### STRUCTURAL NOTES

WITH THE AFFECTED PART OF THE WORK.

. ELECTRONIC VERSIONS OF STRUCTURAL DRAWINGS ARE THE SOLE, COPYRIGHTED PROPERTY OF TRC WORLDWIDE ENGINEERING. ELECTRONIC VERSIONS OF DRAWINGS ARE NOT TO BE USED OR TRANSFERRED WITHOUT THE EXPRESS. WRITTEN PERMISSION OF TRC WORLDWIDE ENGINEERING.

STRUCTURAL DRAWINGS SHALL BE USED IN CONJUNCTION WITH JOB SPECIFICATIONS AND ARCHITECTURAL, MECHANICAL, ELECTRICAL, PLUMBING, AND SITE DRAWINGS, CONSULT THESE DRAWINGS FOR DEPRESSIONS, DIMENSIONS, AND OTHER DETAILS NOT SHOWN ON STRUCTURAL DRAWINGS.

- B. DIMENSIONS AND CONDITIONS MUST BE VERIFIED IN THE FIELD. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER BEFORE PROCEEDING
- C. WHERE DRAWINGS AND SPECIFICATIONS ARE IN CONFLICT, THE MORE STRINGENT RESTRICTIONS AND REQUIREMENTS SHALL GOVERN.
- D. PLAN NOTES, DETAILS AND SECTIONS SHALL TAKE PRECEDENCE OVER GENERAL STRUCTURAL NOTES. TYPICAL DETAILS AND SECTIONS NOT CUT ON PLANS SHALL APPLY UNLESS NOTED OTHERWISE.
- E. THE STRUCTURE IS DESIGNED TO BE SELF-SUPPORTING AND STABLE AFTER THE BUILDING IS COMPLETE. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE FRECTION PROCEDURES AND SEQUENCE TO ENSURE SAFETY OF THE BUILDING AND IT'S COMPONENTS DURING ERECTION. THIS INCLUDES THE ADDITION OF NECESSARY SHORING, SHEETING, TEMPORARY BRACING, GUYS OR TIE DOWNS. CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT CONSTRUCTION COMPLIES WITH OSHA REGULATION INCLUDING DESIGN OF CONNECTIONS OF MEMBERS THAT WILL NOT BE FULLY COMPLETED AT THE TIME OF INSTALLATION.
- F. TOWER CRANES ARE A CONTRACTOR RESPONSIBILITY AND SHALL BE DESIGNED FOR APPLICABLE CRITERIA INCLUDING BUT NOT LIMITED TO INSURANCE REQUIREMENTS AND APPLICABLE BUILDING CODES AT THE PROJECT LOCATION. THE CONTRACTOR SHALL SUBMIT A CRANE LAYOUT, SHOP DRAWINGS, CALCULATIONS AND REACTIONS FOR BOTH FOUNDATIONS AND CRANE TIE-IN LOCATIONS, SIGNED AND SEALED BY A FLORIDA LICENSED PROFESSIONAL ENGINEER. THE ENGINEER OF RECORD SHALL BE RETAINED BY THE CONTRACTOR TO EVALUATE CRANE TIE-IN FORCES ON THE BUILDING STRUCTURE AND TO PROVIDE CRANE FOUNDATION DESIGN.

### 1011 CONTRACTOR PROPOSED CHANGES AND SUBSTITUTIONS: PROPOSED CHANGES OR SUBSTITUTIONS TO STRUCTURAL DETAILS OR PLANS SHALL BE SUBMITTED TO THE ENGINEER OF RECORD (EOR) FOR REVIEW AND APPROVAL. SUBMITTALS SHALL CONTAIN FULL DOCUMENTATION OF CHANGES OR SUBSTITUTIONS WITH SUPPORTING, SEALED CALCULATIONS (WHERE APPLICABLE). THE REVIEW OF CHANGES AND SUBSTITUTIONS. RE-ANALYSIS AND/OR RE-DRAFTING TO INCORPORATE CHANGES OR SUBSTITUTIONS INTO CONTRACT DOCUMENTS ARE ADDITIONAL SERVICES FOR EOR. EOR IS NOT RESPONSIBLE FOR DETERMINING THE

### 1012 CONTRACTOR REQUIRED REMEDIAL WORK:

COST EFFECTIVENESS OF PROPOSED CHANGES.

A. DESIGN OF REMEDIAL WORK RELATED TO CONSTRUCTION ERRORS, INSTALLATIONS NOT IN CONFORMANCE WITH CONTRACT DOCUMENTS, OR IN ANY WAY BROUGHT ABOUT BY ACTIVITIES OF THE CONTRACTOR, IS NOT WITHIN THE SCOPE OF CONSTRUCTION ADMINISTRATION SERVICES PROVIDED BY TRC WORLDWIDE ENGINEERING. THE CONTRACTOR SHALL CARRY IN THEIR BASE BID THE COSTS FOR ENGINEERING WORK ASSOCIATED TRC PROVIDING ADDITIONAL SERVICES IN REACTION TO NON-CONFORMING WORK.

### 1060 DESIGN AND CONSTRUCTION STANDARDS:

HE STRUCTURAL SYSTEM FOR THIS BUILDING HAS BEEN DESIGNED IN ACCORDANCE WITH THE FOLLOWING CODES AND REFERENCED STANDARDS:

(FBC 2023)	FLORIDA BUILDING CODE 8th EDITION BY THE INTERNATIONAL CODE COUNCIL, INC
(ADM1-2020)	2020 EDITION OF THE ALUMINUM DESIGN MANUAL
(ACI 318-19)	2019 EDITION OF AMERICAN CONCRETE INSTITUTE BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE
(AISC 15 ED)	FIFTEENTH EDITION OF THE STEEL CONSTRUCTION MANUAL BY THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION

- (AISI S100-16) NORTH AMERICAN SPECIFICATION FOR DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS, WITH SUPPLEMENT 2 (2020)
- (ASCE 7-22) MINIMUM DESIGN LOADS AND ASSOCIATED CRITERIA FOR BUILDINGS AND OTHER STRUCTURES BY THE AMERICAN SOCIETY OF CIVIL
- 2018 EDITION OF NATIONAL DESIGN SPECIFICATIONS FOR WOOD CONSTRUCTION WITH 2018 SUPPLEMENT BY AMERICAN FOREST & PAPER ASSOCIATION
- (SDI) STEEL DECK INSTITUTE ROOF DECK DESIGN MANUALL (2ND EDITION), FLOOR DECK DESIGN MANUAL (2ND EDITION), AND DIAPHRAGM DESIGN MANUAL (4TH

## (TMS 402-2016) BUILDING CODE FOR MASONRY STRUCTURES

- B. CONSTRUCTION SHALL BE PERFORMED IN ACCORDANCE WITH THE ABOVE REFERENCED CODES AND STANDARDS AND THE FOLLOWING:
- (ACI 117-10) SPECIFICATIONS FOR TOLERANCES FOR CONCRETE CONSTRUCTION
- (ACI 301-16) SPECIFICATIONS FOR TOLERANCES FOR STRUCTURAL CONCRETE CONSTRUCTION MATERIALS
- (ACI 304R-00) RECOMMENDED PRACTICES FOR MEASURING, MIXING, TRANSPORTING, AND PLACING CONCRETE

## (ACI 305R-10) HOT WEATHER CONCRETING

WOOD TRUSSES

- (ACI 309R-05) GUIDE FOR CONSOLIDATION OF CONCRETE
- (ACI 315-18) DETAILS AND DETAILING OF CONCRETE REINFORCING
- (MNL-15 (16)) FIELD REFERENCE MANUAL: SPECIFICATIONS FOR STRUCTURAL CONCRETE (ACI 301-16) WITH SELECTED ACI AND ASTM REFERENCES
- (AWS D1.1-20) STRUCTURAL WELDING CODE STEEL
- (AWS D1.4-17) STRUCTURAL WELDING CODE REINFORCING STEEL
- (TPI/WTCA BCSI-18 (W/ 2020 UPDATES)) GUIDE TO GOOD PRACTICE FOR HANDLING, INSTALLING, RESTRAINING & BRACING OF METAL PLATE CONNECTED

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A. THE STRUCTURAL SYSTEM FOR THIS BUILDING HAS BEEN DESIGNED IN ACCORDANCE WITH THE 2023 FLORIDA BUILDING CODE, 8TH EDITION.

# B. THE FOLLOWING SUPERIMPOSED DEAD, LIVE AND WIND LOADS HAVE BEEN UTILIZED:

GRAVITY LOADS					
LOCATION	SUPERIMPOSED DEAD LOAD	UNIFORM LIVE LOAD			
SECOND FLOOR	30	100			
STAIRS	15	100			
ROOF	30	20			
LIVE LOAD REDUCTION ON SUPPORTING ELEMENTS SHALL BE IN					

LIVE LOAD REDUCTION ON SUPPORTING ELEMENTS SHALL BE IN
ACCORDANCE WITH THE BUILDING CODE. NO LIVE LOAD REDUCTION OF
ROOF LOADING IS PERMITTED. UNIFORMED DEAD LOAD IS ADDITIVE TO
ACTUAL STRUCTURAL WEIGHTS.

