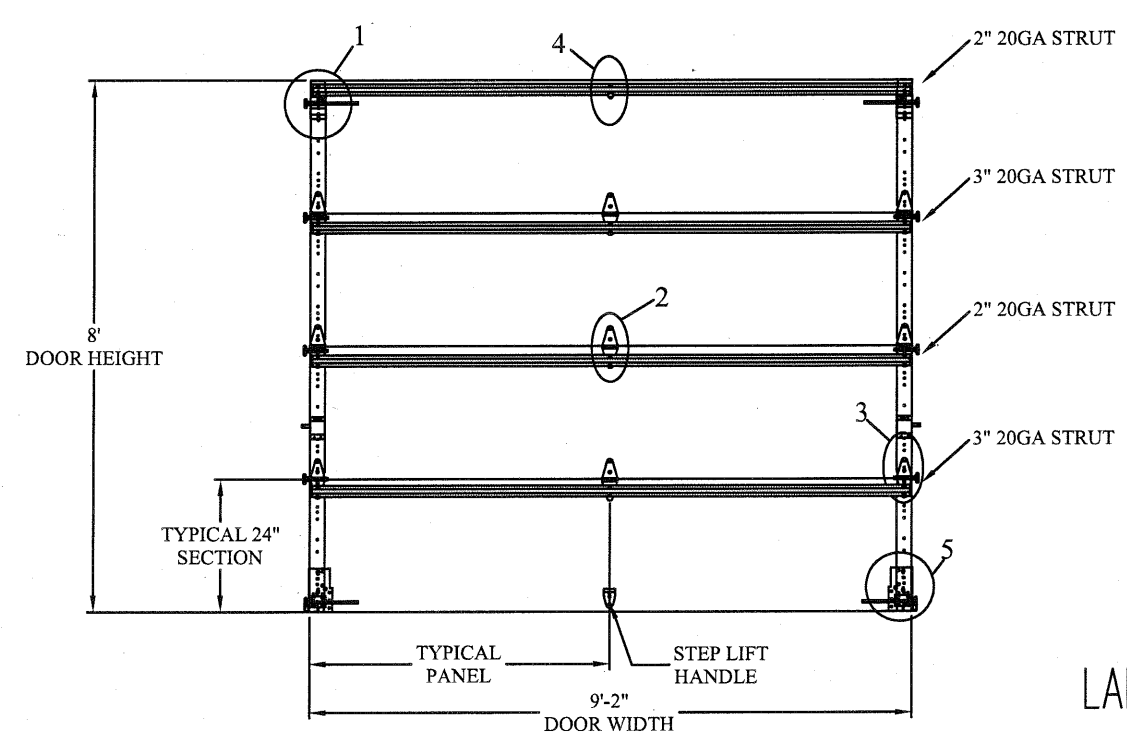
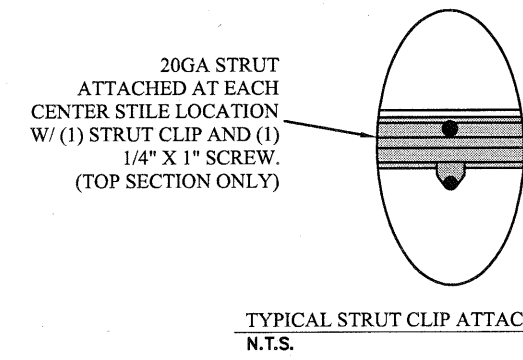
