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FILE: E:\Engineering\HANOI PERRY COUNTY SHELTERS\03033 STRUCTURAL\STORM SHELTER - MARION SHELTER.dwg PLOT: 10:25 PM PLOTTED BY: RGY - SIZE: 3

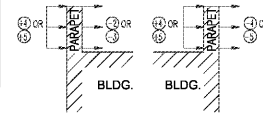
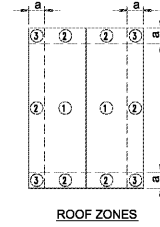
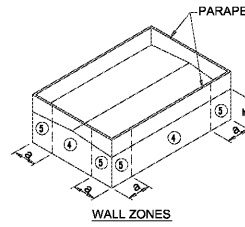
**DESIGN CRITERIA**

1. GOVERNING CODE:
  - A. INTERNATIONAL BUILDING CODE, I.B.C. 2015
2. GRAVITY DESIGN LOADS:
  - A. DEAD
    1. DESIGN DEADLOADS ARE BASED ON THE SELF WEIGHT OF CONSTRUCTION MATERIALS SHOWN IN THE ARCHITECTURAL AND STRUCTURAL DRAWINGS. ANY ALTERNATE MATERIALS SHALL BE SUBMITTED TO THE STRUCTURAL ENGINEER TO REVIEW.
  - B. LIVE:
    1. TYPICAL FLOOR ..... 60 PSF + 20 PSF PARTITION LOAD
    2. STAIRS, RAMPS ..... 100PSF
    3. CORRIDORS ..... 100PSF
    4. CORRIDORS ABOVE 1ST FLOOR 80PSF
    5. LOBBIES ..... 100PSF
    6. ROOF ..... 20PSF
  - C. SNOW
    1. GROUND SNOW LOAD (P<sub>f</sub>) = 5 PSF
    2. SNOW EXPOSURE FACTOR (C<sub>e</sub>) = 1.0
    3. SNOW LOAD IMPORTANCE FACTOR (I<sub>s</sub>) = 1.0
    4. THERMAL FACTOR (C<sub>t</sub>) = 1.0
3. LATERAL DESIGN LOADS:
  - A. WIND
    1. DESIGNED PER ASCE 7-10
    2. BASIC WIND SPEED = 130 MPH
    3. WIND IMPORTANCE FACTOR (I<sub>w</sub>) = 1.0
    4. BUILDING CATEGORY = ENCLOSED
    5. EXPOSURE CATEGORY = C
    6. INTERNAL PRESSURE COEFFICIENT (GC<sub>pi</sub>) = ±0.18
    7. COMPONENTS & CLADDING WIND PRESSURES SEE CHART
  - B. STORM SHELTER WIND
    1. DESIGNED FOR WIND ACCORDING TO ICC NCSA STANDARD FOR THE DESIGN AND CONSTRUCTION OF STORM SHELTERS (ICC 500 - 2014)
    2. BASIC WIND SPEED = 250 MPH
    3. WIND IMPORTANCE FACTOR (I<sub>w</sub>) = 1.0
    4. BUILDING CATEGORY = ENCLOSED
    5. EXPOSURE CATEGORY = C
    6. INTERNAL PRESSURE COEFFICIENT (GC<sub>pi</sub>) = ±0.55 (PER EXCEPTION TO SECTION 304.8 OF ICC 500)
    7. TOPOGRAPHIC FACTOR, K<sub>zt</sub> = 1.0
    8. DIRECTIONAL IT YFACTOR, K<sub>d</sub> = 1.0
    9. MEETS MISSILE IMPACT CRITERIA OF ICC 500 (15 POUND 2x4 MISSILE IMPACTING AT 100 MPH FOR VERTICAL, 67 MPH FOR HORIZONTAL)
  - C. EARTHQUAKE
    1. SEISMIC IMPORTANCE FACTOR (I) = 1.5
    2. SEISMIC USE GROUP = IV
    3. MAPPED SPECTRAL RESPONSE ACCELERATIONS
      - A. S<sub>s</sub> = .173
      - B. S<sub>1</sub> = .085
    4. SOIL SITE CLASS = C
    5. DESIGN SPECTRAL RESPONSE ACCELERATIONS
      - A. S<sub>ds</sub> = .138
      - B. S<sub>d1</sub> = .097
    6. SEISMIC DESIGN CATEGORY = C
    7. BASIC SEISMIC FORCE-RESISTING SYSTEM  
ORDINARY REINF. CONCRETE SHEAR WALLS
    8. DESIGN BASE SHEAR = 110 KIPS
    9. RESPONSE MODIFICATION FACTOR (R) = 5
    10. ANALYSIS PROCEDURE:  
EQUIVALENT LATERAL FORCE

