

# Opaque Steel Door

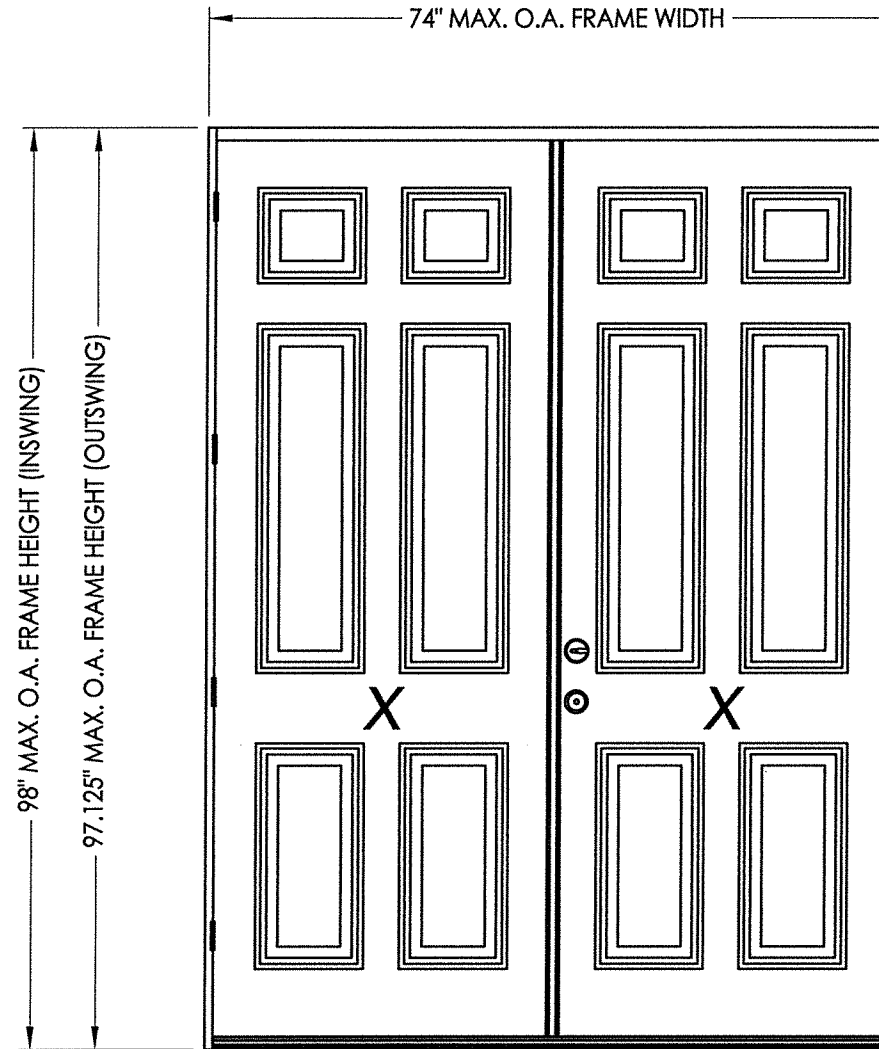
"NON-IMPACT"  
IN SWING / OUT SWING

**EVALUATED FOR USE IN THE STATE OF TEXAS**

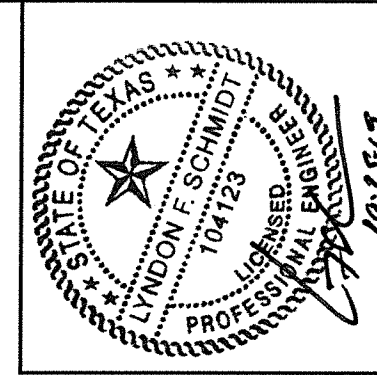
The Steel Door system described herein complies with the 2018 International Residential Code (IRC), Sections R301 & R609 and the 2018 International Building Code (IBC), Sections 1404.13, 1609, 1709.5, 2403 and 2404 subject to the following conditions:

1. Anchors shall be as listed and spaced as shown in the details. Anchor embedment to base material shall be beyond wall dressing or stucco.
2. When used in areas requiring wind-borne debris protection this product is required to be protected with an impact resistant covering that complies with Section R301.2.1.2 of the IRC and Section 1609.2 of the IBC.
3. Allowable design pressure requirements must be equal to or less than the design pressure rating shown in the design pressure chart, sheet 1 of this drawing.
4. Conditions not covered by this drawing are subject to further engineering analysis.

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SHEET #	DESCRIPTION
1	Typical elevations, design pressures & general notes
2	Astragal details (Ultimate Multipoint)
3	Astragal details (Ultimate Hurricane)
4	Door panel details
5	Horizontal & vertical cross sections
6	Vertical cross sections
7	Frame anchoring



CONFIG.	MODEL	DESIGN PRESSURE (PSF) ULTIMATE HURRICANE ASTRAGAL		DESIGN PRESSURE (PSF) ULTIMATE MULTIPOINT ASTRAGAL	
		POSITIVE	NEGATIVE	POSITIVE	NEGATIVE
XX	IN SWING	+40.0	-40.0	+40.0	-40.0
XX	OUT SWING	+45.0	-45.0	+30.0	-30.0



Documents Prepared By: Lyndon F. Schmidt, P.E.  
TEXAS P.E. #104123

**RW** BUILDING CONSULTANTS, INC.  
P.O. Box 230 Valrico FL 33595  
Phone No.: 813.659.9197

TEXAS BOARD OF PROFESSIONAL ENGINEERS  
CERTIFICATE OF REGISTRATION # F-11852

PRODUCT: ENDURA

PART OR ASSEMBLY: TYPICAL ELEVATION, DESIGN PRESSURES & GENERAL NOTES

NO.	DATE	REVISIONS
2	10/28/19	ADD "FusionFrame" OPTION & UPDATE TO 2018 IBC/IRC CODE
1	10/03/18	UPDATE FOR NEW TESTING

DATE: 11/08/16

SCALE: N.T.S.

