DESIGN CRITERIA

LOCATION: ORANGE COUNTY, NORTH CAROLINA
BUILDING CODE: 2018 NORTH CAROLINA STATE BUILDING CODE
(2018 IBC WITH NORTH CAROLINA AMENDMENTS)

BASIC LATERAL FORCE RESISTING SYSTEM:
STEEL SYSTEM NOT SPECIFICALLY DETAILED FOR SEISMIC RESISTANCE.

DESIGN LIVE LOADS

ROOF	20 PSF
CLASSROOMS	60 PSF (REDUCED PER SECTION 1607.10)
FIRST FLOOR CORRIDORS	100 PSF
MECHANICAL	150 PSF

ROOF SNOW LOAD

P_g = 15 PSF
C_e = 0.9
I_s = 1.1
C_t = 1.0
P_f = 10.4 PSF

WIND LOAD

V_{ult} = 129 MPH (3 SECOND GUST)
V_{asd} = 93 MPH (3 SECOND GUST)
RISK CATEGORY III
EXPOSURE C
INTERNAL PRESSURE COEFFICIENT = ± 0.18
DESIGN WIND BASE SHEAR: V_x = 282k, V_y = 357k

WIND LOADS ON COMPONENTS & CLADDING FOR GIVEN TRIBUTARY AREAS (psf)

	ZONE	10 SQ FT	20 SQ FT	50 SQ FT	100 SQ FT	500 SQ FT
ROOF	1	13.9/-22.0	12.8/-21.4	11.1/-20.6	9.5/-20.0	6.8/-20.0
	2	13.9/-35.4	12.8/-34.7	11.1/-30.6	9.5/-28.2	6.8/-28.2
	3	13.9/-58.7	12.8/-57.9	11.1/-48.0	9.5/-44.3	6.8/-44.3
ROOF OVERHANG	2	N/A/-45.6	N/A/-43.6	N/A/-40.6	N/A/-38.6	N/A/-38.6
	3	N/A/-79.2	N/A/-71.7	N/A/-62.1	N/A/-54.7	N/A/-54.7
WALL	4	24.1/-25.1	23.0/-25.1	21.5/-23.7	20.4/-22.6	18.6/-20.0
	5	24.1/-32.2	23.0/-30.4	21.5/-27.5	20.4/-25.5	18.6/-21.5

1. DETERMINE WIND LOADS ON COMPONENTS IN ACCORDANCE WITH THE NCSBC AND ASCE-7 OR WITH THESE TABLES. REFERENCE ASCE-7 FIGURE 6-3.
2. TRIBUTARY AREA = GREATER OF L/W OR L/W$_{(3)}$.
3. DESIGN FOR ALLOWABLE CAPACITY USING LOADS FROM ASCE-7 OR FROM THESE TABLES. DEFLECTIONS MAY BE CALCULATED BASED ON 70% OF THESE LOADS.
4. POSITIVE PRESSURES ARE DIRECTED TOWARD THE INTERIOR. NEGATIVE LOADS ARE DIRECTED AWAY FROM THE INTERIOR. NEGATIVE ROOF LOADS ARE UPLIFT LOADS.
5. NET UPLIFT IS EQUAL TO THE GROSS UPLIFT LOAD CALCULATED FROM ASCE-7 OR FROM THESE TABLES MINUS 60% OF THE ROOF DEAD LOAD.
6. THIS TABLE IS BASED OFF OF h = 30.7 ft

SEISMIC CRITERIA- PER ASCE 7-10

Ie = 1.25
SPECTRAL RESPONSE ACCELERATIONS — Ss = 0.156g — S1 = 0.0[illegible]
SITE CLASS D
SPECTRAL RESPONSE COEFFICIENTS — S_{DS} = 0.166g — S_{D1} = 0.123g
SEISMIC DESIGN CATEGORY B
RISK CATEGORY III
DESIGN SEISMIC BASE SHEAR (Vx & Vy) — V_x = 15[illegible] — V_y = 20[illegible]
SEISMIC RESPONSE COEFFICIENT (Cs) — C_s = 0.[illegible]
RESPONSE MODIFICATION FACTOR (R) — R = 3

