DESIGN CRITERIA

1. BUILDING CODE: INTERNATIONAL BUILDING CODE (IBC), 2018 EDITION, INCLUDING LOCAL SUPPLEMENTS. THE STRUCTURE IS CLASSIFIED AS A RISK CATEGORY II FACILITY.

2. DEAD AND LIVE LOADS:

LOCATION	UNIFORM LIVE LOAD	CONCENTRATED LIVE LOAD	TOTAL DEAD LOAD
ROOF	20 PSF	----------	20 PSF
SLAB ON GRADE	100 PSF	2,000 LB	----------

3. SNOW LOADS

GROUND SNOW LOAD, P_g:	15 PSF
FLAT ROOF SNOW LOAD, P_f:	15.5 PSF
SNOW EXPOSURE FACTOR, C_e:	1.0
SNOW IMPORTANCE FACTOR, I_s:	1.0
THERMAL FACTOR, C_t	1.0
ROOF SLOPE FACTOR, C_s	1.0

DRIFTING OF SNOW AND UNBALANCED SNOW SHALL BE IN ACCORDANCE WITH THE CODE. FOR SNOW DRIFT INFORMATION SUCH AS DRIFT SURCHARGE LOAD, Pd, AND WIDTH OF SNOW DRIFTS, w, REFERENCE SNOW DRIFT TABLE.

4. WIND:

BASIC WIND SPEED, V:	110 MPH (3 SECOND GUST)
ALLOWABLE STRESS DESIGN WIND SPEED, V_{asd}:	85 MPH (3 SECOND GUST)
WIND EXPOSURE:	C
INTERNAL PRESSURE COEF.:	+/-0.18

COMPONENTS AND CLADDING PRESSURE SHALL BE USED FOR DESIGN OF EXTERIOR WALLS, WINDOWS, DOORS, AND MISCELLANEOUS MATERIALS NOT SPECIFICALLY SHOWN ON THE PLANS.

5. SEISMIC:

SITE CLASS:	D
SEISMIC DESIGN CATEGORY:	B
SEISMIC IMPORTANCE FACTOR:	1.0
S_S:	0.094
S_1:	0.055
S_{DS}:	0.100
S_{D1}:	0.088
SEISMIC FORCE RESISTING SYSTEM:	ORDINARY REINFORCED MASONRY SHEAR WALLS
RESPONSE MODIFICATION COEF., R	2
METHOD OF ANALYSIS:	EQUIVALENT LATERAL FORCE
C_S:	0.050
BASE SHEAR:	0.050*W KIPS

CONSTRUCTION DETAILS FOR STRUCTURAL MOVEMENT

1. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE ACCOMMODATIONS IN GLAZING, ARCHITECTURAL FINISHES, PLUMBING, HVAC, AND ELECTRICAL ELEMENTS TO PREVENT DAMAGE DUE TO DEFLECTION OF ROOF, WALL AND FLOOR MEMBERS.

2. VERTICAL DEFLECTIONS DUE TO GRAVITY LOADS:

OPEN WEB ROOF JOISTS	LENGTH IN INCHES/240
WIDE FLANGE ROOF BEAMS & GIRDERS	LENGTH IN INCHES/240

3. HORIZONTAL DEFLECTIONS DUE TO WIND (W) OR SEISMIC (E):

CONVENTIONAL METAL STUDS	LENGTH IN INCHES/240(W), 200(E)
CONVENTIONAL BUILDING (FLOOR TO ROOF)	HEIGHT IN INCHES/360(W), 200(E)

DELEGATED ENGINEERING OF STRUCTURAL COMPONENTS & SYSTEMS

1. ALL STRUCTURAL COMPONENTS & SYSTEMS SPECIFIED TO BE DELEGATED SHALL BE DESIGNED AND SEALED BY A SPECIALTY STRUCTURAL ENGINEER (SSE) AND SHALL MEET THE GUIDELINES PUBLISHED BY THE COUNCIL OF AMERICAN STRUCTURAL ENGINEERS (CASE) FOR DELEGATED SPECIALTY STRUCTURAL ENGINEERING.