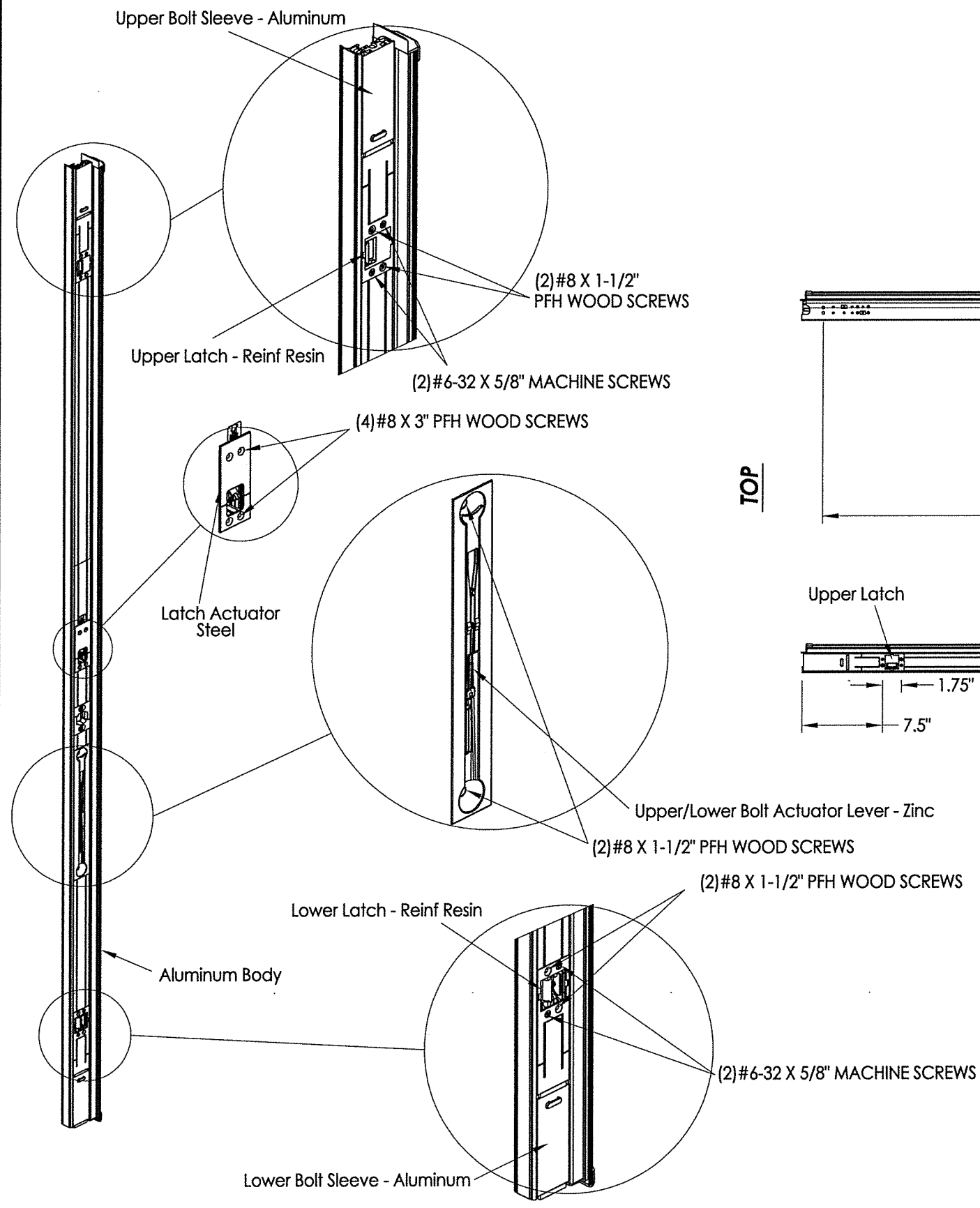
DWG. BY: JK

CHK. BY: LFS

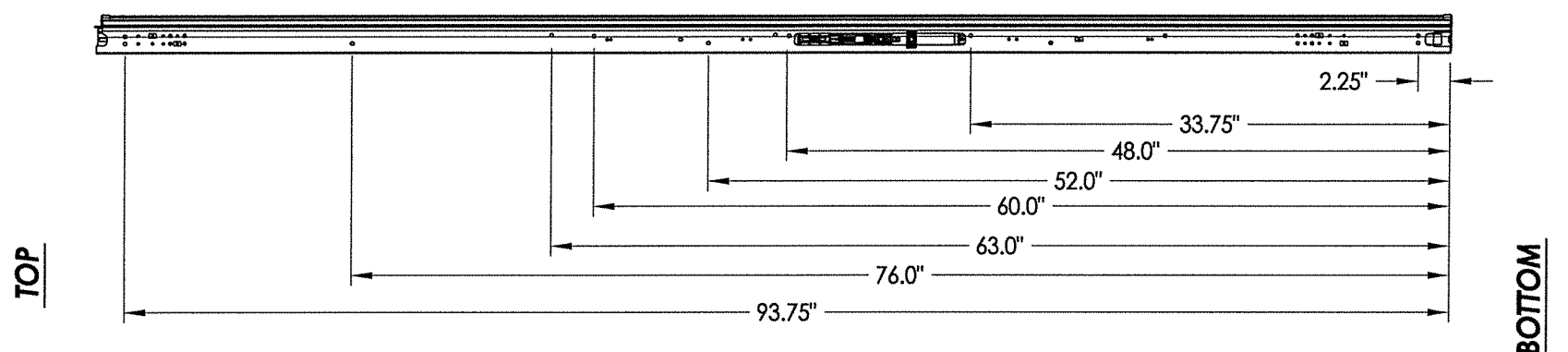
DRAWING NO.: TX-4656

SHEET 1 OF 7

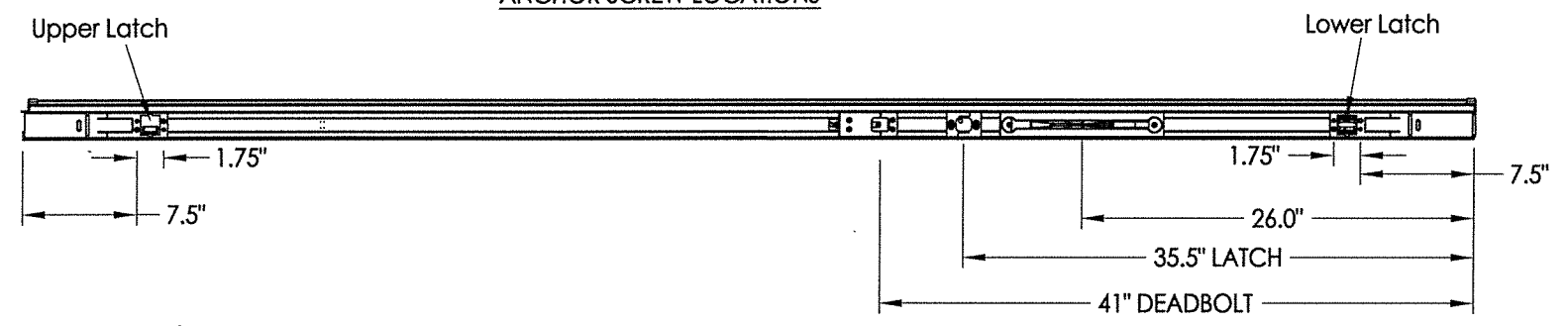
R:\Clients\Endura PERMANENT\B - Texas Dept of Ins\TDI - DR-850 Masonite ST Opaque (LK,DB)\C - Drawings\TX-4653.56.dwg, 2.2



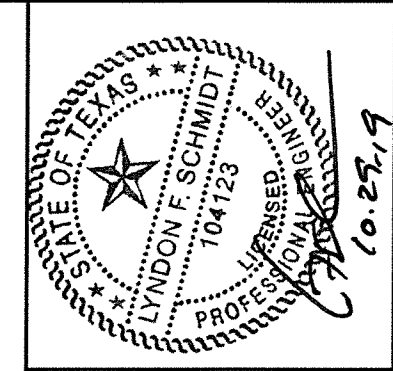
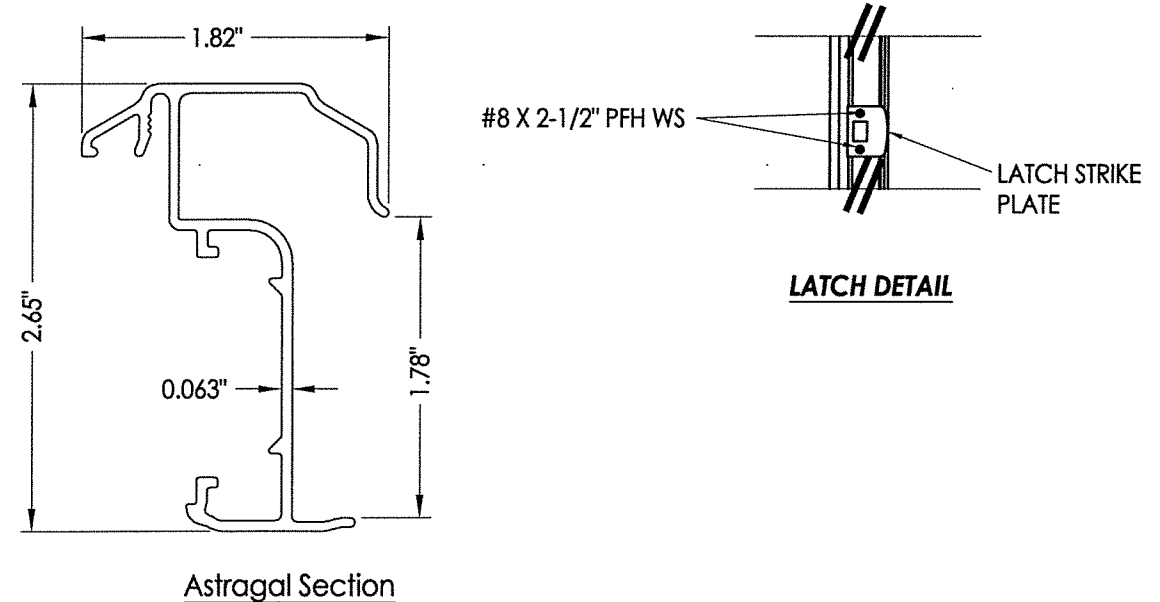
**ULTIMATE MULTIPOINT ASTRAGAL**



**ANCHOR SCREW LOCATIONS**



**HARDWARE LOCATIONS**



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CERTIFICATE OF REGISTRATION # F-11852

PRODUCT: ENDURA

PART OR ASSEMBLY: ASTRAGAL DETAILS (ULTIMATE MULTI-POINT)

NO.	DATE	REVISIONS
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1	10/03/18	UPDATE FOR NEW TESTING