WIND LOADS	
ULT. WIND SPEED (3 SECOND GUST)	190 MPH
ASD WIND SPEED (3 SECOND GUST)	90 MPH
TORNADO WIND SPEED (3 SECOND GUST)	100 MPH
TORNADO PLAN AREA	100,000 SF
BUILDING RISK CATEGORY	IV
WIND EXPOSURE	С
BUILDING CLASSIFICATION	ENCLOSED
INTERNAL PRESSURE COEFFICIENTS	-0.18 / +0.18
TORNADO INTERNAL PRESSURE COEFFICIENTS	-0.18 / +0.55
VELOCITY PRESSURE	82 PSF
WIND LOAD NOTES:  1. SEE BUILDING'S ROOF UPLIFT PLAN AND WALL WAPPLICABLE PRESSURES.	IND LOAD TABLES F

### 1120 SHOP DRAWING REVIEW:

- A. SHOP DRAWING SUBMITTALS ARE REQUIRED FOR ALL COMPONENTS SHOWN ON THESE STRUCTURAL CONTRACT DOCUMENTS INCLUDING, BUT NOT LIMITED TO:
- a. CONCRETE MIXES b. CONCRETE AND MASONRY REINFORCING c. STRUCTURAL STEEL AND CONNECTIONS
- d. STEEL DECK e. LIGHT GAGE FRAMING f. WOOD ROOF TRUSS FRAMING
- g. NEW PLYWOOD h. ALL FASTENERS, ANCHORS, BOLTS, EPOXY ADHESIVES
- i. WOOD FRAMING CONNECTORS
- STEEL SHOP DRAWINGS FOR MISC STEEL ENGINEERED ROOF ATTACHMENT DRAWINGS AND CALCULATIONS
- I. ALUMINUM SHOP DRAWINGS m. WELDER QUALIFICATIONS/CERTIFICATIONS FOR STEEL AND ALUMINUM
- B. SHOP DRAWINGS SHALL PROVIDE ACCURATE, DETAILED DIMENSIONAL INFORMATION AS WELL AS COMPLETE SHOP AND FIELD ERECTION DETAILS NOT SHOWN ON CONTRACT DOCUMENTS NECESSARY FOR FABRICATION AND INSTALLATION OF
- C. SHOP DRAWINGS SHALL BE REVIEWED AND APPROVED BY THE CONTRACTOR'S FIELD ENGINEER PRIOR TO SUBMITTAL TO THE ARCHITECT/ENGINEER. DRAWINGS SUBMITTED WITHOUT REVIEW WILL BE RETURNED UNCHECKED.
- D. SHOP DRAWINGS WILL BE REVIEWED FOR GENERAL COMPLIANCE WITH THE DESIGN INTENT OF THE CONTRACT DOCUMENTS ONLY. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY COMPLIANCE WITH THE CONTRACT DOCUMENTS AS TO
- QUANTITY, LENGTH, ELEVATIONS, DIMENSIONS, ETC. E. SHOP DRAWING SUBMITTALS SHALL BE SUBMITTED IN ELECTRONIC PDF FILE FORMAT
- SHOP DRAWINGS SHALL NOT CONTAIN DETAILS COPIED OR REPRODUCED FROM THE CONTRACT DOCUMENTS. REPRODUCTION OF THE CONTRACT DOCUMENTS WILL RESULT IN A REJECTION OF THE SHOP DRAWINGS
- G. ELECTRONIC VERSIONS OF STRUCTURAL CONTRACT DOCUMENTS ARE THE SOLE, COPYRIGHTED PROPERTY OF TRC WORLDWIDE ENGINEERING. ELECTRONIC VERSIONS OF DRAWINGS ARE NOT TO BE USED OR TRANSFERRED WITHOUT THE EXPRESS. WRITTEN PERMISSION OF TRC WORLDWIDE ENGINEERING. USERS WILL SIGN A RELEASE AND REIMBURSE TRC WORLDWIDE ENGINEERING. FOR EXPENSES INCURRED IN PREPARING AND TRANSMITTING ELECTRONIC DRAWINGS AT THE RATE TO BE DETERMINED UPON REQUEST.
- H. THE CONTRACT DOCUMENTS SHALL GOVERN OVER THE SHOP DRAWINGS UNLESS OTHERWISE SPECIFIED IN WRITING BY THE ENGINEER. I. CHANGES AND ADDITIONS MADE ON RE-SUBMITTALS SHALL BE CLEARLY FLAGGED AND NOTED. THE PURPOSE OF THE RE-SUBMITTALS SHALL BE CLEARLY NOTED ON THE LETTER OF TRANSMITTAL. ENGINEER REVIEW WILL BE LIMITED TO THOSE ITEMS CAUSING THE RE-SUBMITTAL.
- J. ELECTRONIC SUBMITTALS OF SHOP DRAWINGS WILL ONLY BE ACCEPTED AND REVIEWED PENDING ABOVE CONDITIONS ARE MET. TRC WORLDWIDE ENGINEERING. WILL ELECTRONICALLY RETURN SUBMITTAL IN PDF FORMAT AND WILL NOT BE RESPONSIBLE FOR PRINTING MULTIPLE COPIES FOR DISTRIBUTION.
- A. ALL OF CONTRACTOR'S REQUEST(S) FOR INFORMATION (RFI's) SHALL STATE CONTRACTOR'S SUGGESTION(S) FOR RESOLUTION AND COST IMPLICATIONS FOR SUGGESTION(S). ENGINEER OF RECORD IS NOT RESPONSIBLE FOR DETERMINING COST OR COST EFFECTIVENESS OF RFI RESPONSES.

# A. SEE THE FOLLOWING REPORT FOR COMPLETE GEOTECHNICAL RECOMMENDATIONS

REPORT NO.: PREPARED BY: TITLED: DATED:	23-303 VELOCITY ENGINEERING SERVICES SANIBEL FIRE STATION 172 AUGUST 25, 2023
DATED:	AUGUST 25, 2023

- THIS REPORT SHALL BE CONSIDERED PART OF THE CONTRACT DOCUMENTS.
- B. NO APPROVAL OR VERIFICATION OF RECOMMENDATIONS MADE WITHIN THE ABOVE NOTED GEOTECHNICAL REPORT IS IMPLIED THROUGH REFERENCE OR USE BY TRC. C. A GEOTECHNICAL ENGINEER, LICENSED WITHIN THE JURISDICTION OF THE PROJECT,

SHALL VERIFY IN THE FIELD THAT ALL SITE PREPARATION FILL OPERATIONS. BEARING

CONDITIONS, FOUNDATION TESTING AND INSTALLATION COMPLY WITH THE SOILS

- D. FOUNDATION DESIGN FOR SHALLOW FOUNDATIONS SYSTEMS ARE BASED UPON AN ALLOWABLE NET SOIL BEARING PRESSURE 2,500 PSF AS PROVIDED BY ABOVE
- E. FOUNDATION WALLS ARE DESIGNED FOR THE FOLLOWING DESIGN LOADS:

a.	SOIL WEIGHT:	120 PC
b.	AT-REST PRESSURE: (BRACED AT TOP)	60 PC
C.	ACTIVE PRESSURE:	40 PC
d.	PASSIVE PRESSURE:	240 PC

- e. FRICTION COEFFICIENT:. F. SUBGRADE PREPARATION AND VAPOR RETARDER INSTALLATION FOR SLAB-ON-GRADE SHALL BE PERFORMED IN ACCORDANCE WITH PROJECT GEOTECHNICAL
- G. CONCRETE FOR FOOTINGS SHALL BE PLACED IMMEDIATELY AFTER FINAL INSPECTION AND ACCEPTANCE BY THE GEOTECHNICAL ENGINEER. IN NO CASE SHALL FOOTING EXCAVATIONS BE ALLOWED TO STAND OPEN OVERNIGHT OR
- H. FOUNDATION WALLS WITHOUT CANTILEVERED FOOTINGS SHALL NOT BE BACKFILLED UNTIL SHORED OR PERMANENTLY SUPPORTED AT THE TOP OF WALL.
- I. BACKFILLING OF WALLS AND PIERS SHALL BE PLACED SUCH THAT SYMMETRICAL LOADING SHALL BE MAINTAINED ON BOTH SIDES. WHERE DESIGN CONDITIONS REQUIRE BACKFILLING EACH SIDE TO UNEQUAL HEIGHTS, WALLS OR PIERS SHALL BE FIRMLY SHORED ON POSITION, AND SHORES SHALL REMAIN UNTIL FLOORS OR OTHER PERMANENT BRACING ELEMENTS ARE PLACED AND PROPERLY SET TO PROVIDE FULL SUPPORT.
- GRADE SHALL BE SUCH THAT THICKNESS OF FOUNDATION, SLAB ON GRADE, ETC. IS NOT REDUCED BY MORE THAN 5% OF THAT SHOWN ON DRAWINGS.

# <u>3101 FORMWORK AND SHORING (CONCRETE SLABS AND BEAMS):</u>

- .. NO STRUCTURAL CONCRETE SHALL BE STRIPPED UNTIL IT HAS REACHED AT LEAST TWO-THIRDS OF THE 28 DAY DESIGN STRENGTH (& ALL TENDONS STRESSED FOR PT SLABS). A MINIMUM OF 3 STORIES OF SHORING AND (/OR) RESHORING SHALL BE USED WHICH SHALL CONSIST OF ONE COMPLETE SET OF VERTICAL SHORES AND TWO SETS OF VERTICAL SHORES THAT COMPRISE AT LEAST 50% OF A COMPLETE
- B. DRAWINGS FOR SHORING AND RESHORING SHALL BE PREPARED BY AN ENGINEER LICENSED WITHIN THE JURISDICTION OF THE PROJECT.
- C. DESIGN, ERECTION AND REMOVAL OF ALL FORMWORK, SHORES AND RESHORES SHALL MEET REQUIREMENTS SET FORTH IN ACI STANDARDS 347 AND 301.
- D. SUBMIT SIGNED & SEALED SHORING DRAWINGS INCLUDING POUR SEQUENCE AND CALCULATIONS, WHERE NECESSARY, TO DEMONSTRATE THAT THE POUR SEQUENCE AND SHORING/RE-SHORING METHODS DO NOT OVERSTRESS THE STRUCTURE. THIS ANALYSIS SHALL INCLUDE STRESSES CAUSED BY SHRINKAGE OF STRUCTURAL SLAB. PROVIDE LOCATION AND DETAILS OF POUR STRIPS IF REQUIRED TO REDUCE SHRINKAGE AND RESTRAINT CRACKS.
- E. SHORING INSPECTIONS SHALL BE PERFORMED BY THE SHORING ENGINEER.
- F. UNLESS ARCHITECT SPECIFIES OTHERWISE, CONSTRUCT FORMWORK SO CONCRETE SURFACES CONFORM TO THE TOLERANCE LIMITS OF ACI 117 [STANDARD SPECIFICATIONS FOR TOLERANCES FOR CONCRETE CONSTRUCTION MATERIALS THE CLASS OF SERVICE FOR OFFSET BETWEEN ADJACENT PIECES OF FORMWORK FACING MATERIAL SHALL BE CLASS B FOR SURFACES PERMANENTLY EXPOSED TO PUBLIC VIEW AND CLASS D FOR SURFACES THAT WILL BE PERMANENTLY

