

GENERAL STRUCTURAL NOTES:

A. GENERAL

- THE CONTRACTOR SHALL REVIEW ALL SUBMITTALS BEFORE THEY ARE PROVIDED TO THE OWNER AND STRUCTURAL ENGINEER. THE CONTRACTOR'S REVIEW SHALL BE DOCUMENTED WITHIN THE SUBMITTAL. THE OWNER AND STRUCTURAL ENGINEER RESERVE THE RIGHT TO REJECT SUBMITTALS THAT HAVE NOT BEEN FIRST REVIEWED BY THE CONTRACTOR. THE ACCURACY AND COMPLETENESS OF THE SUBMITTALS IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR, INCLUDING ALL ERRORS AND OMISSIONS. IN ADDITION, THE CONTRACTOR IS SOLELY RESPONSIBLE FOR ALL MEANS, METHODS, AND SEQUENCING OF CONSTRUCTION.
- THE GENERAL CONTRACTOR AND ALL SUBCONTRACTORS SHALL BE EXPERIENCED AND QUALIFIED TO PERFORM THE TYPE OF CONSTRUCTION REQUIRED TO COMPLETE THE WORK PRESCRIBED BY THE CONTRACT DOCUMENTS. THE CONTRACT DOCUMENTS WERE PREPARED AS A COMPLETE SET OF PROJECT DRAWINGS AND SPECIFICATIONS. IT IS THE GENERAL CONTRACTOR'S RESPONSIBILITY TO COORDINATE ALL INFORMATION PROVIDED IN THE CIVIL, ARCHITECTURAL, INTERIOR, MECHANICAL, ELECTRICAL, PLUMBING, AND FIRE PROTECTION DRAWINGS AND SPECIFICATIONS. THE CONTRACTOR SHALL NOTIFY THE OWNER AND ARCHITECT/ENGINEER IMMEDIATELY OF ANY CONFLICTS, OMISSIONS, OR DISCREPANCIES. THIS COORDINATION SHALL BE PERFORMED BEFORE THE PROCUREMENT OF MATERIALS AND/OR FABRICATION OF ANY PROJECT COMPONENTS.
- WHERE SECTION IS SHOWN AND DETAILED, OTHER SECTIONS OF SIMILAR CONDITION SHALL BE DETAILED THE SAME OR OPPOSITE HAND, WHETHER SPECIFICALLY NOTED OR NOT.
- CONTRACTOR SHALL VERIFY EXISTING DIMENSIONS, ELEVATIONS, AND SITE CONDITIONS BEFORE BEGINNING CONSTRUCTION. NOTIFY ENGINEER OF RECORD OF ANY DISCREPANCIES.
- COORDINATE SIZES AND LOCATIONS OF ALL FLOOR AND ROOF PENETRATIONS WITH PLUMBING, MECHANICAL, AND ARCHITECTURAL REQUIREMENTS.
- ENGINEER'S APPROVAL MUST BE SECURED FOR ALL SUBSTITUTIONS. SUCH APPROVAL MAY ALSO BE WITHHELD AT THE SOLE DISCRETION OF THE ENGINEER.
- THE STRUCTURES HAVE BEEN DESIGNED IN ACCORDANCE WITH THE PROVISIONS OF THE FOLLOWING:
 - INTERNATIONAL BUILDING CODE, 2018 EDITION (IBC 2018), WITH 2020 GEORGIA AMENDMENTS.
 - AMERICAN SOCIETY OF CIVIL ENGINEERS, "MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES," 2016 EDITION (ASCE 7-16).
- THE CONTRACTOR SHALL PROVIDE TEMPORARY SHORING AND BRACING REQUIRED TO ERECT AND HOLD THE STRUCTURE IN PROPER ALIGNMENT UNTIL PERMANENT SUPPORTS AND LATERAL BRACING ARE IN PLACE.
- DO NOT SCALE DRAWINGS, USE DIMENSIONS.
- DESIGN LOADS USED IN THE DESIGN OF THE STRUCTURAL SYSTEMS IN THIS PROJECT ARE AS FOLLOWS:
 - RISK CATEGORY** II
 - DEAD LOAD:**
ROOF (NOT INCLUDING FRAMING SELF WEIGHT):
OFFICE BUILDING 25 psf
HANGAR METAL BUILDING SEE SHEET S-007
 - LIVE LOAD:**
ROOF 20 psf (REDUCIBLE)
SLAB-ON-GRADE:
HANGAR 200 psf OR 30 K WHEEL LOAD (NOT CONCURRENT)
OFFICE BUILDING 150 psf
 - ROOF SNOW LOAD:**
GROUND SNOW LOAD, p_g 5 psf
SNOW EXPOSURE FACTOR, C_e 0.9
IMPORTANCE FACTOR, I_s 1.0
THERMAL FACTOR, C_t 1.0
FLAT ROOF SNOW LOAD, p_f 5 psf
 - WIND DESIGN CRITERIA:**
EXPOSURE CATEGORY C
BASIC WIND SPEED, V 106 MPH (ULTIMATE LOAD)
82 MPH (ASD LOAD)
 ± 0.18
INTERNAL PRESSURE COEFFICIENT, $G C_p$
INTERIOR WIND LOADING (PARTITIONS) ± 0.18
HANGAR:
OFFICE BUILDING:
(SEE S-005 FOR WIND LOAD DIAGRAMS) 10 psf (ULTIMATE LOAD)
5 psf (ASD LOAD)
 - SEISMIC DESIGN CRITERIA:**
SPECTRAL RESPONSE ACCELERATION:
 S_s (SHORT PERIOD (0.1 SECOND)) 0.189 g
 S_1 (LONG PERIOD (1.0 SECOND)) 0.088 g
 S_{D5} (SHORT PERIOD (0.2 SECOND)) 0.202 g
 S_{D1} (LONG PERIOD (1.0 SECOND)) 0.138 g
SITE CLASS CLASS D
SEISMIC DESIGN CATEGORY C
LATERAL FORCE RESISTING SYSTEM STEEL SYSTEM NOT SPECIFICALLY DETAILED FOR SEISMIC RESISTANCE
IMPORTANCE FACTOR, I_e 1.0
RESPONSE MODIFICATION COEFFICIENT, R 3.0
SEISMIC RESPONSE COEFFICIENT, C_s 0.0672
ANALYSIS PROCEDURE: EQUIVALENT LATERAL FORCE
SEISMIC BASE SHEAR, V
HANGAR 25.4 K
OFFICE BUILDING 25.0 K