SPECIAL INSPECTION REQUIREMENT
THE FOLLOWING SYSTEMS SHALL BE SUBJECT TO THE SPECIAL INSPECTION REQUIRED IN SECTION 1705 OF THE IBC 2018 CH 17.
1. CAST-IN-PLACE CONCRETE FOUNDATIONS
2. ELEVATED CAST-IN-PLACE CONCRETE SLABS
3. CONCRETE MASONRY SHEAR WALLS (BEARING OR LATERAL-LOAD-RESISTING)
4. STRUCTURAL STEEL
5. STEEL JOISTS
6. STEEL DECK

FOUNDATIONS
1. THE FOUNDATION DESIGN WILL BE BASED ON RECOMMENDATIONS CONTAINED IN THE REPORT OF SUBSURFACE EXPLORATION AND GEOTECHNICAL ENGINEERING EVALUATION" PREPARED BY FROEHLING & ROBERTSON, INC. DATED DECEMBER 17, 20[illegible].
2. ALL FOOTINGS SHALL BE PLACED ON UNDISTURBED SOIL OR COMPACTED ENGINEERED FILL. ALLOWABLE BEARING PRESSURE IS 2000 PSF.
3. MINIMUM FOOTINGS SHALL BE UNDERCUT TO A DEPTH OF 2' BELOW FIN FLOOR AND BACKFILLED WITH COMPACTED CLEAN WASHED NO.57 STONE.
4. STRUCTURAL EARTH FILL SHALL BE COMPACTED AT A MOISTURE CONTENT WITHIN 3 PERCENT OF THE OPTIMUM MOISTURE CONTENT. ALL STRUCTURAL EARTH FILL(i.e. FILL PLACED IN LOAD BEARING AREAS OR SLOPES) SHOULD BE PLACED IN LOOSE LIFTS NOT EXCEEDING 8 INCHES AND BE COMPACTED TO AT LEAST 95 PERCENT OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY AS DETERMINED BY ASTM D-698. THE TOP 12 INCHES OF FILL SHOULD BE COMPACTED TO AT LEAST 98 PERCENT OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY. ALL AREAS REQUIRING GRADE INCREASES THAT ARE STEEPER THAN A SLOPE OF 4H:1V SHOULD BE PLOWED, STEPPED AND LEVELED TO ASSURE THAT FILL IS PLACED ON NEAR LEVEL SURFACES. ALL STRUCTURAL FILL MATERIAL SHALL BE PLACED AND COMPACTED UNDER THE FULL-TIME OBSERVATION OF QUALIFIED GEOTECHNICAL ENGINEER OR ENGINEERING TECHNICIAN WORKING UNDER THE DIRECTION OF THE GEOTECHNICAL ENGINEER. THE PLACEMENT AND COMPACTION OF ALL FILL MATERIAL SHALL BE TESTED AT FREQUENT INTERVALS IN ORDER TO CONFIRM THAT THE RECOMMENDED DEGREE OF COMPACTION IS ACHIEVED.
THE ON-SITE SOILS HAVE SUFFICIENT SILT/CLAY CONTENT TO RENDER THEM MOISTURE SENSITIVE. THE ON-SITE SOILS WILL BECOME UNSTABLE (i.e. PUMP AND RUT) DURING NORMAL CONSTRUCTION ACTIVITIES WHEN IN THE PRESENCE OF EXCESS MOISTURE. SOILS WITH A MOISTURE CONTENT GREATER THAN 3 PERCENT ABOVE THE OPTIMUM MOISTURE CONTENT ARE GENERALLY CONSIDERED TO HAVE EXCESSIVE MOISTURE. DURING EARTHWORK AND CONSTRUCTION ACTIVITIES, SURFACE WATER RUNOFF MUST BE DRAINED AWAY FROM THE CONSTRUCTION AREAS TO PREVENT WATER FROM PONDING ON OR SATURATING THE SOILS WITHIN EXCAVATIONS OR ON SUBGRADES. FOOTING EXCAVATIONS SHALL BE OBSERVED BY A QUALIFIED GEOTECHNICAL ENGINEER OR HIS REPRESENTATIVE PRIOR TO PLACEMENT OF REINFORCING STEEL AND CONCRETE. THE PURPOSE OF THE OBSERVATION WOULD BE TO DETERMINE THAT THE FOUNDATIONS BEAR IN SUITABLE SOILS AT THE PROPER EMBEDMENT DEPTHS, AND THAT UNSUITABLE SOFT AND LOOSE MATERIALS ARE UNDERCUT AND BACKFILLED WITH APPROVED STRUCTURAL FILL MATERIAL. HAND AUGURING AND DYNAMIC CONE PENETROMETER (DCP) TESTING SHALL BE PERFORMED AT THE DIRECTION OF THE PROJECT GEOTECHNICAL ENGINEER TO VERIFY THE CONSISTENCY OF THE BEARING SOILS AND UNDERLYING SUPPORT SOILS.
5. NO FOUNDATIONS SHALL BE PLACED IN WATER OR ON FROZEN GROUND.
6. ALL FOOTING EXCAVATIONS ARE TO BE FINISHED BY HAND.
7. ALL FINISHED FOUNDATION EXCAVATIONS SHALL BE INSPECTED AND APPROVED BY THE ARCHITECT OR HIS DESIGNATE BEFORE ANY CONCRETE IS PLACED.
8. UNLESS OTHERWISE NOTED, ALL FOOTINGS AND PILASTERS SHALL BE CENTERED UNDER SUPPORTED MEMBERS.
9. DOWELS FROM FOUNDATIONS INTO PIERS, COLUMNS, BUTTRESSES, OR WALLS ABOVE SHALL BE THE SAME SIZE AND NUMBER AS VERTICAL REINFORCEMENT IN PIERS, COLUMNS, BUTTRESSES, OR WALLS ABOVE, EXCEPT AS OTHERWISE SHOWN ON THE DRAWINGS.
10. CAREFULLY FOLLOW THE REQUIREMENTS OF THE SPECIFICATIONS FOR BACKFILL UNDER OR ADJACENT TO ANY PORTION OF THE BUILDING.
11. WHERE FOUNDATION ELEMENTS ARE TO HAVE FILL ON BOTH SIDES, EACH SIDE SHALL BE FILLED SIMULTANEOUSLY, MAINTAINING A COMMON ELEVATION.
12. COORDINATE UNDERFLOOR DRAIN REQUIREMENTS WITH ARCHITECTURAL AND MECHANICAL DRAWINGS AND THE REQUIREMENTS OF THE GEOTECHNICAL ENGINEER.
13. CONTRACTOR SHALL PROVIDE CONTINUOUS CONTROL OF SURFACE AND UNDERGROUND WATER AS REQUIRED DURING CONSTRUCTION SUCH THAT THE WORK IS DONE IN THE DRY.

