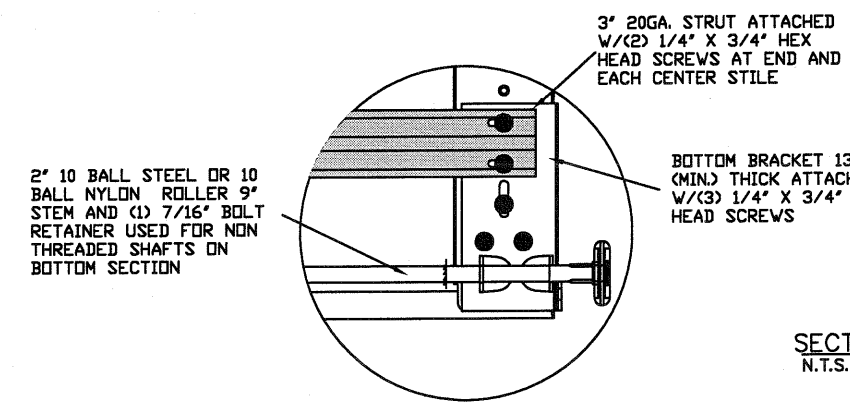
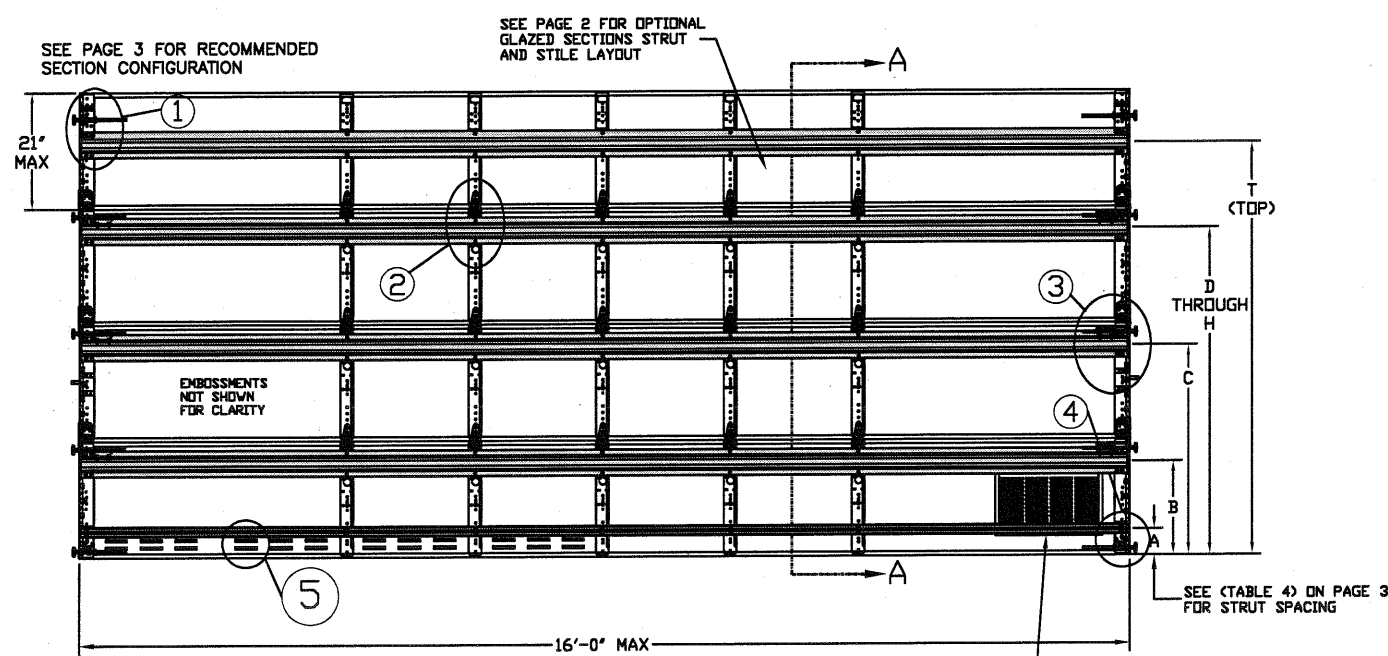