1. ALL VERTICAL ELEVATIONS ARE BASED ON THE CONTROL ELEVATION FROM SURVEY BY OTHERS.

B. FOUNDATION

- FOUNDATIONS FOR THIS STRUCTURE HAVE BEEN DESIGNED IN ACCORDANCE WITH THE RECOMMENDATIONS IN THE GEOTECHNICAL ENGINEERING REPORT, PREPARED BY CONTOUR ENGINEERING, LLC DATED JANUARY 14, 2020, AND ENTITLED "REPORT OF GEOTECHNICAL EXPORTATION" (COMPANY # G19PON04).
- FOUNDATIONS AND EARTH RETAINING STRUCTURES HAVE BEEN DESIGNED FOR A MAXIMUM ALLOWABLE SOIL BEARING PRESSURE OF 2,500 psf.
- ALL SUBGRADES SHALL BE COMPACTED TO 95% MODIFIED PROCTOR MAXIMUM DRY DENSITY IN ACCORDANCE WITH ASTM D-1557.
- REFER TO THE GEOTECHNICAL REPORT AND SPECIFICATION SECTION 31 20 00 FOR REQUIREMENTS FOR REMOVAL OF UNSATISFACTORY MATERIAL UNDER FOOTINGS, SLABS, AND FOUNDATIONS AND FOR THE BACKFILLING, COMPACTION, AND TESTING OF SATISFACTORY MATERIAL TO REPLACE IT. REFER TO GEOTECHNICAL REPORT FOR ALL ADDITIONAL PREPARATION REQUIREMENTS. WHERE THERE IS A CONFLICT, THE MORE STRINGENT REQUIREMENT SHALL APPLY BETWEEN THE SPECIFICATION AND THE GEOTECHNICAL REPORT.
- PRIOR TO PLACING FOUNDATION CONCRETE, AND AFTER COMPACTION OF SUBGRADE, ALL FOUNDATION EXCAVATIONS SHALL BE INSPECTED AND TESTED BY A QUALIFIED GEOTECHNICAL TECHNICIAN. TESTING SHALL INCLUDE IN PLACE DENSITY TESTING, WHICH WILL REQUIRE ESTABLISHING THE OPTIMUM MOISTURE CONTENT OF THE SUBGRADE. IF THE SUBGRADE HAS LESS THAN THE STATED ALLOWABLE BEARING CAPACITY (SEE NOTE 2 ABOVE) THE WEAK SUBGRADE SHALL BE REMOVED, RECOMPACTED, AND RETESTED UNTIL IT IS SATISFACTORY AT NO ADDITIONAL COST TO THE OWNER. CONCRETE PLACEMENT SHALL NOT PROCEED UNTIL THE SUBGRADE MEETS THE MINIMUM DENSITY REQUIREMENTS OF SPECIFICATION SECTION 31 20 00 AND THE GEOTECHNICAL REPORT, WHICHEVER IS MORE STRINGENT.
- NO UNBALANCED BACKFILLING SHALL BE DONE AGAINST CONCRETE OR MASONRY WALLS UNLESS WALLS ARE SECURELY BRACED AGAINST OVERTURNING, EITHER BY TEMPORARY CONSTRUCTION BRACING OR BY PERMANENT CONSTRUCTION.
- WATER SHALL NOT BE ALLOWED TO ACCUMULATE IN EXCAVATIONS.

