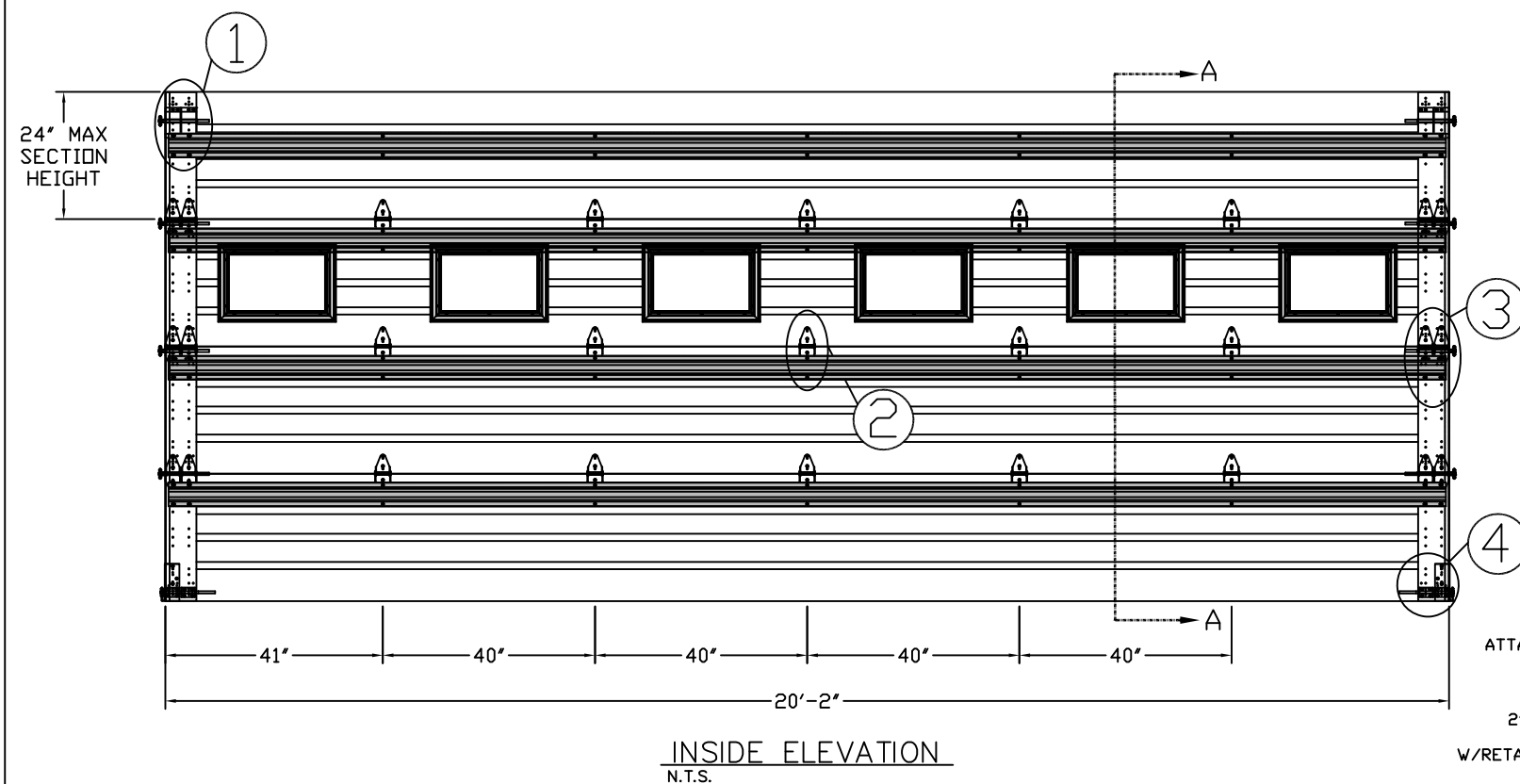
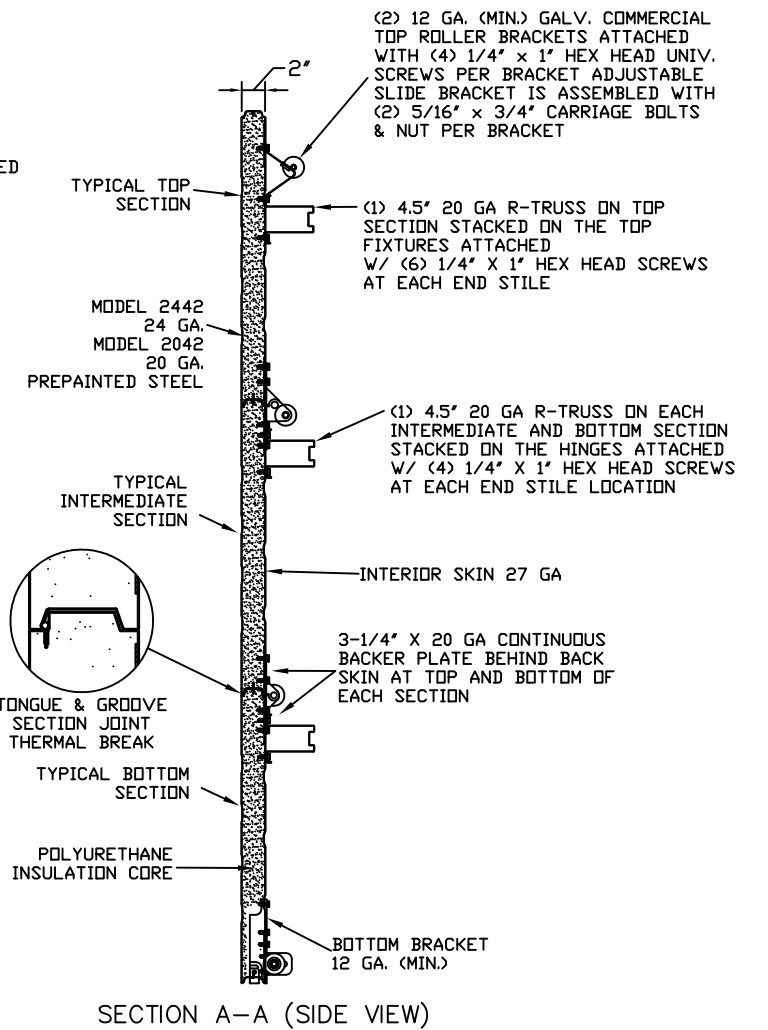
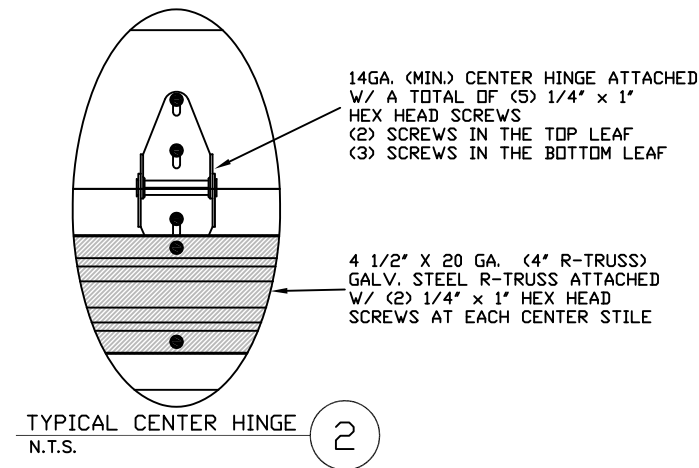
