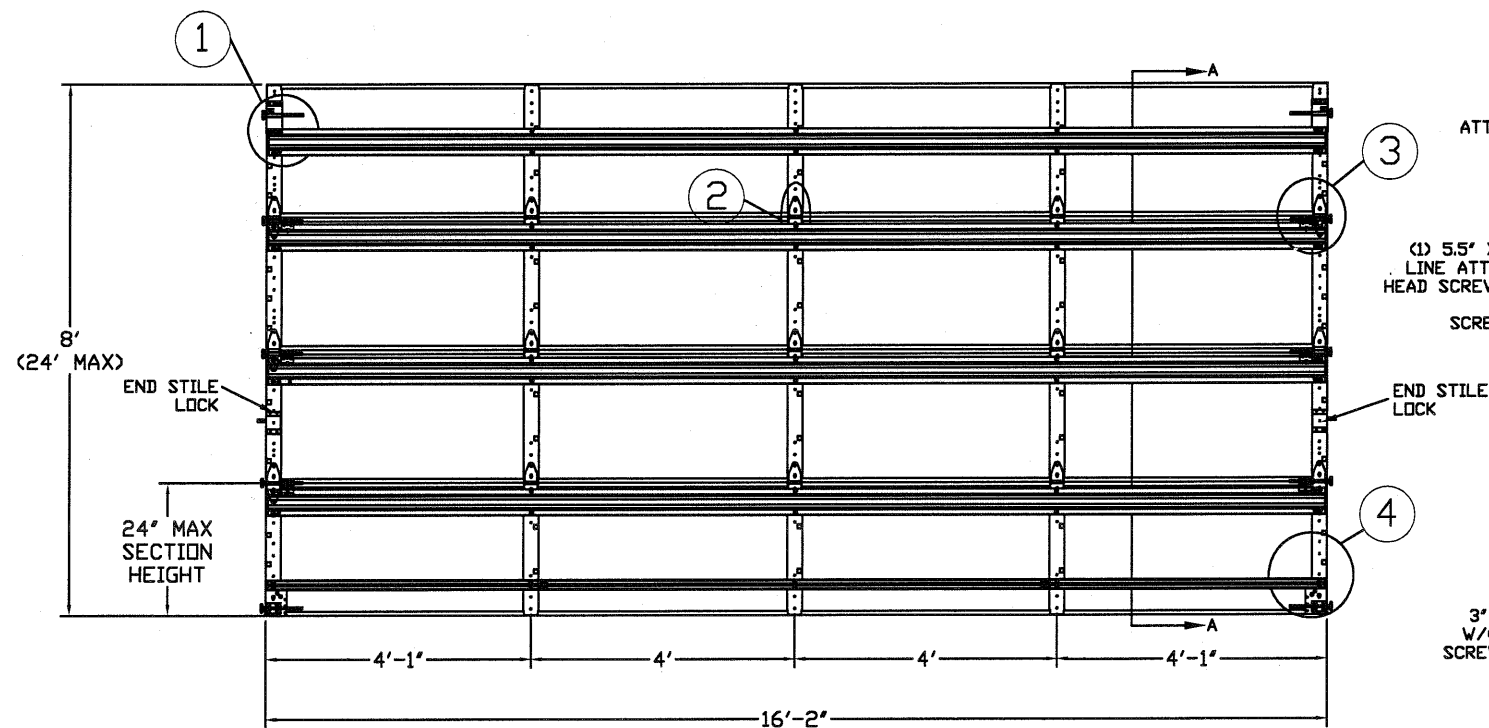
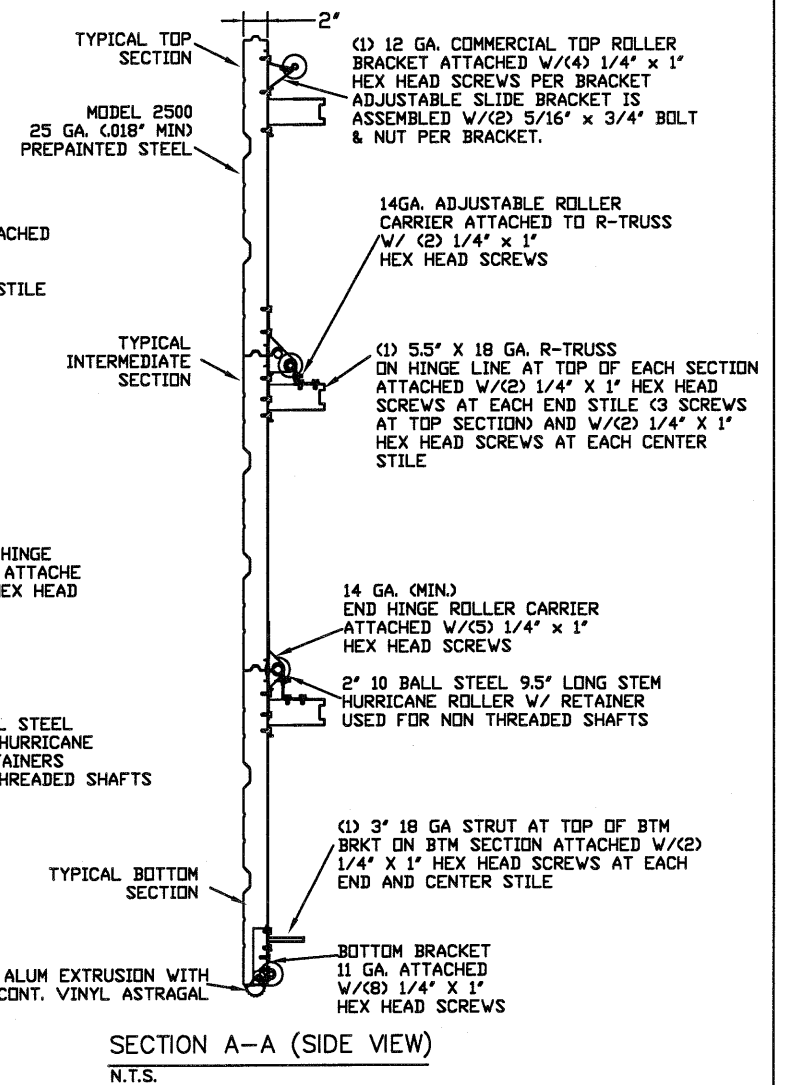
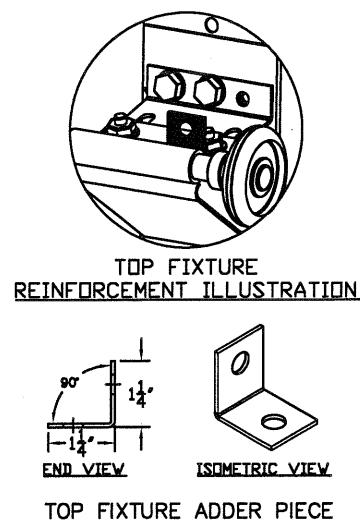
