

- 1. GENERAL INFORMATION
 - A. GOVERNING BUILDING CODE: 2015 INTERNATIONAL BUILDING CODE (IBC-2015).
 - B. BUILDING RISK CATEGORY: THE BUILDING RISK CATEGORY ACCORDING TO IBC-2015 TABLE 1604.5 AND ASCE 7-10 TABLE 1.5-1 IS CATEGORY II.
 - C. ELEVATIONS: REFERENCE FINISHED FLOOR ELEVATIONS OF 100'-0" EQUALS THE ACTUAL EXISTING FINISH FLOOR ELEVATION.
 - D. CONTRACT DOCUMENTS:
 - 1) THE CONTRACT DOCUMENTS CONSIST OF THE AGREEMENT BETWEEN THE OWNER AND CONTRACTOR, CONDITIONS OF THE CONTRACT, DRAWINGS, SPECIFICATIONS, ADDENDA ISSUED PRIOR TO EXECUTION OF THE CONTRACT, OTHER DOCUMENTS LISTED IN THE AGREEMENT AND MODIFICATIONS ISSUED AFTER EXECUTION OF THE CONTRACT.
 - 2) THE GENERAL CONTRACTOR IS RESPONSIBLE FOR OBTAINING AND DISSEMINATING ALL CONTRACT DOCUMENTS AND LATEST ADDENDA TO ALL SUB-CONTRACTORS PRIOR TO DETAILING, FABRICATION OR INSTALLATION OF WORK.
 - 3) CORRELATION OF THE CONTRACT DOCUMENTS: THE CONTRACT DOCUMENTS ARE COMPLEMENTARY, AND WHAT IS REQUIRED BY ONE SHALL BE AS BINDING AS IF REQUIRED BY ALL. IF CONFLICTING REQUIREMENTS ARE FOUND BETWEEN THE DRAWINGS, SPECIFICATIONS AND/OR THESE GENERAL NOTES, THE MORE STRINGENT AND HIGHEST COST REQUIREMENT SHALL CONTROL UNLESS DIRECTED OTHERWISE IN WRITING BY THE OWNER'S REPRESENTATIVE.
 - 4) THE GENERAL CONTRACTOR SHALL COMPARE THE ARCHITECTURAL AND STRUCTURAL DRAWINGS FOR DISCREPANCIES BETWEEN EACH SET, AND WITHIN EACH SET OF DRAWINGS, AND REPORT DISCREPANCIES, IF ANY, TO THE OWNER'S REPRESENTATIVE PRIOR TO THE DETAILING, FABRICATION AND INSTALLATION OF AFFECTED WORK.
 - 5) GENERAL CONTRACTOR SHALL COORDINATE SIZES AND LOCATIONS OF OPENINGS THROUGH FLOORS, ROOF, AND WALLS SHOWN ON ELECTRICAL, PLUMBING, AND FIRE SUPPRESSION SYSTEM DESIGN DOCUMENTS WITH ASSOCIATED SUBCONTRACTORS.
 - 6) ALTHOUGH NOT NECESSARILY SPECIFICALLY REFERENCED IN THE CONTRACT DOCUMENTS, TYPICAL DETAILS AND GENERAL NOTES APPLY TO THE ENTIRE PROJECT WHEREVER CONDITIONS SIMILAR TO THOSE DETAILED OR NOTED EXIST.
 - 7) THE USE OF ELECTRONIC FILES OR REPRODUCTION OF CONTRACT DOCUMENTS BY ANY TRADE OR MATERIAL SUPPLIER IN LIEU OF COMPLETELY INDEPENDENT PREPARATION OF SHOP DRAWINGS SIGNIFIES THE SUPPLIER'S CERTIFICATION THAT ALL INFORMATION SHOWN IN THE SHOP DRAWINGS IS CORRECT, AND ASSIGNS THEMSELVES TO RESPONSIBILITY FOR ANY JOB EXPENSE ARISING DUE TO ANY ERRORS OCCURRING THEREIN.
