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PROJECT SCOPE

1. STRUCTURAL SCOPE IS LIMITED TO DESIGN OF A NEW TWO STORY BUILDING TO BE USED AS A FIRE STATION, APPARATUS BAY, DRILL TOWER, AND WOODEN STORAGE BUILDING.

GENERAL

1. NO PROVISION OF ANY REFERENCED STANDARD SPECIFICATION, MANUAL OR CODE (WHETHER OR NOT SPECIFICALLY INCORPORATED BY REFERENCE IN THE CONTRACT DOCUMENTS) SHALL BE EFFECTIVE TO CHANGE THE DUTIES AND RESPONSIBILITIES OF OWNER, CONTRACTOR, DESIGN PROFESSIONAL, SUPPLIER, OR ANY OF THEIR CONSULTANTS, AGENTS, OR EMPLOYEES FROM THOSE SET FORTH IN THE CONTRACT DOCUMENTS. NOR SHALL IT BE EFFECTIVE TO ASSIGN TO THE DESIGN PROFESSIONAL OF RECORD OR ANY OF THE DESIGN PROFESSIONAL OF RECORD'S CONSULTANTS, AGENTS, OR EMPLOYEES ANY DUTY OR AUTHORITY TO SUPERVISE OR DIRECT THE FURNISHING OR PERFORMANCE OF THE WORK OR ANY DUTY OR AUTHORITY TO UNDERTAKE RESPONSIBILITIES CONTRARY TO THE PROVISIONS OF THE CONTRACT DOCUMENTS.

2. CONTRACT DOCUMENTS INCLUDE, BUT ARE NOT LIMITED TO, THE STRUCTURAL DOCUMENTS (DRAWINGS AND SPECIFICATIONS), BUT DO NOT INCLUDE SHOP DRAWINGS, VENDOR DRAWINGS, OR MATERIAL PREPARED AND SUBMITTED BY THE CONTRACTOR.

3. REFERENCE TO STANDARD SPECIFICATIONS OF ANY TECHNICAL SOCIETY, ORGANIZATION, OR ASSOCIATION OR TO CODES OF LOCAL OR STATE AUTHORITIES, SHALL MEAN THE LATEST STANDARD, CODE, SPECIFICATION OR TENTATIVE SPECIFICATION ADOPTED AT THE DATE OF TAKING BIDS, UNLESS SPECIFICALLY STATED OTHERWISE.

4. CONTRACT DOCUMENTS SHALL GOVERN IN THE EVENT OF A CONFLICT WITH THE CODE OF PRACTICE OR SPECIFICATIONS OF ACI, PCI, AISC, SJI OR OTHER STANDARDS. WHERE A CONFLICT OCCURS WITHIN THE CONTRACT DOCUMENTS, THE STRICTEST REQUIREMENT SHALL GOVERN.

5. MATERIAL, WORKMANSHIP, AND DESIGN SHALL CONFORM TO THE REFERENCED BUILDING CODE.

6. CONTRACTOR SHALL COORDINATE THE STRUCTURAL DOCUMENTS WITH THE ARCHITECTURAL, MECHANICAL, ELECTRICAL, PLUMBING AND CIVIL DOCUMENTS. DESIGN PROFESSIONAL SHALL BE NOTIFIED OF ANY DISCREPANCY OR OMISSION. FOR DIMENSIONS NOT SHOWN ON THE STRUCTURAL DRAWINGS SEE THE ARCHITECTURAL DRAWINGS. DO NOT SCALE STRUCTURAL DRAWINGS.

7. CONTRACTOR SHALL VERIFY EXISTING DIMENSIONS, ELEVATIONS, AND SITE CONDITIONS BEFORE STARTING WORK. DESIGN PROFESSIONAL SHALL BE NOTIFIED OF ANY DISCREPANCY.

8. CONTRACTOR SHALL VERIFY THE STRUCTURALLY SUPPORTED MECHANICAL EQUIPMENT WEIGHTS, OPENING SIZES AND LOCATIONS IDENTIFIED ON THE STRUCTURAL DRAWINGS WITH ARCHITECTURAL AND MECHANICAL DRAWINGS.

9. CONTRACTOR SHALL VERIFY THAT MISCELLANEOUS FRAMING SHOWN ON THE STRUCTURAL DRAWINGS FOR MECHANICAL EQUIPMENT, OWNER-FURNISHED ITEMS, PARTITIONS, ETC. IS CONSISTENT WITH THE REQUIREMENTS OF SUCH ITEMS.

10. CONTRACTOR HAS SOLE RESPONSIBILITY FOR MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES OF CONSTRUCTION.

11. THE STRUCTURE IS STABLE ONLY IN ITS COMPLETED FORM. TEMPORARY SUPPORTS REQUIRED FOR STABILITY DURING ALL INTERMEDIATE STAGES OF CONSTRUCTION SHALL BE DESIGNED, FURNISHED, AND INSTALLED BY THE CONTRACTOR.