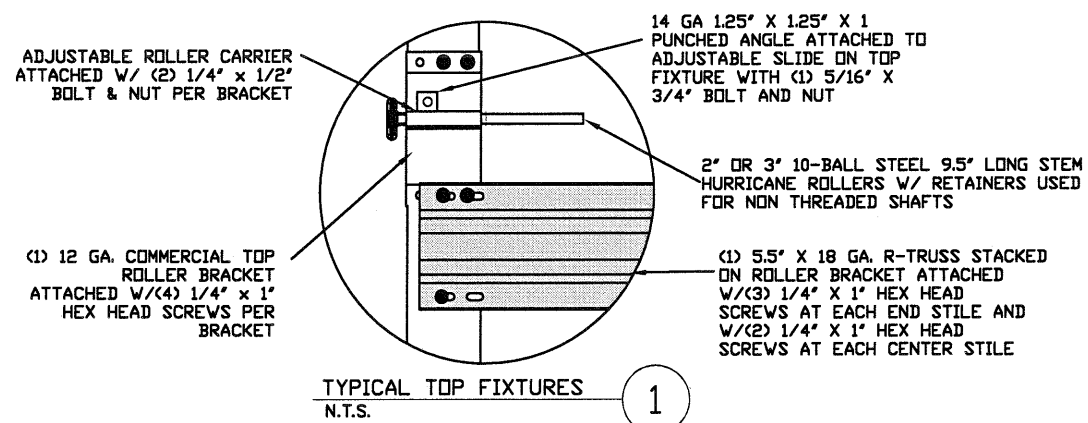
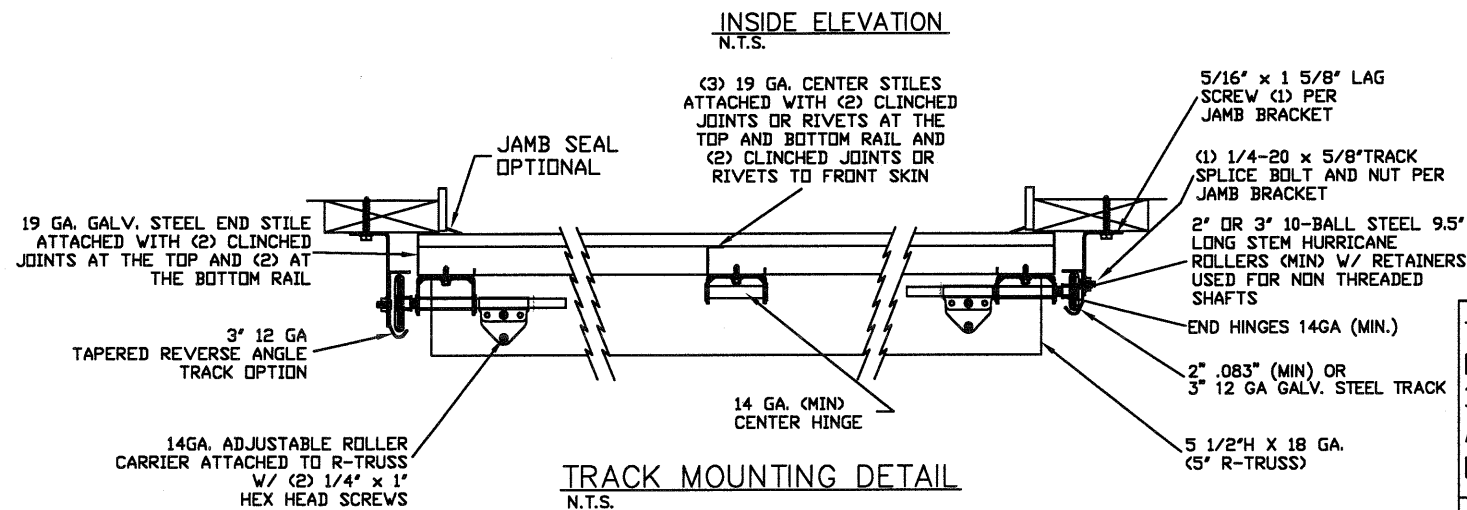
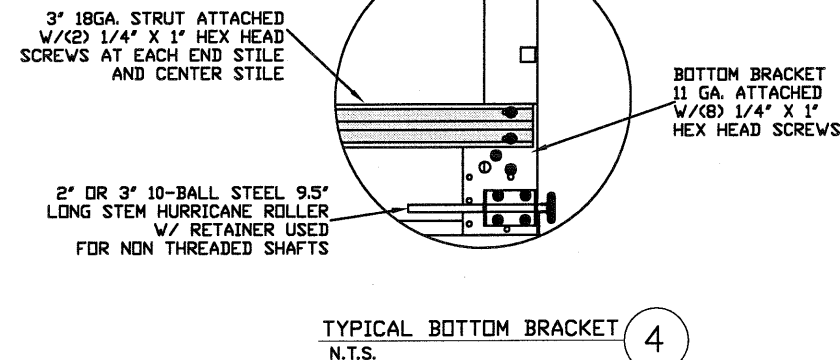




