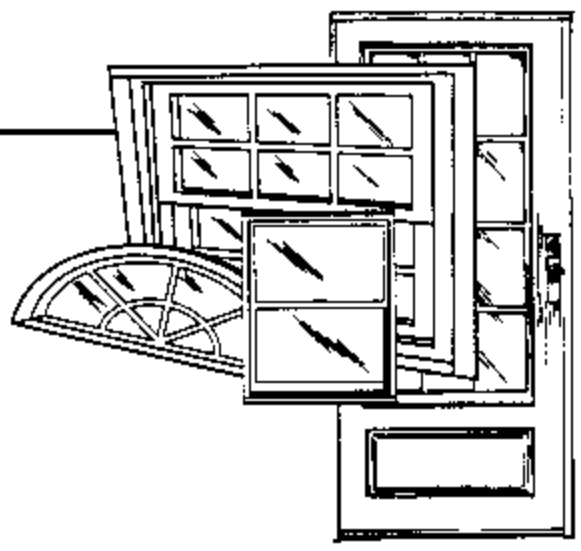
CERTIFIED TESTING LABORATORIES

Architectural Division • 7252 Narcoossee Rd. • Orlando, FL 32822
(407) 384-7744 • Fax (407) 384-7751
Web Site: www.ctlarch.com
E-mail: ctlarch.com



Report No.: CTLA696W DC Not. No.:01013 Date: November 1, 2001

CTL Certification # 99-0105.02 Test Dates: May 22, 2001

Test Requested By - JELD-WEN, INC.
31725 Highway 97 North
Suite C
Chiloquin, OR 97624

Tests Conducted: PA 201, PA 202 & PA 203 (with no deviations)

Design Pressures -

Specimen 1 (PA 202)	Outswing	+ 70.0 psf.	- 70.0 psf.
Specimen 2 (PA 202)	Inswing	+ 70.0 psf.	- 70.0 psf.
Specimens 3 & 4 (PA 201 & PA 203)	Outswing	+ 70.0 psf.	- 70.0 psf.
Specimen 5 (PA 201 & PA 203)	Inswing	+ 70.0 psf.	- 70.0 psf.
Specimen 6 (PA 202)	Outswing	+ 57.0 psf.	-57.0 psf.
Specimen 7 (PA 201 & 203)	Inswing	+ 57.0 psf.	-57.0 psf.

(1) DESCRIPTION OF SERIES:

Model Designation - DoorCraft® Out-swing / In-swing Wood Edge Steel Door (Opaque)

Overall Size -

Out-swing	107.0" wide x 81.25" high x 4.5625" deep
In-swing	107.0" wide x 82.50" high x 4.5625" deep

Configuration - OXXO

No. & Size of Doors - All Specimens

(1) active	36.0" wide x 80.0" high
(1) in-active w/astragal	36.625" wide x 80.0" high
(2) sidelite sash	14.0" wide x 80.0" high

11/29/01

(2) MATERIAL CHARACTERISTICS:

Frame and Door Material - Finger jointed pine jambs and steel panels.

Frame Construction – The out-swing sidelite frames consist of primed finger jointed pine (2) side jambs (1) sash head jamb and (1) sash bottom jamb all measuring 1.25" wide x 4.5625" deep. The head and bottom jambs are joined to the side jambs with (3) 16 ga. 2" wire staples with a 7/16" crown at each corner. The in-swing sidelite frame utilizes an aluminum threshold measuring 4.5625" deep x 1.125" high. The aluminum threshold is attached to the wood sidelite jambs with (3) 16 ga. 2" wire staples with a 7/16" crown at each end. The double door frames consist of (2) side jambs measuring 1.25" wide x 4.5625" deep and each are mortised for three 4.0" butt hinges at 7.375", 38.375" and 69.375" from the top of jamb. The head jamb is 1.25" wide x 4.5625" deep and is attached to the side jambs at each end with (3) 16 ga. 2" wire staples with a 7/16" crown. The out-swing frame utilizes an aluminum bump threshold by Pemko measuring 4.041" wide x 1.0" high kerfed to receive compression weather-stripping. The threshold was attached to the side jambs with (3) 16 ga. 2" wire staples with a 7/16" crown at each end. The in-swing frame utilizes a sloped adjustable aluminum threshold measuring 4.562" wide x 1.173" high. The threshold was attached to the side jambs with (3) 16 ga. 2" wire staples with a 7/16" crown at each end. The frames had a pressure treated stiffener between the door frame and sidelite frame measuring 0.75" thick x 4.563" wide. The wood was sealed between the jambs with silicone caulking. Each sidelite frame was attached to the door frame with (6) #8 x 2.5" Phillips flat head wood screws, six from the door frame to the sidelite frame at 6.0" from each end and four equally spaced on the field.

