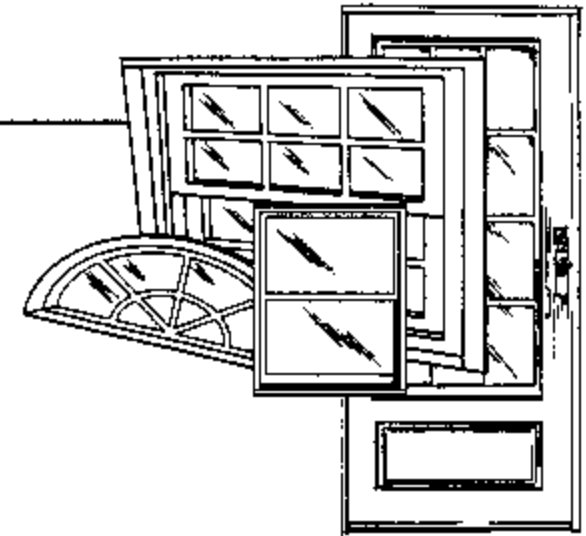


CERTIFIED TESTING LABORATORIES

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.: CTLA-816W

DC Not. No.:02002

Date: January 25, 2002

CTL Certification # 99-0105.02

Test Dates: January 14,
15 & 16 2002

Test Requested By - Taylor Building Products
631 North First Street
West Branch, MI 48661
Phone: 989.345.5110

Tests Conducted: PA 202 (with no deviations)

Design Pressures - Specimen 1 (PA 202)	Out-swing w/surface bolts	+ 60.0 psf. - 60.0 psf.
Specimen 2 (PA 202)	In-swing w/surface bolts	+ 55.0 psf. - 60.0 psf.
Specimen 3 (PA 202)	Out-swing w/surface bolts	+ 60.0 psf. - 60.0 psf.
Specimen 4 (PA 202)	Out-swing w/surface bolts	+ 60.0 psf. - 60.0 psf.

(1) DESCRIPTION OF SERIES:

Model Designation - Specimens 1, 2, 3 & 4 - Uni-Door Steel Door W/Steel Edge Out-swing / In-swing Glazed Double Door W/14" Sidelites

Overall Size - Specimens 1, 3 & 4	Out-swing	107.0" wide x 96.875" high x 4.5625" deep
Specimen 2	In-swing	107.0" wide x 97.375" high x 4.5625" deep

Configuration - OXXO

No. & Size of Doors - Specimens 1, 2, 3 & 4	(1) active	35.625" wide x 95.0" high
	(1) inactive w/ astragal	36.375" wide x 95.0" high
	(2) sidelite sash	13.75" wide x 95.0" high

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(2) MATERIAL CHARACTERISTICS:

Frame and Door Material – Finger jointed pine head jambs, hinge jambs and sidelite blank jambs. 24ga. (0.021" min.) galvanized steel face sheet door panels and sidelite sashes.

