



NATIONAL CERTIFIED TESTING LABORATORIES

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PRODUCT APPROVAL SUPPORTING CALCULATIONS

Premium Atlantic Vinyl Impact Horizontal Slider

REPORT TO:

**JELD-WED WINDOWS & DOORS
3737 LAKEPORT BLVD
KLAMATH FALLS, OREGON**

REPORT NUMBER: NCTL-110-22068-1
REPORT DATE: 04/08/19

Joseph A. Reed, PE
FL PE 58920



Scope

National Certified Testing Laboratories was contracted by Jeld-Wen Windows & Doors to evaluate alternate installation methods for their Premium Atlantic Vinyl Impact Horizontal Sliding windows. The evaluation is based on physical testing and product certifications. Reference standards utilized in this project include:

Florida Building Code, Building. International Code Council.

ANSI/AWC National Design Specification (NDS) for Wood Construction. American Wood Council.

AISI S100 North American Specification for the Design of Cold-Formed Steel Structural Members. American Iron and Steel Institute.

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

NOA 16-1222.06 Tapcon Concrete and Masonry Anchors with Advanced Threadform Technology. Miami-Dade County Product Control Section.

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, National Certified Testing Laboratories hereby certifies the following:

- National Certified Testing Laboratories 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.
- National Certified Testing Laboratories is not owned, operated or controlled by any company manufacturing or distributing products it tests or labels.
- Joseph A. Reed, 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.
- Joseph A. Reed, P.E. does not have, nor will acquire, a financial interest in any other entity involved in the approval process of the product.



Analyses

Summary of Test Results

The following table summarizes the various Premium Atlantic Vinyl Impact Horizontal Sliding Window products and their corresponding performance levels which have been established by testing or product certification.

Table 1 Summary of Test Results

Series/Model	Test Report Number	Product Certification	Size (W x H)	Performance
Premium Atlantic Vinyl (XOX)	NCTL 210-4010-01 (Rev. -, 04/19/17)	NI013719	111" x 54"	+50/-55 psf Large Missile

Testing documented in Table 1 was conducted by the National Certified Testing Laboratories laboratory in Orlando, Florida (Florida Department of Business & Professional Regulation Test Lab No. TST1589, A2LA Certificate 3054.02).

As-Tested Installation Analysis

For air/water/structural and impact/cycle testing the test specimen was secured to a 2x Spruce-Pine-Fir buck. The as-tested installation method is evaluated on page 3 to page 6. These capacities will be used to prove acceptable alternate anchors and substrates for the windows.

Alternate Anchorages

Calculations on page 7 through page 9 determine the design capacity of alternate through frame installation anchorages for the window.

Anchorage Requirements

The alternate through frame anchorage capacities exceed the as-tested through frame anchorage. Thus, they are valid substitutions for the as-tested anchorage at the as-tested anchorage spacing. It must be determined the anchorages are not overloaded for the approved window size and design pressures. Calculations presented on page 10 show the as-tested anchor spacing is adequate for the established anchor capacities.

Anchorage requirements are presented in Drawing D009346 (attached).

Attachments

Appendix A – Revision Log (1 page)

Appendix B – Drawings (16 pages)



As-Tested Installation – Nail Fin to Wood

#10 x 1-1/2" Pan Head Screw

0.062" thick Nail Fin

Spruce-Pine-Fir 2x Wood Substrate Minimum (G=0.42)

Allowable Tension of #10 x 1-1/2" Pan Head Screw

$$W = 1.0(1.500" - 0.062")(95 \text{ lb/in}) \quad (\text{NDS, Table 11.2B, } C_D = 1.0 \text{ as impact tested})$$
$$W = 137 \text{ lb}$$

Allowable Pull-Over of #10 x 1-1/2" Pan Head Screw

Validated by Testing

Must maintain anchor spacing and anchor head size

As-tested spacing: 8" on center

As-tested anchor head size: 0.370"

Capacity of Connection is 137 lb



As-Tested Installation – Through Frame to Wood

#10 x 1-1/2" Pan Head Screw

0.062" thick Window Frame

1/4" Maximum Shim Space

Spruce-Pine-Fir 2x Wood Substrate Minimum (G=0.42)

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

Z' = 98 lb (See Following 2 Pages)

Bearing of #10 x 1-1/2" Pan Head Screw on Window Frame

Validated by Testing

Must maintain anchor spacing and anchor diameter

As-tested spacing: 16" on center

As-tested anchor diameter: 0.190"

Bending of #10 x 1-1/2" Pan Head Screw

$L = 1/4"$ (maximum shim space)

$S = \pi d^3/32 = \pi(0.152)^3/32 = 0.000345 \text{ in}^3$

$F_b = (1.3)(0.6F_y) = (1.3)(0.6)(90,000 \text{ psi}) = 70,200 \text{ psi}$ (1.3 weak axis factor)

$F_b = M/S = (VL/2)/S$ (L/2 for guided bending)

$V = 2SF_b/L = (2)(0.000345 \text{ in})(70,200 \text{ psi})/0.25" = 194 \text{ lb.}$

Capacity of Connection is 98 lb



Alternate Installation – 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	=	1.500 in.

Main Member

Material	=	SPF
G	=	0.42
θ	=	90 ≤ (Angle of load to grain 0° ≤ θ ≤ 90°)
F _e	=	3,350 psi
Thickness	=	1.500 in.

Side Member

Material	=	6063 T5 Aluminum	USE ALUM FOR THICKNESS ONLY
G	=	N/A	TEST GOVERNS AT FRAME
θ	=	0 ≤ (Angle of load to grain 0° ≤ θ ≤ 90°)	
F _{es}	=	27,500 psi	
Thickness	=	0.062 in.	

Calculations

Lateral Bearing Factors

D	=	0.152 in.
ℓ _m	=	1.058 in.
K _θ	=	1.25
K _D	=	2.20
R _e	=	0.122
R _t	=	17.06
k ₁	=	0.8328
k ₂	=	0.6286
k ₃	=	13.88

Yield Mode	R _d
I _m , I _s	2.20
II	2.20
III _m , III _s , IV	2.20



Alternate Installation – Through Frame to Wood (Continued)

Lateral Design Values, Z			
Mode I _m	=	245	lbf
Mode I _s	=	118	lbf
Mode II	=	98	lbf
Mode III _m	=	124	lbf
Mode III _s	=	94	lbf
Mode IV	=	133	lbf
C _D	=	1	
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'	=	94	lbf

MIN MAIN MEMBER VALUE
 (SIDE MEMBER PROVEN BY TEST)

<===== Minimum Value

1.0 for IMPACT TEST

USE 98 LB



Alternate Installation – Trough Frame to Steel Stud

#10-16 TEKS Screw

1/4" Maximum Shim Space

Minimum 18 gauge 33 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 Frame

Do not exceed as-tested spacing

Bearing of #10-16 TEKS Screw on Steel Stud

$$\begin{aligned} V_a &= 2.7DtF_{tu}/3.0 \\ V_a &= 2.7(0.190")(0.0428")(45,000 \text{ psi})/3.0 \\ V_a &= 329 \text{ lb.} \end{aligned}$$

Tilting of #10-16 TEKS Screw in Steel Stud

$$\begin{aligned} V_a &= 4.2(t_2^3D)^{1/2}F_{tu2}/n_s \\ V_a &= 4.2(0.0428"{}^3 \times 0.190")^{1/2}(45,000 \text{ psi})/3.0 \\ V_a &= 243 \text{ lb.} \end{aligned}$$

Bending of #10-16 TEKS Screw

$$\begin{aligned} L &= 1/4" \text{ (Maximum Shim Space)} \\ S &= \pi d^3/32 = \pi(0.135)^3/32 = 0.000242 \text{ in}^3 \\ F_b &= (1.3)(0.6F_y) = (1.3)(0.6)(92,000 \text{ psi}) = 71,760 \text{ psi (1.3 weak axis factor)} \\ F_b &= M/S = (VL/2)/S \text{ (L/2 for guided bending)} \\ V &= 2SF_b/L = (2)(0.000242 \text{ in}^3)(71,760 \text{ psi})/0.25" = 139 \text{ lb.} \end{aligned}$$

Capacity of Connection is 139 lb.



Alternate Installation – Through Frame to Concrete

3/16" Tapcon Anchor

2-1/2" Minimum Edge Distance, 1-1/4" Minimum Embedment

1/4" Maximum Shim Space

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

Allowable Shear of 3/16" Tapcon Anchor

$$P_{ss}/\Omega = 181 \text{ lb} \quad (\text{NOA-No. 16-1222.06})$$

Bearing of 3/16" Tapcon Anchor on Frame

Do not exceed as-tested spacing

Bending of 3/16" Tapcon Anchor

$$L = 1/4" \text{ (Maximum Shim Space)}$$

$$S = \pi d^3/32 = \pi(0.170")^3/32 = 0.000482 \text{ in}^3$$

$$F_b = (1.3)(0.6F_y) = (1.3)(0.6)(137,000 \text{ psi}) = 106,860 \text{ psi (1.3 weak axis factor)}$$

$$F_b = M/S = (VL/2)/S \text{ (L/2 for guided bending)}$$

$$V = 2SF_b/L = (2)(0.000482 \text{ in}^3)(106,860 \text{ psi})/0.25" = 412 \text{ lb.}$$

Capacity of Connection is 181 lb



Alternate Installation – Through Frame to CMU

3/16" Tapcon Anchor

2-1/2" Minimum Edge Distance, 1-1/4" Minimum Embedment

1/4" Maximum Shim Space

Minimum ASTM C90 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 Frame

Do not exceed as-tested spacing

Bending of 3/16" Tapcon Anchor

$$L = 1/4" \text{ (Maximum Shim Space)}$$

$$S = \pi d^3/32 = \pi(0.170")^3/32 = 0.000482 \text{ in}^3$$

$$F_b = (1.3)(0.6F_y) = (1.3)(0.6)(137,000 \text{ psi}) = 106,860 \text{ psi (1.3 for weak axis bending)}$$

$$F_b = M/S = (VL/2)/S \text{ (L/2 for guided bending)}$$

$$V = 2SF_b/L = (2)(0.000482 \text{ in}^3)(106,860 \text{ psi})/0.25" = 412 \text{ lb.}$$

Capacity of Connection is 135 lb



Anchorage Requirements – Nail Fin

Window Overall Size: 111" x 54"

Window Overall Area: $(111")(54")/144 = 41.6 \text{ ft}^2$

Window Overall Wind Load: $(55 \text{ psf})(41.6 \text{ ft}^2) = 2,288 \text{ lb}$

Installed Anchor Spacing: 8" head; 8" sill; 8" each jamb

Installed Anchors: 14 head + 14 sill + 2(7) jambs = 42 installed anchors

Minimum Anchor Capacity: 137 lb/anchor

Total Anchor Capacity: $(42 \text{ anchors})(137 \text{ lb/anchor}) = 5,754 \text{ lb} > 2,288 \text{ lb}$ **OK**

Anchorage Requirements – Through Frame

Window Overall Size: 111" x 54"

Window Overall Area: $(111")(54")/144 = 41.6 \text{ ft}^2$

Window Overall Wind Load: $(55 \text{ psf})(41.6 \text{ ft}^2) = 2,288 \text{ lb}$

Installed Anchors: 9 head + 9 sill + 2(4) jambs = 26 installed anchors

Minimum Anchor Capacity: 98 lb/anchor

Total Anchor Capacity: $(26 \text{ anchors})(98 \text{ lb/anchor}) = 2,548 \text{ lb} > 2,288 \text{ lb}$ **OK**



Appendix A

Revision Log

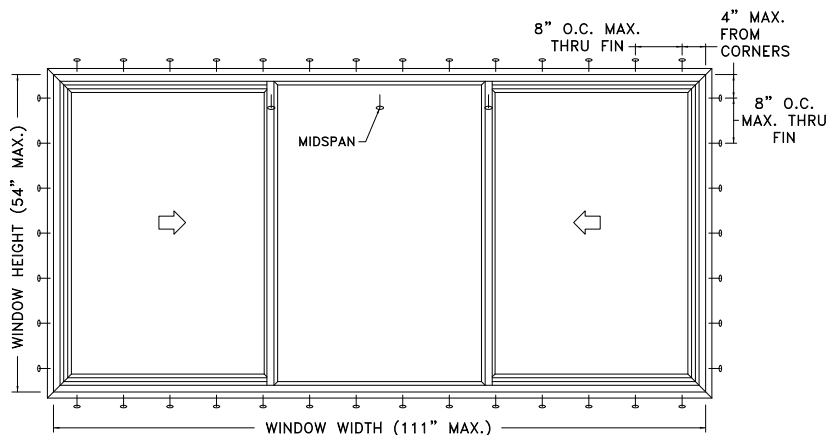
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Original Issue	04/08/19	Not Applicable



