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PLOTTED BY: ROY STOKES
FILE: P:\Engineer\11MON01 PERRY COUNTY COMMUNITY SHELTER\Drawings\PERRY COUNTY COMMUNITY SHELTER - MARION\Sheets\S3.1 STRUCTURAL REPORT.dwg

GENERAL STRUCTURAL NOTES

1. ANY OMISSIONS OR DISCREPANCIES BETWEEN PLANS, DETAILS AND SPECIFICATIONS SHALL BE BROUGHT TO THE ATTENTION AND PERMIT PROPER PLACEMENT FOR SIZE AND SPACING OF THE ARCHITECT BEFORE BIDDING.
2. STRUCTURAL DRAWINGS OR PARTS OF THE STRUCTURAL DRAWINGS MAY NOT BE USED AS SHOP DRAWINGS WITHOUT PRIOR WRITTEN APPROVAL.
3. CONTRACTOR PROPOSAL TO CHANGE TO DETAILS MUST BE CLEARLY NOTED ON THE FIRST SHEET OF ALL SHOP DRAWINGS.
4. CONSTRUCTION SHOWN IS STABLE AFTER THE BUILDING IS COMPLETE INCLUDING INTERIOR AND EXTERIOR FINISHES. THE CONTRACTOR IS RESPONSIBLE FOR TEMPORARY BRACING OF THE STRUCTURE DURING CONSTRUCTION.
5. THIS DESIGN IS BASED ON GUIDELINES FROM FEMA 361. IT IS NOT POSSIBLE TO TEST ALL CONDITIONS THAT MAY OCCUR DURING SEVERE WINDSTORMS AND THIS DESIGN IS NOT WARRANTED FOR ALL STORM CONDITIONS, THE DESIGNER SHALL NOT BE OBLIGATED OR MADE LIABLE FOR ACTUAL, INCIDENTAL, CONSEQUENTIAL, OR OTHER DAMAGES OF OR TO USERS OF SHELTERS OR ANY OTHER PERSON OR ENTITY ARISING OUT OF OR IN CONNECTION WITH THE USE, CONDITION, AND/OR PERFORMANCE OF SHELTERS BUILT FROM THIS DESIGN OR FROM THE MAINTENANCE THEREOF.

DESIGN LOADS (SEE S3.3 ALSO) 02

1. REFERENCE CODE FOR LOADING SEI/ASCE 7-02 AND FEMA 361.
   a. BUILDING CLASSIFICATION IV
   b. WIND LOADING
      1) BASIC WIND SPEED 250 mph
      2) WIND EXPOSURE C
      3) VELOCITY PRESSURE (qz) 144 psf
   c. EARTHQUAKE LOADS
      1) EFFECTIVE PEAK VELOCITY-related
         Sds 0.25
         Sd1 0.11 2)
      2) SITE CLASS D
   d. ROOF LOAD 100 psf
   e. SLAB ON GRADE 100 psf

FOUNDATION

1. FOUNDATION DESIGN FOR THIS PROJECT WAS BASED ON ASSUMED SOIL CONDITIONS INFORMATION FOR DESIGN OF FOUNDATIONS HAS NOT BEEN PROVIDED BY THE OWNER.
2. ASSUMED BEARING VALUE OF SOIL.
3. CONTINUOUS FOOTINGS----------3500 psf
4. ISOLATED SPREAD FOOTINGS----------3500 psf
5. ALL FOOTINGS ARE TO BEAR ON UNDISTURBED SOIL.
6. STEP ALL FOOTINGS WHERE NECESSARY TO PROVIDE A MINIMUM OF 1'-0" BELOW THE FINISH GRADE OR 0'-8" BELOW FINISH FLOOR.
7. ALL FOOTING ELEVATIONS ARE GIVEN TO THE TOP OF THE FOOTINGS.
8. FOOTING STEPS SHOWN ON THE PLAN ARE FURNISHED AS A GUIDE FOR ESTIMATING QUANTITIES. FINAL ELEVATIONS ARE TO BE SET IN THE FIELD. BEARING ELEVATIONS MUST BE APPROVED BY A SOIL ENGINEER BEFORE ANY CONCRETE IS PLACED.
9. COORDINATE FOUNDATION ELEVATIONS WITH PLUMBING REQUIREMENTS. STEP FOOTINGS AS REQUIRED TO CLEAR PLUMBING LINES.

