GENERAL

1. THESE GENERAL NOTES ARE NOT INTENDED TO REPLACE SPECIFICATIONS. SEE SPECIFICATIONS FOR REQUIREMENTS IN ADDITION TO GENERAL NOTES.
2. THE STRUCTURAL DRAWINGS AND SPECIFICATIONS REPRESENT THE FINISHED STRUCTURE, AND, EXCEPT WHERE SPECIFICALLY SHOWN, DO NOT INDICATE THE METHOD OR MEANS OF CONSTRUCTION. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK AND SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, PROCEDURES, TECHNIQUES, AND SEQUENCE. ALL APPLICABLE SAFETY REGULATIONS TO BE FOLLOWED STRICTLY.
3. THE STRUCTURE HAS BEEN DESIGNED TO RESIST DESIGN LOADS ONLY AS A COMPLETED STRUCTURE. APPLICATIONS OF CONSTRUCTION LOADS TO THE PARTIALLY COMPLETED STRUCTURE SHALL BE CONSIDERED BY THE CONTRACTOR AND SO INCLUDED IN THE DESIGN OF SHORING, BRACING, FORMWORK, AND ANY OTHER SUPPORTING ELEMENTS PROVIDED FOR CONSTRUCTION OF THE STRUCTURE. DURING ERECTION AND UNTIL ALL PERMANENT CONNECTIONS ARE MADE, THE CONTRACTOR MUST PROVIDE TEMPORARY BRACING FOR THE STRUCTURE IN ALL DIRECTIONS.
4. THE CONTRACTOR SHALL CHECK AND VERIFY ALL DIMENSIONS AND GRADE CONDITIONS (BOTH NEW AND EXISTING), REPORTING ANY DISCREPANCIES TO THE ARCHITECT PRIOR TO ORDERING MATERIALS OR PROCEEDING WITH ANY PHASE OF THE WORK.
5. THE CONTRACTOR SHALL COMPARE STRUCTURAL SECTIONS WITH ARCHITECTURAL SECTIONS AND REPORT ANY DISCREPANCY TO THE ARCHITECT PRIOR TO FABRICATION OR INSTALLATION OF STRUCTURAL MEMBERS.
6. DO NOT SCALE DIMENSIONS FROM DRAWINGS. THE CONTRACTOR SHALL REQUEST, FROM THE ARCHITECT, NECESSARY DIMENSIONS NOT SHOWN ON THE DRAWINGS.
7. IF ANY BIDDER IS IN DOUBT AS TO THE INTENT OF THE PLANS OR SPECIFICATIONS, THEY SHALL REQUEST AN INTERPRETATION FROM THE ARCHITECT IN WRITING AT LEAST TEN (10) DAYS PRIOR TO THE SCHEDULED BID DATE.
8. PRINCIPAL OPENINGS IN THE STRUCTURE ARE SHOWN ON THESE DRAWINGS. THE GENERAL CONTRACTOR SHALL EXAMINE THE ARCHITECTURAL MECHANICAL, ELECTRICAL, AND PLUMBING DRAWINGS FOR REQUIRED OPENINGS AS THEY SHALL BE PROVIDED FOR WHETHER SHOWN ON THESE DRAWINGS OR NOT. GENERAL CONTRACTOR SHALL VERIFY SIZE AND LOCATION OF ALL OPENINGS WITH ALL SUB-CONTRACTORS PRIOR TO CONSTRUCTION.
9. SEE ARCHITECTURAL DRAWINGS FOR FLOOR ELEVATIONS, FLOOR SLOPES, AND THE LOCATION OF DEPRESSED FLOOR AREAS.
10. WHERE A CONFLICT BETWEEN DRAWINGS AND SPECIFICATIONS OCCURS THE MORE STRINGENT REQUIREMENT SHALL APPLY.
11. WHERE A DETAIL IS SHOWN FOR ONE CONDITION, IT SHALL APPLY FOR ALL LIKE OR SIMILAR CONDITIONS EVEN THOUGH NOT SPECIFICALLY REFERENCED ON THE DRAWINGS.
12. SEVERAL ITEMS NOTED HEREIN AND IN THE SPECIFICATIONS REQUIRE THE CONTRACTOR TO ENGAGE A PROFESSIONAL ENGINEER LICENSED IN THE STATE IN WHICH THE PROJECT IS LOCATED, TO PROVIDE DESIGN AND/OR DETAILING OF STRUCTURAL ELEMENTS. SEE INDIVIDUAL NOTES AND SPECIFICATION SECTIONS FOR ADDITIONAL INFORMATION AND REQUIREMENTS. DELEGATED DESIGN ELEMENTS INCLUDE, BUT ARE NOT LIMITED TO:
    - ☐ SPECIALTY FOUNDATION SYSTEM
    - ☐ POST-TENSIONED CONCRETE
    - ☐ STRUCTURAL PRECAST CONCRETE
    - ☐ ARCHITECTURAL PRECAST CONCRETE
    - ☒ STRUCTURAL STEEL (CONNECTIONS)
    - ☐ PREFABRICATED METAL BUILDING
    - ☐ STEEL STAIRS AND RAILINGS
    - ☒ STEEL JOISTS AND STEEL JOIST GIRDERS
    - ☐ ROOF ANCHORS
    - ☒ NON-LOAD BEARING COLD-FORMED STEEL
    - ☐ LOAD BEARING COLD-FORMED STEEL
    - ☐ LIGHT GAUGE COLD-FORMED STEEL TRUSSES
    - ☐ PREFABRICATED WOOD TRUSSES
    - ☒ MAPES PRE-ENGINEERED CANOPY

