

PERFORMANCE TEST REPORT

Rendered to:

SOLATUBE INTERNATIONAL, INC.

Report No.: 84491.01-301-47
Test Date: 06/11/08
Report Date: 07/15/08
Expiration Date: 06/11/12

PERFORMANCE TEST REPORT

Rendered to:

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

Report No.: 84491.01-301-47
Test Date: 06/11/08
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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: Photos (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

Appendix A

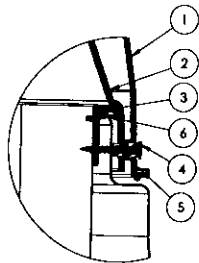
Drawings

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

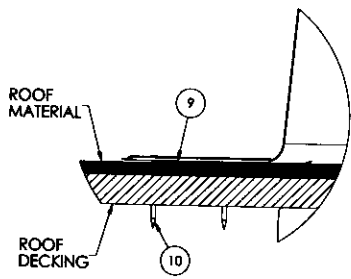
NOTES:

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)

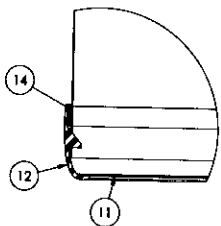
REVISIONS				
ECO	REV.	DESCRIPTION	DATE	INC.
	1	RELEASED	3/13/08	CS



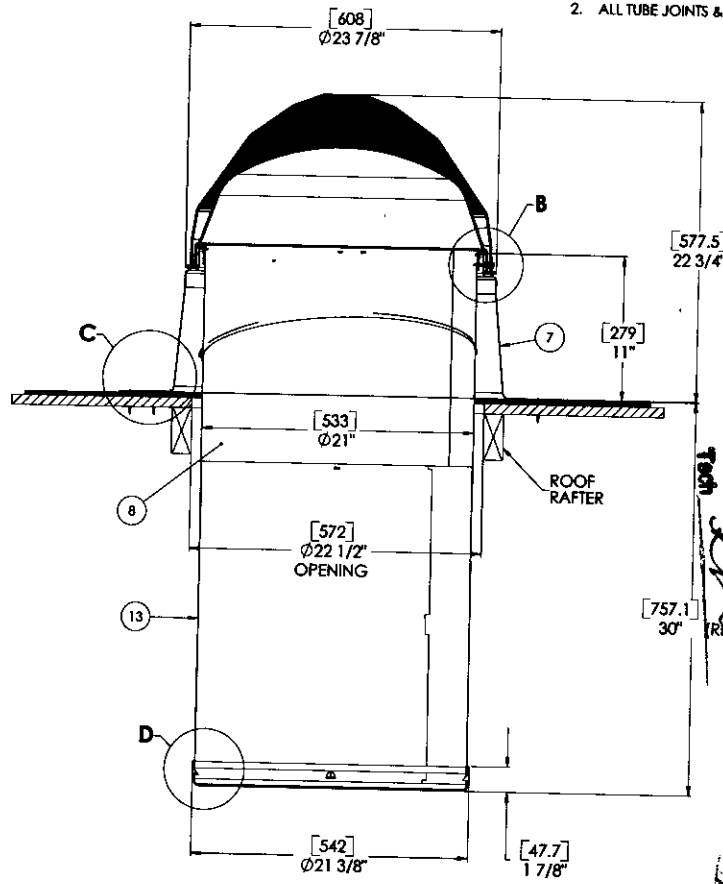
**DETAIL B
SCALE 3 : 1**



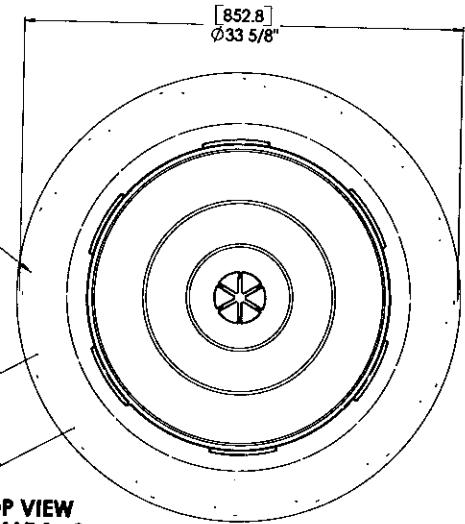
**DETAIL C
SCALE 3 : 1**



**DETAIL D
SCALE 3 : 1**



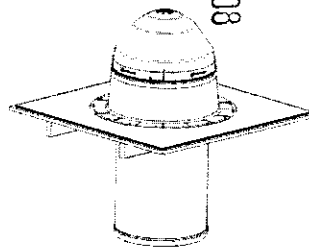
16X FASTENERS
EQ. SP. ON 32" B.C.