DATE: 11/08/16

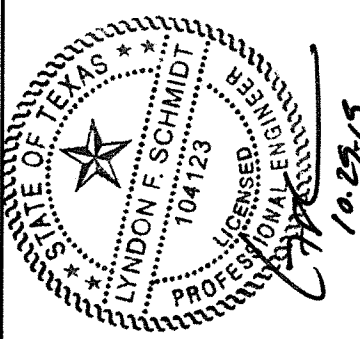
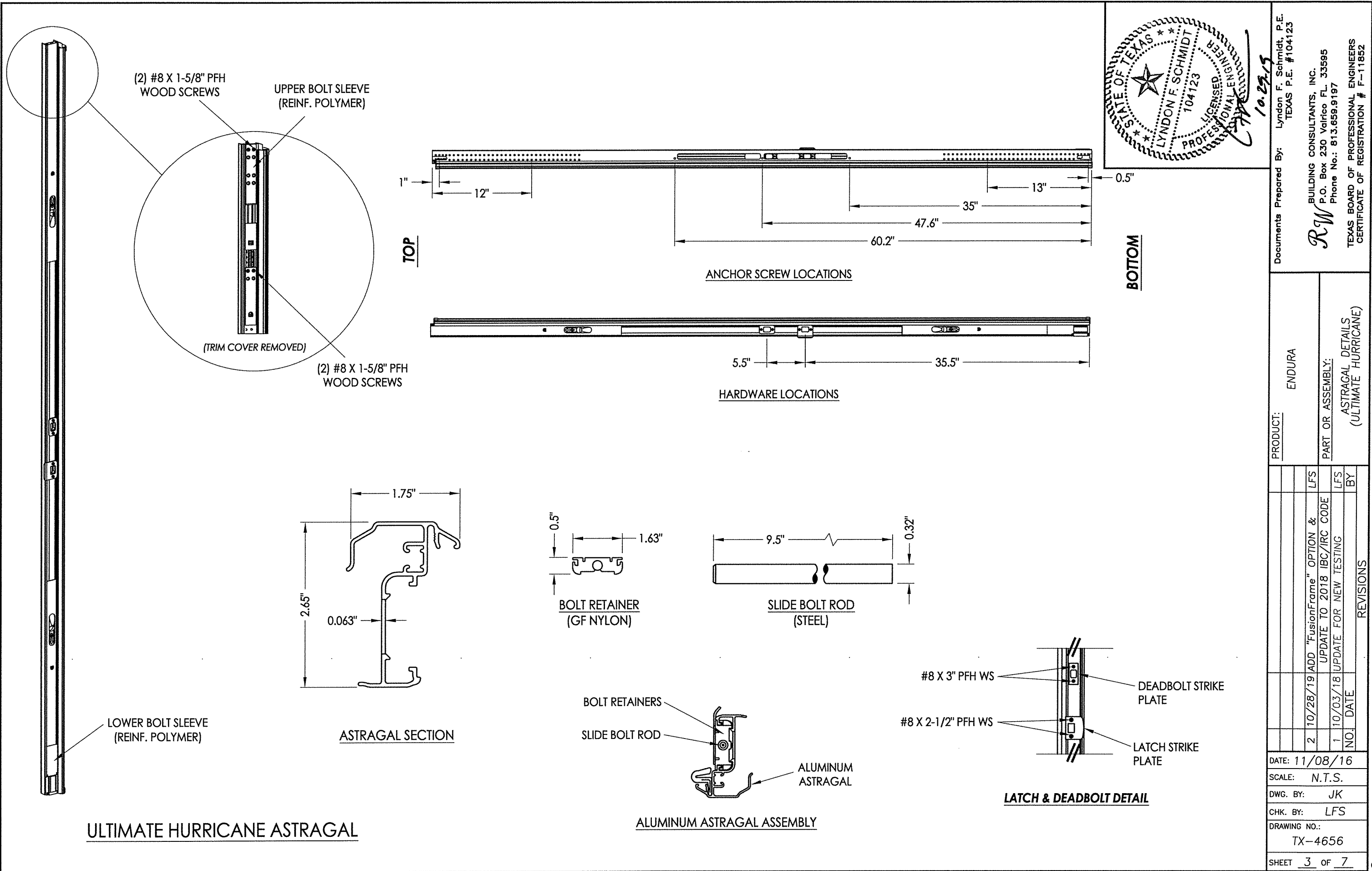
SCALE: N.T.S.

DWG. BY: JK

CHK. BY: LFS

DRAWING NO.: TX-4656

SHEET 2 OF 7



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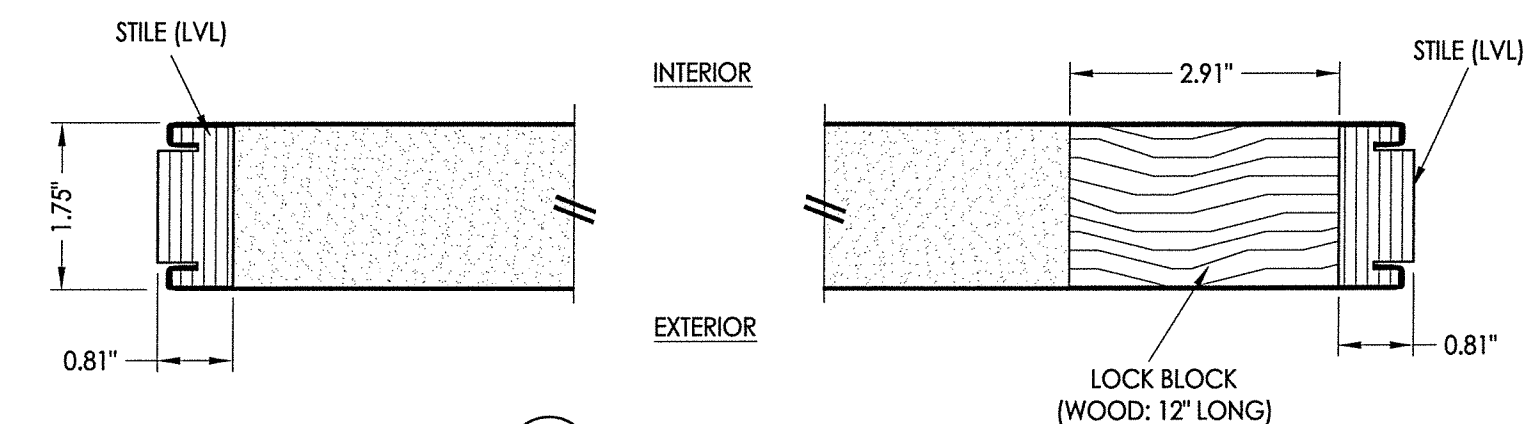
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PART OR ASSEMBLY: ASTRAGAL DETAILS (ULTIMATE HURRICANE)

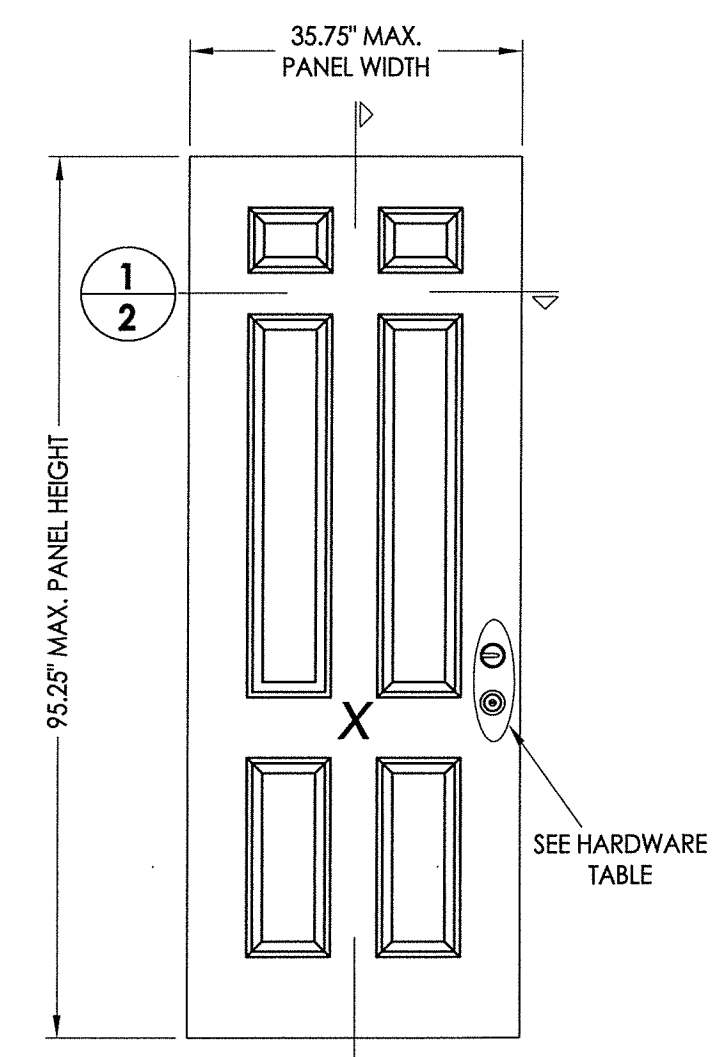
REVISIONS	
NO.	DATE
2	10/28/19
1	10/03/18