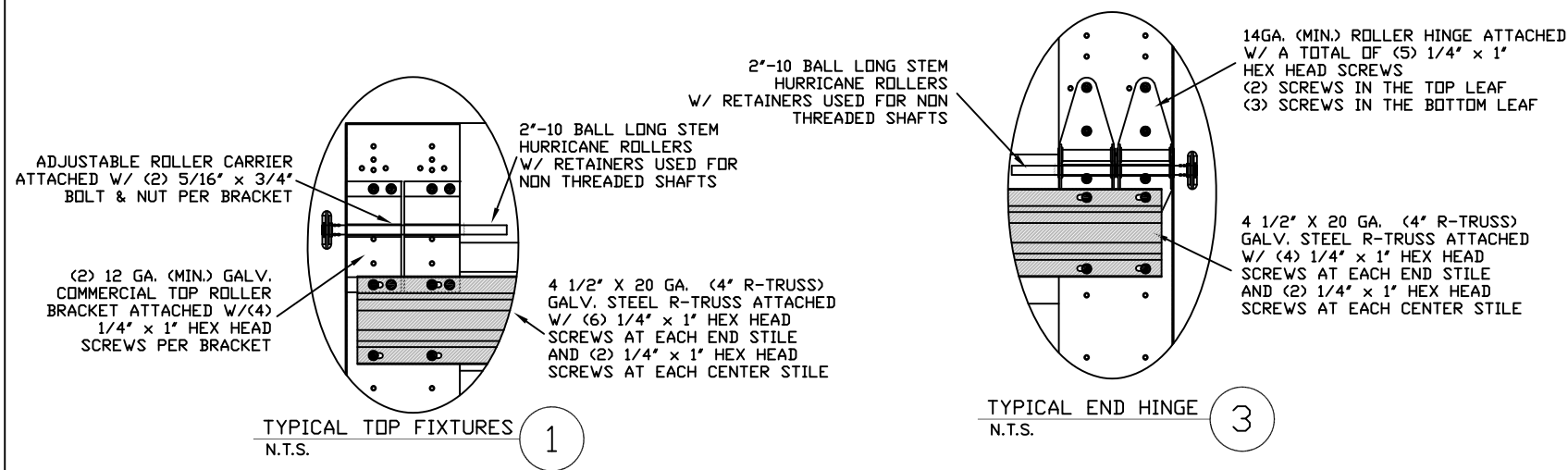
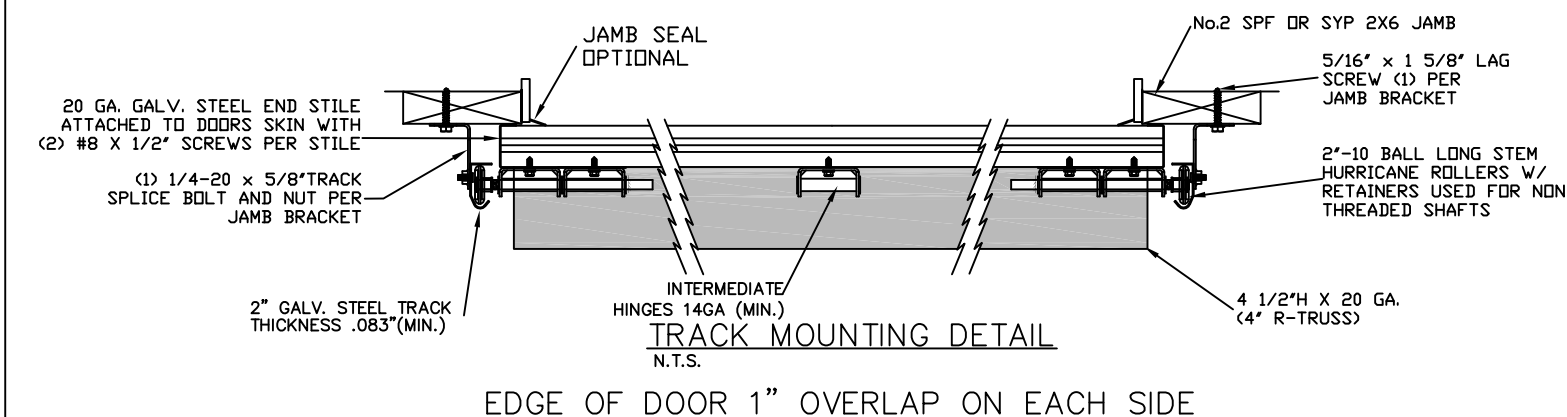
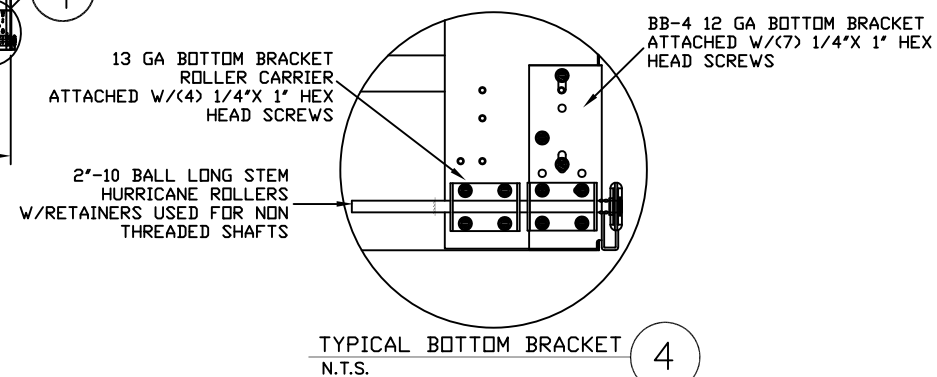




