# **GENERAL STRUCTURAL NOTES**

### GENERAL REQUIREMENTS

- 1. DRAWINGS SHOW TYPICAL AND CERTAIN SPECIFIC CONDITIONS ONLY. FOR DETAILS NOT SPECIFICALLY SHOWN PROVIDE DETAILS SIMILAR TO THOSE SHOWN.
- 2. VERIFY ALL EXISTING CONDITIONS, DIMENSIONS AND ELEVATIONS BEFORE STARTING WORK. NOTIFY THE ARCHITECT AND ENGINEER IN WRITING OF ANY DISCREPANCY.
- 3. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR THE DESIGN, ADEQUACY, AND SAFETY OF ERECTION BRACING, SHORING, TEMPORARY SUPPORTS, MEANS AND METHODS, ETC. THE STRUCTURAL ELEMENTS ARE NOT STABLE UNTIL THE STRUCTURE IS COMPLETE.
- 4. COORDINATE AND VERIFY ANY FLOOR AND ROOF OPENINGS, SIZES AND LOCATIONS WITH ARCHITECTURAL, MECHANICAL, PLUMBING, ELECTRICAL DRAWINGS, AND OWNERS EQUIPMENT. FOR ADDITIONAL OPENINGS, INSERTS, SLEEVES, CURBS, PADS, ETC. NOT SHOWN ON THE STRUCTURAL DRAWINGS, SEE CIVIL, ARCHITECTURAL, MECHANICAL, PLUMBING AND ELECTRICAL DRAWINGS.
- 5. REVIEW OF SHOP DRAWINGS AND OTHER SUBMITTALS BY THE ARCHITECT AND ENGINEER DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY TO REVIEW AND CHECK SHOP DRAWINGS BEFORE SUBMITTAL TO THE ENGINEER. THE CONTRACTOR REMAINS SOLELY RESPONSIBLE FOR ERRORS AND OMISSIONS ASSOCIATED WITH THE DIMENSIONS SPECIFIED IN THE CONTRACT DOCUMENTS. CONTRACTOR IS ALSO RESPONSIBLE FOR THE MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES OF CONSTRUCTION.
- 6. DO NOT SCALE DRAWINGS. FOLLOW DIMENSIONS SHOWN ON PLANS OR OBTAIN ADDITIONAL INFORMATION IN WRITING FROM THE ARCHITECT.
- 7. WHERE A SECTION, TYPICAL SECTION, DETAIL, TYPICAL DETAIL OR PLAN NOTE IS SHOWN FOR ONE CONDITION, IT SHALL APPLY TO ALL LIKE OR SIMILAR CONDITIONS UNLESS NOTED OTHERWISE.
- 8. THE CONTRACTOR SHALL COMPLY WITH ALL LOCAL, STATE, FEDERAL AND OSHA REGULATIONS.

#### PRIMARY CODES AND SPECIFICATIONS

- REFERENCE TO CODES AND STANDARD SPECIFICATIONS OF ANY TECHNICAL ORGANIZATION OR ASSOCIATION, OR TO CODES OF LOCAL OR STATE AGENCIES SHALL MEAN THE LATEST EDITION OF CODE OR SPECIFICATION ADOPTED AT THE TIME THE PROJECT IS TO BE CONSTRUCTED UNLESS APPROVED OTHERWISE IN WRITING THE ENFORCING AGENCY.
- GENERAL BUILDING CODE: A. INTERNATIONAL BUILDING CODE, 2012 EDITION WITH GEORGIA ADMENDMENTS.
- CONCRETE CODES: A. ACI 318-05 BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE. B. ACI 301, LATEST EDITION, SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS.
- C. LATEST EDITION OF CRSI MANUAL OF STANDARD PRACTICE & ALL SUPPLEMENTS. STRUCTURAL STEEL CODES: A. AISC 360-10 SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS. B. AISC 303-10 CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES.
- C. SPECIFICATION FOR STRUCTURAL JOINTS USING HIGH-STRENGTH BOLTS, DECEMBER 31, 2009.
- CONCRETE MASONRY: A. ACI 530-05 BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES. B. ACI 530.1-05 SPECIFICATIONS FOR MASONRY STRUCTURES.

#### DESIGN LOADS

1.	GRAVITY LOADS (REFERENCE ASCE 7-10): ROOF DEAD LOAD ROOF LIVE LOAD	15 PSF 20 PSF	
	FLOOR DEAD LOAD - PRECAST PLANKS: FLOOR DEAD - WOOD TRUSSES: FLOOR LIVE LOAD:	90 PSF 25 PSF 40 PSF	
	GROUND FLOOR DEAD LOAD: GROUND FLOOR LIVE LOAD:	100 PSF 150 PSF	
2.	WIND LOAD (REFERENCE ASCE 7-10): BASIC WIND SPEED, 3 SEC GUST RISK CATEGORY EXPOSURE CATEGORY INTERNAL PRESSURE COEFFICIENT	Vult = 135 MPH Vasd = 106 MPH II C GCpi = +/- 0.18	(FIGURE 26.5-1B) (TABLE 1.5-1) (SECTION 26.7.3) (TABLE 26.11-1)
	IN ACCORDANCE WITH ASCE 7-10 THIS STRUCTURE	E IS NOT LOCATED IN A	WIND-BORNE DEBRIS REGION.
3.	SNOW LOAD (REFERENCE ASCE 7-10): GROUND SNOW LOAD EXPOSURE FACTOR, TERRAIN CATEGORY B THERMAL FACTOR IMPORTANCE FACTOR	Pg = 5 PSF Ce = 0.90 Ct = 1.0 I = 1.0	(FIGURE 7-1) (TABLE 7-2) (TABLE 7-3) (TABLE 1.5-2)
4.	SEISMIC LOAD (REFERENCE ASCE 7-10): RISK CATEGORY SOIL SITE CLASSIFICATION IMPORTANCE FACTOR SPECTRAL RESPONSE AT SHORT PERIOD SPECTRAL RESPONSE AT 1 SEC. SEISMIC DESIGN CATEGORY SEISMIC FORCE RESISTING SYSTEM	II D I = 1.0 Sds = 0.321g Sd1 = 0.185g SDC = C STEEL SYSTEMS N DESIGNED FOR SE	

DETAILED RESPONSE MODIFICATION FACTOR SEISMIC RESPONSE COEFFICIENT DESIGN BASE SHEAR

#### FOUNDATION SUBSURFACE PREPARATION

1. UNLESS NOTED OTHERWISE IN THE DRAWINGS, THE LIMITS OF THIS SUBSURFACE REPARATION ARE CONSIDERED TO BE THAT PORTION OF THE SITE DIRECTLY BENEATH AND 10 FEET BEYOND THE BUILDING AND ITEMS ATTACHED TO THE BUILDING PROPER.

R = 3.0

Cs = 0.107

V = Cs x W

- 2. ALL SUBSURFACE PREPARATION PROCEDURES SHALL BE PERFORMED UNDER THE OBSERVATION OF AN APPROVED TESTING LABORATORY SUPERVISED BY A LICENSED PROFESSIONAL ENGINEER.
- 3. CONTRACTOR SHALL REMOVE ALL EXISTING FOUNDATIONS, SLABS, PAVEMENTS AND BELOW-GRADE STRUCTURES THAT ARE LOCATED WITHIN THE LIMITS OF SUBSURFACE PREPARATION.
- 4. CONTRACTOR SHALL STRIP AND REMOVE ALL SURFACE VEGETATION, TOPSOIL, ROOT SYSTEMS, ORGANIC MATERIAL, AND SOFT OR OTHERWISE UNSUITABLE MATERIAL FROM THE BUILDING AREA. THE DEPTH OF STRIPPING SHALL BE THAT REQUIRED TO REMOVE SIGNIFICANT ROOT ZONES, TREE STUMPS AND OTHER UNACCEPTABLE MATERIALS, BUT IN NO CASE SHALL THE DEPTH OF STRIPPING BE LESS THAN 24".
- 5. COMPACT THE UPPER 24" OF EXPOSED SUBGRADE TO A MINIMUM DENSITY OF 95% MODIFIED PROCTOR (ASTM D 1557) BY PROOFROLLING THE EXPOSED SUBGRADE IN OVERLAPPING PASSES WITH A PNEUMATIC TIRE TANDEM AXLE DUMP TRUCK WEIGHING AT LEAST 20 TONS OR OTHER APPROVED DEVISE. REMOVE AND REPLACE UNSUITABLE AREAS WHICH DO NOT STABILIZE AFTER SUCCESSIVE PASSES OF PROOFROLLING EQUIPMENT AS DIRECTED BY THE GEOTECHNICAL ENGINEER.
- 6. PLACE STRUCTURAL FILL IN THE PREPARED AREA IN 8" TO 10" LIFTS. COMPACT EACH LIFT TO A MINIMUM DENSITY OF 95% MODIFIED PROCTOR (ASTM D 1557). MATERIAL USED AS STRUCTURAL FILL SHALL BE NON-PLASTIC GRANULAR MATERIAL CONTAINING LESS THAN 25% FINES PASSING THROUGH THE NO. 200 SIEVE AND BE FREE OF ORGANICS, ROOTS, OR OTHER DELETERIOUS MATERIALS. MOISTURE CONTENT FOR GRANULAR FILL MATERIAL SHALL BE WITHIN +/- 3% OF THE OPTIMUM MOISTURE CONTENT AS DETERMINED BY THE MODIFIED PROCTOR TEST AT THE TIME OF PLACEMENT AND COMPACTION.
- 7. PREVENT SURFACE WATER AND GROUND WATER FROM ENTERING EXCAVATIONS, FROM PONDING ON PREPARED SUBGRADE AND FROM FLOODING THE PROJECT SITE AND SURROUNDING AREA.
- NOTIFY IMMEDIATELY THE OWNER'S REPRESENTATIVE AND ENGINEER IF UNUSUAL SOIL CONDITIONS ARE FOUND.
- DO NOT ALLOW STORED EXCAVATION MATERIAL TO DISRUPT PROPER DRAINAGE OF AREA.
- 10. DISPOSE OF EXCAVATED MATERIAL AS REQUIRED BY OWNER'S REPRESENTATIVE

#### **REINFORCED CONCRETE**

- ALL CONCRETE WORK SHALL CONFORM TO ACI 301, "SPECIFICATIO LATEST EDITION. DESIGN IS BASED ON ACI 318, "BUILDING CODE R FDITION
- 2. UNLESS NOTED OTHERWISE ALL CONCRETE SHALL BE NORMAL W STRENGTHS:

#### FOUNDATIONS SLAB-ON-GRADE.

- CONCRETE MIX DESIGNS. IN ACCORDANCE WITH ACI 318 SECTION TESTING AGENCY FOR MIX DESIGN APPROVAL. RESPONSIBILITY FOR STRENGTH IS THE CONTRACTOR'S.
- 4. USE OF CALCIUM CHLORIDE CHLORIDE IONS, OR OTHER SALTS IN
- 5. THE AIR CONTENT IN ALL CONCRETE EXPOSED TO WEATHER SHAL
- DETAIL CONCRETE REINFORCEMENT AND ACCESSORIES IN ACCOR EDITION. SUBMIT SHOP DRAWINGS FOR APPROVAL SHOWING ALL PLACING REINFORCING STEEL AND ACCESSORIES. DO NOT BEGIN AND APPROVED.
- DETAIL ALL CONCRETE WALLS AND BEAMS IN ELEVATION UNLESS SHOWING BAR LOCATIONS AND CONCRETE COVER.
- REINFORCING STEEL SHALL CONFORM TO ASTM A615, GRADE 60 L ALL REINFORCING STEEL AND EMBEDDED ITEMS SHALL BE TIED SI
- PROVIDE SUFFICIENT SUPPORTS TO MAINTAIN POSITION OF REINF CONSTRUCTION ACTIVITIES. STICKING DOWELS INTO WET CONCR
- PROVIDE CONTINUOUS REINFORCEMENT WHEREVER POSSIBLE SPLICES WHERE POSSIBLE. LAP ALL SPLICES 40 BAR DIAMETERS I DOWELS SHALL MATCH THE SIZE AND SPACING OF THE SPECIFIED DIAMETERS BUT NOT LESS THAN 2'-6" UNLESS DETAILED OTHERW
- 11. REINFORCING STEEL SHALL HAVE THE FOLLOWING CONCRETE CO CONCRETE CAST AGAINST EARTH (NOT FORMED)......
  - FORMED CONCRETE EXPOSED TO EARTH OR WEATHER #6 THROUGH #18 BARS... #5 BARS AND SMALLER...
  - CONCRETE NOT EXPOSED TO EARTH OR WEATHER SLABS, JOISTS AND WALLS ..... BEAMS (STIRRUPS)......
- 12. DO NOT PLACE PIPES OR DUCTS EXCEEDING ONE-THIRD THE SLAE SPECIFICALLY SHOWN AND DETAILED ON THE STRUCTURAL DRAW

#### REINFORCED CONCRETE MASONRY

- UNLESS NOTED OTHERWISE, PROVIDE HOLLOW, LOAD BEARING CO TYPE 1, WITH A MAXIMUM DENSITY OF 105 PCF.
- PROVIDE CONCRETE MASONRY WITH A MINIMUM COMPRESSIVE S OF 2,000 PSI ON NET CROSS SECTIONAL AREA OF CMU DETERMINE
- PROVIDE TYPE "S" MORTAR IN ACCORDANCE WITH ASTM C270. UN EXCEED 5/8" THICKNESS.
- PROVIDE GROUT FOR REINFORCED MASONRY IN ACCORDANCE W 3,000 PSI UNLESS NOTED OTHERWISE.
- LAP REINFORCING BARS 48 BAR DIAMETERS AT SPLICES UNLESS
- PROVIDE TRUSS OR LADDER TYPE HORIZONTAL JOINT REINFORCE LONGITUDINAL LINES, ZINC COATED, PLACED AT 16" O.C. UNLESS N
- 7. LAY MASONRY UNITS IN RUNNING BOND PATTERN UNLESS NOTED
- SIDES AND TOPS OF MASONRY WALL PANELS SHALL BE ANCHORE 8. EQUIVALENT UNLESS NOTED OTHERWISE.
- 9. BOND BEAMS, CMU LINTELS, AND OTHER STRUCTURAL ELEMENTS PROVIDE RAKED JOINTS IN THESE ELEMENTS TO MATCH THE CON
- 10. PROVIDE 8" DEEP BOND BEAM REINFORCED WITH 2#5 CONTINUOU - AT ALL WINDOW AND DOOR HEADS - AT 48" O.C. - AT TOP OF ALL WALLS

#### STRUCTURAL STEEL

- AND AISC 303-05 THE CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES.
- PIPES SHALL CONFORM TO ASTM A53, GRADE B.
- 4. STEEL FRAMING CONNECTIONS SHALL BE BOLTED OR WELDED:
  - HIGH STRENGTH BOLTS.
- 5. ANCHOR BOLTS SHALL CONFORM TO ASTM F 1554 GRADE 36 UNLESS NOTED OTHERWISE.
- 6. DO NOT USE GAS CUTTING TORCHES FOR CORRECTING FABRICATION ERRORS IN THE STRUCTURAL FRAMING.
- SHEAR CONNECTIONS IN THE FIELD SHALL NOT BE PAINTED.
- LEVELING.
- COMPLETE IN ACCORDANCE WITH THE PLANS.

- - - SUBMITTED FOR APPROVAL. NO FABRICATION SHALL BEGIN UNTIL SHOP DRAWINGS ARE COMPLETED AND APPROVED.