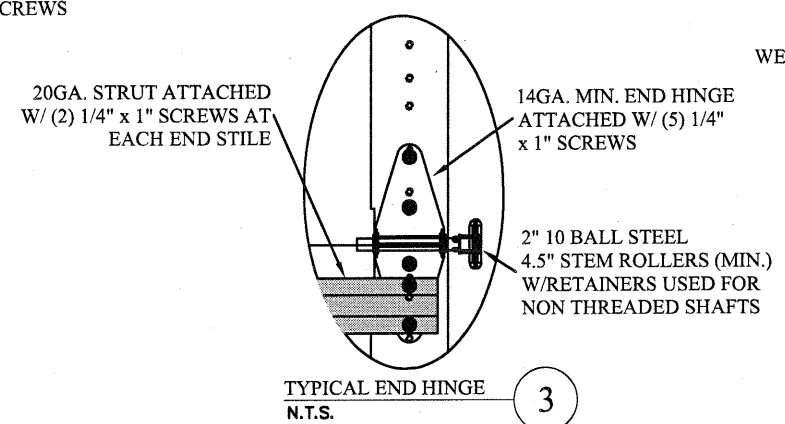
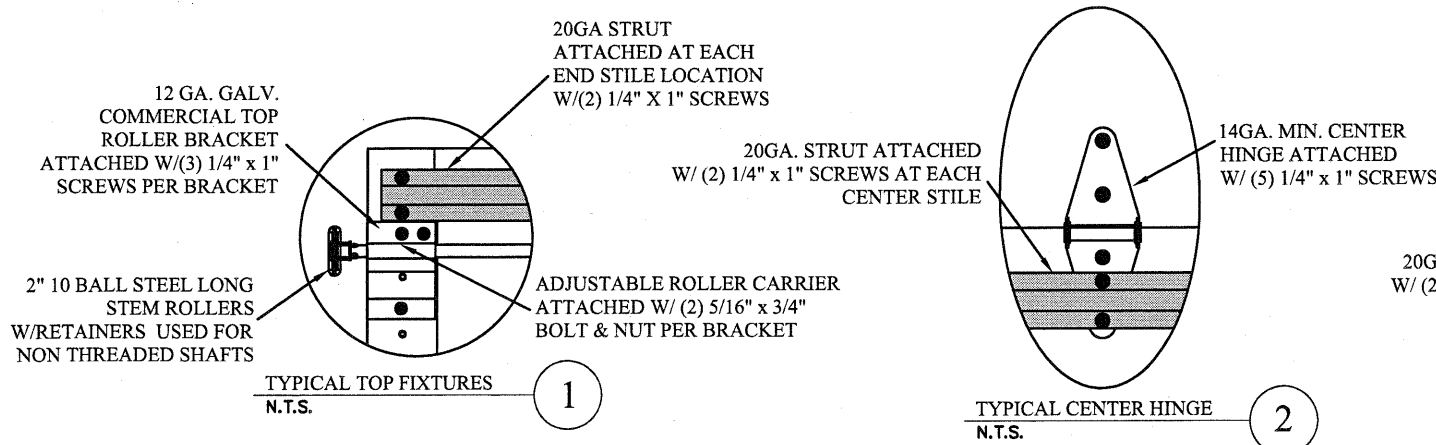
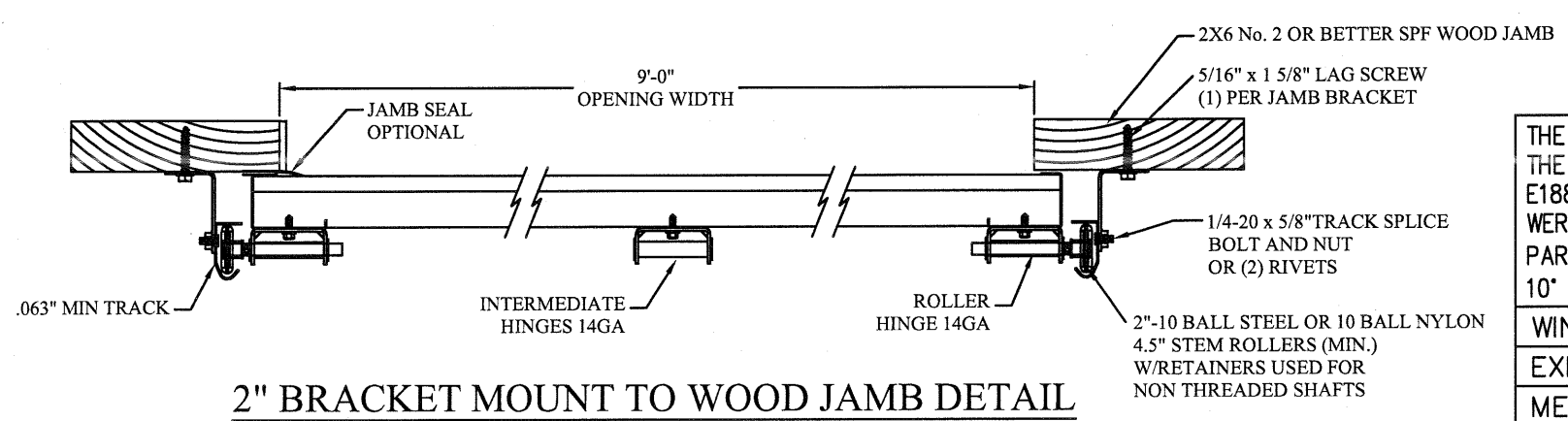
