GENERAL NOTES

100. DESIGN CRITERIA

100.1 DESIGN BUILDING CODE:

A. NORTH CAROLINA STATE BUILDING CODE, 2018

100.2 GRAVITY LOADS:

A. ROOF LIVE LOADS:

1. FLAT ROOF___20 PSF
2. RTU ZONE___40 PSF

B. SNOW LOADS:

1. BASE GROUND SNOW LOAD, Pg_____10 PSF

C. HANDRAIL AND GUARD LOADS:

1. UNIFORM LOAD (ANY DIRECTION)___50 PLF
2. CONCENTRATED LOAD (ANY DIRECTION)__200 LB.

100.3 LATERAL LOADS:

A. WIND LOADS (IN ACCORDANCE WITH DESIGN BUILDING CODE PER GENERAL NOTE 100.1):

1. ULTIMATE DESIGN WIND SPEED (3 SECOND GUST), Vult = 115 MPH
2. NOMINAL DESIGN WIND SPEED (3 SECOND GUST), Vasd = 89 MPH
3. RISK CATEGORY = II
4. EXPOSURE CATEGORY = C
5. ENCLOSURE CLASSIFICATION = ENCLOSED
6. INTERNAL PRESSURE COEFFICIENT (GCpi) = +/- 0.18
7. COMPONENTS AND CLADDING PRESSURES: SEE "COMPONENTS AND CLADDING WIND LOADS" TABLE, AND "COMPONENTS AND CLADDING WIND PRESSURE DIAGRAM"

B. EARTHQUAKE LOADS FOR DESIGN OF BUILDING STRUCTURES (IN ACCORDANCE WITH DESIGN BUILDING CODE PER GENERAL NOTE 100.1):

1. RISK CATEGORY = II
2. IMPORTANCE FACTOR (Ie) = 1.0
3. MAPPED ACCELERATION PARAMETERS
   a. Ss = 0.241
   b. S1 = 0.103
4. SITE CLASS = D
5. SITE CLASS COEFFICIENTS
   a. Fa = 1.6
   b. Fv = 2.386
6. SPECTRAL ACCELERATION PARAMETERS
   a. SDs = 0.257
   b. SD1 = 0.165
7. SEISMIC DESIGN CATEGORY__C
8. SEISMIC FORCE-RESISTING SYSTEM______________________WOOD SHEAR WALLS
9. DESIGN BASE SHEAR____11 KIPS
10. SEISMIC RESPONSE COEFFICIENT (Cs)____0.040
11. RESPONSE MODIFICATION COEFFICIENT (R)________________________6.5
12. ANALYSIS PROCEDURE__ EQUIVALENT LATERAL FORCE PER ASCE 7, SECTION 12.8

110. GENERAL

110.1 THESE DRAWINGS HAVE BEEN PRODUCED ENTIRELY ON ATLANTIC ENGINEERING SERVICES CADD SYSTEM. ANY OTHER LETTERING, LINES OR SYMBOLS, OTHER THAN PROFESSIONAL STAMPS AND SIGNATURES, HAVE BEEN MADE WITHOUT THE AUTHORIZATION OF ATLANTIC ENGINEERING SERVICES AND ARE INVALID.

110.2 THE STRUCTURAL DRAWINGS SHALL GOVERN THE WORK FOR ALL STRUCTURAL FEATURES, UNLESS NOTED OTHERWISE. THE ARCHITECTURAL DRAWINGS SHALL GOVERN THE WORK FOR ALL DIMENSIONS.

110.3 DO NOT SCALE DRAWINGS TO OBTAIN DIMENSIONS. ONLY DIMENSIONS INDICATED ON DRAWINGS MAY BE USED TO ESTABLISH THE LOCATION AND EXTENT OF STRUCTURAL WORK. IF A REQUIRED DIMENSION IS NOT FURNISHED ON DRAWINGS, THE CONTRACTOR SHALL SUBMIT A REQUEST FOR INFORMATION TO OBTAIN THE DIMENSION.

110.4 UNLESS OTHERWISE INDICATED, PROVIDE EQUAL SPACING OF STRUCTURAL COMPONENTS BETWEEN OVERALL DIMENSIONS INDICATED ON DRAWINGS.

110.5 THE METHOD AND FREQUENCY OF ATTACHING MECHANICAL EQUIPMENT UNITS, ETC., TO THE STRUCTURAL ELEMENTS SHALL BE SUBJECT TO THE ENGINEER'S REVIEW AND APPROVAL.

110.6 UNLESS OTHERWISE INDICATED, STRUCTURAL COMPONENTS SUPPORTING MECHANICAL EQUIPMENT HAVE NOT BEEN DESIGNED FOR THE VIBRATIONAL EFFECTS OF THE EQUIPMENT. THE CONTRACTOR SHALL PROVIDE VIBRATION ISOLATORS FOR ANY MECHANICAL EQUIPMENT MOUNTED TO THE STRUCTURE IN ACCORDANCE WITH THE EQUIPMENT MANUFACTURER'S RECOMMENDATIONS.

110.7 STRUCTURAL WORK SHALL BE INSPECTED IN ACCORDANCE WITH ALL LOCAL ORDINANCES.

110.8 STRUCTURAL WORK SHALL BE TESTED IN ACCORDANCE WITH THE REQUIREMENTS OF THE GENERAL NOTES. THE OWNER SHALL ENGAGE AN EXPERIENCED, QUALIFIED TESTING AGENCY, SUBJECT TO THE REVIEW OF THE ARCHITECT, TO PERFORM ALL TESTING WORK, AS REQUIRED.