GENERAL NOTES

GENERAL
1. DESIGN, FURNISH, AND INSTALL TEMPORARY SHORING, BRACING, AND OTHER TEMPORARY SUPPORTS REQUIRED FOR CONSTRUCTING THIS STRUCTURE AND TO MAINTAIN THE STABILITY THROUGHOUT ALL PHASES OF CONSTRUCTION UNTIL THE STRUCTURE IS COMPLETED. ALL TEMPORARY SUPPORTS ARE TO BE REMOVED UNLESS NOTED OTHERWISE.
2. USE STRUCTURAL DRAWINGS IN CONJUNCTION WITH THE ARCHITECTURAL DRAWINGS AND THE DRAWINGS OF OTHER TRADES.
3. COORDINATE WITH OTHER TRADES THE ACTUAL LOCATIONS AND SIZES OF OPENINGS AND PENETRATIONS REQUIRED BY THEIR WORK.
4. COORDINATE WITH OTHER TRADES THE ACTUAL LOCATIONS AND ELEVATIONS OF BURIED SERVICES PASSING NEAR FOUNDATIONS. UNDERGROUND SERVICES WHICH PASS BENEATH WALL FOOTINGS SHALL HAVE AT LEAST 12" OF CLEARANCE BELOW THE BOTTOM OF THE FOOTING. WHERE THIS IS NOT ACHIEVED, EITHER STEP THE FOOTING DOWN BENEATH THE SERVICE OR INSTALL A STEEL PIPE SLEEVE FOR THE SERVICE TO PASS THROUGH. SLEEVES ARE FURNISHED AND INSTALLED BY THE TRADE INSTALLING THE SERVICE. NO SERVICE IS TO BE INSTALLED BENEATH COLUMN FOOTINGS UNLESS APPROVED BY THE ARCHITECT.
5. COORDINATE WITH OTHER TRADES THE ACTUAL LOCATIONS AND TYPES OF ATTACHMENTS AND ANCHORS THAT ARE REQUIRED BY THE TRADES TO FASTEN THEIR WORK TO THE STRUCTURE.
6. MODIFICATIONS TO STRUCTURAL COMPONENTS AND INSTALLATION OF PENETRATIONS THROUGH STRUCTURAL MEMBERS ARE NOT PERMITTED WITHOUT PRIOR APPROVAL OF THE ARCHITECT.
7. VERIFY ACTUAL DIMENSIONS, ELEVATIONS, AND CONDITIONS OF EXISTING CONSTRUCTION PRIOR TO PROCEEDING WITH WORK OR ORDERING MATERIALS WHICH COULD BE AFFECTED BY EXISTING CONDITIONS.