**TOP VIEW
SCALE 1 : 2**

84491

JUL 11 2008



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

84491

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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: ±0.5°
LINEAR: ±.015"
FRACTIONS: ±.015"
DECIMALS: ±.005"

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MATERIAL	DRAWN BY STEVENS	DATE 3/13/08
FINISH	CHECKED BY	DATE
DO NOT SCALE DRAWING	APPROVED BY	DATE

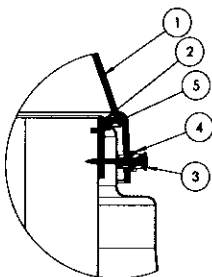
TITLE 750 DS (21") SELF-FLASHING OPEN CEILING	
SIZE 750-SF-OC	REV 1
SCALE: 1:1	SHEET 1 OF 1

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

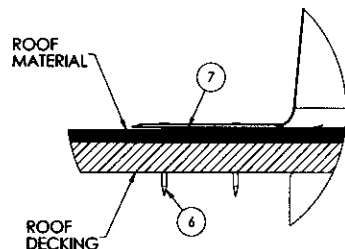
NOTES:

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)

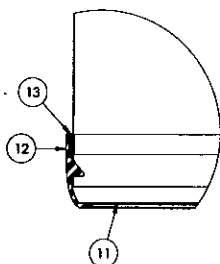
REVISIONS				
ECO	REV.	DESCRIPTION	DATE	INC.
	1	RELEASED	3/13/08	CS
	2	TUBE 24" EXTENSION 21" PH WAS 302770, NOW IS 301770	4/29/2008	CS



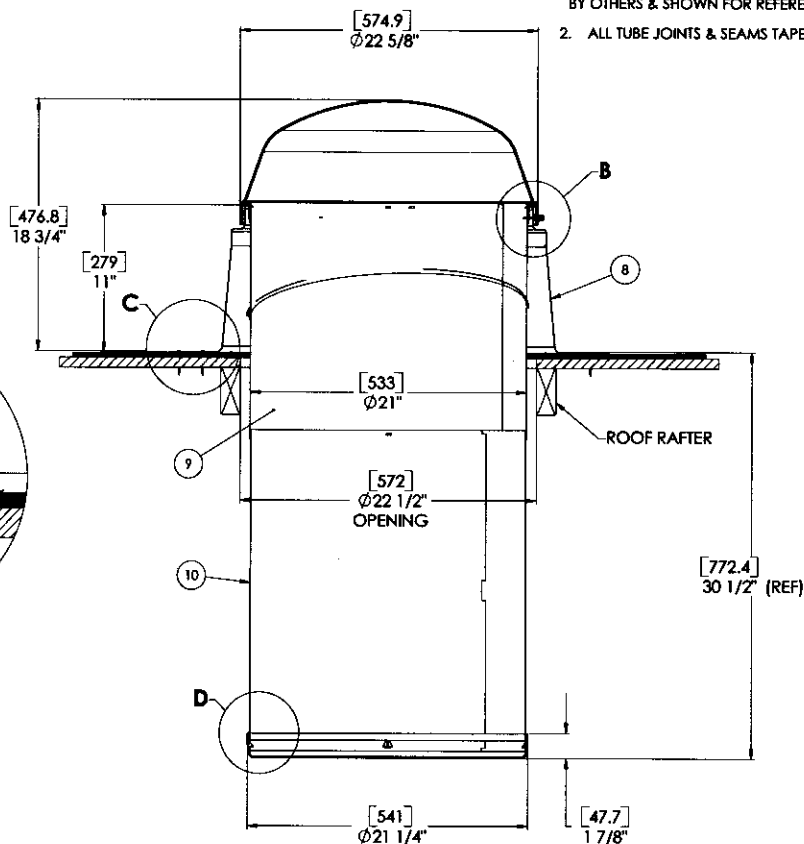
**DETAIL B
SCALE 3 : 1**



**DETAIL C
SCALE 3 : 1**

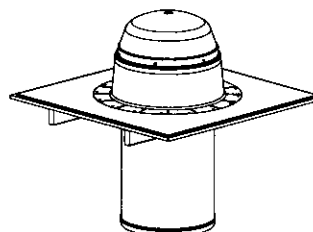


**DETAIL D
SCALE 3 : 1**

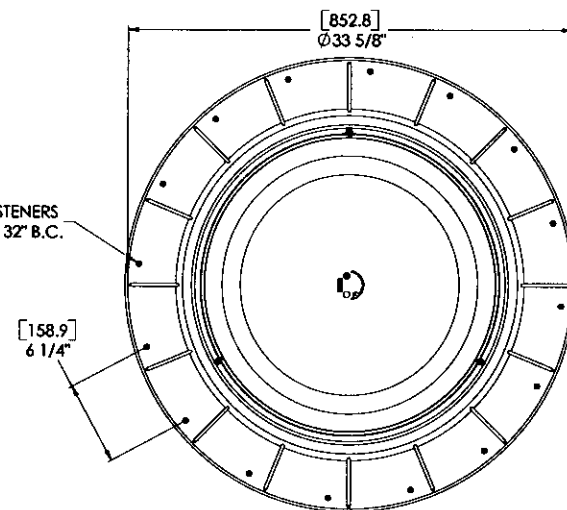


FULL SECTION

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



16X FASTENERS
EQ. SP. ON 32" B.C.



