APPLICABLE CODES AND STANDARDS

1. 2018 INTERNATIONAL BUILDING CODE
2. ACI 318-14 - BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE
3. ACI 530-13 - BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES
4. AISC 360-16 - SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS
5. AWC NDS-2018 - NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION WITH 2018 SUPPLEMENT

DESIGN CRITERIA

FLOOR LIVE LOAD	PSF
1. ASSEMBLY AREAS - LOBBIES	100
2. ASSEMBLY AREAS - MOVABLE SEATS	100
3. BALCONIES	100
4. CORRIDORS - FIRST FLOOR	100
5. DINING ROOMS AND RESTAURANTS	100
6. FIRE ESCAPES	100
7. RESIDENTIAL - PRIVATE ROOMS	40
8. RESIDENTIAL - PUBLIC ROOMS	100
9. RESIDENTIAL - CORRIDORS - SAME AS AREA SERVED	---
10. SIDEWALKS, VEHICULAR DRIVEWAYS	250
11. STAIRS AND EXIT WAYS	100
12. STORAGE - LIGHT	125

ROOF LIVE LOAD	PSF
1. ROOF LIVE LOAD (MINIMUM, NON-REDUCIBLE)	20

OTHER LIVE LOADS

1. OFFICE PARTITIONS (LIVE LOAD):	15 PSF
2. PARTITIONS (LATERAL LOAD):	5 PSF
3. RAILING (LATERAL LOAD AT TOP):	50 PLF OR 200 LB
4. MECHANICAL EQUIPMENT ROOM	150 PSF OR EQUIP. WEIGHT IF GREATER

ROOF SNOW LOAD

1. GROUND SNOW LOAD (P_g):	25 PSF
2. FLAT-ROOF SNOW LOAD (P_f):	20 PSF
3. RAIN ON SNOW SURCHARGE:	5 PSF [delete if N/A]
4. DRIFT SNOW LOAD	PER ASCE 7-16
5. SNOW EXPOSURE FACTOR (C_e):	1.0
6. SNOW LOAD IMPORTANCE FACTOR (I):	1.0
7. THERMAL FACTOR (C_t):	1.0

WIND DESIGN DATA

1. ULTIMATE DESIGN WIND SPEED (V_{ult}):	115 MPH
2. NOMINAL DESIGN WIND SPEED (V_{asd}):	90 MPH
3. RISK CATEGORY:	II
4. WIND EXPOSURE:	CATEGORY B
5. INTERNAL PRESSURE COEFFICIENT (GC_{pi}):	+/-0.18
6. COMPONENTS AND CLADDING DESIGN WIND PRESSURE:	
A. ROOF - ZONE 1	___ PSF
B. ROOF - ZONE 2	___ PSF
C. ROOF - ZONE 3	___ PSF
D. WALL - ZONE 4	___ PSF
E. WALL - ZONE 5	___ PSF

EARTHQUAKE DESIGN DATA

1. SEISMIC IMPORTANCE FACTOR (I):	1.0
2. RISK CATEGORY:	II
3. 0.2 SEC SPECTRAL RESPONSE ACCELERATION (S_S):	___
4. 1.0 SEC SPECTRAL RESPONSE ACCELERATION (S_1):	___
5. SITE CLASS:	D
6. 0.2 SEC SPECTRAL RESPONSE COEFFICIENT (S_{DS}):	___
7. 1.0 SEC SPECTRAL RESPONSE COEFFICIENT (S_{D1}):	___
8. SEISMIC DESIGN CATEGORY:	___
9. BASIC SEISMIC-FORCE-RESISTING SYSTEM:	
A. OMU SHEAR WALLS	
B. CONCRETE SHEAR WALLS	
C. WOOD STUD SHEAR WALLS	
D. STEEL MOMENT FRAMES	
E. STEEL BRACED FRAMES	
10. DESIGN BASE SHEAR (V):	___ KIPS
11. SEISMIC RESPONSE COEFFICIENT (C_S):	___
12. RESPONSE MODIFICATION FACTOR (R):	___
13. ANALYSIS PROCEDURE USED:	
A. EQUIVALENT LATERAL FORCE PROCEDURE	