- 2. DESIGN LOADS
 - A. DEAD LOAD: SELF WEIGHT OF MATERIALS, UNLESS NOTED OTHERWISE
 - B. ROOF DEAD LOAD:
 - 1) BUILT UP ROOFING SYSTEM.....6 PSF
 - 2) RIGID INSULATION.....2 PSF
 - 3) METAL ROOF DECK.....3 PSF
 - 4) JOIST SELF-WEIGHT.....2 PSF
 - 5) CEILING SYSTEM.....2 PSF
 - 6) ROOF COLLATERAL (MEP, BRIDGING & MISC. FRAMING).....5 PSF
 - 7) TOTAL.....20 PSF
 - C. UNIFORM LIVE LOADS:
 - 1) ROOF LIVE LOAD (UNREDUCIBLE).....20 PSF
 - D. CONCENTRATED LIVE LOADS:
 - 1) ROOFS (ON AN AREA 2.5 FT. X 2.5 FT.).....300 LBS
 - E. WIND LOADS:
 - 1) GOVERNING CODE:.....ASCE 7-10
 - 2) RISK CATEGORY:.....II
 - 3) EXPOSURE CATEGORY:.....C
 - 4) INTERNAL PRESSURE COEFFICIENT, GCPI:.....+/- 0.18
 - 5) TOPOGRAPHIC FACTOR, KZT:.....1.0
 - 6) DIRECTIONALITY FACTOR, KD:.....0.85
 - 7) ULTIMATE DESIGN WIND SPEED, Vult:.....115 MPH
 - 8) NOMINAL DESIGN WIND SPEED, Vasd:.....90 MPH
 - F. SNOW LOADS:
 - 1) GOVERNING CODE:.....ASCE 7-10
 - 2) SNOW IMPORTANCE FACTOR, Is:.....1.0
 - 3) GROUND SNOW LOAD, Pg:.....10 PSF
 - 4) EXPOSURE OF ROOF:.....PARTIALLY EXPOSED
 - 5) EXPOSURE FACTOR, Ce:.....1.0
 - 6) THERMAL FACTOR, Ct:.....1.0
 - 7) ROOF SLOPE FACTOR, Cs:.....1.0
 - 8) CALCULATED FLAT ROOF SNOW LOAD, Pf:.....7.0 PSF
 - 9) MINIMUM FLAT ROOF SNOW LOAD, 1"Pg:.....10 PSF
 - 10) RAIN ON SNOW SURCHARGE LOAD:.....5 PSF
 - G. RAIN LOADS:
 - 1) GOVERNING CODE:.....ASCE 7-10
 - 2) DEPTH OF WATER ON THE UNDEFLECTED ROOF UP TO THE INLET OF THE SECONDARY DRAINAGE SYSTEM WHEN THE PRIMARY DRAINAGE SYSTEM IS BLOCKED (I.E., THE STATIC HEAD), ds:.....4.0 INCHES
 - 3) ADDITIONAL DEPTH OF WATER ON THE UNDEFLECTED ROOF ABOVE THE INLET OF THE SECONDARY DRAINAGE SYSTEM AT ITS DESIGN FLOW (I.E., THE HYDRAULIC HEAD), dh:.....2.0 INCHES
 - H. SEISMIC DESIGN CRITERIA:
 - 1) GOVERNING CODE:.....ASCE 7-10
 - 2) RISK CATEGORY:.....II
 - 3) SEISMIC IMPORTANCE FACTOR, Is:.....1.00
 - 4) SOIL SITE CLASSIFICATION:.....C
 - 5) 0.2 SEC. MAPPED SPECTRAL ACCELERATION, Ss:.....0.271
 - 6) 1.0 SEC. MAPPED SPECTRAL ACCELERATION, S1:.....0.078
 - 7) SITE COEFFICIENT, 0.2 SEC. PERIOD, Fv:.....1.20
 - 8) SITE COEFFICIENT, 1.0 SEC. PERIOD, Fa:.....1.70
 - 9) 0.2 SEC. DESIGN SPECTRAL ACCELERATION, Sds:.....0.217
 - 10) 1.0 SEC. DESIGN SPECTRAL ACCELERATION, Sd1:.....0.088
 - 11) SEISMIC DESIGN CATEGORY:.....B
 - 12) SEISMIC PARAMETERS FOR BUILDING:
 - A) SEISMIC FORCE RESISTING SYSTEM: ORDINARY REINFORCED MASONRY SHEAR WALLS
 - B) RESPONSE MODIFICATION COEFFICIENT, R:.....2.00
 - C) SYSTEM OVERSTRENGTH FACTOR, O:.....2.50
 - D) DEFLECTION AMPLIFICATION FACTOR, Cd:.....1.75
 - E) ANALYSIS PROCEDURE: EQUIVALENT LATERAL FORCE METHOD.
 - F) SEISMIC RESPONSE COEFFICIENT, Cs:.....0.117
 - G) TOTAL LATERAL BASE SHEAR, V:.....20 KIPS
- 3. MATERIAL DESIGN VALUES
 - A. CONCRETE (MIN. ULTIMATE COMPRESSIVE STRENGTH AT 28 DAYS, NORMAL WEIGHT (U.N.O.))
 - 1) FOUNDATIONS:.....3,500 PSI
 - 2) SLAB-ON-GRADE:.....4,000 PSI
 - 3) ALL OTHER STRUCTURAL CONCRETE, U.N.O.:.....4,000 PSI
 - B. CONCRETE REINFORCEMENT (MINIMUM YIELD STRENGTH)
 - 1) ALL PLAIN AND DEFORMED BARS (ASTM A615, GRADE 60).....FY = 60 KSI
 - 2) WELDABLE REINFORCING BARS (ASTM A706).....FY = 60 KSI

- C. STRUCTURAL STEEL (MINIMUM YIELD STRENGTH)
 - 1) ALL WIDE FLANGE SHAPES (ASTM A992).....FY = 50 KSI
 - 2) SQUARE AND RECTANGULAR HSS (ASTM A500, GRADE C).....FY = 50 KSI
 - 3) ANCHOR RODS (ASTM F1554, GRADE 55).....FY = 55 KSI
 - 4) DEFORMED BAR ANCHORS (AWS D1.1 TYPE C, ASTM A496).....FY = 70 KSI
 - 5) HEADED STUD ANCHORS (AWS D1.1 TYPE B, ASTM A29, GRADES 1010 THROUGH 1020).....FY = 51 KSI
 - 6) ALL OTHER SHAPES AND PLATES UNLESS NOTED (ASTM A36).....FY = 36 KSI
- D. COLD FORMED STEEL (MINIMUM YIELD STRENGTH)
 - 1) ROOF DECK (ASTM A653, SS GRADE 33, G-60 GALVANIZED).....FY = 33 KSI
 - 2) COLD FORMED METAL STUDS, 43 MIL AND LIGHTER (ASTM A1003/A, GRADE ST33H, G-60 GALVANIZED).....FY = 33 KSI
 - 3) COLD FORMED METAL STUDS, 54 MIL AND HEAVIER (ASTM A1003/A, GRADE ST50H, G-60 GALVANIZED).....FY = 50 KSI
 - 4) COLD FORMED METAL CLIPS (ASTM A653, SS GRADE 50, G-60 GALVANIZED).....FY = 50 KSI
- 4. CONSTRUCTION LOADS AND STABILITY
 - A. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING ALL TEMPORARY CONSTRUCTION LOADS CAN BE SAFELY SUPPORTED BY THE STRUCTURE DURING CONSTRUCTION.