**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: $\pm 0.5^\circ$
X = .005
Y = .005
Z = .005

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

MATERIAL	DRAWN BY STEVENS	DATE 3/13/08
FINISH	CHECKED BY	DATE
DO NOT SCALE DRAWING	APPROVED BY	DATE

SIZE	DWG. NO. x330-SF-OC	REV 2
SCALE 1:1	SHEET 1 OF 1	

84491

JUL 11 2008

Report#

Date

Tech

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

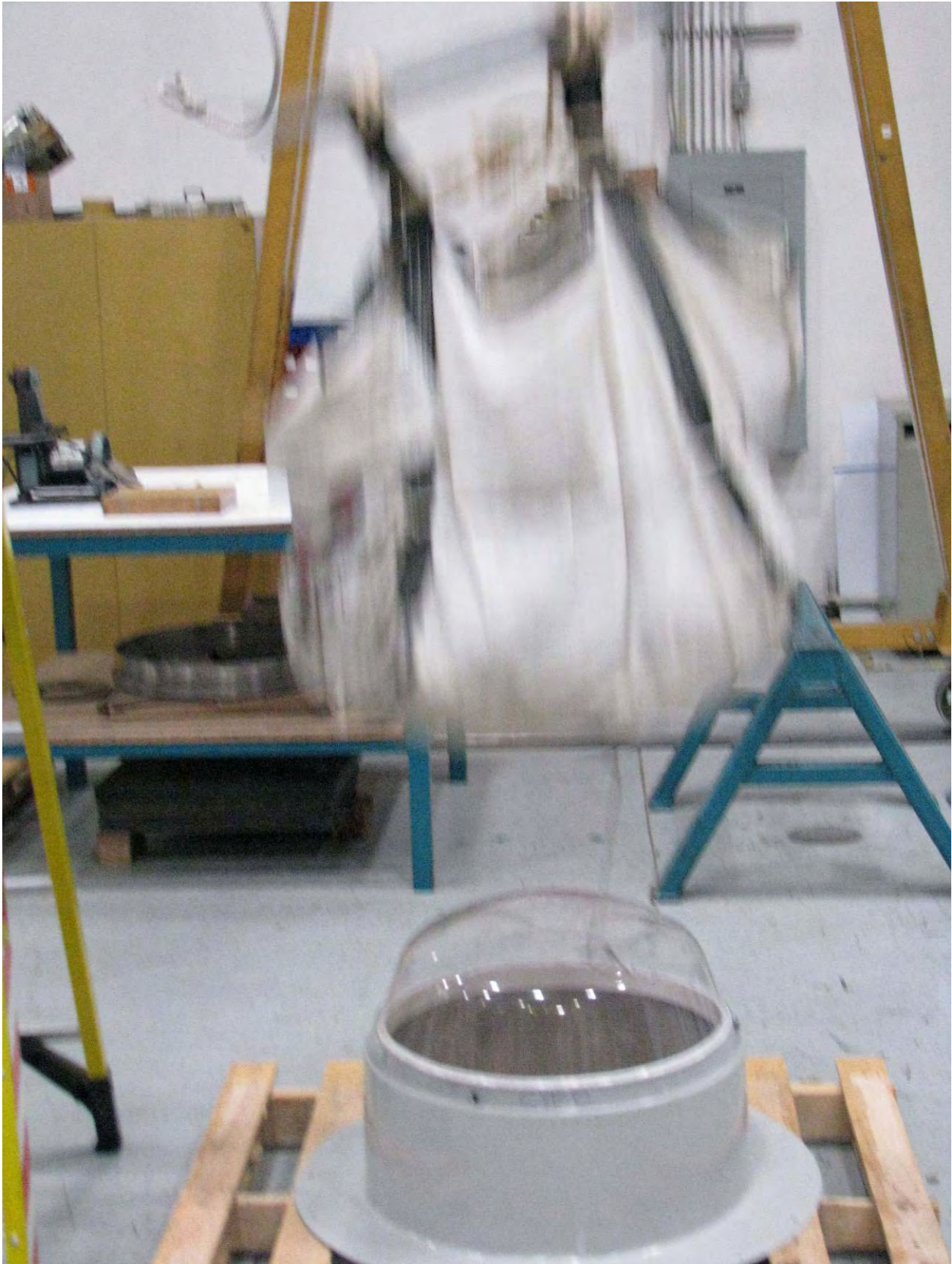


Photo No. 7
330 DS prior to impact