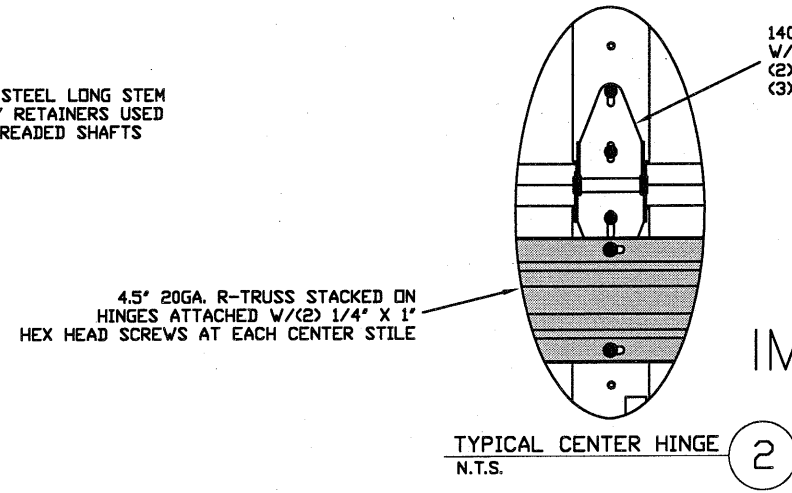
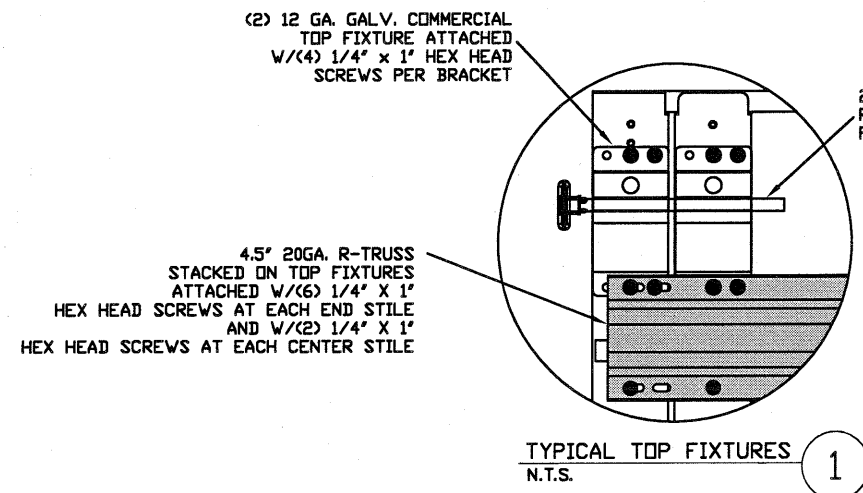
