CONCRETE:

1. ALL CONCRETE WORK IS DESIGNED ON THE BASIS OF "STRENGTH DESIGN" IN ACCORD WITH ACI 318, "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE". ALL CONCRETE WORK SHALL BE CONSTRUCTED IN STRICT ACCORD WITH ACI 318.

2. CONCRETE WORK SHALL BE PROPORTIONED IN ACCORD WITH ACI 301, "SPECIFICATIONS FOR STRUCTURAL CONCRETE" AND ACI 211.11, "RECOMMENDED PRACTICE FOR SELECTING PROPORTIONS FOR NORMAL WEIGHT CONCRETE" TO PRODUCE THE FOLLOWING:

LOCATION	STRENGTH (PSI)	TEST AGE (DAYS)	MAX AGGR. SIZE	MAX W/C RATIO	MINIMUM CEMENT (PER CU. YD.)
FLOOR SLAB	4000	28	3/4"	0.40	500 LBS.
TIE-BEAM	4000	28	3/4"	0.40	500 LBS.
STARTER COLUMNS	4000	28	3/4"	0.40	500 LBS.
GROUT FILLED CELLS	3000	28	3/8"	0.60	560 LBS.
FOOTINGS	3000	28	3/8"	0.60	560 LBS.

* THE USE OF A SUPERPLASTICIZER IS ALLOWED BUT NOT REQUIRED. SHRINKAGE FOR THIS MIX SHALL BE LIMITED TO 0.035% AT 28 DAYS AS TESTED BY ASTM C157. (REFER TO NOTE 5 OF CONCRETE SLAB ON FILL)

CONFLICTS. DESIGN MIXES SHALL MEET OR EXCEED EACH REQUIREMENT SPECIFIED. WHERE BOTH STRENGTH AND MAXIMUM WATER-CEMENT RATIO ARE SPECIFIED, THE MOST STRINGENT SHALL APPLY. FOR EXAMPLE, MAXIMUM WATER-CEMENT RATIO MIGHT RESULT IN A STRENGTH GREATER THAN THE MINIMUM SPECIFIED; LIKEWISE, A LOWER WATER-CEMENT RATIO THAN SPECIFIED MAY BE REQUIRED IN ORDER TO ACHIEVE THE REQUIRED STRENGTH.

WATER/CEMENT RATIO. W/C RATIO SHALL BE BASED ON TOTAL CEMENTITIOUS MATERIAL. IF NOT SHOWN ABOVE, W/C RATIO SHALL BE DETERMINED BY SUPPLIER BASED ON STRENGTH RQMTS.

AIR CONTENT. ENTRAINED AIR IS NOT REQUIRED UNLESS SHOWN ABOVE. WHERE AIR CONTENT IS SPECIFIED AND CONCRETE IS BEING PUMPED, TESTING SHALL BE PERFORMED AT THE DISCHARGE END OF THE PUMP OR HOSE. TOLERANCE FOR AIR CONTENT SHALL BE + OR - 1 1/2%.

3. CONCRETE SLUMP LIMITATIONS:
   4" MINIMUM
   6" MAXIMUM
   GROUT: 10" MAXIMUM
4. NO WATER SHALL BE ADDED TO THE CONCRETE MIX AT THE JOB SITE WITHOUT APPROVAL OF THE ENGINEER.
5. MAXIMUM AGGREGATE SIZE SHALL BE 3/4" INCH. ALL AGGREGATES SHALL CONFORM TO ASTM C-33.
6. ADMIXTURES MAY BE USED ONLY AFTER APPROVAL BY THE ENGINEER.
7. ALL CONCRETE TO BE PUMPED SHALL BE DESIGNED ACCORDINGLY AND SHALL COMPLY WITH SLUMP LIMITATIONS STATED HEREIN ABOVE AND WITH ACI 301, "SPECIFICATIONS FOR STRUCTURAL CONCRETE" AND ACI 304, "PLACING CONCRETE BY PUMPING METHODS COMMITTEE REPORT".
8. A MINIMUM OF A 3 INCH INSIDE DIAMETER PUMP AND PIPE SHALL BE USED TO TRANSPORT CONCRETE.
9. ALL CONCRETE SHALL BE CONSOLIDATED THROUGH USE OF MECHANICAL VIBRATORS.
10. CONCRETE COVER FOR REINFORCING STEEL SHALL BE IN ACCORD WITH ACI 318, AND SHALL BE A MINIMUM AS FOLLOWS, U.N.O.:
    SLABS (ELEVATED) 3/4"
    SLABS (GRADE LEVEL) 1 1/2"
    BEAMS 1 1/2"
    FORMED CONCRETE BELOW GRADE 2"
    UNFORMED CONCRETE BELOW GRADE 3"
11. BLANK
12. ADEQUATE VERTICAL AND HORIZONTAL SHORING SHALL BE PROVIDED TO SAFELY SUPPORT ALL CONSTRUCTION LOADS.
13. ALL STRUCTURAL CONCRETE IS TO BE CURED IN ACCORDANCE WITH ACI 318 SEC. 5.11. COMPOUND SHALL BE APPLIED THE SAME DAY AS THE POUR AND IMMEDIATELY UPON HARDENING WHEN WIND /HUMIDITY DICTATE. SPRAY COMPOUND WITH MINIMUM TWO PASSES AT PERPENDICULAR PLACEMENT.

FOUNDATION AND CONCRETE SLAB ON FILL:

1. ALL SLABS ON FILL SHALL BE PLACED ON CLEAN, NON-ORGANIC FILL.
2. FILL SHALL BE THOROUGHLY MOISTENED IMMEDIATELY BEFORE CONCRETE IS PLACED AS DESCRIBED BELOW.
3. BLANK
4. ALL PLATES, ANGLES AND MISCELLANEOUS METAL ITEMS TO BE EMBEDDED IN CONCRETE SHALL BE SECURELY AND ACCURATELY FASTENED TO THE CONCRETE FORM WORK BY A MINIMUM OF TWO (2) FASTENERS PRIOR TO CONCRETE PLACEMENT.
5. SLAB SHALL BE CAST ON 6 MIL VISQUEEN.
6. ALL EXTERIOR CONCRETE SURFACES SHALL HAVE A LIGHT BROOM FINISH AND ALL INTERIOR SURFACES SHALL HAVE A SMOOTH TROWEL FINISH.
7. SOIL PREPARATION SHALL BE BASED IN ACCORDANCE WITH THE GEOTECHNICAL REPORT

GENERAL STRUCTURAL NOTES:

1. BLANK
2. REFER TO ARCHITECTURAL, MECHANICAL, AND ELECTRICAL DRAWINGS FOR EXACT LOCATION OF PITS, DEPRESSIONS, TRENCHES, AND ROOF MOUNTED OR JOISTS SUSPENDED UNITS.
3. ADEQUATE VERTICAL AND HORIZONTAL SHORING SHALL BE PROVIDED TO SAFELY SUPPORT ALL CONSTRUCTION LOADS.
4. BLANK
5. BLANK
6. BLANK

DESIGN LOADS FOR THE PROJECT AS FOLLOWS:

STRUCTURE IS DESIGNED ACCORDING TO ANSI/ASCE 7-16

BASIC WIND SPEED	= 170 MPH.
BUILDING RISK CATEGORY	= II
SITE WIND EXPOSURE	= C

STRUCTURAL STEEL:

1. STRUCTURAL STEEL CONSTRUCTION SHALL CONFORM WITH THE REQUIREMENTS OF THE "AISC'S SPECIFICATION FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS", LATEST EDITION.
2. BLANK
3. ALL STRUCTURAL STEEL MEMBERS AND MISC. METALS SHALL CONFORM WITH THE FOLLOWING UNLESS OTHERWISE NOTED:

STRUCTURAL SHAPE	ASTM SPECIFICATIONS	MIN FY (KSI)
PLATE AND BARS	A36	36
ANGLES	A36	36
SQUARE TUBING	A500 GRADE B	46
RECTANGULAR TUBING	A500 GRADE B	46

4. BLANK
5. ALL FIELD BOLTS SHALL BE ASTM A-325N BOLTS.
6. STEEL EXPOSED TO THE ELEMENTS SHALL BE HOT DIPPED GALVANIZED

REINFORCING STEEL:

1. ALL REINFORCING STEEL SHALL COMPLY WITH ASTM A-615, A-616, AND/OR, A-617.
2. ALL REINFORCING STEEL SHALL BE GRADE 60,(60.0 K.S.I. YIELD STRENGTH).
3. ALL REINFORCEMENT SPLICES SHALL BE IN ACCORD WITH ACI 318 FOR "STRENGTH DESIGN".
4. BLANK
5. DETAILS FOR CONCRETE REINFORCEMENT SHALL BE IN ACCORDANCE WITH THE CONCRETE REINFORCEMENT STEEL INSTITUTE "MANUAL OF STANDARD PRACTICE", UNLESS OTHERWISE INDICATED.
6. ALL WELDING OF REINFORCEMENT SHALL BE IN ACCORDANCE WITH THE AWS D12.1.
7. ALL REINFORCEMENT STEEL SHALL BE ACCURATELY PLACED, RIGIDLY SUPPORTED, AND FIRMLY TIED IN PLACE WITH BAR SUPPORTS AND SPACERS, IN ACCORDANCE WITH THE REQUIREMENTS OF ACI 301 AND ACI 318.
8. ALL REINFORCING STEEL SHALL BE ASSEMBLED AS CAGES OR MATS, WITH BARS EQUALLY SPACED AND TIED TOGETHER AT EACH INTERSECTION BEFORE CONCRETE IS PLACED.
9. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A 185-68, AND BE LOCATED IN THE CENTER OF DEPTH.
10. ALL ACCESSORIES SHALL HAVE UPTURNED LEGS AND BE PLASTIC DIPPED AFTER FABRICATION, ACCESSORIES FOR REINFORCING SHALL BE IN ACCORDANCE WITH ACI CURRENT EDITION.
11. SUPPORT BARS SHALL NOT BE SPACED MORE THAN 4'-0" C/C. SUPPORT BARS AND ENDS OF MAIN REINFORCING SHALL NOT EXTEND MORE THAN 1'-6" PAST OUTERMOST CHAIR OR SUPPORT BAR.
12. A MINIMUM OF 3 INDIVIDUAL HIGH CHAIRS FOR EACH SUPPORT BAR SHALL BE PROVIDED FOR TOP REINFORCING.
13. SPACER TIES SHALL BE PROVIDED FOR VERTICAL COLUMN REINFORCING STEEL SUCH THAT 2" MINIMUM CLEARANCE IS MAINTAINED UNLESS OTHERWISE NOTED ON PLANS.
14. HOOK ALL COLUMN VERTICAL REINFORCING INTO SLAB/BEAM ABOVE WHERE COLUMN TERMINATES.
15. PROVIDE CORNER BARS AT ALL CONCRETE TIE BEAM INTERSECTIONS. BARS SHALL BE SAME SIZE AND QUANTITY AS BEAM REINFORCING, LAPPING 30" IN BOTH DIRECTIONS.
16. LAP SPLICE SCHEDULE U.O.N.

BAR SIZE	TOP BAR LAP LENGTH	OTHER BAR LAP LENGTH
#3	24"	19"
#4	35"	25"
#5	40"	31"
#6	48"	37"
#7	70"	55"
#8	81"	61"
#9	91"	70"

*FOR BUNDLES OF THREE BARS OR LESS INCREASE LENGTHS SHOWN BY 20% FOR THE INDIVIDUAL BAR.

REINFORCED MASONRY:

1. HOLLOW MASONRY UNITS SHALL CONFORM TO ASTM C-90, TYPE II, GRADE N, WITH A MINIMUM AVERAGE CONCRETE STRENGTH ON GROSS AREA OF 2000 P.S.I. (COMP STRENGTH ON NET AREA = F'm = 2800 PSI).
2. MORTAR SHALL CONFORM TO ASTM C-476, TYPE "M" WITH A 28-DAY STRENGTH OF 2,500 PSI. GROUT SHALL ATTAIN A MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS OF 3000 PSI AND CONFORM TO ASTM C-476.
3. LAY ALL MASONRY WITH FULL FACE HEAD JOINTS AND WITH FACE SHELL MORTAR BEDDING.
4. MASONRY ANCHORAGE TO SUPERSTRUCTURE SHALL BE PROVIDED IN ACCORDANCE WITH STRUCTURAL DRAWINGS AND DETAILS.
5. THE USE OF ADMIXTURES SHALL NOT BE PERMITTED WITHOUT PRIOR APPROVAL OF THE ENGINEER.
6. VERTICAL REINFORCING:
   (A) ASTM A 615-60 PER REINFORCING SECTION.
   (B) WHEN A FOUNDATION DOWEL DOES NOT LINE UP WITH A VERTICAL CORE IT SHALL NOT BE SLOPED MORE THAN ONE HORIZONTAL IN SIX VERTICAL FOR ALIGNMENT, EVEN THOUGH IT IS AN ADJACENT CELL TO THE VERTICAL WALL REINFORCING.
   (C) VERTICAL REINFORCING STEEL SHALL HAVE A MINIMUM CLEARANCE OF THREE-QUARTER INCH FROM THE MASONRY.
   (D) VERTICAL REINFORCEMENT SHALL BE PROVIDED AT EACH SIDE OF OPENINGS IN WALL, AT WALL INTERSECTIONS, CORNERS AND ENDS. THIS REINFORCING SHALL BE THE SAME SIZE AS THE SCHEDULED WALL REINFORCING FOR THE PARTICULAR WALL BUT NEVER LESS THAN 1 #5 - UNLESS NOTED OTHERWISE. SPECIAL CARE SHALL BE TAKEN TO INSURE THAT CELLS TO BE GROUTED LINE UP PROPERLY.
7. PROVIDE 16 GAUGE GALVANIZED MASONRY DOVE-TAIL ANCHORS AT 16" O.C. VERTICAL FOR ALL MASONRY PLACED ADJACENT TO COLUMNS.
8. TERMINATE ALL VERTICAL REINFORCING INTO HIGHEST CONCRETE OR MASONRY BEAM ABOVE AND PROVIDE HOOK BAR ENDS WHERE FILLED CELL TERMINATES.
9. PROVIDE HORIZONTAL CORNER BARS AT ALL MASONRY BEAM INTERSECTIONS. BARS SHALL BE SAME SIZE AND QUANTITY AS BEAM REINFORCING EXTENDING, 30" IN BOTH DIRECTIONS.
10. PROVIDE #9 GAUGE WIRE REINFORCING - LADDER TYPE IN ALL WALLS, 16" O.C. VERTICAL IN 8" BLOCK.
11. WALL DESIGN IS BASED UPON ACI 530-99 / ASCE 5-99 AND SPECIFICALLY THE ELASTIC ANALYSIS SECTIONS.
12. BLANK
13. BLANK
14. TEMPORARY BRACING AND SHORING OF MASONRY WALLS TO PROVIDE STABILITY DURING CONSTRUCTION SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

NO.	REVISION
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WRITTEN DIMENSIONS ON THESE DRAWINGS SHALL HAVE PRECEDENCE OVER SCALE DIMENSIONS.

ARCHITECT'S SEAL

COMM. NO.	DRAWN BY KPR
DATE 5/1/2025	CHECKED BY DLC

SHEET NUMBER
S-4
OF 14