REINFORCING STEEL AND CONCRETE

1. ALL CONCRETE WORK IS TO BE IN ACCORDANCE WITH THE "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE" (ACI 318-02)
2. ALL DETAILING IS TO BE IN ACCORDANCE WITH "ACI DETAILING MANUAL" SP-66.
3. CONCRETE PROPERTIES

CONCRETE USE	DESIGN STRENGTH	MIN W/C RATIO	SLUMP LIMITS	ENTRAINED AIR RANGE	WEIGHT
ALL CONCRETE	4000 psi	n/a	3" TO 5"	3% TO 5%	150 psf

   a. ALL CONCRETE MUST OBTAIN 7 DAY STRENGTH OF 70% OF DESIGN
   b. CONCRETE MIXES MAY USE UP TO 25% OF CEMENTIUOS WEIGHT AS FLY ASH.
   c. CONCRETE MIXES MAY USE WATER REDUCERS, ACCELERATORS OR RETARDERS WITH PRIOR APPROVAL.
4. CONCRETE SHALL BE MIXED AND DELIVERED IN ACCORDANCE WITH ACI 318 AND 347.
5. CONCRETE FINISHES AND CURING SHALL CONFORM TO THE PROJECT SPECIFICATIONS.
6. ALL STEEL REINFORCEMENT SHALL BE OF DEFORMED BARS OF BILLET STEEL CONFORMING TO ASTM A615, GRADE 60 IN ALL CONCRETE.
7. WELDED WIRE FABRIC SHALL BE ASTM 186 AND SHALL LAP 2 CROSS WIRES OR 6", WHATEVER IS GREATER ON ALL SIDES. ALL LAPS SHALL BE WIRED TOGETHER.
8. ALL SLABS ON GRADE ARE 6", UNLESS NOTED. SLABS ARE TO BE PLACED OVER 6 MIL., PVC VAPOR BARRIER OVER 4" OF POROUS FILL. REINFORCE SLABS WITH 6X6 W1.4 WWF PLACED 1" FROM TOP OF SLAB. UNLESS OTHERWISE NOTED, SLAB SHALL HAVE JOINTS PLACED AT 15'-0" ON CENTER. JOINTS CAN BE CONSTRUCTION OR CONTROL JOINTS. SEE ARCHITECTURAL DRAWINGS FOR FLOOR SLOPES AND RECESSES FOR TILES.
9. CONCRETE COVER FOR REINFORCEMENT:
   a. BEAM 1 1/2"OUTSIDE OF STIRRUPS
   b. COLUMNS 1 1/2" OUTSIDE OF TIES
   c. FOOTINGS 3"
   d. SLABS AND JOISTS 3/4"
   e. WALLS

REINFORCING DETAILS

1. THE MINIMUM REINFORCING FOR ALL CONCRETE WALLS AND SLABS SHALL BE AS FOLLOWS:

WALL THICKNESS	REINF EACH WAY	LOCATION
6"	#4@12"	CENTERED
8"	#5@12"	CENTERED
10"	#4@12"	EACH FACE
12"	#5@12"	EACH FACE

   PROVIDE LARGER SECTIONS AND MORE REINFORCING IN ALL SECTIONS OF CONCRETE WHERE REQUIRED BY THE DETAILS ON THE DRAWINGS OR BY THE SPECIFICATIONS.
2. CLEARANCE FOR REINFORCEMENT BARS, UNLESS SHOWN OTHERWISE, SHALL BE:
   WHEN PLACED ON GROUND---3" INTERIOR DRY SURFACES:
   EXPOSED TO WATER, WEATHER, SLABS-----3/4"
   BACKFILL OR CONDENSATION: BEAMS-----1 1/2"
   #5 BAR OR SMALLER---1 1/2" COLUMNS---1 1/2"
   #6 BAR OR LARGER---2" WALLS-----1"
3. REFER TO WALL CORNER AND WALL INTERSECTION REINFORCING DETAIL. IN GENERAL, THE WALL CORNER REINFORCING SIZES AND SPACINGS SHALL BE CALLED OUT ON THE PLANS AND REFERENCED TO THESE DETAILS AND THE TYPICAL HORIZONTAL WALL REINFORCING SHALL LAP WITH THE HORIZONTAL REINFORCING.
4. ALL BENDS, UNLESS OTHERWISE SHOWN, SHALL BE A 90 DEGREE STANDARD HOOK AS DEFINED IN THE LATEST EDITION OF ACI 318.
5. AT WALL CORNER AND WALL INTERSECTION REINFORCEMENT BARS SHALL BE CONTINUOUS AROUND CORNERS AND THROUGH COLUMNS OR PILASTERS. REINFORCEMENT SHALL BE EXTENDED INTO CONNECTING WALLS AND LAPPED ON THE OPPOSITE FACE OF THE CONNECTING WALLS, AS INDICATED ELSEWHERE ON THIS SHEET.
6. VERTICAL WALL BARS SHALL BE LAPPED WITH DOWELS FROM BASE SLABS. PROVIDE A MINIMUM OF TWO FULL HEIGHT VERTICAL BARS WITH MATCHING DOWELS AT WALL ENDS, CORNERS AND INTERSECTIONS WITH SIZE TO MATCH TYPICAL VERTICAL REINFORCING STEEL SHOWN OR REQUIRED BY NOTES ABOVE.
7. UNLESS INDICATED OTHERWISE, CONTRACTOR MAY SPLICE CONTINUOUS SLAB OR LONGITUDINAL BEAM BARS AT LOCATIONS OF HIS CHOOSING, EXCEPT THAT TOP BAR SPLICES SHALL BE LOCATED AT MIDSPAN AND BOTTOM BAR SPLICES SHALL BE LOCATED AT SUPPORTS. ALL REINFORCEMENT BENDS AND LAPS, UNLESS OTHERWISE NOTED, SHALL SATISFY THE FOLLOWING MINIMUM REQUIREMENTS:

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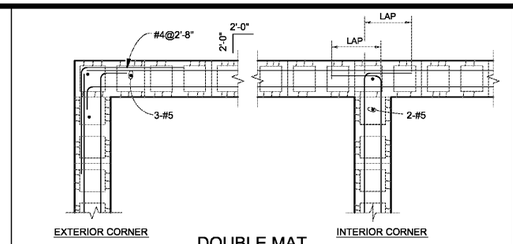

NOTE:
LAP=30 BAR DIAMETERS OR 2'-0" MIN UNLESS OTHERWISE NOTED.

CMU WALL CORNERS
NTS

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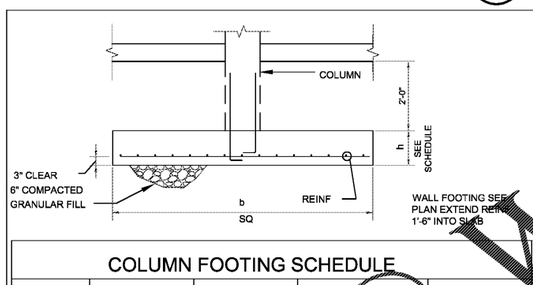
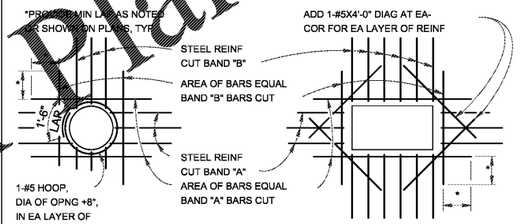


COLUMN FOOTING SCHEDULE

TYPE	h	b	REINF. EW	COL DETAIL
A	2'-0"	9'-0"	#9 @ 12 OC	
B	1'-3"	5'-0"	#7 @ 12 OC	

COLUMN FOOTING SCHEDULE
NTS

202



NOTES:
1. TYPICAL FOR ALL OPENINGS IN CONCRETE WALLS AND SLABS UNLESS INDICATED OTHERWISE ON THE PLANS.
2. DO NOT WELD REINFORCEMENT TO PIPE SLEEVES AND INSERTS.

OPENING REINFORCING
NTS

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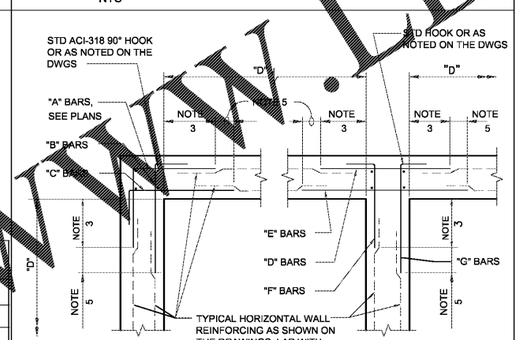