120. SHOP DRAWINGS AND DELEGATED DESIGN SUBMITTALS

120.1 THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR REVIEW BY ATLANTIC ENGINEERING SERVICES AND THE PROJECT ARCHITECT. SHOP DRAWINGS SHALL BE SUBMITTED FOR ALL STRUCTURAL COMPONENTS INCLUDING, BUT NOT LIMITED TO, THE FOLLOWING:

A. FABRICATED STRUCTURAL STEEL
B. REINFORCING STEEL FOR CONCRETE AND MASONRY
C. CONCRETE MIX DESIGN
D. CONCRETE AND/OR MASONRY POST-INSTALLED ANCHORS
E. PREFABRICATED WOOD TRUSSES INCLUDING COLD FORMED STEEL FABRICATIONS UTILIZED IN TRUSS-TO-FRAME CONNECTIONS.
F. COLD FORMED STEEL FABRICATIONS UTILIZED IN WOOD-TO-WOOD CONNECTIONS.

120.2 SHOP DRAWINGS TO BE SUBMITTED SHALL PROVIDE COMPLETE INFORMATION FOR THE PRODUCTS OR COMPONENTS TO BE SUPPLIED. SUBMITTAL INFORMATION SHALL INCLUDE, BUT NOT BE LIMITED TO, MEMBER SIZES AND DIMENSIONS; GRADES OF MATERIAL FURNISHED; MATERIAL PREPARATION REQUIRED; MATERIAL FINISH AND MATERIAL COATINGS TO BE FURNISHED; INFORMATION REGARDING CUTS, COPES, AND HOLES REQUIRED FOR OTHER TRADES; END CONNECTIONS; CAMBER AND OTHER DEVIATION FROM LINE; SPECIAL ERECTION AND/OR INSTALLATION PROCEDURES, INCLUDING REQUIREMENTS FOR TEMPORARY STABILIZATION.

120.3 ALL SHOP DRAWING RESUBMITTALS AND RECORD COPY SUBMITTALS SHALL HAVE ALL REVISIONS SUBSEQUENT TO THE PREVIOUS SUBMISSION CLOUDED OR OTHERWISE IDENTIFIED ON THE RESUBMITTED SHEETS. RESUBMITTALS AND RECORD COPY SUBMITTALS WITHOUT IDENTIFICATION OF REVISIONS WILL BE REJECTED WITHOUT REVIEW.

120.4 THE CONTRACTOR SHALL DESIGN AND SUBMIT CALCULATIONS, SIGNED AND SEALED BY A PROFESSIONAL ENGINEER LICENSED TO PRACTICE IN THE STATE OF NORTH CAROLINA, FOR ALL DELEGATED DESIGN COMPONENTS. DESIGN OF THESE COMPONENTS SHALL MEET ALL RELEVANT REQUIREMENTS OF THE APPLICABLE DESIGN BUILDING CODES. DELEGATED DESIGN COMPONENTS INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING:

A. PREFABRICATED WOOD TRUSSES INCLUDING COLD FORMED STEEL FABRICATIONS UTILIZED IN TRUSS-TO-FRAME CONNECTIONS.
B. BRICK VENEER ANCHORS GREATER THAN 4-1/2"

120.5 ALL STEEL-TO-STEEL SHEAR CONNECTIONS SHALL BE SELECTED BY THE STEEL FABRICATOR IN ACCORDANCE WITH THE AISC CODE OF STANDARD PRACTICE SECTION 3.1.1.(2), BASED ON THE REACTIONS REQUIRED BY SECTION 510 OF THE GENERAL NOTES OR OTHERWISE INDICATED IN THE CONTRACT DOCUMENTS.

120.6 THE CONTRACTOR SHALL NOT DIRECTLY INCORPORATE THE STRUCTURAL DRAWINGS, OR PORTIONS THEREOF, INTO SHOP DRAWINGS OR ERECTION DRAWINGS TO BE SUBMITTED FOR THIS PROJECT WITHOUT FIRST OBTAINING THE EXPRESS WRITTEN PERMISSION OF ATLANTIC ENGINEERING SERVICES. SUBMITTED SHOP DRAWINGS WHICH CONTAIN COPIES OR REPRODUCTIONS OF ANY PORTION OF THE STRUCTURAL DRAWINGS WITHOUT THE EXPRESS WRITTEN PERMISSION OF ATLANTIC ENGINEERING SERVICES WILL BE RETURNED REJECTED. PERMISSION FOR A SPECIFIC CONTRACTOR OR SUB-CONTRACTOR TO USE PORTIONS OF THE STRUCTURAL DRAWINGS IN THEIR PREPARATION OF SHOP DRAWINGS REQUIRES THAT CONTRACTOR OR SUB-CONTRACTOR TO ENTER INTO A WRITTEN AGREEMENT WITH ATLANTIC ENGINEERING SERVICES AND TO PAY A SERVICE FEE. SUCH AGREEMENT IS NON-TRANSFERRABLE AND IS EXTENDED ONLY TO THAT CONTRACTOR FOR THE DURATION OF THIS PROJECT.

120.7 THE CONTRACTOR SHALL SUBMIT ELECTRONIC OR PRINTED COPIES OF SHOP DRAWINGS (ELECTRONIC COPIES ARE PREFERRED). COPIES SHALL BE SUBMITTED TO ATLANTIC ENGINEERING SERVICES IN PDF FILE FORMAT (ISO 32000-1), WITH ONE (1) ELECTRONIC FILE PER SUBMISSION. ATLANTIC ENGINEERING SERVICES WILL REVIEW, ANNOTATE, AND RETURN ONE (1) FILE TO THE ARCHITECT FOR THEIR REVIEW AND DISTRIBUTION TO THE CONTRACTOR.

120.8 THE REVIEW OF SHOP DRAWINGS AND OTHER SUBMITTALS FOR THIS PROJECT IS FOR CONFORMANCE WITH THE DESIGN CONCEPT AND FOR GENERAL COMPLIANCE WITH THE INFORMATION CONTAINED IN THE CONTRACT DOCUMENTS. COMMENTS REGARDING THESE SUBMITTALS DO NOT RELIEVE THE CONTRACTOR FROM COMPLIANCE WITH THE CONTRACT DOCUMENTS. THE CONTRACTOR IS RESPONSIBLE FOR PERFORMING HIS WORK IN A SAFE AND SATISFACTORY MANNER.