DESIGN CRITERIA

1. APPLICABLE CODES:
   2018 NORTH CAROLINA STATE BUILDING CODE (2015 INTERNATIONAL BUILDING CODE WITH REVISIONS)
   MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES (ASCE/SEI 7-10)
   BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE (ACI 318-14)
   BUILDING CODE REQUIREMENTS|SPECIFICATIONS FOR MASONRY STRUCTURES (ACI 530|530.1-13)
   SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS (AISC 360-10)
   NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION (ANSI/AWC NDS-2015)
   NORTH AMERICAN SPECIFICATION FOR THE DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS (AISI S100-12)
2. LIVE LOADS:

	UNIFORM (PSF)	CONCENTRATED (LB)
CORRIDORS (GROUND)	100	2,000
MECHANICAL	150	NA
ROOF	20	300

   RISK CATEGORY: IV
3. SNOW LOAD:
   GROUND SNOW LOAD p_g = 10 PSF
   IMPORTANCE FACTOR I_s = 1.20
   SNOW EXPOSURE FACTOR C_e = 1.00
   THERMAL FACTOR C_t = 1.00
   FLAT SNOW ROOF LOAD p_f = 10 PSF
4. WIND LOAD:
   ULTIMATE DESIGN WIND SPEED V_{ult} = 136 MPH
   NOMINAL DESIGN WIND SPEED V_{asd} = 103 MPH
   EXPOSURE CATEGORY C
   INTERNAL PRESSURE COEFFICIENTS ±0.18
   E911 WING V_x = 33k V_y = 54k
   MAIN BUILDING V_x = 132k V_y = 83k
   EMS WING V_x = 31k V_y = 70k
   COMPONENTS AND CLADDING -
   ALL BUILDING COMPONENTS AND CLADDING ENGINEERED BY THE COMPONENT MANUFACTURER ARE TO BE DESIGNED BY THE MANUFACTURER'S ENGINEER FOR WIND LOADS DETERMINED PER THE GOVERNING BUILDING CODE FOR THE BASIC DESIGN WIND VELOCITY AND EXPOSURE CATEGORY LISTED ABOVE.

ROOF		10SF	20SF	50SF	100SF
ZONE	1	17.9/-44.0	16.8/-42.9	15.3/-41.4	14.2/-40.3
	2	40.3/-73.8	38.5/-66	36.1/-55.6	34.4/-47.7
	3	40.3/-73.8	38.5/-66	36.1/-55.6	34.4/-47.7
WALL					
ZONE	4	40.3/-43.6	38.5/-41.9	36.1/-39.5	34.4/-37.7
	5	40.3/-53.7	38.5/-50.1	36.1/-45.4	34.4/-41.9

5. SEISMIC LOAD:
   DESIGN METHOD - EQUIVALENT LATERAL FORCE PROCEDURE (VALUES BASED ON ASCE 7-16)
   S_S 13.7 %g
   S_1 6.4 %g
   S_{DS} 14.6 %g
   S_{D1} 10.2 %g
   IMPORTANCE FACTOR I_e = 1.50
   SITE CLASS D
   SEISMIC DESIGN CATEGORY C
   SEISMIC FORCE-RESISTING SYSTEM -
   INTERMEDIATE REINFORCED MASONRY SHEAR WALLS AND STEEL SYSTEMS NOT SPECIFICALLY DETAILED FOR SEISMIC RESISTANCE
   RESPONSE MODIFICATION COEFFICIENT R_x = 3.5, 3.0 R_y = 3.5, 3.0
   DEFLECTION AMPLIFICATION FACTOR C_{dx} = 2.25, 3.0 C_{dy} = 2.25, 3.0
   SEISMIC RESPONSE COEFFICIENT C_{sx} = .063/.073 C_{sy} = .063/.073
   BASE SHEAR
   E911 WING V_x = 16k V_y = 16k
   MAIN BUILDING V_x = 41k V_y = 41k
   EMS WING V_x = 55k V_y = 55k
   NONSTRUCTURAL COMPONENT ANCHORAGE -
   ALL ARCHITECTURAL, ELECTRICAL, MECHANICAL, AND PLUMBING COMPONENTS ARE TO BE ATTACHED AS REQUIRED BY ASCE/SEI 7 CHAPTER 13, "SEISMIC DESIGN REQUIREMENTS FOR NONSTRUCTURAL COMPONENTS". EACH INDIVIDUAL CONTRACTOR RESPONSIBLE FOR THE COMPONENT MUST PROVIDE PROJECT SPECIFIC DESIGN AND DOCUMENTATION PREPARED BY AN ENGINEER LICENSED IN THE STATE IN WHICH THE PROJECT IS LOCATED. CHAPTER 13 DEFINES THE FORCE REQUIRED TO SUPPORT THE COMPONENT FOR THE ANCHORAGE AND BRACING. THE COST OF PREPARING THIS INFORMATION AND DESIGN SHALL BE INCLUDED IN EACH CONTRACTOR'S BID THAT IS PROVIDING THE COMPONENT.
6. FUTURE LOADS:
   UNLESS SPECIFICALLY NOTED, THERE ARE NO PROVISIONS MADE FOR FUTURE FLOORS, ROOFS, OR OTHER LOADS.