LARGE MISSILE IMPACT RESISTANT



EDGE OF DOOR 1" OVERLAP ON EACH SIDE

THE METHOD OF TESTING WAS IN SUBSTANTIAL CONFORMANCE WITH THE PROCEDURES DESCRIBED IN ASTM E1886, E1996, F588 AND DASTMA 108, 115. THE PRESSURES SHOWN ON THE DRAWINGS WERE CALCULATED USING ASCE 7-16 WITH THE FOLLOWING PARAMETERS (5 FEET OF DOOR WIDTH IN END ZONE, ROOF SLOPE 10° OR LESS):

WIND SPEED (MPH)	195	177	168	161	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
+31.4 PSF
-35.5 PSF

TEST LOADS
+47.1 PSF
-53.3 PSF

LARGE MISSILE
IMPACT
RESISTANCE

Thomas L. Shelmerdine, PE (FL PE #00048579)
Structural Solutions, PA (FL Firm #29412)

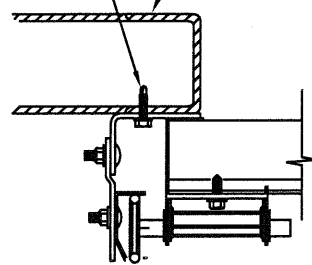
FL

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 2500 AMARR 2502, 2512 (25GA)			
MODEL 2400 AMARR 2402, 2412, 2422 (24GA)			
MODEL 2000 AMARR 2002, 2012, 2022 (20GA)			
SIZE	DRAWN BY RS	DATE 2/10/15	DRAWING NUMBER
B	CHECKED BY RLR	DATE 2/10/15	IBC-2516-150-26-1
ENTREMATIC 165 CARRIAGE COURT WINSTON-SALEM, N.C. 27105			SHEET 1 OF 3