STRUCTURAL NOTES

1. ALL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE APPLICABLE BUILDING CODE.
2. THE STRUCTURE HAS BEEN DESIGNED TO RESIST DESIGN LOADS ONLY AS A COMPLETED STRUCTURE
   A. APPLICATION OF ANY LOADS TO THE PARTIALLY COMPLETED STRUCTURE SHALL BE CONSIDERED BY THE CONTRACTOR AND SO INCLUDED IN THE DESIGN OF THE SHORING, BRACING, FORMWORK, AND ANY OTHER SUPPORTING ELEMENTS PROVIDED FOR CONSTRUCTION OF THE STRUCTURE.
   B. WHERE CONSTRUCTION MATERIAL AND EQUIPMENT ARE TEMPORARILY STORED ON THE ROOF OR FLOOR FRAMING, THEY SHALL BE DISTRIBUTED SO THAT THE DESIGN LIVE LOAD AT THE LOADED AREA IS NOT EXCEEDED.
   C. DO NOT BACKFILL AGAINST WALLS OR OTHER STRUCTURAL ELEMENTS UNTIL SUCH ELEMENTS HAVE REACHED THEIR INTENDED STRENGTH, HAVE BEEN ADEQUATELY BRACED, AND/OR HAVE OTHER INTEGRAL STRUCTURAL ELEMENTS IN PLACE WHICH ARE INTENDED TO RESIST THE LATERAL EARTH LOADS.
3. LATERAL LOAD RESISTING SYSTEM: ALL LATERAL LOAD RESISTANCE AND STABILITY IN THE COMPLETED STRUCTURE IS PROVIDED BY:
   A. N-S DIRECTION: WOOD SHEAR WALLS
   B. E-W DIRECTION: WOOD SHEAR WALLS
   C. ROOF DIAPHRAGM: OSB ROOF SHEATHING
   D. FLOOR DIAPHRAGM: OSB FLOOR SHEATHING
4. STEEL STABILITY: STRUCTURAL STEEL FRAMING INDICATED IN THESE PLANS REQUIRES INTERACTION WITH NON-STRUCTURAL STEEL ELEMENTS FOR STRENGTH AND/OR STABILITY. SEE PLANS FOR SPECIFIC LOCATIONS OF THESE NON-STRUCTURAL STEEL ELEMENTS WHICH ARE LISTED BELOW:
   A. CMU SHEARWALLS
   B. WOOD SHEAR WALLS
5. DETAILS ON THE DRAWINGS INDICATED AS "TYPICAL" APPLY IN ALL AREAS WHERE CONDITIONS SIMILAR TO THE DETAIL OCCUR.
6. THE STRUCTURAL DRAWINGS ARE NOT INTENDED FOR USE AS SHOP ERECTION DRAWINGS. REPRODUCTION OF THESE DRAWINGS IN LIEU OF PREPARATION OF SHOP ERECTION DRAWINGS SIGNIFIES THE USERS' ACCEPTANCE THAT ALL INFORMATION SHOWN IS CORRECT AND APPROPRIATE FOR SHOP DRAWINGS AND THAT THE USER WILL BE FULLY RESPONSIBLE FOR EXPENSES THAT MAY OCCUR FROM SAID ACCEPTANCE.
7. UNLESS SPECIFICALLY NOTED, THERE ARE NO PROVISIONS MADE FOR FUTURE FLOORS, ROOFS, OR OTHER LOADS.

MATERIAL DATA

CONCRETE AND REINFORCING

1. CONCRETE STRENGTH (f'_c @ 28 DAYS)
   A. FOOTINGS — 3,000 PSI
   B. FOUNDATION WALLS — 4,500 PSI
   C. GRADE SUPPORTED SLABS — 4,000 PSI
   D. CONCRETE NOT SPECIFIED — 3,000 PSI
2. ALL CONCRETE EXPOSED TO FREEZE-THAW CONDITIONS SHALL HAVE A MINIMUM STRENGTH (f'_c @ 28 DAYS) OF 4,500 PSI. THIS DOES NOT INCLUDE FOOTINGS/GRADE BEAMS THAT ARE COVERED BY SOIL.
3. CEMENT TYPE: PORTLAND TYPE I
4. AGGREGATES
   A. NORMAL WEIGHT, 1 1/2" MAX. SIZE - ASTM C33
   B. PROVIDE AGGREGATES FREE OF MATERIALS WITH DELETERIOUS REACTIVITY TO ALKALI IN CEMENT, FROM A SINGLE SOURCE WITH DOCUMENTED SERVICE RECORD DATA OF AT LEAST 10 YEARS SATISFACTORY SERVICE IN SIMILAR APPLICATIONS AND SERVICE CONDITIONS USING SIMILAR AGGREGATES AND CEMENTITIOUS MATERIALS.
5. REINFORCING STEEL — ASTM A615, GRADE 60
6. REINFORCING STEEL — ASTM A706, WELDABLE
7. WELDED WIRE FABRIC — ASTM A185
8. PREFORMED EXPANSION JOINT (1/2") — ASTM D1751

MASONRY

1. MASONRY STRENGTH (f'_m @ 28 DAYS) — 1,500 PSI
2. CONCRETE UNITS — ASTM C90 NORMAL WEIGHT
3. UNIT COMPRESSIVE STRENGTH — 1,900 PSI (BASED ON NET AREA)
4. MORTAR TYPE — ASTM C270, TYPE S
5. GROUT TYPE — ASTM C476, 3/8" MAX. AGGREGATE SIZE
6. MORTAR STRENGTH (28 DAYS) — 1,800 PSI
7. GROUT STRENGTH (28 DAYS) — ASTM C476 - 2,000 PSI
8. WIRE REINFORCING — ASTM A82, STD. LADDER TYPE - 9 GAUGE ZINC COATED PER ASTM A116 - (DUR-O-WALL OR APPROVED EQUAL @ 16" O.C. VERTICAL SPACING)