Panel Construction: The active and inactive door panels are 1.75" thick overall and constructed from (2) 24 ga. (0.020") thick galvanized steel skins with roll formed edges to receive the 1.67" wide x 1.0" thick wood stiles (strike is LVL and hinge is finger jointed Ponderosa Pine). The tops of the steel panels are bent at a ninety-degree angle to overlap 0.25" the 1.67" wide x 1.042" thick wood LVL top rail. The bottoms of the steel panels are bent at a ninety-degree angle to overlap 0.25" the bottom rail. The bottom rail is 0.021" 1.67" wide x 1.21" high-galvanized steel roll formed to receive door bottom sweeps when required. The corners of the side stiles are mitered and butted to the top rail and fastened with (1) 0.5" crown x 2.0" long wire staple at each corner. The bottom rail has a 1.645" x 3.0" long by 0.831" piece of pressed fiber board in each corner of the steel bottom which is butted to the side stiles and secured with (1) 0.5" x 2.0" wire staple at each corner. The interior cavity of each door is filled with polystyrene (1.0 to 1.25lb. density) as stated and manufactured by JELD-WEN, INC.. The steel face sheets are interlocked with the stiles and rails and glued to the expanded polystyrene core. All specimens door panels are reinforced with a one piece finger jointed pine wood lock block measuring 4.0" wide x 11.875" high x 1.71" thick, located at 32.0" from the bottom of the door panel on the latch side. Specimens # 1,2,3,4, 5 the inactive door is affixed with an extruded aluminum astragal (Windjamber II) kerfed to receive weather-stripping. The astragal had integral channels to receive (2) cold rolled steel rods at the top and (2) cold rolled steel rods at the bottom. The rods are 0.312" diameter x 8" long. The bolts extend 2" beyond the end of the astragal when engaged. The astragal is attached to the panel with (8) # 8 x 1" Phillips flat head wood screws located 1", 3", 5"from the top of door panel, 1",3",5", 20" & 38.75" from the bottom of the door panel. Specimens 6 & 7 the inactive door is affixed with an extruded aluminum astragal (Imperial) kerfed to receive weather-stripping. The astragal has integral extruded channels to receive (1) cold rolled steel rod at the top and (1) cold rolled steel rod at the bottom. The rods are 0.3125" diameter x 9.0" long. The rods are contained within extruded aluminum reinforcements measuring 1.0" wide x 4.5" long x 0.5625" thick. The bolts extend 2.5" beyond the end of the astragal when engaged. The astragal is attached to the panel with (14) #10 x 1.0" Phillips flat head wood screws located at 1.0", 2.5", 4.0", 5.5", 13.0", 18.0" and 26.0" from the top of the astragal down,

P.E
11/29/07

Panel Construction: Cont.
and 1.0", 2.5", 4.0", 5.5", 13.0", 18.0" and 26.0" from the bottom of the astragal up. The center of the astragal is reinforced at the latch and deadbolt area with three extruded aluminum slide bars measuring 1.0" wide x 4.5" long x 0.5625" thick. The strike plate retaining the top astragal bolts for both astragals is secured to the jamb with 2 # 8 x 2.5" phillips flat head screws

