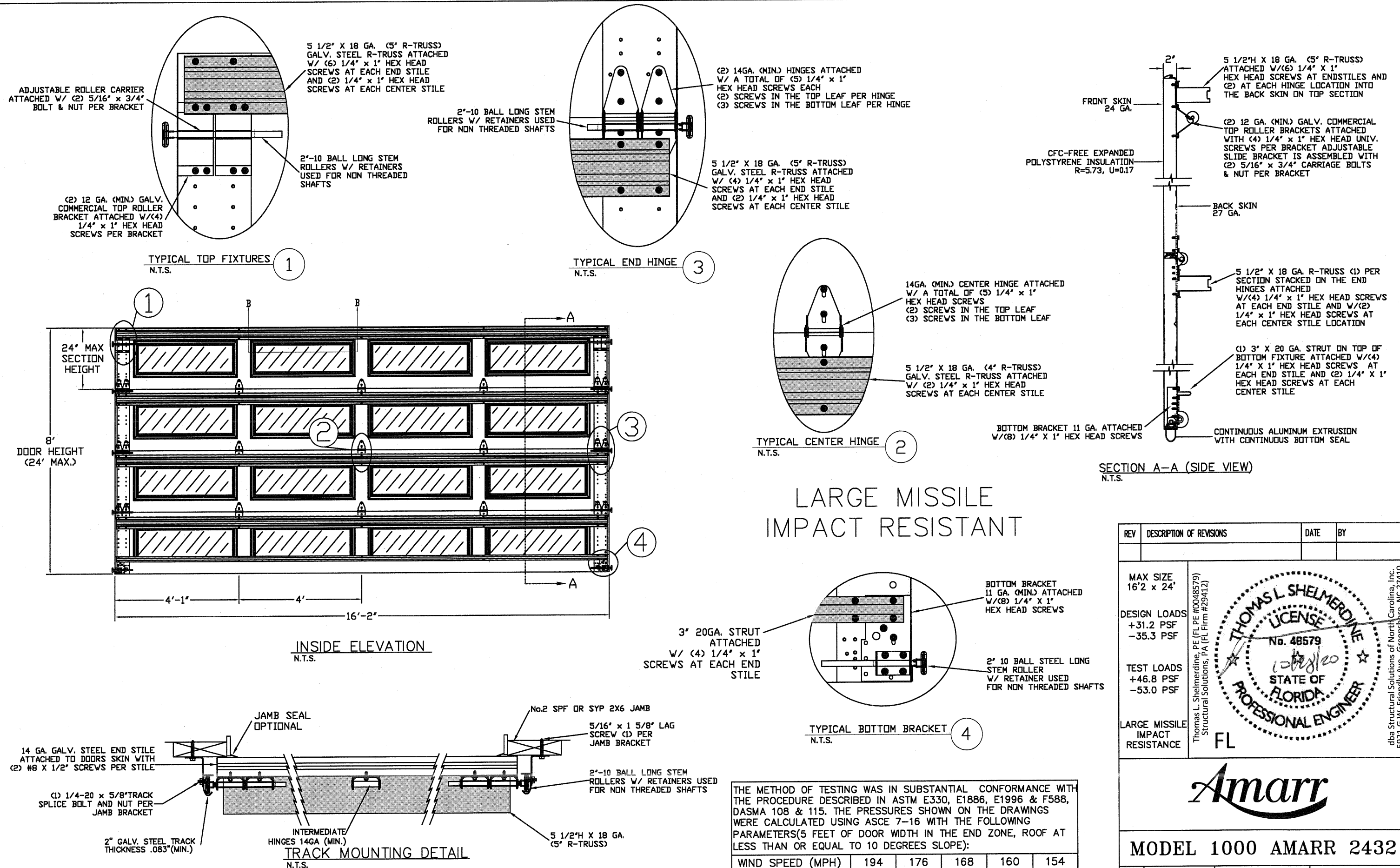




LARGE MISSILE IMPACT RESISTANT

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 7-16 WITH THE FOLLOWING PARAMETERS (5 FEET OF DOOR WIDTH IN THE END ZONE, ROOF AT LESS THAN OR EQUAL TO 10 DEGREES SLOPE):

