS (PSF)		NUMBER OF SKYLIGHT MOUNTING FASTENERS ^{2,3}
				PG _{pos} (inward forces)	PG _{neg} (outward forces)	
4896	48 x 96	0.118	13.125	20	20	28

For SI: 1 inch = 25.4 mm, 1 psf = 0.0479 kN/m²

¹Installation must comply with Section 4.0 and Figures 1 through 5.

²Fasteners to attach skylights to wood curbs or wood roof framing members, with a specific gravity of 0.42, are 6d common nails, or equivalent, having sufficient length to penetrate the wood member curb or wood roof framing member a minimum of 1½-inches.

³Fasteners to attach skylights to metal curbs or self-flashing curbs are #10-16 corrosion-resistant slotted hex washer head screws with neoprene bonded steel washers, or equivalent, having sufficient length to penetrate the metal curb or wood roof framing member a minimum of 1½-inches.

TABLE 2—DIMENSIONAL DETAILS AND PERFORMANCE GRADE FOR SKYCO SKYLIGHTS MODEL A-S1-CM UNIT SKYLIGHTS WITH SKYPRO POLYCARBONATE PLASTIC SKYWAVE ARC DOMES¹ WITH RETAINER FASTENERS

MODEL NO.	INSIDE CURB DIMENSIONS (inches)	DOME THICKNESS (INCH)	DOME RISE (INCHES)	PERFORMANCE GRADE, PG, AND ALLOWABLE LOADS (PSF)		NUMBER OF RETAINER FASTENERS ²	NUMBER OF SKYLIGHT MOUNTING FASTENERS ^{3,4}
				PG _{pos} (inward forces)	PG _{neg} (outward forces)		
4896	48 x 96	0.118	13.125	20	20	32	28

For SI: 1 inch = 25.4 mm, 1 psf = 0.0479 kN/m²

¹Installation must comply with Section 4.0 and Figures 1 through 5.

²Retainer fasteners are #10-16 corrosion resistant hex washer head self-drilling sheet metal screws.

³Fasteners to attach skylights to wood curbs or wood roof framing members, with a specific gravity of 0.42, are 6d common nails, or equivalent, having sufficient length to penetrate the wood member curb or wood roof framing member a minimum of 1½-inches.

⁴Fasteners to attach skylights to metal curbs or self-flashing curbs are #10-16 corrosion-resistant slotted hex washer head screws with neoprene bonded steel washers, or equivalent, having sufficient length to penetrate the metal curb or wood roof framing member a minimum of 1½-inches.

