

DESIGN CRITERIA

- BUILDING CODE:
INTERNATIONAL BUILDING CODE (IBC), 2018 EDITION, INCLUDING LOCAL SUPPLEMENTS. THE STRUCTURE IS CLASSIFIED AS A RISK CATEGORY III FACILITY.
- DEAD AND LIVE LOADS:

LOCATION	UNIFORM LIVE LOAD	CONCENTRATED LIVE LOAD	TOTAL DEAD LOAD*
ROOF	20 PSF	-----	12 PSF
SLAB ON GRADE	100 PSF	2000 LB	
BRIDGE	100 PSF	-----	

ROOF LIVE LOADS ON SUPPORTING ELEMENTS SHALL NOT BE REDUCED.

* TOTAL DEAD LOAD INCLUDES WEIGHT OF STRUCTURAL ELEMENTS.
- SNOW LOADS:

GROUND SNOW LOAD:	15 PSF
FLAT ROOF SNOW LOAD:	15 PSF
SNOW EXPOSURE FACTOR:	1.0
SNOW IMPORTANCE FACTOR:	1.1
THERMAL FACTOR:	1.0

DRIFTING OF SNOW AND UNBALANCED SNOW SHALL BE IN ACCORDANCE WITH CODE.
- WIND:

ULTIMATE DESIGN WIND SPEED, V_{ult} :	115 MPH (3 SECOND GUST)
NOMINAL DESIGN WIND SPEED, V_{nom} :	90 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.
- SEISMIC:

SITE CLASS:	D
SEISMIC DESIGN CATEGORY:	B
SEISMIC IMPORTANCE FACTOR:	1.0
Ss:	0.140
S1:	0.056
Sds:	0.150
Sd1:	0.090
LATERAL SYSTEM:	LIGHT FRAMED WOOD WITH WOOD STRUCTURAL PANELS (R=6.5)
METHOD OF ANALYSIS:	EQUIVALENT LATERAL FORCE
Cs:	0.023
BASE SHEAR:	6.9 KIPS
- SAFE ROOM/STORM SHELTER LOADING:

NO AREA WITHIN THIS BUILDING HAS BEEN DESIGNED TO MEET THE REQUIREMENTS OF FEMA P-361 OR ICC/NSSA-500. THE ARCHITECT MAY DESIGNATE AN AREA THAT, IN HIS/HER OPINION, HAS ENHANCED PROTECTION OVER THE REMAINDER OF THE BUILDING AS A PLACE OF REFUGE FROM HIGH WINDS. HOWEVER, IT SHOULD NOT BE CONSIDERED A SAFE ROOM/STORM SHELTER.

DELEGATED ENGINEERING OF STRUCTURAL COMPONENTS & SYSTEMS

- ALL STRUCTURAL COMPONENTS & SYSTEMS SPECIFIED TO BE DELEGATED SHALL BE DESIGNED AND SEALED BY A SPECIALTY STRUCTURAL ENGINEER (SSE) LICENSED IN THE STATE OF KANSAS AND SHALL MEET THE GUIDELINES PUBLISHED BY THE COUNCIL OF AMERICAN STRUCTURAL ENGINEERS (CASE) FOR DELEGATED SPECIALTY STRUCTURAL ENGINEERING.
- REFERENCE THE GENERAL NOTES & DRAWINGS FOR BUILDING CODE, SERVICE CRITERIA, AND DESIGN LOADS.
- SUBMITTALS FOR DELEGATED COMPONENTS & SYSTEMS SHALL INCLUDE THE FOLLOWING:
 - A FULL DESIGN ANALYSIS, INCLUDING CALCULATIONS FOR GRAVITY AND LATERAL LOADS, WITH A SEALED COVER SHEET IDENTIFYING THE PROJECT NAME AND ADDRESS.
 - THE SSE THAT SEALED THE CALCULATIONS SHALL ALSO SEAL THE FABRICATION, PLACING, AND ERECTION PLANS. EACH PLAN SHALL IDENTIFY THE PROJECT NAME AND ADDRESS.
 - 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.
 - 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.
 - THE SSE THAT SEALED THE PLANS SHALL INCORPORATE A WRITTEN STATEMENT THAT THE CONTRACT DOCUMENT'S CRITERIA HAVE BEEN INCORPORATED INTO THE DESIGN.
- THE CONTRACTOR SHALL REVIEW THE SUBMITTAL FOR QUANTITIES AND DIMENSIONS AND VERIFY THAT THE ABOVE INFORMATION HAS BEEN INCLUDED IN THE SUBMITTAL.
- 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.