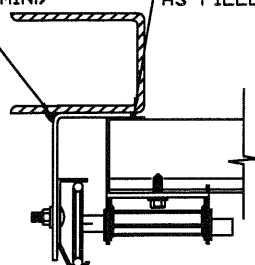
ITW BUILDEX 1/4"-14
X 3/4" SELF-TAPPING
SCREWS (TEKS) 12 GA. OR 3/16"
STEEL (SEE BELOW)



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

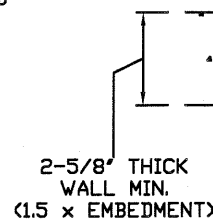
3/16" STEEL FRAMING
569 LBS./SCREW ALLOWABLE LOAD - 6'
FROM ENDS AND 24" O.C.
REFER TO NOTES: 1, 2 AND 5

1/8" NOM X 1' LONG
FILLET WELD (E60xx
ELECTRODES MIN.)



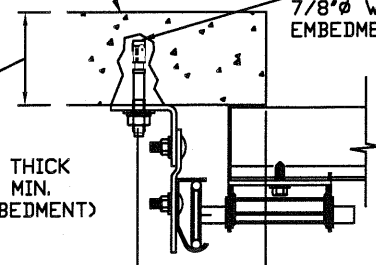
STEEL FRAMING 12GA OR BETTER
1590 LBS./IN. ALLOWABLE LOAD -
6" FROM ENDS AND 24" O.C.
REFER TO NOTES: 1, 2, 5, 6, 7, 8
AND 9

1/4" LONG TACK
WELD SAME SPACING
AS FILLET WELD



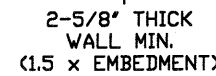
2000 PSI CONCRETE OR GREATER
351 LBS./EXPANSION ANCHOR ALLOWABLE LOAD -
6" FROM ENDS AND 12" O.C.
REFER TO NOTES: 1, 2, 3, 4 AND 5

2000 PSI MIN.
CONCRETE

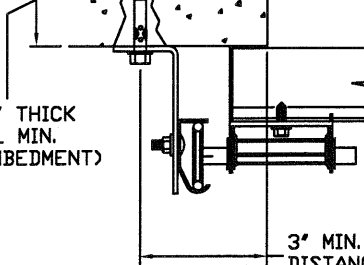


SIMPSON STRONG-TIE
3/8"Ø WEDGE-ALL
EXPANSION ANCHOR WITH
7/8"Ø WASHER. 1-3/4"MIN.
EMBEDMENT

2000 PSI MIN.
CONCRETE



SIMPSON STRONG-TIE
3/8" SLEEVE-ALL
EXPANSION ANCHOR WITH
7/8" WASHER, 1-3/4" MIN.
EMBEDMENT



2000 PSI CONCRETE OR GREATER
336 LBS./EXPANSION ANCHOR ALLOWABLE
LOAD - 6" FROM ENDS AND 12" O.C.
REFER TO NOTES: 1, 2, 3, 4 AND 5

WOOD JAMB ATTACHMENT TO STRUCTURE (OPTIONAL)

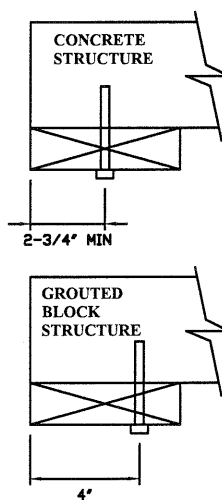
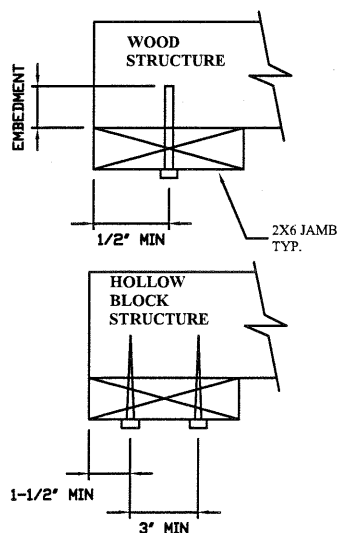
2 X 6 VERTICAL JAMB ATTACHMENT TO WOOD FRAME STRUCTURE
5/16" X 3" LAG SCREWS STARTING 6" FROM ENDS THEN 18" O.C. (1 1/2" EMBEDMENT)

