

**GENERAL NOTES:**

- THIS PRODUCT HAS BEEN TESTED, ANALYZED & APPROVED FOR DESIGN PRESSURES NOT TO EXCEED THOSE SHOWN IN THE "ALLOWABLE DESIGN PRESSURE TABLE(S)".
- OPENINGS, BUCKING & BUCKING FASTENERS MUST BE PROPERLY DESIGNED & INSTALLED TO TRANSFER WIND LOADS TO THE STRUCTURE.
- ALL HARDWARE & FASTENERS SHALL BE IN ACCORDANCE WITH THESE DRAWINGS & SHALL NOT VARY UNLESS SPECIFICALLY MENTIONED ON THE DRAWINGS. SPECIFIED ANCHOR EMBED TO BASE MATERIAL SHALL BE BEYOND WALL FINISH OR STUCCO.
- THIS PRODUCT HAS BEEN DESIGNED IN ACCORDANCE WITH AND MEETS THE REQUIREMENTS OF THE FLORIDA BUILDING CODE (FBC) INCLUDING HIGH VELOCITY HURRICANE ZONES (HVHZ) & IS LARGE MISSILE IMPACT RATED.
- IMPACT SHUTTERS ARE NOT REQUIRED WITH THIS PRODUCT.
- ALL ANCHORS SECURING PRODUCT FRAMES TO PRESSURE TREATED BUCKS OR WOOD FRAMING SHALL BE CAPABLE OF RESISTING CORROSION CAUSED BY THE PRESSURE TREATING CHEMICALS IN THE WOOD.
- DETERMINE THE POSITIVE & NEGATIVE DESIGN LOADS TO USE WHEN REFERENCING THESE DOCUMENTS IN ACCORDANCE WITH THE GOVERNING CODE AND GOVERNING WIND VELOCITY. FOR WIND LOAD CALCULATIONS IN ACCORDANCE WITH THE FLORIDA BUILDING CODE, A DIRECTIONALITY FACTOR OF  $K_d = 0.85$  MAY BE APPLIED PER THE ASCE-7 STANDARD.
- MATERIALS, INCLUDING BUT NOT LIMITED TO STEEL SCREWS, THAT COME INTO CONTACT WITH OTHER DISSIMILAR MATERIALS SHALL MEET THE REQUIREMENTS OF FLORIDA BUILDING CODE.
- TO THE BEST OF OUR KNOWLEDGE, THE PRODUCT SHOWN HEREIN IS QUALITY ASSURED BY A FLORIDA STATE APPROVED CERTIFICATION/QA ENTITY & SHALL BE LABELED IN ACCORDANCE WITH THE FBC AND THE FLORIDA DEPARTMENT OF BUSINESS & PROFESSIONAL REGULATION SPECIFICATIONS. THESE DRAWINGS SHOW ALL APPLICABLE ELEVATION, COMBINATION, INSTALLATION & COMPARATIVE ANALYSIS CONDITIONS AS DETERMINED THROUGH TESTING & ENGINEERING RATIONAL ANALYSIS. PRODUCT ASSEMBLY SHALL BE IN ACCORDANCE WITH THESE DRAWINGS, THE MANUFACTURER'S QUALITY ASSURANCE SPECIFICATIONS & TESTING REPORTS.
- CERTIFICATION OF THIS PRODUCT SHALL BE CONSIDERED VOID IF IT IS INSTALLED WITHOUT A BUILDING PERMIT FROM THE APPLICABLE LOCAL BUILDING DEPARTMENT OR IF IT IS INSTALLED BY ANYONE OTHER THAN A LICENSED CONTRACTOR EXPERIENCED WITH INSTALLATIONS OF THIS TYPE OF PRODUCT.
- ALL WOOD MEMBERS OF THIS PRODUCT THAT MAY POSSIBLY COME INTO CONTACT WITH MASONRY OR CONCRETE SUBSTRATES, ARE SUBJECT TO MOISTURE &/OR ARE SUBJECT TO THE OUTSIDE ENVIRONMENT SHALL BE OF AN APPROVED DURABLE SPECIES OR BE TREATED IN AN APPROVED METHOD WITH AN APPROVED PRESERVATIVE PER FBC REQUIREMENTS.

EVALUATION OF THIS PRODUCT IS BASED ON APPLICABLE STANDARDS AND/OR INFORMATION & RESULTS FROM APPLICABLE TEST REPORTS. THE FLORIDA BUILDING CODE VERSION CONSIDERED WITH THIS EVALUATION WAS THAT IN FORCE AT THE TIME OF THE EVALUATION. IN THE EVENT OF CODE VERSION CHANGES/UPDATES OR IN THE EVENT THAT NEW OR ADDITIONAL TESTING IS COMPLETED ON THIS PRODUCT, PRIOR TO STATING CODE COMPLIANCE WITH THE STATE, THE MANUFACTURER SHALL CONFIRM WITH THE EVALUATION ENGINEER OF RECORD THAT EVERYTHING SPECIFIED HERE-IN IS CURRENT WITH ALL CURRENT TESTING, CODES AND APPLICABLE STANDARDS.

**FRAME ANCHOR REQUIREMENTS TABLE**

OPENING TYPE (SUBSTRATE)	FRAME/HINGE/STRIKE/CLIP TO OPENING FASTENER TYPE	MINIMUM EMBED	MINIMUM EDGE DIST.
<b>FRAME SCREWS</b>			
MIN. 2X4 WOOD FRAME OR BUCK (MIN. GR. 3 & G=0.55)	NO. 10 SMS OR WOOD SCREW	1 1/4"	3/4"
MIN. 18 GA. 33 KSI METAL STUD	NO. 10 GR. 5 SELF TAP/DRILL SCREW	FULL	1/2"
MIN. 1/8" THK A36 STEEL	NO. 10 GR. 5 SELF TAP/DRILL SCREW	FULL	1/2"
MIN. 1/8" THK 6063-T5 ALUM.	NO. 10 GR. 5 SELF TAP/DRILL SCREW	FULL	1/2"
MIN. C-90 CMU	(1) 1/4" CONCRETE SCREW	1 1/4"	2"
MIN. 2500 PSI CONCRETE	(1) 1/4" CONCRETE SCREW	1 1/2"	2"

**HINGE & STRIKE SCREWS**

MIN. 2X4 WOOD FRAME OR BUCK (MIN. GR. 3 & G=0.55)	NO. 10 SMS OR WOOD SCREW	1 1/4"	3/4"
MIN. 18 GA. 33 KSI METAL STUD	NO. 10 GR. 5 SELF TAP/DRILL SCREW	FULL	1/2"
MIN. 1/8" THK A36 STEEL	NO. 10 GR. 5 SELF TAP/DRILL SCREW	FULL	1/2"
MIN. 1/8" THK 6063-T5 ALUM.	NO. 10 GR. 5 SELF TAP/DRILL SCREW	FULL	1/2"
MIN. C-90 CMU	(1) 3/16" CONCRETE SCREW	1 1/4"	2"
MIN. 2500 PSI CONCRETE	(1) 3/16" CONCRETE SCREW	1 1/2"	2"

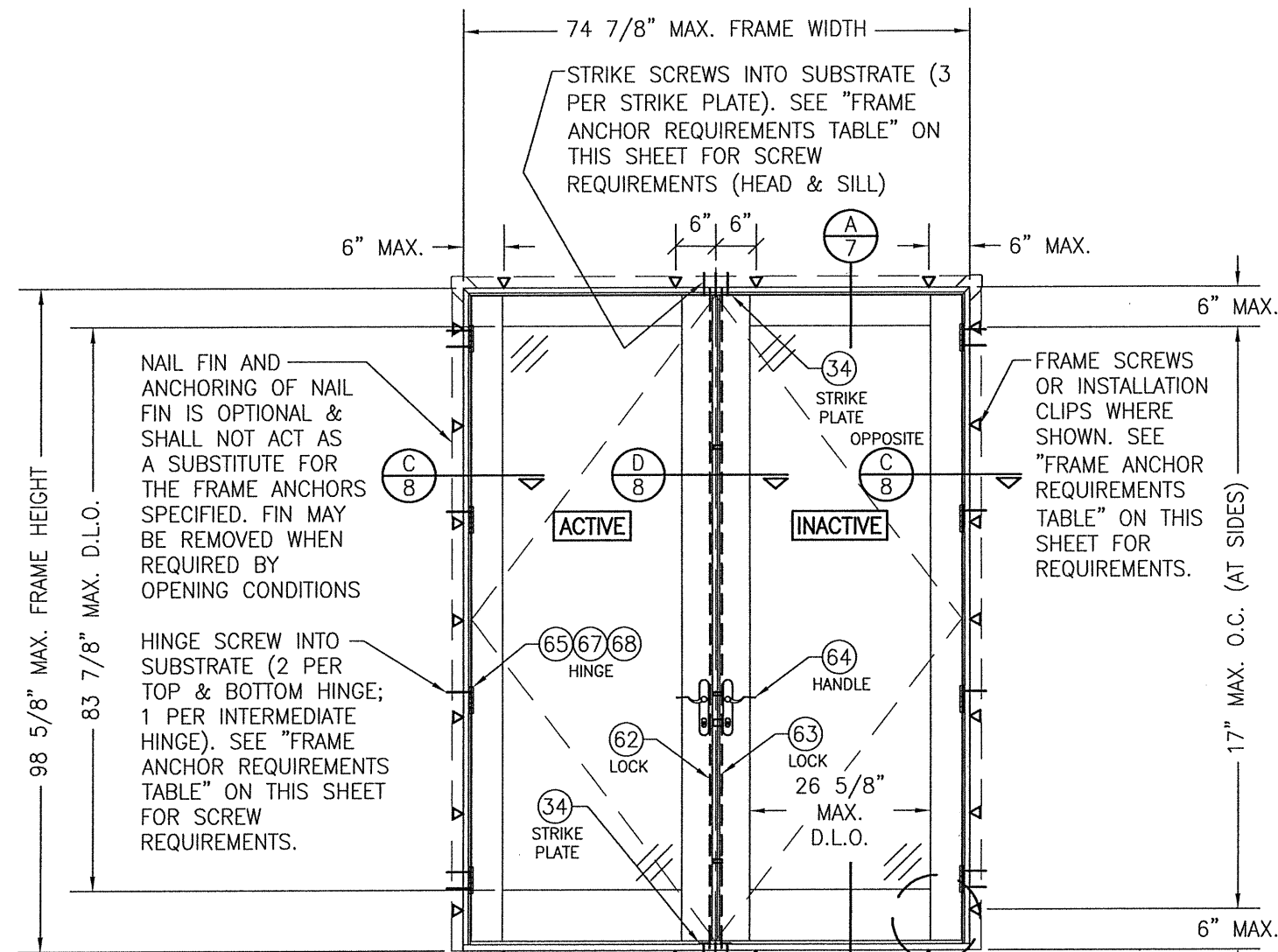
**INSTALLATION CLIP SCREWS**

MIN. 2X4 WOOD FRAME OR BUCK (MIN. GR. 3 & G=0.55)	NO. 8 SMS SCREW	1 3/8"	1/2"
MIN. 18 GA. 33 KSI METAL STUD	NO. 8 GR. 5 SELF TAP/DRILL SCREW	FULL	1/2"
MIN. 1/8" THK A36 STEEL	NO. 8 GR. 5 SELF TAP/DRILL SCREW	FULL	1/2"
MIN. 1/8" THK 6063-T5 ALUM.	NO. 8 GR. 5 SELF TAP/DRILL SCREW	FULL	1/2"

(1) CONCRETE SCREWS SHALL BE ELCO ULTRACONS (C.S.), ELCO CRETE-FLEX (S.S.), ITW RAMSET/RED HEAD TAPCONS (C.S. OR S.S.) OR HILTI KWIK-CON II (C.S OR S.S.).

THESE DRAWINGS ARE APPLICABLE ONLY TO THE PRODUCT SPECIFIED. THEY MAY NOT BE USED FOR THE ASSEMBLY AND/OR INSTALLATION OF ANY OTHER PRODUCT NOR MAY THEY BE USED FOR RATIONAL AND/OR LOCAL APPROVAL OF ANY PRODUCT NOT PRODUCED BY THE MANUFACTURER STATED ON THESE DRAWINGS.

DRAWN BY:	W.R.M.	CHECKED BY:	W.W.S.
PLOT:	1=24	DATE:	06/13/13
DATE:	01/08/15	BY:	W.W.S.
REVISION DESCRIPTION:	UPDATE TO CURRENT STANDARDS	DATE:	10/26/20
NO.:	A1	BY:	W.W.S.
	B1	DATE:	



**EXTERIOR ELEVATION:  
DOUBLE RECTANGULAR DOOR**

SCALE: 1/2" = 1'-0"

**HINGE REQUIREMENTS**

(ALL DOOR CONDITIONS)

4 PER PANEL  
(ALL DOOR SIZES)

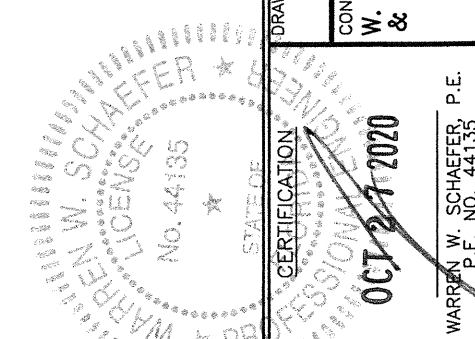
**ALLOWABLE DESIGN PRESSURE**

(ALL DOOR CONDITIONS)

DOOR FRAME HEIGHT	POSITIVE	NEGATIVE
82.6" OR LESS	70 PSF	70 PSF
TALLER THAN 82.6"	65 PSF	65 PSF

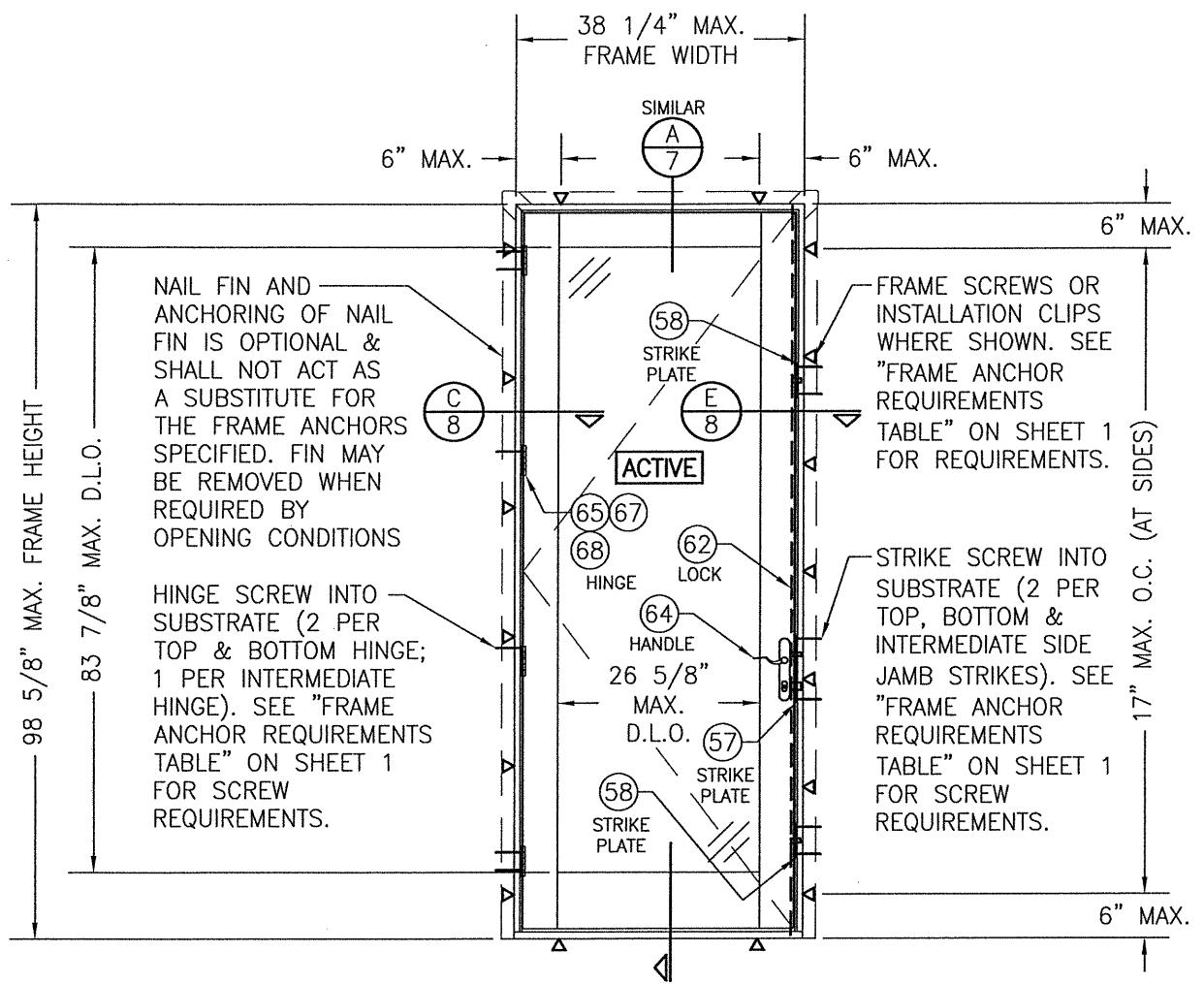
**ULTRA SERIES MANOR IMPACT DOOR**  
MANUFACTURER  
**KOLBE & KOLBE MILLWORK CO., INC.**  
1323 SOUTH 11TH AVE.  
WAUSAU, WI 54401  
715-842-5666