FOUNDATIONS

1. FOUNDATION DESIGN IS BASED ON THE GEOTECHNICAL INVESTIGATION REPORT BY:
   S&ME, INC, DATED APRIL 30, 2020 (PROJECT #1305-20-023)
   THE DESIGN ALLOWABLE SOIL BEARING PRESSURE IS 2,000 PSF, BASED ON THIS REPORT.
2. FOOTINGS SHALL BE CARRIED TO LOWER ELEVATIONS THAN THOSE SHOWN ON THE DRAWINGS IF REQUIRED BY THE GEOTECHNICAL ENGINEER OR TESTING LAB TO REACH SOIL CAPABLE OF PROVIDING THE DESIGN ALLOWABLE SOIL BEARING PRESSURE.
3. MINIMUM SUBGRADE PREPARATION REQUIREMENTS ARE AS FOLLOWS:
   PREPARE SUBGRADE AND UNDERFLOOR FILL TO A POINT THAT EXTENDS 5'-0" (MINIMUM) BEYOND THE LIMITS OF THE FOUNDATIONS.
   COMPACT ALL FILL UNDER BUILDING TO 95% MAXIMUM DENSITY AS DETERMINED BY ASTM D698 AND TO 98% MAXIMUM DENSITY WITHIN THE UPPER 18".
   PLACE IN LAYERS OF 8" (MAXIMUM) LOOSE THICKNESS.
   FIELD COMPACTION SHALL BE VERIFIED WITH AT LEAST ONE TEST PER 2,000 SQUARE FEET PER LAYER, IN ACCORDANCE WITH ASTM D1556 (SAND-CONE METHOD), ASTM D6938 (NUCLEAR METHODS, SHALLOW DEPTH), ASTM D2167 (RUBBER BALLOON METHOD), AND/OR ASTM D2937 (DRIVE-CYLINDER METHOD). SEE SPECIFICATIONS FOR OTHER TESTING REQUIREMENTS.
4. WALLS RETAINING SOIL SHALL BE TEMPORARILY BRACED DURING BACKFILLING AND UNTIL ALL SUPPORTING SOIL AND SLABS ARE IN PLACE AND ARE AT DESIGN STRENGTH UNLESS NOTED OTHERWISE ON PLANS AND DETAILS.
5. UTILITY LINES SHALL NOT BE PLACED THROUGH OR BELOW FOUNDATIONS WITHOUT APPROVAL OF THE STRUCTURAL ENGINEER. CONTRACTOR SHALL SUBMIT DETAILED DRAWINGS OF ALL SUCH CONDITIONS PRIOR TO CONSTRUCTION.
6. SOIL SUBGRADE MUST BE CHEMICALLY STABILIZED TO PRODUCE A MINIMUM 12" THICK CHEMICALLY STABILIZED LAYER.
7. SITE GRADES SHOULD BE RAISED AT LEAST 3' AS NOTED IN THE GEOTECHNICAL REPORT.
8. SITE WORK EQUIPMENT AND GROUND WATER MUST BE MANAGED AND DRAINAGE DITCHES INSTALLED AS RECOMMENDED IN THE GEOTECHNICAL REPORT.