Sash Construction: The sash is constructed from (2) 24 ga. (0.020") thick galvanized steel panels with a 0.50" ninety-degree vertical edge glued to an expanded polystyrene core. The steel sash panels are routed to receive lip lite inserts. The sashes are set into the wood sidelite frames against the frame stops secured with 3/8" quarter round. The quarter round is mitered and fitted along the sidelite edges and secured to the wood frame with (22)16 ga. steel brads 0.75" long. The head and sill contained three each at 1.25" from each end and one in the center. The sides contained eight at 1.25" from each end and six equally spaced on the field. When the sidelite sash was being used with an in-swing unit the sash utilized an extruded vinyl boot interlocked with compression fit and adhered to the threshold CRL 33C silicone adhesive as stated by MFG.

Glazing: All Specimens - (2) Sidelite sash - ODL plastic lip lite (Spartech Polycom PP5530 C13) The glass is PPG 0.125" tempered glass (identified by BUG), with a .500" glass bite.

Glazing Method – The sashes are sandwich glazed into the steel panels with (16) #8 x 1.50" self tapping screws, two in the top and bottom member at 3.0" from each end, six in each side member at 3.0", 13.0", 26.0", 39.0", 52.0", and 63.0"from top of the lite frame. The exterior surfaces were sealed with QSD glazing compound by ODL as stated by MFG.

Daylight Opening - 6.0" wide x 63.125" high

Weather-stripping - Out-swing - Schlegel Q-lon QDS 650 (1) piece length of head jamb, (1) piece length of aluminum bump threshold, (1) piece length of each side jamb and (1) piece length of astragal threshold. (3) Schlegel corner pads, one at the bottom of each side jamb at the threshold and one at the bottom of the astragal at the threshold.

In-swing - Schlegel Q-lon QDS 650 (1) piece length of head jamb, (1) piece length of each side jamb and (1)piece length of astragal. (3) Schlegel corner pads one at the bottom of each side jamb at the threshold and one at the bottom of the astragal at the threshold. (2) four fin vinyl bottom sweeps one each fitted into the kerfed bottom rail.

Hardware -

Specimens 1, 3, & 4
(1) Kwikset 400 Latchbolt @ 36" from bottom of panel
(1) Kwikset Titan 780 Deadbolt @ 41.5" from bottom of panel
(3 pair) Hager 4" butt type hinge
Located at 7.375", 38.375", and 69.375" from the top of each hinge jamb

Specimen 2 & 6
(1) Yale Latchbolt @ 36" from bottom of panel
(1) Yale Deadbolt @ 41.5" from bottom of panel
(3 pair) Hager 4" butt type hinge
Located at 7.375", 38.375", and 69.375" from the top of each hinge jamb

11/09/10

Hardware – Cont.

Specimen 5 & 7 (1) Schlage Latchbolt @ 36" from bottom of panel
(1) Schlage Deadbolt @ 41.5" from bottom of panel
(3 pair) Hager 4" butt type hinge
Located at 7.375", 38.375", and 69.375" from the top of each hinge jamb

Weepholes - None

Muntins - None

Reinforcement - None

Sealant - Latex caulking as needed to seal unit into rough opening. All hairline cracks were silicone.
All four frame corners and Schlegel Q-lon corners were silicone

Additional Description -
All specimens were installed in a wood test buck. Specimen # 2 utilized a 1.0" x 1.0" aluminum "L" Channel attached to the inner side of the in-swing threshold to achieve 2.86 psf water test.

(3) INSTALLATION:

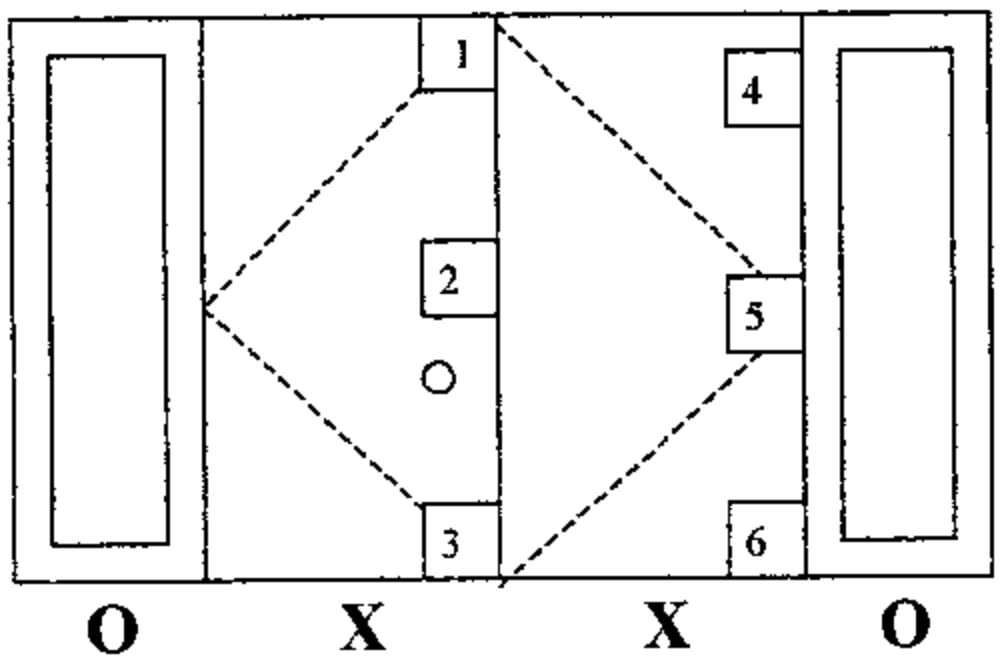
Screws and Method of Attachment – 22 - #8 x 2.5" Phillips flat head wood screws located as follows:

Side jambs – One (1) @ 6.0" from each vertical end and 4 equally spaced on field
Side Lite Head Jambs – One (1) @ 3.0" from each horizontal end
Door Head Jamb – One (1) @ 6.0" from each horizontal end and 4 equally spaced on field

Screws and Method of Attachment – 10 - #8 x 2.5" Phillips flat head wood screws located as follows:

Door sill – One (1) @ 6.0" from each horizontal end and 4 equally spaced on field
Side Lite sills – One (1) @ 3.0" from each horizontal end

(4) SEQUENCE OF TESTS PERFORMED



11/29/17

Deflection was measured with six (6) CDI 5" dial indicators: location #1-SN 980369793, location #2-SN 982539158, location # 3 SN 993413561, location # 4 SN 001516615, location # 5 SN 00279570, location # 6 SN 002644132
Location # 2 was subtracted from locations # 1,and 3.
Locations # 4and 6 were average out divided by two then subtracted from location # 5.

Test Results:

Test Sequence: PA 202

1. Air Infiltration
2. ½ Test Pressure Positive
3. ½ Test Pressure Negative
4. Design Pressure Positive
5. Design Pressure Negative
6. Water Infiltration Positive Direction
7. Full Test pressure Positive
8. Full Test Pressure Negative
9. Forced Entry

AIR INFILTRATION

Air Infiltration Tests were conducted in accordance with DCBCCD PA 202-94

Air at 1.57 psf		Actual	Allowable
Specimen 1	Out-swing	0.02 CFM/SQ FT	0.34 CFM/SQ FT
Specimen 2	In-swing	0.01 CFM/SQ FT	0.34 CFM/SQ FT
Specimen 6	Out-swing	0.01 CFM/SQ FT	0.34 CFM/SQ FT

WATER INFILTRATION TEST

Water Infiltration Test was conducted in accordance with DCBCCD PA 202 – 94

Specimen 1	Out-swing	Water @ 10.0 psf for 15 min.	Result: No water penetration over sill
Specimen *2	In-swing	Water @ 2.86 psf for 15 min.	Result: No water penetration over sill
Specimen 6	Out-swing	Water @ 8.55psf for 15 min.	Result: No water penetration over sill

* Water achieved with add on reservoir

STATIC AIR PRESSURE TESTS

Static Tests were conducted in accordance with DCBCCD PA 202-94

Design Loads +70.0 psf, - 70.0 psf. Specimen 1 (Out-swing)

Range of test Positive loads	time (seconds)	actual load psf		deflection	perm. set
1/2 Test	30	52.5			
Design	30	70.0	Mullion (3)	0.338"	N/A

11/29/10

Specimen 1 (Out-swing) Cont.

