

**TEST REPORT # T691-6**

**DATE:** April 21, 2011

**CLIENT:** **Daylitter Skylights Inc.**  
5492 275<sup>th</sup> St,  
Langley, British Columbia  
V4W 3X7  
Contact: Peter Corr

**SAMPLE ID:** 4290 Roof Window

**SAMPLE DESCRIPTION:** Width: 1056 mm Height: 2274 mm  
See page 4 for full description.

**SAMPLING PROCEDURES:** See page 2 for the sampling procedure.

**DATE OF RECEIPT:** March 22, 2011

**DATE(S) OF TESTING:** March 23, 2011 - March 30, 2011

**TESTING REQUESTED:** **Testing to the mandatory requirements of AAMA/WDMA/CSA  
101/I.S.2/A440-08 NAFS - North American Fenestration Standard  
/ Specification for windows, doors and skylights**

**TEST RESULTS:** See Page 3 for the test results.

**CONTENTS:** Test Report Pages 1 through 7, Appendix A1 through A12

**TESTING PERFORMED AT:** Quality Auditing Institute, Coquitlam

**Tested By**

**Reviewed By**

**Jason Komorski**  
Project Manager

**Kevin Saito**  
Windows Division Manager

## Sampling Plan/Procedures:

One unused, glazed, 4290 Roof Window was provided by the client as a typical production sample and examined at the QAI laboratory to determine compliance with the submitted documentation, then tested on March 23, 2011 - March 30, 2011 as being representative of the model covered in this report.

## Test Conditions:

Quality Auditing Institute Ltd. (QAI) was retained by Daylitter Skylights Inc. to perform testing in accordance with the mandatory test requirements of AAMA/WDMA/CSA 101/I.S.2/A440-08 NAFS - North American Fenestration Standard / Specification for windows, doors and skylights on a representative sample of a 1056 mm x 2274 mm 4290 Roof Window.

This report includes tests performed on a specimen of specific dimensions. Actual product performance may be affected by variations in the windows dimensions, assembly details and installation method. The drawings supplied by Daylitter Skylights Inc. were verified by QAI for the window unit tested and are shown in Appendix A.

The test specimen was installed by the manufacturer onto a wood 2x6 test curb as described below. Four hinges were fastened at the top of the roof door, two at each corner. Each hinge was fastened to the curb with six #8 x 1- $\frac{1}{4}$ " wood screws, four vertical into the curb and two horizontal. The aluminum frame of the roof door was fastened to the curb with five screws through either long side of the profile and two through the hinge side.

The wooden test curb consisted of a nominal 2" x 6" stud framing. The center of the wooden test curb was built with a rough opening measuring the same size as the test specimen. The test specimen and curb were set at a 4/12 slope, with the hinge side at the top.

## Roof Door Ratings:

**Table 1: Summary of test results**

<b>Test Name</b>	<b>AAMA/WDMA/CSA 101/I.S.2/A440-08 NAFS - North American Fenestration Standard / Specification for windows, doors and skylights Result:</b>
<b>Air Tightness (ASTM E283)</b>	Pressure differential = 75 Pa A3 – 0.056 cfm/ft <sup>2</sup>
<b>Water Tightness (ASTM E331)</b>	Maximum pressure differential = 730 Pa (PG 100 – 15.00 psf)
<b>Wind Load Resistance – Deflection (ASTM E330 – Procedure A)</b>	Maximum pressure differential = 1440 Pa (PG 30 - 30 psf)
<b>Wind Load Resistance – Blowout (ASTM E330 – Procedure A)</b>	Maximum pressure differential = 2880 Pa (PG 30 - 60 psf) *Maximum pressure differential in downward direction only = -7200 Pa (PG 75 – 150 psf)
<b>Clause 5.3.6.6.2 – Distributed Load Test</b>	Pass
<b>Clause 5.3.6.2 – Corner Weld Test</b>	Pass

**Performance Classification:** R  
**Performance Grade:** 30 PG  
**Maximum Size Tested:** 1056 mm wide x 2274 mm tall (42" x 90")

### Primary Designator:

Class R – PG30: Size tested 1056 x 2274 mm (42 x 90 in) – Roof Window, Glass Glazed (Type RW)  
 Class R – PG1440 (metric): Size tested 1056 x 2274 mm – Roof Window, Glass Glazed (Type RW)