Frame Construction – The double door frames consist of (2) hinge jambs and (1) header. The header and hinge jambs are finger jointed pine (stated by mfg.) measuring 4.625" x 1.25". The header jamb and hinge jambs are mortised butted and joined using (4) # 8 x 2 1/2" long deck screws at each corner. Both hinge jambs are mortised for four 4.0" butt hinges at 8.5", 33.75", 59.0" (this hinge was not used for testing) and 84.25" from the top of jamb down. The out-swing frame, Specimens 1, 3 & 4 utilized an aluminum bump high dam threshold by Imperial measuring 5.25" deep x 1.75" high kerfed to receive compression weather-stripping. The threshold was attached to the side jambs with (3) # 8 x 2 1/2" deck screws at each side. The in-swing frame, Specimen 2 utilized a sloped adjustable aluminum/oak threshold measuring 4.75" wide x 1.125" high by Imperial. The threshold was attached to the side jambs with (3) # 8 x 2 1/2" deck screws at each side. The sidelite frame consisted of two blank side jambs and one head jamb, measuring 1.25" wide x 4.5625" deep. The head jamb is attached to the side jambs at each end with (4) # 8 x 2 1/2" deck screws at each side. Specimens 1 & 3 (out-swing units) used an aluminum bump high dam threshold by Imperial measuring 5.25" deep x 1.75" high kerfed to receive compression weather-stripping, which is attached to the side jambs at each end with (3) # 8 x 2 1/2" deck screws at each side. Specimen 4 (out-swing unit) used a head jamb for the sill. The sill and side jambs are mortised and butted and attached with (4) #8 x 2 1/2" deck screws at each side. Specimen 2 (in-swing unit) used a sloped aluminum threshold by Imperial measuring 4.75" wide x 1.125" high with a vinyl sidelite bottom seal by Imperial. The threshold was attached to the side jambs with (3) # 8 x 2 1/2" deck screws at each side. The frame system has a pressure treated reinforcement spacer measuring 4.5625" wide by 1.25" thick. Both the sidelite frame and door frame are glued to the reinforcement spacer with a structural silicone adhesive and secured with (6) 1.0" x 1/2" corrugated fasteners, on the exterior and interior sides of both frame. The fasteners on one frame are spaced at 3.5", 21.0", 40.0", 57.5", 75.5" and 93.5" from the top of the frame down and the fasteners on the other frame are spaced 4.0", 21.5", 40.5", 58.0", 76.0" & 94.0" from the top of the frame down. The door frame is screwed to the reinforcement spacer and sidelite frame with (6) #10 x 3.0" Phillips flathead wood screws spaced 6.0" from both vertical corners with (4) more equally spaced on the field.

Panel Construction: The door panels are constructed from 24ga. (0.021" min.) galvanized steel face sheets. The steel edges are an extension of the face sheets. Both face sheets have one vertical edge with a 90° bend 1.72" long with a second 90° bend down at 0.25" long. The opposite edge of the face sheets has a 90° bend 0.50" long. The horizontal edges of both face sheets have one edge with a 102° bend and the second edge has a 90° bend down at 0.188" long a second bend up at 90° x 0.20" long and a third bend down at 90° x 0.375" long. When the face sheets are assembled together the roll formed edges create a mechanical interlock. Each horizontal edge is spot welded together in (2) places. The latch stile is reinforced at the strike and deadbolt location with a solid pine lock block measuring 1.70" thick x 4.0" wide x 16.5" long located 36.25" up from the bottom of the panel. The hinge stile is reinforced with (4) adjustable steel hinge plates, each measuring 1.192" wide x 5.688" long x 0.112" thick. The center of the hinge plates are located 10.469", 35.719", 60.969" and 86.219" from the top of the panel down. The interior cavity of each panel is filled with a polyurethane foam core, Baytherm 860 Rigid Foam, with 2.1lbs density (as stated by manufacture) by Bayer Corp. The lite opening of all the door panels is reinforced with a "U" lite opening reinforcement. The reinforcement is roll formed steel 0.032" thick measuring 1.7" x 0.75". The "U" reinforcement is place in the lite opening with the opened side of the "U" facing in toward the foam core. The inactive panel of Specimens 1, 2, 3 & 4 was affixed with an extruded aluminum astragal (Genesis 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 8.0" long at the bottom and 17.0" long at the top. The bolts extend 2" beyond the end of the

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Panel Construction Cont.:

astragal when engaged. The astragal is attached to the inactive panel with (9) # 8 x 1" Phillips pan head wood screws located 1", 3", 5" from the top of door panel, 1", 3", 5", 24.0", 44.5" & 65.0" from the bottom of the door panel. The active panel of Specimens 1, 2, 3 & 4 was affixed with (2) each 8.0" surface bolts, Ives # 454. There was (1) bolt at the top and (1) at the bottom located 2.5" from the edge of the door panel to the center of the bolt and 1.0" up from the bottom and 1.0" down from the top of the panel to the first attachment holes. The surface bolts were attached to the active panel with (4) 3/16" sexbolts with 10-24 x 1 1/2" long screw. The out-swing units, used a 0.75" wide x 0.5" thick x 2.875" long plastic spacer under each bolt mounting bracket. The door bottom of each panel in the in-swing application is fitted with a door sweep retainer which is spot welded to the door bottom. The door bottom retainer is 0.033" thick roll formed steel. The vinyl door bottom sweep is slid onto the door bottom retainer.