# LARGE MISSILE IMPACT RESISTANT



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

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

**MAX. SIZE**  
WIDTH 16'  
HEIGHT 14'

**DESIGN LOADS**  
+38.0 PSF  
-42.0 PSF

**TEST LOADS**  
+57.0 PSF  
-63.0 PSF

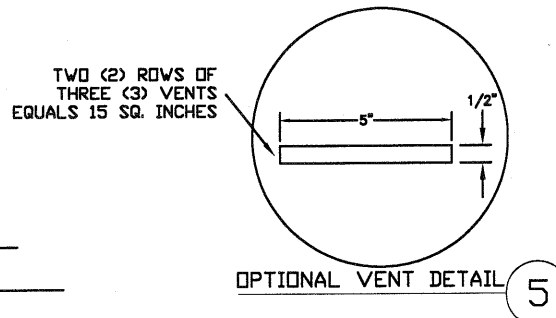
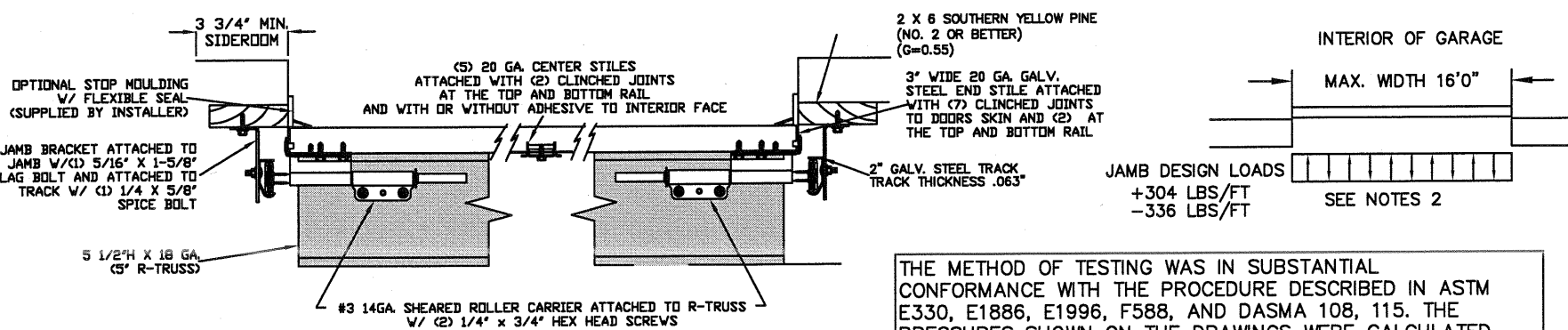
**LARGE MISSILE IMPACT RESISTANT**

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



## 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 JAMB RECEIVES MAXIMUM DESIGN LOADS OF: +304 LBS/FT & -336 LBS/FT
- DOORS AND HARDWARE WILL BE DESIGNED, MANUFACTURED AND INSTALLED WITH STANDARDS AS SET FORTH BY DASHA.
- DOOR SECTIONS SHALL BE 25 GA. MIN. (.019") ROLLED FORMED LIGHT COMMERCIAL QUALITY
- SUPPORTING STRUCTURAL ELEMENTS SHALL BE DESIGNED BY A REGISTERED PROFESSIONAL ENGINEER FOR WIND LOADS INDICATED ON THIS DRAWING IN ADDITION TO OTHER LOADINGS.
- AMARR MANUFACTURES AND DISTRIBUTES GARAGE DOORS UNDER MANY BRAND LABELS. PLEASE SEE AMARR-MANUFACTURED PRIVATE LABEL CHART FOR REFERENCE OF EQUIVALENT PRODUCTS FOR WINDLOAD APPROVAL.
- REFER TO TABLES ON THE PAGE 3 FOR ADDITIONAL DOOR WIDTHS AND THEIR DESIGN PRESSURES
- PANEL STAMP DOES NOT EFFECT WINDLOAD CAPABILITIES.

THE METHOD OF TESTING WAS IN SUBSTANTIAL CONFORMANCE WITH THE PROCEDURE DESCRIBED IN ASTM E330, E1886, E1996, F588, AND 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 ANY SLOPE):

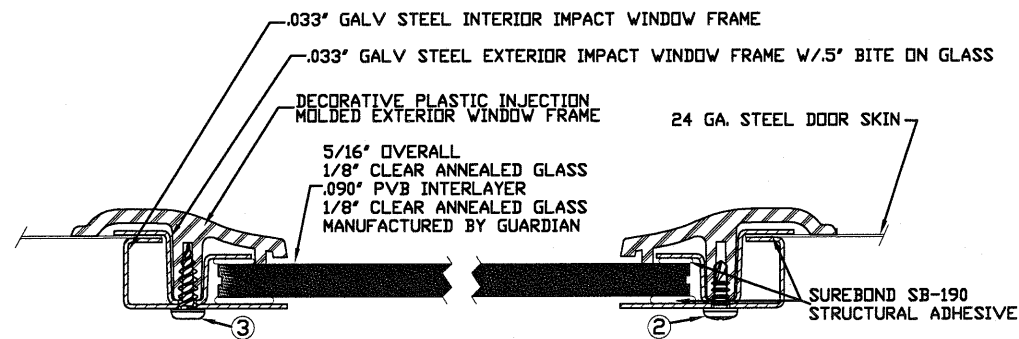
| WIND SPEED (MPH) | 202 | 183 | 174 | 166 | 159 |
|------------------|-----|-----|-----|-----|-----|
| EXPOSURE LEVEL   | B   | C   | C   | D   | D   |
| MEAN ROOF HEIGHT | 30' | 15' | 25' | 15' | 25' |

