

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

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REPORT SUBJECT:
Curb-Mount Thermalized Unit Skylights:
DDCS Models
ECS Models
DDPRCS Models

1.0 SCOPE OF EVALUATION

This research report addresses compliance with the following Codes:

2015 International Building Code (IBC)
2015 International Building Code (IRC)

2012 International Building Code (IBC)
2012 International Residential Code (IRC)

Wasco Curb-Mount Thermalized Unit Skylights have been evaluated for the following properties:

Structural Performance
Durability
Burning

2.0 USES

2.1. Wasco Curb-Mount Thermalized Unit Skylights recognized in this report are plastic glazed unit skylights complying with IBC Sections 2405 and 2610 and IRC Section R308.6.

3.0 DESCRIPTION

3.1. The Curb-Mount Thermalized Unit Skylight DDCS, ECS, and DDPRCS models are fixed unit skylights with general dimensions as shown in Table 3 and Table 4. Each of these models utilizes framing

members of identical cross section and similar mounting configurations. Only the perimeter lengths vary to make frames of the required dimensions. The numbers of fasteners vary with skylight size and are further described in Table 1 and Table 2.

3.2. The Curb-Mount Thermalized Unit Skylights consist of plastic glazing, permatherm curb, aluminum retaining frame, gasketing, tapes and screws.

3.2.1. Plastic glazing for DDCS and ECS models consist of double layers of thermoformed acrylic glazing. See Table 3 for glazing thicknesses. Skylights have a smooth dome shaped glazing. See Figure 1.

3.2.2. Plastic glazing for DDPRCS models consist of double layers of thermoformed prismatic acrylic glazing. See Table 4 for glazing thicknesses. Skylights have a hyperbolic dome shaped glazing. See Figure 2.

3.2.3. The permatherm curb consists of an extruded rigid polyvinyl chloride (PVC) profile (Figure 4), that is thermally welded at the corner joints to assemble a four sided skylight frame.

3.2.4. The aluminum retaining frame consists of an extruded aluminum profile (Figure 5), that is welded at the corner joints to assemble a four sided retainer frame. The aluminum retainer frame is pre-installed over the permatherm curb with fasteners as specified in Table 1 and Table 2.

3.2.5. Gasketing and adhesive tapes are utilized at the joints between the aluminum retaining frame and outer glazing, outer glazing and inner glazing, inner glazing and permatherm curb, and permatherm curb and wood curb.

4.0 PERFORMANCE CHARACTERISTICS

4.1. Models identified in this report have been tested for deflection and structural response under uniform loading in both positive (inward) and negative (outward) directions in accordance with ICC-ES AC16. The maximum allowable positive and negative (wind uplift) loads are as indicated in Table 3 and Table 4.



4.2. DDCS, and ECS glazings are manufactured from Cyro's Resist 65, as recognized in ICC-ES Evaluation Report, ESR-1260.

4.3. DDPRCS glazings are manufactured from Plaskolite's Duraplex, as recognized in ICC-ES Evaluation Report, ESR-2590.

4.4. Models identified in this report have met the air infiltration and water penetration acceptance criteria identified in ICC-ES AC16 when tested in accordance with Sections 5.3.2 and 5.3.3 of AAMA/WDMA/CSA 101/I.S.2/A440.

5.0 INSTALLATION

Skylights shall be installed in accordance with the manufacturer's installation instructions and the details and drawings included in this report. Where differences occur between this report and the manufacturer's installation instructions, this report shall govern.

5.1. Skylights shall be mounted on a wood curb that raises the plastic glazing at least 4 inches above the plane of the roof.

5.2. Outside curb dimensions are indicated in Table 3 and Table 4. The design, attachment, flashing and placement of the wood curb to the roof deck is outside the scope of this report.

5.3. Skylights shall be attached to the curb utilizing fasteners described in this report. The fastener manufacturer, type, quantity and location are outlined in Table 1 and Table 2.