Sash Construction: - The sidelite sashes are constructed from 24ga. (0.021" min.) galvanized steel face sheets. The top and bottom rails and the side stiles are wood measuring 0.655" thick x 1.722" wide. The side stile is butted to the top and bottom rails. The top and bottom rails are secured to the side stiles with (2) 0.50" crown x 1.5" long wire staples. The vertical edges of the face sheet are flush with the top and bottom wood rail. The horizontal edges of the face sheet are bent 90° x 0.555" over the side stiles. The interior cavity of each sash is filled with a Polystyrene foam core, 1.0lbs density. The lite opening of all the sidelite sashes is reinforced with a "U" lite opening reinforcement. The reinforcement is roll formed steel 0.032" thick measuring 1.7" x 0.75". The "U" reinforcement is place in the lite opening with the opened side of the "U" facing in toward the foam core.

Glazing: - Specimens 1 & 4 - (2) door panels & (2) sidelite sash - PVC lip lite frame by RSL with 0.50" insulated tempered glass (identified by BUG) - 0.125" tempered glass - 0.25" air space - 0.125" tempered glass with 0.50" glass bite.

Specimen 2 - (2) door panels & (2) sidelite sash - PVC lip lite frame by RSL with 1.0" insulated tempered glass (identified by BUG) - 0.125" tempered glass - 0.75" air space - 0.125" tempered glass with 0.50" glass bite.

Specimen 3 - (2) door panels & (2)-sidelite sash - PVC lip lite frame by RSL with 0.125" tempered glass (identified by BUG) with 0.50" glass bite.

Glazing Method: - The door panels & sidelite sashes are sandwich glazed into the steel panels with #8 x 1.5" panhead lite frame screw, spaced as follows:

Door panels Specimens 1, 2, 3 & 4 (22) - (3) screws top and bottom (1) screw at 3.75" in from each horizontal corner with (1) more on the frame center line. Sides (8) screws from the top vertical corners down at, 4.5", 14.75", 25.0", 35.5", 46.25", 56.75", 67.0" & 77.25"

- Sidelite sash Specimens 1, 2, 3 & 4 (20) - (2) screws top and bottom 2.5" in from each horizontal corner. Sides (8) screws from the top vertical corners down at, 4.5", 14.75", 25.0", 35.5", 46.25", 56.75", 67.0" & 77.25"

All exterior and interior sides of the lite frame are wet glazed with Dow #995 silicone.

Daylight Opening - Specimen 1, 2, 3 & 4 Door panel - 21.0" wide x 78.875" high
Specimen 1, 2, 3 & 4 Sidelite sash - 7.0" wide x 78.875" high

Weather-stripping - Specimens 1& 4 out-swing - Schlegel Q-lon QDS 650 (1) piece length of head jamb, (1) piece length of the out-swing threshold, (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.

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Weather-stripping con't

- Specimen 2 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 on each panel fitted onto the door sweep retainer.
- Specimen 3 out-swing - Holm Industries JF65 (1) piece length of head jamb, (1) piece length of the out-swing threshold, (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.

Hardware -

- Specimens 1, 2, 3, & 4 (1) Kwikset 700 series Passage latch @ 56.0" from top of panel
(1) Kwikset Titan 700 Deadbolt @ 45.0" from top of panel
(6) Hager 4" butt type hinges located at 6.3125", 37.5" and 68.6875"
(2) Ives #454 surface bolts (Active door panel). (1) at top & (1) at the bottom

- Weepholes -** None
Muntins - None
Reinforcement - None

- Sealant -** Silicone caulking as needed to seal unit into rough opening.
All hairline joints were sealed using silicone caulking.

