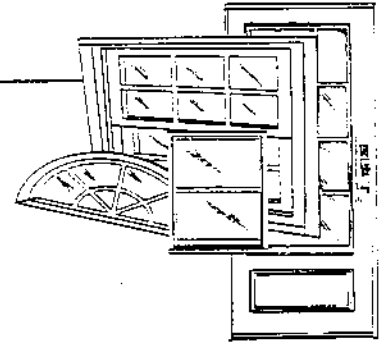


# CERTIFIED TESTING LABORATORIES

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



**Report No.:** CTLA 545W

DC Not. No. 00007

Date: June 6, 2000

CTL Certification # 99-0105.02

Test Dates: May 8 & 9, 2000

**Test Requested By -** STANLEY DOOR SYSTEMS  
7300 Reames Road  
Charlotte, NC 28216  
Phone 704.921.3470      Facsimile 704.921.3462

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

<b>Design Pressures -</b>	Specimen 1, 2 & 3	(PA 201 & PA 203)	Out-swing	+ 60.0 psf.	- 60.0 psf.
	Specimen 4	(PA 202)	Out-swing	+ 50.0 psf.	- 50.0 psf.
	Specimen 5	(PA 202)	Out-swing	+ 50.0 psf.	- 44.0 psf.
	Specimen 6	(PA 202)	Out-swing	+ 55.0 psf.	- 65.0 psf.

## (1) DESCRIPTION OF SERIES:

**Model Designation -** Sta-Tru Out-swing Opaque Wood Edge Steel Door W/Wo Sidelites

### Overall Size -

Specimens 1, 2, 3, 4 & 5 (O/S Bump Threshold) 141.625" wide x 97.625" high x 4.5625" deep  
Specimen 6 (O/S Bump Threshold) 74.625" wide x 97.625" high x 4.5625" deep

**Configuration -** Specimens 1, 2, 3, 4 & 5 OXXO    Specimen 6 XX

**No. & Size of Doors -** Specimens 1, 2, 3, 4 & 5 (opaque door panels w/glazed sidelites)

(1) active                    35.75" wide x 96.0" high  
(1) active w/astragal    36.25" wide x 96.0" high  
(2) sidelite                31.75" wide x 96.0" high

Specimen 6 (opaque door panels without sidelites)

(1) active                    35.75" wide x 96.0" high  
(1) active w/astragal    36.25" wide x 96.0" high

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## (2) MATERIAL CHARACTERISTICS:

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

### **Frame Construction:**

**Wood Jamb** - The head jambs and side jambs are finger jointed ponderosa pine (stated by mfg.) measuring 4.5625" x 1.25" (drawing no. 39637 sheet 7 of 7). The head jamb and side jambs are mortised, butted and joined using (3) 7/8" x 2" wire staples. The threshold tested on all specimens is an Aluminum Out-swing Bump measuring 4.625" x 1.25" (Stanley part and drawing no. 00258).

### **Panel Construction:**

**Steel Door Panel** - The panel is constructed from 0.021" thick galvanized steel skins. The interior cavity of each door is filled with polyurethane foam manufactured by BASF. The steel face sheets are crimped to fit hinge and lock stiles, terminating with a 908 bend. The latch stile is 4.0" x 1.71" LVL material (drawing no. EXP2911-A). The hinge stile is 1.219" x 1.664" ponderosa pine (drawing no. 18493). The top rail is pine measuring 1.68" x 1.22" and the bottom rail is pine measuring 1.68" x 1.0". The bottom rail is reinforced with a steel stiffener (drawing no. 39637 sheet 7 of 7).

**Sidelite Panel Construction:** The panel is 1-3/8" thick and is constructed from (0.021") thick galvanized steel skins. The interior cavity of each sidelite panel is filled with polyurethane foam manufactured by BASF. The steel face sheets are crimped to fit the vertical stiles and horizontal rails. The vertical stiles and top rail measures 1.71" x 1.22". The bottom rail measures 1.68" x 1.0". The rails and stiles are pine.