 - B. THE STRUCTURAL FRAMING SYSTEM AND FOUNDATIONS HAVE BEEN DESIGNED AS A COMPLETE STRUCTURAL SYSTEM FOR SUPPORT OF THE LOADS INDICATED IN THE CONSTRUCTION DOCUMENTS. THE STRUCTURE HAS NOT BEEN DESIGNED OR CHECKED FOR TEMPORARY CONSTRUCTION LOADS NOR HAS IT BEEN DESIGNED OR CHECKED FOR ADEQUACY OR STABILITY AS A PARTIALLY ERRECTED STRUCTURE.
 - C. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONFIRMING THE ABILITY OF THE PARTIALLY COMPLETED OR FULLY COMPLETED STRUCTURE TO RESIST ALL CONSTRUCTION LOADS INCLUDING BUT NOT NECESSARILY LIMITED TO MATERIAL STAGING, PERSONNEL, AND EQUIPMENT.
 - D. THE CONTRACTOR SHALL PROVIDE TEMPORARY SHORES, GUYS, BRACES, AND OTHER SUPPORTS DURING CONSTRUCTION TO KEEP STRUCTURAL FRAMING COMPONENTS SECURE, PLUMB, AND IN ALIGNMENT AGAINST TEMPORARY CONSTRUCTION LOADS AND LOADS EQUAL IN INTENSITY TO DESIGN LOADS. THE TEMPORARY SUPPORTS SHALL BE SUFFICIENT TO SECURE THE PARTIALLY ERRECTED STRUCTURE OR ANY PORTION THEREOF AGAINST LOADS THAT ARE LIKELY TO BE ENCOUNTERED DURING CONSTRUCTION, INCLUDING THOSE DUE TO WIND AND THOSE THAT RESULT FROM CONSTRUCTION OPERATIONS.
 - E. THE CONTRACTOR SHALL NOT REMOVE TEMPORARY SUPPORTS UNTIL THE INSTALLATION OF ALL STRUCTURAL ELEMENTS IS COMPLETE. FOR THE PURPOSES OF THIS PARAGRAPH, "ALL STRUCTURAL ELEMENTS" INCLUDES, BUT IS NOT NECESSARILY LIMITED TO, THE FOLLOWING STRUCTURAL ELEMENTS:
 - 1) FOUNDATIONS
 - 2) LOAD-BEARING MASONRY WALLS
 - 3) MASONRY SHEAR WALLS
 - 4) STEEL JOISTS INCLUDING JOIST BRIDGING
 - 5) ROOF DECK
- 5. EXISTING CONSTRUCTION
 - A. ALL DIMENSIONS, PLUMBNESS, AND DETAILS FOR THE EXISTING STRUCTURE SHALL BE VERIFIED IN THE FIELD PRIOR TO PROCEEDING WITH ANY DEMOLITION OR INSTALLATION OF NEW WORK.
 - B. PRIOR TO DEMOLITION OR INSTALLATION OF NEW WORK, THE CONTRACTOR SHALL MAKE WRITTEN DOCUMENTATION IF UNFORESEEN CONDITIONS OCCUR IN THE EXISTING CONSTRUCTION. THESE UNFORESEEN CONDITIONS SHALL BE SUBMITTED TO THE OWNER'S REPRESENTATIVE FOR REVIEW AND A WRITTEN RESPONSE BEFORE PROCEEDING WITH THE WORK.
 - C. THE CONTRACTOR SHALL PROVIDE AND INSTALL ALL SHORING, PROPS, AND GUYS REQUIRED FOR THE TEMPORARY SUPPORT OF THE EXISTING STRUCTURE, UTILITIES, ETC. AS MAY BE NECESSARY TO SAFELY COMPLETE DEMOLITION OR NEW WORK.
 - D. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING EXISTING UTILITIES, BOTH CHARTED AND UNCHARTED BEFORE COMMENCING WITH ANY EXCAVATION OR DEMOLITION WORK. DEPTH OF CONCRETE SAW SHALL BE SET SO AS NOT TO CUT ANY LOCAL EMBEDDED OR UNDER-FLOOR PIPING OR WIRING WHICH IS TO REMAIN.
 - E. ALL DRILLING, CUTTING, DEMOLITION OR OTHER MODIFICATIONS TO EXISTING CONSTRUCTION SHALL BE PERFORMED IN A MANNER THAT WILL NOT REDUCE THE STABILITY OR STRUCTURAL INTEGRITY OF THE EXISTING CONSTRUCTION. WHEN SAW CUTTING, SPECIAL CARE SHALL BE TAKEN TO NOT OVER CUT INTO AN EXISTING AREA OF STRUCTURE THAT WILL REMAIN.
 - F. CORING FOR PIPING OR CONDUIT THROUGH EXISTING STRUCTURAL MEMBERS IS NOT ALLOWED UNLESS SPECIFICALLY SHOWN IN THE CONTRACT DOCUMENTS.