### 3103 PLUMBING SLEEVES AND EMBEDDED CONDUITS: A. LOCATION DRAWINGS FOR ALL SLEEVES AND BLOCKOUTS IN THE CONCRETE SHALL

- BE SUBMITTED FOR APPROVAL BY THE STRUCTURAL ENGINEER PRIOR TO
- B. All CONDUIT, SLEEVES, AND PIPES EMBEDDED IN OR PASSING THRU CONCRETE SHALL CONFORM TO SECTION 20.7 OF ACI 318 AND THE FOLLOWING:
- a. SLEEVES AND PIPES SHALL BE PLACED SO THAT REINFORCING STEEL CAN BE PLACED WITH THE SPECIFIED COVER AND CLEAR DISTANCE BETWEEN BARS.
- b. MINIMUM SLEEVE SPACING SHALL BE THREE DIAMETERS CENTER TO CENTER OF THE LARGER SLEEVE OR 6" CLEAR BETWEEN SLEEVES, WHICHEVER IS
- c. SLEEVES OR GROUPS OF SLEEVES 16 INCH IN DIAMETER AND LARGER SHALL BE TREATED AS A SLAB OPENING AND REINFORCED PER TYPICAL OPENING REINFORCING DETAILS.
- d. CONDUIT AND PIPES PLACED WITHIN SLABS, BEAMS, WALLS AND TOPPING OVER SLABS SHALL OCCUPY ONLY THE MIDDLE ONE THIRD OF THE MEMBER DEPTH OR THICKNESS. MAXIMUM CONDUIT O.D. FOR SINGLE CONDUITS OR SUM OF O.D.'S FOR MULTIPLE CONDUITS THAT CROSS SHALL BE NO LARGER THAN ONE THIRD THE MEMBER DEPTH. PARALLEL CONDUITS SHALL BE SPACED WITH A MINIMUM OF 3 DIAMETERS CLEAR. CONDUITS SHALL BE A MINIMUM OF ONE DIAMETER AWAY FROM AND SHALL NOT INTERFERE WITH OR DISPLACE ANY TENDONS OR REINFORCING. CONDUIT SHALL NOT BE TIED TO REINFORCING OR TENDONS. CONDUITS SHALL NOT OCCUR WITHIN TRANSFER GIRDERS OR COLUMN ZONES OF SLABS.
- e. CONDUITS AND PIPES PLACED IN COLUMNS SHALL NOT DISPLACE MORE THAN 4% OF THE CROSS SECTIONAL AREA OF COLUMN AND SHALL BE LOCATED ON THE CENTER LINE OF COLUMN. OUTLET BOXES IN COLUMNS SHALL BE APPROVED BY THE ENGINEER, SHALL NOT DISPLACE REINFORCING AND SHALL NOT BE DEEPER THAN REQUIRED CLEARANCE FOR REINF.

### 3104 CONSTRUCTION JOINTS AND CONTROL JOINTS: CONSTRUCTION JOINTS AND CONTROL JOINTS SHALL BE LOCATED AS SHOWN IN PLAN OR SECTION

- B. UNLESS NOTED OTHERWISE, CONTROL JOINTS IN SLABS ON GRADE SHALL BE PROVIDED SO THAT THE MAXIMUM DISTANCE BETWEEN JOINTS SHALL BE NO MORE THAN 3 TIMES THE SLAB THICKNESS IN FEET (OR AS SHOWN ON PLANS), SAWCUT CONTROL JOINTS SHALL BE MADE AS SOON AS SLAB WILL SAFELY SUPPORT MEN AND EQUIPMENT AND THE SLAB WILL NOT BE DAMAGED BY EQUIPMENT. ASPECT RATIO (LONGSIDE TO SHORTSIDE OF CONCRETE AREA) SHALL NOT EXCEED 1.5.
- DEVIATION FROM OR ADDITION TO CONSTRUCTION OR CONTROL JOINT LOCATIONS SHOWN SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW AND APPROVAL AND ARE ACCEPTABLE ONLY AS A CHANGE ORDER THAT WILL INCLUDE ENGINEERING CHARGES BY THE ENGINEER OF RECORD FOR REDESIGN OF THE STRUCTURE AS REQUIRED. SHORING REQUIREMENTS TO IMPLEMENT REVISED CONSTRUCTION JOINTS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

- A. CONTRACTOR SHALL CARRY AN ALLOWANCE IN THEIR BID FOR SUPPLYING AND ERECTING (2) TONS OF REINFORCING STEEL IN ADDITION TO THAT SHOWN ON PLANS AND WITHIN SECTIONS, DETAIL AND SCHEDULES TO BE USED AT THE DISCRETION OF THE STRUCTURAL ENGINEER.
- B. REINFORCING STEEL SHALL BE ASTM A615 GRADE 60 DEFORMED BARS (WELDABLE REINFORCING "DBA" SHALL CONFORM TO ASTM A-706 GRADE 60), FREE FROM OIL, SCALE AND RUST AND PLACED IN ACCORDANCE WITH THE TYPICAL BENDING DIAGRAM AND PLACING DETAILS OF ACI STANDARDS AND SPECIFICATIONS. SECURE APPROVAL OF SHOP DRAWINGS PRIOR TO COMMENCING FABRICATION. REINFORCING BAR DETAILING SHALL COMPLY WITH ACI 315 "MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES" AND CRSI MANUAL OF STANDARD PRACTICE.
- C. CLEAR COVER TO REINFORCING SHALL BE AS INDICATED BELOW. WHERE A SPECIFIC CONDITION IS NOT NOTED, REFER TO ACI REQUIREMENTS FOR COVER:

FRAMED SLABS ON GRADE	TOP 1"	BOTTOM 3"	SIDES/EDGES NA
FOUNDATION WALL/PILASTE	RNA	NA	2" EXTERIOR 1 1/2" INTERIOR
SPREAD FOOTING	2"	3"	3"
COLUMNS & WALLS	NA	NA	2" AGAINST SOIL 1 1/2" TYPICAL
ELEVATED FRAMED SLAB			
INTERIOR	3/4"	3/4"	1"
EXTERIOR - #5 AND SMALLER #6 AND LARGER	1" 2"	1 1/2" 2"	2" 2"
BEAMS (INTERIOR)	1 1/2"	1 1/2"	1 1/2"

## NOTE: MAXIMUM DEVIATION IN BAR PLACEMENT SHALL BE AS DICTATED BY ACI.

(EXTERIOR EXPOSURE)............. 2" 1 1/2" 1 1/2"

- D. SEE MECHANICAL AND ELECTRICAL DRAWINGS FOR DRIPS, CHAMFERS, REGLETS, SLOTS, SLEEVES, ANCHORS, AND INSERTS. UNLESS SHOWN ON STRUCTURAL DRAWINGS NO OPENINGS LARGER THAN 12"x12" SHALL BE PLACED IN SLABS OR WALLS. FOR OPENINGS NOT SHOWN ON STRUCTURAL DRAWINGS, APPROVALS MUST BE OBTAINED FROM THE ENGINEER PRIOR TO FABRICATION OF STEEL AND PLACEMENT OF CONCRETE. SEE NOTES ON EMBEDDED ITEMS FOR ADDITIONAL
- . PROVIDE CONTINUOUS REINFORCING WHERE POSSIBLE, SPLICE ONLY AS SHOWN ON DRAWINGS OR AS APPROVED BY STRUCTURAL ENGINEER. PROVIDE CORNER BARS AT ALL WALL, GRADE BEAM AND STRIP FOOTING CORNERS. BARS SHALL BE THE SAME SIZE AND SPACING AS THE HORIZONTAL REINFORCING. INTERSECTING WALLS, GRADE BEAMS AND STRIP FOOTINGS SHALL BE DOWELED TOGETHER IN THE SAME MANNER. PROVIDE 2 NO. 4 TOP DIAGONAL BARS 4'-0" LONG AT ALL REENTRANT CORNERS IN ALL SLABS ON GRADE AND ELEVATED SLABS.
- SHOP DRAWINGS SHALL ADEQUATELY DEPICT THE REINFORCING BAR SIZES AND PLACEMENT. SHOP DRAWINGS SHALL INCLUDE ADEQUATE SECTIONS, ELEVATIONS AND DETAILS. WRITTEN DESCRIPTIONS ARE NOT ACCEPTABLE. ALL CONCRETE
- WALLS SHALL BE DETAILED IN ELEVATION. G. SPLICING OF REINFORCING SHALL BE AS SHOWN OR AS INDICATED IN SCHEDULE. MECHANICAL SPLICING DEVICES SHALL DEVELOP 125% OF THE SPECIFIED YIELD STRENGTH (FY) OF THE BAR. STAGGER MECHANICAL SPLICES WHERE POSSIBLE. ALL

STEEL NOTED AS CONTINUOUS SHALL BE A CLASS "B" SPLICE PER SCHEDULE.

- H. DO NOT WELD OR TACK WELD REINFORCING STEEL UNLESS APPROVED OR DIRECTED BY THE STRUCTURAL ENGINEER.
- I. TIE ALL REINFORCING AND EMBEDS SECURELY IN PLACE PRIOR TO PLACING CONCRETE. PROVIDE SUFFICIENT SUPPORTS TO MAINTAIN THE POSITION OF REINFORCEMENT AND EMBEDS WITHIN SPECIFIED TOLERANCES DURING ALL CONSTRUCTION ACTIVITIES.
- J. THE SHOP DRAWINGS FOR REINFORCING STEEL SHALL INCLUDE SCALE ELEVATIONS OF ALL CONCRETE WALLS.
- K. OPENINGS THROUGH CONCRETE WALLS, SLABS OR OTHER STRUCTURAL ELEMENTS NOT DETAILED ON THE STRUCTURAL DRAWINGS MUST BE LOCATED AND SHOWN ON THE APPLICABLE REINFORCING STEEL SHOP DRAWINGS. THE FINAL LOCATION OF ALL OPENINGS MUST BE REVIEWED BY THE A/E BEFORE THE CONCRETE IS POURED.