Test	30	105.0	Door (1)	0.324"	0.022"
			Door (2)	0.431"	0.046"
			Mullion (3)	0.518"	0.062"

Range of test Negative loads	time (seconds)	actual load psf	deflection		perm. set
1/2 Test	30	52.5			
Design	30	70.0	Mullion (3)	0.265"	N/A
Test	30	105.0	Door (1)	1.240"	0.230"
			Door (2)	0.787"	0.049"
			Mullion (3)	0.428"	0.033"

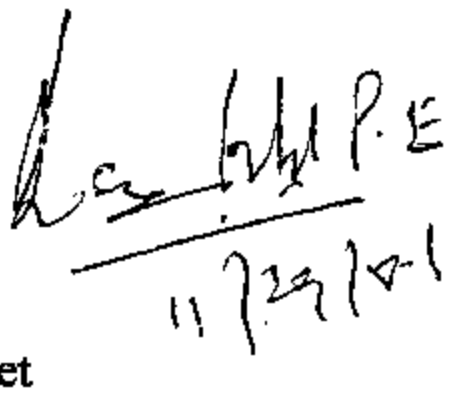
Mullion – max allowable deflection at design is (L / 180) 81.25 / 180 = 0.451"
Mullion – max allowable set after test load is (.4% x L) .004 x 81.25 = 0.325"
Door – max allowable set after test load is (.4% x L) .004 x 80.00 = 0.320"

Design Loads + 70.0 psf, - 70.0 psf. Specimen 2 (In-swing)

Range of test Positive loads	time (seconds)	actual load psf	deflection		perm. set
1/2 Test	30	52.5			
Design	30	70.0	Mullion (3)	0.375"	N/A
Test	30	105.0	Door (1)	1.972"	0.028"
			Door (2)	2.221"	0.128"
			Mullion (3)	0.706"	0.090"

Range of test Negative loads	time (seconds)	actual load psf	deflection		perm. set
1/2 Test	30	52.5			
Design	30	70.0	Mullion (3)	0.386"	N/A
Test	30	105.0	Door (1)	0.954"	0.142"
			Door (2)	0.576"	0.220"
			Mullion (3)	0.932"	0.285"

Mullion – max allowable deflection at design is (L / 180) 82.50 / 180 = 0.458"
Mullion – max allowable set after test load is (.4% x L) .004 x 82.50 = 0.330"
Door – max allowable set after test load is (.4% x L) .004 x 80.00 = 0.320"



Design Loads + 57.0 psf, - 57.0 psf. Specimen 6 (Out-swing)

Range of test Positive loads	time (seconds)	actual load psf	deflection		perm. set
1/2 Test	30	42.75			
Design	30	57.0	Mullion (3)	0.226"	N/A
Test	30	85.5	Door (1)	0.581"	0.021"

Specimen 6 (Out-swing) Cont.

			Door (2)	0.463"	0.008"
			Mullion (3)	0.381"	0.021"

Range of test	time	actual load	deflection		perm. set
Negative loads	(seconds)	psf			
1/2 Test	30	42.75			
Design	30	57.0	Mullion (3)	0.189"	N/A
Test	30	85.5	Door (1)	1.582"	0.180"
			Door (2)	1.532"	0.212"
			Mullion (3)	0.344"	0.042"

Mullion – max allowable deflection at design is (L / 180) 81.25 / 180 = 0.451"
Mullion – max allowable set after test load is (.4% x L) .004 x 81.25 = 0.325"
Door – max allowable set after test load is (.4% x L) .004 x 80.00 = 0.320"

FORCED ENTRY TEST

Forced Entry Test was conducted in accordance with DCBCCD PA 202-94

Specimen	Size	Time	Result
Specimen 1	36.0" wide x 80.0" high	30 seconds	(Door remained locked & shut)
Specimen 2	36.0" wide x 80.0" high	30 seconds	(Door remained locked & shut)
Specimen 6	36.0" wide x 80.0" high	30 seconds	(Door remained locked & shut)

NOTE: Active door panel remained engaged and was operable before and after all tests.

