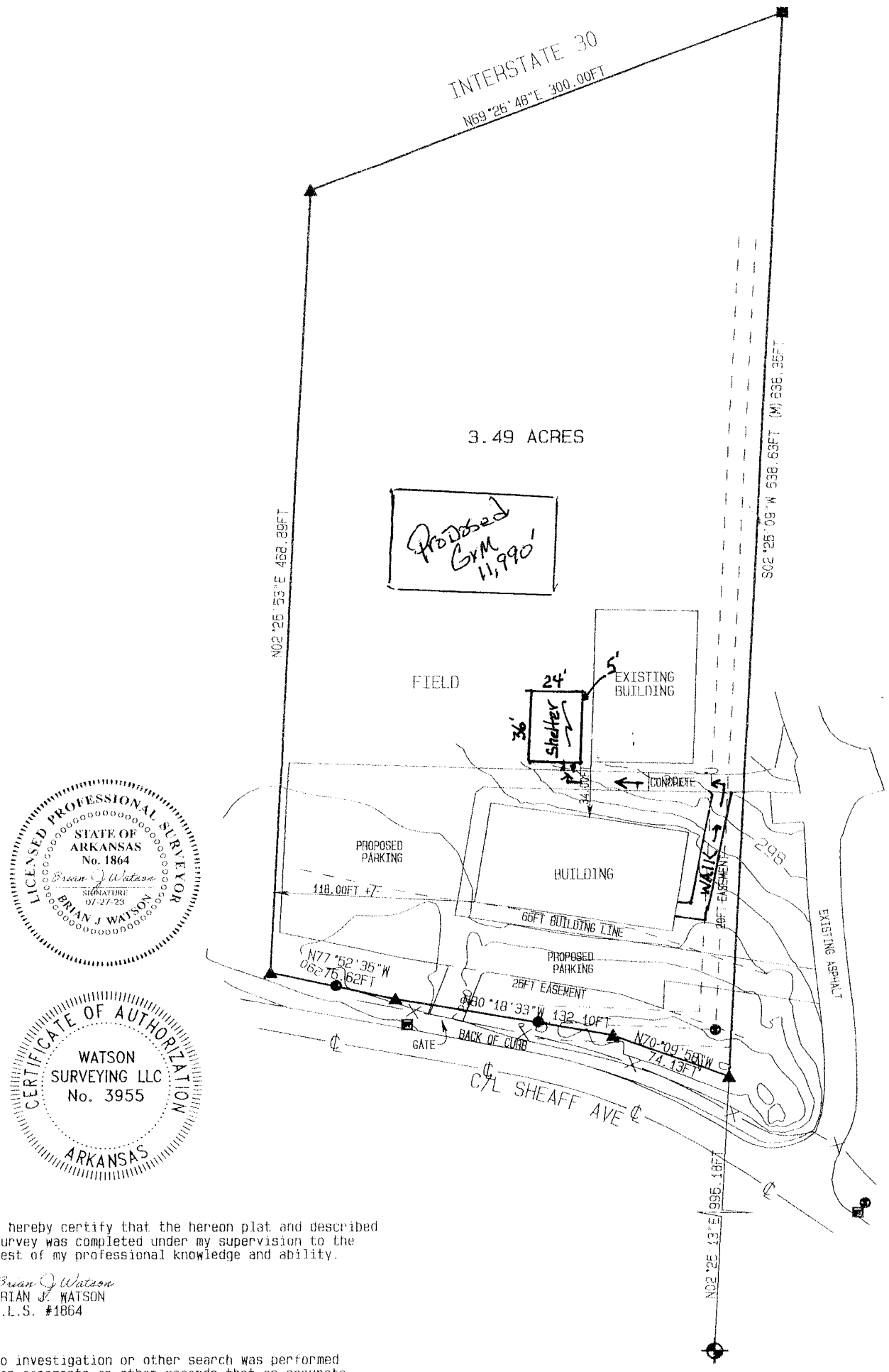
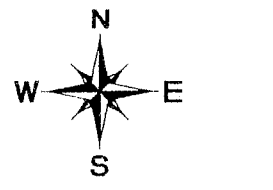
DEEDED LEGAL DESCRIPTION:
Part of the Southeast Quarter of the Northeast Quarter and part of the Northeast Quarter of the Northeast Quarter of Section 29, Township 1 South, Range 14 West, City of Bryant, Saline County, Arkansas, more particularly described as follows: Commencing at the Southeast corner of said Southeast Quarter Northeast Quarter; thence North 02 deg. 25 min. 15 sec. East along the East line thereof for 996.18 feet to the Point of Beginning being on the North right-of-way line of the Springhill Overpass extension road; thence North 70 deg. 09 min. 58 sec. West for 74.13 feet; thence North 80 deg. 18 min. 33 sec. West for 132.10 feet; thence North 77 deg. 52 min. 35 sec. West for 75.62 feet; thence North 02 deg. 25 min. 53 sec. East for 468.89 feet to the South right-of-way line of Interstate #30; thence North 69 deg. 26 min. 48 sec. East for 300.00 feet to the East line of said Northeast Quarter Northeast Quarter; thence South 02 deg. 25 min. 09 sec. West for 637.63 feet to the Point of Beginning, containing 3.49 acres, more or less



I hereby certify that the hereon plat and described survey was completed under my supervision to the best of my professional knowledge and ability.

Brian J. Watson
BRIAN J. WATSON
P.L.S. #1864

No investigation or other search was performed for easements or other records that an accurate and current title search may disclose

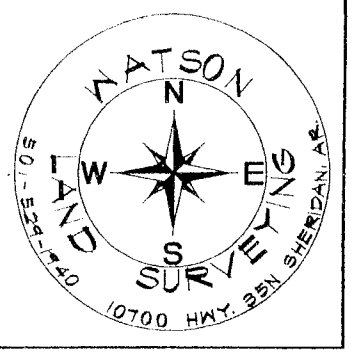


BEARINGS BASED ON EAST LINE FROM ORIGINAL DEED

SCALE 1"=70'

0 70 140

Symbol	Description
ST	STORM DRAIN
S	SEWER
▲	COMPUTED
■	REBAR
——X——	FENCE (X) LINE
——℄——	CENTER LINE
————	PROPERTY LINE



DATE: 27 JULY 2023
SCALE: 1IN.=70FT.
JOB#23-134
DRAWN BY: BW

PLOT PLAN
FOR THE USE AND BENEFIT OF
DESTINED TO WIN

Building Code Requirements

2012 International Building Code (IBC)

OCCUPANCY TYPES: TYPE E

BUILDING CONSTRUCTION:
CONSTRUCTION: TYPE IIB UNSPRINKLERED

ALLOWABLE SQ FT: 14,500 SQ FT

ACTUAL BUILDING SQ FT: 864 SQ FT

NET AREA: 748 SQ FT

ALLOWABLE HEIGHT: 2 STORIES, 55'-0"

ACTUAL HEIGHT: 1 STORY, 14'-8"

EGRESS:
TRAVEL DISTANCE: (UNSPRINKLERED) 200
ACTUAL DISTANCE: 38

0.2 WIDTH REQUIRED PER OCCUPANT: 30"
1 - 3'-0" DOOR REQUIRED. ACTUAL WIDTH 34"

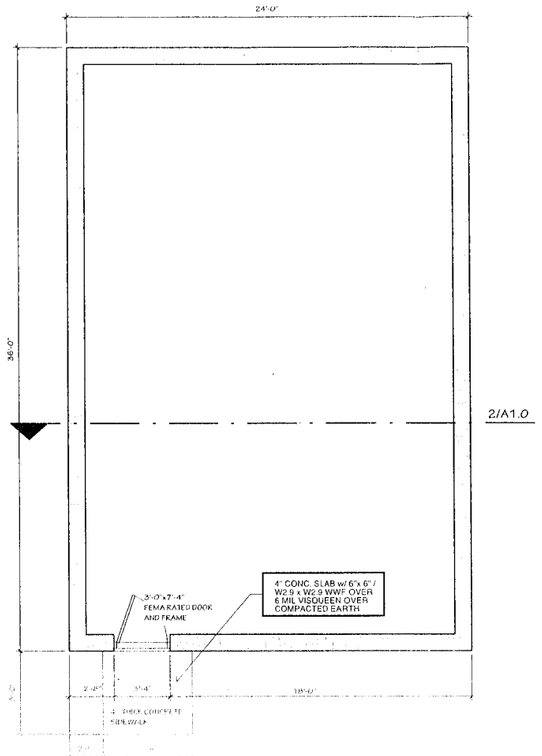
FIRE EXTINGUISHERS REQUIRED: 1

OCCUPANTS ALLOWED: 5 PER NET SF
748 NET SF 150 OCCUPANTS

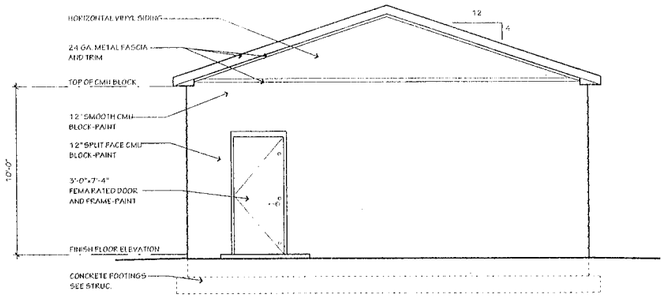
DRAWING INDEX

A1.0 FLOOR PLAN, EXTERIOR ELEVATIONS & BUILDING SECTION

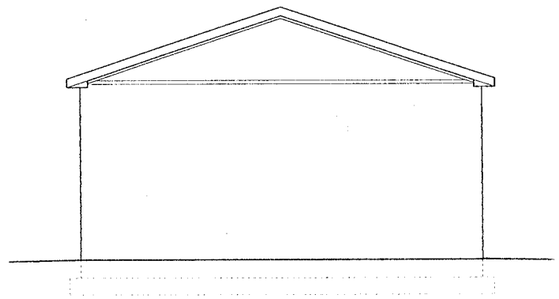
S0.0 GENERAL NOTES
S0.1 GENERAL NOTES CONTINUED
S1.1 FOUNDATION & FRAMING PLANS
S2.1 TYPICAL DETAILS
S2.2 TYPICAL DETAILS
S2.3 TYPICAL DETAILS
S3.1 FRAMING SECTIONS