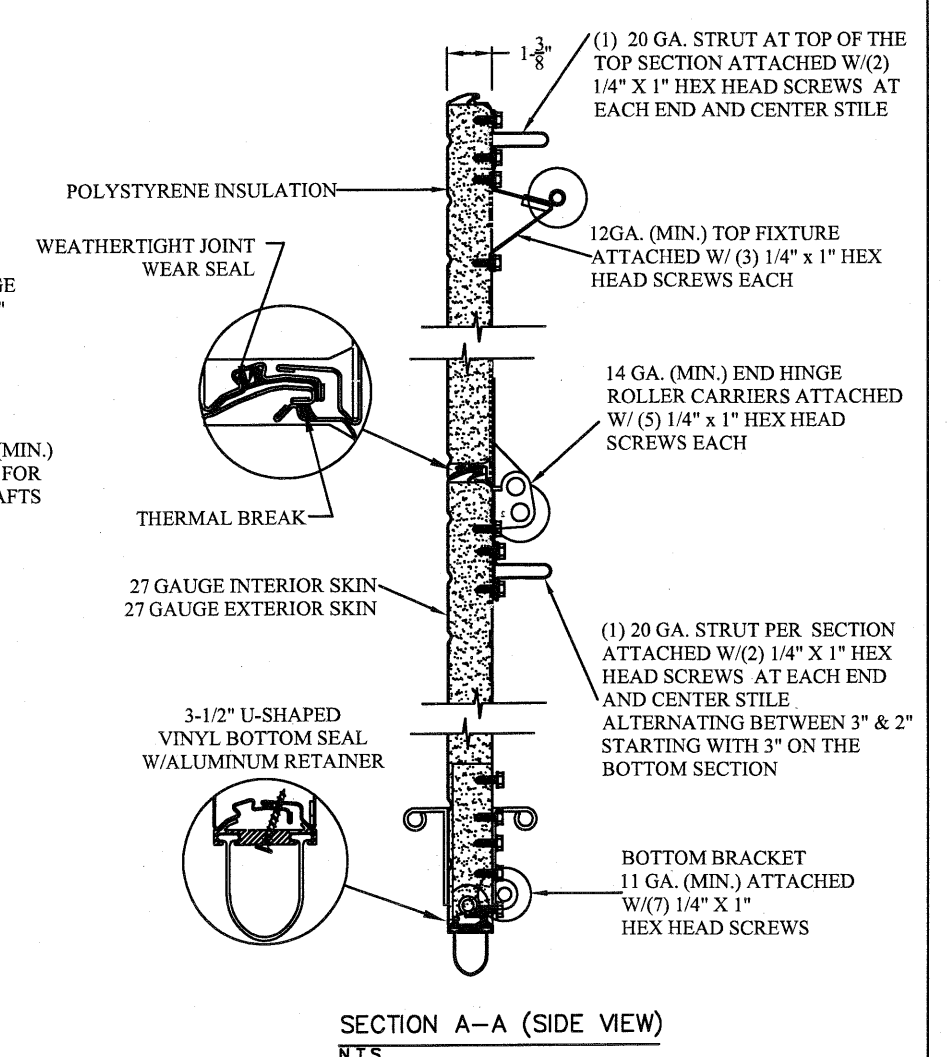
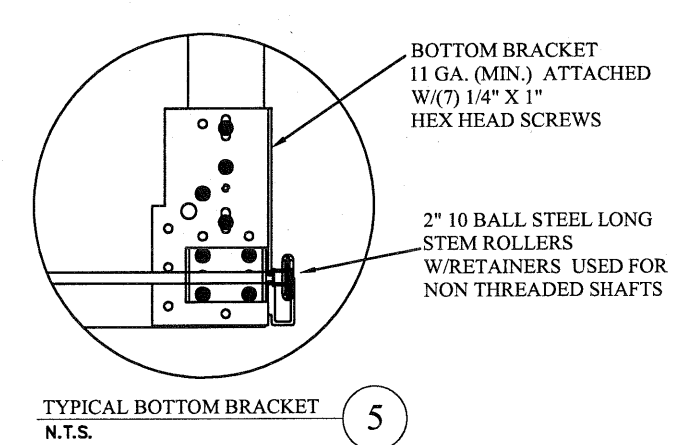