IMPACT TEST – LARGE MISSILE

Impact tests were conducted in accordance with DCBCCD PA 201-94.

Note:

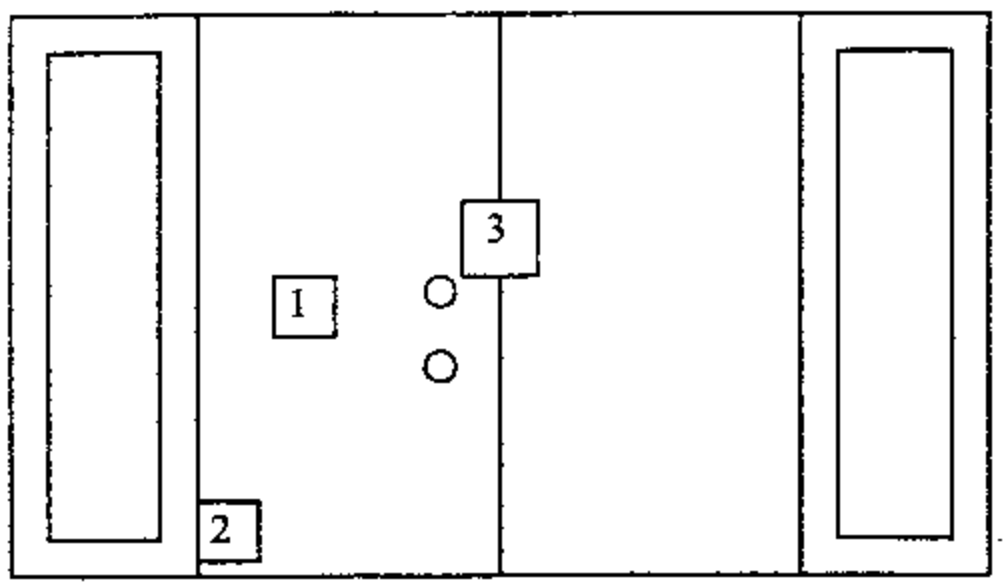
X measurement from left edge of specimen.
Y measurement from bottom edge of test specimen.

Type and weight of missile: # 2 Southern Yellow Pine 2x4, Length approx. 89-5/16" & 9 lb.

11/29/10

Impact Large Missile Cont.

Specimens 3 & 4



O X X O

Specimen 3 **(Out-swing)**

Impact No.	Impact loc.	Speed Ft/Sec.	X Meas.	Y Meas.
1.	1.	50.1	36.0"	43.0"
2.	2.	50.0	23.5"	73.0"
3.	3.	50.2	53.0"	32.75"

None of the impacts penetrated the specimen and all locks remained engaged.