    - UNLESS NOTED OTHERWISE, STRUCTURAL STEEL SHALL CONFORM TO ASTM A572, GRADE 50. CHANNELS, ANGLES AND PLATES MAY

    - 10. PROVIDE TEMPORARY BRACING OF STRUCTURAL FRAMING UNTIL ALL PERMANENT BRACING, MOMENT CONNECTIONS, AND ROOF

		S
	TIMBER FRAMING	0.C.
ONS FOR STRUCTURAL CONCRETE FOR BUILDINGS", REQUIREMENTS FOR STRUCTURAL CONCRETE", LATEST	<ol> <li>LOCATION, NUMBER, AND DIMENSIONS OF FRAMING MEMBERS SHOW GENERAL ARRANGEMENT ONLY. ACTUAL SPANS, SPACING, ETC. SHALL BE DETERMINED FROM ARCHITECTURAL DETAILS.</li> </ol>	T.O.S. T.O.F. FIN. FLF
EIGHT AND HAVE THE FOLLOWING MINIMUM 28 DAY	2. SEE ARCHITECTURAL PLANS AND DETAILS FOR EDGE SECTIONS, HEADER AND LINTEL LOCATIONS, AND ALL NON-STRUCTURAL FRAMING AND TRIM.	U.N.O. P.T. GALV.
00 PSI	3. PROVIDE NAILING PATTERN IN COMPLIANCE WITH IBC RECOMMENDED FASTENING SCHEDULE. NAILS SHALL BE IN ACCORDANCE WITH MINIMUM NAILING REQUIREMENTS OF IBC 2012 EXCEPT WHERE NOTED. ALL NAILS SHALL BE HOT-DIPPED GALVANIZED.	WF C L
00 PSI 5.3, SHALL BE SUBMITTED TO THE ENGINEER AND	4. LOAD BEARING STUD WALLS SHALL BE CONTINUOUSLY BRIDGED AT MAXIMUM 48" O.C., ALONG ALL EDGES OF GYPSUM BOARD, AND ALL UNSUPPORTED PLYWOOD WALL SHEATHING JOINTS WITH SOLID WOOD BLOCKING SAME NOMINAL SIZE AS WALL STUDS.	L.L.V. L.L.H. HSS
OR OBTAINING THE REQUIRED CONCRETE DESIGN	5. NO CUTS, HOLES, OR COPES IN STRUCTURAL WOOD FRAMING SHALL BE PERMITTED WITHOUT PRIOR REVIEW AND APPROVAL BY THE STRUCTURAL ENGINEER AND ARCHITECT.	COL BP
CONCRETE IS NOT PERMITTED. LL BE BETWEEN 3% AND 6%.	<ol> <li>ALL DIMENSIONAL LUMBER SHALL BE #2 SYP KD OR BETTER AND PROVIDE NOT LESS THAN THE MINIMUM DESIGN VALUES AS PUBLISHED BY THE NATIONAL DESIGN SPECIFICATION, LATEST EDITION.</li> </ol>	AB FTG. ARCH.
RDANCE WITH ACI 315 "DETAILING MANUAL", LATEST FABRICATION DIMENSIONS AND LOCATIONS FOR I FABRICATION UNTIL SHOP DRAWINGS ARE COMPLETED	7. WOOD PANEL SHEATHING SHALL BE AS FOLLOWS: WALLSAPA RATED SHEATHING, EXPOSURE 1 OR EXTERIOR ROOFAPA RATED SHEATHING, EXPOSURE 1, 2, OR EXTERIOR	HORIZ. VERT. CJ E.F.
SPECIFICALLY APPROVED OTHERWISE. CUT SECTIONS	8. ALL BOLTS SHALL BE GALVANIZED ASTM A307 WITH PLATE WASHERS, GALVANIZED.	E.W. REINF. SJ
	PRE-ENGINEERED WOOD TRUSSES	SJ CONC. ELEV.
JNLESS NOTED OTHERWISE. ECURELY IN PLACE PRIOR TO PLACING CONCRETE. FORCEMENT WITHIN SPECIFIED TOLERANCES DURING ALL RETE IS NOT PERMITTED.	<ol> <li>WOOD TRUSSES SHALL CONFORM TO THE MOST CURRENT VERSION OF THE DESIGN SECIFICATION FOR LIGHT METAL</li> <li>PLATE CONNECTED WOOD ROOF AND FLOOR TRUSSES BY THE TRUSS PLATE INSTITUTE (TPI) AND THE NATIONAL DESIGN SPECIFICATIONS FOR STRESS GRADE LUMBER AND ITS FASTENING BY THE NATIONAL FOREST PRODUCTS ASSOCIATION.</li> <li>ADDITIONAL DESIGN AND DETAILING REQUIREMENTS SET FORTH IN THIS SECTION SHALL BE PROVIDED BY THE TRUSS</li> </ol>	ст
SPLICE ONLY AS SHOWN ON DRAWINGS. STAGGER BUT NOT LESS THAN 2'-6" UNLESS DETAILED OTHERWISE. REINFORCEMENT OVER AND SHALL BE LAPPED 40 BAR ISE.	<ul> <li>MANUFACTURER.</li> <li>ALL ROOF TRUSSES SHALL BE DESIGNED, FABRICATED, AND ERECTED TO SUPPORT THE FOLLOWING MINIMUM LOADS: LIVE - TOP CHORD - 20 PSF</li> <li>DEAD - TOP CHORD - 10 PSF + MECHANICAL EQUIPMENT</li> </ul>	an
OVER UNLESS NOTED OTHERWISE:	DEAD - BOTTOM CHORD - 10 PSF + MECHANICAL EQUIPMENT 3. PROVIDE AT EACH SUPPORT GALVANIZED METAL HURRICANE PLATE ANCHORAGES SUFFICIENT TO RESIST HORIZONTAL	
	AND VERTICAL WIND COMPONENTS WITH A SAFETY FACTOR OF 3. MINIMUM UPLIFT LOAD SHALL DETERMINED BY TRUSS MANUFACTURER FROM REQUIREMENTS OF LOCAL BUILDING CODES.	
	4. INSTALL TEMPORARY AND PERMANENT VERTICAL BRACING OR OTHER BRACES AS RECOMMENDED BY THE TRUSS MANUFACTURER AND/OR APPLICABLE REFERENCES.	
	<ol> <li>SHOP DRAWINGS, COMPUTATIONS, ETC. SHALL BE SUBMITTED FOR REVIEW. SHOP DRAWINGS SHALL PROVIDE ERECTION LAYOUT FOR TRUSS RAFTERS, OUTRIGGERS, HEADERS, BRACING, ETC. SEE ARCHITECTURAL AND STRUCTURAL PLANS FOR SUPPORT LOCATIONS.</li> </ol>	
B OR WALL THICKNESS WITHIN THE SLAB UNLESS VINGS.	6. CALCULATIONS SHALL BEAR THE SEAL OF A REGISTERED PROFESSIONAL ENGINEER LICENSED IN THE STATE OF GEORGIA.	
	<ol> <li>TRUSS WEB TO CHORD CONNECTION SHALL BE MADE WITH GALVANIZED STEEL TRUSS CONNECTION PLATES MEETING ALL REQUIREMENTS OF THE TRUSS PLATE INSTITUTE.</li> </ol>	
ONCRETE MASONRY UNITS (CMU) CONFORMING TO ASTM C90,	8. ROOF SHEATHING SHALL BE MINIMUM 5/8" APA RATED T&G SHEATHING GLUED AND FASTENED IN ACCORDANCE WITH THE MINIMUM NAILING REQUIREMENTS OF IBC 2012 UNLESS DETAILED OTHERWISE.	
TRENGTH, f'm = 1,500 PSI CORRESPONDING TO A UNIT STRENGTH ED IN ACCORDANCE WITH ASTM C140.		
LESS NOTED OTHERWISE. MORTAR BED JOINTS SHALL NOT		
ITH ASTM C476 WITH A MINIMUM COMPRESSIVE STRENGTH OF		
DETAILED OTHERWISE.		
EMENT COMPLYING WITH ASTM A82, WITH A MINIMUM OF (2) NO. 9 NOTED OTHERWISE.		
OTHERWISE.		PΛ
ED TO STRUCTURE BY DOVETAIL ANCHORS, METAL STRAPS, OR		
SHALL EXTEND UNINTERRUPTED ACROSS CONTROL JOINTS. ITROL JOINT.		
IS AS FOLLOWS:		
		1

ALL STRUCTURAL STEEL CONSTRUCTION SHALL CONFORM TO AISC 360-05 "SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS",

2. SHOP DRAWINGS PREPARED IN ACCORDANCE WITH THE LATEST "STRUCTURAL STEEL DETAILING MANUAL" OF THE AISC SHALL BE

BE ASTM A36 UNLESS NOTED OTHERWISE. SQUARE AND RECTANGULAR TUBES SHALL CONFORM TO ASTM A500, GRADE B. ROUND

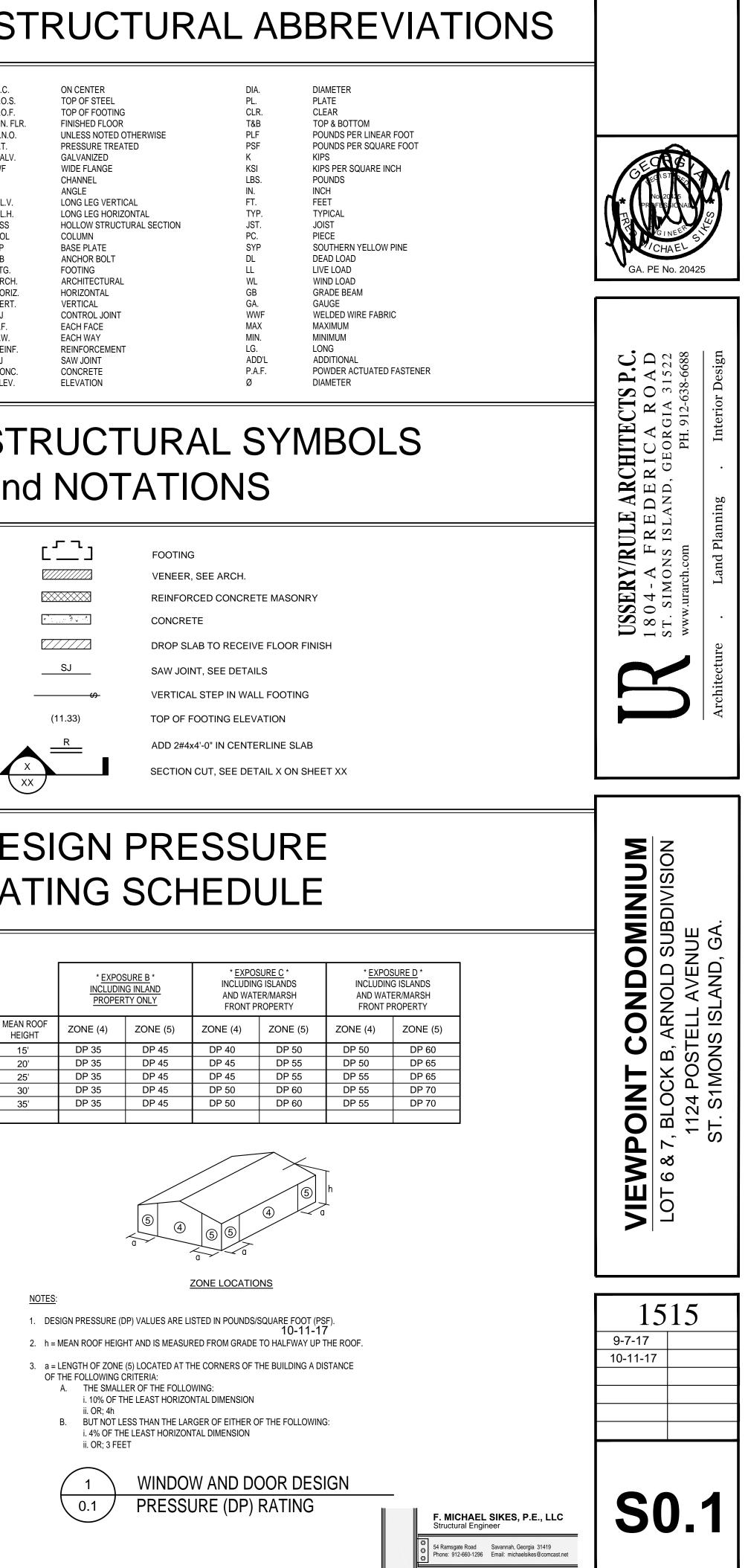
A) BOLTED JOINTS SHALL CONFORM TO AISC "SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS". BOLTS SHALL CONFORM TO ASTM A325, AND SHALL BE MINIMUM 3/4" DIAMETER, UNLESS NOTED OTHERWISE PROVIDE DIRECT TENSION INDICATORS (LOAD INDICATING WASHERS OR SNAP OFF BOLTS) IN ACCORDANCE WITH ASTM F959 AT ALL

B) WELDS SHALL CONFORM TO THE "STRUCTURAL WELDING CODE" OF THE AMERICAN WELDING SOCIETY, AWS DI.I. USE E70XX ELECTRODES. WELDING PROCESSES AND OPERATORS SHALL BE QUALIFIED IN ACCORDANCE WITH AWS "STANDARD QUALIFICATIONS PROCEDURES". WELDERS SHALL CARRY PROOF OF QUALIFICATIONS ON THEIR PERSONS.

PROVIDE (1) SHOP COAT OF STANDARD PRIMER PAINT. PRIMER TO BE COMPATIBLE WITH THE FINISH COAT. TOUCH UP AREAS DAMAGED IN HANDLING AND ERECTION WITH THE SAME PAINT USED FOR THE SHOP COAT. STEEL SURFACES TO BE WELDED OR ENCASED IN CONCRETE OF FIREPROOFING, CONNECTIONS DESIGNED AS SLIP CRITICAL TYPE, OR SURFACES RECEIVING WELDED

9. PACK BELOW ALL BASE PLATES WITH NON-SHRINK, NON-METALLIC HI-STRENGTH GROUT (MINIMUM 6,000 PSI) AFTER SETTING AND

DECKS (DIAPHRAGMS) ARE COMPLETELY INSTALLED. THE STRUCTURAL ELEMENTS ARE UNSTABLE UNTIL THE STRUCTURE IS



## **CAST-IN -PLACE AUGERED PILES**

### GENERAL

- 1. THE GENERAL PROVISIONS OF THE CONTRACT, INCLUDING GENERAL AND SUPPLEMENTARY CONDITIONS AND GENERAL REQUIREMENTS APPLY TO THE WORK SPECIFIED IN THIS SECTION.
- 2. THE EXTENT OF CAST-IN-PLACE AUGERED PILING IS SHOWN ON THE DRAWINGS, INCLUDING LOCATIONS, DIAMETERS, ESTIMATED BOTTOM ELEVATIONS, TOP ELEVATIONS, REINFORCING, AND DETAILS OF CONSTRUCTION. ONE (1) TEST PILE SHALL BE INCLUDED IN THE WORK.