LARGE MISSILE
IMPACT RESISTANT



THE METHOD OF TESTING WAS IN SUBSTANTIAL CONFORMANCE WITH THE PROCEDURE DESCRIBED IN ASTM E330, E1886, E1996 & F588, DASMA 108 & 115. THE PRESSURES SHOWN ON THE DRAWINGS WERE CALCULATED USING ASCE 7-22 WITH THE FOLLOWING PARAMETERS (5 FEET OF DOOR WIDTH IN THE END ZONE, ROOF AT LESS THAN 10 DEGREES SLOPE):

WIND SPEED (MPH)	168	152	145	138	133
EXPOSURE LEVEL	B	C	C	D	D
MEAN ROOF HEIGHT	30'	15'	25'	15'	25'

REV	DESCRIPTION OF REVISIONS	DATE	BY
MAX SIZE	20'2 x 24'		
DESIGN LOADS	+22.9 PSF -27.0 PSF		
TEST LOADS	+34.4 PSF -40.5 PSF		
LARGE MISSILE IMPACT RESISTANCE			

Thomas L Shelmerdine
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 DN: c=US, o=Unaffiliated, dnQualifier=A01410D000001938E1ECCEA0007AC7B, cn=Thomas L Shelmerdine
 Date: 2025.08.21 14:41:54 -0400

Thomas L. Shelmerdine, PE (FL PE #0048579)
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Amarr

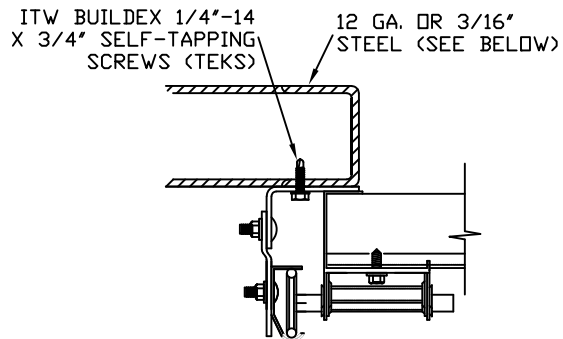
AMARR 2442
AMARR 2042

SIZE	DRAWN BY	DRC	DATE	08/05/25	DRAWING NUMBER
B	CHECKED BY	RLR	DATE	00/00/25	IBC-4220-130-24-1

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 165 CARRIAGE COURT WINSTON-SALEM, N.C. 27105

SHEET 1 OF 4

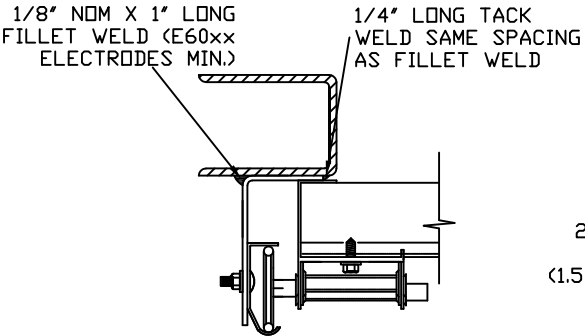
TRACK CONNECTION DIRECTLY TO STRUCTURE OPTIONS



CLIP STYLE REVERSE ANGLE MOUNT SHOWN
BRACKET, CONTINUOUS AND TAPERED ANGLE
MOUNT AVAILABLE

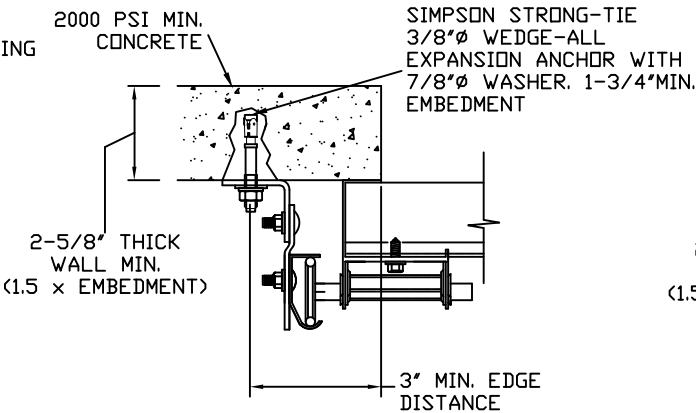
12 GA. STEEL FRAMING
232 LBS./SCREW ALLOWABLE LOAD - 3'
FROM ENDS AND 12" O.C.
REFER TO NOTES: 1, 2 AND 5

