GENERAL STRUCTURAL NOTES

GENERAL:

1. THE DRAWINGS ARE INTENDED TO SHOW THE GENERAL ARRANGEMENT, DESIGN AND EXTENT OF THE WORK AND ARE PARTLY DIAGRAMMATIC. THEY ARE NOT INTENDED TO BE SCALED FOR ROUGHING-IN MEASUREMENTS, OR TO SERVE AS SHOP DRAWINGS OR PORTIONS THEREOF.
2. ALL DETAILS AND SECTIONS SHOWN ON THE DRAWINGS ARE INTENDED TO BE TYPICAL AND SHALL BE CONSTRUED TO APPLY TO ANY SIMILAR SITUATION ELSEWHERE ON THE PROJECT, EXCEPT WHERE A DIFFERENT DETAIL IS SHOWN.
3. THE CONTRACTOR AND ALL SUBCONTRACTORS SHALL VERIFY ALL GRADES, LINES, LEVELS, CONDITIONS AND DIMENSIONS AT THE JOB SITE AND AS SHOWN ON THE DRAWINGS. THEY SHALL REPORT ANY ERRORS OR INCONSISTENCIES IN THE ABOVE TO THE ARCHITECT/ENGINEER (A/E) BEFORE COMMENCING WORK. THE CONTRACTOR AND SUBCONTRACTORS SHALL LAY OUT THEIR WORK FROM ESTABLISHED REFERENCE POINTS AND BE RESPONSIBLE FOR ALL LINES, ELEVATIONS AND MEASUREMENTS IN CONNECTION WITH THEIR WORK.
4. PROTECTION:
   - A. THE CONTRACTOR IS RESPONSIBLE AND SHALL COMPLY WITH THE REQUIREMENTS OF THE NORTH CAROLINA STATE BUILDING CODE AND ALL LOCAL, STATE AND FEDERAL LAWS. THE ENGINEER AND HIS EMPLOYEES ARE NOT RESPONSIBLE FOR SAFETY PROCEDURES ON THIS PROJECT. THIS IS THE CONTRACTOR'S RESPONSIBILITY.
   - B. PROVIDE ALL SHORING, BRACING AND SHEETING AS REQUIRED FOR THE PROPER EXECUTION OF THE WORK. REMOVE WHEN THE WORK IS COMPLETED.
   - C. PROVIDE AND MAINTAIN GUARD LIGHTS AT ALL BARRICADES, RAILINGS, OBSTRUCTIONS IN THE STREETS, ROADS OR SIDEWALKS AND ALL TRENCHES OR PITS ADJACENT TO PUBLIC WALKS OR ROADS.
   - D. AT ALL TIMES PROVIDE PROTECTION AGAINST WEATHER (RAIN, WIND, STORMS OR HEAT) SO AS TO MAINTAIN ALL WORK, MATERIALS, APPARATUS AND FIXTURES FREE FROM DAMAGE.
   - E. THE CONTRACTOR SHALL PAY FOR ALL DAMAGES TO ADJACENT STRUCTURES, SIDEWALKS AND TO STREETS OR OTHER PUBLIC PROPERTY OR TO ANY PUBLIC UTILITIES.
   - F. AT THE END OF THE DAYS WORK, COVER ALL WORK LIKELY TO BE DAMAGED. ANY WORK DAMAGED BY FAILURE TO PROVIDE PROTECTION SHALL BE REMOVED AND REPLACED WITH NEW WORK AT THE CONTRACTOR'S EXPENSE.
5. IF ANY ERRORS OR OMISSIONS APPEAR IN THE DRAWINGS, SPECIFICATIONS OR OTHER DOCUMENTS THE CONTRACTOR SHALL NOTIFY THE ENGINEER IN WRITING OF SUCH OMISSIONS OR ERRORS PRIOR TO PROCEEDING WITH ANY WORK WHICH APPEARS IN QUESTION. IN THE EVENT OF THE CONTRACTOR'S FAILING TO GIVE SUCH NOTICE, HE SHALL BE HELD RESPONSIBLE FOR THE RESULTS OF ANY SUCH ERRORS OR OMISSIONS AND THE COST OF RECTIFYING THE SAME.
6. THE CONTRACTOR SHALL USE THE STRUCTURAL DRAWINGS TOGETHER WITH THE ARCHITECTURAL, MECHANICAL AND ELECTRICAL DRAWINGS TO LOCATE STEPPED FOOTINGS, DEPRESSED SLABS, SLOPES, DRAINS, OUTLETS, RECESSES, OPENINGS, REGLETS, BOLT SETTING, SLEEVES, DIMENSIONS, ETC. POTENTIAL CONFLICTS SHALL BE TRANSMITTED TO THE A/E BEFORE PROCEEDING WITH THE WORK.
7. SUBMIT DIGITAL FILES OF SHOP DRAWINGS FOR A/E REVIEW ONLY AFTER CONTRACTOR HAS REVIEWED & STAMPED BEFORE STARTING FABRICATION.
8. NO SHOP DRAWINGS SHALL BE SUBMITTED FOR A/E REVIEW UNTIL AFTER THEY HAVE BEEN REVIEWED AND NOTED FOR CONSTRUCTION METHOD, DIMENSIONING AND OTHER TRADE REQUIREMENTS BY THE CONTRACTOR AND STAMPED WITH THE CONTRACTOR'S APPROVAL SEAL. ENGINEER ASSUMES NO RESPONSIBILITY FOR DIMENSIONS, QUANTITIES, ERRORS OR OMISSIONS AS A RESULT OF CHECKING AND REVIEWING ANY SHOP DRAWINGS. ANY ERRORS OR OMISSIONS MUST BE MADE GOOD BY CONTRACTOR, IRRESPECTIVE OF RECEIPT, CHECKING OR REVIEW OF DRAWINGS BY ENGINEER AND EVEN THOUGH WORK IS DONE IN ACCORDANCE WITH SUCH DRAWINGS.
9. THE REVIEW OF ALL STRUCTURAL SUBMITTALS BY THE STRUCTURAL ENGINEER OF RECORD SHALL BE TO INSURE THAT HIS INTENT HAS BEEN UNDERSTOOD AND THAT THE SPECIFIED CRITERIA HAVE BEEN USED. A COPY OF ALL STRUCTURAL SUBMITTALS WILL BE RETAINED FOR RECORD KEEPING PURPOSES ONLY.
   WHERE CRITICAL DIMENSIONS CANNOT BE DETERMINED FROM THE PLANS, OR WHERE NEW WORK ADJOINS EXISTING CONSTRUCTION, OR WHERE ONE MATERIAL ADJOINS AN IN-PLACE MATERIAL, CONTRACTOR SHALL TAKE FIELD MEASUREMENTS AS REQUIRED TO COMPLETE SHOP DRAWINGS AND INSTALLATION. REPORT ANY DISCREPANCIES EXCEEDING 3% BETWEEN FIELD MEASURED DIMENSIONS AND SCALED DRAWING DIMENSIONS TO ARCHITECT BEFORE PROCEEDING WITH THE WORK.
10. WHERE A LINE OF STRUCTURE, OPENING LOCATION, OR DIMENSION IS CRITICAL AND BASED ON THE REQUIREMENTS OF ANOTHER TRADE OR SUBCONTRACTOR, THAT SUBCONTRACTOR SHALL SUBMIT A SHOP DRAWING WITH THE REQUIRED DIMENSIONAL INFORMATION UPON WHICH THE CONTRACTOR SHALL BASE THE LAYOUT AND CONSTRUCTION. THIS PROCEDURE IS MANDATORY FOR CURTAIN WALL SYSTEMS, ARCHITECTURAL PRECAST SYSTEMS AND ALL MECHANICAL AND ELECTRICAL OPENINGS.