DATE: 11/08/16  
SCALE: N.T.S.  
DWG. BY: JK  
CHK. BY: LFS  
DRAWING NO.: TX-4656  
SHEET 3 OF 7

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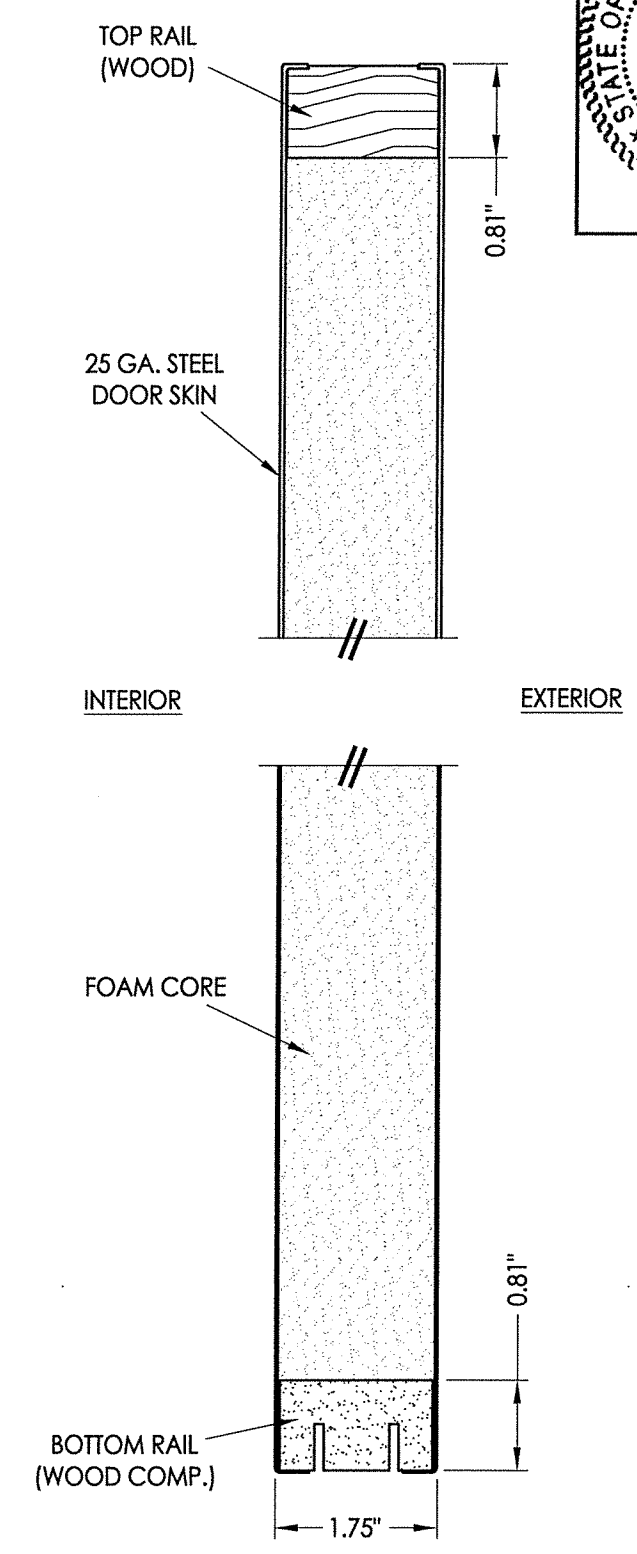
**1**  
**2** HORIZONTAL CROSS SECTION



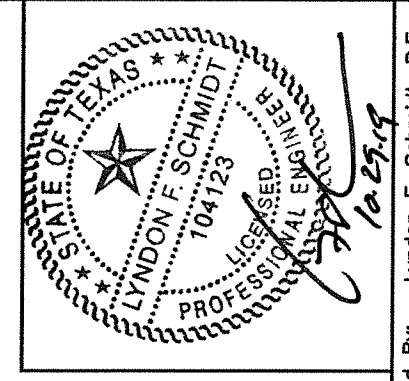
**2**  
**2**  
**40** DOOR PANEL  
Masonite  
Steel (Wood Edge)

HARDWARE TABLE	
MANUFACTURER	MODEL
KWIKSET	LATCH: KWIKSET SIGNATURE SERIES (991) DEADBOLT: KWIKSET SIGNATURE SERIES (980/985)

DOOR SKIN: 25 GA. STEEL (0.020" MIN. THICKNESS)  
CORE MATERIAL: POLYURETHANE FOAM (1.9 PCF MIN.)



**2**  
**2** VERTICAL CROSS SECTION



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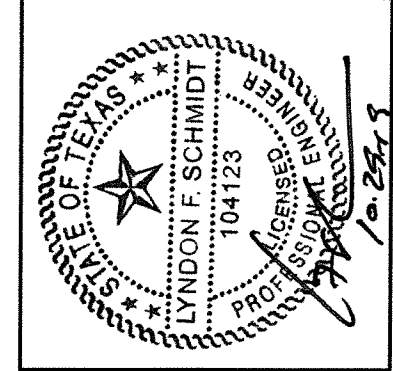
PRODUCT: ENDURA

PART OR ASSEMBLY: DOOR PANEL DETAILS & GLAZING DETAIL

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1	10/03/18	LFS	UPDATE FOR NEW TESTING

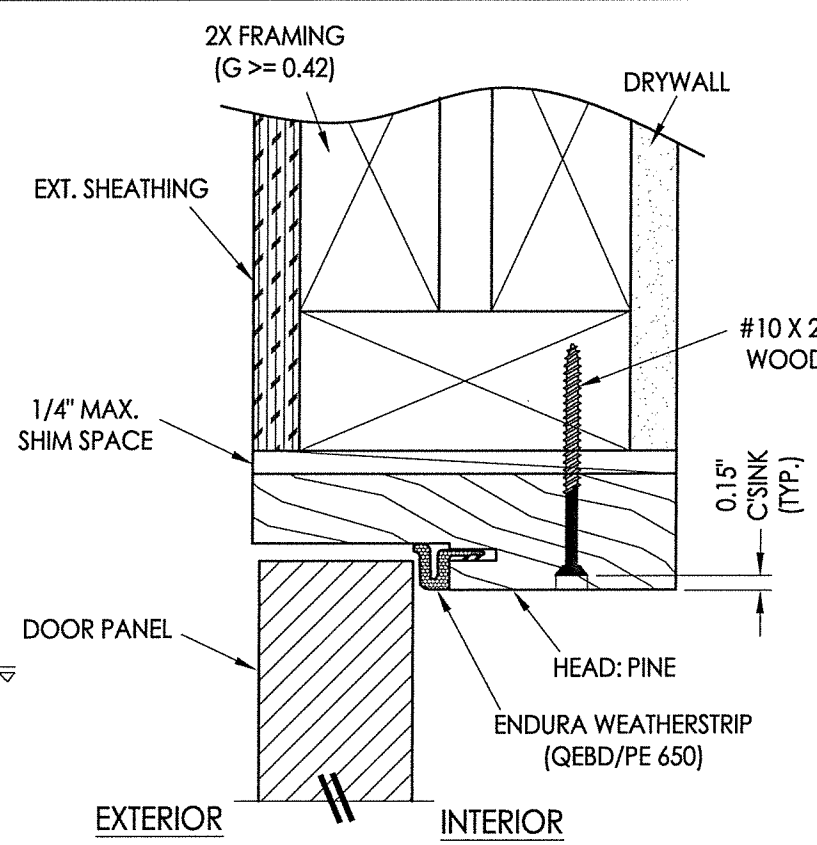
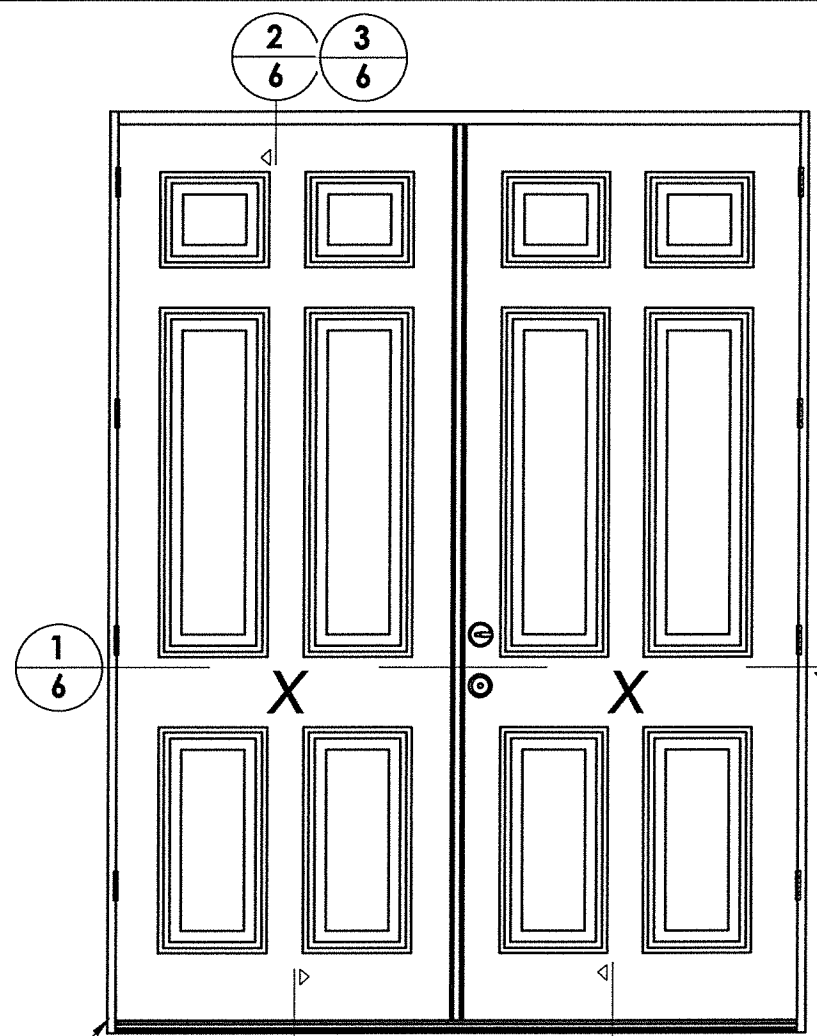
DATE: 11/08/16  
SCALE: N.T.S.  
DWG. BY: JK  
CHK. BY: LFS  
DRAWING NO.: TX-4656  
SHEET 4 OF 7