### Secondary Designator:

Positive Design Pressure (DP) = 1440 Pa (30 psf)  
 Negative Design Pressure (DP) = -1440 Pa (-30 psf)  
 Water Penetration Resistance Test Pressure = 730 Pa (15.00 psf)  
 Canadian Air Infiltration / Exfiltration = A3 Level

Note: AAMA/WDMA/CSA 101/I.S.2/A440-08, Clause 5.2.5: The air, water and structural tests were performed on test specimens installed per the method outlined in the test conditions section of this report. The test procedures are designed to test the performance of the test specimen only and are not used to test the performance of the installation, in particular the perimeter sealant joint and the anchoring of the assembly. However, products not installed according to the installation method described in this report may not perform to an equivalent performance level.

## Description:

<b>4290 Roof Window</b>		
<b>Frame</b>	None	Frame is Aluminum counter flashing by Daylitter. Frame is set on a 2x6 curb with inside dimensions of 36" x 72"
<b>Sash:</b>	Description:	Sash is made from vinyl, Northwest Extrusions VCM part number 6076. The aluminum cap (Drawing # A-20729) is fastened to the vinyl with #8 x 1-1/4" SS screws, 3 along the top and bottom and 7 along each side. The outer perimeter at each corner of the vinyl sash is trimmed, approximately 1/8" deep, 1-1/2" long. An aluminum reinforcing frame is made from 1" x 1.5" rectangular 6063-T5 aluminum tubing with two 5/8" diameter hollow tube handles across the width. This aluminum frame is fastened to the vinyl with #8 x 3" SS screws, 6 along the top (hinge side), 6 along the either side, and three along the bottom. Two aluminum sash stiffeners, made from 1/8" x 1-1/2" 6063-T5 aluminum flat bar, are used along the outer perimeter of the top face of the sash. This stiffener extends along the full width of the sash and down each length, approximately 33" long. The top (hinge-side) sash stiffener is fastened to the sash with the 16 sash-hinge screws, and an additional three 1/2" screws along the hinge side, and five screws along the sides. The bottom sash stiffener is fastened with four 1/2" screws along the width and five screws along the sides. All screw heads are sealed with seam sealer, part # 2320 tri-polymer sealant by Geocel Corp. An EDPM rubber rain shield is fastened along the top and 4" down each side. The rain shield is sandwiched between the vinyl sash and the aluminum sash stiffener.
	Joints:	Vinyl corners are miter cut and thermally welded. Aluminum cap joints are held together with three #6 x 1-1/4" SS screws and sealed with seam sealer, part # 2320 tri-polymer sealant by Geocel Corp. The aluminum reinforcing frame and sash stiffener joints are welded.
<b>Weather strip:</b>	Sash:	Poly Chlor PVC bulb seal (part # 80040) is placed under the sash as 1 strip, with the joint centered at the top of the skylight.
<b>Glazing Method:</b>	Interior Seal (gasket):	Glazing sits on a santoprene gasket which is co-extruded with the vinyl sash.
	Exterior Seal (none):	Glazing is sealed to the aluminum cap with 1/16" x 3/8" black double-sided glazing tape, supplied by Custom Gaskets Ltd. (Part # CG550/2004B) Silicone was used at each corner of the glazing seal.
	Setting Blocks:	1/8" x 1" x 1" EPMD rubber setting blocks were used in nine locations. Two were used up against each corner of the glazing unit, and one was used at the mid-point of either long side of the glazing unit. The setting blocks were held in place with DOW Corning 1199 silicone.
<b>Glazing:</b>	Description	Glazing is made of 2 layers of 4mm clear tempered glass with an overall width of 20mm.
<b>Drainage:</b>	Sash	None