**MODEL #650 AMARR OAK SUMMIT SERIES 1000 & 2000**  
**MODEL #600 AMARR STRATFORD SERIES 1000 & 2000**  
**MODEL #950 AMARR HERITAGE SERIES 1000 & 2000**

| SIZE | DRAWN BY   | RLR  | DATE | 2/5/14 | DRAWING NUMBER    |
|------|------------|------|------|--------|-------------------|
| B    | CHECKED BY | DATE |      |        | IRC-6016-156-26-1 |

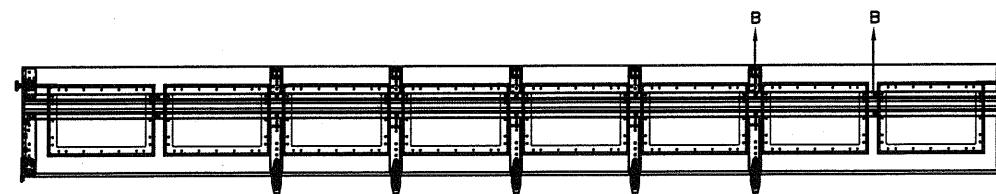
ENTREMATICS  
165 CARRIAGE COURT WINSTON-SALEM, N.C. 27105

SHEET 1 OF 3

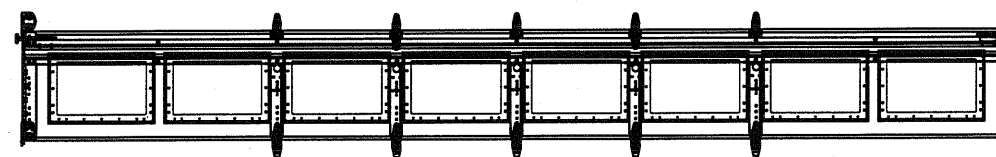


2. 3/16" X 1/2" SCREW - USED TO FASTEN THE STEEL EXTERIOR IMPACT WINDOW FRAME TO THE STEEL INTERIOR WINDOW FRAME.
3. 11/64" X 1/2" SCREW - USED TO FASTEN DECORATIVE PLASTIC MOLDED WINDOW FRAME TO THE ASSEMBLY

SECTION B-B IMPACT WINDOW DETAIL  
N.T.S.