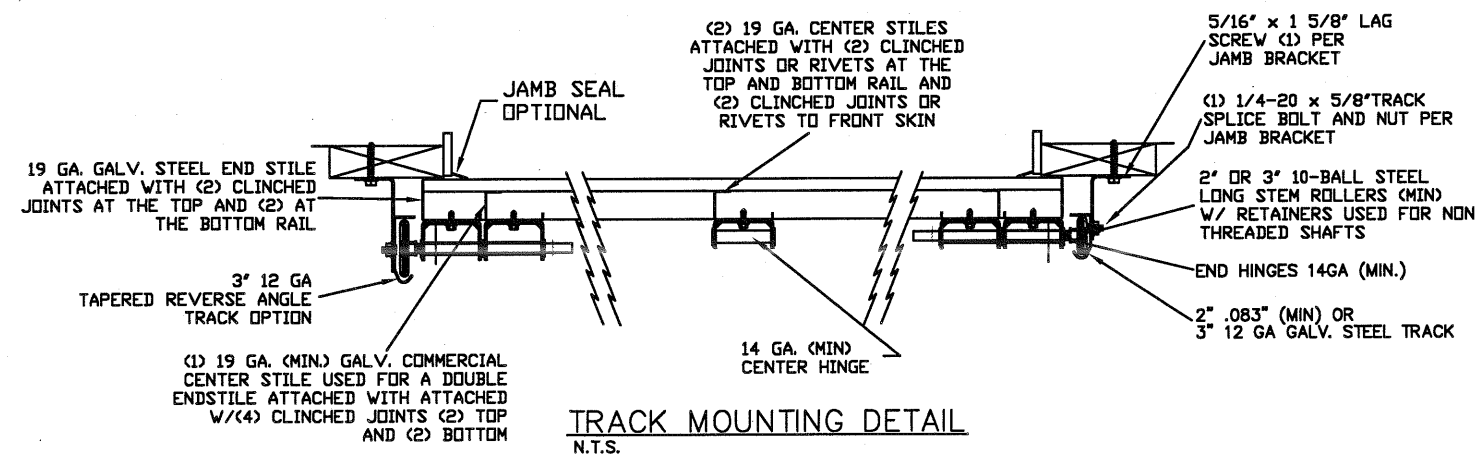
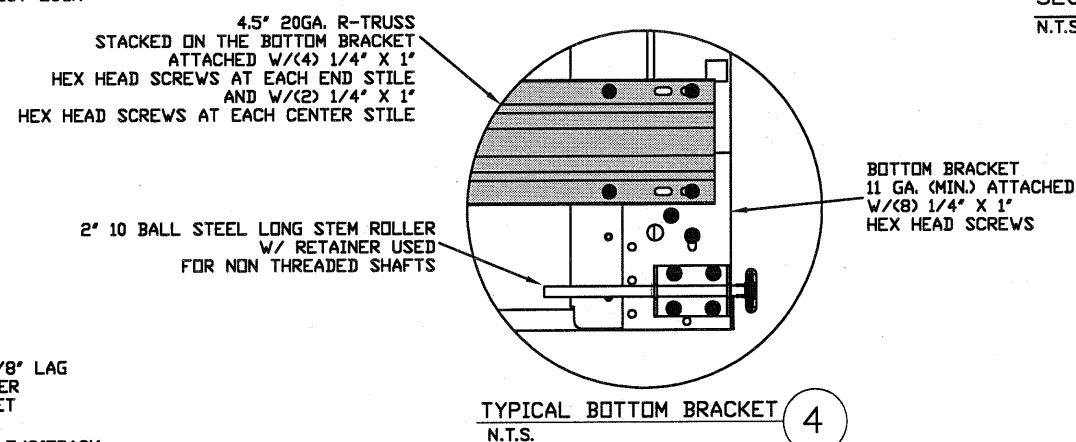
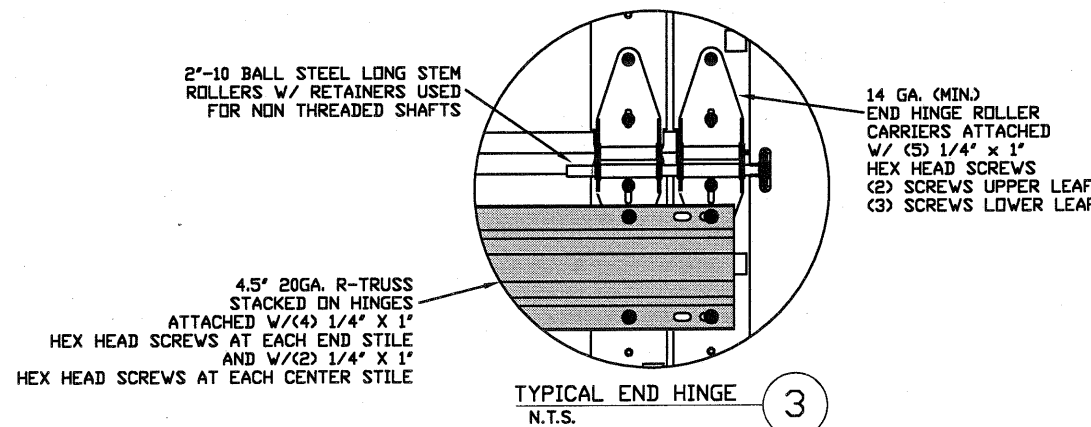