6.0 SUPPORTING EVIDENCE

6.1. Manufacturer's drawings and installation instructions for Unit Skylights (dated 2/2016).

6.2. Testing data demonstrating compliance with AAMA/WDMA/CSA101/I.S.2/A440-11, "*Standard/Specification for Windows, Doors, and Unit Skylights*", *American Architectural Manufacturers Association, Window and Door Manufacturers Association, and Canadian Standards Association*.

6.3. Reports of testing and engineering analysis demonstrating compliance with ICC-ES AC16, Acceptance Criteria for Plastic Glazed Skylights, revised August 2013.

6.4. Documentation of an Intertek approved quality control system for the manufacturing of products recognized in this report.

7.0 CONDITIONS OF USE

The Curb-Mount Thermalized Unit Skylights described in this Research Report complies with, or is a suitable alternative to, what is specified in those Codes listed in Sections 1.0 and 2.0 of this report, subject to the following conditions:

7.1. Installation must comply with this Research Report, the manufacturer's published installation instructions and the applicable Code. In the event of a conflict between the manufacturer's instructions and this report, this report governs.

7.2. Design loads do not exceed loads indicated in Table 3 and Table 4 of this report.

7.3. The design loads recognized in this report are based on attachment to wood curbing (specific gravity, $G=0.43$) with a minimum thickness of 1-½ inch and sufficient height to mount the plastic glazing higher than 4 inches above the plane of the roof. Installation on a wood substrate with lesser specific gravity or lesser thickness may result in lower wind load ratings.

7.4. The status of this report is contingent on the validity of the ICC-ES reports identified herein. The revocation or expiration of any included ICC-ES reports will invalidate this report.

7.5. Curb-mounted skylights are limited to installations where a roof covering classification is not required.

7.6. Where required by the building official, engineering calculations and details shall be provided. The calculations shall verify that the anchorage complies with the building code for the type of framing and condition of the supporting construction.

7.7. The Curb-Mount Thermalized Unit Skylights are manufactured by Wasco Products Inc., in Wells, ME and Reno, NV in accordance with the manufacturer's approved quality control system with inspections by Intertek.





8.0 IDENTIFICATION

The Curb-Mount Thermalized Unit Skylights described in this Research Report are identified by a marking bearing the report holder's name (Wasco) and address, Model number, the plastic dome classification (CC2) and thickness of plastic glazing material prior to thermoforming, the safety labeling indicating "Risk of Fall" that complies with Class 1, ANSI Standard Z35.1 specifications for accident prevention signs, and the text, "Intertek CCRR-0234. Packages must include the Code Compliance Research Report identification mark and number:



9.0 CODE COMPLIANCE RESEARCH REPORT USE

9.1. Approval of building products and/or materials can only be granted by a building official having legal authority in the specific jurisdiction where approval is sought.

9.2. Code Compliance Research Reports shall not be used in any manner that implies an endorsement of the product by Intertek.

9.3. Reference to the Intertek website address: whdirectory.intertek.com is recommended to ascertain the current version and status of this report.

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Table 1 – DDCS and ECS Fastening Schedule

Skylight Model	Aluminum Retaining Frame to Permatherm Curb		Permatherm Curb to Wood Curb ⁽¹⁾	
	Fastener ⁽²⁾ Quantities		Fastener ⁽³⁾ Quantities	
	Short Side	Long Side	Short Side	Long Side
2828	3	3	3	3
2836	3	3	3	4
2852	3	5	4	6
3636	3	3	4	4
3652	3	5	5	7
3676	3	7	6	12
4242	4	4	6	6
4280	4	7	7	14
5252	5	5	9	9
5276	5	7	10	15
5296	5	8	9	16
6060	5	5	13	13
7272	7	7	13	13
8080	7	7	20	20

⁽¹⁾ A maximum gap of 5/8" is permitted between the permatherm curb and wood curb.

⁽²⁾ #6 x 1-1/4" sheet metal screws. Fasteners are spaced 6" o.c. from ends and equally spaced along the length of the aluminum frame.

⁽³⁾ #8 x 1-1/2" pan head stainless steel screws. Fasteners are equally spaced along the length of the permatherm curb.



