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HURRICANE ENGINEERING & TESTING INC.

Computer Controlled Product Testing & Design,
.....Wind Load Analysis

Small Missile Impact & Cyclic Wind Pressure Tests

January 9th, 2002

REPORT NUMBER:	**HETI-02-1127**
MANUFACTURER:	Bekaert Specialty Films, LLC 2400 West Copans Road, Suite 7, Pompano Beach, Florida 33069
TEST LOCATION:	Hurricane Engineering & Testing Inc. 8532 NW 64 Street Miami, FL 33166

LAB. CERTIFICATION NUMBER: 01-0417.03 (MIAMI-DADE COUNTY, FLORIDA)

SBCCI LISTING No.:	TL - 9596A
PRODUCT:	**Fixed Glazed System. Group #2**
MODEL:	8 mil clear lamination
MATERIAL:	6063-T5 glazed aluminum frame
PRODUCT SIZE:	45" w x 75" h (overall frame size)
DRAWING:	none provided. *NOTE: HETI stamped drawing is an integral part of this report.*
DESIGN LOADS (psf):	**+70, -75**

TEST WITNESSED BY: (full or Partial)
Syed Waqar Ali, Ph. D. (HETI)
Mr. Eddy Philippe (HETI)
Mr. Leonardo D. Savini, E.I. (HETI)
Mr. Arshad Viqar, P.E. (HETI)

Construction Details

PRODUCT: **Fixed Glazed System. Group #1**

DESCRIPTION OF UNIT

model designation	8 mil clear lamination
overall size	45" w x 75" h (overall frame size)
configuration	O
No. & size of vents	none, fixed
Special Note:	General description: The unit consisted of a glazing material installed in a painted Arch #4500 commercial frame.

MATERIAL CHARACTERISTICS

Frame Construction (material used to construct frame):

COMPONENT	OVERALL DIMENSION (INCHES)	EXTERIOR † WALL THICKNESS (INCHES)	INTERIOR † WALL THICKNESS (INCHES)	*
JAMBS	**1.75 x 4.52**	**0.087**	**0.087**	**53**
HEAD / SILL	**1.75 x 4.52**	**0.087**	**0.087**	**53**

*All painted aluminum frames. * % of IACS conductivity. † reversible.*

Corner Construction	(4) the corners were butt joined with two #8 x 1" PH SMS per corner.
Sash	none.
glazing material	3/16" tempered glass with 8 mil clear lamination (interior side). Armorcoat and Armorgard: 8 mil (0.008") Safety and Security Film (polyethylene terapthalate) coated with a self cross-linking acrylic pressure sensitive adhesive for mounting to glass.
film installation methods:	S-1: own method. S-2: conventional method. S-3: 3-step cross squeegee method.

glazing method

GE Ultraglaze 4000 structural silicone used in glazing and Dow Corning 995 used in wet glazing film to frame with a 1" wide bead.

bite	1/2"
setting block	none.
weatherstripping	none.
hardware	none.
reinforcements	none.
sealant	white caulk was used around the perimeter of the frame.
screen	none.

INSTALLATION.

SCREWS/METAL CLIPS AND METHOD OF ATTACHMENT

substrata	wood.
mullions	none.
shimming gap	none.

Location	Type	Size	Spacing	Quantity
JAMBS	WOOD SCREW	#14 X 3"	EQUALLY DISTRIBUTED ±1" STARTING 3" FROM THE CORNERS	8 PER JAMB
HEAD AND SILL	WOOD SCREW	#14 X 3"	EQUALLY DISTRIBUTED ±1" STARTING 3" FROM THE CORNERS	4 PER JAMB

Test Results

Small Missile Impact Test Results

Impact Location	Speed (fps)	Deflection max. (in)	Description of Result
Sample I			
1) Center	130	Negligible	no penetration
2) Edge	130	Negligible	no penetration
3) Corner	130	Negligible	no penetration
Sample II			
1) Center	130	Negligible	no penetration
2) Edge	130	Negligible	no penetration
3) Corner	130	Negligible	no penetration
Sample III			
1) Center	130	Negligible	no penetration
2) Edge	130	Negligible	no penetration
3) Corner	130	Negligible	no penetration

The samples were impacted with ten two grams steel balls.

Cyclic Wind Pressure Test Results

Cycles	Pressure (psf)	Deflection (in)	Set (in)	Recovery (%)	Duration (sec)
Positive Pressure Cycles					
3500	**+35**	N/A	----	----	1
300	**+42**	N/A	----	----	1
600	**+56**	N/A	----	----	1
100	**+70**	N/A	N/A	N/A	1
Negative Pressure Cycles					
50	**-75**	N/A	----	----	2
1050	**-60**	N/A	----	----	1
50	**-45**	N/A	----	----	2
3350	**-38**	N/A	N/A	N/A	1

Conclusion

The sample was tested in accordance with Miami-Dade County Protocol PA 201 and PA 203 and SSTD 12-99 for exterior glazed opening systems. The samples were structurally intact with all parts securely in place at the conclusion of each test.

NOTE: The above results were obtained using the designated test methods, which indicates compliance with the performance requirements of the referenced specifications. This report does not constitute certification of the specimens tested.

Syed Waqar Ali, Ph. D.
President

2/14/02

Arshad Viqar, P.E.
Engineer of Record


armorcoat
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