CONSULTANTS  
**W. W. SCHAEFER ENGINEERING & CONSULTING, P.A. (CA 6809)**  
7480 150TH COURT NORTH  
PALM BEACH GARDENS, FL 33418  
PHONE: 561-744-3424

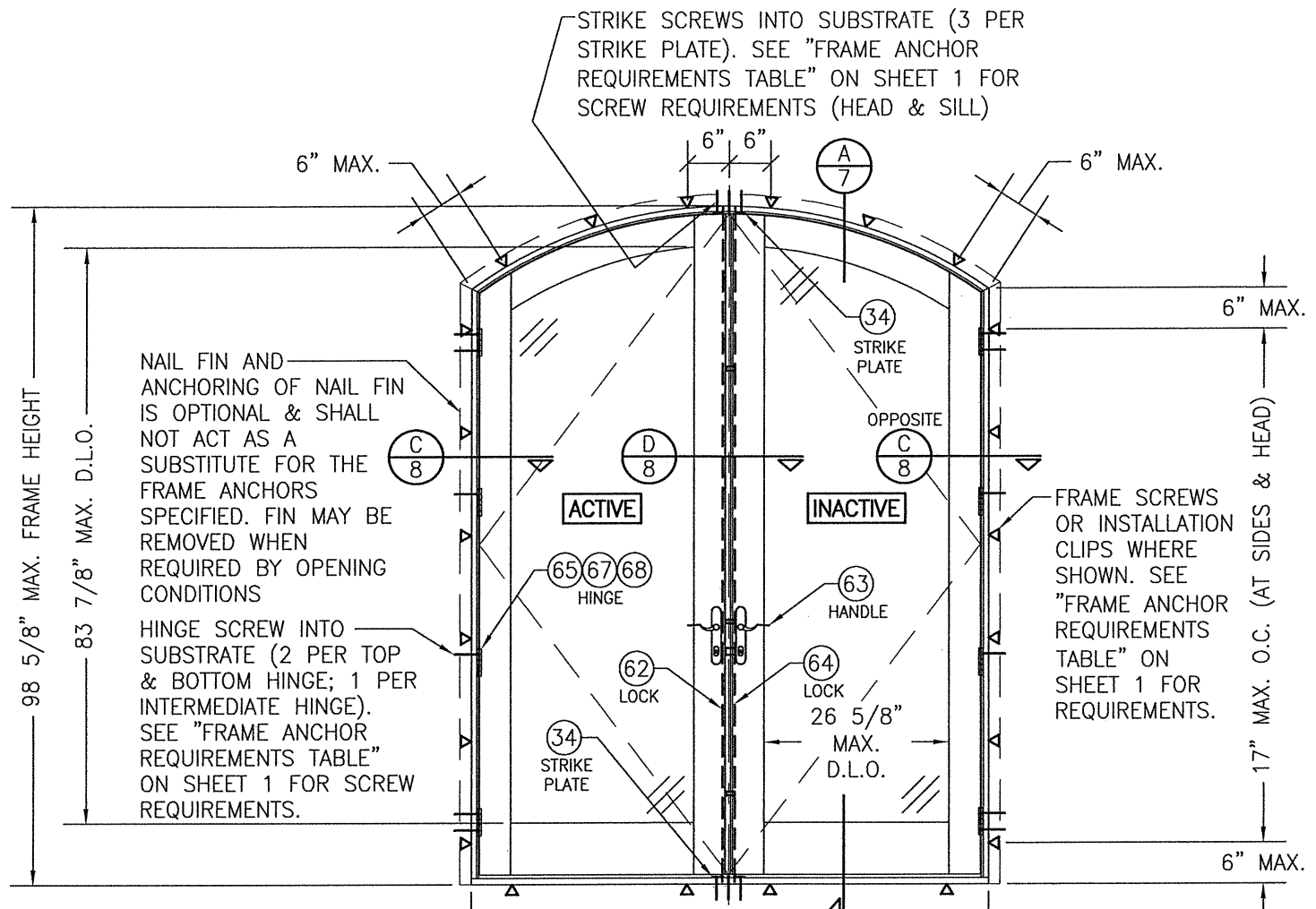


DRAWING TITLE  
**ULTRA SERIES MANOR IMPACT DOOR**

DRAWING NO.	1830	REV.	B
SHEET NO.	1 OF 12		

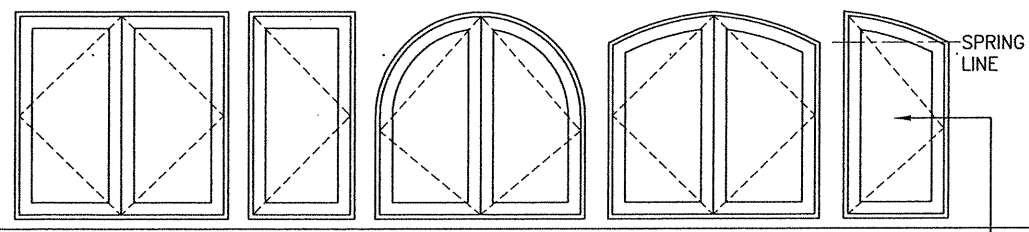


**EXTERIOR ELEVATION:  
SINGLE RECTANGULAR DOOR**  
SCALE: 1/2" = 1'-0"

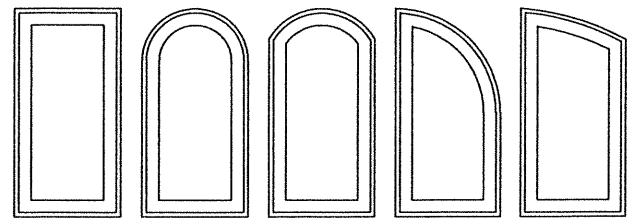


**EXTERIOR ELEVATION:  
DOUBLE EYEBROW TOP DOOR**  
SCALE: 1/2" = 1'-0"

**APPROVED SHAPES  
OPERABLE DOORS**



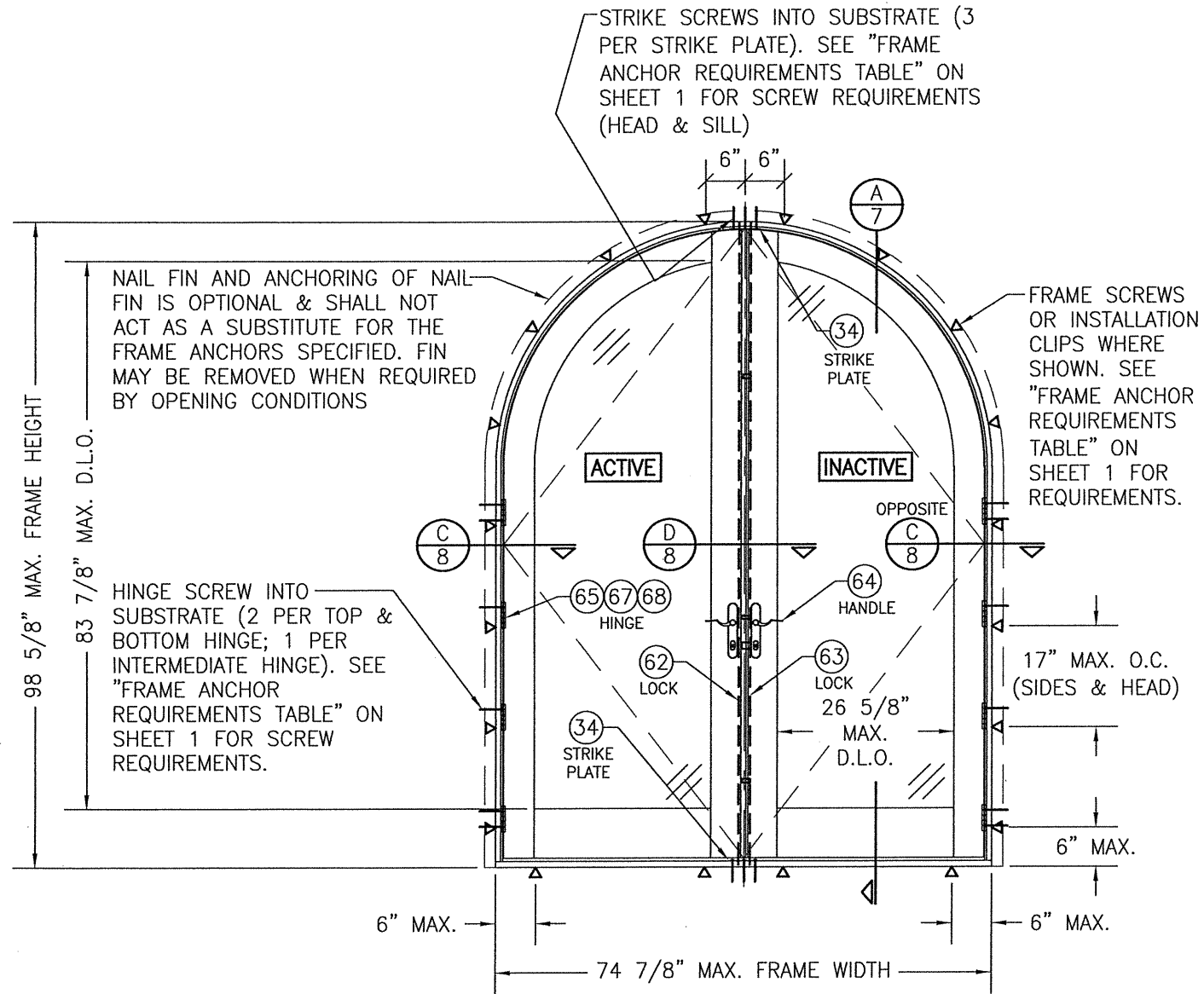
**FIXED PANEL DOORS**



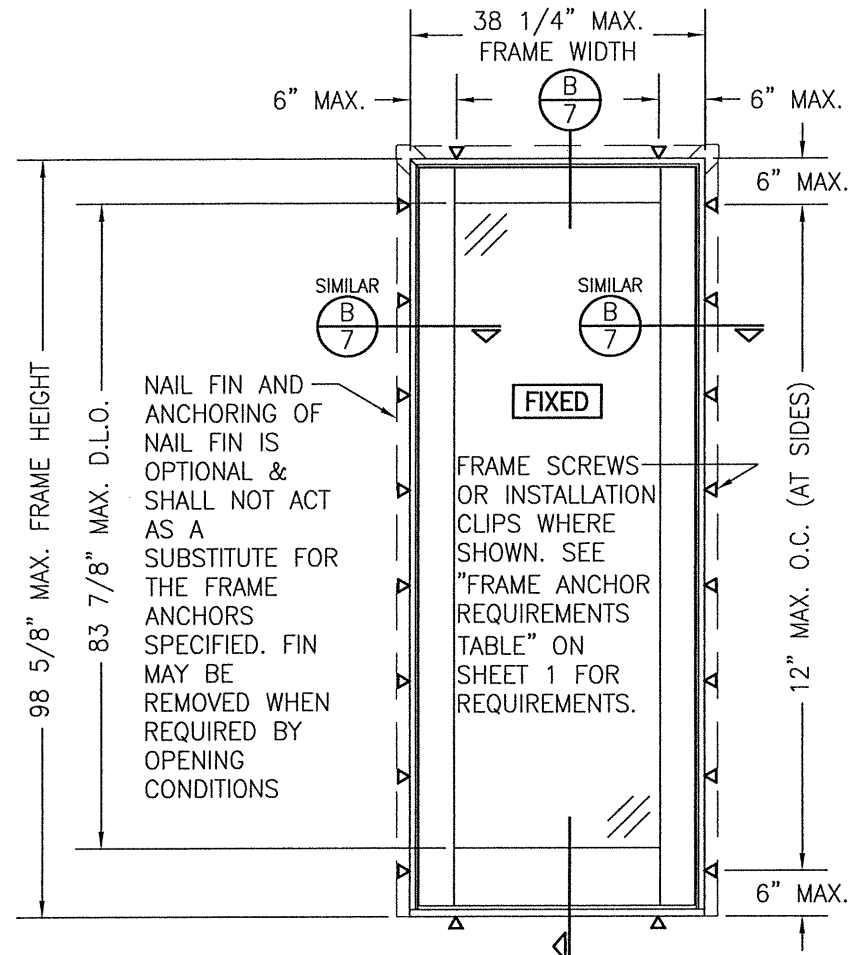
THIS SHAPE MAY BE USED AS AN OPERABLE DOOR ONLY IF SPRING LINE HEIGHT ABOVE SILL IS 80" OR MORE

**NOTES:**  
1. OTHER SHAPES MAY APPLY PROVIDING THEY ARE SIMILAR TO THOSE SHOWN, & HAVE CORNER CONSTRUCTION AS DESCRIBED IN THIS DRAWING.