12. CONTRACTOR HAS SOLE RESPONSIBILITY TO COMPLY WITH ALL OSHA REGULATIONS.

13. ELECTRONIC DRAWING FILES WILL NOT BE PROVIDED TO THE CONTRACTOR. REPRODUCTION OF STRUCTURAL DRAWINGS FOR SHOP DRAWINGS IS NOT PERMITTED.

14. REVIEW OF SUBMITTALS OR SHOP DRAWINGS BY THE DESIGN PROFESSIONAL DOES NOT RELIEVE THE CONTRACTOR OF THE SOLE RESPONSIBILITY TO REVIEW AND CHECK ALL SUBMITTALS AND SHOP DRAWINGS BEFORE SUBMITTING TO THE DESIGN PROFESSIONAL. CONTRACTOR REMAINS SOLELY RESPONSIBLE FOR ERRORS AND OMISSIONS ASSOCIATED WITH THE PREPARATION OF SHOP DRAWINGS AS THEY PERTAIN TO MEMBER SIZES, DETAILS, AND DIMENSIONS SPECIFIED IN THE CONTRACT DOCUMENTS.

15. DETAILS LABELED "TYPICAL" ON THE STRUCTURAL DRAWINGS APPLY TO ALL SITUATIONS OCCURRING ON THE PROJECT THAT ARE THE SAME OR SIMILAR TO THE TYPICAL DETAILS UNLESS THOSE LOCATIONS ARE SPECIFICALLY DETAILED OTHERWISE.

16. STRUCTURAL DESIGN PROFESSIONAL IS NOT RESPONSIBLE FOR THE DESIGN OF CURTAIN WALL/WINDOW WALL SYSTEMS, COLD-FORMED METAL FRAMING, OR OTHER SYSTEMS NOT SHOWN IN THE STRUCTURAL DOCUMENTS. SUCH SYSTEMS SHALL BE DESIGNED, FURNISHED, AND INSTALLED AS REQUIRED BY OTHER PORTIONS OF THE CONTRACT DOCUMENTS.

17. SUBMITTALS

    17.1 SUBMITTALS BY THE CONTRACTOR ARE NOT A PART OF THE CONTRACT DOCUMENTS. PRIOR TO THE INITIAL SUBMITTAL, CONTRACTOR SHALL SUBMIT TO THE DESIGN PROFESSIONAL A SCHEDULE OF SUBMITTED INFORMATION.

    17.2 SUBMITTALS SHALL BE ACCOMPANIED BY A TRANSMITTAL LETTER WITH THE FOLLOWING INFORMATION:

    - PROJECT NAME
    - CONTRACTOR'S NAME
    - DATE SUBMITTED
    - DESCRIPTION OF ITEMS SUBMITTED. IDENTIFY WORK AND PRODUCT BY SPECIFICATION SECTION
    - NUMBER OF DRAWINGS AND OTHER PERTINENT DATA.

    17.3 CONTRACTOR SHALL DIRECT SPECIFIC ATTENTION ON THE SUBMITTAL TO ANY DEVIATION FROM THE CONTRACT DOCUMENTS. CONTRACTOR SHALL STAMP AND SIGN EACH SHEET OF SHOP DRAWINGS AND PRODUCT DATA, AND SIGN OR INITIAL EACH SAMPLE TO CERTIFY COMPLIANCE WITH REQUIREMENTS OF CONTRACT DOCUMENTS. SUBMITTALS RECEIVED WITHOUT THE CONTRACTOR'S STAMP OF REVIEW WILL BE RETURNED TO THE CONTRACTOR FOR REVIEW AND RESUBMITTAL.

    17.4 WORK REQUIRING SHOP DRAWINGS, WHETHER CALLED FOR BY THE CONTRACT DOCUMENTS OR REQUESTED BY THE CONTRACTOR, SHALL NOT COMMENCE UNTIL THE SUBMISSION HAS BEEN REVIEWED BY THE DESIGN PROFESSIONAL. WORK MAY COMMENCE IF THE CONTRACTOR VERIFIES THE ACCURACY OF THE DESIGN PROFESSIONAL'S CORRECTIONS AND NOTATIONS AND COMPLIES WITH THEM WITHOUT EXCEPTION AND WITHOUT REQUESTING CHANGE IN CONTRACT SUM OR CONTRACT TIME AT COPY OF THE MARKED STRUCTURAL SHOP DRAWINGS WITH THE DESIGN PROFESSIONAL'S REVIEW STAMP IS TO BE MAINTAINED AT THE JOB SITE.

    17.5 ADJUSTMENTS MADE ON SHOP DRAWINGS BY ENGINERS ARE NOT INTENDED TO CHANGE CONTRACT PRICE. IF ADJUSTMENTS AFFECT THE VALUE OF THE WORK, STATE SUCH IN WRITING TO ENGINEER PRIOR TO PROCEEDING WITH THE WORK.