CAST-IN-PLACE CONCRETE
1. MATERIALS
   A. PORTLAND CEMENT: ASTM C150, TYPE I.
   B. FLY ASH: ASTM A618, CLASS C OR F.
   C. NORMAL-WEIGHT AGGREGATES: ASTM C33, CLASS 3M.
   D. REINFORCING STEEL: ASTM A615 GRADE 60.
   E. REINFORCING STEEL, WELDABLE: ASTM A706.
   F. WELDED WIRE FABRIC: ASTM A185, FLAT SHEETS.
   G. UNDER-SLAB DRAINAGE FILL: 4" WASHED CRUSHED STONE, MAXIMUM AGGREGATE SIZE OF 2".
   H. VAPOR BARRIER: ASTM E1745, CLASS A, PERMEANCE OF LESS THAN 0.01 PERMS, 15 MILS THICKNESS.
   I. WATERSTOP: SELF EXPANDING.
2. CONCRETE MIXES
   A. FOOTINGS: 3000 PSI NW.
   B. SLABS-ON-GRADE: 3000 PSI NW.
   C. SLABS-ON-GRADE EXPOSED TO WEATHER: 4500 PSI NW, AIR-ENTRAINED.
   D. SLABS ON COMPOSITE STEEL DECK: [illegible] LB/CF WEIGHT CONCRETE.
   E. WALLS AND PIERS: 4000 PSI NW.
3. PERFORM CONCRETE WORK IN ACCORDANCE WITH ACI 318 AND ACI 301.
4. PROVIDE CONCRETE COVER AS FOLLOWS:
   A. CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH: 3".
   B. CONCRETE EXPOSED TO EARTH OR WEATHER:
      #6 OR SMALLER: 1½".
      #6 OR LARGER: 2".
   C. CONCRETE NOT EXPOSED TO EARTH OR WEATHER:
      SLABS, WALLS, JOISTS: ¾".
      BEAMS, COLUMNS: 1½" TO PRIMARY REINFORCEMENT, TIES, STIRRUPS, OR SPIRALS.
5. PROVIDE CONTINUOUS REINFORCEMENT WHEREVER POSSIBLE. SPLICE ONLY AS SHOWN OR APPROVED. MINIMUM LAP LENGTHS, EXPRESSED IN NUMBER OF BAR DIAMETERS, SHALL BE AS FOLLOWS:

BAR SIZE	WT. CONCRETE STRENGTH, f'c (psi)		
	3000	4000	5000
#6 OR SMALLER	57 DIA.	49 DIA.	44 DIA.
#7 OR LARGER	71 DIA.	62 DIA.	55 DIA.