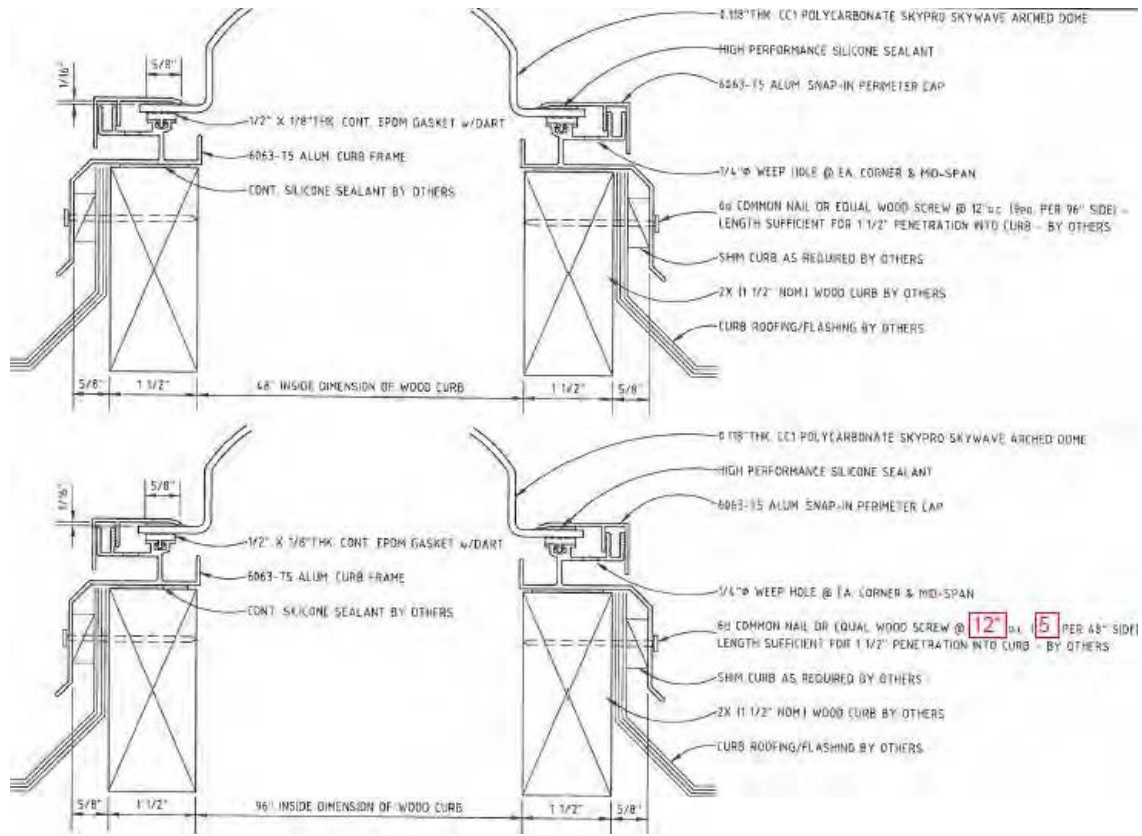


FIGURE 1—SKYLIGHT INSTALLATION DETAILS FOR MODEL A-S-CM

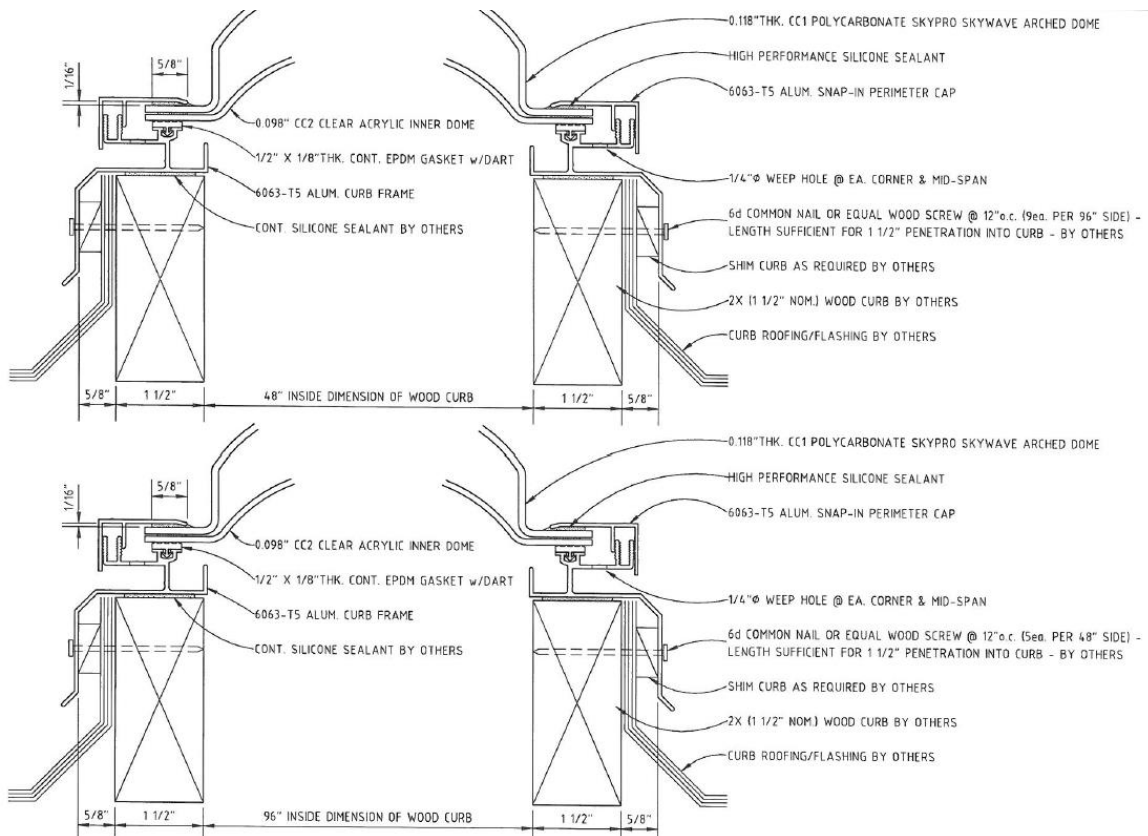


FIGURE 1—SKYLIGHT INSTALLATION DETAILS FOR MODEL A-S-CM (CONTINUED)