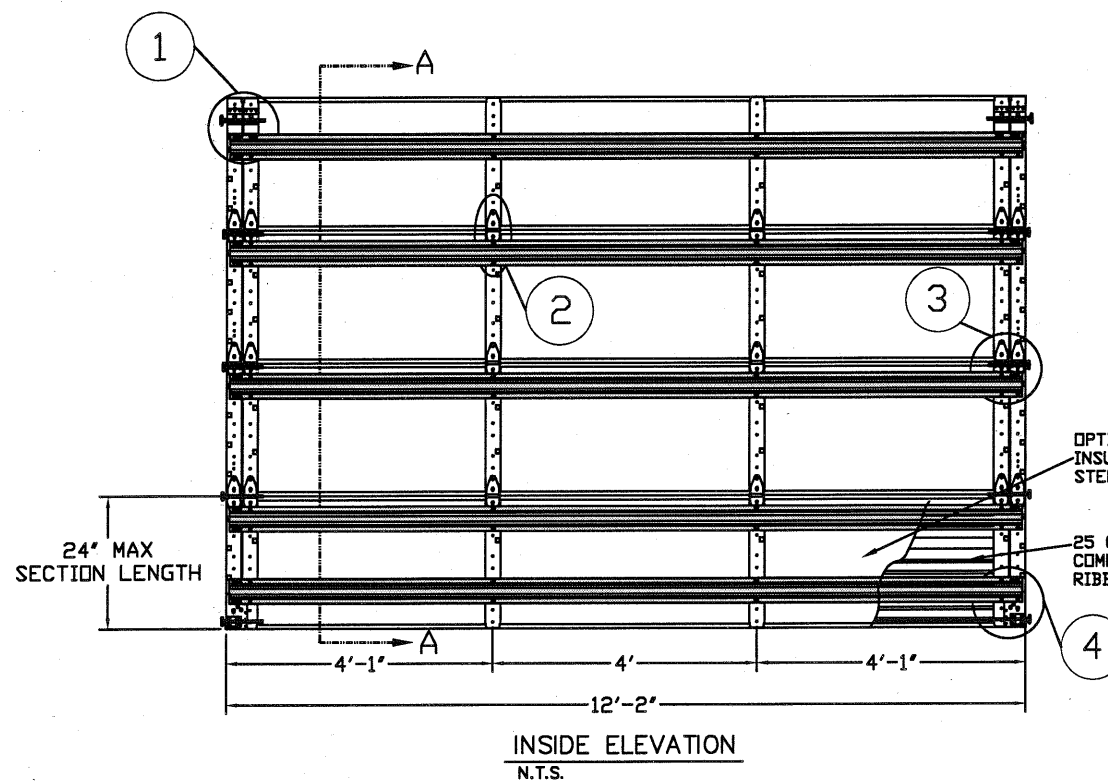
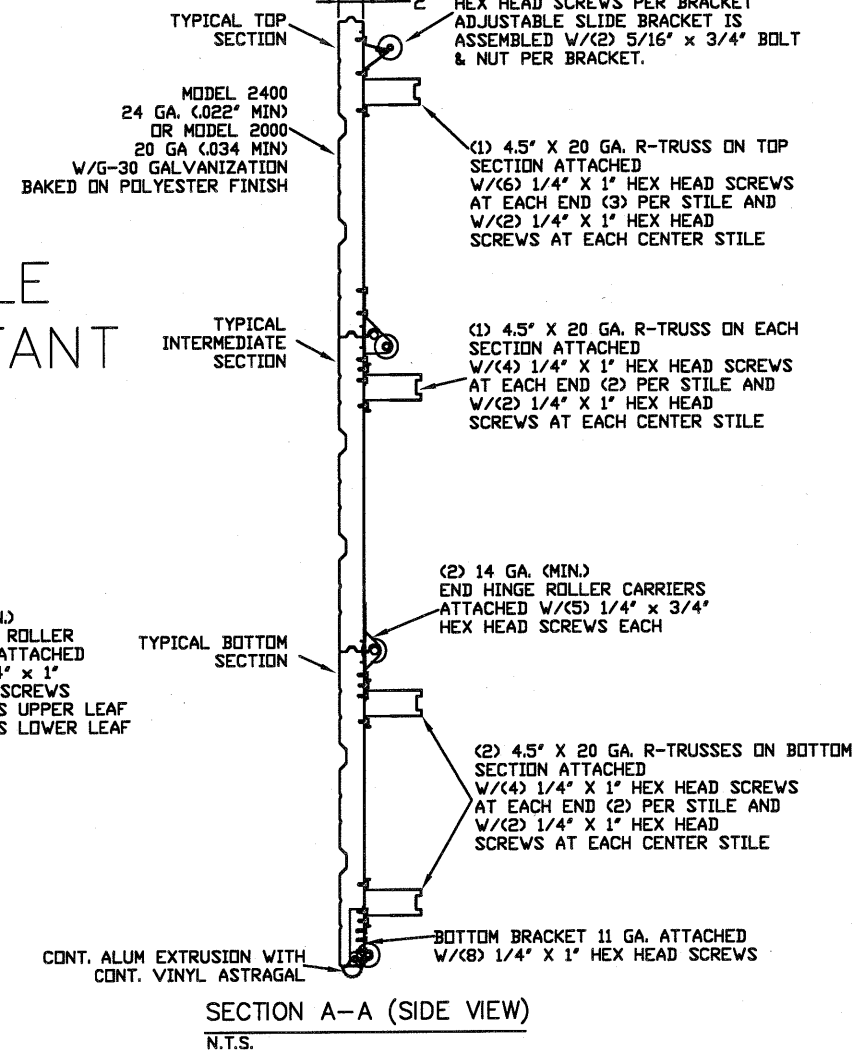