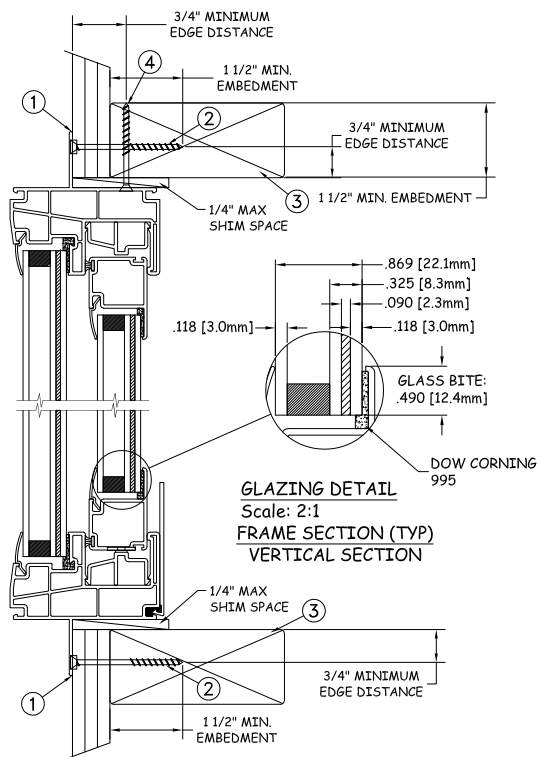
Appendix B

Drawings

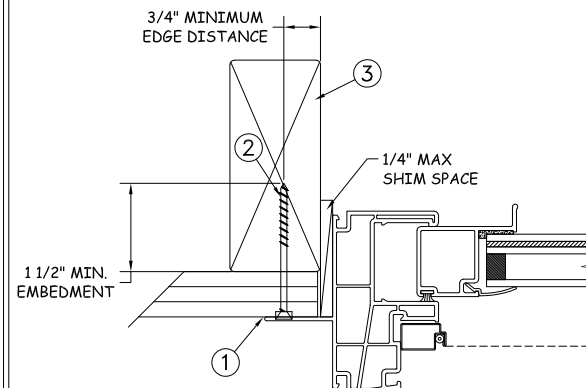
NAIL FIN INSTALLATION



TYPICAL ELEVATION WITH FASTENER SPACING



GLAZING DETAIL
Scale: 2:1
FRAME SECTION (TYP)
VERTICAL SECTION



JAMB SECTION (TYP)
HORIZONTAL SECTION

Max Frame 111" x 54"	DP RATING +50/-55	IMPACT YES
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Installation Notes:

1. Seal flange/frame to substrate. Sill shall be set on a continuous serpentine bead of structural grade silicone caulk when no fastener is used to anchor the sill (typical).
2. Use #10 PH or #12 PH fastener through the nail fin with sufficient length to penetrate a minimum of 1 1/2" into the wood framing. For 2X wood frame substrate (min. S.G. = 0.42).
3. Host structure (wood buck, masonry, steel) to be designed and anchored to properly transfer all loads to the structure. The host structure is the responsibility of the architect or engineer of record for the project of installation.
4. Use 3 - #10 PH or #12 PH fastener through the head jamb with sufficient length to penetrate a minimum of 1 1/2" into the wood framing. One each at meeting stile and one at midspan of stationary sash.

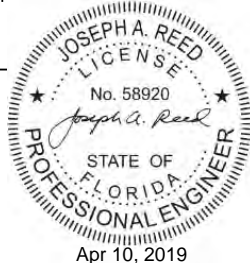
General Notes:

1. The product shown herein is designed, tested and manufactured to comply with the wind load criteria of the adopted International Building Code(IBC), the International Residential Code(IRC), the Florida Building Code(FBC) including HVHZ and the industry requirement for the stated conditions.
2. All glazing shall conform to ASTM E1300.
3. At minimum, glazing shall be 3.0mm tempered - 10.8mm airspace - 3.0mm annealed - 2.3mm PVB Interlayer by Kuraray - 3.0mm annealed.
4. Use structural or composite shims where required.

This schedule addresses only the fasteners required to anchor the unit to achieve the rated design pressure and impact performance (where applicable) up to the size limitations noted. It is not intended as a guide to the installation process and does not address the sealing consideration that may arise in different wall conditions. For the complete installation procedure, see the instructions packaged with the unit or go to www.jeld-wen.com.

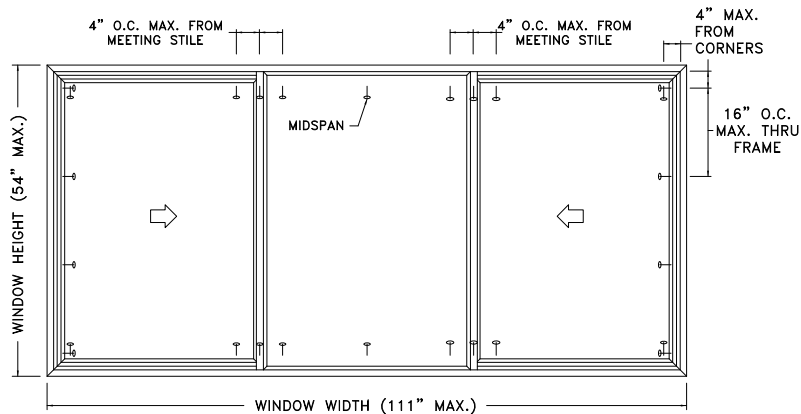
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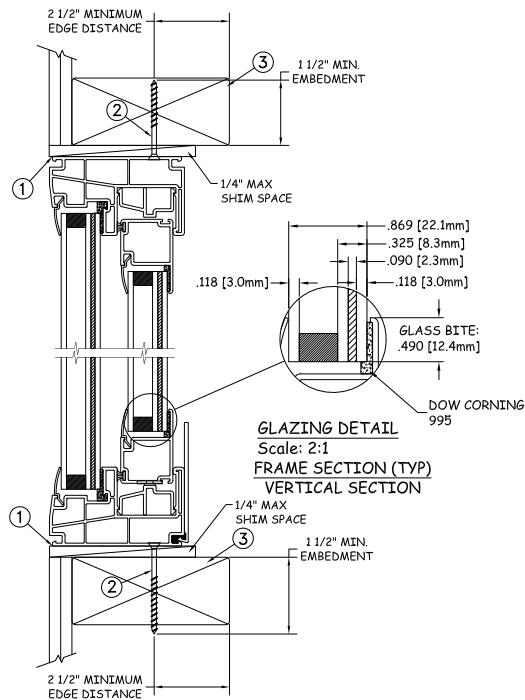


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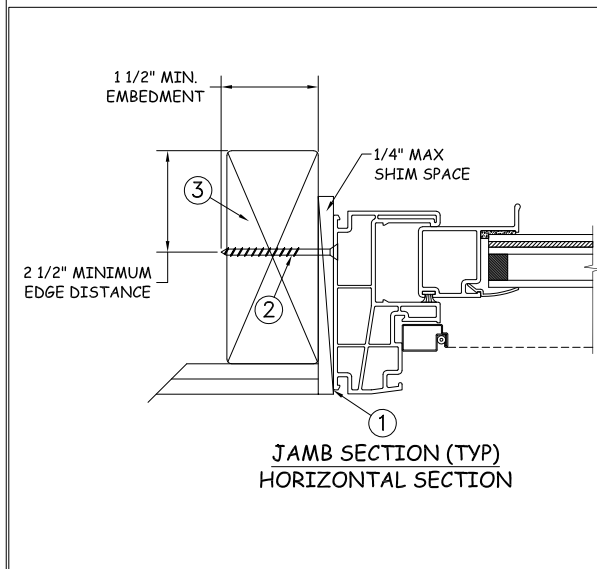
DATE: 04/09/2019	JELD-WEN	3737 Lakeport Blvd Klamath Falls, OR. 97601 Phone: (800) 535-3936
DRAWN BY: J.HAWKINS		SCALE: NTS
CHECKED BY: D.BELAU	TITLE: Premium Atlantic Vinyl Impact Horizontal Slider	
APPROVED BY: J.GOOSSEN	RECORD No: D009346	
REPORT No: NCTL 210-4010-01	CAD DWG. No.: PremATLVinylHS Cert	REV: A SHEET 1 OF 4



TYPICAL ELEVATION WITH FASTENER SPACING



THROUGH FRAME
INSTALLATION



Max Frame 111" x 54"	DP RATING +50/-55	IMPACT YES
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Installation Notes:

1. Seal flange/frame to substrate. Sill shall be set on a continuous serpentine bead of structural grade silicone caulk when no fastener is used to anchor the sill (typical).
2. Use #10 PH or #12 PH fastener through the jamb with sufficient length to penetrate a minimum of 1 1/2" into the wood framing. For 2X wood frame substrate (min. S.G. = 0.42).
3. Host structure (wood buck, masonry, steel) to be designed and anchored to properly transfer all loads to the structure. The host structure is the responsibility of the architect or engineer of record for the project of installation.

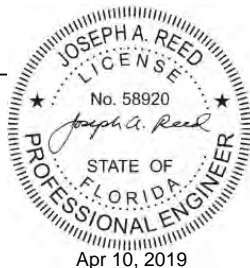
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2. All glazing shall conform to ASTM E1300.
3. At minimum, glazing shall be 3.0mm tempered - 10.8mm airspace - 3.0mm annealed - 2.3mm PVB Interlayer by Kuraray - 3.0mm annealed.
4. Use structural or composite shims where required.

This schedule addresses only the fasteners required to anchor the unit to achieve the rated design pressure and impact performance (where applicable) up to the size limitations noted. It is not intended as a guide to the installation process and does not address the sealing consideration that may arise in different wall conditions. For the complete installation procedure, see the instructions packaged with the unit or go to www.jeld-wen.com.

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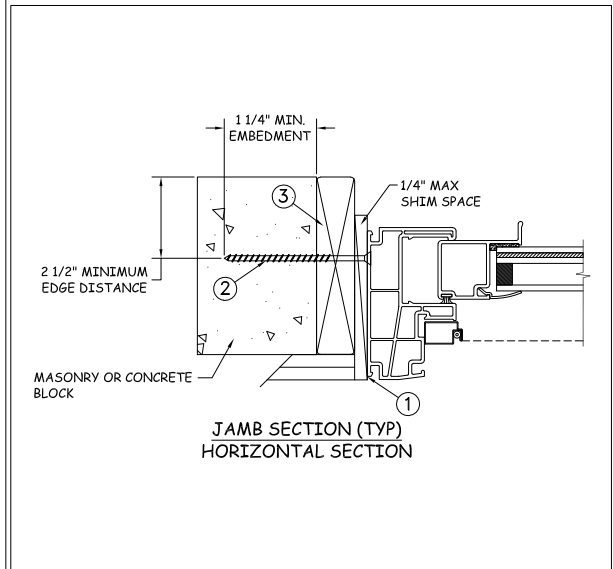
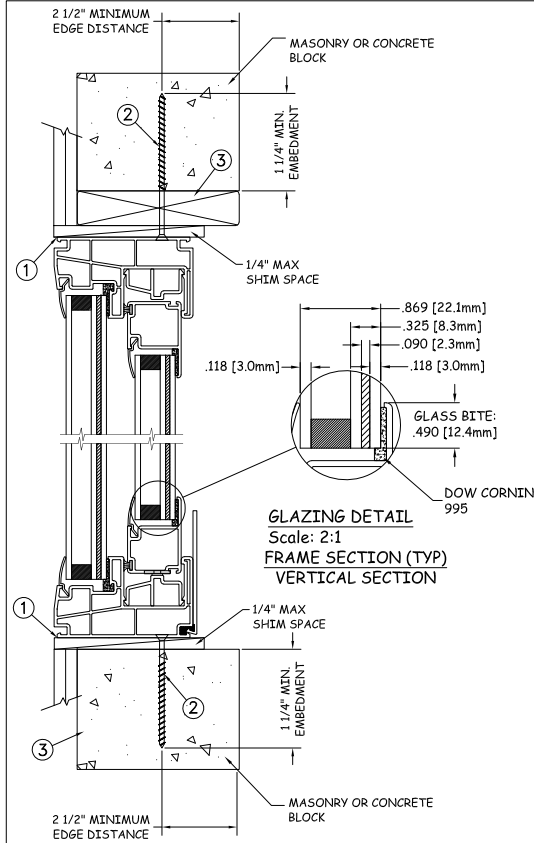
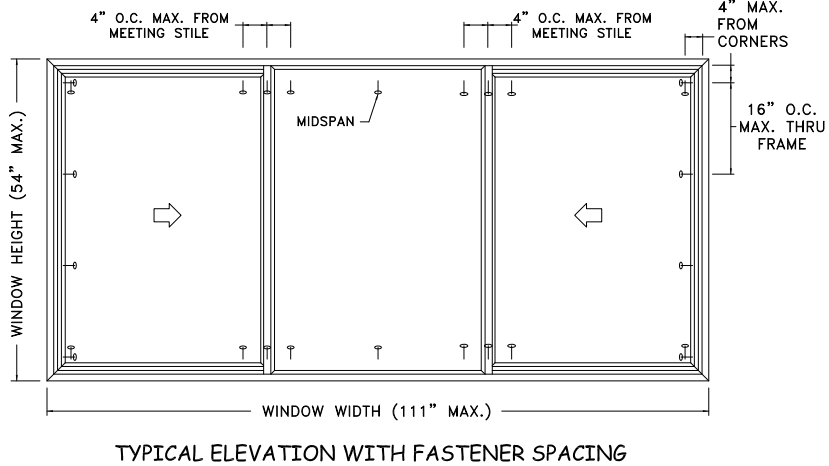
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DRAWN BY: J.HAWKINS		SCALE: NTS
CHECKED BY: D.BELAU	TITLE: Premium Atlantic Vinyl Impact Horizontal Slider	
APPROVED BY: J.GOOSSEN	RECORD No: D009346	
REPORT No: NCTL 210-4010-01	CAD DWG. No.: PremATLVinylHS Cert	REV: A SHEET 2 OF 4