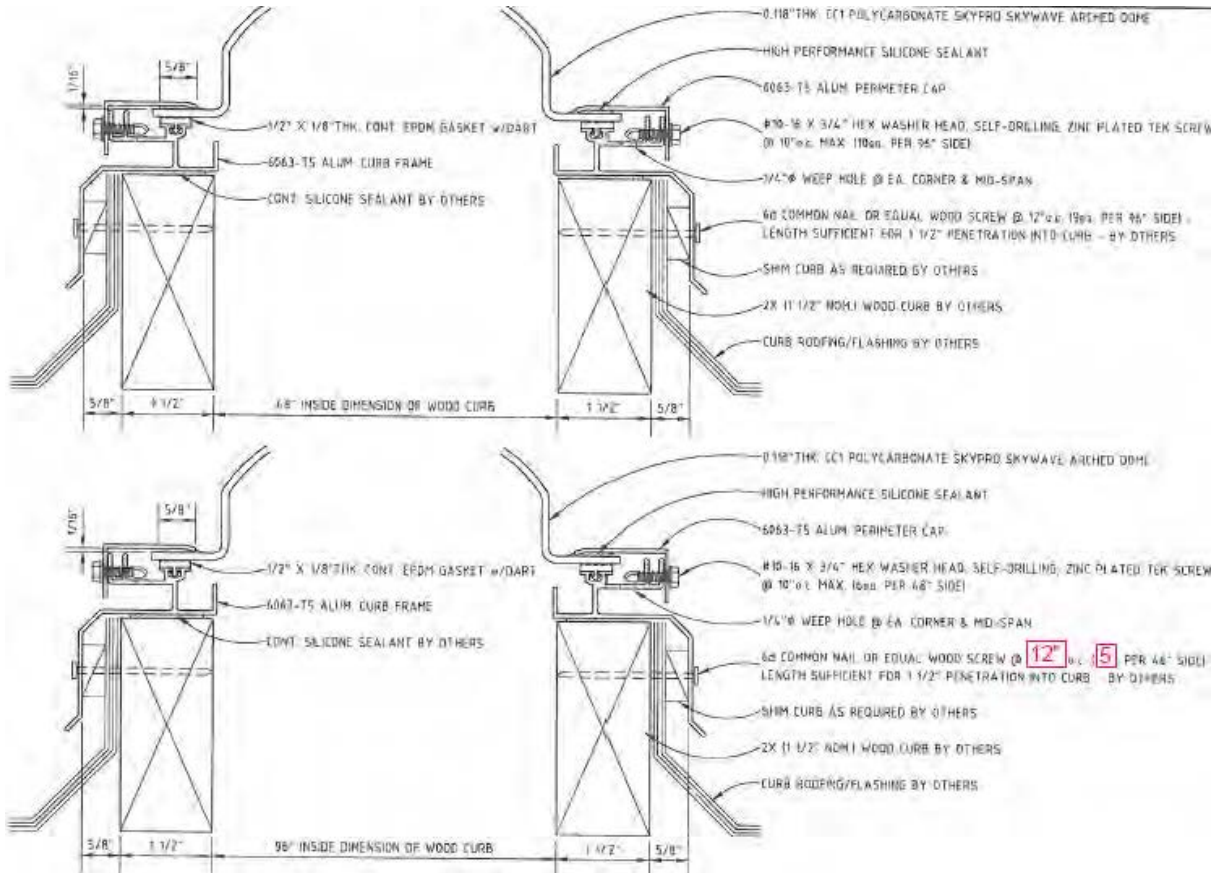


FIGURE 2—SKYLIGHT INSTALLATION DETAILS FOR MODEL A-S1-CM

