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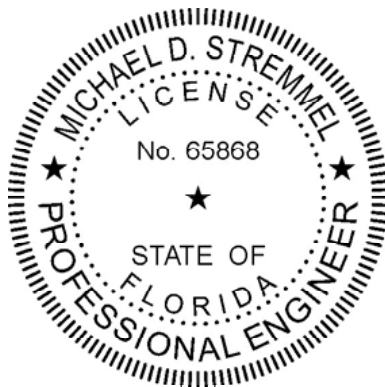
Series 1606 Premium Coastal Outswing Doors (Impact)

REPORT TO:

**WEATHER SHIELD WINDOWS & DOORS
ONE WEATHER SHIELD PLAZA
MEDFORD, WISCONSIN 54451**

REPORT NUMBER: 27845.03-107-16-R1

REPORT DATE: 8/14/2026



This item has been digitally signed and sealed by Michael D. Stremmel, PE on the date adjacent to the seal.

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Michael D. Stremmel, PE
FL PE 65868
FL REG 37122

Scope

Molimo, LLC was contracted by Weather Shield Windows & Doors to evaluate installation methods for their Series 1606 Premium Coastal Outswing Doors (Impact). The evaluation is based on physical testing and product certifications. Reference standards utilized in this project include:

Florida Building Code, Building, 9th Edition (2026). International Code Council, 2026.

ANSI/AWC NDS-2024 *National Design Specification (NDS) for Wood Construction*. American Wood Council, 2024.

AISI S100-16(2020) *North American Specification for the Design of Cold-Formed Steel Structural Members, 2016 (Reaffirmed 2020)*. American Iron and Steel Institute, 2020.

ADM1-2020 *2020 Aluminum Design Manual*. The Aluminum Association, Inc., 2020.

ICC-ES Report ESR-1976 *ITW Buildex TEKS Self-Drilling Fasteners*. ICC Evaluation Service. 07/2025.

NOA 24-0102.06 *Tapcon with Advanced Threadform Technology Concrete and Masonry Anchors*. Miami-Dade County Product Control Section, April 25, 2024.

The anchorage analyses presented herein do not address the water resistance, water penetration or air infiltration performance of the installation method or the installed product. In addition, the analyses rely on the assumption that the building substrate is capable of withstanding incurred loads.

Certification of Independence

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

- Molimo, 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.
- Molimo, LLC is not owned, operated or controlled by any company manufacturing or distributing products it tests or labels.
- Michael D. Stremmel, P.E. does not have nor will acquire, a financial interest in any company manufacturing or distributing products for which the reports are being issued.
- Michael D. Stremmel, P.E. does not have, nor will acquire, a financial interest in any other entity involved in the approval process of the product.

Analyses

Window Anchorage

The as-tested and as-tested with alternate substrate anchorage methods are evaluated on page 26 to page 39 and summarized in Table 1, Table 2 (page 4) and Table 3 (page 5). The as-tested capacities will be used to justify anchorage to alternate substrates having equal or higher anchorage capacities.

Table 1 Anchorage Capacities for Fin Installation

Substrate	Anchor	Capacity	Comments
Wood SYP 2x	#6 x 1-5/8" Screw	204 lb	1. As-tested installation. 2. Limited by pull-over at fin. 3. 1/4" maximum shim space between frame and substrate.
16 Gauge Steel Stud	#10-16 TEKS Screw	209 lb	1. 50 ksi yield strength stud. 2. Full penetration +3 threads. 3. Limited by pull-out at substrate. 4. 1/4" maximum shim space between frame and substrate.
1/8" thick Aluminum Tube Mullion	#10-16 TEKS Screw	235 lb	1. 6063-T6 aluminum tube mullion. 2. Full penetration +3 threads. 3. Limited by pull-out at substrate. 4. 1/4" maximum shim space between frame and substrate. 5. 1/8" thick mullion qualifies 1/4" thick mullion

In all cases the alternate substrate capacities for the fin installation connections are equal to or greater than the as-tested value. Thus, the connection to the alternate substrate with the proposed anchor placed at the as-tested spacing is acceptable.

Table 2 Anchorage Capacities for Through-Frame Installation

Substrate	Anchor	Capacity	Comments
Wood SYP 2x	#10 x 2-1/2" Screw	112 lb	1. As-tested installation. 2. 1-1/4" minimum penetration. 3. Limited by shear capacity. 4. 1/4" maximum shim space between frame and substrate.
16 Gauge Steel Stud	#10-16 TEKS Screw	359 lb	1. 50 ksi yield strength stud. 2. Full penetration +3 threads. 3. Limited by bearing capacity. 4. 1/4" maximum shim space between frame and substrate.
1/8" thick Aluminum Tube Mullion	#10-16 TEKS Screw	359 lb	1. 6063-T6 aluminum tube mullion. 2. Full penetration +3 threads. 3. Limited by bearing capacity. 4. 1/4" maximum shim space between frame and substrate. 5. 1/8" thick mullion qualifies 1/4" thick mullion.
Concrete	3/16" Tapcon	186 lb	1. Minimum $f'_c = 3,000$ psi. 2. 1-1/2" minimum embedment. 3. 2" minimum edge distance. 4. Limited by shear capacity. 5. 1/4" maximum shim space between frame and substrate.
CMU	3/16" Tapcon	135 lb	1. Minimum ASTM C90 CMU. 2. 1" minimum embedment. 3. 2" minimum edge distance. 4. Limited by shear capacity. 5. 1/4" maximum shim space between frame and substrate.

In all cases the alternate substrate capacities for the through-frame installation connections are equal to or greater than the as-tested value. Thus, the connection to the alternate substrate with the proposed anchor placed at the as-tested spacing is acceptable.

Table 3 Anchorage Capacities for Anchor Clip Installation

Substrate	Anchor	Capacity	Comments
Wood SYP 2x	#6 x 1-5/8" Screw (Four Screws)	24 lb	1. As-tested installation. 2. 1-1/4" minimum penetration 3. Limited by bending of anchor clip. 4. 1/4" maximum shim space between frame and substrate.
16 Gauge Steel Stud	#10-16 TEKS Screw (Four Screws)	24 lb	1. 50 ksi yield strength stud. 2. Full penetration +3 threads. 3. Limited by bending of anchor clip. 4. 1/4" maximum shim space between frame and substrate.
1/8" thick Aluminum Tube Mullion	#10-16 TEKS Screw (Four Screws)	24 lb	1. 6063-T6 aluminum tube mullion. 2. Full penetration +3 threads. 3. Limited by bearing capacity. 4. 1/4" maximum shim space between frame and substrate. 5. 1/8" thick mullion qualifies 1/4" thick mullion
Concrete	3/16" Tapcon (One Anchor)	24 lb	1. Minimum $f'_c = 3,000$ psi 2. 1-1/2" minimum embedment. 3. 1" Minimum edge distance. 4. Limited by bending of anchor clip. 5. 1/4" maximum shim space between frame and substrate.
CMU	3/16" Tapcon (One Anchor)	24 lb	1. Minimum ASTM C90 CMU 2. 1" minimum embedment 3. 2" Minimum edge distance. 4. Limited by bending of anchor clip. 5. 1/4" maximum shim space between frame and substrate.

Note: For all substrates, the clip shall be secured to the window frame with four (4) #8 x 3/4" screws.

In all cases the alternate substrate capacities for the anchor clip installation connections are equal to or greater than the as-tested value. Thus, the connection to the alternate substrate with the proposed anchor(s) placed at the as-tested spacing is acceptable.

Anchorage Requirements

Anchorage requirements for the various approved Series 1606 Premium Coastal Outswing Doors (Impact) are presented in Table 5 (page 7) to Table 22 (page 24). Table 4 presents the glazing codes used in the tables.

Table 4 Glazing Constructions

Glazing Code	Glazing Construction
GL1	1" Insulating Glass 3/16" Tempered (Exterior) 5/32" Annealed / 0.090" PVB / 5/32" Annealed (Interior)
GL2	1" Insulating Glass 5/32" Tempered (Exterior) 5/32" Annealed / 0.090" PVB / 5/32" Annealed (Interior)
GL3	7/16" Monolithic Laminated Glass 5/32" Annealed / 0.090" PVB / 5/32" Annealed
GL4	17/32" Monolithic Laminated Glass 7/32" Annealed / 0.090" PVB / 7/32" Annealed

Table 5 Series 1606 XX Outswing (Impact) (6-2 x 8-2) – Insulating Glass

Door: Series 1606 XX Outswing (6-2 x 8-2)		Test Report: ESP028942P-2342 Rev. B	
Overall Size: 74" wide by 98" tall		Product Approval: FL21999	
Panel Size: 36" x 95"		High Velocity Hurricane Zone: Yes	
Glazing: 1" Insulating Glass (GL2)		Maximum Raised Panel Height: 29-21/32"	
Maximum DLO: 26-5/32" x 83-3/16"			
Design Pressure: +60/-75 psf			
Missile Impact: Missile D, Wind Zone 4			
Installation Method	Substrate	Anchor	Comments
Fin (see Note 1)	Wood	#6 x 1-5/8" Screw	1. Southern Yellow Pine substrate. 2. 1-1/2" penetration to substrate. 3. 5/8" minimum edge distance.
	Steel Stud or Alum. Mull.	#10-16 TEKS Screw	1. 16 gauge, 50 ksi steel stud or 1/8" min. thick 6063-T6 mullion. 2. Full penetration + 3 threads. 3. 1/2" minimum edge distance.
Through-Frame (see Note 1)	Wood	#10 x 2-1/2" Screw	1. Southern Yellow Pine substrate. 2. 1-1/4" penetration to substrate. 3. 1-1/8" min. edge distance at sill; 2-1/8" min. at head and jams.
	Steel Stud or Alum. Mull.	#10-16 TEKS Screw	1. 16 gauge, 50 ksi steel stud or 1/8" min. thick 6063-T6 mullion. 2. Full penetration + 3 threads. 3. 1/2" minimum edge distance.
	Concrete	3/16" Tapcon Anchor (NOA 16-1222.06)	1. $f'_c = 3,000$ psi concrete. 2. 1-1/2" embedment to substrate. 3. 2" minimum edge distance.
	CMU	3/16" Tapcon Anchor (NOA 16-1222.06)	1. ASTM C90 medium weight block. 2. 1" penetration to substrate. 3. 2" minimum edge distance.
Anchor Clip (see Note 1, 2)	Wood	(4) #6 x 1-5/8" Screws	1. Southern Yellow Pine substrate. 2. 1-1/2" penetration to substrate. 3. 1/2" minimum edge distance.
	Steel Stud or Alum. Mull.	(4) #10-16 TEKS Screws	1. 16 gauge, 50 ksi steel stud or 1/8" min. thick 6063-T6 mullion. 2. Full penetration + 3 threads. 3. 1/2" minimum edge distance.
	Concrete	3/16" Tapcon Anchor (NOA 16-1222.06)	1. $f'_c = 3,000$ psi concrete. 2. 1-1/2" embedment to substrate. 3. 1" minimum edge distance.
	CMU	3/16" Tapcon Anchor (NOA 16-1222.06)	1. ASTM C90 medium weight block. 2. 1" penetration to substrate. 3. 2" minimum edge distance.