200. FOUNDATIONS - GENERAL

200.1 FOUNDATIONS HAVE BEEN DESIGNED AND SHALL BE CONSTRUCTED IN ACCORDANCE WITH CRITERIA ESTABLISHED BY CONCORD ENGINEERING AND SURVEYING, INC. (CESI) IN THEIR GEOTECHNICAL REPORT DATED FEBRUARY 15, 2020.

200.2 THE CONTRACTOR SHALL OBSERVE WATER CONDITIONS AT THE SITE AND TAKE THE NECESSARY PRECAUTIONS TO ENSURE THAT THE FOUNDATION EXCAVATIONS REMAIN DRY DURING CONSTRUCTION. PROVIDE FOR DEWATERING AS NECESSARY.

200.3 THE CONTRACTOR SHALL USE EXTREME CAUTION DURING EXCAVATION. SUCH EXCAVATION SHALL BE PERFORMED IN SUCH A MANNER AS TO MAINTAIN THE STRUCTURAL INTEGRITY OF ALL EXISTING STRUCTURES TO REMAIN. PROVIDE TEMPORARY SHORING AS REQUIRED.

200.4 CONCRETE SLABS ON GRADE HAVE BEEN DESIGNED TO BEAR ON COMPACTED SUBGRADE SOILS OR PROPERLY COMPACTED FILL AS PER THE REPORT REFERENCED IN NOTE 200.1.

200.5 SLABS ON GRADE SHALL BE UNDERLAIN BY A MINIMUM OF 4" OF FREE-DRAINING, WELL-GRADED SUBBASE MATERIAL AS PER THE REPORT REFERENCED IN NOTE 200.1.

200.6 PROVIDE 15 MIL FLEXIBLE SHEET MEMBRANE VAPOR RETARDER BETWEEN THE CONCRETE FLOOR SLAB AND THE COMPACTED BEARING SOILS. VAPOR RETARDER SHALL BE IN ACCORDANCE WITH ASTM E1745, CLASS A. INSTALL VAPOR RETARDER PER ASTM E1643. LAP JOINTS 6 INCHES AND SEAL WITH RECOMMENDED ADHESIVE TAPE.

210. SHALLOW FOUNDATIONS

210.1 FOUNDATIONS HAVE BEEN DESIGNED AND SHALL BE CONSTRUCTED IN ACCORDANCE WITH CRITERIA ESTABLISHED IN THE GEOTECHNICAL REPORT PER NOTE 200.1.

210.2 SPREAD FOOTINGS HAVE BEEN DESIGNED TO BEAR ON UNDISTURBED SOILS OR PROPERLY COMPACTED FILL HAVING AN ALLOWABLE BEARING CAPACITY OF 2500 PSF, AS PER NOTE 200.1.

210.3 ELEVATIONS SHOWN ON THE DRAWINGS AT WHICH FOUNDATIONS ARE TO BEAR ARE APPROXIMATE. MATERIAL ON WHICH FOUNDATIONS ARE TO BEAR SHALL HAVE AT LEAST THE ABOVE NOTED CAPACITY. ALL EXTERIOR FOUNDATIONS SHALL BE A MINIMUM OF 12" BELOW FINISHED GRADE.

210.4 UNLESS OTHERWISE SHOWN ON DRAWINGS, STEP SHALLOW FOUNDATIONS BELOW ALL WATER LINES. ENCASE ALL SANITARY AND NON-PRESSURIZED PIPE. PROVIDE FOUNDATION STEPS AND ENCASEMENT IN ACCORDANCE WITH THE TYPICAL DETAILS. COORDINATE THE EXACT LOCATION AND ELEVATION OF THE PLUMBING LINES WITH THE MECHANICAL AND PLUMBING DRAWINGS AND CONTRACTORS. PROVIDE SLEEVES IN THE FOUNDATION WALLS AS REQUIRED FOR PIPE PENETRATIONS.

210.5 THE OWNER SHALL RETAIN THE SERVICES OF A PROFESSIONAL GEOTECHNICAL ENGINEER, SUBJECT TO THE APPROVAL OF THE ARCHITECT, TO INSPECT THE FOUNDATIONS, BEARING LEVELS, ETC., AND VERIFY THAT THE MATERIAL ON WHICH FOUNDATIONS BEAR HAS AT LEAST THE ABOVE NOTED CAPACITY.

300. REINFORCED CONCRETE

300.1 ALL REINFORCED CONCRETE WORK SHALL BE IN CONFORMANCE WITH THE "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE" (ACI 318, LATEST EDITION) AND SPECIFICATIONS FOR STRUCTURAL CONCRETE (ACI 301, LATEST EDITION) OF THE AMERICAN CONCRETE INSTITUTE.

300.2 MINIMUM DESIGN COMPRESSION STRENGTH (f'c) REQUIRED AT 28 DAYS:

A. FOUNDATIONS______________________________3000 PSI
B. INTERIOR SLABS ON GRADE____4000 PSI

300.3 MAXIMUM WATER TO CEMENTITIOUS MATERIALS RATIO:

A. FOUNDATIONS______________________________0.60
B. INTERIOR SLABS ON GRADE ____0.50

300.4 ALL CONCRETE SHALL BE NORMAL WEIGHT CONCRETE (MINIMUM 144 PCF) WITH ALL PORTLAND CEMENT CONFORMING TO ASTM C150, TYPE I, II OR I/II. MAXIMUM NOMINAL COARSE AGGREGATE SIZE SHALL BE 1-1/2" FOR FOUNDATIONS AND 3/4" FOR WALLS AND SLABS, CONFORMING TO ASTM C33.