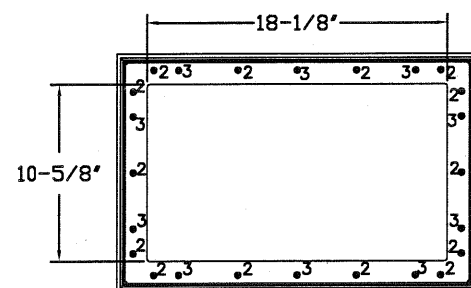


TOP SECTION



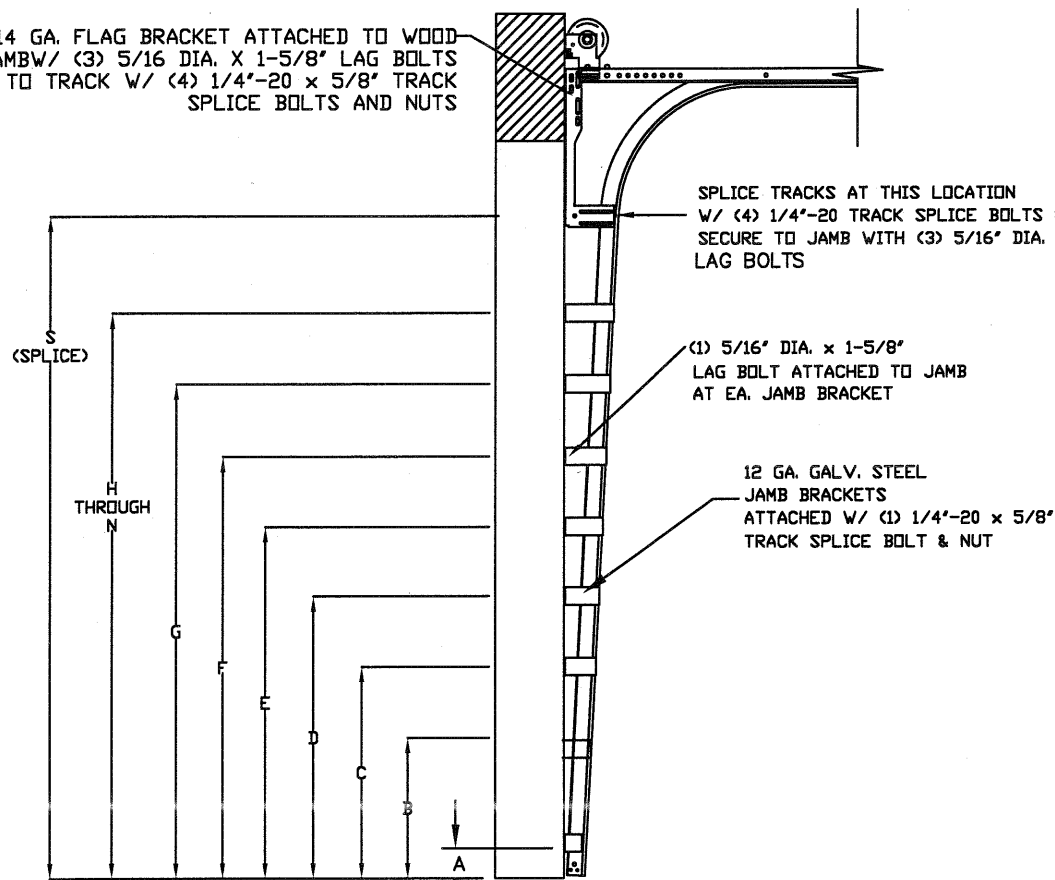
INTERMEDIATE SECTION

OPTIONAL SHORT PANEL GLAZED SECTION STRUT AND STILE LAYOUT  
\* ADDITIONAL STRUTS MAY BE ADDED TO DOOR WHEN GLAZED FOR COUNTERBALANCE PURPOSES



IMPACT GLAZING FASTENER DETAIL  
N.T.S.

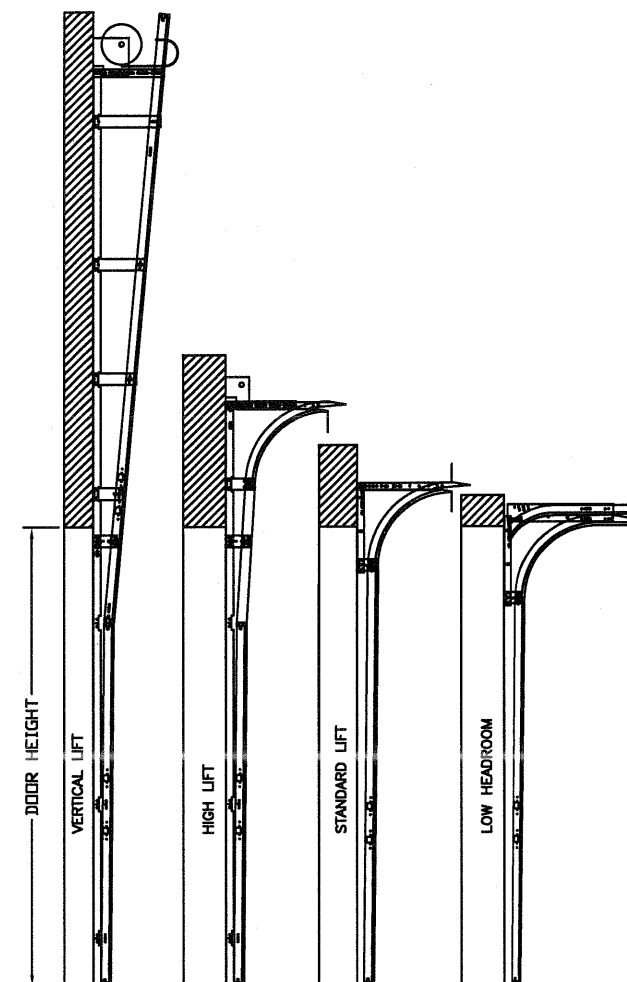
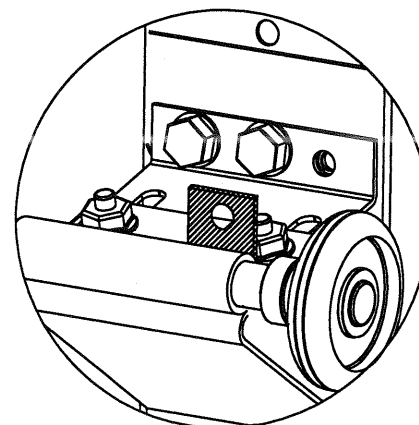
14 GA. FLAG BRACKET ATTACHED TO WOOD JAMB W/ (3) 5/16 DIA. X 1-5/8" LAG BOLTS AND TO TRACK W/ (4) 1/4"-20 X 5/8" TRACK SPLICE BOLTS AND NUTS