WIND SPEED (MPH)	194	176	168	160	154
EXPOSURE LEVEL	B	C	C	D	D
MEAN ROOF HEIGHT	30'	15'	25'	15'	25'

REV	DESCRIPTION OF REVISIONS	DATE	BY

MAX SIZE 16'2 x 24' DESIGN LOADS +31.2 PSF -35.3 PSF TEST LOADS +46.8 PSF -53.0 PSF LARGE MISSILE IMPACT RESISTANCE	Thomas L. Shelmerdine, PE (FL PE #00048579) Structural Solutions, PA (FL Firm #29412) THOMAS L. SHELMERDINE LICENSE No. 48579 10/28/20 STATE OF FLORIDA PROFESSIONAL ENGINEER FL dba Structural Solutions of North Carolina, Inc. 5921-G W. Friendly Ave., Greensboro, NC 27410
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Amarr

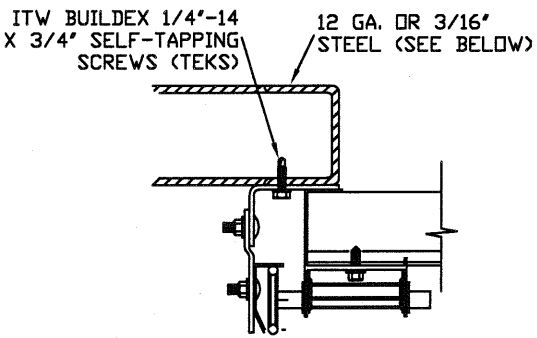
MODEL 1000 AMARR 2432

SIZE	DRAWN BY	RLR	DATE	8/2/17	DRAWING NUMBER
B	CHECKED BY	RLR	DATE	8/2/17	IBC-1016-150-26-F

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

SHEET 1 OF 3

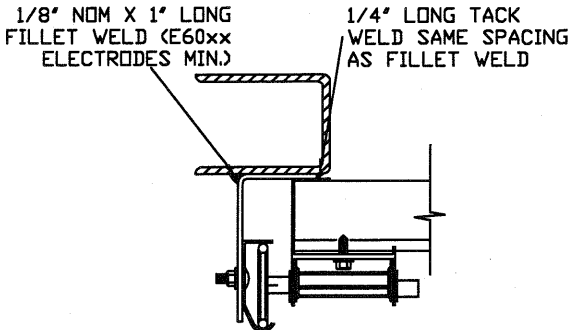
TRACK CONNECTION DIRECTLY TO STRUCTURE OPTIONS



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

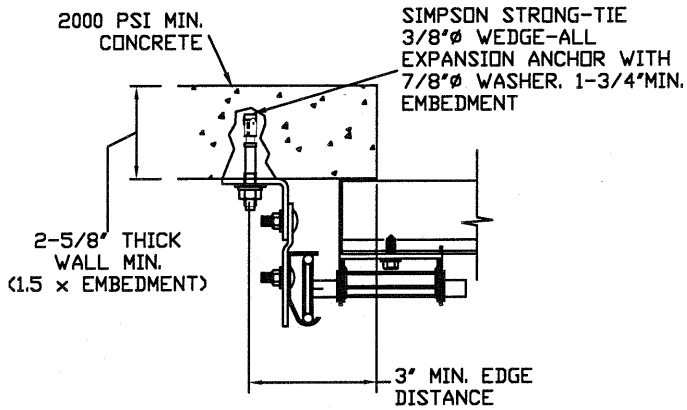
12 GA. STEEL FRAMING
232 LBS./SCREW ALLOWABLE LOAD - 6"
FROM ENDS AND 10" O.C.
REFER TO NOTES: 1, 2 AND 5

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



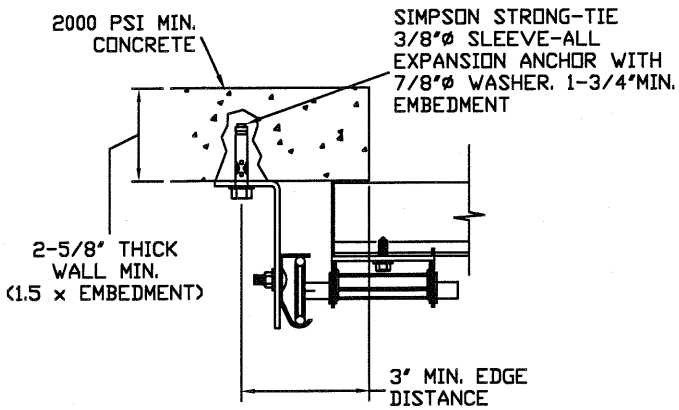
REVERSE ANGLE MOUNT SHOWN
BRACKET, CONTINUOUS AND
TAPERED ANGLE MOUNT AVAILABLE

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 16" O.C.
REFER TO NOTES: 1, 2, 3, 4 AND 5