300.5 MIXING WATER SHALL CONFORM TO ASTM C1602.

300.6 ADMIXTURES SHALL CONFORM TO THE REQUIREMENTS OF SECTION 26.4.1.4.1 OF ACI 318.

300.7 ADMIXTURES SHALL NOT CONTAIN CALCIUM CHLORIDE OR CHLORIDE-CONTAINING COMPOUNDS AS A FUNCTIONAL INGREDIENT.

300.8 REINFORCEMENT

A. DEFORMED BARS______________________________ASTM A615, GRADE 60
B. WELDED WIRE REINFORCING____________________ASTM A1064

300.9 COVER FOR CAST-IN-PLACE CONCRETE REINF., UNLESS OTHERWISE SHOWN ON DRAWINGS, SHALL BE AS FOLLOWS (REFER TO ACI 117 FOR ALLOWABLE CONSTRUCTION TOLERANCES):

A. FOUNDATIONS______________________________3"
B. SLABS CAST AGAINST EARTH___2" FOR 4" SLABS; DEPTH/3 FOR SLABS GREATER THAN 4".

300.10 SPLICES IN REINFORCEMENT, WHERE PERMITTED, SHALL BE AS FOLLOWS:

A. WELDED WIRE REINFORCING____________________8"
B. ALL OTHERS______________________________CLASS "B" TENSION, CASE "1" MINIMUM, UNO

300.11 CLASS "B", CASE "1" TENSION SPLICES IN INCHES, SHALL BE AS FOLLOWS:

SIZE		3000 PSI		4000 PSI	
		TOP BARS	ALL OTHERS	TOP BARS	ALL OTHERS
#3	(#10)	28	22	24	19
#4	(#13)	37	29	32	25
#5	(#16)	47	36	40	31
#6	(#19)	56	43	48	37
#7	(#22)	81	63	70	54
#8	(#25)	93	72	80	62
#9	(#29)	105	81	91	70
#10	(#32)	118	91	102	79
#11	(#36)	131	101	113	87

300.12 PARALLEL REINFORCEMENT PLACED IN TWO OR MORE LAYERS SHALL HAVE A CLEAR DISTANCE BETWEEN LAYERS OF 1". UPPER LAYER BARS SHALL BE PLACED DIRECTLY ABOVE BARS IN THE BOTTOM LAYER.

300.13 ALL REINFORCING SHALL BE HELD SECURELY IN POSITION WITH STANDARD ACCESSORIES DURING PLACEMENT OF CONCRETE. REINFORCING SUPPORTS FOR ALL EXPOSED CONCRETE SHALL BE GALVANIZED WITH PLASTIC COATED FEET. ALL WELDED WIRE REINFORCING SHALL BE CHAIRED.

300.14 ALL TIES/STIRRUPS SHALL HAVE 135 DEGREE BENDS UNLESS OTHERWISE APPROVED BY ENGINEER.

300.15 PROVIDE 1/2" PREMOULDED EXPANSION MATERIAL WHERE SLAB ON GRADE IS POURED AROUND COLUMNS AND AGAINST WALLS UNLESS OTHERWISE SHOWN ON DRAWINGS.

300.16 CONTRACTION JOINTS FOR SLABS-ON-GRADE SHALL BE SPACED AS INDICATED ON THE SLAB PLAN OR NO MORE THAN 12'-0" ON CENTER WHEN NOT INDICATED ON DRAWINGS. PANELS FORMED BY JOINTS OR SLAB EDGES SHALL BE AS SQUARE AS POSSIBLE WITH A LENGTH-TO-WIDTH RATIO NOT TO EXCEED 1.5.

300.17 CONTRACTOR SHALL VERIFY DIMENSIONS AND LOCATIONS OF ALL SLOTS, PIPE SLEEVES, ETC., AS REQUIRED FOR MECHANICAL TRADES BEFORE CONCRETE IS PLACED.

300.18 PRIOR TO CONCRETE PLACEMENT, THE CONTRACTOR SHALL SUBMIT A CONCRETE MIX DESIGN PREPARED IN ACCORDANCE WITH ACI 301 TO THE STRUCTURAL ENGINEER FOR REVIEW.

300.19 THE CONTRACTOR SHALL ENGAGE A QUALIFIED INDEPENDENT TESTING LABORATORY, SUBJECT TO THE APPROVAL OF THE OWNER, TO SAMPLE AND TEST CONCRETE AT THE POINT OF PLACEMENT PER ACI 301. A COPY OF THE TEST RESULTS SHALL BE PROVIDED TO THE OWNER AND ENGINEER. TESTING SHALL INCLUDE AT LEAST THE FOLLOWING:

A. RECORD THE TEMPERATURE AND PERFORM ONE SLUMP TEST PER ASTM C 143 FOR EACH 10 CY OF CONCRETE PLACED.

B. CAST AND LABORATORY CURE SIX (6) CONCRETE COMPRESSIVE STRENGTH TEST CYLINDERS IN ACCORDANCE WITH ASTM C 31 FOR EACH 50 CY OF EACH CLASS OF CONCRETE OR FRACTION THEREOF PLACED PER DAY. TEST (IN ACCORDANCE WITH ASTM C 39) TWO (2) CYLINDERS AT 7 DAYS, TWO (2) CYLINDERS AT 28 DAYS AND RETAIN TWO (2) CYLINDERS FOR TESTING AT 56 DAYS IN THE EVENT THE 28 DAY CYLINDERS DO NOT MEET THE SPECIFIED CONCRETE COMPRESSIVE STRENGTH.

350. CONCRETE/MASONRY ANCHORS

350.1 ALL ADHESIVE FOR ANCHORING TO CONCRETE SHALL BE "HILTI HIT-HY 200 ADHESIVE ANCHORS" AS MANUFACTURED BY HILTI FASTENING SYSTEMS, INC. (OR APPROVED EQUIVALENT).

350.2 THE "HAS-E THREADED ROD" SHALL CONFORM TO ISO 898 CLASS 5.8 WITH A MINIMUM TENSILE STRENGTH OF 72.5 KSI. THE NUT SHALL CONFORM TO SAE J995 GRADE 5.

350.3 THE SPACING AND MINIMUM EMBEDMENT OF POST-INSTALLED ANCHORS SHALL BE AS INDICATED ON DRAWINGS. THE INSTALLATION OF THE ANCHORS SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDED PROCEDURES.

