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STRUCTURAL PERFORMANCE & FORCED ENTRYTEST REPORT

REPORT NO: NCTL-210-2030-1 (S)(F)
TEST DATE: 05-11-98
REPORT DATE: 05-25-98
EXPIRATION DATE: 05-31-02 (NCTL)
REVISED DATE: 02-26-99

LAB CERTIFICATION NO.: 98-0430-01

CLIENT: Therma Tru
108 Mutzfeld Road
Butler, IN 46721

TEST SPECIMENS: Therma Tru's Model "Construction Series" Inswing Single Door (full glass inserts) with mulled sidelites (14") and transom (16") System.
(Design Pressure + 47.0 psf exterior) (Design Pressure - 47.0 psf interior)

TEST SPECIFICATIONS: ASTM E283-91, "Test Method for Determining the Rate of Air Leakage through Exterior Windows, Curtain Walls and Doors under Specified Pressure Differences Across the Specimen. ASTM E330-90, "Structural Performance of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference." ASTM E331-86, "Standard Test Method for Water Penetration of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference." AAMA/NWWDA/101/I.S. 2-97, "Voluntary Specifications for Aluminum, Vinyl (PVC) and Wood Windows and Glass Doors." North Carolina State Building Code, 1997 Edition, Section 613.

Revision Note: Inserted forced entry test results. (Page 3)

TEST SPECIMEN DESCRIPTION

Series/Model: "Inswing "Construction Series" door with full sidelite standard Therma Tru insulated steel sidelites (14") and transom.

Type: Inswing single door (with full glass lite) with two sidelites (14") insulated steel panels, wood frame, with attached (mulled) jambs, aluminum threshold, and 13-15/32" transom.

Overall Size: 5'8-21/32" wide by 9'3-1/2" high.

Configuration: Single Inswing with two sidelites (OXO) and horizontal transom.

Number & Size of Slab: Door slab measuring 36" wide by x 95-1/4" long x 1-11/16" thick.
Two (2) sidelite slabs 14" wide by same length and thickness as door and one (1) horizontal transom.

Material Characteristics

Frame Material: Wood frame, extruded aluminum threshold.

Glazing: 1/2" overall thickness, two 1/8" tempered glass lites separated by 1/4" air space.

Frame Construction: Jambs and head were constructed from 4-9/16" wide by 1-1/4" thick wood sections. The thresholds were extruded aluminum, with integral wood substrate and weatherseal (bulb gasket weatherseal removed at sidelite sills). The sills measured 0.850" high. The head/jamb corners were coped, butted and fastened using three 2-1/2" staples per corner. The sill/jamb corners were butted and sealed using two 2-1/2" staples per corner through the jamb into integral wood block in the sill. Where sidelite frames joined the door frame, the two frames were stitch-fastened on exterior and interior faces with 1" x 3/8" corrugated fasteners at 6" centers. Where the transom frame joined the active and sidelite headers, were stitched together at each jamb/transom frame joint using five (5) 1" x 3/8" corrugated fasteners. Also, (# 8 x 2") screws were used through each head member into the transom on sill on 6" centers.

Door Slab Construction: The door slab was constructed from 0.018" thick steel skins. The perimeters of the door employed wood blocking. The interior cavity of the door was filled with rigid polyurethane. Sidelite and slabs were constructed similarly, except that steel skin thickness was 0.021".

Frame Reinforcement; At each hinge attachment, two of the four screws fastening the jamb leaf to the door frame were 2-1/2" long and driven through the paired frames. At each strike, the screws used for attachment were 2-1/2" long and driven through the paired frames.

Door Fittings: Door panels were hinge-attached to jambs. Standard hinge screws were employed, two (2) (# 10 x 8/4") at each jamb leaf (reinforced with two (2) (# 10 x 2-1/2") screws described above in ("Frame Reinforcement") and four (4) (# 10 x 1") at each door leaf.

Weatherstripping: One row of thermoplastic compression weatherstrip was used at the head, and both jambs. The sill had a compression seal on the door bottom. Corner seal pads were employed at the jamb bottoms to seal the gaps between jamb weatherstrip and sill gasketing.

Sidelite Installation: Sidelites were direct-set (side by side) to jamb stops and to the sill stop.

Hardware:

Description	Quantity	Location
4" butt-type	3	14", 47-1/2", 81-1/2" from top of door slab
Lockset: Residential-grade locking passage type, tubular, mounts in 2-1/8" diameter crossbore	1	60" from door slab top
Deadbolt: Residential grade single cylinder with inside latch-turn, mounts in 2-1/8" diameter crossbore	1	48" from door slab top

Transom Installation: The transom glazing consisted of a 1" IG insulated glass unit, directly sealed to jamb, head, and sill stops with a perimeter bead of butyl. A cove molding was brad-fastened at the inside perimeter to fix and trim the glass to the frame.

Sealant: A small-joint sealant was applied to the jamb/sill corners.

Installation: The entire unit was fastened to the test buck using twenty-three (23) (# 10 x 2-1/2") FHWS as follows:

Header: Five (5) (# 10 x 2-1/2") FHWS
Sill: None applicable.
Jambs: Nine (9) at each jamb; eighteen (18) total.

TEST RESULTS

Specification No.	Title of Test	Measured	Allowed
ASTM E283-90	Air Infiltration	0.04 CFM/FT^2	0.20 CFM/FT^2
ASTM E331-90	Water Resistance - (5.0 GPH/FT^2) WTP = 7.10 psf	No Entry (Note 1)	No Entry
ASTM E330-90	Design Loads (30 seconds) + 47.0 psf exterior	Meets as stated	
	- 47.0 psf interior	Meets as stated	
	Uniform Static Loads	Set	
	+ 70.5 psf exterior	0.038"	0.392"
	- 70.5 psf interior	0.060"	0.392"

At the conclusion of the testing, no damage to the specimen or hardware was observed, and no damage to the specimens or hardware to cause the specimens inoperable was observed.

Structural Notes:
Permanent set measured readings recorded using a shaft encoder-digital deflection measurer, and were taken at mid-span of the horizontal transom.

two (2) mill visqueen was used to achieve pressures and did not effect the performance of the specimen.

Detailed drawings were available for laboratory records and compared 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.

Note 1. The water resistance test was conducted using sheet plastic, sealed at the perimeter, to isolate the hinged door panel from exposure to the water spray. Therefore, as conducted, the test qualified the fixed sidelite panels and transom as resistant to water penetration at the tested (DP47) level.

Barry D Portnoy
2/26/99

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