Notes: 1. Anchor placement per Drawing 45-17203 (attached)

2. Anchor clip shall be secured to window frame with four (4) #8 x 3/4" screws.

Table 6 Series 1606 XX Outswing (Impact) (6-2 x 8-2) – Monolithic Glass

Door: Series 1606 XX Outswing (6-2 x 8-2)		Test Report: ESP028942P-2342 Rev. B	
Overall Size: 74" wide by 98" tall		Product Approval: FL21999	
Panel Size: 36" x 95"		High Velocity Hurricane Zone: Yes	
Glazing: 7/16" Monolithic (GL3)		Maximum Raised Panel Height: 29-21/32"	
Maximum DLO: 26-5/32" x 83-1/16"			
Design Pressure: +60/-75 psf			
Missile Impact: Missile D, Wind Zone 4			
Installation Method	Substrate	Anchor	Comments
Fin (see Note 1)	Wood	#6 x 1-5/8" Screw	1. Southern Yellow Pine substrate. 2. 1-1/2" penetration to substrate. 3. 5/8" minimum edge distance.
	Steel Stud or Alum. Mull.	#10-16 TEKS Screw	1. 16 gauge, 50 ksi steel stud or 1/8" min. thick 6063-T6 mullion. 2. Full penetration + 3 threads. 3. 1/2" minimum edge distance.
Through-Frame (see Note 1)	Wood	#10 x 2-1/2" Screw	1. Southern Yellow Pine substrate. 2. 1-1/4" penetration to substrate. 3. 1-1/8" min. edge distance at sill; 2-1/8" min. at head and jams.
	Steel Stud or Alum. Mull.	#10-16 TEKS Screw	1. 16 gauge, 50 ksi steel stud or 1/8" min. thick 6063-T6 mullion. 2. Full penetration + 3 threads. 3. 1/2" minimum edge distance.
	Concrete	3/16" Tapcon Anchor (NOA 16-1222.06)	1. $f'_c = 3,000$ psi concrete. 2. 1-1/2" embedment to substrate. 3. 2" minimum edge distance.
	CMU	3/16" Tapcon Anchor (NOA 16-1222.06)	1. ASTM C90 medium weight block. 2. 1" penetration to substrate. 3. 2" minimum edge distance.
Anchor Clip (see Note 1, 2)	Wood	(4) #6 x 1-5/8" Screws	1. Southern Yellow Pine substrate. 2. 1-1/2" penetration to substrate. 3. 1/2" minimum edge distance.
	Steel Stud or Alum. Mull.	(4) #10-16 TEKS Screws	1. 16 gauge, 50 ksi steel stud or 1/8" min. thick 6063-T6 mullion. 2. Full penetration + 3 threads. 3. 1/2" minimum edge distance.
	Concrete	3/16" Tapcon Anchor (NOA 16-1222.06)	1. $f'_c = 3,000$ psi concrete. 2. 1-1/2" embedment to substrate. 3. 1" minimum edge distance.
	CMU	3/16" Tapcon Anchor (NOA 16-1222.06)	1. ASTM C90 medium weight block. 2. 1" penetration to substrate. 3. 2" minimum edge distance.

Notes: 1. Anchor placement per Drawing 45-17203 (attached)

2. Anchor clip shall be secured to window frame with four (4) #8 x 3/4" screws.

Table 7 Series 1606 XX Outswing (Impact) (7-0 x 10-0) – Insulating Glass

Door: Series 1606 XX Outswing (7-0x10-0)		Test Report: ESP025891P-2188 Rev. D	
Overall Size: 84" wide by 120" tall		QCT16-4149.01-R1	
Panel Size: 41" x 117"		Product Approval: FL21999	
Glazing: 1" Insulating Glass (GL1)		High Velocity Hurricane Zone: Yes	
Maximum DLO: 30-15/16" x 105-3/16"		Maximum Raised Panel Height: 29-21/32"	
Design Pressure: +60/-60 psf			
Missile Impact: Missile D, Wind Zone 4			
Installation Method	Substrate	Anchor	Comments
Fin (see Note 1)	Wood	#6 x 1-5/8" Screw	1. Southern Yellow Pine substrate. 2. 1-1/2" penetration to substrate. 3. 5/8" minimum edge distance.
	Steel Stud or Alum. Mull.	#10-16 TEKS Screw	1. 16 gauge, 50 ksi steel stud or 1/8" min. thick 6063-T6 mullion. 2. Full penetration + 3 threads. 3. 1/2" minimum edge distance.
Through-Frame (see Note 1)	Wood	#10 x 2-1/2" Screw	1. Southern Yellow Pine substrate. 2. 1-1/4" penetration to substrate. 3. 1-1/8" min. edge distance at sill; 2-1/8" min. at head and jams.
	Steel Stud or Alum. Mull.	#10-16 TEKS Screw	1. 16 gauge, 50 ksi steel stud or 1/8" min. thick 6063-T6 mullion. 2. Full penetration + 3 threads. 3. 1/2" minimum edge distance.
	Concrete	3/16" Tapcon Anchor (NOA 16-1222.06)	1. $f'_c = 3,000$ psi concrete. 2. 1-1/2" embedment to substrate. 3. 2" minimum edge distance.
	CMU	3/16" Tapcon Anchor (NOA 16-1222.06)	1. ASTM C90 medium weight block. 2. 1" penetration to substrate. 3. 2" minimum edge distance.
Anchor Clip (see Note 1, 2)	Wood	(4) #6 x 1-5/8" Screws	1. Southern Yellow Pine substrate. 2. 1-1/2" penetration to substrate. 3. 1/2" minimum edge distance.
	Steel Stud or Alum. Mull.	(4) #10-16 TEKS Screws	1. 16 gauge, 50 ksi steel stud or 1/8" min. thick 6063-T6 mullion. 2. Full penetration + 3 threads. 3. 1/2" minimum edge distance.
	Concrete	3/16" Tapcon Anchor (NOA 16-1222.06)	1. $f'_c = 3,000$ psi concrete. 2. 1-1/2" embedment to substrate. 3. 1" minimum edge distance.
	CMU	3/16" Tapcon Anchor (NOA 16-1222.06)	1. ASTM C90 medium weight block. 2. 1" penetration to substrate. 3. 2" minimum edge distance.

Notes: 1. Anchor placement per Drawing 45-17203 (attached)

2. Anchor clip shall be secured to window frame with four (4) #8 x 3/4" screws.

Table 8 Series 1606 XX Outswing (Impact) (7-0 x 10-0) – Monolithic Glass

Door: Series 1606 XX Outswing (7-0x10-0)		Test Report: ESP028942P-2342 Rev. B	
Overall Size: 84" wide by 120" tall		Product Approval: FL21999	
Panel Size: 41" x 117"		High Velocity Hurricane Zone: Yes	
Glazing: 17/32" Monolithic (GL4)		Maximum Raised Panel Height: 29-21/32"	
Maximum DLO: 30-15/16" x 105-3/16"			
Design Pressure: +60/-60 psf			
Missile Impact: Missile D, Wind Zone 4			
Installation Method	Substrate	Anchor	Comments
Fin (see Note 1)	Wood	#6 x 1-5/8" Screw	1. Southern Yellow Pine substrate. 2. 1-1/2" penetration to substrate. 3. 5/8" minimum edge distance.
	Steel Stud or Alum. Mull.	#10-16 TEKS Screw	1. 16 gauge, 50 ksi steel stud or 1/8" min. thick 6063-T6 mullion. 2. Full penetration + 3 threads. 3. 1/2" minimum edge distance.
Through-Frame (see Note 1)	Wood	#10 x 2-1/2" Screw	1. Southern Yellow Pine substrate. 2. 1-1/4" penetration to substrate. 3. 1-1/8" min. edge distance at sill; 2-1/8" min. at head and jams.
	Steel Stud or Alum. Mull.	#10-16 TEKS Screw	1. 16 gauge, 50 ksi steel stud or 1/8" min. thick 6063-T6 mullion. 2. Full penetration + 3 threads. 3. 1/2" minimum edge distance.
	Concrete	3/16" Tapcon Anchor (NOA 16-1222.06)	1. $f'_c = 3,000$ psi concrete. 2. 1-1/2" embedment to substrate. 3. 2" minimum edge distance.
	CMU	3/16" Tapcon Anchor (NOA 16-1222.06)	1. ASTM C90 medium weight block. 2. 1" penetration to substrate. 3. 2" minimum edge distance.
Anchor Clip (see Note 1, 2)	Wood	(4) #6 x 1-5/8" Screws	1. Southern Yellow Pine substrate. 2. 1-1/2" penetration to substrate. 3. 1/2" minimum edge distance.
	Steel Stud or Alum. Mull.	(4) #10-16 TEKS Screws	1. 16 gauge, 50 ksi steel stud or 1/8" min. thick 6063-T6 mullion. 2. Full penetration + 3 threads. 3. 1/2" minimum edge distance.
	Concrete	3/16" Tapcon Anchor (NOA 16-1222.06)	1. $f'_c = 3,000$ psi concrete. 2. 1-1/2" embedment to substrate. 3. 1" minimum edge distance.
	CMU	3/16" Tapcon Anchor (NOA 16-1222.06)	1. ASTM C90 medium weight block. 2. 1" penetration to substrate. 3. 2" minimum edge distance.

Notes: 1. Anchor placement per Drawing 45-17203 (attached)

2. Anchor clip shall be secured to window frame with four (4) #8 x 3/4" screws.

Table 9 Series 1606 XX Outswing (Impact) (6-2 x 8-2) – Insulating Glass; ADA Sill

Door: Series 1606 XX Outswing (6-2 x 8-2)		Test Report: ESP028942P-2342 Rev. B ESP025891P-2188 Rev. D	
Overall Size: 74" wide by 98" tall		Product Approval: FL21999	
Panel Size: 36" x 95"		High Velocity Hurricane Zone: Yes	
Glazing: 1" Insulating Glass (GL2)		Maximum Raised Panel Height: 29-21/32"	
Maximum DLO: 26-5/32" x 83-3/16"			
Design Pressure: +60/-75 psf			
Missile Impact: Missile D, Wind Zone 4		Requires overhang per FBC 1709.5.1	
Installation Method	Substrate	Anchor	Comments
Fin (see Note 1)	Wood	#6 x 1-5/8" Screw	1. Southern Yellow Pine substrate. 2. 1-1/2" penetration to substrate. 3. 5/8" minimum edge distance.
	Steel Stud or Alum. Mull.	#10-16 TEKS Screw	1. 16 gauge, 50 ksi steel stud or 1/8" min. thick 6063-T6 mullion. 2. Full penetration + 3 threads. 3. 1/2" minimum edge distance.
Through-Frame (see Note 1)	Wood	#10 x 2-1/2" Screw	1. Southern Yellow Pine substrate. 2. 1-1/4" penetration to substrate. 3. 1-1/8" min. edge distance at sill; 2-1/8" min. at head and jams.
	Steel Stud or Alum. Mull.	#10-16 TEKS Screw	1. 16 gauge, 50 ksi steel stud or 1/8" min. thick 6063-T6 mullion. 2. Full penetration + 3 threads. 3. 1/2" minimum edge distance.
	Concrete	3/16" Tapcon Anchor (NOA 16-1222.06)	1. $f'_c = 3,000$ psi concrete. 2. 1-1/2" embedment to substrate. 3. 2" minimum edge distance.
	CMU	3/16" Tapcon Anchor (NOA 16-1222.06)	1. ASTM C90 medium weight block. 2. 1" penetration to substrate. 3. 2" minimum edge distance.
Anchor Clip (see Note 1, 2)	Wood	(4) #6 x 1-5/8" Screws	1. Southern Yellow Pine substrate. 2. 1-1/2" penetration to substrate. 3. 1/2" minimum edge distance.
	Steel Stud or Alum. Mull.	(4) #10-16 TEKS Screws	1. 16 gauge, 50 ksi steel stud or 1/8" min. thick 6063-T6 mullion. 2. Full penetration + 3 threads. 3. 1/2" minimum edge distance.
	Concrete	3/16" Tapcon Anchor (NOA 16-1222.06)	1. $f'_c = 3,000$ psi concrete. 2. 1-1/2" embedment to substrate. 3. 1" minimum edge distance.
	CMU	3/16" Tapcon Anchor (NOA 16-1222.06)	1. ASTM C90 medium weight block. 2. 1" penetration to substrate. 3. 2" minimum edge distance.