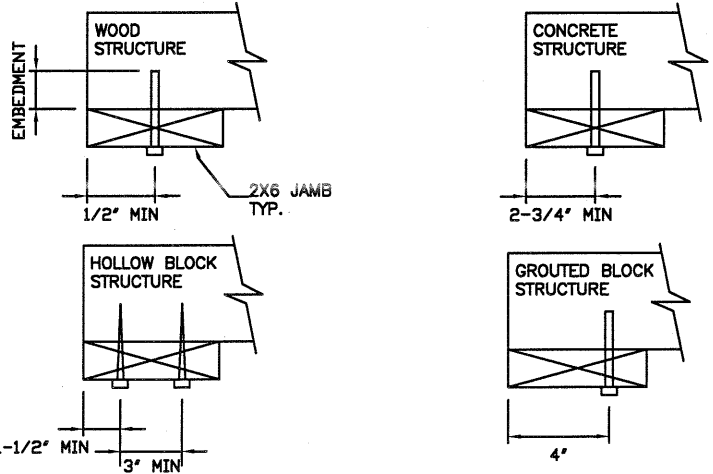


CONTINUOUS ANGLE MOUNT SHOWN
BRACKET, CONTINUOUS AND TAPERED ANGLE
MOUNT AVAILABLE

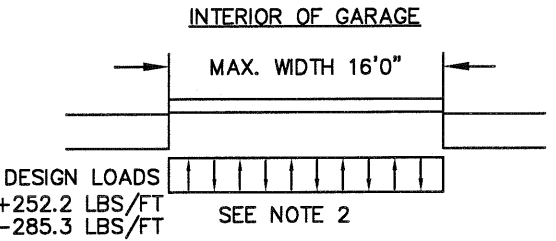
2000 PSI CONCRETE OR GREATER
336 LBS./EXPANSION ANCHOR ALLOWABLE
LOAD - 6" FROM ENDS AND 16" O.C.
REFER TO NOTES: 1, 2, 3, 4 AND 5

WOOD JAMB ATTACHMENT TO STRUCTURE (OPTIONAL)

- 2 X 6 VERTICAL JAMB ATTACHMENT TO WOOD FRAME STRUCTURE
5/16" X 3" LAG SCREWS STARTING 6" FROM ENDS
THEN 18" 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 16" 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 20" 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