EARTHWORK:

1. CONTRACTOR SHALL DEWATER SITE AS NECESSARY, SO THAT ALL CONCRETE CAN BE PLACED IN THE DRY. ALL BACKFILL SHALL BE ACCOMPLISHED USING MATERIAL CONSISTING OF CRUSHED STONE AND/OR MATERIAL APPROVED BY THE GEOTECHNICAL ENGINEER. THE BACKFILL SHALL BE COMPACTED TO 95% OF MAXIMUM DENSITY AS DETERMINED BY ASTM D-698. IN ADDITION, THE UPPER 18 INCHES OF SUBGRADE FILL BENEATH PAVEMENTS AND FLOOR SLABS AND 24 INCHES BELOW PAVEMENTS SUBJECT TO TRUCK TRAFFIC SHALL BE COMPACTED TO 100% OF THE SAME SPECIFICATION. NO BACKFILL MATERIAL SHALL BE PLACED AGAINST WALLS WHICH DO NOT HAVE PERMANENT FLOORS AT THE TOP AND BOTTOM WITHOUT PROVISIONS FOR ADEQUATE TEMPORARY BRACING OF THOSE WALLS. PROVIDE ADEQUATE EXCAVATION SPACING IN ACCORD WITH GEOTECHICAL ENGINEER RECOMMENDATIONS TO MAINTAIN EXISTING FOOTINGS, UTILITIES AND OTHER IMPROVEMENTS IN A SAFE MANNER.