MASONRY INSTALLATION



Max Frame 111" x 54"	DP RATING +50/-55	IMPACT YES
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Installation Notes:

1. Seal flange/frame to substrate. Sill shall be set on a continuous serpentine bead of structural grade silicone caulk when no fastener is used to anchor the sill (typical).
2. Use 3/16" Tapcon or other approved 3/16" fasteners through frame with sufficient length to penetrate a minimum of 1 1/4" into concrete or masonry at each location with a 2 1/2" min from edge distance. For concrete (min. f'c = 3000psi) or masonry substrate (CMU shall adhere to ASTM C90).
3. Host structure (wood buck, masonry, steel) to be designed and anchored to properly transfer all loads to the structure. The host structure is the responsibility of the architect or engineer of record for the project of installation.

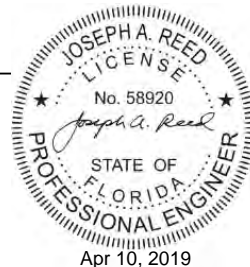
General Notes:

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2. All glazing shall conform to ASTM E1300.
3. At minimum, glazing shall be 3.0mm tempered - 10.8mm airspace - 3.0mm annealed - 2.3mm PVB Interlayer by Kuraray - 3.0mm annealed.
4. Use structural or composite shims where required.

This schedule addresses only the fasteners required to anchor the unit to achieve the rated design pressure and impact performance (where applicable) up to the size limitations noted. It is not intended as a guide to the installation process and does not address the sealing consideration that may arise in different wall conditions. For the complete installation procedure, see the instructions packaged with the unit or go to www.jeld-wen.com.

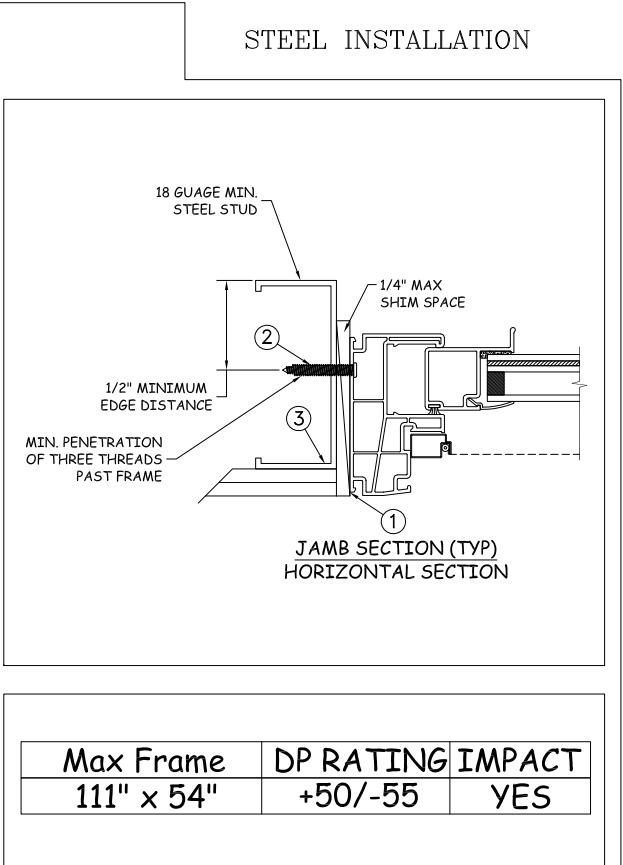
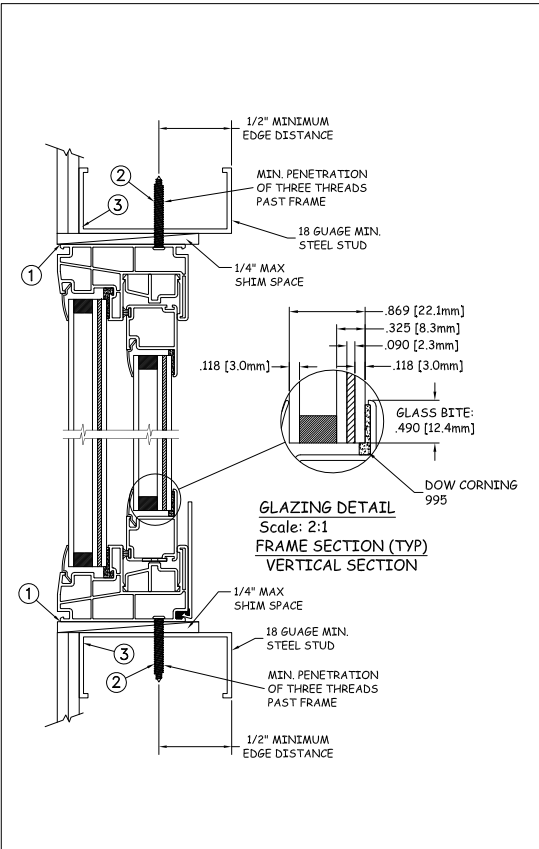
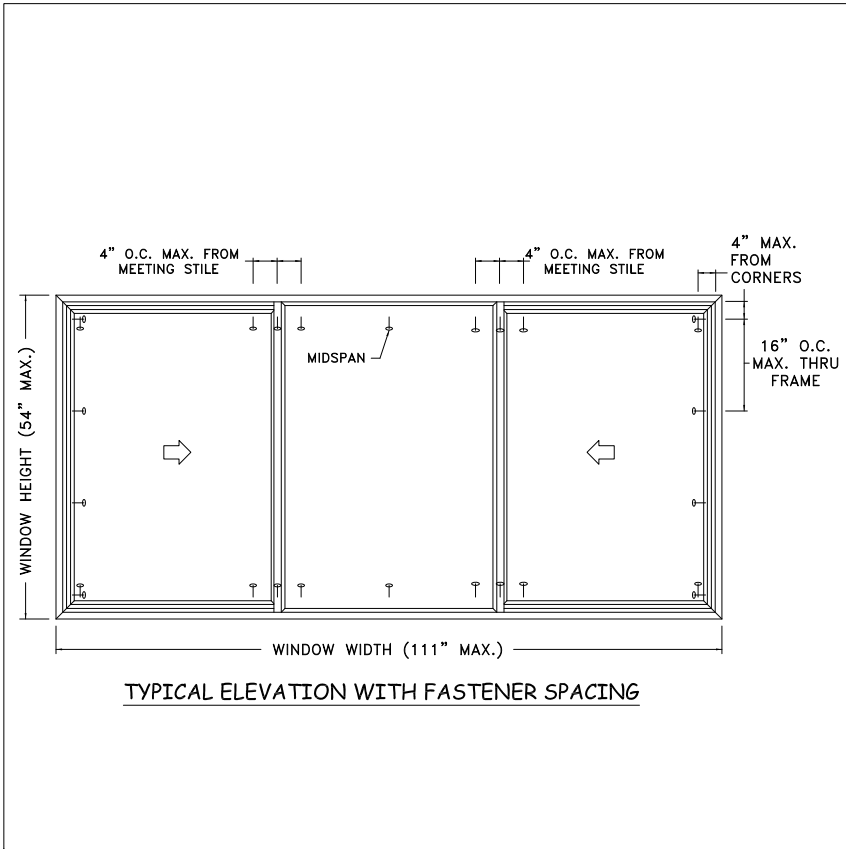
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REPORT No: NCTL 210-4010-01	CAD DWG. No.: PremATLVinylHS Cert	REV: A SHEET 3 OF 4



Installation Notes:

1. Seal flange/frame to substrate. Sill shall be set on a continuous serpentine bead of structural grade silicone caulk when no fastener is used to anchor the sill (typical).
2. For anchoring into steel framing use #10 TEK Self-drilling screws with sufficient length to achieve a minimum penetration of three threads past the frame thickness. Steel substrate min. 18ga., fy = 33 ksi.
3. Host structure (wood buck, masonry, steel) to be designed and anchored to properly transfer all loads to the structure. The host structure is the responsibility of the architect or engineer of record for the project of installation.

General Notes:

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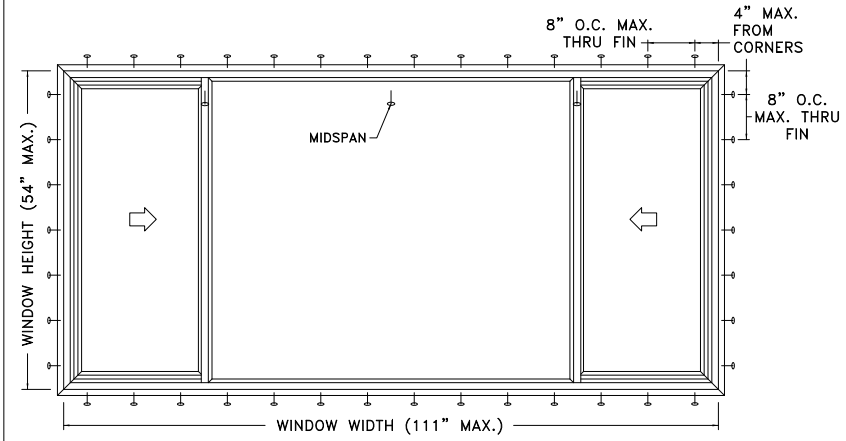
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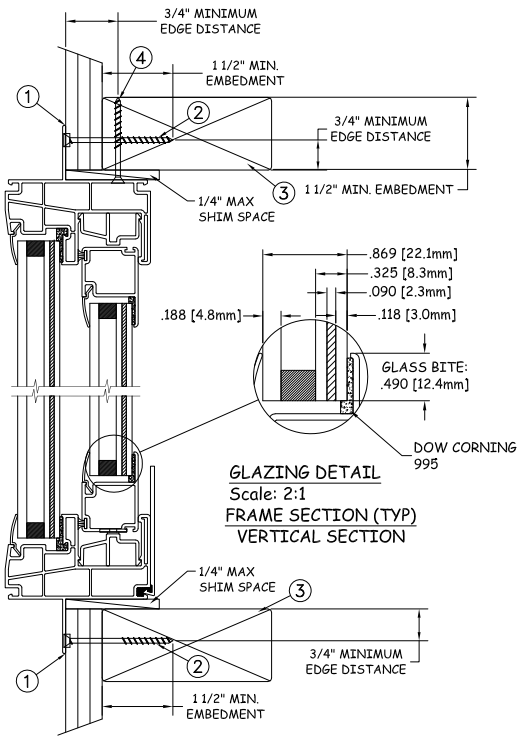
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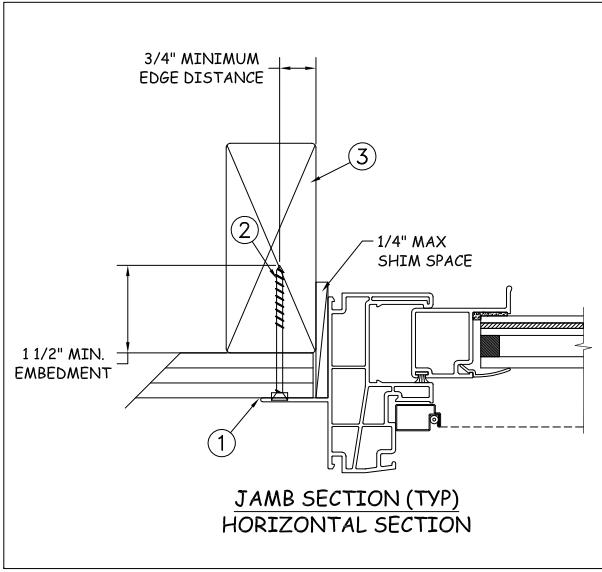
NAIL FIN INSTALLATION