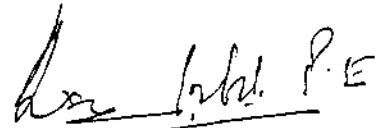
### **Glazing:**

#### **Glazing Material** -

- |              |  |
|--------------|--|
| Specimen 1 - | Side lite sash 1" nominal tempered ins. Glass by ODL (drawing EXP2911)<br>1.0" Actual - (0.125" temp - 0.75" air - 0.125" temp)            |
| Specimen 2 - | Side lite sash 1/2" nominal tempered ins. Glass by ODL (drawing EXP2911)<br>0.49" Actual - (0.125" temp - 0.24" air - 0.125" temp)         |
| Specimen 3 - | Side lite sash 1" nominal tempered ins. Glass by Trinity (part no. 460)<br>1.0" Actual - (0.125" temp - 0.75" air - 0.125" temp)           |
| Specimen 4 - | Side lite sash 1/2" nominal tempered ins. Glass by Trinity (part no. 460)<br>0.5" Actual - (0.125" temp - 0.25" air - 0.125" temp)         |
| Specimen 5 - | Side lite sash 1/2" nominal tempered ins. Glass by Western Reserve (part no. 461)<br>0.5" Actual - (0.125" temp - 0.25" air - 0.125" temp) |

**Glazing Method** - The glass was interior and exterior wet glazed with GE II silicone. The lite frame was then mounted into a routed opening in the respective panels and secured with (18) #8 x 1.25" tech screws. The lite frame material is polypropylene by each individual manufacturer (see drawing no 39637 sheet 2 of 7).

**Daylight Opening** - All Specimens Sidelite Panel - 21.125" wide x 79.125" high



**Weather-stripping** -

Specimens 1,2 & 3 Schlegel Q-Lon, QDS 650 Compression (1) row header, (1) row sill, (1) row length of each leg jamb and (1) row length of astragal  
Specimens 4 & 5 Schlegel Q-Lon, QDS 650 Compression (1) length of each leg jamb, Schlegel TPE magnetic (1) row header, (1) row sill, and (1) row length of astragal (drawing no. 250465 and 250469).  
All Specimens Schlegel Q-Lon foam pad (1) @ each corner of jamb @ threshold. ¼" x ¼" foam tape applied at a 45° angle above corner pad on jamb to form watershed.

**Hardware** - All Specimens (1) Kwikset 200 Latchbolt @ 38.75" from bottom of panel.  
(1) Kwikset 660 Deadbolt @ 47.75" from bottom of panel.  
(6) Three 4" butt type hinges @ 9.0", 35.0" and 87.0" from bottom of door panel (drawing no. 07728).  
Specimens 1,3 & 5 (1) Imperial Aluminum Astragal (drawing no. 2911E 1 and 2)  
Specimens 2, 4 & 6 (1) *Windjammer II* Aluminum Astragal (drawing no. 39637 sheet 7 of 7)

**Weepholes** - None

**Muntins** - None

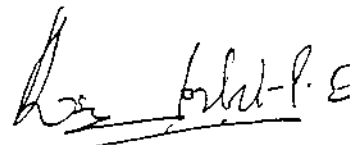
**Reinforcement** - None

**Sealant** - Latex caulking as needed to seal unit into rough opening.

**Additional Description** -

All specimens were installed in a wood test buck.

Specimen 1 - tested for Large Missile Impact and Fatigue Cycling (PA201 & PA203).  
Specimen 2 - tested for Large Missile Impact and Fatigue Cycling (PA201 & PA203).  
Specimen 3 - tested for Large Missile Impact and Fatigue Cycling (PA201 & PA203).  
Specimen 4 - tested for Air Infiltration, Water Infiltration, Static Air and Forced Entry Test (PA202).  
Specimen 5 - tested for Air Infiltration, Water Infiltration, Static Air and Forced Entry Test (PA202).  
Specimen 6 - tested for Air Infiltration, Water Infiltration, Static Air and Forced Entry Test (PA202).