STEEL

1. STRUCTURAL STEEL (WIDE FLANGES) — ASTM A992, GRADE 50
2. STRUCTURAL STEEL (ALL OTHER TYPES) — ASTM A36
3. STRUCTURAL STEEL PIPE — ASTM A53, GRADE B, SCH. 40
4. STRUCTURAL TUBE — ASTM A500, GRADE B
5. ANCHOR RODS — ASTM F1554, GRADE 55 WITH WELDING SUPPLEMENT S1
6. BOLTED CONNECTIONS — ASTM A325N
7. WELDED CONNECTIONS — E70XX ELECTRODES
8. WELDED CONNECTIONS (GALVANIZED) — E6010 OR E6011 ELECTRODES
9. HEADED CONCRETE ANCHORS (HCA) — ASTM A108 GRADES C1010 THROUGH C1020 (F_u=55 KSI)
10. DEFORMED BAR ANCHORS (DBA) — ASTM A108 & A496 (F_u=70 KSI)
11. METAL DECKING — ASTM A611 OR ASTM A653-94 SJI CRITERIA
12. STEEL BAR JOISTS
13. LIGHT GAUGE STEL STUDS/JOISTS
    A. 12 TO 16 GAUGE (G60 GALV.) — ASTM A1003 GRADE ST50H (F_y=50 KSI)
    B. 18+ GAUGE (G60 GALV.) — ASTM A1003 GRADE ST33H (F_y=33 KSI)

WOOD

1. WOOD SPECIES: SPRUCE PINE FIR (SPF) - 19% MAX. MOISTURE CONTENT
2. MEMBER GRADES (UNLESS OTHERWISE INDICATED ON PLAN)
   A. STUDS — NO. 2
   B. BLOCKING — STUD
   C. ROOF RAFTERS — NO. 2
   D. FLOOR JOISTS — NO. 2
   E. FLOOR BEAMS — NO. 2
   F. COLUMNS AND POSTS — NO. 2
   G. HEADERS AND LEDGERS — NO. 2
3. OSB ROOF SHEATHING: 5/8" APA RATED, EXPOSURE I, SPAN RATING 32/16
4. OSB FLOOR SHEATHING: 3/4" APA RATED, EXT. GLUE, SPAN RATING 48/24
5. OSB WALL SHEATHING: STRUCTURAL I EXPOSURE I, SPAN RATING 24/0 (SEE SHEAR WALL SCHEDULE FOR THICKNESS)
6. LAMINATED VENEER LUMBER (LVL)
   A. MIN. FLEXURAL STRESS (F_b) — 2,600 PSI
   B. MIN. MODULUS OF ELASTICITY (E) — 1,900 KSI
   C. MIN. SHEAR STRESS (F_v) — 285 PSI
   D. MIN. COMP. STRESS - PERP. ($F_{c\text{-}perpendicular}$) — 750 PSI

COORDINATION/VERIFICATION

1. CONTRACTOR SHALL CHECK AND VERIFY ALL DIMENSIONS AND EXISTING CONDITIONS AND REPORT ANY DISCREPANCIES TO THE ENGINEER BEFORE PROCEEDING WITH ANY PHASE OF THE WORK.
2. ANY PROPRIETARY STRUCTURAL SYSTEMS THAT ARE COMPOSED OF COMPONENTS TO BE FIELD ERECTED SHALL BE SUPERVISED BY THE SUPPLIER DURING MANUFACTURING, DELIVERY, HANDLING, STORAGE, AND ERECTION IN ACCORDANCE WITH THE INSTRUCTIONS PREPARED BY THE SUPPLIER.
3. CROSS REFERENCE STRUCTURAL DRAWINGS WITH MECHANICAL AND ELECTRICAL DRAWINGS, AND WITH THE ACTUAL EQUIPMENT SUPPLIED TO THE PROJECT, FOR THE LOCATION AND SIZE OF ALL SLAB OPENINGS, SLEEVES, INSERTS, FLOOR DEPRESSIONS, BLOCK-OUTS, CURBS, ANCHORS, BOLTS, ETC. REQUIRED FOR INSTALLATION.
4. PROVIDE ADEQUATE STRUCTURAL FRAMING AS APPROVED BY THE ENGINEER FOR ALL REQUIRED MECHANICAL OPENINGS THROUGH SLABS, WALLS, FLOOR DECK, ETC., AND SUPPORT OF ALL MECHANICAL EQUIPMENT. OPENINGS SHALL NOT BE PERMITTED THROUGH BEAMS UNLESS SPECIFICALLY DETAILED BY THE ENGINEER.
5. REFER TO ARCHITECTURAL DRAWINGS FOR ALL SURFACE FINISHES, DIMENSIONS, AND LOCATIONS OF SLAB DROPS, MASONRY CONTROL JOINTS, AND WALL OPENING REQUIREMENTS.