 - G. DAMAGE TO THE EXISTING STRUCTURE OR OTHER EXISTING BUILDING COMPONENTS CAUSED BY DEMOLITION OPERATIONS SHALL BE REPAIRED BY THE CONTRACTOR TO A LEVEL ACCEPTABLE TO THE OWNER'S REPRESENTATIVE.
 - H. THE PROJECT AREA SHALL BE MAINTAINED AS CLEAN AS POSSIBLE WITH DUST BEING LIMITED AS MUCH AS PRACTICAL.
- 6. FOUNDATION NOTES
 - A. GEOTECHNICAL REPORT: A PREVIOUSLY SUBMITTED GEOTECHNICAL ENGINEERING SERVICES REPORT FOR NORTHMOOR ELEMENTARY WILL BE USED FOR THE NEW OFFICE ADDITION AT NORTHMOOR ELEMENTARY SCHOOL. IN MOORE, OKLAHOMA. THE GEOTECHNICAL REPORT WAS PERFORMED BY PROFESSIONAL SERVICE INDUSTRIES, INC. (PSI), DATED DECEMBER 9, 2020 (PSI REPORT NO. 0547965-9).
 - B. SITE SUB-GRADE PREPARATION:
 - 1) STRIPPING: VEGETATION, CONCRETE, DELETERIOUS MATERIALS, AND SOFT AND LOOSE SOIL IN THE CONSTRUCTION AREAS, SHALL BE STRIPPED FROM THE SITE. THE DEPTH OF REMOVAL SHALL BE DETERMINED BY A REPRESENTATIVE OF THE GEOTECHNICAL ENGINEER AT THE TIME OF CONSTRUCTION. UTILITIES SHALL BE LOCATED AND REROUTED AS NECESSARY.
 - 2) PROOF-ROLLING: AFTER STRIPPING AND MAKING ANY REQUIRED CUTS, BUT BEFORE PLACING FILL, THE CONSTRUCTION AREA SHALL BE PROOF-ROLLED WITH A TANDEM AXLE DUMP TRUCK WEIGHING AT LEAST 9 TONS/AXLE. THE PROOFROLLING SHOULD INVOLVE OVERLAPPING PASSES IN MUTUALLY PERPENDICULAR DIRECTIONS AND SOILS WHICH ARE OBSERVED TO RUT OR DEFLECT EXCESSIVELY UNDER THE MOVING LOAD SHALL BE UNDERCUT AND RECOMPACTED IN PLACE OR REPLACED WITH PROPERLY COMPACTED ENGINEERED FILL. THE RECOMPACTED SOIL OR STRUCTURAL FILL SHALL BE MOISTURE CONDITIONED DURING PLACEMENT. THE PROOF-ROLLING AND UNDERCUTS MUST BE WITNESSED BY A REPRESENTATIVE OF THE GEOTECHNICAL ENGINEER AND SHALL BE PERFORMED DURING A PERIOD OF DRY WEATHER.
 - 3) SCARIFICATION: AFTER STRIPPING, MAKING ANY REQUIRED CUTS AND PROOF ROLLING, BUT BEFORE FILL PLACEMENT, THE EXPOSED SOILS SHALL BE SCARIFIED TO A MINIMUM DEPTH OF 8 INCHES AND THEN PROCESSED AT A MOISTURE CONTENT AT OR ABOVE ITS OPTIMUM VALUE AS DETERMINED BY THE STANDARD PROCTOR TEST. THE SUBGRADE SOILS SHALL BE RECOMPACTED TO AT LEAST 95 PERCENT OF ITS MAXIMUM DRY DENSITY AS DETERMINED BY THE STANDARD PROCTOR TEST METHOD (ASTM D-698).
 - 4) ACCEPTABLE FILL: STRUCTURAL FILL MATERIALS SHALL BE FREE OF ORGANIC OR OTHER DELETERIOUS MATERIAL, HAVE A MAXIMUM PARTICLE SIZE OF 3 INCHES, HAVE A LIQUID LIMIT NOT MORE THAN 35, A PLASTICITY INDEX IN THE RANGE OF 5 AND 18 AND FINE MATERIAL PASSING THE NO. 200 SEIVE NOT LESS THAN 60%.

- 5) FILL PLACEMENT: FILL SHALL BE PLACED IN MAXIMUM LIFTS OF 8 INCHES OF LOOSE MATERIAL AND SHALL BE COMPACTED WITHIN THE RANGE OF 2 PERCENTAGE POINTS BELOW AND 3 PERCENTAGE POINTS ABOVE THE OPTIMUM MOISTURE CONTENT. EACH LIFT OF COMPACTED ENGINEERED FILL SHALL BE TESTED BY A REPRESENTATIVE OF THE GEOTECHNICAL ENGINEER PRIOR TO PLACEMENT OF SUBSEQUENT LIFTS. THE EDGES OF COMPACTED FILL SHALL EXTEND 5 FEET LATERALLY BEYOND THE BUILDING FOOTPRINT PRIOR TO SLOPING ON AS FLAT A GRADIENT AS PRACTICAL. STRUCTURAL FILL SHALL BE COMPACTED TO AT LEAST 95 PERCENT OF STANDARD PROCTOR MAXIMUM DRY DENSITY AS DETERMINED BY ASTM D698.
- 6) DEPTH OF FILL: FOOTINGS SHALL BE SUPPORTED ON NATIVE SOILS OR STRUCTURAL FILL. GROUND FLOOR SLABS SHALL BE GRADE SUPPORTED ON 1'-6" OF COMPACTED STRUCTURAL FILL PLACED AS DESCRIBED ABOVE.
