

ICC-ES Evaluation Report

ESR-3681


Reissued February 2024

Revised July 2024

Subject to renewal January 2026

ICC-ES Evaluation 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, LLC, express or implied, as to any finding or other matter in this report, or as to any product covered by the report.

Copyright © 2024 ICC Evaluation Service, LLC. All rights reserved.

<p>DIVISION: 08 00 00— OPENINGS</p> <p>Section: 08 62 00—Unit Skylights</p>	<p>REPORT HOLDER: NATURAL LIGHT ENERGY SYSTEMS</p>	<p>EVALUATION SUBJECT: NATURAL LIGHT TUBULAR SKYLIGHTS</p>	
---	---	---	---

1.0 EVALUATION SCOPE

Compliance with the following codes:

- 2009 and 2006 [International Building Code® \(IBC\)](#)
- 2009 and 2006 [International Residential Code® \(IRC\)](#)

Properties evaluated:

- Structural
- Air infiltration
- Water penetration resistance
- Durability

2.0 USES

The Natural Light Tubular Skylights are plastic-glazed skylights complying with IBC Sections 2405 and 2610 and IRC Section R308.6.

3.0 DESCRIPTION

The Natural Light Tubular Skylights are nonopenable dome-shaped skylights which consist of the following components: a plastic dome, a gasket, aluminum base (curb-mounted or self-flashed), and an aluminum light tube. The plastic domes are formed from minimum 0.177-inch-thick smooth and flat sheets of Optix® Acrylic Sheet recognized in ICC-ES report [ESR-2591](#). See [Figures 1A](#) and [1B](#) for more information regarding the components used in the skylights.

4.0 INSTALLATION AND DESIGN

4.1 Installation:

4.1.1 General: 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. Skylights must be installed on roofs with slopes between 0 degrees (0:12) and 75 degrees (45:12) from the horizontal. A minimum height of 4 inches (102 mm) between the plastic glazing and plane of the roof must be maintained. In the event of conflict between this report and the manufacturer’s published installation instructions, this report governs.

4.1.2 Self-Flashing: The self-flashing skylights are mounted directly to the roof deck assembly. Compatible sealant must be applied on the mounting flange of the self-flashing unit and covered with the roof covering in such a manner as to ensure a watertight seal. See [Figures 1A](#) and [1B](#) for more installation details.

4.1.3 Curb-Mounted: The curb-mounted skylights must be installed on a wood curb made of minimum 2-by lumber with a minimum 0.42 specific gravity. The wood curb and the attachment to the roof structure must be designed to resist the appropriate code-prescribed loads. The gap between the skylight frame and the wood curb must be fully shimmed. Flashing must comply with, and be installed in accordance with, IBC Section 1507 or IRC Section 905, as applicable. See [Figures 1A](#) and [1B](#) for more installation details.

4.2 Design:

4.2.1 Allowable Loads: The performance grade (PG) rating values are provided in [Table 1](#).

4.2.2 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).

5.0 CONDITIONS OF USE:

The Natural Light Tubular Skylights 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** 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** The skylights are available with different diffusers attached to the bottom end of the aluminum light tube. These are outside the scope of this report.
- 5.4** The skylights are assembled in Phoenix, Arizona, 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

- 7.1** ICC-ES mark of conformity, electronic labeling, or the evaluation report number (ICC-ES ESR-3681) along with the name, registered trademark, or registered logo of the report holder must be included in the product label.
- 7.2** In addition, The Natural Light Tubular Skylights come in packages bearing the manufacturer's name and address; the model number; the CC2 plastic classification of the plastic glazing (dome); the thickness of plastic glazing material prior to thermoforming the dome; a warning label complying with Class 1, ANSI Standard Z35.1-1972, specifications for accident prevention signs; allowable loads; and the evaluation report number (ESR-3681).
- 7.3** The report holder's contact information is the following:

NATURAL LIGHT ENERGY SYSTEMS
10821 NORTH 23RD AVENUE
PHOENIX, ARIZONA 85029
(602) 485-5984
www.nltubular.com

TABLE 1—DIMENSIONAL DETAILS AND PERFORMANCE GRADES FOR NATURAL LIGHT TUBULAR SKYLIGHTS¹

MODEL	PRODUCT ²	INSIDE WOOD CURB DIMENSIONS (inches)	DOMES RISE (inches)	PG _{POS} ³ (psf)	PG _{NEG} ⁴ (psf)
21KPCCM	21" Dia. Tubular Skylights with Curb-Mounted Flashing	24.5 x 24.5	5½	100	100
18KPCM	18" Dia. Tubular Skylights with Curb-Mounted Flashing	25.25 x 25.25	5	100	100
13KFPC	13" Dia. Tubular Skylights with Curb-Mounted Flashing	18.75 x 18.75	5 ⁵ / ₁₆	100	100
10KCMP	10" Dia. Tubular Skylights with Curb-Mounted Flashing	18.5 x 18.5	4 ¹ / ₄	100	100
21KFP	21" Dia. Tubular Skylights with Self-Flashing	-	5½	100	100
18KFP	18" Dia. Tubular Skylights with Self-Flashing	-	5	100	100
13KFP	13" Dia. Tubular Skylights with Self-Flashing	-	5 ⁵ / ₁₆	100	100
10KFP	10" Dia. Tubular Skylights with Self-Flashing	-	4 ¹ / ₄	100	100