GEOTECHNICAL

1. BASIS OF DESIGN: THE FOUNDATION SYSTEM DESIGN IS BASED ON THE RECOMMENDATIONS OF GEOTECHNICAL REPORT NO. _____ DATED _____ PREPARED BY
2. FOUNDATION SYSTEM: SHALLOW FOOTINGS
3. MAXIMUM ALLOWABLE SOIL BEARING CAPACITY — 2,500 PSF
4. LATERAL EARTH PRESSURE:
   A. PASSIVE RESISTANCE — 180 PCF
   B. ACTIVE PRESSURE — 50 PCF
   C. AT-REST PRESSURE — 65 PCF
5. SUBGRADE PREPARATION:
   A. HEAVILY ORGANIC OR ROOT INFESTED TOPSOIL SHALL BE EXCAVATED AND DISCARDED OR STOCKPILED FOR LATER USE IN COVERING FINISHED LANDSCAPED AREAS AFTER CONSTRUCTION. REMOVE TOPSOIL TO A MINIMUM DEPTH OF 8 INCHES. DEEPER STRIPPING SHALL BE DONE IF ORGANIC MATERIALS REMAIN BELOW A DEPTH OF 8 INCHES.
   B. REMOVE ALL EXISTING STRUCTURES TO BE DEMOLISHED PRIOR TO GRADING. THIS INCLUDES PAVING, SIDEWALKS, AND OTHER MISCELLANEOUS SMALL STRUCTURES.
6. OVEREXCAVATION REQUIREMENTS:
   A. _____[delete if not applicable]
7. SURCHARGE REQUIREMENTS:
   A. _____[delete if not applicable]
8. STRUCTURAL FILL REQUIREMENTS:
   A. CLEAN, INORGANIC, LOW TO MEDIUM PLASTICITY LEAN CLAY (CL) OR SILT (ML), OR A COMBINATION OF THESE TWO MATERIALS
   B. MAXIMUM LIQUID LIMIT (LL) — 45
   C. MAXIMUM PLASTICITY INDEX — 22
   D. WATER CONTENT (% OF OPTIMUM) — +/-3%
   E. MAXIMUM LOOSE LIFT — 8"
   F. MINIMUM COMPACTION — 95% (STANDARD PROCTOR TEST ASTM D-698)
9. SPREAD FOOTINGS SHALL BE PLACED ON NEAT, CLEAN AND DRY EXCAVATIONS. EXTREME CARE SHALL BE TAKEN WHEN EXCAVATING NEAR THE BEARING SURFACE. FOOT TRAFFIC SHALL BE KEPT TO A MINIMUM NECESSARY TO PLACE THE FOOTING REINFORCEMENT AND CONCRETE.
10. CONTRACTOR SHALL PROVIDE FOR ADEQUATE DRAINAGE OF SURFACE WATER AWAY FROM THE STRUCTURE AND EXCAVATED AREAS DURING CONSTRUCTION. THIS INCLUDES NECESSARY PUMPING, TRENCHING, BACKFILL AND/OR DIKE CONSTRUCTION.
11. GRANULAR SUBBASE UNDER SLAB ON GRADE:
   A. MINIMUM THICKNESS — SEE PLAN
   B. MINIMUM COMPACTION — 95% (STANDARD PROCTOR TEST ASTM D-698)
   C. GRADATION REQUIREMENTS
      a. 100% PASSING THE 3/4" SIEVE
      b. LESS THAN 15% PASSING THE 100 SIEVE
      c. LESS THAN 2% PASSING THE 200 SIEVE

CAST-IN-PLACE CONCRETE (033000)