DRAWN BY: W.R.M.		CHECKED BY: W.W.S.	
PLOT: 1=24		DATE: 06/13/13	
DATE	BY	REVISION DESCRIPTION	NO.
<b>ULTRA SERIES MANOR IMPACT DOOR</b>			
CONSULTANTS <b>W. W. SCHAEFER ENGINEERING &amp; CONSULTING, P.A. (CA 6809)</b>		MANUFACTURER <b>KOLBE &amp; KOLBE MILLWORK CO., INC.</b>	
7480 150TH COURT NORTH PALM BEACH GARDENS, FL 33418 PHONE: 561-744-3424		1323 SOUTH 11TH AVE. WAUSAU, WI 54401 715-842-5666	
DRAWING TITLE			
CERTIFICATION			
DRAWING NO. <b>1830</b>		REV. <b>B</b>	
SHEET NO. <b>2 OF 12</b>			



**EXTERIOR ELEVATION:  
DOUBLE HALF ROUND TOP DOOR**  
SCALE: 1/2" = 1'-0"



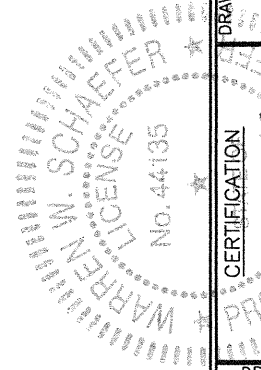
**EXTERIOR ELEVATION:  
SINGLE FIXED PANEL DOOR**  
SCALE: 1/2" = 1'-0"

RECTANGULAR FIXED PANEL SHOWN, SHAPED FIXED PANEL UNITS ALSO APPLY PROVIDING THE HEADS OF THOSE UNITS ARE INSTALLED WITH THE SAME ANCHOR SPACING AS SPECIFIED FOR THE SIDES (12" MAX. O.C.)

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PLOT: 1=24	DATE: 06/13/13
DATE	
BY	
REVISION DESCRIPTION	
NO.	

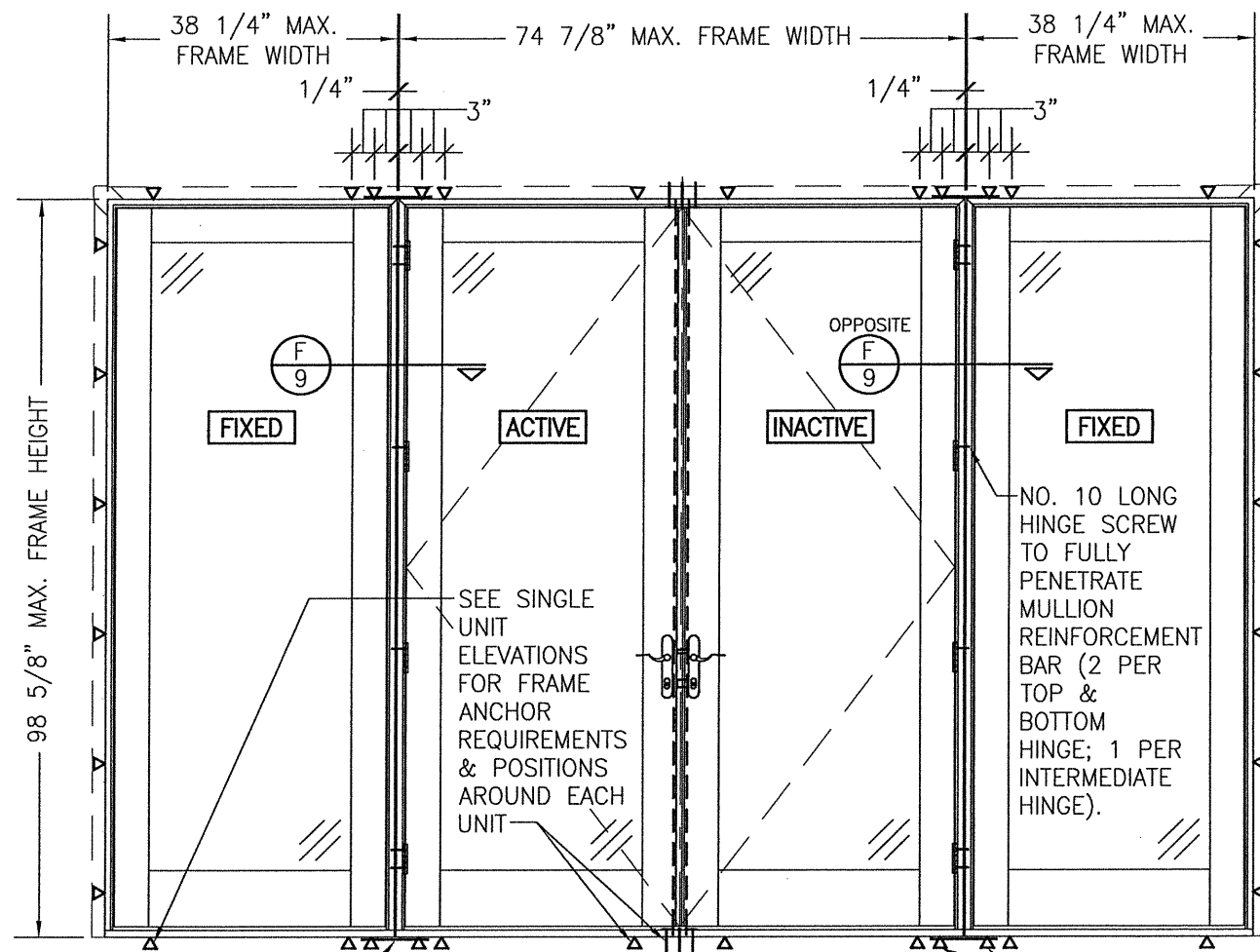
**ULTRA SERIES MANOR IMPACT DOOR**  
MANUFACTURER  
**KOLBE & KOLBE MILLWORK CO., INC.**  
1323 SOUTH 11TH AVE.  
WAUSAU, WI 54401  
715-842-5666

CONSULTANTS  
**W. W. SCHAEFER ENGINEERING & CONSULTING, P.A. (CA 6809)**  
7480 150TH COURT NORTH  
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CERTIFICATION  
**WARREN W. SCHAEFER, P.E.**  
P.E. NO. 44135

DRAWING NO. <b>1830</b>	REV. <b>B</b>
SHEET NO. <b>3 OF 12</b>	



MULLION END CLIP.  
SEE MULLION END CLIP  
INSTALLATION DETAIL  
ON SHEET 6 FOR  
REQUIREMENTS (TYP.  
AT HEAD & SILL)

**EXTERIOR ELEVATION:  
DOUBLE DOORS WITH FIXED PANELS**

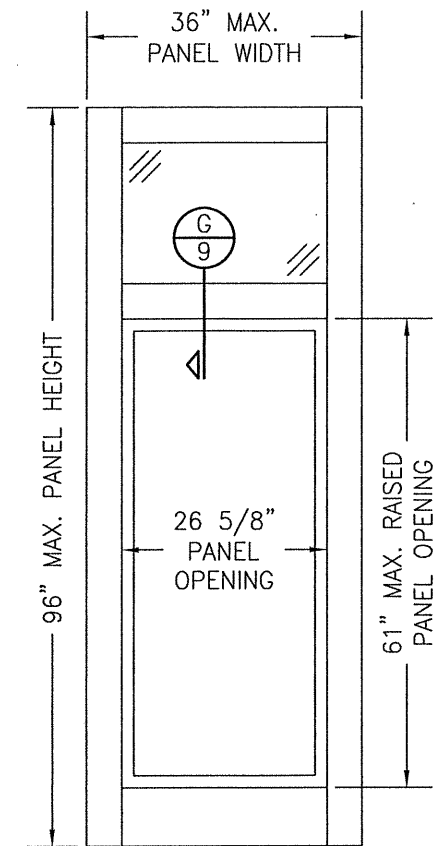
SCALE: 1/2" = 1'-0"

(RECTANGULAR DOORS SHOWN, SHAPED DOORS ALSO APPLY. SEE  
"APPROVED SHAPES" TABLE ON SHEET 2)

ADDITIONAL FRAME  
SCREWS OR  
INSTALLATION CLIPS  
WHERE SHOWN AT  
MULLION ENDS. SEE  
"FRAME ANCHOR  
REQUIREMENTS TABLE"  
ON SHEET 1 FOR  
REQUIREMENTS.

**MULTIPLE UNIT NOTES:**

1. FOR DETAIL NOT SHOWN, SEE INDIVIDUAL UNIT ELEVATIONS.
2. THERE IS NO LIMIT ON THE NUMBER OF DOORS THAT MAY BE COMBINED IN ONE DIRECTION INTO ONE OPENING PROVIDING THE OPENING IS DESIGNED TO SUPPORT ALL LOADS TRANSFERRED FROM THE DOORS & THEIR MULLIONS.
3. OXXO UNIT IS SHOWN. ALL OTHER FIXED/OPERABLE COMBINATIONS ALSO APPLY WITH THE MULLION CONDITIONS SHOWN.



**EXTERIOR ELEVATION:  
RAISED PANEL**

SCALE: 1/2" = 1'-0"

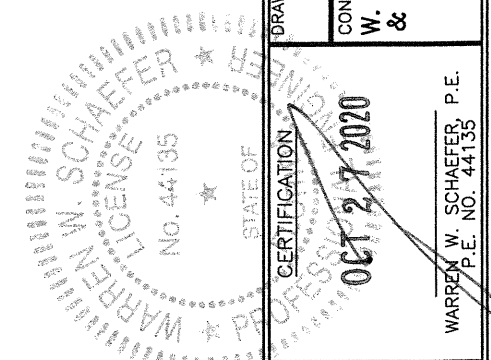
**RAISED PANEL NOTES:**

1. SINGLE RAISED PANEL CONDITION SHOWN, MORE THAN ONE RAISED PANEL MAY EXIST IN A SINGLE DOOR PANEL WHEN MULTIPLE MID-RAILS ARE USED.
2. PANEL ONLY IS SHOWN. FOR INSTALLATION INTO FRAME, SEE OTHER ELEVATIONS.
3. THESE PANEL CONDITIONS APPLY WITH BOTH OPERABLE & FIXED PANEL DOORS
4. RECTANGULAR CONDITION SHOWN, SHAPED CONDITIONS ALSO APPLY.
5. VERTICAL MID-RAILS MAY BE USED BETWEEN HORIZONTAL MID-RAILS AT RAISED PANEL PROVIDING RAIL SPAN DOES NOT EXCEED 26 5/8".

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PLOT: 1=24	DATE: 06/13/13
NO.	REVISION DESCRIPTION
BY	DATE

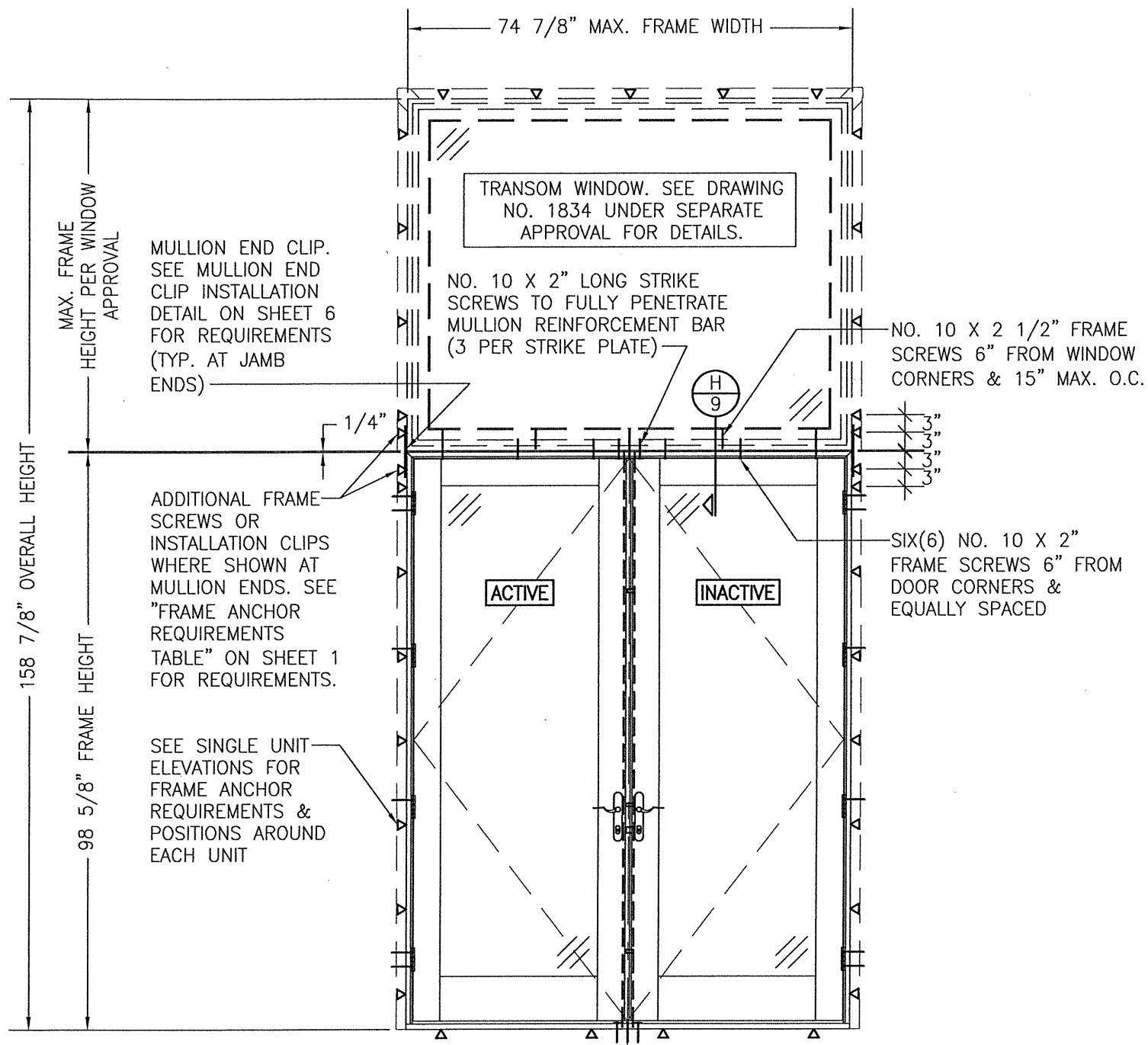
ULTRA SERIES MANOR IMPACT DOOR  
MANUFACTURER  
**KOLBE & KOLBE MILLWORK CO., INC.**  
1323 SOUTH 11TH AVE.  
WAUSAU, WI 54401  
715-842-5666

CONSULTANTS  
**W. W. SCHAEFER ENGINEERING  
& CONSULTING, P.A. (CA 6809)**  
7480 150TH COURT NORTH  
PALM BEACH GARDENS, FL 33418  
PHONE: 561-744-3424



