GENERAL NOTES

THE SIZE AND LOCATION OF EQUIPMENT PADS AND PENETRATIONS THROUGH THE STRUCTURE FOR MECHANICAL, ELECTRICAL, AND PLUMBING WORK SHALL BE VERIFIED BY THE CONTRACTOR. PENETRATIONS SHALL BE SUBJECT TO APPROVAL BY THE STRUCTURAL ENGINEER. RE: MECHANICAL, ELECTRICAL, AND PLUMBING DRAWINGS FOR OPENING LOCATIONS NOT SHOWN ON THE STRUCTURAL DRAWINGS.

REFER ARCHITECTURAL DRAWINGS FOR ADDITIONAL INFORMATION TO BE COORDINATED WITH THE STRUCTURAL DRAWINGS.

THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING ADEQUATE TEMPORARY SUPPORT AND STABILITY OF STRUCTURE DURING ALL PHASES OF CONSTRUCTION.

THE CONTRACTOR SHALL FIELD VERIFY ALL PERTINENT EXISTING DIMENSIONS AND ELEVATIONS PRIOR TO SHOP DRAWING PRODUCTION.

NO REPRODUCTIONS OF THE CONSTRUCTION DOCUMENTS ARE ACCEPTABLE FOR USE AS SHOP DRAWINGS.

STRUCTURAL ELEMENTS ARE NON-SELF SUPPORTING & REQUIRE INTERACTION W/ OTHER ELEMENTS FOR STABILITY & RESISTANCE TO LATERAL FORCES. FRAMING & WALLS SHALL BE TEMPORARILY BRACED BY CONTRACTOR UNTIL PERMANENT BRACING, FLOOR & ROOF DECKS, & WALLS HAVE BEEN INSTALLED AND CONNECTIONS BETWEEN THESE ELEMENTS HAVE BEEN MADE.

PRE-ENGINEERED BUILDING FRAMING

BUILDING FRAMES TO BE RIGID FRAMES WITH PINNED BASED COLUMNS. SIDEWALL COLUMNS TO HAVE STRAIGHT PROFILE WITH MAXIMUM DEPTH OF 16".

REFER ARCHITECTURAL DRAWINGS FOR ELEVATIONS AND EAVE HEIGHTS.

COORDINATE WITH MECHANICAL AND ELECTRICAL DRAWINGS FOR OPENINGS IN WALLS, ROOF AND SUPPORT OF ROOF TOP EQUIPMENT.

PRE-ENGINEERED BUILDING SHOP DRAWINGS AND CALCULATIONS SIGNED AND SEALED BY A LICENSED PROFESSIONAL ENGINEER IN THE STATE OF OKLAHOMA SHALL BE SUBMITTED TO THE LOCAL BUILDING OFFICIAL AFTER HAVING BEEN REVIEWED FOR GENERAL DESIGN CONFORMANCE BY THE ENGINEER OF RECORD. CALCULATIONS SHOULD INCLUDE SUMMARY OF WORST CASE LOAD COMBINATIONS FOR UPLIFT, GRAVITY, AND HORIZONTAL SHEAR WITH REACTIONS FOR EACH LOAD CASE (I.E. DEAD, COLLATERAL, LIVE, SNOW, WIND, ETC).

BUILDING DESIGN LOADS:

BUILDING CODE:	IBC 2015
BUILDING OCCUPANCY CATEGORY:	IV
IMPORTANCE FACTOR SEISMIC:	1.5
IMPORTANCE FACTOR SNOW:	1.2
DEAD LOAD	ACTUAL WEIGHTS OF MATERIALS
COLLATERAL LOAD:	5 PSF
LIVE LOAD (SNOW):	20 PSF
BASIC WIND SPEED:	120 MPH
WIND EXPOSURE:	C
SEISMIC:	IN ACCORDANCE WITH IBC 2015
SITE CLASS:	D
SEISMIC DESIGN CATEGORY:	C

ALLOWABLE DEFLECTIONS BASED ON LIVE LOAD, COLLATERAL LOAD AND WIND LOAD.

FRAMES	L/240
GIRTS AND PURLINS	L/240
LATERAL DEFLECTION AT EAVE HEIGHT RELATIVE TO FINISH FLOOR	H/120

ZEE PURLINS AND EAVE STRUTS

THE FABRICATION AND ERECTION OF ZEE PURLINS, EAVE STRUTS AND GIRTS SHALL CONFORM TO THE REQUIREMENTS OF THE COLD-FORMED STEEL DESIGN MANUAL BY THE AMERICAN IRON AND STEEL INSTITUTE AND THE MBMA DESIGN PRACTICES MANUAL.

ZEE PURLINS, EAVE STRUTS AND GIRTS SHALL BE COLD-FORMED STRUCTURAL STEEL SECTIONS WITH STIFFENED FLANGES AND HAVE A MINIMUM 57,000 PSI YIELD STRENGTH.

PURLIN BRIDGING SHALL BE L 1½ X 1½ X 16 GA. WITH END TABS. PURLIN MFR. SHALL PUNCH SLOTS IN PURLIN WEB TO RECEIVE TABS AND TABS SHALL BE BENT OVER TO LOCK INTO PLACE.

PURLINS AND EAVE STRUTS HAVE BEEN DESIGNED BASED ON THE ASSUMPTION THAT THE ROOF DECK LATERALLY BRACES THE TOP FLANGE OF THE MEMBER AGAINST BUCKLING. DO NOT SUBSTITUTE A STANDING SEAM DECK FOR THE LAP-SEAM DECK UNLESS ADDITIONAL LINES OF TOP FLANGE BRIDGING ARE INSTALLED.

CONCRETE

ALL DETAILING, FABRICATION AND PLACING OF REINFORCING STEEL SHALL CONFORM TO THE ACI STANDARD "DETAILS AND DETAILING OF CONCRETE REINFORCEMENT" (ACI 315).

ALL CONCRETE FOR THE SLAB ON GRADE, RETAINING WALLS AND BUILDING FOUNDATION WALLS SHALL DEVELOP A 28 DAY MINIMUM COMPRESSIVE STRENGTH OF 4000 PSI.

ALL CONCRETE FOR FOOTINGS SHALL DEVELOP A 28 DAY MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI.

USE WATER REDUCING ADMIXTURE IN SLAB ON GRADE CONCRETE TO ACHIEVE A MAX. W/C RATIO OF .45.

ALL EXTERIOR CONCRETE FLATWORK SHALL HAVE AN AIR CONTENT OF 6% ±1%.

CHAMFER ALL EXPOSED EXTERNAL CORNERS OF CONCRETE WITH 3/4" X 45° CHAMFER, UNLESS NOTED OTHERWISE.

PROVIDE 1½" SAWCUT CONTROL JOINTS AT 15'-0" MAX. ON CENTER ACROSS THE WIDTH OF THE SLAB. REFER TO STRUCTURAL DRAWINGS FOR TYPICAL CONTROL JOINT LAYOUT. C.J. INDICATES SAW CUT CONTROL JOINT.

SAW CUTS SHOULD BE MADE W/ IN 12 HOURS OF START OF CONCRETE PLACEMENT.

PROVIDE 1 - #4 HOOP 28"Ø WITH 8" LAP IN SLAB AROUND INTERIOR SLAB BLOCK OUTS.

ALL REINFORCING STEEL SHALL BE DEFORMED BARS CONFORMING TO ASTM A615, GRADE 60.

ALL REINFORCING BAR SPLICES SHALL BE 44 DIAMETERS.

ALL REINFORCING BAR HOOKS SHALL BE ACI STANDARD 90° HOOKS, UNLESS NOTED OTHERWISE.

PROVIDE 2 - #4 X 4'-0" LONG DIAGONAL BARS IN TOP FACE OF SLAB AT ALL RE-ENTRANT CORNERS.

PROVIDE CORNER BARS IN WALLS SAME SIZE AND SPACING AS LONGITUDINAL REINFORCING.

PROVIDE 1 - #4 HOOP WITH 8" LAP IN SLAB AROUND FLOOR DRAINS.

ALL SLOTS, SLEEVES AND OTHER EMBEDDED ITEMS SHALL BE SET BEFORE CONCRETE IS PLACED. SEE ARCHITECTURAL, ELECTRICAL, MECHANICAL, AND VENDOR DRAWINGS FOR SIZE AND LOCATION.

FOUNDATION

STRIP AREA OF ALL GRAVEL, SURFACE VEGETATION AND TOPSOIL, AND ANY DEBRIS. REMOVE ALL EXISTING STRUCTURES, FOUNDATIONS, AND BELOW GRADE SITE FEATURES. UNDERCUT AND REMOVE 12" MIN. BELOW FINAL BEARING ELEVATION OF ALL FOOTINGS. AFTER STRIPPING AND MAKING REQUIRED CUTS, EXPOSED SUBGRADE SHOULD BE PROOFROLLED WITH A 25 TON TANDEM-AXLE DUMP TRUCK. OVEREXCAVATE AND STABILIZE ANY SOFT OR UNSTABLE AREAS DISCOVERED BY PROOFROLLING.

SCARIFY TO A MINIMUM DEPTH OF 8", AND ADJUST MOISTURE CONTENT TO EQUAL ±2% OPTIMUM MOISTURE CONTENT USING STANDARD PROCTOR PROCEDURE. COMPACT TO AT LEAST 95% OF STD. PROCTOR DRY DENSITY.

PLACE FILL IN LOOSE LIFTS IN 9" MAX. LIFTS. ADJUST MOISTURE CONTENT TO EQUAL OR SLIGHTLY ABOVE THE OPTIMUM MOISTURE CONTENT, AND COMPACT TO AT LEAST 95% MAX. DRY DENSITY.

STRUCTURAL FILL SHOULD CONSIST OF APPROVED LOW VOLUME CHANGE MATERIAL WITH A P.I. OF 18 OR LESS AND AT LEAST 15% FINES. LOCALLY NATIVE SOILS MEETING THE ABOVE CRITERIA MAY BE USED AS FILL, BUT MUST BE TESTED AND APPROVED PRIOR TO USE BY THE GEOTECHNICAL ENGINEER.

FOOTINGS BEARING ON MIN. 12" OF NEW, PROPERLY-COMPACTED STRUCTURAL FILL ARE DESIGNED USING AN ALLOWABLE NET BEARING PRESSURE OF 2000 PSF.

SLABS ON GRADE SHOULD BE SUPPORTED BY A 15MIL VAPOR BARRIER ON 6" OF CRUSHED STONE.

REFER TO SOILS REPORT 36705117 BY AIMRIGHT TESTING & ENG. DATED MAY 26, 2017 FOR FURTHER INFORMATION.

SAFE ROOM DESIGN LOADS

IN ACCORDANCE WITH ICC 500, FEMA P-361 & ASCE 7-10.

DESIGN WIND SPEED = 250 MPH. EXPOSURE 'C'.
Kz=1.0, Kzt=1.0 & Kd=1.0
qz= 160 PSF.

GRAVITY LOADS:

ROOF DEAD LOAD:

ROOFING	5 PSF
DECK & CONC.	75 PSF
CEIL & MECH.	15 PSF
TOTAL	95 PSF
LIVE LOAD	100 PSF

SAFE ROOM WIND LOAD FACTORS:

MNFRS:

WALLS;

G=0.85
Cp=0.8 (WINDWARD)
=-0.5 (LEEWARD)
=-0.7 (SIDE WALLS)
GCpi= +/- 0.55

ROOF;
G=0.85
Cp= -0.9, -0.18
GCpi= +/- 0.55

C & C:

WALLS;

EWA = 100 SF
GCp = -0.9 (ZONE 4)
GCp = -1.1 (ZONE 5)
GCpi= +/- 0.55

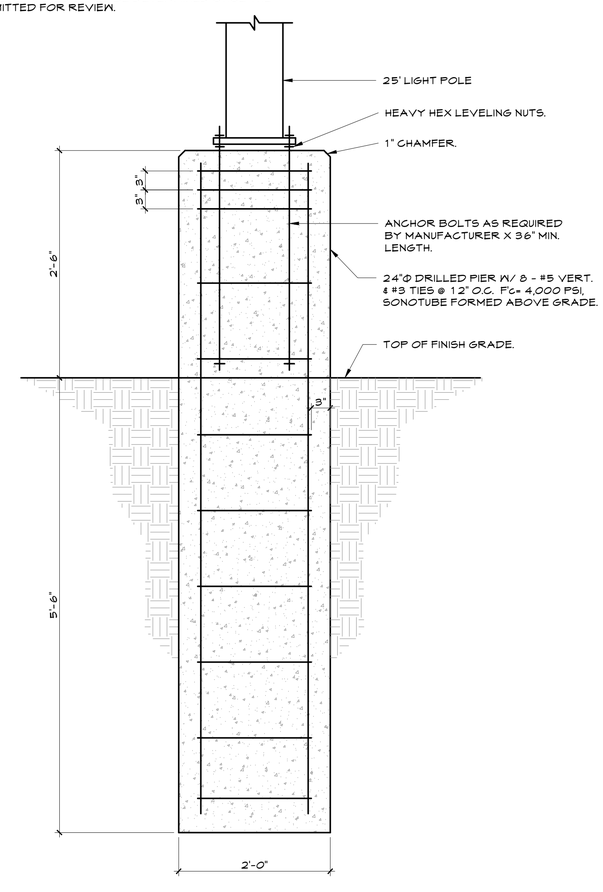
ROOF;

EWA = 100 SF
GCp = +0.2 or -0.9 (ZONE 1)
GCp = +0.2 or -1.1 (ZONE 2 & 3)
GCpi= +/- 0.55

CONNECTIONS OF THE HOST BUILDING FRAMING TO THE SAFE ROOM ARE DESIGNED TO FAIL BEFORE THE SAFE ROOM STRUCTURE AT ULTIMATE LOADS.

MISSILE IMPACT PROTECTION FOR OPENINGS LARGER THAN 3 $\frac{3}{8}$" RECTANGULAR AND 2 $\frac{1}{16}$" DIAMETER SHALL BE PROTECTED. NO OPENING SHOWN, NOTIFY ENGINEER OF RECORD IF OPENINGS ARE REQUIRED.

CONNECTIONS OF DOOR AND LOUVER FRAMES SHALL BE DETERMINED ONCE THE DETAILS OF THE FRAMES ARE SUBMITTED FOR REVIEW.



A LIGHT POLE SUPPORT
SCALE: 1" = 1'-0"

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CERTIFICATE OF AUTHORIZATION
NO. CA 5305 EXP. 06/30/2019

SAND SPRINGS FIRE DEPARTMENT
FIRE STATION NO. 2
4101 S. 113th West Ave., Sand Springs, OK 74063

PROFESSIONAL ENGINEER
JAMES B. GEURIN
12827
9-21-17
OKLAHOMA
LICENSED

ISSUE DATE
SEPTEMBER 21, 2017

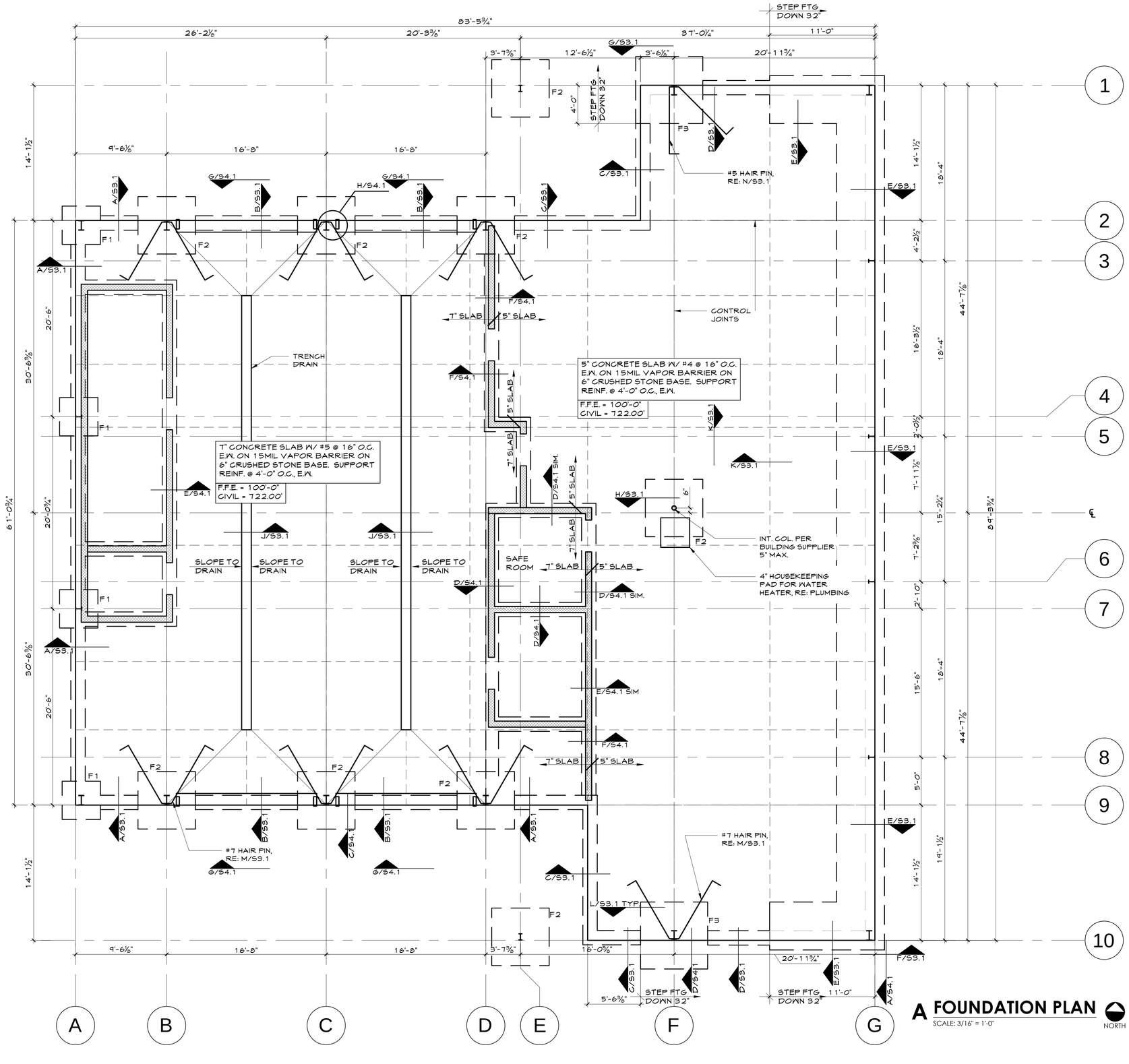
#	ISSUE	DATE

REVIEWED BY JBG
DRAWN BY BRH

TITLE
GENERAL NOTES

SHEET NUMBER
S0.1

PLOT DATE: Thu, 21 Sep 2017 FILE: W:\STRUCTURAL\PROJECTS\FRITZ BAILY\SAND SPRINGS FIRE STATION #2\SS S0.1



A FOUNDATION PLAN

SCALE: 3/16" = 1'-0"

NORTH

FOOTING SCHEDULE				
MARK	FOOTING SIZE	FTG. DEPTH	REINF. (T. & B., E.W.)	NOTES
F1	4'-0" X 4'-0"	1'-6"	5- #5 X 3'-6"	
F2	6'-0" X 6'-0"	1'-6"	6- #5 X 5'-6"	
F3	7'-0" X 7'-0"	1'-6"	7- #5 X 6'-6"	
FOOTING SIZES IN SCHEDULE MAY BE ADJUSTED ONCE FINAL REACTIONS ARE SUBMITTED BY STEEL BUILDING MFR.				

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SHEET NUMBER
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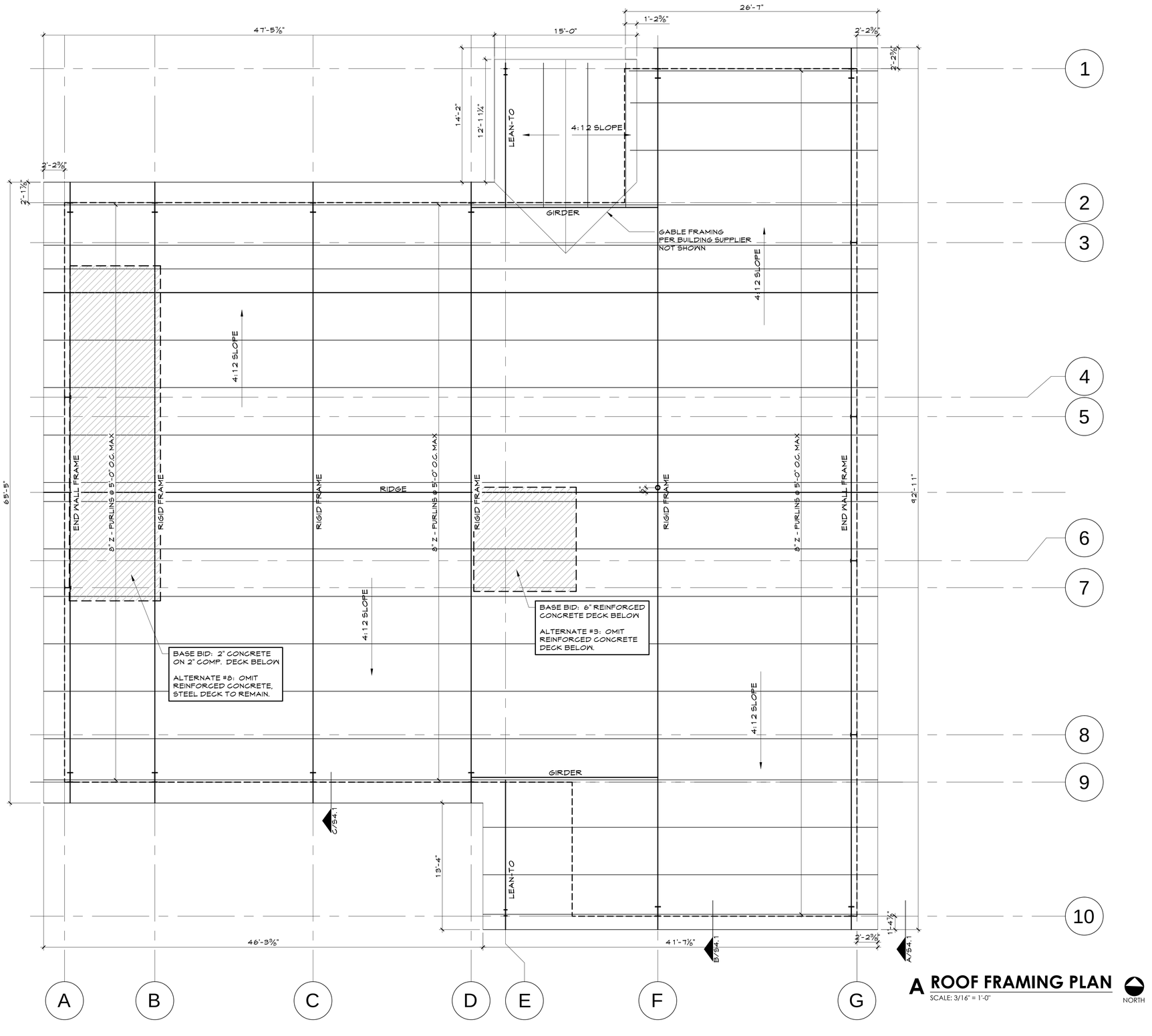

A ROOF FRAMING PLAN

SCALE: 3/16" = 1'-0"

NORTH

PLOT DATE: Thu, 21 Sep 2017 FILE: W:\STRUCTURAL\PROJECTS\FRITZ BAILY\SAND SPRINGS FIRE STATION #2\SS5 FS 5-2

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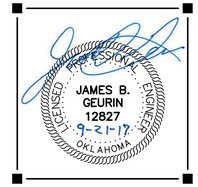

ISSUE DATE
SEPTEMBER 21, 2017

#	ISSUE	DATE

REVIEWED BY JBG
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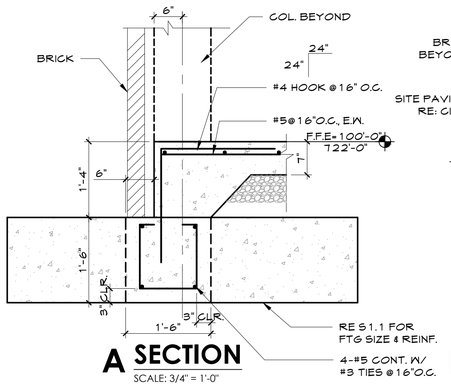
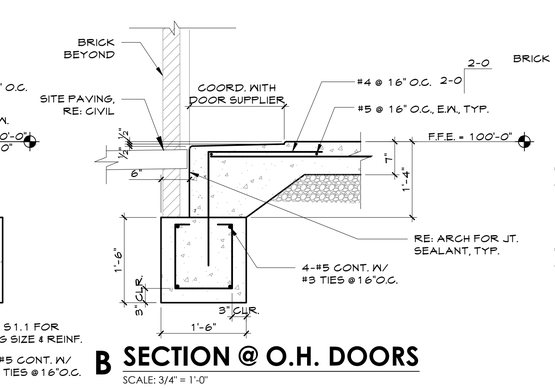
TITLE
ROOF FRAMING PLAN

SHEET NUMBER
S2.1



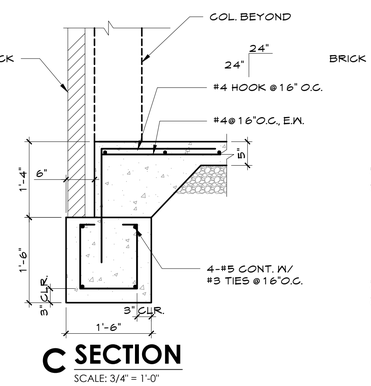
A SECTION

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



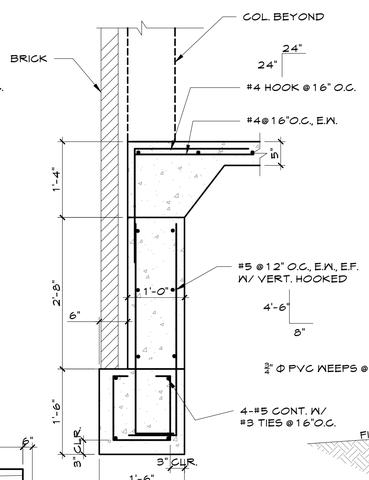
B SECTION @ O.H. DOORS

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



C SECTION

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



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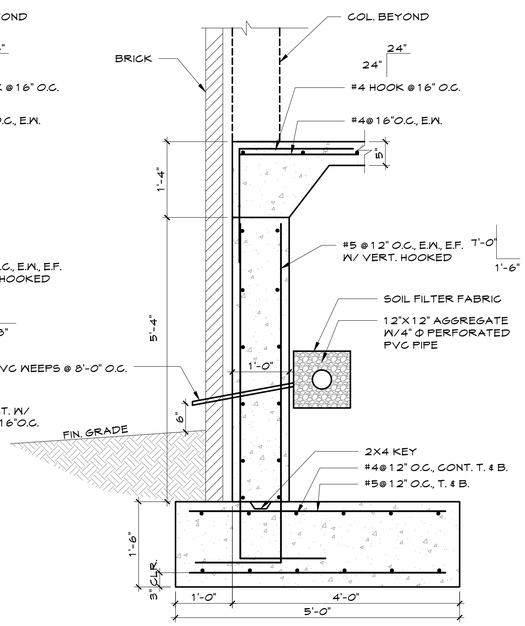
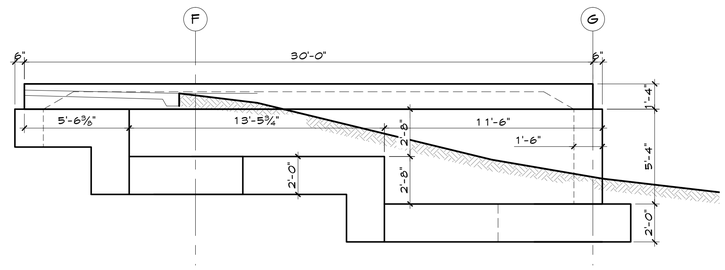


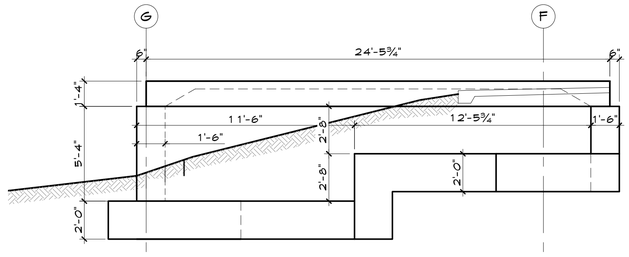
E SECTION

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



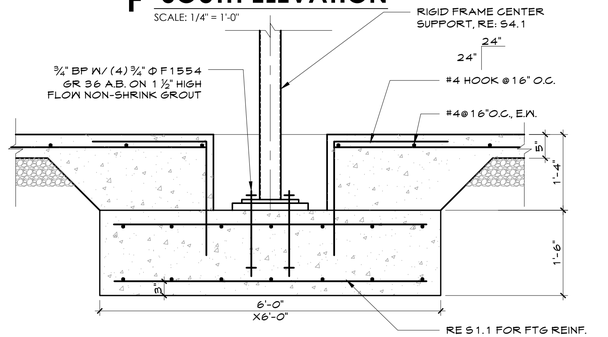
F SOUTH ELEVATION

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



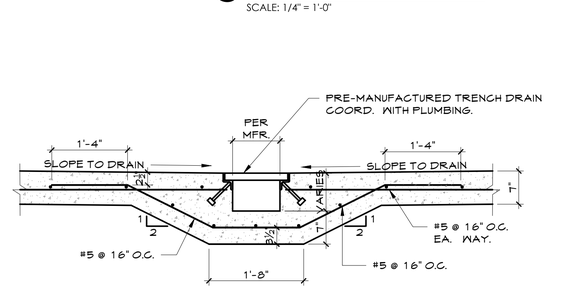
G NORTH ELEVATION

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



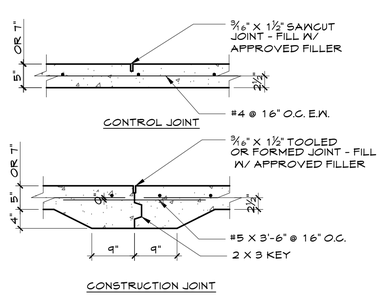
H SECTION

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



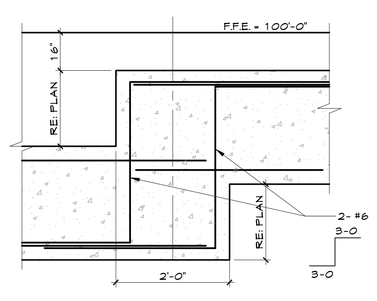
J SECTION

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



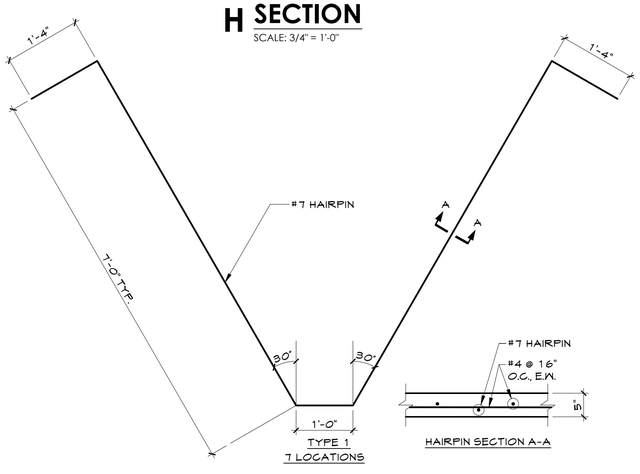
K SECTION

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



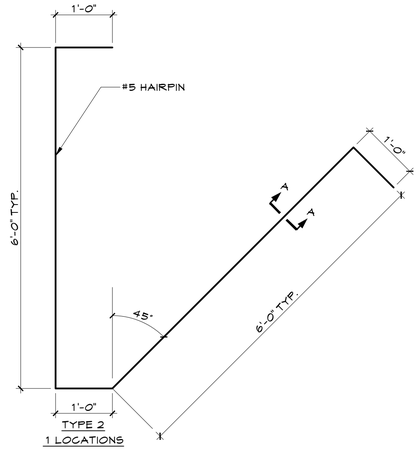
L STEP DOWN FOOTING DTL

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



M HAIRPIN DETAIL

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



N CORNER HAIRPIN DETAIL

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

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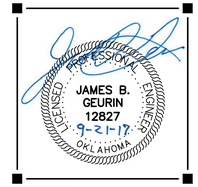

ISSUE DATE
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#	ISSUE	DATE

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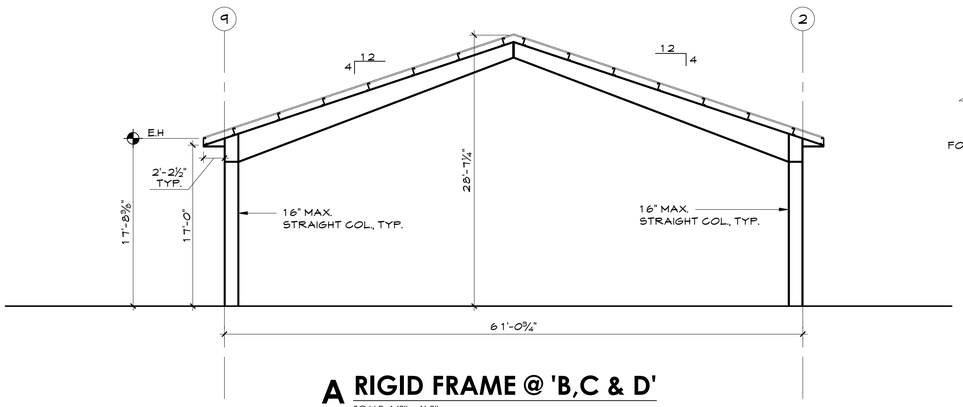
TITLE

FOUNDATION
DETAILS

SHEET NUMBER

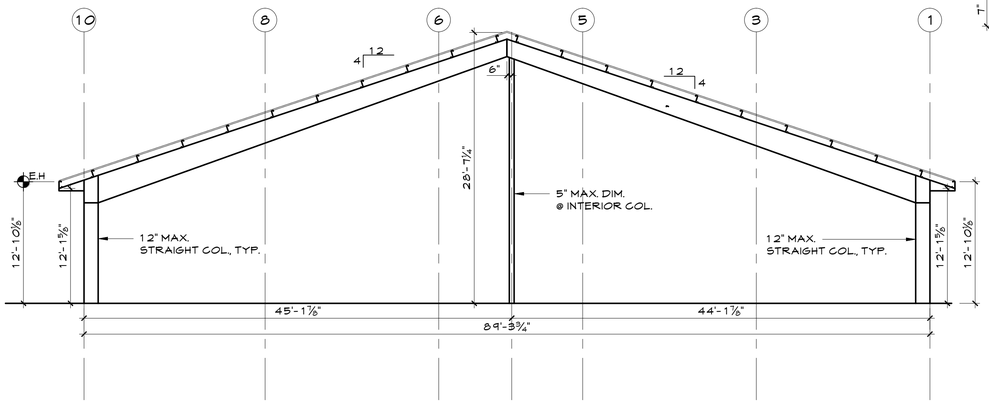
S3.1

PLOT DATE: Thu, 21 Sep 2017 FILE: W:\STRUCTURAL\PROJECTS\FRITZ BAILY\SAND SPRINGS FIRE STATION #2\SSS FS S-3



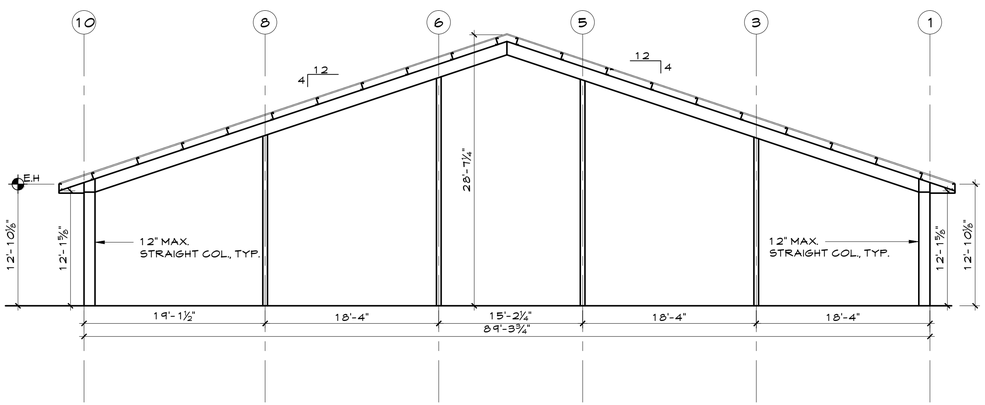
A RIGID FRAME @ 'B,C & D'

SCALE: 1/8" = 1'-0"



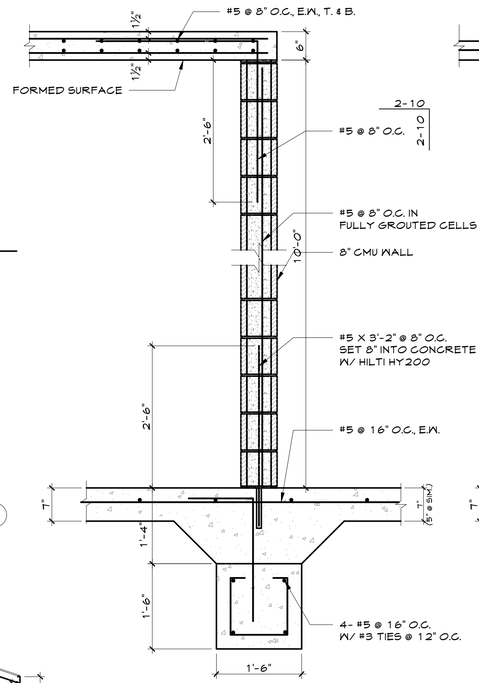
B RIGID FRAME @ 'F'

SCALE: 1/8" = 1'-0"



C END WALL FRAME @ 'G'

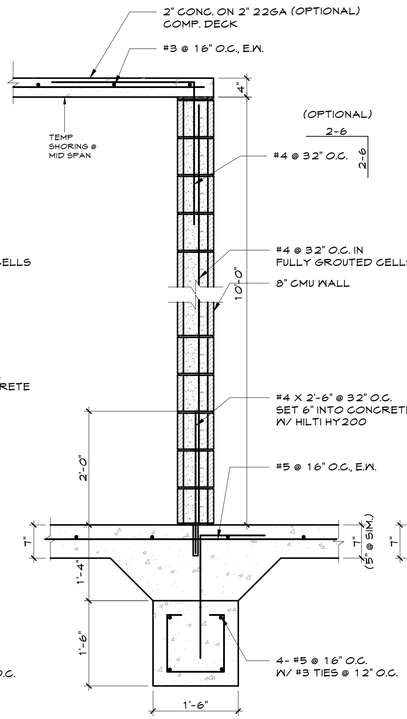
SCALE: 1/8" = 1'-0"



D WALL SECTION @ SAFE ROOM

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

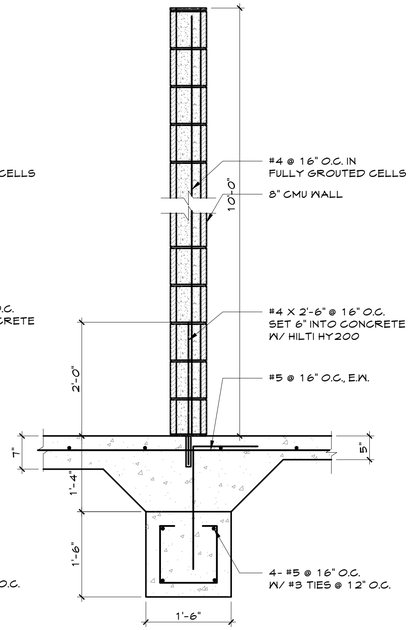
ALTERNATE #3:
OMIT THE 6" REINFORCED CONCRETE LID AT SAFE ROOM AND CHANGE VERT. REINFORCING IN WALLS TO #4 @ 32" O.C. IN FULLY GROUTED CELLS.



E SECTION

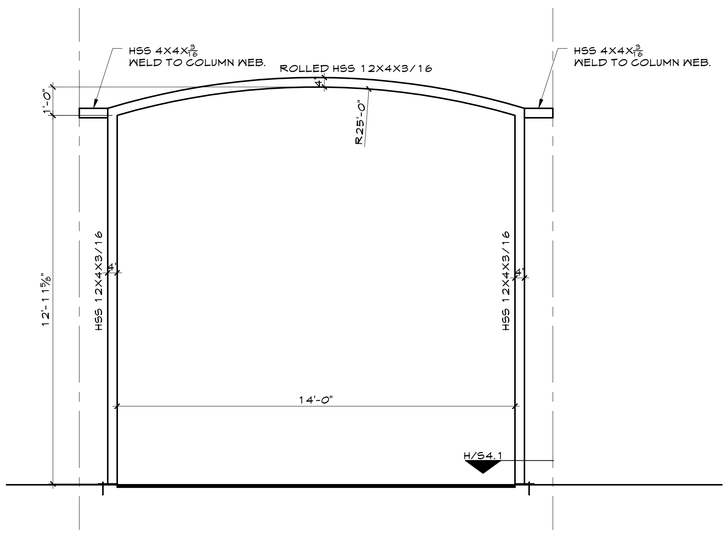
SCALE: 3/4" = 1'-0"

ALTERNATE #8:
OMIT THE REINFORCED CONCRETE LID. COMP. DECK TO REMAIN. ATTACH DECK TO TOP OF CMU WALL WITH #12 MASONRY SCREWS @ 12" O.C.



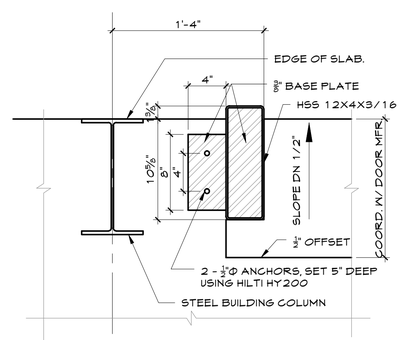
F SECTION

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



G OHD FRAME ELEVATION

SCALE: 3/8" = 1'-0"



H PLAN SECTION

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

FRITZ BAILY

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CERTIFICATE OF AUTHORIZATION
NO. CA 5305 EXP. 06/30/2019

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FIRE STATION NO. 2
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OKLAHOMA

ISSUE DATE
SEPTEMBER 21, 2017

#	ISSUE	DATE

REVIEWED BY JBG
DRAWN BY BRH

TITLE
FRAMING ELEVATIONS & SECTIONS

SHEET NUMBER
S4.1

PLOT DATE: Thu, 21 Sep 2017 FILE: W:\STRUCTURAL\PROJECTS\FRITZ BAILY\SAND SPRINGS FIRE STATION #2\SS5 FS S-4