C. CAST-IN-PLACE CONCRETE

- CAST-IN-PLACE CONCRETE FOR THIS PROJECT SHALL COMPLY WITH THE AMERICAN CONCRETE INSTITUTE (ACI) "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE AND COMMENTARY" ACI 318-14 AND ACI 318R-14.
- REFERENCE PROJECT SPECIFICATION SECTION 03 30 00 "CAST-IN-PLACE CONCRETE."
- CONCRETE SHALL HAVE THE FOLLOWING PROPERTIES:

AREA	COMPRESSIVE STRENGTH @ 28 DAYS	EXTRINSIC STRENGTH @ 28 DAYS	AIR CONTENT	MAX. W/C RATIO
SPREAD & STRIP FOOTINGS, COLUMN PIERS	5,000 psi	N/A	< 3%	0.45
OFFICE FLOOR SLAB	4,000 psi	N/A	< 3%	0.45
EXTERIOR CONCRETE	4,000 psi	N/A	5.5% ± 1.5%	0.45
HANGAR FLOOR SLAB	6,000 psi	650 psi	< 3%	0.45

- ALL EXPOSED CONCRETE EDGES SHALL HAVE 3/4" CHAMFER, WHETHER SPECIFICALLY NOTED OR NOT.
- ALL ANCHOR RODS SHALL BE BLACK STEEL.
- CONCRETE FORMWORK SHALL COMPLY WITH ACI 347, LATEST EDITION. CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN OF ALL FORMWORK.
- DURING AND IMMEDIATELY AFTER PLACING, CONCRETE SHALL BE THOROUGHLY COMPACTED BY SPADING OR MECHANICAL VIBRATING TO PROVIDE DENSE CONCRETE FREE OF HONEYCOMBING.
- DIRECTLY AFTER FORMS HAVE BEEN REMOVED, ALL EXPOSED TIE WIRES AND STAPLED ENDS SHALL BE REMOVED FROM CONCRETE SURFACES TO BE EXPOSED. CUT TIES FLUSH WITH FINISHED SURFACES FOR ALL OTHER CONCRETE. RUB SMOOTH OR CUT OFF FINS AND ROUGH PLACES. REMOVE ALL LOOSE CONCRETE AND OTHER IRREGULARITIES. PATCH AND FILL VOIDS WITH BONDING AGENT AS REQUIRED.
- ROUGHEN ALL CONSTRUCTION JOINTS TO A MINIMUM OF 1/4" AMPLITUDE UNLESS NOTED OTHERWISE.