CERTIFICATION  
**WARREN W. SCHAEFER, P.E.**  
P.E. NO. 44135

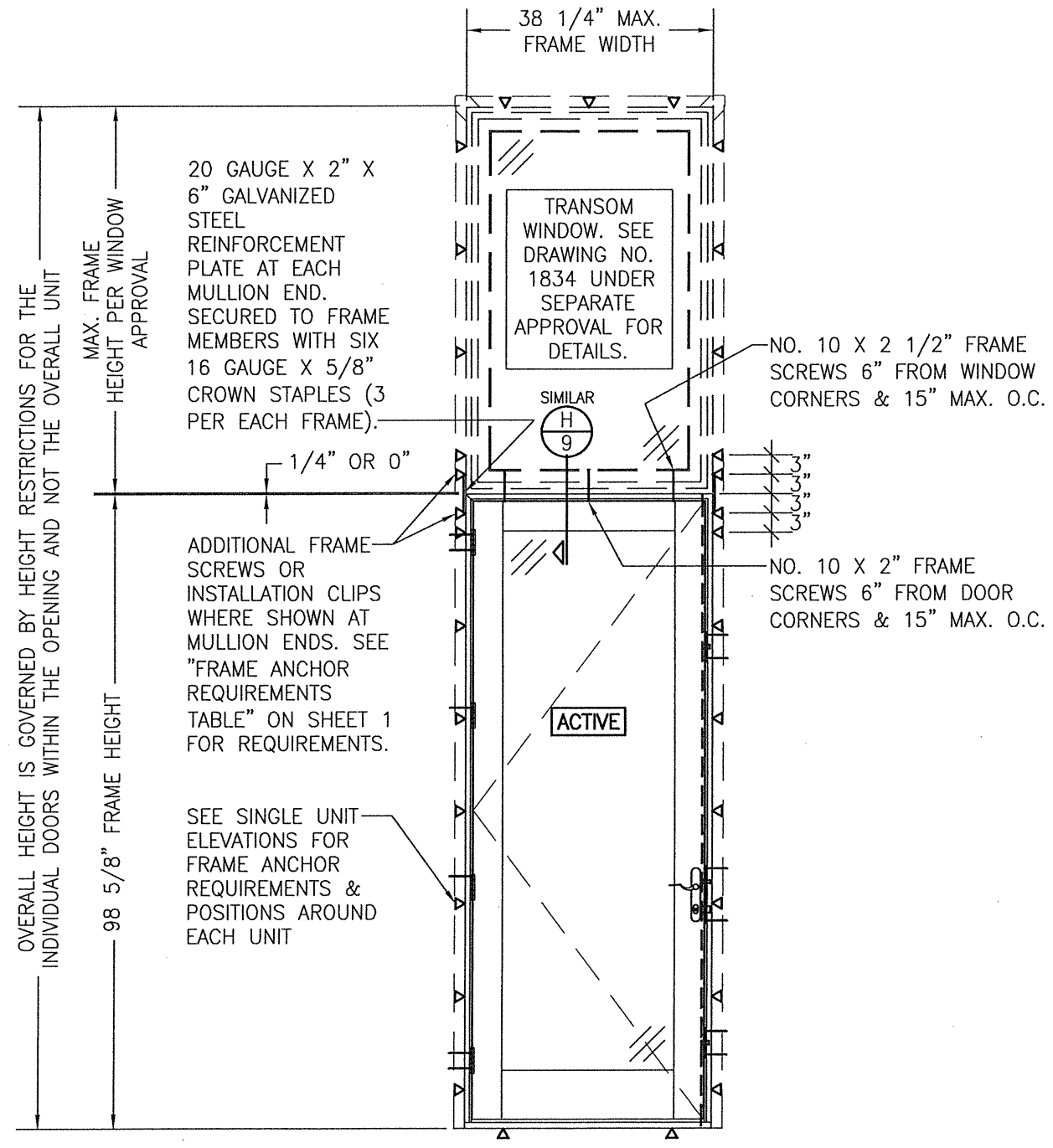
DRAWING NO. 1830	REV. B
SHEET NO. 4 OF 12	



**EXTERIOR ELEVATION:  
DOUBLE DOOR WITH TRANSOM**

SCALE: 1/2" = 1'-0"

(FOR ALL DETAIL NOT SHOWN, SEE INDIVIDUAL UNIT ELEVATION)



**EXTERIOR ELEVATION:  
SINGLE DOOR WITH TRANSOM**

SCALE: 1/2" = 1'-0"

(FOR DETAIL NOT SHOWN, SEE INDIVIDUAL UNIT ELEVATION)  
(OPERABLE DOOR SHOWN. FIXED PANEL DOOR ALSO APPLIES)

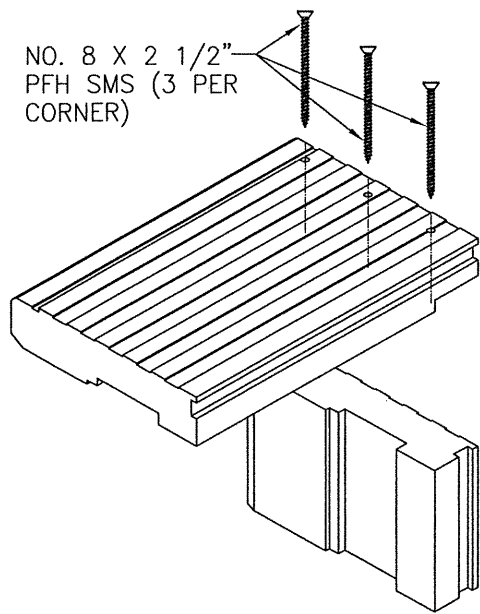
DRAWN BY: W.R.M.	CHECKED BY: W.W.S.
PLOT: 1=24	DATE: 06/13/13
DATE	
BY	
REVISION DESCRIPTION	
NO.	

**ULTRA SERIES MANOR IMPACT DOOR**  
MANUFACTURER  
**KOLBE & KOLBE MILLWORK CO., INC.**  
1323 SOUTH 11TH AVE.  
WAUSAU, WI 54401  
715-842-5666

CONSULTANTS  
**W. W. SCHAEFER ENGINEERING & CONSULTING, P.A. (CA 6809)**  
7480 150TH COURT NORTH  
PALM BEACH GARDENS, FL 33418  
PHONE: 561-744-3424

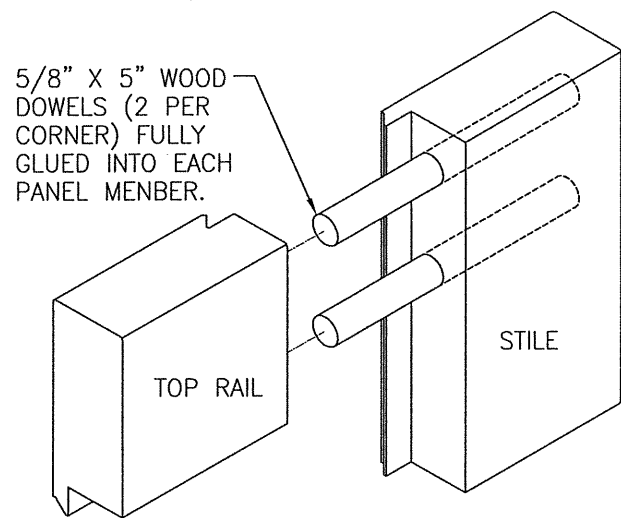
CERTIFICATION  
STATE OF  
FLORIDA  
PROFESSIONAL  
ENGINEER  
WARREN W. SCHAEFER  
LICENSE  
No. 44135  
OCT 27 2020  
WARREN W. SCHAEFER P.E.  
P.E. NO. 44135

DRAWING NO. 1830	REV. B
SHEET NO. 5 OF 12	



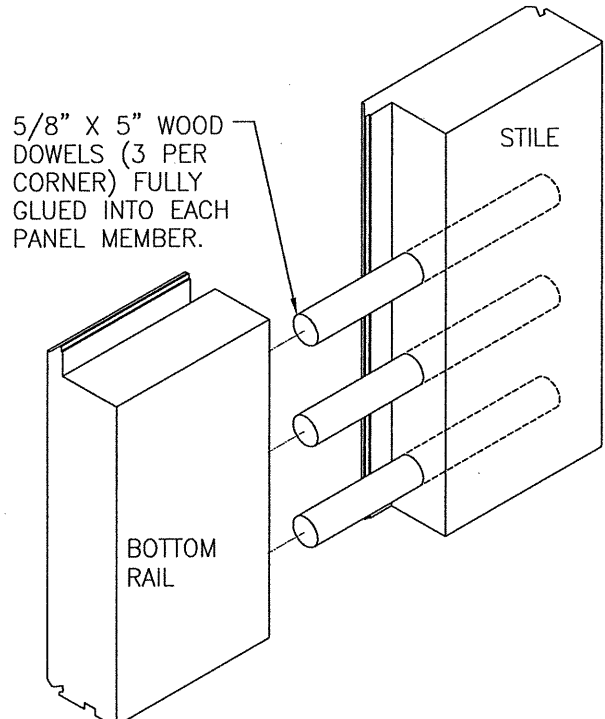
**FRAME CORNER DETAIL**

NOTE: FRAME MEETING SURFACES ARE SEALED WITH SILICONE.



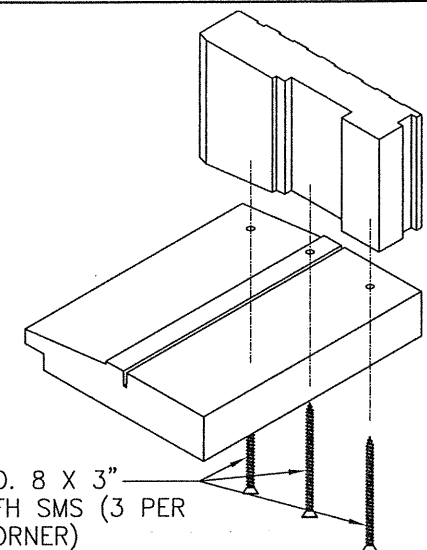
**PANEL TOP CORNER DETAIL**

NOTE: STILE & RAIL MEETING SURFACES ARE SEALED WITH SILICONE. CLAD JOINT IS ALSO SEALED WITH SILICONE.



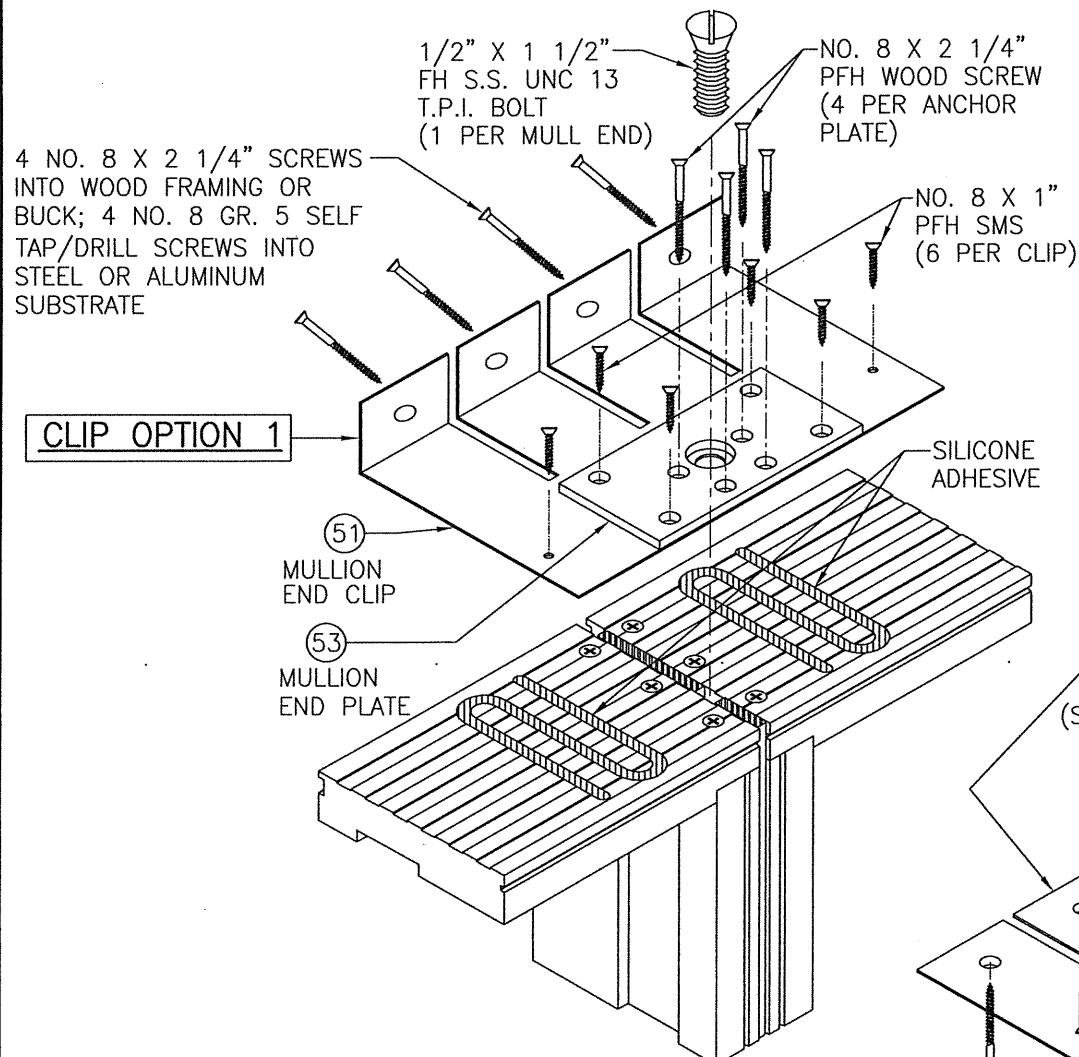
**PANEL BOTTOM CORNER DETAIL**

NOTE: STILE & RAIL MEETING SURFACES ARE SEALED WITH SILICONE. CLAD JOINT IS ALSO SEALED WITH SILICONE.



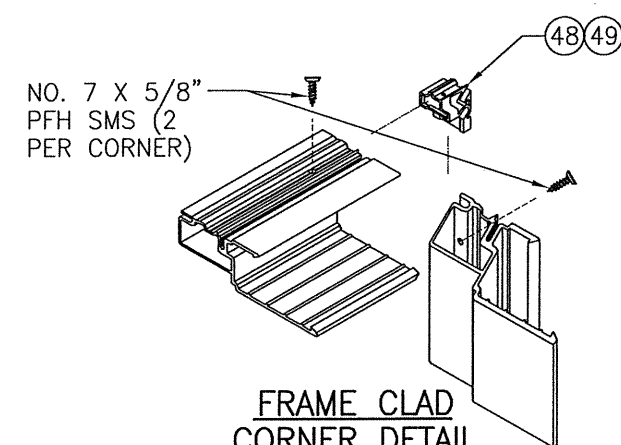
**SILL CORNER DETAIL**

NOTE: FRAME MEETING SURFACES ARE SEALED WITH SILICONE.



