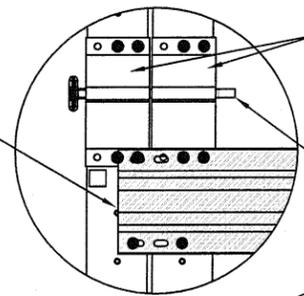


(1) 4.5" X 20 GA. R-TRUSS ATTACHED W/(6) 1/4" X 3/4" HEX HEAD SCREWS AT EACH END (3) PER STILE AND W/(2) 1/4" X 3/4" HEX HEAD SCREWS AT EACH CENTER STILE

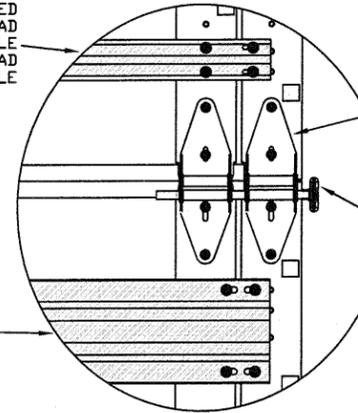


TYPICAL TOP FIXTURES  
N.T.S. 1

(2) 13 GA. (MIN.) GALV. COMMERCIAL TOP ROLLER BRACKET ATTACHED W/(4) 1/4" X 3/4" HEX HEAD SCREWS PER BRACKET

2" OR 3" 10-BALL STEEL 9.5" LONG STEM HURRICANE ROLLERS W/ RETAINERS USED FOR NON THREADED SHAFTS

(1) 3" X 20 GA. STRUT ATTACHED W/(4) 1/4" X 3/4" HEX HEAD SCREWS AT EACH END (2) PER STILE AND W/(2) 1/4" X 3/4" HEX HEAD SCREWS AT EACH CENTER STILE



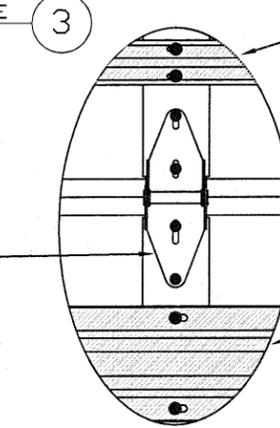
TYPICAL END HINGE  
N.T.S. 3

14 GA. (MIN.) END HINGE ROLLER CARRIERS ATTACHED W/(4) 1/4" X 3/4" HEX HEAD SCREWS EACH

2" OR 3" 10-BALL STEEL 9.5" LONG STEM HURRICANE ROLLERS W/ RETAINERS USED FOR NON THREADED SHAFTS

(1) 4.5" X 20 GA. R-TRUSS ATTACHED W/(4) 1/4" X 3/4" HEX HEAD SCREWS AT EACH END (2) PER STILE AND W/(2) 1/4" X 3/4" HEX HEAD SCREWS AT EACH CENTER STILE

14GA. (MIN.) CENTER HINGE ATTACHED W/(4) 1/4" X 3/4" HEX HEAD SCREWS

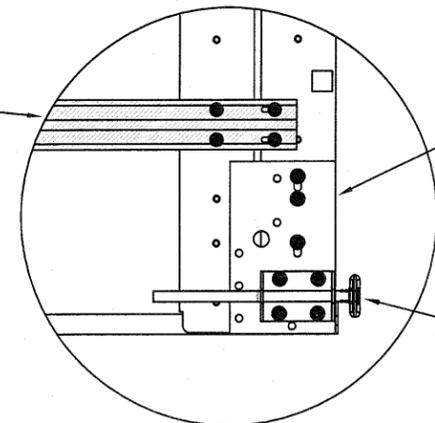


TYPICAL CENTER HINGE  
N.T.S. 2

3" 20GA STRUT ATTACHED W/(2) 1/4" X 3/4" HEX HEAD SCREWS AT EACH CENTER STILE

4.5" 20GA R-TRUSS ATTACHED W/(2) 1/4" X 3/4" HEX HEAD SCREWS AT EACH CENTER STILE

(1) 3" X 20 GA. STRUT ATTACHED W/(4) 1/4" X 3/4" HEX HEAD SCREWS AT EACH END (2) PER STILE AND W/(2) 1/4" X 3/4" HEX HEAD SCREWS AT EACH CENTER STILE