CONCRETE | REINFORCING STEEL

1. ALL CONCRETE DESIGN AND CONSTRUCTION SHALL CONFORM TO THE REFERENCED EDITION OF THE BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE (ACI 318).
2. CONCRETE MIXTURES AS REQUIRED (BASED ON CLASS DESIGNATION):

CLASS A - FOOTINGS, GRADE/TIE BEAMS	NWC	3,000 PSI
CLASS C - INTERIOR SLABS ON GRADE	NWC	3,000 PSI
CLASS F - EXTERIOR SLABS ON GRADE, PADS, TOPPINGS	NWC	4,500 PSI
CLASS J - EXTERIOR RETAINING WALLS	NWC	4,500 PSI

3. REINFORCING:
   TYPICAL - ASTM A615, GRADE 60
   REINFORCING TO BE WELDED - ASTM A706
   DEFORMED BAR ANCHORS - ASTM A496
   WELDED WIRE FABRIC - ASTM A1064 (FLAT SHEETS ONLY)
4. GROUT UNDER BASE PLATES TO BE HIGH STRENGTH (5,000 PSI), NON-SHRINK.
5. REFER TO THE DRAWINGS FOR REINFORCING LAP REQUIREMENTS. WHERE LAP SPLICES ARE NOT SHOWN, LAP PER ACI 318 OR CRSI STANDARDS.
6. LAP WELDED WIRE FABRIC SHEETS 8" MINIMUM.
7. CLEAR COVER FROM FACE OF CONCRETE:
   CAST IN PLACE CONCRETE (MEASURE TO OUTERMOST REINFORCING) -
   CONCRETE CAST AGAINST AND EXPOSED TO EARTH 3"
   CONCRETE EXPOSED TO EARTH/WEATHER 2" FOR #6 BARS AND LARGER, 1 1/2" ELSE
   CONCRETE NOT EXPOSED TO EARTH/WEATHER 3/4" FOR SLABS AND WALLS, 1 1/2" (TO TIES) FOR BEAMS AND COLUMNS
   PROVIDE REINFORCING IN SLABS ON GRADE, 1-1/2" FROM TOP OF SLAB:
   4" SLABS 6x6-W2.1xW2.1
   6" SLABS #3@12"OC EACH WAY
   8" SLABS #4@12"OC EACH WAY
8. WHERE SCHEDULED BARS ARE NOT PRESENT, PROVIDE CONTINUOUS #5 TOP AND BOTTOM BARS TO SUPPORT STIRRUPS AS REQUIRED FOR THE LENGTH OF THE STIRRUP SPACING IN ALL BEAMS.
9. WALL FOOTING REINFORCING SHALL BE CONTINUOUS THROUGH ADJACENT COLUMN FOOTINGS.
10. PROVIDE VERTICAL DOVETAIL SLOTS AT 24"OC WITH TIES AT 16"OC VERTICALLY IN ALL CONCRETE WALLS BACKING-UP MASONRY VENEER.
11. BAR SUPPORTS FOR CONCRETE SLABS ON GRADE, TO BE PLACED BY BAR SUPPORTS WITH SAND PLATES, OR PRECAST CONCRETE BAR SUPPORTS AS DESCRIBED IN CHAPTER 3 OF THE CRSI MANUAL OF STANDARD PRACTICE. BAR SUPPORTS SHALL BE SPACED AT A MAXIMUM OF 4'-0"OC BOTH WAYS. ROCKS, CMU, OR CLAY BRICK WILL NOT BE USED AS SUPPORTS.
12. MECHANICAL AND ELECTRICAL CONDUIT IN SLABS ON GRADE AND ELEVATED SLABS SHALL RUN UNDER TOP LAYER OF SLAB REINFORCING. PROVIDE A MINIMUM OF 1-1/2" CLEAR BETWEEN CONDUITS AND BETWEEN REINFORCING AND ADJACENT CONDUITS PARALLEL TO REINFORCING. IF MAXIMUM SIZE OF CONDUIT EXCEEDS ONE THIRD OF THE SLAB DEPTH, ADDITIONAL FRAMING OR REINFORCING MAY BE NECESSARY AT ENGINEER'S DISCRETION.
13. HEADED CONCRETE ANCHOR STUDS, CONFORM TO THE REQUIREMENTS OF ASTM A108, GRADES 1010, 1015, 1017, OR 1020. STUDS SHALL BE AUTOMATICALLY END WELDED IN THE SHOP OR FIELD IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
14. EMBED PLATES MUST BE SET IN THE FORM BEFORE POURING CONCRETE, NOT PLACED INTO TOP OF WET CONCRETE. THE CONTRACTOR SHALL CONTACT THE ARCHITECT FOR CORRECTIVE DETAILS FOR ANY EMBED PLATES LEFT OUT OF CONCRETE POURS.
15. FOR SLABS ON GRADE, SLAB AND FOOTING REINFORCING SHALL BE HELD IN PLACE BY BAR SUPPORTS WITH SAND PLATES, OR PRECAST CONCRETE BAR SUPPORTS AS DESCRIBED IN CHAPTER 3 OF THE CRSI MANUAL OF STANDARD PRACTICE. BAR SUPPORTS SHALL BE SPACED AT A MAXIMUM OF 4'-0"OC BOTH WAYS. ROCKS, CMU, OR CLAY BRICK WILL NOT BE USED AS SUPPORTS.
16. THE CONTRACTOR SHALL ASSUME CONCRETE OVERAGES IN ELEVATED DECK POURS DUE TO MEMBER AND DECK DEFLECTIONS. UNLESS SHOWN ON PLANS, BEAMS ARE NOT CAMBERED. CONCRETE OVERAGES MAY BE CALCULATED BY THE CONTRACTOR FOR BEAM DEFLECTIONS EQUALING L/300 INCLUDING ADDITIONAL DEFLECTIONS DUE TO PONDING AND DECK DEFLECTIONS PER SDI.
17. REBAR SHALL NOT BE HEATED WITH A TORCH IN THE FIELD.
18. THE CONTRACTOR SHALL NOTIFY THE ARCHITECT/ENGINEER FAR ENOUGH IN ADVANCE (48 HOURS) OF EACH CONCRETE POUR TO ALLOW AMPLE TIME TO CHECK THE LAYOUT OF THE STEEL BEFORE THE BEGINNING OF THE ACTUAL POUR, BUT NOT PRIOR TO 90% OF THE STEEL HAVING BEEN PLACED.