TYPICAL ELEVATION WITH FASTENER SPACING



GLAZING DETAIL
Scale: 2:1
FRAME SECTION (TYP)
VERTICAL SECTION



JAMB SECTION (TYP)
HORIZONTAL SECTION

Max Frame	DP RATING	IMPACT
111" x 54"	+50/-55	YES

Installation Notes:

1. Seal flange/frame to substrate. Sill shall be set on a continuous serpentine bead of structural grade silicone caulk when no fastener is used to anchor the sill (typical).
2. Use #10 PH or #12 PH fastener through the nail fin with sufficient length to penetrate a minimum of 1 1/2" into the wood framing. For 2X wood frame substrate (min. S.G. = 0.42).
3. Host structure (wood buck, masonry, steel) to be designed and anchored to properly transfer all loads to the structure. The host structure is the responsibility of the architect or engineer of record for the project of installation.
4. Use 3 - #10 PH or #12 PH fastener through the head jamb with sufficient length to penetrate a minimum of 1 1/2" into the wood framing. One each at meeting stile and one at midspan of stationary sash.

General Notes:

1. The product shown herein is designed, tested and manufactured to comply with the wind load criteria of the adopted International Building Code(IBC), the International Residential Code(IRC), the Florida Building Code(FBC) including HVHZ and the industry requirement for the stated conditions.
2. All glazing shall conform to ASTM E1300.
3. At minimum, glazing shall be 3.0mm tempered - 10.8mm airspace - 3.0mm annealed - 2.3mm PVB Interlayer by Kuraray - 3.0mm annealed.
4. Use structural or composite shims where required.

This schedule addresses only the fasteners required to anchor the unit to achieve the rated design pressure and impact performance (where applicable) up to the size limitations noted. It is not intended as a guide to the installation process and does not address the sealing consideration that may arise in different wall conditions. For the complete installation procedure, see the instructions packaged with the unit or go to www.jeld-wen.com.

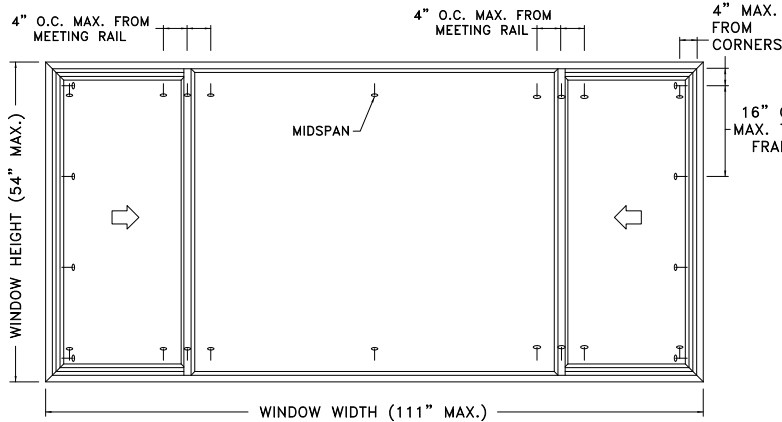
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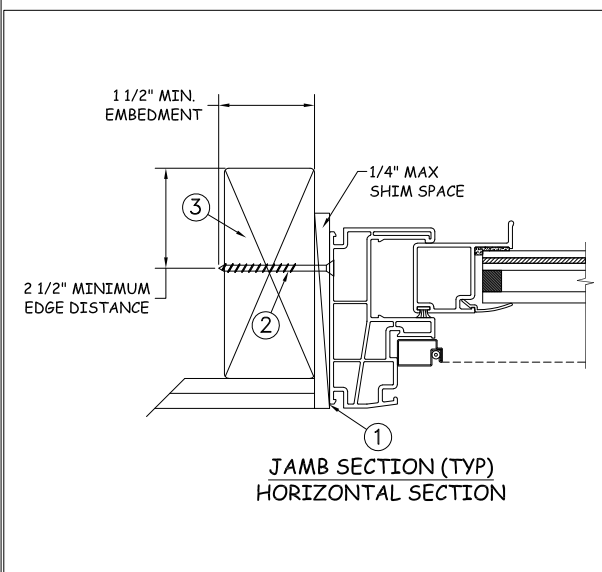
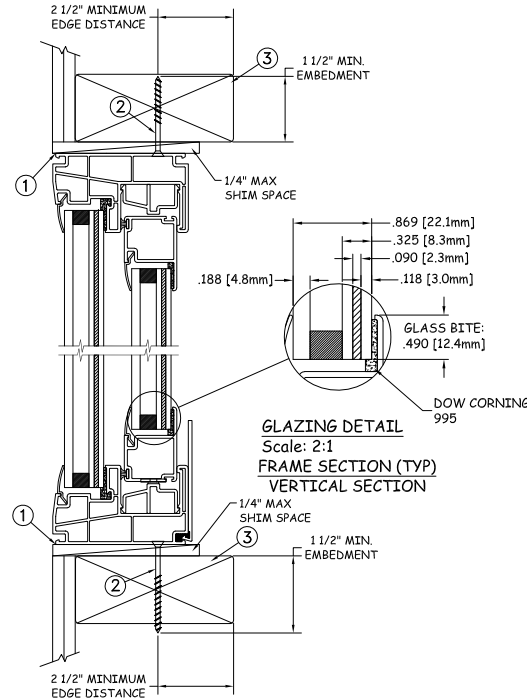
JOSEPH A. REED, P.E.
Florida P.E. No. 58920
5 Leigh Drive
York, PA 17406

DATE: 04/09/2019	JELD-WEN	3737 Lakeport Blvd Klamath Falls, OR. 97601 Phone: (800) 535-3936
DRAWN BY: J.HAWKINS		SCALE: NTS
CHECKED BY: D.BELAU	TITLE: Premium Atlantic Vinyl Impact Horizontal Slider	
APPROVED BY: J.GOOSSEN	RECORD No: D009346	
REPORT No: NCTL 210-4010-01	CAD DWG. No.: PremATLVinylHS Cert	REV: A SHEET 1 OF 4

THROUGH FRAME
INSTALLATION



TYPICAL ELEVATION WITH FASTENER SPACING



Max Frame	DP RATING	IMPACT
111" x 54"	+50/-55	YES

Installation Notes:

1. Seal flange/frame to substrate. Sill shall be set on a continuous serpentine bead of structural grade silicone caulk when no fastener is used to anchor the sill (typical).
2. Use #10 PH or #12 PH fastener through the jamb with sufficient length to penetrate a minimum of 1 1/2" into the wood framing. For 2X wood frame substrate (min. S.G. = 0.42).
3. Host structure (wood buck, masonry, steel) to be designed and anchored to properly transfer all loads to the structure. The host structure is the responsibility of the architect or engineer of record for the project of installation.

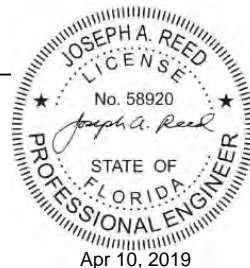
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2. All glazing shall conform to ASTM E1300.
3. At minimum, glazing shall be 3.0mm tempered - 10.8mm airspace - 3.0mm annealed - 2.3mm PVB Interlayer by Kuraray - 3.0mm annealed.
4. Use structural or composite shims where required.

This schedule addresses only the fasteners required to anchor the unit to achieve the rated design pressure and impact performance (where applicable) up to the size limitations noted. It is not intended as a guide to the installation process and does not address the sealing consideration that may arise in different wall conditions. For the complete installation procedure, see the instructions packaged with the unit or go to www.jeld-wen.com.

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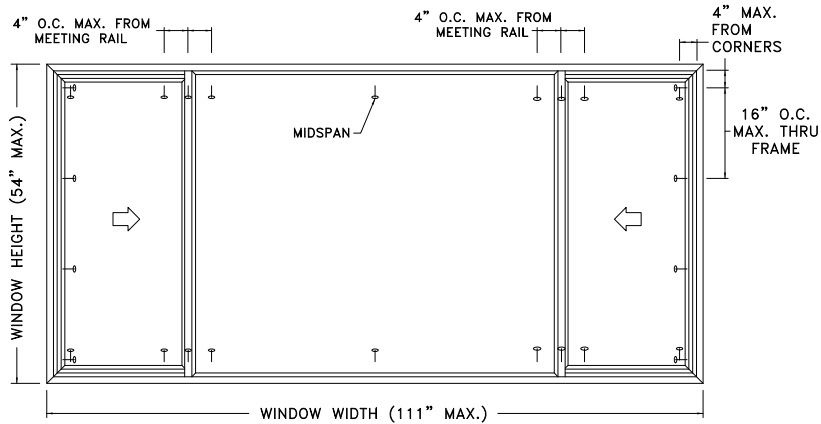
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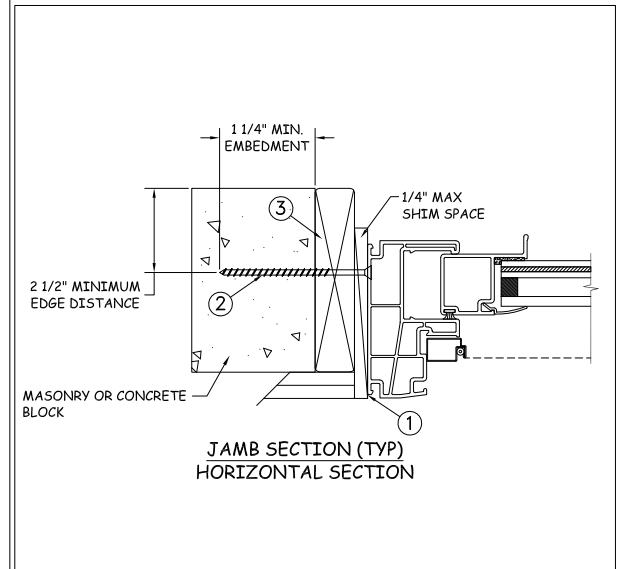
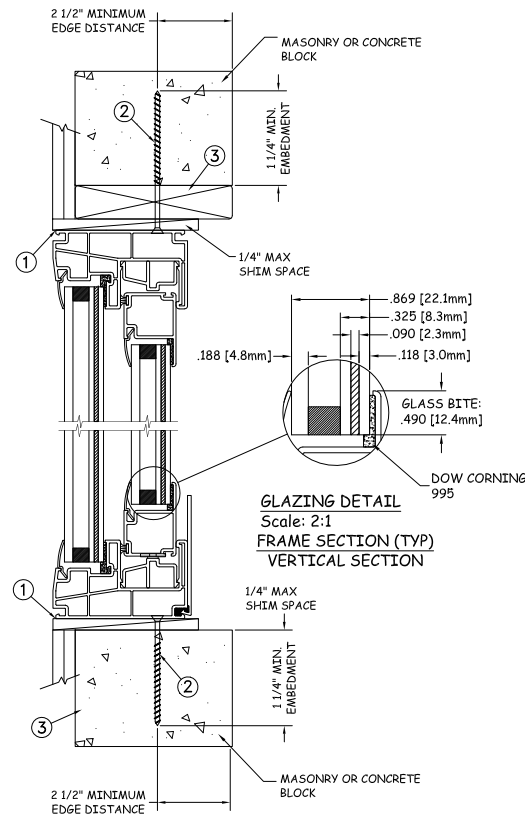
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Florida P.E. No. 58920
5 Leigh Drive
York, PA 17406

DATE: 04/09/2019		3737 Lakeport Blvd Klamath Falls, OR. 97601 Phone: (800) 535-3936
DRAWN BY: J.HAWKINS		SCALE: NTS
CHECKED BY: D.BELAU	TITLE: Premium Atlantic Vinyl Impact Horizontal Slider	
APPROVED BY: J.GOOSSEN	RECORD No: D009346	
REPORT No: NCTL 210-4010-01	CAD DWG. No.: PremATLVinylHS Cert	REV: A SHEET 2 OF 4

MASONRY INSTALLATION



TYPICAL ELEVATION WITH FASTENER SPACING



Max Frame	DP RATING	IMPACT
111" x 54"	+50/-55	YES

Installation Notes:

1. Seal flange/frame to substrate. Sill shall be set on a continuous serpentine bead of structural grade silicone caulk when no fastener is used to anchor the sill (typical).
2. Use 3/16" Tapcon or other approved 3/16" fasteners through frame with sufficient length to penetrate a minimum of 1 1/4" into concrete or masonry at each location with a 2 1/2" min from edge distance. For concrete (min. f'c = 3000psi) or masonry substrate (CMU shall adhere to ASTM C90).
3. Host structure (wood buck, masonry, steel) to be designed and anchored to properly transfer all loads to the structure. The host structure is the responsibility of the architect or engineer of record for the project of installation.