SEE (TABLE 1) FOR  
JAMB BRACKET SPACING

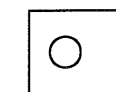
STANDARD TRACK CONFIGURATION FOR 6'6" UP TO 14' TALL DOORS  
N.T.S.

TOP FIXTURE REINFORCEMENT  
ILLUSTRATION

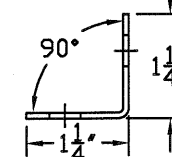


AVAILABLE TRACK CONFIGURATIONS  
N.T.S.

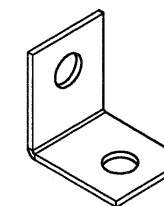
TOP FIXTURE ADDER PIECE



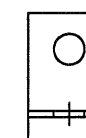
TOP VIEW



END VIEW



ISOMETRIC VIEW



SIDE VIEW

NOTES:

1. ZINC COATING
2. MATERIAL YIELD STRENGTH: 35-49 KSI.
3. MATERIAL HARDNESS: 50-60 ROCKWELL B.
4. 1.25" X 1.25" X 14 GA PUNCHED ANGLE MAY BE USED

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

|                                                                                                                                                                                                              |                                                                                                                  |                                                                                                                                                                                                                        |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>MAX SIZE</b><br/>WIDTH 16'<br/>HEIGHT 14'</p> <p><b>DESIGN LOADS</b><br/>+38.0 PSF<br/>-42.0 PSF</p> <p><b>TEST LOADS</b><br/>+57.0 PSF<br/>-63.0 PSF</p> <p><b>LARGE MISSILE IMPACT RESISTANT</b></p> | <p>Thomas L. Shelmerdine, PE (FL PE #0048579)<br/>Structural Solutions, PA (FL Firm #29412)</p> <p><b>FL</b></p> | <p><b>THOMAS L. SHELMERDINE</b><br/>LICENSE<br/>No. 48579<br/>STATE OF FLORIDA<br/>PROFESSIONAL ENGINEER</p> <p>dba Structural Solutions of North Carolina, Inc.<br/>5921-G W. Friendly Ave., Greensboro, NC 27410</p> |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

**Amarr**

MODEL #650 AMARR OAK SUMMIT SERIES 1000 & 2000  
MODEL #600 AMARR STRATFORD SERIES 1000 & 2000  
MODEL #950 AMARR HERITAGE SERIES 1000 & 2000

|      |            |     |      |        |                   |
|------|------------|-----|------|--------|-------------------|
| SIZE | DRAWN BY   | RLR | DATE | 2/5/14 | DRAWING NUMBER    |
| B    | CHECKED BY |     | DATE |        | IRC-6016-156-26-1 |