FOUNDATIONS: (SPREAD FOOTINGS)

1. FOUNDATIONS ARE DESIGNED TO BEAR ON SOIL CAPACITY AS PLAN SPECIFIED SEE SPECIFICATIONS FOR OTHER REQUIREMENTS. NOTIFY ENGINEER OF ANY DISCREPANCY IN BEARING CAPACITY BEFORE PROCEEDING WITH THE WORK.
2. TOP OF WALL FOOTINGS TO BE AT SAME ELEVATION AS TOP OF COLUMN FOOTINGS. WALL FOOTING REINFORCEMENT TO RUN CONTINUOUS THROUGH COLUMN FOOTING. STEP WALL FOOTING FROM HIGHER COLUMN FOOTING TO LOWER ONE.
3. ALL EXTERIOR FOOTINGS TO BE MINIMUM 1'-4" BELOW THE TOP OF CONCRETE SLAB ON GRADE OR MINIMUM 1'-0" BELOW FINISHED GRADE, WHICHEVER IS LOWER. (UNLESS OTHERWISE NOTED ON PLANS.)
4. SUBSTRUCTURE CONTRACTOR SHALL PROVIDE DOWELS FOR ALL ELEMENTS (COLUMNS, WALLS, ETC.) THAT WILL BE BUILT AS PART OF THE FOLLOWING CONTRACT. DOWEL SHALL PROVIDE A SPLICE LENGTH AS APPLICABLE AND NOTED.
5. ANCHOR RODS FOR COLUMNS SHALL BE POSITIONED WITH A TEMPLATE PRIOR TO POURING OF PIER OR FOOTING. NUTS SHALL BE TIGHTENED ON EACH SIDE OF THE TEMPLATE TO HOLD THE ANCHOR BOLTS IN PLACE.

SLABS ON GRADE:

1. ALL CONCRETE SLABS ON GRADE SHALL BE A MINIMUM 4" THICK AND REINFORCED WITH 6 x 6 - W1.4 x W1.4 WELDED WIRE FABRIC (U.O.N.)
   ALL REINFORCING STEEL SHALL BE ASTM A615 GRADE 60 (U.O.N.).
   ALL WIRE MESH SHALL BE ASTM A82 AND A185 COLD DRAWN STEEL WIRE.
   WIRE MESH TO BE DELIVERED TO JOB SITE IN FLAT SHEETS (NO ROLLS).
   PLACE SHEETS ON BOLSTERS AT 48" MAX. TO LOCATE IN CENTER DEPTH OF SLAB.
2. ALL CONCRETE SLABS ON GRADE TO BE IN ACCORDANCE WITH THE LATEST "GUIDE FOR CONCRETE FLOOR AND SLAB CONSTRUCTION" (ACI)
3. JOINTS SHALL BE PROVIDED IN ALL SLABS ON GRADE WHERE INDICATED ON PLANS. PROVIDE SAWCUT JOINTS IN ALL SIDEWALKS AT A MAXIMUM SPACING OF 5 FT. ON CENTER AND ISOLATION JOINTS AT A MAX. OF 20'. JOINTS SHALL BE FORMED USING SAW CUTS 1/8" WIDE (MAX.) BY T/4 DEEP. SAW CUT WITHIN 12 HOURS AFTER POURING. JOINTS SHALL BE FILLED WITH SEMI-RIGID EPOXY JOINT FILLER - SEE SPECIFICATIONS.

CONCRETE:

1. CONCRETE DESIGN AND REINFORCEMENT IN ACCORDANCE WITH "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE" (A.C.I. 318) AND WITH "DETAILS AND DETAILING OF CONCRETE REINFORCEMENT" (A.C.I. 315).
2. ALL CONCRETE WORK IN ACCORDANCE WITH "SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDING" (ACI 301). PRODUCTION OF CONCRETE, DELIVERY, PLACING AND CURING TO BE IN ACCORDANCE WITH "HOT WEATHER CONCRETING" (A.C.I. 305R).
3. NO ADMIXTURES PERMITTED WITHOUT THE REVIEW OF ARCHITECT/ENGINEER.
4. FOR ALL CONCRETE TO BE PLACED IN SLABS (INCLUDING SLABS ON GRADE,) THE SLUMP SHALL NOT EXCEED 4". NO WAIVERS OF THIS REQUIREMENT SHALL BE CONSIDERED. SLUMP FOR OTHER CONCRETE SHALL NOT EXCEED 5". SLAB ON GRADE SHALL BE CAST IN ALTERNATE SECTION HAVING A MAXIMUM AREA OF 1600 S.F. AND A MAXIMUM LENGTH OF 40 FT. SUBMIT SHOP DRAWINGS INDICATING CONSTRUCTION AND CONTROL JOINTS FOR A/E APPROVAL.
5. CEMENT CONTENT FOR STRENGTH:
   3000PSI CONC. - 5 BAGS
   4000PSI CONC. - 6 BAGS
6. CONTRACTOR IS RESPONSIBLE FOR THE ADEQUACY OF FORMS AND SHORING AND FOR SAFE PRACTICE IN THEIR USE AND REMOVAL. FORMWORK IN STRICT COMPLIANCE WITH ACI 347. CONTRACTOR SHALL COORDINATE ALL OPENINGS AS REQUIRED FOR OTHER TRADES. OPENINGS WHERE SHOWN ON THE STRUCTURAL DRAWINGS ARE TO IDENTIFY DESIGN INTENT ONLY. THE SPECIFIC DIMENSIONS AND LOCATIONS SHALL BE FURNISHED OR CONFIRMED BY THE TRADE REQUIRING THE OPENING. PROVIDE CHAMFERS AT ALL CORNERS IN CONCRETE MEMBERS EXPOSED TO VIEW.
7. ALL CONCRETE SHALL BE CONTROLLED CONCRETE, NORMAL WEIGHT (UNLESS OTHERWISE NOTED) WITH COMPRESSIVE STRENGTH AS FOLLOWS:
   MUD SLAB . . . . .Fc' = 2000 PSI
   FOOTINGS & GRADE BEAMS . . . . Fc' = 4000 PSI
   SLAB ON GRADE - INTERIOR . . . Fc' = 3000 PSI
   SLAB ON GRADE - EXTERIOR . . . Fc' = 4000 PSI
   SITE RETAINING WALLS . . . . . . .Fc' = 4000 PSI
8. ALL CONCRETE STRUCTURES (PLANTER WALLS, DEPRESSION FILLS, EQUIPMENT PADS, FLOATING SLABS,ETC.) SUPPORTED ON A FRAMED FLOOR BUT NOT INDICATED ON THE STRUCTURAL DRAWINGS, SHALL BE LIGHTWEIGHT CONCRETE WITH Fc' = 3000 PSI AND DRY UNIT WEIGHT OF 100 PCF (+3PCF).
9. CONDUITS SHALL BE POSITIONED UNDER THE CONCRETE SLAB-N-GRADES WITH A MIN. OF 4" SOIL COVERAGE FROM CODUIT TO UNDERSIDE OF SLAB