General Notes:

1. The product shown herein is designed, tested and manufactured to comply with the wind load criteria of the adopted International Building Code(IBC), the International Residential Code(IRC), the Florida Building Code(FBC) including HVHZ and the industry requirement for the stated conditions.
2. All glazing shall conform to ASTM E1300.
3. At minimum, glazing shall be 3.0mm tempered - 10.8mm airspace - 3.0mm annealed - 2.3mm PVB Interlayer by Kuraray - 3.0mm annealed.
4. Use structural or composite shims where required.

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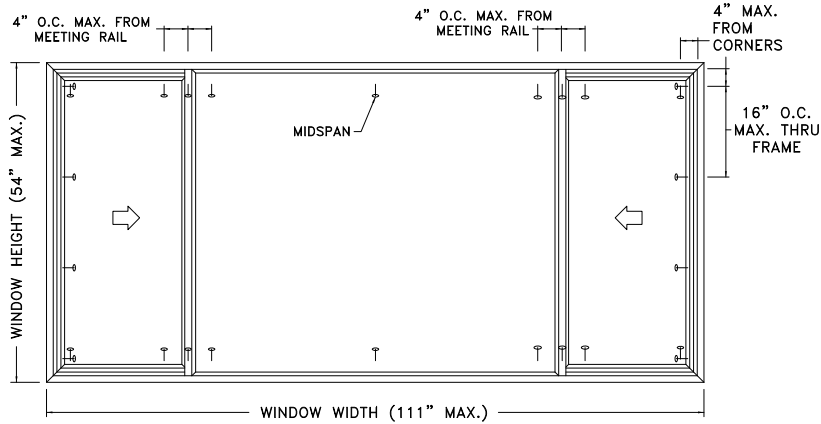
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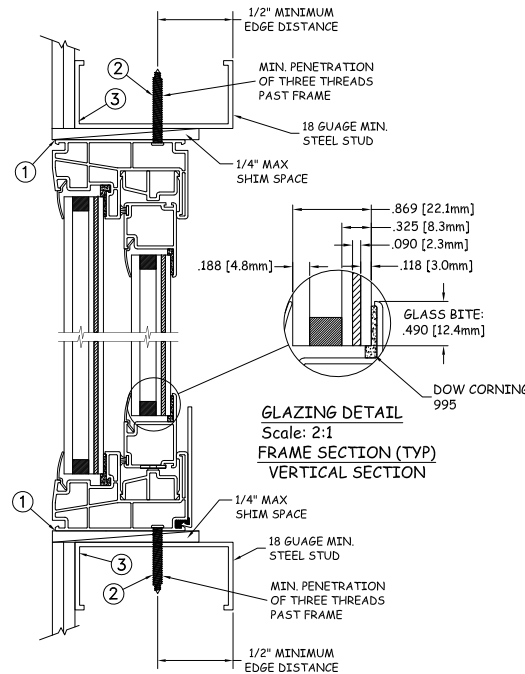
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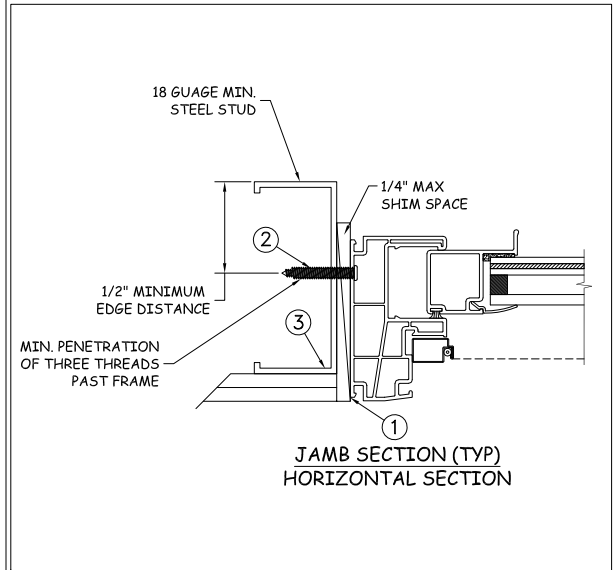
STEEL INSTALLATION



TYPICAL ELEVATION WITH FASTENER SPACING



GLAZING DETAIL
Scale: 2:1
FRAME SECTION (TYP)
VERTICAL SECTION



JAMB SECTION (TYP)
HORIZONTAL SECTION

Max Frame	DP RATING	IMPACT
111" x 54"	+50/-55	YES

Installation Notes:

1. Seal flange/frame to substrate. Sill shall be set on a continuous serpentine bead of structural grade silicone caulk when no fastener is used to anchor the sill (typical).
2. For anchoring into steel framing use #10 TEK Self-drilling screws with sufficient length to achieve a minimum penetration of three threads past the frame thickness. Steel substrate min. 18ga., fy = 33 ksi.
3. Host structure (wood buck, masonry, steel) to be designed and anchored to properly transfer all loads to the structure. The host structure is the responsibility of the architect or engineer of record for the project of installation.

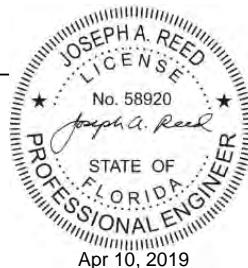
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This schedule addresses only the fasteners required to anchor the unit to achieve the rated design pressure and impact performance (where applicable) up to the size limitations noted. It is not intended as a guide to the installation process and does not address the sealing consideration that may arise in different wall conditions. For the complete installation procedure, see the instructions packaged with the unit or go to www.jeld-wen.com.

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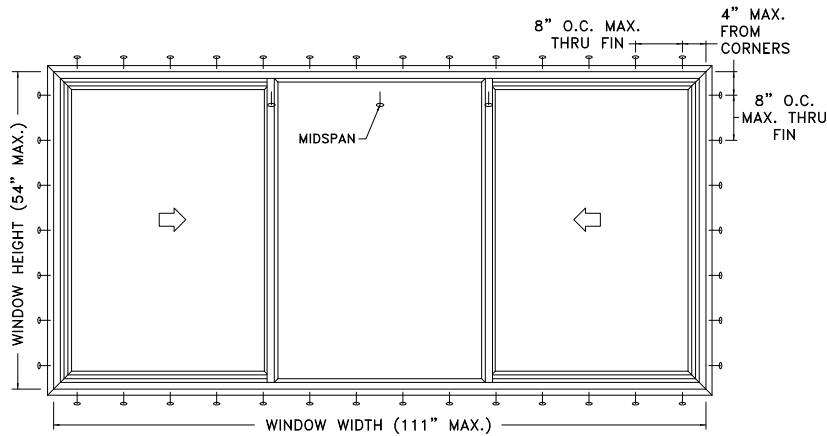
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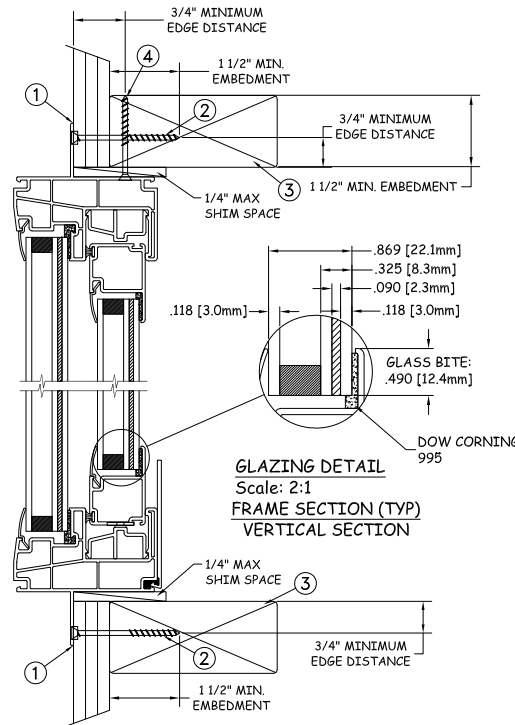
JOSEPH A. REED, P.E.
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DATE: 04/09/2019	JELD-WEN 3737 Lakeport Blvd Klamath Falls, OR. 97601 Phone: (800) 535-3936
DRAWN BY: J.HAWKINS	
CHECKED BY: D.BELAU	TITLE: Premium Atlantic Vinyl Impact Horizontal Slider
APPROVED BY: J.GOOSSEN	
RECORD No: D009346	
REPORT No: NCTL 210-4010-01	CAD DWG. No.: PremATLVinylHS Cert
	REV: A
	SHEET 4 OF 4

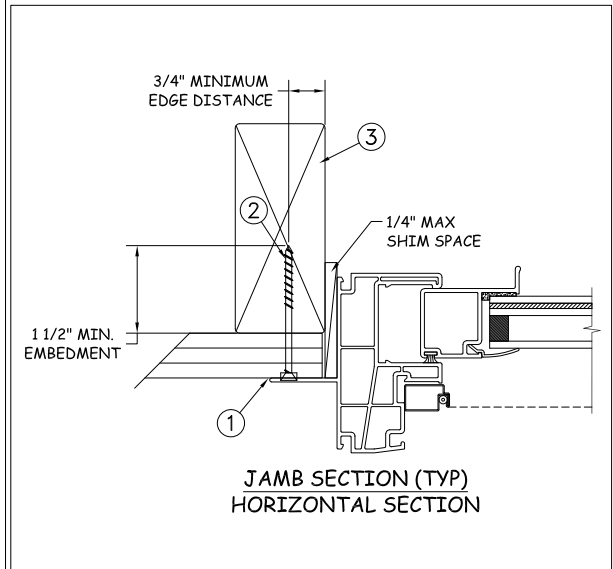
NAIL FIN INSTALLATION



TYPICAL ELEVATION WITH FASTENER SPACING



GLAZING DETAIL
Scale: 2:1
FRAME SECTION (TYP)
VERTICAL SECTION



JAMB SECTION (TYP)
HORIZONTAL SECTION

Max Frame 111" x 54"	DP RATING +50/-55	IMPACT YES
-------------------------	----------------------	---------------

Installation Notes:

1. Seal flange/frame to substrate. Sill shall be set on a continuous serpentine bead of structural grade silicone caulk when no fastener is used to anchor the sill (typical).
2. Use #10 PH or #12 PH fastener through the nail fin with sufficient length to penetrate a minimum of 1 1/2" into the wood framing. For 2X wood frame substrate (min. S.G. = 0.42).
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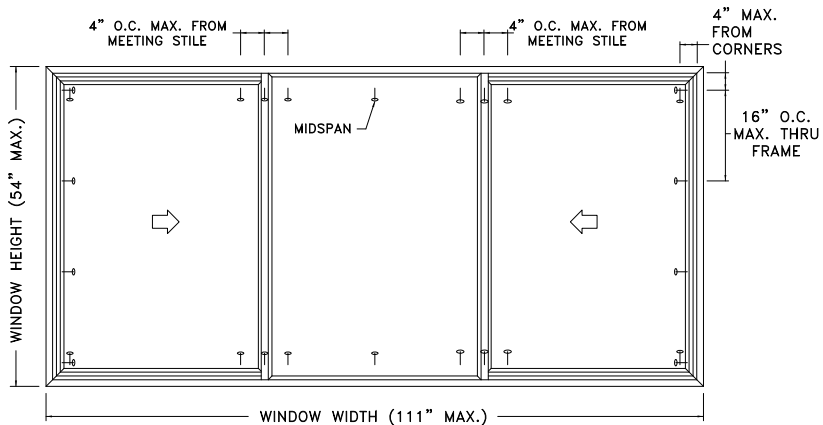
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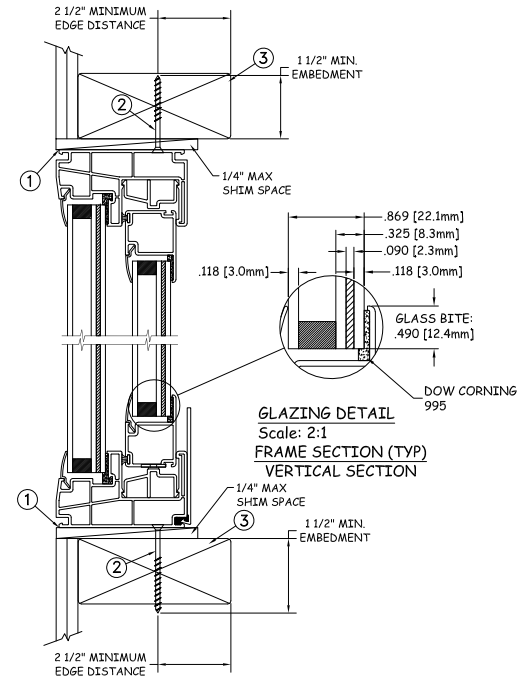