CODE/DESIGN CRITERIA

1. STRUCTURE IS DESIGNED IN ACCORDANCE WITH THE FOLLOWING:
   - INTERNATIONAL BUILDING CODE, 2024 EDITION WITH 2026 GEORGIA AMENDMENTS.

2. GRAVITY LOADS

   2.1 UNIFORM FLOOR LIVE LOADS (REDUCED AS ALLOWED BY THE BUILDING CODE):

   - LOBBIES 100 PSF
   - KITCHENS 100 PSF
   - LAUNDRIES 100 PSF
   - DINING ROOMS 100 PSF
   - OFFICES 50 PSF
   - RESIDENTIAL - PRIVATE ROOMS 40 PSF
   - CORRIDORS - ABOVE FIRST FLOOR 80 PSF
   - MECHANICAL ROOMS 125 PSF
   - GARAGES - EMERGENCY VEHICLE 250 PSF
   - STORAGE - LIGHT 125 PSF
   - PARTITIONS 15 PSF

   2.2 UNIFORM ROOF LIVE LOADS (REDUCED AS ALLOWED BY THE BUILDING CODE):

   - ROOF LIVE LOAD, L_r 20 PSF
   - GROUND SNOW LOAD, p_g 21 PSF
   - ALLOWABLE STRESS DESIGN GROUND SNOW LOAD, $p_{g(asd)}$ 14.7 PSF
   - 15-MIN RAINFALL INTENSITY 8.38 IN/HR
   - WINTER WIND FACTOR, W_w 0.35
   - SLOPE FACTOR, C_s 1.0
   - RISK CATEGORY IV

   MAIN BUILDING:
   - LOW ROOF
     - SNOW EXPOSURE FACTOR, C_e 1.0
     - THERMAL FACTOR, C_t 1.19
     - FLAT ROOF SNOW LOAD, p_f 17.5 PSF
   - HIGH ROOF
     1. SNOW EXPOSURE FACTOR, C_e 0.9
     2. THERMAL FACTOR, C_t 1.19
     3. FLAT ROOF SNOW LOAD, p_f 15.7 PSF

   APPARATUS BAY:
   - SNOW EXPOSURE FACTOR, C_e 0.9
   - THERMAL FACTOR, C_t 1.2
   - FLAT ROOF SNOW LOAD, p_f 15.9 PSF

   STORAGE BUILDING:
   - SNOW EXPOSURE FACTOR, C_e 1.0
   - THERMAL FACTOR, C_t 1.17
   - FLAT ROOF SNOW LOAD, p_f 17.5 PSF

   DRILL TOWER:
   - LIVE LOAD, L 100 PSF
   - SNOW EXPOSURE FACTOR, C_e 0.9
   - THERMAL FACTOR, C_t 1.2
   - FLAT ROOF SNOW LOAD, p_f 17.6 PSF

   PONDING AND DRIFT EFFECTS HAVE BEEN INCLUDED IN THE DESIGN.

   2.3 CONCENTRATED FLOOR LOADS: DISTRIBUTED OVER AN AREA OF 2-1/2 FEET BY 2-1/2 FEET, UNLESS NOTED OTHERWISE:

   - OFFICES 2000 LB
   - CORRIDORS ABOVE FIRST FLOOR 2000 LB

   2.4 DEAD LOADS (IN ADDITION TO STRUCTURE SELF-WEIGHT):

   MAIN BUILDING:
   - FLOOR:
     - MISCELLANEOUS 5 PSF
     - CEILING/MEP 10 PSF
   - LOW ROOF:
     - ROOFING 2 PSF
     - INSULATION 7.5 PSF
     - MISCELLANEOUS 3 PSF
     - CEILING/MEP 10 PSF
   - HIGH ROOF:
     - ROOFING 2 PSF
     - INSULATION 5 PSF
     - MISCELLANEOUS 3 PSF
     - CEILING/MEP 10 PSF

   APPARATUS BAY:
   - ROOF:
     - ROOFING 2 PSF
     - INSULATION 5 PSF
     - MISCELLANEOUS 3 PSF
     - CEILING/MEP 10 PSF

   STORAGE BUILDING:
   - ROOF:
     - ROOFING 2 PSF
     - INSULATION 2 PSF
     - MISCELLANEOUS 3 PSF
     - CEILING/MEP 10 PSF

   ROOFING, INSULATION, AND MISCELLANEOUS LOADS SHALL BE TRUSS TOP CHORD LOADS AND CEILING/MEP LOADS SHALL BE TRUSS BOTTOM CHORD LOADS.