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

SHEET 2 OF 3

| DOOR<br>HEIGHT | TRACK ATTACHMENT |     |     |     |     |     |     |      |      |      |      | SPLICE |
|----------------|------------------|-----|-----|-----|-----|-----|-----|------|------|------|------|--------|
|                | A                | B   | C   | D   | E   | F   | G   | H    | I    | J    | K    | S      |
| 6' 6"          | 3.5"             | 21" | 34" | 44" | 57" |     |     |      |      |      |      | 70"    |
| 7'             | 3.5"             | 21" | 37" | 47" | 63" |     |     |      |      |      |      | 76"    |
| 7' 6"          | 3.5"             | 18" | 31" | 41" | 54" | 72" |     |      |      |      |      | 82"    |
| 8'             | 3.5"             | 21" | 34" | 44" | 57" | 75" |     |      |      |      |      | 88"    |
| 8' 6"          | 3.5"             | 21" | 37" | 47" | 63" | 81" |     |      |      |      |      | 94"    |
| 9'             | 3.5"             | 18" | 31" | 41" | 54" | 72" | 85" |      |      |      |      | 100"   |
| 9' 6"          | 3.5"             | 21" | 34" | 44" | 57" | 75" | 88" |      |      |      |      | 106"   |
| 10'            | 3.5"             | 21" | 37" | 47" | 63" | 81" | 94" |      |      |      |      | 112"   |
| 10' 6"         | 3.5"             | 21" | 37" | 47" | 63" | 79" | 89" | 105" |      |      |      | 118"   |
| 11'            | 3.5"             | 21" | 34" | 44" | 57" | 75" | 88" | 98"  | 111" |      |      | 124"   |
| 11' 6"         | 3.5"             | 21" | 37" | 47" | 63" | 81" | 94" | 104" | 117" |      |      | 130"   |
| 12'            | 3.5"             | 21" | 37" | 47" | 63" | 79" | 89" | 105" | 118" |      |      | 136"   |
| 12' 6"         | 3.5"             | 21" | 34" | 44" | 57" | 75" | 88" | 98"  | 111" | 129" |      | 142"   |
| 13'            | 3.5"             | 21" | 37" | 47" | 63" | 81" | 94" | 104" | 117" | 135" |      | 148"   |
| 13' 6"         | 3.5"             | 21" | 37" | 47" | 63" | 79" | 89" | 105" | 118" | 141" |      | 154"   |
| 14'            | 3.5"             | 21" | 37" | 47" | 63" | 79" | 89" | 105" | 121" | 131" | 147" | 160"   |

TABLE 3

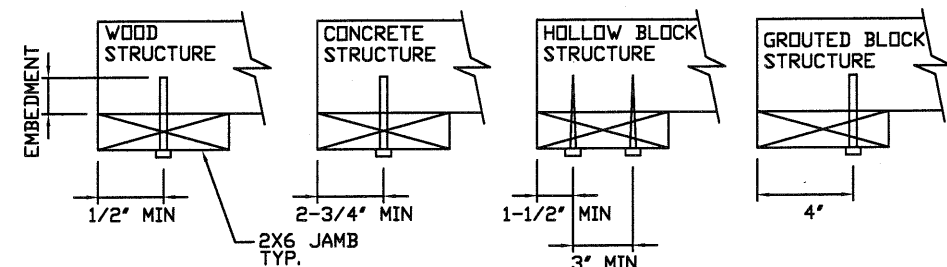
[illegible]