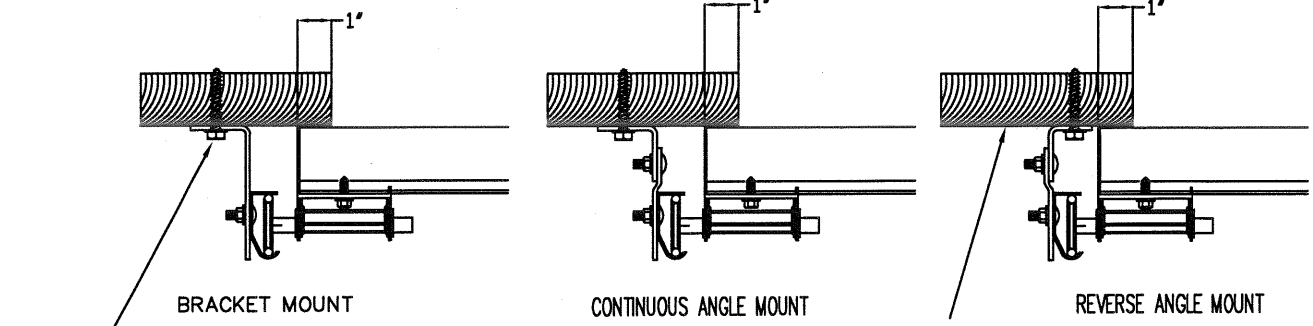


- NOTES:
1. ANCHORS TO BE EVENLY SPACED BETWEEN THE HEADER AND FLOOR.
 2. FIRST (BOTTOM) ANCHOR STARTING AT NO MORE THAN HALF OF THE MAXIMUM ON-CENTER DISTANCE. HIGHEST ANCHOR INSTALLED AT LEAST AS HIGH AS THE DOOR OPENING.
 3. MIN. EGDE DISTANCE OF 3" REQUIRED.
 4. USE WASHERS PROVIDED BY THE ANCHOR 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.



TRACK CONNECTION TO WOOD JAMB OPTIONS

FOR LAG SCREWS & BRACKET SPACING SEE TABLE 2 ON PAGE 3



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.)

- SPECIFICATIONS AND NOTES
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: +252.2 LBS/FT & -285.3 LBS/FT
 3. DOOR AND HARDWARE WILL BE DESIGNED, MANUFACTURED AND INSTALLED WITH STANDARDS AS SET FORTH BY DASMA.
 4. DOOR SECTIONS SHALL BE 24 GA. (.022) MIN. EXTERIOR SKIN ROLLED FORMED, W/ BAKED ON POLYESTER FINISH
 5. DOORS UP TO 24'0" HIGH USE (1) 5.5" 18GA R-TRUSS PER SECTION AND (1) 3" 20GA STRUT ON BOTTOM SECTION
 6. SUPPORTING STRUCTURAL ELEMENTS SHALL BE DESIGNED BY A REGISTRED PROFESSIONAL ENGINEER FOR WIND LOADS INDICATED ON THIS DRAWING IN ADDITION TO OTHER LOADINGS.

REV	DESCRIPTION OF REVISIONS	DATE	BY

MAX SIZE
16'2 x 24'

DESIGN LOADS
+31.2 PSF
-35.3 PSF

TEST LOADS
+46.8 PSF
-53.0 PSF

LARGE MISSILE
IMPACT
RESISTANCE

Thomas L. Shelmerdine, PE (FL PE #0048579)
Structural Solutions, PA (FL Firm #29412)

FL

Thomas L. Shelmerdine
LICENSE
No. 48579
STATE OF
FLORIDA
PROFESSIONAL ENGINEER

dba Structural Solutions of North Carolina, Inc.
5921-G W. Friendly Ave., Greensboro, NC 27410

Amarr

MODEL 1000 AMARR 2432

SIZE B	DRAWN BY RLR	DATE 8/2/17	DRAWING NUMBER IBC-1016-150-26-F
CHECKED BY RLR	DATE 8/2/17	ENTREMATICS 165 CARRIAGE COURT WINSTON-SALEM, N.C. 27105	

SHEET 2 OF 3

Section Width (ft)	Center Stile Locations (From Left Edge)			Max Design Loads Allowed		
	1st (in)	2nd (in)	3rd (in)	Positive (PSF)	Negative (PSF)	
9'	4"	36"	76"	-	39.6	44.8
9'	6"	37"	77"	-	39.1	44.2
9'	8"	38"	78"	-	38.6	43.6
9'	10"	39"	79"	-	38.1	43.1
10'	0"	40"	80"	-	37.6	42.5
10'	2"	41"	81"	-	37.1	42.0
10'	4"	42"	82"	-	36.7	41.5
10'	6"	43"	83"	-	36.2	41.0
10'	8"	44"	84"	-	35.8	40.5
10'	10"	45"	85"	-	35.4	40.0
11'	0"	46"	86"	-	35.0	39.6
11'	2"	47"	87"	-	34.6	39.1
11'	4"	48"	88"	-	34.2	38.7
11'	6"	49"	89"	-	33.8	38.2
11'	8"	50"	90"	-	33.4	37.8
11'	10"	51"	91"	-	33.0	37.4
12'	0"	48"	96"	-	31.3	35.4
12'	2"	49"	97"	-	31.0	35.1
12'	4"	50"	98"	-	30.7	34.7
12'	6"	51"	99"	-	30.4	34.4
12'	8"	52"	100"	-	30.1	34.0
12'	10"	53"	101"	-	29.8	33.7
13'	0"	36"	78"	120"	35.8	40.5
13'	2"	37"	79"	121"	35.8	40.5
13'	4"	38"	80"	122"	35.8	40.5
13'	6"	39"	81"	123"	35.8	40.5
13'	8"	40"	82"	124"	35.8	40.5
13'	10"	41"	83"	125"	35.8	40.5
14'	0"	42"	84"	126"	35.8	40.5
14'	2"	43"	85"	127"	35.4	40.0
14'	4"	44"	86"	128"	35.0	39.6
14'	6"	45"	87"	129"	34.6	39.1
14'	8"	46"	88"	130"	34.2	38.7
14'	10"	47"	89"	131"	33.8	38.2
14'	0"	48"	90"	132"	33.4	37.8
15'	2"	49"	91"	133"	33.0	37.4
15'	4"	50"	92"	134"	32.7	37.0
15'	6"	51"	93"	135"	32.3	36.6
15'	8"	52"	94"	136"	32.0	36.2
15'	10"	53"	95"	137"	31.6	35.8
16'	0"	48"	96"	144"	31.3	35.4
16'	2"	49"	97"	145"	31.2	35.3