Notes: 1. Anchor placement per Drawing 45-17203 (attached)

2. Anchor clip shall be secured to window frame with four (4) #8 x 3/4" screws.

Table 10 Series 1606 XX Outswing (Impact) (6-2 x 8-2) – Monolithic Glass; ADA Sill

Door: Series 1606 XX Outswing (6-2 x 8-2)		Test Report: ESP028942P-2342 Rev. B ESP025891P-2188 Rev. D	
Overall Size: 74" wide by 98" tall		Product Approval: FL21999	
Panel Size: 36" x 95"		High Velocity Hurricane Zone: Yes	
Glazing: 7/16" Monolithic (GL3)		Maximum Raised Panel Height: 29-21/32"	
Maximum DLO: 26-5/32" x 83-1/16"			
Design Pressure: +60/-75 psf			
Missile Impact: Missile D, Wind Zone 4		Requires overhang per FBC 1709.5.1	
Installation Method	Substrate	Anchor	Comments
Fin (see Note 1)	Wood	#6 x 1-5/8" Screw	1. Southern Yellow Pine substrate. 2. 1-1/2" penetration to substrate. 3. 5/8" minimum edge distance.
	Steel Stud or Alum. Mull.	#10-16 TEKS Screw	1. 16 gauge, 50 ksi steel stud or 1/8" min. thick 6063-T6 mullion. 2. Full penetration + 3 threads. 3. 1/2" minimum edge distance.
Through-Frame (see Note 1)	Wood	#10 x 2-1/2" Screw	1. Southern Yellow Pine substrate. 2. 1-1/4" penetration to substrate. 3. 1-1/8" min. edge distance at sill; 2-1/8" min. at head and jams.
	Steel Stud or Alum. Mull.	#10-16 TEKS Screw	1. 16 gauge, 50 ksi steel stud or 1/8" min. thick 6063-T6 mullion. 2. Full penetration + 3 threads. 3. 1/2" minimum edge distance.
	Concrete	3/16" Tapcon Anchor (NOA 16-1222.06)	1. $f'_c = 3,000$ psi concrete. 2. 1-1/2" embedment to substrate. 3. 2" minimum edge distance.
	CMU	3/16" Tapcon Anchor (NOA 16-1222.06)	1. ASTM C90 medium weight block. 2. 1" penetration to substrate. 3. 2" minimum edge distance.
Anchor Clip (see Note 1, 2)	Wood	(4) #6 x 1-5/8" Screws	1. Southern Yellow Pine substrate. 2. 1-1/2" penetration to substrate. 3. 1/2" minimum edge distance.
	Steel Stud or Alum. Mull.	(4) #10-16 TEKS Screws	1. 16 gauge, 50 ksi steel stud or 1/8" min. thick 6063-T6 mullion. 2. Full penetration + 3 threads. 3. 1/2" minimum edge distance.
	Concrete	3/16" Tapcon Anchor (NOA 16-1222.06)	1. $f'_c = 3,000$ psi concrete. 2. 1-1/2" embedment to substrate. 3. 1" minimum edge distance.
	CMU	3/16" Tapcon Anchor (NOA 16-1222.06)	1. ASTM C90 medium weight block. 2. 1" penetration to substrate. 3. 2" minimum edge distance.

Notes: 1. Anchor placement per Drawing 45-17203 (attached)

2. Anchor clip shall be secured to window frame with four (4) #8 x 3/4" screws.

Table 11 Series 1606 XX Outswing (Impact) (7-0 x 10-0) – Insulating Glass; ADA Sill

Door: Series 1606 XX Outswing (7-0x10-0)		Test Report: ESP025891P-2188 Rev. D	
Overall Size: 84" wide by 120" tall		QCT16-4149.01-R1	
Panel Size: 41" x 117"		Product Approval: FL21999	
Glazing: 1" Insulating Glass (GL1)		High Velocity Hurricane Zone: Yes	
Maximum DLO: 30-15/16" x 105-3/16"		Maximum Raised Panel Height: 29-21/32"	
Design Pressure: +60/-60 psf			
Missile Impact: Missile D, Wind Zone 4		Requires overhang per FBC 1709.5.1	
Installation Method	Substrate	Anchor	Comments
Fin (see Note 1)	Wood	#6 x 1-5/8" Screw	1. Southern Yellow Pine substrate. 2. 1-1/2" penetration to substrate. 3. 5/8" minimum edge distance.
	Steel Stud or Alum. Mull.	#10-16 TEKS Screw	1. 16 gauge, 50 ksi steel stud or 1/8" min. thick 6063-T6 mullion. 2. Full penetration + 3 threads. 3. 1/2" minimum edge distance.
Through-Frame (see Note 1)	Wood	#10 x 2-1/2" Screw	1. Southern Yellow Pine substrate. 2. 1-1/4" penetration to substrate. 3. 1-1/8" min. edge distance at sill; 2-1/8" min. at head and jams.
	Steel Stud or Alum. Mull.	#10-16 TEKS Screw	1. 16 gauge, 50 ksi steel stud or 1/8" min. thick 6063-T6 mullion. 2. Full penetration + 3 threads. 3. 1/2" minimum edge distance.
	Concrete	3/16" Tapcon Anchor (NOA 16-1222.06)	1. $f'_c = 3,000$ psi concrete. 2. 1-1/2" embedment to substrate. 3. 2" minimum edge distance.
	CMU	3/16" Tapcon Anchor (NOA 16-1222.06)	1. ASTM C90 medium weight block. 2. 1" penetration to substrate. 3. 2" minimum edge distance.
Anchor Clip (see Note 1, 2)	Wood	(4) #6 x 1-5/8" Screws	1. Southern Yellow Pine substrate. 2. 1-1/2" penetration to substrate. 3. 1/2" minimum edge distance.
	Steel Stud or Alum. Mull.	(4) #10-16 TEKS Screws	1. 16 gauge, 50 ksi steel stud or 1/8" min. thick 6063-T6 mullion. 2. Full penetration + 3 threads. 3. 1/2" minimum edge distance.
	Concrete	3/16" Tapcon Anchor (NOA 16-1222.06)	1. $f'_c = 3,000$ psi concrete. 2. 1-1/2" embedment to substrate. 3. 1" minimum edge distance.
	CMU	3/16" Tapcon Anchor (NOA 16-1222.06)	1. ASTM C90 medium weight block. 2. 1" penetration to substrate. 3. 2" minimum edge distance.

Notes: 1. Anchor placement per Drawing 45-17203 (attached)

2. Anchor clip shall be secured to window frame with four (4) #8 x 3/4" screws.

Table 12 Series 1606 XX Outswing (Impact) (7-0 x 10-0) – Monolithic Glass; ADA Sill

Door: Series 1606 XX Outswing (7-0x10-0)		Test Report: ESP028942P-2342 Rev. B ESP025891P-2188 Rev. D	
Overall Size: 84" wide by 120" tall		Product Approval: FL21999	
Panel Size: 41" x 117"		High Velocity Hurricane Zone: Yes	
Glazing: 17/32" Monolithic (GL4)		Maximum Raised Panel Height: 29-21/32"	
Maximum DLO: 30-15/16" x 105-3/16"			
Design Pressure: +60/-60 psf			
Missile Impact: Missile D, Wind Zone 4		Requires overhang per FBC 1709.5.1	
Installation Method	Substrate	Anchor	Comments
Fin (see Note 1)	Wood	#6 x 1-5/8" Screw	1. Southern Yellow Pine substrate. 2. 1-1/2" penetration to substrate. 3. 5/8" minimum edge distance.
	Steel Stud or Alum. Mull.	#10-16 TEKS Screw	1. 16 gauge, 50 ksi steel stud or 1/8" min. thick 6063-T6 mullion. 2. Full penetration + 3 threads. 3. 1/2" minimum edge distance.
Through-Frame (see Note 1)	Wood	#10 x 2-1/2" Screw	1. Southern Yellow Pine substrate. 2. 1-1/4" penetration to substrate. 3. 1-1/8" min. edge distance at sill; 2-1/8" min. at head and jams.
	Steel Stud or Alum. Mull.	#10-16 TEKS Screw	1. 16 gauge, 50 ksi steel stud or 1/8" min. thick 6063-T6 mullion. 2. Full penetration + 3 threads. 3. 1/2" minimum edge distance.
	Concrete	3/16" Tapcon Anchor (NOA 16-1222.06)	1. $f'_c = 3,000$ psi concrete. 2. 1-1/2" embedment to substrate. 3. 2" minimum edge distance.
	CMU	3/16" Tapcon Anchor (NOA 16-1222.06)	1. ASTM C90 medium weight block. 2. 1" penetration to substrate. 3. 2" minimum edge distance.
Anchor Clip (see Note 1, 2)	Wood	(4) #6 x 1-5/8" Screws	1. Southern Yellow Pine substrate. 2. 1-1/2" penetration to substrate. 3. 1/2" minimum edge distance.
	Steel Stud or Alum. Mull.	(4) #10-16 TEKS Screws	1. 16 gauge, 50 ksi steel stud or 1/8" min. thick 6063-T6 mullion. 2. Full penetration + 3 threads. 3. 1/2" minimum edge distance.
	Concrete	3/16" Tapcon Anchor (NOA 16-1222.06)	1. $f'_c = 3,000$ psi concrete. 2. 1-1/2" embedment to substrate. 3. 1" minimum edge distance.
	CMU	3/16" Tapcon Anchor (NOA 16-1222.06)	1. ASTM C90 medium weight block. 2. 1" penetration to substrate. 3. 2" minimum edge distance.

Notes: 1. Anchor placement per Drawing 45-17203 (attached)

2. Anchor clip shall be secured to window frame with four (4) #8 x 3/4" screws.

Table 13 Series 1606 O Sidelite (Impact) (3-6 x 10-0) – Insulating Glass

Door: Series 1606 O Sidelite (3-6 x 10-0)
Overall Size: 42" wide by 120" tall
Panel Size: 41" x 118"
Glazing: 1" Insulating Glass (GL1)
Maximum DLO: 35-3/4" x 102-11/16"
Design Pressure: +60/-60 psf
Missile Impact: Missile D, Wind Zone 4

Test Report: ESP024263P-2078 Rev. D
Product Approval: FL21999
High Velocity Hurricane Zone: Yes
Maximum Raised Panel Height: 29-21/32"

Installation Method	Substrate	Anchor	Comments
Fin (see Note 1)	Wood	#6 x 1-5/8" Screw	1. Southern Yellow Pine substrate. 2. 1-1/2" penetration to substrate. 3. 5/8" minimum edge distance.
	Steel Stud or Alum. Mull.	#10-16 TEKS Screw	1. 16 gauge, 50 ksi steel stud or 1/8" min. thick 6063-T6 mullion. 2. Full penetration + 3 threads. 3. 1/2" minimum edge distance.
Through-Frame (see Note 1)	Wood	#10 x 2-1/2" Screw	1. Southern Yellow Pine substrate. 2. 1-1/4" penetration to substrate. 3. 1-1/8" min. edge distance at sill; 2-1/8" min. at head and jams.
	Steel Stud or Alum. Mull.	#10-16 TEKS Screw	1. 16 gauge, 50 ksi steel stud or 1/8" min. thick 6063-T6 mullion. 2. Full penetration + 3 threads. 3. 1/2" minimum edge distance.
	Concrete	3/16" Tapcon Anchor (NOA 16-1222.06)	1. f'c = 3,000 psi concrete. 2. 1-1/2" embedment to substrate. 3. 2" minimum edge distance.
	CMU	3/16" Tapcon Anchor (NOA 16-1222.06)	1. ASTM C90 medium weight block. 2. 1" penetration to substrate. 3. 2" minimum edge distance.
Anchor Clip (see Note 1, 2)	Wood	(4) #6 x 1-5/8" Screws	1. Southern Yellow Pine substrate. 2. 1-1/2" penetration to substrate. 3. 1/2" minimum edge distance.
	Steel Stud or Alum. Mull.	(4) #10-16 TEKS Screws	1. 16 gauge, 50 ksi steel stud or 1/8" min. thick 6063-T6 mullion. 2. Full penetration + 3 threads. 3. 1/2" minimum edge distance.
	Concrete	3/16" Tapcon Anchor (NOA 16-1222.06)	1. f'c = 3,000 psi concrete. 2. 1-1/2" embedment to substrate. 3. 1" minimum edge distance.
	CMU	3/16" Tapcon Anchor (NOA 16-1222.06)	1. ASTM C90 medium weight block. 2. 1" penetration to substrate. 3. 2" minimum edge distance.

Notes: 1. Anchor placement per Drawing 45-17203 (attached)

2. Anchor clip shall be secured to window frame with four (4) #8 x 3/4" screws.

Table 14 Series 1606 O Sidelite (Impact) (3-6 x 10-0) – Monolithic Glass

Door: Series 1606 O Sidelite (3-6 x 10-0) Overall Size: 42" wide by 120" tall Panel Size: 41" x 118" Glazing: 17/32" Monolithic (GL4) Maximum DLO: 35-3/4" x 102-11/16" Design Pressure: +60/-60 psf Missile Impact: Missile D, Wind Zone 4			Test Report: ESP024263P-2078 Rev. D Product Approval: FL21999 High Velocity Hurricane Zone: Yes Maximum Raised Panel Height: 29-21/32"
Installation Method	Substrate	Anchor	Comments
Fin (see Note 1)	Wood	#6 x 1-5/8" Screw	4. Southern Yellow Pine substrate. 5. 1-1/2" penetration to substrate. 6. 5/8" minimum edge distance.
	Steel Stud or Alum. Mull.	#10-16 TEKS Screw	4. 16 gauge, 50 ksi steel stud or 1/8" min. thick 6063-T6 mullion. 5. Full penetration + 3 threads. 6. 1/2" minimum edge distance.
Through-Frame (see Note 1)	Wood	#10 x 2-1/2" Screw	4. Southern Yellow Pine substrate. 5. 1-1/4" penetration to substrate. 6. 1-1/8" min. edge distance at sill; 2-1/8" min. at head and jamsbs.
	Steel Stud or Alum. Mull.	#10-16 TEKS Screw	4. 16 gauge, 50 ksi steel stud or 1/8" min. thick 6063-T6 mullion. 5. Full penetration + 3 threads. 6. 1/2" minimum edge distance.
	Concrete	3/16" Tapcon Anchor (NOA 16-1222.06)	4. f'c = 3,000 psi concrete. 5. 1-1/2" embedment to substrate. 6. 2" minimum edge distance.
	CMU	3/16" Tapcon Anchor (NOA 16-1222.06)	4. ASTM C90 medium weight block. 5. 1" penetration to substrate. 6. 2" minimum edge distance.
Anchor Clip (see Note 1, 2)	Wood	(4) #6 x 1-5/8" Screws	4. Southern Yellow Pine substrate. 5. 1-1/2" penetration to substrate. 6. 1/2" minimum edge distance.
	Steel Stud or Alum. Mull.	(4) #10-16 TEKS Screws	4. 16 gauge, 50 ksi steel stud or 1/8" min. thick 6063-T6 mullion. 5. Full penetration + 3 threads. 6. 1/2" minimum edge distance.
	Concrete	3/16" Tapcon Anchor (NOA 16-1222.06)	4. f'c = 3,000 psi concrete. 5. 1-1/2" embedment to substrate. 6. 1" minimum edge distance.
	CMU	3/16" Tapcon Anchor (NOA 16-1222.06)	4. ASTM C90 medium weight block. 5. 1" penetration to substrate. 6. 2" minimum edge distance.