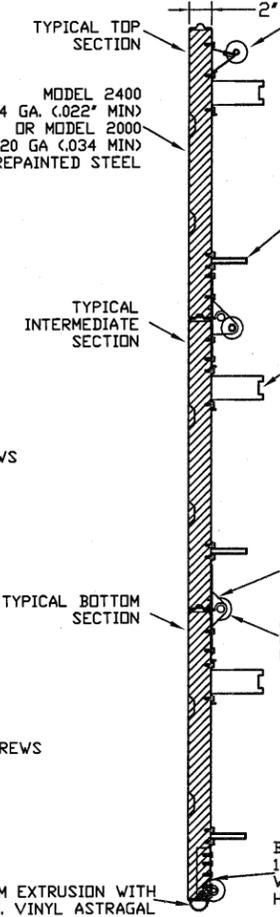
TYPICAL BOTTOM BRACKET  
N.T.S. 4

BOTTOM BRACKET 13 GA. (MIN.) ATTACHED W/(7) 1/4" X 3/4" HEX HEAD SCREWS

2" OR 3" 10-BALL STEEL 9.5" LONG STEM HURRICANE ROLLER W/ RETAINER USED FOR NON THREADED SHAFTS

(2) 13 GA. (MIN.) GALV. COMMERCIAL TOP ROLLER BRACKET ATTACHED W/(4) 1/4" X 3/4" HEX HEAD SCREWS PER BRACKET ADJUSTABLE SLIDE BRACKET IS ASSEMBLED W/(2) 5/16" X 3/4" BOLT & NUT PER BRACKET.

MODEL 2400 24 GA. (.022" MIN) OR MODEL 2000 20 GA. (.034" MIN) PREPAINTED STEEL



TYPICAL TOP SECTION

TYPICAL INTERMEDIATE SECTION

TYPICAL BOTTOM SECTION

(1) 3" X 20 GA. STRUT ATTACHED W/(4) 1/4" X 3/4" HEX HEAD SCREWS AT EACH END (2) PER STILE AND W/(2) 1/4" X 3/4" HEX HEAD SCREWS AT EACH CENTER STILE

(1) 4.5" X 20 GA. R-TRUSS ATTACHED W/(4) 1/4" X 3/4" HEX HEAD SCREWS AT EACH END (2) PER STILE AND W/(2) 1/4" X 3/4" HEX HEAD SCREWS AT EACH CENTER STILE

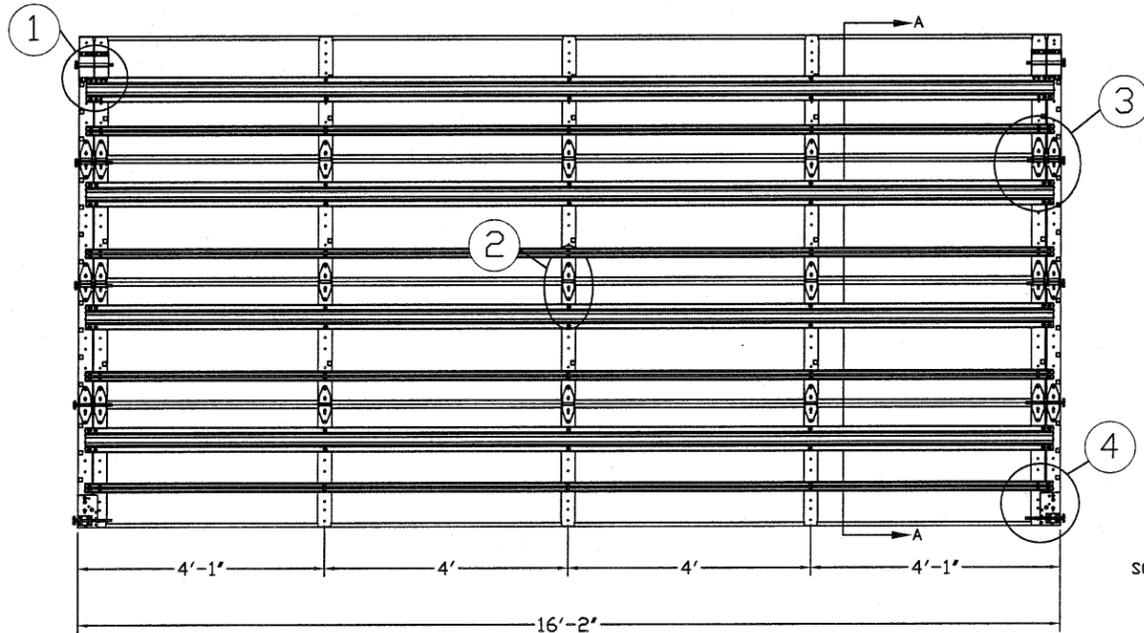
(2) 14 GA. (MIN.) END HINGE ROLLER CARRIERS ATTACHED W/(4) 1/4" X 3/4" HEX HEAD SCREWS EACH