   DRILL TOWER:
   - FLOOR:
     - MISCELLANEOUS 5 PSF

3. WIND LOADS:

   - BASIC DESIGN WIND SPEED, V 118 MPH
   - ALLOWABLE DESIGN WIND SPEED, V_{ASD} 92 MPH
   - EFFECTIVE PLAN AREA, A_e 40,000 SF
   - TORNADO SPEED, V_T 86 MPH
   - RISK CATEGORY IV
   - EXPOSURE C

BUILDING	INTERNAL PRESSURE COEFFICIENT	TORNADO INTERNAL PRESSURE COEFFICIENT	DESIGN BASE SHEAR [KIPS]	
			V_{LONG}	V_{SHORT}
MAIN BUILDING	± 0.18	+0.55 / -0.18	92.3	66.6
APPARATUS BAY	± 0.55	+0.55 / -0.55		
STORAGE BUILDING	± 0.18	+0.55 / -0.18	16.8	8.5
TRAINING TOWER	0.00	0.00	5	20

SEE COMPONENT AND CLADDING DESIGN WIND PRESSURE DIAGRAM ON SHEET S-0.02.

5. EARTHQUAKE LOADS:

   - RISK CATEGORY: IV
   - SEISMIC IMPORTANCE FACTOR: $I_e = 1.5$
   - SHORT PERIOD MAPPED SPECTRAL RESPONSE COEFFICIENT, S_S = 0.240
   - 1 SECOND PERIOD MAPPED SPECTRAL RESPONSE COEFFICIENT, S_1 = 0.091
   - SITE CLASS: C
   - SHORT PERIOD DESIGN SPECTRAL RESPONSE COEFFICIENT, S_{DS} = 0.17
   - 1 SECOND PERIOD DESIGN SPECTRAL RESPONSE COEFFICIENT, S_{D1} = 0.079
   - SEISMIC DESIGN CATEGORY: C

BUILDING	BASIC SEISMIC-FORCE RESISTING SYSTEM		DESIGN BASE SHEAR [KIPS]	C_S	R	ANALYSIS PROCEDURE
	PLAN N-S	PLAN E-W				
MAIN BUILDING	ORDINARY REINFORCED CONCRETE SHEAR WALL	INTERMEDIATE REINFORCED MASONRY SHEAR WALL	130.8	0.086	4	EQUIVALENT LATERAL FORCE PROCEDURE
APPARATUS BAY	INTERMEDIATE REINFORCED MASONRY SHEAR WALL	STEEL SYSTEMS NOT SPECIFICALLY DESIGNED FOR SEISMIC RESISTANCE			3.5	EQUIVALENT LATERAL FORCE PROCEDURE
STORAGE BUILDING	LIGHT-FRAME (WOOD) WALLS SHEATHED WITH WOOD STRUCTURAL PANELS RATED FOR SHEAR RESISTANCE		1.5	0.013	2.5	EQUIVALENT LATERAL FORCE PROCEDURE
TRAINING TOWER	STEEL SYSTEMS NOT SPECIFICALLY DESIGNED FOR SEISMIC RESISTANCE		4.7 / 11.3	0.100	3	EQUIVALENT LATERAL FORCE PROCEDURE

8. UNLESS NOTED OTHERWISE CALCULATED INDIVIDUAL MEMBER VERTICAL DEFLECTIONS (IN INCHES) DO NOT EXCEED THE FOLLOWING:

	DEAD LOAD	LIVE LOAD	DEAD + LIVE LOAD
ROOF MEMBERS:	L/360	L/360	L/240
FLOOR MEMBERS:	L/360	L/360	L/240

   - WHERE, L = SPAN LENGTH (IN INCHES) BETWEEN SUPPORTS. (FOR CANTILEVERS, L IS TWICE THE LENGTH OF THE CANTILEVER.) NOTE THAT THE TOTAL MAXIMUM CALCULATED FLOOR SYSTEM DEFECTION WILL BE THE SUM OF THE DEFLECTIONS OF THE SUPPORTED ELEMENTS IN A BAY.
   - THE CALCULATED VERTICAL DEFLECTION FOR INDIVIDUAL MEMBERS SUPPORTING MASONRY DO NOT EXCEED L/600 FOR DESIGN LOADS APPLIED AFTER THE INSTALLATION OF THE MASONRY.

9. SPECIAL INSPECTIONS:

   9.1 THE STRUCTURAL TESTING/INSPECTION AGENCY, SEE SPECIFICATION SECTION 014525, WILL PERFORM SPECIAL INSPECTIONS AS REQUIRED BY CHAPTER 17 OF THE BUILDING CODE. MATERIALS AND WORK TO BE INSPECTED INCLUDE SOIL, FOUNDATIONS, MASONRY, STEEL, CONCRETE, AND WOOD CONSTRUCTION. SEE SPECIFICATION SECTIONS 014525 FOR A COMPLETE LIST OF WORK REQUIRING SPECIAL INSPECTIONS.