420. MASONRY

420.1 BRICK VENEER ANCHORS SHALL BE PROVIDED PER ACI 530 AND SHALL BE SPACED NOT MORE THAN 16" O.C. HORIZONTALLY OR VERTICALLY WITH ADDITIONAL ANCHORS PROVIDED WITHIN 8" OF OPENINGS AND SPACED NOT MORE THAN 16" AROUND PERIMETER. BRICK VENEER ANCHORS INSTALLED IN WALLS WITH A DIMENSION FROM INSIDE FACE OF BRICK TO FACE OF BACKUP SUBSTRATE GREATER THAN 4 1/2" SHALL BE DESIGNED BY A PROFESSIONAL ENGINEER LICENSED TO PRACTICE IN THE STATE OF NORTH CAROLINA FOR WIND AND SEISMIC LATERAL LOADS.

420.2 BRICK VENEER ANCHORS SHALL MEET THE REQUIREMENTS OF ACI 530 SEISMIC PERFORMANCE CATEGORY C.

510. STRUCTURAL STEEL

510.1 ALL STRUCTURAL STEEL WORK SHALL BE IN ACCORDANCE WITH ANSI/AISC 360 - 10 "SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS." LOADS, FORCES AND MOMENTS INDICATED ARE SERVICE LEVEL AND ARE INTENDED FOR USE WITH THE ALLOWABLE STRENGTH DESIGN PROVISIONS OF THE CODE.

510.2 GRADE OF STEEL

A. STRUCTURAL W SHAPES____________________ASTM A992
B. STRUCTURAL C, MC, AND L SHAPES______________ASTM A36
C. HOLLOW STRUCTURAL SECTIONS (HSS) (ROUND OR RECTANGULAR)____________________ASTM A500, GRADE B OR ASTM A1085, GRADE 50
D. STEEL PIPE______________________________ASTM A53 GRADE B
E. PLATES AND BARS____________________________ASTM A36

510.3 ALL BOLTED CONNECTIONS SHALL CONFORM TO THE REQUIREMENTS OF THE RESEARCH COUNCIL ON STRUCTURAL CONNECTIONS (RCSC) "SPECIFICATION FOR STRUCTURAL JOINTS USING HIGH-STRENGTH BOLTS" (LATEST EDITION).

510.4 ALL BOLTS SHALL BE ASTM A325, TYPE 1, 3/4" DIAMETER MINIMUM, UNLESS OTHERWISE NOTED. WHERE NECESSARY DUE TO CONNECTION REQUIREMENTS THE CONTRACTOR MAY UTILIZE ASTM A490, TYPE 1 BOLTS. THE USE OF BOLTS WITH DIFFERENT ASTM DESIGNATIONS AND THE SAME DIAMETER IS PROHIBITED.

510.5 PROVIDE THE FOLLOWING BOLTED JOINT TYPES UNLESS OTHERWISE INDICATED OR NOTED ON DRAWINGS:

A. SNUG-TIGHTENED JOINTS: ALL SIMPLE SHEAR CONNECTIONS.

510.6 ALL WELDING SHALL BE IN ACCORDANCE WITH THE STRUCTURAL WELDING CODE, AWS D1.1, LATEST EDITION, OF THE AMERICAN WELDING SOCIETY. ELECTRODES SHALL BE E70XX FOR MANUAL ARC WELDING AND F7X-EXXX FOR SUBMERGED ARC WELDING.

510.7 ALL BEAM-TO-COLUMN CONNECTIONS SHALL BE SELECTED FOR THE SUMMATION OF THE FOLLOWING LOADS:

A. THE BEAM END CONNECTION DESIGN REACTION REQUIRED BY THE GENERAL NOTES BELOW.
B. A MINIMUM 10.0 KIP AXIAL FORCE (IN TENSION AND COMPRESSION).

510.8 CUTS, HOLES AND COPING, ETC. REQUIRED FOR OTHER TRADES SHALL BE SHOWN ON THE SHOP DRAWING AND MADE IN THE SHOP. CUTS OR BURNING OR HOLES IN STRUCTURAL STEEL IN THE FIELD WILL NOT BE PERMITTED.

510.9 ALL STRUCTURAL STEEL FRAMES SHALL BE SECURELY BRACED UNTIL ALL FLOOR SLABS, ROOF DECKS, AND SHEAR WALLS HAVE BEEN INSTALLED AND BECOME CAPABLE OF STABILIZING THE FRAMES.

510.10 ALL STRUCTURAL STEEL WORK, EXCEPT PORTIONS OF MEMBERS TO BE WELDED, FIELD BOLTED, OR FIREPROOFED, SHALL BE SHOP PAINTED WITH THE FABRICATORS STANDARD PRIMER APPLIED TO A THICKNESS OF 1 MIL ON STEEL THAT HAS BEEN PREPARED IN ACCORDANCE WITH SSPC-SP2. ADDITIONAL AREAS SHALL BE FIELD PAINTED AFTER WELDING.

510.11 BOLT AND WELD TESTING:

A. ALL SHOP AND FIELD BOLTS SHALL VISUALLY INSPECTED.
B. ALL WELDS SHOULD BE VISUALLY INSPECTED.

510.12 LEVELING GROUT SHALL BE NON-SHRINK, NON-METALLIC TYPE, FACTORY PRE-MIXED GROUT TESTED IN ACCORDANCE WITH CE-CRD-C621 OR ASTM C109, WITH f'c OF NOT LESS THAN 5000 PSI.

510.13 ALL ANCHOR BOLTS SHALL BE ASTM A36 OR ASTM F1554, GRADE 36 AND A MINIMUM 3/4" DIAMETER WITH A MINIMUM CONCRETE EMBEDMENT OF 12" UNLESS NOTED OTHERWISE.

510.14 STEEL ELEMENTS IN DIRECT CONTACT WITH EARTH SHALL BE PAINTED WITH ASPHALTIC PAINT CONFORMING TO STEEL STRUCTURES PAINTING COUNCIL (SSPC) PAINT SYSTEM 16.