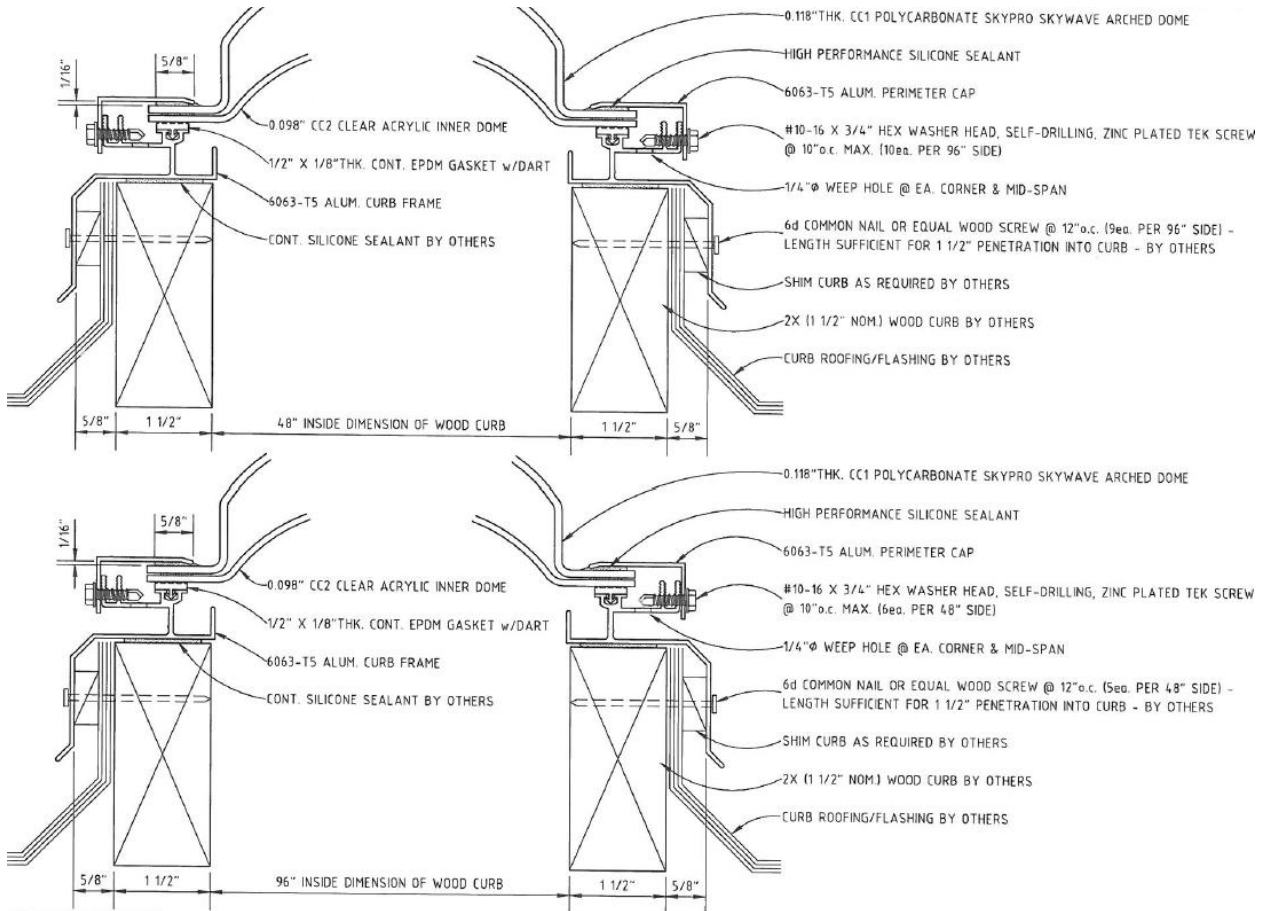


FIGURE 2—SKYLIGHT INSTALLATION DETAILS FOR MODEL A-S1-CM (CONTINUED)