SHELTER FLOOR PLAN TOTAL SQUARE FEET 664 SF

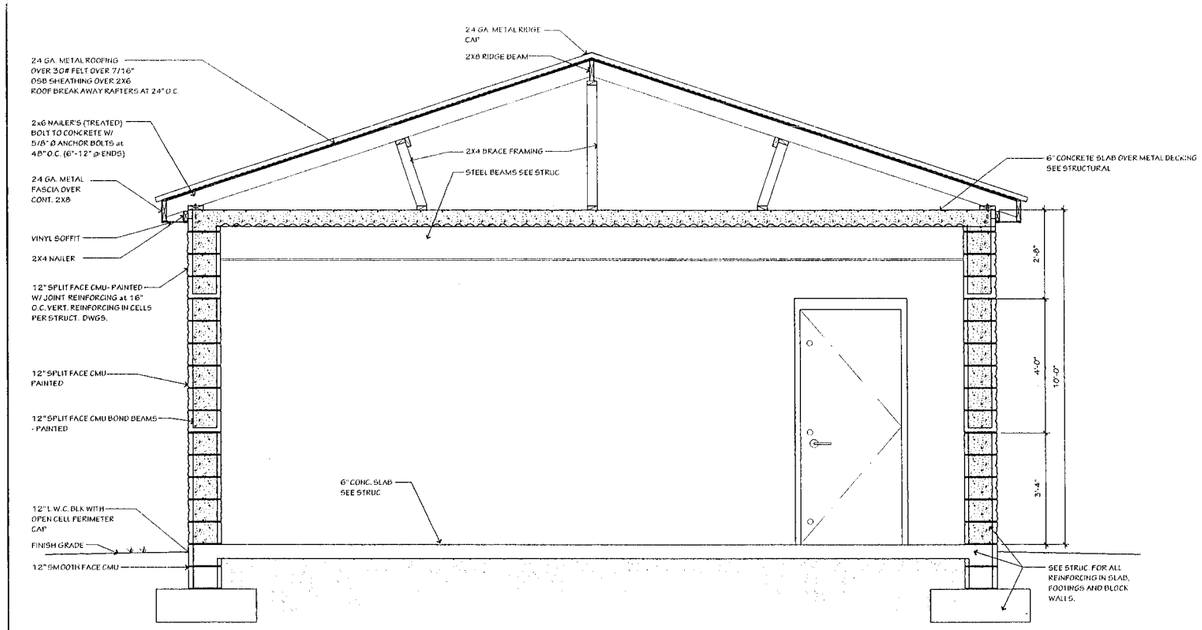


3 FRONT ELEVATION
SCALE: 1/4" = 1'-0"

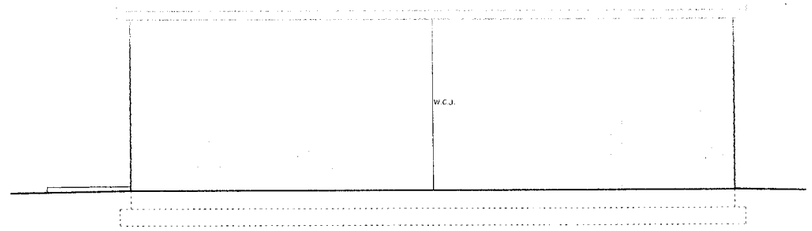


4 REAR ELEVATION
SCALE: 1/4" = 1'-0"

SEE NOTES ON ELEVATION #3

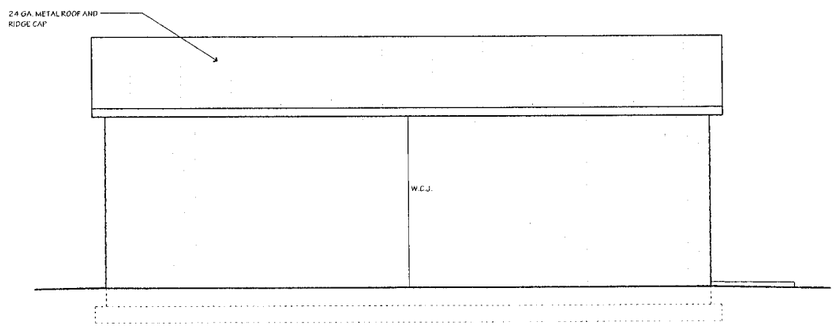


2 BUILDING SECTION
SCALE: 1/2" = 1'-0"



5 SIDE ELEVATIONS
SCALE: 1/4" = 1'-0"

SEE NOTES ON ELEVATION #3



6 SIDE ELEVATIONS
SCALE: 1/4" = 1'-0"

SEE NOTES ON ELEVATION #3

HUGHES ARCHITECTURAL DESIGNS
1202 N STATE LINE AVE
SUITE #102
TEXARKANA, AR 71854
501-627-2448
michaelhughes72s77@gmail.com

New Storm Shelter Facility for
Arkansas Christian Academy
Bryant, Arkansas

Revisions:

Professional Stamps:

Sheet Title:
Floor Plan, Exterior Elev's & Bldg Section

Date: 12-04-2023
Sheet Number:
A1.0

GENERAL NOTES

In case of conflict between the General Notes below and the Specifications, the more rigid requirement shall govern unless amended in writing by the Structural Engineer of Record.

DESIGN DATA

1. Design Codes – (All latest editions unless noted otherwise.)
   - International Building Codes (IBC 2021)
   - Arkansas Fire Prevention Code 2007 Edition (IBC 2012) with Amendments.
   - American Society of Civil Engineers (ASCE 7-16) Minimum Design Loads for Buildings and Other Structures
   - American Concrete Institute (ACI)
   - American Institute of Steel Construction (AISC)
   - American Welding Society (AWS)
   - American Iron and Steel Institute Specifications for the Design of Cold Formed Steel Structural Members (AISI)
   - National Design Specification for Wood Construction (ANSI/AF&PA NDS-2018)
   - Steel Deck Institute (SDI)
   - Standard for the Design and Construction of Storm Shelters (2020 ICC 500)
   - Safe Rooms for Tornadoes and Hurricanes (2021 FEMA P-361)
2. Design Loads (IBC & ASCE7)
   - Dead Load Design Data
     - Roof 15 psf
     - Floor 65 psf
     - Exterior CMU Wall 127 psf of wall area
   - Live Load Design Data
     - Floor Distributed
       - Lobby (1st Floor) 100 psf (Not reducible)
     - Floor Concentrated
       - Office 2000 lbs
     - Partition Load 20 psf of wall area (Reducible per code)
     - Slab-On-Grade 100 psf
   - Live Roof Load Design Data
     - Roof (Sloped) 100 psf
     - Roof (Flat) 100 psf
   - Wind Design Data
     - Risk Category IV
     - Velocity 250mph
     - Wind Exposure Category C
     - Internal Pressure Coefficient, GC_{pi} 0.55±
   - Snow Design Data
     - Importance Factor for Snow, I_s 1.2
     - Ground Snow Load, P_g 10 psf
     - Exposure Coefficient C_e 1.0
     - Thermal Factor C_t 1.0
     - Roof Slope Factor, C_s 1.0
     - Flat Roof Snow Load P_f 9.1 psf (Use min 11 psf w/ Rain on Snow Surcharge)
   - Seismic Criteria
     - Risk Category IV
     - Seismic Importance Factor, I_E 5.0
     - Site Soil Class D
     - Mapped Spectral Response Coefficients S_s = 0.313 / S_1 = 0.133; S_{ds} = 0.323 / S_{d1} = 0.207
     - Seismic Design Category D
     - Basic Seismic Force Resisting System A-7 Specially Reinforced Masonry Shear Walls
     - Design Base Shear 0.097W
     - Seismic Response Coefficient, C_s 0.097
     - Response Modifications Factor, R 5.0
     - Analysis Procedure Equivalent Lateral Force
   - Flood Design Data
     - Flood Design Class 4
     - Flood Zone X

Deflection and Drift Limits:
- Roof/Floor Members
  - [illegible] L/240
  - [illegible] L/360
  - Exterior Wall Deflection L/175
  - Interior Wall Deflection L/175
  - Story Drift (Seismic) 0.020h$_{sx}$

Materials & Component Design Criteria:
- Cast-In-Place Concrete
  - Concrete Reinforcing – Bar (Typical) ASTM A615, GR 60
  - Concrete Reinforcing – Bar (Weldable) ASTM A706, GR 60
  - Concrete Reinforcing – Welded Wire Fabric ASTM A185, (Plain) ASTM A497, (Deformed)
  - Cement ASTM C150
  - Aggregate ASTM C33, ASTM C330

Concrete Mix Criteria

Class	Use	Category F	S	W	C	F'c, PSI	WT, PCF	AGG, IN	AE. %
I.	FTG/FDN/PC	0	0	0	0	3500	145	¾"	NA
II.	Interior Slab	0	0	0	0	4000	145	¾"	NA
III.	Exterior Slab	1	0	0	0	4000	145	¾"	5+ 1
V.	All Other	0	0	0	0	4000	145	¾"	NA

Reference ACI 318 Chapter 4 For Additional Information Regarding Durability Category And Class Requirement

Concrete Mix Design Shall Be Submitted For Each Class In Accordence With The Procedure Outlined In ACI 301, Standard Specification For Structural Concrete. Documentation Submitted Shall Include The Mix Data. For Additional Submittal Requirements, Reference ACI 301. For Requirements On The Use Of Admixtures And Limits On The Water/Cementitious Materials Ratio For Durability, Reference The Project Manual/Specifications And ACI 318, Building Code Requirements For Structural Concrete.

Structural Masonry
- Design Compressive Strength (F'm= 2000 PSI)
- Concrete Masonry Units ASTM C90, NORMAL WT
- Reinforcing Steel (UNO):
  - Bar Reinforcing (Typical) ASTM A615, GR 60
  - Bar Reinforcing (Weldable) ASTM A706, GR 60
  - Joint Reinforcement ASTM A951
- Grout (F"c= 3000 PSI, 8"-11" Slump) ASTM C476, ASTM C1019
- Mortar, Type S ASTM C270 or ASTM C780
- Non-Shrink Grout Under Plates (F'c=8000 PSI) ASTM C1107, GR A

Structural Steel
Structural Shapes (UNO)
- Wide Flange ASTM A992 or ASTM A572
- Channels, Angles and Plates ASTM A36 or ASTM A572

Hollow Structural Sections
- HSS, (Fy = 46 KSI) ASTM A500, GR C
- Pipe, (Fy = 35 KSI) ASTM A53, GR C
- Bolts And Fasteners (UNO) ASTM A325
- Structural/Anchor Rods ASTM F1554, Grade 55 (Weldable)
- Headed Shear Studs ASTM A108, AWS D1.1, Type B

3. Design Soil Bearing Pressures
   - Footings on natural soils or compacted structural fill are designed for a minimum soil bearing pressure of 1,800 psf.
   - If the soil at the footing bearing elevations shown is of questionable bearing value, the Engineer or Architect shall be notified immediately.
   - After footing excavations are completed and before placing concrete, the excavated areas shall be inspected and approved by the Owner selected independent testing laboratory.