610. STRUCTURAL LUMBER

610.1 ALL STRUCTURAL LUMBER WORK SHALL BE IN ACCORDANCE WITH THE "NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION" (NDS - LATEST EDITION) PUBLISHED BY THE AMERICAN WOOD COUNCIL.

610.2 ALL STRUCTURAL LUMBER SHALL BE AS A MINIMUM NO. 2 GRADE SOUTHERN PINE AND SHALL HAVE AT LEAST THE FOLLOWING MINIMUM ALLOWABLE DESIGN STRESSES (NOT INCORPORATING THE SIZE ADJUSTMENT FACTOR (CF)) AND MODULUS OF ELASTICITY AT A MAXIMUM MOISTURE CONTENT OF 19%:

A. Fb.(BENDING)______________________________750 PSI
B. Fv.(SHEAR)______________________________175 PSI
C. Fc.(COMPRESSION)__________________________1,250 PSI
D. Ft.(TENSION)______________________________450 PSI
E. E______________________________________1,400,000 PSI

610.3 ALL LUMBER SHALL COMPLY WITH PS 20 "AMERICAN SOFTWOOD LUMBER STANDARD" AND WITH THE APPLICABLE RULE OF INSPECTION AGENCIES CERTIFIED BY AMERICAN LUMBER STANDARD. FACTORY-MARK EACH PIECE OF LUMBER WITH GRADE STAMP OF INSPECTION AGENCY EVIDENCING COMPLIANCE WITH GRADING RULE REQUIREMENTS.

610.4 EXTERIOR STUD WALLS SHALL BE CONTINUOUSLY BRIDGED AT MID-HEIGHT WITH WOOD BLOCKING.

610.5 PROVIDE CONTINUOUS DOUBLE 2X TOP PLATE TYPICAL AT ALL WOOD STUD WALLS. SPLICES IN TOP PLATE PLYS SHALL BE MADE OVER STUDS. PROVIDE CONTINUOUS SINGLE 2X BOTTOM PLATE AT ALL WOOD STUD WALLS. BOTTOM PLATES IN DIRECT CONTACT WITH CONCRETE OR MASONRY SHALL BE PRESERVATIVE TREATED UNLESS NOTED OTHERWISE.

610.6 NO CUTS, HOLES, OR COPES REQUIRED FOR OTHER TRADES IN STRUCTURAL WOOD FRAMING WILL BE PERMITTED WITHOUT PRIOR REVIEW AND APPROVAL OF ENGINEER AND ARCHITECT.

610.7 PRESSURE TREAT WITH WATER-BORNE PRESERVATIVES ALL LUMBER FOR SILL PLATES AND OTHER WOOD WHICH MAY BE EXPOSED TO WEATHER OR EARTH. PRESSURE TREATMENT SHALL COMPLY WITH REQUIREMENTS OF AWPA STANDARDS C2 AND LP-22.

610.8 ALL "MICROLLAM" LUMBER SHALL BE MANUFACTURED BY THE 'TRUSS JOIST, A WEYERHAEUSER BUSINESS' OR AN APPROVED EQUIVALENT MANUFACTURER WITH AT LEAST THE FOLLOWING MINIMUM DESIGN STRESSES:

A. Fb (BENDING)______________________________2600 PSI
B. Fv (SHEAR)______________________________285 PSI
C. Fc (COMPRESSION PARALLEL TO GRAIN)__________2500 PSI
D. Fc (COMPRESSION PERPENDICULAR TO GRAIN)______750 PSI
E. E______________________________________1,900,000 PSI

610.9 PROVIDE MINIMUM 4" BEARING FOR ALL "MICROLLAM" MEMBERS.

610.10 PROVIDE NAILING PATTERN IN COMPLIANCE WITH THE DESIGN BUILDING CODE'S RECOMMENDED FASTENING SCHEDULE WHEN JOINING TWO OR MORE FRAMING MEMBERS.

610.11 ALL WOOD JOIST OR HEADERS ENDS WHICH FRAME INTO BEAMS SHALL BE HUNG WITH THE FOLLOWING JOISTS HANGERS AS MANUFACTURED BY SIMPSON STRONG-TIE COMPANY, INC., OR WITH APPROVED SUBSTITUTES WITH THE FOLLOWING WORKING LOAD CAPACITIES:

JOIST SIZE	SIMPSON HANGER	LOAD CAPACITY
2X6	U26	705 LBS.
2X8	U26	705 LBS.
2X10	U210	1,175 LBS.
2X12	U210	1,175 LBS.
2-2X6	HU26-2	990 LBS.
2-2X8	HU28-2	1,303 LBS.
2-2X10	HU210-2	1,666 LBS.
2-2X12	HU212-2	2,016 LBS

620. STRUCTURAL WOOD PANELS/WOOD SHEATHING

620.1 FURNISH PANELS THAT ARE EACH FACTORY MARKED WITH A CERTIFICATION STAMP EVIDENCING COMPLIANCE WITH GRADE AND SPAN RATING REQUIREMENTS. THE CENTER-TO-CENTER SPACING IN INCHES SHALL NOT EXCEED THE SPAN RATING STAMPED ON THE PANELS. INSTALLATION OF THE PANELS SHALL BE IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE APA.

620.2 PANELS SHALL COMPLY WITH USDOC PS-1 OR PS-2 AND APA PRP-108 AND SHALL MEET THE FOLLOWING REQUIREMENTS:

A. WALL SHEATHING:

1. MIN. THICKNESS = 7/16" (AT NON-SHEAR WALL)
2. BOND CLASSIFICATION = EXPOSURE 1 EXTERIOR
3. GRADE = APA RATED STRUCTURAL 1
4. SPAN RATING = AS REQUIRED TO SUIT STUD SPACING

**SEE PLAN FOR SHEAR WALL LOCATIONS

B. ROOF SHEATHING:

1. MIN. THICKNESS = 5/8"
2. BOND CLASSIFICATION = EXPOSURE 1 EXTERIOR
3. GRADE = APA RATED SHEATHING
4. SPAN RATING = AS REQUIRED TO SUIT JOIST/TRUSS SPACING

620.3 ALL PANELS WHICH HAVE ANY EDGE OR FACE PERMANENTLY EXPOSED TO THE WEATHER SHALL BE CLASSED EXTERIOR, EXCEPT OPEN SOFFITS OR ROOF SHEATHING EXPOSED ON THE UNDERSIDE MAY BE CLASSED EXPOSURE 1.