REINFORCING STEEL: (SHOP DRAWING REQUIRED)

1. TO BE NEW BILLET STEEL CONFORMING TO THE LATEST A.S.T.M. A615 GRADE 60 SPECIFICATIONS, FABRICATED IN ACCORDANCE WITH MANUAL OF STANDARD PRACTICE OF THE C.R.S.I. AND PLACED IN ACCORDANCE WITH A.C.I. 315 AND A.C.I. MANUAL OF STANDARD PRACTICE.
2. COLUMN REINFORCEMENT: DOWELS TO BE SAME SIZE AND NUMBER AS VERTICALS ABOVE. LAP 36 BAR DIAMETER OR MINIMUM OF 18", U.O.N. PROVIDE RIGID TEMPLATES FOR DOWEL LOCATION. PROVIDE STANDARD HOOKS FOR ALL VERTICAL REINFORCEMENT AT NON-CONTINUOUS COLUMNS (U.O.N.).
3. ALL DOWELS FOR COLUMNS AND WALLS TO BE SECURED IN POSITION PRIOR TO CONCRETING. DRILLING OR PUSHING THE DOWELS INTO POSITION IN WET CONCRETE IS NOT PERMITTED.
4. CONCRETE COVER UNLESS OTHERWISE DETAILED ON DRAWINGS: FOOTINGS 3", COLUMNS 1-1/2" TO TIES, BEAMS 1-1/2" TO STIRRUPS, INTERIOR SLABS 3/4", EXPOSED SLABS 1-1/2", SLABS ON GRADE 1-1/2" MEASURED FROM TOP OF SLAB. SEE SPECS. FOR BAR SUPPORT. PLASTIC COUPLER PROTECTOR ON THE FUTURE CONNECTION ENDS AS REQUIRED.
5. SLAB AND BEAM REINFORCEMENT: PLACED IN ACCORDANCE WITH REINFORCING DIAGRAMS, LAPPED 36 BAR DIAMETER OR MINIMUM 18". BOTTOM BARS SPLICED ONLY AT SUPPORTS, TOP BARS SPLICED ONLY AT MID-SPAN. ALL TOP BARS HOOKED AT NON-CONTINUOUS EDGES (U.O.N.). ALL HOOKS TO BE STANDARD 90 DEGREE OR 180 DEGREE HOOKS AS REQUIRED (U.O.N.)
6. ADDED REINFORCEMENT: PROVIDE ADDITIONAL CORNER BARS BENT 2 FT. MINIMUM EACH WAY AT CORNERS IN OUTER FACES OF ALL BEAMS TO MATCH ALL HORIZONTAL BARS NOT DETAILED WITH A HOOKED END.
7. THE CONTRACTOR SHALL INFORM THE REBAR DETAILER OF HIS PROPOSED REBAR SUPPORT METHOD AND CONSTRUCTION SEQUENCES. ALL SUPPORT ITEMS AND SPLICES REQUIRED SHALL BE SO DETAILED AND PROVIDED.