- PRE-FABRICATED WOOD TRUSS SYSTEMS
 - ALL TRUSS COMPONENTS SHALL BE SYMMETRICAL ABOUT THE VERTICAL AXIS AND BE CONNECTED CONCENTRICALLY AT EACH JOINT.
 - LIGHT GAUGE CONNECTOR PLATES SHALL BE GALVANIZED, A MINIMUM OF 20 GAUGE THICK (0.033"), AND A MINIMUM OF 15 SQUARE INCHES, WITH THE LEAST DIMENSION A MINIMUM OF 3".
 - CONNECTIONS SHALL HAVE AT LEAST 2 CONNECTORS (ONE EACH SIDE OF MEMBER).
 - DESIGN AND PROVIDE BOTH TEMPORARY AND PERMANENT BRACING REQUIRED FOR STABILITY.
 - PROVIDE ALL TRUSS TO TRUSS CONNECTIONS.
 - PROVIDE REACTIONS AND CONNECTIONS AT EACH SUPPORT.
 - THE BOTTOM CHORD OF ROOF TRUSSES SHALL BE THE DESIGNED FOR 10 PSF SUPERIMPOSED LOAD.
 - TOP AND BOTTOM CHORDS OF FLOOR TRUSSES SHALL BE 2X4 MINIMUM AND THE BOTTOM CHORD DESIGNED FOR 5 PSF SUPERIMPOSED LOAD.
 - SUBMITTED CALCULATIONS SHALL INDICATE ALL LOADS AND LOAD COMBINATIONS USED IN THE ANALYSIS.
- STRUCTURAL INSULATED PANELS
 - DESIGN AND PROVIDE BOTH TEMPORARY AND PERMANENT BRACING REQUIRED FOR STABILITY.
 - PROVIDE ALL CONNECTIONS BETWEEN ADJACENT PANELS.
 - PROVIDE DIAPHRAGM ANALYSIS.
 - PROVIDE ALL CONNECTIONS TO SUPPORTING ELEMENTS TO RESIST VERTICAL, UPLIFT AND SHEAR LOADS.
 - SUBMITTED CALCULATIONS SHALL INDICATE ALL LOADS AND LOAD COMBINATIONS USED IN THE ANALYSIS.

SOIL PREPARATION AND FOUNDATIONS

- THE FOUNDATION SYSTEM IS DESIGNED AS RECOMMENDED IN THE GEOTECHNICAL INVESTIGATION PREPARED BY TERRACON, JOB NO. 01195039. A COPY IS INCLUDED IN THE PROJECT MANUAL.
- REMOVE TOP SOIL CONTAINING ORGANIC MATERIAL AND PREPARE THE BUILDING PAD IN ACCORDANCE WITH THE CIVIL ENGINEERING PLANS, SPECIFICATIONS, AND GEOTECHNICAL INVESTIGATION.
- REMOVE SOIL AS REQUIRED TO ALLOW FOR A LOW VOLUME CHANGE ZONE 18" THICK UNDER THE FLOOR SLAB AND 4" THICK DRAINAGE MATERIAL. FILL TO SUBGRADE ELEVATION SHOWN ON THE DRAWINGS WITH NON-EXPANSIVE FILL OR STABILIZED SOIL PER SPECIFICATION.
- SOIL SUPPORTED FOUNDATIONS:
 - DESIGN BEARING PRESSURE (NET) IS 2,000 PSF FOR FOUNDATIONS BEARING ON UNDISTURBED SOIL OR APPROVED ENGINEERED FILL MATERIAL. BEARING MATERIALS SHALL BE VERIFIED BY A LICENSED GEOTECHNICAL ENGINEER.
 - ALL FOUNDATIONS ARE DESIGNED WITH EARTH FORMED SIDES; THE TOP 7½" 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.
- EXTERIOR SLABS SHALL SLOPE AWAY FROM THE STRUCTURE A MINIMUM OF ¼" PER FOOT UNLESS NOTED OTHERWISE.

CONCRETE

- 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."
- THE CONCRETE REQUIREMENTS ARE:
 - 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.
 - FINE AGGREGATE FOR NORMAL WEIGHT CONCRETE SHALL MEET ASTM C33.
 - 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.
- MIX REQUIREMENTS ARE:

LOCATION	F _c (PSI)	MIN. CEM. (PCY)	MAX. W/C RATIO	AIR CONTENT (%)	SLUMP (IN.) ±
FOUNDATIONS	4000	470	0.45	5%±1%	2-5
GRADE BEAMS	4000	470	0.45	5%±1%	2-5
INTERIOR SLAB	4000	564	0.42	3% MAX.	2-5

PRIOR TO THE ADDITION OF WATER REDUCING ADMIXTURES, IF APPROVED BY ENGINEER, AFTER ADDITION THE SLUMP MAY NOT EXCEED 8".

F_c SPECIFIED IS BASED ON THE 28 DAY COMPRESSIVE STRENGTH IN ACCORDANCE WITH ACI 318 ACCEPTANCE CRITERIA.