Table 2 – DDPRCS Fastening Schedule

Skylight Models	Aluminum Retaining Frame to Permatherm Curb		Permatherm Curb to Wood Curb ⁽¹⁾	
	Fastener ⁽²⁾ Quantities		Fastener ⁽³⁾ Quantities	
	Short Side	Long Side	Short Side	Long Side
5252	5	5	9	9
5296	5	8	9	16
5555	5	5	13	13
6678	6	7	10	12
55102	5	9	14	26

⁽¹⁾ A maximum gap of 5/8" is permitted between the permatherm curb and wood curb.

⁽²⁾ #6 x 1-1/4" sheet metal screws. Fasteners are spaced 6" o.c. from ends and equally spaced along the length of the aluminum frame.

⁽³⁾ #10 x 1-1/4" pan head stainless steel screws. Fasteners are equally spaced along the length of the permatherm curb.



Table 3 – DDCS and ECS Maximum Allowable Design Loads

Skylight Model	Nominal Outside Curb Dimension ⁽¹⁾	Glazing Thickness (in)		Dome Rise (in)	Allowable Design Loads (psf) ⁽²⁾
		Outer	Inner		
2828	25 ¼" x 25 ¼"	0.118	0.118	7	±28.5
2836	25 ¼" x 33 ¼"	0.118	0.118	7	±25.3
2852	25 ¼" x 49 ¼"	0.118	0.118	7	±25.3
3636	33 ¼" x 33 ¼"	0.118	0.118	8	±28.5
3652	33 ¼" x 49 ¼"	0.118	0.118	8	±25.3
3676	33 ¼" x 72 ½"	0.177	0.118	10	±20.5
4242	40" x 40"	0.118	0.118	10	±28.5
4280	40" x 78"	0.236	0.177	12	±22.2
5252	49 ¼" x 49 ¼"	0.177	0.118	12.5	±30.0
5276	49 ¼" x 72 ½"	0.236	0.118	12.5	±22.2
5296	49 ¼" x 92 ½"	0.236	0.177	12	±22.2
6060	58" x 58"	0.177	0.118	14	±31.7
7272	71" x 71"	0.177	0.177	19	±22.2
8080	78" x 78"	0.236	0.236	19	±28.5

⁽¹⁾ Design loads recognized are based on attachment to wood curbing of specific gravity 0.43, with a minimum thickness of 1-½ inch. Installation on a wood substrate with lesser specific gravity or lesser thickness may result in lower wind load ratings.

⁽²⁾ Positive (+) loads are directed inward; negative (-) are directed outward. All positive design pressures were tested to a safety factor of 2. All negative design pressures were tested to a safety factor of 3.

Table 4 – DDCRS Maximum Allowable Design Loads

Skylight Model	Nominal Outside Curb Dimension ⁽¹⁾	Glazing Thickness (in)		Dome Rise (in)	Allowable Design Loads (psf) ²
		Outer	Inner		
5252	49 ¼" x 49 ¼"	0.177	0.118	12	±23.7
		0.220	0.118		±19.0
5296	49 ¼" x 92 ¼"	0.177	0.118	12	±23.7
		0.220	0.118		±19.0
5555	51" x 51"	0.177	0.118	12	±23.7
		0.220	0.118		±19.0
6678	62 ½" x 75 ¾"	0.220	0.118	15	±19.0
55102	51 ½" x 99 ¾"	0.177	0.118	12	±23.7

⁽¹⁾ Design loads recognized are based on attachment to wood curbing of specific gravity 0.43, with a minimum thickness of 1-½ inch. Installation on a wood substrate with lesser specific gravity or lesser thickness may result in lower wind load ratings.

⁽²⁾ Positive (+) loads are directed inward; negative (-) are directed outward. All positive design pressures were tested to a safety factor of 2. All negative design pressures were tested to a safety factor of 3.