MASONRY WALLS AND PARTITIONS:
(SHOP DRAWINGS FOR REINFORCING REQUIRED)

1. ALL MASONRY UNIT TO BE HOLLOW NORMAL WEIGHT (U.O.N.), WITH f'm = 1500 PSI MINIMUM BED JOINT STRENGTH AND MORTAR TYPE 'M'.
2. ALL MASONRY CONSTRUCTION TO BE IN ACCORDANCE WITH "SPECIFICATION FOR MASONRY STRUCTURES", ACI 530.1 AND ALL APPLICABLE LOCAL BUILDING CODE PROVISIONS. ALL MASONRY WALLS TO BE CONSTRUCTED ENTIRELY OF UNITS CONFORMING TO ASTM C-90 AND REINFORCED WITH #9 GAGE LADDER TYPE HORIZONTAL MASONRY REINFORCING LOCATED AT 16" O.C. ALL MASONRY TO BE LAID IN TYPE "M" MORTAR (2500 PSI ON THE JOB) WITH FULL HEAD AND BED JOINTS. ALL MASONRY CONSTRUCTION TO BE TIED TO FRAME WITH 16 GAUGE CONTINUOUS DOVETAIL SLOT AND 12 GAUGE DOVETAIL ANCHOR SPACED @ 16" O.C. (TOP AND THE VERTICAL SIDE).
3. BLOCK CELLS AT WALL ENDS, CORNERS, INTERSECTIONS AND ADJACENT TO ALL OPENINGS SHALL BE FILLED WITH GROUT AND REINFORCED WITH MINIMUM ONE #5 REINFORCING BAR VERTICAL. DOWELS SHALL BE USED TO PROVIDE CONTINUITY INTO THE STRUCTURE AND/OR BELOW.
4. REINFORCED UNIT MASONRY: ALL REINFORCED MASONRY CONSTRUCTION SHALL BE IN ACCORD WITH APPLICABLE PROVISIONS OF CONCRETE REINFORCEMENT, CAST-IN-PLACE CONCRETE AND CONCRETE MASONRY. VERTICAL REINFORCING SHALL ANCHOR INTO SUPPORTING CONCRETE MEMBERS A CLASS "B" LAP LENGTH PLUS 3" OR FULL DEPTH, PLUS A STANDARD HOOK. LAPS WITH REINFORCED MASONRY SHALL BE 48 BAR DIAMETERS. CONTRACTOR SHALL COORDINATE PLACING OF DOWELS TO ACCOMMODATE MODULE OF MASONRY UNITS. ALL VERTICAL CELLS AND BEAMS WITH REINFORCING SHALL BE FILLED WITH COARSE GROUT CONSISTING OF 3000 PSI CONCRETE WITH #8 COARSE AGGREGATE. USE HIGH-SLUMP (SUPERPLASTICIZED) WHERE HEIGHT OF LIFT EXCEEDS 4'-0". WHERE HEIGHT OF OPEN CELL EXCEEDS 4'-0", USE HIGH-LIFT GROUTING TECHNIQUE WHICH REQUIRES A CLEAN-OUT OPENING AT THE BOTTOM OF ALL CELLS AND PLACING THE GROUT IN MAXIMUM 4'-0" LIFTS WITH A 30 TO 60 MINUTE DELAY BETWEEN LIFTS. ALL WALLS TO BE REINFORCED WITH #5 @ 48" O.C. VERTICAL, U.O.N.
5. WHERE SPECIFIED AS LOAD BEARING CONCRETE MASONRY UNITS (BLOCK) SHALL COMPLY WITH THE PROVISIONS OF THE STANDARD SPECIFICATION FOR THE DESIGN AND CONSTRUCTION OF LOAD BEARING CONCRETE MASONRY, NCMA TR-75B OR ACI 531
6. HOLLOW BLOCK SHALL COMPLY TO ASTM C-90, TYPE II, GRADE N-II. SOLID BLOCK SHALL COMPLY WITH ASTM C-145, TYPE II, GRADE N-II AND USED ONLY WHERE PERMITTED BY ARCHITECT.
7. MORTAR SHALL COMPLY WITH ASTM C-270, TYPE M, WITH A MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS OF 2500 PSI.
8. HORIZONTAL REINFORCING SHALL BE DUR-O-WALL STANDARD (9 GA.) TRUSS, ASTM CLASS B-2, HOT DIPPED GALVANIZED OR APPROVED EQUAL. SEE PLANS FOR SPACING.
9. VERTICAL REINFORCING SHALL CONFORM TO ASTM A615, GRADE 60. FILL ALL REINFORCED CELLS WITH 3000 PSI CONCRETE OR GROUT. SEE PLAN FOR SIZE AND SPACING OF VERTICAL REINFORCING.
10. MASONRY COMPRESSIVE STRENGTH f'm = 1500 PSI.
11. AT MASONRY ANCHORS FILL VOIDS SOLID WITH MORTAR AROUND ALL ANCHORS.
12. ALL TOP CONNECTIONS OF MASONRY WALLS TO STRUCTURE MUST BE OF TYPE THAT PROVIDES A 1" SOFT JOINT FOR INDEPENDENT VERTICAL MOVEMENT OF THE STRUCTURE ABOVE. (U.O.N.)
13. ALL MASONRY WALLS MUST BE SPECIALLY INSPECTED.

