GENERAL STRUCTURAL NOTES

USE STRUCTURAL DRAWINGS IN CONJUNCTION WITH JOB SPECIFICATIONS, AND OTHER DRAWINGS.

SECTIONS AND DETAILS SHOWN SHALL BE CONSIDERED TYPICAL FOR ALL SIMILAR CONDITIONS.

CONTRACTOR SHALL VERIFY ALL CONDITIONS IN THE FIELD AND TAKE ALL NECESSARY FIELD MEASUREMENTS.

THE STRUCTURE SHOWN ON THESE DRAWINGS IS STRUCTURALLY SOUND ONLY IN ITS COMPLETED FORM. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY BRACING TO STABILIZE THE BUILDING DURING CONSTRUCTION.

SAFETY

IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, THE CONTRACTOR WILL BE SOLELY RESPONSIBLE FOR CONDITIONS OF THE JOB SITE, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY DURING PERFORMANCE OF THE WORK. THIS REQUIREMENT WILL APPLY CONTINUOUSLY AND WILL NOT BE LIMITED TO NORMAL WORKING HOURS.

IF ENGINEER PROVIDES CONSTRUCTION REVIEW SERVICES, SUCH SERVICES SHALL NOT INCLUDE REVIEW OF THE CONTRACTOR'S SAFETY MEASURES IN, ON, OR NEAR THE CONSTRUCTION SITE.

REFERNCES

1. LATEST EDITION OF THE IBC 2018
2. STRUCTURAL WELDING CODE ANSI/AWS D1.4 PER AMERICAN WELDING SOCIETY.
3. AMERICAN CONCRETE INSTITURE (ACI), LATEST ANNUAL EDITION.
   A. 117 – STANDARD SPECS FOR TOLERANCES FOR CONCRETE CONSTRUCTION AND MATERIALS.
   B. 301 – SPECS FOR STRUCTURAL CONCRETE FOR BUILDINGS.
   C. 305 – HOT WEATHER CONCRETING.
   D. 306 – COLD WEATHER CONCRETING.
   E. 315 – MANUAL OF STANDARD PRACTICE FOR DETAILING CONCRETE STRUCTURES.
4. CONCRETE REINFORCING STEEL INSTITUTE – MANUAL OF STANDARD PRACTICE AND SPECIFICATIONS FOR PLACING REINFORCEMENT.

DESIGN LOADS

GOVERNING CODE – IBC 2018., ASCE 7-16

1. ROOF LOAD
   DEAD LOAD = 15 PSF
   LIVE LOAD = 20 PSF
   SNOW LOAD = 20 PSF + DRIFTING (WHERE APPLICABLE)
   35 PSF MIN
2. WIND LOADS
   - 117 MPH WIND SPEED
   - Risk Category IV
   - Wind Exposure C
   - Internal Pressure Coefficient = ± 0.18
3. EARTHQUAKE LOADS
   - Site Class D (Assumed)
   - Seismic Hazard Exposure Group II
   - Seismic Performance Category B
   - Analysis by Equivalent Static Force Procedure
   - Ss = 0.184, S1 = 0.079
   - Sds = 0.196, Sd1 = 0.126
   - Ie = 1.25
   - Reinforced Masonry Shear Walls
     - Ct = 0.035
     - R = 4.5

DESIGN LOADS–STORM SHELTER

GOVERNING CODE – IBC 2018, ASCE 7-16

1. ROOF LOAD
   DEAD LOAD = 40 PSF
   LIVE LOAD = 100 PSF
   SNOW LOAD = 20 PSF + DRIFTING (WHERE APPLICABLE)
   140 PSF MIN
2. WIND LOADS
   - 250 MPH WIND SPEED
   - Risk Category IV
   - Wind Exposure C
   - Internal Pressure Coefficient = ± 0.18
3. EARTHQUAKE LOADS
   - Site Class D (Assumed)
   - Seismic Hazard Exposure Group II
   - Seismic Performance Category B
   - Analysis by Equivalent Static Force Procedure
   - Ss = 0.184, S1 = 0.079
   - Sds = 0.196, Sd1 = 0.126
   - Ie = 1.25
   - Reinforced Masonry Shear Walls
     - Ct = 0.035
     - R = 4.5

STRUCTURAL STEEL

1. FABRICATE AND ERECT ALL STRUCTURAL STEEL IN ACCORDANCE WITH THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION "SPECIFICATION FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS".
2. STRUCTURAL STEEL SHALL RECEIVE ONE SHOP COAT OF RUST-INHIBITIVE GREY PAINT.
3. THE STEEL USED SHALL HAVE THE FOLLOWING MINIMUM YIELD STRESS:
   STRUCTURAL MISC. STEEL SHAPES, BARS & PLATES, ASTM-A36, – 36 KSI, U.N.O.
   STRUCTURAL PIPE COLUMNS, ASTM A-53 – 35 KSI
   STRUCTURAL TUBE COLUMNS, ASTM A-500, GRADE B – 46 KSI
   STRUCTURAL WIDE FLANGE SHAPES, ASTM-A572, – 50 KSI, U.N.O.
4. BEAMS AND LINTELS SHALL BEAR 8" MINIMUM ON MASONRY UNLESS OTHERWISE NOTED.
5. USE 3/4" DIAM. A-325 BOLTS FOR ALL STEEL TO STEEL CONNECTIONS U.N.O. USE E-70XX ELECTRODES FOR ALL SHOP AND FIELD WELDING. ALL WELDERS TO BE CERTIFIED PER AWS D1.1.
6. THE STEEL FABRICATOR SHALL DESIGN ALL STEEL TO STEEL CONNECTIONS NOT SHOWN ON THE DRAWINGS.
7. ALL CONTRACTORS SHALL SUBMIT TO THE STRUCTURAL ENGINEER A COPY OF THE STEEL ERECTION DRAWINGS AND SHOP FABRICATION DRAWINGS PRIOR TO FABRICATION.
8. FOR MISCELLANEOUS STEEL NOT SHOWN ON THESE DRAWINGS, SEE ARCHITECTURAL AND OTHER ENGINEERING DRAWINGS.
9. ANCHOR BOLTS TO BE GRADE A307 OR A325, UNLESS NOTED OTHERWISE.
10. FIELD BOLTED CONNECTIONS TO BE TIGHTENED BY ONE OF FOLLOWING METHODS:
    A. TURN OF THE NUT METHOD (AISC)
    B. CALIBRATED WRENCH METHOD
    C. LOAD INDICATOR WASHERS
    D. LOAD INDICATOR BOLTS
11. GROUT USED IN GROUT BEDS UNDER COLUMN BASE PLATES SHALL BE CEMENT BASED, NON-SHRINK GROUT. THE GROUT SHALL EXHIBIT NO SHRINKAGE IN ACCORDANCE WITH ASTM C827, "TEST METHOD FOR EARLY VOLUME CHANGE OF CEMENTITIOUS MIXTURES" AND SHALL HAVE A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 5000 PSI WHEN TESTED IN ACCORDANCE WITH ASTM C-109, "TEST METHOD FOR COMPRESSIVE STRENGTH OF HYDRAULIC CEMENT MORTARS."
12. STEEL BEAM WHICH BEAR ON MASONRY WALLS SHALL HAVE MASONRY ANCHORS AND SHALL BEAR EITHER ON BOND BEAMS OR FILLED BLOCK CORES AND SHALL BEAR A MINIMUM OF 8" UNLESS NOTED OTHERWISE.

METAL DECK

1. DESIGN , FABRICATION AND ERECTION OF METAL DECK SHALL CONFORM TO THE STEEL DECK INSTITUTE "DESIGN MANUAL FOR COMPOSITE DECKS, FORM DECKS AND ROOF DECKS."
2. U.N.O., METAL ROOF DECK SHALL BE 22 GAGE, WIDE RIB, WITH 1≥" NOMINAL CORRUGATION DEPTH. THE MINIMUM YIELD STRESS SHALL BE 33 KSI.
3. ALL DECK SHALL RECEIVE A SHOP-COAT OF HIGH QUALITY RUST INHIBITIVE PRIMER IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
4. SEE THE STRUCTURAL STEEL DRAWINGS FOR DECK ATTACHMENT DETAILS AND SCHEDULE.
5. THE ROOF DECK MAY HAVE OPENINGS 6" SQUARE WITHOUT REINFORCEMENT, CONSULT THE STRUCTURAL ENGINEER FOR ANY LARGER OPENING.
6. THE ROOF DECK IS ASSUMED TO SPAN THREE CONTINUOUS SPANS. ANY OTHER SPANS THE DESIGNER SHOULD CONSULT THE MANUFACTURER FOR ALLOWABLE DESIGN LOADS.