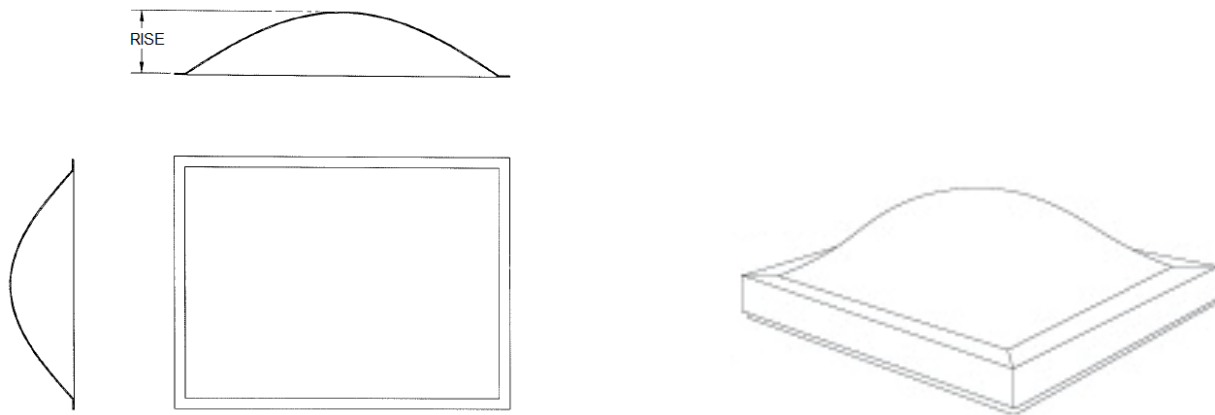


Figure 1 – DDCS and ECS Models

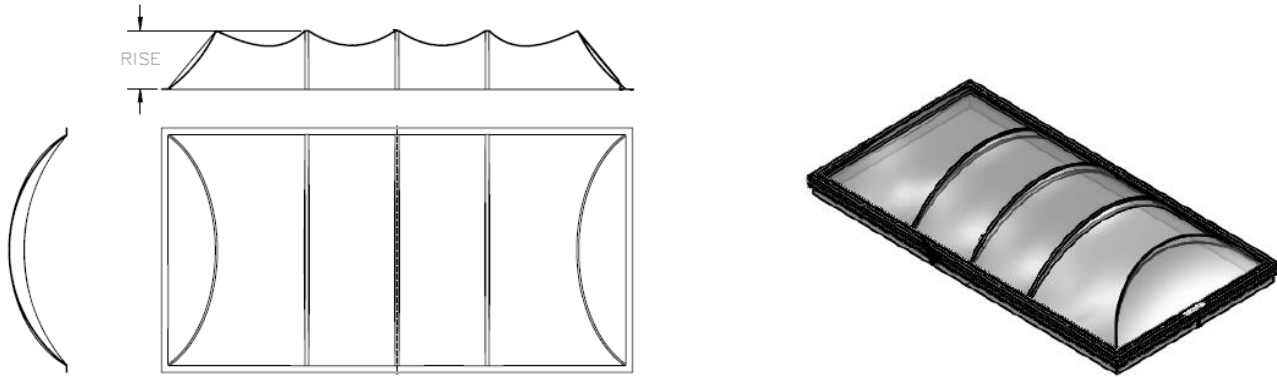


Figure 2 – DDRCS Models

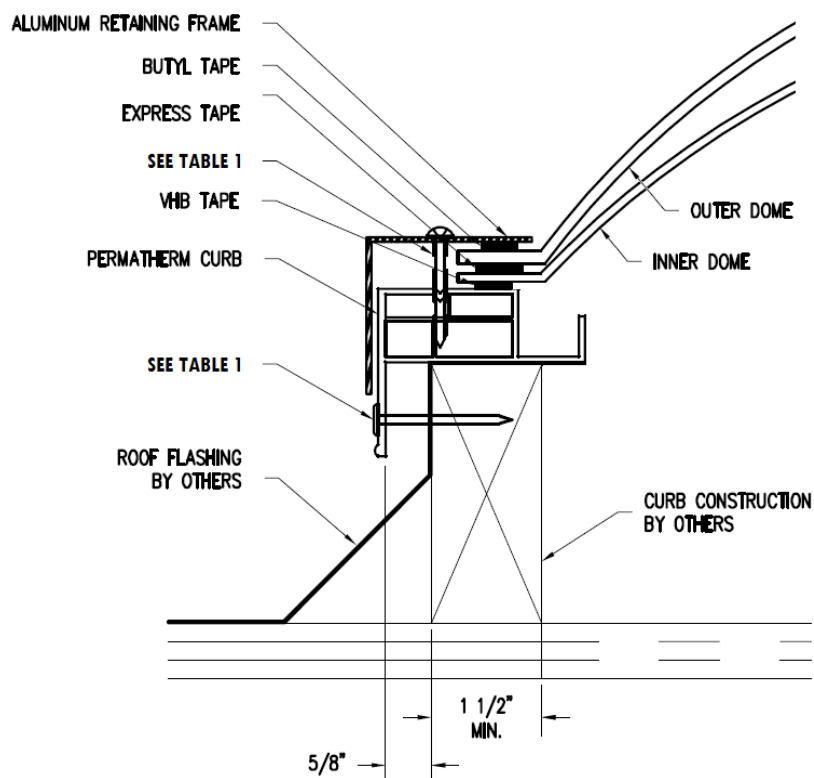