LARGE MISSILE IMPACT RESISTANT



THE METHOD OF TESTING WAS IN SUBSTANTIAL CONFORMANCE WITH THE PROCEDURES DESCRIBED IN DASMA 108 & 115, ASTM E1886, E1996, & F588. 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) | 175 | 159 | 151 | 144 | 138 |
| EXPOSURE LEVEL   | B   | C   | C   | D   | D   |
| MEAN ROOF HEIGHT | 30' | 15' | 25' | 15' | 25' |

| REV | DESCRIPTION OF REVISIONS | DATE | BY |
|-----|--------------------------|------|----|
|     |                          |      |    |

MAX SIZE  
9'2" x 14'

DESIGN LOADS  
+26.4 PSF  
-31.1 PSF

TEST LOADS  
+39.6 PSF  
-46.7 PSF

LARGE MISSILE IMPACT RESISTANCE

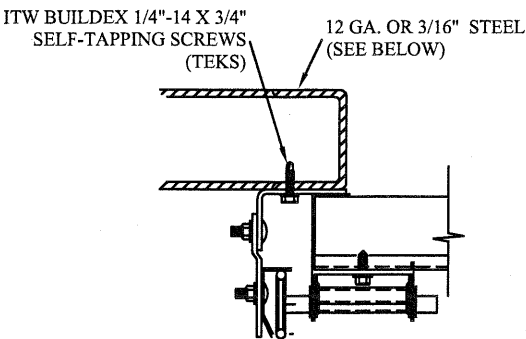
Thomas L. Shelmerdine, PE (FL PE #0048579)  
Structural Solutions, PA (FL Firm #29412)

**THOMAS L. SHELMERDINE**  
LICENSE  
No. 48579  
STATE OF FLORIDA  
PROFESSIONAL ENGINEER  
FL

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

|                                                                                                         |            |     |                                     |
|---------------------------------------------------------------------------------------------------------|------------|-----|-------------------------------------|
| <p><b>MODEL 1380 AMARR 2731</b><br/> <b>MODEL 1700 AMARR 2732</b><br/> <b>MODEL 1000 AMARR 2432</b></p> |            |     |                                     |
| SIZE                                                                                                    | DRAWN BY   | RLR | DATE                                |
| B                                                                                                       | CHECKED BY | RLR | DATE                                |
| ENTREMATIC<br>165 CARRIAGE COURT WINSTON-SALEM, N.C. 27105                                              |            |     | DRAWING NUMBER<br>IBC-1809-136-15-1 |
| SHEET 1 OF 3                                                                                            |            |     |                                     |

