Product Evaluation Report: Method 1D

Project Number: SCE 25-11005

Product Name: Siteline (W-5500) Clad Wood Swinging Door OSW
Product Dimensions: 75.31 x 95.28
Design Pressure: +50 psf / -50 psf
Impact: WZ 3 - Level D Missile

Installation Instructions: D014066

Method: 1-D (Engineering Evaluation)
Category: Exterior Doors
Subcatagory: Swinging Exterior Doors

Prepared for:
Jeld-Wen Windows & Doors
3737 Lakeport Blvd.
Klamath Falls, OR

MICAH SWARTZ
LICENSE
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STATE OF
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11/04/25

Prepared by:
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This item has been digitally signed and sealed by Micah Swartz, P.E. on the date adjacent to the seal.

Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

Scope:

This is a product evaluation report issued by Micah Swartz, P.E. (FL# 93573) for Jeld-Wen Windows & Doors based on Method 1D of the State of Florida Product Approval, Florida Department of Business and Professional Regulation - Florida Building Commission.

This product has been evaluated for use in locations adhering to the current Florida Building Code.

See Installation Instructions D014066, signed and sealed by Micah Swartz, P.E. (FL# 93573) for specific use paramaters including size and design pressure limitations.

Reference Standards:

Current edition of the Florida Building Code, Building

ANSI/AWC NDS - National Design Specification (NDS) for Wood Construction

AISI S100 North American Specification for the Design of Cold-Formed Steel Structural Members

ICC-ES Report ESR-1976 ITW Buildex TEKS Self-Drilling Fasteners

ICC-ES Report ESR-2196 Hilti Self Drilling Screws to connect cold-formed steel

NOA 24-0102.06 Tapcon Concrete and Masonry Anchors with Advanced Threadform Technology

Limits of Use:

(1) Product anchors shall be as listed and spaced on installation instructions. Anchors shall be embedded into the substrate the full embedment depth beyond stucco or wall cladding.

(2) Site conditions that deviate from the details of drawing D014066 must be verified and designed by a licensed engineer or registered architect.

Certification of Independence:

In accordance with Rule 61G20-3 Florida Administrative Code, Swartz Consulting Engineers LLC hereby certifies the following:

(1) Swartz Consulting Engineers LLC does not have, nor does it intend to acquire or will it acquire, a financial interest in any company manufacturing or distributing products tested or labeled by the agency.

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(4) Micah Swartz, P.E. does not have, nor will acquire, a financial interest in any other entity involved in the approval process of the product.

Design Summary:

The table below summarizes the product: Siteline (W-5500) Clad Wood Swinging Door OSW 75.31 x 95.28 and their corresponding performance levels as established by testing.

Table 1: Summary of Test Results

Series/Model	Test Report Number	Standards Tested	Size (W x H)	Performance
Siteline (W-5500) Clad Wood Swinging Door OSW 75.31 x 95.28	310-21-031 & SJW2016-053 R1 (10/28/21 & 08/10/16 (revised 08/25/16) respectively)	AAMA/WDMA/CSA 101/I.S.2/A440-22 ASTM E283-19 ASTM E330 -14(2021) ASTM E547-00(2016) AAMA 1304-17 ASTM 1886-19/1996-20	75.31 x 95.28	+50 psf / -50 psf

As Tested Design:

Screw Information:

Screw Size:	8	Screw Embed:	1	in	Edge Distance:	3/4	in	(minimum)
qty:	1	Spacing:	8.27	in O.C.	(Nail Fin)			
qty:	1	Spacing:	17.72	in O.C.	(Thru Frame)			

Wood Screw Withdrawal:	131	lbs	Per ft. Capacity:	190	plf
Wood Screw Lateral:	106	lbs	Per ft. Capacity:	72	plf

Alternative Fasteners:

Screw Information:

Screw Size:	8	Screw Embed:	1.25	in	Edge Distance:	3/4	in	(minimum)
qty:	1	Spacing:	8.27	in O.C.	(Nail Fin)			
qty:	1	Spacing:	17.72	in O.C.	(Thru Frame)			

Wood Screw Withdrawal:	164	lbs	Per ft. Capacity:	238	plf	Unity:	0.30
Wood Screw Lateral:	106	lbs	Per ft. Capacity:	72	plf	Unity:	1.00

Tapcon Information:

Tapcon Size:	3/16	Embedment:	1-1/4	in	(minimum)	Edge Distance:	2-1/2	in (minimum)
qty:	1	Spacing:	17.72	in O.C.				

Tapcon Lateral (Concrete):	155	lbs	Per ft. Capacity:	105	plf	Unity:	0.68
Tapcon Lateral (CMU):	135	lbs	Per ft. Capacity:	91	plf	Unity:	0.78

Subject: As Tested - Wood Screw Withdrawal

Input:
Calculation:

Screw Information:

Screw Size: 8 Root Diameter: 0.131 in
Screw Embed: 1 in

Main Member Type: S-P-F G: 0.42 F_{em}: 3,350 psi

$$W' = W * C_D * C_M{}^2 * C_t \ - As\ per\ table\ 11.3.1\ NDS$$

C_D: 1.6 Load Duration Factor - Table 2.3.2 (NDS)
C_M: 1.0 Wet Service Factor - Table 11.3.3 (NDS)
C_t: 1.0 Temperature Factor - Table 11.3.4 (NDS)

W: 82 lbs/in - Table 12.2B (NDS)
W: 82 lbs

W': 131 lbs

Subject: As Tested - Wood Screw Lateral Design - Single Shear

Input:
Calculation:

Screw Information:

Screw Size: 8 Root Diameter: 0.131 in
Screw Embed: 1 in

Main Member Type: S-P-F G: 0.42 F_{em}: 3,350 psi thickness (t_m): 1.5 in

Side Member Type: S-P-F G: 0.42 F_{es}: 3,350 psi thickness (t_s): 1.25 in

Lateral Design Factors - Table 12.3.1A (NDS)

D:	0.131	in	Diameter
F_{yb}:	100	ksi	Dowel Bending Yield Strength
F_{em}:	3,350	psi	Main Member dowel bearing strength
F_{es}:	3,350	psi	Side Member dowel bearing strength
l_m:	1	in	Main Member dowel bearing length
l_s:	1.25	in	Side Member dowel bearing length
R_d:	2.2		Reduction term - Table 12.3.1B (NDS)
R_e:	1		$= F_{em}/F_{es}$
R_t:	0.8		$= l_m/l_s$
k_1:	0.377		See Table
k_2:	1.242		See Table

Reference Lateral Design Values - Table 12.3.1A (NDS)

Z_{Im}: 199 lbs $$Z_{I_m} = \frac{D l_m F_{em}}{R_d} \text{ (EQ 12.3 – 1)}$$

Z_{II}: 94 lbs $$Z_{II} = \frac{k_1 D l_s F_{es}}{R_d} \ (EQ\ 12.3 - 3)$$

Z_{IIIm}: 83 lbs $$Z_{III_m} = \frac{k_2 D l_m F_{em}}{(1 + 2R_e)R_d} \text{ (EQ 12.3 – 4)}$$

Z_{IV}: 82 lbs $$Z_{IV} = \frac{D^2}{R_d}\sqrt{\frac{2F_{em}F_{yb}}{3(1 + R_e)}} \ (EQ\ 12.3 - 6)$$

Z_{MIN}: 82 lbs

Note: Side member is part of the Jeld-Wen assembly and verified during testing. Modes Z_{Is} and Z_{IIIs} are not applicable to the calculation.

Subject: As Tested - Wood Screw Lateral Design - Single Shear Cont.