LARGE MISSILE IMPACT RESISTANT



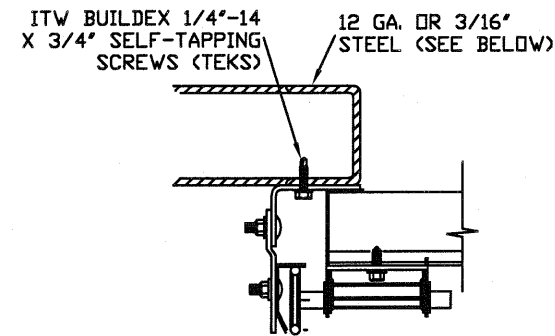
EDGE OF DOOR 1" OVERLAP ON EACH SIDE

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 LESS THAN 10 DEGREES SLOPE):

WIND SPEED (MPH)	218	198	188	180	173
EXPOSURE LEVEL	B	C	C	D	D
MEAN ROOF HEIGHT	30'	15'	25'	15'	25'

REV	DESCRIPTION OF REVISIONS	DATE	BY
A			
MAX SIZE 12'2 x 24' DESIGN LOADS +40.2 PSF -46.1 PSF TEST LOADS +60.3 PSF -69.2 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			
MODEL 2400 AMARR 2402, 2412, 2422 MODEL 2000 AMARR 2002, 2012, 2022			
SIZE	DRAWN BY RLR	DATE 5/31/16	DRAWING NUMBER
B	CHECKED BY RLR	DATE 5/31/16	IBC-2412-169-24-1
ENTREMATIC 165 CARRIAGE COURT WINSTON-SALEM, N.C. 27105			
SHEET 1 OF 3			