| Section | Panel Type | Center Stile Locations<br>(Measured from Left Edge) |             |             |             |             | Max Design<br>Loads Allowed |                   |
|---------|------------|-----------------------------------------------------|-------------|-------------|-------------|-------------|-----------------------------|-------------------|
|         |            | 1st<br>(in)                                         | 2st<br>(in) | 3rd<br>(in) | 4th<br>(in) | 5th<br>(in) | Positive<br>(PSF)           | Negative<br>(PSF) |
| 10' 0   | Short      | 48.41                                               | 71.59       |             |             |             | 38.6                        | 42.7              |
| 10' 0   | Long       | 30.00                                               | 60.00       | 90.00       |             |             | 46.1                        | 50.9              |
| 10' 0   | Oak Summit | 30.63                                               | 60.00       | 89.38       |             |             | 46.1                        | 50.9              |
| 12' 0   | Short      | 48.81                                               | 72.00       | 95.19       |             |             | 38.4                        | 42.4              |
| 12' 0   | Long       | 49.63                                               | 72.00       | 94.38       |             |             | 38.4                        | 42.4              |
| 12' 0   | Oak Summit | 48.31                                               | 72.00       | 95.69       |             |             | 38.4                        | 42.4              |
| 12' 2   | Short      | 49.64                                               | 73.00       | 96.36       |             |             | 37.9                        | 41.8              |
| 12' 2   | Long       | 50.08                                               | 73.00       | 95.92       |             |             | 37.9                        | 41.8              |
| 12' 2   | Oak Summit | 49.06                                               | 73.00       | 96.94       |             |             | 37.9                        | 41.8              |
| 12' 4   | Short      | 50.64                                               | 74.00       | 97.36       |             |             | 37.3                        | 41.1              |
| 12' 4   | Long       | 51.08                                               | 74.00       | 96.92       |             |             | 37.3                        | 41.3              |
| 12' 4   | Oak Summit | 49.81                                               | 74.00       | 98.19       |             |             | 37.3                        | 41.3              |
| 12' 6   | Short      | 50.67                                               | 75.00       | 99.33       |             |             | 36.8                        | 40.7              |
| 12' 6   | Long       | 51.17                                               | 75.00       | 98.83       |             |             | 36.8                        | 40.7              |
| 12' 6   | Oak Summit | 50.56                                               | 75.00       | 99.44       |             |             | 36.8                        | 40.7              |
| 12' 8   | Short      | 51.67                                               | 76.00       | 100.33      |             |             | 36.4                        | 40.2              |
| 12' 8   | Long       | 52.10                                               | 76.00       | 99.90       |             |             | 36.4                        | 40.2              |
| 12' 8   | Oak Summit | 51.31                                               | 76.00       | 100.69      |             |             | 36.4                        | 40.2              |
| 12' 10  | Short      | 52.25                                               | 77.00       | 101.75      |             |             | 35.9                        | 39.7              |
| 12' 10  | Long       | 53.10                                               | 77.00       | 100.90      |             |             | 35.9                        | 39.7              |
| 12' 10  | Oak Summit | 52.06                                               | 77.00       | 101.94      |             |             | 35.9                        | 39.7              |
| 13' 0   | Short      | 53.00                                               | 78.00       | 103.00      |             |             | 35.4                        | 39.2              |
| 13' 0   | Long       | 54.10                                               | 78.00       | 101.90      |             |             | 35.4                        | 39.2              |
| 13' 0   | Oak Summit | 52.81                                               | 78.00       | 103.19      |             |             | 35.4                        | 39.2              |
| 13' 2   | Short      | 54.00                                               | 79.00       | 104.00      |             |             | 35.0                        | 38.7              |
| 13' 2   | Long       | 55.10                                               | 79.00       | 102.90      |             |             | 35.0                        | 38.7              |
| 13' 2   | Oak Summit | 53.56                                               | 79.00       | 104.44      |             |             | 35.0                        | 38.7              |
| 13' 4   | Short      | 54.40                                               | 80.00       | 105.60      |             |             | 34.5                        | 38.2              |
| 13' 4   | Long       | 54.90                                               | 80.00       | 105.10      |             |             | 34.5                        | 38.2              |
| 13' 4   | Oak Summit | 54.31                                               | 80.00       | 105.69      |             |             | 34.5                        | 38.2              |
| 13' 6   | Short      | 55.40                                               | 81.00       | 106.60      |             |             | 34.1                        | 37.7              |
| 13' 6   | Long       | 55.90                                               | 81.00       | 106.10      |             |             | 34.1                        | 37.7              |
| 13' 6   | Oak Summit | 55.06                                               | 81.00       | 106.94      |             |             | 34.1                        | 37.7              |
| 13' 8   | Short      | 56.40                                               | 82.00       | 107.60      |             |             | 33.7                        | 37.2              |
| 13' 8   | Long       | 56.63                                               | 82.00       | 107.38      |             |             | 33.7                        | 37.2              |
| 13' 8   | Oak Summit | 55.81                                               | 82.00       | 108.19      |             |             | 33.7                        | 37.2              |
| 13' 10  | Short      | 57.16                                               | 83.00       | 108.71      |             |             | 33.3                        | 36.8              |
| 13' 10  | Long       | 57.17                                               | 83.00       | 108.83      |             |             | 33.3                        | 36.8              |
| 13' 10  | Oak Summit | 56.56                                               | 83.00       | 109.44      |             |             | 33.3                        | 36.8              |
| 14' 0   | Short      | 57.76                                               | 84.00       | 110.11      |             |             | 32.9                        | 36.4              |
| 14' 0   | Long       | 58.63                                               | 84.00       | 109.38      |             |             | 32.9                        | 36.4              |
| 14' 0   | Oak Summit | 57.31                                               | 84.00       | 110.69      |             |             | 32.9                        | 36.4              |
| 14' 2   | Short      | 58.85                                               | 85.00       | 111.41      |             |             | 32.5                        | 35.9              |
| 14' 2   | Long       | 59.17                                               | 85.00       | 110.83      |             |             | 32.5                        | 35.9              |
| 14' 2   | Oak Summit | 58.06                                               | 85.00       | 111.94      |             |             | 32.5                        | 35.9              |
| 14' 4   | Short      | 59.16                                               | 86.00       | 112.71      |             |             | 32.1                        | 35.5              |
| 14' 4   | Long       | 60.17                                               | 86.00       | 111.83      |             |             | 32.1                        | 35.5              |
| 14' 4   | Oak Summit | 58.81                                               | 86.00       | 113.19      |             |             | 32.1                        | 35.5              |
| 14' 6   | Short      | 58.86                                               | 87.00       | 114.01      |             |             | 31.8                        | 35.1              |
| 14' 6   | Long       | 61.17                                               | 87.00       | 112.83      |             |             | 31.8                        | 35.1              |
| 14' 6   | Oak Summit | 59.56                                               | 87.00       | 114.44      |             |             | 31.8                        | 35.1              |
| 14' 8   | Short      | 60.56                                               |             |             |             |             |                             |                   |