3/16" STEEL FRAMING
569 LBS./SCREW ALLOWABLE LOAD - 6'
FROM ENDS AND 24" O.C.
REFER TO NOTES: 1, 2 AND 5



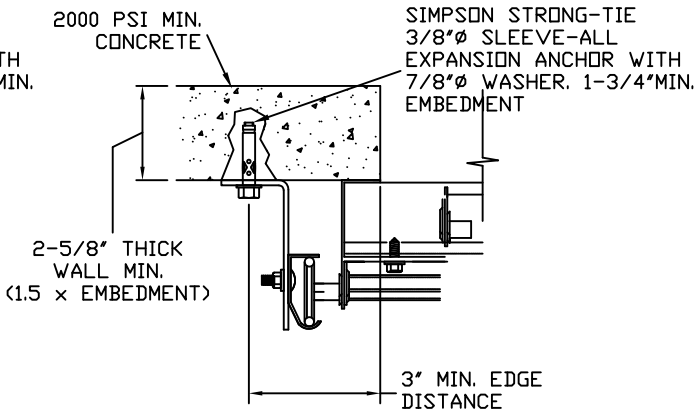
REVERSE ANGLE MOUNT SHOWN
BRACKET, CONTINUOUS AND
TAPERED ANGLE MOUNT AVAILABLE

STEEL FRAMING 12GA OR BETTER
1590 LBS./IN. ALLOWABLE LOAD -
6' FROM ENDS AND 24" O.C.
REFER TO NOTES: 1, 2, 5, 6, 7, 8
AND 9



CLIP STYLE CONTINUOUS ANGLE MOUNT SHOWN
BRACKET, REVERSE AND TAPERED ANGLE MOUNT
AVAILABLE

2000 PSI CONCRETE OR GREATER
351 LBS./EXPANSION ANCHOR ALLOWABLE LOAD -
6' FROM ENDS AND 18" O.C.
REFER TO NOTES: 1, 2, 3, 4 AND 5



CONTINUOUS ANGLE MOUNT SHOWN
BRACKET, CONTINUOUS AND TAPERED ANGLE
MOUNT AVAILABLE

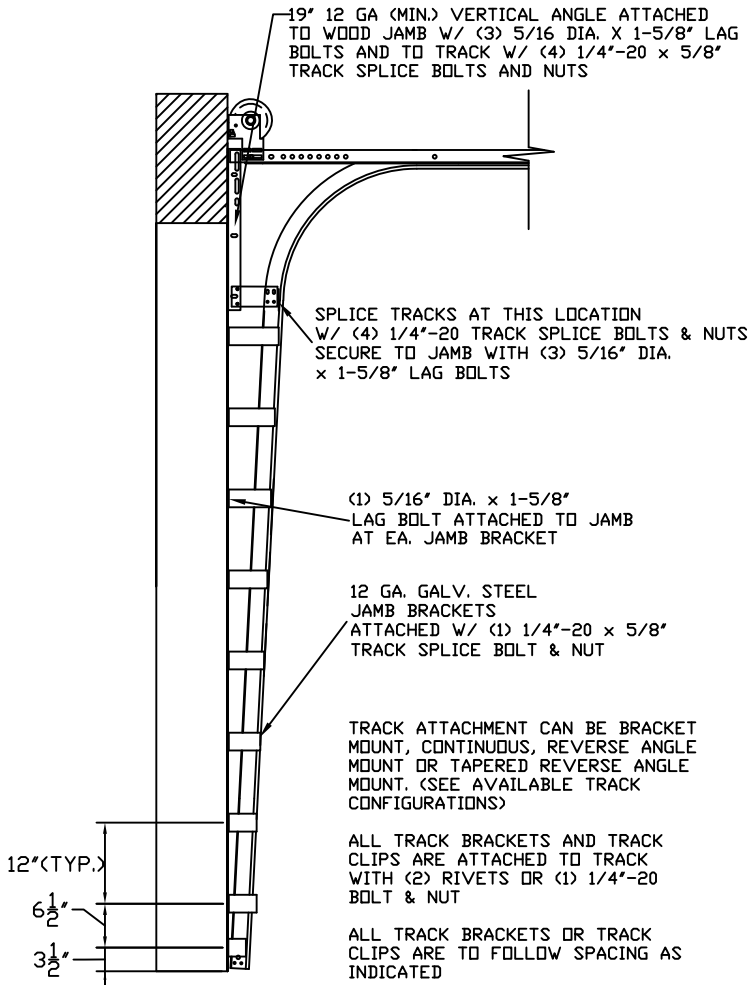
2000 PSI CONCRETE OR GREATER
336 LBS./EXPANSION ANCHOR ALLOWABLE
LOAD - 6' FROM ENDS AND 16" O.C.
REFER TO NOTES: 1, 2, 3, 4 AND 5

- NOTES:
1. ANCHORS TO BE EVENLY SPACED BETWEEN THE HEADER AND FLOOR.
 2. FIRST (BOTTOM) ANCHOR STARTING AT NO MORE THAN HALF OF THE MAXIMUM ON-CENTER DISTANCE. HIGHEST ANCHOR INSTALLED AT LEAST AS HIGH AS THE DOOR OPENING.
 3. MIN. EGDE DISTANCE OF 3" REQUIRED.
 4. USE WASHERS PROVIDED BY THE ANCHOR MANUFACTURER.
 5. SUPPORTING STRUCTURAL ELEMENTS SHALL BE DESIGNED BY A REGISTERED PROFESSIONAL ENGINEER FOR WIND LOADS IN ADDITION TO OTHER LOADS.
 6. MOST GARAGE DOOR TRACK IS GALVANIZED STEEL. USE ALL NECESSARY PRECAUTIONS WHEN WELDING GALVANIZED STEEL.
 7. ALL WELDS SHOULD BE PERFORMED BY A CERTIFIED WELDER OR INSPECTED BY A CERTIFIED WELDING INSPECTOR TO VERIFY THE INTEGRITY OF THE WELD.
 8. FILLET WELDS TO HAVE A STRAIGHT OR CONVEX FACE SURFACE.
 9. TACK WELD TOE OF ANGLE AT SAME SPACING TO PREVENT ROTATION OF TRACK ANGLE.