NOTES
1. TYPICAL HORIZONTAL WALL CORNER AND INTERSECTION REINFORCING LAYOUT IS SHOWN TO AVOID CONGESTION AND PERMIT PROPER PLACEMENT, FOR SIZE AND SPACING SEE PLANS. ALL HORIZONTAL REINFORCING AT CORNERS AND INTERSECTIONS SHALL BE FABRICATED AND INSTALLED WITH SPLICES LOCATED WHERE SHOWN REGARDLESS OF BAR SIZE AND SPACING.
2. WHERE THE CORNER OR INTERSECTION REINFORCING SIZE AND SPACING IS NOT SHOWN, NOTED OR TABULATED ON THE PLANS, THE SIZE AND SPACING SHALL BE THE SAME AS THE WALL HORIZONTAL REINFORCING SHOWN ON THE WALL SECTIONS OR AS NOTED FOR THE REINFORCING BETWEEN THE CORNERS OR INTERSECTIONS.
3. EXCEPT WHERE OTHERWISE SHOWN ON THE DRAWINGS, THE LENGTH INDICATED AS "NOTE 3" SHALL BE THE LESSER OF D/4, 10 FEET, OR 1.0 TIMES THE HEIGHT OF THE WALL, EXCEPT THAT IN NO CASE SHALL IT BE LESS THAN 2.0 FEET.
4. D = LENGTH OF WALL PARALLEL TO THE BAR LENGTH IN QUESTION.
5. EXCEPT WHERE OTHERWISE SHOWN ON THE DRAWINGS, THE LENGTH INDICATED AS "NOTE 5" SHALL BE EQUAL TO ONE "LAP LENGTH" AS REQUIRED BY THE GENERAL STRUCTURAL NOTES. USE THE LAP LENGTH REQUIRED FOR THE SMALLER OF THE TWO REINFORCING BARS BEING SPLICED.
6. UNLESS OTHERWISE NOTED, "B" AND "C" BARS ARE THE SAME SIZE AND SPACING AND "F" AND "G" BARS ARE THE SAME SIZE AND SPACING.

TYPICAL DOUBLE MAT CORNER AND INTERSECTION REINFORCING
NTS (SEE PLANS FOR SIZE AND SPACING)

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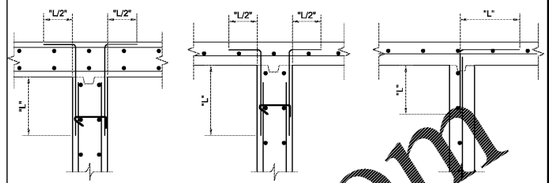

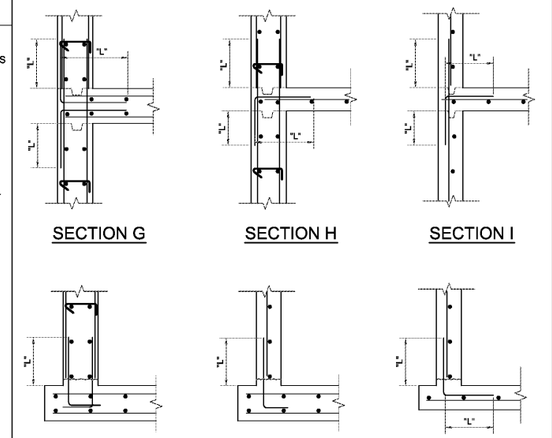

NOTE:
1. PROVIDE TENSION LAP SPLICE, L, AS REQUIRED FOR DOWEL SIZE UNLESS LONGER DOWEL LENGTH IS INDICATED IN DETAILS. SEE GENERAL NOTES FOR LAP SPLICE LENGTHS.
2. SEE PLANS AND SECTIONS FOR ELEMENT SIZES AND FOR SIZE AND SPACING OF REINFORCING
3. FOR WALLS WITH TWO MATS OF REINFORCING, PROVIDE #3 WALL TIES AT TOP OF WALL AND AT 4'-0"OC MAX HORIZONTAL AND VERTICAL TO HOLD SPACING BETWEEN REINFORCING MATS
4. WATERSTOPPED JOINTS ARE REQUIRED FOR WALLS AND SLABS THAT RETAIN FLUID.

TYPICAL WALL REINFORCING DETAILS
NTS

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

STRUCTURAL DRAWINGS ARE BASED ON ICC 500 "ICC/NSSA 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.

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No.	DATE	REVISION	APVD
1	04-25-2018	REVISED FINAL ABC'S COMMENTS AND REPLIES PEER REVIEW REPLIES TO CMC	RDSS
2	06-13-2018	SECOND REVISED FINAL ABC'S COMMENTS AND REPLIES	RDSS
3	04-08-2019		RDSS

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PROJECT:
COMMUNITY STORM SHELTER
B.C. NO. 2014346
FOR THE
PERRY COUNTY COMMISSION
300 Washington Street, Marion Alabama
Perry, Alabama 36756

DATE	APRIL 30, 2019
DRWN. BY	NDBL
DSGN. BY	BLHT
CHKD. BY	BLHT
APVD. BY	BLHT
SCALE	AS NOTED

STRUCTURAL
SHEET TITLE
MARION STORM SHELTER
STRUCTURAL DETAILS

PROJECT No. 11MON01
DRAWING No. S3.1
B.C. Project No. 2014346

CONSTRUCTION DOCUMENTS