STRUCTURAL & MISCELLANEOUS STEEL:
(SHOP DRAWINGS REQUIRED)

1. ALL STRUCTURAL STEEL COLUMNS, GIRDERS AND BEAMS SHALL CONFORM TO ASTM-A992 UNLESS NOTED OTHERWISE. ALL OTHER STEEL AND MISCELLANEOUS STEEL SHALL CONFORM TO ASTM-A36. STRUCTURAL TUBE COLUMNS SHALL CONFORM TO ASTM A-500, GRADE B, AND STRUCTURAL PIPE COLUMNS SHALL CONFORM TO ASTM A-501 OR ASTM A-53, TYPES E OR S, GRADE B. DESIGN, DETAILING, FABRICATION AND ERECTION OF STRUCTURAL STEEL SHALL BE IN ACCORDANCE WITH THE AISC CODE AND DETAILING MANUAL. NO STRUCTURAL MEMBERS SHALL BE SPLICED EXCEPT AS SHOWN ON APPROVED SHOP DRAWINGS.
2. FABRICATOR IS RESPONSIBLE FOR THE DESIGN OF THE CONNECTIONS SHOWN ON THE STRUCTURAL DRAWINGS. FOR THE PURPOSE OF THE CONNECTION DESIGN, THE FABRICATOR SHALL RETAIN A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF NC.
   GENERALLY CONNECTIONS SHOWN ON THE DRAWINGS ARE SCHEMATIC AND ARE INTENDED TO SHOW THE RELATIONSHIP OF THE MEMBERS. CONNECTIONS SHALL BE DESIGNED FOR ONE HALF (1/2) THE ALLOWABLE LOAD ON THE MEMBER, USING THE AISC "ALLOWABLE UNIFORM LOAD TABLES" WITH GIVEN BEAM SPAN, OR FOR THE REACTIONS SHOWN ON THE CONTRACT DRAWINGS OR A MINIMUM OF 10 KIPS, WHICHEVER IS GREATEST. MEMBER FORCES AND REACTIONS HAVE BEEN REDUCED IN CONFORMANCE TO CODE PROVISIONS RELATED TO COMBINATIONS OF LOADINGS THAT INCLUDE WIND AND SEISMIC FORCES. NO FURTHER REDUCTIONS IN FORCES OR INCREASES IN ALLOWABLE STRESSES ARE PERMITTED. CONNECTIONS MAY BE BOLTED OR WELDED (U.O.N.)
3. HIGH STRENGTH BOLTS (ASTM-A325) TO BE 3/4" DIAMETER, UNLESS OTHERWISE SPECIFIED. PROVIDE MATCHING H.S. NUTS AND WASHERS.
4. ALL WELDING TO BE IN ACCORDANCE WITH AMERICAN WELDING SOCIETY (AWS) "STRUCTURAL WELDING CODE - STEEL", D1.1, AND AS INDICATED ON THE STRUCTURAL DRAWINGS. WELDING ELECTRODES, WELDING PROCESS, MINIMUM PREHEAT AND INTERPASS TEMPERATURES TO BE IN ACCORDANCE WITH THE AWS SPECIFICATIONS. ANY STRUCTURAL STEEL DAMAGED IN WELDING TO BE REPLACED OR ACCEPTABLY REINFORCED. ALL FULL PENETRATION GROOVE WELDS TO BE SUBJECT TO RADIOGRAPHIC, MAGNETIC PARTICLE, ULTRASONIC, AND LIQUID PENETRANT INSPECTION CONDUCTED BY AN INDEPENDENT TESTING AGENCY PAID BY THE OWNER. RUSTPROOF ALL FIELD WELDS WITH HEAVY DUTY RUSTPROOFING PAINT.
5. STEEL DECK SHALL BE AS SHOWN ON DRAWINGS WITH SUFFICIENT LENGTH TO PROVIDE A 3-SPAN CONDITION WHEREVER POSSIBLE.
   ROOF DECK SHALL BE SECURELY FASTENED TO THE SUPPORTING STRUCTURAL MEMBERS BY THE SPECIFIED WELD PATTERN AS INDICATED ON THE DRAWINGS USING A MINIMUM OF 5/8" DIAMETER PUDDLE WELDS. WELDING WASHERS SHALL BE USED ON ALL DECK UNITS WITH A METAL THICKNESS LESS THAN 0.028". WELDING WASHERS SHALL BE A MINIMUM THICKNESS OF 0.056" (16 GAGE) AND HAVE A NOMINAL 3/8" DIAMETER HOLE. PANELS MUST BE SUFFICIENTLY OVERLAPPED TO PROVIDE ADEQUATE END DISTANCES FOR THE CONNECTOR USED. A MINIMUM END DISTANCE FOR FASTENERS USED SHALL BE 1". PANEL END JOINTS SHALL BE OVERLAPPED A MINIMUM OF 2". SIDELAP CLOSURES SHALL BE FASTENED BY NO. 10 SCREWS PER DECKING ATTACHMENT DETAIL. THE STEEL DECK INSTITUTE RECOMMENDS THAT CARE SHOULD BE EXERCISED IN THE SELECTION OF ELECTRODES AND AMPERAGE TO PROVIDE POSITIVE WELDS TO PREVENT HIGH AMPERAGE BLOW HOLES. FIELD TEST WELDS SHALL BE PERFORMED TO SELECT THE PROPER TYPE OF WELDING ROD AND AMPERAGE REQUIRED. WELDS ARE TO BE MADE FROM THE TOP SIDE OF THE DECK BY A CERTIFIED WELDER IMMEDIATELY FOLLOWING THE PLACEMENT CREW. ALL BLOW HOLES SHALL BE REPAIRED BY DECK INSTALLER PRIOR TO APPLYING ROOFING MATERIAL.
6. DESIGN, DETAILING, FABRICATION AND ERECTION OF STEEL BAR JOISTS SHALL BE IN ACCORDANCE WITH THE "STANDARD SPECIFICATIONS AND LOAD TABLES" OF THE STEEL JOIST INSTITUTE. JOISTS SHALL BE DESIGNED TO SUPPORT ADDITIONAL LOADS SHOWN ON PLANS.
7. JOIST BRIDGING SHALL BE SECURELY FASTENED TO THE JOISTS, BEAMS AND WALLS PRIOR TO STARTING PLACEMENT OF METAL DECK.
8. STEEL BAR JOISTS SHALL BE ANCHORED TO STEEL BEAMS OR PLATES WITH A MINIMUM OF 2" OF 3/16" FILLET WELD FOR K SERIES JOISTS AND 2" OF 1/4" FILLET WELD FOR LH SERIES JOISTS ON EACH SIDE OF THE JOIST.
9. JOIST INTERSECTING FRAMING OVER COLUMN SHALL BE CONSTRUCTION BOLTED TO THE TOP FLANGE OF THE FRAMING. BOTTOM CHORD SHALL BE EXTENDED TO THE COLUMN OR BEAM AND WELDED AFTER THE ROOFING MATERIAL IS INSTALLED.