DOOR HEIGHT		TRACK ATTACHMENT																						
		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W
7'	0"	3.5"	10.0"	22.0"	34"	46"	58"																	
7'	6"	3.5"	10.0"	22.0"	34"	46"	58"	70"																
8'	0"	3.5"	10.0"	22.0"	34"	46"	58"	70"																
8'	6"	3.5"	10.0"	22.0"	34"	46"	58"	70"	82"															
9'	0"	3.5"	10.0"	22.0"	34"	46"	58"	70"	82"															
9'	6"	3.5"	10.0"	22.0"	34"	46"	58"	70"	82"	94"														
10'	0"	3.5"	10.0"	22.0"	34"	46"	58"	70"	82"	94"														
11'	0"	3.5"	10.0"	22.0"	34"	46"	58"	70"	82"	94"	106"													
12'	0"	3.5"	10.0"	22.0"	34"	46"	58"	70"	82"	94"	106"	118"												
13'	0"	3.5"	10.0"	22.0"	34"	46"	58"	70"	82"	94"	106"	118"	130"											
14'	0"	3.5"	10.0"	22.0"	34"	46"	58"	70"	82"	94"	106"	118"	130"	142"										
15'	0"	3.5"	10.0"	22.0"	34"	46"	58"	70"	82"	94"	106"	118"	130"	142"	154"									
16'	0"	3.5"	10.0"	22.0"	34"	46"	58"	70"	82"	94"	106"	118"	130"	142"	154"	166"								
17'	0"	3.5"	10.0"	22.0"	34"	46"	58"	70"	82"	94"	106"	118"	130"	142"	154"	166"	178"							
18'	0"	3.5"	10.0"	22.0"	34"	46"	58"	70"	82"	94"	106"	118"	130"	142"	154"	166"	178"	190"						
19'	0"	3.5"	10.0"	22.0"	34"	46"	58"	70"	82"	94"	106"	118"	130"	142"	154"	166"	178"	190"	202"					
20'	0"	3.5"	10.0"	22.0"	34"	46"	58"	70"	82"	94"	106"	118"	130"	142"	154"	166"	178"	190"	202"	214"				
21'	0"	3.5"	10.0"	22.0"	34"	46"	58"	70"	82"	94"	106"	118"	130"	142"	154"	166"	178"	190"	202"	214"	226"			
22'	0"	3.5"	10.0"	22.0"	34"	46"	58"	70"	82"	94"	106"	118"	130"	142"	154"	166"	178"	190"	202"	214"	226"	238"		
23'	0"	3.5"	10.0"	22.0"	34"	46"	58"	70"	82"	94"	106"	118"	130"	142"	154"	166"	178"	190"	202"	214"	226"	238"	250"	
24'	0"	3.5"	10.0"	22.0"	34"	46"	58"	70"	82"	94"	106"	118"	130"	142"	154"	166"	178"	190"	202"	214"	226"	238"	250"	262"

