

HURRICANE ENGINEERING & TESTING

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

Large Missile Impact & Cyclic Wind Pressure Test

Date: Nov 30, 1995

REPORT NUMBER: HETI-95-427
MANUFACTURER: Alutech Corporation
8548 N.W. 64 Street Miami, FL 33166

TEST LOCATION: Hurricane Engineering & Testing Inc.
8532 N.W. 64 Street Miami, FL 33166

LAB. CERTIFICATION NUMBER: 95-0118.02

PRODUCT: Entry Door

PRODUCT DESCRIPTION: Aluminum w/rigid foam core (Ref. Tensile Test Report # HETI-95-T112)

PRODUCT SIZE: 36" w x 84" h

MODEL: Series 2001 Aluminum

DESIGN LOADS (psf): +95, -95

DRAWING NUMBER: A95214, Alutech Corp. 12/13/95


NOTE: HETI stamped drawing is an integral part of this report.

TEST WITNESSED BY: (Full or Partial)
Dr. Wakar Ali (HETI)
Mr. Leonardo Savini E.I.T. (HETI)
Mr. Terry C. Agee E.I.T. (HETI)
Mr. Adolfo Perez (Alutech)

WITNESSING ENGINEER:
Mr. Hector M. Medina, P.E. (HETI)

INSTALLATION DETAIL:

The aluminum frame (0.112" thick, 5-13/16" w) was anchored to the wood jamb on each side with five 1/4" x 4" Tapcons at 18" o.c.. The out-swinging door was reinforced with a rigid foam core. Three 4-1/2" x 4-1/2" full template steel hinges (spaced at 32" o.c.) were used to attach the door to the frame. The hinges were bolted to the door and frame with four 12-24 F.H. machine screws. A cylindrical lever lock was installed at the midspan of the door and a bulb threshold with a bumper was also installed.


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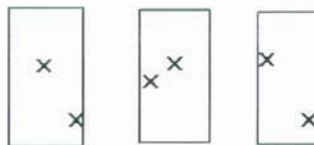
IMPACT TEST RESULTS

Impact Locations	Velocity (fps)	Max.Deflection (in)	Set (in)
Sample I			
Center	50	1.13	0.25
Corner	50	0.63	0.25
Sample II			
Center	50	1.25	0.25 *
Below Lock	50	0.50	0.00
Sample III			
Above lock	50	0.75	0.50
Corner	50	0.63	0.38

The samples were impacted with a #2 Southern Yellow Pine S4S, 9 pounds, 2x4 missile, 81" long.
 * inside handle fell off

IMPACT LOCATIONS

Sample I Sample II Sample III



Cyclic Wind Pressure Test Results

Sample I

POSITIVE PRESSURE

	Load (psf)	Deflection (in)	Set (in)	Recovery (%)	Duration (Sec)
CYC=600	48	0.48			1.09
CYC= 70	57	0.50			1.09
CYC= 1	124	0.61			2.65
	0	0.003	0.003	99.510	

NEGATIVE PRESSURE

Load	Deflection	Set	Recovery	Duration
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	(psf)	(in)	(in)	(%)	(Sec)
CYC=600	48	0.25			1.10
CYC= 70	57	0.25			1.15
CYC= 1	124	0.43			2.49
	0	0.05	0.05	88.37	

Sample II

POSITIVE PRESSURE

	Load (psf)	Deflection (in)	Set (in)	Recovery (%)	Duration (Sec)
CYC=600	48	0.35			1.09
CYC=70	57	0.37			1.09
CYC= 1	124	0.53			1.36
	0	0.03	0.03	94.33	

NEGATIVE PRESSURE

	Load (psf)	Deflection (in)	Set (in)	Recovery (%)	Duration (Sec)
CYC=600	48	0.28			1.10
CYC=70	57	0.28			1.04
CYC= 1	123	0.39			2.41
	0	0.010	0.010	97.436	

Sample III

POSITIVE PRESSURE

	Load (psf)	Deflection (in)	Set (in)	Recovery (%)	Duration (Sec)
CYC=600	48	0.22			1.12
CYC=70	57	0.27			1.26
CYC= 1	124	0.53			1.71
	0	0.00	0.00	100.0	

NEGATIVE PRESSURE

	Load (psf)	Deflection (in)	Set (in)	Recovery (%)	Duration (Sec)
CYC=600	48	0.34			1.03
CYC=70	57	0.42			1.24
CYC=1	124	0.74			1.99
	0	0.16	0.16	78.03	

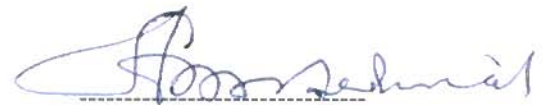
CONCLUSION:

The samples were tested as per Dade County protocols PA 201-94 & PA 203-94. At the conclusion of the test the doors were operational and the anchors were firmly in place. There were no missile penetration or rupture of the second layer of the doors.

[Signature]
4/25/96


Dr. Wakar Ali
President
(HETI)

4/26/96


Hector M. Medina, P.E.
Resident Engineer

4/25/96

For Report
No. 95-427
ALWTECH CORP.