   MULTIPLY THE ABOVE LENGTHS BY 1.3 FOR TOP BARS AND BY 1.3 FOR LIGHT WEIGHT CONCRETE.
   WHERE BARS OF UNEQUAL DIAMETER ARE LAPPED, USE THE LAP LENGHT OF THE SMALLER BAR. THE ABOVE LENGTHS ARE CLASS "B" TENSION LAP SPLICES BASED ON GRADE 60 BARS WITH 4 COVER OF AT LEAST 1 BAR DIA. AND SPACING AT LEAST 3 BAR DIA. LAP LENGTHS SHALL BE INCREASED IN ACCORDANCE WITH ACI 318 IF COVER IS LESS THAN 1 BAR DIA. OR SPACING IS LESS THAN 3 BAR DIA.
6. ACCURATELY INSTALL AND PROPERLY SECURE ANCHORS, BEARING PLATES, SLEEVES, AND OTHER EMBEDDED ITEMS.
7. ACCURATELY LOCATE AND BLOCK OUT OPENINGS AND PENETRATIONS.
8. COORDINATE WITH OTHER TRADES FOR ANCHORS, EMBEDDED ITEMS, SLEEVES, AND PENETRATIONS REQUIRED AND/OR FURNISHED BY THE OTHER TRADES.
9. PROVIDE CONTRACTION JOINTS IN SLABS-ON-GRADE WHERE INDICATED ON THE PLANS. PROVIDE A JOINT DEPTH EQUAL TO AT LEAST 25% OF THE SLAB THICKNESS.
10. INSTALL AND SEAL VAPOR BARRIER IN ACCORDANCE WITH ASTM E1643 AND MANUFACTURER'S INSTRUCTIONS. LAP JOINTS 6" AND SEAL WITH MANUFACTURER'S RECOMMENDED TAPE.
11. FLOOR FINISHES
   A. FLOAT FINISH: SURFACES TO RECEIVE A TROWEL FINISH, TO BE COVERED WITH FLUID-APPLIED OR SHEET WATERPROOFING, OR TO BE COVERED WITH BUILT-UP OR MEMBRANE ROOFING.
   B. TROWEL FINISH: SURFACES EXPOSED TO VIEW OR COVERED WITH RESILIENT FLOORING, CARPET, WOOD FLOORING, PAINT, SEALER, OR OTHER THIN FILM FINISH.
   C. TROWEL AND FINE-BROOM FINISH: SURFACES TO BE COVERED WITH QUARRY OR CERAMIC TILE INSTALLED BY THE THINSET OR THICK-SET METHOD.
   D. BROOM FINISH: EXTERIOR CONCRETE PLATFORMS, STEPS, AND RAMPS.
   E. FLOOR FINISH TOLERANCES:
      SLABS TO RECEIVE WOOD ATHLETIC FLOORING OR SPECIAL SPORTS FLOORING:
      OVERALL FLOOR FLATNESS OF AT LEAST FF 50.
      OVERALL FLOOR LEVELNESS OF AT LEAST FF 35.
      ALL OTHERS RECEIVING TROWEL OR TROWEL AND FINE-BROOM FINISH:
      OVERALL FLOOR FLATNESS OF AT LEAST FF 32.
      OVERALL FLOOR LEVELNESS OF AT LEAST FF 20.
12. FLOOR FRAMING AND NON-COMPOSITE STEEL FLOOR DECK ARE DESIGNED TO REMAIN UNSHORED DURING CONCRETE PLACEMENT EXCEPT WHERE NOTED ON PLANS. ACCOUNT FOR ANTICIPATED DEFLECTION IN BEAMS AND GIRDERS OF UP TO 1/360 OF THE SPAN LENGTH (IN INCHES) OR 1 INCH, WHICHEVER IS LESS. WHEN CALCULATING CONCRETE QUANTITIES. FINISH SLABS FLAT AND LEVEL.
13. NO CONDUIT OR PIPE MAY BE RUN WITHIN STRUCTURAL CONCRETE MEMBERS EXCEPT WHERE INDICATED.