2" 10 BALL STEEL 9.5" LONG STEM HURRICANE ROLLER W/ RETAINER USED FOR NON THREADED SHAFTS

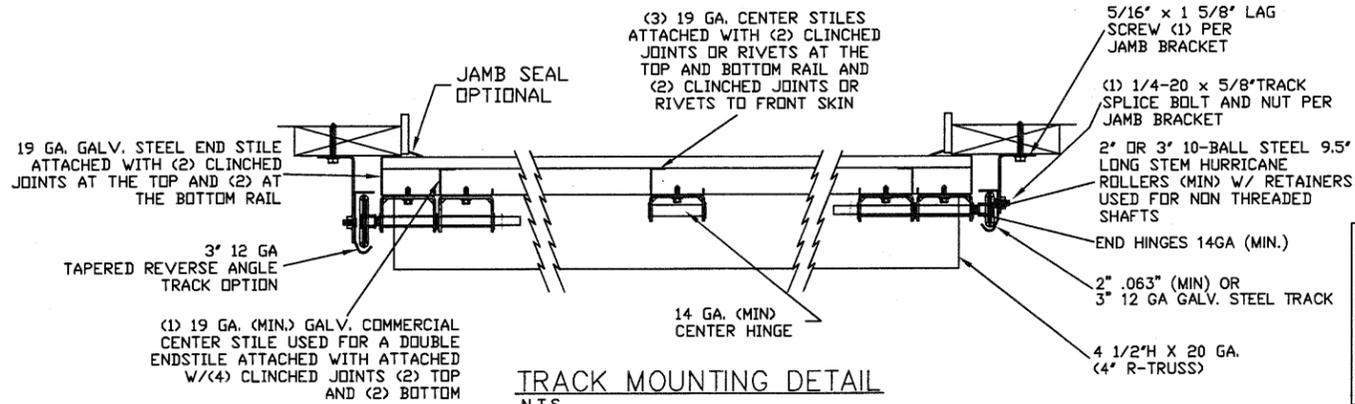
BOTTOM BRACKET 13 GA. (MIN.) ATTACHED W/(7) 1/4" X 3/4" HEX HEAD SCREWS

CONT. ALUM EXTRUSION WITH CONT. VINYL ASTRAGAL

SECTION A-A (SIDE VIEW)  
N.T.S.



INSIDE ELEVATION  
N.T.S.



TRACK MOUNTING DETAIL  
N.T.S.