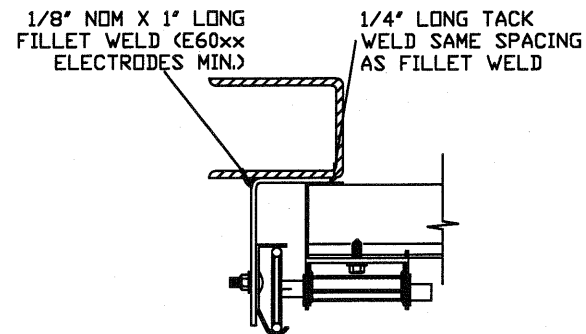
TRACK CONNECTION DIRECTLY TO STRUCTURE OPTIONS



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

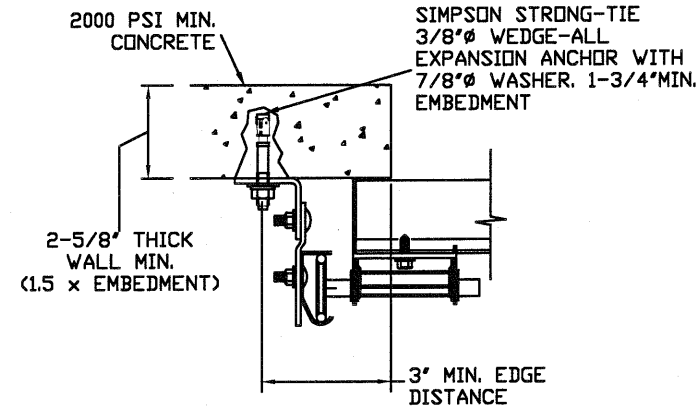
12 GA. STEEL FRAMING
232 LBS./SCREW ALLOWABLE LOAD - 6'
FROM ENDS AND 10" O.C.
REFER TO NOTES: 1, 2 AND 5

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



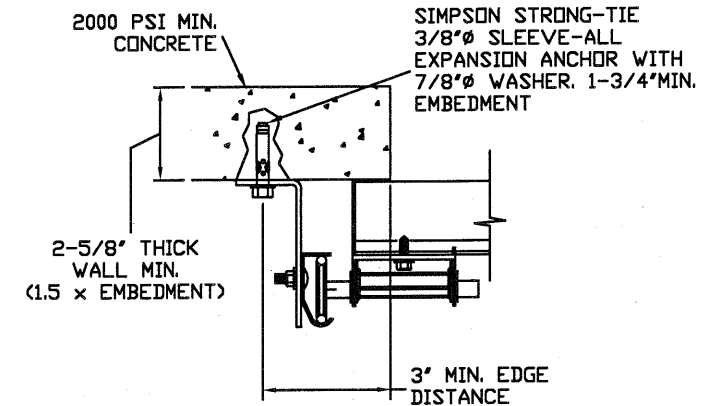
REVERSE ANGLE MOUNT SHOWN
BRACKET, CONTINUOUS AND
TAPERED ANGLE MOUNT AVAILABLE

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



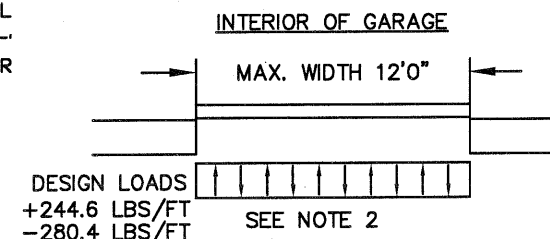
CONTINUOUS ANGLE MOUNT SHOWN
BRACKET, CONTINUOUS AND TAPERED ANGLE
MOUNT AVAILABLE

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

SPECIFICATIONS AND NOTES

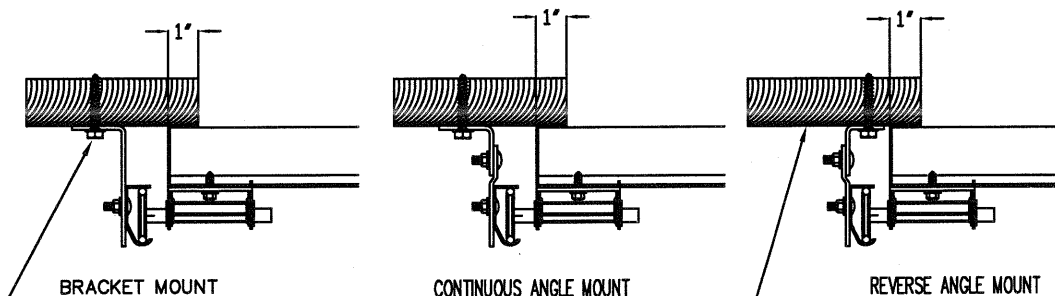
1. ALL THE LOAD FROM THE DOOR IS TRANSFERRED TO THE VERTICAL TRACK, FROM THE TRACK THE LOAD IS TRANSFERRED TO THE VERTICAL JAMBS. THE HORIZONTAL JAMB OR HEADER RECEIVES NO PORTION OF THE LOAD TRANSFERRED FROM THE DOOR.
2. EACH VERTICAL JAMBS RECEIVES MAXIMUM DESIGN LOADS OF: +244.6 LBS/FT. & -280.4 LBS/FT
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) 4.5" 20GA R-TRUSS PER SECTION AND (2) 4.5" 20GA R-TRUSSES ON THE BOTTOM
6. SUPPORTING STRUCTURAL ELEMENTS SHALL BE DESIGNED BY A REGISTERED PROFESSIONAL ENGINEER FOR WIND LOADS INDICATED ON THIS DRAWING IN ADDITION TO OTHER LOADINGS.