Additional Description -

All specimens were installed in a wood test buck.

(3) INSTALLATION:

Screws and Method of Attachment -- Specimens 1, 2, 3 & 4 (44) - #10 Phillips flat head wood screws located as follows:

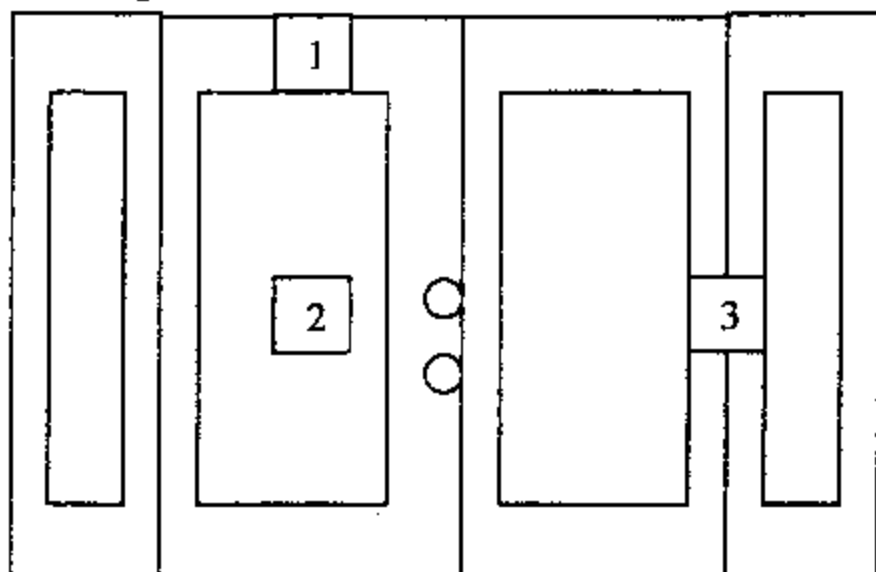
- (6 #10 x 2 1/2") Side jambs to buck - (1) @ 6.0" from each vertical end and (4) more equally spaced on field.
- (8 #10 x 2 1/2") Door Head Jamb - @ 2.5", 5.5", 18.25", 37.0", 43.0", 55.75", 68.5" & 71.5" from the left side of the frame going to the right
- (8 #10 x 3.0") Out-swing door threshold (High dam Imperial) - @ 2.5", 5.5", 18.25", 37.0", 43.0", 55.75", 68.5" & 71.5" from the left side of the frame going to the right
- (8 #10 x 2 1/2") In-swing door threshold - @ 2.5", 5.5", 18.25", 37.0", 43.0", 55.75", 68.5" & 71.5" from the left side of the frame going to the right
- (4 #10 x 2 1/2") Sidelite head jamb - From the outside corner going in @ 6.0", 7.25", 10.25" & 13.0"
- (4 #10 x 3.0") Specimens 1 & 4 out-swing sidelite sill with High dam Imperial threshold under sidelite - From the outside corner going in @ 6.0", 7.25", 10.25" & 13.0"
- (4 #10 x 2 1/2") Specimen 3 out-swing sidelite sill with head jamb as the sill under the sidelite - From the outside corner going in @ 6.0", 7.25", 10.25" & 13.0"
- (4 #10 x 2 1/2") Specimen 2 in-swing sidelite sill with in-swing threshold under the sidelite - From the outside corner going in @ 6.0", 7.25", 10.25" & 13.0"

Sidelite Attachment: Specimens 1, 2, 3 & 4 - The sidelite is held into the frame with a #8 wood screw, quantity, length and spacing as follows:

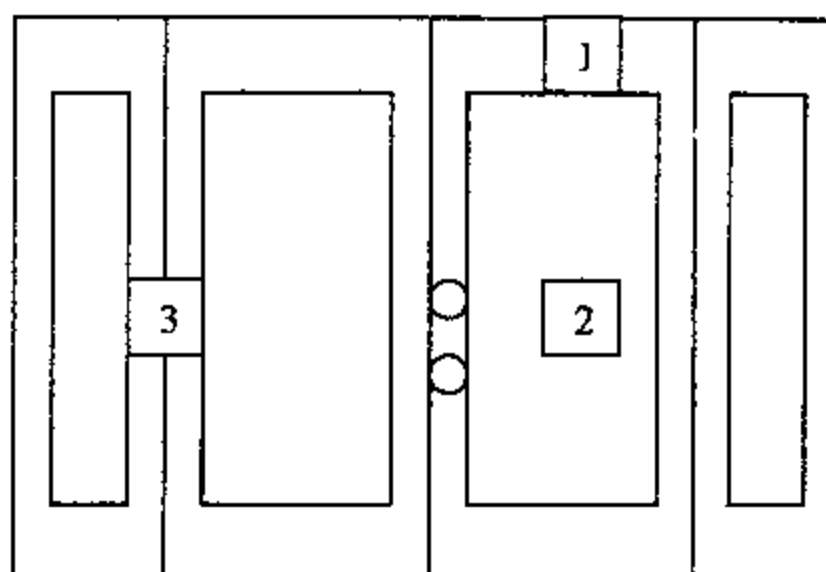
- (2 #8 x 2.0") Header, head jamb as sill & out-swing threshold - (1) screw 3.0" in from each horizontal corner.
- (2 #8 x 2 1/2") In-swing threshold - (1) screw 3.0" in from each horizontal corner.
- (6 #8 x 2.0") Sidelite blank side jambs - (1) screw 6.0" from both vertical corners with (4) more equally spaced on the field.

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(4) SEQUENCE OF TESTS PERFORMED



OXO
Specimen 2 In-swing



OXO
Specimens 1, 3 & 4 Out-swing

Deflection Gauges Set At Boxes 1, 2 & 3 – Measurements were taken with three CDI 5” dial indicators: location # 1 SN993413562, location # 2-SN 001516610, location # 3-SN 982539153

Test Results:

Test Sequence: PA 202

1. Air Infiltration
2. 1/2 Test Pressure Positive
3. 1/2 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

75 MPH EGRESS TEST

Specimens – 1, 2, 3 & 4 were tested to the 75 MPH Egress procedure (paragraph 5.2.2.2, 5.2.2.3) with only the passage lock engaged. There was no water penetration and no structural failure.

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	0.04 CFM/SQ FT	0.34 CFM/SQ FT
Specimen 2	In-swing	0.007 CFM/SQ FT	0.34 CFM/SQ FT
Specimen 3	Out-swing	0.18 CFM/SQ FT	0.34 CFM/SQ FT
Specimen 4	Out-swing	0.08 CFM/SQ FT	0.34 CFM/SQ FT

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WATER INFILTRATION TEST

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

Specimen 1	Out-swing	Water @ 9.00 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 3	Out-swing	Water @ 9.00 psf for 15 min.	Result: No water penetration over sill
Specimen 4	Out-swing	Water @ 9.00 psf for 15 min.	Result: No water penetration over sill

STATIC AIR PRESSURE TESTS

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

Design Loads +60.0 psf, - 60.0 psf. Specimen 1 (Out-swing)

Range of test	time	actual load	deflection	perm. set
Positive loads	(seconds)	psf		
1/2 Test	30	45.00		
Design	30	60.00	Mullion (3) 0.310"	N/A
Test	30	90.00	Door (1) 0.713"	0.049"
			Door (2) 3.805"	0.312"
			Mullion (3) 1.125"	0.254"