TABLE 1

DOOR																									SPLICE
HEIGHT	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	S	
7'	10"	22"	34"	46"	58"																			76"	
8'	10"	22"	34"	46"	58"	70"	82"																	88"	
9'	10"	22"	34"	46"	58"	70"	82"	94"																100"	
10'	10"	22"	34"	46"	58"	70"	82"	94"	106"															112"	
11'	10"	22"	34"	46"	58"	70"	82"	94"	106"	118"														124"	
12'	10"	22"	34"	46"	58"	70"	82"	94"	106"	118"	130"													136"	
13'	10"	22"	34"	46"	58"	70"	82"	94"	106"	118"	130"	142"												148"	
14'	10"	22"	34"	46"	58"	70"	82"	94"	106"	118"	130"	142"	154"											160"	
15'	10"	22"	34"	46"	58"	70"	82"	94"	106"	118"	130"	142"	154"	166"										172"	
16'	10"	22"	34"	46"	58"	70"	82"	94"	106"	118"	130"	142"	154"	166"	178"									184"	
17'	10"	22"	34"	46"	58"	70"	82"	94"	106"	118"	130"	142"	154"	166"	178"	190"								196"	
18'	10"	22"	34"	46"	58"	70"	82"	94"	106"	118"	130"	142"	154"	166"	178"	190"	202"							208"	
19'	10"	22"	34"	46"	58"	70"	82"	94"	106"	118"	130"	142"	154"	166"	178"	190"	202"	214"						220"	
20'	10"	22"	34"	46"	58"	70"	82"	94"	106"	118"	130"	142"	154"	166"	178"	190"	202"	214"	226"					232"	
21'	10"	22"	34"	46"	58"	70"	82"	94"	106"	118"	130"	142"	154"	166"	178"	190"	202"	214"	226"	238"				244"	
22'	10"	22"	34"	46"	58"	70"	82"	94"	106"	118"	130"	142"	154"	166"	178"	190"	202"	214"	226"	238"	250"			256"	
23'	10"	22"	34"	46"	58"	70"	82"	94"	106"	118"	130"	142"	154"	166"	178"	190"	202"	214"	226"	238"	250"	262"		268"	
24'	10"	22"	34"	46"	58"	70"	82"	94"	106"	118"	130"	142"	154"	166"	178"	190"	202"	214"	226"	238"	250"	262"	274"	280"	

ALL TRACK ATTACHMENTS +/- 2" ALLOWED USING SYP OR SPF NO.2 OR BETTER ONLY



TRACK CONFIGURATION FOR 6' UP TO 24' TALL DOORS
*SPLICE LOCATION FOR STANDARD LIFT. WILL VARY FOR
OTHER LIFT APPLICATIONS. ALL TRACK ATTACHMENT
LOCATIONS MAY ALLOW +/-2" WHEN USING SYP OR SPF
NO.2 GRADE LUMBER OR BETTER ONLY.

REV	DESCRIPTION OF REVISIONS	DATE	BY

MAX SIZE
20'2 x 24'

DESIGN LOADS
+22.9 PSF
-27.0 PSF

TEST LOADS
+34.4 PSF
-40.5 PSF

LARGE MISSILE
IMPACT
RESISTANCE

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Thomas L. Shelmerdine, PE (FL PE #0048579)
Structural Solutions, PA (FL Firm #29412)
dba Structural Solutions of North Carolina, Inc.
5921-G W. Friendly Ave., Greensboro, NC 27410