Notes: 1. Anchor placement per Drawing 45-17203 (attached)

2. Anchor clip shall be secured to window frame with four (4) #8 x 3/4" screws.

Table 15 Series 1606 X Outswing (Impact) (3-2 x 8-2) – Insulating Glass

Door: Series 1606 X Outswing (3-2 x 8-2) Overall Size: 38" wide by 98" tall Panel Size: 36" x 95" Glazing: 1" Insulating Glass (GL2) Maximum DLO: 26-5/32" x 83-3/16" Design Pressure: +60/-75 psf Missile Impact: Missile D, Wind Zone 4			Test Report: ESP028942P-2342 Rev. B Product Approval: FL21999 High Velocity Hurricane Zone: Yes Maximum Raised Panel Height: 29-21/32"
Installation Method	Substrate	Anchor	Comments
Fin (see Note 1)	Wood	#6 x 1-5/8" Screw	1. Southern Yellow Pine substrate. 2. 1-1/2" penetration to substrate. 3. 5/8" minimum edge distance.
	Steel Stud or Alum. Mull.	#10-16 TEKS Screw	1. 16 gauge, 50 ksi steel stud or 1/8" min. thick 6063-T6 mullion. 2. Full penetration + 3 threads. 3. 1/2" minimum edge distance.
Through-Frame (see Note 1)	Wood	#10 x 2-1/2" Screw	1. Southern Yellow Pine substrate. 2. 1-1/4" penetration to substrate. 3. 1-1/8" min. edge distance at sill; 2-1/8" min. at head and jams.
	Steel Stud or Alum. Mull.	#10-16 TEKS Screw	1. 16 gauge, 50 ksi steel stud or 1/8" min. thick 6063-T6 mullion. 2. Full penetration + 3 threads. 3. 1/2" minimum edge distance.
	Concrete	3/16" Tapcon Anchor (NOA 16-1222.06)	1. f'c = 3,000 psi concrete. 2. 1-1/2" embedment to substrate. 3. 2" minimum edge distance.
	CMU	3/16" Tapcon Anchor (NOA 16-1222.06)	1. ASTM C90 medium weight block. 2. 1" penetration to substrate. 3. 2" minimum edge distance.
Anchor Clip (see Note 1, 2)	Wood	(4) #6 x 1-5/8" Screws	1. Southern Yellow Pine substrate. 2. 1-1/2" penetration to substrate. 3. 1/2" minimum edge distance.
	Steel Stud or Alum. Mull.	(4) #10-16 TEKS Screws	1. 16 gauge, 50 ksi steel stud or 1/8" min. thick 6063-T6 mullion. 2. Full penetration + 3 threads. 3. 1/2" minimum edge distance.
	Concrete	3/16" Tapcon Anchor (NOA 16-1222.06)	1. f'c = 3,000 psi concrete. 2. 1-1/2" embedment to substrate. 3. 1" minimum edge distance.
	CMU	3/16" Tapcon Anchor (NOA 16-1222.06)	1. ASTM C90 medium weight block. 2. 1" penetration to substrate. 3. 2" minimum edge distance.

Notes: 1. Anchor placement per Drawing 45-17203 (attached)

2. Anchor clip shall be secured to window frame with four (4) #8 x 3/4" screws.

Table 16 Series 1606 X Outswing (Impact) (3-2 x 8-2) – Monolithic Glass

Door: Series 1606 X Outswing (3-2 x 8-2)		Test Report: ESP028942P-2342 Rev. B	
Overall Size: 38" wide by 98" tall		Product Approval: FL21999	
Panel Size: 36" x 95"		High Velocity Hurricane Zone: Yes	
Glazing: 7/16" Monolithic (GL3)		Maximum Raised Panel Height: 29-21/32"	
Maximum DLO: 26-5/32" x 83-1/16"			
Design Pressure: +60/-75 psf			
Missile Impact: Missile D, Wind Zone 4			
Installation Method	Substrate	Anchor	Comments
Fin (see Note 1)	Wood	#6 x 1-5/8" Screw	1. Southern Yellow Pine substrate. 2. 1-1/2" penetration to substrate. 3. 5/8" minimum edge distance.
	Steel Stud or Alum. Mull.	#10-16 TEKS Screw	1. 16 gauge, 50 ksi steel stud or 1/8" min. thick 6063-T6 mullion. 2. Full penetration + 3 threads. 3. 1/2" minimum edge distance.
Through-Frame (see Note 1)	Wood	#10 x 2-1/2" Screw	1. Southern Yellow Pine substrate. 2. 1-1/4" penetration to substrate. 3. 1-1/8" min. edge distance at sill; 2-1/8" min. at head and jams.
	Steel Stud or Alum. Mull.	#10-16 TEKS Screw	1. 16 gauge, 50 ksi steel stud or 1/8" min. thick 6063-T6 mullion. 2. Full penetration + 3 threads. 3. 1/2" minimum edge distance.
	Concrete	3/16" Tapcon Anchor (NOA 16-1222.06)	1. $f'_c = 3,000$ psi concrete. 2. 1-1/2" embedment to substrate. 3. 2" minimum edge distance.
	CMU	3/16" Tapcon Anchor (NOA 16-1222.06)	1. ASTM C90 medium weight block. 2. 1" penetration to substrate. 3. 2" minimum edge distance.
Anchor Clip (see Note 1, 2)	Wood	(4) #6 x 1-5/8" Screws	1. Southern Yellow Pine substrate. 2. 1-1/2" penetration to substrate. 3. 1/2" minimum edge distance.
	Steel Stud or Alum. Mull.	(4) #10-16 TEKS Screws	1. 16 gauge, 50 ksi steel stud or 1/8" min. thick 6063-T6 mullion. 2. Full penetration + 3 threads. 3. 1/2" minimum edge distance.
	Concrete	3/16" Tapcon Anchor (NOA 16-1222.06)	1. $f'_c = 3,000$ psi concrete. 2. 1-1/2" embedment to substrate. 3. 1" minimum edge distance.
	CMU	3/16" Tapcon Anchor (NOA 16-1222.06)	1. ASTM C90 medium weight block. 2. 1" penetration to substrate. 3. 2" minimum edge distance.

Notes: 1. Anchor placement per Drawing 45-17203 (attached)

2. Anchor clip shall be secured to window frame with four (4) #8 x 3/4" screws.

Table 17 Series 1606 X Outswing (Impact) (3-8 x 10-0) – Insulating Glass

Door: Series 1606 X Outswing (3-8x10-0)		Test Report: ESP025891P-2188 Rev. D	
Overall Size: 34" wide by 120" tall		QCT16-4149.01-R1	
Panel Size: 41" x 117"		Product Approval: FL21999	
Glazing: 1" Insulating Glass (GL1)		High Velocity Hurricane Zone: Yes	
Maximum DLO: 30-15/16" x 105-3/16"		Maximum Raised Panel Height: 29-21/32"	
Design Pressure: +60/-60 psf			
Missile Impact: Missile D, Wind Zone 4			
Installation Method	Substrate	Anchor	Comments
Fin (see Note 1)	Wood	#6 x 1-5/8" Screw	1. Southern Yellow Pine substrate. 2. 1-1/2" penetration to substrate. 3. 5/8" minimum edge distance.
	Steel Stud or Alum. Mull.	#10-16 TEKS Screw	1. 16 gauge, 50 ksi steel stud or 1/8" min. thick 6063-T6 mullion. 2. Full penetration + 3 threads. 3. 1/2" minimum edge distance.
Through-Frame (see Note 1)	Wood	#10 x 2-1/2" Screw	1. Southern Yellow Pine substrate. 2. 1-1/4" penetration to substrate. 3. 1-1/8" min. edge distance at sill; 2-1/8" min. at head and jams.
	Steel Stud or Alum. Mull.	#10-16 TEKS Screw	1. 16 gauge, 50 ksi steel stud or 1/8" min. thick 6063-T6 mullion. 2. Full penetration + 3 threads. 3. 1/2" minimum edge distance.
	Concrete	3/16" Tapcon Anchor (NOA 16-1222.06)	1. $f'_c = 3,000$ psi concrete. 2. 1-1/2" embedment to substrate. 3. 2" minimum edge distance.
	CMU	3/16" Tapcon Anchor (NOA 16-1222.06)	1. ASTM C90 medium weight block. 2. 1" penetration to substrate. 3. 2" minimum edge distance.
Anchor Clip (see Note 1, 2)	Wood	(4) #6 x 1-5/8" Screws	1. Southern Yellow Pine substrate. 2. 1-1/2" penetration to substrate. 3. 1/2" minimum edge distance.
	Steel Stud or Alum. Mull.	(4) #10-16 TEKS Screws	1. 16 gauge, 50 ksi steel stud or 1/8" min. thick 6063-T6 mullion. 2. Full penetration + 3 threads. 3. 1/2" minimum edge distance.
	Concrete	3/16" Tapcon Anchor (NOA 16-1222.06)	1. $f'_c = 3,000$ psi concrete. 2. 1-1/2" embedment to substrate. 3. 1" minimum edge distance.
	CMU	3/16" Tapcon Anchor (NOA 16-1222.06)	1. ASTM C90 medium weight block. 2. 1" penetration to substrate. 3. 2" minimum edge distance.

Notes: 1. Anchor placement per Drawing 45-17203 (attached)

2. Anchor clip shall be secured to window frame with four (4) #8 x 3/4" screws.

Table 18 Series 1606 X Outswing (Impact) (3-8 x 10-0) – Monolithic Glass

Door: Series 1606 X Outswing (3-8x10-0)
Overall Size: 44" wide by 120" tall
Panel Size: 41" x 117"
Glazing: 17/32" Monolithic (GL4)
Maximum DLO: 30-15/16" x 105-3/16"
Design Pressure: +60/-60 psf
Missile Impact: Missile D, Wind Zone 4

Test Report: ESP028942P-2342 Rev. B
Product Approval: FL21999
High Velocity Hurricane Zone: Yes
Maximum Raised Panel Height: 29-21/32"

Installation Method	Substrate	Anchor	Comments
Fin (see Note 1)	Wood	#6 x 1-5/8" Screw	1. Southern Yellow Pine substrate. 2. 1-1/2" penetration to substrate. 3. 5/8" minimum edge distance.
	Steel Stud or Alum. Mull.	#10-16 TEKS Screw	1. 16 gauge, 50 ksi steel stud or 1/8" min. thick 6063-T6 mullion. 2. Full penetration + 3 threads. 3. 1/2" minimum edge distance.
Through-Frame (see Note 1)	Wood	#10 x 2-1/2" Screw	1. Southern Yellow Pine substrate. 2. 1-1/4" penetration to substrate. 3. 1-1/8" min. edge distance at sill; 2-1/8" min. at head and jams.
	Steel Stud or Alum. Mull.	#10-16 TEKS Screw	1. 16 gauge, 50 ksi steel stud or 1/8" min. thick 6063-T6 mullion. 2. Full penetration + 3 threads. 3. 1/2" minimum edge distance.
	Concrete	3/16" Tapcon Anchor (NOA 16-1222.06)	1. f'c = 3,000 psi concrete. 2. 1-1/2" embedment to substrate. 3. 2" minimum edge distance.
	CMU	3/16" Tapcon Anchor (NOA 16-1222.06)	1. ASTM C90 medium weight block. 2. 1" penetration to substrate. 3. 2" minimum edge distance.
Anchor Clip (see Note 1, 2)	Wood	(4) #6 x 1-5/8" Screws	1. Southern Yellow Pine substrate. 2. 1-1/2" penetration to substrate. 3. 1/2" minimum edge distance.
	Steel Stud or Alum. Mull.	(4) #10-16 TEKS Screws	1. 16 gauge, 50 ksi steel stud or 1/8" min. thick 6063-T6 mullion. 2. Full penetration + 3 threads. 3. 1/2" minimum edge distance.
	Concrete	3/16" Tapcon Anchor (NOA 16-1222.06)	1. f'c = 3,000 psi concrete. 2. 1-1/2" embedment to substrate. 3. 1" minimum edge distance.
	CMU	3/16" Tapcon Anchor (NOA 16-1222.06)	1. ASTM C90 medium weight block. 2. 1" penetration to substrate. 3. 2" minimum edge distance.