Range of test	time	actual load	deflection	perm. set
Negative loads	(seconds)	psf		
1/2 Test	30	45.00		
Design	30	60.00	Mullion (3) 0.332"	N/A
Test	30	90.00	Door (1) 1.371"	0.098"
			Door (2) 3.618"	0.332"
			Mullion (3) 1.013"	0.217"

***All Permanent set numbers are gross numbers**

Mullion – max allowable deflection at design is $(L / 180) 96.875 / 180 = 0.538"$

Mullion – max allowable set after test load is $(.4\% \times L) .004 \times 96.875 = 0.387"$

Door (1) – max allowable set after test load is $(.4\% \times W) .004 \times 35.625 = 0.143"$

Door (2) – max allowable set after test load is $(.4\% \times L) .004 \times 95.0 = 0.380"$

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STATIC AIR PRESSURE TESTS Cont.

Design Loads +55.0 psf, - 60.0 psf. Specimen 2 (In-swing)

Range of test	time	actual load	deflection	perm. set
Positive loads	(seconds)	psf		
1/2 Test	30	45.00		
Design	30	60.00	Mullion (3) 0.153"	N/A
Test	30	82.50	Door (1) 0.806"	0.068"
			Door (2) 3.462"	0.256"
			Mullion (3) 0.417"	0.139"
Range of test	time	actual load	deflection	perm. set
Negative loads	(seconds)	psf		
1/2 Test	30	45.00		
Design	30	60.00	Mullion (3) 0.243"	N/A
Test	30	90.00	Door (1) 0.807"	0.054"
			Door (2) 4.500"	0.338"
			Mullion (3) 0.453"	0.056"

***All Permanent set numbers are gross numbers**

The 1/2 test and design pressures in the positive direction exceeds the design rating for 55psf in the positive direction

Mullion – max allowable deflection at design is $(L / 180) 96.875 / 180 = 0.538"$

Mullion – max allowable set after test load is $(.4\% \times L) .004 \times 96.875 = 0.387"$

Door (1) – max allowable set after test load is $(.4\% \times W) .004 \times 35.625 = 0.143"$

Door (2) – max allowable set after test load is $(.4\% \times L) .004 \times 95.0 = 0.380"$

Design Loads +60.0 psf, - 60.0 psf. Specimen 3 (Out-swing)

Range of test	time	actual load	deflection	perm. set
Positive loads	(seconds)	psf		
1/2 Test	30	45.00		
Design	30	60.00	Mullion (3) 0.316"	N/A
Test	30	90.00	Door (1) 0.871"	0.026"
			Door (2) 3.418"	0.124"
			Mullion (3) 1.123"	0.183"
Range of test	time	actual load	deflection	perm. set
Negative loads	(seconds)	psf		
1/2 Test	30	45.00		
Design	30	60.00	Mullion (3) 0.329"	N/A
Test	30	90.00	Door (1) 0.916"	0.084"
			Door (2) 2.832"	0.220"
			Mullion (3) 0.831"	0.054

***All Permanent set numbers are gross numbers**

Mullion – max allowable deflection at design is $(L / 180) 96.875 / 180 = 0.538"$

Mullion – max allowable set after test load is $(.4\% \times L) .004 \times 96.875 = 0.387"$

Door (1) – max allowable set after test load is $(.4\% \times W) .004 \times 35.625 = 0.142"$

Door (2) – max allowable set after test load is $(.4\% \times L) .004 \times 95.0 = 0.380"$

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STATIC AIR PRESSURE TESTS Cont.