- ADMIXTURES, HARDENERS, & CURING COMPOUNDS
 - ALL CONCRETE ADMIXTURES SHALL, WHEN MIXED INTO CONCRETE, BE NON-CHLORIDE AND NON-CHLORIDE FORMING.
 - ALL ADMIXTURES MUST CONFORM TO ASTM C-494 AND C-260.
 - CONCRETE CURING COMPOUND AND SEALERS SHALL MEET ASTM C-309 TYPE 1 OR 1D.
 - USE OF "SELF CONSOLIDATING" CONCRETE MUST BE SUBMITTED FOR APPROVAL WITH THE CONCRETE MIX DESIGN.
 - CONCRETE PENETRATING HARDENER SEALERS SHALL BE USED ON ALL EXPOSED CONCRETE FLOORS UNLESS OTHER COATINGS ARE REQUIRED BY THE ARCHITECT.
- MISCELLANEOUS CONCRETE DETAILS:
 - ALL EXPOSED EDGES OR STRUCTURAL CONCRETE SHALL BE CHAMFERED ¼" INSIDE THE FORMS OR TOOLED TO ¾" RADIUS UNLESS NOTED OTHERWISE.
 - 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.
 - THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN OF ALL FORMING AND SHORING. SHORING FOR ELEVATED SLABS SHALL BE SET SO THAT ANY LOAD DUE TO THE CONCRETE OPERATIONS DOES NOT CAUSE THE FORMS TO SETTLE (SLACK, TAKE-UP, ETC.). ELEVATED SLABS THAT SPAN OVER TWENTY FIVE FEET SHALL HAVE AN ADDITIONAL SLIGHT CAMBER SET INTO THE FORMS FOR THE DEAD LOAD DEFLECTION OF THE SLAB (APPROXIMATELY L/480). SCREEDS SHALL ALSO INCORPORATE THIS CAMBER TO CREATE A FINISHED SLAB OF UNIFORM THICKNESS. ELEVATED SLABS SHALL NOT HAVE THE FORMS REMOVED WITHOUT PLACING RESHORES. IF ADDITIONAL ELEVATED SLABS WILL BE SHORED ON TOP OF PREVIOUSLY CAST ELEVATED SLABS, THE SLABS SHALL BE RESHORED IN ACCORDANCE WITH ACI.
 - NO ALUMINUM SHALL BE EMBEDDED IN CONCRETE. CONDUITS AND PIPING EMBEDDED IN CONCRETE SLABS 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.
 - RADIANT FLOOR TUBING EMBEDDED IN SLABS ON GRADE SHALL BE INSTALLED BELOW THE REINFORCING AS DETAILED.
 - WHEN THE CONCRETE WILL HAVE MOISTURE SENSITIVE FLOOR COVERING, THE CONTRACTOR SHALL COORDINATE THE CURING TIME TO ALLOW THE MOISTURE VAPOR TRANSMISSION TO REDUCE THE LEVEL THAT THE ADHESIVE MANUFACTURER WILL GUARANTEE THE INSTALLATION. THE CONTRACTOR SHALL HAVE THE FLOOR COVERING INSTALLER TEST THE MOISTURE VAPOR TRANSMISSION OR USE AN ADHESIVE DESIGNED FOR THE RATE OF VAPOR TRANSMISSION OCCURRING AT THE TIME OF INSTALLATION.

CONCRETE REINFORCING

- MATERIALS

	ASTM	GRADE
REINFORCING STEEL:	A615	60
WELDED WIRE FABRIC (WWF):	A185	60 (MIN.)
ANCHOR RODS (BOLTS):	F1554	36
- DETAILS:
 - 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."
 - WELDED WIRE FABRIC SHALL BE FURNISHED IN FLAT SHEETS.
 - SHOP DRAWINGS SHALL BE SUBMITTED WITH REINFORCING STEEL IN ACCORDANCE WITH ACI 315.
- PLACEMENT:
 - 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.
 - MAINTAIN ACI CLEAR COVER ON REINFORCING AS LISTED BELOW UNLESS NOTED OTHERWISE.

CAST AGAINST EARTH (BOTTOM OR SIDES):	3"
SLABS ON GRADE (FROM TOP OF SLAB):	1.5"
 - PROVIDE CORNER BARS OF THE SAME SIZE AND SPACING AS ADJACENT REINFORCING.
 - OPENINGS IN WALLS OR SLABS SHALL BE REINFORCED PER DETAIL. EXTEND REINFORCING BEYOND OPENING 24" MIN.
 - REINFORCING STEEL SHALL BE LAPPED PER LAP TABLE.
 - WELDED WIRE FABRIC SHALL BE LAPPED ONE FULL SQUARE PLUS 2".

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CITY REV 30 MAR 20
Final 13 FEB 20

GENERAL NOTES

S-001

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