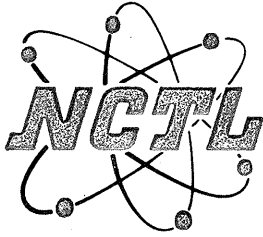


MILCO BUILDING PRODUCTS
STRUCTURAL PERFORMANCE TEST REPORT

Series "1000/2000" Single Hung
Aluminum Prime Window

NCTL 210-2729-3

Danilo Rocha
3/5/02



NATIONAL CERTIFIED TESTING LABORATORIES

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STRUCTURAL PERFORMANCE TEST REPORT

Report No: NCTL-210-2729-3
Test Date: 11/09/01
Report Date: 11/26/01

Client: Milco Building Products
307 Modoc Road
Swainsboro, GA 30401

Test Specimen: Milco Building Products Series "1000/2000" Single Hung Aluminum Prime Window (H-R40).

Test Specification: AAMA/NWWDA 101/I.S.2-97, "Voluntary Specifications for Aluminum, Vinyl (PVC), and Wood Windows and Glass Doors."

TEST SPECIMEN DESCRIPTION

General: The test specimen was a one-over-one single hung aluminum prime window measuring 52-1/8" wide by 72" high overall. The fixed lite was glazed to the frame members, providing a viewing area of 48-3/4" wide by 35-1/4" high. The active sash measured 51-1/4" wide by 38-1/2" high. Frame and sash members were not thermally broken. The active sash was removable via a single spiral coiled spring balance with a side loaded balance system located in each interior jamb track. One (1) metal cam-type sweep lock was located at 5-1/8" from each end of the active interior meeting rail. A metal keeper was extruded onto the fixed meeting rail at lock positions. A rigid vinyl cover was used to conceal the balance. The frame head and jamb were of single screw butt-type corner construction. The frame sill and jamb were of double screw butt-type corner construction. The active sash was of double screw butt-type corner construction. The fixed meeting rail was fastened to the jambs at mid-span with one (1) screw.

Glazing: Both lites were interior glazed using 0.185" thick clear annealed glass with a silicone back-bedding and a snap-in rigid vinyl glazing bead.

Weatherseals: One (1) strip of polypile weatherstrip (0.190" high) was located at the exterior face of the active sash stiles. One (1) strip of center fin polypile weatherstrip (0.190" high) was located at the bottom rail of the active sash.

Weeps: One (1) weep notch measuring 1" x leg height was located at each end of both sill legs.

Banyo Parina
3/15/02

Interior & Exterior Surface Finish: White painted aluminum.

Sealant: The frame and active sash corners were sealed with a silicone sealant.

Insect Screen: A fiberglass mesh insect screen measuring 49-1/4" wide by 39-1/2" high was of butt-type corner construction with plastic corner keys.

TEST RESULTS

<u>Par. No.</u>	<u>Title of Test & Method</u>	<u>Measured</u>	<u>Allowed</u>
2.2.1.6.1	Operating Force Active Sash Up Down	15 lbf 5 lbf	30 lbf 30 lbf
2.2.1.6.2	Deglazing - ASTM E987 Active Sash Meeting Rail (70 lbf) Bottom Rail (70 lbf) Left Hand Stile (50 lbf) Right Hand Stile (50 lbf)	3.2 % (0.016") 4.2 % (0.021") 3.2 % (0.016") 2.8 % (0.014")	<100% <100% <100% <100%
2.1.2	Air Infiltration - ASTM E283 1.57 psf (25 mph)	0.12 cfm/ft ²	0.3 cfm/ft ²
2.1.3 *	Water Resistance - ASTM E547 5.0 gph/ft ² WTP= 3.75 psf	No Leakage	No Leakage
2.1.4.2 **	Uniform Load Structural - ASTM E330 52.5 psf Exterior 52.5 psf Interior	0.030" 0.042"	0.196" 0.196"
2.1.8	Forced Entry Resistance - ASTM F588 Grade 10 (See Appendix A for test results)	Meets As Stated	

OPTIONAL PERFORMANCE

Note: Before water test began, an additional 1.262" high sill riser was added.

4.3 *	Water Resistance - ASTM E547/E331 5.0 gph/ft ² WTP= 9.75 psf	No Leakage	No Leakage
4.4.2 **	Uniform Load Structural - ASTM E330 60.0 psf Exterior 60.0 psf Interior	0.095" 0.033"	0.196" 0.196"

* Tested with and without screen

** No glass breakage or permanent damage causing the unit to be inoperable

James Perkins
03/15/02

TEST COMPLETED 11/09/01

The tested specimen meets (or exceeds) the performance levels specified in Table 2.1 of AAMA/NWWDA 101/I.S.2-97 for air infiltration. The listed results were secured by using the designated test methods and indicate compliance with the performance requirements of the referenced specification paragraphs for the H-R40 product designation.

Detailed drawings were available for laboratory records and comparison to the test specimen at the time of this report. A copy of this report along with representative sections of the test specimen will be retained by NCTL for a period of four (4) years. The results obtained apply only to the specimen tested. No conclusions of any kind regarding the adequacy or inadequacy of the glass in the test specimen may be drawn from this test. This report does not constitute certification of the product which may only be granted by a certification program validator.

NATIONAL CERTIFIED TESTING LABORATORIES

Steven E Matthews

STEVEN MATTHEWS
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3/5/02

APPENDIX A
Forced Entry Resistance Test Results

Test Method: ASTM F588-97, "Standard Test Method for Measuring the Forced Entry Resistance of Window Assemblies, Excluding Glazing Impact".

TEST RESULTS

<u>Paragraph No.</u>	<u>Loads</u>	<u>Duration</u>	<u>Measured</u>	<u>Allowed</u>
10.1-Lock Manipulation		5 Minutes	No Entry	No Entry
10.2.1.1-Test A1	L1=150 lbf	1 Minute	No Entry	No Entry
10.2.1.2-Test A2	L1=150 lbf L2=75 lbf interior	1 Minute	No Entry	No Entry
10.2.1.3-Test A3	L1=150 lbf L2=75 lbf exterior	1 Minute	No Entry	No Entry
10.2.1.4-Test A4	L1=150 lbf L2=75 lbf interior	1 Minute	No Entry	No Entry
10.2.1.5-Test A5	L1=150 lbf L2=75 lbf exterior	1 Minute	No Entry	No Entry
10.2.1.7-Test A7	L1=150 lbf L2=75 lbf interior L3= 25 lbf interior	1 Minute	No Entry	No Entry
10.2.1.8 Lock Manipulation		5 Minutes	No Entry	No Entry
10.2.4.2 Fixed Lite Glazing/ Panel Manipulation		5 Minutes	No Entry	No Entry

Barry Parkins
3/5/02