Design Loads +60.0 psf, - 60.0 psf. Specimen 4 (Out-swing)

Range of test	time	actual load	deflection	perm. set
Positive loads	(seconds)	psf		
1/2 Test	30	45.00		
Design	30	60.00	Mullion (3) 0.288"	N/A
Test	30	90.00	Door (1) 0.788"	0.091"
			Door (2) 3.598"	0.304"
			Mullion (3) 0.839"	0.086"

Range of test	time	actual load	deflection	perm. set
Negative loads	(seconds)	psf		
1/2 Test	30	45.00		
Design	30	60.00	Mullion (3) 0.278"	N/A
Test	30	90.00	Door (1) 1.234"	0.096"
			Door (2) 4.463"	0.266"
			Mullion (3) 0.884"	0.187"

***All Permanent set numbers are gross numbers**

Mullion – max allowable deflection at design is $(L / 180) 96.875 / 180 = 0.538"$

Mullion – max allowable set after test load is $(.4\% \times L) .004 \times 96.875 = 0.387"$

Door (1) – max allowable set after test load is $(.4\% \times W) .004 \times 35.625 = 0.142"$

Door (2) – max allowable set after test load is $(.4\% \times L) .004 \times 95.0 = 0.380"$

FORCED ENTRY TEST

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

<u>Specimen</u>	<u>Size</u>	<u>Time</u>	<u>Result</u>
Specimen 1	35.625" wide x 95.0" high	30 seconds	(Door remained locked & shut)
Specimen 2	35.625" wide x 95.0" high	30 seconds	(Door remained locked & shut)
Specimen 3	35.625" wide x 95.0" high	30 seconds	(Door remained locked & shut)
Specimen 4	35.625" wide x 95.0" high	30 seconds	(Door remained locked & shut)

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

(5) DRAWINGS TO BE SUBMITTED:

1. CTL-001 (sheet 1 of 1) CTL-001A (sheet I of 1)
2. L-2216 (sheets 1 through 14 of 14)
3. Kwikset series 700 series knob set spec. sheet
4. Kwikset Titan series 700 deadbolt spec. sheet
5. Holm Industries JF65 weather-strip spec. sheet
6. Schlegel Q-Lon QDS650 weather-strip spec. sheet
7. Ives Surface Bolt #454 Template drawing
8. 4" x 4" Residential Hinge Taylor Door drawing #5175
9. Adjustable Hinge Plate Taylor Door drawing

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 4/16/04

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

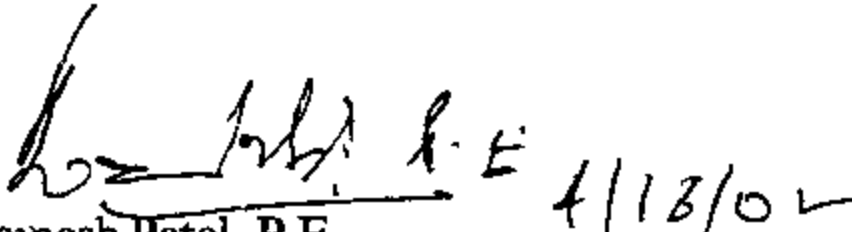
John Swanick - Engineer, Taylor Building Products
Merton Davis - Sales Agent, Davis Sales & Marketing, Inc.
Timothy Hoard - Project Manager, R.W. Building Consultants, Inc.

Dade County Witness:

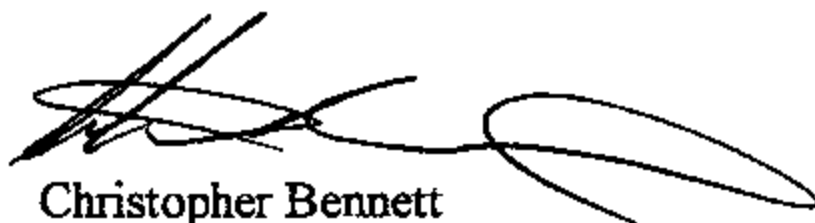
Not present

All Tests Certified and Witnessed by

Ramesh Patel, P.E.
Chris Bennett, CTL
Jeremiah Donahau, CTL


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

Certified Testing Laboratories, Inc.


Christopher Bennett
Laboratory Manager
Architectural Division

Cc: Taylor Building Products (2)
Rick Wright (2)
Ramesh Patel (1)
File (1)