EDGE OF DOOR 1" OVERLAP ON EACH SIDE

THE METHOD OF TESTING WAS IN SUBSTANTIAL CONFORMANCE WITH THE PROCEDURES DESCRIBED IN DASMA 108. THE PRESSURES SHOWN ON THE DRAWINGS WERE CALCULATED USING ASCE 7-98/02/05 WITH THE FOLLOWING PARAMETERS (5 FEET OF DOOR WIDTH IN END ZONE, ROOF SLOPE 10° OR LESS):

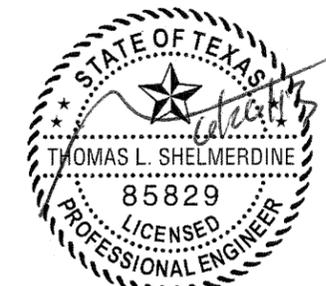
WIND SPEED (MPH)	140	127	121	115	111
EXPOSURE LEVEL	B	C	C	D	D
MEAN ROOF HEIGHT	30'	15'	25'	15'	25'

REV	DESCRIPTION OF REVISIONS	DATE	BY

MAX SIZES  
WIDTH 16'-2"  
HEIGHT 24'

DESIGN LOADS  
+27.0 PSF  
-30.6 PSF  
TEST LOADS  
+40.5 PSF  
-45.9 PSF

Thomas L. Shelmerdine, PE (TX PE #85829)  
Structural Solutions, PA (TX Firm #F-004063)



TX

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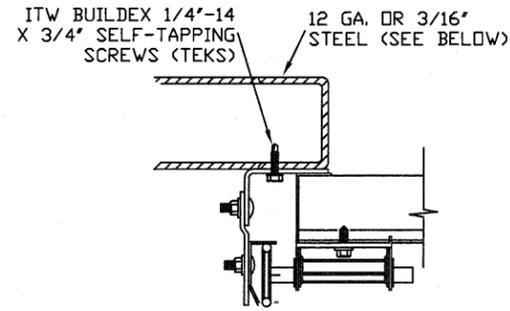
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MODEL 2400 (24 GA)  
MODEL 2000 (20 GA)

SIZE	DRAWN BY	RLR	DATE	8/7/12	DRAWING NUMBER
B	CHECKED BY		DATE		IBC-2416-140-24

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

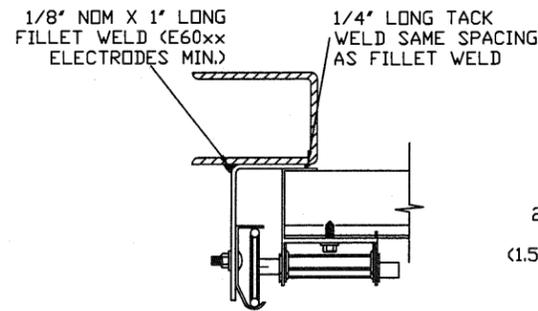
## TRACK CONNECTION DIRECTLY TO STRUCTURE OPTIONS



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

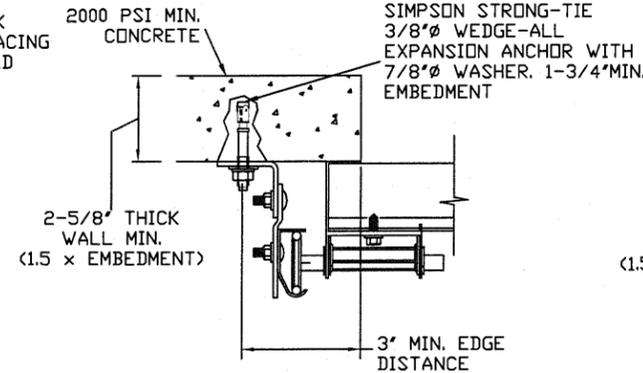
**12 GA. STEEL FRAMING**  
232 LBS./SCREW ALLOWABLE LOAD - 6'  
FROM ENDS AND 12' O.C.  
REFER TO NOTES: 1, 2 AND 5