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)

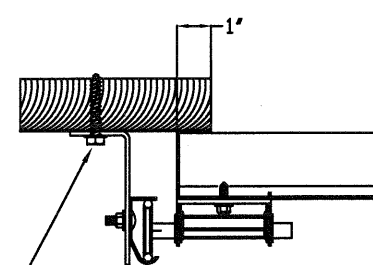
2 X 6 VERTICAL JAMB ATTACHMENT TO GROUTED C-90 BLOCK (2000 PSI GROUT)
HILTI SLEEVE ANCHOR 3/8" X 2-3/4" STARTING 6" FROM ENDS THEN 20" O.C. (1 1/4" EMBEDMENT)
(OR, USE FASTENERS FOR HOLLOW C-90 BLOCK)

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

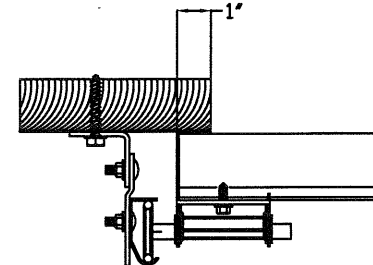


TRACK CONNECTION TO WOOD JAMB OPTIONS

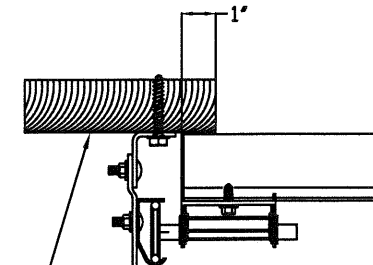
FOR LAG SCREWS & BRACKET SPACING SEE PAGE 3 FOR TRACK CONFIGURATION DETAIL



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



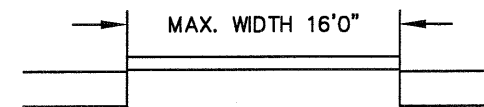
CONTINUOUS ANGLE MOUNT



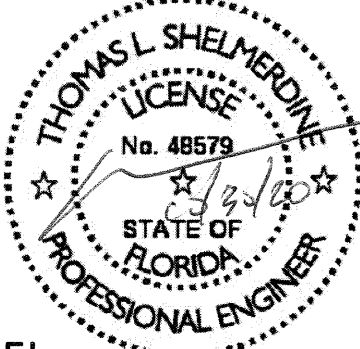
REVERSE ANGLE MOUNT

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.

INTERIOR OF GARAGE



DESIGN LOADS
+253.8 LBS/FT
-287.0 LBS/FT

REV	DESCRIPTION OF REVISIONS	DATE	BY
MAX SIZE 16'2" x 24' DESIGN LOADS +31.4 PSF -35.5 PSF TEST LOADS +47.1 PSF -53.3 PSF LARGE MISSILE IMPACT RESISTANCE	Thomas L. Shelmerdine, PE (FL PE #00048579) Structural Solutions, PA (FL Firm #29412)  FL dba Structural Solutions of North Carolina, Inc. 5921-G W. Friendly Ave., Greensboro, NC 27410		
			
MODEL 2500 AMARR 2502, 2512 (25GA) MODEL 2400 AMARR 2402, 2412, 2422 (24GA) MODEL 2000 AMARR 2002, 2012, 2022 (20GA)			
SIZE B	DRAWN BY RS	DATE 2/10/15	DRAWING NUMBER IBC-2516-150-26-1
	CHECKED BY RLR	DATE 2/10/15	
ENTREMATIC 165 CARRIAGE COURT WINSTON-SALEM, NC 27105			SHEET 2 OF 3