CONCRETE CONSTRUCTION JOINTS

1. CONTRACTOR SHALL PROVIDE NECESSARY CONSTRUCTION JOINTS IN MONOLITHIC CONCRETE POURS SO THAT THE QUALITY OF PLACEMENT AND FINISH MEETS THE REQUIREMENTS OF PLANS AND SPECIFICATIONS. THE CONTRACTOR SHALL SUBMIT A PLAN SHOWING THE LOCATION OF ALL CONSTRUCTION JOINTS TO THE STRUCTURAL ENGINEER FOR APPROVAL.
2. THERE SHALL BE NO HORIZONTAL CONSTRUCTION JOINTS IN CONCRETE POURS. ALL VERTICAL CONSTRUCTION JOINTS IN SLABS AND BEAMS SHALL BE MADE WITH BULKHEADS. ADDITIONAL REINFORCING AT CONSTRUCTION JOINTS SHALL BE AS SPECIFIED BY THE STRUCTURAL ENGINEER. SEE TYPICAL CONSTRUCTION JOINT DETAILS.

STRUCTURAL MASONRY

1. ALL MASONRY DESIGN AND CONSTRUCTION SHALL CONFORM TO THE REFERENCED EDITION OF THE BUILDING CODE REQUIREMENTS|SPECIFICATIONS FOR MASONRY STRUCTURES (ACI 530|530.1).
2. LOAD BEARING MASONRY WALLS, PILASTERS, PIERS, RETAINING WALLS, FOUNDATION WALLS AND ANY OTHER MASONRY SO DESIGNATED ON DRAWINGS IS CONSIDERED HERE TO BE STRUCTURAL MASONRY.
3. REQUIRED COMPRESSIVE STRENGTH OF MASONRY UNITS:
   SOLID CLAY UNITS - 6,200 PSI
   CONCRETE UNITS - 2,000 PSI ON NET AREA
4. CONCRETE MASONRY UNITS (CMU) SHALL BE LIGHT WEIGHT (105 PCF) CONFORMING TO ASTM C90. REFER TO ARCHITECTURAL DRAWINGS AND SPECIFICATIONS FOR UNIT SIZE, FACE, COLOR, JOINTING, ETC.
5. MORTAR SHALL BE TYPE S, ASTM C270.
6. GROUT FOR REINFORCED MASONRY SHALL BE FINE GROUT, ASTM C476. MINIMUM 28-DAY COMPRESSIVE STRENGTH SHALL BE 2,000 PSI.
7. MINIMUM 28-DAY COMPRESSIVE STRENGTH (f'_m) OF THE MASONRY WALLS SHALL BE 2,000 PSI. MASONRY STRENGTH SHALL BE DETERMINED BY THE UNIT STRENGTH METHOD OR THE PRISM TEST METHOD AS DESCRIBED BY ACI 530.
8. REINFORCING:
   TYPICAL - ASTM A615, GRADE 60
   ALL REINFORCING TO BE WELDED - ASTM A706
9. REFER TO THE DRAWINGS FOR REINFORCING LAP TYPICAL DETAIL AND SCHEDULE REQUIREMENTS. WHERE LAP SPLICES ARE NOT SHOWN, LAP 72 BAR DIAMETERS.
10. MAXIMUM HEIGHT TO WHICH MASONRY SHALL BE LAID BEFORE GROUTING IS 5 FEET ABOVE CONSTRUCTION SURFACE OR PREVIOUSLY GROUTED MASONRY. IF GROUT POUR HEIGHT EXCEEDS 5 FEET, THEN "HIGH LIFT" GROUTING PROCEDURE MUST BE FOLLOWED. PROVIDE CLEANOUT OPENINGS AT THE BOTTOM OF EACH GROUT POUR HEIGHT. CLEANOUT OPENINGS SHALL BE PROVIDED AT EACH CELL TO BE FILLED WITH GROUT.
11. ALL GROUT PLACED OVER 12" IN HEIGHT SHALL BE MECHANICALLY CONSOLIDATED DURING GROUTING. GROUT SHALL BE RECONSOLIDATED BY MECHANICAL VIBRATION AFTER INITIAL WATER LOSS AND SETTLEMENT HAS OCCURRED.
12. MAXIMUM GROUT LIFT (GROUT POURED IN ONE CONTINUOUS OPERATION) IS 5 FEET. THIS LIMIT ALSO APPLIES TO "HIGH LIFT" GROUTING.
13. REINFORCE MASONRY WHERE SHOWN ON STRUCTURAL DRAWINGS. TIE REINFORCING IN POSITION AND PLACE GROUT AROUND REINFORCING. DO NOT PUSH REINFORCING DOWN INTO PREVIOUSLY PLACED GROUT FILL. SET BOLTS SIMILARLY.