Adjusted Lateral Design Values

$$Z' = Z * C_D * C_M * C_t * C_g * C_\Delta \ - As\ per\ table\ 11.3.1\ NDS$$

C_D:	1.6	Load Duration Factor - Table 2.3.2 (NDS)
C_M:	1.0	Wet Service Factor - Table 11.3.3 (NDS)
C_t:	1.0	Temperature Factor - Table 11.3.4 (NDS)
C_g:	1.0	Group Action Factor - Section 11.3.6 (NDS)
C_Δ:	1.0	Geometry Factor - Section 12.5.1.1 (NDS)

Z': **132** lbs

Fastener Bending Across Shim Space

Ω:	1.67		
L:	0.25	in	Maximum Shim Gap
D:	**0.131**	in	Diameter
F_{yb}:	**100**	ksi	Dowel Bending Yield Strength

$$\frac{F_{yb}}{\Omega} = \frac{M}{S} = \frac{16ZL}{\pi D^3} \Leftrightarrow Z = \frac{F_{yb}\pi D^3}{16\Omega L} \qquad Where\ M = \frac{ZL}{2}\ (Guided\ Bending)$$

Z_n/Ω: **106** lbs

Bearing on Masonry Strap

Ω:	3.00		
F_u:	33	ksi	Tensile Strength of strap
t:	20	GA	
t:	**0.036**	in	thickness of strap
D:	**0.131**	in	

$$\frac{P_{nv}}{\Omega} = 2.7 * t * D * F_u \ - (EQ.J4.3.1 - 4, AISI\ S100)$$

P_{nv}/Ω: **140** lbs

Subject: Wood Screw Withdrawal

Input:
Calculation:

Screw Information:

Screw Size: 8 Root Diameter: 0.131 in
Screw Embed: 1.25 in

Main Member Type: S-P-F G: 0.42 F_{em}: 3,350 psi

$$W' = W * C_D * C_M{}^2 * C_t \ - As\ per\ table\ 11.3.1\ NDS$$

C_D: 1.6 Load Duration Factor - Table 2.3.2 (NDS)
C_M: 1.0 Wet Service Factor - Table 11.3.3 (NDS)
C_t: 1.0 Temperature Factor - Table 11.3.4 (NDS)

W: 82 lbs/in - Table 12.2B (NDS)
W: 103 lbs

W': 164 lbs

Subject: Wood Screw Lateral Design - Single Shear

Input:
Calculation:

Screw Information:

Screw Size: 8 Root Diameter: 0.131 in
Screw Embed: 1.25 in

Main Member Type: S-P-F G: 0.42 F_{em}: 3,350 psi thickness (t_m): 1.5 in

Side Member Type: S-P-F G: 0.42 F_{es}: 3,350 psi thickness (t_s): 1.25 in

Lateral Design Factors - Table 12.3.1A (NDS)

D:	0.131	in	Diameter
F_{yb}:	100	ksi	Dowel Bending Yield Strength
F_{em}:	3,350	psi	Main Member dowel bearing strength
F_{es}:	3,350	psi	Side Member dowel bearing strength
l_m:	1.25	in	Main Member dowel bearing length
l_s:	1.25	in	Side Member dowel bearing length
R_d:	2.2		Reduction term - Table 12.3.1B (NDS)
R_e:	1		$= F_{em}/F_{es}$
R_t:	1.0		$= l_m/l_s$
k_1:	0.414		See Table
k_2:	1.158		See Table

Reference Lateral Design Values - Table 12.3.1A (NDS)

Z_{Im}: 249 lbs $$Z_{I_m} = \frac{D l_m F_{em}}{R_d} \text{ (EQ 12.3 – 1)}$$

Z_{II}: 103 lbs $$Z_{II} = \frac{k_1 D l_s F_{es}}{R_d} \ (EQ\ 12.3 - 3)$$

Z_{IIIm}: 96 lbs $$Z_{III_m} = \frac{k_2 D l_m F_{em}}{(1 + 2R_e)R_d} \text{ (EQ 12.3 – 4)}$$

Z_{IV}: 82 lbs $$Z_{IV} = \frac{D^2}{R_d}\sqrt{\frac{2F_{em}F_{yb}}{3(1 + R_e)}} \ (EQ\ 12.3 - 6)$$

Z_{MIN}: 82 lbs

Note: Side member is part of the Jeld-Wen assembly and verified during testing. Modes Z_{Is} and Z_{IIIs} are not applicable to the calculation.