FL

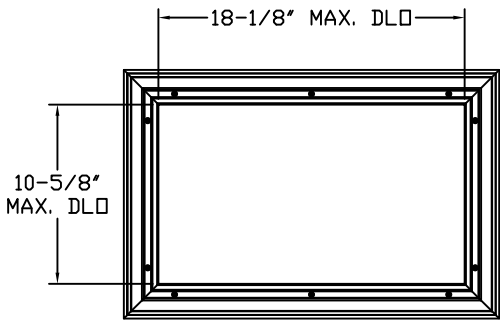
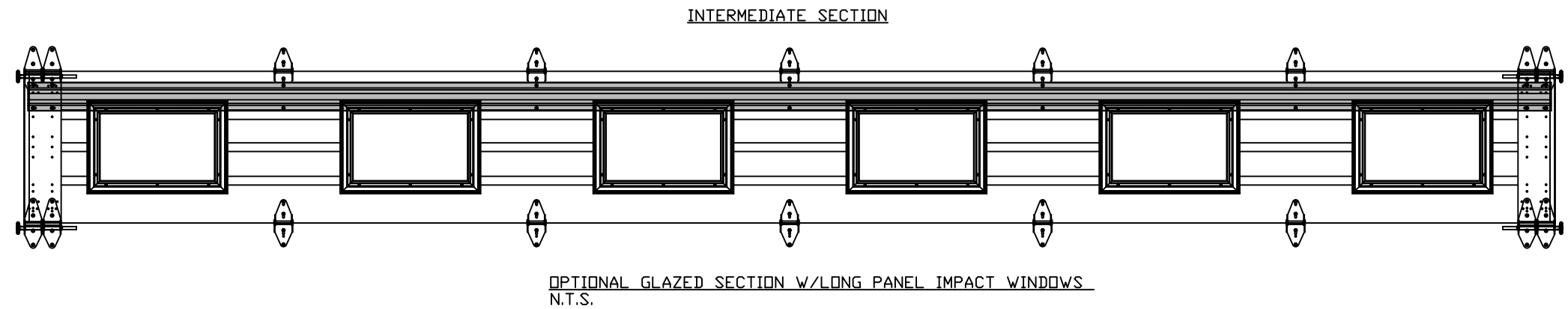
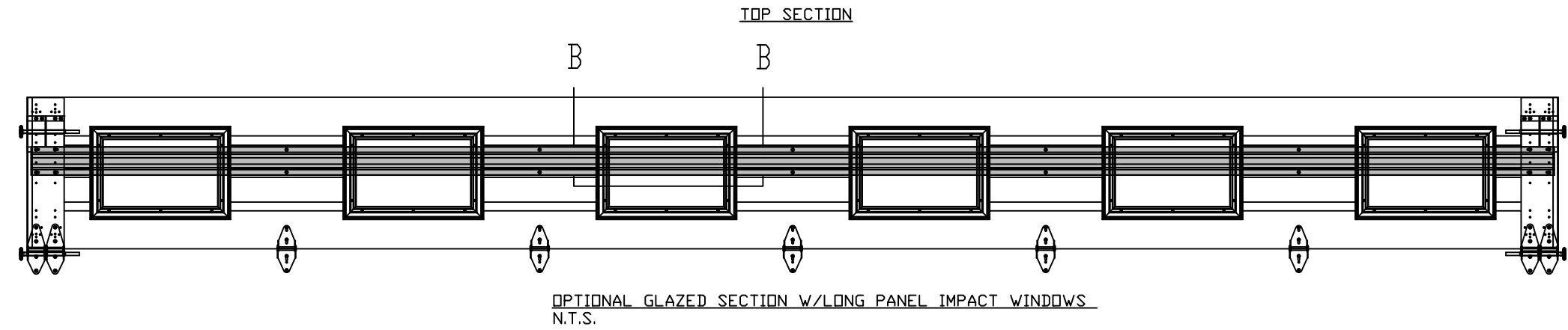
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AMARR 2442
AMARR 2042

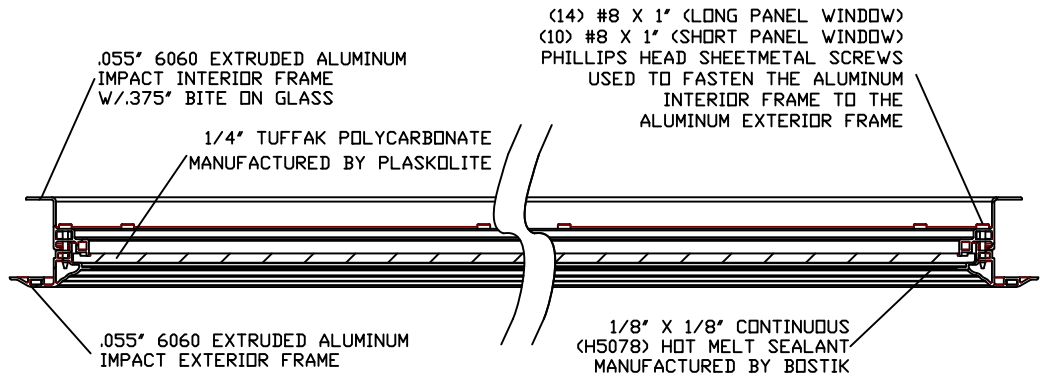
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165 CARRIAGE COURT WINSTON-SALEM, NC. 27105

SHEET 2 OF 4



SHORT PANEL IMPACT GLAZING FASTENER DETAIL
N.T.S.



REV	DESCRIPTION OF REVISIONS	DATE	BY
MAX SIZE 20'2 x 24' DESIGN LOADS +22.9 PSF -27.0 PSF TEST LOADS +34.4 PSF -40.5 PSF LARGE MISSILE IMPACT RESISTANCE		THOMAS L. SHELMERDINE LICENSE No. 48579 See Digital Signature STATE OF FLORIDA PROFESSIONAL ENGINEER This document has been digitally signed & sealed by Thomas L. Shelmerdine, PE on the date shown. Printed copies of this document are not considered signed & sealed, and the signature must be verified on any electronic copies. Thomas L. Shelmerdine, PE (FL PE #0048579) Structural Solutions, PA (FL Firm #29412) dba Structural Solutions of North Carolina, Inc. 5921-G W. Friendly Ave., Greensboro, NC 27410 FL	
Amarr			
AMARR 2442 AMARR 2042			
SIZE	DRAWN BY	DRC	DATE
B			08/05/25
	CHECKED BY	RLR	DATE
			00/00/25
AMARR COMPANY 165 CARRIAGE COURT WINSTON-SALEM, N.C. 27105			SHEET 3 OF 4

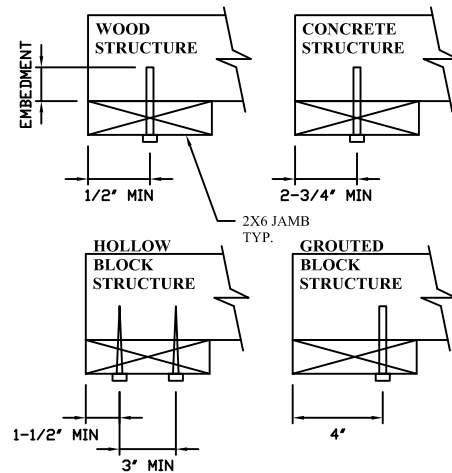
2 X 6 VERTICAL JAMB ATTACHMENT TO WOOD FRAME STRUCTURE
5/16" X 3" LAG SCREWS STARTING 6" FROM ENDS THEN 20" O.C. (1 1/2" EMBEDMENT)