Specimen 4 **(Out-swing)**

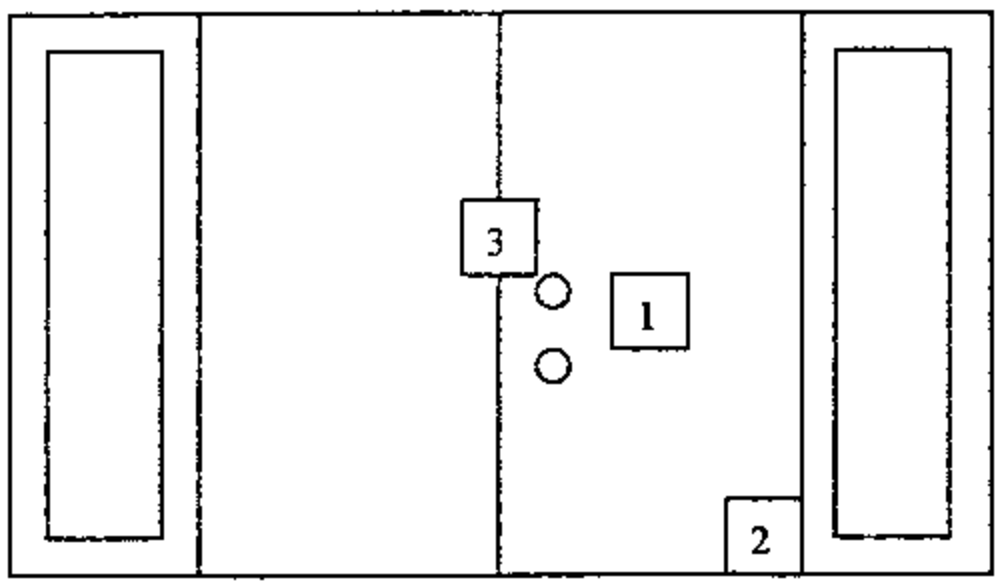
Impact No.	Impact Loc.	Speed Ft/Sec.	X Meas.	Y Meas.
1.	1.	50.0	34.25"	40.5"
2.	2.	50.2	24.0"	73.0"
3.	3.	50.1	53.0"	33.0"

None of the impacts penetrated the specimen and all locks remained engaged.

11/29/00

Impact Large Missile Cont.

Specimens 5 & 7 (In-swing)



O X X O

Specimen 5

Impact No.	Impact Loc.	Speed Ft/Sec.	X Meas.	Y Meas.
1.	1.	50.2	70.25"	41.0"
2.	2.	50.1	82.5"	74.0"
3.	3.	49.9	52.5"	34.0"

None of the impacts penetrated the specimen and all locks remained engaged.

Specimen 7

Impact No.	Impact Loc.	Speed Ft/Sec.	X Meas.	Y Meas.
1.	1.	50.3	70.5"	42.0"
2.	2.	50.0	83.0"	74.0"
3.	3.	50.1	53.0"	36.0"

None of the impacts penetrated the specimen and all locks remained engaged.

11/29/01

FATIGUE LOADING TEST

Cycle tests were conducted in accordance with DCBCCD PA 203

Specimen 3

Design Load psf = + 70.0 psf, - 70.0 psf

Positive loads

Range of Test	# Cycles	Load	Cycles/Min.
.0 to 0.5	600	35 PSF	56
.0 to 0.6	70	42 PSF	56
.0 to 1.3	1	91 PSF	

671 cycles completed

Negative Loads

Range of Test	# Cycles	Load	Cycles/Min.
.0 to 0.5	600	35 PSF	56
.0 to 0.6	70	42 PSF	56
.0 to 1.3	1	91 PSF	

671 cycles completed

Specimen showed no resultant failure or duress after cycle test. No failure of fasteners. Locks remained engaged. There were no cracks longer than 5" x 1/16" through which air could pass observed. The door was operable at end of test.

Specimen 4

Design Load psf = + 70.0 psf, - 70.0 psf

Positive loads

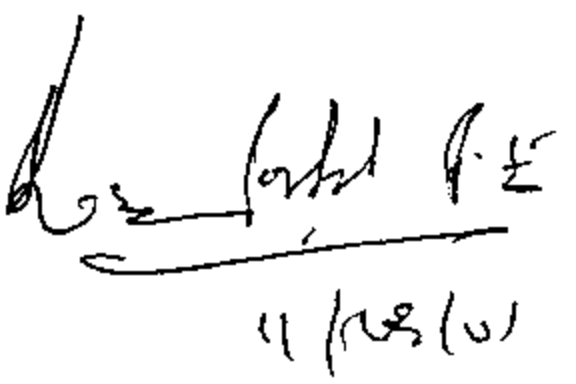
Range of Test	# Cycles	Load	Cycles/Min.
.0 to 0.5	600	35 PSF	56
.0 to 0.6	70	42 PSF	56
.0 to 1.3	1	91 PSF	

671 cycles completed

Negative Loads

Range of Test	# Cycles	Load	Cycles/Min.
.0 to 0.5	600	35 PSF	56
.0 to 0.6	70	42 PSF	56
.0 to 1.3	1	91 PSF	

671 cycles completed



Fatigue Loading Test Cont.