GENERAL CONCRETE REQUIREMENTS

1. CONCRETE BATCH DESIGN(S) SHALL BE PROPORTIONED AND PRODUCED IN ACCORDANCE WITH ACI 318, IN PARTICULAR CHAPTER 5, AND ACI 301. MIX AND DELIVER IN ACCORDANCE WITH ASTM C94.
2. CONCRETE STRENGTH: SEE MATERIAL DATA NOTES
3. SLUMP LIMITS
   A. GRADE SUPPORTED SLABS, SUSPENDED SLABS AND CONCRETE TOPPINGS: 5 INCHES OF SLUMP, PLUS OR MINUS 1 INCH.
   B. CONCRETE WITH PLASTICIZERS: 8 INCHES OF SLUMP, PLUS OR MINUS 1 INCH.
   C. ALL OTHER CONCRETE: 4 INCHES OF SLUMP, PLUS OR MINUS 1 INCH.
4. MAXIMUM W/C RATIO: 0.45
5. AIR ENTRAINMENT:
   A. GRADE SUPPORTED SLABS, SUSPENDED SLABS AND CONCRETE TOPPINGS: DO NOT ALLOW AIR CONTENT OF TROWEL-FINISHED FLOORS TO EXCEED 3%.
   B. CONCRETE EXPOSED TO WEATHER: 5% MINIMUM AIR CONTENT
   C. ALL OTHER CONCRETE: 5.5% AIR CONTENT, PLUS OR MINUS 1.5%.
6. ADMIXTURES: SUBMIT AS REQUIRED FOR APPROVAL
7. FLY ASH: MAX. 25% OF CEMENT CONTENT
8. CONSTRUCTION JOINTS MUST HAVE PRIOR REVIEW BY THE ENGINEER. ALL CONTINUOUS REINFORCING SHALL BE CARRIED THROUGH THE JOINT.
9. CONSTRUCTION JOINT LOCATIONS:
   A. SPANNING MEMBERS — NEAR MIDSPAN
   B. FND WALLS AND FOOTINGS — MIDWAY BETWEEN COLUMNS
   C. WALLS — DO NOT ALIGN WITH FOOTING JOINTS
10. CONCRETE TO CONCRETE COLD JOINTS - PROVIDE 1/4" INTENTIONALLY ROUGHENED SURFACE AT ALL HORIZONTAL JOINTS.
11. EXPOSED CORNERS: PROVIDE A MINIMUM OF 8 INCHES BEARING AT EACH END.
12. CURING: CONCRETE SHALL BE MAINTAINED IN A MOIST CONDITION FOR A MINIMUM OF SEVEN DAYS AFTER ITS PLACEMENT. IF FORMWORK IS REMOVED PRIOR TO SEVEN DAYS, APPLY MOIST CURING TO NEWLY EXPOSED SURFACES. APPROVED CURING COMPOUNDS MAY BE USED IN LIEU OF MOIST CURING.
13. REINFORCING BAR WELDING: ABSOLUTELY NO WELDING OF REINFORCING BARS OR TORCHING TO BEND REINFORCING BARS SHALL BE ALLOWED WITHOUT THE SPECIFIC APPROVAL OF THE ENGINEER.
14. MINIMUM CONCRETE CLEAR COVER:
   A. FOOTINGS
      a. TOP — 2"
      b. BOTTOM — 3"
      c. SIDES — 3"
   B. FOUNDATION WALLS
      a. TOP — 1-1/2"
      b. BOTTOM — 3"
      c. SIDES — 2"
   C. GIRDERS/BEAMS/JOISTS — 1-1/2"
   D. INTERIOR SLABS (TOP) — SEE TYPICAL SLAB JOINT DETAIL ON SHEET S2-01
   E. EXTERIOR SLABS (TOP) — 2"
   F. OTHER COVER REQUIREMENTS SHALL BE AS NOTED IN APPLICABLE DETAILS.
15. BAR SUPPORT ACCESSORIES SHALL BE PROVIDED IN ACCORDANCE WITH THE LATEST ACI/CRSI STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES
   A. BEAM REINFORCING: ON BAR BOLSTERS @ 4 FT. O.C. MAX.
   B. SLAB REINFORCING: ON BAR BOLSTERS @ 4 FT. O.C. MAX.
   C. CONCRETE EXPOSED TO VIEW USE PLASTIC COATED OR GALV. LEGS
   D. CONCRETE W/ SANDBLAST FINISH USE STAINLESS STEEL SUPPORTS
   E. NO ROOKS, CLAY TILE, OR CLAY BRICK SHALL BE USED TO SUPPORT REINFORCING.
16. NON-METALLIC, SHRINKAGE-RESISTANT GROUT
   A. GROUT SHALL MEET REQUIREMENTS OF ASTM C 1107
   B. GROUT SHALL BE FACTORY-PACKAGED, NON-METALLIC AGGREGATE GROUT
   C. GROUT SHALL BE NON-CORROSIVE AND NON-STAINING
   D. MIX GROUT WITH WATER TO CONSISTENCY SUITABLE FOR APPLICATION AND A 30-MINUTE WORKING TIME.
17. WATERSTOPS
   A. FLEXIBLE PVC WATERSTOPS: CE CRD-C 572, FOR EMBEDDING IN CONCRETE TO PREVENT PASSAGE OF FLUIDS THROUGH JOINTS. FACTORY FABRICATE CORNERS, INTERSECTIONS, AND DIRECTIONAL CHANGES. PVC WATERSTOP SHALL BE 6 INCHES BY 3/8 INCHES THICK, NONTAPERED.
   B. SELF-EXPANDING BUTYL STRIP WATERSTOPS: MANUFACTURED RECTANGULAR OR TRAPEZOIDAL STRIP, BUTYL RUBBER WITH SODIUM BENTONITE OR OTHER HYDROPHILIC POLYMERS, FOR ADHESIVE BONDING TO CONCRETE, 20 MM BY 1 INCH.
18. VOID FILL: FOAM MATERIAL USED FOR VOID FILL SHALL BE RIGID CELLULAR, EXTRUDED POLYSTYRENE INSULATION COMPLYING WITH ASTM C578, TYPE IV, 25 PSI COMPRESSIVE STRENGTH MINIMUM.
19. REINFORCING SHOP DRAWINGS: REINFORCING SUPPLIER SHALL PROVIDE COMPLETE PLACEMENT AND FABRICATION DRAWINGS FOR ALL REINFORCING INCLUDING THE LOCATION AND SIZE OF ALL ACCESSORIES AND SUPPORTS.
20. CONCRETE TESTING SHALL BE PERFORMED ACCORDING TO THE FOLLOWING REQUIREMENTS:
   A. TESTING FREQUENCY: OBTAIN ONE COMPOSITE SAMPLE FOR EACH DAY'S POUR FOR EACH CONCRETE MIXTURE EXCEEDING 5 CUBIC YARDS, BUT LESS THAN 25 CUBIC YARDS, PLUS ONE SET FOR EACH ADDITIONAL 50 CUBIC YARDS OR FRACTION THEREOF.
21. CONCRETE SHALL BE PLACED WITHIN 90 MINUTES OF ADDING WATER. CONTRACTOR SHALL REJECT ANY CONCRETE THAT HAS BEEN IN THE MIXING TRUCK MORE THAN 90 MINUTES AFTER ADDING WATER.