### 3202 WELDED WIRE REINFORCING: A. WELDED WIRE REINFORCING (WWR) SHALL CONFORM TO ASTM A-185, FREE FROM OIL, SCALE, AND RUST, AND PLACED IN ACCORDANCE WITH THE TYPICAL PLACING DETAILS OF ACI STANDARDS AND SPECIFICATIONS. MINIMUM LAP SHALL BE ONE

B. THE WELDED WIRE REINFORCING IN THE COMPOSITE ELEVATED SLAB SHALL BE SUPPORTED BY PLACING CONTINOUS HEAVY BOLSTERS @ 2'-6" OC MAXIMUM OVER THE COMPOSITE METAL DECK.

SPACE PLUS TWO INCHES. USE OF FLAT MANUFACTURED SHEETS IS REQUIRED.

C. THE WELDED WIRE REINFORCING IN THE CONCRETE SLAB-ON-GRADE SHALL BE SUPPORTED BY CONTINUOUS #4 SUPPORT BARS @ 2'-6" OC MAXIMUM. THE #4 BARS SHALL BE TIED AND SUPPORTED BY CONCRETE BRICKS OR CHAIRS AS REQUIRED FOR THE CORRECT POSITIONING OF REINFORCING AS SPECIFIED ON THE DRAWINGS (2'-6" OC MAXIMUM).

### 3301 CAST-IN-PLACE CONCRETE:

A. ALL CAST-IN-PLACE CONCRETE SHALL BE PER AN APPROVED MIX DESIGN PROPORTIONED TO ACHIEVE A STRENGTH AT 28 DAYS AS LISTED BELOW WITH A PLASTIC AND WORKABLE MIX:

MINIMUM 28-DAY MAXIMUM USED FOR: COMPRESSIVE STRENGTH SLUMP					
4000 PSI 4 (±1)* FOUNDATIONS, SLAB-ON-GRADE					
5000 PSI 4 (±1)* CONCRETE COLUMN AND BEAMS					
1 (-1)					

B. CONCRETE SHALL BE PLACED AND CURED ACCORDING TO ACI 301(16) STANDARDS

a. MIX DESIGN WHICH SHALL INCLUDE TESTED, STATISTICAL BACK-UP DATA AS PER

- PRIOR TO CONCRETE PLACEMENT, MIX DESIGN SHALL BE SUBMITTED AND ACCEPTED BY ENGINEER FOR USE. MIX DESIGN SHALL INCLUDE THE FOLLOWING:
- ACI 301, ARTICLE 4.2.3. b. ONLY TYPE II CEMENT SHALL BE USED FOR SLAB-ON GRADE CONCRETE. c. CONCRETE MIX DESIGNS SHALL INCLUDE A WRITTEN DESCRIPTION INDICATING WHERE EACH PARTICULAR MIX IS TO BE PLACED WITHIN THE STRUCTURE. FAILURE TO COMPLY MAY RESULT IN REJECTION OF THE MIX. IF ACCEPTED, PEA
- ROCK PUMP MIX USE IS LIMITED TO VERTICAL ELEMENT POURS AND BEAM POURS LESS THAN 60 LINEAL FEET PER POUR d. MIX DESIGN SHALL MEET THE REQUIREMENTS OF ASTM C33 FOR COARSE
- AGGREGATE. e. CALCIUM CHLORIDES SHALL NOT BE UTILIZED
- f. OTHER ADMIXTURES MAY BE USED ONLY WITH THE APPROVAL OF THE **FNGINFFR** g. THE CONTRACTOR IS RESPONSIBLE FOR REVIEWING STRUCTURAL DRAWINGS AND SPECIFYING THE USE OF WATER REDUCERS WHERE REINFORCING CONGESTION WARRANTS.
- D. CONCRETE SHALL COMPLY WITH THE REQUIREMENTS OF ASTM STANDARD C94 FOR MEASURING, MIXING, TRANSPORTING, ETC. CONCRETE TICKETS SHALL BE TIME STAMPED WHEN CONCRETE IS BATCHED. THE MAXIMUM TIME ALLOWED FROM THE TIME THE MIXING WATER IS ADDED UNTIL IT IS DEPOSITED IN ITS FINAL POSITION SHALL NOT EXCEED ONE AND ONE HALF (1 1/2) HOURS. IF FOR ANY REASON THERE IS A LONGER DELAY THAN THAT STATED ABOVE, THE CONCRETE SHALL BE DISCARDED. IT SHALL BE THE RESPONSIBILITY OF THE TESTING LAB TO NOTIFY THE OWNER'S REPRESENTATIVE AND THE CONTRACTOR OF ANY NONCOMPLIANCE WITH THE ABOVE.
- E. SLABS SHALL BE CURED USING A DISSIPATING CURING COMPOUND MEETING ASTM STANDARD C309 TYPE 1-D AND SHALL HAVE A FUGITIVE DYE. THE COMPOUND SHALL BE PLACED AS SOON AS THE FINISHING IS COMPLETED OR AS SOON AS THE WATER HAS LEFT THE UNFINISHED CONCRETE. SCUFFED OR BROKEN AREAS IN THE CURING
- MEMBRANE SHALL BE RECOATED DAILY. WATER/CEMENTITIOUS MATERIAL RATIO FOR CONCRETE BELOW OR AT GRADE AND FOR CONCRETE SUBJECTED TO DEICERS AND/OR SPECIFIED TO BE WATERTIGHT SHALL NOT EXCEED 0.45 BY WEIGHT. MAXIMUM PERMISSIBLE W/C RATIO: 0.50 FOR ALL OTHER CONCRETE AND CONCRETE BELOW GRADE SUBJECTED TO
- ALL CONCRETE EXPOSED TO THE WEATHER SHALL BE AIR-ENTRAINED. FOR SURFACE FINISHES AND OTHER REQUIREMENTS, REFER TO THE CONCRETE

SPECIFICATIONS.

- H. WHERE SPECIFIED COLUMN CONCRETE STRENGTH IS 1.4 TIMES THE SPECIFIED SLAB CONCRETE STRENGTH, SEE COLUMN SCHEDULE FOR PUDDLING REQUIREMENTS. IF REQUIRED, THE STRENGTH OF THE PUDDLED CONCRETE SHALL BE AT LEAST EQUAL TO THE STRENGTH OF THE COLUMN CONCRETE. PUDDLING SHALL EXTEND 2'-0"
- I. SEE MECHANICAL AND ELECTRICAL DRAWINGS FOR DRIPS, CHAMFERS, REGLETS, SLOTS, SLEEVES, ANCHORS, AND INSERTS. UNLESS SHOWN ON STRUCTURAL DRAWINGS NO OPENINGS LARGER THAN 12"x12" SHALL BE PLACED IN SLABS OR WALLS. FOR OPENINGS NOT SHOWN ON STRUCTURAL DRAWINGS, APPROVALS MUST BE OBTAINED FROM THE ENGINEER PRIOR TO FABRICATION OF STEEL AND PLACEMENT OF CONCRETE. LOCATION DRAWINGS FOR ALL SLEEVES AND BLOCKOUTS IN THE CONCRETE SHALL BE SUBMITTED FOR APPROVAL BY THE STRUCTURAL ENGINEER PRIOR TO PLACEMENT.

MINIMUM FROM FACE OF COLUMN IN ALL DIRECTIONS.

- CONCRETE WALLS SHALL BE CAST MONOLITHIC WITH ADJOINING COLUMNS UNLESS SPECIFICALLY NOTED OTHERWISE. CONCRETE FOR SUCH WALLS SHALL BE THE SAME TYPE AND STRENGTH AS SPECIFIED COLUMNS.
- K. CONTRACTOR SHALL CONFORM TO ACI 306R FOR COLD WEATHER CONCRETING AND ACI 305R FOR HOT WEATHER CONCRETING WHEN ANY COMBINATION OF HIGH TEMPERATURE, LOW RELATIVE HUMIDITY AND WIND VELOCITY TEND TO IMPAIR THE QUALITY OF THE CONCRETE. CONCRETE IS TO BE REJECTED IF ITS TEMPERATURE AT TIME OF PLACEMENT IS 90°F OR ABOVE. PROTECT SURFACES OF EXPOSED CONCRETE FROM PRECIPITATION DAMAGE UNTIL ADEQUATE STRENGTH IS GAINED TO PREVENT DAMAGE.
- L. CONCRETE SHALL BE VIBRATED BY MECHANICAL VIBRATORS.
- M. A PRE-CONCRETE CONFERENCE SHALL BE HELD BY THE CONTRACTOR WITH SUBCONTRACTORS, TESTING LAB PERSONNEL, ARCHITECT AND ENGINEERS. THESE CONFERENCES SHALL BE HELD WELL IN ADVANCE OF CONSTRUCTION TO ENSURE PROPER INTERPRETATION OF DESIGN INTENT. STEEL ERECTOR SHALL FIELD VERIFY CORRECTNESS OF FOUNDATION, ANCHOR RODS, OR OTHER EXISTING WORK AFFECTING THE STEEL BEFORE STARTING ERECTION.

# AN INDEPENDENT TESTING LABORATORY SHALL PERFORM THE FOLLOWING TESTS ON

- CAST-IN-PLACE CONCRETE: a. ASTM C143 - "STANDARD TEST METHOD FOR SLUMP OF PORTLAND CEMENT
- CONCRETE. b. ASTM C39 - "STANDARD TEST METHOD FOR COMPRESSIVE STRENGTH OF CYLINDRICAL CONCRETE SPECIMENS." A SEPARATE TEST SHALL BE CONDUCTED FOR EACH CLASS, FOR EVERY 50 CUBIC YARDS (OR FRACTION THEREOF), PLACED PER DAY. REQUIRED CYLINDER(S) QUANTITIES AND TEST AGE AS FOLLOWS:
- 1. EARLY CYLINDERS (AS NEEDED): 1, 2, AND 3 DAY BREAKS ARE A GOOD RANGE TO HAVE FOR STRESSING OR OTHER EARLY NEEDS. EACH TEST REQUIRES (3)
- CYLINDERS 2. (3) 7 DAY CYLINDERS
- 3. (3) 28 DAY CONFORMANCE CYLINDERS 4. (3) 56 DAY HOLD CYLINDERS (TO BE TESTED IF THE 28 DAY CYLINDERS DO NOT MEET SPEC AND CAN BE TESTED AT ANY TIME AT THE REQUEST/DISCRETION OF THE ENGINEER/CONTRACTOR).