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



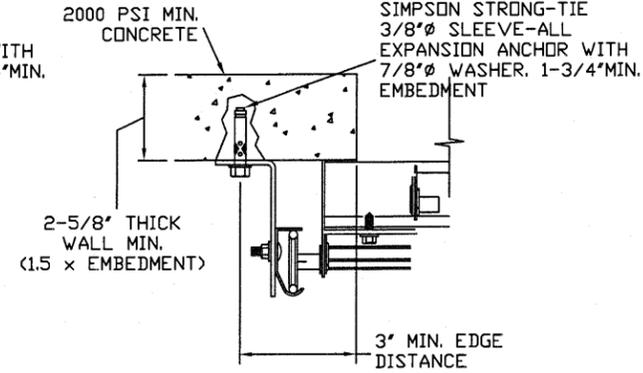
REVERSE ANGLE MOUNT SHOWN  
BRACKET, CONTINUOUS AND  
TAPERED ANGLE MOUNT AVAILABLE

**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 18' O.C.  
REFER TO NOTES: 1, 2, 3, 4 AND 5

### NOTES:

- ANCHORS TO BE EVENLY SPACED BETWEEN THE HEADER AND FLOOR.
- 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.
- MIN. EDGE DISTANCE OF 3' REQUIRED.
- USE WASHERS PROVIDED BY THE ANCHOR MANUFACTURER.
- SUPPORTING STRUCTURAL ELEMENTS SHALL BE DESIGNED BY A REGISTERED PROFESSIONAL ENGINEER FOR WIND LOADS IN ADDITION TO OTHER LOADS.
- MOST GARAGE DOOR TRACK IS GALVANIZED STEEL. USE ALL NECESSARY PRECAUTIONS WHEN WELDING GALVANIZED STEEL.
- ALL WELDS SHOULD BE PERFORMED BY A CERTIFIED WELDER OR INSPECTED BY A CERTIFIED WELDING INSPECTOR TO VERIFY THE INTEGRITY OF THE WELD.
- FILLET WELDS TO HAVE A STRAIGHT OR CONVEX FACE SURFACE.
- TACK WELD TOE OF ANGLE AT SAME SPACING TO PREVENT ROTATION OF TRACK ANGLE.

### SPECIFICATIONS AND NOTES

- 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.
- EACH VERTICAL JAMBS RECEIVES MAXIMUM DESIGN LOADS OF: +218.3 LBS/FT AND -247.4 LBS/FT
- DOOR AND HARDWARE WILL BE DESIGNED, MANUFACTURED AND INSTALLED WITH STANDARDS AS SET FORTH BY DASMA.
- DOOR SECTIONS SHALL BE 24 GA. (.022) MIN. EXTERIOR SKIN ROLLED FORMED, GALVANIZATION W/ BAKED ON POLYESTER FINISH
- DOORS UP TO 24' HIGH USE (1) 4 1/2" R-TRUSS AND (1) 3" STRUT PER SECTION
- SUPPORTING STRUCTURAL ELEMENTS SHALL BE DESIGNED BY A REGISTERED PROFESSIONAL ENGINEER FOR WIND LOADS INDICATED ON THIS DRAWING IN ADDITION TO OTHER LOADINGS.

## WOOD JAMB ATTACHMENT TO STRUCTURE (OPTIONAL)

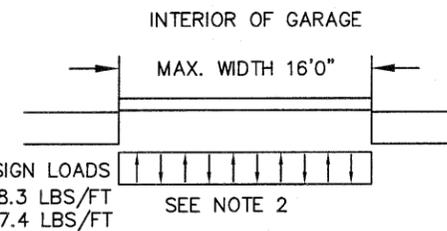
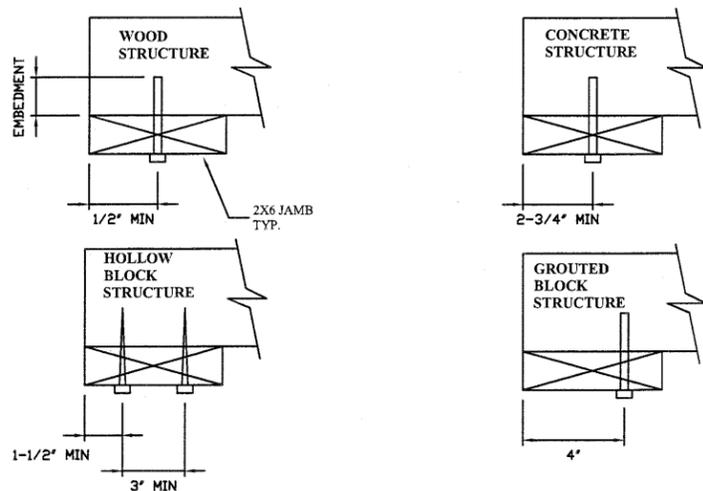
**2 X 6 VERTICAL JAMB ATTACHMENT TO WOOD FRAME STRUCTURE**  
5/16" X 3" LAG SCREWS STARTING 6" FROM ENDS THEN 22" O.C. (1 1/2" EMBEDMENT)