<b>Hardware:</b>	<b>Locks:</b>	Four locks from Truth, part # 16.18.32.210, offset from the curb with 3/8" plywood. The two locks along the bottom are centered 6" from either inside edge of the curb. The two locks along the sides are centered 36" from the bottom inside curb edge. The plywood is fastened to the frame with two #10 x 2" screws each. The locks are then fastened to the plywood with two #10 x 2" screws each.
	<b>Keepers:</b>	Four keepers from Truth, part # 31358.92, aligned with the locks and fastened to the aluminum reinforcement frame with two #10 x 3/4" screws.
	<b>Hinges:</b>	Hinges are Anka Tool & Die (Part # 60064), Four used along the hinge-side, fastened to the frame with six 1-1/4" screws and to the sash with four 1" bolts with nylon lock nuts. Each side of the sash fasteners are sealed with seam sealer, part # 2320 tri-polymer sealant by Geocel Corp.
	<b>Ball Stud:</b>	Four ball studs (Faucher part #60010) are placed on the sash, 40" from the outside edge of the aluminum reinforcing frame, and on the frame, 20" from the inside edge of the curb. Fastened to the aluminum reinforcement frame with a 1/2" bolt. Offset from the curb with a 1/2" piece of plywood and fastened with four 2" screws.
	<b>Pneumatic actuators:</b>	Two pneumatic actuators, model # 777, from Faucher, part # 7304

## **CONCLUSION:**

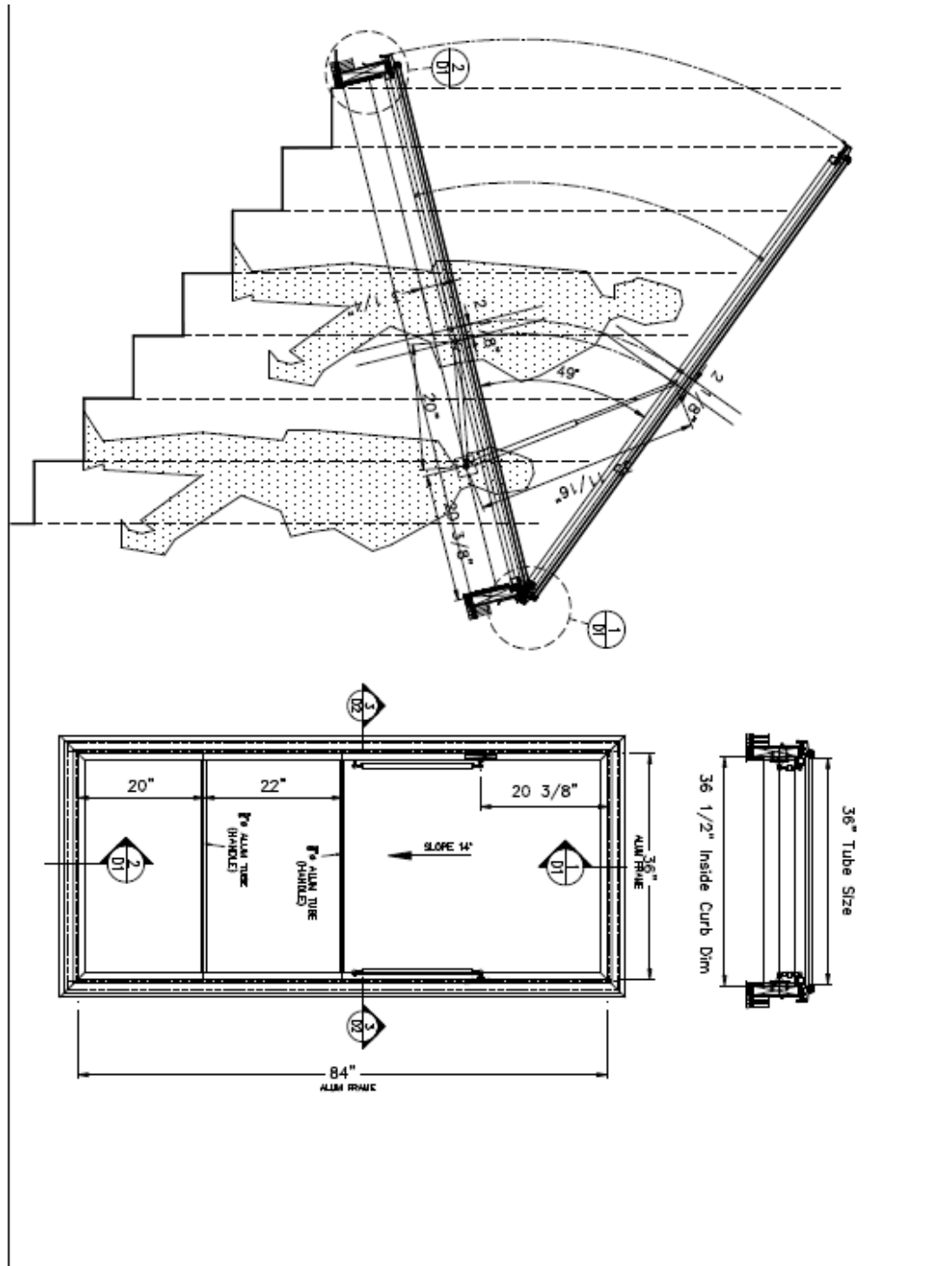
Quality Auditing Institute Ltd., with lab facilities located in Coquitlam, British Columbia, performed testing in accordance with AAMA/WDMA/CSA 101/I.S.2/A440-08 NAFS - North American Fenestration Standard / Specification for windows, doors and skylights, on a representative sample of a Daylitter Skylights Inc. 4290 Roof Window.