3. (2) 28 DAY CYLINDERS

- 1. EARLY CYLINDERS (AS NEEDED): 1, 2 AND 3 DAY BREAKS AREA A GOOD RANGE TO HAVE FOR STRESSING OR OTHER EARLY NEEDS. EACH TEST REQUIRES (3) CYLINDERS 2. (3) 7 DAY CYLINDERS
- 4. (3) 56 DAY CONFORMANCE CYLINDERS 5. (3) 90 DAY HOLD CYLINDERS (TO BE TESTED IF THE 56 DAY CYLINDERS DO NOT MEET SPEC AND CAN BE TESTED AT ANY TIME AT THE REQUEST/DISCRETION OF

# THE ENGINEER/CONTRACTOR).

A. NO PENETRATIONS SHALL BE MADE IN ANY STRUCTURAL MEMBERS OTHER THAN THOSE SPECIFICALLY DESIGNATED ON THE STRUCTURAL DRAWINGS WITHOUT PREVIOUS APPROVAL OF THE ENGINEER. CONTRACTOR SHALL SUBMIT A PENETRATION PLAN FOR APPROVAL INDICATING ANY PENETRATIONS NOT SHOWN ON THE STRUCTURAL DRAWINGS PRIOR TO CONCRETE PLACEMENT.

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SHEET INDEX

## **4203 MASONRY WALLS:**

A. MASONRY UNITS SHALL MEET ASTM C90 FOR HOLLOW LOAD BEARING TYPE MASONRY WITH UNIT STRENGTH OF 2000 PSI ON THE NET AREA (fm = 2000 PSI). MORTAR SHALL BE TYPE "M" WHERE IN CONTACT WITH EARTH AND TYPE "M" OR "S" ELSEWHERE AND MEET ASTM C270. GROUT SHALL BE 2000 PSI MINIMUM COMPRESSIVE STRENGTH AND MEET ASTM C476. WHERE MINIMUM DIMENSION OF ANY VERTICAL, CONTINUOUS CELL IS 3 INCHES OR LESS, USE FINE GROUT, OTHERWISE USE COARSE (PEA GRAVEL) GROUT.

S306 COMPOSITE & SECOND FLOOR SECTIONS & DETAILS

- B. MASONRY WALLS SHALL BE LAID IN RUNNING BOND PATTERN UNLESS NOTED OTHERWISE. INTERSECTING WALLS SHALL BE INTERLOCKING WITH RUNNING BOND UNLESS NOTED OTHERWISE. BLOCK CELLS SHALL BE GROUT FILLED WITH VERTICAL REINFORCING BARS, SAME SIZE BARS AS REINFORCING, AT CORNERS INTERSECTIONS, EACH SIDE OF OPENINGS OVER 4 FEET WIDE, AND AS SHOWN ON THE PLANS. DOWELS SHALL BE USED TO PROVIDE CONTINUITY INTO THE STRUCTURE ABOVE AND/OR BELOW, UNLESS NOTED OTHERWISE. AT VERTICAL BAR TERMINATION, HOOK INTO FOOTING AND BOND BEAM, TIE BEAM, OR SLAB AT TOP OF WALL. USE METAL LATH, MORTAR, OR SPECIAL UNITS TO CONFINE CONCRETE AND GROUT TO AREA REQUIRED. ALL CELLS BELOW GRADE ARE TO BE
- C. PROVIDE 9 GAUGE GALVANIZED HORIZONTAL JOINT REINFORCING (HOHMANN & BARNARD 220 LADDER MESH OR ENGINEER APPROVED SUBSTITUTION) AT ALTERNATE BLOCK COURSES 16" OC VERTICALLY.
- D. CONTROL JOINTS SHALL BE PROVIDED IN CONCRETE MASONRY CONSTRUCTION AT LOCATIONS INDICATED ON DRAWINGS. HORIZONTAL WALL REINFORCING SHALL BE STOPPED EACH SIDE OF CONTROL JOINTS. SEE ARCHITECTURAL DRAWINGS FOR SEALANT REQUIREMENTS AT CONTROL JOINTS.
- E. SUBMIT PROPOSED GROUT MIX DESIGN FOR REVIEW PRIOR TO USE. MIX SHALL BE UNIQUELY IDENTIFIED BY MIX NUMBER OR OTHER POSITIVE IDENTIFICATION. GROUT SLUMP SHALL BE BETWEEN 9 AND 11 INCHES. USE OF SUPERPLASTICIZER IS PROHIBITED.
- F. CELLS TO BE GROUT FILLED SHALL HAVE VERTICAL ALIGNMENT SUFFICIENT TO MAINTAIN A CLEAR, UNOBSTRUCTED, CONTINUOUS VERTICAL GROUT SPACE. CLEANOUT OPENINGS SHALL BE PROVIDED AT THE BOTTOM OF CELLS TO BE GROUT FILLED IN EACH POUR IN EXCESS OF 5 FEET IN HEIGHT. ANY OVERHANGING MORTAR OR OTHER OBSTRUCTION OR DEBRIS SHALL BE REMOVED FROM THE INSIDES OF SUCH CELL WALLS. THE CLEANOUTS SHALL BE SEALED BEFORE GROUTING, AFTER INSPECTION.
- G. VERTICAL REINFORCEMENT SHALL BE HELD IN POSITION AT TOP AND BOTTOM AND AT INTERVALS NOT EXCEEDING 192 BAR DIAMETERS. CELLS CONTAINING REINFORCEMENT SHALL BE FILLED SOLIDLY WITH GROUT. GROUT SHALL BE CONSOLIDATED AT TIME OF PLACING BY VIBRATING AND RECONSOLIDATED LATER BY VIBRATING BEFORE PLASTICITY IS LOST.
- H. PLACE GROUT IN LIFTS NOT EXCEEDING 5 FT. MINIMUM CELL DIMENSION SHALL BE IN ACCORDANCE WITH TMS 402 (3" x 3" FOR COARSE GROUT). MAXIMUM POUR HEIGHT SHALL BE LIMITED TO 12 FT.
- CONSTRUCTION JOINTS SHALL BE MADE BY STOPPING THE POUR OF GROUT NOT LESS THAN 1-1/2 INCH BELOW THE TOP OF THE UPPERMOST UNIT GROUTED. J. PROVIDE BRACING FOR TOP OF ALL INTERIOR CMU WALLS. WHERE CONNECTION DETAILS ARE NOT SHOWN, PROVIDE A 1" GAP BETWEEN WALL AND BOTTOM OF STRUCTURE. BRACE TOP OF WALL WITH 14 GA BENT PLATE 4x4x0'-6" LONG AT 4'-0"

OC. PROVIDE (3) 1/4" HILTI KWIK CON II SCREWS TO WALL AND (4) #10 SCREWS TO

BOTTOM OF STRUCTURE (OR EQUIVALENT CAPACITY CONNECTION). CONNECTION

COMPLIANCE WITH PLANS, SPECIFICATIONS, AND INDUSTRY STANDARDS.

I. WHEN THE GROUTING IS STOPPED FOR ONE HOUR OR LONGER, HORIZONTAL

TO ALLOW FOR 1" DEFLECTION OF STRUCTURE THROUGH USE OF SLOTTED HOLES. K. CONCRETE MASONRY QUALITY CONTROL:

BEAR A MINIMUM OF 8" AT EACH END.

ENGINEER AS FOLLOWS:

CONTRACT DOCUMENTS.

- a. WORK IN PROGRESS SHALL BE INSPECTED FOR CONFORMANCE WITH SPECIFIED MATERIALS AND THAT WORKMANSHIP AND CONSTRUCTION IS IN
- b. STRENGTH DETERMINATION SHALL BE MADE USING UNIT STRENGTH OR PRISM TESTS IN ACCORDANCE WITH TMS 402.

- A. BEAMS WITH THE PREFIX "TB" SHALL BE OF CONCRETE, POURED AFTER THE BLOCK WALLS BELOW ARE IN PLACE. REINFORCING SHALL BE CONTINUOUS THROUGH TIE BEAMS WITH MINIMUM LAP SPLICES OF 48 BAR DIAMETERS UNLESS INDICATED OTHERWISE ON DRAWINGS, AND BENT BARS AT CORNERS. USE METAL LATH, MORTAR, OR SPECIAL UNITS TO CONFINE CONCRETE TO AREA REQUIRED, IN ACCORDANCE WITH TMS 402 (SOLID METAL OR FELT CAVITY CAPS ARE PROHIBITED). TIE BEAM CONCRETE SHALL NOT BE USED FOR CELL FILL IN MASONRY WALLS.
- A. UNLESS NOTED OTHERWISE, MASONRY OPENINGS LESS THAN \*\* FEET SHALL BE SPANNED WITH 8"x16" CONCRETE LINTELS WITH (2) #5 REINFORCING BARS TOP AND BOTTOM. MASONRY OPENINGS LESS THAN \*\* FEET SHALL BE SPANNED WITH 8"x12" CONCRETE LINTELS WITH (2) #5 REINFORCING BARS TOP AND BOTTOM. MASONRY OPENINGS LESS THAN \*\*\* FEET SHALL BE SPANNED WITH 8"x8" CONCRETE LINTELS WITH (2) #5 REINFORCING BARS BOTTOM. LINTELS SHALL
- A. CONTRACTOR SHALL MAKE ALLOWANCE FOR SUPPLYING AND ERECTING ADDITIONAL STEEL IN ADDITION TO THAT SHOWN ON PLAN, WITHIN SECTIONS, DETAILS OR SCHEDULES TO BE USED IN PLACE AT THE DISCRETION OF THE STRUCTURAL
- a. (3) TONS OF STRUCTURAL STEEL b. (5) TONS OF MISCELLANEOUS STEEL, ASSUME 50% ARE HSS MEMBERS
- B. ALL STRUCTURAL STEEL SHALL CONFORM TO THE FOLLOWING UNO ON THE STRUCTURAL DRAWINGS: a. WIDE FLANGE SHAPES: ASTM A572 OR ASTM A992 (Fy = 50 KSI)

b. CHANNELS, ANGLES, PLATES, BARS: ASTM A36 (Fy = 36 KSI)

c. RECTANGULAR TUBES (HSS):ASTM A500 GRADE C (Fy = 50 KSI)

- d. STRUCTURAL PIPE: ASTM A53 GRADE B (Fy = 35 KSI) e. ROUND TUBES (HSS): ASTM A500 GRADE C (Fy = 46 KSI) ALL STRUCTURAL BOLTS (INCLUDING WASHERS AND NUTS) SHALL CONFORM TO THE REQUIREMENTS OF ASTM A 325 OR A490. ALL BOLTS SHALL BE TIGHTENED TO THE SNUG TIGHT CONDITION UNO BOLTING OF STRUCTURAL STEEL SHALL CONFORM TO
- THE PROVISIONS OF RCSC "SPECIFICATIONS FOR STRUCTURAL JOINTS USING ASTM A 325 AND A490 BOLTS."
- D. ANCHOR RODS TO BE ASTM F1554 GRADE 36 UNLESS NOTED OTHERWISE. WELDER QUALIFICATIONS: QUALIFY WELDING PROCESSES AND WELDING OPERATORS IN ACCORDANCE WITH AWS "STANDARD QUALIFICATION PROCEDURE" PER AWS D1.1. OPERATORS SHALL CARRY PROOF OF QUALIFICATIONS ON THEIR
- F. TEST REPORTS: (2) COPIES, PLUS THE NUMBER CONTRACTOR WANTS RETURNED, OF STEEL PRODUCER'S REPORT OF MILL ANALYSIS AND TENSILE AND BEND TESTS FOR

STRUCTURAL STEEL MADE NO MORE THAN (60) DAYS BEFORE SHIPMENT.