SLAB ON GRADE REQUIREMENTS

1. SLAB THICKNESS: SEE PLAN
2. SLAB REINFORCING: SEE PLAN
3. GRANULAR SUBBASE: SEE GEOTECHNICAL NOTES
4. VAPOR RETARDER: ASTM E 1745, CLASS A. SEE PLAN FOR THICKNESS. LAP AND TAPE ALL JOINTS AND HOLES.
5. CRACK CONTROL JOINTS (WHETHER CONSTRUCTION JOINTS OR SAWED JOINTS) IN SLABS ON GRADE SHALL OCCUR AS SHOWN AND ACROSS ALL DOOR OPENINGS. LOCATE JOINTS AT RE-ENTRANT CORNERS OF SLABS.
   A. MAXIMUM SPACING OF CONTROL JOINTS: 12 FEET
6. CURING: CONCRETE SHALL BE MAINTAINED IN A MOIST CONDITION FOR A MINIMUM OF SEVEN DAYS AFTER ITS PLACEMENT. APPROVED CURING COMPOUNDS MAY BE USED IN LIEU OF MOIST CURING. CURING COMPOUNDS SHALL BE NON-RESIDUAL TYPE AND COMPATIBLE WITH BONDING OF FLOOR COVERING AND/OR SPECIFIED SEALER.
7. SEAL ALL EXPOSED CONSTRUCTION/CRACK CONTROL JOINTS.
   A. SEALANT: SEE ARCHITECTURE.
8. FLOOR FINISH CRITERIA:
   A. COMPLY WITH ACI 302.1R RECOMMENDATIONS FOR SCREEDING, RESTRAIGHTENING, AND FINISHING OPERATIONS FOR CONCRETE SURFACES. DO NOT WET CONCRETE SURFACES.
   B. SCRATCH FINISH:
      a. APPLY TO SURFACES TO RECEIVE CONCRETE FLOOR TOPPINGS AND TO RECEIVE MORTAR SETTING BEDS FOR BONDED CEMENTITIOUS FLOOR FINISHES.
      b. WHILE STILL PLASTIC, TEXTURE CONCRETE SURFACE WITH STIFF BRUSHES, BROOMS, OR RAKES TO PRODUCE A PROFILE DEPTH OF 1/4 INCH IN ONE DIRECTION.
   C. FLOAT FINISH:
      a. APPLY TO SURFACES TO RECEIVE TROWEL FINISH AND TO BE COVERED WITH FLUID APPLIED WATERPROOFING, BUILT-UP OR MEMBRANE ROOFING, OR SAND-BED TERRAZZO.
      b. WHEN BLEEDWATER SHEEN HAS DISAPPEARED AND CONCRETE SURFACE HAS STIFFENED SUFFICIENTLY, CONSOLIDATE CONCRETE SURFACE WITH POWER-DRIVEN FLOATS OR BY HAND FLOATING.
   D. TROWEL FINISH:
      a. APPLY TO SURFACES EXPOSED TO VIEW OR TO BE COVERED WITH RESILIENT FLOORING, CARPET, CERAMIC OR QUARRY TILE SET OVER A CLEAVAGE MEMBRANE OR A THIN-FILM-FINISH COATING SYSTEM.
      b. AFTER APPLYING FLOAT FINISH, CONSOLIDATE CONCRETE BY HAND OR POWER-DRIVEN TROWEL. CONTINUE TROWELING PASSES AND RESTRAIGHTEN UNTIL SURFACE IS FREE OF TROWEL MARKS AND UNIFORM IN TEXTURE.
   E. TROWEL AND FINE-BROOM FINISH:
      a. APPLY TO SURFACES WHERE CERAMIC OR QUARRY TILE IS TO BE INSTALLED BY EITHER THICKSET OR THINSET METHOD.
      b. WHILE CONCRETE IS STILL PLASTIC AND AFTER FIRST TROWEL, SLIGHTLY SCARIFY SURFACE WITH A FINE BROOM PERPENDICULAR TO MAIN TRAFFIC ROUTE.
   F. BROOM FINISH:
      a. APPLY TO EXTERIOR CONCRETE PLATFORMS, STEPS, AND RAMPS.
      b. IMMEDIATELY AFTER FLOAT FINISHINGK, SLIGHTLY ROUGHEN TRAFFICKED SURFACE BY BROOMING WITH FIBER-BRISTLE BROOM PERPENDICULAR TO THE MAIN TRAFFIC ROUTE.
9. FLATNESS CRITERIA: OVERALL VALUES OF FLATNESS, F(F) 35; AND OF LEVELNESS, F(L) 25; WITH MINIMUM LOCAL VALUES OF FLATNESS, F(F) 24; AND OF LEVELNESS, F(L) 17.