**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 20" 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 16" 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 16" O.C. (1 1/4" EMBEDMENT)

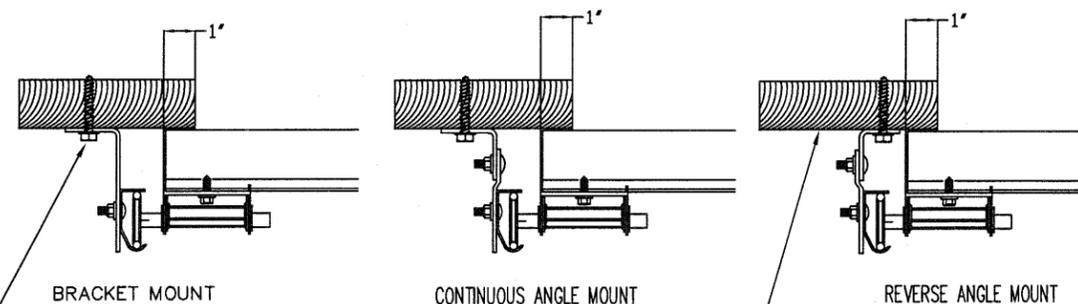
**2 X 6 VERTICAL JAMB ATTACHMENT TO GROUTED C-90 BLOCK (2000 PSI GROUT)**  
HILTI SLEEVE ANCHOR 3/8" X 2-3/4" STARTING 6" FROM ENDS THEN 22" O.C. (1 1/4" EMBEDMENT)  
(OR, USE FASTENERS FOR HOLLOW C-90 BLOCK)

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



## 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  
(NO.2) OR BETTER (TYP.)

REV	DESCRIPTION OF REVISIONS	DATE	BY

MAX SIZES  
WIDTH 16'-2  
HEIGHT 24'

DESIGN LOADS  
+27.0 PSF  
-30.6 PSF

TEST LOADS  
+40.5 PSF  
-45.9 PSF

Thomas L. Shelmerdine, PE (TX PE #85829)  
Structural Solutions, PA (TX Firm #04063)