PRECAST CONCRETE CLADDING:

1. ALL PRECAST CONCRETE MEMBERS SHALL BE DESIGNED AND ERECTED IN ACCORDANCE WITH THE ACI 318 CODE (LATEST EDITION).
2. DESIGN OF PANELS, CONNECTION, AND OTHER DETAILS SHALL BE RESPONSIBILITY OF THE PRECAST CONCRETE MANUFACTURER. NO MOMENT CONNECTION FROM THE STRUCTURE PERMITTED W/O APPROVAL FROM A/E PRIOR TO SHOP DRAWING SUBMITTAL.
3. ALL SHOP DRAWINGS WITH CALCULATION SHALL BE SIGNED AND SEALED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF NORTH CAROLINA. SUBMIT TO A/E FOR REVIEW PRIOR TO FABRICATION.
4. MANUFACTURER SHALL PROVIDE INSERTS OF WELD PLATES REQUIRED TO SUPPORT THE PRECAST PANELS AS INDICATED ON THE ARCHITECTURAL AND STRUCTURAL DRAWINGS. SHOP DRAWING DETAILS SHALL INCLUDE CONNECTION DETAILS, AND NUMBER AND LOCATION OF EMBEDDED INSERTS AND WELD PLATES.
5. MANUFACTURER SHALL FURNISH CERTIFICATION OF CONCRETE MIX-DESIGN AND TEST REPORTS TO THE ARCHITECT.
6. ALL CONNECTION DETAILS SHALL BE PREPROOFED IN ACCORDANCE WITH THE BUILDING CODE.

STEEL STUDS: (LIGHT GAUGE FRAMING)

1. DESIGN FABRICATION AND ERECTION SHALL CONFORM TO AISI "SPECIFICATION FOR THE DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS", INCLUDING COMMENTARY AND SUPPLEMENTARY INFORMATION. WELDING SHALL CONFORM TO AWS "STRUCTURAL WELDING CODE-SHEET STEEL" D1.3 AND PERFORMED ONLY BY WELDERS CERTIFIED UNDER D1.3. SELF-DRILLING SCREWS SHALL BE EQUIVALENT TO BUILDEX TELS AND HAVE ALLOWABLE SERVICE LOAD CAPACITIES WITH 4:1 FACTOR OF SAFETY FROM TEST DATA.
2. SHOP FABRICATE ALL FRAMES. WELDS TO DEVELOP MEMBER IN SHEAR AND MOMENT CARRYING CAPACITY. CLEAN AND PAINT ALL WELDS WITH GALVACON.
3. STUDS PLACED AGAINST CONCRETE TO BE SEPARATED BY 30 LB. FELT.
4. METAL STUDS SHALL BE DESIGNED BY A STRUCTURAL ENGINEER LICENSED TO PRACTICE IN THE STATE OF NORTH CAROLINA. DESIGNS SHALL BE SEALED AND SIGNED BY HIM AND SHALL BE SUBMITTED TO THE ARCHITECT FOR APPROVAL. SUBMIT SHOP DRAWINGS SHOWING LAYOUT OF STUDS AND STRUCTURAL FRAMING, INCLUDING ARRANGEMENT, DIMENSIONS, MATERIALS, STRESS VALUES, CONNECTORS, ANCHORAGE, AND RELATION TO ADJACENT WORK TO ARCHITECT FOR APPROVAL. METAL STUDS USED FOR BRICK BACKUP SHALL BE LIMITED IN DEFLECTION TO L/600.

