

**TEST REPORT**

**Report No.:** C1173.01-109-44

**Rendered to:**

ORCA MANUFACTURING, INC.  
dba Starlight Skylights  
Hurlock, Maryland

**PRODUCT TYPE:** Fixed Curb Mount Impact Modified Skylight  
**SERIES/MODEL:** CM-IMA

**SPECIFICATION:** Occupational Safety and Health Administration/U.S. Department of  
Labor Regulations (Standards- 29 CFR)- 1910.23(e)(8).

**Test Date:** 07/17/12  
**Report Date:** 08/30/12  
**Test Record Retention Date:** 08/30/16

**1.0 Report Issued To:** ORCA Manufacturing, Inc.  
dba Starlight Skylights  
304 Broad St.  
P. O. Box 992  
Hurlock, Maryland 21643-0992

**2.0 Test Laboratory:** Architectural Testing, Inc.  
130 Derry Court  
York, Pennsylvania 17406-8405  
717-764-7700

**3.0 Project Summary:**

**3.1 Product Type:** Fixed Curb Mount Impact Modified Acrylic Skylight

**3.2 Series/Model:** CM-IMA

**3.3 Compliance Statement:** Results obtained are tested values and were secured by using the designated test method(s).

**3.4 Test Date:** 07/17/2012

**3.5 Test Location:** Architectural Testing, Inc. test facility in York, Pennsylvania.

**3.6 Test Sample Source:** The test specimen was provided by the client. Representative samples of the test specimen(s) will be retained by Architectural Testing for a minimum of four years from the report completion date.

**3.7 Drawing Reference:** The test specimen drawings have been reviewed by Architectural Testing and are representative of the test specimen(s) reported herein. Test specimen construction was verified by Architectural Testing per the drawings located in Appendix B. Any deviations are documented herein or on the drawings.

**3.8 List of Official Observers:**

<u>Name</u>	<u>Company</u>
Michael D. Stremmel, P.E.	Architectural Testing, Inc.
Jeremy R. Bender	Architectural Testing, Inc.

#### 4.0 Test Specification(s):

Occupational Safety and Health Administration/U.S. Department of Labor Regulations (Standards- 29 CFR)- 1910.23(e)(8).

A 200 lbf weight, fabricated from a bag filled with sand, was placed on the center of the skylight for a minimum of 60 seconds. The bag was removed and the test unit was inspected for any signs of damage or failure. The bag was then dropped from varying heights above the skylight starting at 2' until permanent visible damage was noted. The highest impact load resulting in damage was recorded.

#### 5.0 Test Specimen Description:

##### 5.1 Product Sizes:

Overall Area: 36.5 ft <sup>2</sup>	Width (inches)	Height (inches)
Overall size	72-1/2	72-1/2
Curb size	72	72

##### 5.2 Frame Construction:

Frame Member	Material	Description
Curb	Aluminum	Extruded
Trim	Aluminum	Extruded

	Joinery Type	Detail
All corners	Mitered	Welded

**5.3 Weatherstripping:** No weatherstripping was utilized.

**5.4 Glazing:** The unit was glazed with one sheet of 3/16" thick impact modified acrylic outboard and one sheet of 3/16" thick impact modified acrylic inboard separated by seal tape. The unit was exterior glazed against glazing tape and secured with an extruded aluminum trim with sealant against the polycarbonate. The aluminum trim was secured to the frame with #8 x 3/8" long hex head screws, located 2-1/2" from corners and spaced 10" on center around the perimeter.

## 6.0 Installation:

The skylight was installed onto a Spruce-Pine-Fir wood curb with #8 x 1-1/2" long pan head screws, located 5" from corners and spaced 16" on center through pre-drilled holes. The test frame was placed and leveled prior to testing.

## 7.0 Test Results: The results are tabulated as follows:

### 7.1 OSHA Safety Test

Test	Load Location	Results
200 lbf at rest	Center of dome	No visible damage

*Note: The 200 lbf weight was gently applied perpendicular to the center of each dome. After 60 seconds of rest time, there was no visible damage to either skylight.*

### 7.2 OSHA Safety Drop Test

Test Method	Load Location	Results
400 lbf-ft (2' drop height)	Center of dome	No visible damage
800 lbf-ft (4' drop height)	Center of dome	Note #1

*Note #1: At the 4' drop height, the impact modified acrylic dome pulled out of frame. The bag did not fall through the opening.*



The service life of this report will expire on the stated Test Record Retention End Date, at which time such materials as drawings, data sheets, samples of test specimens, copies of this report, and any other pertinent project documentation, shall be discarded without notice.

If test specimen contains glazing, no conclusions of any kind regarding the adequacy or inadequacy of the glass in any glazed test specimen(s) can be made. This report does not constitute certification of this product nor an opinion or endorsement by this laboratory. It is the exclusive property of the client so named herein and relates only to the specimen(s) tested. This report may not be reproduced, except in full, without the written approval of Architectural Testing, Inc.