- 7) FILL PLACEMENT TESTING: EACH LIFT OF COMPACTED FILL SHALL BE TESTED BY A GEOTECHNICAL ENGINEER PRIOR TO PLACEMENT OF SUBSEQUENT LIFTS. FIELD DENSITY TESTS SHALL BE TAKEN AT A MINIMUM OF ONE PER EVERY 2500 SF, BUT AT LEAST THREE SETS OF DENSITY TESTS SHALL BE TAKEN FOR EACH LIFT.
- 8) SITE DRAINAGE: GRADING OF THE SITE AROUND THE STRUCTURE'S PADS SHALL BE ACCOMPLISHED TO ENABLE POSITIVE DRAINAGE AWAY FROM THE PADS BY PROVIDING AN ADEQUATE GRADIENT. THE SURFACE GRADIENT PROVIDED WILL BE DEPENDENT ON THE LANDSCAPING TYPE AND VEGETATION. WATER INFILTRATION AND SEEPAGE INTO THE FOUNDATION SHALL BE REDUCED AS MUCH AS POSSIBLE. IF IT IS POSSIBLE FOR WATER TO COLLECT BENEATH THE FOUNDATION AND FOUNDATION AREAS, IT WILL BE NECESSARY TO USE INTERCEPTOR DRAINS TO REMOVE THE COLLECTED WATER.
- 9) MAINTENANCE OF SOIL MOISTURE: SOIL MOISTURE SHALL BE MAINTAINED UP UNTIL CONCRETE PLACEMENT TO PREVENT SHRINKAGE AND SUBSEQUENT POST-CONSTRUCTION SWELL OF SUBGRADE SOILS.
- C. SHALLOW FOUNDATIONS:
 - 1) FOOTING DESIGN PARAMETERS: THE PROPOSED BUILDING SHALL BE SUPPORTED ON CONVENTIONAL SHALLOW SPREAD FOOTINGS BASED ON THE FOLLOWING DESIGN PARAMETERS:
 - A) BEARING MATERIAL: EXISTING SOIL OR PROPERLY COMPACTED STRUCTURAL FILL AS OUTLINED ABOVE
 - B) ALLOWABLE BEARING PRESSURE FOR SPOT FOOTINGS: 3,000 PSF
 - C) ALLOWABLE BEARING PRESSURE FOR CONTINUOUS FOOTINGS: 2,500 PSF
 - 2) OBSERVATION OF BEARING CONDITIONS: A REPRESENTATIVE OF THE GEOTECHNICAL ENGINEER SHALL OBSERVE THE FOUNDATION EXCAVATIONS PRIOR TO STEEL OR CONCRETE PLACEMENT TO DETERMINE IF THE FOUNDATION MATERIALS ARE CAPABLE OF SUPPORTING THE DESIGN LOADS AND ARE CONSISTENT WITH THE MATERIALS DISCUSSED ABOVE.
 - 3) IMPROVEMENT OF BEARING CONDITIONS: SOFT OR LOOSE SOIL ZONES ENCOUNTERED AT THE BOTTOM OF THE FOOTING EXCAVATIONS SHALL BE REMOVED TO THE LEVEL OF STIFF OR DENSE SOIL AS DIRECTED BY THE GEOTECHNICAL ENGINEER. CAVITIES FORMED AS A RESULT OF EXCAVATION OF SOFT OR LOOSE SOIL ZONES SHALL BE BACKFILLED WITH ENGINEERED FILL, LEAN CONCRETE OR FLOWABLE FILL, AS DETERMINED BY THE GEOTECHNICAL ENGINEER. CARE SHALL BE TAKEN TO PREVENT WETTING OR DRYING OF THE BEARING MATERIALS DURING CONSTRUCTION. ANY EXTREMELY WET OR DRY MATERIAL, OR ANY LOOSE OR DISTURBED MATERIAL IN THE BOTTOM OF THE FOOTING EXCAVATIONS SHALL BE REMOVED PRIOR TO PLACING CONCRETE.
 - 4) ANTICIPATED SETTLEMENT: IT IS ESTIMATED THAT FOUNDATIONS CONSTRUCTED IN ACCORDANCE WITH THE ABOVE RECOMMENDATIONS WILL EXPERIENCE TOTAL SETTLEMENTS GENERALLY LESS THAN 1-INCH WITH DIFFERENTIAL SETTLEMENTS GENERALLY LESS THAN ¼ INCHES WITHIN THE BUILDING AREA.
 - 5) TRENCHED FOOTINGS: EARTH-FORMED TRENCHED FOOTINGS ARE PERMITTED, EXCEPT WHERE BRICK LEDGES OR EXPOSED SURFACES REQUIRE FORMING AND/OR WHERE SOIL SIDE WALLS SLOUGH INTO THE TRENCH. IN ORDER TO ACHIEVE 3" MINIMUM CONCRETE COVER OVER STEEL REINFORCING ON SIDEWALLS, EARTH FORMED TRENCHES SHALL BE A MINIMUM OF 2" WIDER THAN THE FORMED DIMENSIONS SHOWN IN ALL SECTIONS AND DETAILS.
 - 6) PIPE PENETRATIONS: ALL HORIZONTAL PIPE OR SIMILAR PENETRATIONS OR SLEEVES THROUGH FOOTINGS SHALL PREFERABLY OCCUR WITHIN THE MIDDLE 1/3 OF THE FOOTING DEPTH. AT PENETRATIONS, PROVIDE (4) #5 DIAGONAL BARS AT EACH FOOTING FACE (3" CLEAR BETWEEN BAR AND PENETRATION AND 3" CLEAR FROM FOOTING BEARING). IF PENETRATION MUST OCCUR NEAR THE BOTTOM OF FOOTING, REFER TYPICAL DETAILS FOR STANDARD DETAIL TO TRANSITION & THICKEN FOOTING TO ACCOMMODATE PENETRATION.