Notes: 1. Anchor placement per Drawing 45-17203 (attached)

2. Anchor clip shall be secured to window frame with four (4) #8 x 3/4" screws.

Table 19 Series 1606 X Outswing (Impact) (3-2 x 8-2) – Insulating Glass; ADA Sill

Door: Series 1606 X Outswing (3-2 x 8-2)		Test Report: ESP028942P-2342 Rev. B ESP025891P-2188 Rev. D	
Overall Size: 38" wide by 98" tall		Product Approval: FL21999	
Panel Size: 36" x 95"		High Velocity Hurricane Zone: Yes	
Glazing: 1" Insulating Glass (GL2)		Maximum Raised Panel Height: 29-21/32"	
Maximum DLO: 26-5/32" x 83-3/16"			
Design Pressure: +60/-75 psf			
Missile Impact: Missile D, Wind Zone 4		Requires overhang per FBC 1709.5.1	
Installation Method	Substrate	Anchor	Comments
Fin (see Note 1)	Wood	#6 x 1-5/8" Screw	1. Southern Yellow Pine substrate. 2. 1-1/2" penetration to substrate. 3. 5/8" minimum edge distance.
	Steel Stud or Alum. Mull.	#10-16 TEKS Screw	1. 16 gauge, 50 ksi steel stud or 1/8" min. thick 6063-T6 mullion. 2. Full penetration + 3 threads. 3. 1/2" minimum edge distance.
Through-Frame (see Note 1)	Wood	#10 x 2-1/2" Screw	1. Southern Yellow Pine substrate. 2. 1-1/4" penetration to substrate. 3. 1-1/8" min. edge distance at sill; 2-1/8" min. at head and jams.
	Steel Stud or Alum. Mull.	#10-16 TEKS Screw	1. 16 gauge, 50 ksi steel stud or 1/8" min. thick 6063-T6 mullion. 2. Full penetration + 3 threads. 3. 1/2" minimum edge distance.
	Concrete	3/16" Tapcon Anchor (NOA 16-1222.06)	1. $f'_c = 3,000$ psi concrete. 2. 1-1/2" embedment to substrate. 3. 2" minimum edge distance.
	CMU	3/16" Tapcon Anchor (NOA 16-1222.06)	1. ASTM C90 medium weight block. 2. 1" penetration to substrate. 3. 2" minimum edge distance.
Anchor Clip (see Note 1, 2)	Wood	(4) #6 x 1-5/8" Screws	1. Southern Yellow Pine substrate. 2. 1-1/2" penetration to substrate. 3. 1/2" minimum edge distance.
	Steel Stud or Alum. Mull.	(4) #10-16 TEKS Screws	1. 16 gauge, 50 ksi steel stud or 1/8" min. thick 6063-T6 mullion. 2. Full penetration + 3 threads. 3. 1/2" minimum edge distance.
	Concrete	3/16" Tapcon Anchor (NOA 16-1222.06)	1. $f'_c = 3,000$ psi concrete. 2. 1-1/2" embedment to substrate. 3. 1" minimum edge distance.
	CMU	3/16" Tapcon Anchor (NOA 16-1222.06)	1. ASTM C90 medium weight block. 2. 1" penetration to substrate. 3. 2" minimum edge distance.

Notes: 1. Anchor placement per Drawing 45-17203 (attached)

2. Anchor clip shall be secured to window frame with four (4) #8 x 3/4" screws.

Table 20 Series 1606 X Outswing (Impact) (3-2 x 8-2) – Monolithic Glass; ADA Sill

Door: Series 1606 X Outswing (3-2 x 8-2)		Test Report: ESP028942P-2342 Rev. B ESP025891P-2188 Rev. D	
Overall Size: 38" wide by 98" tall		Product Approval: FL21999	
Panel Size: 36" x 95"		High Velocity Hurricane Zone: Yes	
Glazing: 7/16" Monolithic (GL3)		Maximum Raised Panel Height: 29-21/32"	
Maximum DLO: 26-5/32" x 83-1/16"			
Design Pressure: +60/-75 psf			
Missile Impact: Missile D, Wind Zone 4		Requires overhang per FBC 1709.5.1	
Installation Method	Substrate	Anchor	Comments
Fin (see Note 1)	Wood	#6 x 1-5/8" Screw	1. Southern Yellow Pine substrate. 2. 1-1/2" penetration to substrate. 3. 5/8" minimum edge distance.
	Steel Stud or Alum. Mull.	#10-16 TEKS Screw	1. 16 gauge, 50 ksi steel stud or 1/8" min. thick 6063-T6 mullion. 2. Full penetration + 3 threads. 3. 1/2" minimum edge distance.
Through-Frame (see Note 1)	Wood	#10 x 2-1/2" Screw	1. Southern Yellow Pine substrate. 2. 1-1/4" penetration to substrate. 3. 1-1/8" min. edge distance at sill; 2-1/8" min. at head and jams.
	Steel Stud or Alum. Mull.	#10-16 TEKS Screw	1. 16 gauge, 50 ksi steel stud or 1/8" min. thick 6063-T6 mullion. 2. Full penetration + 3 threads. 3. 1/2" minimum edge distance.
	Concrete	3/16" Tapcon Anchor (NOA 16-1222.06)	1. $f'_c = 3,000$ psi concrete. 2. 1-1/2" embedment to substrate. 3. 2" minimum edge distance.
	CMU	3/16" Tapcon Anchor (NOA 16-1222.06)	1. ASTM C90 medium weight block. 2. 1" penetration to substrate. 3. 2" minimum edge distance.
Anchor Clip (see Note 1, 2)	Wood	(4) #6 x 1-5/8" Screws	1. Southern Yellow Pine substrate. 2. 1-1/2" penetration to substrate. 3. 1/2" minimum edge distance.
	Steel Stud or Alum. Mull.	(4) #10-16 TEKS Screws	1. 16 gauge, 50 ksi steel stud or 1/8" min. thick 6063-T6 mullion. 2. Full penetration + 3 threads. 3. 1/2" minimum edge distance.
	Concrete	3/16" Tapcon Anchor (NOA 16-1222.06)	1. $f'_c = 3,000$ psi concrete. 2. 1-1/2" embedment to substrate. 3. 1" minimum edge distance.
	CMU	3/16" Tapcon Anchor (NOA 16-1222.06)	1. ASTM C90 medium weight block. 2. 1" penetration to substrate. 3. 2" minimum edge distance.

Notes: 1. Anchor placement per Drawing 45-17203 (attached)

2. Anchor clip shall be secured to window frame with four (4) #8 x 3/4" screws.

Table 21 Series 1606 X Outswing (Impact) (3-8 x 10-0) – Insulating Glass; ADA Sill

Door: Series 1606 X Outswing (3-8x10-0)		Test Report: ESP025891P-2188 Rev. D	
Overall Size: 44" wide by 120" tall		QCT16-4149.01-R1	
Panel Size: 41" x 117"		Product Approval: FL21999	
Glazing: 1" Insulating Glass (GL1)		High Velocity Hurricane Zone: Yes	
Maximum DLO: 30-15/16" x 105-3/16"		Maximum Raised Panel Height: 29-21/32"	
Design Pressure: +60/-60 psf			
Missile Impact: Missile D, Wind Zone 4		Requires overhang per FBC 1709.5.1	
Installation Method	Substrate	Anchor	Comments
Fin (see Note 1)	Wood	#6 x 1-5/8" Screw	1. Southern Yellow Pine substrate. 2. 1-1/2" penetration to substrate. 3. 5/8" minimum edge distance.
	Steel Stud or Alum. Mull.	#10-16 TEKS Screw	1. 16 gauge, 50 ksi steel stud or 1/8" min. thick 6063-T6 mullion. 2. Full penetration + 3 threads. 3. 1/2" minimum edge distance.
Through-Frame (see Note 1)	Wood	#10 x 2-1/2" Screw	1. Southern Yellow Pine substrate. 2. 1-1/4" penetration to substrate. 3. 1-1/8" min. edge distance at sill; 2-1/8" min. at head and jams.
	Steel Stud or Alum. Mull.	#10-16 TEKS Screw	1. 16 gauge, 50 ksi steel stud or 1/8" min. thick 6063-T6 mullion. 2. Full penetration + 3 threads. 3. 1/2" minimum edge distance.
	Concrete	3/16" Tapcon Anchor (NOA 16-1222.06)	1. $f'_c = 3,000$ psi concrete. 2. 1-1/2" embedment to substrate. 3. 2" minimum edge distance.
	CMU	3/16" Tapcon Anchor (NOA 16-1222.06)	1. ASTM C90 medium weight block. 2. 1" penetration to substrate. 3. 2" minimum edge distance.
Anchor Clip (see Note 1, 2)	Wood	(4) #6 x 1-5/8" Screws	1. Southern Yellow Pine substrate. 2. 1-1/2" penetration to substrate. 3. 1/2" minimum edge distance.
	Steel Stud or Alum. Mull.	(4) #10-16 TEKS Screws	1. 16 gauge, 50 ksi steel stud or 1/8" min. thick 6063-T6 mullion. 2. Full penetration + 3 threads. 3. 1/2" minimum edge distance.
	Concrete	3/16" Tapcon Anchor (NOA 16-1222.06)	1. $f'_c = 3,000$ psi concrete. 2. 1-1/2" embedment to substrate. 3. 1" minimum edge distance.
	CMU	3/16" Tapcon Anchor (NOA 16-1222.06)	1. ASTM C90 medium weight block. 2. 1" penetration to substrate. 3. 2" minimum edge distance.

Notes: 1. Anchor placement per Drawing 45-17203 (attached)

2. Anchor clip shall be secured to window frame with four (4) #8 x 3/4" screws.

Table 22 Series 1606 X Outswing (Impact) (3-8 x 10-0) – Monolithic Glass; ADA Sill

Door: Series 1606 X Outswing (3-8x10-0)		Test Report: ESP028942P-2342 Rev. B ESP025891P-2188 Rev. D	
Overall Size: 44" wide by 120" tall		Product Approval: FL21999	
Panel Size: 41" x 117"		High Velocity Hurricane Zone: Yes	
Glazing: 17/32" Monolithic (GL4)		Maximum Raised Panel Height: 29-21/32"	
Maximum DLO: 30-15/16" x 105-3/16"			
Design Pressure: +60/-60 psf			
Missile Impact: Missile D, Wind Zone 4		Requires overhang per FBC 1709.5.1	
Installation Method	Substrate	Anchor	Comments
Fin (see Note 1)	Wood	#6 x 1-5/8" Screw	1. Southern Yellow Pine substrate. 2. 1-1/2" penetration to substrate. 3. 5/8" minimum edge distance.
	Steel Stud or Alum. Mull.	#10-16 TEKS Screw	1. 16 gauge, 50 ksi steel stud or 1/8" min. thick 6063-T6 mullion. 2. Full penetration + 3 threads. 3. 1/2" minimum edge distance.
Through-Frame (see Note 1)	Wood	#10 x 2-1/2" Screw	1. Southern Yellow Pine substrate. 2. 1-1/4" penetration to substrate. 3. 1-1/8" min. edge distance at sill; 2-1/8" min. at head and jams.
	Steel Stud or Alum. Mull.	#10-16 TEKS Screw	1. 16 gauge, 50 ksi steel stud or 1/8" min. thick 6063-T6 mullion. 2. Full penetration + 3 threads. 3. 1/2" minimum edge distance.
	Concrete	3/16" Tapcon Anchor (NOA 16-1222.06)	1. $f'_c = 3,000$ psi concrete. 2. 1-1/2" embedment to substrate. 3. 2" minimum edge distance.
	CMU	3/16" Tapcon Anchor (NOA 16-1222.06)	1. ASTM C90 medium weight block. 2. 1" penetration to substrate. 3. 2" minimum edge distance.
Anchor Clip (see Note 1, 2)	Wood	(4) #6 x 1-5/8" Screws	1. Southern Yellow Pine substrate. 2. 1-1/2" penetration to substrate. 3. 1/2" minimum edge distance.
	Steel Stud or Alum. Mull.	(4) #10-16 TEKS Screws	1. 16 gauge, 50 ksi steel stud or 1/8" min. thick 6063-T6 mullion. 2. Full penetration + 3 threads. 3. 1/2" minimum edge distance.
	Concrete	3/16" Tapcon Anchor (NOA 16-1222.06)	1. $f'_c = 3,000$ psi concrete. 2. 1-1/2" embedment to substrate. 3. 1" minimum edge distance.
	CMU	3/16" Tapcon Anchor (NOA 16-1222.06)	1. ASTM C90 medium weight block. 2. 1" penetration to substrate. 3. 2" minimum edge distance.