2. REFERENCE THE GENERAL NOTES & DRAWINGS FOR BUILDING CODE, SERVICE CRITERIA, AND DESIGN LOADS.

3. SUBMITTALS FOR DELEGATED COMPONENTS & SYSTEMS SHALL INCLUDE THE FOLLOWING:

   A. A FULL DESIGN ANALYSIS, INCLUDING CALCULATIONS FOR GRAVITY AND LATERAL LOADS, WITH A SEALED COVER SHEET IDENTIFYING THE PROJECT NAME AND ADDRESS.

   B. THE SSE THAT SEALED THE CALCULATIONS SHALL ALSO SEAL THE FABRICATION, PLACING, AND ERECTION PLANS. EACH PLAN SHALL IDENTIFY THE PROJECT NAME AND ADDRESS.

   C. IF THE SSE THAT SEALED THE CALCULATIONS AND PLANS IS AN EMPLOYEE OF A COMPANY, THE COMPANY'S CERTIFICATE OF AUTHORIZATION NUMBER SHALL BE INCLUDED ON THE SUBMITTALS. BOTH THE SSE SEAL AND THE CERTIFICATE OF AUTHORIZATION SHALL BE ISSUED BY THE STATE IN WHICH THE PROJECT IS LOCATED, INCLUDING PROJECTS ON FEDERAL LAND.

   D. THE COMPANY THAT EMPLOYS THE SSE SHALL PROVIDE AN INSURANCE CERTIFICATE FOR PROFESSIONAL LIABILITY INSURANCE WITH AN AGGREGATE AMOUNT OF NO LESS THAN TWO MILLION DOLLARS ($2,000,000). CONTRACTS OR SUB-CONTRACTS FOR THIS PROJECT SHALL NOT INCLUDE A LIMIT OF LIABILITY CLAUSE.

   E. THE SSE THAT SEALED THE PLANS SHALL INCORPORATE A WRITTEN STATEMENT THAT THE CONTRACT DOCUMENT'S CRITERIA HAVE BEEN INCORPORATED INTO THE DESIGN.

4. THE CONTRACTOR SHALL REVIEW THE SUBMITTAL FOR QUANTITIES AND DIMENSIONS AND VERIFY THAT THE ABOVE INFORMATION HAS BEEN INCLUDED IN THE SUBMITTAL.

5. NO SUBMITTAL WILL BE REVIEWED UNLESS ALL OF THE ABOVE INFORMATION IS INCLUDED. THE ENGINEER OF RECORD SHALL NOT BE RESPONSIBLE FOR DELAYS CAUSED BY INCOMPLETE SUBMITTALS.

6. PRE-FABRICATED METAL TRUSS SYSTEMS

   A. ALL TRUSS COMPONENTS SHALL BE SYMMETRICAL ABOUT THE VERTICAL AXIS AND BE CONNECTED CONCENTRICALLY AT EACH JOINT.

   B. REF. ARCHITECTURAL DRAWINGS FOR ROOF PANELS.

   C. LIGHT GAUGE STRUCTURAL COMPONENTS SHALL BE A MINIMUM OF 18 GAUGE THICK (43 MILS) UNLESS NOTED OTHERWISE.

   D. TRANSFER CONNECTIONS SHALL HAVE AT LEAST (2) BOLTS/SCREWS/WELDS THAT PROVIDE SYMMETRICAL LOAD.

   E. PROVIDE BOTH TEMPORARY AND PERMANENT BRACING REQUIRED FOR STABILITY.

   F. PROVIDE ALL TRUSS TO TRUSS CONNECTIONS.

   G. PROVIDE REACTIONS AND CONNECTIONS AT EACH SUPPORT.

   H. SUBMITTED CALCULATIONS SHALL INDICATE ALL LOADS AND LOAD COMBINATIONS USED IN THE ANALYSIS.

SOIL PREPARATION AND FOUNDATIONS

1. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENGAGE A LICENSED GEOTECHNICAL ENGINEER TO PERFORM A SUBSURFACE GEOTECHNICAL INVESTIGATION. THE RESULTS OF THE GEOTECHNICAL INVESTIGATION SHALL BE SUBMITTED TO THE ENGINEER OF RECORD FOR REVIEW. THE GEOTECHNICAL INVESTIGATION MUST, AT THE MINIMUM, PROVIDE THE FOLLOWING:

   A. SUFFICIENT SOIL BORINGS SHALL BE MADE TO VERIFY THAT THE PRESUMPTIVE SOIL BEARING PRESSURE OF 1,500 PSF IN UNDISTURBED SOILS AND ENGINEERED FILLS USED FOR DESIGN IS ADEQUATE.