**(3) INSTALLATION:**

**Screws and Method of Attachment -**

Specimens 1, 2, 3, 4 & 5

- 28 - # 8 x 2.5" F H Phillips wood screws, used to fasten frame to the wood buck at head and side jambs.
- 8 - # 10 x 2.5" F H Phillips wood screws, used to fasten sidelite sill to the wood buck.
- 8 - # 10 x 2.25" F H Phillips wood screws, used to fasten threshold to the wood buck.  
(see drawing no. 39637, sheet 5 of 7 for anchor locations)

Specimen 6

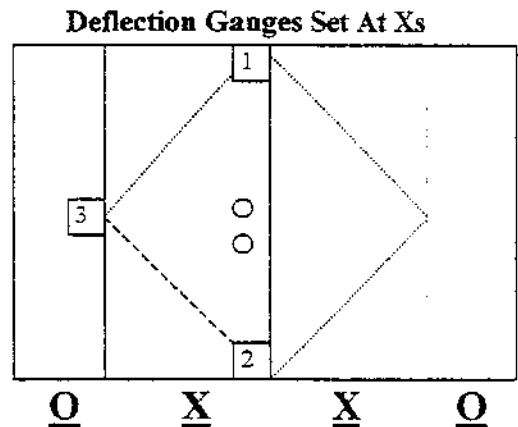
- 18 - # 8 x 2.5" F H Phillips wood screws, used to fasten frame to the wood buck at head and side jambs.
- 6 - # 10 x 2.25" F H Phillips wood screws, used to fasten threshold to the wood buck.  
(see drawing no. 39637, sheet 5 of 7 for anchor locations)

**(4) SEQUENCE OF TESTS PERFORMED:**

**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



Deflection was measured with three (3) CDI 5" dial indicators: location #1-SN 971649614, location #2-SN 982539158 and location #3-SN 980369793.

Note: Specimen 6 was tested without sidelites.

**AIR INFILTRATION**

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

Air at 1.57 psf	Actual	Allowable
Specimen 4 Out-swing	0.02 CFM/SQ FT	0.34 CFM/SQ FT
Specimen 5 Out-swing	0.01 CFM/SQ FT	0.34 CFM/SQ FT
Specimen 6 Out-swing	0.03 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 4	Out-swing	Water @ 9.0 psf for 15 min.	No water penetration over sill.
Specimen 5	Out-swing	Water @ 9.0 psf for 15 min.	No water penetration over sill.
Specimen 6	Out-swing	Water @ 9.0 psf for 15 min.	No water penetration over sill.

**STATIC AIR PRESSURE TESTS**                      **Specimen 4**

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

**Design Loads    + 50.0 psf, - 50.0 psf. Specimen 4 OXXO (out-swing)**

Range of test	time	actual load	deflection	perm. set
Positive loads	(seconds)	psf		
1/2 Test	30	37.5		
Design	30	50.0	Mullion (3) 0.063"	0.004"
Test	30	75.0	Door T (1) 0.920"	0.240"
			Door B (2) 0.850"	0.320"
			Mullion (3) 0.820"	0.177"

Range of test	time	actual load	deflection	perm. set
Negative loads	(seconds)	psf		
1/2 Test	30	37.5		
Design	30	50.0	Mullion (3) 0.247"	0.007"
Test	30	75.0	Door T (1) 0.835"	0.294"
			Door B (2) 0.571"	0.180"
			Mullion (3) 0.615"	0.052"

**Design Loads    + 50.0 psf, - 44.0 psf. Specimen 5 OXXO (out-swing)**

Range of test	time	actual load	deflection	perm. set
Positive loads	(seconds)	psf		
1/2 Test	30	37.5		
Design	30	50.0	Mullion (3) 0.350"	0.044"
Test	30	75.0	Door T (1) 0.552"	0.062"
			Door B (2) 0.768"	0.079"
			Mullion (3) 0.567"	0.033"

Range of test	time	actual load	deflection	perm. set
Negative loads	(seconds)	psf		
1/2 Test	30	33.0		
Design	30	44.0	Mullion (3) 0.398"	0.081"
Test	30	66.0	Door T (1) 1.020"	0.121"
			Door B (2) 0.770"	0.052"
			Mullion (3) 0.360"	0.109"