Notes: 1. Anchor placement per Drawing 45-17203 (attached)

2. Anchor clip shall be secured to window frame with four (4) #8 x 3/4" screws.

Attachments

Appendix A – Revision Log (1 page)

Appendix B – Installation Drawings (4 pages)

As-Tested – PVC Nail Fin to Wood

#6 x 1-5/8" Wood Screw

PVC Nailing Fin

Southern Yellow Pine Wood Substrate Minimum (G=0.55)

Allowable Tension of #6 x 1-5/8" Wood Screw

$$W = 1.6(1.500")(119 \text{ lb/in}) \text{ (NDS, Table 12.2B)}$$
$$W = 286 \text{ lb}$$

Pull-Over of #6 x 1-5/8" Wood Screw

Validated by Testing

Report: ESP017571P-1606
Size: 72" wide by 84" tall
Pressure: 70 psf
As-tested spacing: 8"-10" on center

$$\text{Load to Anchor: } p = (70 \text{ psf}/144)(84"/2)(10") = 204 \text{ lb}$$

Pull-over governs

Must maintain anchor spacing and anchor head size

As-tested spacing: 8"-10" on center
As-tested anchor head size: 0.279"

Capacity of Connection is 204 lb

Alternate Substrate – PVC Nail Fin to Steel Stud

#10-16 TEKS Screw

PVC Nailing Fin

Minimum 16 gauge 50 KSI Steel Stud

Allowable Tension of #10-16 TEKS Screw

$$P_{ss}/\Omega = (145 \text{ lb})(1.44) = 209 \text{ lb} \quad (\text{ESR-1976, Table 2})$$

Pull-Over of #10-16 TEKS Screw

Anchor head size: 0.365" > 0.279" Maintain as-tested spacing.

Capacity of Connection is 209 lb

Alternate Substrate – PVC Nail Fin to Aluminum Tube Mullion

#10-16 TEKS Screw

PVC Nailing Fin

1/8" thick 6063-T6 aluminum tube mullion (qualifies 1/4" thick mullion)

Tensile Capacity of #10-16 TEKS Screw

$$P_{ts}/\Omega = 885 \text{ lb} \quad (\text{ESR-1976})$$

Pull-Out of #10-16 TEKS Screw at Tube Mullion

$$\begin{aligned} P_{\text{not}} &= K_s D L_e F_{ty2} / 3.0 \\ P_{\text{not}} &= 1.2 (0.190") (0.125") (25,000 \text{ psi}) / 3.0 \\ P_{\text{not}} &= 238 \text{ lb} \end{aligned}$$

Pull-Over of #10-16 TEKS Screw

Anchor head size: 0.365" > 0.279" Maintain as-tested spacing.

Capacity of Connection is 235 lb

As-Tested – Through Frame to Wood

#10 x 2-1/2" Wood Screw

1-3/16" thick Window Frame (Ponderosa Pine/Douglas Fir, $G_{min} = 0.43$)

1/4" Maximum Shim Space

Southern Yellow Pine 2x Wood Substrate ($G=0.55$)

Allowable Shear of #10 x 1-1/2" Wood Screw

$Z' = 117 \text{ lb}$ (Limited by Mode IV, see next two pages)

Capacity of Connection is 112 lb

As-Tested – Through Frame to Wood (Continued)

Lateral Design Strength of Wood Connections

Data

Fastener			
Fastener	=	#10 Wood Screw	
Shank Dia	=	0.190	in.
Root Dia.	=	0.152	in.
F_{yb}	=	80,000	psi
Fastener length	=	2.500	in.
Main Member			
Material	=	SYP	
G	=	0.55	
θ	=	90	<= (Angle of load to grain $0^\circ \leq \theta \leq 90^\circ$)
F_e	=	5,550	psi
Thickness	=	1.500	in.
Side Member			
Material	=	Ponderosa Pine	
G	=	0.43	
θ	=	90	<= (Angle of load to grain $0^\circ \leq \theta \leq 90^\circ$)
F_{es}	=	3,500	psi
Thickness	=	1.180	in.

Calculations

Lateral Bearing Factors

D	=	0.152	in.
ℓ_m	=	0.940	in.
K_θ	=	1.25	
K_D	=	2.20	
R_e	=	1.586	
R_t	=	0.80	
k_1	=	0.4616	
k_2	=	1.4939	
k_3	=	0.96	

Yield Mode	R_d
I_m, I_s	2.20
II	2.20
III_m, III_s, IV	2.20

As-Tested – Through Frame to Wood (Continued)

Lateral Design Values, Z

Mode I _m	=	360	lbf	
Mode I _s	=	285	lbf	
Mode II	=	132	lbf	
Mode III _m	=	129	lbf	
Mode III _s	=	121	lbf	
Mode IV	=	112	lbf	
C _D	=	1		<===== Minimum Value

Wet Service Factor

Fabrication/In-Service		Dry/Dry	
C _M	=	1.0	
In service temperature		T≤100°F	
C _t	=	1.0	
C _g	=	1.0	
C _Δ	=	1.0	
Is fastener installed in end grain?		No	
C _{eg}	=	1.00	
Is fastener part of a diaphragm?		No	
C _{di}	=	1.0	
Is fastener toe-nailed?		No	
C _{tn}	=	1.00	
Z'	=	112	lbf

Alternate Substrate – Through Frame to Steel Stud

#10-16 TEKS Screw

1-3/16" thick Window Frame (Ponderosa Pine/Douglas Fir, G = 0.43)

1/4" Maximum Shim Space

Minimum 16 gauge 50 KSI Steel Stud

Allowable Shear of #10-16 TEKS Screw

$$P_{ss}/\Omega = 573 \text{ lb (ESR-1976)}$$

Bearing of #10-16 TEKS Screw on Wood Frame

$$F_e = 3,500 \text{ psi}$$

$$D = 0.190"$$

$$V_a = (F_e)(D)(L)/R_d = (3,500 \text{ psi})(0.190")(1.188")/2.2 = 359 \text{ lb}$$

Bearing of #10-16 TEKS Screw on Steel Stud

$$V_a = 2.7DtF_{tu}/3.0$$

$$V_a = 2.7(0.190")(0.054")(65,000 \text{ psi})/3.0$$

$$V_a = 600 \text{ lb.}$$

Tilting of #10-16 TEKS Screw in Steel Stud

$$V_a = 4.2(t_2^3 D)^{1/2} F_{tu2}/n_s$$

$$V_a = 4.2(0.054"{}^3 \times 0.190")^{1/2} (65,000 \text{ psi})/3.0$$

$$V_a = 497 \text{ lb.}$$

Capacity of Connection is 359 lb.

Alternate Substrate – Through Frame to Aluminum Tube Mullion

#10-16 TEKS Screw

1-3/16" thick Window Frame (Ponderosa Pine/Douglas Fir, G = 0.43)

1/4" Maximum Shim Space

1/8" thick 6063-T6 aluminum tube mullion (qualifies 1/4" thick mullion)

Allowable Shear of #10-16 TEKS Screw

$$P_{ss}/\Omega = 573 \text{ lb (ESR-1976)}$$

Bearing of #10-16 TEKS Screw on Wood Frame

$$F_e = 3,500 \text{ psi}$$

$$D = 0.190"$$

$$V_a = (F_e)(D)(L)/R_d = (3,500 \text{ psi})(0.190")(1.188")/2.2 = 359 \text{ lb}$$

Bearing of #10-16 TEKS Screw on Aluminum Tube Mullion

$$V_a = 2DtF_u/n_u$$

$$V_a = 2(0.190")(0.125")(30,000 \text{ psi})/3.0$$

$$V_a = 475 \text{ lb.}$$

Tilting of #10-16 TEKS Screw in Aluminum Tube Mullion

$$V_a = 4.2(t_2^3 D)^{1/2} F_{tu2}/n_s$$

$$V_a = 4.2(0.125"{}^3 \times 0.190")^{1/2} (30,000 \text{ psi})/3.0$$

$$V_a = 809 \text{ lb.}$$

Capacity of Connection is 359 lb.

Alternate Substrate – Through Frame to Concrete

3/16" Tapcon Anchor

2" Minimum Edge Distance, 1-1/2" Minimum Embedment, 2" Minimum Spacing

1-3/16" thick Window Frame (Ponderosa Pine/Douglas Fir, G = 0.43)

1/4" Maximum Shim Space

Minimum $f'_c = 3,000$ psi Concrete

Allowable Shear of 3/16" Tapcon Anchor

$$P_{ss}/\Omega = 186 \text{ lb} \quad (\text{NOA No. 16-1222.06})$$

Bearing of 3/16" Tapcon Anchor on Wood Frame

$$F_e = 3,500 \text{ psi}$$

$$D = 0.188"$$

$$V_a = (F_e)(D)(L)/R_d = (3,500 \text{ psi})(0.188")(1.188")/2.2 = 355 \text{ lb}$$

Capacity of Connection is 186 lb

Alternate Substrate – Through Frame to CMU

3/16" Tapcon Anchor

2" Minimum Edge Distance, 1" Minimum Embedment, 3" Minimum Spacing

1-3/16" thick Window Frame (Ponderosa Pine/Douglas Fir, G = 0.43)

1/4" Maximum Shim Space

Minimum ASTM C90 Medium-Weight Concrete Masonry Unit

Allowable Shear of 3/16" Tapcon Anchor

$$P_{ss}/\Omega = 135 \text{ lb} \quad (\text{NOA No. 16-1222.06})$$

Bearing of 3/16" Tapcon Anchor on Wood Frame

$$F_e = 3,500 \text{ psi}$$

$$D = 0.188"$$

$$V_a = (F_e)(D)(L)/R_d = (3,500 \text{ psi})(0.188")(1.188")/2.2 = 355 \text{ lb}$$

Capacity of Connection is 135 lb

As-Tested – Installation Clip to Wood

(4) #6 x 1-5/8" Wood Screws

0.040" thick steel anchor clip ($F_y = 33,000$ psi, $F_u = 45,000$ psi)

Southern Yellow Pine Wood Substrate Minimum ($G=0.55$)

1/4" Maximum Shim Space

Allowable Tension of #6 x 1-5/8" Wood Screw

$$W = 1.6(1.500")(119 \text{ lb/in}) \text{ (NDS, Table 12.2B)}$$
$$W = 286 \text{ lb}$$

Pull-Over of #6 x 1-5/8" Wood Screw

$$P_{\text{nov}} = 1.5t_1d_wF_u/\Omega$$
$$P_{\text{nov}} = 1.5(0.040")(0.279")(45,000 \text{ psi})/3.0$$
$$P_{\text{nov}} = 251 \text{ lb}$$

Tension in Clip

$$A_{\text{net}} = (1.500" - (2)(0.180"))(0.040") = 0.0456 \text{ in}^2$$
$$P_n = F_uA_{\text{net}} = (45,000 \text{ psi})(0.0456 \text{ in}^2) = 2,052 \text{ lb}$$
$$P_a = P_n/\Omega = 2,052 \text{ lb}/2.0 = 1,026 \text{ lb}$$

Bending of Clip

$$L = (1/4" \text{ shim} + 1/2" \text{ edge distance})/2 = 0.375"; \text{ guided cantilever at bend in clip}$$
$$S = (1.500")(0.040")^2/6 = 0.0004 \text{ in}^3$$
$$F_b = 0.67F_y = (0.67)(33,000 \text{ psi}) = 22,110 \text{ psi}$$
$$M_a = P_a(L) = F_bS; P_a = F_bS/L = (22,110 \text{ psi})(0.0004 \text{ in}^3)/0.375" = 24 \text{ lb}$$