2 X 6 VERTICAL JAMB ATTACHMENT TO 2,000 PSI CONCRETE
HILTI KWIK BOLT 3/8" X 4" STARTING 6" FROM ENDS THEN 24" O.C. (2 1/2" EMBEDMENT)
HILTI SLEEVE ANCHOR 3/8" X 2-3/4" STARTING 6" FROM ENDS THEN 18" O.C. (1 1/4" EMBEDMENT)
ITW/RAMSET REDHEAD (TRU-BOLT) 3/8" X 4" STARTING 6" FROM ENDS THEN 24" O.C. (2 1/2" EMBEDMENT)

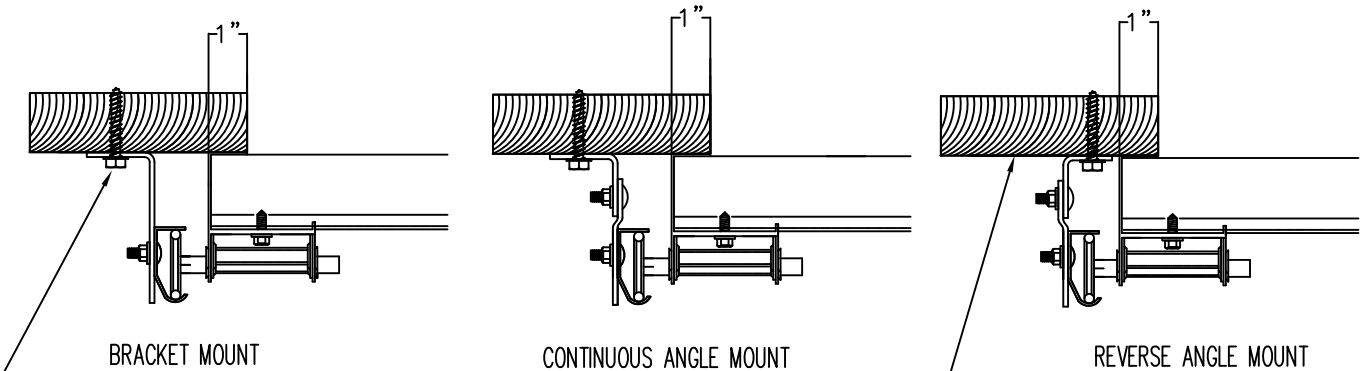
2 X 6 VERTICAL JAMB ATTACHMENT TO HOLLOW C-90 BLOCK
SIMPSON 1/4" X 3" TITEN SCREWS STARTING 6" FROM ENDS, USE PAIRS OF FASTENERS
(3" APART) AT 8" O.C. (1 1/2" EMBEDMENT)
HILTI 1/4" X 2-3/4" KWIK-CON II+ SCREWS STARTING 6" FROM ENDS, USE PAIRS OF FASTENERS
(3" APART) AT 8" O.C. (1 1/4" EMBEDMENT)

2 X 6 VERTICAL JAMB ATTACHMENT TO GROUTED C-90 BLOCK (2000 PSI GROUT)
HILTI SLEEVE ANCHOR 3/8" X 2-3/4" STARTING 6" FROM ENDS THEN 22" O.C. (1 1/4" EMBEDMENT)
(OR, USE FASTENERS FOR HOLLOW C-90 BLOCK)