39.6
39.1
38.7
38.2
37.8
37.4
37.0
36.6
36.2
35.8
35.4
35.3

14 GA. (MIN.) FLAG BRACKET
ATTACHED TO WOOD JAMB
W/(3) 5/16 DIA. X 1-5/8" LAG BOLTS
AND TO TRACK W/(4) 1/4"-20 X 5/8"
TRACK SPLICE BOLTS AND NUTS

14 GA. SPLICE BRACKET ATTACHED
TO WOOD JAMB W/ (1) 5/16 DIA. X
1-5/8" LAG BOLT AND TO TRACK W/
(4) 1/4"-20 X 5/8" TRACK SPLICE
BOLTS AND NUTS

(1) 5/16" DIA. X 1-5/8"
LAG BOLT ATTACHED TO JAMB
AT EA. JAMB BRACKET

12 GA. GALV. STEEL

JAMB BRACKETS
ATTACHED W/(1) 1/4"-20 X 5/8"
TRACK SPLICE BOLT & NUT

TRACK ATTACHMENT CAN BE BRACKET
MOUNT, CONTINUOUS, REVERSE ANGLE
MOUNT OR TAPERED REVERSE ANGLE
MOUNT. (SEE AVAILABLE TRACK
CONFIGURATIONS ON THIS PAGE)

ALL TRACK BRACKETS AND TRACK
CLIPS ARE ATTACHED TO TRACK
WITH (2) RIVETS OR (1) 1/4"-20
BOLT & NUT

ALL TRACK BRACKETS OR TRACK
CLIPS ARE TO FOLLOW SPACING AS
INDICATED

G-W
F
E
D
C
B
A

IMPACT EXTERIOR FRAME

SECTION
N.T.S.

DOOR HEIGHT

VERTICAL LIFT/RAPID
INSTALL VERTICAL LIFT

HIGH LIFT

STANDARD LIFT

LOW HEADROOM

SPLICE TRACKS W/
(4)-20 TRACK SPLICE
BOLTS & NUTS

2" (.083 MIN.) OR
3" (12 GA. MIN.) VERTICAL TRACK

Technical drawing of a rectangular frame. The drawing shows a perspective view of a rectangular frame with a double border. The dimensions are indicated by dimension lines and text:

- Horizontal dimension: $38-1/16"$ MAX. DLO
- Vertical dimension: $10-5/8"$ MAX. DLO

202

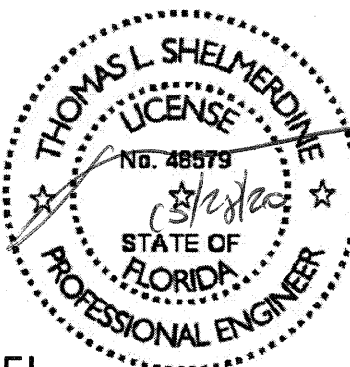
.055" 6060 EXTRUDED ALUMINUM
IMPACT INTERIOR FRAME
W/.375" BITE ON GLASS

1/4" MAKROLON POLYCARBONATE
MANUFACTURED BY BAYER

(14) #8 X 1" PHILLIPS
HEAD SHEETMETAL SCREWS
USED TO FASTEN THE ALUMINUM
INTERIOR FRAME TO THE
ALUMINUM EXTERIOR FRAME

.055" 6060 EXTRUDED ALUMINUM
IMPACT EXTERIOR FRAME

1/8" X 1/8" CONTINUOUS
(H5078) HOT MELT SEALANT
MANUFACTURED BY BOSTIK

REV	DESCRIPTION OF REVISIONS		DATE	BY
MAX SIZE, 16'2 x 24' DESIGN LOADS +31.2 PSF -35.3 PSF TEST LOADS +46.8 PSF -53.0 PSF LARGE MISSILE IMPACT RESISTANCE		Thomas L. Shelmerdine, PE (FL PE #0048579) Structural Solutions, PA (FL Firm #29412) FL  dba Structural Solutions of North Carolina, Inc. 5921-G W. Friendly Ave., Greensboro, NC 27410		
				
MODEL 1000 AMARR 2432				
SIZE	DRAWN BY	R/LR	DATE	DRAWING NUMBER
B	CHECKED BY	R/LR	DATE	IBC-1016-150-26-F
ENTREMATIC 165 CARRIAGE COURT WINSTON-SALEM, N.C. 27105				SHEET 3 OF 3