Test results in this report may not be reproducible in the field. Test results relate only to those products tested.

See Table 1 for a summary of test results and window ratings. The sample tested was found to comply with the applicable requirements and obtained test results as reported in Table 1 of this report.

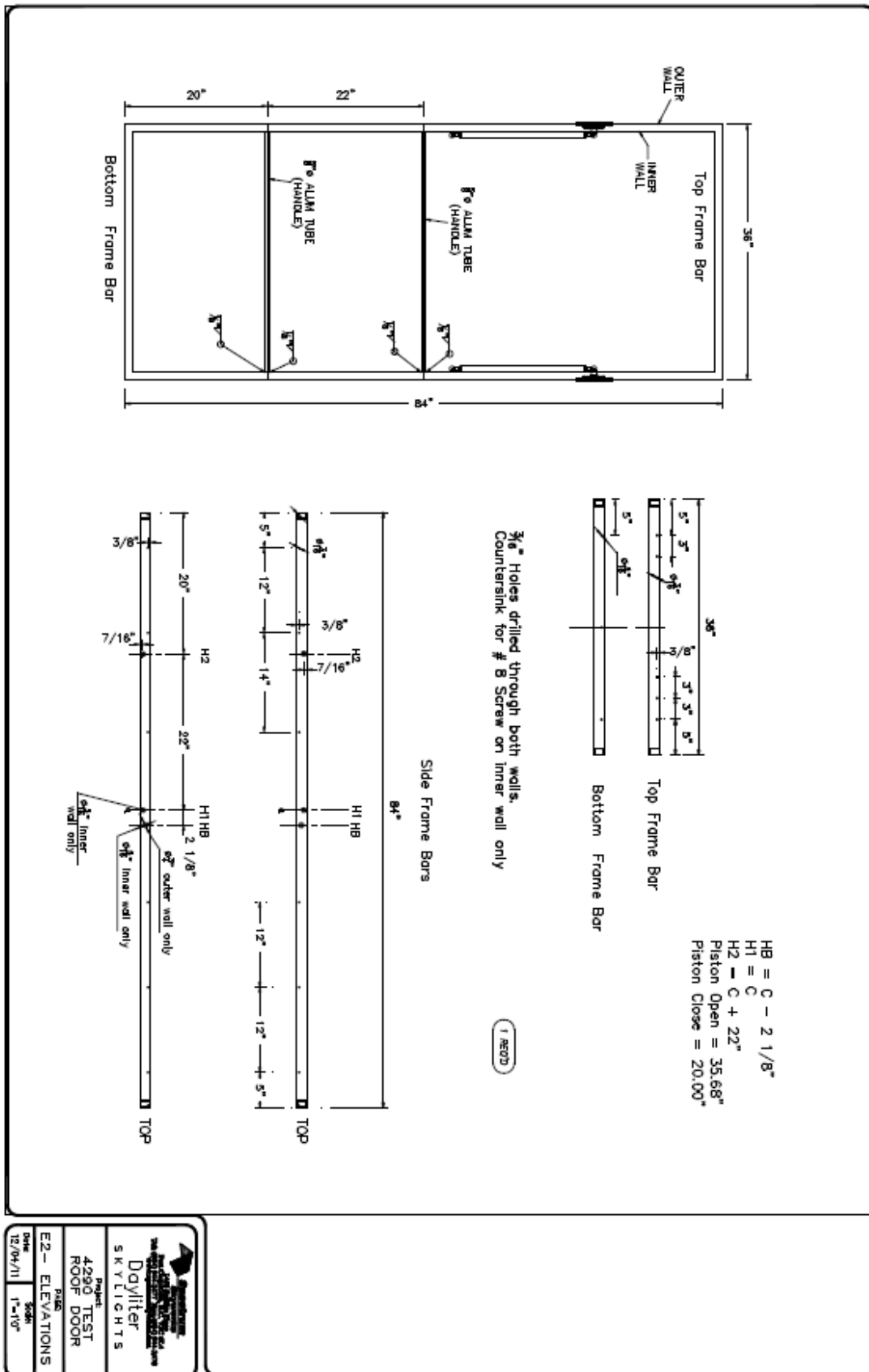
## APPENDIX A

<b>Page</b>	<b>Title</b>
A1	Assembly drawing
A2	Reinforcement frame drawing
A3	Cross-sectional Detail 1 and Detail 2 drawing
A4	Cross-sectional Detail 3 drawing
A5	Aluminum reinforcement frame profile and frame cladding profile drawings
A6	Vinyl sash profile drawing
A7	Aluminum cap profile drawing
A8-A12	Sample Pictures