### QUALITY ASSURANCE

- 1. PERFORM WORK IN COMPLIANCE WITH THE APPLICABLE REQUIREMENTS OF GOVERNING AUTHORITIES HAVING JURISDICTION, INCLUDING PROVISIONS FOR ADEQUATE PROTECTION TO PERSONS AND PROPERTY. APPLICABLE PROVISIONS OF THE 2012 EDITION OF THE INTERNATIONAL BUILDING CODE WITH GEORGIA AMENDMENTS SHALL BE INCLUDED AS PART OF THIS SECTION.
- 2. ENGAGE A REGISTERED SURVEYOR OR REGISTERED CIVIL ENGINEER ACCEPTABLE TO THE ARCHITECT TO PERFORM ALL SURVEYS, LAYOUTS, AND MEASUREMENTS FOR PILE WORK. THE SURVEYOR SHALL CONDUCT THE LAYOUT WORK FOR EACH PILE TO THE LINES AND LEVELS REQUIRED BEFORE EXCAVATION, AND SUBMIT TO ARCHITECT FOR APPROVAL THE ACTUAL MEASUREMENTS OF EACH PILE'S HORIZONTAL AXIAL LOCATION. DIAMETER, BOTTOM AND TOP ELEVATIONS, DEVIATIONS FROM SPECIFIED TOLERANCES, AND OTHER DATA AS REQUIRED PRIOR TO ACCEPTANCE OR CONSTRUCTION OF PILE CAPS AND GRADE BEAMS.
- 3. THE SURVEYOR SHALL RECORD AND MAINTAIN ALL INFORMATION PERTINENT TO EACH PILE AND COOPERATE WITH TESTING AND INSPECTION PERSONNEL TO PROVIDE DATA FOR REQUIRED REPORTS.
- 4. EMPLOY, AT OWNERS'S EXPENSE, A TESTING LABORATORY ACCEPTABLE TO THE ARCHITECT TO PERFORM MATERIALS EVALUATION TEST AND TO DESIGN GROUT MIXES.
- 5. MATERIALS AND INSTALLED WORK MAY REQUIRE TESTING AND RETESTING, AS DIRECTED BY THE ARCHITECT, AT ANY TIME DURING THE PROGRESS OF THE WORK. ALLOW FREE ACCESS TO MATERIAL STOCKPILES AND FACILITIES AT ALL TIMES. TESTS, NOT SPECIFICALLY INDICATED TO BE DONE AT THE OWNER'S EXPENSE, INCLUDING THE RETESTING OF REJECTED MATERIALS AND INSTALLED WORK, SHALL BE DONE AT THE CONTRACTOR'S EXPENSE.
- 6. SUBMIT WRITTEN REPORTS TO THE ARCHITECT, FOR EACH MATERIAL SAMPLED AND TESTED PRIOR TO THE START OF WORK. PROVIDE THE PROJECT IDENTIFICATION NAME AND NUMBER, DATE OF REPORT, NAME OF CONTRACTOR NAME OF CONCRETE TESTING SERVICE, SOURCE OF CONCRETE AGGREGATES, MATERIAL MANUFACTURER AND BRAND NAME FOR MANUFACTURER MATERIALS, VALUES SPECIFIED IN THE REFERENCED SPECIFICATION FOR EACH MATERIAL, AND TEST RESULTS. INDICATE WHETHER OR NOT MATERIAL IS ACCEPTABLE FOR INTENDED USE.
- 7. A REGISTERED PROFESSIONAL ENGINEER EMPLOYED BY A RECOGNIZED AND APPROVED GEOTECHNICAL ENGINEERING FIRM HEREIN REFERRED TO AS THE "SOIL ENGINEER" SHALL SUPERVISE THE INSTALLATION OF THE PILES. COSTS SHALL BE PAID BY THE OWNER.
- 8. PILES SHALL BE INSTALLED BY AN EXPERIENCED CONTRACTOR WHO SHALL HAVE A MINIMUM OF 5 YEARS CONTINUOUS EXPERIENCE IN THE INSTALLATION OF AUGERED CAST-IN-PLACE PILES. EVIDENCE OF EXPERIENCE SHALL BE SUBMITTED TO THE ARCHITECT FOR REVIEW AND SHALL INCLUDE THE NAMES OF NO LESS THAN 10 PROJECTS, EQUAL TO OR GREATER IN SCOPE THAN THIS PROJECT. PROJECT MANAGER AND FIELD SUPERINTENDENT FOR PILE INSTALLER MUST EACH HAVE NO LESS THAN 3 YEARS EXPERIENCE IN THE INSTALLATION OF AUGERED CAST-IN-PLACE PILES UNDER SIMILAR SUBSURFACE SOIL CONDITIONS.

#### SUBMITTALS

- 1. SUBMIT 3 COPIES OF THE FOLLOWING REPORTS DIRECTLY TO THE ARCHITECT FOR REVIEW:
  - MIX DESIGN PROPOSED FOR USE IN PILING.
  - VERIFIED PILE REPORT AND INSTALLATION LOG FOR EACH PILE, RECORDING THE FOLLOWING MINIMUM DATA
  - DATE IDENTIFICATION OF THE INDIVIDUAL PILE AND PILE GROUP
  - DIAMETER AND REINFORCING INSTALLED
  - FINAL PILE TRIP ELEVATION BUTT ELEVATION
  - THEORETICAL GROUT VOLUME
  - ACTUAL GROUT VOLUME GROUT RATIO
  - PRESSURE AT PUMP
  - PRESSURE AT OPERATOR 11. COMMENTS ON ANYTHING UNUSUAL RELATIVE TO THE INSTALLATION

THE INSTALLATION LOG SHALL BECOME THE BASIS FOR FINAL PAYMENT OF PILING. IT SHALL BE SUBMITTED TO THE ARCHITECT IN A FORM APPROVED BY HIM, AND SHALL BE VERIFIED BY THE SUPERINTENDENT IN CHARGE OF PILE DRIVING OPERATIONS AND COUNTERSIGNED BY THE CONTRACTOR AND SOIL ENGINEER.

- GROUT STRENGTH TEST REPORTS, RECORDING ALL PERTINENT INFORMATION AND CERTIFICATION FOR COMPLIANCE WITH PROJECT REQUIREMENTS BASED ON FIELD SAMPLING.
- REINFORCING SHOP DRAWINGS, FOR APPROVAL PRIOR TO FABRICATION.
- LOAD-BEARING TEST REPORTS SHALL BE SUBMITTED FOR REVIEW FOR EACH LOAD-BEARING TEST WITHIN 2 DAYS AFTER COMPLETION OF TESTS.

### JOB CONDITIONS

10

- 1. THE DATA ON INDICATED SUBSURFACE CONDITIONS IS NOT INTENDED AS REPRESENTATIONS OR WARRANTIES OF THE CONTINUITY OF SUCH CONDITIONS. IT IS EXPRESSLY UNDERSTOOD THAT THE OWNER WILL NOT BE RESPONSIBLE FOR INTERPRETATIONS OR CONCLUSIONS DRAWN THEREFROM BY THE CONTRACTOR. DATA IS MADE AVAILABLE FOR THE CONVENIENCE OF THE CONTRACTOR AND IS NOT GUARANTEED TO REPRESENT ALL CONDITIONS THAT MAY BE ENCOUNTERED. ADDITIONAL TEST BORINGS AND OTHER EXPLORATORY OPERATIONS MAY BE MADE BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
- 2. LOCATE EXISTING UNDERGROUND UTILITIES BY HAND EXCAVATION BEFORE COMMENCING AUGERED PILE EXCAVATION OPERATIONS. IF UTILITIES ARE TO REMAIN IN PLACE, PROVIDE PROTECTION FROM DAMAGE DURING AUGERED PILE OPERATIONS.
- 3. SHOULD UNCHARTED OR INCORRECTLY CHARTED PIPING OR OTHER UTILITIES BE ENCOUNTERED DURING EXCAVATION, CONSULT THE ARCHITECT IMMEDIATELY FOR DIRECTIONS AS TO PROCEDURE. COOPERATE WITH THE OWNER AND PUBLIC OR PRIVATE UTILITY COMPANIES IN KEEPING THEIR RESPECTIVE SERVICE AND FACILITIES IN OPERATION. REPAIR DAMAGED UTILITIES TO THE SATISFACTION OF THE UTILITY OWNER.
- 4. DO NOT INTERRUPT EXISTING UTILITIES SERVING FACILITIES OCCUPIED AND USED BY THE OWNER AND OTHERS, EXCEPT WHEN PERMITTED IN WRITING BY THE ARCHITECT AND THEN ONLY AFTER ACCEPTABLE TEMPORARY UTILITY SERVICES HAVE BEEN PROVIDED.

#### PRODUCTS

- 1. PORTLAND CEMENT: ASTM C 150, TYPE I OR II.
- 2. WATER: FRESH, CLEAR AND FREE FROM INJURIOUS AMOUNTS OF SEWAGE, OIL, ACID, ALKALI, SALTS OR ORGANIC MATTER.
- 3. FINE AGGREGATES: ASTM C 33, EXCEPT GRADATION SHALL CONSIST OF HARD, DENSE, DURABLE, UNCOATED ROCK PARTICLES FREE FROM INJURIOUS AMOUNTS OF SILT, LOAM, LUMPS, SOFT OR FLAKY PARTICLES, SHALE, ALKALI, ORGANIC MATTER, MICA AND OTHER DELETERIOUS SUBSTANCES. IF WASHED, THE METHOD SHALL BE SUCH AS WILL NOT REMOVE DESIRABLE FINES, AND THE SAND SHALL SUBSEQUENTLY BE PERMITTED TO DRAIN UNTIL THE RESIDUAL FREE MOISTURE IS REASONABLY UNIFORM AND STABLE. THE SAND SHALL BE WELL GRADED FROM FINE TO COARSE, WITH FINENESS MODULUS BETWEEN 1.40 AND 3.40. THE FINENESS MODULUS IS DEFINED AS THE TOTAL DIVIDEND BY 100 OF THE CUMULATIVE PERCENTAGES RETAINED ON U.S. STANDARD SIEVE NOS. 16, 30, 50 AND 100.
- 6. REINFORCING BARS AND TIES: ASTM A 615, GRADE 60.

#### DESIGN MIX

- GENERAL: THE GROUT USED TO FILL THE HOLES SHALL CONSIST OF A MIXTURE OF PORTLAND CEMENT, SAND, AND WATER PROPORTIONED AND MIXED AS TO PROVIDE A MIXTURE CAPABLE OF MAINTAINING THE SOLIDS IN SUSPENSION WITHOUT APPRECIABLE WATER GAIN, YET WHICH MAY BE PUMPED WITHOUT DIFFICULTY AND
- 6. GROUT: THE GROUT MIX SHALL BE TESTED BY MAKING ONE SET OF 2"x2" CUBES FOR EACH DAY DURING WHICH WHICH WILL LATERALLY PENETRATE AND FILL ANY VOIDS IN THE FOUNDATION MATERIAL. THE DESIGN MIX SHALL PILES ARE PLACED. A SET OF CUBES SHALL BE TESTED AT 7 DAYS AND TWO CUBES TO BE TESTED AT 28 DAYS. BE PROPORTIONED TO PROVIDE A HARDENED GROUT OF 4,000 PSI (MIN.) COMPRESSIVE STRENGTH AT 28 DAYS. TEST CUBES SHALL BE MADE AND TESTED IN ACCORDANCE WITH ASTM C109, WITH THE EXCEPTION THAT THE GROUT SHOULD BE RESTRAINED FROM EXPANSION BY A TOP PLATE. TEST SAMPLES SHALL BE TAKEN AND 2. SUBMIT WRITTEN REPORTS TO THE ARCHITECT OF PROPOSED MIX FOR EACH CLASS OF CONCRETE AT LEAST 15 TESTED BY AN INDEPENDENT TESTING LABORATORY APPROVED BY THE ARCHITECT AND PAID FOR BY THE DAYS PRIOR TO START OF WORK. DO NOT BEGIN PRODUCTION UNTIL MIXES HAVE BEEN REVIEWED BY CONTRACTOR. ARCHITECT.
- LABORATORY TRIAL BATCHES: WHEN LABORATORY TRIAL BATCHES ARE USED TO SELECT PROPORTIONS, REJECTION AND REPLACEMENT PREPARE AND TEST IN ACCORDANCE WITH ASTM C109. ESTABLISH A CURVE SHOWING RELATIONSHIP BETWEEN WATER-CEMENT RATIO (OR CEMENT CONTENT) AND COMPRESSIVE STRENGTH, WITH AT LEAST 3 POINTS 1. REJECTION: THE SOIL ENGINEER SHALL REJECT ALL PILES INSTALLED AT VARIANCE WITH SPECIFIED REPRESENTING BATCHES WHICH PRODUCE STRENGTHS ABOVE AND BELOW THAT REQUIRED. USE NOT LESS THAN 3 SPECIMENS TESTED AT 28-DAYS, OR AN EARLIER AGE WHEN ACCEPTABLE TO THE ARCHITECT, TO TOLERANCES, THAT DISPLAY HARMFUL DISTORTION OR STRUCTURAL DEFECTS, THAT WERE NOT INSTALLED IN THE REQUIRED MANNER, OR THAT FAIL TO MEET THESE SPECIFICATIONS IN ANY OTHER MANNER. ESTABLISH EACH POINT ON THE CURVE.
- 4. ADJUSTMENT TO CONCRETE MIXING: MIX DESIGN ADJUSTMENTS MAY BE REQUIRED BY CONTRACTOR WHEN 2. REPLACEMENT: ANY PILE INSTALLED IMPROPERLY OR OTHERWISE DEFECTIVE AND REJECTED, SHALL BE CHARACTERISTICS OF MATERIALS, JOB CONDITIONS, WEATHER, TEST RESULTS, OR OTHER CIRCUMSTANCES REMOVED AND/OR REPLACED TO THE SATISFACTION OF THE SOIL ENGINEER AND ARCHITECT AT NO ADDITIONAL WARRANT. MIX DESIGN ADJUSTMENTS SHALL BE AT NO ADDITIONAL COST TO THE OWNER AND AS ACCEPTED COST TO THE OWNER. WHERE DEVIATIONS EXCEED THE ALLOWABLE TOLERANCES, THE ARCHITECT OR BY THE ARCHITECT. LABORATORY TEST DATA FOR REVISED MIX DESIGNS AND STRENGTH RESULTS SHALL BE ENGINEER MAY PROVIDE WRITTEN INSTRUCTIONS TO COMPENSATE FOR RESULTING ECCENTRICITY. SUBMITTED TO AND ACCEPTED BY THE ARCHITECT BEFORE USING IN THE WORK. CORRECTIONS INCLUDING BUT NOT LIMITED TO REINFORCED TIE BEAMS, ADDITIONAL PILES OR OTHER MEANS SHALL BE THE DECISION OF THE ENGINEER AND SHALL BE CONSTRUCTED AT NO ADDITIONAL COST TO THE OWNER.

#### MATERIALS AND INSTALLATION

- 1. GENERAL: PILES SHALL BE AUGERED, HIGH STRENGTH CEMENT GROUTED, CAST-IN-PLACE PILES OF DIAMETER AND ELEVATIONS DESCRIBED AND LOCATED ON THE STRUCTURAL DRAWINGS, AND SHALL BE CAPABLE OF SUPPORTING THE DESIGN WORKING LOADS INDICATED.
- 2. PILES SHALL BE INSTALLED BY 14" DIAMETER CONTINUOUS-FLIGHT HOLLOW SHAFT AUGER ROTATED TO THE SPECIFIED PILE DEPTH. HIGH STRENGTH GROUT SHALL BE PUMPED AS THE AUGER IS WITHDRAWN TO FILL THE 2. PAYMENT SHALL BE MADE FOR THE TOTAL LINEAR FEET OF PILES ACTUALLY INSTALLED, INCLUDING PERMANENT JOB PILES AND TEST PILES. HOWEVER, NO PAYMENT WILL BE MADE FOR PILES REQUIRED TO REPLACE HOLE, PREVENTING HOLE COLLAPSE AND TO CAUSE THE LATERAL PENETRATION OF THE GROUT INTO SOFT OR DEFECTIVE WORK, CONTRACT PRICE PER LINEAR FOOT INCLUDES LABOR, MATERIALS, TOOLS, EQUIPMENT, AND POROUS ZONES OF THE SURROUNDING SOIL. A HEAD OF 10' (MIN.) SHALL BE CARRIED AROUND THE PERIMETER OF THE AUGER FLIGHTING AT ALL TIMES DURING WITHDRAWAL SO AS TO PROVIDE A DISPLACING ACTION INCIDENTALS FOR PERFORMING WORK FOR FURNISHING AND INSTALLING PILES.
- REMOVING ANY LOOSE MATERIAL FROM THE HOLE AHEAD OF THE TIP. 3. THE ADJUSTMENT FOR CHANGE IN TOTAL LENGTH OF PILES INSTALLED FROM TOTAL LENGTH INCLUDED IN THE 3. THE INSTALLED LENGTH AND DRILLING CRITERIA OF PRODUCTION PILES SHALL BE AS DETERMINED BY THE SOILS BASE BID SHALL BE APPROVED BY THE ARCHITECT. ENGINEER BASED ON INFORMATION FROM THE INSTALLATION PROBE PILES AND THE SUBSEQUENT PILE LOAD TESTS. THE RATE OF AUGER WITHDRAWAL, RATE OF GROUT PUMPING, AND OTHER PROCEDURES USED FOR THE 4. LENGTH OF PILES TO BE PAID FOR SHALL BE THE LENGTH BELOW THEORETICAL BUTT ELEVATION. PAYMENT INSTALLATION OF THE TEST PILES SHALL BE DUPLICATED, OR MODIFIED IN ACCORDANCE WITH THE SOILS FOR LINEAR FOOTAGE IN EXCESS OF THAT INDICATED ON DRAWINGS, AND CREDIT FOR LINEAR FOOTAGE LESS ENGINEER'S RECOMMENDATIONS DEVELOPED FROM THE TEST PROGRAM FOR THE INSTALLATION OF ALL THAN THAT INDICATED ON DRAWINGS, SHALL BE MADE AT UNIT PRICES STATED IN THE CONTRACT, BASED ON REMAINING PRODUCTION PILES. NET ADDITION OR DEDUCTION. THE BASE BID SHALL ALSO INCLUDE THE LOAD TEST OF ONE PILE.
- 4. LOCATION OF PILES AND TOLERANCES: PILES SHALL BE LOCATED AS SHOWN ON THE DRAWINGS. PILE CENTERS SHALL BE LOCATED WITHIN A TOLERANCE NOT TO EXCEED A DEVIATION OF 2" FROM DESIGNATED POSITION FOR A SINGLE PILE NOR MORE THAN A CUMULATIVE DEVIATION OF 3" FOR ANY TWO ADJACENT PILES.
- 5. ADJACENT PILES SHALL NOT BE PLACED CLOSER THAN 6 DIAMETERS ON CENTER UNTIL THE GROUT IN THE PILES HAS SET FOR 24 HOURS.
- 6. REINFORCEMENT: REINFORCEMENT SHALL BE PRE-ASSEMBLED AND SET TO DEPTH AND LOCATION AS SHOWN ON DRAWINGS WHILE GROUT IS STILL FLUID.