- G. CERTIFICATES: TESTING LABORATORY'S CERTIFICATE THAT: a. STRUCTURAL STEEL HAS BEEN FURNISHED AND INSTALLED IN ACCORDANCE WITH
- b. THE ON-SITE INSPECTIONS HAVE BEEN CONDUCTED AND INSTALLED IN ACCORDANCE WITH THE FIELD QUALITY CONTROL BELOW.



# SANIBEL FIRE AND RESCUE

PROJECT LOCATION: 5171 SANIBEL-CAPTIVA SANIBEL, FLORIDA 33957





CERTIFICATE OF AUTHORIZATION NO. 35820 11926 Fairway Lakes Drive FORT MYERS, FL 33913 PHONE: (239) 939-1414, FAX: (239) 278-4289 © 2023 - TRC Worldwide Engineering All rights reserved. www.trcww.com 23FTM232 FILE No.

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DRAWN BY: RHE STRUCTURAL NOTES

100% CONSTRUCTION DOCUMENTS

### STRUCTURAL NOTES

### 5101 STRUCTURAL STEEL CONTINUED:

- . STING LABORATORY SHALL INSPECT CONNECTIONS IN ACCORDANCE WITH REFERENCES AS FOLLOWS:
- a. WELDED CONNECTIONS: INSPECT ALL COMPLETE PENETRATION WELDS AND ALL BUTT WELDS MADE BY FABRICATOR. VISUALLY INSPECT 50% MINIMUM OF FIELD

WELDS. SHOULD ANY WELDS FAIL, 100% SHALL BE INSPECTED.

- BOLTED CONNECTORS: INSPECT AT LEAST 10% OF ALL HIGH STRENGTH BOLTS WHICH ARE WELL SCATTERED THROUGHOUT THE STRUCTURE. IF LESS THAN 95% OF THE BOLTS MEET DESIGN TENSION OR IF ANY BOLT IS LESS THAN 85% OF DESIGN TENSION, THEN ALL BOLTS SHALL BE REWORKED. INSPECT 50% OF ALL REWORKED BOLTS, REPEAT THIS PROCESS UNTIL THE ABOVE REQUIREMENTS ARE MET. LOAD INDICATOR WASHERS MAY BE USED TO TEST 100% OF ALL HIGH STRENGTH BOLTS.
- c. VISUALLY INSPECT ALL STEEL DECK ATTACHMENT.
- d. INSPECT A MINIMUM OF 20% OF SHEAR CONNECTORS.
- e. FOR COMPOSITE BEAMS, AT THE BEGINNING OF EACH WORK SHIFT, (2) STUDS SHALL BE BENT TO 15 DEGREES. STUDS THAT FAIL THIS TEST SHALL BE REPLACED. DO NOT BEND TESTED STUDS BACK TO STRAIGHT.
- FULL PENETRATION GROOVE WELDS SHALL BE INSPECTED BY ULTRASONIC TESTING. TWENTY-FIVE PERCENT OF THE WELDS SHALL BE INSPECTED AT RANDOM UNLESS NOTED OTHERWISE. SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

COPIES OF TEST RESULTS AND INSPECTION REPORTS SHALL BE SENT DIRECTLY TO THE ENGINEER PRIOR TO STEEL BEING ENCLOSED BY FINISH MATERIALS. STEEL DECK INSTALLATION MUST BE INSPECTED PRIOR TO VISIT BY STRUCTURAL ENGINEER IN ADVANCE OF SCHEDULED CONCRETE DECK POUR.

- PRE-CONCRETE & PRE-STEEL ERECTION CONFERENCES SHALL BE HELD BY THE CONTRACTOR WITH SUBCONTRACTORS, TESTING LAB PERSONNEL, ARCHITECT, AND ENGINEERS. THESE CONFERENCES SHALL BE HELD WELL IN ADVANCE OF CONSTRUCTION TO ENSURE PROPER INTERPRETATION OF DESIGN INTENT. STEEL ERECTOR SHALL FIELD VERIFY CORRECTNESS OF FOUNDATION, ANCHOR RODS, OR OTHER EXISTING WORK AFFECTING THE STEEL BEFORE STARTING ERECTION.
- K. STRUCTURAL STEEL DETAILING, FABRICATION, AND ERECTION TO BE IN ACCORDANCE WITH THE 15th EDITION OF THE "STEEL CONSTRUCTION MANUAL" OF THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION. SHOP DRAWINGS SHALL GIVE COMPLETE WELDING INFORMATION, BOTH SHOP AND FIELD, USING AWS SYMBOLS. WELDING ELECTRODES SHALL CONFORM TO AWS A5.1 OR A5.5 E-70XX. (LOW-HYDROGEN FOR SMAW WELDING) ALL WELDING PROCEDURES SHALL BE LOW-HYDROGEN PROCESSES. ELECTRODES SHALL BE STORED AFTER OPENING TO MAINTAIN HYDROGEN CONTENTS. ALL CONNECTIONS, EXCEPT THOSE INDICATED ON THE DRAWINGS AS WELDED CONNECTIONS, ARE TO BE MADE USING 3/4" OR 7/8" DIAMETER ASTM A325 BOLTS.
- SUBMIT SHOP DRAWINGS, SIGNED AND SEALED BY AN ENGINEER LICENSED WITHIN THE JURISDICTION OF THE PROJECT, FOR FABRICATION AND ERECTION OF ALL STEEL MEMBERS IN ACCORDANCE WITH AISC STANDARDS NOTED ABOVE. DETAILER SHALL ASSUME EQUAL BEAM SPACING BETWEEN COLUMN LINES (OR BETWEEN BEAMS THAT ARE SPECIFICALLY LOCATED ON THE DRAWINGS) UNLESS NOTED OTHERWISE ON THE DRAWINGS BY WAY OF SPECIFIC DIMENSIONS.
- M. FABRICATOR SHALL DESIGN ALL CONNECTIONS NOT SPECIFICALLY DETAILED ON DRAWINGS. CONNECTIONS SHALL BE DESIGNED BY AN ENGINEER, EMPLOYED BY THE CONTRACTOR OR THEIR SUB CONTRACTOR REGISTERED IN THE JURISDICTION OF THE PROJECT, AND SEALED CALCULATIONS SHALL BE SUBMITTED TO EOR FOR REVIEW AND APPROVAL REGARDLESS OF PROVISION TO THE CONTRARY IN AISC CODE OF STANDARD PRACTICE FOR BUILDINGS AND BRIDGES, ALL CONNECTIONS DESIGNED BY FABRICATOR SHALL BE THEIR RESPONSIBILITY AND REVIEW OF SHOP DRAWINGS BY THE ENGINEER SHALL NOT RELIEVE FABRICATOR OF THIS RESPONSIBILITY. STEEL FABRICATOR SHALL VERIFY THAT CONNECTION DETAILS SHOWN ON THEIR DRAWINGS CORRESPOND WITH THE REQUIREMENTS OF CONNECTION CALCULATIONS. DETAILS AND CONNECTIONS COMPLETELY DETAILED IN THE CONTRACT DOCUMENTS SHALL NOT BE ALTERED WITHOUT WRITTEN APPROVAL BY THE ENGINEER OF RECORD.
- N. UNLESS OTHERWISE NOTED, ALL BEAM CONNECTIONS SHALL BE STANDARD FRAMED OR SEATED CONNECTIONS AS SHOWN IN PART 9 OF THE AISC STEEL CONSTRUCTION MANUAL (15th EDITION). BEAM CONNECTIONS TO TUBE COLUMNS SHALL BE THRU-PLATE TYPE UNLESS SHOWN OTHERWISE. UNLESS GREATER REACTIONS ARE NOTED ON THE DRAWINGS, CONNECTIONS SHALL DEVELOP AT LEAST ONE-HALF OF THE TOTAL UNIFORM LOAD CAPACITY OF THE BEAM. CONNECTIONS SHALL BE DESIGNED AS BEARING-TYPE CONNECTIONS WITH THREADS IN THE SHEAR PLANE, UNLESS OTHERWISE NOTED. IN NO CASE SHALL THE LENGTH OF FRAMED CONNECTIONS BE LESS THAN ONE-HALF THE "T" DISTANCE OF THE BEAM WEB.
- O. DESIGN OF MOMENT CONNECTIONS BY DELEGATED ENGINEER SHALL CONSIDER REACTIONS ON WEB OF COLUMN MEMBER AND DESIGN DOUBLER PLATES AS
- P. CONNECTIONS FOR BEAMS WHICH CANNOT CONFORM TO THE TYPICAL CONNECTION DETAILS SHALL BE IN ACCORDANCE WITH THE FOLLOWING:
- a. UNLESS OTHERWISE NOTED, ALL BEAM CONNECTIONS SHALL BE STANDARD FRAMED OR SEATED CONNECTIONS AS SHOWN IN PART 9 OF THE AISC STEEL
- CONSTRUCTION MANUAL (15th EDITION). b. WHERE BEAM REACTIONS ARE NOT SHOWN ON THE DRAWINGS, CONNECTIONS SHALL BE DETAILED FOR THE MAXIMUM UNIFORM LOAD WHICH THE BEAM WILL