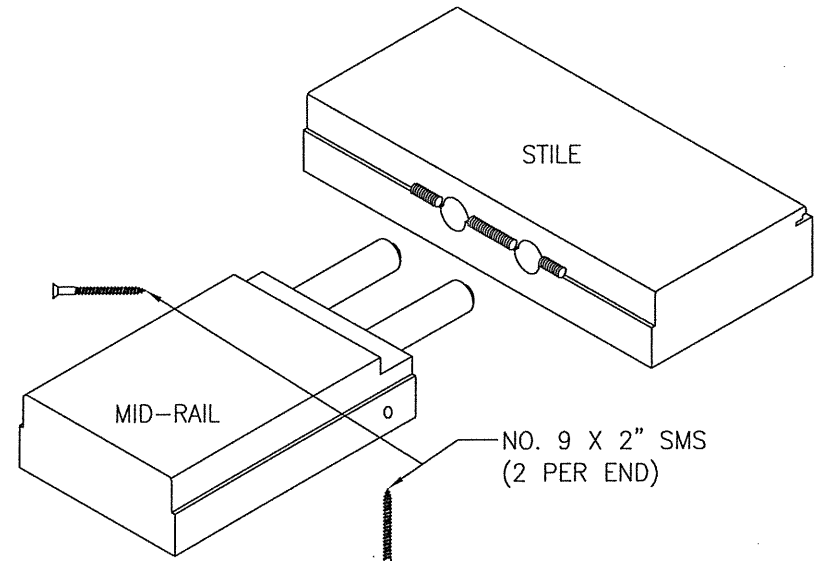
**REINFORCED MULLION END CLIP INSTALLATION DETAIL**

(SIDE JAMBS NOT SHOWN FOR CLARITY)



**FRAME CLAD CORNER DETAIL**

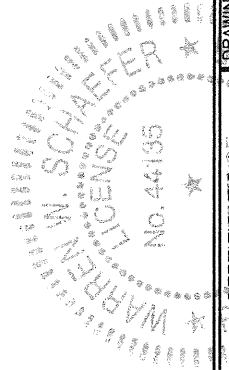
NOTE: CORNER OF CLAD IS SEALED WITH SILICONE



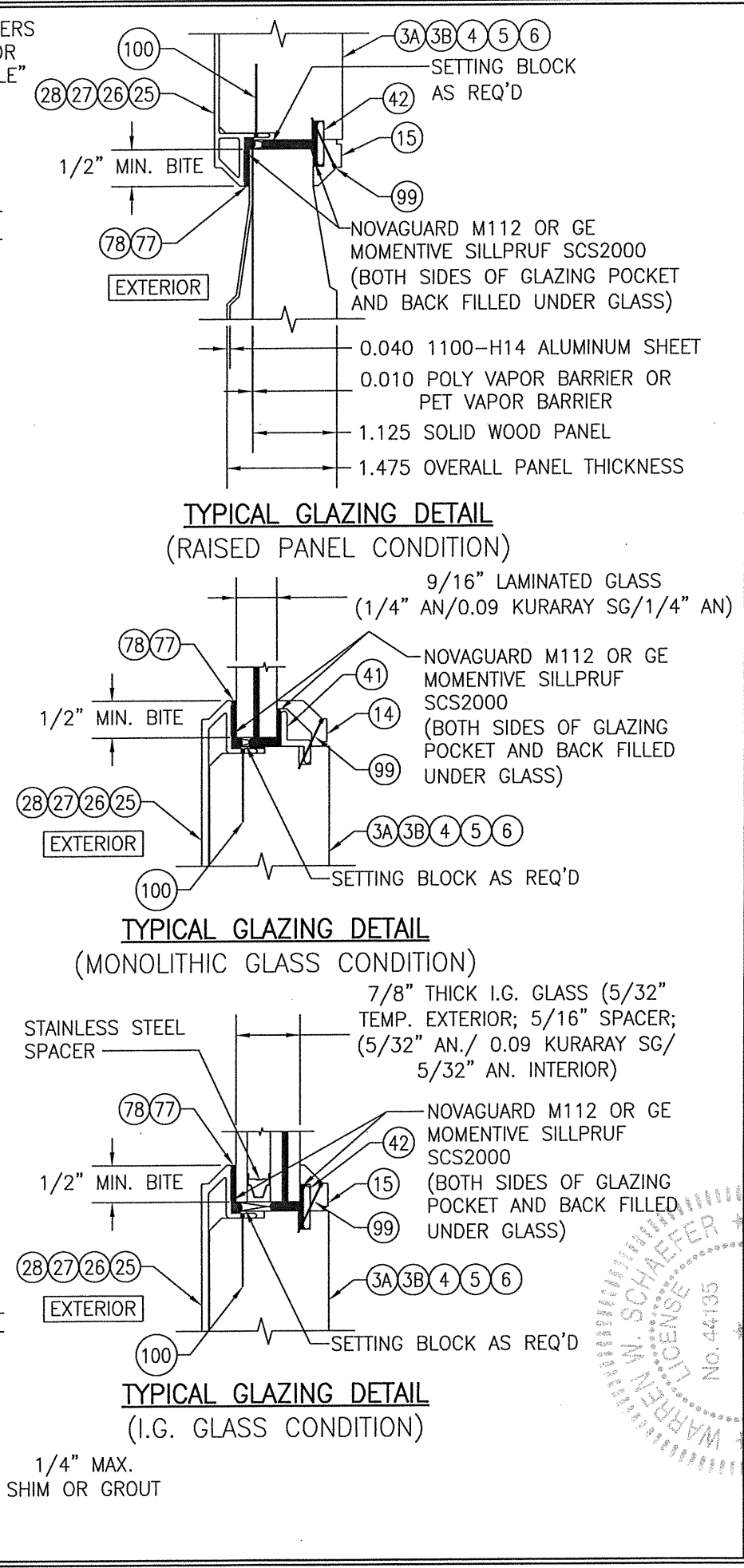
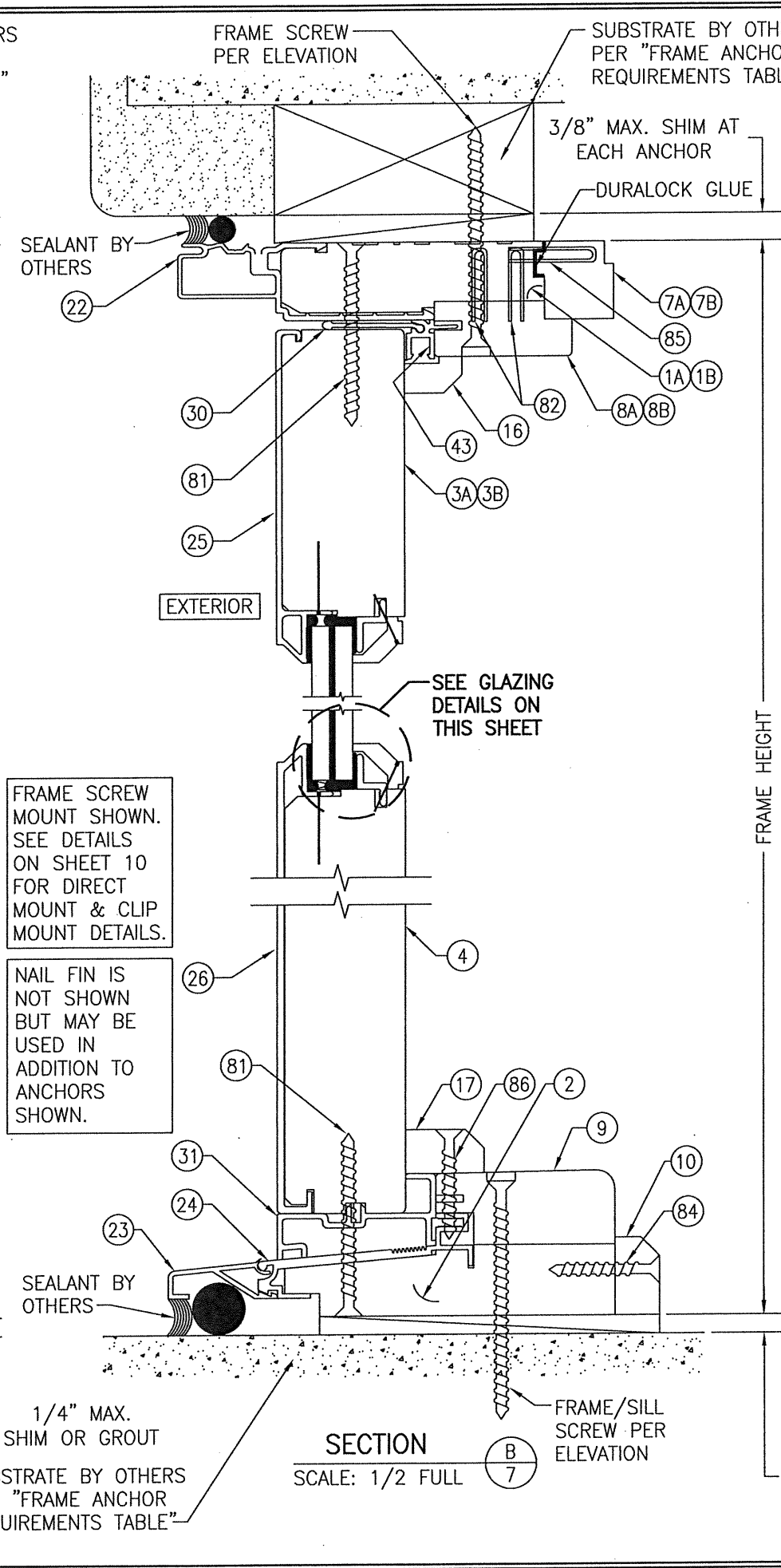
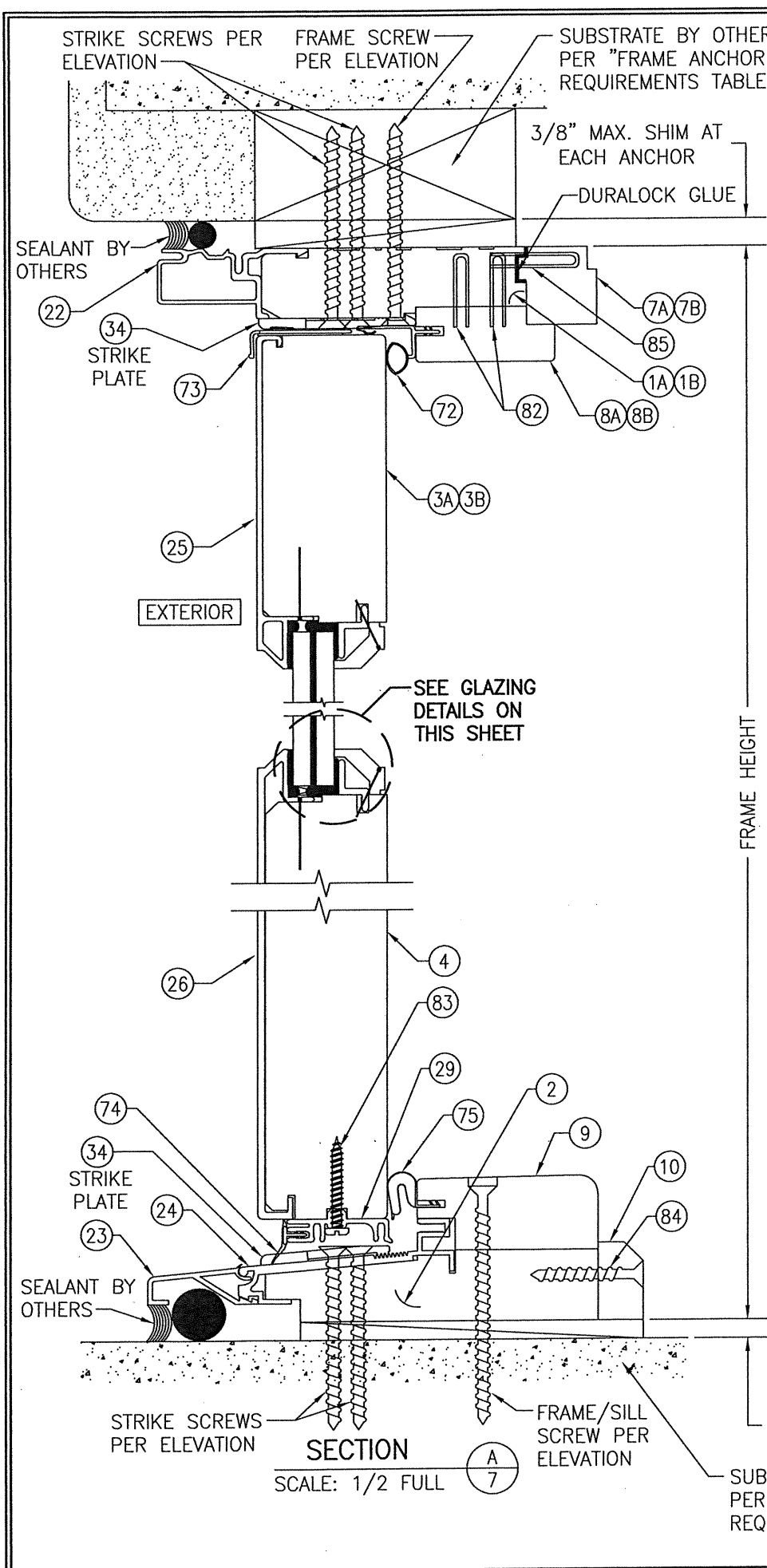
**MID-RAIL END DETAIL**

NOTE: STILE & RAIL MEETING SURFACES ARE SEALED WITH SILICONE. CLAD JOINT IS ALSO SEALED WITH SILICONE.

4 NO. 8 X 2 1/4" SCREWS INTO WOOD FRAMING OR BUCK; 4 NO. 8 GR. 5 SELF TAP/DRILL SCREWS INTO STEEL, ALUMINUM OR METAL STUD SUBSTRATE; FOUR(4) 3/16" CONCRETE SCREWS INTO CMU OR CONCRETE

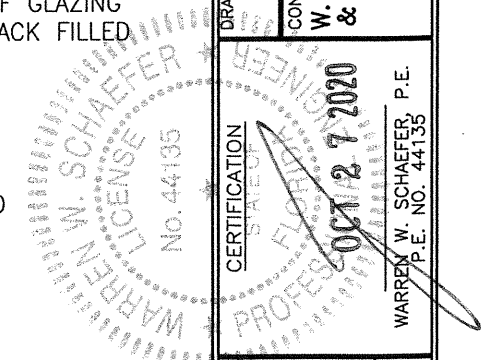


DRAWN BY: W.R.M.		CHECKED BY: W.W.S.	
PLOT: 1=24		DATE: 06/13/13	
NO.	REVISION	DESCRIPTION	DATE
DRAWING TITLE: <b>ULTRA SERIES MANOR IMPACT DOOR</b>			
CONSULTANTS		MANUFACTURER	
W. W. SCHAEFER ENGINEERING & CONSULTING, P.A. (CA 6809)		KOLBE & KOLBE MILLWORK CO., INC.	
7480 150TH COURT NORTH PALM BEACH GARDENS, FL 33418 PHONE: 561-744-3424		1323 SOUTH 11TH AVE. WAUSAU, WI 54401 715-842-5666	
CERTIFICATION: <b>OCT 27 2020</b>			
WARREN W. SCHAEFER, P.E. P.E. NO. 44135			
DRAWING NO.	REV.	SHEET NO.	
1830	B	6 OF 12	

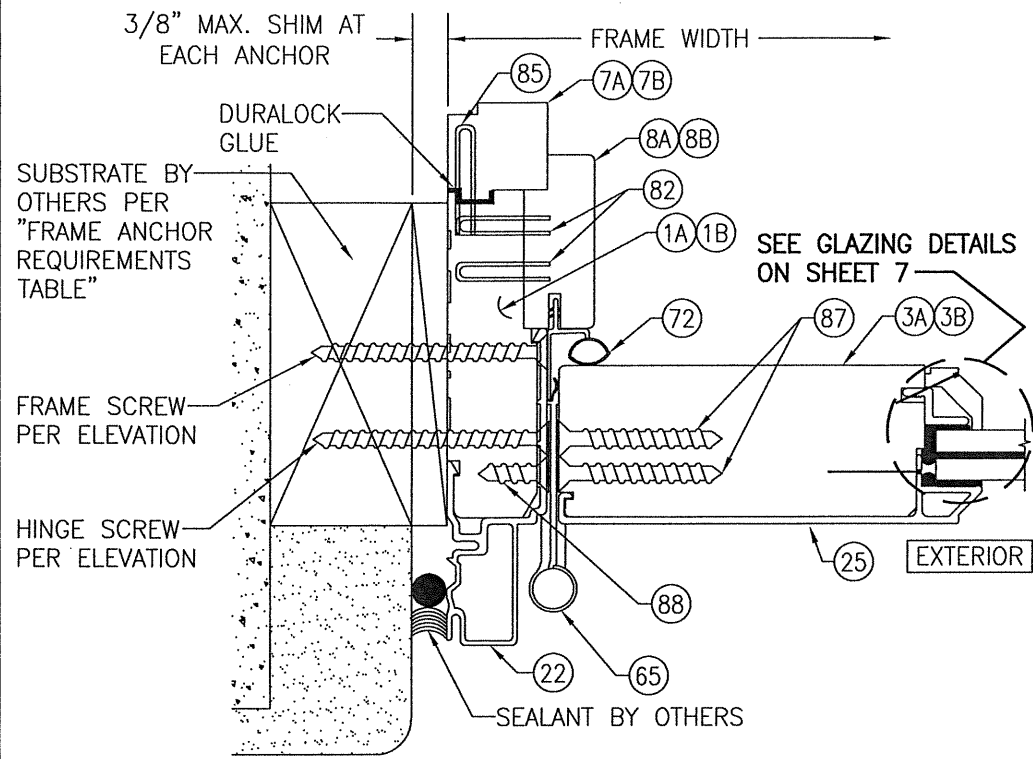


FRAME SCREW MOUNT SHOWN. SEE DETAILS ON SHEET 10 FOR DIRECT MOUNT & CLIP MOUNT DETAILS.