ANCHORAGE REQUIREMENTS

1. HEADED CONCRETE ANCHORS (HCA): AUTOMATICALLY END WELDED IN THE SHOP OR FIELD IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. ANCHOR WELDS SHALL BE TESTED PER AWS SECTION 7.7.
2. POST-INSTALLED MECHANICAL ANCHORS: INSTALL USING MINIMUM TORQUE, EMBEDMENTS, EDGE DISTANCES AND SPACING (UNLESS OTHERWISE NOTED) AS RECOMMENDED BY THE ANCHOR MANUFACTURER.
3. POST-INSTALLED ADHESIVE ANCHORS: INSTALLATION TO MEET MANUFACTURER'S RECOMMENDATIONS (UNLESS NOTED OTHERWISE) INCLUDING MINIMUM EMBEDMENTS, EDGE DISTANCES, SPACING, PROCEDURES, AND CURING TIME PRIOR TO LOADING.
4. POST-INSTALLED ANCHORS SHALL BE LOCATED PER THE DETAILS.
5. AVOID CUTTING OR DAMAGING EXISTING REINFORCING. SHOULD LOCATIONS OF DRILLED HOLES BE FOUND DIRECTLY ALIGNED WITH REINFORCING BARS, NOTIFY ENGINEER FOR NECESSARY ADJUSTMENTS TO THE DESIGN.

UNIT MASONRY (042000)

1. DESIGN CRITERIA: MASONRY SHALL BE CONSTRUCTED PER THE REQUIREMENTS OF ACI 530.
2. UNIT TYPES: REFER TO ARCHITECTURAL DRAWINGS FOR CONCRETE MASONRY UNIT SIZE, FACE, COLOR, JOINTING, ECT.
3. UNIT COMPRESSIVE STRENGTH: SEE MATERIAL DATA NOTES
4. MORTAR: SEE MATERIAL DATA NOTES
5. GROUT: SEE MATERIAL DATA NOTES
6. CMU REINFORCING: UNLESS NOTED OTHERWISE, REINFORCE ALL CMU WALLS WITH VERTICAL #5 @ 32" O.C. FILL ALL REINFORCED CELLS WITH GROUT. MINIMUM GROUT BETWEEN MASONRY AND REINFORCING SHALL BE 1/2". MINIMUM GROUT BETWEEN PAIRS OF REINFORCING BARS SHALL BE 3/4".
   A. PROVIDE #5 VERTICAL REINFORCING AT THE FOLLOWING LOCATIONS:
      a. AT ALL CORNERS OF CMU WALLS
      b. AT ALL ENDS OF CMU WALLS
      c. EACH SIDE OF CONTROL JOINTS
      d. EACH SIDE OF WALL OPENINGS
   B. SEE ARCHITECTURAL DRAWINGS FOR LOCATIONS OF CONTROL JOINTS.
7. BOND BEAMS
   A. LOCATED AT TOP OF ALL CMU WALLS AND WHERE INDICATED IN DETAILS
   B. MINIMUM DEPTH UNLESS OTHERWISE NOTED = 8".
   C. REINFORCING - (2) #4 CONTINUOUS. LAP SPLICE = 28 IN.
   D. CORNER DOWELS - (2) #4 RIGHT ANGLE DOWELS THAT LAP A MINIMUM OF 2'-0" WITH ADJACENT BOND BEAM REINFORCING. IF BOND BEAMS AT INTERSECTING WALLS MEET AT DIFFERENT ELEVATIONS, EXTEND BOTH BOND BEAMS AROUND INTERSECTING CORNER TO FIRST INTERIOR REINFORCED CELL, BUT NOT LESS THAN 4 FEET.
   E. EXTEND BOND BEAMS THROUGH CONTROL JOINTS, BUT INTERRUPT BOND BEAM REINFORCING AT CONTROL JOINTS.
8. LINTEL BEARING: PROVIDE A MINIMUM OF 8 INCHES BEARING AT EACH END.
9. CONTROL JOINTS: EXCEPT WHERE OFFSETS OR SLIP JOINTS ARE SHOWN, CONTROL JOINTS SHALL BE A CONTINUOUS VERTICAL LINE FROM TOP OF FOOTING TO TOP OF MASONRY WALL. SPACE CONTROL JOINTS AS FOLLOWS:
   A. INTERIOR WALLS — 36 FT. O.C. MAX.
   B. EXTERIOR WALLS — 24 FT. O.C. MAX.
10. COLD WEATHER MASONRY CONSTRUCTION: CONFORM TO "RECOMMENDED PRACTICES AND GUIDE SPECIFICATIONS FOR COLD WEATHER MASONRY CONSTRUCTION" BY INTERNATIONAL MASONRY INDUSTRY ALL-WEATHER COUNCIL.

