



American Test Lab, Inc.
1656 Calvert Road, Brevard, N. C. 28712
Phone (828) 884-3700 Fax (828) 884-3710
Web www.atlnc.com E-Mail atli@citcom.net

ATLNC 0828.01-06

Report Date: 9/13/06

Test Dates: 08/28/06 - 08/29/06

ATLNC Certification # 03-0210.02

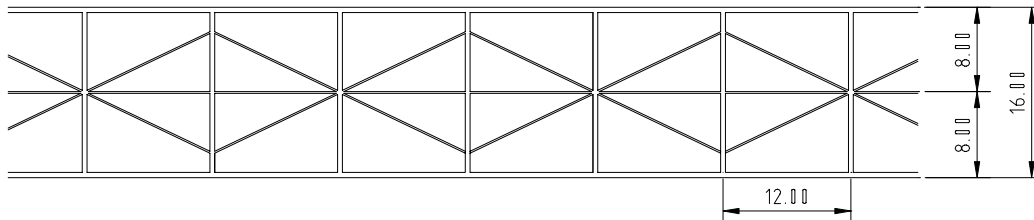
Test Requested By: Ward Ogle
Polygal Inc.
9405A D. Ducks Lane
Charlotte, N.C. 28273
Phone 704-588-3800 Fax 704-588-7400

Test Standards: FBC-2004 - TAS 201, 202, 203
2003 ICC, IRC, IBC
ASTM E 1886-02, E 1996-02
ASTM E 330-02

Test Conditions: 80-85 degrees F

Design Pressures: Specimens A, B, C, +45, -45

Polygal Titan Sky 16mm 2500 g/m²



Description of product tested: Specimens A, B, C 4' x 8' 16mm thick triple wall Titan Sky polycarbonate sheets as shown in Polygal drawing number PHS081006.

Configuration: Specimens A, B

Head
Wood

Sill
Wood

Jambs
Wood

Specimen C

Head
Solid Concrete

Sill
Solid Concrete

Jambs
Solid Concrete

Description of Unit:

Specimen A, B, C, D: 4' x 8' 16mm triple walled Titan Sky polycarbonate panel mounted in 42" x 90" wood or solid concrete opening. The specimens were fastened to the test bucks with 1/4" panel mate screws with washers and wing nuts located 1-1/2" from each edge and at the head and sill located from left to right 3", 12", 24", 36", 45" and on each jamb from top to bottom 3", 12", 24", 36", 48", 60", 72", 84", 93". Panel Mates had minimum embedment of 1-1/2" and 1-1/2" edge distance.

Screws and method of attachment

Type	Location	Specimen
Panel Mate Pro Screws 1-1/2" embedment	Head, Sill, Jambs	A, B, C
1/4" washer wing nuts and flat washers	Head, Sill, Jambs	A, B, C

STATIC AIR PRESSURE
TAS 202, ASTM E 330-97

Specimen A

Design Loads +45psf, -45psf

Range of tests

Positive loads

Design
Test

Time Seconds	Load psf	Max.	Perm.	Recovery
30	45	2-15/16"	3/16"	94%
30	67.5	3-9/16"	1/4"	93%

Range of tests

Negative loads

Design
Test

Time Seconds	Load psf	Max.	Perm.	Recovery
30	45	2-15/16"	5/16"	90%
30	67.5	3-9/16"	3/8"	89%

Impact
Large Missile

TAS 201, ASTM-E 1996-97 / 02

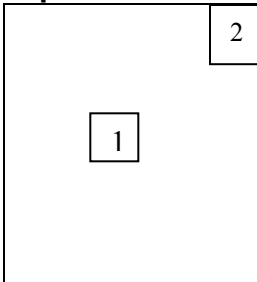
Type and weight of missile: Missile level D - #2 Southern Pine 2 x 4, Length 96" and 9lbs. All corner shots were impacted away from structural supports.

Note:

X measurement from left edge of specimen.