STRUCTURAL DESIGN CRITERIA:

IBC 2015 / NC 2012 CODE BASED

ROOF LOADS:

ROOFING	12.0 PSF
INSULATION	2.0
DECK	2.0
HANGING	2.0
MECHANICAL	4.0
JOISTS	3.0
ROOF DL	25.0 PSF
ROOF LL	20.0 PSF
TOTAL	45.0 PSF

ROOF PONDING R=5.2*(2+4)=31.2 PSF

WIND LOADS:
ASCE-7 10 CODE
BASIC WIND SPEED = 115 MPH
MEAN ROOF HGT. = 22'-[illegible]
EXPOSURE = B

WIND BASE SHEARS:

SALES & SHOWROOM:	Vx = 51.0k	Vy = 66.0k
SERVICE DRIVE:	Vx = 18.0k	Vy = 26.0k
SERVICE GARAGE:	Vx = 49.0k	Vy = 125.0k
CAR WASH:	Vx = 5.0k	Vy = 8.0k
PREFAB. RENOV.:	Vx = 38.0k	Vy = 31.0k

BUILDING SEISMIC DATA
Sds = 0.269
Sd1 = 0.168
SEISMIC USE GROUP II
SOIL SITE CLASS D
SEISMIC DESIGN CATEGORY C

EQUIVALENT LATERAL FORCE PROCEDURE

BUILDING FRAME SYSTEMS

SALES & SHOWROOM
ORINDARY STEEL MOMENT FRAMES
R=3

SALES & SHOWROOM
ORINDARY STEEL MOMENT FRAMES
R=3

SERVICE GARAGE
ORDINARY REINF. MASONRY SHEAR WALLS
R=3

SEISMIC BASE SHEARS:

SALES & SHOWROOM:	Vx = 52.0k	Vy = 52.0k
SERVICE DRIVE:	Vx = 20.0k	Vy = 20.0k
SERVICE GARAGE:	Vx = 233.0k	Vy = 233.0k
CAR WASH:	Vx = 5.0k	Vy = 5.0k
CAR WASH:	Vx = 5.0k	Vy = 5.0k
PREFAB. RENOV.:	Vx = 16.0k	Vy = 16.0k

SNOW LOADS:
FLAT ROOF SNOW LOAD = 10 PSF
SNOW EXPOSURE FACTOR Ce = 1.0
IMPORTANCE FACTOR Is = 1.0
THERMAL FACTOR Ct = 1.0

1. NO PART OF THE BUILDING SHALL BE USED AS A STAGING AREA RESULTING IN A LOAD (UNDER THE LIMITED LOADED AREA) THAT EXCEEDS 75% OF THE DESIGN LIVE LOAD.
2. NO VEHICLES SHALL BE PERMITTED OVER ANY STRUCTURAL SLAB.
3. FOR THE WIND DESIGN OF THE CLADDING SYSTEM. THE HIGH PRESSURE CORNER ZONES DIMENSION MUST BE CALCULATED BASED ON THE OVERALL BUILDING DIMENSIONS BUT SHALL APPLY TO ALL THE CORNERS (OUTSIDE AND INTERMEDIATE) OF THE BUILDING.
4. THE STRUCTURAL MEMBERS OF THIS PROJECT HAVE BEEN DESIGNED BY THE STRUCTURAL ENGINEER TO RESIST THE REQUIRED CODE VERTICAL AND LATERAL FORCES THAT COULD OCCUR IN THE FINAL COMPLETED STRUCTURE ONLY. THE GENERAL CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL REQUIRED BRACING DURING CONSTRUCTION TO MAINTAIN THE STABILITY AND SAFETY OF ALL STRUCTURAL ELEMENTS DURING THE CONSTRUCTION PROCESS UNTIL THE STRUCTURE IS TIED TOGETHER AND COMPLETED.

THIRD PARTY INSPECTIONS SHALL BE PERFORMED FOR THE FOLLOWING:

1. MASONRY BEARING WALL AND SHEARWALL CONSTRUCTION
2. STEEL CONNECTIONS INCLUDING MOMENT CONNECTIONS AND BRACED FRAME CONNECTIONS
3. CONCRETE FOUNDATION REINFORCING

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03/04/20

HYUNDAI
HYUNDAI OF SOUTH CHARLOTTE

Revisions:

Number	Date	Description

Project Title:
HYUNDAI
SOUTH CHARLOTTE

10518 CADILLAC STREET
PINEVILLE, NC 28134

Project No.: 2536.00

Drawing Title:
GENERAL NOTES

SET ISSUE DATE
MARCH 4, 2020
100% CD

Sheet:
S3.02