NAIL FIN IS NOT SHOWN BUT MAY BE USED IN ADDITION TO ANCHORS SHOWN.

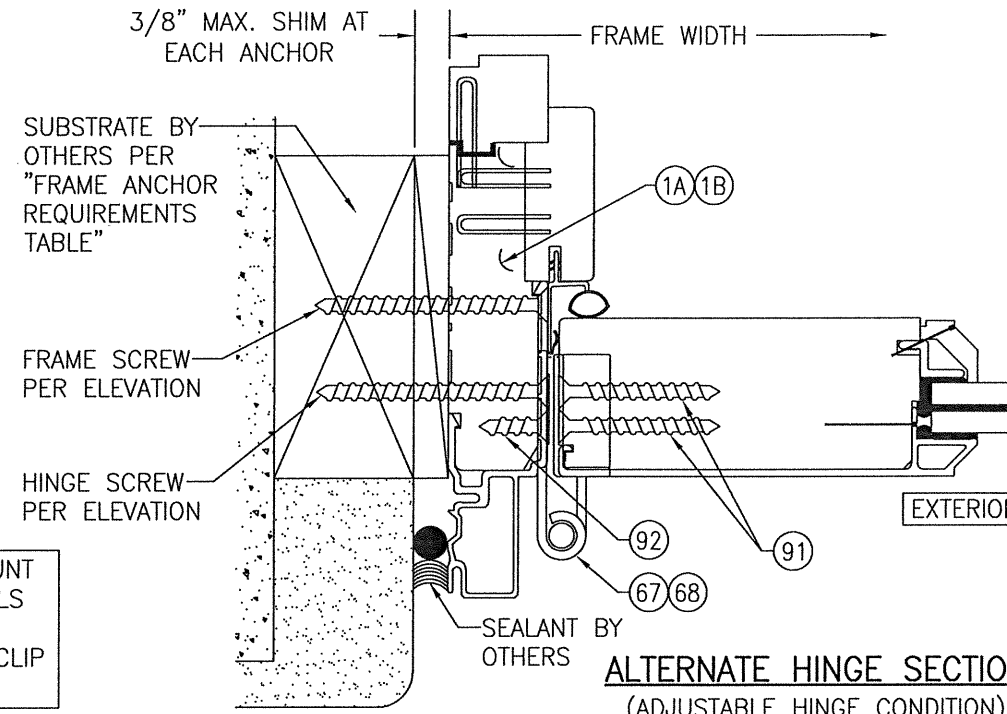


DRAWN BY: W.R.M.		CHECKED BY: W.W.S.	
PLOT: 1=2		DATE: 06/13/13	
NO.	REVISION	DESCRIPTION	DATE
<b>ULTRA SERIES MANOR IMPACT DOOR</b> MANUFACTURER: <b>KOLBE &amp; KOLBE MILLWORK CO., INC.</b> 1323 SOUTH 11TH AVE. WAUSAU, WI 54401 715-842-5666			
CONSULTANTS: <b>W. W. SCHAEFER ENGINEERING &amp; CONSULTING, P.A. (CA 6809)</b> 7480 150TH COURT NORTH PALM BEACH GARDENS, FL 33418 PHONE: 561-744-3424			
CERTIFICATION SALES		OCT 27 2020 WARREN W. SCHAEFER, P.E. P.E. NO. 44135	
DRAWING NO. 1830		REV. B	
SHEET NO. 7 OF 12			



SECTION C  
SCALE: 1/2 FULL

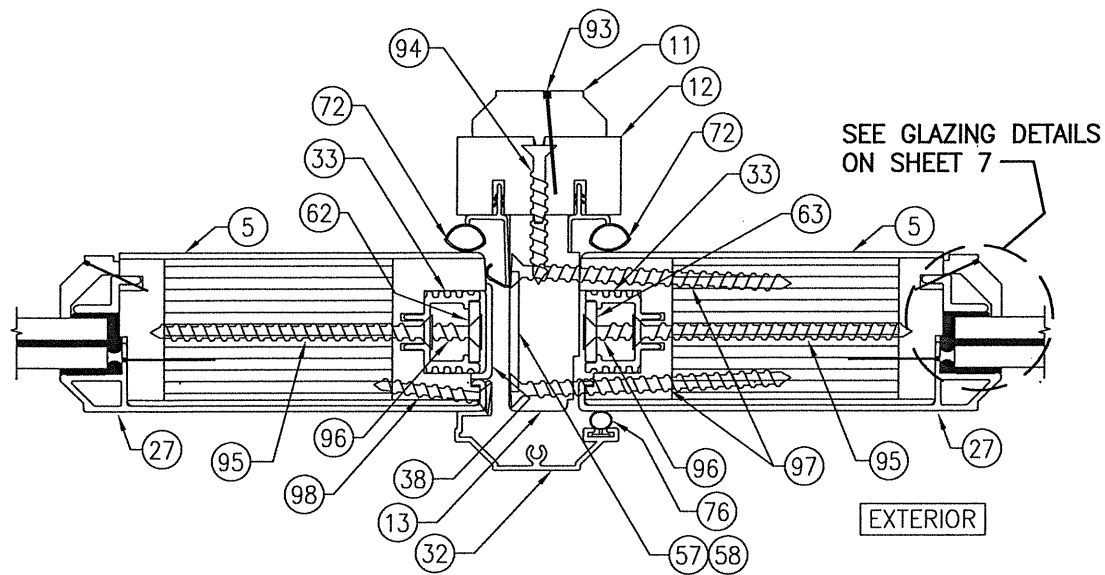
(BUTT HINGE CONDITION SHOWN. FOR ADJUSTABLE HINGE CONDITION SEE THE ALTERNATE HINGE SECTION ON THIS SHEET)



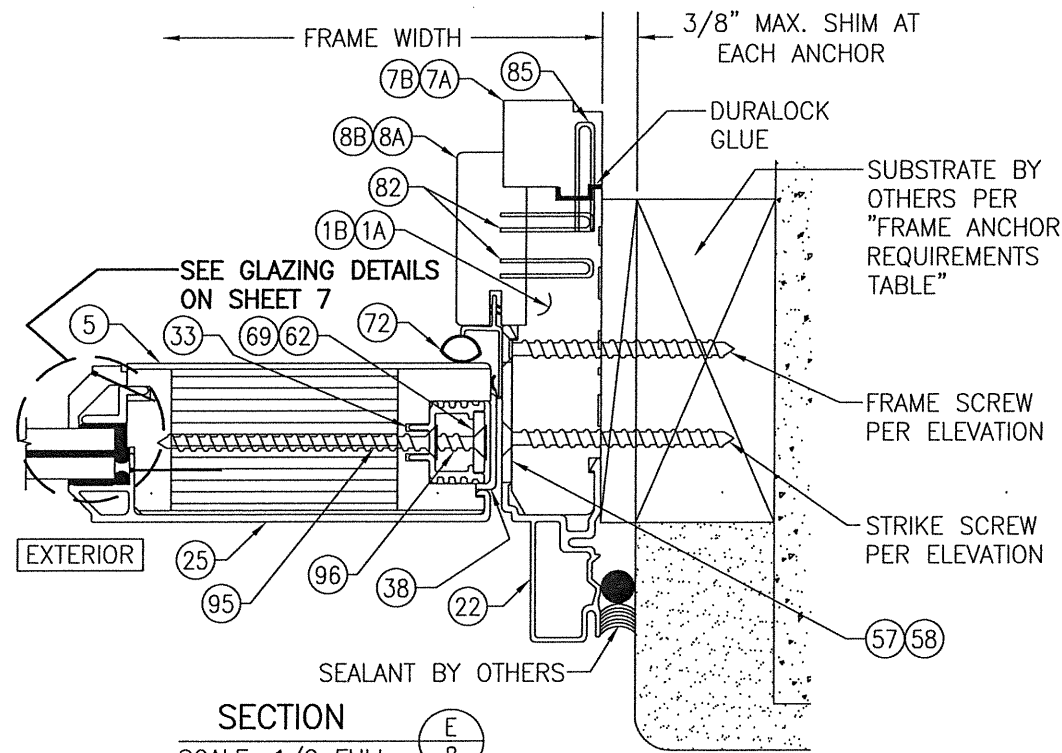
ALTERNATE HINGE SECTION  
(ADJUSTABLE HINGE CONDITION)  
(FOR DETAIL NOT SHOWN, SEE SECTION C/8)

FRAME SCREW MOUNT SHOWN. SEE DETAILS ON SHEET 10 FOR DIRECT MOUNT & CLIP MOUNT DETAILS.

NAIL FIN IS NOT SHOWN BUT MAY BE USED IN ADDITION TO ANCHORS SHOWN.



SECTION D  
SCALE: 1/2 FULL

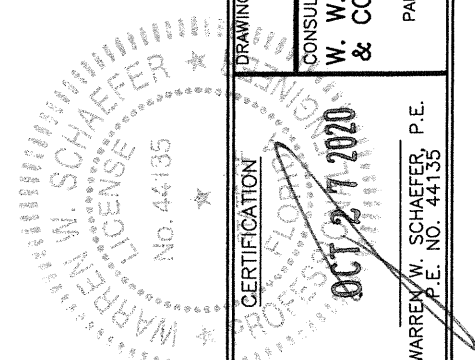


SECTION E  
SCALE: 1/2 FULL

DRAWN BY: W.R.M.	CHECKED BY: W.W.S.
PLOT: 1=2	DATE: 06/13/13
NO.	REVISION DESCRIPTION
BY	DATE

ULTRA SERIES MANOR IMPACT DOOR  
MANUFACTURER  
**KOLBE & KOLBE MILLWORK CO., INC.**  
1323 SOUTH 11TH AVE.  
WAUSAU, WI 54401  
715-842-5666

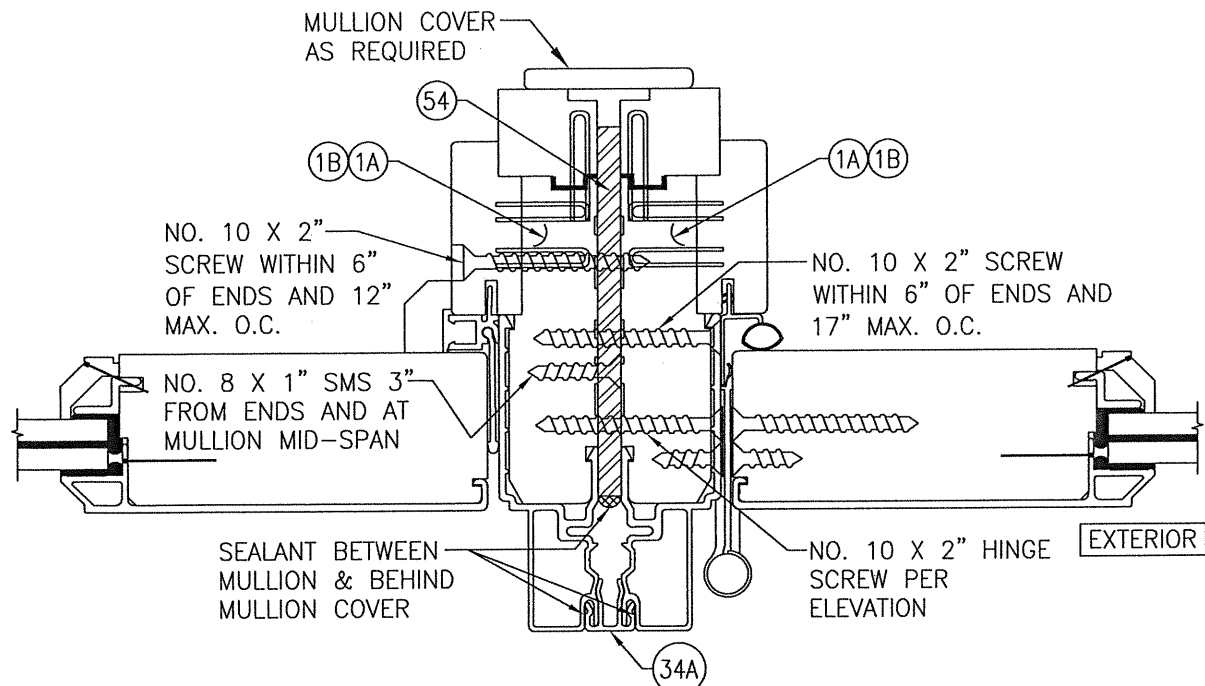
CONSULTANTS  
**W. W. SCHAEFER ENGINEERING & CONSULTING, P.A. (CA 6809)**  
7480 150TH COURT NORTH  
PALM BEACH GARDENS, FL 33418  
PHONE: 561-744-3424