14. TIE MASONRY WYTHES WITH HORIZONTAL REINFORCING AS SPECIFIED.
15. PROVIDE VERTICAL BARS, SIZE MATCHING WALL REINFORCING, AT ALL CORNERS, ENDS OF WALLS, EACH SIDE OF CONTROL JOINTS AND EACH SIDE OF WALL OPENINGS. TIE EACH BAR TO THE FOUNDATION WITH A MATCHING DOWEL.
16. ALL CORNERS AND INTERSECTIONS OF STRUCTURAL MASONRY WALLS SHALL BE CONSTRUCTED BY INTERLOCKING COURSES.
17. ALL LINTELS TO BEAR 8" MINIMUM EACH SIDE OF OPENING, UNLESS NOTED OTHERWISE.
18. GROUT ALL MASONRY WALLS AND CAVITY BELOW GRADE SOLID. GROUT ALL WALLS ABOVE GRADE AT THE REINFORCED CELLS (MINIMUM) OR AS INDICATED IN SPECIFIC SECTIONS.
19. ONE 3/4"Ø (MAXIMUM) VERTICAL CONDUIT ALLOWED IN ANY REINFORCED CELL PROVIDED 1" CLEAR IS MAINTAINED BETWEEN REINFORCING AND CONDUIT. NO OTHER VERTICAL OR HORIZONTAL CONDUITS, PIPES, OR SLEEVES SHALL BE LOCATED IN REINFORCED CELLS UNLESS OTHERWISE APPROVED BY THE STRUCTURAL ENGINEER. CONTRACTOR SHALL COORDINATE LAYOUT TO AVOID REINFORCED CELLS.

STRUCTURAL STEEL

1. DESIGN, FABRICATION, AND ERECTION SHALL BE PER THE SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS (AISC 360).
2. STRUCTURAL STEEL:
   WIDE FLANGE SHAPES (W SECTIONS) - ASTM A992, GRADE 50 (FY=50 KSI)
   CHANNELS, ANGLES, RODS, AND BARS - A36 (FY=36 KSI)
   PLATES - ASTM A572, GRADE 50 (FY=50 KSI) OR ASTM A36 (FY=36 KSI)
   SQUARE AND RECTANGULAR TUBES - ASTM A500, GRADE B (FY=46 KSI)
   PIPES - ASTM A53, GRADE B (FY=35 KSI)
3. ANCHOR BOLTS AND THREADED RODS SHALL CONFORM TO ASTM F1554, GRADE 36, UNO.
4. BEAM SIMPLE SHEAR AND BRACED FRAME CONNECTIONS NOT DETAILED ON STRUCTURAL DRAWINGS SHALL BE DESIGNED BY A PROFESSIONAL ENGINEER RETAINED BY THE STEEL SUPPLIER AND REGISTERED IN THE STATE IN WHICH THE PROJECT IS LOCATED. CONNECTIONS SHALL BE MADE WITH ASTM A325 3/4"Ø BOLTS (MINIMUM), TIGHTENED TO A SNUG-TIGHT CONDITION PER AISC REQUIREMENTS.
5. THE CONNECTIONS FOR NON-COMPOSITE BEAMS SHALL BE DESIGNED FOR REACTIONS SHOWN ON DRAWINGS OR FOR REACTIONS DETERMINED BY USING THE MAXIMUM TOTAL UNIFORM LOAD TABULATED IN PART 3 OF THE AISC STEEL CONSTRUCTION MANUAL FOR THE SECTION, SPAN AND STRENGTH OF STEEL SPECIFIED.
6. THE CONNECTIONS FOR COMPOSITE BEAMS SHALL BE DESIGNED FOR REACTIONS SHOWN ON DRAWINGS OR AS DICTATED BY THE TYPICAL COMPOSITE SLAB DETAIL.
7. THE CONNECTION ENGINEER SHALL SUBMIT A SIGNED AND SEALED LETTER STATING THEY HAVE REVIEWED THE STEEL SHOP DRAWINGS AND THE CONNECTIONS ARE CONSISTENT WITH THEIR CALCULATIONS AND INTENT.
8. WHERE STEEL MEMBERS ARE WELDED AND NO SIZE IS SPECIFIED, PROVIDE FULL LENGTH FILLET WELDS BOTH SIDES OF MEMBER. WELD SIZES SHALL BE AS FOLLOWS UNLESS NOTED OTHERWISE:

MEMBER THICKNESS	WELD SIZE
3/16" - 5/16"	3/16"
3/8" - 7/16"	1/4"
1/2"	5/16"
9/16"	3/8"
5/8"	7/16"

9. SPLICING OF STRUCTURAL STEEL MEMBERS IS PROHIBITED WITHOUT PRIOR APPROVAL OF THE ENGINEER AS TO LOCATION AND TYPE OF SPLICE TO BE MADE. ANY MEMBER HAVING A SPLICE NOT SHOWN AND DETAILED ON SHOP DRAWINGS WILL BE REJECTED.
10. ALL WELDING SHALL CONFORM TO THE AMERICAN WELDING SOCIETY CODE. USE E70 SERIES ELECTRODES FOR ALL STRUCTURAL STEEL WELDS.
11. SEE THE ARCHITECTURAL AND STRUCTURAL DRAWINGS FOR ALL ITEMS REQUIRED TO BE HOT-DIP GALVANIZED AFTER FABRICATION.
12. STRUCTURAL STEEL SHALL BE PUNCHED FOR WOOD BLOCKING, NAILERS, CLIPS AND TIES IN ACCORDANCE WITH ARCHITECTURAL/STRUCTURAL DETAILS.
13. ULTRASONIC INSPECTION BY THE TESTING LABORATORY SHALL BE PROVIDED FOR ALL WELDS CALLED FOR ON THE STRUCTURAL DRAWINGS OR SHOP DRAWINGS AS FULL PENETRATION WELDS.
14. ALL STEEL EXPOSED TO VIEW SHALL BE CLASSIFIED AS ARCHITECTURALLY EXPOSED STRUCTURAL STEEL (AESS) AS DEFINED BY THE AISC CODE OF STANDARD PRACTICE AND SHALL BE TREATED AS SUCH.

STEEL JOISTS

1. ALL STEEL JOISTS SHALL BE OPEN-WEB TYPE CONFORMING TO THE LATEST EDITION OF "STANDARD SPECIFICATIONS, LOAD TABLES AND WEIGHT TABLES FOR STEEL JOISTS AND JOIST GIRDERS" PUBLISHED BY THE STEEL JOIST INSTITUTE.
2. PROVIDE BRIDGING PER STEEL JOIST INSTITUTE STANDARD SPECIFICATION. ALL BRIDGING SHALL BE BOLTED OR WELDED AT ALL JOISTS AND AT ALL CROSSINGS AND ANCHORED TO SPANDREL MEMBERS. ALL BRIDGING FOR JOISTS USED AS SPANDREL MEMBERS (AT EDGE OF DECK) SHALL BE "X" BRIDGING. SIZE OF BRIDGING SHALL BE DETERMINED BY THE JOIST SUPPLIER. JOIST SUPPLIER TO PROVIDE ADDITIONAL BRIDGING AS REQUIRED FOR UPLIFT LOADS.
3. ALL JOISTS SHALL HAVE ANGLE BOTTOM CHORD MEMBERS UNLESS OTHERWISE APPROVED.
4. ALL K-SERIES JOISTS SHALL BE WELDED TO SUPPORT STEEL WITH A MINIMUM OF 2" OF 1/8" FILLET WELD AT BOTH SIDES OF JOIST SEAT.
5. WHERE JOISTS FRAME TO COLUMNS, JOISTS SHALL BE FIELD BOLTED TO COLUMNS WITH (2)1/2"Ø A307 BOLTS AT EACH END OF THE JOIST TO PROVIDE LATERAL STABILITY DURING CONSTRUCTION.
6. PROVIDE BOLTED DIAGONAL BRIDGING WHERE REQUIRED PER STEEL JOIST INSTITUTE STANDARD SPECIFICATIONS. JOIST SHOP DRAWINGS SHALL INDICATE ALL JOISTS WHICH SHALL HAVE A ROW OF BOLTED BRIDGING IN PLACE BEFORE SLACKENING OF HOISTING LINES.
7. JOIST MANUFACTURER SHALL BE PREPARED TO SUBMIT CALCULATIONS FOR ALL JOISTS AT ARCHITECT'S OR ENGINEER'S REQUEST. CALCULATIONS SHALL HAVE LOAD DIAGRAMS FOR EACH MEMBER CLEARLY INDICATING SPAN, UNIFORM AND CONCENTRATED LOADS. ALL CALCULATIONS SHALL BEAR THE SEAL OF A REGISTERED PROFESSIONAL ENGINEER LICENSED IN THE STATE IN WHICH THE PROJECT IS LOCATED.
8. JOISTS SHALL BE DESIGNED FOR A NET WIND UPLIFT LOAD OF 20PSF UNLESS NOTED OTHERWISE.