GENERAL INFORMATION

1. All columns shall be centered on grid lines unless noted otherwise.
2. All column footings shall be centered on columns unless noted otherwise.
3. All wall footings shall be centered on walls unless noted otherwise.
4. Unless otherwise noted or detailed, concrete pads for mechanical equipment shall be 4" thick (minimum) and reinforced with #3 @ 12" oc each way centered.
5. Substitution of expansion anchors for embedded anchors shall not be permitted.
6. Weights of mechanical equipment shown on the structural plans are for units specified by the Mechanical Engineer. Contractor shall verify weights and any substitutions that result in increased weight shall be approved by the Structural Engineer.
7. Backfill both sides of all foundation and retaining walls equally until low side is up to finish grade. Do not backfill any walls until concrete has reached its specified 28-day compressive strength.
8. Permanent stability of the building and components is not provided until the erection is completed as shown on the contract drawings. "Temporary supports, such as temporary guys, braces, falsework, cribbing or other elements required for the erection operation will be determined, furnished and installed by the erector."
9. The contractor shall insure that no construction load exceeds the design live loads indicated on the structural drawings and that these loads are not put on the structural members prior to the time that all framing members and their connections are in place.
10. The Contractor shall be responsible for Verifying all existing conditions. The Contractor shall be responsible for coordinating architectural., structural, mechanical, and electrical details and dimensions. Any Discrepancies between such details and dimensions shall be reported to the EOR prior to proceeding with the work.
11. The Contractor shall be responsible for erection procedure and sequence to insure the integrity of the building and it's component parts during construction.

SUBMITTALS

1. Review of shop drawings and other submittals by the Structural Engineer does not relieve the Contractor of the responsibility to review and check shop drawings before submitting to the Structural Engineer. The Contractor remains solely responsible for errors and omissions associated with the preparation of shop drawings as they pertain to member sizes, details, and dimensions specified in the Contract Documents. All shop drawings must be stamped by the Contractor prior to submittal.
2. Shop Drawings: The Contractor shall submit for Structural Engineer review shop drawings for the following items. Items marked (*) shall have shop drawings sealed by a Professional Engineer registered in the state in which the project is located. Items marked (#) shall be submitted for Structural Engineer's record only.

   A. Structural Steel (*)
   B. Steel Deck
   C. Concrete Mix Designs
   D. CMU Reinforcing Steel

FOUNDATIONS

1. All soil preparation shall be in accordance with the recommendations given in the referenced Geotechnical Report.
2. Strip area of all gravel, surface vegetation, topsoil, and any debris. Remove all existing structures, foundations, and below grade site features. After stripping and making required cuts, exposed subgrade should be compacted. Overexcavate and stabilize any soft or unstable areas discovered by proof rolling.
3. The Geotechnical Engineer shall be present during proof rolling and shall inspect the subgrade prior to any fill operations. All compacted fill shall be continuously inspected by the Owner's selected independent testing laboratory.
4. If the soil at the bearing elevations shown is of questionable bearing value the Structural Engineer of Record or Architect shall be notified immediately.
5. All fill material under structure shall comply with requirements stated in Geotechnical Report unless specifically noted otherwise.
6. After footing excavations are completed and before placing concrete, the excavated areas shall be inspected and approved by the Owner selected independent testing laboratory.

CAST-IN-PLACE CONCRETE

1. Arrangement and bending of reinforcing steel shall be in accordance with ACI Detailing Manual, latest edition.
2. Reinforcing steel shall be new and all bars shall be deformed.
3. Reinforcing Bars: ASTM A615 Grade 60 and ASTM A706 Grade 60 for weldable reinforcing.
4. Unless noted otherwise, bar laps shall be Class B tension laps and shall be lapped with minimum lengths as shown in Typical Details, where splices are required in reinforcing. Shorter laps may be acceptable if specific locations of alternate laps are shown on the reinforcement placement drawings and calculations are submitted by a Registered Professional Engineer, licensed to practice in the state in which the project is located, justifying the alternate lap lengths.
5. Provide suitable wire spacers, chairs, ties, etc. for supporting reinforcing steel in the proper position while placing concrete. Do not "wet stick" dowels.
6. All Welded Wire Fabric (WWF): ASTM A185. Minimum lap and embedment to be the greater of one cross wire spacing plus 2" or 6".
7. Minimum concrete protective covering for reinforcement at surfaces not exposed directly to the ground shall be ¾" for slabs, joists, and walls and 1½" for beam stirrups, column ties, or spirals unless noted otherwise.
8. Before placing concrete, clean reinforcement for foreign particles or coatings. Place, support, and secure reinforcement against displacement. For cast-in-place concrete, provide cover as shown below, unless noted otherwise on drawings, and as specified in ACI 318, building code requirements for structural concrete.

Application/condition	Required cover, Inches
Cast against and permanently exposed to earth	3"
Exposed to earth or weather:	
No.6 through No. 19 bars	2"
No.5 bar, W31 or D31 wire, and smaller	1½"
Not exposed to weather or in contact with ground:	
Slab, walls, joists:	
No. 14 and No. 18 bars	1½"
No. 11 bar and smaller	¾"
Beam, columns:	
Primary reinforcements, ties, stirrups, spirals	1½"
Shells, folded plate members:	
No.6 bar and larger	¾"
No.5 bar, W31 or D31 wire, and smaller	½"

9. Locations and sizes of openings, sleeves, etc. required for other trades must be verified by these trades before placing concrete.
10. All slots, sleeves, trenches, and other embedded items shall be set and secured against movement before the concrete is placed. See Architectural, Electrical, Mechanical, Plumbing, and Vendor drawings for sizes and locations. Coordinate locations, spacings, and sizes with the Structural Engineer of Record prior to pouring concrete.
11. Conduits and pipes embedded in concrete slabs may be no larger than ⅓ of the slab thickness (based on the maximum outside diameter) and shall have a center-to-center spacing no less than three (3) conduit diameters. Regardless of diameter, the minimum clear spacing between conduits or reinforcing shall be one (1) inch.
12. No more than four conduits may be placed adjacent to each other without prior approval in writing from the Structural Engineer of Record.
13. No aluminum conduits, devices, or fixtures may be embedded into the concrete so that the aluminum is in direct contact with the concrete.
14. Corner bars shall be provided for all horizontal reinforcing bars at the intersections and corners of all strip footings, beams, and walls unless noted otherwise. Corner bars shall be of the same size and grade as the horizontal reinforcing they connect. Minimum lap length shall be as indicated with the Typical Details unless noted otherwise.
15. For slabs-on-grade, provide saw-cut control joints at intervals of 15' or 36 times the width of the slab. Refer to the Structural Drawings for typical control joint details.
16. Cold weather concreting: Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing actions, or low temperatures in accordance with ACI 306.1 "Standard Specification for Cold Weather Concreting". Do not use frozen materials or materials containing ice or snow. Do not place concrete on frozen subgrade or on subgrade containing frost heaves or soft, mushy, or frozen materials. Do not use calcium chloride, thiocyanates or admixtures containing more than 0.05 percent chloride ions in concrete that will be in contact with galvanized steel, aluminum, or concrete containing embedded metal. Do not use admixtures containing chloride ions unless specifically permitted for each use by the Architect/Engineer. Do not use antifreeze solutions.
17. Provide joint reinforcement in every bed joint (8-inch on center) for stack bond and every other joint (16-inch on center) for running bond masonry placement. Place such that longitudinal wires overlap 6 inches and are embedded in mortar with a minimum cover of 5/8".
18. Detail reinforcement in accordance with ACI 315. Reinforcement shall not be welded unless noted or approved by the Structural Engineer.
19. Pedestal, Column and Wall Vertical Reinforcing: Dowel to foundation with hooked bars of same size and spacing as vertical reinforcing, terminate top of reinforcement with hooked bar of same size and spacing as vertical reinforcing.
20. Beam Horizontal Reinforcing: Terminate each end with standard.
21. Closed Tie and Stirrup Reinforcing: Terminate each end with standard hook.
22. Concrete design and detailing shall conform to the requirements of ACI 318 and ACI 301, latest editions.
23. Contractor shall provide reinforcing shop drawings which adequately depict the reinforcing bar sizes and placement. Written description of reinforcement without adequate sections, elevations and details is not acceptable.
24. Submit written reports of each proposed mix design for each class of concrete with concrete cylinder test results at least 15 days prior to start of work.
25. All concrete that will be exposed to the weather shall have air entrainment.
26. All structural concrete exposed to view to be smooth formed finished with ¾" chamfers at all exposed edges.

ACI lap splice length (inches)

BAR SIZE	F'C = 3000 PSI TOP BARS CASE 1	TOP BARS CASE 2	OTHER BARS CASE 1	OTHER BARS CASE 2	F'C = 3500 PSI TOP BARS CASE 1	TOP BARS CASE 2	OTHER BARS CASE 1	OTHER BARS CASE 2	F'C = 4000 PSI TOP BARS CASE 1	TOP BARS CASE 2	OTHER BARS CASE 1	OTHER BARS CASE 2
#3	28	42	22	32	26	39	21	30	24	36	19	28
#4	37	56	29	43	35	52	27	40	32	48	25	37
#5	47	70	36	54	44	65	34	51	40	60	31	47
#6	56	84	43	64	52	78	40	60	48	72	37	56
#7	81	122	63	19	76	114	59	88	70	106	54	81
#8	93	139	72	107	87	130	67	100	80	121	62	93
#9	105	157	81	121	89	147	76	113	91	136	70	105
#10	118	177	91	136	110	165	85	127	102	153	79	118
#11	131	196	101	151	122	183	94	141	113	170	87	131

BAR SIZE	F'C = 4500 PSI TOP BARS CASE 1	TOP BARS CASE 2	OTHER BARS CASE 1	OTHER BARS CASE 2	F'C = 5000 PSI TOP BARS CASE 1	TOP BARS CASE 2	OTHER BARS CASE 1	OTHER BARS CASE 2	F'C = 6000 PSI TOP BARS CASE 1	TOP BARS CASE 2	OTHER BARS CASE 1	OTHER BARS CASE 2
#3	23	35	18	27	22	33	17	25	20	30	16	23
#4	31	46	24	35	29	43	22	33	26	40	20	31
#5	38	57	30	45	36	54	28	42	33	49	25	38
#6	46	69	35	53	43	64	33	50	40	59	31	46
#7	67	100	52	77	63	94	49	73	58	86	44	66
#8	76	115	59	88	72	108	55	83	66	98	51	76
#9	86	129	67	100	81	122	63	94	74	111	57	85
#10	97	145	75	112	91	137	70	105	83	125	64	96
#11	107	161	83	124	101	152	78	117	93	139	71	107

CAST-IN-PLACE CONCRETE CONT.

NOTES:
1. Tabulated values are based on grade 60 bars and normal weight concrete.
2. Cases 1 and 2, which depend on the type of structural element, concrete cover, and the center-to-center spacing of the bars, are defined as:
   Beams or columns:
   Case 1: Cover at lease 1.0 db and C.C. spacing of at least 2.0 db.
   Case 2: Cover less than 1.0 db and C.C. spacing less than 2.0 db.
   All others:
   Case 1: Cover at lease 1.0 db and C.C. spacing of at least 3.0 db.
   Case 2: Cover less than 1.0 db and C.C. spacing less than 3.0 db.
3. Top bars are horizontal beam and slab bars with more than 12" of concrete below the bars.
4. For lightweight aggregate concrete, multiply the tabulated values by 1.3.
5. For epoxy-coated bars, multiply the tabulated values by one of the following factors:

Concrete cover and spacing	Top bars	Other bars
Cover < 3.0 DB or C.C. spacing < 7.0 DB	1.7/1.3 = 1.31	1.50
Cover > 3.0 DB or C.C. spacing > 7.0 DB	1.20	1.20

6. Bar development length = top spliced length/ 1.3.
7. Wire mesh lap
   Lap all wire mesh cross wires one cross wire spacing plus 2", typical.

CONCRETE MASONRY

1. For product material specifications, reference the structural notes, material & component design criteria and the project specification.
2. Submit documentation demonstrating compliance with the specified strength of masonry, F'm, in accordance with the (prism test method or the unit strength method) as outlined in the TMS 402/602-16, Building Code Requirements for Masonry Structures, and the applicable building code. Submit product and test data as specified for level 1 quality assurance. This shall include verification of F'm both prior to construction and during as well as verification of materials and proportions for concrete masonry units, mortar and grout construction for every 5000 square feet of masonry placed.
3. Submit reinforcing shop drawings showing placement of all reinforcement and embedments and the reinforcing fabrication dimensions and details.
4. Place concrete units such that the vertical cells to be grouted are aligned and provided unobstructed openings for grout placement. Face shells of bed joints shall be fully mortared. webs shall be fully mortared in all courses of piers, columns and pilasters, In the starting course on foundations, when necessary to confine grout or loose-fill insulation and when otherwise noted. Head joints are to be mortared a minimum distance from each face equal to the face shell thickness of the unit. Unless otherwise required, solidly fill collar joints less than 3/4" wide with mortar as the work progresses.
5. Place reinforcement and embedments in accordance with the drawings. Maintain a clear distance between the reinforcing bars and any face of masonry unit or formed surface of not less than 1/2" unless noted otherwise. Where reinforcing bar are spliced, provide a minimum lap as shown in chart below or a mechanical splice that provides 125% of the bar capacity. Tolerances for placement of reinforcing bars shall be +/- 1/2 inch perpendicular to the face of the masonry unit and within 2-inches along the length of the wall unless note otherwise. Reinforcement shall be tied in place or otherwise supported to prevent displacement during grouting.
6. Place grout within 1 1/2 hours from introducing water in the mixture and prior to initial set. Grout pour height shall conform to the requirements as outlined in TMS 402/602-16, Specification for Masonry Structures, for grout type and grout space dimensions. In no case shall grout lift exceed 4 feet in height. Consolidate pours by mechanical vibration and reconsolidate by mechanical vibration after initial water loss and settlement has occurred.
7. Provide joint reinforcement in every bed joint (8-inch on center) for stack bond and every other joint (16-inch on center) for running bond masonry placement. Place such that longitudinal wires overlap 6 inches and are embedded in mortar with a minimum cover of 5/8".
8. At masonry control joints, reinforce the first cell either side of the joint with the typical wall reinforcing specified on the drawings. Also, at ends of walls, reinforce the last cell with the typical wall reinforcing specified. Horizontal joint reinforcing shall be discontinuous at control joints. Bond beam reinforcing shall be discontinuous at control joints. Bond beam reinforcing shall be discontinuous across control joints.
9. All cells containing reinforcing bars shall be fully grouted.
10. All expansion bolts placed in masonry are to be Hilti Kwik Bolt III or approved equal are to be installed in grouted cells in accordance with the manufacturer's recommendations and inspected by the special inspector. All post-installed anchors shall be installed in the presence of the special inspector.
11. All post installed dowels placed in masonry are to be set in Hilti HIT-HY 70 adhesive or approved equal are to bed installed in accordance with the manufacturer's recommendations and inspected by the special inspector. All post-installed anchors shall be installed in the presence of the special inspector.
12. All mechanical anchors shall be installed in accordance with the product manufacturer's recommendations and the installation shall be inspected by the special inspector. Individual products shall be submitted to the architect/engineer for approval prior to installation. All post-installed anchors shall be installed in the presence of the special inspector.
13. When the ambient temperature falls below 40F or the temperature of the masonry units is below 40F, comply with the provisions of TMS 602, Section 1.8C, Specification for Masonry Structures, for cold weather construction.
14. When the ambient temperature exceeds 90F, comply with the provisions of TMS 602, Section 1.8D, Specification for Masonry Structures, for hot weather construction.
15. Brick Ties: (for stud backup)

    There shall be a minimum of one brick tie for every 2.67 sq. ft. of wall area. These shall be spaced at a maximum of 18-inches on center. Ties shall be of a minimum 9 GA. corrosion resistant wire and shall be of an adjustable type such as DUR-O-WALL adjustable D/A 213 or equal. Corrugated galvanized sheet ties are not acceptable. All ties must be attached through the sheathing to the studs per manufacturer's recommendations.
16. Brick Ties: (for masonry backup)

    There shall be a minimum of one brick tie for every 2.67 sq. ft. of wall area. These shall be spaced at a maximum of 18-inches vertical. Ties shall be a minimum of 3/16" diameter corrosion resistant wire. Corrugated galvanized sheet ties are not acceptable.

CMU Lap Splice Lengths
Reinforcement Off-Centered
2 Bar Per Core

MINIMUM LAP SPLICE LENGTH (INCHES)					
BAR SIZE	8" CMU	10" CMU	12" CMU	16" CMU	
#3	19	19	19	19	
#4	34	34	34	34	
#5	45	45	45	45	
#6	54	54	54	54	
#7	63	63	63	63	
#8	N/P	72	72	72	
#9	N/P	N/P	82	82	

Notes:
N/P Not Permitted

COMPOSITE BEAMS

1. Steel shall be [illegible]
2. Studs shall be automatically end welded through the metal deck to the steel [illegible] in height.
3. Headed stud connectors, after installation, shall extend not less than 1½" above the top of steel deck and not more than 2½" below the finished surface of the concrete. Headed stud shear connectors shall be ¾"ø x 5½" long (before welding) at spacing designated (18" oc max) unless noted otherwise.
4. Shear connectors shall have at least one inch of lateral concrete cover except for connectors installed in the ribs of formed steel deck. Minimum distance from the base of the rib to the base of the stud shall be ½" in ribbed, formed steel deck unless noted otherwise.
5. The minimum center-to-center spacing of stud connectors shall be six times the stud diameter along the longitudinal axis of the beam and four times the stud diameter transverse to the longitudinal axis of the beam. In formed steel decks oriented perpendicular to the longitudinal axis of the beam, the minimum center-to-center spacing shall be four times the stud diameter in any direction.
6. Studs may not be installed on the flanges of beams that are less than 0.4 times the stud diameter unless they are directly over the web. Should deck layout and stud spacing cause a conflict with this requirement, contact the Structural Engineer of Record for a resolution prior to installation of the shear studs.

CONCRETE MASONRY CONT.

13. At masonry control joints, reinforce the first cell either side of the joint with the typical wall reinforcing specified on the drawings. Also, at ends of walls, reinforce the last cell with the typical wall reinforcing specified. Horizontal joint reinforcing shall be discontinuous at control joints. Bond beam reinforcing shall be discontinuous at control joints. Bond beam reinforcing shall be discontinuous across control joints.
14. All cells containing reinforcing bars shall be fully grouted.
15. All expansion bolts placed in masonry are to be Hilti Kwik Bolt III or approved equal are to be installed in grouted cells in accordance with the manufacturer's recommendations and inspected by the special inspector. All post-installed anchors shall be installed in the presence of the special inspector.
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Reinforcement Off-Centered
2 Bar Per Core

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#7	63	63	63	63	
#8	N/P	72	72	72	
#9	N/P	N/P	82	82	

Notes:
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5. The minimum center-to-center spacing of stud connectors shall be six times the stud diameter along the longitudinal axis of the beam and four times the stud diameter transverse to the longitudinal axis of the beam. In formed steel decks oriented perpendicular to the longitudinal axis of the beam, the minimum center-to-center spacing shall be four times the stud diameter in any direction.
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New Storm Shelter Facility for:
Arkansas Christian Academy
Bryant, Arkansas

Revisions:

Professional stamp:
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 10449
PATRICK M. PILOUIDE
DATE SIGNED: 12-04-2023
FOR 3rd PARTY REVIEW NOT FOR CONSTRUCTION

Sheet Title:
General Notes

Date:
Sheet Number:
S0.0

CERTIFICATE OF AUTHORIZATION
LIVE OAK ENGINEERING, INC. No. 1672
ARKANSAS ENGINEER

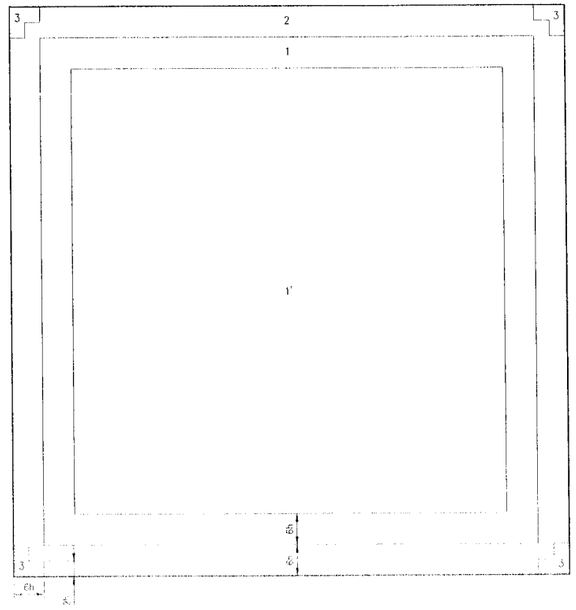
LIVE OAK ENGINEERING
2509 7TH AVENUE SOUTH
BIRMINGHAM, AL 35233
205.637.3115
LOE# 258-1

STEEL DECK

1. All deck shall be furnished and installed per the requirements of the Steel Deck Institute (SDI). The Contractor shall follow all recommended practices in the SDI manual.
2. Steel Deck, galvanized steel deck unless noted otherwise on the drawings.
3. Where steel deck is part of a rated assembly, supply all deck and components, which comply with requirements of Underwriters Laboratories (UL) for each type of assembly specified, reference plans and specifications. Where deck is to receive spray fireproofing, finishes shall be compatible with fireproofing material and comply with UL assembly requirements. Before the fireproofing material is applied, the deck surface to be treated shall be free of rust, scale, oil, or other contaminants or elements which will impair bond.
4. The deck shall be fastened to supporting steel as shown on the drawing.
5. Alternate fastening options using mechanical fasteners, powder-actuated, or screws may be considered, if submitted by the Contractor. Alternate systems and documentation certifying that the proposed system provides at least the same uplift and diaphragm shear resistance as the system and pattern specified must be submitted to the Engineer.
6. Provide a 2" minimum bearing end a 4" lap at the splice point of all pieces of deck.
7. Where possible, all decking shall be 3-span continuous, minimum. Decking specified on this project assumes a 3-span condition unless noted otherwise. The Contractor shall provide heavier gauge deck, as required, for one or two span conditions to meet equivalent load capacity of the specified deck under a 3-span condition.
8. Steel roof deck shall not be used to support load from plumbing HVAC ducts, light fixtures, architectural elements, or equipment of any kind unless specifically noted.
9. Hanging any loads directly from steel roof deck shall be avoided whenever possible. Nevertheless, normal suspended acoustical ceilings with a total weight per wire not exceeding 50 lbs may be hung from the steel roof deck in cases where hanging loads from the deck cannot be avoided. If possible, the attachment should be staggered to further distribute the load. If load is directly supported by the deck, tabs or other build-in devices should be provided for hanging referenced loads.
10. Where deck ribs are cut at penetrations, provide deck support angles or deck stiffeners as required.
11. Supply 8" wide, minimum, plates matching deck gauge or heavier for all ridge, valley, and change in deck direction locations, which do not fall over a supporting member at least 4" wide.

ABBREVIATIONS

AB	–	Anchor bolt(s)
ADDL	–	Additional
AFF	–	Above finish floor
ALT	–	Alternate
ARCH	–	Architect, Architectural
B/	–	Back of
BLDG	–	Building(s)
BLK	–	Block(s)
BM	–	Beam(s)
BOF	–	Bottom of footing elevation
BOT	–	Bottom
BRDG	–	Bridging
BRNG	–	Bearing
BRK	–	Brick(s)
BTWN	–	Between
BUR	–	Built-up roof
CJ	-	Control joint, Contraction joint, Construction joint
CL	–	Centerline
CLG	–	Ceiling
CLR	–	Clear
CMU	–	Concrete masonry unit(s)
COL	–	Column(s)
CONC	–	Concrete
CONN	–	Connection(s)
CONST	–	Construction
CONT	–	Continue, Continuous
CTRD	–	Centered
DBA	–	Dowel bar anchor, Deformed bar anchor
DBL	–	Double
DIA	–	Diameter
DIAG	–	Diagonal
DIM	–	Dimension
DWG	–	Drawing
DWGS	–	Drawings
DWL	–	Dowel(s)
E/	–	Edge of, End of
EA	–	Each
EB	–	Expansion bolt(s)
EBC	–	Extended bottom chord
EF	–	Each face
EIFS	–	Exterior insulated finish system
EJ	–	Expansion joint
EL	–	Elevation
ELEC	–	Electrical
ELEV	–	Elevator
ENG	–	Engineer(ed)
EQ	–	Equal
EXP	–	Expansion
EQMT	–	Equipment
EW	–	Each way
EWJ	–	Engineered wood I-joist
EXIST	–	Existing
EXT	–	Exterior
F/	–	Face of
FD	–	Floor drain
FL	–	Floor line
FOUND	–	Foundation
FT	–	Foot, Feet
FTG	–	Footing
GA	–	Gage, Gauge
GALV	–	Galvanized
GLB	–	Glue-laminated beam
GR BM	–	Grade beam
GR	–	Grade
GYP BD	–	Gypsum board
HD	–	Headed, Heavy duty
HDR	–	Header
HI	–	High
HK	–	Hook
HORIZ	–	Horizontal
HP	–	High point
HR	–	Handrail
HS	–	Headed stud
HSS	–	Hollow steel section
HVAC	–	Heating, ventilation, & air conditioning
ID	–	Inside diameter
IN	–	Inch, Inches
INSUL	–	Insulate, Insulation
INT	–	Interior
INV	–	Invert
JBE	–	Joist bearing elevation
JST	–	Joist(s)
JT	–	Joint
K	–	Kip(s) (1,000 pounds)
LF	–	Linear foot, Linear feet
LG	–	Light Gauge
LLH	–	Long leg horizontal
LLO	–	Long leg outstanding
LLV	–	Long leg vertical
LO	–	Low
LP	–	Low point
LT	–	Left, Light
LT WT	–	Lightweight
MAS	–	Masonry
MATL	–	Material
MAX	–	Maximum
MECH	–	Mechanical
MFR	–	Manufacturer
MIN	–	Minimum
MISC	–	Miscellaneous
MO	–	Masonry opening
MPH	–	Miles per hour
MTL	–	Metal
N	–	North
NIC	–	Not-in-contract
NOM	–	Nominal
NS	–	Near side
NSG	–	Non-shrink grout
NTS	–	Not-to-scale
NUM	–	Number
OC	–	On-center
OD	–	Outside diameter, Outside dimension
OH	–	Opposite hand, Overhead
OPNG	–	Opening(s)
OPP	–	Opposite
PAR	–	Parallel
PC	–	Precast, Precast concrete
PDF	–	Power driven fastener
PL	–	Plate, Property line
PLF	–	Pounds per linear foot
PLYWD	–	Plywood
PNL	–	Panel
PROJ	–	Project, Projection
PSF	–	Pounds per square foot
PSI	–	Pounds per square inch
PTD	–	Painted
PVMT	–	Pavement
QTY	–	Quantity
R	–	Radius
RAD	–	Radius
RD	–	Roof drain
REBAR	–	Reinforcing bar
REF	–	Reference
REINF	–	Reinforce, Reinforcing, Reinforcement
REQD	–	Required
REV	–	Revise, Revision
RH	–	Right hand
RO	–	Rough opening
S	–	South
SC	-	Slotted connection, Slip connection
SCH		Schedule
SECT	–	Section
SF	–	Square feet
SHT	–	Sheet
SHTG	–	Sheathing
SIM	–	Similar
SL	–	Slope
SOG	–	Slab on grade
SPEC	–	Specification
SQ	–	Square
SS		Stainless steel
SSL	–	Short slotted hole
STD	–	Standard
STF	–	Stiffener
STL	–	Steel
STR	–	Straight
STRUCT	–	Structural
SYM	–	Symmetrical
T&B	–	Top & bottom
T&G	–	Tongue & groove
THK	–	Thick, Thickness
THRD	–	Threaded
THRU	–	Through
TM	–	Top-of-masonry elevation
TOB	–	Top-of-beam elevation
TOC	–	Top-of-concrete elevation
TOF	–	Top-of-footing elevation
TOS	–	Top-of-steel elevation
TP	–	Top-of-parapet elevation
TW	–	Top-of wall elevation
TYP	–	Typical
UNO	–	Unless noted otherwise
VERT	–	Vertical
W/	–	With
W/O	–	Without
WB	–	Wind bracing
WCJ	–	CMU wall control joint
WD	–	Wood
WP	–	Working point
WPR	–	Waterproofing
WS	–	Waterstop
WWF	–	Welded wire fabric



1 S001 SHELTER C & C PLAN
NTS

ULT. ROOF WIND PRESSURE (PSF)

AREA	ZONE 1'		ZONE 1		ZONE 2		ZONE 3	
	+	–	+	–	+	–	+	–
10SF	115.6	-197.2	115.6	-306.0	115.6	-387.6	115.6	-510.0
20SF	108.8	-197.2	108.8	-292.4	108.8	-367.2	108.8	-469.2
50SF	103.4	-197.2	103.4	-265.2	103.4	-340.0	103.4	-414.8
100SF	102.0	-197.2	102.0	-251.6	102.0	-312.8	102.0	-360.4
200SF	102.0	-176.8	102.0	-238.0	102.0	-292.4	102.0	-319.6
500SF	102.0	-149.6	102.0	-210.8	102.0	-265.2	102.0	-265.2
1000SF	–	–	–	–	–	–	–	–

a= 5.6ft
0.2h= 3.33ft
0.6h= 10ft

ULT. OVERHANG WIND PRESSURE (PSF)

AREA	ZONE 1'	ZONE 1	ZONE 2	ZONE 3
TOP & BOTTOM SURFACES COMBINED				
10SF	-306.0	-306.0	-387.6	-510.0
20SF	-302.0	-302.0	-360.4	-462.4
50SF	-295.8	-295.8	-319.6	-387.6
100SF	-292.4	-292.4	-292.4	-340.0
200SF	-251.6	-251.6	-258.4	-292.4
500SF	-210.8	-210.8	-224.4	-224.4

ULT. WALL WIND PRESSURE (PSF)

WIND AREA	ZONE 4		ZONE 5	
	WIN	LEE	WIN	LEE
10SF	189.8	-202.0	189.8	-238.7
20SF	183.6	-195.9	183.6	-225.3
50SF	175.1	-187.3	175.1	-208.1
100SF	167.7	-180.0	167.7	-195.9
200SF	161.6	-173.8	161.6	-182.4
500SF	153.0	-165.3	153.0	-165.3

ULT. PARAPET WIND PRESSURE (PSF)

	ZONE 4&2e		ZONE 4&2n		ZONE 4&3r		ZONE 5&3e	
	WIN	LEE	WIN	LEE	WIN	LEE	WIN	LEE
10SF	434.6	-324.4	557.0	-324.4	630.4	-324.4	557.0	-361.1
20SF	428.4	-310.9	498.2	-310.9	557.0	-310.9	498.2	-341.5
50SF	314.6	-293.8	419.9	-293.8	461.5	-293.8	419.9	-315.8
100SF	228.9	-281.6	359.9	-281.6	388.0	-281.6	359.9	-296.2
200SF	222.8	-268.1	301.1	-268.1	381.9	-268.1	301.1	-276.7
500SF	214.2	-250.9	275.4	-250.9	275.4	-250.9	275.4	-251.0

FOR WALLS: WIN IS WINDWARD FACE
LEE IS LEEWARD FACE

FOR PARAPETS: WIN IS CASE A = p1+p2
LEE IS CASE B = p3+p4

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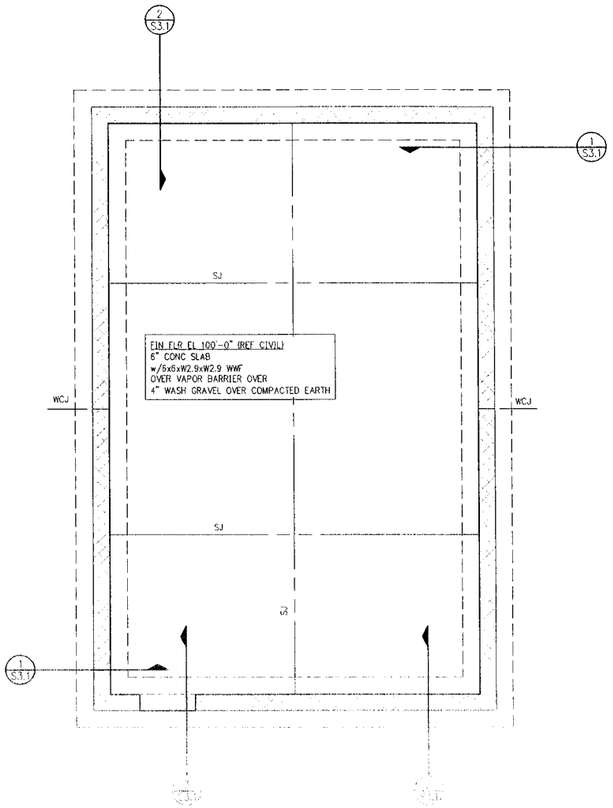
New Storm Shelter Facility for:
Arkansas Christian Academy
Bryant, Arkansas

Revisions:

Professional stamp
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No.10449
PATRICK M. PLOURDE
DATE SIGNED: 12-04-2023
FOR 3rd PARTY REVIEW
NOT FOR CONSTRUCTION

Sheet Title:
General Notes Continued

Date:
Sheet Number:
S0.1



LEGEND:

SJ – SAW JOINT, SEE 1/S2.1
WCJ – MASONRY WALL CONTROL JOINT, SEE 7/S2.1
◄—► – DECK SPAN DIRECTION

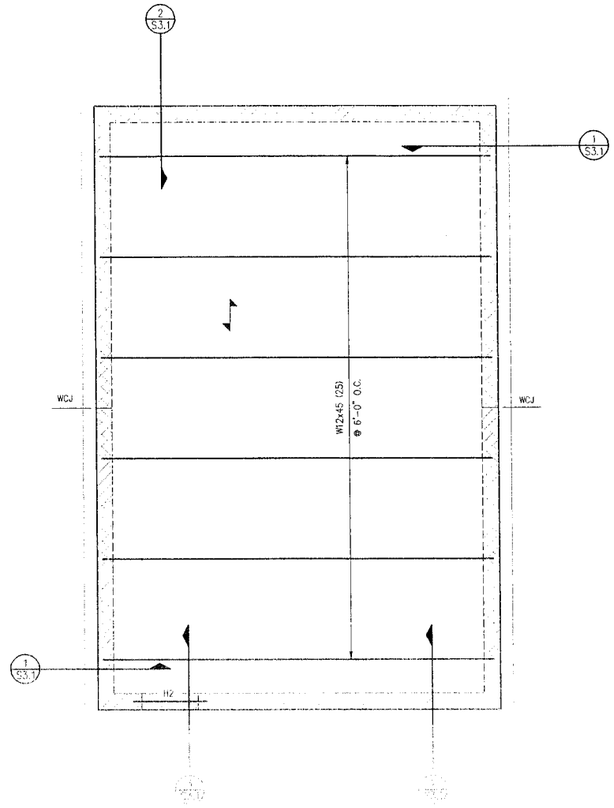
MASONRY WALL NOTES:

1. STRUCTURAL CONCRETE MASONRY WALLS TO BE NOMINALLY 12" THICK AND REINFORCED FROM FOOTING TO TOP OF WALL UNO. GROUT REINFORCED CELLS SOLID. REINFORCE AND GROUT SOLID CELLS AT CORNERS, OPENING, AND JAMBS AND END OF WALLS. SEE S2.2 FOR TYPICAL DETAILS.
2. DOWEL SPACING TO MATCH VERTICAL REINFORCEMENTS.
3. MASONRY CONTROL JOINT SHALL BE SPACED AT 24' O.C.
4. REINFORCEMENTS DISCONTINUOUS ACROSS CONTROL JOINTS.
5. FOR 12" WALL 2–#5 @ 16" O.C.
6. FOR 12" WALL CORNERS USE 2–#5 THREE CELLS.
7. FOR 12" WALL CONTROL JOINT USE 2–#5 ONE CELL EA SIDE.
8. PROVIDE CONT BOND BEAM AT 4'–0" VERTICAL ALL MASONRY WALL, BOND BEAMS TO BE REINFORCED WITH 2–#5 CONT.
9. PROVIDE STANDARD HOOK AT THE TOP OF ALL VERTICAL REINFORCEMENT BARS.
10. GROUT SOLID ALL MASONRY BELOW GRADE.

FOUNDATION PLAN NOTES:

1. ALL DIMENSIONS ARE TO BE VERIFIED WITH ARCHITECTURAL DRAWING BEFORE CONSTRUCTION IS TO BEGIN. SEE ARCHITECTURAL DRAWING FOR DIMENSIONS NOT SHOWN.
2. SEE 1/S2.1 FOR SLAB ON GRADE CONSTRUCTION JOINT, CONTROL JOINT, CONTROL JOINT PATTERN TO BE MAXIMUM 15'X15'.
3. PILASTER OR PIERS SHOWN WITHIN CMU WALLS ARE TO EXTEND FROM BEAM/GIRDER BEARING TO TOP OF FTG OR FOUNDATION WALL PILASTER.
4. GENERAL CONTRACTOR TO COORDINATE WITH (MEP) MECHANICAL, ELECTRICAL, AND PLUMBING CONTRACTORS FOR ANY AND ALL LOCATIONS OF SLEEVED OPENINGS IN FOUNDATION WALLS.
5. WHERE SLAB IS SAWCUT FOR INSTALLATION OF NEW PLUMBING/ELECTRICAL WORK PATCH PER DETAIL 4/S2.1.
6. DO NOT BEGIN DEMOLITION OR EXCAVATION WORK UNTIL EXISTING STRUCTURE HAS BEEN ADEQUATELY SHORED TO SUPPORT EVERY LEVEL. SHORING SHALL REMAIN IN PLACE UNTIL ALL NEW STRUCTURAL ELEMENTS SHOWN HAVE BEEN INSTALLED. REFER TO "EXISTING CONSTRUCTION" NOTES ON S0.0 FOR ADDITIONAL REQUIREMENTS.

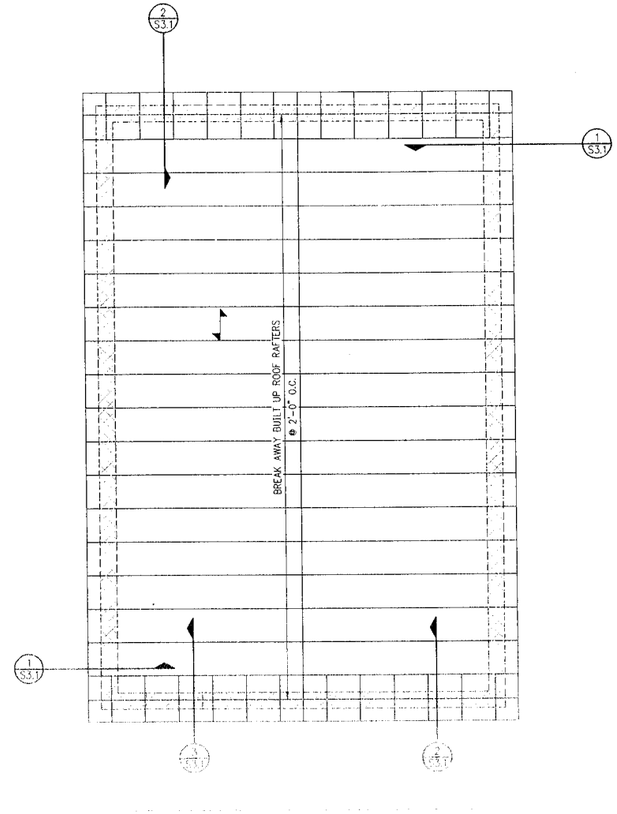
A S1.1 FOUNDATION PLAN
1/4"=1'-0"



1/2" COMPOSITE DECK
6" COMPOSITE DECK
1.5 VLI DECK w/4.5" CONCRETE (6" TOTAL)
REINFORCE WITH 6x6xW2.9xW2.9 WWF

DECK FASTENING SHALL BE AS FOLLOWS: ATTACH TO SUPPORTING MEMBER USING #12 TEK SCREWS IN A 36/6 PATTERN.
SIDE LAP SEAMS TO BE FASTENED WITH #12 TEK SCREWS AT 12" O.C.
PERIMETER SUPPORTS TO BE FASTENED TO STRUCTURE WITH #12 TEK SCREWS @ 12"O.C. ALONG THE FULL LENGTH OF PANEL AND AROUND PERIMETER OF OPENINGS UNLESS NOTED OTHERWISE.

B S1.1 CONC LID FRAMING PLAN
1/4"=1'-0"



NOTE:
1. METAL ROOF PANEL SPECIFICATION TO SUPPLIER.
2. COORDINATE MECHANICAL OPENING SUPPORT WITH ARCHITECT/JOIST SUPPLIER.
3. JOIST SUPPLIER SPECIFY ADDITIONAL BRACING/BRIDGING.
4. JOISTS MANUFACTURE SHALL DESIGN JOISTS FOR UPLIFT, SEE COMPONENT AND CLADDING S001.
5. DO NOT BEGIN DEMOLITION OR EXCAVATION WORK UNTIL EXISTING STRUCTURE HAS BEEN ADEQUATELY SHORED TO SUPPORT EVERY LEVEL. SHORING SHALL REMAIN IN PLACE UNTIL ALL NEW STRUCTURAL ELEMENTS SHOWN HAVE BEEN INSTALLED. REFER TO "EXISTING CONSTRUCTION" NOTES ON S0.0 FOR ADDITIONAL REQUIREMENTS.

LEGEND:

H? – MASONRY HEADER, SEE 3/S2.2
WCJ – MASONRY WALL CONTROL JOINT, SEE 7/S2.1
◄—► – DECK SPAN DIRECTION

C S1.1 ROOF FRAMING PLAN
1/4"=1'-0"

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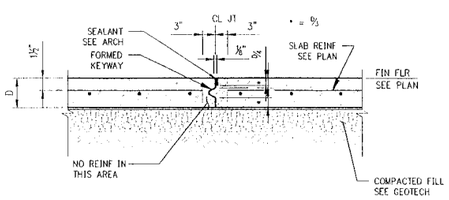
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Sheet Title:
Foundation & Framing Plans

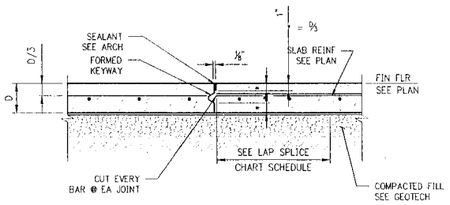
Date:
Sheet Number:
S1.1

CERTIFICATE OF AUTHORIZATION
LIVE OAK ENGINEERING, INC. No. 1872
ARKANSAS ENGINEER

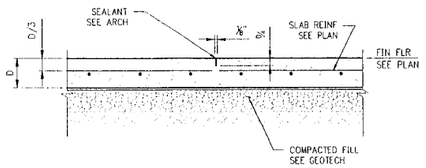
LIVE OAK ENGINEERING
2509 7TH AVENUE SOUTH
BIRMINGHAM, AL 35233
205.637.3115
LOE# 258-1



EXPANSION JOINT



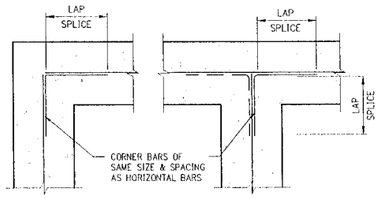
CONSTRUCTION JOINT



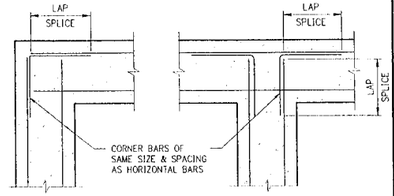
NOTES:
1. SEE FOUNDATION PLAN(S) FOR SLAB THICKNESS AND REINF.
2. CUT EVERY BAR @ EA JOINT.
3. THE SAWCUTTING SHALL BE DONE WITHIN 8 HOURS OF PLACEMENT OR AS SOON AS THE CONCRETE HAS SUFFICIENTLY CURED TO PERMIT CUTTING WITHOUT CHIPPING, SPALLING OR TEARING.