TX

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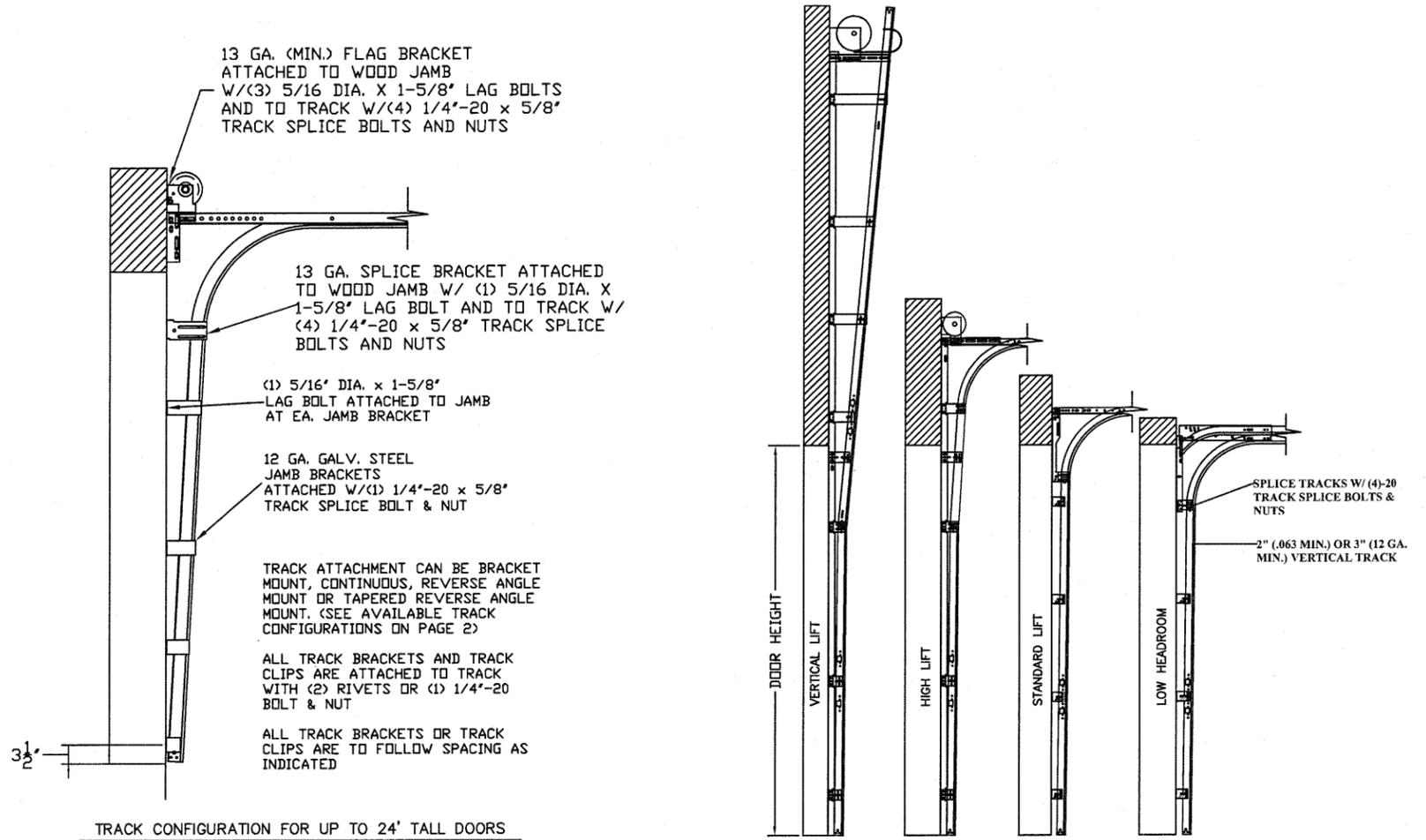
**MODEL 2400 (24 GA)  
MODEL 2000 (20 GA)**

SIZE	DRAWN BY	RLR	DATE	8/7/12	DRAWING NUMBER
B	CHECKED BY		DATE		IBC-2416-140-24
					SHEET 2 OF 3

TABLE 1

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"	-	34.2	38.8
9' 6"	37"	77"	-	33.8	38.3
9' 8"	38"	78"	-	33.4	37.8
9' 10"	39"	79"	-	32.9	37.3
10' 0"	40"	80"	-	32.5	36.9
10' 2"	41"	81"	-	32.1	36.4
10' 4"	42"	82"	-	31.7	36.0
10' 6"	43"	83"	-	31.3	35.5
10' 8"	44"	84"	-	31.0	35.1
10' 10"	45"	85"	-	30.6	34.7
11' 0"	46"	86"	-	30.3	34.3
11' 2"	47"	87"	-	29.9	33.9
11' 4"	48"	88"	-	29.6	33.5
11' 6"	49"	89"	-	29.2	33.1
11' 8"	50"	90"	-	28.9	32.8
11' 10"	51"	91"	-	28.6	32.4
12' 0"	48"	96"	-	27.1	30.7
13' 0"	36"	78"	120"	31.0	35.1
13' 2"	37"	79"	121"	31.0	35.1
13' 4"	38"	80"	122"	31.0	35.1
13' 6"	39"	81"	123"	31.0	35.1
13' 8"	40"	82"	124"	31.0	35.1
13' 10"	41"	83"	125"	31.0	35.1
14' 0"	42"	84"	126"	31.0	35.1
14' 2"	43"	85"	127"	30.6	34.7
14' 4"	44"	86"	128"	30.3	34.3
14' 6"	45"	87"	129"	29.9	33.9
14' 8"	46"	88"	130"	29.6	33.5
14' 10"	47"	89"	131"	29.2	33.1
15' 0"	48"	90"	132"	28.9	32.8
15' 2"	49"	91"	133"	28.6	32.4
15' 4"	50"	92"	134"	28.3	32.1
15' 6"	51"	93"	135"	28.0	31.7
15' 8"	52"	94"	136"	27.7	31.4
15' 10"	53"	95"	137"	27.4	31.0
16' 0"	48"	96"	144"	27.1	30.7
16' 2"	49"	97"	145"	27.0	30.6