Capacity of Connection is 24 lb

Alternate Substrate – Installation Clip to Steel Stud

#10-16 TEKS Screw

0.040" thick steel anchor clip ($F_y = 33,000$ psi, $F_u = 45,000$ psi)

Minimum 16 gauge 50 KSI Steel Stud

1/4" Maximum Shim Space

Pull-Out of #10-16 TEKS Screw

$$P_{not} = 0.85t_c d F_u / 3.0$$

$$P_{not} = 0.85(0.054")(0.190")(65,000 \text{ psi}) / 3.0$$

$$P_{not} = 189 \text{ lb}$$

Pull-Over of #10-16 TEKS Screw

$$P_{nov} = 1.5t_1 d_w F_u / \Omega$$

$$P_{nov} = 1.5(0.040")(0.365")(45,000 \text{ psi}) / 3.0$$

$$P_{nov} = 329 \text{ lb}$$

Tension in Clip

$$A_{net} = (1.500" - (2)(0.180"))(0.040") = 0.0456 \text{ in}^2$$

$$P_n = F_u A_{net} = (45,000 \text{ psi})(0.0456 \text{ in}^2) = 2,052 \text{ lb}$$

$$P_a = P_n / \Omega = 2,052 \text{ lb} / 2.0 = 1,026 \text{ lb}$$

Bending of Clip

$$L = (1/4" \text{ shim} + 1/2" \text{ edge distance}) / 2 = 0.375"; \text{ guided cantilever at bend in clip}$$

$$S = (1.500")(0.040")^2 / 6 = 0.0004 \text{ in}^3$$

$$F_b = 0.67F_y = (0.67)(33,000 \text{ psi}) = 22,110 \text{ psi}$$

$$M_a = P_a(L) = F_b S; P_a = F_b S / L = (22,110 \text{ psi})(0.0004 \text{ in}^3) / 0.375" = 24 \text{ lb}$$

Capacity of Connection is 24 lb

Alternate Substrate – Installation Clip to Aluminum Tube Mullion

#10-16 TEKS Screw

0.040" thick steel anchor clip ($F_y = 33,000$ psi, $F_u = 45,000$ psi)

1/8" thick 6063-T6 aluminum tube mullion (qualifies 1/4" thick tube mullion)

1/4" Maximum Shim Space

Pull-Out of #10-16 TEKS Screw at Tube Mullion

$$P_{not} = K_s D L_e F_{ty2} / 3.0$$

$$P_{not} = 1.2 (0.190")(0.125")(25,000 \text{ psi}) / 3.0$$

$$P_{not} = 238 \text{ lb}$$

Pull-Over of #10-16 TEKS Screw

$$P_{nov} = 1.5 t_1 d_w F_u / \Omega$$

$$P_{nov} = 1.5 (0.040")(0.365")(45,000 \text{ psi}) / 3.0$$

$$P_{nov} = 329 \text{ lb}$$

Tension in Clip

$$A_{net} = (1.500" - (2)(0.180"))(0.040") = 0.0456 \text{ in}^2$$

$$P_n = F_u A_{net} = (45,000 \text{ psi})(0.0456 \text{ in}^2) = 2,052 \text{ lb}$$

$$P_a = P_n / \Omega = 2,052 \text{ lb} / 2.0 = 1,026 \text{ lb}$$

Bending of Clip

$$L = (1/4" \text{ shim} + 1/2" \text{ edge distance}) / 2 = 0.375"; \text{ guided cantilever at bend in clip}$$

$$S = (1.500")(0.040")^2 / 6 = 0.0004 \text{ in}^3$$

$$F_b = 0.67 F_y = (0.67)(33,000 \text{ psi}) = 22,110 \text{ psi}$$

$$M_a = P_a(L) = F_b S; P_a = F_b S / L = (22,110 \text{ psi})(0.0004 \text{ in}^3) / 0.375" = 24 \text{ lb}$$

Capacity of Connection is 24 lb

Alternate Substrate – Installation Clip to Concrete

3/16" Tapcon Anchor

1" Minimum Edge Distance, 1-1/2" Minimum Embedment

Minimum $f'_c = 3,000$ psi Concrete

0.040" thick steel anchor clip ($F_y = 33,000$ psi, $F_u = 45,000$ psi)

1/4" Maximum Shim Space

Tension Capacity of 3/16" Tapcon Anchor

$$P_a = 261 \text{ lb (NOA No. 16-1222.06)}$$

Pull-Over of 3/16" Tapcon Anchor

$$\begin{aligned} P_{\text{nov}} &= 1.5t_1d_wF_u/\Omega \\ P_{\text{nov}} &= 1.5(0.040")(0.357")(45,000 \text{ psi})/3.0 \\ P_{\text{nov}} &= 321 \text{ lb} \end{aligned}$$

Tension in Clip

$$\begin{aligned} A_{\text{net}} &= (1.500" - (2)(0.180"))(0.040") = 0.0456 \text{ in}^2 \\ P_n &= F_uA_{\text{net}} = (45,000 \text{ psi})(0.0456 \text{ in}^2) = 2,052 \text{ lb} \\ P_a &= P_n/\Omega = 2,052 \text{ lb}/2.0 = 1,026 \text{ lb} \end{aligned}$$

Bending of Clip

$$\begin{aligned} L &= (1/4" \text{ shim} + 1/2" \text{ edge distance})/2 = 0.375"; \text{ guided cantilever at bend in clip} \\ S &= (1.500")(0.040")^2/6 = 0.0004 \text{ in}^3 \\ F_b &= 0.67F_y = (0.67)(33,000 \text{ psi}) = 22,110 \text{ psi} \\ M_a &= P_a(L) = F_bS; P_a = F_bS/L = (22,110 \text{ psi})(0.0004 \text{ in}^3)/0.375" = 24 \text{ lb} \end{aligned}$$

Capacity of Connection is 24 lb

Alternate Substrate – Installation Clip to CMU

3/16" Tapcon Anchor

2" Minimum Edge Distance, 1" Minimum Embedment

Minimum ASTM C90 Medium-Weight Concrete Masonry Unit

0.040" thick steel anchor clip ($F_y = 33,000$ psi, $F_u = 45,000$ psi)

1/4" Maximum Shim Space

Tension Capacity of 3/16" Tapcon Anchor

$$P_a = 68 \text{ lb (NOA No. 16-1222.06)}$$

Pull-Over of 3/16" Tapcon Anchor

$$\begin{aligned} P_{\text{nov}} &= 1.5t_1d_wF_u/\Omega \\ P_{\text{nov}} &= 1.5(0.040")(0.357")(45,000 \text{ psi})/3.0 \\ P_{\text{nov}} &= 321 \text{ lb} \end{aligned}$$

Tension in Clip

$$\begin{aligned} A_{\text{net}} &= (1.500" - (2)(0.180"))(0.040") = 0.0456 \text{ in}^2 \\ P_n &= F_uA_{\text{net}} = (45,000 \text{ psi})(0.0456 \text{ in}^2) = 2,052 \text{ lb} \\ P_a &= P_n/\Omega = 2,052 \text{ lb}/2.0 = 1,026 \text{ lb} \end{aligned}$$

Bending of Clip

$$\begin{aligned} L &= (1/4" \text{ shim} + 1/2" \text{ edge distance})/2 = 0.375"; \text{ guided cantilever at bend in clip} \\ S &= (1.500")(0.040")^2/6 = 0.0004 \text{ in}^3 \\ F_b &= 0.67F_y = (0.67)(33,000 \text{ psi}) = 22,110 \text{ psi} \\ M_a &= P_a(L) = F_bS; P_a = F_bS/L = (22,110 \text{ psi})(0.0004 \text{ in}^3)/0.375" = 24 \text{ lb} \end{aligned}$$

Capacity of Connection is 24 lb

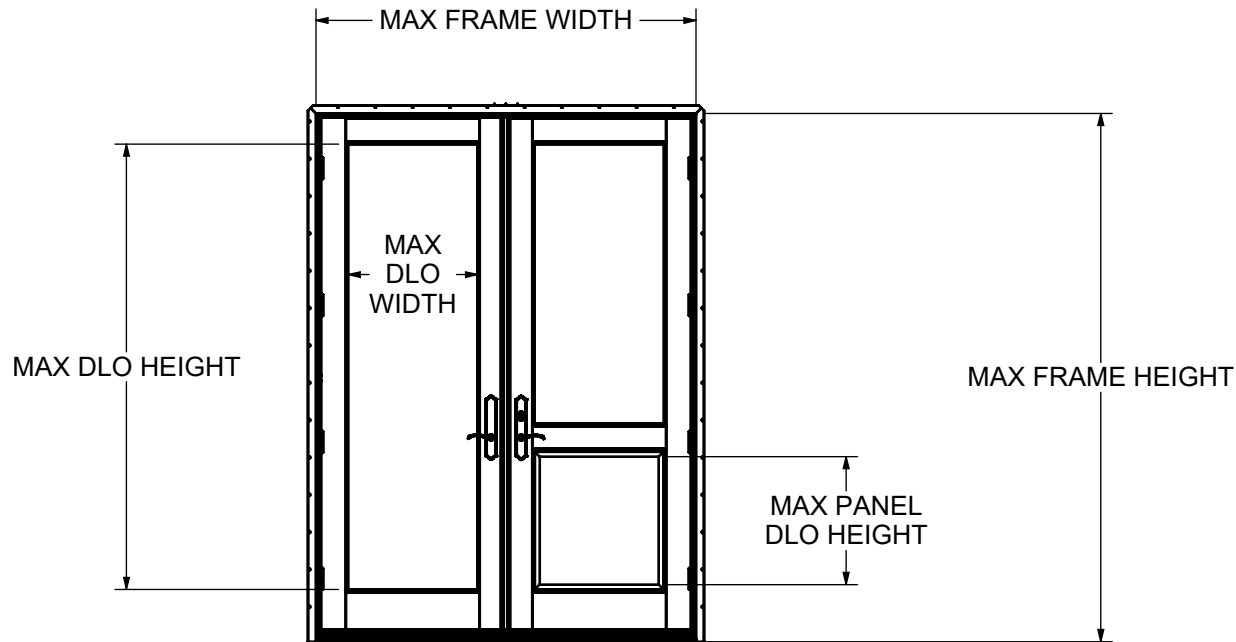
Appendix A

Revision Log

<u>Identification</u>	<u>Date</u>	<u>Page & Revision</u>
Original Issue	12/22/23	Not Applicable
Revision 1	8/14/26	Updated report per the 2026 FBC

Appendix B

Installation Drawings



1606 OUTSWING
FRENCH DOOR
PREMIUM COSTAL
QUALIFIES RECTANGLE
AND ARCH TOP DOORS

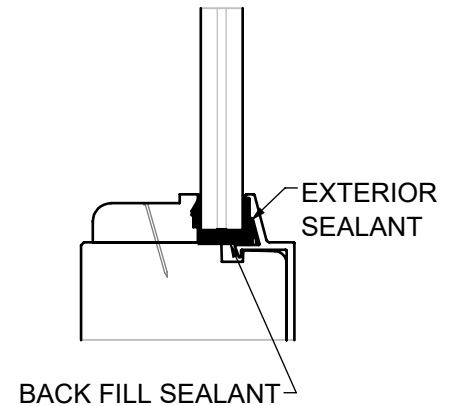
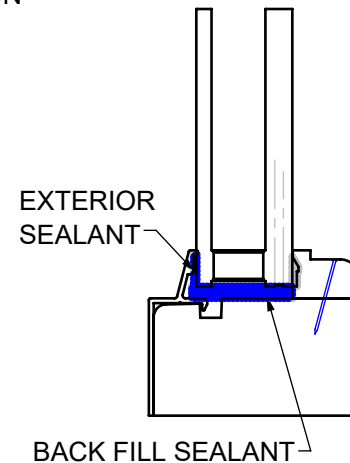
GLAZING TABLE	
EXTERIOR SEALANT	BACK FILL SEALANT
GE RAPID STRENGTH 7700 (2 PART)	GE SCS 2000

QUALIFIES RECTANGLE / EYEBROW UNITS IN A 1 OR 2 PANEL CONFIGURATION

DESCRIPTION	FRAME SIZE		DAYLIGHT OPENING		DESIGN PRESSURE (psf)	FRAME MATERIAL
	WIDTH (IN.)	HEIGHT (IN.)	WIDTH (IN.)	HEIGHT (IN.)		
FRENCH DOOR (IMPACT)	73.69	98.03	25.50	82.44	+60 / -75	WOOD, ALUMINUM
FRENCH DOOR (IMPACT)	83.25	120.03	30.281	104.438	+60 / -60	WOOD, ALUMINUM
FRENCH DOOR (IMPACT)	43.38	120.03	30.281	104.438	+60 / -60	WOOD, ALUMINUM

GENERAL NOTE(S):

1. THESE UNITS HAVE BEEN TESTED, ANALYZED, HALLMARK CERTIFIED AND FBC APPROVED.
2. GLASS MEETS THE REQUIREMENTS OF ASTM E1300.
3. SETTING BLOCK SHOULD BE 70-90 DUROMETER AS PER 2411.3.3.1 OF THE CURRENT FBC.
4. GLASS LITES THAT EXCEED 36" IN WIDTH SHALL USE SETTING BLOCKS AT ¼ SPAN FROM CORNERS AS PER 2411.3.3.1 OF THE CURRENT FBC.
5. LARGE AND SMALL MISSILE IMPACT RESISTANT. WINDOW AND DOOR UNITS REQUIRED TO MEET SMALL MISSILE IMPACT WIND-BORNE DEBRIS PROTECTION REQUIRE THE EXTERIOR LITE OF AN INSULATED UNIT TO BE TEMPERED PER FBC, SECTION 2411.3.3.7.