620.4 ALL ROOF PANELS SHALL HAVE THE END JOINTS LOCATED OVER SUPPORTS AND SHALL HAVE THE ROWS STAGGERED ONE HALF PANEL LENGTH FROM ADJACENT PANELS. PROVIDE 1/8" SPACE AT PANEL ENDS AND EDGES.

620.5 ALL WALL PANELS SHALL HAVE THE END JOINTS LOCATED OVER SUPPORTS.

620.6 WALL PANELS WHICH ARE INSTALLED IN MULTIPLE COURSES (ROWS) SHALL HAVE VERTICAL PANEL JOINTS STAGGERED ONE HALF THE PANEL LENGTH AND SHALL HAVE THE FREE EDGES OF THE PANELS BLOCKED BETWEEN THE STUDS WITH 2X4 BLOCKING INSTALLED WITH THE BROAD FACE AGAINST THE FACE OF THE PANEL. PROVIDE 1/8" SPACE AT PANEL ENDS AND EDGES.

620.7 ALL ROOF STRUCTURAL PANELS SHALL BE NAILED WITH 8d SPIRAL OR RING SHANK NAILS AT 6" OC. SHEATHING SHALL BE NAILED AT ALL ENDS AND INTERMEDIATE SUPPORTS.

620.8 ALL WALL STRUCTURAL PANELS SHALL BE NAILED WITH 8D COMMON NAILS AT 6" ON CENTER AT ALL ENDS, EDGES, AND INTERMEDIATE SUPPORTS. NAIL SPACING SHALL BE 4" ON CENTER AT CORNER STUDS OR AS INDICATED ON THE SHEAR WALL ELEVATIONS.

620.9 METAL PLATE WOOD TRUSSES SERVING AS BOUNDRY ELEMENTS IN WOOD DIAPHRAGMS SHALL BE EITHER DESIGNED FOR THE HORIZONTAL UNIT SHEAR FORCE EQUIVALENT TO THE SHEATHING ATTACHMENT INDICATED OR FULLY SHEATHED BY STRUCTURAL WOOD PANELS ATTACHED AS SPECIFIED FOR THE DIAPHRAGM IN WHICH THE TRUSS IS INSTALLED.

635. WOOD TRUSSES

635.1 WOOD TRUSSES SHALL CONFORM TO THE MOST CURRENT APPLICABLE EDITION OF THE DESIGN SPECIFICATIONS FOR LIGHT METAL PLATE CONNECTED WOOD ROOF TRUSSES, OF THE TRUSS PLATE INSTITUTE, INC. AND THE NATIONAL DESIGN SPECIFICATIONS FOR STRESS GRADE LUMBER AND ITS FASTENING, OF THE NATIONAL FOREST PRODUCTS ASSOCIATION.

635.2 THE WOOD TRUSS MANUFACTURER SHALL SUBMIT STRUCTURAL CALCULATIONS SIGNED AND SEALED BY A PROFESSIONAL ENGINEER LICENSED TO PRACTICE IN THE STATE OF NORTH CAROLINA.

635.3 THE DELEGATED TRUSS SYSTEM DOCUMENTS, SIGNED AND SEALED BY THE TRUSS SYSTEM ENGINEER, SHALL COMPLY WITH ALL REQUIREMENTS INDICATED AND DEPICTED ON THE CONSTRUCTION DOCUMENTS. THE DELEGATED TRUSS SYSTEM ENGINEER SHALL BE REQUIRED TO CONTACT ATLANTIC ENGINEERING SERVICES (AES) TO RESOLVE ANY CONFLICT OR DISCREPANCY WITH THESE REQUIREMENTS. THE TRUSS SYSTEM ENGINEER SHALL NOT BE PERMITTED TO DEVIATE OR ALTER THE REQUIREMENTS WITHOUT WRITTEN APPROVAL FROM AES. AES'S REVIEW OF THE DELEGATED TRUSS SYSTEM DOCUMENTS SHALL NOT BE CONSIDERED AS WRITTEN APPROVAL AND DOES NOT RELIEVE THE DELEGATED TRUSS SYSTEM ENGINEER OF THEIR RESPONSIBILITY TO COMPLY WITH THE REQUIREMENTS SPECIFIED ON THE CONSTRUCTION DOCUMENTS.

635.4 THE WOOD TRUSS MANUFACTURER MAY SUBMIT PROPOSED REVISIONS TO THE TRUSS LAYOUT PLAN AND TRUSS CONFIGURATIONS TO IMPROVE THE CONSTRUCTABILITY OF THE PROJECT OR AS NECESSARY TO ACHIEVE THE TRUSS DESIGN CRITERIA. PROPOSED REVISIONS ARE NOT PERMITTED WITHOUT THE APPROVAL OF ATLANTIC ENGINEERING SERVICES. THE MANUFACTURER SHALL NOT PROCEED WITH TRUSS FABRICATION OR INSTALLTION WITHOUT RECIEPT OF REVISED STRUCTURAL CONSTRUCTION DOCUMENTS THAT INCORPORATE THE APPROVED MODIFICATIONS REQUESTED BY THE MANUFACTURER.

635.5 THE WOOD TRUSS MANUFACTURER SHALL SPECIFY AND PROVIDE ALL BRACING AT TOP AND BOTTOM CHORDS AS REQUIRED TO STABILIZE THE FLOOR OR ROOF STRUCTURE DURING AND AFTER CONSTRUCTION, IN ADDITION TO THE BRACING INDICATED ON THE STRUCTURAL DRAWINGS.