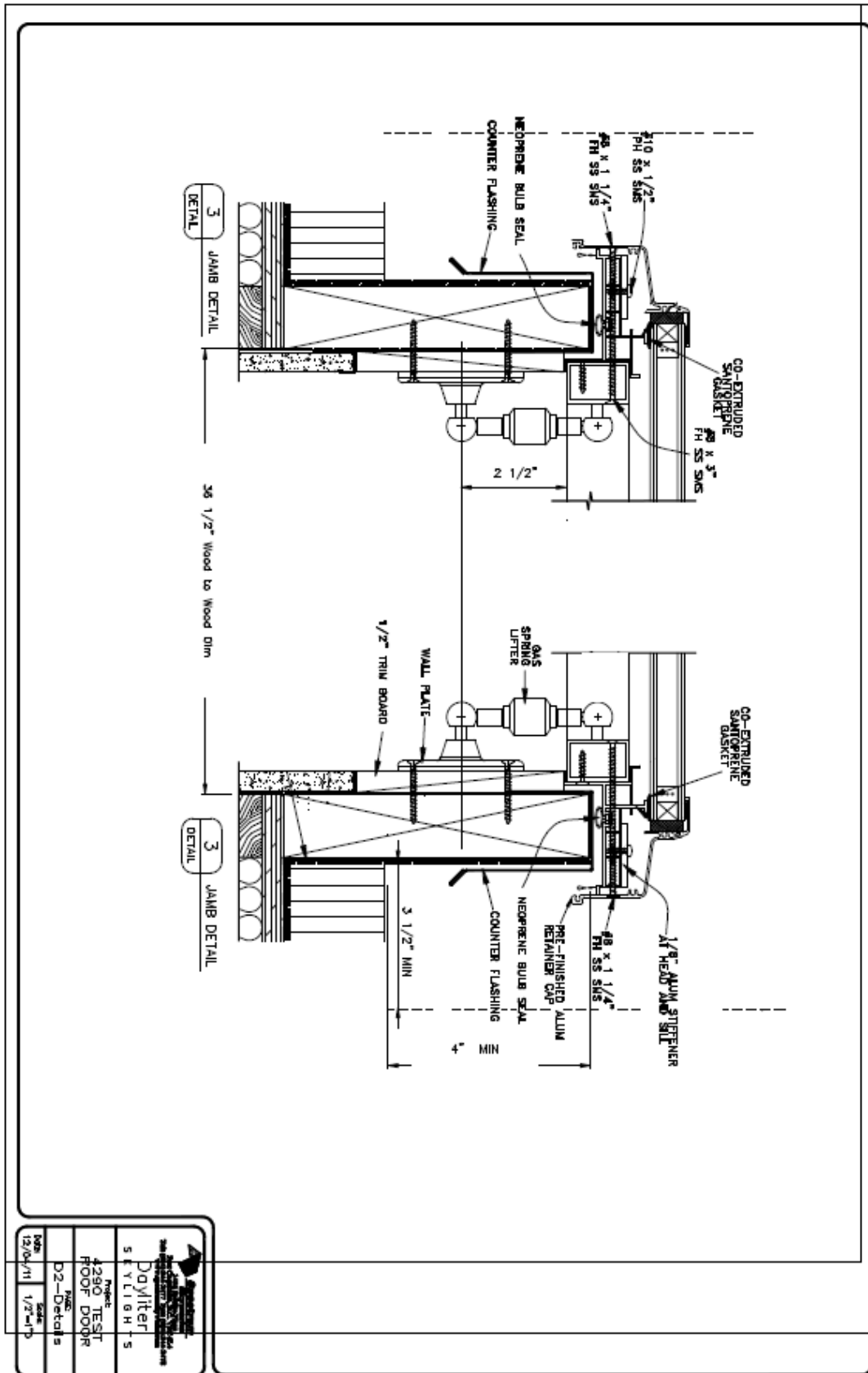
	
PROJECT: <b>Daylitter Skylights</b>	
DRAWING TITLE: <b>4200 TEST ROOF DOOR</b>	
DATE: 12/04/11	SCALE: 3/4" = 1'-0"
E1 - ELEVATIONS	



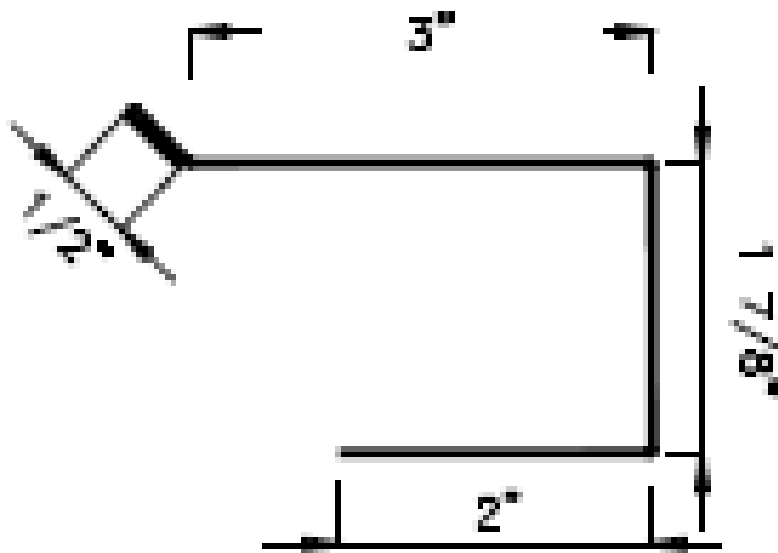
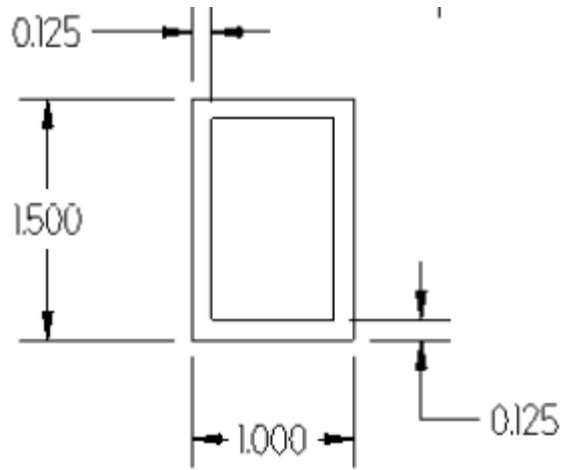


**Quality Auditing Institute**  
 4290 TEST ROOF DOOR  
 SKYLIGHTS  
 Project: DAYLITTER  
 E2 - ELEVATIONS  
 Date: 12/04/11  
 Scale: 1"=10"





<b>Daylitter</b> SKYLIGHTS	
Project:	4290 TEST
File:	FOOF DOOR
Scale:	D2-Detail
Date:	12/04/11
Scale:	1/2"=1'