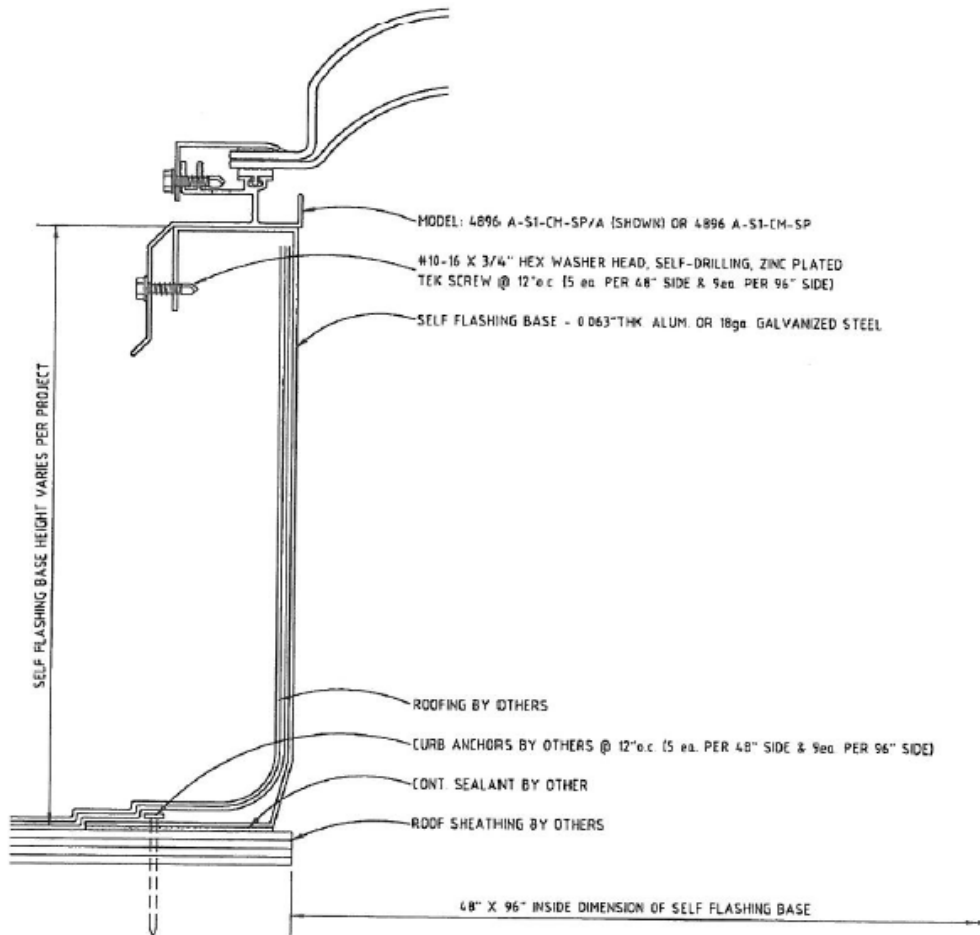


FIGURE 3—SKYLIGHT INSTALLATION DETAILS FOR MODEL A-S1-CM / SIMILAR FOR A-S-CM WITH SELF-FLASHING CURB

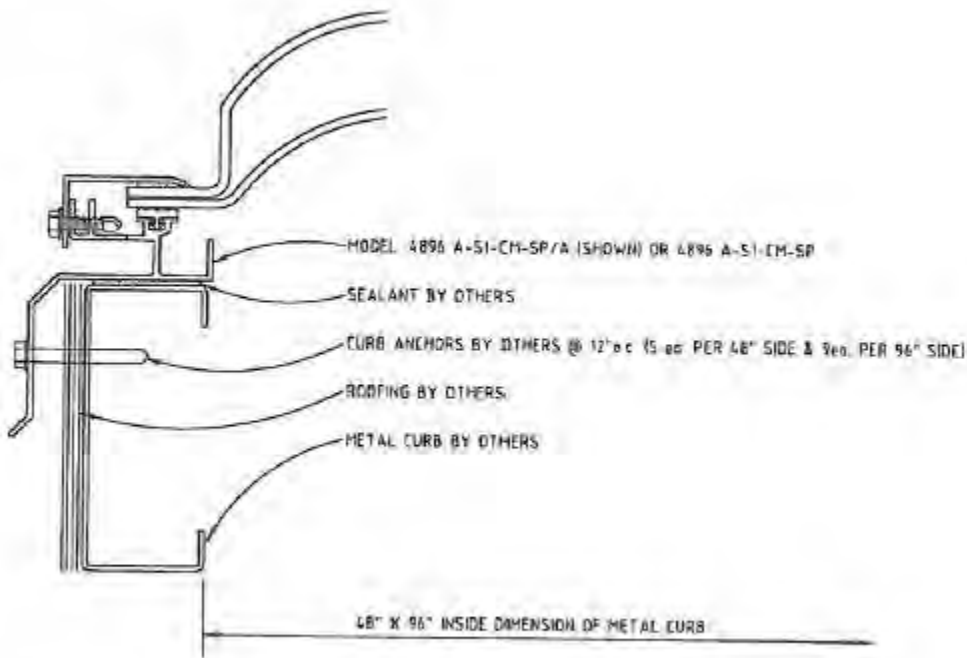