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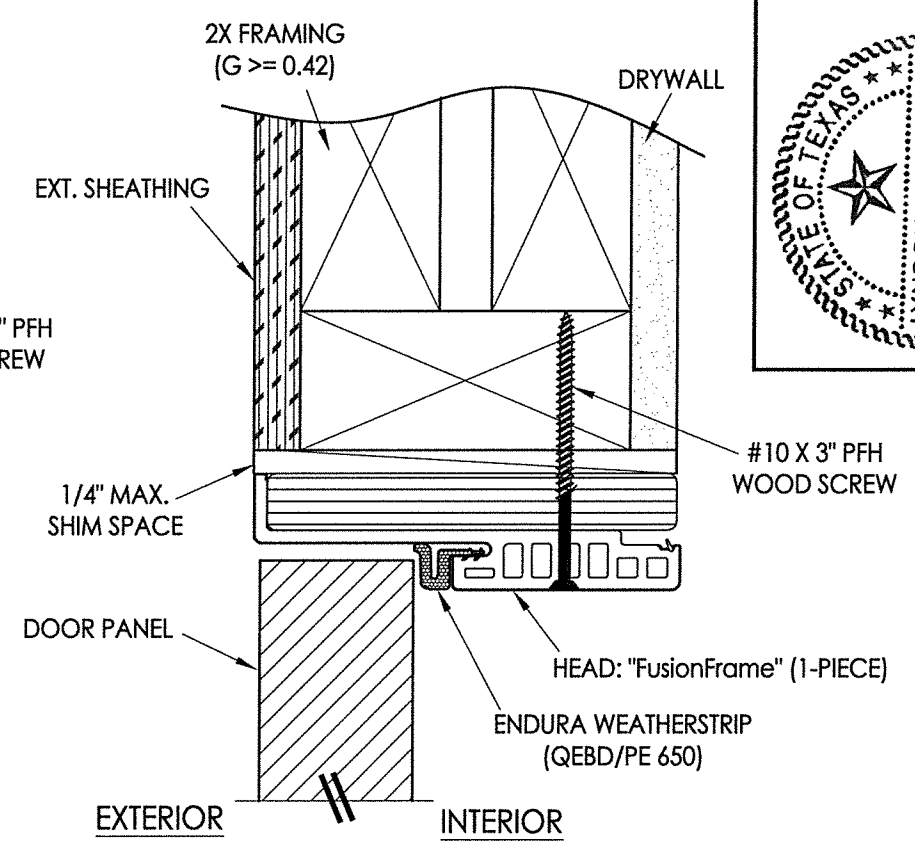


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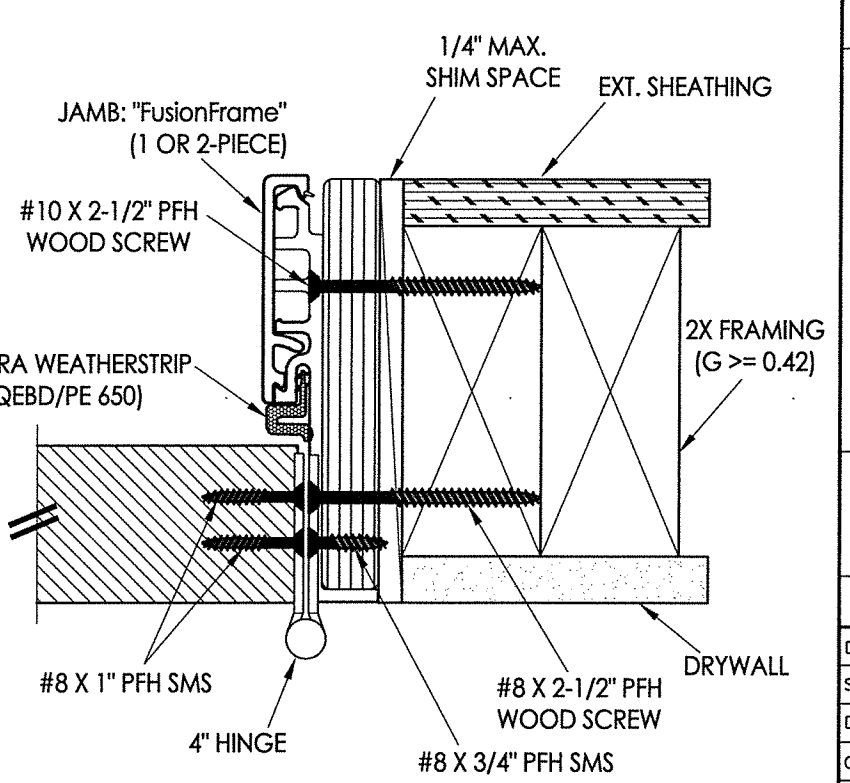
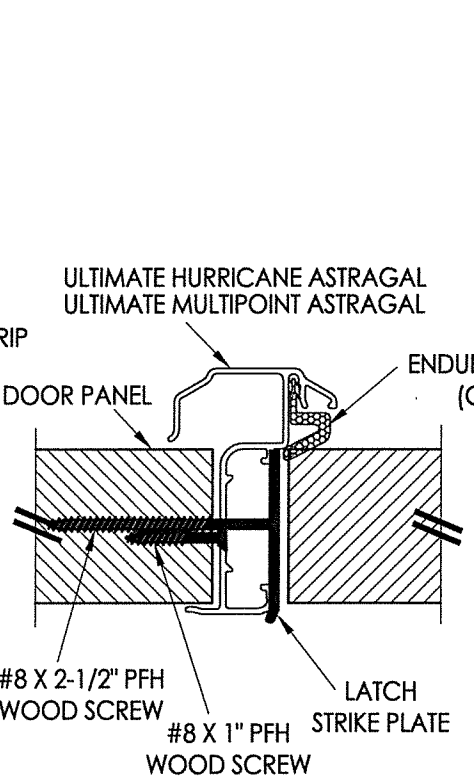
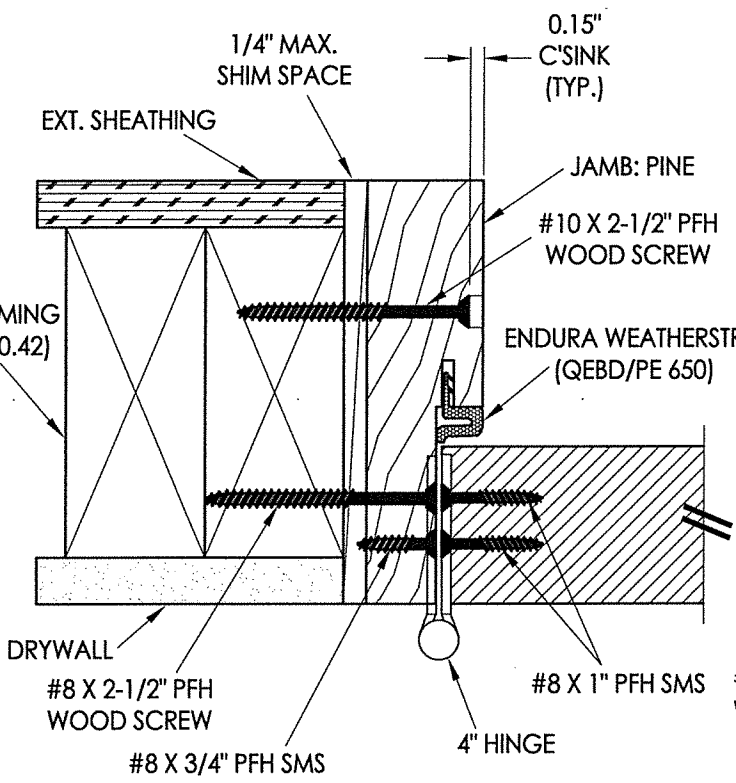
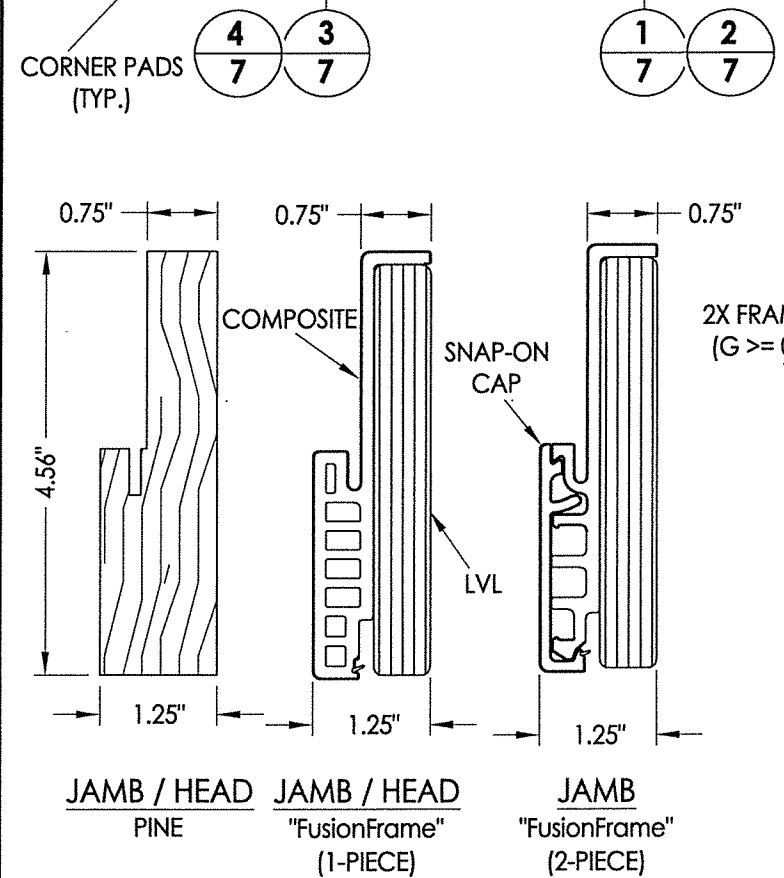
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**2** VERTICAL CROSS SECTION  
**6** Outswing shown - inswing also approved