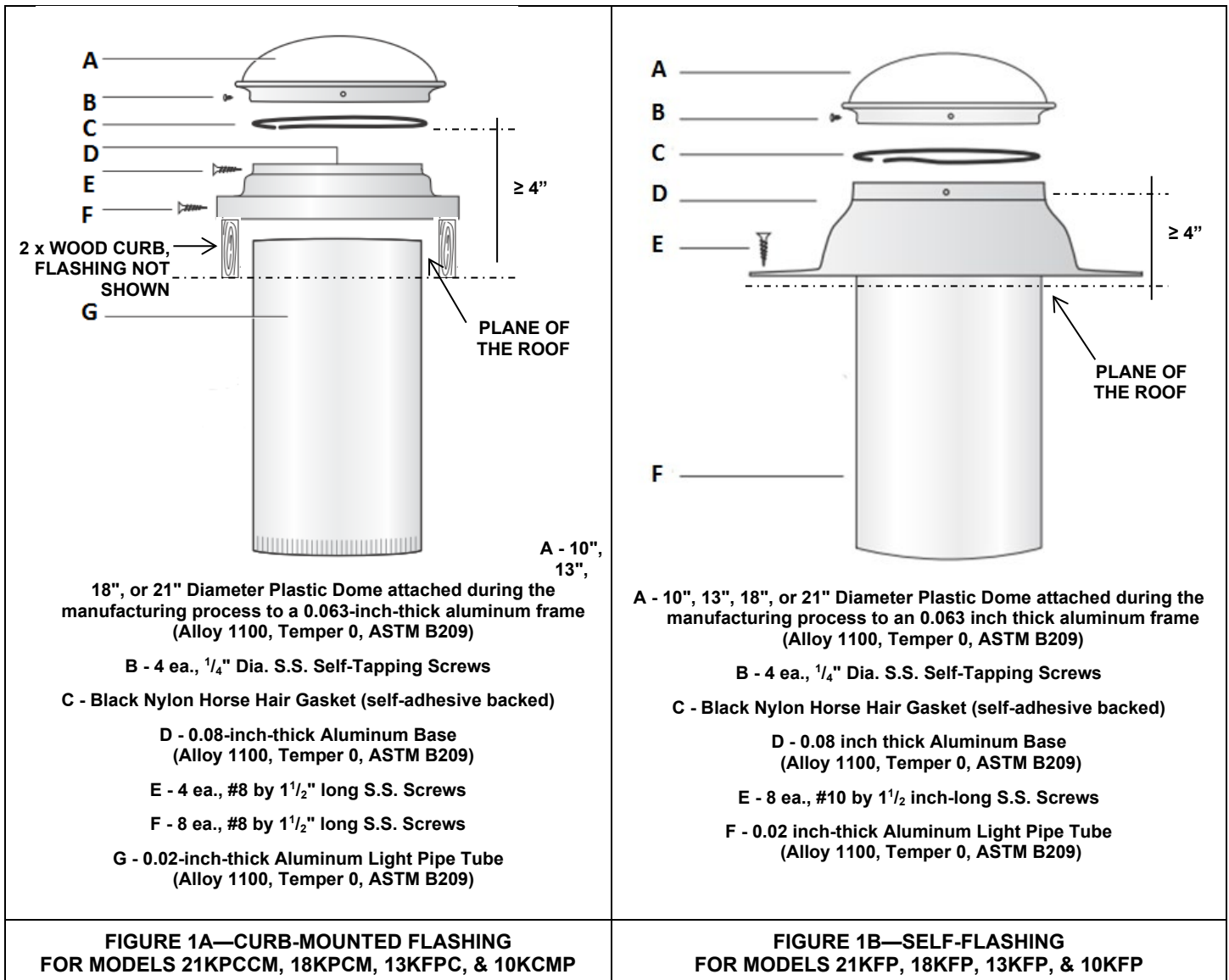
For **SI**: 1 inch = 25.4 mm; 1 psf = 0.0479kN/m².

¹Installation must comply with Section 4.0 and [Figures 1A](#) and [1B](#).

²Screws must be capable of resisting the tabulated loads when installed in metal-to-metal connections and metal-to-wood connections.

³PG_{POS} = Performance grade rating of the skylight under positive (inward) design pressure.

⁴PG_{NEG} = Performance grade rating of the skylight under negative (outward) design pressure.



18", or 21" Diameter Plastic Dome attached during the manufacturing process to a 0.063-inch-thick aluminum frame (Alloy 1100, Temper 0, ASTM B209)

B - 4 ea., 1/4" Dia. S.S. Self-Tapping Screws

C - Black Nylon Horse Hair Gasket (self-adhesive backed)

D - 0.08-inch-thick Aluminum Base (Alloy 1100, Temper 0, ASTM B209)

E - 4 ea., #8 by 1 1/2" long S.S. Screws

F - 8 ea., #8 by 1 1/2" long S.S. Screws

G - 0.02-inch-thick Aluminum Light Pipe Tube (Alloy 1100, Temper 0, ASTM B209)

A - 10", 13", 18", or 21" Diameter Plastic Dome attached during the manufacturing process to an 0.063 inch thick aluminum frame (Alloy 1100, Temper 0, ASTM B209)

B - 4 ea., 1/4" Dia. S.S. Self-Tapping Screws

C - Black Nylon Horse Hair Gasket (self-adhesive backed)

D - 0.08 inch thick Aluminum Base (Alloy 1100, Temper 0, ASTM B209)

E - 8 ea., #10 by 1 1/2 inch-long S.S. Screws

F - 0.02 inch-thick Aluminum Light Pipe Tube (Alloy 1100, Temper 0, ASTM B209)