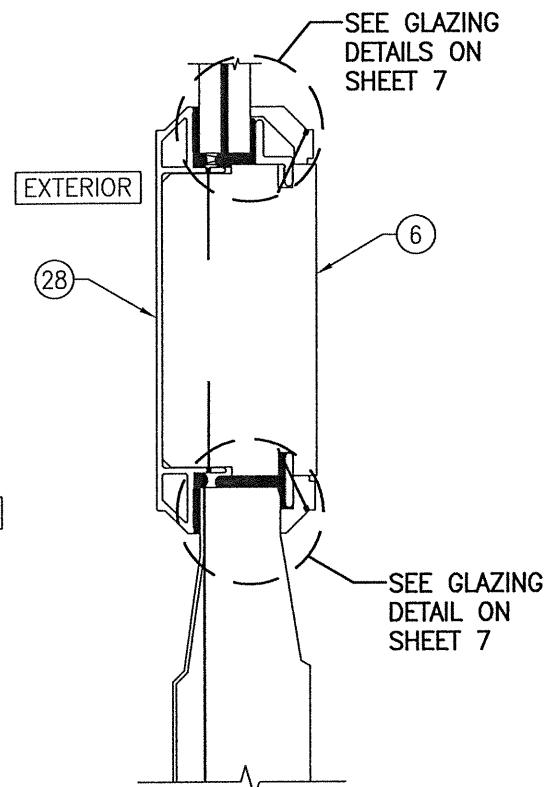
CERTIFICATION  
OCT 27 2020  
WARREN W. SCHAEFER, P.E.  
P.E. NO. 44135

DRAWING NO. 1830	REV. B
SHEET NO. 8 OF 12	

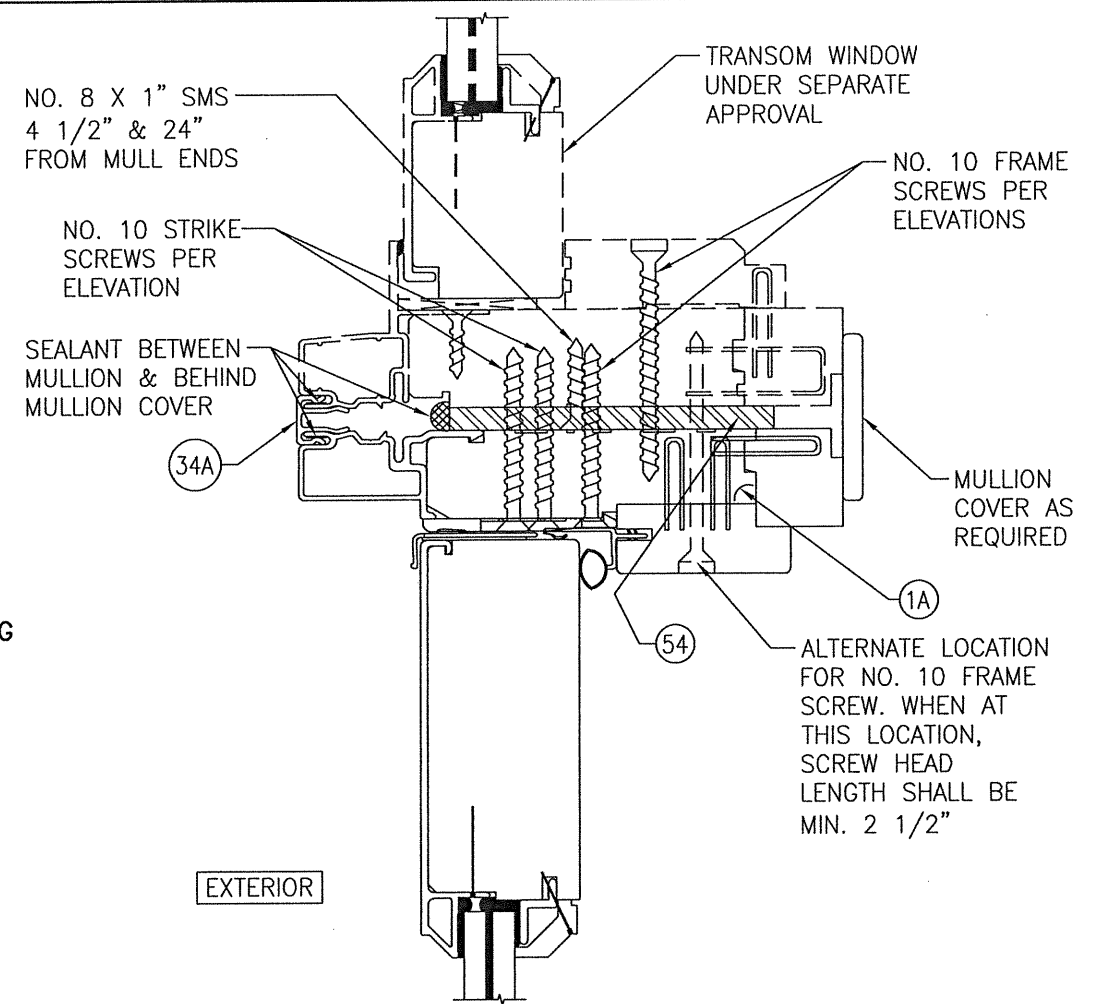




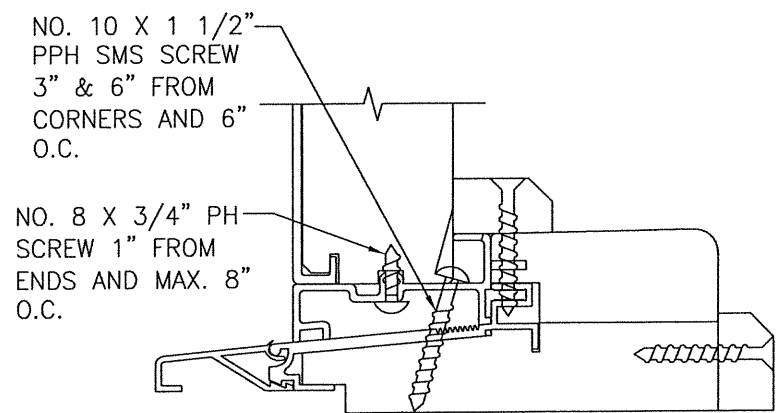
SECTION F  
SCALE: 1/2 FULL  
(FOR DETAIL NOT SHOWN, SEE OTHER SECTIONS)



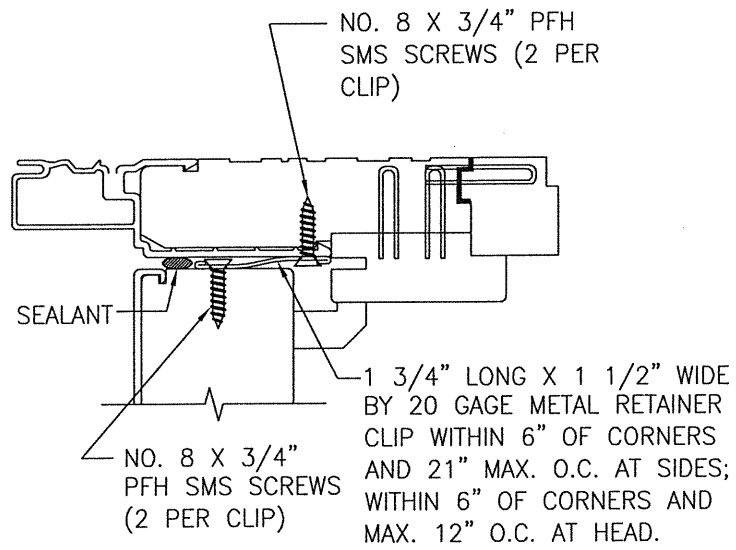
SECTION G  
SCALE: 1/2 FULL



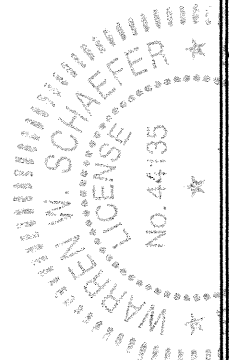
SECTION H  
SCALE: 1/2 FULL  
(FOR DETAIL NOT SHOWN, SEE OTHER SECTIONS)



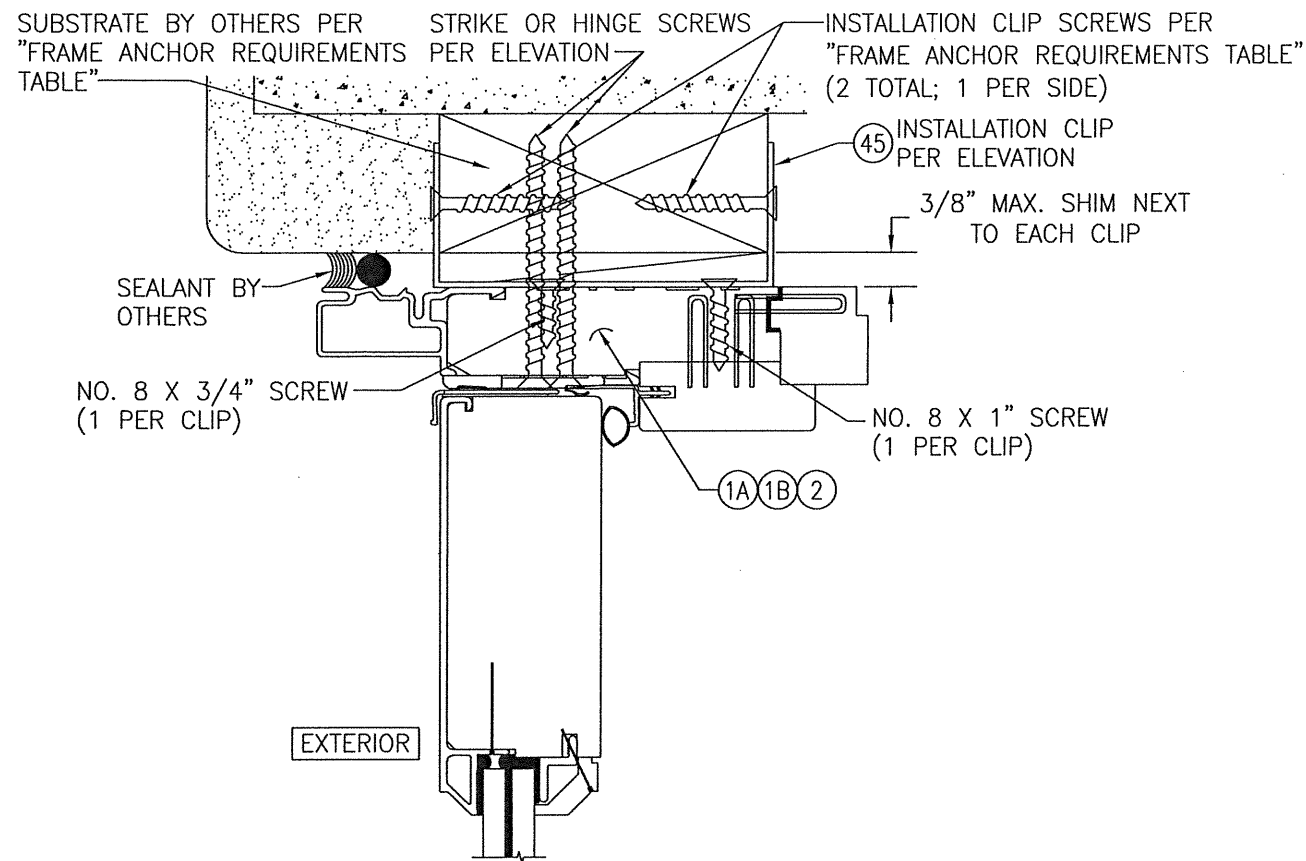
OPTIONAL PANEL TO SILL ATTACHMENT  
(FOR DETAIL NOT SHOWN, SEE SECTION B/7)



OPTIONAL PANEL TO FRAME ATTACHMENT AT HEAD & SIDES  
(FOR DETAIL NOT SHOWN, SEE HEAD & SIDE SECTIONS)

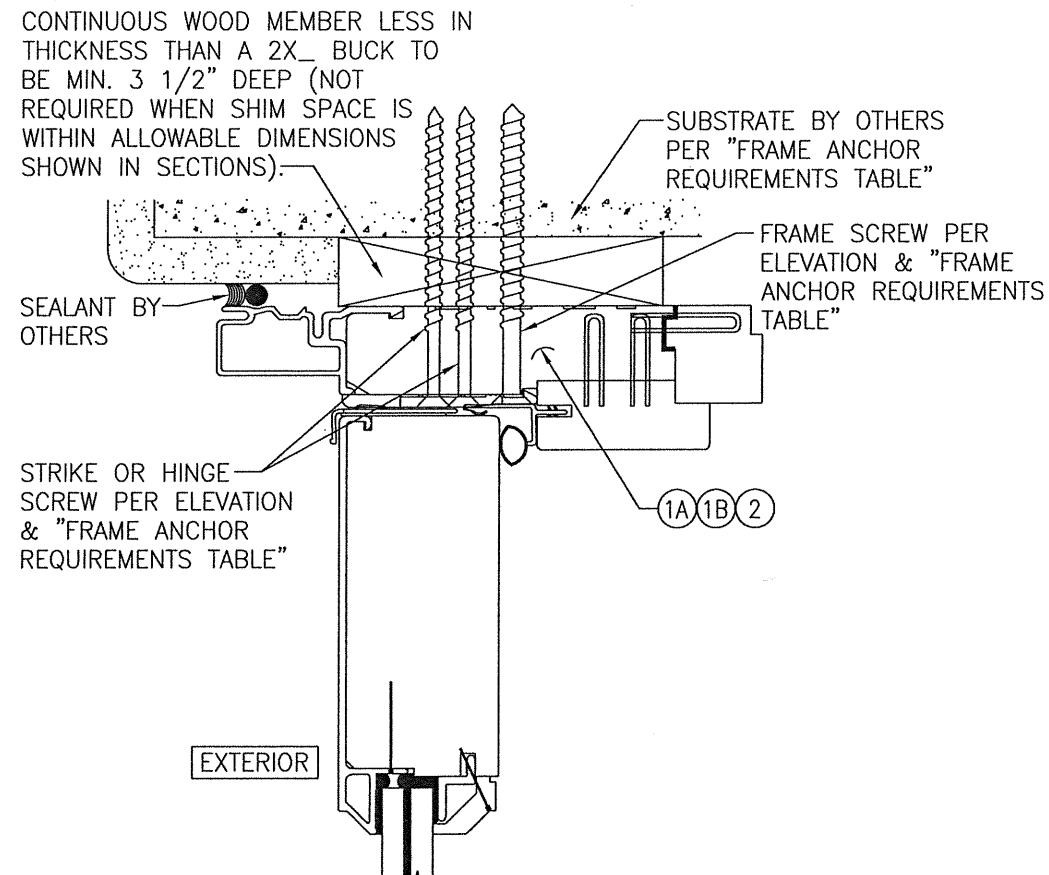


DRAWN BY: W.R.M.	CHECKED BY: W.W.S.
PLOT: 1=2	DATE: 06/13/13
NO.	REVISION DESCRIPTION
BY	DATE
DRAWING TITLE: <b>ULTRA SERIES MANOR IMPACT DOOR</b> MANUFACTURER: <b>KOLBE &amp; KOLBE MILLWORK CO., INC.</b> 1323 SOUTH 11TH AVE. WAUSAU, WI 54401 715-842-5666	
CONSULTANTS: <b>W. W. SCHAEFER ENGINEERING &amp; CONSULTING, P.A. (CA 6809)</b> 7480 150TH COURT NORTH PALM BEACH GARDENS, FL 33418 PHONE: 561-744-3424	
CERTIFICATION	OCT 27 2020 WARREN W. SCHAEFER, P.E. P.E. NO. 44135
DRAWING NO. <b>1830</b>	REV. <b>B</b>
SHEET NO. <b>9 OF 12</b>	



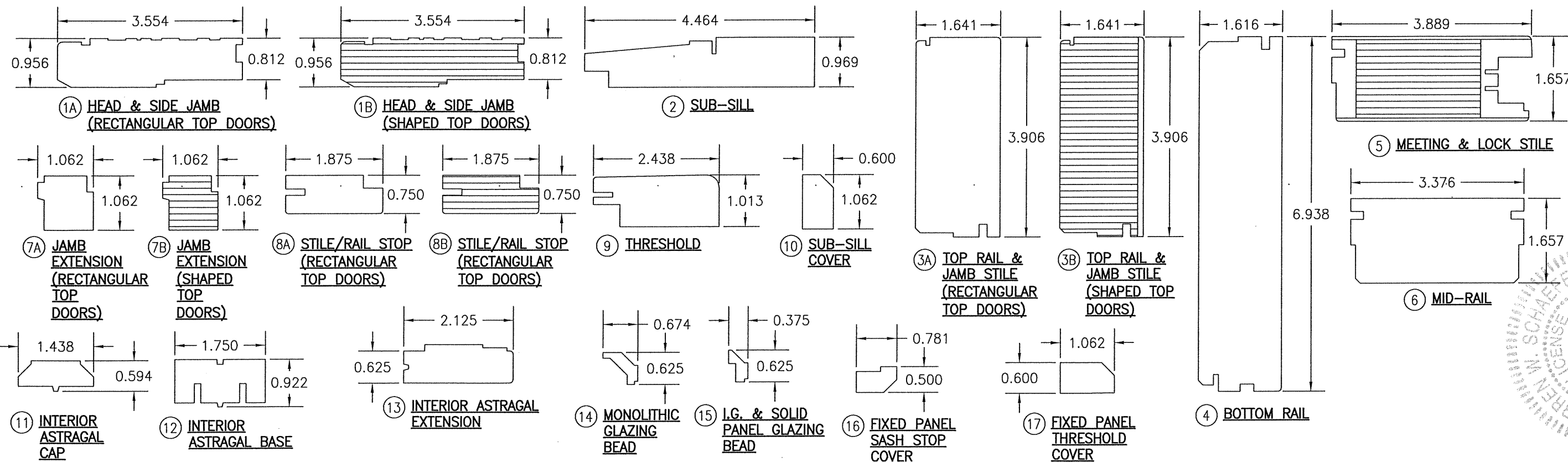
**OPTIONAL INSTALLATION CLIP DETAIL**

(HEAD SECTION SHOWN; SILL & SIDES ARE INSTALLED THE SAME)  
 (FOR DETAIL NOT SHOWN, SEE OTHER SECTIONS)  
 (OPERABLE DOOR SHOWN, FIXED PANEL DOOR ALSO APPLIES)