STRUCTURAL MASONRY
1. SCOPE: THESE NOTES APPLY TO LOAD BEARING MASONRY OR MASONRY THAT IS PART OF THE LATERAL LOAD RESISTING SYSTEM. SEE ARCHITECTURAL FOR OTHER MASONRY.
2. ALL MASONRY WORK SHALL CONFORM TO THE "BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES" (ACI/ASCE/TMS) AND "SPECIFICATIONS FOR MASONRY STRUCTURES" (ACI/ASCE/TMS 1-05)
3. MATERIALS
   A. CONCRETE MASONRY UNITS: ASTM C90; 1900 PSI MIN. UNIT STRENGTH.
   B. MORTAR: ASTM C270, PROPORTION SPECIFICATION, TYPE S.
   C. GROUT: ASTM C479; SLUMP = 8" TO 11", COMPRESSIVE STRENGTH f'c = 3000 PSI
   D. MASONRY f'm = 1500 PSI.
   E. REINFORCING STEEL: ASTM A615, GRADE 60. Fs = 24,000 PSI.
4. LAP REINFORCING AS FOLLOWS, UNLESS NOTED OTHERWISE.

#3	1'-6"	#7	3'-6"
#4	2'-0"	#8	4'-0"
#5	2'-6"	#9	4'-6"
#6	3'-0"	#10	5'-0"

5. INSTALL REINFORCING IN THE CENTER OF CELLS UNLESS INDICATED OTHERWISE.
6. ADEQUATELY SECURE REINFORCING TO PREVENT MOVEMENT PRIOR TO GROUT FILL.
7. GROUT ALL CELLS OF MASONRY UNITS INSTALLED BELOW FINAL GRADE.
8. ABOVE GRADE, GROUT ONLY REINFORCED CELLS UNLESS INDICATED OTHERWISE.

STRUCTURAL STEEL
1. MATERIALS
   A. STRUCTURAL STEEL WIDE FLANGE SHAPES: ASTM A992
   B. OTHER STRUCTURAL STEEL ROLLED SHAPES: ASTM A36
   C. RECTANGULAR OR ROUND HSS: ASTM A500, GR B
   D. STEEL PIPE: ASTM A53, GR B, TYPE E OR F
   E. STEEL PLATE: ASTM A36
   F. HIGH STRENGTH BOLTS: ASTM A325
   G. ANCHOR RODS: ASTM F1554, GRADE 36
   H. SHEAR CONNECTORS: ASTM A108, HEADED
   I. WELD ELECTRODE: IN ACCORDANCE WITH AWS D1.1
   J. JOISTS — K-SERIES; LH-SERIES; DLH-SERIES
2. FABRICATE AND ERECT STEEL IN ACCORDANCE WITH THE AISC SPECIFICATION.
3. PERFORM SHOP AND FIELD WELDING IN ACCORDANCE WITH AWS D1.1 WITH CURRENTLY CERTIFIED WELDERS.
4. WELD SHEAR CONNECTORS IN ACCORDANCE WITH AWS D1.1 WITH CURRENTLY CERTIFIED WELDERS. REMOVE AND DISCARD ARC SHIELDS AFTER WELDING.
5. UNLESS NOTED OTHERWISE, ALL BOLTED CONNECTIONS ARE MADE WITH HIGH STRENGTH BOLTS INSTALLED SNUG TIGHT.
6. FLOOR FRAMING HAS BEEN DESIGNED TO REMAIN UNSHORED DURING CONCRETE PLACEMENT EXCEPT WHERE SHOWN ON PLANS.
7. FOR BEAMS NOT MEETING THE MINIMUM SIZE REQUIREMENT OF THE IBC ASSEMBLY, THE CONTRACTOR SHALL PROVIDE PROPER DESIGN CALCULATIONS AS REQUIRED IN SECTION 721.1.3 OF THE [illegible] CODE.