For ARCHITECTURAL TESTING, Inc.

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Jeremy R. Bender  
Technician

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Michael D. Stremmel, P.E.  
Senior Project Engineer

JRB:dem/cmd

Attachments (pages): This report is complete only when all attachments listed are included.

Appendix-A: Photographs (3)

Appendix-B: Drawing (1)

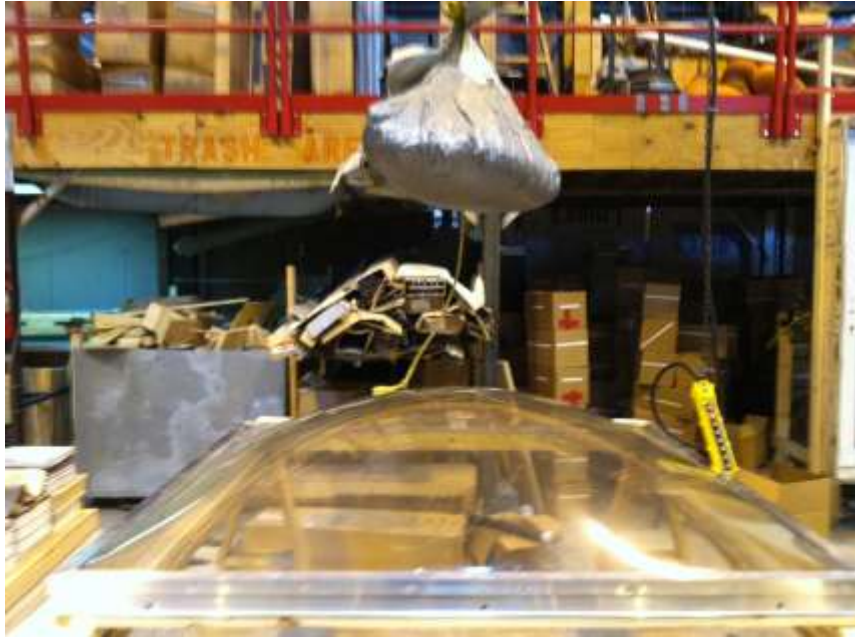
**Appendix A**  
**Photographs**



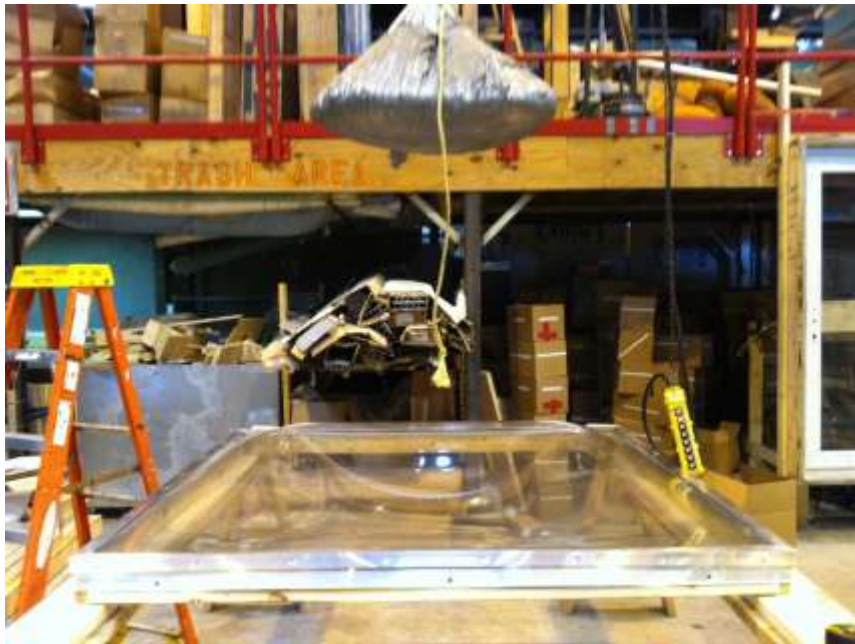
**Photo No. 1**  
**CM-IMA**



**Photo No. 2**  
**CM-IMA (200 LB at rest)**



**Photo No. 3**  
**CM-IMA (2') (400 LB-FT)**



**Photo No. 4**  
**CM-IMA (4') (800 LB-FT)**



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**Photo No. 5**  
**CM-IMA (Failure)**