2 X 6 VERTICAL JAMB ATTACHMENT TO WOOD FRAME STRUCTURE  
5/16" X 3" LAG SCREWS STARTING 6" FROM ENDS THEN 16" 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 14" 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 AND ANCHOR 3/8" X 2-3/4" STARTING 6" FROM ENDS THEN 16" 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



| DOOR<br>HEIGHT | STRUT SPACING (BASED ON RECOMMENDED<br>SECTION CONFIGURATION) |     |     |     |     |      |      |      | TOP      |
|----------------|---------------------------------------------------------------|-----|-----|-----|-----|------|------|------|----------|
|                | A                                                             | B   | C   | D   | E   | F    | G    | H    | T        |
| 6' 6"          | 5 1/2"                                                        | 16" | 34" | 52" |     |      |      |      | 70 1/2"  |
| 7'             | 5 1/2"                                                        | 16" | 37" | 58" |     |      |      |      | 76 1/2"  |
| 7' 6"          | 5 1/2"                                                        | 13" | 31" | 49" | 67" |      |      |      | 82 1/2"  |
| 8'             | 5 1/2"                                                        | 16" | 34" | 52" | 70" |      |      |      | 88 1/2"  |
| 8' 6"          | 5 1/2"                                                        | 16" | 37" | 58" | 76" |      |      |      | 94 1/2"  |
| 9'             | 5 1/2"                                                        | 13" | 31" | 49" | 67" | 85"  |      |      | 100 1/2" |
| 9' 6"          | 5 1/2"                                                        | 16" | 34" | 52" | 70" | 88"  |      |      | 106 1/2" |
| 10'            | 5 1/2"                                                        | 16" | 37" | 58" | 76" | 94"  |      |      | 112 1/2" |
| 10' 6"         | 5 1/2"                                                        | 16" | 37" | 58" | 79" | 100" |      |      | 118 1/2" |
| 11'            | 5 1/2"                                                        | 16" | 34" | 52" | 70" | 88"  | 106" |      | 124 1/2" |
| 11' 6"         | 5 1/2"                                                        | 16" | 37" | 58" | 76" | 94"  | 112" |      | 130 1/2" |
| 12'            | 5 1/2"                                                        | 16" | 37" | 58" | 79" | 100" | 118" |      | 136 1/2" |
| 12' 6"         | 5 1/2"                                                        | 16" | 34" | 52" | 70" | 88"  | 106" | 124" | 142 1/2" |
| 13'            | 5 1/2"                                                        | 16" | 37" | 58" | 76" | 94"  | 112" | 130" | 148 1/2" |
| 13' 6"         | 5 1/2"                                                        | 16" | 37" | 58" | 79" | 100" | 118" | 136" | 154 1/2" |
| 14'            | 5 1/2"                                                        | 16" | 37" | 58" | 79" | 100" | 121" | 142" | 160 1/2" |

\* ADDITIONAL STRUTS MAY BE ADDED TO DOOR WHEN GLAZED FOR COUNTERBALANCE PURPOSES

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

MAX SIZE  
WIDTH 16'  
HEIGHT 14'

DESIGN LOADS  
+38.0 PSF  
-42.0 PSF

TEST LOADS  
+57.0 PSF  
-63.0 PSF

LARGE  
MISSILE  
IMPACT  
RESISTANT

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

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

|                                                                                                                                                                                  |            |     |                                     |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|-----|-------------------------------------|
| <b>MODEL #650 AMARR OAK SUMMIT SERIES 1000 &amp; 2000</b><br><b>MODEL #600 AMARR STRATFORD SERIES 1000 &amp; 2000</b><br><b>MODEL #950 AMARR HERITAGE SERIES 1000 &amp; 2000</b> |            |     |                                     |
| SIZE                                                                                                                                                                             | DRAWN BY   | RLR | DATE 2/5/14                         |
| B                                                                                                                                                                                | CHECKED BY |     |                                     |
| ENTREMATRIC                                                                                                                                                                      |            |     |                                     |
| 165 CARRIAGE COURT WINSTON-SALEM, NC 27105                                                                                                                                       |            |     |                                     |
|                                                                                                                                                                                  |            |     | DRAWING NUMBER<br>IRC-6016-156-26-1 |
|                                                                                                                                                                                  |            |     | SHEET 3 OF 3                        |