   9.2 SPECIAL INSPECTION AS REQUIRED BY CHAPTER 17 OF THE BUILDING CODE ARE REQUIRED FOR STRUCTURAL COMPONENTS AND ASSEMBLIES WHICH ARE NOT FABRICATED AT THE CONSTRUCTION JOB SITE INCLUDING BUT NOT LIMITED TO ROOF TRUSSES AND JOISTS OF WOOD AND STEEL MATERIALS, AND STRUCTURAL STEEL FRAMING.

   9.3 SPECIAL INSPECTION AS REQUIRED BY CHAPTER 17 OF THE BUILDING CODE MAY BE WAIVED FOR ITEMS WHICH ARE PRODUCED ON THE PREMISES OF A FABRICATOR REGISTERED AND APPROVED TO PERFORM SUCH WORK WITHOUT SPECIAL INSPECTION. APPROVAL SHALL BE BASED UPON REVIEW OF THE FABRICATOR'S WRITTEN PROCEDURAL AND QUALITY CONTROL MANUALS AND BY PERIODIC AUDITING OF FABRICATION PRACTICES BY AN APPROVED SPECIAL INSPECTION AGENCY. THE APPROVED FABRICATOR SHALL SUBMIT A CERTIFICATE OF COMPLIANCE TO THE CHIEF COMMERCIAL BUILDING INSPECTOR OR HIS DESIGNEE WHICH STATES THAT THE FABRICATION WORK WAS PERFORMED IN ACCORDANCE WITH THE APPROVED CONSTRUCTION DOCUMENTS.

   9.4 THE PROJECT OWNER WILL EMPLOY ONE OR MORE SPECIAL INSPECTORS TO PERFORM INSPECTIONS AS REQUIRED BY CHAPTER 17 OF THE BUILDING CODE DURING CONSTRUCTION OF THE PROJECT. DOCUMENTATION THAT SUMMARIZES THE QUALIFICATION AND CREDENTIALS OF EACH SPECIAL INSPECTOR AND DEMONSTRATES COMPETENCE FOR INSPECTION OF EACH PARTICULAR TYPE OF CONSTRUCTION REQUIRING SPECIAL INSPECTION SHALL BE SUBMITTED TO THE CHIEF COMMERCIAL BUILDING INSPECTOR OR HIS DESIGNEE FOR REVIEW AND APPROVAL PRIOR TO CONSTRUCTION.

   9.5 APPROVED SPECIAL INSPECTORS SHALL FURNISH INSPECTION REPORTS TO THE CHIEF COMMERCIAL BUILDING INSPECTOR OR HIS DESIGNEE AND TO THE DESIGN PROFESSIONAL WHICH INDICATE THAT THE WORK INSPECTED WAS DONE IN CONFORMANCE WITH THE APPROVED CONSTRUCTION DOCUMENTS. A FINAL REPORT WHICH DOCUMENTS THE RESULTS OF THE SPECIAL INSPECTIONS PERFORMED INCLUDING CORRECTION OF ANY DISCREPANCIES IDENTIFIED DURING INSPECTION SHALL BE SUBMITTED PERIODICALLY AT A FREQUENCY APPROVED BY THE CHIEF COMMERCIAL BUILDING INSPECTOR PRIOR TO CONSTRUCTION.

   9.6 SPECIAL INSPECTION REPORTS AND FINAL REPORT IN ACCORDANCE WITH SECTION 1704.2.4 SHALL BE SUBMITTED TO THE BUILDING OFFICIAL PRIOR TO THE TIME THAT PHASE OF WORK IS APPROVED FOR OCCUPANCY.

10. NO PROVISIONS HAVE BEEN MADE FOR FUTURE HORIZONTAL OR VERTICAL EXPANSION.

FOUNDATION

1. FOUNDATION DESIGN IS BASED ON THE RECOMMENDATIONS IN THE GEOTECHNICAL REPORT PREPARED BY MATRIX ENGINEERING GROUP INC., REPORT NUMBER MEG303297 DATED JUNE 8, 2026. DESIGN PROFESSIONAL IS NOT RESPONSIBLE FOR SUBSURFACE CONDITIONS ENCOUNTERED IN THE FIELD DIFFERENT TO THOSE ASSUMED FOR DESIGN.

2. STRUCTURAL TESTING/INSPECTION AGENCY SHALL CERTIFY THE BEARING MEDIUM.

3. INDIVIDUAL SPREAD FOOTINGS AND CONTINUOUS FOOTINGS SHALL BEAR ON SOIL CAPABLE OF SUPPORTING 3000 PSF.

   3.1 NO FOOTINGS SHALL BEAR ON ROCK. UNDERCUT ROCK A MINIMUM OF 2 FEET BELOW BOTTOM OF FOOTING AND REPLACE WITH STRUCTURAL FILL.