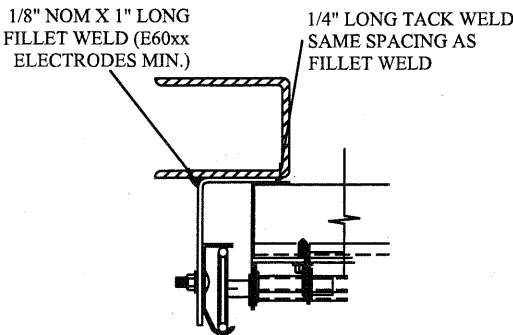
TRACK CONNECTION DIRECTLY TO STRUCTURE OPTIONS



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

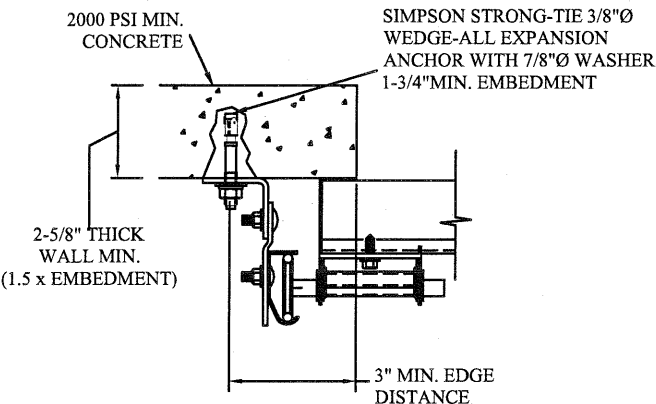
12 GA. STEEL FRAMING  
232 LBS./SCREW ALLOWABLE LOAD - 6" FROM ENDS  
AND 18" O.C.  
REFER TO NOTES: 1, 2 AND 5

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



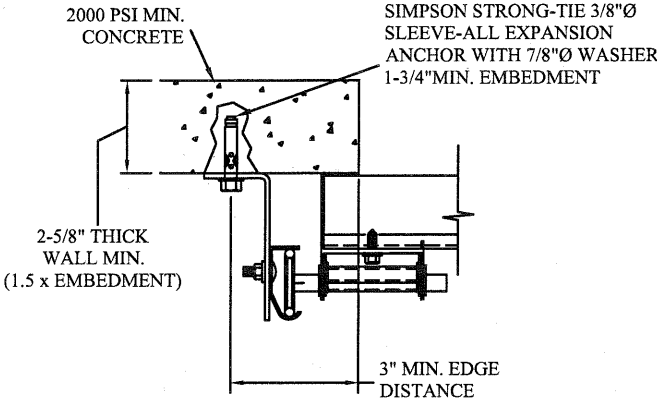
REVERSE ANGLE MOUNT SHOWN  
BRACKET, CONTINUOUS AND TAPERED  
ANGLE MOUNT AVAILABLE

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

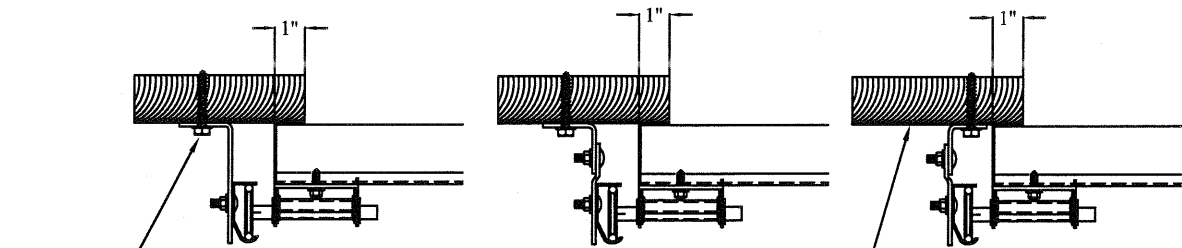


CONTINUOUS ANGLE MOUNT SHOWN  
BRACKET, CONTINUOUS AND TAPERED ANGLE  
MOUNT AVAILABLE

2000 PSI CONCRETE OR GREATER  
336 LBS./EXPANSION ANCHOR ALLOWABLE LOAD - 6"  
FROM ENDS AND 24" O.C.  
REFER TO NOTES: 1, 2, 3, 4 AND 5

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.)