NON-LOAD BEARING COLD-FORMED STEEL (METAL STUDS)

1. ALL STRUCTURAL MEMBERS SHALL BE MANUFACTURED IN ACCORDANCE WITH THE REFERENCED EDITION OF THE NORTH AMERICAN SPECIFICATION FOR THE DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS BY THE AMERICAN IRON AND STEEL INSTITUTE.
2. ALL COLD-FORMED LIGHT GAUGE METAL FRAMING AND CONNECTIONS SHALL BE DESIGNED BY THE SUPPLIER'S ENGINEER. AT ARCHITECT'S OR ENGINEER'S REQUEST CONTRACTOR SHALL SUBMIT CALCULATIONS FOR ALL COLD-FORMED METAL FRAMING USED TO SUPPORT CEILINGS AND EXTERIOR CLADDING.
3. ALL MEMBERS SHALL HAVE A MINIMUM YIELD STRENGTH OF 33 KSI AND BE FORMED FROM STEEL HAVING A G-90 GALVANIZED COATING MEETING THE REQUIREMENTS OF ASTM A653 AND C955.
4. ALL THE COLD-FORMED STEEL STRUCTURAL MEMBERS SHALL COME FROM A SINGLE SOURCE MANUFACTURER. ONLY MANUFACTURERS WHO ARE MEMBERS OF THE STEEL STUD MANUFACTURERS ASSOCIATION (SSMA) OR THE STEEL FRAMING INDUSTRY ASSOCIATION (SFIA) WILL BE ACCEPTED. THE INSTALLATION SHALL COMPLY WITH THE MANUFACTURER'S RECOMMENDATIONS.
5. SUBMIT SHOP DRAWINGS FOR ALL COLD-FORMED METAL FRAMING USED TO SUPPORT CEILINGS AND EXTERIOR CLADDING. SHOP DRAWINGS SHALL INDICATE PLACING OF ALL FRAMING MEMBERS SHOWING TYPE, SIZE, GAUGE, NUMBER, LOCATION AND SPACING. THEY SHALL ALSO INDICATE SUPPLEMENTAL STRAPPING, BRACING, SPLICES, BRIDGING, ACCESSORIES AND DETAILS REQUIRED FOR PROPER INSTALLATION.
6. SHOP DRAWINGS SHALL SHOW SIZE AND LENGTH OF WELDS FOR ALL WELDED CONNECTIONS AND TYPE, SIZE AND NUMBER OF SCREWS FOR ALL SCREWED CONNECTIONS. SUBMIT MANUFACTURER'S DATA GIVING STRENGTH VALUES FOR SCREWS USED.
7. SHOP DRAWINGS SUBMITTED MUST BE PREPARED UNDER THE SUPERVISION OF AND SEALED BY A REGISTERED PROFESSIONAL ENGINEER LICENSED IN THE STATE IN WHICH THE PROJECT IS LOCATED.
8. ALL STRUCTURAL FRAMING ACCESSORIES SHALL BE FORMED FROM STRUCTURAL QUALITY STEEL WITH A MINIMUM YIELD STRENGTH OF 50 KSI AND HAVE MINIMUM PROTECTIVE COATING EQUAL TO ASTM A653 G-90 GALVANIZED COATING.
9. VERTICAL DEFLECTION CLIPS ARE REQUIRED TO BE CAPABLE OF ACCOMMODATING UPWARD AND DOWNWARD VERTICAL DISPLACEMENT OF THE STRUCTURE THROUGH POSITIVE MECHANICAL ATTACHMENT TO STUD WEB. MECHANICAL ATTACHMENT TO STRUCTURE AND SCREW ATTACHMENT TO STUD WEB USING STEP-BUSHINGS TO PERMIT FRICTIONLESS VERTICAL MOVEMENT. CONNECTORS MUST BE TESTED IN ACCORDANCE TO ICC AC261 CRITERIA AND HOLD A VALID ICC-ES EVALUATION SERVICE REPORT TO BE ACCEPTABLE.

ADHESIVE AND MECHANICAL POST-INSTALLED ANCHORS

1. ANCHOR BOLTS, REINFORCING STEEL, THREADED RODS, STAIR HANDRAILS, AND OTHER EMBEDDED STEEL ITEMS SHALL BE SET INTO HARDENED CONCRETE WITH ADHESIVE