635.6 ERECTION SHALL BE IN ACCORDANCE WITH TRUSS PLATE INSTITUTE RECOMMENDATIONS.

635.7 WOOD ROOF TRUSSES SHALL BE DESIGNED TO SUPPORT THE LOADS INDICATED BELOW AT THE SPACING INDICATED ON THE DRAWINGS.

A. DEAD LOADS:

1. UNIFORM TOP CHORD DEAD LOAD________________________20 PSF
2. UNIFORM BOTTOM CHORD DEAD LOAD________________________15 PSF
3. UNIFORM BOTTOM CHORD DEAD LOAD IN CORRIDOR AND MECHANICAL/ELECTRICAL ROOMS____55 PSF
4. BOTTOM CHORD CONCENTRATED LOAD AT ANY LOCATION ON BOTTOM CHORD________________150 LBS.

B. LIVE LOADS = SEE DESIGN CRITERIA GENERAL NOTES

C. LATERAL LOADS = SEE DESIGN CRITERIA GENERAL NOTES

635.8 THE DEFLECTION OF THE FLOOR AND ROOF TRUSSES UNDER THE INDICATED LOADS AND AT THE SPAN AND SPACINGS SHOWN ON THE CONTRACT DRAWINGS SHALL MEET THE FOLLOWING CRITERIA:

A. ROOF TRUSSES: THE DEFLECTION DUE TO THE TOTAL ROOF LOAD SHALL NOT EXCEED THE SPAN LENGTH/240. THE DEFLECTION DUE TO THE ROOF LIVE/SNOW LOAD SHALL NOT EXCEED THE SPAN LENGTH/360. DETERMINATION OF THE DEAD LOAD DEFLECTION SHALL UTILIZE A TIME DEPENDENT DEFORMATION (CREEP) FACTOR OF 2.0.

635.9 NO SPLICES IN WEBS, CHORDS, OR OTHER LOAD CARRYING MEMBERS MAY BE MADE WITHOUT REVIEW AND APPROVAL ON THE FINAL TRUSS SHOP DRAWINGS WHICH INCLUDE SPECIFIC LOCATIONS AND DETAILS FOR ANY SUCH SPLICE(S).

635.10 TEMPORARY TRUSS BRACING SHALL BE INSTALLED IN ACCORDANCE WITH "RECOMMENDED DESIGN SPECIFICATIONS FOR TEMPORARY BRACING OF METAL PLATE CONNECTED WOOD TRUSSES" (DSB-89) AND "COMMENTARY AND RECOMMENDATIONS FOR HANDLING, INSTALLING AND BRACING METAL PLATE CONNECTED WOOD TRUSSES" (HIB-91). INSTALL ALL WEB BRACING REQUIRED BY THE TRUSS DESIGNER. TEMPORARY BOTTOM CHORD WEB BRACING SHALL REMAIN PERMANENTLY IN PLACE. THE BOTTOM CHORD BRACING SHALL NOT EXCEED 10' FOR TRUSSES WHERE NO SHEATHING IS ATTACHED TO THE TRUSS BOTTOM CHORD OR WITH TRUSS BOTTOM FILLER. PROVIDE 2X4 LATERAL BRACING AT 36" ON CENTER UNDER PIGGYBACK TRUSSES. AT TRUSSES REQUIRING WEB BRACING, PROVIDE 2X4 DIAGONAL AT 20' MAX NAILED TO WEBS FROM ROOF TO BOTTOM CHORD. ALL BRACING SHALL BE NAILED WITH 2-16D NAILS TO TRUSSES.

635.11 BOTTOM CHORD BEARING PARALLEL CHORD TRUSSES SHALL BE CLEARLY MARKED IN A MANNER WHICH WILL AVOID INVERTED INSTALLATION IN ACCORDANCE WITH THE TRUSS PLATE INSTITUTE, "NATIONAL DESIGN STANDARD FOR METAL PLATE CONNECTED WOOD TRUSS CONSTRUCTION," ANSI/TPI 1 - LATEST EDITION.

635.12 THE WOOD TRUSS MANUFACTURER SHALL REFER TO MECHANICAL AND ELECTRICAL DRAWINGS FOR COORDINATION OF MECHANICAL/ ELECTRICAL UNITS AND SPECIAL CONCENTRATED LOADS SUPPORTED BY THE WOOD TRUSSES NOT INDICATED ON THE STRUCTURAL DRAWINGS.

635.13 WHERE MECHANICAL / ELECTRICAL LOADS ARE ATTACHED TO THE WOOD TRUSSES, ATTACHED LOADS SHALL NOT EXCEED THE LOADS INDICATED IN THE NOTES ABOVE. WHERE THE ACTUAL LOADS EXCEED THE LOADS INDICATED ABOVE, THE WOOD TRUSS MANUFACTURER SHALL EITHER PROVIDE ADDITIONAL FRAMING TO DISTRIBUTE THE LOADS TO CONFORM TO THE LOADS INDICATED OR PROVIDE ADDITIONAL LOCALIZED CAPACITY IN THE WOOD TRUSS DESIGN TO SUPPORT THE ACTUAL LOADS.

635.14 WHERE MULTIPLE PIPING LINES RUN PARALLEL, STAGGER THE PIPE SUPPORT HANGERS AS REQUIRED TO COMPLY WITH THE LOADS INDICATED ABOVE.

ROBERT JOHNSON
architects
1808 West Morehead St.
Charlotte, NC 28208
T 704 / 342.1058
F 704 / 342.3043

STAMPS

CONSULTANT

AES
17505 W. Catawba Ave
Suite 140
Cornelius, NC 28031
p 704.2472788
www.aespj.com
AES Project #620-033
© Copyright AES 2020
NC Firm No.: P-1415

ALBEMARLE SHOPS

CHARLOTTE, NC

PROJECT NUMBER 1943

ISSUE DATE

FOR CONSTRUCTION ONLY 07.01.20

DRAWING DATA

DRAWN BY: Author
CHECKED BY: Checker

GENERAL NOTES

S0.01