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.

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 24" O.C. (1 1/2" EMBEDMENT)

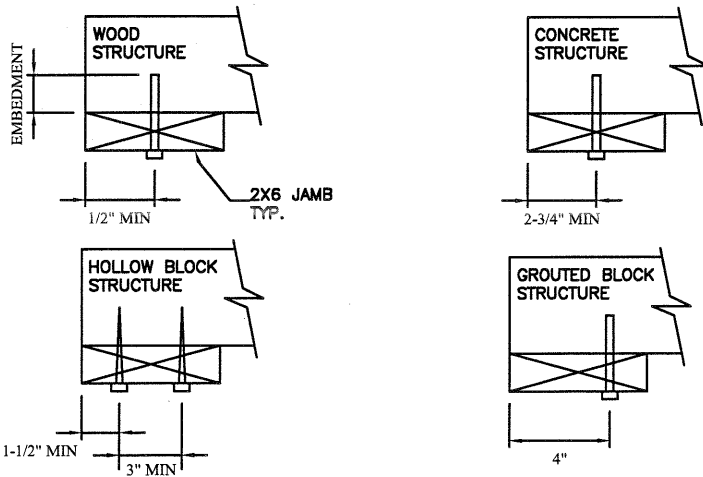
2 X 6 VERTICAL JAMB ATTACHMENT TO 2,000 PSI CONCRETE

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 24" 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 24" 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 24" 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 24" 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 |
|-----|--------------------------|------|----|
|     |                          |      |    |

MAX SIZE  
9'2 x 14'

DESIGN LOADS  
+26.4 PSF  
-31.1 PSF

TEST LOADS  
+39.6 PSF  
-46.7 PSF

LARGE MISSILE IMPACT  
RESISTANCE

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

FL

Thomas L. Shelmerdine  
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PROFESSIONAL ENGINEER

dba Structural Solutions of North Carolina, Inc.  
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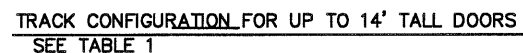
**Amarr**

MODEL 1380 AMARR 2731  
MODEL 1700 AMARR 2732  
MODEL 1000 AMARR 2432

| SIZE | DRAWN BY   | RLR | DATE | 11/25/14 | DRAWING NUMBER    |
|------|------------|-----|------|----------|-------------------|
| B    | CHECKED BY | RLR | DATE | 11/25/14 | IBC-1809-136-15-1 |

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

SHEET 2 OF 3

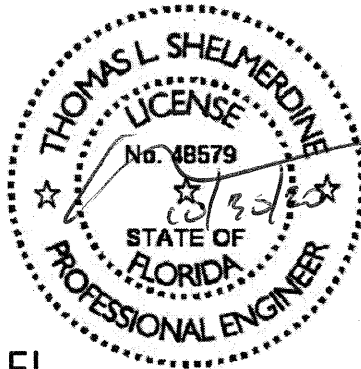


1. ALL THE LOAD FROM THE DOOR IS TRANSFERRED TO THE VERTICAL TRACK, FROM THE TRACK THE LOAD IS TRANSFERRED TO THE VERTICAL JAMBS, THE HORIZONTAL JAMB OR HEADER RECEIVES NO PORTION OF THE LOAD TRANSFERRED FROM THE DOOR.
2. EACH VERTICAL JAMBS RECEIVES MAXIMUM DESIGN LOADS OF:  
+121.0 LBS/FT & -142.5 LBS/FT
3. DOOR AND HARDWARE WILL BE DESIGNED, MANUFACTURED AND INSTALLED WITH STANDARDS AS SET FORTH BY DASMA.
4. DOOR SECTIONS SHALL BE 27 GA. (.015) MIN. EXTERIOR SKIN ROLLED FORMED, W/ BAKED ON POLYESTER FINISH
5. DOORS UP TO 14'0" HIGH ALTERNATE BETWEEN (1) 3" 20GA STRUT AND (1) 2" 20 GA STRUT PER SECTION STARTING WITH A 3" ON THE BOTTOM 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.



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

| Section Width<br>(ft) |     | Center<br>Stile | Max Design Loads<br>Allowed |                   |
|-----------------------|-----|-----------------|-----------------------------|-------------------|
|                       |     | 1st<br>(in)     | Positive<br>(PSF)           | Negative<br>(PSF) |
| 6'                    | 0"  | 36"             | 40.3                        | 47.5              |
| 6'                    | 2"  | 37"             | 39.2                        | 46.2              |
| 6'                    | 4"  | 38"             | 38.2                        | 45.0              |
| 6'                    | 6"  | 39"             | 37.2                        | 43.8              |
| 6'                    | 8"  | 40"             | 36.3                        | 42.7              |
| 6'                    | 10" | 41"             | 35.4                        | 41.7              |
| 7'                    | 0"  | 42"             | 34.5                        | 40.7              |
| 7'                    | 2"  | 43"             | 33.7                        | 39.7              |
| 7'                    | 4"  | 44"             | 33.0                        | 38.8              |
| 7'                    | 6"  | 45"             | 32.2                        | 38.0              |
| 7'                    | 8"  | 46"             | 31.5                        | 37.1              |
| 7'                    | 10" | 47"             | 30.8                        | 36.3              |
| 8'                    | 0"  | 48"             | 30.2                        | 35.6              |
| 8'                    | 2"  | 49"             | 29.6                        | 34.9              |
| 8'                    | 4"  | 50"             | 29.0                        | 34.2              |
| 8'                    | 6"  | 51"             | 28.4                        | 33.5              |
| 8'                    | 8"  | 52"             | 27.9                        | 32.8              |
| 8'                    | 10" | 53"             | 27.3                        | 32.2              |
| 9'                    | 0"  | 54"             | 26.8                        | 31.6              |
| 9'                    | 2"  | 55"             | 26.4                        | 31.1              |

|                                                                                                                                                                         |                                                                                                           |                                                                                                                                                                                                 |                                                                 |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|
| REV                                                                                                                                                                     | DESCRIPTION OF REVISIONS                                                                                  | DATE                                                                                                                                                                                            | BY                                                              |
|                                                                                                                                                                         |                                                                                                           |                                                                                                                                                                                                 |                                                                 |
| <p>MAX SIZE<br/>9'2" x 14'</p> <p>DESIGN LOADS<br/>+26.4 PSF<br/>-31.1 PSF</p> <p>TEST LOADS<br/>+39.6 PSF<br/>-46.7 PSF</p> <p>LARGE MISSILE IMPACT<br/>RESISTANCE</p> | <p>Thomas L. Shelmerdine, PE (FL PE #0048579)<br/>Structural Solutions, PA (FL Firm #29412)</p> <p>FL</p> |  <p>dba Structural Solutions of North Carolina, Inc.<br/>5921-G W. Friendly Ave., Greensboro, NC 27410</p> |                                                                 |
|                                                                                    |                                                                                                           |                                                                                                                                                                                                 |                                                                 |
| <p><b>MODEL 1380 AMARR 2731</b><br/> <b>MODEL 1700 AMARR 2732</b><br/> <b>MODEL 1000 AMARR 2432</b></p>                                                                 |                                                                                                           |                                                                                                                                                                                                 |                                                                 |
| SIZE                                                                                                                                                                    | DRAWN BY                                                                                                  | R/LR                                                                                                                                                                                            | DATE 11/25/14                                                   |
| B                                                                                                                                                                       | CHECKED BY                                                                                                | R/LR                                                                                                                                                                                            | DATE 11/25/14                                                   |
| <p>ENTREMATICS<br/>165 CARRIAGE COURT WINSTON-SALEM, N.C. 27105</p>                                                                                                     |                                                                                                           |                                                                                                                                                                                                 | <p>DRAWING NUMBER<br/>IBC-1809-136-15-1</p> <p>SHEET 3 OF 3</p> |