TOLERANCES UNLESS SPECIFIED:	
INCHES	ANGLE
.X ± .1"	XX ± 1°
.XX ± .03"	XX.X ± .5° (1/2°)
.XXX ± .015"	XX.XX ± .25° (1/4°)

WEATHER SHIELD®
WINDOWS & DOORS

PRODUCTS:
1606

DRAWN BY:
MDS

DATE:
12/20/2023

TITLE:
INSTALLATION INSTRUCTION

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DWG NO.:
45-17203

REV
B

SCALE: 1:36 | SHEET NAME: Sheet1 | SHEET 1 OF 4

DO NOT SCALE DRAWING

REV	DATE	DESCRIPTION	PCR NO.	ENG	PDR #:	PROFILE #:
					15855	

TYP. WALL THICKNESS:

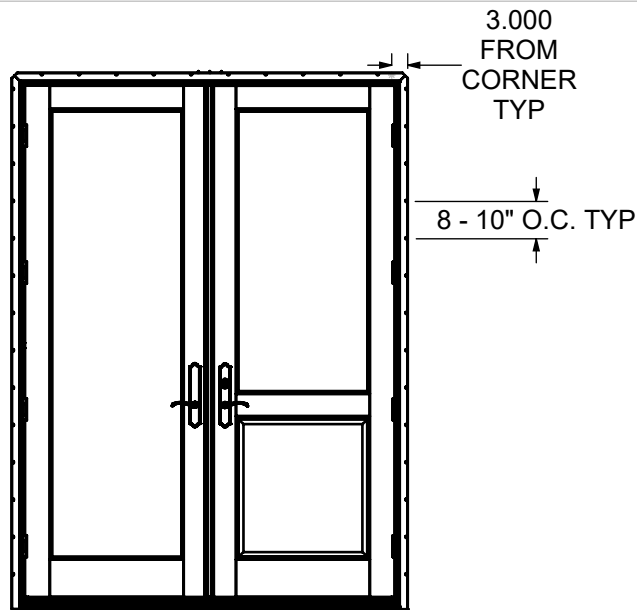
WT/FT:

AREA:

MAT:

FINISH:

DO NOT SCALE DRAWING



#6 X 1-5/8" FH SCREWS;
3" FROM EACH CORNER
AND 8-10" ON CENTER

1" MIN. EMBEDMENT

.250 (6.35MM) MAX
SHIM SPACE TYP

#10 X 3-1/2" FH SCREWS;
(3) THROUGH THE HEAD STRIKE
2" MIN. EMBEDMENT

#10 X 4" FH SCREWS;
(3) THROUGH THE SILL STRIKE
2" MIN. EMBEDMENT

WOOD BUCK BY OTHERS

SIDE SECTION

EXTERIOR

INTERIOR

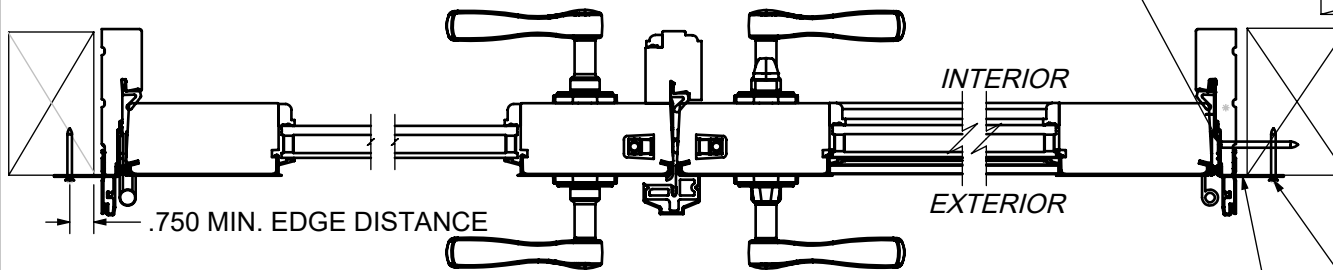
#10 X 4" FH SCREWS;
(1) @ CENTER OF SILL
(1) @ 8" EACH FROM
CENTER OF SILL

(3) TOTAL
1" MIN. EMBEDMENT

NAILING FIN METHOD

QUALIFIES RECTANGLE / EYEBROW UNITS IN A 1 OR 2 PANEL CONFIGURATION

(2) #10 X 2-1/2" FH SCREW PER HINGE
MINIMUM 1-1/2" EMBEDMENT



TOP VIEW

PERIMETER SEALING
BY OTHERS

#6 X 1-5/8" FH SCREWS;
3" FROM EACH CORNER
AND 8-10" ON CENTER
BOTH SIDES

1" MIN. EMBEDMENT

THIS SCHEDULE ADDRESSES ONLY THE FASTENERS REQUIRED TO ANCHOR THE DOOR TO ARCHIVE THE RATED DESIGN PRESSURE. THOROUGHLY READ AND FOLLOW THE MANUFACTURES INSTALLATION INSTRUCTIONS RECEIVED WITH THE UNIT. THIS GUIDE DOES NOT ADDRESS THE SEALING CONSIDERATIONS THAT MAY ARISE IN DIFFERENT WALL CONDITIONS.

TOLERANCES UNLESS SPECIFIED:	
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.X ± .1"	XX ± 1°
.XX ± .03"	XX.X ± .5° (1/2°)
.XXX ± .015"	XX.XX ± .25° (1/4°)

PRODUCTS:
1606

DRAWN BY:
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INSTALLATION INSTRUCTION

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DWG NO.:
45-17203

REV
B

SCALE: 1:36 SHEET NAME: Sheet3

SHEET 3 OF 4

DO NOT SCALE DRAWING

REV	DATE	DESCRIPTION	PCR NO.	ENG	PDR #:	PROFILE #:
					15855	

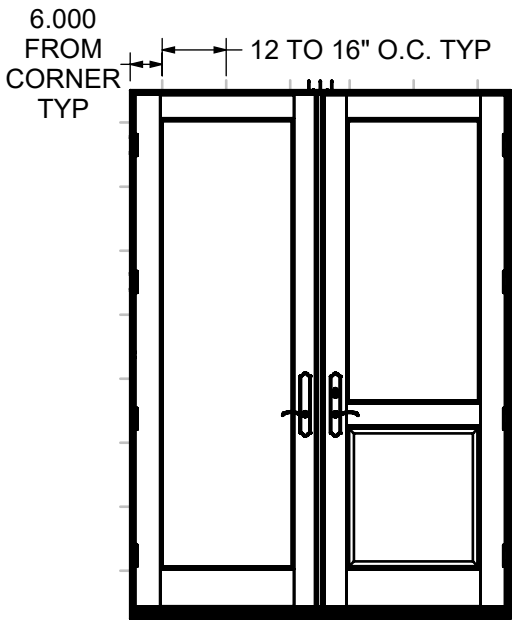
TYP. WALL THICKNESS:

WT/FT:

AREA:

MAT:

FINISH:



THROUGH JAMB METHOD

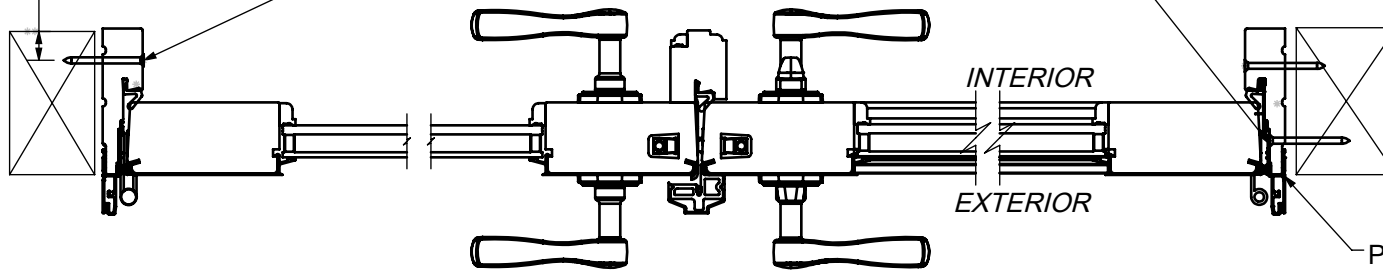
QUALIFIES RECTANGLE / EYEBROW UNITS IN A 1 OR 2 PANEL CONFIGURATION

#8 X 2-1/2" FH SCREWS;
6" FROM EACH CORNER
AND 12"-16" ON CENTER
BOTH SIDES

.750 MIN.
EDGE DISTANCE

1" MIN. EMBEDMENT

(2) #10 X 2-1/2" FH SCREW PER HINGE
MINIMUM 1-1/2" EMBEDMENT



TOP VIEW

WOOD BUCK BY OTHERS

.250 (6.35MM) MAX
SHIM SPACE TYP

#10 X 3-1/2" FH SCREWS;
(3) THROUGH THE HEAD STRIKE
2" MIN. EMBEDMENT

.750 MIN.
EDGE DISTANCE

#8 X 2-1/2" FH SCREWS;
6" FROM EACH CORNER
AND 12"-16" ON CENTER

1" MIN. EMBEDMENT

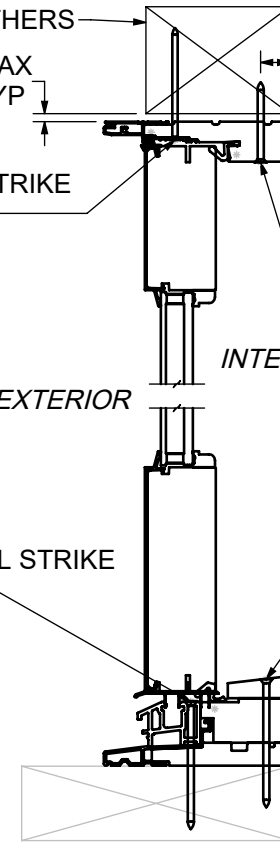
INTERIOR

EXTERIOR

#10 X 4" FH SCREWS;
(3) THROUGH THE SILL STRIKE
2" MIN. EMBEDMENT

#10 X 4" FH SCREWS;
(1) @ CENTER OF SILL
(1) @ 8" EACH FROM
CENTER OF SILL

(3) TOTAL
1" MIN. EMBEDMENT



SIDE SECTION

THIS SCHEDULE ADDRESSES ONLY THE FASTENERS REQUIRED TO ANCHOR THE DOOR TO ARCHIVE THE RATED DESIGN PRESSURE. THOROUGHLY READ AND FOLLOW THE MANUFACTURES INSTALLATION INSTRUCTIONS RECEIVED WITH THE UNIT. THIS GUIDE DOES NOT ADDRESS THE SEALING CONSIDERATIONS THAT MAY ARISE IN DIFFERENT WALL CONDITIONS.

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.XXX ± .015"	XX.XX ± .25° (1/4°)

PRODUCTS:
1606

DRAWN BY:
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TITLE:
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REV
B

SCALE: 1:36 SHEET NAME: Sheet4 SHEET 4 OF 4

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REV	DATE	DESCRIPTION	PCR NO.	ENG	PDR #	PROFILE #
					15855	

TYP. WALL THICKNESS:

WT/FT:

AREA:

MAT:

FINISH:

PROFILE #: