

PERFORMANCE TEST REPORT

Rendered to:

SOLATUBE INTERNATIONAL, INC.

Report No.: 84491.01-301-47
Test Date: 06/11/08
Report Date: 07/15/08
Revision 1 Date: 08/29/13
Record Retention End Date: 06/11/12

PERFORMANCE TEST REPORT

Rendered to:

SOLATUBE INTERNATIONAL, INC.
2210 Oak Ridge Way
Vista, California 92081

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Revision 1 Date: 08/29/13
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Project Summary: Solatube International contracted Architectural Testing, Inc. to witness Impact testing at their facility on two 21" Tubular Daylight Devices (TDD). One 330 DS TDD (Photo No.1) and one 750DS TDD (Photo No.2) was tested in accordance with Federal OSHA Fall Protection Standard 1926.502(c) Safety Net Systems, 1926.502(b)(5) Screens, 1926.502(i) Covers, 1910.23(e)(8) Skylight Screens, and California State OSHA Fall Protection Code of Regulations, Title 8, Section 3212 (e)(1)(Skylight Screens). **The domes tested met the performance requirements as listed in the body of this report.**

Test Methods: The impact tests were conducted in accordance with the following:

1. Federal OSHA Fall Protection Standard 1926.502 (c) Safety Net Systems.
2. California State OSHA Fall Protection Code of Regulations, Title 8, Section 3212 (e)(1) (Skylight Screens)

Test Equipment: The equipment used to conduct these tests meets the requirements of the Federal Standard Fall Protection and California OSHA Standard Fall Protection. The 400 lbs. bag consisted of several sandbags bundled in a tarp and tied together with rope, measuring a total of 30" diameter. (See Photograph No.3) The actual weight of the bag (430 lbs.) was measured with a GSE Model 450 scale S/N 413955 and last calibrated 02-09-08.

Test Procedures: Federal OSHA Fall Protection: Standard 1926.502(c) Safety Net Systems, and the California State OSHA Fall Protection Code of Regulations, Title 8, Section 3212 (e)(1) Skylight Screens. The 400 lb. (180 kg) bag of sand 30 inches (76 cm) in diameter was elevated 42 inches above the roof deck then dropped, without restraint (Photo No. 4), onto the top of each dome. (See Photos No. 5 and 6) The dome and flashing assembly was then inspected for failure.

Test Specimen Description:

	21"	21"
Series/Model	330DS-O	750DS-O
Dome Size	22-5/8"	23-7/8"
Dome Height	9-1/4"	13-1/4"
Dome Weight	68 oz	96 oz
Dome Thickness	0.168"	0.210"
Dome Material	Cyro	Cyro
Dome	Part # 509100	Part # 401930
Flashing	New - 11" Part # 200860	New - 11" Part # 200860
Dome Ring	Part # 400785	Part # 400785

Dome Rings / Dome: Dome rings were employed to secure the dome. The acrylic domes were mechanically attached to the dome ring / flashing with three #8 x 1-5/8" Phillips washer head sheet metal screws and plastic spacers equally spaced on the perimeter.

Flashing Construction: The flashing was made of formed steel and had conical sides to create a curb and a circular flange. The 21" TDD curb height was 11".

Test Results:

Test Samples	Test	Results
750DS (See Photograph No.6)	400 lb. impact	No failure
330DS (See Photograph No.7)	400 lb. impact	No failure

Test Conducted by:

Dan State
Joshua Rillie

Solatube International
Solatube International

Test Witnessed by:

Leaton Kirk

Architectural Testing, Inc.

Detailed drawings, data sheets, representative samples of test specimens, a copy of this report, or other pertinent project documentation will be retained by Architectural Testing, Inc. for a period of four years from the original test date. At the end of this retention period, such materials shall be discarded without notice and the service life of this report will expire.

Results obtained are tested values and were secured by using the designated test methods. 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 specimens tested. This report may not be reproduced, except in full, without the written approval of Architectural Testing, Inc.

For ARCHITECTURAL TESTING, INC.

Kenny White
Laboratory Manager

Leaton Kirk
Director – Regional Operations

LK:ms

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

Appendix-A: Drawings (2)

Appendix-B: Photographs (7)

Revision Log

<u>Rev. #</u>	<u>Date</u>	<u>Page(s)</u>	<u>Revision(s)</u>
0	07/15/08	N/A	Original Report Issue.
1	08/29/13	Cover, 1	Correction of Expiration Date to Record Retention Date.

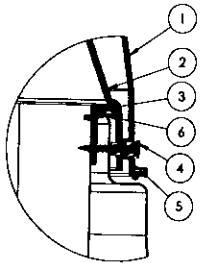
Appendix A

Drawings

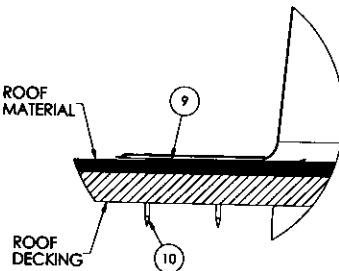
**750 DS (21") SOLATUBE
11" SELF-FLASHING
OPEN CEILING**

- NOTES:
 1. STRUCTURAL ELEMENTS (PLYWOOD, RAFTERS, DRYWALL ETC.) BY OTHERS & SHOWN FOR REFERENCE ONLY
 2. ALL TUBE JOINTS & SEAMS TAPED WITH 2" FOIL TAPE (NOT SHOWN)

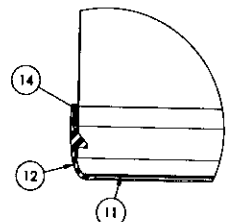
REVISIONS				
ECO	REV.	DESCRIPTION	DATE	INC.
	1	RELEASED	3/13/08	CS



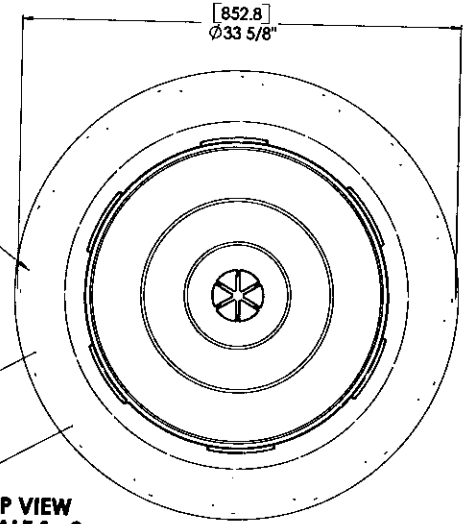
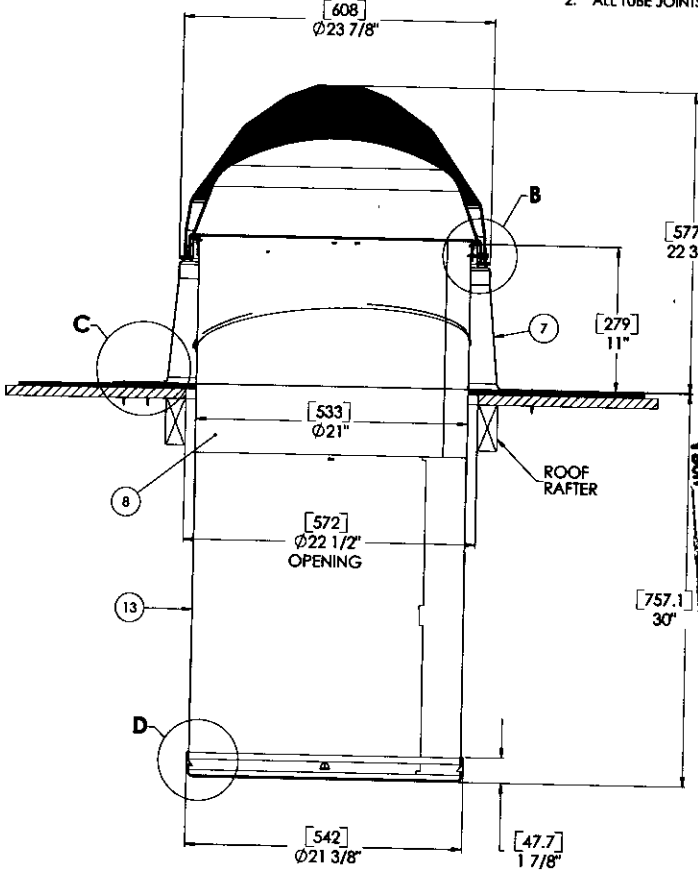
**DETAIL B
SCALE 3 : 1**



**DETAIL C
SCALE 3 : 1**



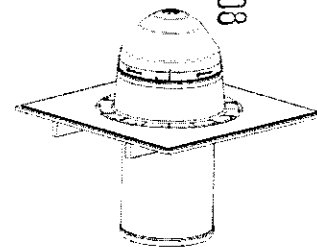
**DETAIL D
SCALE 3 : 1**



**TOP VIEW
SCALE 1 : 2**

84491

JUL 11 2008



Architectural Testing, Inc.
 Test sample complies with these details.
 Deviations are noted.

84491

JUL 11 2008

Architectural Testing, Inc.
 Test sample complies with these details.
 Deviations are noted.

ITEM NO.	QTY.	PART NO.	DESCRIPTION	NOTES
1	1	401930	PRISMATIC DOME 750 DS	
2	1	509100	DOME 330 DS	OPTIONAL
3	1	400785	DOME RING 21"	
4	3	700860	SCREW #8x1.5" SMS	
5	3	700870	SPACER 21"	
6	1	600240	GLAZING ROPE	
7	1	200860	FLASHING	
8	1	301710	TOP TUBE 21"	
9	1	700280	SEALANT URETHANE	AS REQUIRED
10	16	700480	SCREW #10 X 2" SMS	20 QTY. REQUIRED FOR HWVZ
11	1	410050/60	DIFFUSER PANEL	USED IN 420200/210 ASSEMBLY
12	1	410010	WAREHOUSE DRESS RING	USED IN 420200/210 ASSEMBLY
13	1	301770	TUBE 24" EXTENSION 21"	
14	1	600250	OC DIFFUSER SEAL 21"	

UNLESS OTHERWISE SPECIFIED:
 DIMENSIONS ARE IN INCHES
 TOLERANCES:
 ANGULAR: $\pm 0.5^\circ$
 $\pm .02$
 $\pm .005$

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SOLATUBE
 2100 GOLF COURSE BLVD.
 WILSON, CALIFORNIA 95708-1884
 (916) 937-2000

FILE: **750 DS (21") SELF-FLASHING
OPEN CEILING**

SCALE: 1:1

DO NOT SCALE DRAWING

DRAWN BY: STEVENS
 CHECKED BY:
 APPROVED BY:

DATE: 3/13/08

DATE:
 DATE:

SIZE: DWG. NO: **750-SF-OC**
 REV: **1**

SHEET 1 OF 1

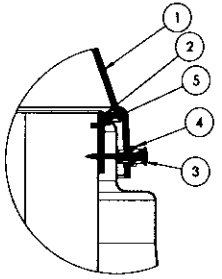
Reports
 Tech
 Date

8 7 6 5 4 3 2 1

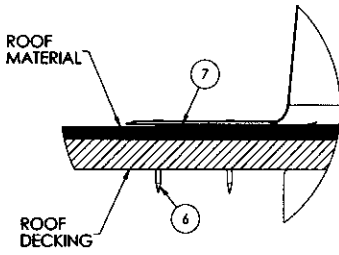
**330 DS (21") SOLATUBE
11" SELF-FLASHING
OPEN CEILING**

REVISIONS				
ECO	REV.	DESCRIPTION	DATE	INC.
	1	RELEASED	3/13/08	CS
	2	TUBE 24" EXTENSION 21" PH WAS 302770, NOW IS 301770	4/29/2008	CS

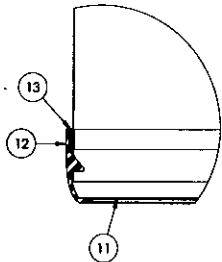
- NOTES:
 1. STRUCTURAL ELEMENTS (PLYWOOD, RAFTERS, DRYWALL ETC.) BY OTHERS & SHOWN FOR REFERENCE ONLY
 2. ALL TUBE JOINTS & SEAMS TAPED WITH 2" FOIL TAPE (NOT SHOWN)