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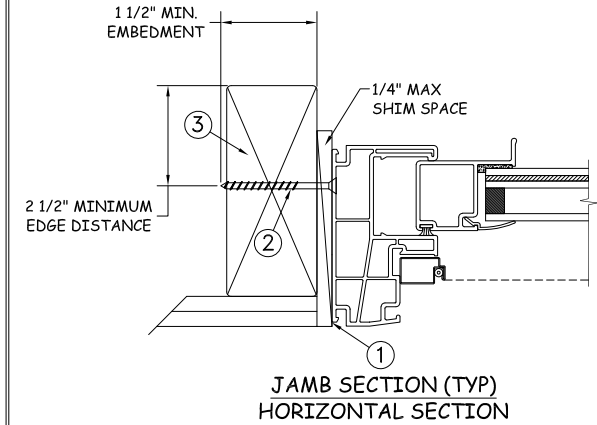
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DRAWN BY: J.HAWKINS	
CHECKED BY: D.BELAU	TITLE: Premium Atlantic Vinyl Impact Horizontal Slider
APPROVED BY: J.GOOSSEN	
RECORD No: D009346	
REPORT No: NCTL 210-4010-01	CAD DWG. No.: PremATLVinylHS Cert
	REV: A
	SHEET 1 OF 4



TYPICAL ELEVATION WITH FASTENER SPACING



THROUGH FRAME
INSTALLATION



Max Frame	DP RATING	IMPACT
111" x 54"	+50/-55	YES

Installation Notes:

1. Seal flange/frame to substrate. Sill shall be set on a continuous serpentine bead of structural grade silicone caulk when no fastener is used to anchor the sill (typical).
2. Use #10 PH or #12 PH fastener through the jamb with sufficient length to penetrate a minimum of 1 1/2" into the wood framing. For 2X wood frame substrate (min. S.G. = 0.42).
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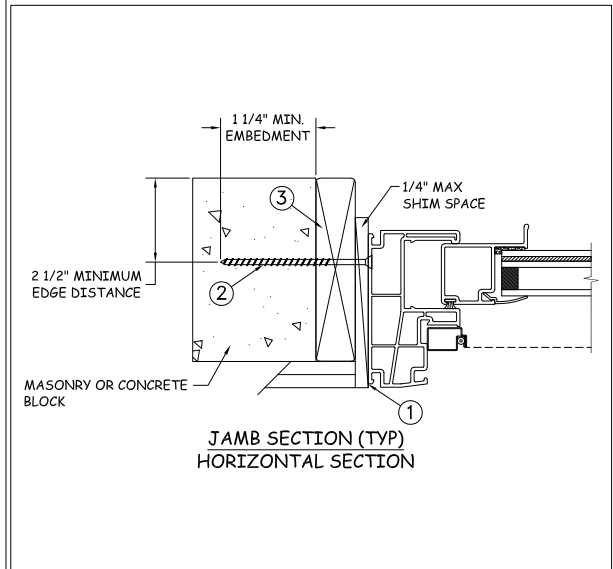
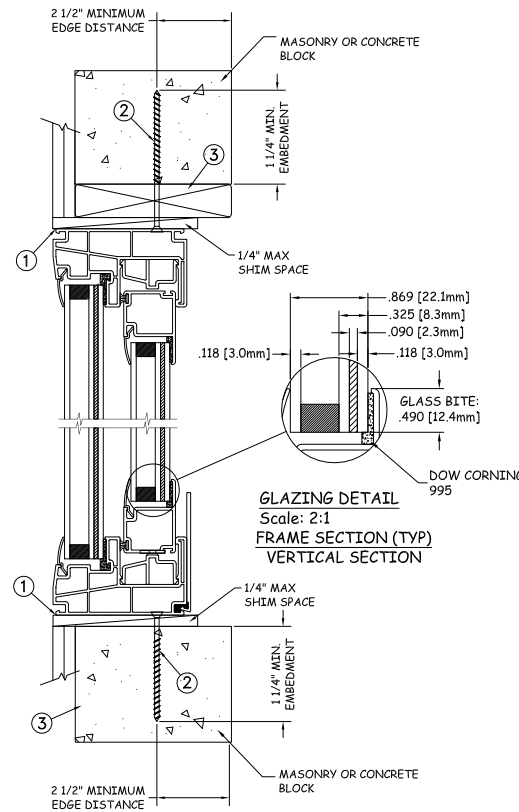
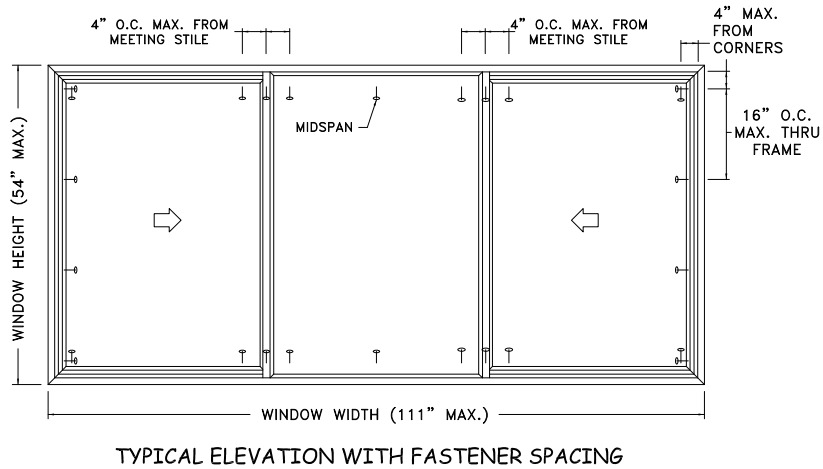
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DATE: 04/09/2019	JELD-WEN	3737 Lakeport Blvd Klamath Falls, OR. 97601 Phone: (800) 535-3936
DRAWN BY: J.HAWKINS		SCALE: NTS
CHECKED BY: D.BELAU	TITLE: Premium Atlantic Vinyl Impact Horizontal Slider	
APPROVED BY: J.GOOSSEN	RECORD No: D009346	
REPORT No: NCTL 210-4010-01	CAD DWG. No.: PremATLVinylHS Cert	REV: A SHEET 2 OF 4

MASONRY INSTALLATION



Max Frame	DP RATING	IMPACT
111" x 54"	+50/-55	YES

Installation Notes:

1. Seal flange/frame to substrate. Sill shall be set on a continuous serpentine bead of structural grade silicone caulk when no fastener is used to anchor the sill (typical).
2. Use 3/16" Tapcon or other approved 3/16" fasteners through frame with sufficient length to penetrate a minimum of 1 1/4" into concrete or masonry at each location with a 2 1/2" min from edge distance. For concrete (min. f'c = 3000psi) or masonry substrate (CMU shall adhere to ASTM C90).
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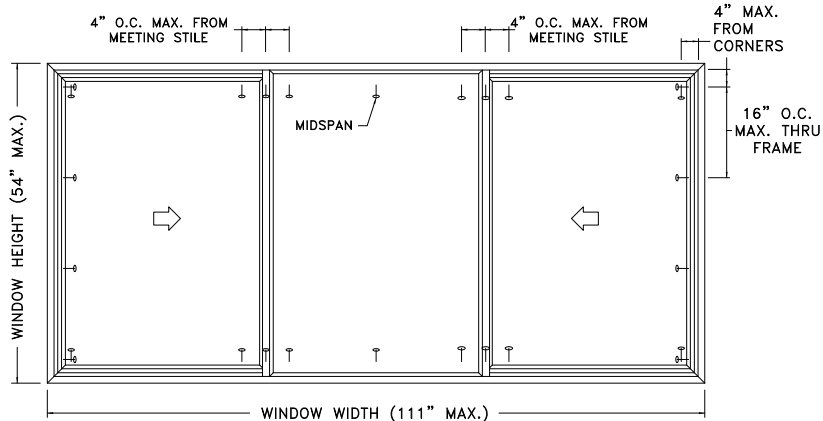
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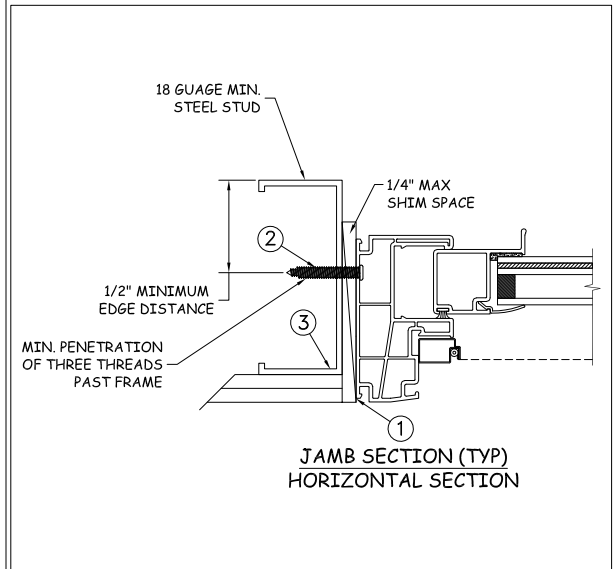
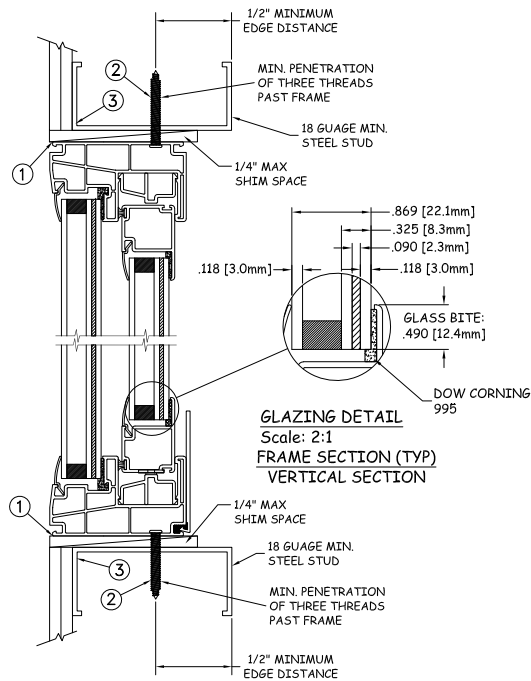
JOSEPH A. REED, P.E.
Florida P.E. No. 58920
5 Leigh Drive
York, PA 17406

DATE: 04/09/2019		3737 Lakeport Blvd Klamath Falls, OR. 97601 Phone: (800) 535-3936
DRAWN BY: J.HAWKINS		SCALE: NTS
CHECKED BY: D.BELAU	TITLE: Premium Atlantic Vinyl Impact Horizontal Slider	
APPROVED BY: J.GOOSSEN	RECORD No: D009346	
REPORT No: NCTL 210-4010-01	CAD DWG. No.: PremATLVinylHS Cert	REV: A SHEET 3 OF 4

STEEL INSTALLATION



TYPICAL ELEVATION WITH FASTENER SPACING



Max Frame	DP RATING	IMPACT
111" x 54"	+50/-55	YES

Installation Notes:

1. Seal flange/frame to substrate. Sill shall be set on a continuous serpentine bead of structural grade silicone caulk when no fastener is used to anchor the sill (typical).
2. For anchoring into steel framing use #10 TEK Self-drilling screws with sufficient length to achieve a minimum penetration of three threads past the frame thickness. Steel substrate min. 18ga., fy = 33 ksi.
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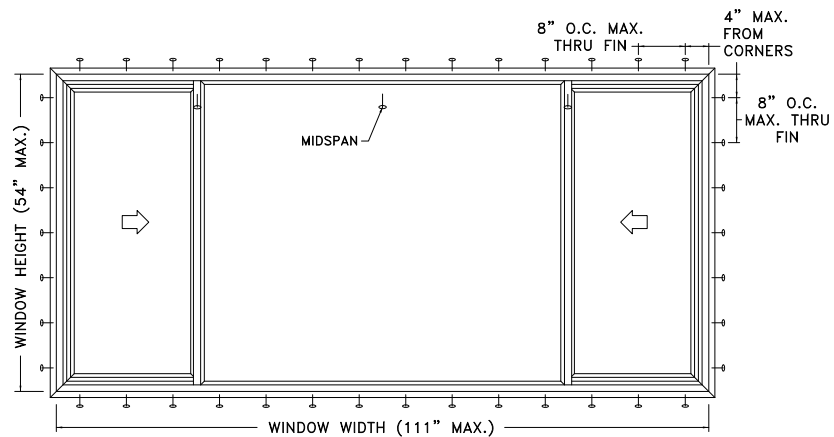
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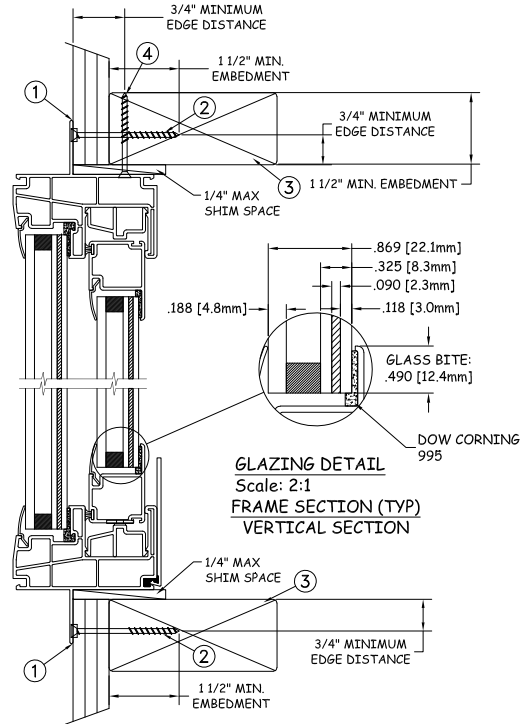


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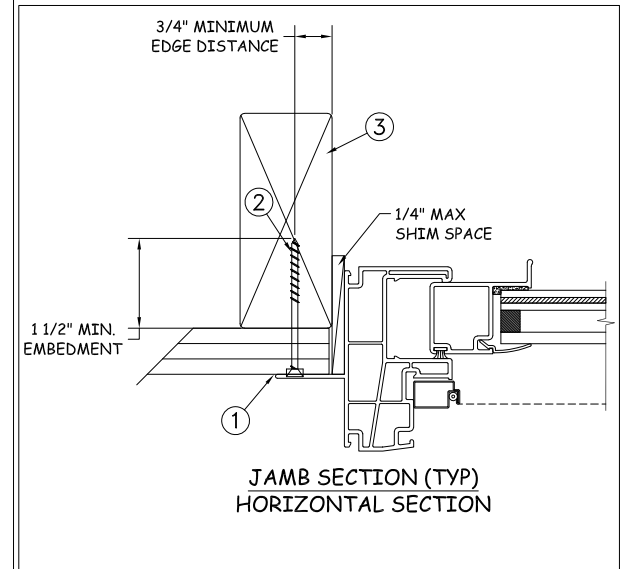


TYPICAL ELEVATION WITH FASTENER SPACING



GLAZING DETAIL
Scale: 2:1
FRAME SECTION (TYP)
VERTICAL SECTION

NAIL FIN INSTALLATION



JAMB SECTION (TYP)
HORIZONTAL SECTION

Max Frame 111" x 54"	DP RATING +50/-55	IMPACT YES
-------------------------	----------------------	---------------

Installation Notes:

1. Seal flange/frame to substrate. Sill shall be set on a continuous serpentine bead of structural grade silicone caulk when no fastener is used to anchor the sill (typical).
2. Use #10 PH or #12 PH fastener through the nail fin with sufficient length to penetrate a minimum of 1 1/2" into the wood framing. For 2X wood frame substrate (min. S.G. = 0.42).
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3. At minimum, glazing shall be 3.0mm tempered - 10.8mm airspace - 3.0mm annealed - 2.3mm SGP Interlayer by Kuraray - 3.0mm annealed.
4. Use structural or composite shims where required.

This schedule addresses only the fasteners required to anchor the unit to achieve the rated design pressure and impact performance (where applicable) up to the size limitations noted. It is not intended as a guide to the installation process and does not address the sealing consideration that may arise in different wall conditions. For the complete installation procedure, see the instructions packaged with the unit or go to www.jeld-wen.com.

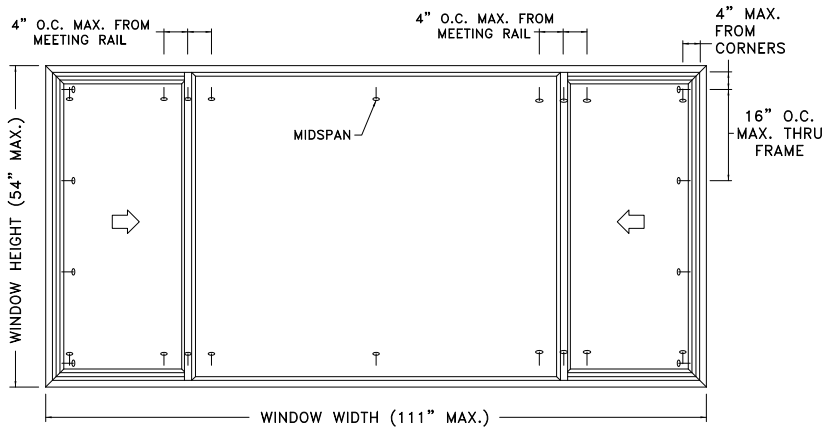
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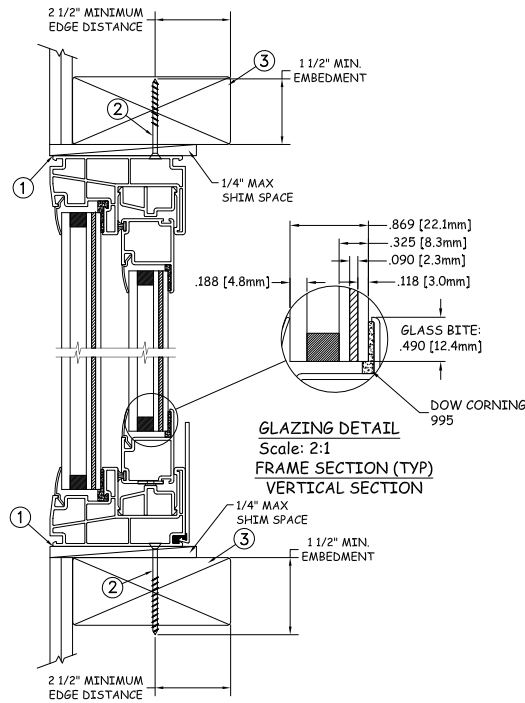


JOSEPH A. REED, P.E.
Florida P.E. No. 58920
5 Leigh Drive
York, PA 17406

DATE: 04/09/2019	JELD-WEN 3737 Lakeport Blvd Klamath Falls, OR. 97601 Phone: (800) 535-3936
DRAWN BY: J.HAWKINS	
CHECKED BY: D.BELAU	TITLE: Premium Atlantic Vinyl Impact Horizontal Slider
APPROVED BY: J.GOOSSEN	
RECORD No: D009346	
REPORT No: NCTL 210-4010-01	CAD DWG. No.: PremATLVinylHS Cert
	REV: A
	SHEET 1 OF 4

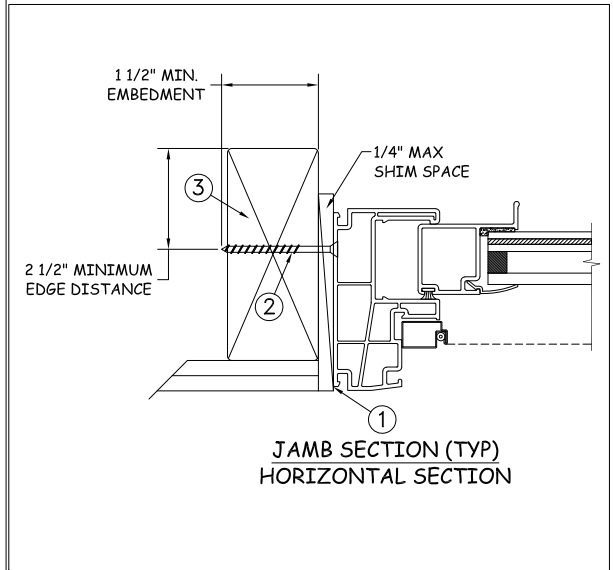


TYPICAL ELEVATION WITH FASTENER SPACING



GLAZING DETAIL
Scale: 2:1
FRAME SECTION (TYP)
VERTICAL SECTION

THROUGH FRAME
INSTALLATION



JAMB SECTION (TYP)
HORIZONTAL SECTION

Max Frame	DP RATING	IMPACT
111" x 54"	+50/-55	YES

Installation Notes:

1. Seal flange/frame to substrate. Sill shall be set on a continuous serpentine bead of structural grade silicone caulk when no fastener is used to anchor the sill (typical).
2. Use #10 PH or #12 PH fastener through the jamb with sufficient length to penetrate a minimum of 1 1/2" into the wood framing. For 2X wood frame substrate (min. S.G. = 0.42).
3. Host structure (wood buck, masonry, steel) to be designed and anchored to properly transfer all loads to the structure. The host structure is the responsibility of the architect or engineer of record for the project of installation.

General Notes:

1. The product shown herein is designed, tested and manufactured to comply with the wind load criteria of the adopted International Building Code(IBC), the International Residential Code(IRC), the Florida Building Code(FBC) including HVHZ and the industry requirement for the stated conditions.
2. All glazing shall conform to ASTM E1300.
3. At minimum, glazing shall be 3.0mm tempered - 10.8mm airspace - 3.0mm annealed - 2.3mm SGP Interlayer by Kuraray - 3.0mm annealed.
4. Use structural or composite shims where required.

This schedule addresses only the fasteners required to anchor the unit to achieve the rated design pressure and impact performance (where applicable) up to the size limitations noted. It is not intended as a guide to the installation process and does not address the sealing consideration that may arise in different wall conditions. For the complete installation procedure, see the instructions packaged with the unit or go to www.jeld-wen.com.