2. LABORATORY TESTS SHALL BE MADE AS NECESSARY TO VERIFY THAT THE TOTAL SETTLEMENT IS LESS THAN 1" AND THE DIFFERENTIAL SETTLEMENT IS LESS THAN 1/2", NO SHRINK/SWELL POTENTIAL EXISTS, AND THE DEPTH IS ADEQUATE FOR THE SITE.

3. REMOVE TOP SOIL CONTAINING ORGANIC MATERIAL AND PREPARE THE BUILDING PAD IN ACCORDANCE WITH THE CIVIL ENGINEERING PLANS, SPECIFICATIONS, AND GEOTECHNICAL INVESTIGATION.

4. REMOVE SOIL AS REQUIRED TO ALLOW FOR A LOW VOLUME CHANGE ZONE THICK UNDER THE FLOOR SLAB AND DRAINAGE MATERIAL PER GEOTECHNICAL INVESTIGATION. FILL TO SUBGRADE ELEVATION SHOWN ON THE DRAWINGS WITH NON-EXPANSIVE FILL OR STABILIZED SOIL PER SPECIFICATION.

5. SOIL SUPPORTED FOUNDATIONS:

   A. DESIGN BEARING PRESSURE (NET) IS 1500 PSF FOR FOUNDATIONS BEARING ON UNDISTURBED SOIL OR APPROVED ENGINEERED FILL MATERIAL. BEARING MATERIALS SHALL BE VERIFIED BY A LICENSED GEOTECHNICAL ENGINEER.

   B. ALL FOUNDATIONS ARE DESIGNED WITH EARTH FORMED SIDES; THE TOP 71/4" OF THE FOUNDATION SHALL BE FORMED TO THE DESIGN DIMENSION WHEN VISIBLE AFTER CONSTRUCTION IS COMPLETE. THE CONSTRUCTED FOUNDATION DIMENSION SHALL BE NO LESS THAN THE DESIGN DIMENSION, AND NO MORE THAT 6" GREATER THAN THE DESIGN DIMENSION.

6. EXTERIOR SLABS SHALL SLOPE AWAY FROM THE STRUCTURE A MINIMUM OF 1/4" PER FOOT UNLESS NOTED OTHERWISE.

CONCRETE

1. ALL CONCRETE HAS BEEN DESIGNED IN ACCORDANCE WITH ACI 318 AND THE BUILDING CODE, AND IN CONFORMANCE WITH THE CURRENT "ACI MANUAL OF CONCRETE PRACTICE."

2. THE CONCRETE REQUIREMENTS ARE:

   A. CEMENT SHALL BE TYPE I OR II CONFORMING TO ASTM C150. FLY ASH CONFORMING TO ASTM C618 TYPE C OR F MAY BE USED TO REPLACE A MAXIMUM OF 20% OF THE CEMENT BY WEIGHT.

   B. FINE AGGREGATE FOR NORMAL WEIGHT CONCRETE SHALL MEET ASTM C33.

   C. COARSE AGGREGATES FOR NORMAL WEIGHT CONCRETE SHALL CONFORM TO ASTM C33, GRADE 67 OR LARGER. COARSE AGGREGATES SHALL BE NO LESS THAN 50% OF THE TOTAL AGGREGATE BY WEIGHT, UNLESS APPROVED BY THE ENGINEER PRIOR TO MIX DESIGN SUBMITTAL.