Section Width (ft)		Center Stile Locations (Measured from Left)			Max Design Loads Allowed	
		1st (in)	2nd (in)	3rd (in)	Positive (PSF)	Negative (PSF)
9'	4"	36"	76"	-	39.8	45.0
9'	6"	37"	77"	-	39.3	44.4
9'	8"	38"	78"	-	38.8	43.9
9'	10"	39"	79"	-	38.3	43.3
10'	0"	40"	80"	-	37.8	42.8
10'	2"	41"	81"	-	37.4	42.2
10'	4"	42"	82"	-	36.9	41.7
10'	6"	43"	83"	-	36.5	41.2
10'	8"	44"	84"	-	36.0	40.7
10'	10"	45"	85"	-	35.6	40.3
11'	0"	46"	86"	-	35.2	39.8
11'	2"	47"	87"	-	34.8	39.3
11'	4"	48"	88"	-	34.4	38.9
11'	6"	49"	89"	-	34.0	38.4
11'	8"	50"	90"	-	33.6	38.0
11'	10"	51"	91"	-	33.3	37.6
12'	0"	48"	96"	-	31.5	35.6
13'	0"	36"	78"	120"	36.0	40.7
13'	2"	37"	79"	121"	36.0	40.7
13'	4"	38"	80"	122"	36.0	40.7
13'	6"	39"	81"	123"	36.0	40.7
13'	8"	40"	82"	124"	36.0	40.7
13'	10"	41"	83"	125"	36.0	40.7
14'	0"	42"	84"	126"	36.0	40.7
14'	2"	43"	85"	127"	35.6	40.3
14'	4"	44"	86"	128"	35.2	39.8
14'	6"	45"	87"	129"	34.8	39.3
14'	8"	46"	88"	130"	34.4	38.9
14'	10"	47"	89"	131"	34.0	38.4
15'	0"	48"	90"	132"	33.6	38.0
15'	2"	49"	91"	133"	33.3	37.6
15'	4"	50"	92"	134"	32.9	37.2
15'	6"	51"	93"	135"	32.5	36.8
15'	8"	52"	94"	136"	32.2	36.4
15'	10"	53"	95"	137"	31.9	36.0
16'	0"	48"	96"	144"	31.5	35.6
16'	2"	49"	97"	145"	31.4	35.5

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

13 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)

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

DOOR HEIGHT

VERTICAL LIFT

HIGH LIFT

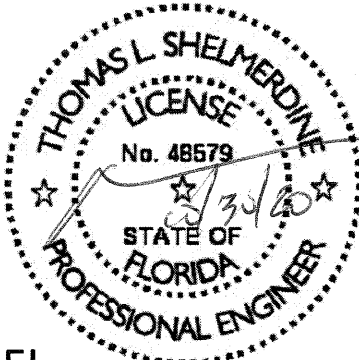
STANDARD LIFT

LOW HEADROOM

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

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

DOOR HEIGHT		TRACK ATTACHMENT												TYPICAL SPLICE
		A	B	C	D	E	F	G	H	I	J	K	I	
7'	0"	3.5"	22"	46"	70"									76"
7'	6"	3.5"	22"	46"	70"									82"
8'	0"	3.5"	22"	46"	70"									88"
8'	6"	3.5"	22"	46"	70"									94"
9'	0"	3.5"	22"	46"	70"	94"								100"
9'	6"	3.5"	22"	46"	70"	94"								106"
10'	0"	3.5"	22"	46"	70"	94"								112"
11'	0"	3.5"	22"	46"	70"	94"	118"							124"
12'	0"	3.5"	22"	46"	70"	94"	118"							136"
13'	0"	3.5"	22"	46"	70"	94"	118"	142"						148"
14'	0"	3.5"	22"	46"	70"	94"	118"	142"						160"
15'	0"	3.5"	22"	46"	70"	94"	118"	142"	166"					172"
16'	0"	3.5"	22"	46"	70"	94"	118"	142"	166"					184"
17'	0"	3.5"	22"	46"	70"	94"	118"	142"	166"	190"				196"
18'	0"	3.5"	22"	46"	70"	94"	118"	142"	166"	190"				208"
19'	0"	3.5"	22"	46"	70"	94"	118"	142"	166"	190"	214"			220"
20'	0"	3.5"	22"	46"	70"	94"	118"	142"	166"	190"	214"			232"
21'	0"	3.5"	22"	46"	70"	94"	118"	142"	166"	190"	214"	238"		244"
22'	0"	3.5"	22"	46"	70"	94"	118"	142"	166"	190"	214"	238"		256"
23'	0"	3.5"	22"	46"	70"	94"	118"	142"	166"	190"	214"	238"	262"	268"
24'	0"	3.5"	22"	46"	70"	94"	118"	142"	166"	190"	214"	238"	262"	280"

REV	DESCRIPTION OF REVISIONS	DATE	BY
MAX SIZE 16'2 x 24' DESIGN LOADS +31.4 PSF -35.5 PSF TEST LOADS +47.1 PSF -53.3 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	
			
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ENTREMATIC 165 CARRIAGE COURT WINSTON-SALEM, N.C. 27105			SHEET 3 OF 3