4. FOUNDATION WALLS ARE DESIGNED FOR LATERAL PRESSURES DUE TO THE FOLLOWING EQUIVALENT FLUID DENSITIES:

   - WALLS SUPPORTED AT TOP (AT-REST CONDITION): 63.7 PCF
   - WALLS FREE TO DISPLACE AT TOP (ACTIVE CONDITION): 43.3 PCF
   - SLIDING COEFFICIENT OF FRICTION (ULTIMATE) 0.4

5. BACKFILL PLACED AGAINST EXTERIOR OR RETAINING WALLS SHALL NOT EXCEED 120 PCF WEIGHT FOR WET UNIT WEIGHT OF SOIL.

6. PROOF ROLL BUILDING AREAS WITH TWO COMPLETE COVERAGES OF A LOADED DUMP-TRUCK. REPLACE SOFT AREAS WITH COMPACTED STRUCTURAL FILL AS REQUIRED BY THE SPECIFICATIONS.

7. STRUCTURAL FILL SHALL CONTAIN NO ORGANIC MATERIAL AND BE APPROVED BY A GEOTECHNICAL ENGINEER PRIOR TO PLACEMENT. STRUCTURAL FILL UNDER SLABS AND WITHIN 10'-0" OF THE BUILDING FOOTPRINT SHALL BE PLACED IN LIFTS OF THICKNESS DETERMINED BY THE INDEPENDENT TESTING AGENCY AND COMPACTED TO AT LEAST 95% OF ITS STANDARD PROCTOR MAXIMUM DRY DENSITY AS DETERMINED IN ACCORDANCE WITH ASTM D698. THE TOP 12" SUB-BASE UNDER SLABS ON GRADE SHALL BE COMPACTED TO AT LEAST 98% OF ITS STANDARD PROCTOR MAXIMUM DRY DENSITY. ALL BACKFILL, COMPACTION AND PROOF ROLLING OPERATIONS SHALL BE OBSERVED BY AN INDEPENDENT TESTING LABORATORY. STRUCTURAL FILL SOIL DENSITY SHALL BE 120 PCF.

8. SLABS-ON-GRADE SHALL BE PLACED ON A 4" GRANULAR BASE, COMPACTED TO 98% OF ITS STANDARD PROCTOR MAXIMUM DRY DENSITY IN ACCORDANCE WITH ASTM D698, AND COVERED WITH A CONTINUOUSLY SEALED VAPOR BARRIER. SEE ARCHITECT FOR THICKNESS OF VAPOR BARRIER THE BASE FOR SLABS-ON-GRADE SHALL BE INSPECTED BY A GEOTECHNICAL ENGINEER PRIOR TO EACH PLACEMENT OF CONCRETE.

9. BACKFILL SHALL NOT BE PLACED AGAINST EXTERIOR OR RETAINING WALLS UNTIL THE WALLS HAVE ACHIEVED THEIR DESIGN STRENGTH AND THEIR LATERAL SUPPORT ELEMENTS ARE INSTALLED. PROVIDE ADEQUATE DRAINAGE AT BASEMENT AND RETAINING WALLS (SEE ARCHITECTURAL).

10. FOOTINGS SHALL BE CENTERED ABOUT COLUMN LINES, UNLESS NOTED OTHERWISE.

11. ALL FOOTINGS AND TURN DOWN SLAB EDGES SHALL PENETRATE TO A MINIMUM DEPTH OF 24" BELOW FINISHED GRADE.

REINFORCEMENT

1. REINFORCING STEEL SHALL CONFORM TO ASTM A615, GRADE 60, UNLESS NOTED OTHERWISE.

2. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A1064 AND HAVE MINIMUM SIDE AND END LAPS OF 8".

3. SUBMIT SHOP DRAWINGS WHICH ADEQUATELY DEPICT THE REINFORCING BAR SIZES AND PLACEMENT. WRITTEN DESCRIPTIONS OF REINFORCEMENT WITHOUT ADEQUATE SECTIONS, ELEVATIONS, AND DETAILS IS NOT ACCEPTABLE.

4. SPLICES SHALL BE CLASS B IN ACCORDANCE WITH ACI 318, UNLESS NOTED OTHERWISE. REINFORCEMENT SHALL BE SPLICED ONLY AT LOCATIONS SHOWN OR NOTED IN THE STRUCTURAL DOCUMENTS, EXCEPT REINFORCEMENT MARKED "CONTINUOUS" CAN BE SPLICED AT LOCATIONS DETERMINED BY CONTRACTOR. SPLICES AT OTHER LOCATIONS SHALL BE APPROVED IN WRITING BY THE DESIGN PROFESSIONAL.

5. PROVIDE DOWELS FROM FOUNDATIONS THE SAME SIZE AND NUMBER AS THE VERTICAL WALL OR COLUMN REINFORCING, UNLESS NOTED OTHERWISE.