STEEL DECK
1. MATERIALS
   A. COMPOSITE STEEL FLOOR DECK: 3" DEEP, 20 GAGE, ASTM A653, SS, GRADE 33, G60 GALVANIZED COATING.
   B. STEEL ROOF DECK: 1½" DEEP, 1.5 LB (WG 36), 22 GAGE, ASTM A653, SS, GRADE 33, G60 GALVANIZED COATING.
   C. POUR STOPS, FORM FOR FILLERS, CLOSURES, AND Z-CLOSURES, COVER PLATES: OTHER STEEL SHEET DECKING ACCESSORIES. THICKNESS AS REQUIRED FOR STRENGTH BUT NOT LESS THAN THE DECKING THICKNESS; OF SAME SURFACE MATERIAL AND FINISH AS THE DECKING MATERIAL.
   D. SHEAR CONNECTORS: CORROSION RESISTANT SELF-DRILLING CARBON STEEL, 0.145" MINIMUM DIAMETER.
   E. WELD ELECTRODES: IN ACCORDANCE WITH AWS D1.3.
   F. WELD FILLER MATERIAL IN ACCORDANCE WITH AWS D1.3. PERFORM WELDING WITH QUALIFIED WELDERS IN ACCORDANCE WITH AWS D1.3.
2. FABRICATE AND ERECT DECK IN ACCORDANCE WITH SDI PUBLICATION NO. 29. PERFORM WELDING IN ACCORDANCE WITH AWS D1.3 WITH CURRENTLY QUALIFIED WELDERS.
3. CUT AND NEATLY FIT DECK AROUND OPENINGS AND OTHER WORK PROJECTING THROUGH THE DECK. PROVIDE ADDITIONAL SUPPORT AND CLOSURE PIECES AS REQUIRED FOR STRENGTH, CONTINUITY OF DECK, AND SUPPORT OF OTHER WORK.
4. COMPOSITE FLOOR DECK ATTACHMENT
   A. AT SUPPORTS, WELD EDGE AND INTERIOR RIBS OF DECK UNITS AT EACH SUPPORT AT AN AVERAGE SPACING OF 12" (18" MAXIMUM) WITH ⅝" NOMINAL DIAMETER PUDDLE WELDS.
   B. AT PERIMETER EDGES BETWEEN SUPPORTS, FASTEN WITH ⅝" DIAMETER PUDDLE WELDS SPACED A MAXIMUM OF 28" APART.
   C. AT SIDE LAPS, INSTALL #10 SELF DRILLING SCREWS OR 1½" LONG WELDS SPACED A MAXIMUM OF 36 INCHES APART.
   D. END BEARING: 1½" MINIMUM.
   E. END JOINTS: BUTTED.
   F. SHEAR STUDS WELDED THROUGH DECK REPLACE PUDDLE WELDS ON A ONE-FOR-ONE BASIS.
5. ROOF DECK ATTACHMENT TO STRUCTURAL STEEL
   A. FASTEN ROOF DECK PANELS TO STEEL SUPPORTING MEMBERS WITH ⅝" NOMINAL DIAMETER PUDDLE WELDS OR WELDS WITH AN EQUAL PERIMETER, OR SEAM WELDS NOT LESS THAN 1½" LONG.
   B. WELD EDGES AND INTERIOR RIBS OF DECK UNITS TO EACH SUPPORTING MEMBER WITH A MINIMUM OF TWO WELDS PER DECK UNIT.
   C. WELD SPACING: AS INDICATED ON THE ROOF FRAMING PLANS. WELD ENDS OF EACH INDIVIDUAL ROOF DECK UNIT @ 8".
   D. FASTEN SIDE LAPS WITH #10 SELF-DRILLING SCREWS AS INDICTED ON ROOF FRAMING PLANS. MAX. SPACING SHALL BE THE LESSER OF 36" OR ONE HALF OF THE SPAN.
   E. END BEARING: 1½" MINIMUM.
   F. END JOINTS: LAPPED.
   G. DO NOT HANG ANYTHING FROM THE ROOF DECK.
   H. MECHANICAL FASTENERS OR POWDER-DRIVEN FASTENERS (MUST HAVE 24 OR EQUAL) MAY BE USED IN LIEU OF WELDS. SPACING SHALL BE AS SPECIFIED FOR WELDS.