\*FOR WIDTHS 12'-2" TO 12'-10" CONTACT ENGINEERING FOR STILE PLACEMENT



TRACK CONFIGURATION FOR UP TO 24' TALL DOORS SEE TABLE 2

AVAILABLE TRACK CONFIGURATIONS N.T.S.

TABLE 2

DOOR HEIGHT	TRACK ATTACHMENT												TYPICAL SPLICE	
	A	B	C	D	E	F	G	H	I	J	K	L		
7' 0"	3.5"	22"	44"											76"
7' 6"	3.5"	22"	44"	68"										82"
8' 0"	3.5"	22"	44"	75"										88"
8' 6"	3.5"	22"	44"	75"										94"
9' 0"	3.5"	22"	44"	75"										100"
9' 6"	3.5"	22"	44"	68"	92"									106"
10' 0"	3.5"	22"	44"	68"	92"									112"
11' 0"	3.5"	22"	44"	68"	92"	116"								124"
12' 0"	3.5"	22"	44"	68"	92"	116"								136"
13' 0"	3.5"	22"	44"	68"	92"	116"								148"
14' 0"	3.5"	22"	44"	68"	92"	116"	140"							160"
15' 0"	3.5"	22"	44"	68"	92"	116"	140"							172"
16' 0"	3.5"	22"	44"	68"	92"	116"	140"	154"						184"
17' 0"	3.5"	22"	44"	68"	92"	116"	140"	154"	178"					196"
18' 0"	3.5"	22"	44"	68"	92"	116"	140"	154"	178"					208"
19' 0"	3.5"	22"	44"	68"	92"	116"	140"	154"	178"	202"				220"
20' 0"	3.5"	22"	44"	68"	92"	116"	140"	154"	178"	202"				232"
21' 0"	3.5"	22"	44"	68"	92"	116"	140"	154"	178"	202"	236"			244"
22' 0"	3.5"	22"	44"	68"	92"	116"	140"	154"	178"	202"	236"			256"
23' 0"	3.5"	22"	44"	68"	92"	116"	140"	154"	178"	202"	236"			268"
24' 0"	3.5"	22"	44"	68"	92"	116"	140"	154"	178"	202"	236"	260"		280"

REV	DESCRIPTION OF REVISIONS	DATE	BY

MAX SIZES  
WIDTH 16'-2"  
HEIGHT 24'

DESIGN LOADS  
+27.0 PSF  
-30.6 PSF

TEST LOADS  
+40.5 PSF  
-45.9 PSF

Thomas L. Shelmerdine, PE (TX #85829)  
Structural Solutions, PA (TX Firm #F-004063)

STATE OF TEXAS  
THOMAS L. SHELMERDINE  
85829  
LICENSED PROFESSIONAL ENGINEER  
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MODEL 2400 (24 GA)  
MODEL 2000 (20 GA)

SIZE	DRAWN BY	RLR	DATE	8/7/12	DRAWING NUMBER
B	CHECKED BY		DATE		IBC-2416-140-24

SHEET 3 OF 3