- 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. EDGE 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 PAGE 3 FOR TRACK CONFIGURATION DETAIL



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.)

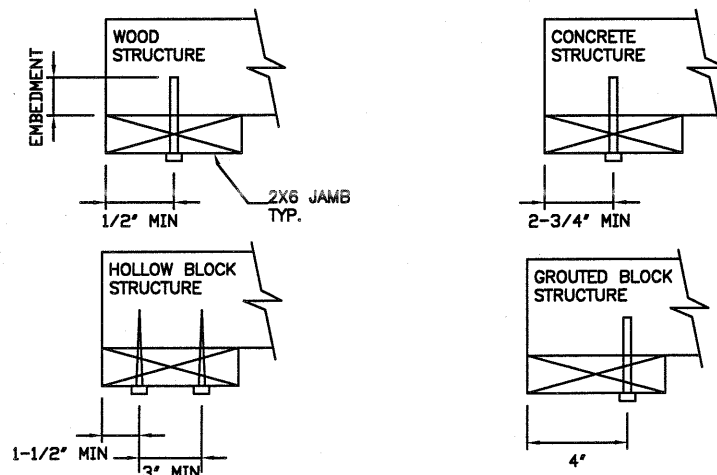
WOOD JAMB ATTACHMENT TO STRUCTURE (OPTIONAL)

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



REV	DESCRIPTION OF REVISIONS	DATE	BY
A			
MAX SIZE 12'2 x 24' DESIGN LOADS +40.2 PSF -46.1 PSF TEST LOADS +60.3 PSF -69.2 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 2400 AMARR 2402, 2412, 2422 MODEL 2000 AMARR 2002, 2012, 2022 SIZE B DRAWN BY RLR DATE 5/31/16 CHECKED BY RLR DATE 5/31/16 ENTREMATIC 165 CARRIAGE COURT WINSTON-SALEM, N.C. 27105			
DRAWING NUMBER IBC-2412-169-24-1			SHEET 2 OF 3