SAWCUT CONTROL JOINT

1 S2.1 DETAIL–TYP SLAB JOINTS
NTS



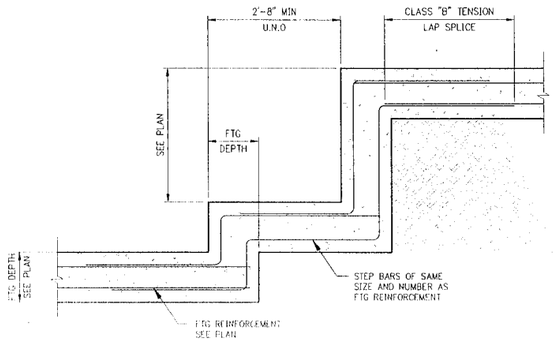
SINGLE LAYER REINFORCEMENT



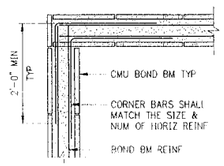
DOUBLE LAYER REINFORCEMENT

NOTE:
ALL LAP SPLICES CLASS "B" TENSION

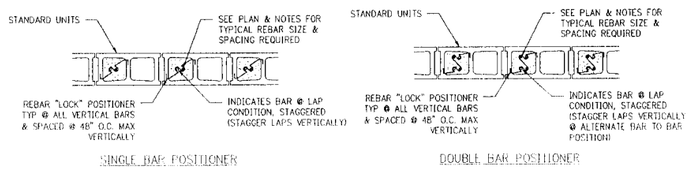
2 S2.1 DETAIL – REINFORCING AT CORNERS & INTERSECTIONS
NTS



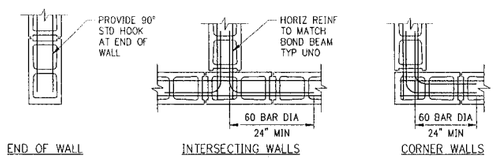
3 S2.1 DETAIL–STEPPED FOOTING



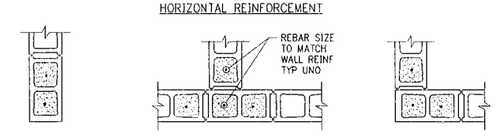
4 S2.1 DETAIL–TYP BOND BM CORNER REINF



5 S2.1 DETAIL–TYP MASONRY WALL REINFORCEMENT POSITIONERS



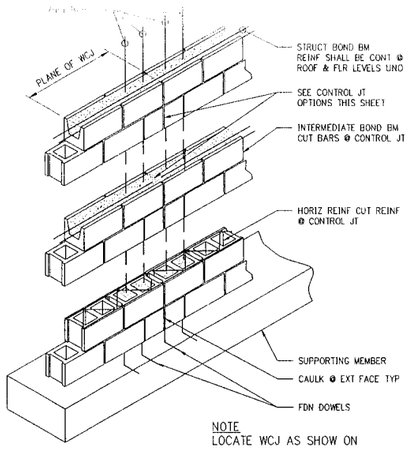
HORIZONTAL REINFORCEMENT



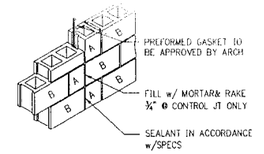
VERTICAL REINFORCEMENT

NOTES
1. REINFORCEMENT SHOWN IS IN ADDITION TO MINIMUM WALL REINFORCEMENT SHOWN IN FOUNDATION DETAILS.
2. REINFORCING TO BE CONTINUOUS FROM FOOTING TO TOP OF WALL. FILL CORES SOLID WITH GROUT AS NOTED IN THE SPECIFICATIONS OR GENERAL NOTES.

6 S2.1 DETAIL–TYP CMU WALL INTERSECTIONS
NTS



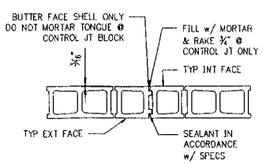
NOTE
LOCATE WCJ AS SHOW ON FDN OR FRAMING PLAN
MAX 24'-0" SPACING UNO



LEGEND
A = 8" CMU LENGTH
B = 16" CMU LENGTH

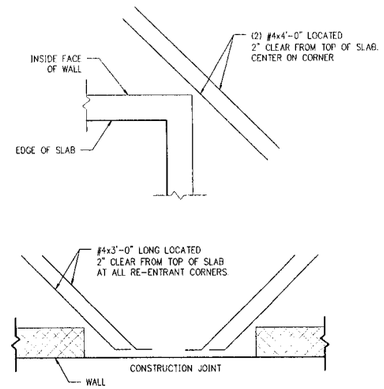
NOTE
USE CMU LENGTHS ABOVE @ INTERIOR PARTITIONS WHEN THEY WORK w/ BLDG DIMENSIONS

TYP WALL CONTROL JOINT–OPTION 1
2–HOUR



TYP WALL CONTROL JOINT–OPTION 2
4–HOUR

7 S2.1 DETAIL–TYP CMU WALL CONTROL JOINT (WCJ)
3/4"=1'-0"



8 S2.1 DETAIL–TYP RE–ENTRANT CORNER REINF
NTS

HUGHES ARCHITECTURAL DESIGNS
1202 N STATE LINE AVE
SUITE #102
TEXARKANA, AR 71854
501-827-2446
michaelhughes72s77@gmail.com

Re: Facility for:
Arkansas Christian Academy
New Storm Shelter
Bryant, Arkansas

Revisions:

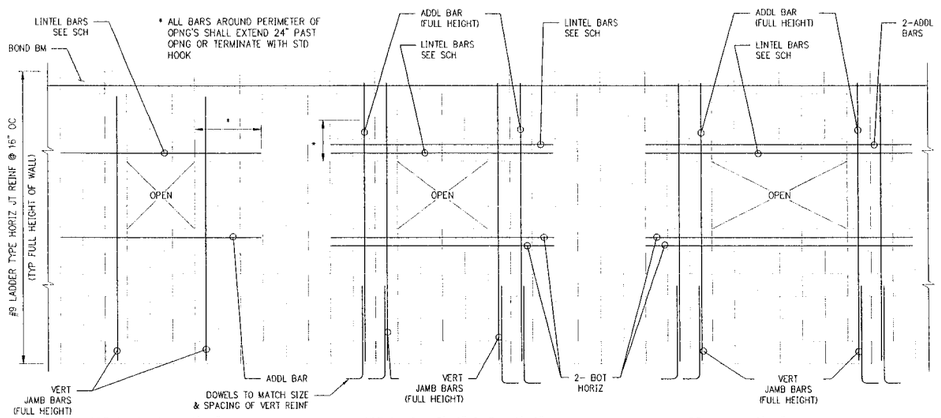
Professional stamp:
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No.10449
PATRICK M. PLOURDE
DATE SIGNED: 12-04-2023
FOR 3rd PARTY REVIEW
NOT FOR CONSTRUCTION

Sheet Title:
Typical Details

Date:
Sheet Number:
S2.1

CERTIFICATE OF AUTHORIZATION
LIVE OAK ENGINEERING, INC. No. 1872
ARKANSAS ENGINEER

LIVE OAK ENGINEERING
2500 7TH AVENUE SOUTH
BIRMINGHAM, AL 35233
205.637.3115
LOE# 258-1

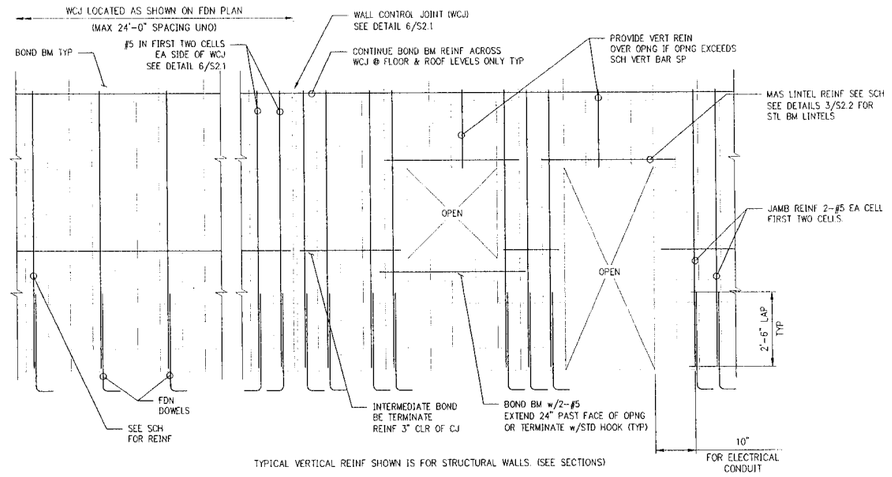


OPENINGS UP TO 3'-0"
FOR OPNGS UP TO 3'-0" OR LESS IN EITHER DIRECTION IN STRUCT PARTITIONS OR EXT WALLS

OPENINGS > 3'-0" BUT < 8'-0"
FOR OPNGS WHICH EXCEED 3'-0" BUT NOT MORE THAN 8'-0" IN EITHER DIRECTION THE ADDL VERT BARS SHALL BE FULL-HEIGHT & DOWELED TO FDN

OPENINGS > 8'-0"
FOR OPNG WHICH EXCEED 8'-0" IN EITHER DIRECTION THE ADDL VERT BARS SHALL BE FULL HEIGHT & DOWELED TO FDN

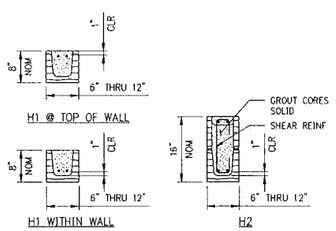
1/S2.2 DETAIL-TYP ADDL REINF AROUND WALL OPNGS
NTS



TYPICAL VERTICAL REINF SHOWN IS FOR STRUCTURAL WALLS. (SEE SECTIONS)