- D. SLAB-ON-GRADE CONSTRUCTION
 - 1) SLAB THICKNESS AND REINFORCING: SLABS-ON-GRADE SHALL BE 4" THICK CONCRETE REINFORCED WITH #3 BARS AT 15" ON CENTER EACH WAY. REINFORCING BARS SHALL BE PLACED 1" CLEAR FROM TOP OF SLAB USING CHAIRS OR SLAB BOLSTERS COMPLYING WITH CRSI'S "MANUAL OF STANDARD PRACTICE".
 - 2) SLAB SUBGRADE: THE FLOOR SLAB SHALL BE GRADE-SUPPORTED AS OUTLINED IN THE SITE SUB-GRADE PREPARATION NOTES SHOWN ABOVE.
 - 3) CONSTRUCTION MONITORING: CONSTRUCTION ACTIVITY MAY CAUSE DAMAGE AND DETERIORATION TO THE PREPARED SUBGRADE. A FIELD REPRESENTATIVE OF THE GEOTECHNICAL ENGINEER SHALL OBSERVE THE FINAL SUBGRADE PRIOR TO PLACEMENT OF THE SLAB ON GRADE, PERFORM FURTHER TESTING AS NECESSARY, AND DETERMINE IF ANY REMEDIAL MEASURES ARE NECESSARY PRIOR TO SLAB PLACEMENT.
 - 4) AGGREGATE BASE COURSE: A 4-INCH THICK, FREE-DRAINING AGGREGATE BASE COURSE SHALL BE PLACED BENEATH THE FLOOR SLAB TO ENHANCE DRAINAGE AND PROVIDE INCREASED SUBGRADE STRENGTH. AT THE TIME OF THE SLAB PLACEMENT, THE AGGREGATE BASE SHALL BE MOIST, BUT FREE OF ANY STANDING OR SELF-DRAINING WATER. THE AGGREGATE BASE COURSE MATERIAL SHALL MEET THE OKLAHOMA DEPARTMENT OF TRANSPORTATIONS STANDARD SPECIFICATION 701.3 TYPE "A" CRITERIA.
 - 5) VAPOR RETARDER: A 15 MIL VAPOR RETARDER SHALL BE PLACED IMMEDIATELY BELOW THE CONCRETE SLAB. VAPOR RETARDER SHALL BE SEALED AT ALL LAPS AND SEALED TO PREVIOUSLY PLACED CONCRETE AS RECOMMENDED BY VAPOR RETARDER MANUFACTURER. BEFORE PLACING CONCRETE, PATCH AND SEAL ANY RIPS, TEARS OR HOLES IN VAPOR RETARDER INCURRED DURING CONSTRUCTION.
 - 6) MOIST CURING OF SLAB: SLABS-ON-GRADE SHALL BE WATER CURED FOR A MINIMUM OF 7 DAYS BY FONDING, SPRAYING, SPRINKLING OR BY USE OF SATURATED COVERINGS. CURING COMPOUNDS ARE EXPRESSLY PROHIBITED.
 - 7) ISOLATION JOINTS: PROVIDE SLAB ISOLATION AROUND COLUMNS PENETRATING THE SLAB-ON-GRADE. PROVIDE 1/2 INCH PREPOLYMERED EXPANSION JOINT MATERIAL AROUND PERIMETER OF ISOLATION JOINTS. REFER TO TYPICAL DETAILS AND ADDITIONAL INFORMATION.
 - 8) SLAB JOINTS: SLAB JOINTS SHALL BE PROVIDED AS SHOWN ON THE PLANS AND TYPICAL DETAILS. THE FOLLOWING JOINT TYPES ARE SHOWN ON THE DRAWINGS:
 - A) CJ = CONSTRUCTION JOINT
 - B) SJ = SAWS CUT CONTRACTION JOINT
- E. FOUNDATION MISCELLANEOUS
 - 1) GROUNDWATER CONDITIONS: GROUNDWATER WAS NOT ENCOUNTERED IN THE BORINGS AT THE TIME OF DRILLING. HOWEVER, IT IS POSSIBLE THAT TRANSIENT OVER-SATURATED GROUND CONDITIONS COULD DEVELOP AT SHALLOWER DEPTHS AT A LATER DATE DUE TO PRESENCE OF HEAVY PRECIPITATION, LANDSCAPE WATERING, LEAKING WATER LINES, OR OTHER UNFORESEEN CAUSES. THE CONTRACTOR SHALL DETERMINE THE ACTUAL GROUNDWATER LEVELS AT TIME OF CONSTRUCTION. IF GROUNDWATER ISSUES ARE ENCOUNTERED DURING CONSTRUCTION, THE GEOTECHNICAL ENGINEER SHALL BE CONTACTED.