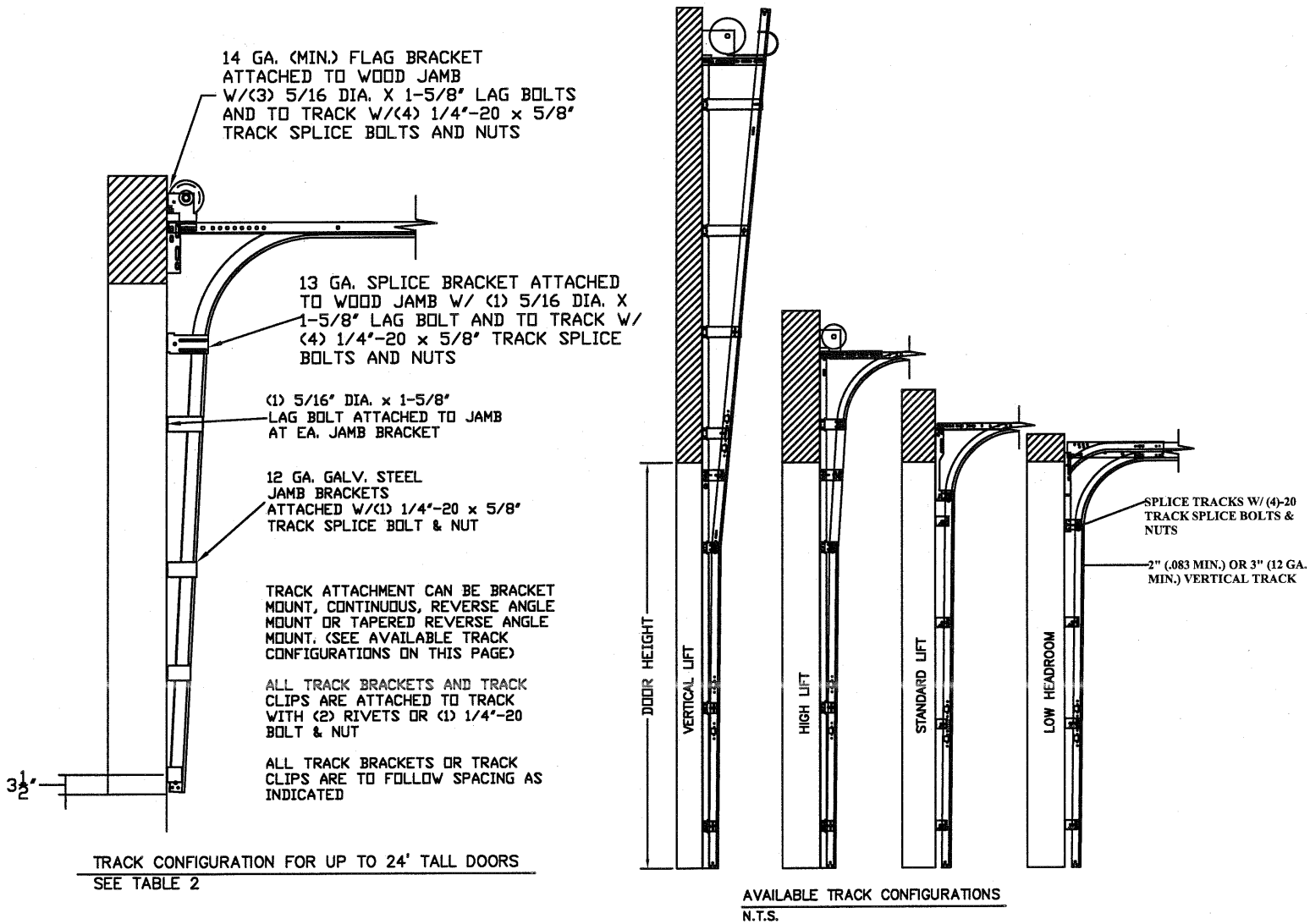
TABLE 1

Section Width (ft)		Center Stile Locations		Max Design Loads Allowed	
		1st (in)	2nd (in)	Positive (PSF)	Negative (PSF)
6'	0"	36"	-	54.1	62.1
6'	2"	37"	-	52.6	60.4
6'	4"	38"	-	51.3	58.8
6'	6"	39"	-	49.9	57.3
6'	8"	40"	-	48.7	55.8
6'	10"	41"	-	47.5	54.5
7'	0"	42"	-	46.4	53.2
7'	2"	43"	-	45.3	51.9
7'	4"	44"	-	44.3	50.8
7'	6"	45"	-	43.3	49.6
7'	8"	46"	-	42.3	48.6
7'	10"	47"	-	41.4	47.5
8'	0"	48"	-	40.6	46.5
8'	2"	49"	-	39.7	45.6
8'	4"	50"	-	38.9	44.7
8'	6"	51"	-	38.2	43.8
8'	8"	52"	-	37.4	42.9
8'	10"	53"	-	36.7	42.1
9'	0"	54"	-	36.1	41.4
9'	2"	37"	73"	53.3	61.1
9'	4"	36"	76"	51.0	58.5
9'	6"	37"	77"	50.3	57.7
9'	8"	38"	78"	49.7	57.0
9'	10"	39"	79"	49.1	56.3
10'	0"	40"	80"	48.4	55.6
10'	2"	41"	81"	47.8	54.8
10'	4"	42"	82"	47.0	54.0
10'	6"	43"	83"	46.3	53.1
10'	8"	44"	84"	45.6	52.3
10'	10"	45"	85"	44.9	51.5
11'	0"	46"	86"	44.2	50.7
11'	2"	47"	87"	43.5	49.9
11'	4"	48"	88"	42.9	49.2
11'	6"	49"	89"	42.3	48.5
11'	8"	50"	90"	41.7	47.8
11'	10"	51"	91"	41.1	47.1
12'	0"	48"	96"	40.4	46.3
12'	2"	49"	97"	40.2	46.1