**3** VERTICAL CROSS SECTION  
**6** Outswing shown - inswing also approved



**1** HORIZONTAL CROSS SECTION  
**6** Inswing shown - Outswing also approved

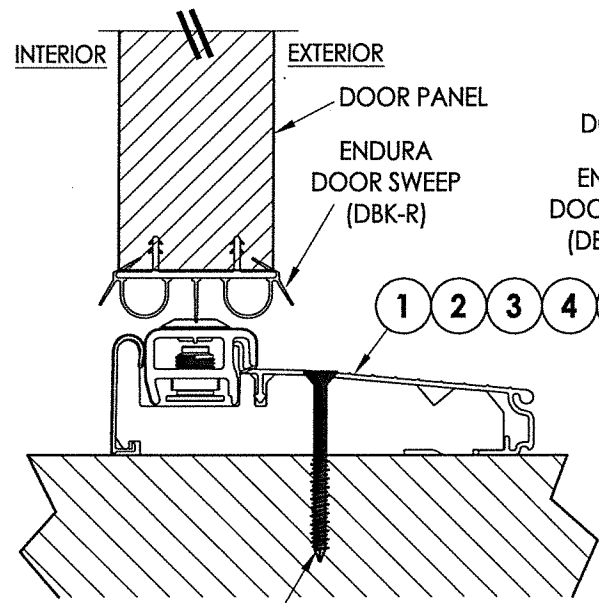
PRODUCT:	ENDURA
PART OR ASSEMBLY:	HORIZONTAL & VERTICAL CROSS SECTIONS

NO.	DATE	REVISIONS	BY
2	10/28/19	ADD "FusionFrame" OPTION & UPDATE TO 2018 IBC/IRC CODE	LFS
1	10/03/18	UPDATE FOR NEW TESTING	LFS

DATE:	11/08/16
SCALE:	N.T.S.
DWG. BY:	JK
CHK. BY:	LFS
DRAWING NO.:	TX-4656
SHEET	5 of 7

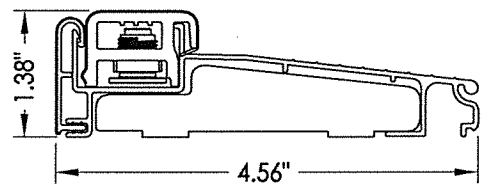
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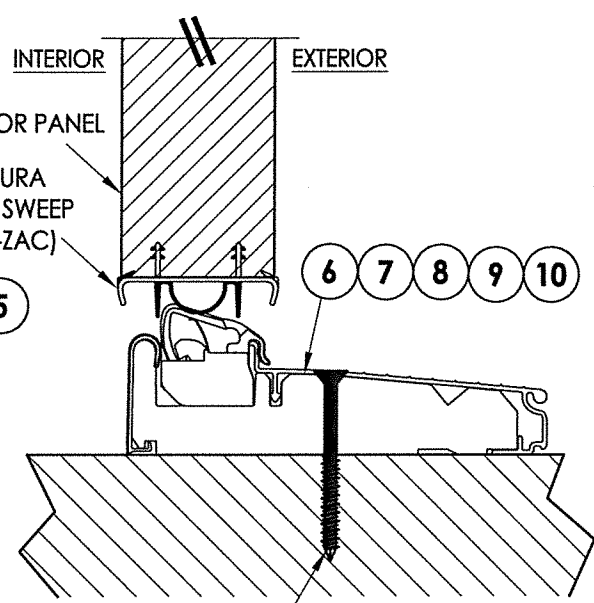