STRUCTURAL STEEL FRAMING (051200)

GENERAL STRUCTURAL STEEL REQUIREMENTS

1. DESIGN CRITERIA: STRUCTURAL STEEL SHALL BE INSTALLED PER THE REQUIREMENTS OF AISC 360.
2. STRUCTURAL STEEL GRADES: SEE MATERIAL DATA NOTES
3. ANCHOR AND BOLT GRADES: SEE MATERIAL DATA NOTES
4. WELD ELECTRODES: SEE MATERIAL DATA NOTES
5. BEARING CONNECTIONS: UNLESS OTHERWISE NOTED, ALL BEAM CONNECTIONS SHALL BE SIMPLE FRAMED SHEAR BEARING CONNECTIONS IN ACCORDANCE WITH THE AISC "SPECIFICATIONS FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS.
6. DESIGN OF CONNECTIONS: BEAM CONNECTIONS SHALL BE AS DETAILED ON THE PLANS. ALTERNATIVE CONNECTIONS, DESIGNED BY A LICENSED ENGINEER FOR THE FABRICATOR, MAY BE UTILIZED PROVIDED THE ALTERNATIVE CONNECTION PROVIDES THE SAME SHEAR CARRYING CAPACITY OF THE ORIGINAL DESIGN.
7. SPLICES: STEEL FABRICATOR SHALL VERIFY WITH ENGINEER ALL BEAM SPLICES OTHER THAN THOSE SHOWN ON THE PLANS. ANY FULL PENETRATION SHOP SPLICES APPROVED BY THE ENGINEER SHALL BE INSPECTED BY RADIOGRAPHIC METHODS BY A TESTING LABORATORY APPROVED BY THE ENGINEER AND PAID FOR BY THE FABRICATOR.
8. OPPOSING CONNECTIONS: WHERE BEAMS ARE BOLTED ON TWO SIDES OF A COMMON PLATE OR WEB, THE CONNECTIONS SHALL BE DETAILED WITH AN ADDITIONAL ROW OF BOLTS ON ONE SIDE THAT IS NOT SHARED WITH THE OTHER SIDE TO ALLOW INDEPENDENT BOLTING DURING ERECTION.
9. STEEL PROTECTION: ALL STRUCTURAL STEEL SHALL BE CLEANED PER SSPC SP-2 HAND TOOL CLEANING OR SP-3 POWER TOOL CLEANING AND SHOP PAINTED WITH ONE COAT OF MANUFACTURER'S STANDARD GRAY PRIMER. TOUCH UP SCARRED AREAS WITH THE SAME PAINT AFTER ERECTION.
10. STEEL PROTECTION: WHERE STEEL IS INDICATED AS GALVANIZED, PROVIDE HOT-DIPPED GALVANIZED SURFACE PER ASTM A123, CLASS [C60] [G90]. WHERE WELDING OR OTHER CONSTRUCTION OPERATIONS DAMAGE GALVANIZING, PROVIDE ZINC CHROMATE-TYPE TOUCH UP PAINT TO DAMAGED AREA.
11. SHOP DRAWINGS: STEEL FABRICATOR SHALL PROVIDE COMPLETE ERECTION AND FABRICATION DRAWINGS SHOWING ALL MEMBERS AND CONNECTIONS.
12. SLIDE BEARINGS: WHERE SHOWN