TABLE 2

DOOR HEIGHT	TRACK ATTACHMENT																							TYPICAL
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	SPLICE
7' 0"	3.5"	10"	22"	34"	46"	58"																		76"
7' 6"	3.5"	10"	22"	34"	46"	58"																		82"
8' 0"	3.5"	10"	22"	34"	46"	58"	70"																	88"
8' 6"	3.5"	10"	22"	34"	46"	58"	70"	82"																94"
9' 0"	3.5"	10"	22"	34"	46"	58"	70"	82"																100"
9' 6"	3.5"	10"	22"	34"	46"	58"	70"	82"	94"															106"
10' 0"	3.5"	10"	22"	34"	46"	58"	70"	82"	94"															112"
11' 0"	3.5"	10"	22"	34"	46"	58"	70"	82"	94"	106"														124"
12' 0"	3.5"	10"	22"	34"	46"	58"	70"	82"	94"	106"	118"													136"
13' 0"	3.5"	10"	22"	34"	46"	58"	70"	82"	94"	106"	118"	130"												148"
14' 0"	3.5"	10"	22"	34"	46"	58"	70"	82"	94"	106"	118"	130"	142"											160"
15' 0"	3.5"	10"	22"	34"	46"	58"	70"	82"	94"	106"	118"	130"	142"	154"										172"
16' 0"	3.5"	10"	22"	34"	46"	58"	70"	82"	94"	106"	118"	130"	142"	154"	166"									184"
17' 0"	3.5"	10"	22"	34"	46"	58"	70"	82"	94"	106"	118"	130"	142"	154"	166"	178"								196"
18' 0"	3.5"	10"	22"	34"	46"	58"	70"	82"	94"	106"	118"	130"	142"	154"	166"	178"	190"							208"
19' 0"	3.5"	10"	22"	34"	46"	58"	70"	82"	94"	106"	118"	130"	142"	154"	166"	178"	190"	202"						220"
20' 0"	3.5"	10"	22"	34"	46"	58"	70"	82"	94"	106"	118"	130"	142"	154"	166"	178"	190"	202"	214"					232"
21' 0"	3.5"	10"	22"	34"	46"	58"	70"	82"	94"	106"	118"	130"	142"	154"	166"	178"	190"	202"	214"	226"				244"
22' 0"	3.5"	10"	22"	34"	46"	58"	70"	82"	94"	106"	118"	130"	142"	154"	166"	178"	190"	202"	214"	226"	238"			256"
23' 0"	3.5"	10"	22"	34"	46"	58"	70"	82"	94"	106"	118"	130"	142"	154"	166"	178"	190"	202"	214"	226"	238"	250"		268"
24' 0"	3.5"	10"	22"	34"	46"	58"	70"	82"	94"	106"	118"	130"	142"	154"	166"	178"	190"	202"	214"	226"	238"	250"	262"	280"

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



REV	DESCRIPTION OF REVISIONS	DATE	BY
A			

MAX SIZE
12'2" x 24'

DESIGN LOADS
+40.2 PSF
-46.1 PSF

TEST LOADS
+60.3 PSF
-69.2 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

MODEL 2400 AMARR 2402, 2412, 2422
MODEL 2000 AMARR 2002, 2012, 2022

SIZE	DRAWN BY	RLR	DATE	5/31/16	DRAWING NUMBER
B	CHECKED BY	RLR	DATE	5/31/16	IBC-2412-169-24-1

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

SHEET 3 OF 3