OPEN WEB STEEL JOISTS

1. DESIGN, FABRICATION AND ERECTION OF STEEL JOISTS SHALL CONFORM WITH THE LATEST EDITION OF THE STEEL JOIST INSTITUTE SPECIFICATIONS.
2. WELD EACH "K" JOIST TO BEAM, JOIST GIRDER OR WELD PLATE WITH A FILLET WELD EACH SIDE OF JOIST. WELD LENGTH SHALL BE A MINIMUM OF 2" FOR "K" SERIES AND 2" FOR "LH" SERIES, UNO.
3. USE BRIDGING AS INDICATED ON THE DRAWINGS OR AS REQUIRED BY THE STEEL JOIST INSTITUTE. CONTINUE ALL BRIDGING TO ROLLED STEEL SHAPES AND/OR WALLS WHICH ARE PARALLEL TO THE JOISTS AND ANCHOR IN ACCORDANCE WITH STEEL JOIST INSTITUTE SPECIFICATIONS.
4. ALL BRIDGING SHALL BE SECURED TO TOP AND BOTTOM OF ALL JOISTS AND BEAMS AND SHALL BE IN ACCORDANCE WITH STEEL JOIST INSTITUTE SPECIFICATIONS.
5. JOISTS SHALL BEAR 2-1/2" MINIMUM ON STEEL, TRUSS GIRDERS 4" ON STEEL.
6. JOIST GIRDER BOTTOM CHORD BRACES MAY BE REQUIRED TO LIMIT THE BOTTOM CHORD l/r RATIO TO 240. ADDITIONAL BRACES MAY BE REQUIRED TO TRANSMIT COMPRESSIONAL FORCES DUE TO PRESSURES. JOIST SUPPLIER SHALL INDICATE THE NUMBER OF BRACES REQUIRED BY DESIGN ON THE APPROVAL DRAWINGS. BOTTOM CHORD BRACES MAY BE EITHER WELDED OR BOLTED TO THE GIRDER, BUT ARE ALWAYS WELDED TO THE JOIST.
7. ALL JOISTS SHALL RECEIVE A SHOP-COAT OF HIGH QUALITY RUST INHIBITIVE GREY PRIMER, U.N.O.
8. UNDER NO CIRCUMSTANCES SHALL ANY PERSONNEL ATTEMPT TO WALK ON UNBRIDGED JOISTS. AS SOON AS THE JOISTS ARE ERECTED, ALL BRIDGING SHALL BE COMPLETELY INSTALLED AND ANCHORED, THEN THE JOISTS PERMANENTLY FASTENED INTO PLACE. UNTIL THIS IS DONE, NO CONSTRUCTION LOADS SHALL BE APPLIED TO THE JOISTS.

CONCRETE

1. ALL CONCRETE WORK SHALL CONFORM TO ACI 301-18I, "SPECIFICATIONS FOR BUILDINGS", EXCEPT AS NOTED BELOW. REFER TO CHAPTER 16 OF ACI 301 FOR REPORTS FROM TESTS THAT SHALL BE SUBMITTED TO THE STRUCTURAL ENGINEER, ARCHITECT, OWNER, ANY APPLICABLE CONTRACTORS, CONCRETE SUPPLIER, AND BUILDING OFFICIAL.
2. CONCRETE WORK IN COLD WEATHER SHALL CONFORM TO ALL REQUIREMENTS OF ACI 306.1-90 "STANDARD SPECIFICATION FOR COLD WEATHER CONCRETING" AND ACI 306R-88 "COLD WEATHER CONCRETING".
3. CONCRETE WORK IN HOT WEATHER SHALL CONFORM TO ALL REQUIREMENTS OF ACI 305R-91 "HOT WEATHER CONCRETING". THE AIR TEMPERATURE, RELATIVE HUMIDITY, CONCRETE TEMPERATURE, AND WIND VELOCITY SHALL BE ENTERED INTO NOMOGRAPH FIG. 2.1.5 TO DETERMINE IF PRECAUTIONS AGAINST PLASTIC SHRINKAGE ARE REQUIRED.
4. REBAR FABRICATION, PLACEMENT, SPLICING, ETC. SHALL BE IN ACCORDANCE WITH THE LATEST EDITIONS OF ACI 318, THE CONCRETE REINFORCING STEEL INSTITUTE (CRSI) HANDBOOK AND ANY OTHER APPLICABLE PUBLICATIONS.
5. A SLUMP TEST SHALL BE PERFORMED BEFORE ANY HRWR IS ADDED.
6. CONCRETE MATERIAL SPECIFICATION: (f'c BASED ON 28 DAYS U.N.O.)
   -COMPRESSIVE STRENGTH, f'c = 3000 PSI, NORMAL AGGREGATE, U.N.O.
   -INTERIOR SLABS, f'c = 4000 PSI (28 DAYS), 1800 PSI AT 3 DAYS, NORMAL AGGREGATE, MIN CEMENT CONTENT PER ACI 301-89 TABLE 3.1.4.2(b), HRWR ADMIXTURE REQ'D., MAX WATER/CEMENT RATIO = 0.50
   -EXTERIOR SLABS, SIDEWALKS, ETC.: f'c = 3500 PSI, (4≥% – 7≥% ENTRAINED AIR), MIN PORTLAND CEMENT = 520 LB/CY, MAX WATER/CEMENT RATIO = 0.45.
   -FOOTINGS, f'c = 3000 PSI.
   -WALLS, f'c = 3000 PSI.
7. UNLESS OTHERWISE NOTED, REINFORCEMENT BARS TO HAVE MINIMUM CONCRETE COVER AS SHOWN BELOW:

CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH:	3 INCHES
CONCRETE EXPOSED TO EARTH OR WEATHER:	
#5 BARS AND SMALLER	1½" INCHES
OTHER	2 INCHES
CONCRETE NOT EXPOSED TO EARTH OR WEATHER:	
BEAM AND COLUMN BARS INCLUDING TIES, STIRRUPS AND SPIRALS	1½" INCHES
SLABS, WALLS, AND JOISTS:	
#11 BARS AND SMALLERS	¾" INCHES
OTHERS	1½" INCHES

8. ALL EXPOSED EDGES ARE TO BE CHAMFERED ¾" INCH, UNO.
9. LAP SPLICE LENGTHS TO BE OF CLASS "B" PER ACI.
10. CONCRETE REINFORCEMENT SHALL CONFORM TO ASTM A615 OR A616, GRADE 60.
11. ISOLATED COLUMN FOOTINGS AND WALL FOOTINGS HAVE BEEN DESIGNED WITH AN ASSUMED ALLOWABLE SOIL BEARING PRESSURE OF 2000 PSF, UPON ENCOUNTERING ANY ADVERSE SOIL CONDITIONS CONTACT THE STRUCTURAL ENGINEER.
12. DO NOT CAST CONCRETE AGAINST WATER OR FROZEN WATER.

REINFORCED CONCRETE MASONRY

1. ALL MASONRY CONSTRUCTION SHALL COMPLY WITH ACI 530 "BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES", LATEST EDITION.
2. ALL CONCRETE MASONRY UNITS (CMU) FOR LOAD-BEARING WALLS SHALL COMPLY WITH ASTM C-90, "SPECIFICATION FOR HOLLOW LOAD-BEARING CONCRETE MASONRY UNITS". TYPE M OR S MORTAR SHALL BE USED.
3. ALL LOAD-BEARING BLOCK MASONRY SHALL HAVE A PRISM STRENGTH OF 1800 PSI MINIMUM. CONCRETE OR GROUT USED TO FILL CELLS SHALL BE 3000 PSI, MINIMUM.
4. ALL VERTICAL REINFORCEMENT SHALL BE HELD IN POSITION AT TOP AND BOTTOM AND AT INTERVALS NOT EXCEEDING 192 DIAMETERS OF THE BAR OR 10 FEET.
5. ALL CELLS CONTAINING REINFORCEMENT SHALL BE FILLED SOLIDLY WITH GROUT. GROUT SHALL BE POURED IN LIFTS OF 8 FEET MAXIMUM IN HEIGHT. ALL GROUT SHALL BE CONSOLIDATED AT THE TIME OF POURING BY PUDDLING OR VIBRATION AND THEN RECONSOLIDATED AGAIN BY PUDDLING LATER BEFORE PLASTICITY IS LOST.
6. USE 9 GAGE LADDER HORIZONTAL JOINT REINFORCEMENT AT 16 INCHES ON CENTER.

STATE OF KENTUCKY
TRACY S. MITCHELL
4-19220
REGISTERED PROFESSIONAL ENGINEER

ASG LLC
AMERICAN STRUCTURAL GROUP
CONSULTING STRUCTURAL ENGINEERS
225 SOUTH MAIN STREET
MONROE, OHIO 45050
PH: (513) 423-2800
WWW.ASG-ENG.COM
"Value Engineering the First Time"

REV	DESCRIPTION	DATE
0	PERMIT	04.28.20
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2		
3		
4		
5		
6		

CLIENT: MSE OF KENTUCKY, INC,
624 Wellington Way
Lexington, KY 40503
PH: (859)223-5694

PROJECT: ROWAN COUNTY AMBULANCE GARAGE
Morehead, Kentucky

GENERAL NOTES & DETAILS

CUSTOMER JOB NO.:	5070-02
CUSTOMER:	MSE
DRAWN BY:	GSM
DATE:	04.20.20
CKD. BY:	TSM
DATE:	DATE
ASG JOB NO.	20193
DRAWING FILENAME:	193S0

DRAWING NO:

S0