- 2) DRAINAGE CONSIDERATIONS DURING CONSTRUCTION: DUE TO ADVERSE EFFECT ON STRUCTURES, WATER SHALL NOT BE ALLOWED TO COLLECT IN THE FOUNDATION EXCAVATION OR ON PREPARED SUBGRADE OF THE CONSTRUCTION AREA EITHER DURING OR AFTER CONSTRUCTION. UNDERCUT OR EXCAVATED AREAS SHALL BE SLOPED TOWARD ONE CORNER TO FACILITATE REMOVAL OF ANY COLLECTED RAINWATER, OR POSITIVE RUNOFF SHALL BE PROVIDED. THE CONTRACTOR SHALL EXERCISE CARE IN CREATING DRAINAGE PATHS FOR WATER DURING THE CONSTRUCTION PHASE OF THE PROJECT TO REDUCE INFILTRATION OF SURFACE WATER AROUND THE PERIMETER OF THE BUILDING AND BENEATH THE FLOOR SLABS. POSITIVE DRAINAGE SHALL BE PROVIDED DURING ALL PHASES OF CONSTRUCTION.
- 3) FINAL SITE GRADING: PER SECTION 1804.4 OF IBC-2015, THE GROUND IMMEDIATELY ADJACENT TO THE FOUNDATION SHALL BE SLOPED AWAY FROM THE BUILDING AT A SLOPE OF NOT LESS THAN ONE UNIT VERTICAL IN 20 UNITS HORIZONTAL (5 PERCENT SLOPE) FOR A MINIMUM DISTANCE OF 10 FEET PERPENDICULAR TO THE FACE OF THE WALL. IF PHYSICAL OBSTRUCTIONS OR LOT LINES PROHIBIT 10 FEET OF HORIZONTAL DISTANCE, A 5-PERCENT SLOPE SHALL BE PROVIDED TO AN APPROVED ALTERNATIVE METHOD OF DIVERTING WATER AWAY FROM THE FOUNDATION. SWALES USED FOR THIS PURPOSE SHALL BE SLOPED A MINIMUM OF 2-PERCENT WHERE LOCATED WITHIN 10 FEET OF THE BUILDING FOUNDATION. IMPERVIOUS SURFACES WITHIN 10 FEET OF THE BUILDING SHALL BE SLOPED A MINIMUM OF 2-PERCENT AWAY FROM THE BUILDING.
- 4) EXCAVATION AND TEMPORARY SLOPES: THE CONTRACTOR, DESIGNATED AS "RESPONSIBLE PERSON" IN OSHA CONSTRUCTION STANDARDS FOR EXCAVATIONS, 29 CFR PART 1926, IS SOLELY RESPONSIBLE FOR PLANNING AND IMPLEMENTING ALL SAFETY PROCEDURES. ALL EXCAVATION HEIGHT, SLOPE, AND DEPTH MUST ADHERE TO ALL SPECIFICATIONS OUTLINED IN LOCAL, STATE, AND FEDERAL SAFETY REGULATIONS. THE STRUCTURAL ENGINEER DOES NOT ASSUME ANY RESPONSIBILITY FOR CONSTRUCTION SITE SAFETY OR ANY PARTY'S, INCLUDING THE CONTRACTOR'S, COMPLIANCE WITH THE APPLICABLE LOCAL, STATE, AND FEDERAL SAFETY REGULATIONS OR ANY OTHER APPLICABLE REGULATIONS.
- 5) TRENCH BACKFILL: ALL REQUIRED TRENCH BACKFILL SHALL BE ACCEPTABLE FILL MATERIAL AS DEFINED ABOVE AND SHALL BE MECHANICALLY COMPACTED IN LAYERS TO AT LEAST 95% OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY AS DETERMINED BY ASTM D 698. SOME SETTLEMENT OF THE BACKFILL MAY BE EXPECTED AND ANY UTILITIES WITHIN THE TRENCHES SHALL BE CONSTRUCTED TO ALLOW THESE DIFFERENTIAL MOVEMENTS. REFER TO PROJECT SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
- 6) CONSTRUCTION MONITORING: A GEOTECHNICAL ENGINEER SHALL BE RETAINED TO PROVIDE OBSERVATIONS AND TESTING OF SOILS EXPOSED DURING PROJECT CONSTRUCTION IN ORDER TO VERIFY THAT SOIL CONDITIONS ARE AS ANTICIPATED. CONSTRUCTION ACTIVITIES PERTAINING TO EARTHWORK AND OTHER RELATED ACTIVITIES SHALL ALSO BE OBSERVED BY THE GEOTECHNICAL ENGINEER AS OUTLINED ABOVE.

7. CONCRETE CONSTRUCTION NOTES

- A. DESIGN CRITERIA: THE DESIGN OF CONCRETE IS GOVERNED BY "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE (ACI 318-14) AND COMMENTARY (ACI 318R-14)."
- B. CONCRETE CONSTRUCTION CRITERIA: ALL CONCRETE CONSTRUCTION SHALL COMPLY WITH THE PROVISIONS OF "SPECIFICATIONS FOR STRUCTURAL CONCRETE (ACI 301-16)."
- C. TOLERANCES: TOLERANCES FOR CONCRETE CONSTRUCTION SHALL BE IN ACCORDANCE WITH "SPECIFICATIONS FOR TOLERANCES FOR CONCRETE CONSTRUCTION AND MATERIALS (ACI 117-10) AND COMMENTARY (ACI 117R-10)."
- D. CONCRETE MIXTURES:
 - 1) CEMENTITIOUS MATERIALS
 - A) PORTLAND CEMENT: ASTM C150 TYPE I OR II UNLESS SPECIFICALLY NOTED OTHERWISE.
 - B) FLY ASH: ASTM C618 CLASS F OR C. THE MAXIMUM PERCENTAGE OF FLY ASH SHALL NOT EXCEED 25 PERCENT OF THE TOTAL CEMENTITIOUS MATERIAL.