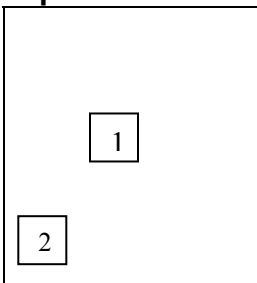
Y measurement from bottom edge of specimen.

Specimen A



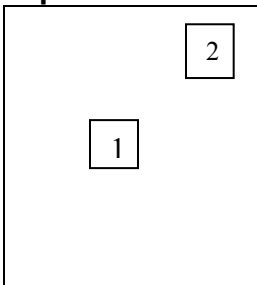
Impact No.	Speed FT. / Sec.	X Meas.	Y Measure
1	50	24"	48-1/2"
2	50	37-1/2"	88"

Specimen B



Impact No.	Speed FT. / Sec.	X Meas.	Y Meas.
1	50	24"	48-1/2"
2	50	10"	11"

Specimen C



Impact No.	Speed FT. / Sec.	X Meas.	Y Meas.
1	50	24"	47"
2	50	37"	87-1/2"

Note: No penetration or ruptures occurred.

Impact Deflections

	A		B		C	
	Max Def.	Perm. Set	Max Def.	Perm. Set	Max Def.	Perm. Set
1)	3-15/16	1/4"	4-1/16"	1/8"	3-5/8"	1/8"
2)	3-5/16"	1/16"	2-3/4"	1/8"	3-3/16"	1/8"

Cyclical Test

TAS 203, ASTM E 1996-97 / 02

Specimens:

Design Loads: + 45 - 45psf

Range of test Positive loads	Actual Load psf	# of cycles	Cycles per minutes	A		B		C	
				max def	perm set	max def	perm set	max def	perm set
.2 - .5	9 - 23	3500	45	1-3/4"		1-15/16"		1-3/8"	
0 - .6	0 - 27	300	46	2"		2-1/8"		1-7/8"	
.5 - .8	23 - 36	600	47	2-7/16"		2-7/16"		2-1/8"	
.3 - 1.0	14 - 45	100	47	2-5/8"		2-3/4"		2-7/16"	
1.3	58.5	1		3-1/4"	1/4"	3-3/16"	3/16"	2-13/16"	1/4"

Range of test Negative loads	Actual Load psf	# of cycles	Cycles per minutes	A		B		C	
				Max def	perm set	max def	perm set	max def	perm set
.3 - 1.0	14 - 45	50	47	3"		3-3/4"		2-15/16"	
.5 - .8	23 - 36	1050	47	2-11/16"		2-9/16"		2-11/16"	
0 - .6	0 - 27	50	46	2-5/16"		2-3/8"		2-5/8"	
.2 - .5	9 - 23	3350	46	1-15/16"		2-1/4"		2-5/16"	
1.3	58.5	1		3-1/4"	1/4"	3-1/4"	3/16"	3-3/8"	1/4"

Cycles Completed 9002

Description of specimens after test:

Specimens showed no resultant failure or distress after cyclical test.

Observers-

Tony Sivore / ATL

Eddie Ashe, Keith Owen, / ATL

Shane Worley, Brian Koontz, Jim Cox / ATL

David W. Johnson, P.E.

Ward Ogle / Polygal

Keith Owen, Lab Manager

American Test Lab, Inc.

Keith Owen
9/13/06

All Tests Witnessed and Certified by:

David Johnson P. E.

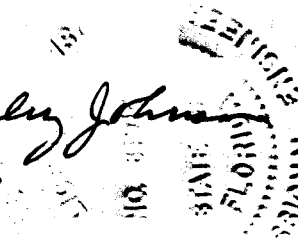
1656 Calvert Rd.

Brevard, NC 28712

Florida P.E. # 00061915

Engineer Seal And Signature

David Wesley Johnson
9/13/06



Certificate of Independence: The witnessing engineer has no financial interest in American Test Lab of North Carolina, Polygal Inc. or their parts vendors. Witnessing engineer is in complete compliance of Florida Statute 9B-72, Section 72.110.

Disclaimer:

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