### MIXING AND PUMPING OF HIGH-STRENGTH CEMENT GROUT

- 1. ONLY APPROVED PUMPING AND CONTINUOUS MIXING EQUIPMENT SHALL BE USED IN THE PREPARATION AND HANDLING OF THE GROUT. ALL OIL OR OTHER RUST INHIBITORS SHALL BE REMOVED FROM MIXING DRUMS AND PRESSURE GROUT PUMPS.
- 2. THE GROUT PUMP SHALL BE A POSITIVE DISPLACEMENT PISTON TYPE PUMP CAPABLE OF DEVELOPING PRESSURES AT THE PUMP UP TO 350 PSI.
- 3. THE MINIMUM VOLUME OF GROUT PLACED IN THE HOLE SHALL AT LEAST EQUAL THE VOLUME OF THE AUGERED HOLE. ALL MATERIALS SHALL BE SUCH AS TO PRODUCE A HOMOGENEOUS MORTAR OF THE DESIRED CONSISTENCY. IF THERE IS A LAPSE IN THE OPERATION, THE MORTAR SHALL BE RECIRCULATED THROUGHOUT THE PUMP

### OBSTRUCTIONS

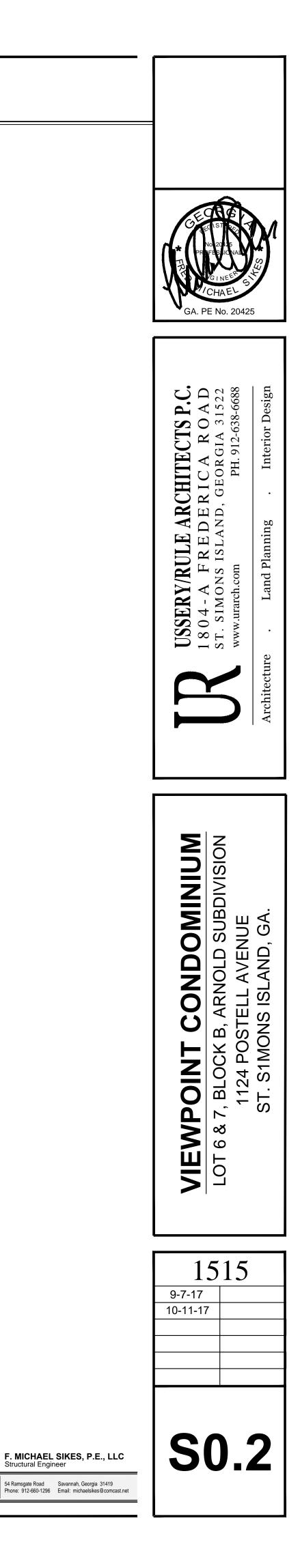
SHOULD ANY OBSTRUCTIONS BE ENCOUNTERED WHICH PREVENT PLACING PILES TO THE DEPTH REQUIRED, OR WHICH CAUSE THE PILES TO DRIFT FROM THE REQUIRED LOCATIONS, THE PILE SHALL BE COMPLETED AT THAT DEPTH AT WHICH THE OBSTRUCTION IS ENCOUNTERED, AND THE ARCHITECT SHALL BE NOTIFIED IMMEDIATELY. IF DIRECTED BY THE ARCHITECT, AN ADDITIONAL ADJACENT PILE SHALL BE PLACED BY THE CONTRACTOR.

### TESTS

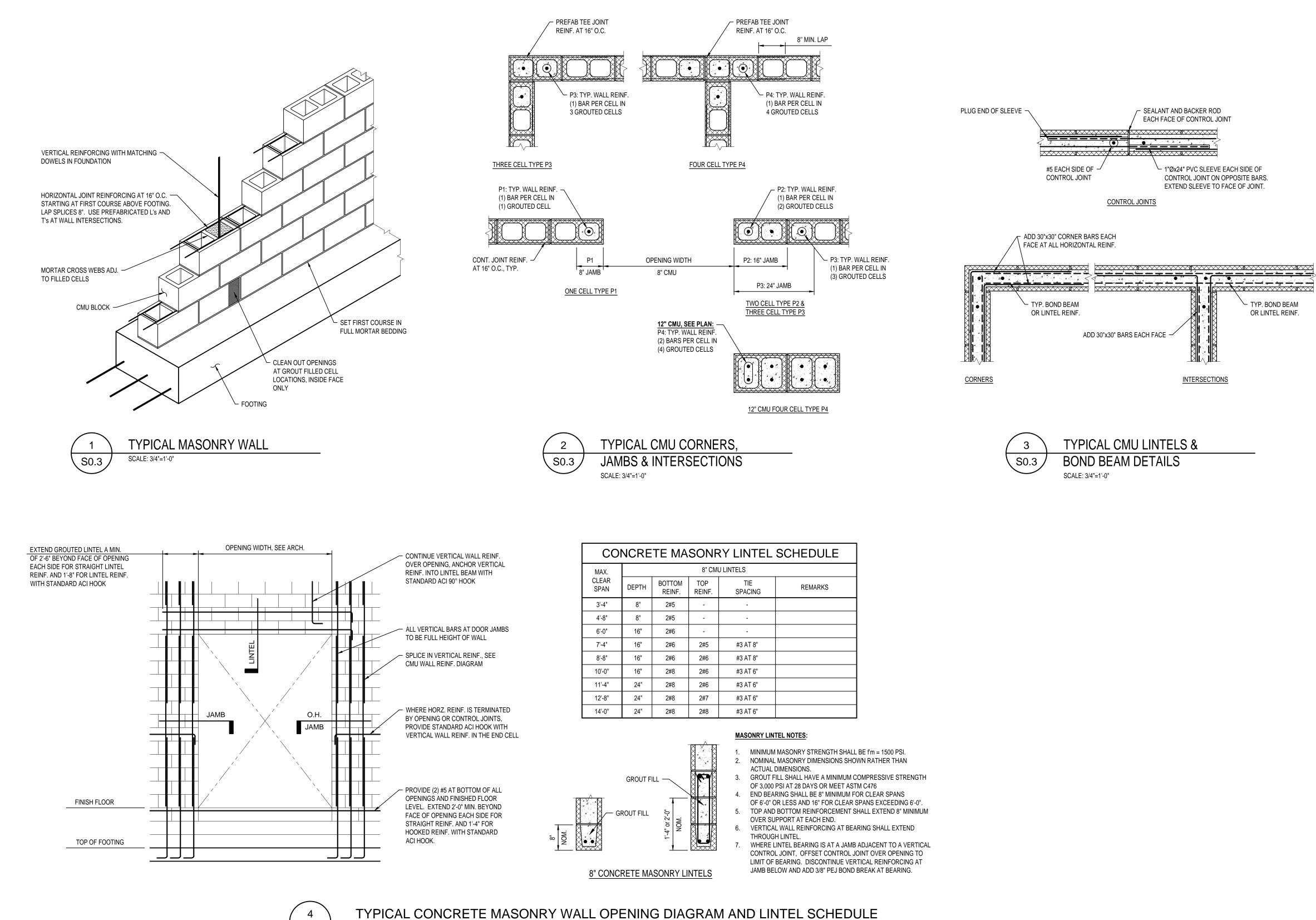
- 1. GENERAL: TEST PILES FURNISHED AND DRIVEN BY CONTRACTOR TO DETERMINE LENGTHS OF PILES MAY BE LOCATED, CUT OFF, AND BECOME PART OF FOUNDATION SYSTEM PROVIDED THEY CONFORM TO CONTRACT REQUIREMENTS.
- 2. PILE TESTING: ONE PILE LOAD TEST IS REQUIRED. THE TEST PILE SHALL BE LOADED TO 2 TIMES THE DESIGN LOAD IN ACCORDANCE WITH THE QUICK TEST PROCEDURES OF ASTM D 1143 AT THE LOCATIONS TO BE SELECTED BY THE ARCHITECT. ALL TESTS SHALL BE CONDUCTED UNDER THE SUPERVISION OF THE APPROVED SOILS ENGINEER AND DIRECTED BY A REGISTERED PROFESSIONAL GEOTECHNICAL ENGINEER. THE PILING CONTRACTOR SHALL OUTLINE IN WRITING ALL EQUIPMENT AND PROCEDURES TO BE USED AND SUBMITTED TO THE ARCHITECT FOR APPROVAL PRIOR TO TESTS. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY EQUIPMENT FOR LOAD TESTS.
- 3. COSTS OF LOAD TESTS SHALL BE PAID FOR BY THE CONTRACTOR.
- 4. WHERE TEST PILES EXTEND ABOVE FINAL CUT OFF ELEVATIONS, THEY SHALL BE CASED TO THE OPERATING GROUND LEVEL TO PREVENT FRICTION EFFECTS IN THE AREA TO BE EXCAVATED.
- 5. MINIMUM SPACING BETWEEN TEST PILES AND REACTION PILES SHALL BE 7'-0". UNDAMAGED REACTION PILES MAY SERVE AS JOB PILES IF IN CORRECT LOCATION AND INSTALLED IN THE SAME MANNER AS THE TEST PILES. PROVIDE SUFFICIENT TENSION REINFORCEMENT AND ACCESSORIES IN REACTION PILES TO DEVELOP REQUIRED UPLIFT LOAD WITH A SAFETY FACTOR OF 3.

## PAYMENT

- 1. THE BASE BID SHALL INCLUDE THE TOTAL LINEAR FEET FOR THE NUMBER AND LENGTH OF PILES SCHEDULED ON THE DRAWINGS.
- 5. TEST PILES THAT BECOME PART OF COMPLETED FOUNDATION SYSTEM WILL BE CONSIDERED AS AN INTEGRAL PART OF WORK.
- 6. AS A BASIS FOR BIDS, ALL PILES SHALL BE INSTALLED TO ELEVATION SHOWN ON THE STRUCTURAL DRAWINGS.



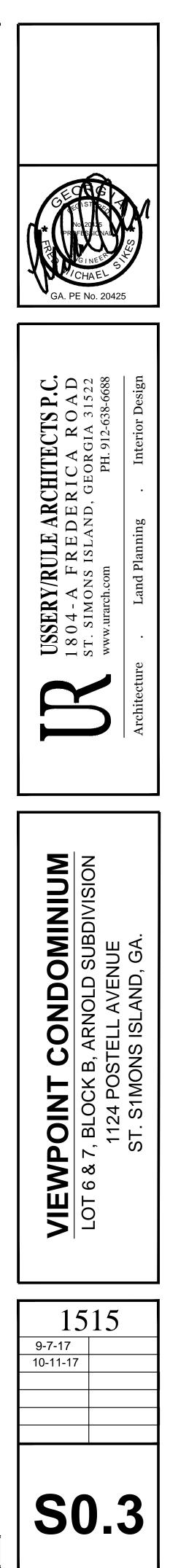
Structural Engineer



4 S0.3

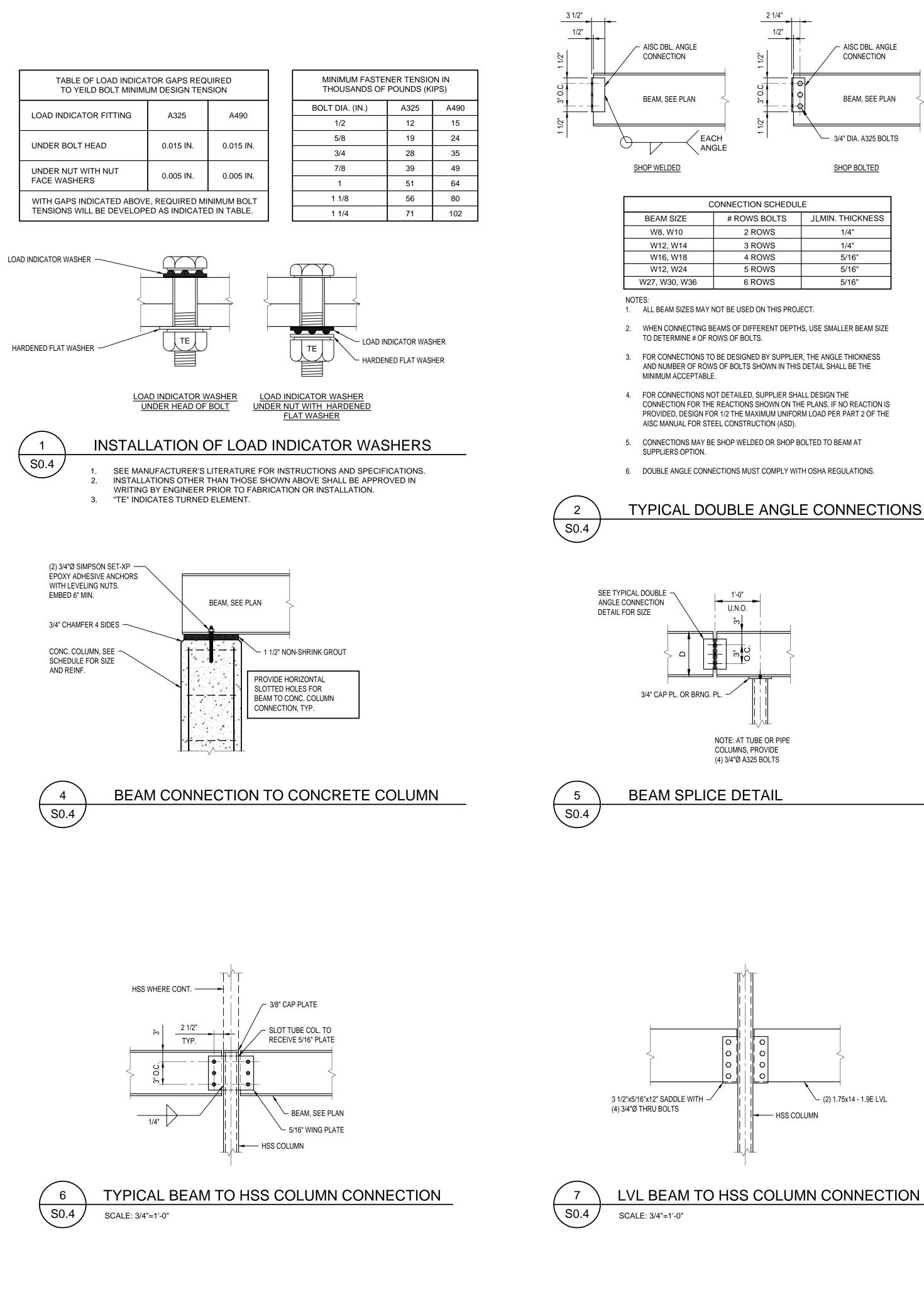
SCALE: 3/4"=1'-0"