DISCLAIMER:

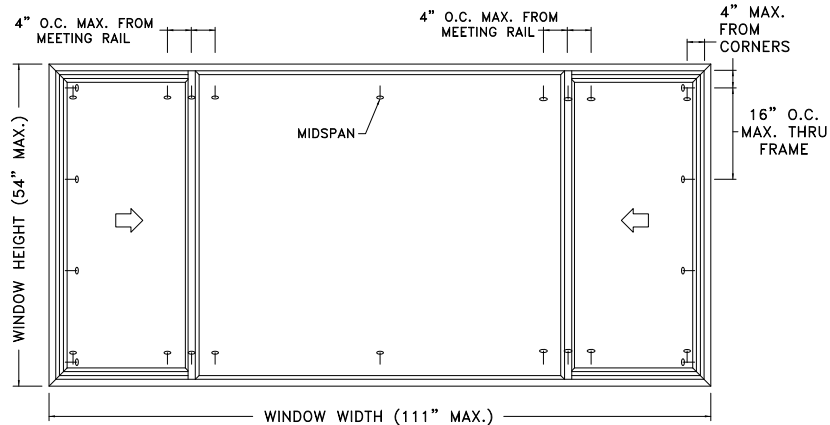
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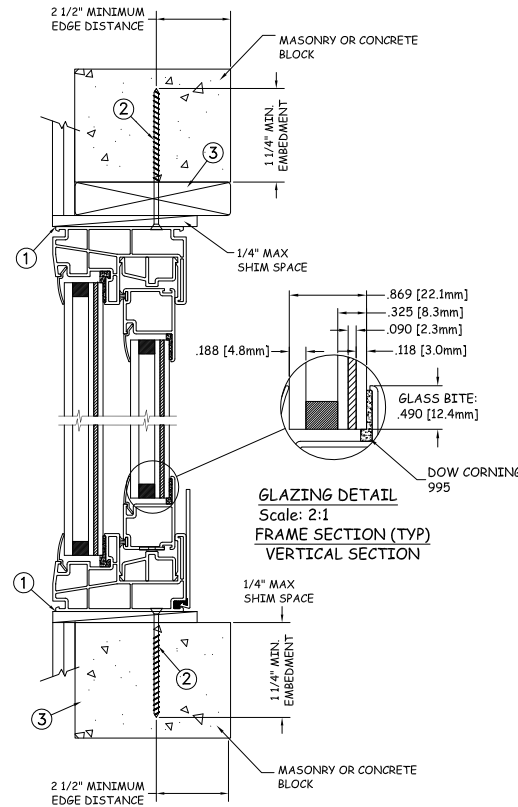
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DATE: 04/09/2019	JELD-WEN 3737 Lakeport Blvd Klamath Falls, OR. 97601 Phone: (800) 535-3936
DRAWN BY: J.HAWKINS	
CHECKED BY: D.BELAU	TITLE: Premium Atlantic Vinyl Impact Horizontal Slider
APPROVED BY: J.GOOSSEN	
RECORD No: D009346	
REPORT No: NCTL 210-4010-01	CAD DWG. No.: PremATLVinylHS Cert
	REV: A
	SHEET 2 OF 4

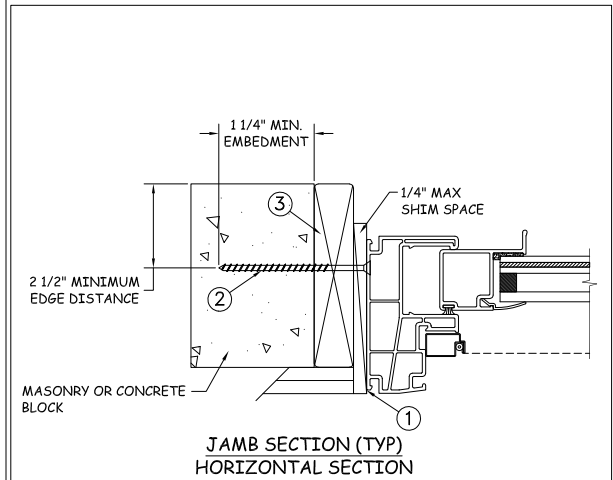
MASONRY INSTALLATION



TYPICAL ELEVATION WITH FASTENER SPACING



GLAZING DETAIL
Scale: 2:1
FRAME SECTION (TYP)
VERTICAL SECTION



JAMB SECTION (TYP)
HORIZONTAL SECTION

Max Frame 111" x 54"	DP RATING +50/-55	IMPACT YES
-------------------------	----------------------	---------------

Installation Notes:

1. Seal flange/frame to substrate. Sill shall be set on a continuous serpentine bead of structural grade silicone caulk when no fastener is used to anchor the sill (typical).
2. Use 3/16" Tapcon or other approved 3/16" fasteners through frame with sufficient length to penetrate a minimum of 1 1/4" into concrete or masonry at each location with a 2 1/2" min from edge distance. For concrete (min. f_c = 3000psi) or masonry substrate (CMU shall adhere to ASTM C90).
3. Host structure (wood buck, masonry, steel) to be designed and anchored to properly transfer all loads to the structure. The host structure is the responsibility of the architect or engineer of record for the project of installation.

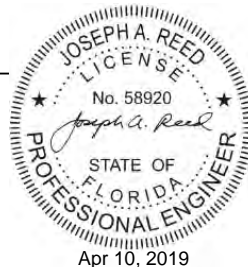
General Notes:

1. The product shown herein is designed, tested and manufactured to comply with the wind load criteria of the adopted International Building Code(IBC), the International Residential Code(IRC), the Florida Building Code(FBC) including HVHZ and the industry requirement for the stated conditions.
2. All glazing shall conform to ASTM E1300.
3. At minimum, glazing shall be 3.0mm tempered - 10.8mm airspace - 3.0mm annealed - 2.3mm SGP Interlayer by Kuraray - 3.0mm annealed.
4. Use structural or composite shims where required.

This schedule addresses only the fasteners required to anchor the unit to achieve the rated design pressure and impact performance (where applicable) up to the size limitations noted. It is not intended as a guide to the installation process and does not address the sealing consideration that may arise in different wall conditions. For the complete installation procedure, see the instructions packaged with the unit or go to www.jeld-wen.com.

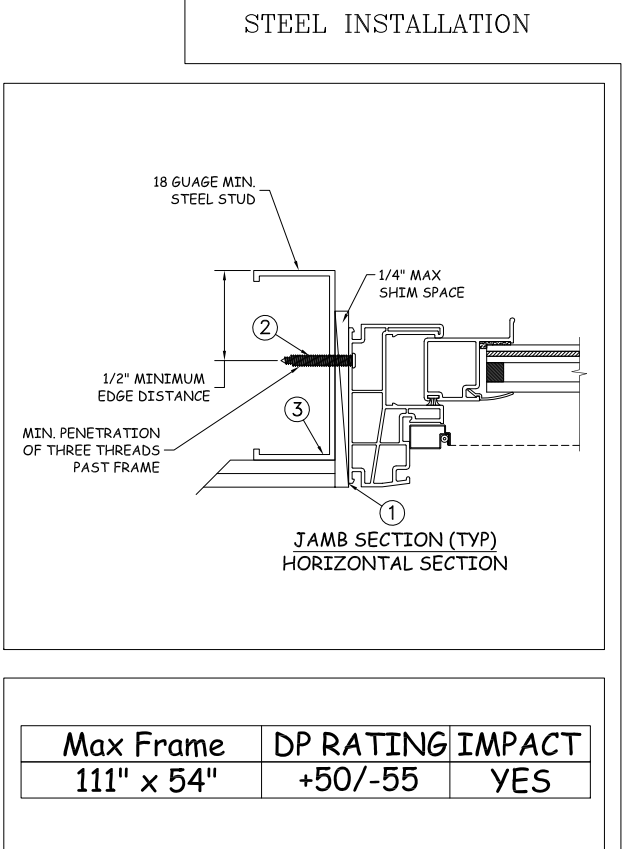
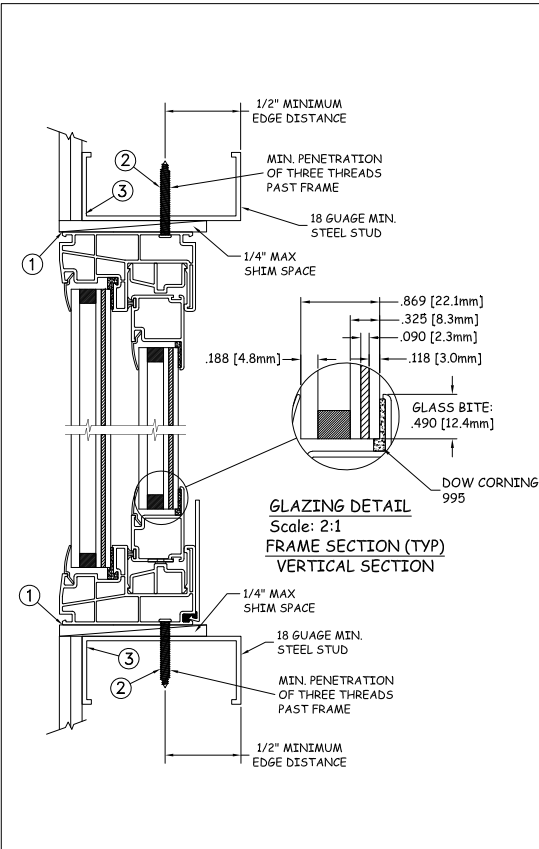
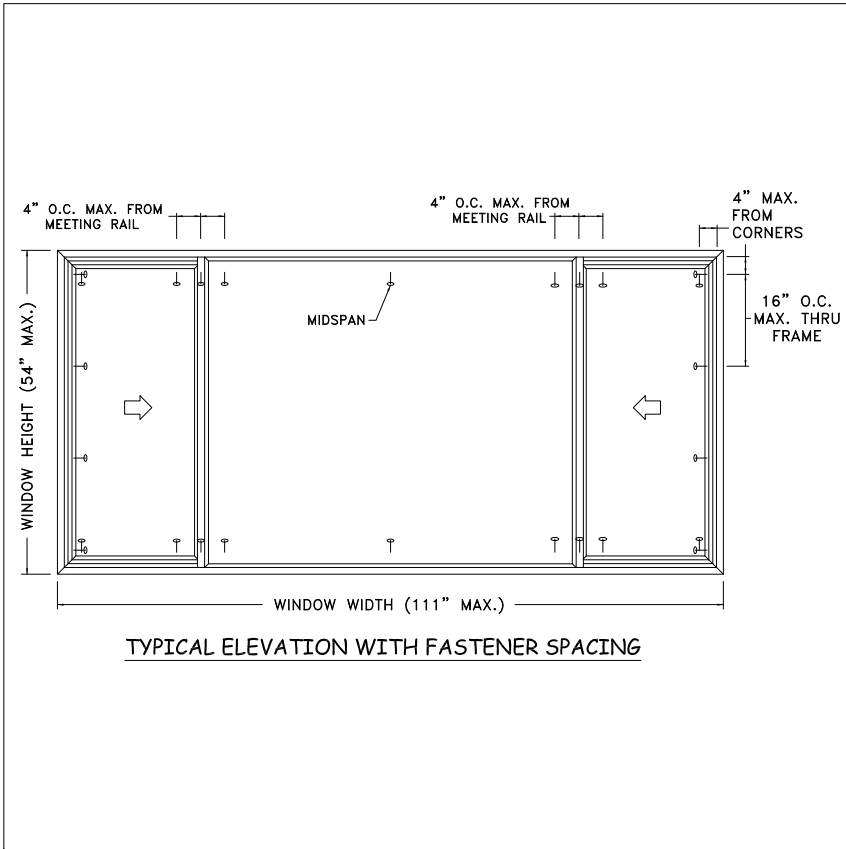
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DATE: 04/09/2019	JELD-WEN 3737 Lakeport Blvd Klamath Falls, OR. 97601 Phone: (800) 535-3936
DRAWN BY: J.HAWKINS	
CHECKED BY: D.BELAU	TITLE: Premium Atlantic Vinyl Impact Horizontal Slider
APPROVED BY: J.GOOSSEN	
RECORD No: D009346	
REPORT No: NCTL 210-4010-01	CAD DWG. No.: PremATLVinylHS Cert
	REV: A
	SHEET 3 OF 4



Installation Notes:

1. Seal flange/frame to substrate. Sill shall be set on a continuous serpentine bead of structural grade silicone caulk when no fastener is used to anchor the sill (typical).
2. For anchoring into steel framing use #10 TEK Self-drilling screws with sufficient length to achieve a minimum penetration of three threads past the frame thickness. Steel substrate min. 18ga., fy = 33 ksi.
3. Host structure (wood buck, masonry, steel) to be designed and anchored to properly transfer all loads to the structure. The host structure is the responsibility of the architect or engineer of record for the project of installation.

General Notes:

1. The product shown herein is designed, tested and manufactured to comply with the wind load criteria of the adopted International Building Code(IBC), the International Residential Code(IRC), the Florida Building Code(FBC) including HVHZ and the industry requirement for the stated conditions.
2. All glazing shall conform to ASTM E1300.
3. At minimum, glazing shall be 3.0mm tempered - 10.8mm airspace - 3.0mm annealed - 2.3mm SGP Interlayer by Kuraray - 3.0mm annealed.
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5 Leigh Drive
York, PA 17406

	DATE: 04/09/2019	<h1>JELD-WEN</h1>	3737 Lakeport Blvd Klamath Falls, OR. 97601 Phone: (800) 535-3936
DRAWN BY: J.HAWKINS	SCALE: NTS		<h2>Premium Atlantic Vinyl Impact Horizontal Slider</h2>
CHECKED BY: D.BELAU	TITLE:		
APPROVED BY: J.GOOSSEN	RECORD No: D009346		
REPORT No: NCTL 210-4010-01	CAD DWG. No.: PremATLVinylHS Cert	REV: A	SHEET 4 OF 4