D. CONCRETE REINFORCEMENT:

- REINFORCING STEEL SHALL CONFORM TO ASTM A615 SUPPLEMENT SI, GRADE 60, OF DOMESTIC MANUFACTURER.
- REINFORCEMENT SHALL BE FABRICATED TO SHAPES AND DIMENSIONS SHOWN AND SHALL CONFORM TO THE REQUIREMENTS OF CRSI AND ACI 318. REINFORCEMENT SHALL BE COLD BENT UNLESS OTHERWISE AUTHORIZED. BENDING MAY BE ACCOMPLISHED IN THE FIELD OR AT THE MILL. BARS SHALL NOT BE FIELD BENT WITHOUT THE APPROVAL OF THE ENGINEER.
- REINFORCEMENT SHALL BE FREE FROM LOOSE RUST AND SCALE, DIRT, OIL, OR OTHER DELETERIOUS COATING THAT COULD REDUCE BOND WITH THE CONCRETE.
- NO SPLICES OF REINFORCEMENT SHALL BE PERMITTED EXCEPT AS DETAILED OR AUTHORIZED. MAKE BARS CONTINUOUS AROUND CORNERS WITH CORNER BARS WHERE PERMITTED, SPLICES MADE BY CONTACT LAPS SHALL BE CLASS "B" TENSION LAPS.
- TENSION AND COMPRESSION REINFORCEMENT SPLICE LENGTHS IN CONCRETE SHALL BE DETERMINED AS FOLLOWS:

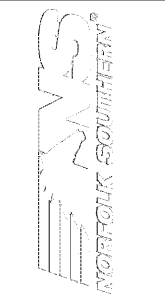
BAR SIZE	#3	#4	#5	#6	#7	#8	#9	#10	#11
TOP BAR SPLICE SIZE	28"	37"	47"	56"	81"	93"	105"	118"	131"
BOTTOM BAR SPLICE SIZE	22"	29"	36"	43"	63"	72"	81"	91"	101"

- TOP BARS AND HORIZONTAL BARS WITH MORE THAN 12" OF CONCRETE CAST BELOW THE BARS.
 - THE TABLE ABOVE IS BASED ON A CONCRETE COVER AT LEAST EQUAL TO THE BAR DIAMETER AND A CENTER-TO-CENTER BAR SPACING AT LEAST EQUAL TO 3 TIMES THE BAR DIAMETER. MULTIPLY THE ABOVE LENGTHS BY 1.5 WHERE THESE CONDITIONS DO NOT EXIST.
- WHERE HOOKS ARE SHOWN, PROVIDE STANDARD 90 DEGREE HOOKS IN ACCORDANCE WITH CRSI AND ACI 318, UNLESS NOTED OTHERWISE.
- WHERE REQUIRED, PROVIDE DOWELS TO MATCH SIZE AND SPACING OF VERTICAL REINFORCING FROM FOUNDATION. DOWELS SHALL HAVE STANDARD 90 DEGREE HOOKS.

MINIMUM CONCRETE REINFORCING COVER REQUIREMENTS:

EXPOSURE	CONST. TYPE	BAR SIZE	MINIMUM COVER
CONCRETE CAST AGAINST EARTH:	ALL	ALL	3"
FORMED CONCRETE EXPOSED TO EARTH OR WEATHER:	WALLS, SLABS	#6 BAR AND LARGER	2"
		#5 BAR AND SMALLER	1 1/2"
FORMED CONCRETE NOT EXPOSED TO WEATHER OR IN CONTACT WITH GROUND:	WALLS, SLABS	#11 BAR AND SMALLER	3/4"

- ALL REINFORCING STEEL AND EMBEDDED ITEMS SUCH AS ANCHOR RODS AND WELD PLATES SHALL BE PLACED TO PREVENT DISPLACEMENT BEYOND PERMITTED TOLERANCES.
- DETAIL BARS IN ACCORDANCE WITH "ACI DETAILING MANUAL-2004," PUBLICATION SP-66, ACI 318, AND ACI 315, OR LATEST EDITIONS.
- PROVIDE ACCESSORIES NECESSARY TO PROPERLY SUPPORT REINFORCING AT POSITIONS SHOWN ON PLANS.
- WELDING OF REINFORCEMENT IS NOT PERMITTED.



MARK	DESCRIPTION	DATE

DESIGNED BY: [Name]
 DRAWN BY: [Name]
 CHECKED BY: [Name]
 SUBMITTED BY: [Name]
 ISSUED FOR CONSTRUCTION: [Date]

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S-001

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