#10 X 2.5" PFH WOOD SCREW OR  
1/4" X 2-3/4" ELCO OR ITW CONCRETE SCREW

**1 VERTICAL CROSS SECTION**  
**6** Inswing Adjustable Threshold

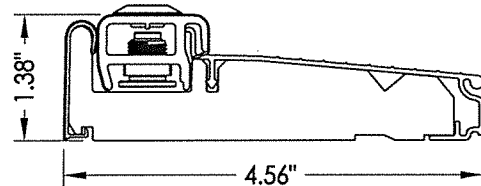


**1 INSWING ADJUSTABLE THRESHOLD**  
ZAIL4565

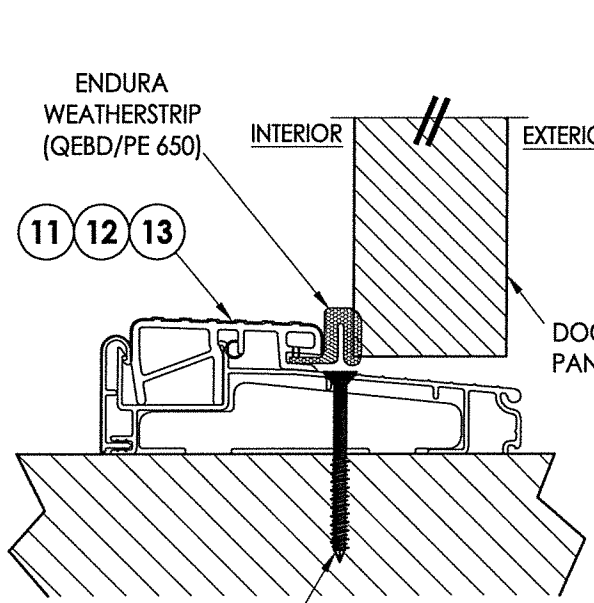


#10 X 2.5" PFH WOOD SCREW OR  
1/4" X 2-3/4" ELCO OR ITW CONCRETE SCREW

**2 VERTICAL CROSS SECTION**  
**6** Inswing Articulating Threshold  
w/ Pin Capture

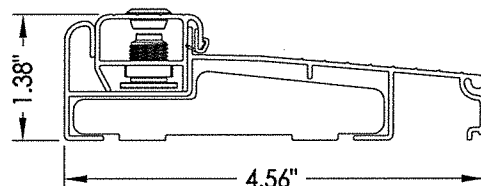


**2 INSWING ADJUSTABLE THRESHOLD**  
ZAI4565FN

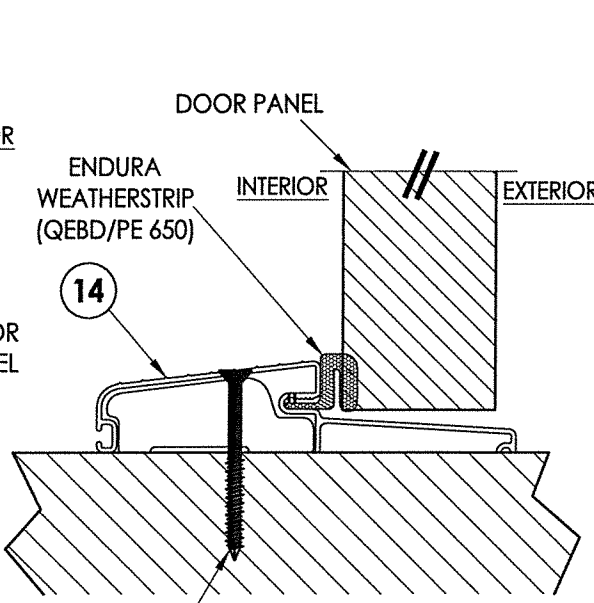


#10 X 2.5" PFH WOOD SCREW OR  
1/4" X 2-3/4" ELCO OR ITW CONCRETE SCREW

**3 VERTICAL CROSS SECTION**  
**6** Outswing Bump Threshold

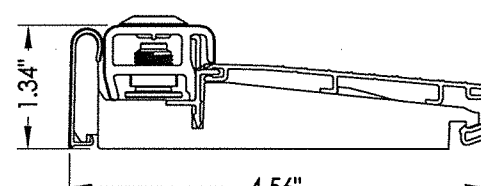


**3 INSWING ADJUSTABLE THRESHOLD**  
ZAILAA4565

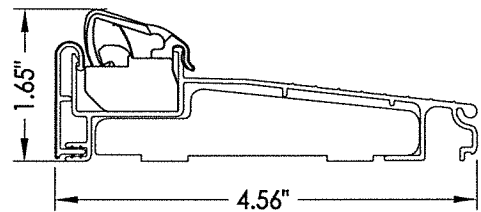


#10 X 2.5" PFH WOOD SCREW OR  
1/4" X 2-3/4" ELCO OR ITW CONCRETE SCREW

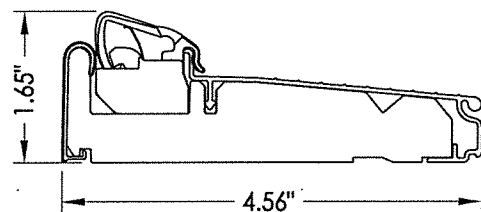
**4 VERTICAL CROSS SECTION**  
**6** Outswing Bump Threshold



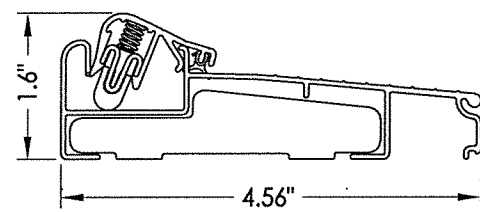
**5 INSWING ADJUSTABLE THRESHOLD**  
ZAI4565RDS



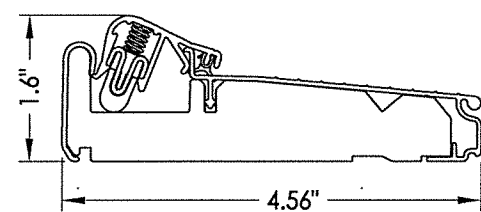
**6 INSWING ARTICULATING THRESHOLD**  
ZACL4565



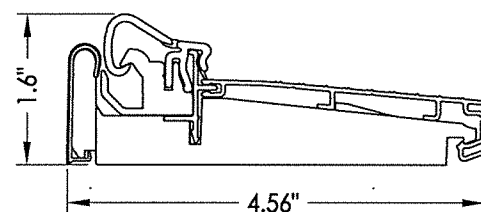
**7 INSWING ARTICULATING THRESHOLD**  
ZAC4565FN



**8 INSWING ARTICULATING THRESHOLD**  
ZACLAA4565

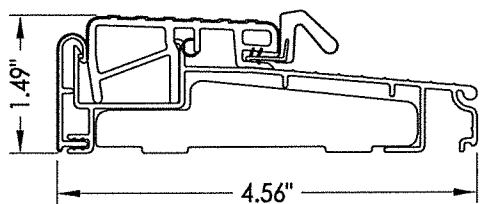


**9 INSWING ARTICULATING THRESHOLD**  
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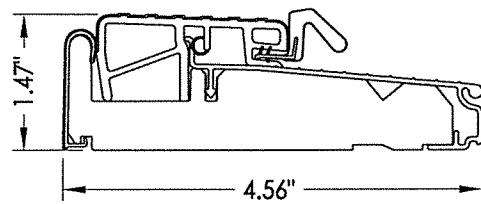


**10 INSWING ARTICULATING THRESHOLD**  
ZAC4565RDS

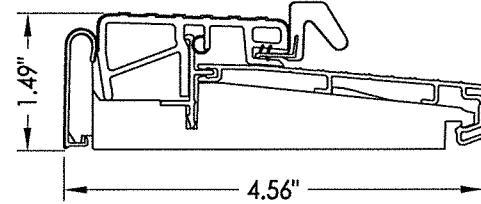
MAX. DESIGN PRESSURE = ±35 PSF



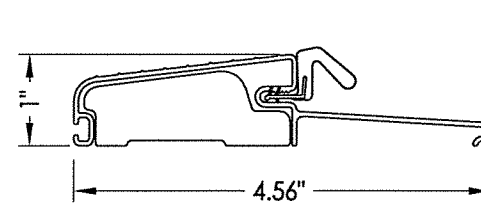
**11 OUTSWING THRESHOLD**  
ZOBL4565



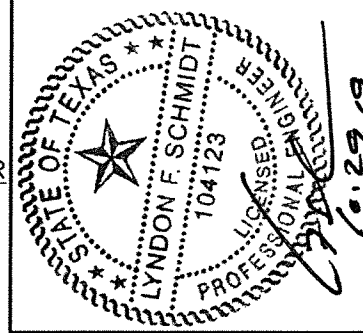
**12 OUTSWING THRESHOLD**  
ZOB4565FN



**13 OUTSWING THRESHOLD**  
ZOB4565RDS



**14 OUTSWING THRESHOLD**  
FOB4566



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TEXAS BOARD OF PROFESSIONAL ENGINEERS  
CERTIFICATE OF REGISTRATION # F-11852

PRODUCT: ENDURA

PART OR ASSEMBLY: VERTICAL CROSS SECTIONS

NO.	DATE	REVISIONS	BY
2	10/28/19	ADD "FusionFrame" OPTION & UPDATE TO 2018 IBC/IRC CODE	LFS
1	10/03/18	UPDATE FOR NEW TESTING	LFS

DATE: 11/08/16

SCALE: N.T.S.