**Design Loads + 55.0 psf, - 65.0 psf. Specimen 6 XX (out-swing)**

Range of test	time	actual load	deflection	perm. set
Positive loads	(seconds)	psf		
1/2 Test	30	41.25		
Design	30	55.0		
Test	30	82.5	Door T (1) 0.420" Door B (2) 0.415"	0.030" 0.025"

Range of test	time	actual load	deflection	perm. set
Negative loads	(seconds)	psf		
1/2 Test	30	48.75		
Design	30	65.0		
Test	30	97.5	Door T (1) 0.415" Door B (2) 0.665"	0.260" 0.200"

**Note Allowable Deflections & Sets For Specimens No. 4, 5 & 6:**

- (3) Mullion - Max. allowable deflection at design load ( $L/180$ )  $97.625 / 180 = 0.542''$
- (1) Door T - Max. allowable perm. set at test load (0.4% of span)  $.004 \times 96.0 = 0.384''$
- (2) Door B - Max. allowable perm. set at test load (0.4% of span)  $.004 \times 96.0 = 0.384''$
- (3) Mullion - Max. allowable perm. set at test load (0.4% of span)  $.004 \times 97.625 = 0.3905''$

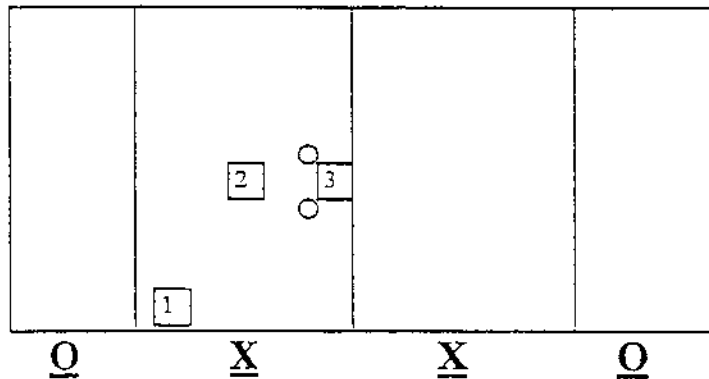
**IMPACT TEST - LARGE MISSILE**

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.



*Ramesh Patel P.E.*

**IMPACT TEST - LARGE MISSILE**     **Cont.**

**Opaque Double Doors w/sidelites OXXO (Out-swing)**

Specimen No.	Impact No.	Impact Loc.	Speed Ft/Sec.	X Meas.	Y Meas.
1.	1.	1	50.1	40.75"	6.50"
1.	2.	2	50.3	52.75"	48.125"
1.	3.	3	50.0	70.75"	48.0"

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

2.	1.	1	50.2	41.0"	6.75"
2.	2.	2	50.0	52.5"	48.0"
2.	3.	3	50.1	71.0"	48.25"

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

3.	1.	1	50.0	41.25"	7.0"
3.	2.	2	50.0	52.75"	48.5"
3.	3.	3	50.3	71.25"	48.25"

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

**FATIGUE LOADING TEST**

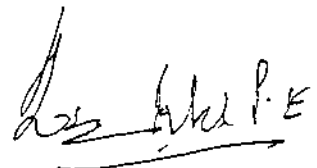
Cycle tests were conducted in accordance with DCBCCD PA 203

**Design Loads**     + 60.0 psf, - 60.0 psf.     **Specimen 1 OXXO (out-swing)**

Positive loads

<u>Range of Test</u>	<u># Cycles</u>	<u>Load</u>	<u>Cycles/Min.</u>
+ .0 to 0.5	600	30.0 PSF	56
+ .0 to 0.6	70	36.0 PSF	56
+ .0 to 1.3	1	78.0 PSF	