 - 2) ALL CONCRETE MIXES SHALL BE COMPRISED OF NORMAL WEIGHT AGGREGATES CONFORMING TO ASTM C33, EXCEPT WHERE SPECIFICALLY INDICATED AS LIGHTWEIGHT, IN WHICH CASE AGGREGATES SHALL CONFORM TO ASTM C330.
 - 3) MIXING WATER SHALL CONFORM TO ASTM C1062. MIXING WATER, INCLUDING THAT PORTION OF MIXING WATER CONTRIBUTED IN THE FORM OF FREE MOISTURE ON AGGREGATES, SHALL NOT CONTAIN DELETERIOUS AMOUNTS OF CHLORIDE IONS.
 - 4) ADMIXTURES, IF USED, SHALL CONFORM TO THE FOLLOWING:
 - A) WATER REDUCTION AND SETTING TIME MODIFICATION: ASTM C494.
 - B) PRODUCING FLOWING CONCRETE: ASTM C1017.
 - C) AIR ENTRAINMENT: ASTM C260.
 - D) INHIBITING CHLORIDE INDUCED CORROSION: ASTM C1582.
 - E) MOISTURE VAPOR REDUCING ADMIXTURE, MVRA: ASTM C494 & ASTM D5084
 - 5) MIX DESIGNS SHALL BE PROPORTIONED BASED ON THE FOLLOWING MIX CHARACTERISTICS:
 - A) BELOW GRADE FOUNDATIONS
 - 1) FREEZING AND THAWING EXPOSURE CATEGORY (F): CLASS F1
 - 2) SULFATE EXPOSURE CATEGORY (S): CLASS S0
 - 3) WATER EXPOSURE CATEGORY (W): CLASS W0
 - 4) CORROSION PROTECTION CATEGORY (C): CLASS C1
 - 5) 28-DAY COMPRESSIVE STRENGTH: 3,500 PSI
 - 6) MAXIMUM WATER/CEMENT RATIO: 0.55
 - 7) MAXIMUM AGGREGATE SIZE: 1 1/2 INCHES
 - 8) TARGET AIR CONTENT: 4.5 PERCENT PLUS OR MINUS 1.5 PERCENT
 - 9) MAXIMUM WATER-SOLUBLE CHLORIDE ION CONTENT IN CONCRETE, PERCENT BY WEIGHT OF CEMENT: 0.30
 - B) INTERIOR SLABS-ON-GRADE
 - 1) FREEZING AND THAWING EXPOSURE CATEGORY (F): CLASS F0
 - 2) SULFATE EXPOSURE CATEGORY (S): CLASS S0
 - 3) WATER EXPOSURE CATEGORY (W): CLASS W0
 - 4) CORROSION PROTECTION CATEGORY (C): CLASS C0
 - 5) 28-DAY COMPRESSIVE STRENGTH: 4,000 PSI
 - 6) MAXIMUM WATER/CEMENT RATIO: 0.45
 - 7) MAXIMUM AGGREGATE SIZE: 1 1/2 INCHES
 - 8) TARGET AIR CONTENT: DO NOT ALLOW AIR CONTENT OF TROWEL-FINISHED FLOORS TO EXCEED 3 PERCENT
 - 9) MAXIMUM WATER-SOLUBLE CHLORIDE ION CONTENT IN CONCRETE, PERCENT BY WEIGHT OF CEMENT: 1.00
 - 6) CONCRETE MIX PROPORTIONS SHALL BE ESTABLISHED IN ACCORDANCE WITH ARTICLE 4.2.3 OF "SPECIFICATIONS FOR STRUCTURAL CONCRETE (ACI 301)."
 - A) THE CONCRETE SHALL BE PLACED READY WITHOUT SEGREGATION INTO FORMS AND AROUND REINFORCEMENT UNDER ANTICIPATED PLACEMENT CONDITIONS. THE CONCRETE PRODUCER SHALL DETERMINE WHETHER ADMIXTURES ARE NECESSARY FOR WATER REDUCTION, SET TIME, OR SLUMP REQUIREMENTS.
 - B) THE CONCRETE SHALL MEET REQUIREMENTS FOR THE ASSIGNED EXPOSURE CLASSES OUTLINED HEREIN.
 - C) THE CONCRETE SHALL CONFORM TO STRENGTH TEST REQUIREMENTS FOR STANDARD-CURED SPECIMENS.
 - 7) DOCUMENTATION OF CONCRETE MIXTURE CHARACTERISTICS SHALL BE SUBMITTED FOR REVIEW BEFORE THE MIXTURE IS USED. EVIDENCE OF THE ABILITY OF THE PROPOSED MIXTURE TO COMPLY WITH THE CONCRETE MIXTURE REQUIREMENTS IN THE CONSTRUCTION DOCUMENTS SHALL BE INCLUDED IN THE SUBMITTAL. THE EVIDENCE SHALL BE BASED ON FIELD TEST RECORDS OR LABORATORY TRIAL BATCHES.
- E. CONCRETE REINFORCING:
 - 1) ALL DETAILING, FABRICATION, AND PLACING OF REINFORCING STEEL, UNLESS OTHERWISE NOTED, SHALL FOLLOW ALL SECTIONS OF THE ACI "DETAILING MANUAL-2004" (SP-66 04), THE ACI "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE" (ACI 318-14), AND ALL SECTIONS OF THE CONCRETE REINFORCING STEEL INSTITUTE (CRSI) "MANUAL OF STANDARD PRACTICE."



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KFC ENGINEERING STRUCTURAL SALAS O'BRIEN MECHANICAL/ELECTRICAL



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