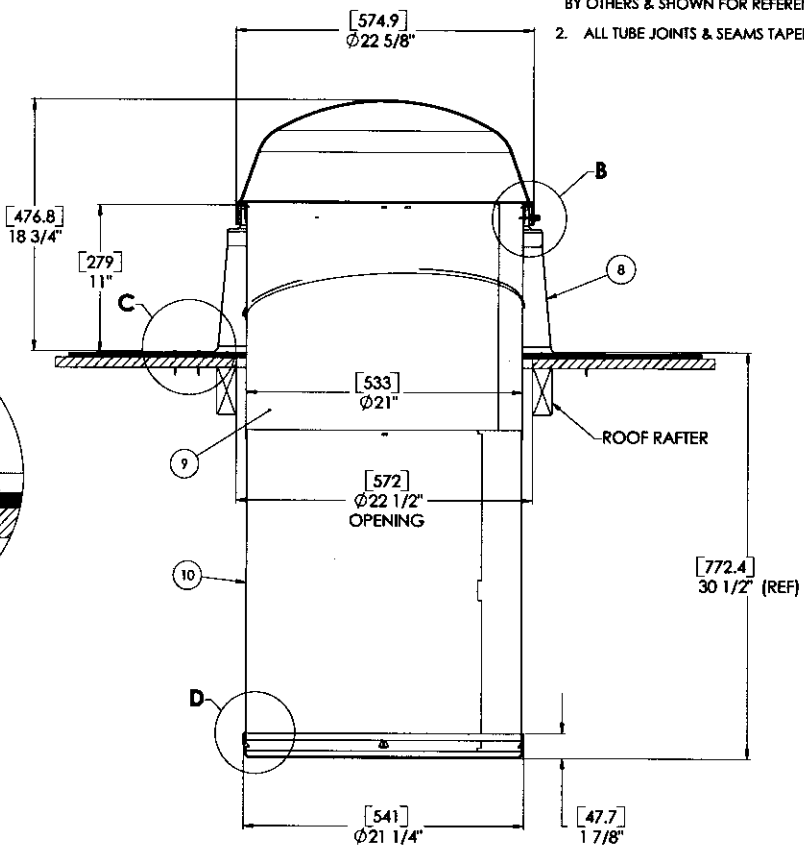
**DETAIL B
SCALE 3 : 1**



**DETAIL C
SCALE 3 : 1**



**DETAIL D
SCALE 3 : 1**



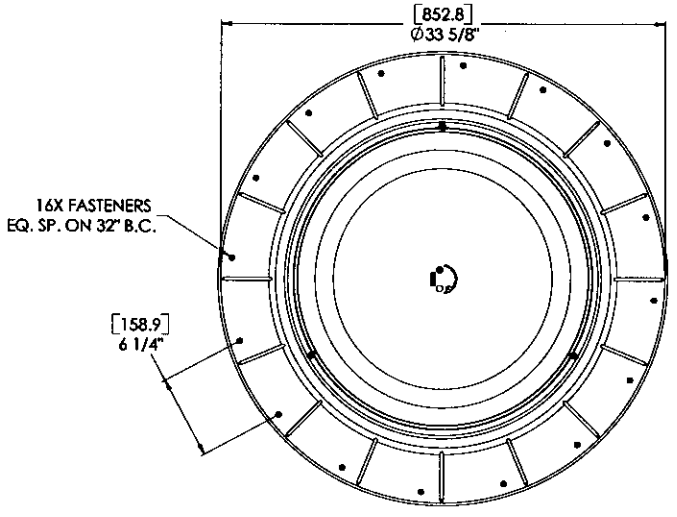
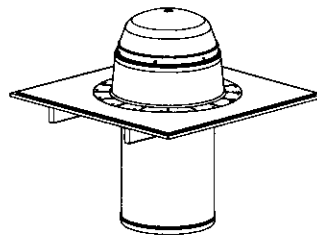
FULL SECTION

Architect: **SCAAB, Inc**
 Test sample complies with these details
 Deviations are noted

84491

JUL 11 2008

Report# *AKH* Date



**TOP VIEW
SCALE 1 : 2**

ITEM NO.	QTY.	PART NO.	DESCRIPTION	NOTES
1	1	509100	DOMES 330 DS	
2	1	400785	DOMES RING 21"	
3	3	700860	SCREW #8x1.5" SMS	
4	3	700870	SPACER 21"	
5	1	600240	GLAZING ROPE	
6	16	700480	SCREW #10 X 2" SMS	
7	1	700280	SEALANT URETHANE	
8	1	200860	FLASHING 21"	
9	1	301710	TOP TUBE 21"	
10	1	301770	TUBE 24" EXTENSION 21"	
11	1	410040/50	DIFFUSER PANEL	USED IN 420200/210 ASSEMBLY
12	1	410010	WAREHOUSE DRESS RING	USED IN 420200/210 ASSEMBLY
13	1	600250	OC DIFFUSER SEAL 21"	

UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES TOLERANCES: ANGULAR: ±0.5° X = .12 Z = .02 XXX = .005		SOLATUBE INTERNATIONAL, INC. COPYRIGHT 2002 WWW.SOLATUBE.COM		 TITLE: 330 DS (21") SELF-FLASHING OPEN CEILING	
MATERIAL	DRAWN BY STEVENS	DATE 3/13/08	SIZE	DWG. NO. x330-SF-OC	REV 2
FINISH	CHECKED BY	DATE	APPROVED BY	SCALE: 1:1	SHEET 1 OF 1
DO NOT SCALE DRAWING					

F
E
D
C
B
A

8 7 6 5 4 3 2 1

Appendix B

Photographs



Photo No. 1
330 DS TDD



Photo No. 2
750 DS TDD



Photo No. 3
30" Diameter Sand Bag



Photo No. 4
Sand bag at drop height



Photo No. 5
330 DS at impact



Photo No. 6
750 DS at impact



Photo No. 7
330 DS prior to impact