**COMPONENTS AND CLADDING  
DESIGN WIND PRESSURES (PSF)**

| ZONE | EFFECTIVE WIND AREA |      |      |       |       |      |
|------|---------------------|------|------|-------|-------|------|
|      | 10SF                | 20SF | 50SF | 100SF | 200SF |      |
| ROOF | 1 +                 | 125  | 120  | 114   | 110   | 110  |
|      | 2 -                 | -227 | -223 | -217  | -212  | -212 |
|      | 3 +                 | 125  | 120  | 114   | 110   | 110  |
| WALL | 4 +                 | -226 | -219 | -209  | -202  | -195 |
|      | 4 -                 | 212  | 205  | 196   | 189   | 182  |
|      | 5 -                 | -255 | -251 | -232  | -219  | -205 |

NOTE: WIND LOADS SHOWN IN TABLE ARE ULTIMATE LOADS PER ASCE 7-10. FOR USE WITH ASCE 7-10 LOAD COMBINATIONS (MULTIPLY BY 0.6 FOR SERVICE LOADS)  
a = 7.3ft



ZONE LAYOUT DIAGRAMS

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THIS SET OF CONSTRUCTION DOCUMENTS ARE IN CONFORMITY WITH THE ICC/NCSA-500 2014 "STANDARD FOR THE DESIGN AND CONSTRUCTION OF STORM SHELTERS" REQUIREMENTS.

STRUCTURAL DRAWINGS ARE BASED ON ICC 500 "ICC/NCSA STANDAND FOR THE DESIGN AND CONSTRUCTION OF STORM SHELTERS." BASED ON THE "DESIGN WIND SPEED MAP FOR STORM SHELTERS," THE STRUCTURAL SYSTEMS FOR THE BUILDING WAS DESIGNED FOR ZONE IV (250 MILES PER HOUR) LOADS.

| <b>KHAFRA</b>  |   |                           |          |   |            |               |   |            |                           |   |            |                       |   |
|--|---|---------------------------|----------|---|------------|---------------|---|------------|---------------------------|---|------------|-----------------------|---|
|  |   |                           |          |   |            |               |   |            |                           |   |            |                       |   |
| <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>NO.</th> <th>DATE</th> <th>REVISION</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>04-25-2018</td> <td>REVISED FINAL</td> </tr> <tr> <td>2</td> <td>06-13-2018</td> <td>ABC'S COMMENTS AND REPLES</td> </tr> <tr> <td>3</td> <td>04-08-2019</td> <td>SECOND REVISION FINAL</td> </tr> </tbody> </table> | NO.   | DATE                      | REVISION | 1 | 04-25-2018 | REVISED FINAL | 2 | 06-13-2018 | ABC'S COMMENTS AND REPLES | 3 | 04-08-2019 | SECOND REVISION FINAL | <p style="text-align: center;"><b>REUSE OF DOCUMENTS</b></p> <p>THIS DOCUMENT WITH THE IDEAS AND DESIGNS INCORPORATED HEREIN ARE AN INSTRUMENT OF PRACTICE AND MUST NOT BE USED IN WHOLE OR IN PART FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF K&amp;A.</p> <hr/> <p style="text-align: center;"><b>COMMUNITY STORM SHELTER</b><br/>B.C. NO. 2014346 FOR THE PERRY COUNTY COMMISSION<br/>300 Washington Street, Marietta, Alabama<br/>Perry County, Alabama 36076</p> |
| NO.  | DATE  | REVISION                  |          |   |            |               |   |            |                           |   |            |                       |   |
| 1  | 04-25-2018  | REVISED FINAL             |          |   |            |               |   |            |                           |   |            |                       |   |
| 2  | 06-13-2018  | ABC'S COMMENTS AND REPLES |          |   |            |               |   |            |                           |   |            |                       |   |
| 3  | 04-08-2019  | SECOND REVISION FINAL     |          |   |            |               |   |            |                           |   |            |                       |   |
| <p>DATE: APRIL 30, 2019</p> <p>DRWN. BY: DMMML</p> <p>DSGN. BY: BLHT</p> <p>CHKD. BY: BLHT</p> <p>APVD. BY: BLHT</p> <p>SCALE: AS NOTED</p>  |   |                           |          |   |            |               |   |            |                           |   |            |                       |   |
| <p>STRUCTURAL<br/>MARION STORM SHELTER<br/>STRUCTURAL<br/>DETAILS</p>  | <p>PROJECT No. 11MON01</p> <p>DRAWING No. <b>S3.3</b></p> <p>B.C. Project No. 2014346</p> |                           |          |   |            |               |   |            |                           |   |            |                       |   |

CONSTRUCTION DOCUMENTS