FIGURE 4—SKYLIGHT INSTALLATION DETAILS FOR MODEL A-S1-CM / SIMILAR FOR A-S-CM WITH METAL CURB

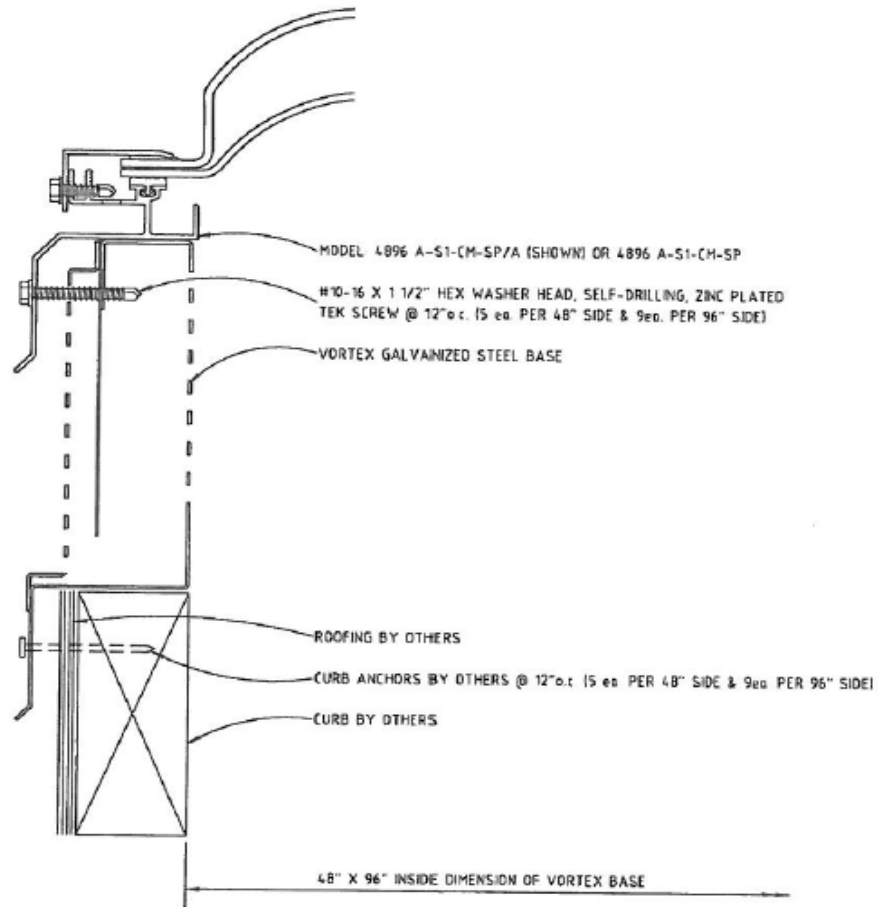


FIGURE 5—SKYLIGHT INSTALLATION DETAILS FOR MODEL A-S1-CM / SIMILAR FOR A-S-CM WITH LOUVERED CURB