

REPORT OF

PRODUCT TESTED TO

INTERNATIONAL CODE COUNCIL EVALUATION SERVICE, INCORPORATED
ACCEPTANCE CRITERIA FOR TRANSLUCENT PLASTIC-FACED PANELS USED AS
WALL, ROOF AND SKYLIGHT SYSTEMS
DESIGNATION: AC 177 – PROPOSED NOVEMBER 2000
SECTION: 4.1.4 FREEZE-THAW TEST

CONDUCTED ON

FIBERGLASS-REINFORCED SKYLIGHTS

FOR

DISTINCTIVE SKYLIGHTS
506 B DE CARLO AVENUE
RICHMOND, CA 94801

REPORT PREPARED BY

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PREFACE

All services undertaken are subject to the following general policy:

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INTRODUCTION

Intertek Testing Services NA Ltd. (Intertek) has conducted a freeze-thaw test for Distinctive Skylights on a Skylight product. The freeze-thaw test was carried out between June 1 and June 17, 2004, and would determine whether the product would comply with the ICC Evaluation Services' "*Proposed Acceptance Criteria for Translucent Plastic-Faced Panels Used as Wall, Roof and Skylight Systems*", designation AC 177 – proposed November 2000 (referred to as AC 177 in this report).

SAMPLE SELECTION

Intertek representative Lawrence Ruiz witnessed the manufacture and randomly selected a series of Skylights and some individual components on October 14, 2003. The product was manufactured at the Distinctive Skylights production facility located at 506 B De Carlo Avenue, Richmond, California. The sample selection process was carried out in accordance with the ICC Evaluation Services' "*Acceptance Criteria for Test Reports and Product Sampling*", designation AC 85 – September 1998.

The sampled products were identified as Fiberglass-Reinforced Skylights. Each skylight consisted of a core grid, and an interior and exterior facing. The grid and facings were primarily comprised of an unsaturated polyester resin with an embedded fiberglass mat.

In addition to these sampled products, the customer submitted a fully assembled section of skylight measuring approximately 12 by 12-inch (305 by 305 mm). Although actual production of the submitted sample was not witnessed, the above visit made by an Intertek representative and a visual comparison between the sampled and submitted material, allows us to conclude that all material was of the same origin.

TEST PROCEDURE

1. GENERAL

The submitted skylight section was subjected to the freeze-thaw test in accordance with AC 177 as described herein.

2. CONDITIONING

The specimen was held in standard laboratory conditions before testing for at least 88 hours at a temperature of $23 \pm 2^{\circ}\text{C}$ and a relative humidity of $50 \pm 5\%$ unless otherwise specified.

3. FREEZE-THAW TEST

The submitted skylight section was subjected to 10 cycles of freeze-thaw testing. One cycle is summarized as follows:

- 8 hours minimum at 120°F (48.9°C)
- 8 hours minimum, submerged in water at 73.4°F (23°C)
- 16 hours minimum at -20°F (-28.9°C)

Visual examination of the specimen was conducted after the freeze-thaw test.

TEST RESULTS

The fully-assembled skylight freeze-thaw test result, together with the test requirements of AC 188 are summarized in Table 1. A more comprehensive set of test data is included in Appendix A.

Appendix	Test Requirement	Test Result	Specification		Pass/Fail
			Minimum	Other	
A	Freeze-Thaw	No Cracking	---	No Cracking	Pass

CONCLUSION

The fully-assembled Fiberglass-Reinforced Skylight product identified and evaluated in this report has met the freeze-thaw requirements of the ICC Evaluation Services' "Proposed Acceptance Criteria for Translucent Plastic-Faced Panels Used as Wall, Roof and Skylight Systems", designation AC 177 – proposed November 2000.

INTERTEK TESTING SERVICES NA LTD.

Tested/
Reported by:



Craig R. Lawson, NZCE (Mech)
Technician, Construction Products

Reviewed by:



Cam Robinson, P.Eng.
Manager, Construction Products

CRL/lrh

APPENDIX A – Freeze-Thaw Test Data
(1 page)

Test: **Freeze-Thaw Test**
Date: 04/06/01
Client: Distinctive Skylights
Project No: 3049654
Product: Fibreglass-Reinforced Skylights
Test Method: Proposed Acceptance Criteria for Translucent Plastic-Faced Panels Used as Roof, and Skylight Systems, AC 177-R1-0101
Pre-Cycle Conditioning: 88 hours at a temperature of $23 \pm 2^{\circ}\text{C}$ and relative humidity of $50 \pm 5\%$.
Freeze-Thaw Cycle: Water Immersion at a temperature of $23 \pm 2^{\circ}\text{C}$ for 1 hour.
 Freezing at a temperature of $-40 \pm 3^{\circ}\text{C}$ for 6 hours.
 Standard laboratory conditions at $23 \pm 2^{\circ}\text{C}$ and RH of $50 \pm 5\%$ for 2 hours.
 Oven Drying - Air dried at $82 \pm 3^{\circ}\text{C}$ for 14 hours.
 Standard laboratory conditions at $23 \pm 2^{\circ}\text{C}$ and RH of $50 \pm 5\%$ on weekends.
Post-Cycle Conditioning: 88 hours at a temperature of $23 \pm 2^{\circ}\text{C}$ and relative humidity of $50 \pm 5\%$.
Equipment: Setra Scale 2000g (Intertek ID P52606)
 Fluke 52II meter (Intertek ID D2679)
 Temperature-controlled freezer (Intertek ID C04583)
 Temperature-controlled oven (Intertek ID 9-0487)

Date (ddd, dd-mmm-yy)	Start of Cycle	Start Time (hh:mm)					
		Standard Conditions at 23°C	Water Immersion at 23°C	Freezing at -40°C	Standard Conditions at 23°C	Oven Drying at 82°C	Standard Conditions at 23°C
Tue, 1-Jun-04	1		8:30 AM	9:30 AM	3:30 PM	5:00 PM	
Wed, 2-Jun-04	2	7:30 AM	8:30 AM	9:30 AM	3:30 PM	5:00 PM	
Thu, 3-Jun-04	3	7:30 AM	8:30 AM	9:30 AM	3:30 PM	5:00 PM	
Fri, 4-Jun-04							8:30 AM
Sat, 5-Jun-04							
Sun, 6-Jun-04							
Mon, 7-Jun-04	4	7:30 AM	8:30 AM	9:30 AM	3:30 PM	5:00 PM	
Tue, 8-Jun-04	5	7:30 AM	8:30 AM	9:30 AM	3:30 PM	5:00 PM	
Wed, 9-Jun-04	6	7:30 AM	8:30 AM	9:30 AM	3:30 PM	5:00 PM	
Thu, 10-Jun-04	7	7:30 AM	8:30 AM	9:30 AM	3:30 PM	5:00 PM	
Fri, 11-Jun-04							8:30 AM
Sat, 12-Jun-04							
Sun, 13-Jun-04							
Mon, 14-Jun-04	8	7:30 AM	8:30 AM	9:30 AM	3:30 PM	5:00 PM	
Tue, 15-Jun-04	9	7:30 AM	8:30 AM	9:30 AM	3:30 PM	5:00 PM	
Wed, 16-Jun-04	10	7:30 AM	8:30 AM	9:30 AM	3:30 PM	5:00 PM	
Thu, 17-Jun-04							8:30 AM

Observations: No crazing, cracking, or other deleterious surface changes after exposure.

Tested by: 
 Craig Lawson NZCE (Mech)