6. PLACE REINFORCEMENT AS FOLLOWS, UNLESS NOTED OTHERWISE:

   6.1 CONCRETE REINFORCEMENT COVER

   EXPOSED TO EARTH OR WEATHER:
   - UNFORMED CAST AGAINST EARTH 3" CLEAR
   - FORMED #6 AND LARGER 2" CLEAR
   - FORMED #5 AND SMALLER 1-1/2" CLEAR

   NOT EXPOSED TO EARTH OR WEATHER:
   - WALLS 1" CLEAR
   - COLUMNS (TIES) 1-1/2" CLEAR
   - SLABS 3/4" CLEAR

   6.2 MASONRY REINFORCING STEEL SHALL BE PLACED IN THE CENTER OF THE WALL UNLESS NOTED OTHERWISE.

7. REINFORCING STEEL DESIGNATED CONTINUOUS SHALL BE LAPPED AS FOLLOWS:

   - CONCRETE REINFORCEMENT: CLASS B TENSION LAP
   - MASONRY REINFORCEMENT: SEE DETAIL 2/S-4.01

8. ALL DOWELS AND TERMINATING BARS SHALL HAVE A STANDARD 90 DEGREE HOOK.

9. ALL HORIZONTAL REINFORCING SHALL BE CONTINUOUS THROUGH CONTROL AND/OR CONSTRUCTION JOINTS AND AROUND CORNERS, UNLESS SHOWN OTHERWISE IN DETAILS.

CAST-IN-PLACE CONCRETE

1. CONCRETE WORK SHALL CONFORM TO ACI 318 AND CRSI STANDARDS.

2. CONCRETE SHALL HAVE THE FOLLOWING MINIMUM SPECIFIED 28-DAY COMPRESSIVE STRENGTH:

   2.1 NORMAL WEIGHT STRUCTURAL CONCRETE:

   - FOOTINGS 3000 PSI F0
   - PEDESTALS 3000 PSI F2
   - SLABS-ON-GRADE
     - INTERIOR 4000 PSI F0
     - EXTERIOR 4500 PSI F2
   - BASEMENT/RETAINING WALL 4500 PSI F2

   2.2 LIGHT WEIGHT STRUCTURAL CONCRETE:
   (110-120 PCF FRESH UNIT WEIGHT/107-116 PCF AIR-DRIED UNIT WEIGHT)
   - SLAB ON METAL DECK 3500 PSI F0

3. PIPES OR DUCTS SHALL NOT EXCEED ONE-THIRD THE SLAB OR WALL THICKNESS INCLUDING CROSSING UNLESS SPECIFICALLY DETAILED IN THE STRUCTURAL DOCUMENTS. ALL PIPES AND DUCTS SHALL BE PLACED IN THE MIDDLE THIRD OF THE SLAB OR WALL THICKNESS UNLESS SPECIFICALLY DETAILED OTHERWISE IN THE STRUCTURAL DOCUMENTS. SEE MECHANICAL AND ELECTRICAL DRAWINGS FOR LOCATION OF SLEEVES, ACCESSORIES, ETC.

4. REFER TO ARCHITECTURAL DRAWINGS FOR MOLDS, GROOVES, ORNAMENTS, CLIPS OR GROUNDS REQUIRED TO BE ENCASED IN CONCRETE AND FOR LOCATION OF FLOOR FINISHES AND SLAB DEPRESSIONS.

5. CONSTRUCTION JOINT LOCATIONS SHALL BE APPROVED BY THE DESIGN PROFESSIONAL. NO HORIZONTAL CONSTRUCTION JOINTS ARE PERMITTED EXCEPT THOSE SHOWN ON THE STRUCTURAL DRAWINGS.

6. DEFECTIVE AREAS IN CONCRETE INCLUDING, BUT NOT LIMITED TO, HONEY-COMBING, SPALLS, AND CRACKS WITH WIDTHS EXCEEDING 0.016 INCH SHALL BE REPAIRED. EXTENT OF DEFECTIVE AREA TO BE DETERMINED BY THE DESIGN PROFESSIONAL.

CONCRETE MASONRY

1. MINIMUM 28-DAY COMPRESSIVE STRENGTH OF ASTM C90 CONCRETE MASONRY UNITS SHALL BE F'M = 2000 PSI.

2. NET AREA COMPRESSIVE STRENGTH OF CONCRETE MASONRY = 2000 PSI.

3. MORTAR SHALL COMPLY WITH THE BUILDING CODE REQUIREMENTS FOR CONCRETE MASONRY AND ASTM C270. MORTAR SHALL BE OF THE FOLLOWING TYPE:

   - WALLS BELOW GRADE TYPE M
   - BEARING WALLS TYPE M OR S

4. CONCRETE MASONRY UNITS SHALL BE GROUTED WITH 2500 PSI COARSE GROUT AS SHOWN IN THE STRUCTURAL DOCUMENTS. GROUT FOR REINFORCED AND NONREINFORCED MASONRY SHALL CONFORM TO ASTM C476.