671 cycles completed



**Design Loads + 60.0 psf, - 60.0 psf. Specimen 1 OXXO (out-swing) Cont.**

Negative Loads

<u>Range of Test</u>	<u># Cycles</u>	<u>Load</u>	<u>Cycles/Min.</u>
+ .0 to 0.5	600	30.0 PSF	56
+ .0 to 0.6	70	36.0 PSF	56
+ .0 to 1.3	1	78.0 PSF	

671 cycles completed

**Design Loads + 60.0 psf, - 60.0 psf. Specimen 2 OXXO (out-swing)**

Positive loads

<u>Range of Test</u>	<u># Cycles</u>	<u>Load</u>	<u>Cycles/Min.</u>
+ .0 to 0.5	600	30.0 PSF	56
+ .0 to 0.6	70	36.0 PSF	56
+ .0 to 1.3	1	78.0 PSF	

671 cycles completed

Negative Loads

<u>Range of Test</u>	<u># Cycles</u>	<u>Load</u>	<u>Cycles/Min.</u>
+ .0 to 0.5	600	30.0 PSF	56
+ .0 to 0.6	70	36.0 PSF	56
+ .0 to 1.3	1	78.0 PSF	

671 cycles completed

**Design Loads + 60.0 psf, - 60.0 psf. Specimen 3 OXXO (out-swing)**

Positive loads

<u>Range of Test</u>	<u># Cycles</u>	<u>Load</u>	<u>Cycles/Min.</u>
+ .0 to 0.5	600	30.0 PSF	56
+ .0 to 0.6	70	36.0 PSF	56
+ .0 to 1.3	1	78.0 PSF	

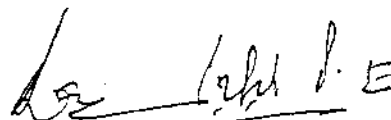
671 cycles completed

Negative Loads

<u>Range of Test</u>	<u># Cycles</u>	<u>Load</u>	<u>Cycles/Min.</u>
+ .0 to 0.5	600	30.0 PSF	56
+ .0 to 0.6	70	36.0 PSF	56
+ .0 to 1.3	1	78.0 PSF	

671 cycles completed

Specimens 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 doors were operable at the end of tests.



**(5) DRAWINGS TO BE SUBMITTED:**

1. Drawing no. 39637 sheets 1 through 7
2. Imperial Astragal spec sheet 2911E 1 & 2 of 4
3. Trinity Glass drawing no. 460
4. Western Reserve drawing no. 461
5. ODL drawing no. EXP 2911
6. Stanley drawing no. 18493
7. Stanley drawing no. 00258
8. Stanley drawing no. EXP 2911A
9. Schlegel QDS-650 spec sheets
10. Kwikset latch spec sheet
11. Kwikset deadbolt spec sheet
12. Stanley Hinge drawing no. 07728
13. Stanley drawing no. 250465
14. Stanley drawing no. 250469

**Comment:** Nominal 2 mil polyethylene film was used to seal against air 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.

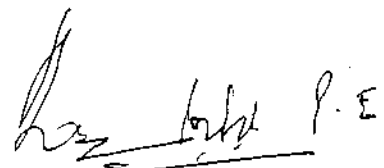
Certified Testing Laboratories assumes that all information provided by the client is accurate and that the physical and chemical properties of the components are as stated by the manufacturer.

**Observers:**

Rick Wright – Consultant, R.W. Building Consultants, Inc.

**Dade County Witness:**

Not present



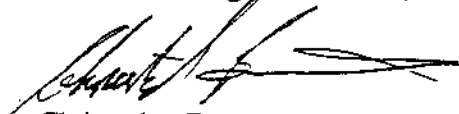
Ramesh Patel, P. E., Florida Reg. # 20224 June 6, 2000

All Tests Witnessed by:

Ramesh Patel P.E.  
Chris Bennet CTL  
Ted Scanlon CTL

Ramesh Patel, P. E.  
Florida Reg # 20224  
June 6, 2000

Certified Testing Laboratories, Inc.



Christopher Bennett  
Laboratory Manager  
Architectural Division

cc: Stanley Door Systems (2)  
Rick Wright (2)  
Ramesh Patel (1)  
File (1)