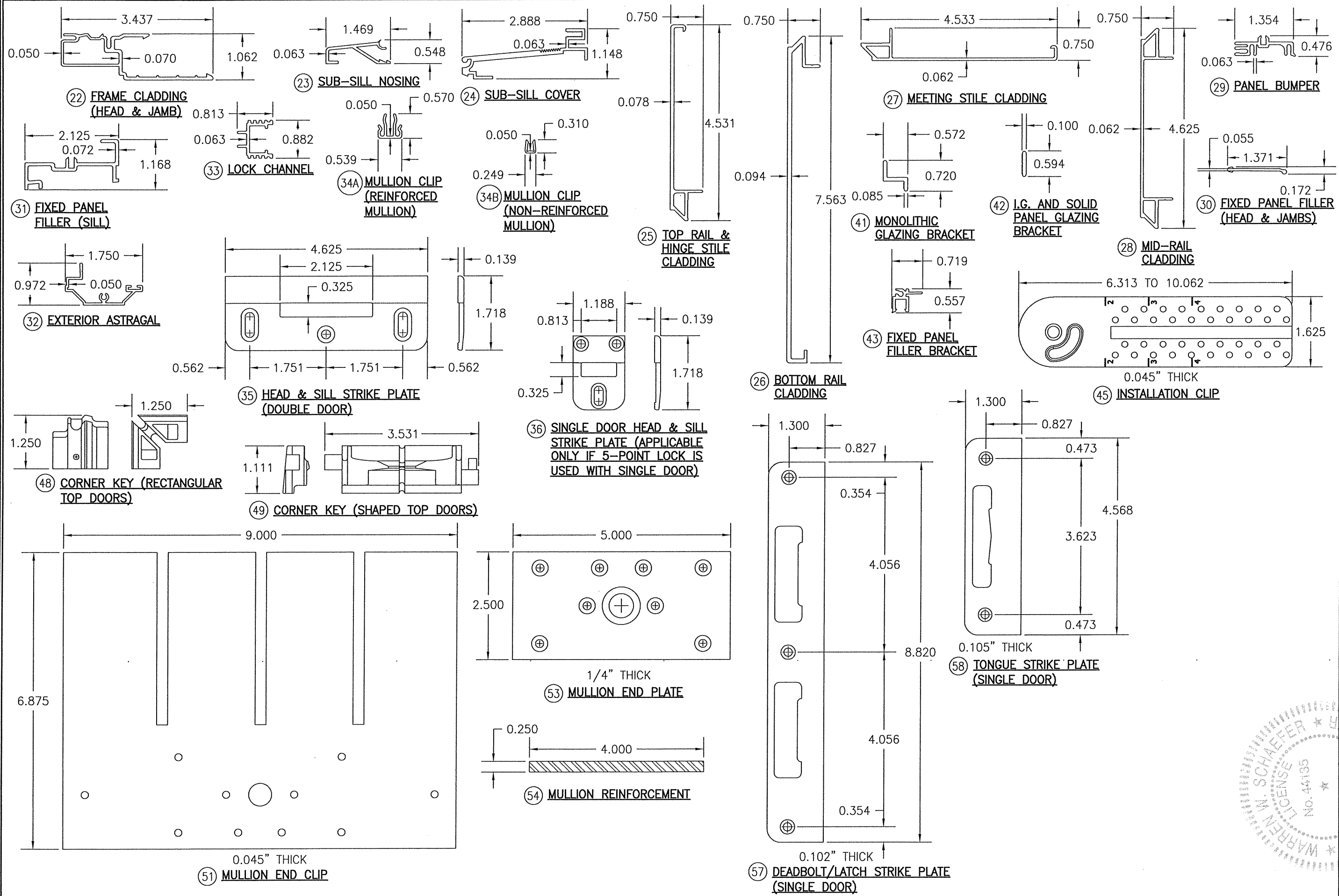


**OPTIONAL DIRECT MOUNT DETAIL  
 TO SUBSTRATE WITH SPACER**

(HEAD SECTION SHOWN; SILL & SIDES ARE INSTALLED THE SAME)  
 (FOR DETAIL NOT SHOWN, SEE OTHER SECTIONS)  
 (OPERABLE DOOR SHOWN, FIXED PANEL DOOR ALSO APPLIES)



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DATE	BY
ULTRA SERIES MANOR IMPACT DOOR MANUFACTURER <b>KOLBE &amp; KOLBE MILLWORK CO., INC.</b> 1323 SOUTH 11TH AVE. WAUSAU, WI 54401 715-842-5666	
CONSULTANTS <b>W. SCHAEFER ENGINEERING &amp; CONSULTING, P.A. (CA 6809)</b> 7480 150TH COURT NORTH PALM BEACH GARDENS, FL 33418 PHONE: 561-744-3424	
DRAWING TITLE <b>ULTRA SERIES MANOR IMPACT DOOR</b>	
CERTIFICATION <b>W. SCHAEFER</b> P.E. NO. 44135	
DRAWING NO.	REV.
<b>1830</b>	<b>B</b>
SHEET NO.	
10 OF 12	



DRAWN BY: W.R.M.		CHECKED BY: W.W.S.	
PLOT: 1=2		DATE: 06/13/13	
NO.	REVISION	DESCRIPTION	DATE
<b>DRAWING TITLE</b> ULTRA SERIES MANOR IMPACT DOOR			
CONSULTANTS <b>W. W. SCHAEFER ENGINEERING &amp; CONSULTING, P.A. (CA 6809)</b> 7480 150TH COURT NORTH PALM BEACH GARDENS, FL 33418 PHONE: 561-744-3424		MANUFACTURER <b>KOLBE &amp; KOLBE MILLWORK CO., INC.</b> 1323 SOUTH 11TH AVE. WAUSAU, WI 54401 715-842-5666	
CERTIFICATION WARREN W. SCHAEFER LICENSE NO. 44135 OCT 27 2020		WARREN W. SCHAEFER P.E. P.E. NO. 44135	
DRAWING NO. 1830		REV. B	
SHEET NO. 11 OF 12			

ITEM #	ITEM DESCRIPTION	MANUFACTURER/NOTES
PARTS		
1A	HEAD & SIDE JAMB (RECTANGULAR TOP DOORS)	WOOD
1B	HEAD & SIDE JAMB (SHAPED TOP DOORS)	LVL
2	SUB-SILL	WOOD
3A	TOP RAIL & JAMB STILE (RECTANGULAR TOP DOORS)	WOOD
3B	TOP RAIL & JAMB STILE (SHAPED TOP DOORS)	LVL
4	BOTTOM RAIL	WOOD
5	MEETING & LOCK STILE	LVL CORE WITH WOOD VENEER
6	MID-RAIL	WOOD
7A	JAMB EXTENSION (RECTANGULAR TOP DOORS)	WOOD
7B	JAMB EXTENSION (SHAPED TOP DOORS)	LVL
8A	STILE/RAIL STOP (RECTANGULAR TOP DOORS)	WOOD
8B	STILE/RAIL STOP (SHAPED TOP DOORS)	LVL WITH WOOD VENEER
9	THRESHOLD	WOOD
10	SUB-SILL COVER	WOOD
11	INTERIOR ASTRAGAL CAP	WOOD
12	INTERIOR ASTRAGAL BASE	WOOD
13	INTERIOR ASTRAGAL EXTENSION	WOOD
14	MONOLITHIC GLAZING BEAD	WOOD
15	I.G. & SOLID PANEL GLAZING BEAD	WOOD
16	FIXED PANEL SASH STOP COVER	WOOD
17	FIXED PANEL THRESHOLD COVER	WOOD
22	FRAME CLADDING	6063-T5 ALUMINUM
23	SUB-SILL NOSING	6063-T5 ALUMINUM
24	SUB-SILL COVER	6063-T5 ALUMINUM
25	TOP RAIL & HINGE STILE CLADDING	6063-T5 ALUMINUM
26	BOTTOM RAIL CLADDING	6063-T5 ALUMINUM
27	MEETING STILE CLADDING	6063-T5 ALUMINUM
28	MID-RAIL CLADDING	6063-T5 ALUMINUM
29	PANEL BUMPER	6063-T5 ALUMINUM
30	FIXED PANEL FILLER (HEAD & JAMBS)	6063-T5 ALUMINUM
31	FIXED PANEL FILLER (SILL)	6063-T5 ALUMINUM
32	EXTERIOR ASTRAGAL	6063-T5 ALUMINUM
33	LOCK CHANNEL	6063-T5 ALUMINUM
34A	MULLION CLIP (REINFORCED MULLION)	6063-T5 ALUMINUM
34B	MULLION CLIP (NON-REINFORCED MULLION)	6063-T5 ALUMINUM
35	HEAD & SILL STRIKE PLATE (DOUBLE DOOR)	6105-T5 ALUMINUM
36	SINGLE DOOR HEAD & SILL STRIKE PLATE (APPLICABLE ONLY IF 5-POINT LOCK IS USED WITH SINGLE DOOR)	6105-T5 ALUMINUM
38	7" LONG S.S. LOCK STILE U-CHANNEL	18-8 S.S. (TOP & BOTTOM OF LOCK STILE)
41	MONOLITHIC GLAZING BRACKET (DUROMETER = 70)	PRESTIGE PLASTICS RIGID PVC
42	I.G. AND SOLID PANEL GLAZING BRACKET (DUROMETER = 70)	PRESTIGE PLASTICS RIGID PVC
43	FIXED PANEL FILLER BRACKET	CLIM-A-TECH RIGID & FLEXIBLE PVC
45	INSTALLATION CLIP	ASTM A653 MIN. 33 KSI GALV. STEEL
48	CORNER KEY (RECTANGULAR TOP DOORS)	DARTER PLASTICS POLYCARBONATE
49	CORNER KEY (SHAPED TOP DOORS)	DARTER PLASTICS POLYCARBONATE
51	MULLION END CLIP	ASTM A653 GALV. STEEL (Fy = 50 ksi)
53	MULLION END PLATE	A-36 STEEL
54	MULLION REINFORCEMENT	A-36 STEEL
57	DEADBOLT/LATCH STRIKE PLATE (SINGLE DOORS)	S.S., BRASS OR BRONZE
58	TONGUE STRIKE PLATE (SINGLE DOORS)	S.S., BRASS OR BRONZE

NOTE: WOOD USED IN TESTING WAS PINE WITH A SPECIFIC GRAVITY OF G = 0.43 AND A MODULUS OF ELASTICITY OF E = 1,200,000 PSI. ALL WOOD IS MINIMUM GRADE 2 MILLED BY KOLBE & KOLBE TO SELECT.

ITEM #	ITEM DESCRIPTION	MANUFACTURER/NOTES
HARDWARE		
62	5-POINT LOCK HARDWARE (ACTIVE PANEL)	HTL HLS-9000 SERIES
63	2-POINT LOCK HARDWARE (INACTIVE PANEL)	HTL HLS-9000 SERIES
64	HANDLE	AS REQUIRED TO OPERATE LOCK SYSTEM
65	4X4 BUTT HINGE WITH STATIONARY PIN	HAGER 5060390 S.S., STEEL, BRASS OR BRONZE
67	4X4 ADJUSTABLE SET (INTERMEDIATE) HINGE	HTL 5143790 S.S., STEEL, BRASS OR BRONZE
68	4X4 ADJUSTABLE GUIDE (TOP & BOTTOM) HINGE	HTL 5143780 S.S., STEEL, BRASS OR BRONZE
SEALS & SEALANTS		
72	BULB/FIN WEATHERSTRIP	INTEK 5074565 POLYPROPELENE/SANTOPRENE
73	FIN WEATHERSTRIP	CLIM-A-TECH 5095675 RIGID & FLEXIBLE PVC
74	EXTERIOR PANEL WEATHERSTRIP	AMESBURY GROUP 5031500 RIGID & FLEXIBLE PVC
75	SILL WEATHERSTRIP	AMESBURY GROUP 5146560 POLYPROPELENE/SANTOPRENE
76	BULB WEATHERSTRIP	AMESBURY GROUP 5066980 POLYPROPELENE
77	SHIM 1/16" X 1/4" X 1/2"	80 DUROMETER EPDM WITHIN 1" OF ENDS & 8" MAX. O.C.
78	GLAZING TAPE 1/16" X 1/4"	CONTINUOUS
FASTENERS		
81	NO. 10 X 2 1/2" WOOD SCREW	(4 AT EA. PANEL CORNER 2" APART & ONE(1) AT PANEL MIDSPAN)
82	1/8" X 1" 18 GAUGE STAPLE	WITHIN 2" FROM ENDS & MAX. 8" O.C.
83	NO. 8 X 1 1/4" PPH SMS	WITHIN 1" FROM ENDS & MAX. 8" O.C.
84	NO. 8 X 1 1/4" PPH SMS	WITHIN 2" FROM ENDS & MAX. 14" O.C.
85	1/8" X 1 1/4" 18 GAUGE STAPLE	WITHIN 2" FROM CORNERS & MAX. 8" O.C.
86	NO. 8 X 1 1/4" PFH SMS	WITHIN 4" FROM CORNERS & MAX. 13 1/2" O.C.
87	NO. 12 X 1 3/4" PFH BRASS OR S.S. WOOD SCREW	4 PER HINGE
88	NO. 12 X 3/4" PFH BRASS OR S.S. SMS	2 PER TOP & BOTTOM HINGE; 3 PER INTERMEDIATE HINGE
91	NO. 9 X 1 3/4" PFH BRASS OR S.S. WOOD SCREW	4 PER HINGE
92	NO. 9 X 3/4" PFH BRASS OR S.S. SMS	2 PER TOP & BOTTOM HINGE; 3 PER INTERMEDIATE HINGE
93	1/8" X 1" 18 GAUGE STAPLE	WITHIN 1/2" FROM ENDS & MAX. 8" O.C.
94	NO. 8 X 1 3/4" SMS	WITHIN 4" FROM ENDS & MAX. 12" O.C.
95	NO.10 X 3" PFH SMS	6 PER CHANNEL SPACED ALONG STILE
96	NO. 10 X 3" PFH SMS	2 PER TOP & 1 PER BOTTOM U-CHANNEL
97	NO. 8 X 3" PFH SMS (2 ROWS)	WITHIN 2" FROM ENDS & MAX. 8" O.C.
98	NO. 6 X 1 1/4" SELF TAPPING SCREW	WITHIN 2" FROM ENDS & MAX. 15" O.C.
99	18 GAUGE X 3/4" BRAD NAIL	WITHIN 1" FROM CORNERS & MAX. 6" O.C.
100	15 GAUGE X 1" BRAD NAIL	WITHIN 2" FROM CORNERS & MAX. 8" O.C.

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7480 150TH COURT NORTH PALM BEACH GARDENS, FL 33418 PHONE: 561-744-3424	
1323 SOUTH 11TH AVE. WAUSAU, WI 54401 715-842-5666	
STATE OF WISCONSIN OCT 27 2020 WARREN W. SCHAEFER LICENSE NO. 44135 P.E. NO. 44135	
DRAWING NO. <b>1830</b>	REV. <b>B</b>
SHEET NO. <b>12 OF 12</b>	