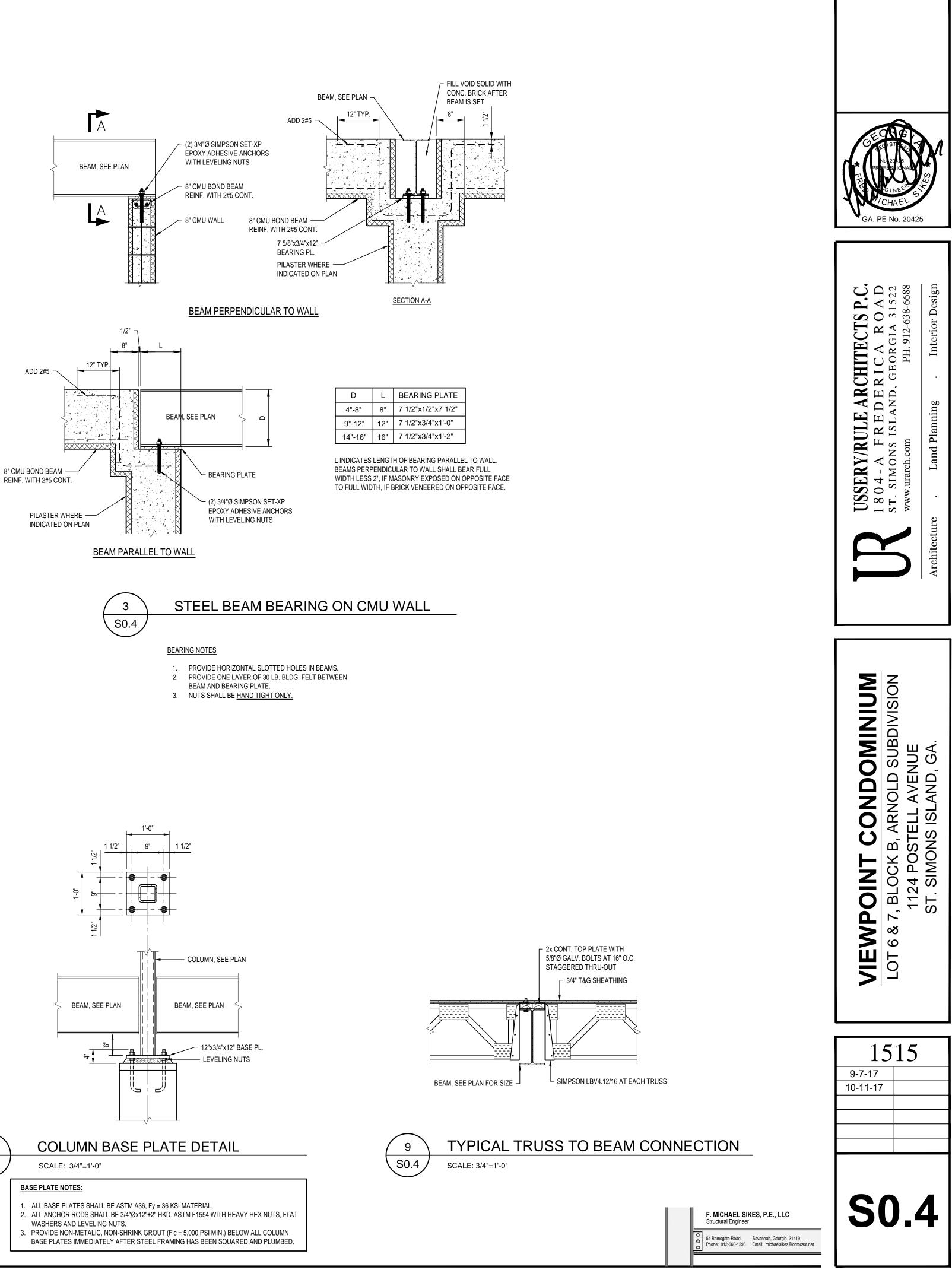
X. AR AN	8" CMU LINTELS						
	DEPTH	BOTTOM REINF.	TOP REINF.	TIE SPACING	REMARKS		
4"	8"	2#5	-	-			
8"	8"	2#5	-	-			
0"	16"	2#6	-	-			
4"	16"	2#6	2#5	#3 AT 8"			
8"	16"	2#6	2#6	#3 AT 8"			
-0"	16"	2#8	2#6	#3 AT 6"			
-4"	24"	2#8	2#6	#3 AT 6"			
-8"	24"	2#8	2#7	#3 AT 6"			
-0"	24"	2#8	2#8	#3 AT 6"			

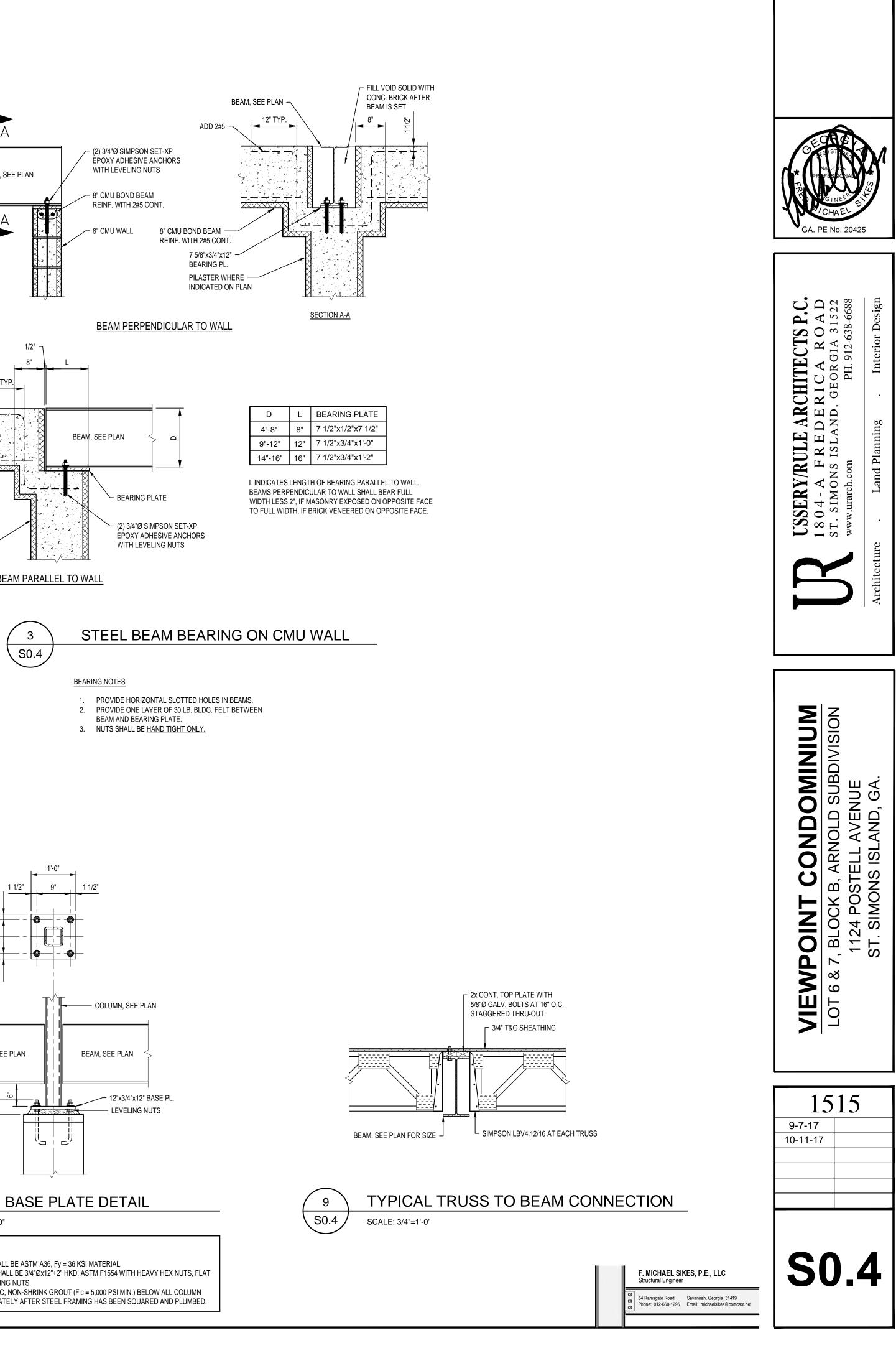


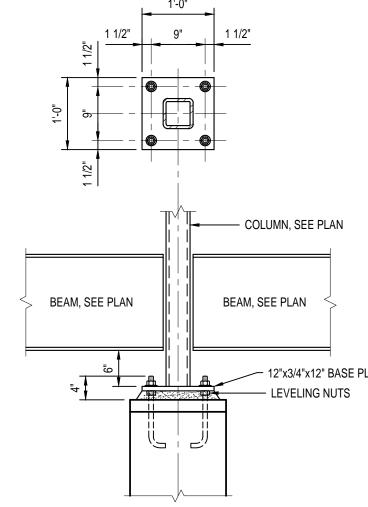
F. MICHAEL SIKES, P.E., LLC Structural Engineer