SUPPORT (AS SIMPLE BEAM) FOR THE SPAN SHOWN ON DRAWING. MINIMUM BEAM

- REACTION TO BE USED = 15 KIPS (UNFACTORED). WHERE BEAM REACTIONS ARE SHOWN ON THE DRAWINGS, THE CONNECTIONS SHALL BE DESIGNED BY A DELEGATE ENGINEER TO DEVELOP THE REACTIONS
- d. WHERE CONNECTIONS ARE SUBJECT TO ECCENTRICITY, SUCH ECCENTRICITY SHALL BE TAKEN INTO ACCOUNT WHEN DETAILING THE CONNECTION. WELDED CONNECTIONS SHALL BE DETAILED TO TAKE INTO CONSIDERATION THE ECCENTRICITIES OF INDIVIDUAL MEMBERS.
- e. MINIMUM NUMBER OF BOLTS PER CONNECTION SHALL BE BASED ON NOMINAL BEAM DEPTH AS FOLLOWS: 2 FOR BEAMS UP TO 10",3 FOR BEAMS 12" AND 14", 4 FOR BEAMS 16" AND 18", 5 FOR BEAMS 21", 6 FOR BEAMS 24", 7 FOR BEAMS 27" OR 30", 9 FOR BEAMS 33",10 FOR BEAMS 36", 12 FOR BEAM 40" 0R 44". GIRDER CONNECTIONS SHALL EMPLOY DOUBLE GUSSET PLATES. NON-LABELED CONNECTIONS SHOWN IN DETAILS ARE FOR GENERAL ARRANGEMENT ONLY.
- THE FOLLOWING BOLTED CONNECTIONS SHALL BE TIGHTENED TO THE MINIMUM BOLT PRETENSION VALUES INDICATED IN TABLE J3.1 OF THE 15th EDITION OF THE AISC STEEL CONSTRUCTION MANUAL:
  - MOMENT CONNECTION FLANGE PLATES
- BRACED FRAME CONNECTIONS
- HANGERS
- BOLTS IN TENSION
- ALL SLIP-CRITICAL BOLTS
- ALL CONNECTIONS SUBJECT TO VIBRATION
- ALL ASTM A490 BOLTS
- TIGHTENING SHALL BE DONE BY ANY OF THE FOLLOWING METHODS: DIRECT TENSION INDICATORS; CALIBRATED WRENCH; TURN-OF-NUT METHOD.
- ALL OTHER BOLTED CONNECTIONS MAY BE TIGHTENED ONLY TO THE SNUG-TIGHT CONDITION. THE SNUG-TIGHT CONDITION IS DEFINED AS THE TIGHTNESS OBTAINED BY EITHER A FEW IMPACTS OF AN IMPACT WRENCH, OR THE FULL EFFORT OF A WORKER WITH A SPUD WRENCH THAT BRINGS THE PLIES INTO FIRM CONTACT.
- Q. MINIMUM WELD SIZE SHALL BE 3/16" UNLESS OTHERWISE NOTED.
- R. GUSSET PLATES SHALL BE 3/8" MINIMUM THICKNESS.
- S. THE GENERAL CONTRACTOR SHALL VERIFY THE REQUIRED CAMBER IN THE FIELD PRIOR TO ERECTION OF EACH MEMBER.
- . SPLICING OF STRUCTURAL STEEL MEMBERS IS PROHIBITED WITHOUT PRIOR APPROVAL OF THE ENGINEER AS TO LOCATION AND TYPE OF SPLICE TO BE MADE. ANY MEMBER HAVING A SPLICE NOT SHOWN AND DETAILED ON SHOP DRAWINGS WILL BE
- U. STRUCTURAL STEEL SHALL BE PUNCHED FOR WOOD BLOCKING AND NAILERS IN ACCORDANCE WITH ARCHITECTURAL AND STRUCTURAL DETAILS.
- V. THIS STRUCTURE IS NOT DESIGNED FOR EACH COLUMN LINE BENT TO RESIST LATERAL FORCES FROM WIND OR SEISMIC LOADS (UNLESS NOTED OTHERWISE ON PLAN). THIS STRUCTURE DEPENDS ON THE DIAPHRAGM AND BRACING MEMBERS SHOWN. THE CONTRACTOR IS TO PROVIDE LATERAL BRACING IN EACH DIRECTION DURING THE ERECTION PHASE. SUCH BRACING SHALL REMAIN IN PLACE UNTIL ALL DIAPHRAGM AND WIND BRACING ELEMENTS ARE IN PLACE IN THEIR ENTIRETY AND HAVE BEEN APPROVED BY THE STRUCTURAL ENGINEER.
- W. SHEAR STUD CONNECTORS SHALL BE FABRICATED AND INSTALLED IN ACCORDANCE WITH AWS D1.1 "STRUCTURAL WELDING CODE", SECTION 7 - STUD WELDING. WHERE STUDS ARE PART OF A COMPOSITE FLOOR SYSTEM. STUD WELDING SHALL BE BY AUTOMATIC WELDING EQUIPMENT ONLY. HAND WELDING OF STUDS IS NOT ALLOWED. STUDS SHALL BE TYPE 'B'. HEADED STUDS HAVING A MINIMUM TENSILE STRENGTH OF 60,000 psi, AND SHALL BE OF LENGTH AND DIAMETER SHOWN ON STRUCTURAL

### 5101 STRUCTURAL STEEL CONTINUED:

- (. ALL STRUCTURAL STEEL TO RECEIVE SPRAY ON FIRE PROOFING OR TO BE IN CONTACT WITH FRESH CONCRETE SHALL BE BARE, WITHOUT COATING. ALL STRUCTURAL STEEL TO BE EXPOSED TO WEATHER SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A123-17. STEEL COLUMNS BELOW GRADE SHALL PAINTED WITH 2 COATS OF ASPHALTIC PAINT AND ENCASED IN A MINIMUM OF 4" OF CONCRETE. DO NOT PAINT TOP FLANGES OF BEAMS TO RECEIVE SHEAR STUDS. ALL OTHER STRUCTURAL STEEL NOT LISTED ABOVE SHALL RECEIVE ONE (1) SHOP COAT OF PAINT AFTER CLEANING OF ALL RUST, SCALE, AND FOREIGN MATTER, SURFACES SHALL BE DRY AND CLEAN AT TIME OF PAINT APPLICATION. SEE SPECIFICATIONS FOR REQUIREMENTS, INCLUDING TOUCH-UP OF CONNECTIONS IN PRIMED OR GALVANIZED STRUCTURAL STEEL FOLLOWING APPROVAL OF TESTING AGENCY.
- Y. SUSPENSION FROM ROOF STRUCTURE:
- a. SUBCONTRACTORS INSTALLING CONDUIT, PIPING, OR EQUIPMENT SUSPENDED FROM THE STRUCTURE SHALL ATTEND A PRECONSTRUCTION MEETING.
- b. ATTACHMENT TO METAL DECK IS PROHIBITED. c. PIPE HANGERS SHALL BE ATTACHED TO BOTTOM FLANGES OF WIDE FLANGE
- BEAMS, AND CHANNELS WITH APPROVED "BEAM CLAMPS" AND "CHANNEL CLAMPS". d. ALL SINGLE OR MULTIPLE TIER CABLE TRAYS, PIPE RACKS OR GROUPS OF DUCTS SHALL BE SUPPORTED FROM EACH BEAM WHERE SUCH A SYSTEM CROSSES OR AT 8'-0" OC MAX. WHERE SUCH SYSTEMS ARE PARALLEL TO BEAMS.
- e. INDIVIDUAL PIPES TO 6" IN DIAMETER SHALL BE SUPPORTED FROM ALL BEAMS WHEN PIPES ARE PERPENDICULAR TO BEAMS AND AT 10'-0" OC MAXIMUM WHEN PIPES ARE PARALLEL TO BEAMS. f. HANGERS SHALL BE ADDED AT ALL LOCATIONS WHERE VALVES OR FITTINGS
- g. ALL CONTRACTORS AND SUBCONTRACTORS SUSPENDING LOADS FROM STRUCTURE SUCH AS ELECTRICAL, MECHANICAL, PLUMBING, FIRE PROTECTION, AND PROCESS CONTRACTORS ARE TO PROVIDE ALL RIGGING REQUIRED FOR COMPLETE INSTALLATION AND FURNISH DRAWINGS SHOWING NECESSARY POINTS OF SUPPORT, REACTIONS AND SUPPLEMENTARY BRACING, PROVIDE REQUIRED SUPPORTS AND HANGERS FOR PIPING, CONDUIT AND EQUIPMENT, SO THAT ALL COMBINED LOADING WILL NOT EXCEED ALLOWABLE LOADINGS OF STRUCTURE AS SHOWN ON THE STRUCTURAL DRAWINGS. SUBMITTAL OF A BID SHALL BE DEEMED A REPRESENTATION THAT THE CONTRACTOR SUBMITTING SUCH A BID HAS ATTAINED ALLOWABLE LOADINGS AND HAS INCLUDED IN THEIR ESTIMATES THE COSTS ASSOCIATED IN FURNISHING REQUIRED SUPPORTS. REQUIRED SUPPORTS SHALL BE COORDINATED WITH OTHER TRADES AND PROPERLY INSTALLED MEETING SPECIFICATIONS OF REPRESENTATIVE ITEMS SUPPORTED. ANY EXPENSE RESULTING FROM IMPROPER LOCATION OR INSTALLATION OF ANCHOR BOLTS, SLEEVES, OPENINGS, INSERTS, HANGERS, RACKS OR SUPPORTS TO BE PAID FOR
- . SHEAR CONNECTORS SHALL BE AS SHOWN ON PLANS OR DETAILS WELDED DIRECTLY TO BEAM OR THRU METAL DECK. DO NOT WELD TO CLOSURE PLATES.

BY THE CONTRACTOR RESPONSIBLE FOR THAT PORTION OF THE WORK.