COUNTER FLASHING  
DETAIL

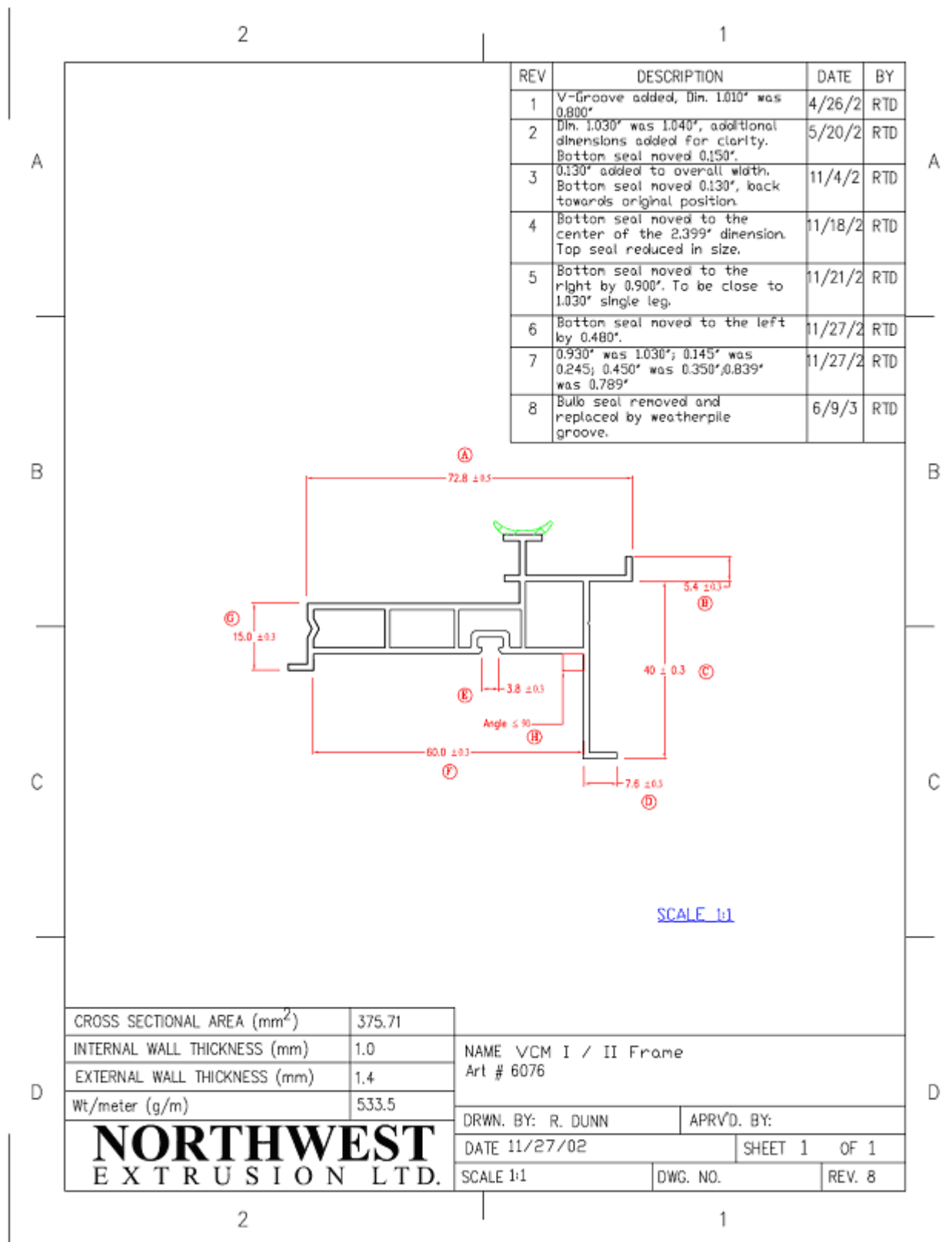






Fig. 1 – Aluminum cap corner joint



Fig. 2 – Aluminum cap corner joint seam sealer and setting blocks



Fig. 3 – Setting block along length of sash



Fig. 4 – Aluminum sash stiffener



Fig. 5 – Aluminum sash stiffener fastener and hinge screws



Fig. 6 – EDPM Skirt





Fig. 7 – Corners of sash trimmed



Fig. 8 – Corner of aluminum reinforcement frame



Fig. 9 – Weather-stripping corner



Fig. 10 – Lock



Fig. 11 – Keeper



Fig. 12 – Actuator fastened to curb



Fig. 13 – Actuator fastened to reinforcement frame



Fig. 14 – Hinges



Fig. 15 – Aluminum reinforcement frame screws