54 Ramsgate Road Savannah, Georgia 31419 Phone: 912-660-1296 Email: michaelsikes@comcast.net



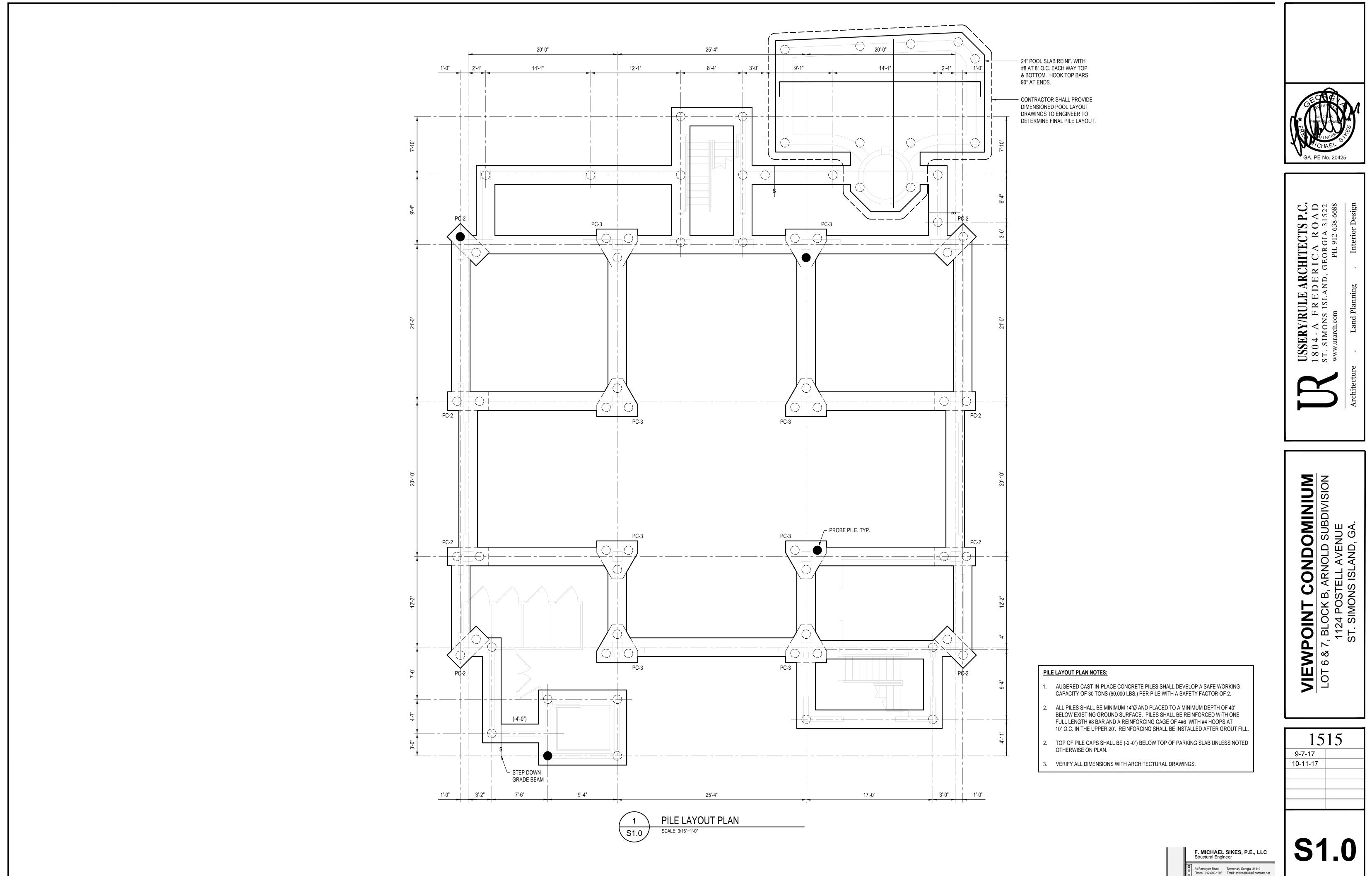


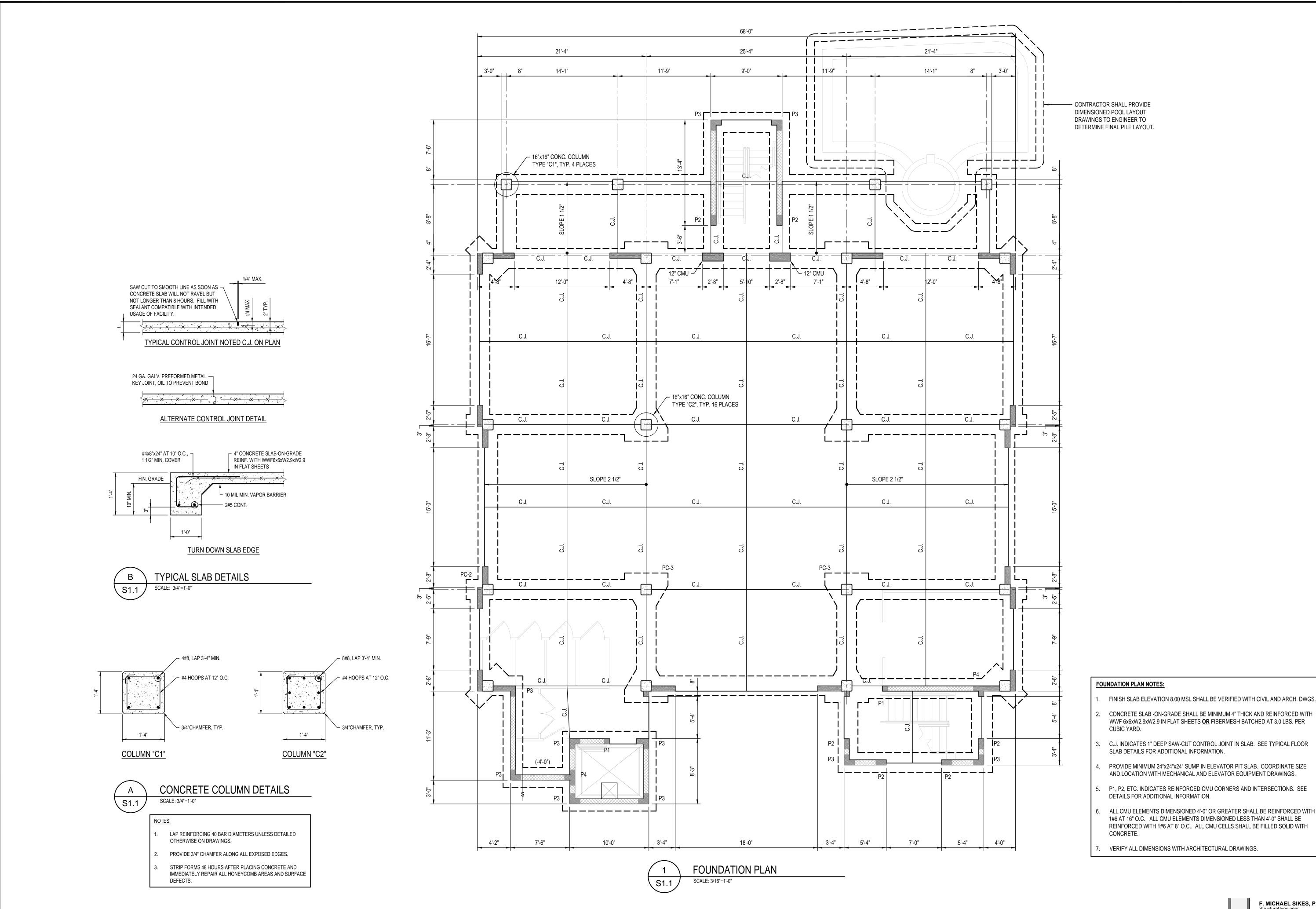




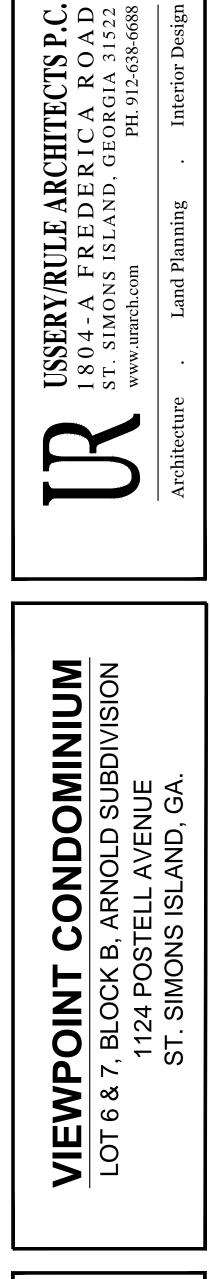
S0.4

8





GA. PE No. 20425

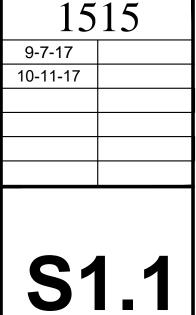


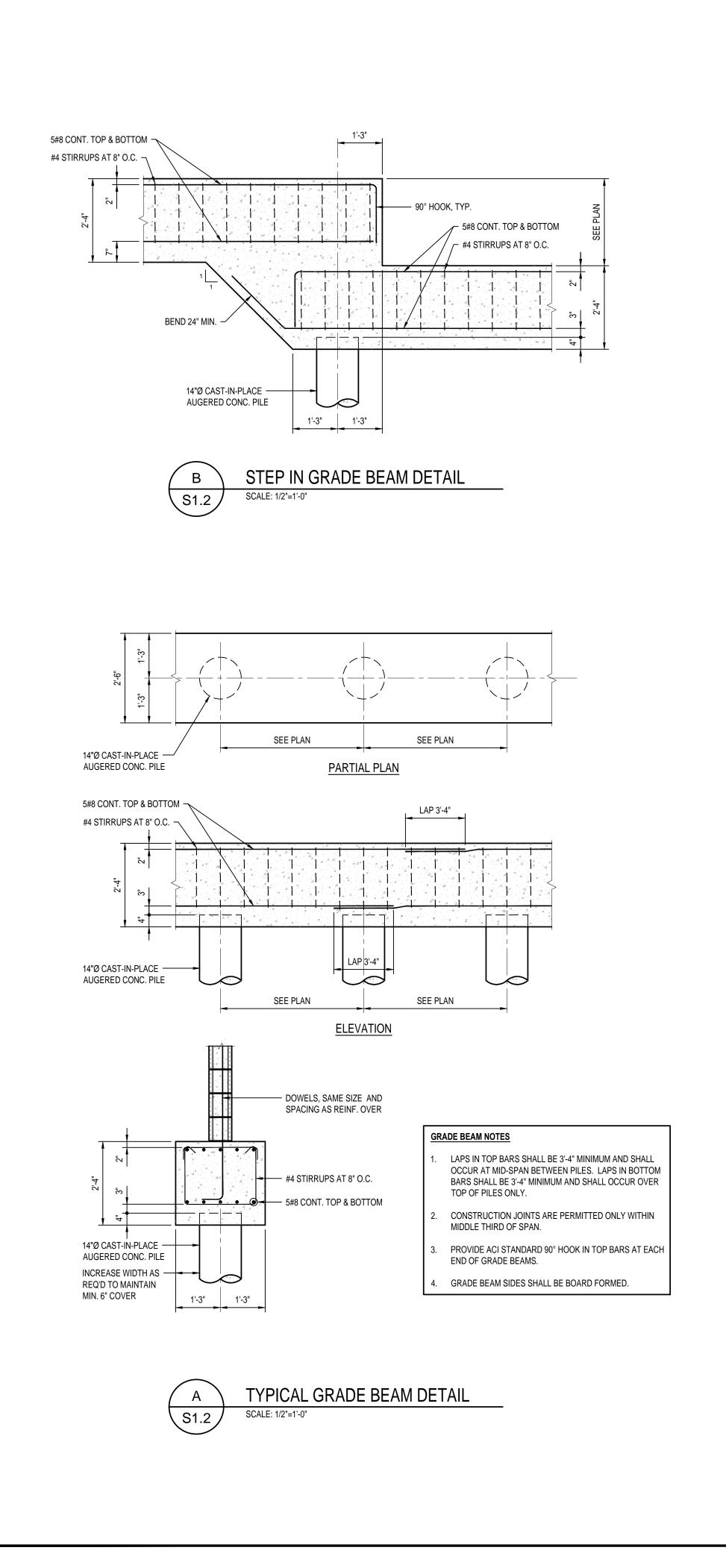
DETAILS FOR ADDITIONAL INFORMATION. ALL CMU ELEMENTS DIMENSIONED 4'-0" OR GREATER SHALL BE REINFORCED WITH

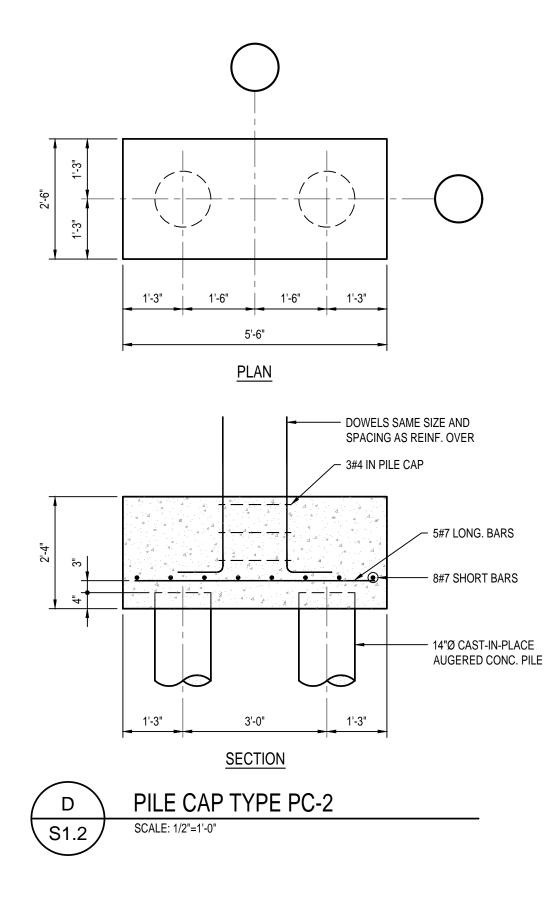
- 1#6 AT 16" O.C.. ALL CMU ELEMENTS DIMENSIONED LESS THAN 4'-0" SHALL BE REINFORCED WITH 1#6 AT 8" O.C.. ALL CMU CELLS SHALL BE FILLED SOLID WITH CONCRETE.
- VERIFY ALL DIMENSIONS WITH ARCHITECTURAL DRAWINGS.

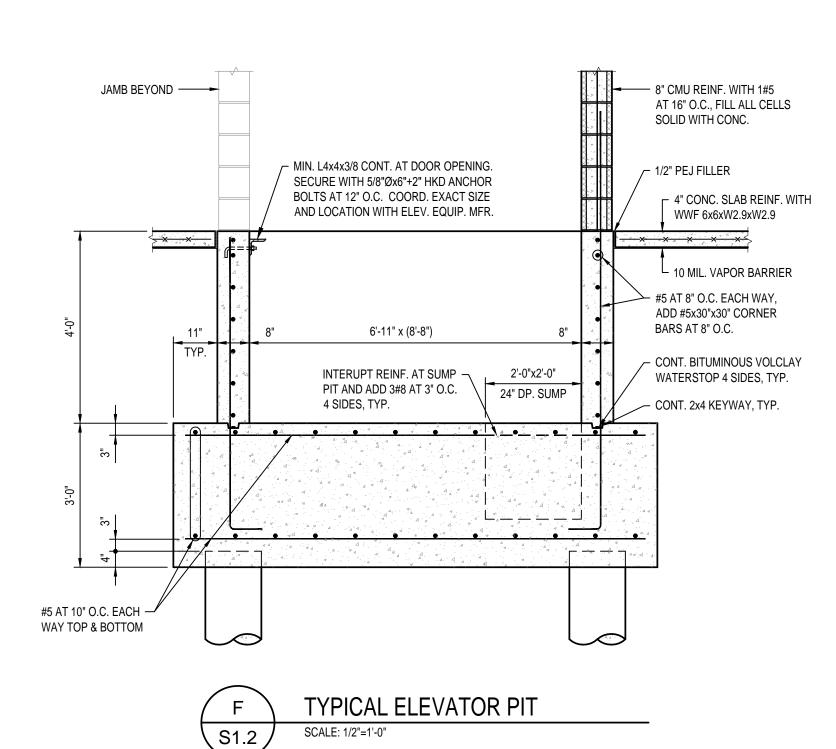
F. MICHAEL SIKES, P.E., LLC Structural Engineer

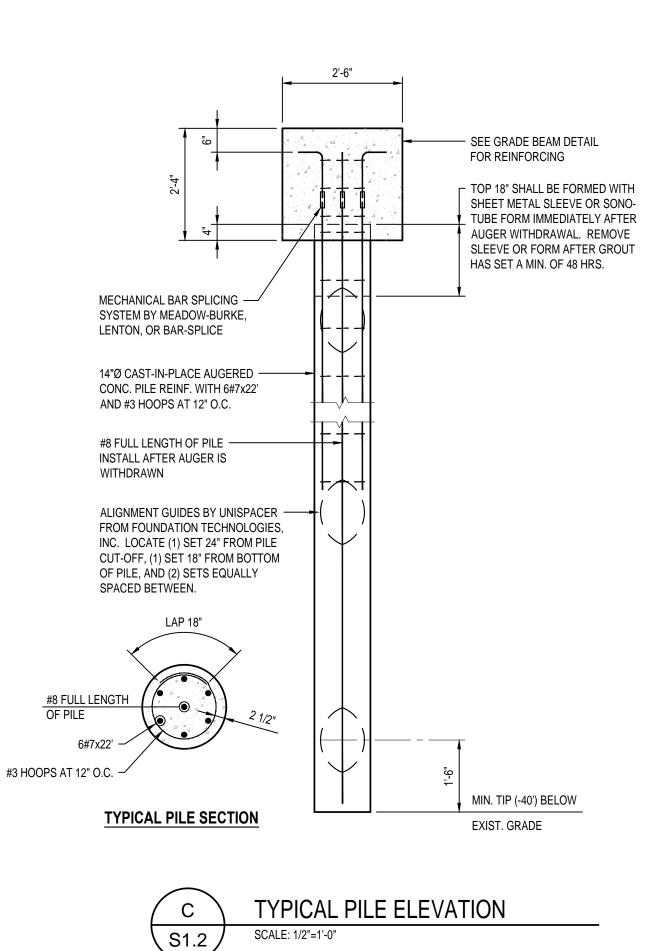
54 Ramsgate Road Savannah, Georgia 31419 Phone: 912-660-1296 Email: michaelsikes@comcast.net

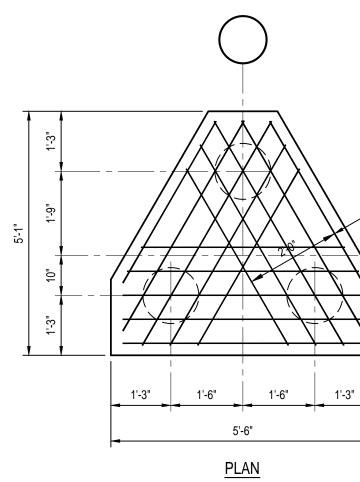


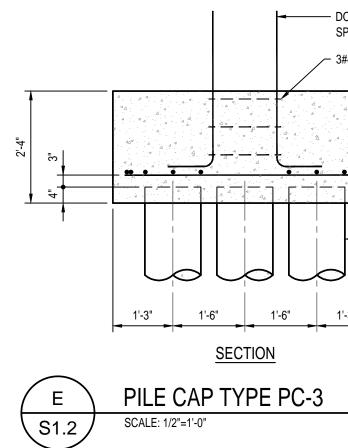












- 5#7 IN 3 DIRECTIONS

— DOWELS SAME SIZE AND SPACING AS REINF. OVER

← 3#4 IN PILE CAP

	5#7 IN 3 DIRECTIONS
-	14"Ø CAST-IN-PLACE AUGERED CONC. PILE
-3"	