Subject: Wood Screw Lateral Design - Single Shear Cont.

Adjusted Lateral Design Values

$$Z' = Z * C_D * C_M * C_t * C_g * C_\Delta \ - As\ per\ table\ 11.3.1\ NDS$$

C_D:	1.6	Load Duration Factor - Table 2.3.2 (NDS)
C_M:	1.0	Wet Service Factor - Table 11.3.3 (NDS)
C_t:	1.0	Temperature Factor - Table 11.3.4 (NDS)
C_g:	1.0	Group Action Factor - Section 11.3.6 (NDS)
C_Δ:	1.0	Geometry Factor - Section 12.5.1.1 (NDS)

Z': **132** lbs

Fastener Bending Across Shim Space

Ω:	1.67		
L:	0.25	in	Maximum Shim Gap
D:	**0.131**	in	Diameter
F_{yb}:	**100**	ksi	Dowel Bending Yield Strength

$$\frac{F_{yb}}{\Omega} = \frac{M}{S} = \frac{16ZL}{\pi D^3} \Leftrightarrow Z = \frac{F_{yb}\pi D^3}{16\Omega L} \qquad Where\ M = \frac{ZL}{2}\ (Guided\ Bending)$$

Z_n/Ω: **106** lbs

Bearing on Masonry Strap

Ω:	3.00		
F_u:	33	ksi	Tensile Strength of strap
t:	20	GA	
t:	**0.036**	in	thickness of strap
D:	**0.131**	in	

$$\frac{P_{nv}}{\Omega} = 2.7 * t * D * F_u \ - (EQ.J4.3.1 - 4, AISI\ S100)$$

P_{nv}/Ω: **140** lbs

Subject: Tapcon Lateral Design

Input:
Calculation:

Tapcon Size:

Size:	3/16		
D:	0.1875	in	Nominal Diameter
D_{sh}:	0.145	in	Shank Diameter

Fastener Shear Capacity - 3,000 psi Concrete

P_{nv}/Ω: 181 lbs See Table 1B of NOA 24-0102.06

Fastener Shear Capacity - Medium-Weight CMU

P_{nv}/Ω: 135 lbs See Table 3 of NOA 24-0102.06

Note:
- Critical anchor spacing is 16D
- Minimum Anchor Embedment is 1-1/4"
- Minimum Edge Distance is 2-1/4"

Fastener Bending Across Shim Space

L:	0.25	in	Maximum Shim Gap	Ω: 3.00
D_{sh}:	0.145	in	Shank Diameter of Tapcon	
F_{yb}:	100	ksi	Yield Strength of Tapcon	

$$\frac{F_{yb}}{\Omega} = \frac{M}{S} = \frac{16P_nL}{\pi D^3} \Leftrightarrow P_n = \frac{F_{yb}\pi D^3}{16\Omega L} \qquad Where\ M = \frac{P_nL}{2}\ (Guided\ Bending)$$

P_n/Ω: 239 lbs

Bearing Strength of Masonry Straps - AISI S100

Size:	3/16		Tapcon Size	Ω: 3.00
D_{sh}:	0.145	in	Shank Diameter of Tapcon Screw	
F_u:	33	ksi	Tensile Strength of Masonry Strap	
t:	20	GA		
t:	0.0359	in	Thickness of Masonry Strap	

$$\frac{P_{nv}}{\Omega} = 2.7 * t * D * F_u \ - (EQ.J4.3.1 - 3, AISI\ S100)$$

P_{nv}/Ω: 155 lbs