**Architectural Testing**

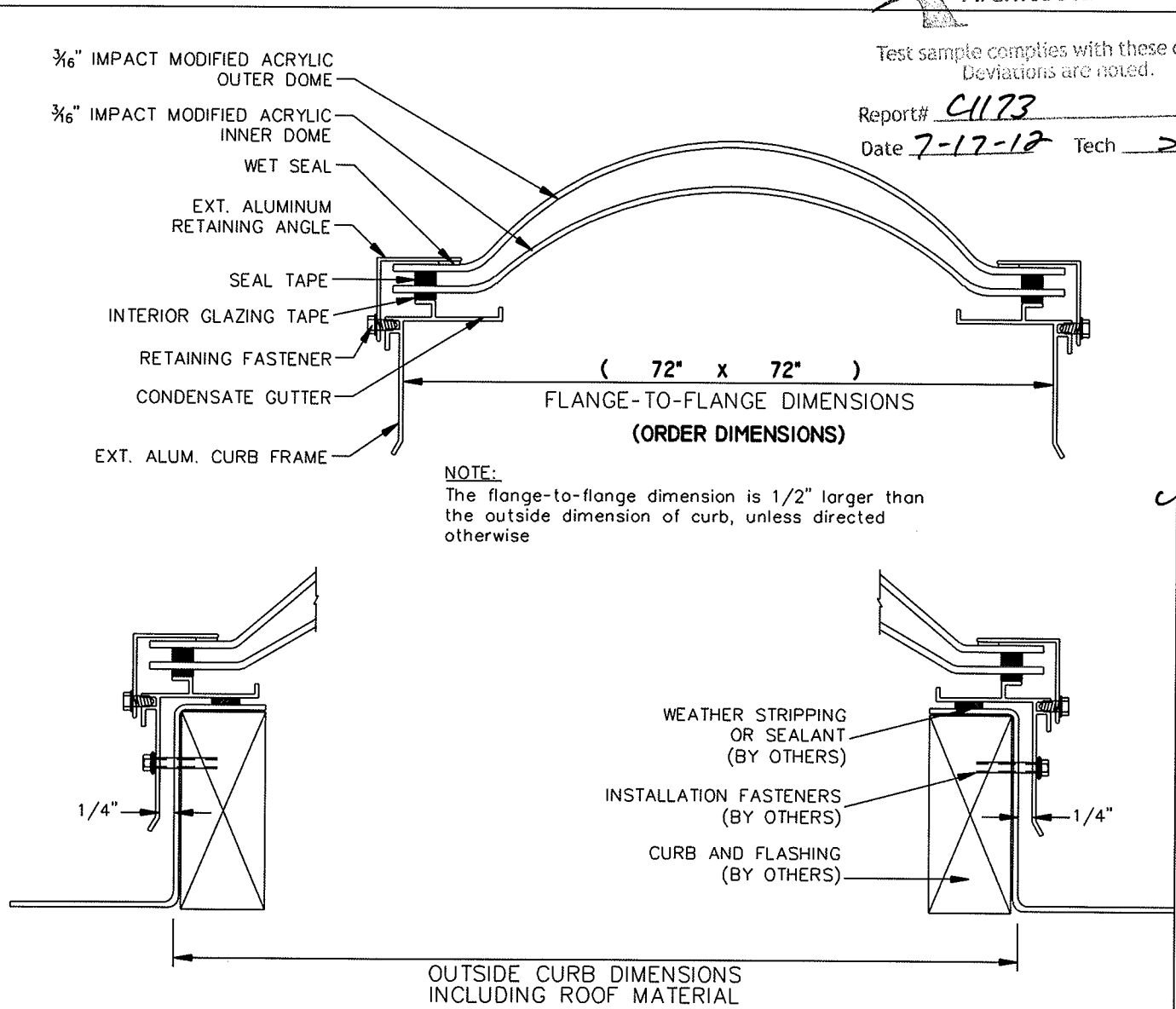
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## **Appendix B**

### **Drawing**

Test sample complies with these details.  
Deviations are noted.

Report# CU173  
Date 7-17-12 Tech JB



**NOTE:**  
The flange-to-flange dimension is 1/2" larger than the outside dimension of curb, unless directed otherwise

**CURB MOUNT-IMPACT MODIFIED ACRYLIC; - SPECIFICATION:**  
Curb Mount-Impact Modified Acrylic; as manufactured by ORCA Manufacturing, Inc., with sealed insulated double IMA domes (Clear over Clear standard, White or Bronze tints available as an option) in a welded extruded aluminum sash with weep holes to divert condensation to the outside. Each unit will have a built-in evaporative condensation gutter. Finish in bronze or mill (white gloss enamel as an option).

CM-IMA	72" x 72"	3/16" CLEAR / 3/16" CLEAR IMPACT MODIFIED ACRYLIC	MILL	1	TEST
Model	Dimensions (F/F)	Glazing	Finish	Quantity	Project



<b>TITLE:</b> CURB MOUNT IMPACT MODIFIED ACRYLIC - DOME	
Rev. Date	July 16, 2012
Drawn By	AP
Rev. By	CRH
Engineer	AP
Sheet:	1 OF 1
Dwg No.	CM-IMA test
ORCA Manufacturing, inc. P.O. Box 992 Hurlock, MD 21643 PHONE (800) 776-1539 FAX (410)-943-8245 www.starlightskylights.com	