Figure 3 – DDCS, ECS, and DDRCS Curb Attachment Detail

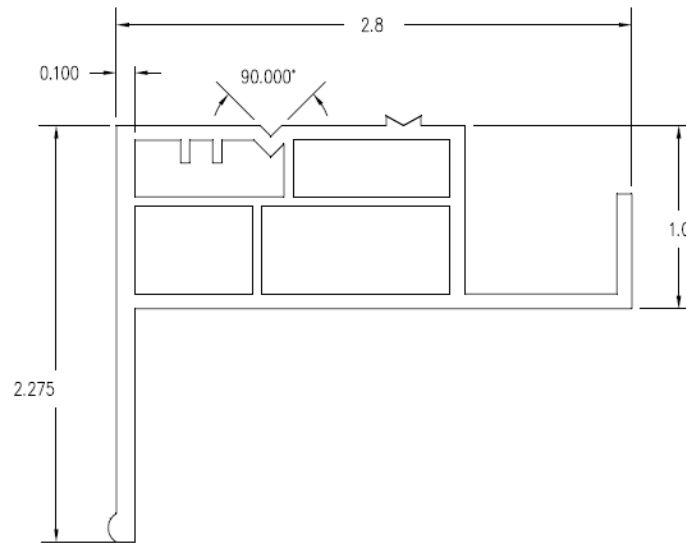


Figure 4 –Permatherm Curb Cross-section Profile

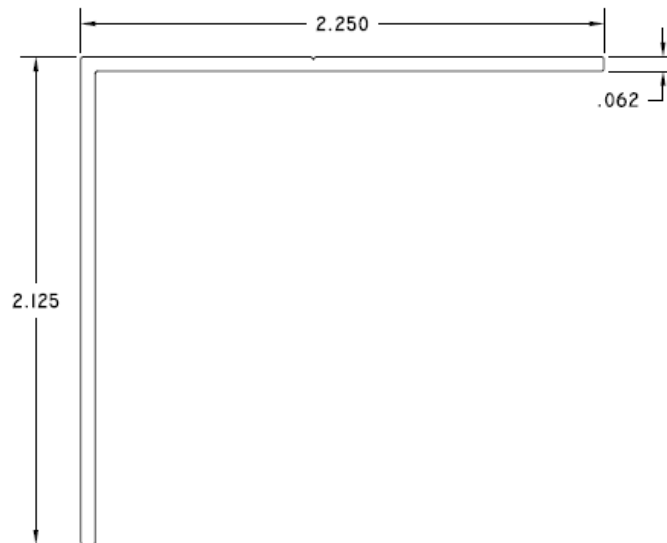


Figure 5 – Aluminum Retainer Cross-section Profile