   D. MIX REQUIREMENTS ARE:

LOCATION	MINIMUM F'_C (PSI)	MINIMUM CEM. (PCY)	MAX. W/C RATIO	AIR CONTENT	SLUMP INCHES§
EXTERIOR/FNDN. WALL	4,000	470	0.45	5%±1%	2-5
FOUNDATIONS	4,000	470	0.45	5%±1%	2-5
GRADE BEAMS	4,000	470	0.45	5%±1%	2-5
INTERIOR SLAB*	4,000	564	0.42	3%MAX.	2-5

§ PRIOR TO THE ADDITION OF WATER REDUCING ADMIXTURES. IF APPROVED BY ENGINEER, SLUMP MAY NOT EXCEED 8" WITH THE ADDITION OF WATER REDUCING ADMIXTURES
*SLAB ON GRADE SHALL HAVE A FLEXURAL STRENGTH OF 650 PSI WHERE SUBJECT TO VEHICLE TRAFFIC.

3. ADMIXTURES, HARDENERS, & CURING COMPOUNDS

   A. ALL CONCRETE ADMIXTURES SHALL, WHEN MIXED INTO CONCRETE, BE NON-CHLORIDE AND NON-CHLORIDE FORMING.

   B. ALL ADMIXTURES MUST CONFORM TO ASTM C-494 AND C-260.

   C. CONCRETE CURING COMPOUND AND SEALERS SHALL MEET ASTM C-309 TYPE 1 OR 1D.

   D. USE OF "SELF CONSOLIDATING" CONCRETE MUST BE SUBMITTED FOR APPROVAL WITH THE CONCRETE MIX DESIGN.

   E. CONCRETE PENETRATING HARDENER SEALERS SHALL BE USED ON ALL EXPOSED CONCRETE FLOORS UNLESS OTHER COATINGS ARE REQUIRED BY THE ARCHITECT.

4. MISCELLANEOUS CONCRETE DETAILS:

   A. ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 3/4" INSIDE THE FORMS OR TOOLED TO 3/4" RADIUS UNLESS NOTED OTHERWISE.

   B. SLABS ON GRADE SHALL HAVE CONSTRUCTION JOINTS AND/OR CONTROL JOINTS (SAWN JOINTS) TO DIVIDE THE SLAB INTO PANELS, NOT TO EXCEED 256 SQUARE FEET. THE LONG DIMENSION SHALL NOT EXCEED THE SHORT DIMENSION BY MORE THAN 20%. CONTRACTOR TO SUBMIT PROPOSED LOCATIONS FOR APPROVAL.

   C. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN OF ALL FORMING AND SHORING.

   D. NO ALUMINUM SHALL BE EMBEDDED IN CONCRETE. CONDUITS AND PIPING EMBEDDED IN CONCRETE WALLS, SLABS, OR BEAMS SHALL BE SPACED A MINIMUM OF FOUR DIAMETERS AND THE OUTSIDE DIAMETER SHALL BE LESS THAN 30% OF THE MEMBER THICKNESS AND PLACED BETWEEN LAYERS OF REINFORCING.

CONCRETE REINFORCING

1. MATERIALS

	ASTM	GRADE
PLATE & ANGLE:	A36	---
REINFORCING STEEL:	A615	60
ANCHOR RODS (BOLTS):	F1554	36

2. DETAILS:

   A. WELDING OF REINFORCING STEEL IS PROHIBITED UNLESS NOTED OTHERWISE. WHEN WELDING IS APPROVED, WELDING SHALL BE IN ACCORDANCE WITH AWS D1.4 "WELDING REINFORCING STEEL, ETC."

   B. SHOP DRAWINGS SHALL BE SUBMITTED WITH REINFORCING STEEL IN ACCORDANCE WITH ACI 315.

   C. WHEN MECHANICAL SPLICES ARE INDICATED ON THE PLANS, THE SPLICE SHALL DEVELOP 125% OF THE SPECIFIED YIELD STRENGTH OF THE REINFORCING STEEL. REQUESTS BY THE CONTRACTOR FOR MECHANICAL SPLICES MUST BE SUBMITTED IN WRITING.