*LAGS AND BOLTS CAN BE COUNTERSUNK TO PROVIDE A FLUSH MOUNTING SURFACE.
*PREPARATION OF WOOD JAMBS BY OTHERS

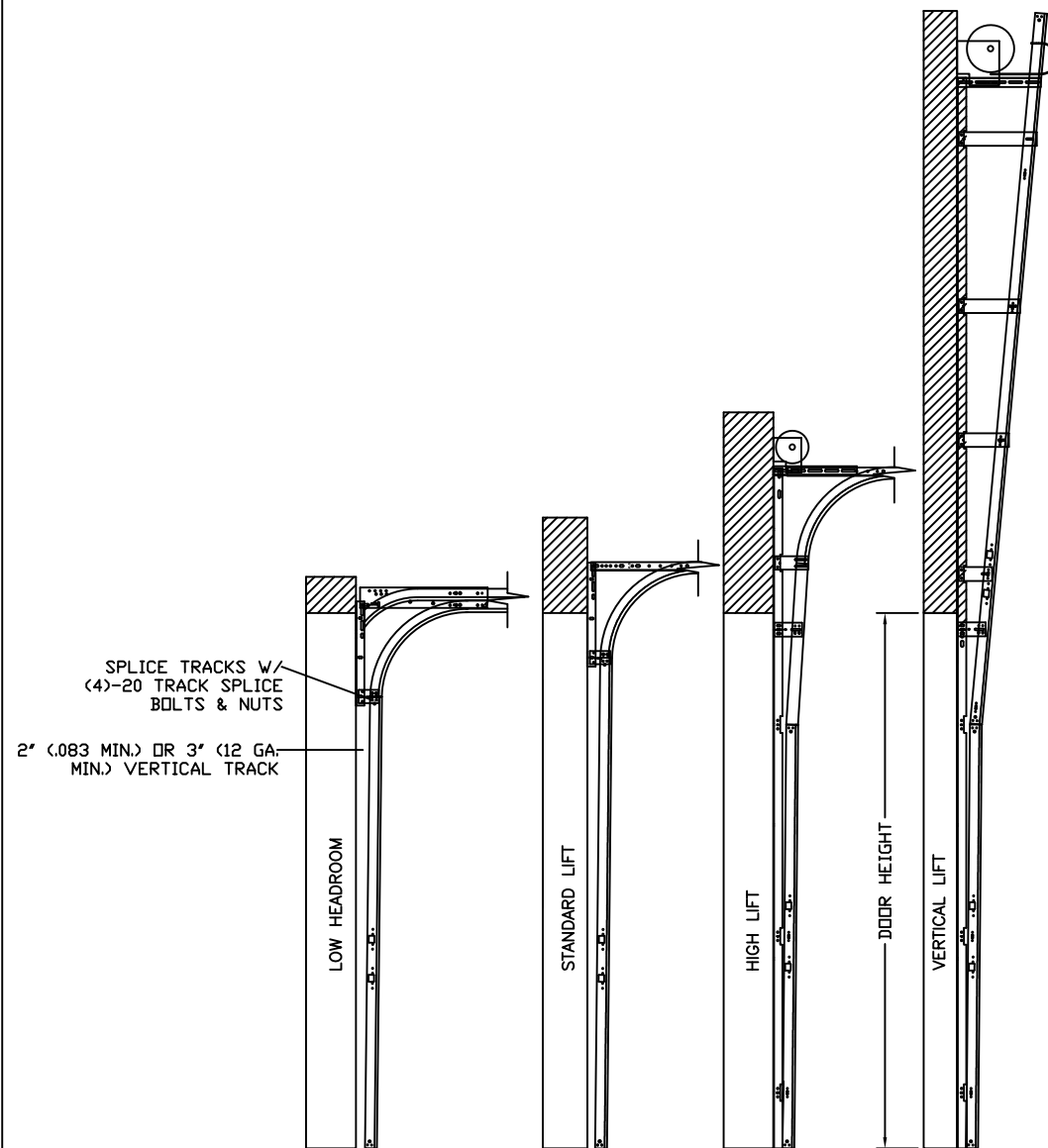


FOR LAG SCREWS & BRACKET SPACING SEE TABLE 1



5/16" x 1 5/8" LAG SCREW (1)
PER JAMB BRACKET (1-1/2"
EMBEDMENT MINIMUM) (TYP.)

2x6 WOOD JAMB SYP OR SPF
(NO.2) OR BETTER (TYP.)

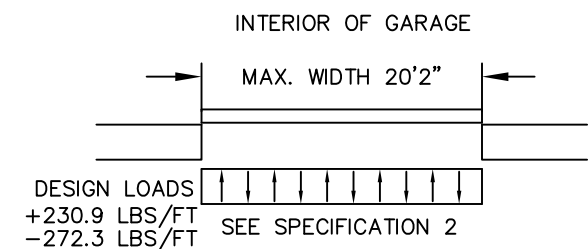


AVAILABLE TRACK CONFIGURATIONS
N.T.S.

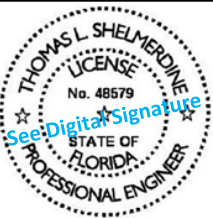
1. ALL THE LOAD FROM THE DOOR IS TRANSFERRED TO THE VERTICAL TRACK, FROM THE TRACK THE LOAD IS TRANSFERRED TO THE VERTICAL JAMBS. THE HORIZONTAL JAMB OR HEADER RECEIVES NO PORTION OF THE LOAD TRANSFERRED FROM THE DOOR
2. EACH VERTICAL JAMBS RECEIVES MAXIMUM DESIGN LOADS OF:
+230.9 LBS/FT & -272.3 LBS/FT
3. DOOR AND HARDWARE WILL BE DESIGNED, MANUFACTURED AND INSTALLED WITH STANDARDS AS SET FORTH BY DASHA.
4. DOOR SECTIONS SHALL BE 24 GA. (.0216) MIN. EXTERIOR SKIN ROLLFORMED, W/BAKED ON POLYESTER FINISH
5. DOORS UP TO 24'0" HIGH USE (1) 4 1/2" R-TRUSS PER SECTION.
6. SUPPORTING STRUCTURAL ELEMENTS SHALL BE DESIGNED BY A REGISTERED PROFESSIONAL ENGINEER FOR WIND LOADS INDICATED ON THIS DRAWING IN ADDITION TO OTHER LOADINGS.

Section Width		Center Stile Locations (Measured from Left Edge)					Max Design Load Allowed	
(ft)	(in)	1st (in)	2nd (in)	3rd (in)	4th (in)	5th (in)	Positive (PSF)	Negative (PSF)
19'	4	36	76	116	156	196	23.1	27.3
19'	6	37	77	117	157	197	23.1	27.3
19'	8	38	78	118	158	198	23.1	27.3
19'	10	39	79	119	159	199	23.1	27.3
20'	0	40.0	80	120	160	200	23	27.2
20'	2	41.0	81	121	161	201	22.9	27

FOR DOOR SIZES LESS THAN 19'4 CONTACT ENGINEERING



SECTION	STRUT SIZE
12TH	4.5"
11TH	4.5"
10TH	4.5"
9TH	4.5"
8TH	4.5"
7TH	4.5"
6TH	4.5"
5TH	4.5"
4TH	4.5"
3RD	4.5"
2ND	4.5"
BOTTOM	4.5"

REV	DESCRIPTION OF REVISIONS	DATE	BY
MAX SIZE 20'2 x 24' DESIGN LOADS +22.9 PSF -27.0 PSF TEST LOADS +34.4 PSF -40.5 PSF LARGE MISSILE IMPACT RESISTANCE		 This document has been digitally signed & sealed by Thomas L. Shelmerdine, PE on the date shown. Printed copies of this document are not considered signed & sealed, and the signature must be verified on any electronic copies. Thomas L. Shelmerdine, PE (FL PE #0048579) Structural Solutions, PA (FL Firm #29412) dba Structural Solutions of North Carolina, Inc. 5921-G W. Friendly Ave., Greensboro, NC 27410 FL	
			
AMARR 2442 AMARR 2042			
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AMARR COMPANY 165 CARRIAGE COURT WINSTON-SALEM, N.C. 27105			SHEET 4 OF 4