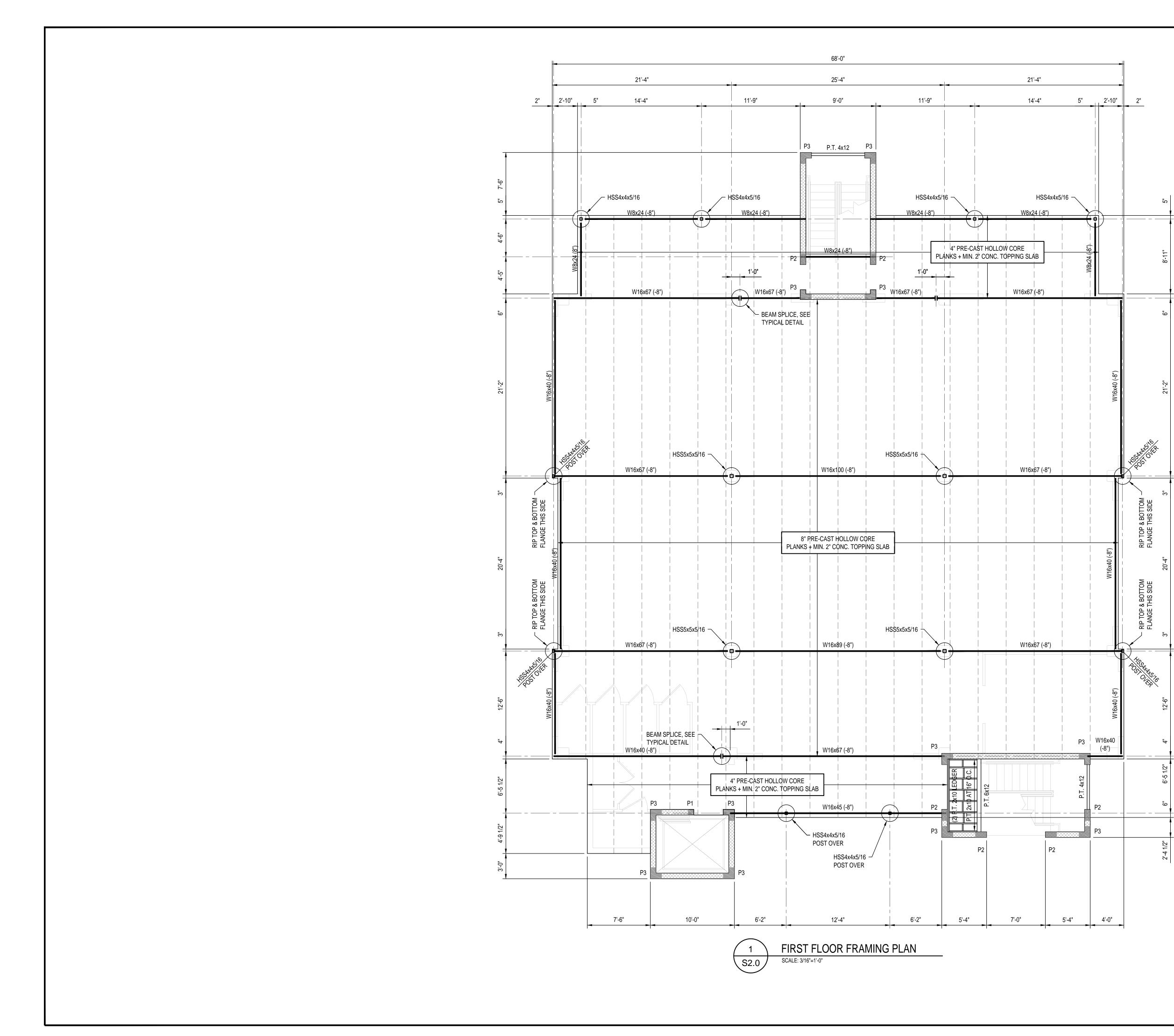
GA. PE No. 20425

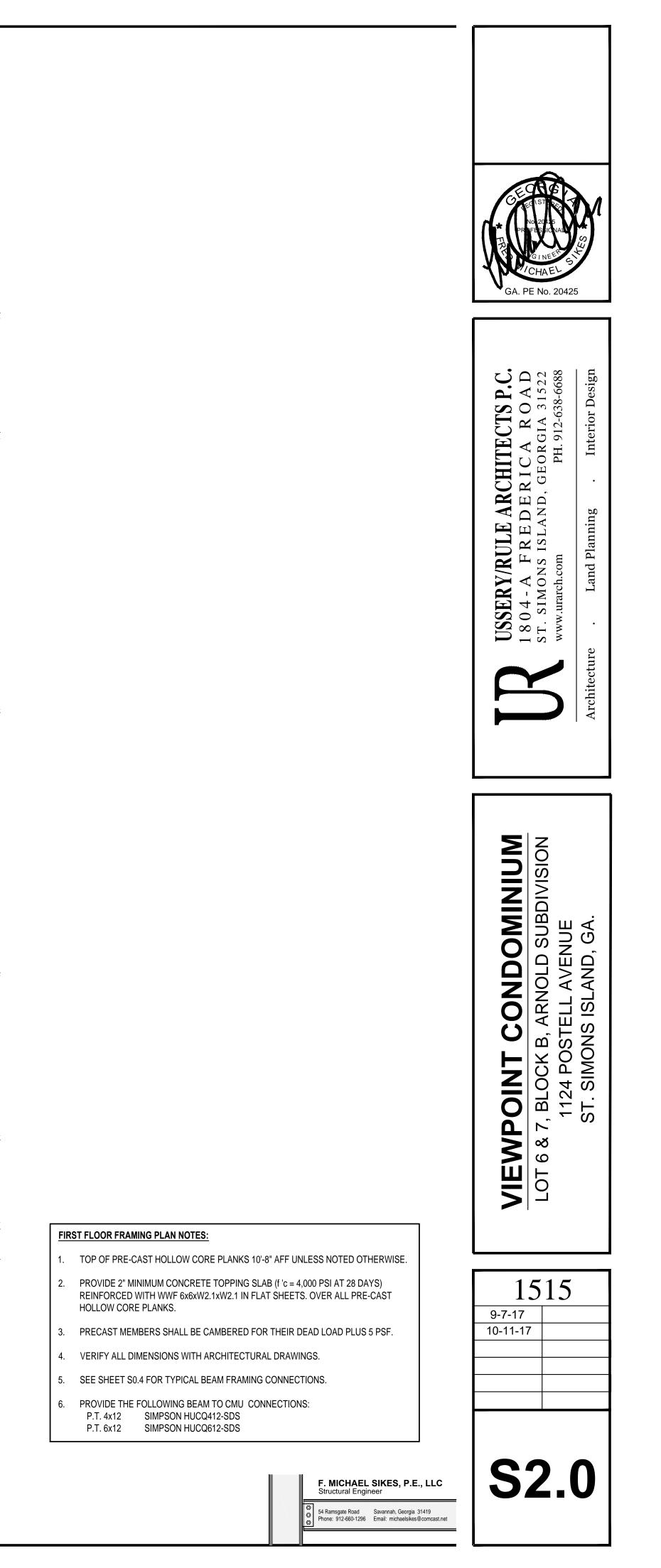




15	15
9-7-17	
10-11-17	

F. MICHAEL SIKES, P.E., LLC Structural Engineer 54 Ramsgate Road Savannah, Georgia 31419 Phone: 912-660-1296 Email: michaelsikes@comcast.net





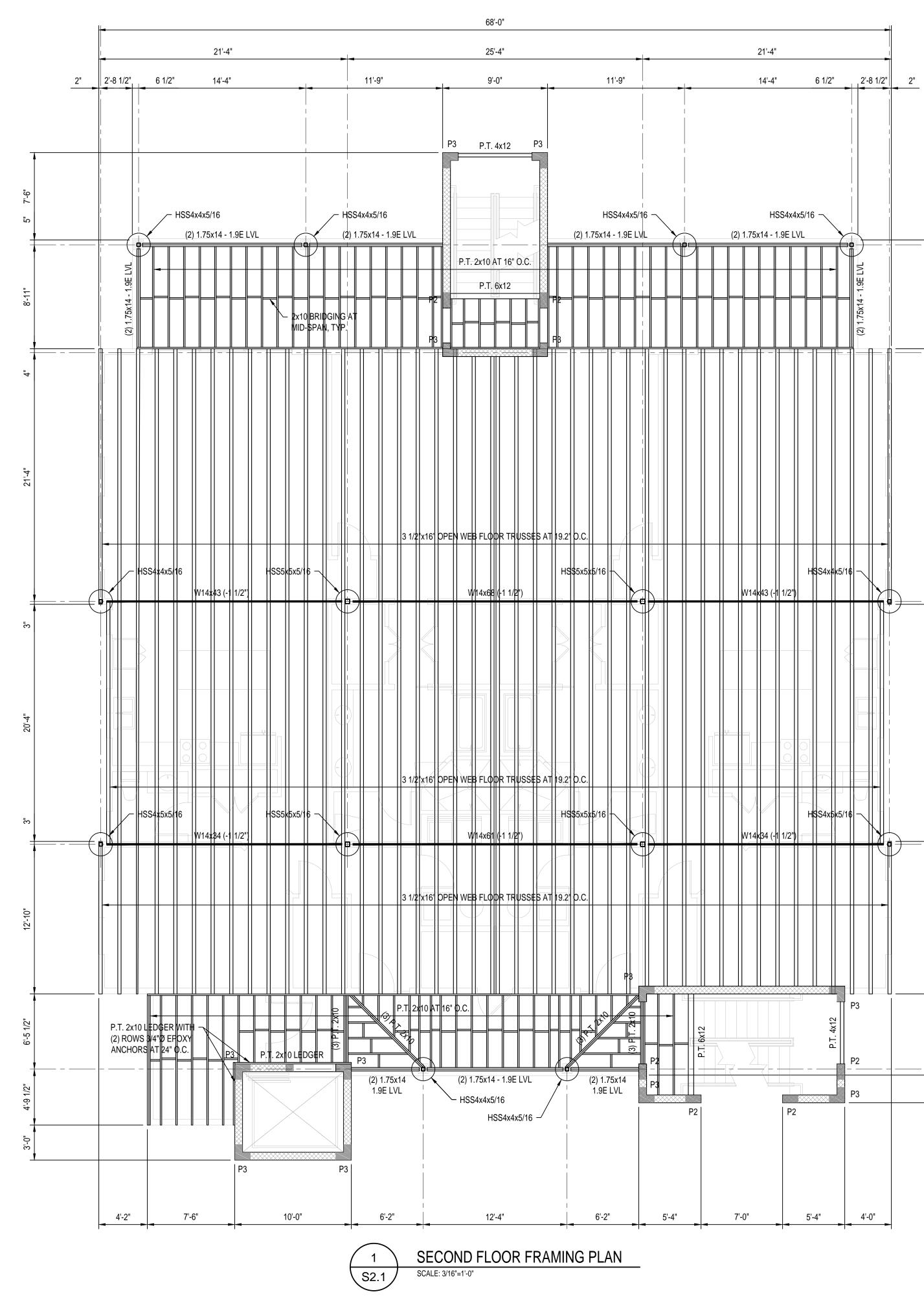
DOOR AND WINDOW HEADER SCHEDULE								
2x6 LOAD BEARING WALLS		2x6 NON-LOAD BEARING WALLS		2x6 NON-LOAD BEARING WALLS				
HEADER	JACK STUDS EACH END	HEADER	JACK STUDS EACH END	HEADER	JACK STUDS EACH END			
(3) 2x10 SYP #2	1	(3) 2x8 SYP #2	1	(2) 2x8 SYP #2	1			
(3) 2x12 SYP #2	2	(3) 2x10 SYP #2	2	(2) 2x10 SYP #2	2			
(3) 1.75x16 - 1.9E LVL	3	(3) 2x12 SYP #2	2	(2) 2x12 SYP #2	2			
	2x6 LOA BEARING W HEADER (3) 2x10 SYP #2 (3) 2x12 SYP #2	2x6 LOADBEARING WALLSHEADERJACK STUDS EACH END(3) 2x10 SYP #21(3) 2x12 SYP #22	2x6 LOAD BEARING WALLS2x6 NON-L BEARING WHEADERJACK STUDS EACH ENDHEADER(3) 2x10 SYP #21(3) 2x8 SYP #2(3) 2x12 SYP #22(3) 2x10 SYP #2	2x6 LOAD BEARING WALLS2x6 NON-LOAD BEARING WALLSHEADERJACK STUDS EACH ENDHEADERJACK STUDS EACH END(3) 2x10 SYP #21(3) 2x8 SYP #21(3) 2x12 SYP #22(3) 2x10 SYP #22	2x6 LOAD BEARING WALLS2x6 NON-LOAD BEARING WALLS2x6 NON-LOAD BEARING WHEADERJACK STUDS EACH ENDHEADERJACK STUDS EACH END(3) 2x10 SYP #21(3) 2x8 SYP #21(2) 2x8 SYP #2(3) 2x12 SYP #22(3) 2x10 SYP #22(2) 2x10 SYP #2			

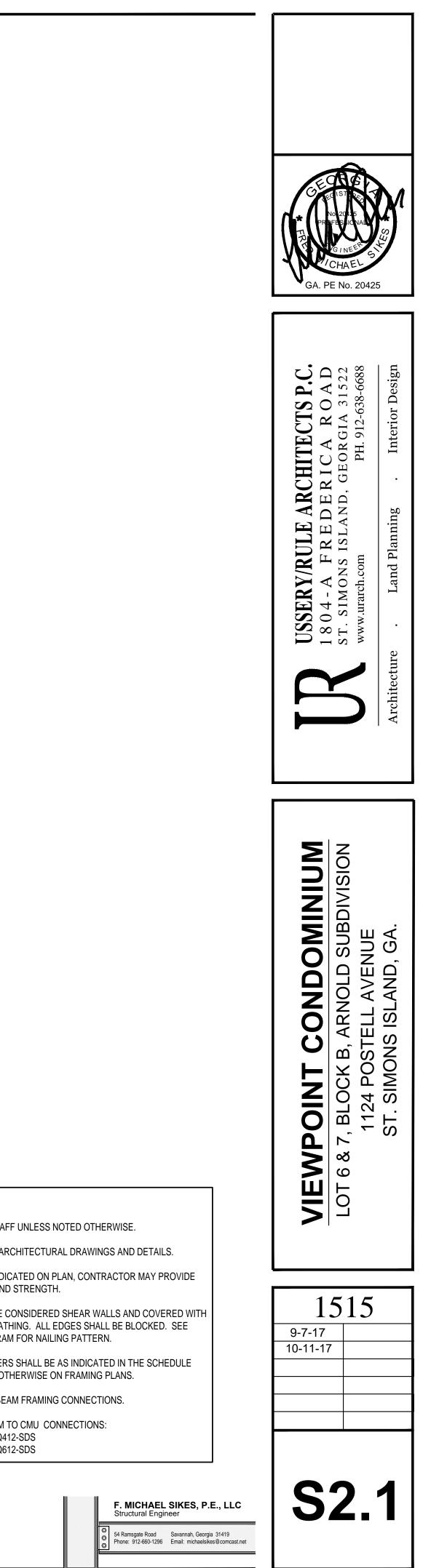
NOTES:

PROVIDE 1/2" SOLID PLYWOOD FLITCH PLS. SAME DEPTH AS HEADER BETWEEN ALL 2x'S. WHERE SPANS EXCEED 8"-0" PROVIDE CONT. 1/2"x8' PLYWOOD FLITCH PL. CENTERED ON 2

THE SPAN. FILL REMAINING SPACE WITH 1/2" PLYWOOD FLITCHES. NO SPLICES ALLOWED IN MIDDLE 8' OF SPAN.

DOUBLE JACK STUDS SHALL BE ATTACHED WITH (2) ROWS 10d COMMONS AT 12" O.C. TRIPLE JACK STUDS SHALL BE ATTACHED WITH (2) ROWS 10d COMMONS AT 12" O.C. EACH FACE.





1/2" 2'-4

SECOND FLOOR FRAMING NOTES:

- 1. TOP OF FLOOR TRUSSES 22'-0" AFF UNLESS NOTED OTHERWISE.
- 2. VERIFY ALL DIMENSIONS WITH ARCHITECTURAL DRAWINGS AND DETAILS.
- WHERE MULTIPLE LVL'S ARE INDICATED ON PLAN, CONTRACTOR MAY PROVIDE A SINGLE LVL OF EQUAL SIZE AND STRENGTH.
- ALL EXTERIOR WALLS SHALL BE CONSIDERED SHEAR WALLS AND COVERED WITH 1/2" APA RATED EXTERIOR SHEATHING. ALL EDGES SHALL BE BLOCKED. SEE EXTERIOR WALL NAILING DIAGRAM FOR NAILING PATTERN.
- ALL DOOR AND WINDOW HEADERS SHALL BE AS INDICATED IN THE SCHEDULE UNLESS SPECIFICALLY NOTED OTHERWISE ON FRAMING PLANS.
- 6. SEE SHEET S0.4 FOR TYPICAL BEAM FRAMING CONNECTIONS.
- PROVIDE THE FOLLOWING BEAM TO CMU CONNECTIONS: P.T. 4x12 SIMPSON HUCQ412-SDS P.T. 6x12 SIMPSON HUCQ612-SDS