3. PLACEMENT:

   A. ALL REINFORCING AND EMBEDMENTS SHALL BE SUPPORTED ON CHAIRS/BOLSTERS TO THE DESIGN DIMENSIONS. SPACING SHALL BE SUFFICIENTLY CLOSE TO PREVENT DISPLACEMENT OR PERMANENT DEFORMATION DUE TO CONCRETE PLACEMENT, FOOT TRAFFIC, OR VIBRATION. "PUDDLING IN" OR "PULLING UP" REINFORCING IS NOT AN ACCEPTABLE METHOD FOR PLACING REINFORCING. CHAIRS/BOLSTERS SHALL HAVE PLASTIC COATED FEET OR BE MADE OF STAINLESS STEEL. CHAIRS/BOLSTERS IN CONTACT WITH EARTH SHALL HAVE BOTTOM PLATES AND BE COATED TO PREVENT CORROSION. ANCHOR RODS SHALL BE HELD IN PLACE WITH TEMPLATES SUFFICIENTLY STRONG TO PREVENT DISPLACEMENT OR TILTING.

   B. MAINTAIN ACI CLEAR COVER ON REINFORCING AS LISTED BELOW UNLESS NOTED OTHERWISE.

CAST AGAINST EARTH (BOTTOM OR SIDES):	3"
FORMED - EXPOSED TO SOIL, WEATHER OR LIQUIDS:	2"
SLABS ON GRADE (FROM TOP OF SLAB):	1.5"

   C. PROVIDE CORNER BARS OF THE SAME SIZE AND SPACING AS ADJACENT REINFORCING.

   D. OPENINGS IN WALLS OR SLABS SHALL BE REINFORCED PER DETAIL.

   E. REINFORCING STEEL SHALL BE LAPPED PER CONCRETE REINFORCING TABLE.

MASONRY

1. MASONRY HAS BEEN DESIGNED IN ACCORDANCE WITH THE ACI 530 AND THE BUILDING CODE USING THE ORDINARY REINFORCED METHOD.

2. MATERIALS:

   A. ALL CONCRETE MASONRY UNITS (CMU) SHALL BE TWO-CELL, LIGHTWEIGHT AGGREGATE UNITS WITH A SPECIFIED MINIMUM COMPRESSIVE STRENGTH OF 1900 PSI ON NET AREA AT 28 DAYS CONFORMING TO ASTM C90.

   B. ALL MORTAR SHALL BE TYPE "S" CONFORMING TO ASTM C270.

   C. THE MINIMUM COMPRESSIVE STRENGTH (f'm) OF A PRISM ASSEMBLED OF CMU AND FULL MORTAR BEDDING SHALL BE 1500 PSI AT 28 DAYS ON THE NET AREA.

   D. GROUT SHALL CONFORM TO ASTM C476 WITH 3/8" AGGREGATE WITH TYPE I CEMENT, A MAXIMUM WATER/CEMENT RATION OF 0.65, AND A SLUMP OF 5" TO 9". THE MINIMUM GROUT COMPRESSIVE STRENGTH (f'c) SHALL BE 2500 PSI.

   E. REINFORCING STEEL SHALL MEET THE REQUIREMENTS OF ASTM A615, GR. 60.

   F. CMU LOCATED BELOW GRADE SHALL BE NORMAL-WEIGHT AGGREGATE UNITS WITH ALL CELLS GROUTED SOLID.

Sheet List

Sheet Number	Sheet Name
S001	GENERAL NOTES
S002	GENERAL NOTES
S003	IBC INSPECTION TABLES
S101	FOUNDATION PLAN
S201	LOW ROOF FRAMING PLAN
S202	HIGH ROOF FRAMING PLAN
S501	TYPICAL FOUNDATION DETAILS
S502	FOUNDATION DETAILS
S510	TYPICAL FRAMING DETAILS
S511	FRAMING DETAILS
S601	TYPICAL CMU DETAILS

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CITY OF WICHITA

RYAN S. TAYLOR LICENSED 28617 10/18/2023 KANSAS PROFESSIONAL ENGINEER

SOUTH LAKES SPORTS PARK
WICHITA, KS

Issue:		
	100% PLANS	10/18/23

JOB NO.	220008-003
DATE	18 OCTOBER 2023
PM	NLS
DESIGNED BY	RST
DRAWN BY	RST
CHECKED BY	WAG

GENERAL NOTES

S001

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