Specimen showed no resultant failure or duress after cycle test. No failure of fasteners. Locks remained engaged. There were no cracks longer than 5" x 1/16" through which air could pass observed. The door was operable at end of test.

Specimen 5

Design Load psf = + 70.0 psf, - 70.0 psf

Positive loads

Range of Test	# Cycles	Load	Cycles/Min.
.0 to 0.5	600	35 PSF	56
.0 to 0.6	70	42 PSF	56
.0 to 1.3	1	91 PSF	

671 cycles completed

Negative Loads

Range of Test	# Cycles	Load	Cycles/Min.
.0 to 0.5	600	35 PSF	56
.0 to 0.6	70	42 PSF	56
.0 to 1.3	1	91 PSF	

671 cycles completed

Specimen showed no resultant failure or duress after cycle test. No failure of fasteners. Locks remained engaged. There were no cracks longer than 5" x 1/16" through which air could pass observed. The door was operable at end of test.

Specimen 7

Design Load psf = + 57.0 psf, - 57.0 psf

Positive loads

Range of Test	# Cycles	Load	Cycles/Min.
.0 to 0.5	600	29 PSF	56
.0 to 0.6	70	34 PSF	56
.0 to 1.3	1	74 PSF	

671 cycles completed

Negative Loads

Range of Test	# Cycles	Load	Cycles/Min.
.0 to 0.5	600	29 PSF	56
.0 to 0.6	70	34 PSF	56
.0 to 1.3	1	74 PSF	

671 cycles completed

P.E

11/22/14

Fatigue Loading Test Cont.

Specimen showed no resultant failure or duress after cycle test. No failure of fasteners. Locks remained engaged. There were no cracks longer than 5" x 1/16" through which air could pass observed. The door was operable at end of test.

(5) DRAWINGS TO BE SUBMITTED:

1. CTL-0001 (sheet 1 of 1) CTL-0001A (sheet 1 of 1)
2. L-2104 (sheets 1 through 11 of 11)
3. Kwikset series 400 knob set spec. sheet
4. Kwikset Titan series 780 deadbolt spec. sheet
5. L-2104-A (sheets 1 of 1)
6. Yale Heritage Series lockset spec. sheet
7. Yale Heritage Series deadbolt spec. sheet
8. Schlage lockset F51 spec. sheet
9. Schlage deadbolt B360 spec. sheet

Comment: Nominal 2-mil polyethylene film was used to seal against leakage during structural loads. The film was used in a manner that did not influence the test results.

Remarks: The results obtained and reported apply only to the specimens tested.

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 CTL for a period of ten (10) years. The results obtained apply only to the specimen tested.

This test report does not constitute certification of this product, but only that the above test results were obtained using the designated test methods and they indicate compliance with the performance requirements (paragraphs as listed) of the above referenced specifications.

Certified Testing Laboratories assumes that all information provided by the client is accurate and that the physical and chemical properties of the components are as stated by the manufacturer.

Observers

Brett Carroll – Product Testing Specialist, Jeld-Wen, Inc.
John Singer – Product Testing Specialist, Jeld-Wen, Inc.
Rick Wright – Consultant, R.W. Building Consultants, Inc.

11/29/07

Dade County Witness:

Not present

All Tests Certified and Witnessed by

Ramesh Patel, P.E.
Chris Bennett, CTL
Ted Scanlon, CTL

Ramesh Patel, P.E.
Florida Reg. # 20224

Certified Testing Laboratories, Inc.

Christopher Bennett
Laboratory Manager
Architectural Division

Cc: Jeld-Wen, Inc (2)
Rick Wright (2)
Ramesh Patel (1)
File (1)