5. PROVIDE HORIZONTAL LADDER-TYPE JOINT REINFORCEMENT WITH NO. 9 GAGE DEFORMED LONGITUDINAL WIRES AT 16" C/C VERTICALLY AND AT 8" BELOW GRADE, UNLESS NOTED OTHERWISE. PROVIDE SPECIAL ACCESSORIES FOR CORNERS, INTERSECTIONS, ETC. LONGITUDINAL WIRES SHALL BE PLACED IN THE MORTAR JOINTS.

6. PROVIDE OPEN BOTTOM BEAM BLOCK UNITS WITH 3" DEEP MINIMUM WEB OPENINGS AT HORIZONTAL REINFORCEMENT LOCATIONS. A MINIMUM CLEAR SPACE OF ONE BAR DIAMETER SHALL BE PROVIDED BETWEEN THE REINFORCING BARS AND THE FACE OF MASONRY UNITS.

7. PROVIDE CONTROL JOINTS IN ALL CONCRETE MASONRY WALLS AT LOCATIONS APPROVED BY THE DESIGN PROFESSIONAL AT A MAXIMUM SPACING OF 1.5 TIMES THE WALL HEIGHT OR 25'-0", WHICHEVER IS LESS. JOINTS MAY NOT BE LOCATED AT CORNERS OF OPENINGS OR ACROSS LINTELS.

8. PROVIDE DOVETAIL ANCHORS AT 16" C/C, UNLESS NOTED OTHERWISE, WHERE MASONRY WALLS ABUT CONCRETE SURFACES.

9. SUBMIT WRITTEN CONSTRUCTION PROCEDURES PRIOR TO THE START OF MASONRY CONSTRUCTION.

10. MINIMUM VERTICAL WALL REINFORCEMENT SHALL BE #5@24" EACH FACE FOR 12" CMU AND #5@32" FOR 8" CMU, UNLESS NOTED OTHERWISE.

11. MINIMUM VERTICAL WALL REINFORCEMENT FOR INTERIOR NON-LOAD BEARING PARTITION WALLS SHALL BE #4@48" CENTERED, UNLESS NOTED OTHERWISE.

12. SUBMIT SHOP DRAWINGS FOR MASONRY REINFORCEMENT IN ACCORDANCE WITH SPECIFICATION SECTION 032000.

STRUCTURAL STEEL

1. STRUCTURAL STEEL SHALL CONFORM TO ASTM A992, UNLESS NOTED OTHERWISE.

   - STRUCTURAL STEEL HSS SHAPES SHALL CONFORM TO ASTM A500, GRADE C.
   - MISCELLANEOUS PLATES AND CONNECTION MATERIAL SHALL CONFORM TO ASTM A36, UNLESS NOTED OTHERWISE.

2. BOLTS AND ANCHORS:

   2.1 BOLTED CONNECTIONS SHALL BE TYPE N (BEARING TYPE WITH THREADS INCLUDED IN SHEAR PLANE) WITH MINIMUM 3/4" DIAMETER F3125 BOLTS. SUBMIT PROPOSED BOLT TIGHTENING PROCEDURE FOR REVIEW. BOLTED CONNECTIONS SHALL BE ASSEMBLED AND INSPECTED IN ACCORDANCE WITH RCSC-2014 (SPECIFICATION FOR STRUCTURAL JOINTS USING HIGH STRENGTH BOLTS).

   2.2 ANCHOR BOLTS SHALL BE HEADED BOLTS CONFORMING TO ASTM F1554 GRADE 36 AND SHALL BE HEADED RODS OR THREADED RODS WITH HEAVY HEXAGONAL NUT WELDED TO THE BOTTOM OF THE THREADED ROD. GRADE A563A, UNLESS NOTED OTHERWISE.

   2.3 EXPANSION ANCHORS SHALL HAVE BEEN EVALUATED BY THE ICC EVALUATION SERVICES, INC (ICC-ES) WITH A PUBLISHED EVALUATION REPORT. ANCHORS INSTALLED IN CONCRETE THAT MAY BECOME CRACKED UNDER SERVICE LOADS SHALL BE EVALUATED BY ICC-ES ACCEPTANCE CRITERIA 193 AND BE SPECIFICALLY APPROVED FOR USE IN CRACKED CONCRETE. CONTACT DESIGN PROFESSIONAL FOR DETERMINATION OF CRACKED OR UNCRACKED CONCRETE CONDITION UNLESS CONDITION IS NOTED ON THE DRAWINGS. ALL ANCHORS SHALL BE APPROVED FOR RESISTING WIND AND SEISMIC LOADS. INSTALL IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. MINIMUM EMBEDMENT SHALL BE EQUAL TO 4.5 TIMES THE ANCHOR DIAMETER, UNLESS NOTED OTHERWISE.

   2.4 ADHESIVE ANCHORS SHALL CONSIST OF AN ALL-THREAD STEEL ANCHOR WITH ADHESIVE CONFORMING TO ASTM C881, TYPE IV, GRADE 3, CLASS A, B, & C EXCEPT GEL TIMES AND EPOXY CONTENT. ADHESIVE SHALL CONSI