COLD-FORMED STEEL STRUCTURAL FRAMING
1. REFER TO ARCHITECTURAL DRAWINGS FOR NON-LOAD-BEARING COLD-FORMED STEEL CURTAIN WALL MEMBERS AND OTHER COLD-FORMED AND LIGHT GAGE STEEL MEMBERS.
2. COMPLY WITH THE FOLLOWING:
   A. AISI "SPECIFICATION FOR THE DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS".
   B. DCFSS TECHNICAL BULLETIN: "AISI SPECIFICATION FOR SCREW CONNECTIONS".
   C. AISI "DESIGN GUIDE FOR COLD-FORMED STEEL TRUSSES".
   D. AWS D1.3, "STRUCTURAL WELDING CODE, SHEET STEEL".
3. STRUCTURAL PERFORMANCE:
   A. DEAD, LIVE, WIND LOADS AND SEISMIC CRITERIA: SEE GENERAL NOTES ON THIS SHEET.
   B. LATERAL LOAD ON INTERIOR NON-LOAD-BEARING WALLS: 5 PSF.
   C. HORIZONTAL DEFLECTION: SPANS60 FOR MASONRY VENEERS, SPAN360 OTHERWISE.
   D. ALLOW FOR CONSTRUCTION TOLERANCES AND ACCOMMODATE LIVE LOADS DEFLECTIONS OF THE PRIMARY STRUCTURE OF UP TO ¾ INCH.
   E. ASSUME NON-STRUCTURAL SHEATHING PROVIDES NO LATERAL BRACING TO FRAMING MEMBERS.
4. SUBMIT COMPLETED DESIGN CALCULATIONS AND ERECTION DRAWINGS SEALED BY A PROFESSIONAL ENGINEER LICENSED IN NORTH CAROLINA, TO THE ARCHITECT FOR REVIEW.
5. MATERIALS
   A. COLD-FORMED STEEL: ASTM A653, GRADE 33, G90 COATING.
   B. MINIMUM UNCOATED-STEEL THICKNESS: 0.0428" FOR ALL MEMBERS, EXCEPT TRUSS MEMBERS.
   C. ANCHOR BOLTS: ASTM F1554, GRADE 36, ZINC-COATED IN ACCORDANCE WITH ASTM A153, CLASS C.
   D. EXPANSION AND ADHESIVE ANCHORS: AS INDICATED ELSEWHERE IN THE GENERAL NOTES.
   E. POWER-ACTUATED ANCHORS: CORROSION RESISTANT CARBON STEEL, 0.145" MINIMUM DIAMETER.
   F. MECHANICAL FASTENERS: CORROSION-RESISTANT-COATED CARBON STEEL, SELF-DRILLING, SELF-THREADING DRILL SCREWS, #10 MIN.
   G. WELD FILLER MATERIAL IN ACCORDANCE WITH AWS D1.3. PERFORM WELDING WITH QUALIFIED WELDERS IN ACCORDANCE WITH AWS D1.3.
6. INSTALL PERMANENT BRIDGING, BRACING, AND ANCHORAGES TO THE PRIMARY STRUCTURE AS INDICATED ON APPROVED SHOP DRAWINGS.
7. INSTALL BENT PLATES AS INDICATED AT RIDGES, HIPS, VALLEYS, EAVES, AND OTHER TRANSITIONS TO PROVIDE ADEQUATE SUPPORT FOR DECKING AND SHEATHING.

CONCRETE AND MASONRY ANCHORS
1. EXPANSION ANCHORS: WEDGE TYPE, CARBON STEEL, ZINC PLATED OR SIMILARLY TREATED FOR CORROSION RESISTANCE. INSTALL IN STRICT ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.
2. ADHESIVE ANCHORS: CARBON STEEL, A36 MATERIAL OR EQUIVALENT, WITH A TWO-PART, PREPACKAGED AND PREMEASURED ADHESIVE READY FOR INJECTION INTO THE ANCHOR HOLE. INSTALL IN STRICT ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.

cra
222 cloister court
chapel hill, nc
27514
919.401.8586
www.cra-ae.com

LHC STRUCTURAL ENGINEERS, PLLC
1331 Sunday Drive, Suite 121
Raleigh, North Carolina 27607
919.832.5587 919.833.3929 fax
NC License #C-1629
LHC Project 1622

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 34575 BRIAN C. LASTER 4-25-19

Cedar Ridge High School
Classroom Addition
Orange County Schools
1125 New Grady Brown School Road
Hillsborough, North Carolina

no. revisions

drawn DLK checked BL

GENERAL NOTES

sheet
S0.0

project no. 1716

date 4/25/19

Construction Document Bid Set