DWG. BY: JK

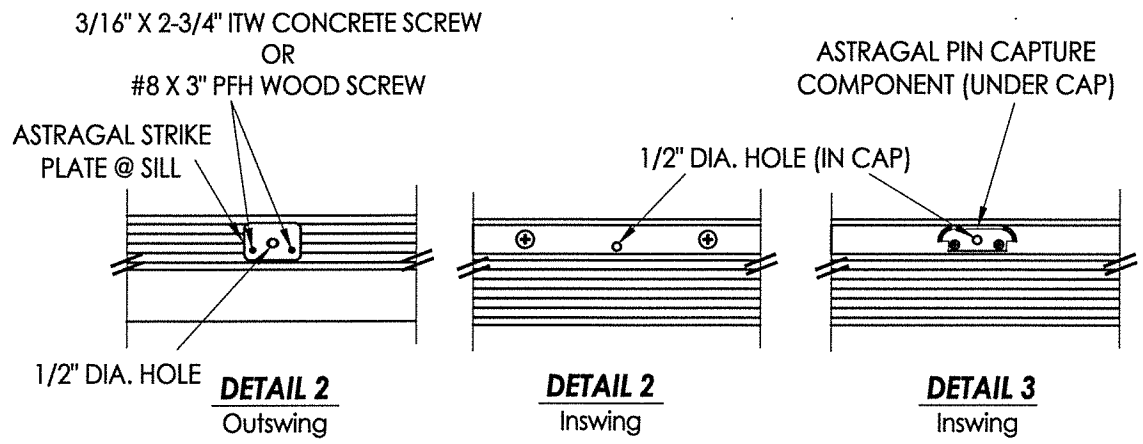
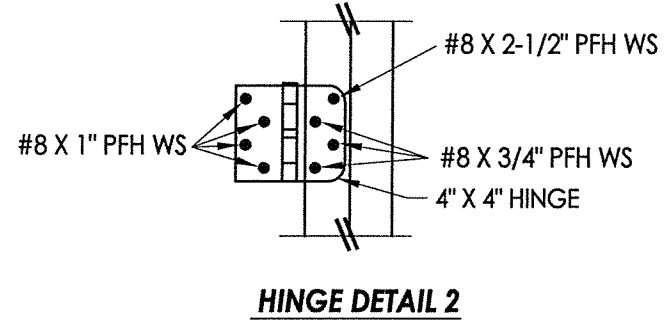
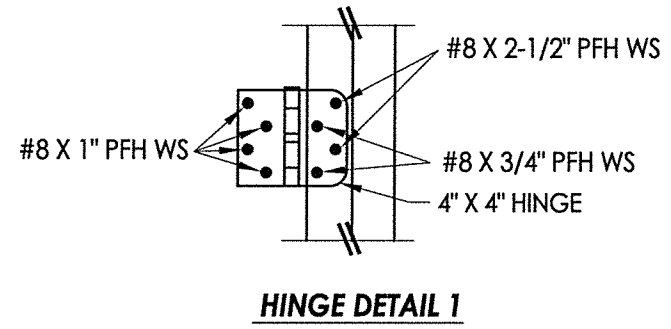
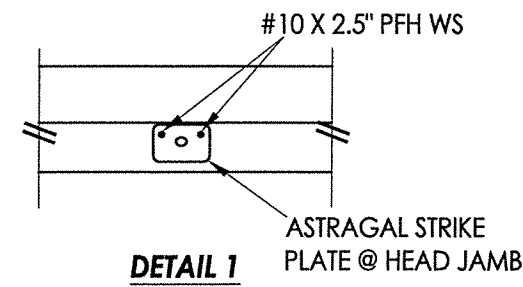
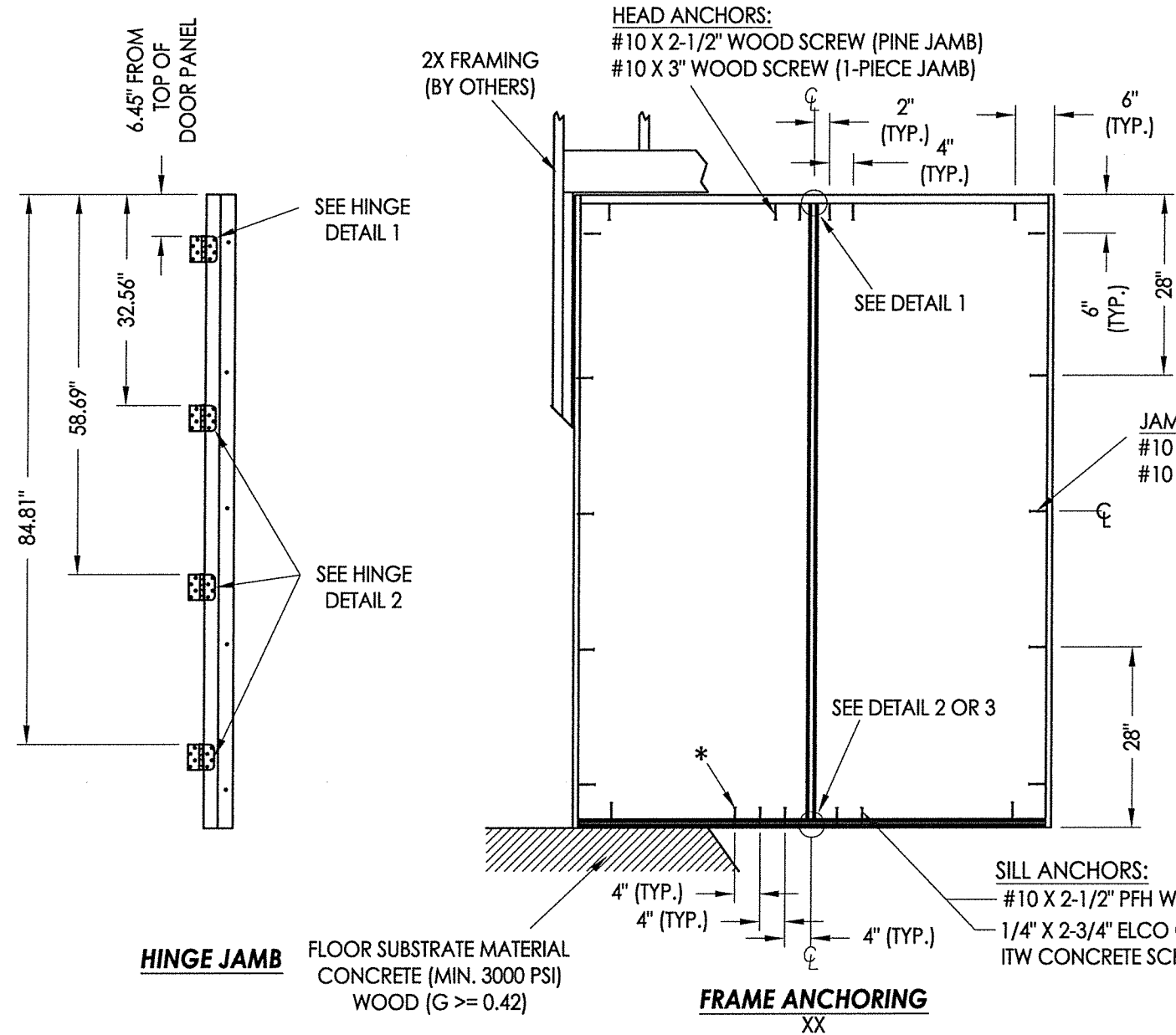
CHK. BY: LFS

DRAWING NO.: TX-4656

SHEET 6 OF 7



R:\Clients\Endura PERMANENT\B - Texas Dept of Ins\TDI - DR-850 Masonite ST Opaque (L,K,DB)\C - Drawings\TX-4653.56.dwg, 7.2



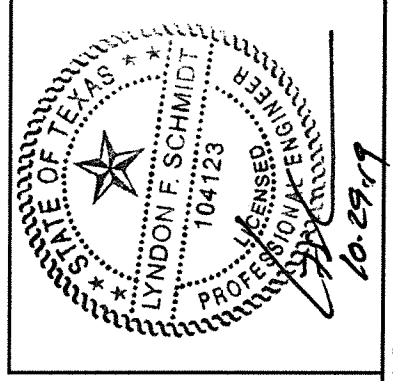
**JAMB NOTES:**  
 THE PINE OR "FusionFrame" 1-PIECE JAMB MAY BE INSTALLED @ THE HEAD OR SIDE JAMB. THE FusionFrame" 2-PIECE JAMB MAY BE INSTALLED @ THE SIDE JAMBS ONLY.

\* NOTE: This additional anchor required for D.P. > 40 PSF.

- CONCRETE ANCHOR NOTES:**
- Concrete anchor locations at the corners may be adjusted to maintain the min. edge distance to mortar joints.
  - Concrete anchor locations noted as "MAX. ON CENTER" must be adjusted to maintain the min. edge distance to mortar joints, additional concrete anchors may be required to ensure the "MAX. ON CENTER" dimension are not exceeded.
  - Concrete anchor table:

ANCHOR TYPE	ANCHOR SIZE	MIN. EMBEDMENT	MIN. CLEARANCE TO MASONRY EDGE	MIN. CLEARANCE TO ADJACENT ANCHOR
ITW TAPCON®	3/16"	1-3/4"	3"	1-1/2"
ITW TAPCON®	1/4"	1-3/4"	1-1/2"	4"
ELCO ULTRACON®	1/4"	1-3/4"	1"	4"

**WOOD SCREW INSTALLATION NOTES:**  
 1. Maintain a minimum 5/8" edge distance, 1" end distance, & 1" o.c. spacing of wood screws to prevent the splitting of wood.



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 TEXAS P.E. #104123

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 Phone No.: 813.659.9197

TEXAS BOARD OF PROFESSIONAL ENGINEERS  
 CERTIFICATE OF REGISTRATION # F-11652

PRODUCT:	ENDURA
PART OR ASSEMBLY:	FRAME ANCHORING
DATE:	11/08/16
SCALE:	N.T.S.
DWG. BY:	JK
CHK. BY:	LFS
DRAWING NO.:	TX-4656
SHEET	7 OF 7

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