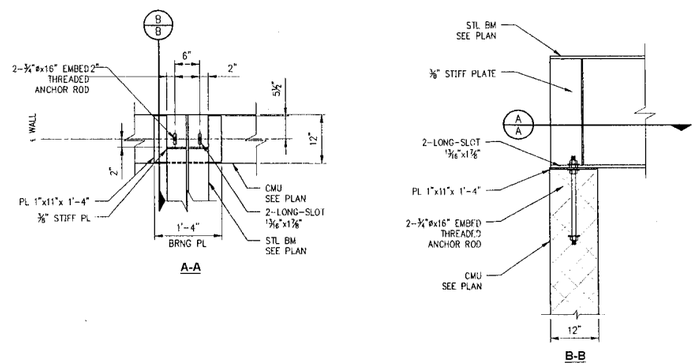
2/S2.2 DETAIL-TYP BOND BM, CONTROL JT & WALL REINF
NTS

HEADER SCHEDULE				
MARK	WALL	REINFORCEMENT	SHEAR REINFORCEMENT	REMARKS
H1	8"	2-#5 CONT	N/A	-
	12"	2-#5 CONT	-	-
H2	8"	2-#5 CONT T&B	-	-
	12"	2-#5 CONT T&B	-	-



NOTE
1. SEE STRUCT DWGS FOR GENERAL LOCATION OF HEADERS - SEE ARCH FOR SPECIFIC LOCATION & CLEAR SPAN.
2. LINTELS SHALL SPAN CONT BTWN BRNGS EACH SIDE.
3. PROVIDE 8"(MIN) BRNG FOR CLEAR SPAN 8'-0" OR LESS, 16"(MIN) BRNG FOR CLEAR SPAN GREATER THAN 8'-0".
4. EXTEND BOT REINF TO END OF BRNG EACH SIDE - EXTEND TOP REINF WHERE POSSIBLE - BASIC DEVELOPMENT LENGTH - TERMINATE TOP REINF w/STD HOOK AT CONTROL JTS OR FREE EDGES.
5. PROVIDE SOLID GROUTED OF SOLID MAS JAMB UNDER LINTEL EA SIDE OF OPNG FOR CLEAR SPAN GREATER THAN 6'-0".

3/S2.2 DETAIL-MASONRY LINTELS
3/4"=1'-0"



4/S2.2 EXTERIOR CORRIDOR BEARING PLATE
3/4" = 1'-0"

HUGHES ARCHITECTURAL DESIGNS
1202 N STATE LINE AVE
SUITE #102
TEXARKANA, AR 71854
501-827-2448
michaelhughes722477@gmail.com

New Storm Shelter Facility for:
Arkansas Christian Academy
Bryant, Arkansas

Revisions:

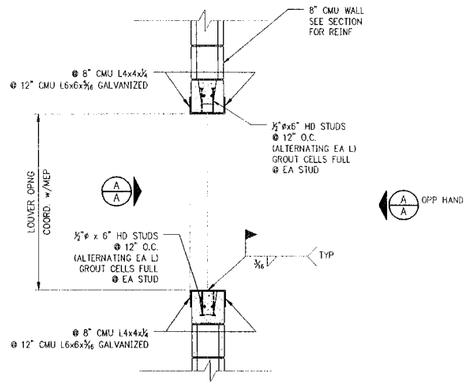
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FOR 3rd PARTY REVIEW
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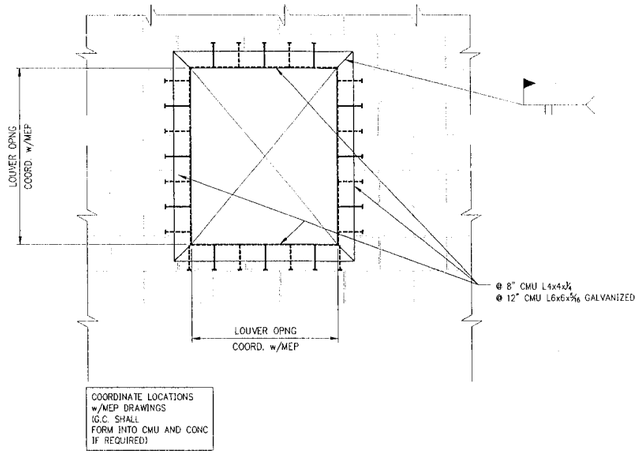
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CERTIFICATE OF AUTHORIZATION
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ARKANSAS ENGINEER
LIVE OAK ENGINEERING
2509 7TH AVENUE SOUTH
BIRMINGHAM, AL 35233
205.637.3115
LOE# 258-1

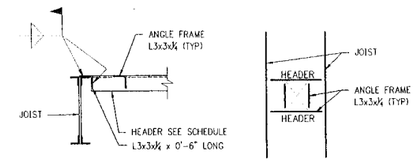




COORDINATE LOCATIONS
w/MEP DRAWINGS
G.C. SHALL
FORM INTO CMU AND CONC
IF REQUIRED

1 S2.3 DETAIL-OPNG IN MASONRY TORNADO SHELTER WALL
NTS

HEADER SCHEDULE	
JOIST SPACING	SIZE
UP TO 4'-6"	L2½x2½x¼
4'-6" TO 6'-6"	L3½x3x¼-LLV
6'-7" TO 8'-0"	L4x3x5/16-LLV



SECTION **PLAN**

NOTES
VERIFY EXACT NUMBER, SIZE & LOCATION OF OPENINGS W/ ARCHITECTURAL & MECHANICAL.

STEEL JOIST FRAMING

2 S2.3 DETAIL-TYPICAL OPENING THRU ROOF DECK
3/4" = 1'-0"

HUGHES
ARCHITECTURAL
DESIGNS
1202 N STATE LINE AVE
SUITE #102
TEXARKANA, AR 71854
501-627-2448
michaelhughes72x77@gmail.com

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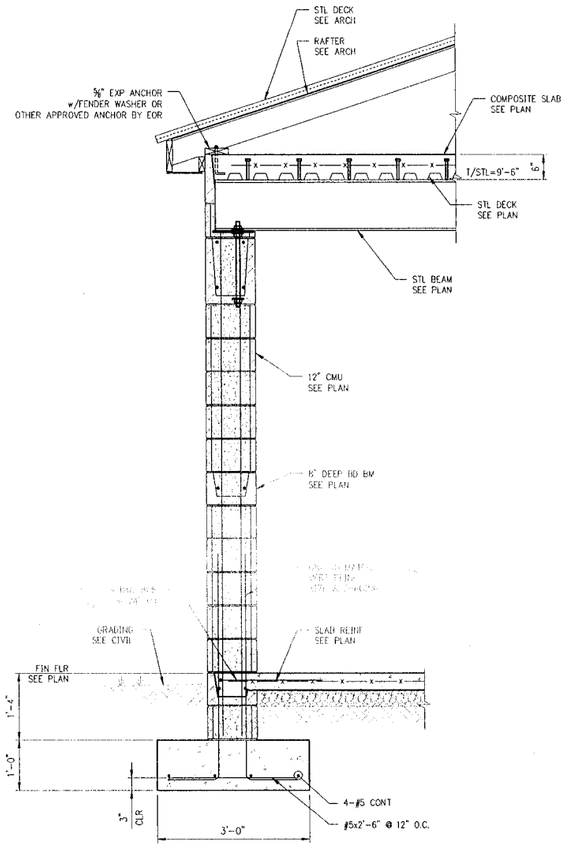
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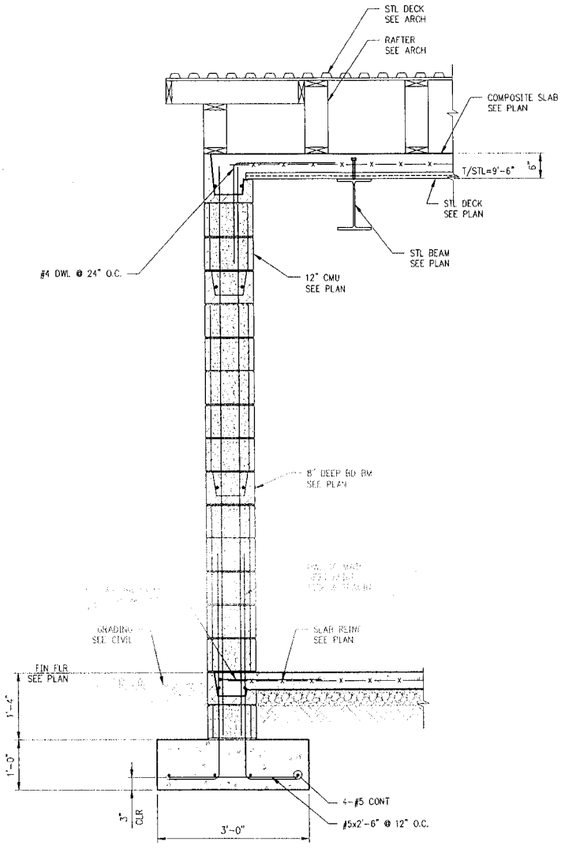
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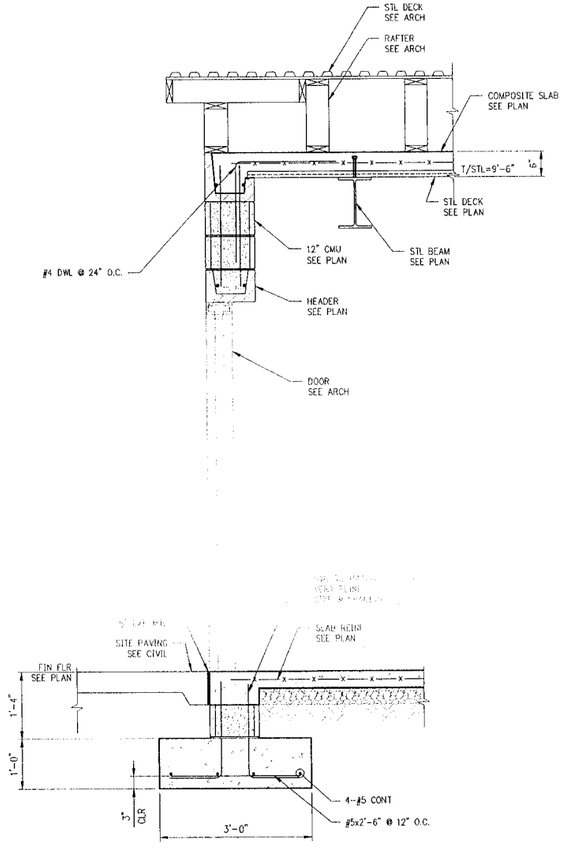
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LIVE OAK ENGINEERING
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BIRMINGHAM, AL 35233
205.837.3115
LOE# 258-1



1 S3.1 SECTION
3/4"=1'-0"



2 S3.1 SECTION
3/4"=1'-0"



3 S3.1 SECTION
3/4"=1'-0"

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Sheet Title:
Framing Sections

Date:

Sheet Number:
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ENGINEERING
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