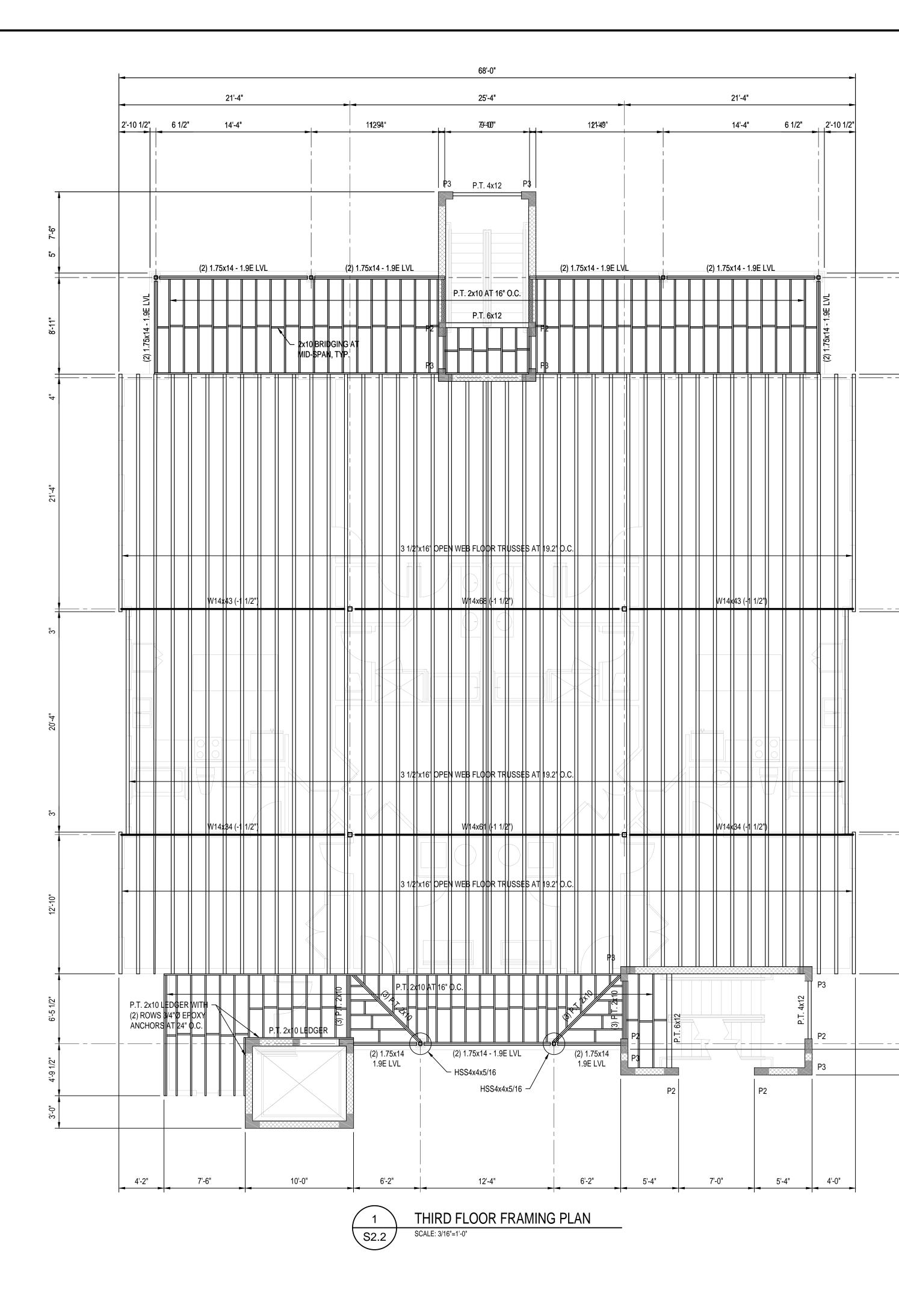
DOOR AND WINDOW HEADER SCHEDULE								
	2x6 LOAD BEARING WALLS		2x6 NON-LOAD BEARING WALLS		2x6 NON-LOAD BEARING WALLS			
OPENING WIDTH	HEADER	JACK STUDS EACH END	HEADER	JACK STUDS EACH END	HEADER	JACK STUDS EACH END		
UP TO 6'-0"	(3) 2x10 SYP #2	1	(3) 2x8 SYP #2	1	(2) 2x8 SYP #2	1		
OVER 6'-0" THRU 10'-0"	(3) 2x12 SYP #2	2	(3) 2x10 SYP #2	2	(2) 2x10 SYP #2	2		
OVER 10'-0" THRU 12'-0"	(3) 1.75x16 - 1.9E LVL	3	(3) 2x12 SYP #2	2	(2) 2x12 SYP #2	2		

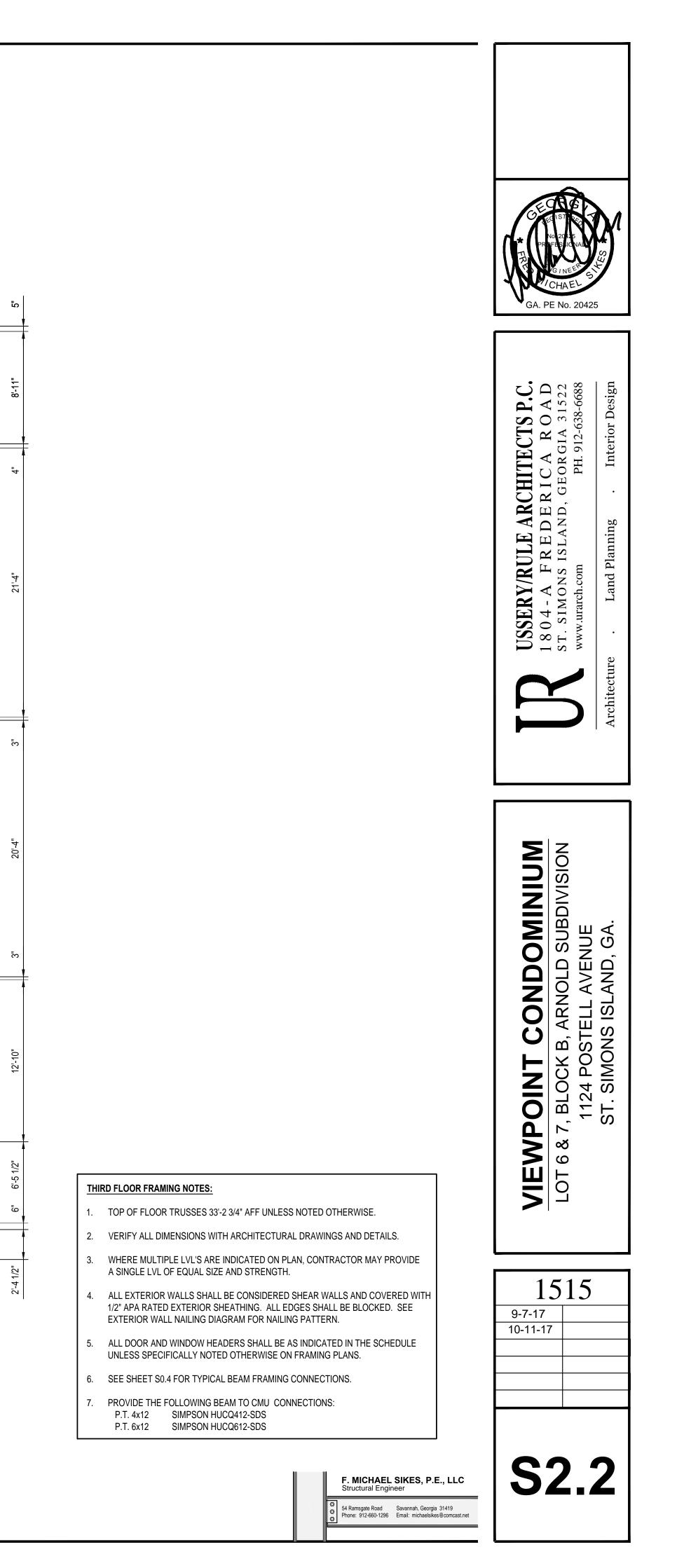
NOTES:

1. PROVIDE 1/2" SOLID PLYWOOD FLITCH PLS. SAME DEPTH AS HEADER BETWEEN ALL 2x'S.

2. WHERE SPANS EXCEED 8"-0" PROVIDE CONT. 1/2"x8' PLYWOOD FLITCH PL. CENTERED ON THE SPAN. FILL REMAINING SPACE WITH 1/2" PLYWOOD FLITCHES. NO SPLICES ALLOWED IN MIDDLE 8' OF SPAN.

3. DOUBLE JACK STUDS SHALL BE ATTACHED WITH (2) ROWS 10d COMMONS AT 12" O.C. TRIPLE JACK STUDS SHALL BE ATTACHED WITH (2) ROWS 10d COMMONS AT 12" O.C. EACH FACE.





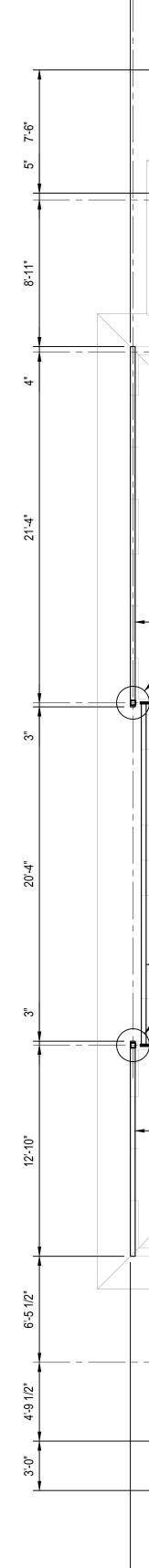
DOOR AND WINDOW HEADER SCHEDULE								
2x6 LOAD BEARING WAI			2x6 NON-LOAD BEARING WALLS		2x6 NON-LOAD BEARING WALLS			
OPENING WIDTH	HEADER	JACK STUDS EACH END	HEADER	JACK STUDS EACH END	HEADER	JACK STUDS EACH END		
UP TO 6'-0"	(3) 2x10 SYP #2	1	(3) 2x8 SYP #2	1	(2) 2x8 SYP #2	1		
OVER 6'-0" THRU 10'-0"	(3) 2x12 SYP #2	2	(3) 2x10 SYP #2	2	(2) 2x10 SYP #2	2		
OVER 10'-0" THRU 12'-0"	(3) 1.75x16 - 1.9E LVL	3	(3) 2x12 SYP #2	2	(2) 2x12 SYP #2	2		

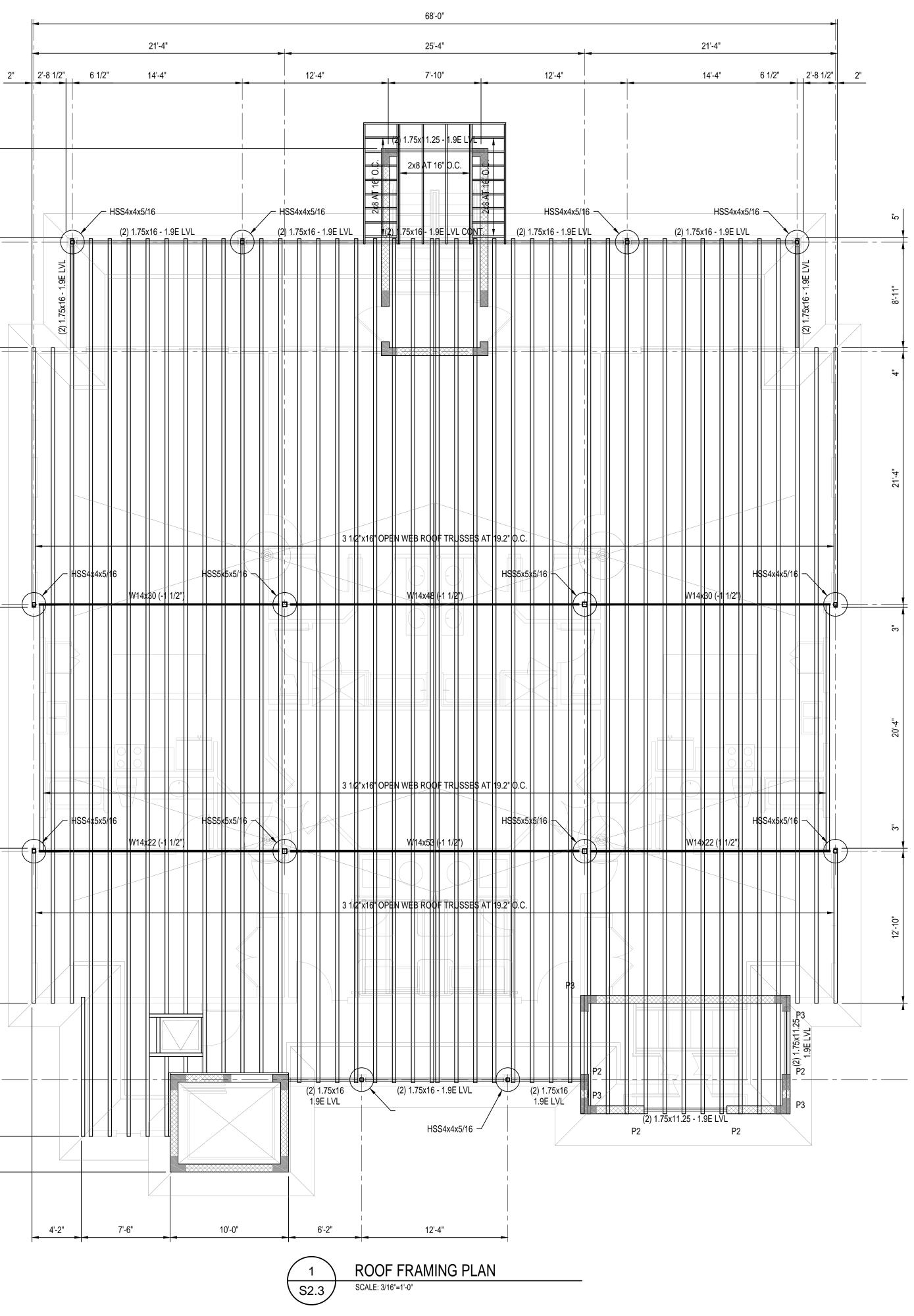
NOTES:

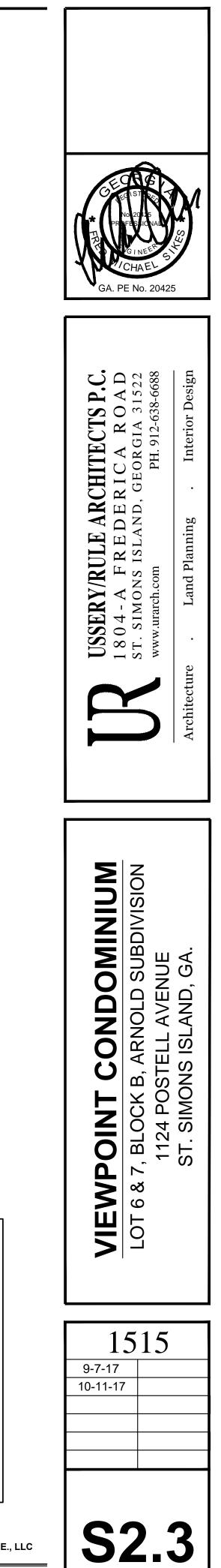
PROVIDE 1/2" SOLID PLYWOOD FLITCH PLS. SAME DEPTH AS HEADER BETWEEN ALL 2x'S.
 WHERE SPANS EXCEED 8"-0" PROVIDE CONT. 1/2"x8' PLYWOOD FLITCH PL. CENTERED ON

THE SPAN. FILL REMAINING SPACE WITH 1/2" PLYWOOD FLITCHES. NO SPLICES ALLOWED IN MIDDLE 8' OF SPAN.

3. DOUBLE JACK STUDS SHALL BE ATTACHED WITH (2) ROWS 10d COMMONS AT 12" O.C. TRIPLE JACK STUDS SHALL BE ATTACHED WITH (2) ROWS 10d COMMONS AT 12" O.C. EACH FACE.







ROOF FRAMING NOTES:

- 1. TOP OF ROOF TRUSSES 44'-5 1/2" AFF UNLESS NOTED OTHERWISE.
- 2. VERIFY ALL DIMENSIONS WITH ARCHITECTURAL DRAWINGS AND DETAILS.
- 3. WHERE MULTIPLE LVL'S ARE INDICATED ON PLAN, CONTRACTOR MAY PROVIDE A SINGLE LVL OF EQUAL SIZE AND STRENGTH.
- 4. ALL EXTERIOR WALLS SHALL BE CONSIDERED SHEAR WALLS AND COVERED WITH 1/2" APA RATED EXTERIOR SHEATHING. ALL EDGES SHALL BE BLOCKED. SEE EXTERIOR WALL NAILING DIAGRAM FOR NAILING PATTERN.
- 5. ALL DOOR AND WINDOW HEADERS SHALL BE AS INDICATED IN THE SCHEDULE UNLESS SPECIFICALLY NOTED OTHERWISE ON FRAMING PLANS.
- 6. SEE SHEET S0.4 FOR TYPICAL BEAM FRAMING CONNECTIONS.
- PROVIDE THE FOLLOWING BEAM TO CMU CONNECTIONS:
   (2) 1.75x11.25 LVL SIMPSON HUCQ412-SDS

F. MICHAEL SIKES, P.E., LLC Structural Engineer

 Image: Second state
 Savannah, Georgia 31419

 Image: Second state
 Savannah, Georgia 31419

 Image: Second state
 Email: michaelsikes@comcast.net