AA. SLOTTED HOLES FOR BEAM END CONNECTIONS ARE NOT ALLOWED FOR BEAMS ALIGNED ALONG A COLUMN LINE OR WITHIN BRACED FRAMES.

- FLOOR DECK SHALL BE GALVANIZED (G60), CORRUGATED STEEL COMPOSITE DECK OF GAUGE AND DEPTH INDICATED ON PLANS, CONFORMING TO STEEL DECK INSTITUTES SPECIFICATION FOR COMPOSITE FLOOR DECK. DECK SHALL HAVE DEFORMATIONS TO PROVIDE ADEQUATE MECHANICAL INTERLOCKING BETWEEN DECK AND CONCRETE FOR COMPOSITE ACTION.
- B. PROVIDE 5/8" DIA PUDDLE WELDS AT 12" OC AT EACH SUPPORT WHERE SPACING OF SHEAR STUDS EXCEEDS 12 INCHES. SIDE LAPS BETWEEN DECK SHALL BE WELDED OR FASTENED USING #10 TEK SCREWS AT A MAXIMUM SPACING OF 36 INCHES. BUTTON PUNCHING OF SIDE LAPS IS NOT PERMITTED. PROVIDE 20 GAUGE CLOSURE STRIPS BETWEEN DECKING AND STEEL FRAMING MEMBERS PARALLEL TO DECK
- C. ALL DETAILING, FABRICATION, AND ERECTION SHALL COMPLY WITH ALL APPLICABLE OSHA REGULATIONS INCLUDING ADDITIONAL CONNECTORS, PLATES, HOLES. WELDING, BOLTS, NOT DEPICTED ON THESE DRAWINGS.
- D. PROVIDE ALL REQUIRED ACCESSORIES FOR A COMPLETE JOB INCLUDING DECK SUPPORT ANGLES AT COLUMNS AND DECK SPAN CHANGES, COVER PLATES, CLOSURES AND SUMP PANS.
- E. DECK SHALL BE PROVIDED IN A MINIMUM OF 3 SPAN LENGTHS WHERE POSSIBLE.
- THE SEQUENCE AND METHOD OF POURING THE FLOORS SHALL BE SUBMITTED TO THE A/E PRIOR TO STARTING ANY CONCRETE OPERATIONS. IN GENERAL, CONCRETE POURS SHOULD BE MADE ACROSS THE ENTIRE WIDTH OF A FLOOR IN A DIRECTION PARALLEL TO THE GIRDERS. ANY SINGLE POUR SHOULD BE STOPPED AT A COLUMN

### 5400 COLD FORMED STEEL FRAMING STEEL STUDS, LINTELS, AND RUNNER TRACK MEMBERS SHALL BE OF TYPE SHOWN ON

- THE DRAWINGS AND SPECIFICATIONS CONFORMING TO ASTM A446 GRADE A FOR MEMBERS UP TO 18 GAUGE IN THICKNESS (MINIMUM YIELD POINT 33,000 PSI) AND GRADE D FOR 16 GAUGE AND THICKER (MINIMUM YIELD POINT 50,000 PSI) WITH HOT-DIPPED GALVANIZED COATING CONFORMING TO ASTM A525 (CLASS G90).
- B. COLD FORMED STEEL FRAMING SHOP DRAWINGS SHALL BE SUBMITTED TO THE STRUCTURAL ENGINEER OF RECORD FOR APPROVAL PRIOR TO FABRICATION SHOWING WALL SECTIONS COORDINATED WITH DRAWINGS SHOWING FRAMING. ACCESSORIES, ANCHORAGE AND CONNECTION DETAILS.
- C. DESIGN OF COLD FORMED STEEL FRAMING SHALL BE PERFORMED BY A LICENSED STRUCTURAL ENGINEER IN THE STATE IN WHICH THE PROJECT WILL BE CONSTRUCTED. DESIGN CALCULATIONS SHALL BE SUBMITTED TO THE STRUCTURAL ENGINEER OF RECORD FOR APPROVAL PRIOR TO FABRICATION. CALCULATIONS SHALL BE SEALED BY THE DESIGN ENGINEER.
- a. CONNECTION MATERIAL GAUGE: MATCH STUD GAUGE UON CLIP ANGLES SHALL BE 14 GAUGE MINIMUM.
- b. BUILT-UP MEMBERS: FASTEN TOGETHER WITH 1" LONG STITCH WELDS OR #12 SCREWS @ 12" OC MAXIMUM, EACH FLANGE, AND EACH TRACK.
- D. PROVIDE BRIDGING @ 4' MAXIMUM VERTICAL SPACING IN WALLS. E. STUDS SHALL BE INSTALLED TO SEAT SQUARELY (WITHIN 1/16") AGAINST THE WEB
- PORTION OF THE TOP AND BOTTOM TRACKS. TRACKS SHALL REST ON A CONTINUOUS, UNIFORM BEARING SURFACE.
- F. TEMPORARY BRACING SHALL BE PROVIDED AND LEFT IN PLACE UNTIL WORK IS PERMANENTLY STABILIZED.
- G. SPLICING OF MEMBERS SPANNING BETWEEN SUPPORTS SHALL NOT BE PERMITTED. H. VERTICAL ALIGNMENT (PLUMBNESS) OF STUDS SHALL BE WITHIN 1/960TH (1/8" IN 10'-0")
- I. HORIZONTAL ALIGNMENT (LEVELNESS) OF WALLS SHALL BE WITHIN 1/960TH (1/8" IN 10'-0") OF THEIR RESPECTIVE LENGTHS.
- J. SPACING OF STUDS SHALL NOT BE MORE THAN +1/8" FROM THE DESIGNED SPACING PROVIDING THAT THE CUMULATIVE ERROR DOES NOT EXCEED THE REQUIREMENTS OF THE FINISHED MATERIALS.
- K. ASSEMBLY: a. FRAMING MEMBERS SHALL BE CUT SQUARELY OR AT AN ANGLE AS REQUIRED TO FIT SQUARELY AGAINST ABUTTING MEMBERS. MEMBERS SHALL BE HELD FIRMLY IN PLACE UNTIL PROPERLY JOINED. JOINING STRUCTURAL MEMBERS SHALL BE MADE WITH SELF-DRILLING SCREWS OR WELDING. WIRE TYING OF FRAMING MEMBERS IN STRUCTURAL APPLICATIONS SHALL NOT BE PERMITTED. ATTACHMENT OF COLLATERAL MATERIALS TO STEEL MEMBERS SHALL BE MADE WITH SELF-DRILLING SCREWS OR HARDENED SCREW SHANK NAILS. METAL LATH MAY ALSO BE CONNECTED TO STELL BY STAPLES OR OTHER FASTENERS, IF APPROVED BY LOCAL BUILDING CODE.
- INSTALLATION: STUDS SHALL FIT SQUARELY IN THE TOP AND BOTTOM RUNNER TRACK WITH FIRM ABUTMENT AGAINST TRACK WEBS. STUD SHALL BE ALIGNED OR PLUMBED AND SECURELY FASTENED TO THE FLANGES OF BOTH TOP AND BOTTOM TRACK.
- M. ALL COLD FORMED MEMBERS SHALL HAVE THE FOLLOWING MINIMUM PROPERTIES:

ALL COLD FORMED MEMBERS SHALL HAVE THE FOLLOWING MINIMUM PROPERTIES:						
MEMBER	SSMA DESIGNATION	YIELD STRESS (ksi)		MEMBER	SSMA DESIGNATION	YIELD STRESS (ksi)
6"-20 GA STUD	600S162-33	33		8"-20 GA STUD	800S162-33	33
6"-18 GA STUD	600S162-43	33		8"-18 GA STUD	800S162-43	33
6"-16 GA STUD	600S162-54	50		8"-16 GA STUD	800S162-54	50
6"-14 GA STUD	600S162-68	50		8"-14 GA STUD	800S162-68	50
			П			
6"-20 GA TRACK	600T200-33	33		8"-20 GA TRACK	800T200-33	33
6"-18 GA TRACK	600T200-43	33		8"-18 GA TRACK	800T200-43	33
6"-16 GA TRACK	600T200-54	50		8"-16 GA TRACK	800T200-54	50
6"-14 GA TRACK	600T200-68	50		8"-14 GA TRACK	800T200-68	50

# 5403 CURTAIN WALL AND STOREFRONT SYSTEMS

A. CURTAIN WALL AND STOREFRONT SYSTEMS SHALL BE DESIGNED IN ACCORDANCE WITH ACCEPTED ENGINEERING PRINCIPLES AND GOVERNING CODES. THE DESIGN SHALL BE PERFORMED BY A REGISTERED PROFESSIONAL ENGINEER WITHIN THE JURISDICTION OF THE PROJECT. SHOP DRAWING SHALL BE SUBMITTED WHICH BEARS THE SIGNATURE, DATE AND EMBOSSED SEAL OF THE ENGINEER. SHOP DRAWINGS SHALL CLEARLY INDICATE CONNECTIONS AND MATERIALS USED.

### A. ENGINEERED RAILING SYSTEM AND CONNECTION OF SAME TO THIS STRUCTURE SHALL BE DESIGNED BY A REGISTERED PROFESSIONAL ENGINEER WITHIN THE JURISDICTION OF THE PROJECT. SUBMIT SHOP DRAWINGS AND CALCULATIONS

- BEARING THE EMBOSSED SEAL AND THE SIGNATURE OF THE ENGINEER FOR REVIEW PRIOR TO FABRICATION. THE CONFIGURATION OF THE RAILING SYSTEM SHALL BE AS SHOWN ON THE ARCHITECTURAL DRAWINGS. RAILING SYSTEM AND CONNECTIONS SHALL BE DESIGNED FOR APPLICABLE LOADS AS INDICATED ON THE PLANS AND IN THE BUILDING CODE. THE LOADS SHALL BE CLEARLY INDICATED ON SHOP DRAWINGS. SHOP DRAWINGS SHALL SHOW AND SPECIFY CONNECTIONS UTILIZED WITHIN THE RAILING SYSTEM AS WELL AS CONNECTIONS TO AND LOADS IMPOSED UPON THE STRUCTURAL SYSTEM SHOWN ON THESE PLANS.
- B. RAILINGS, POSTS AND CONNECTIONS SHALL BE CAPABLE OF RESISTING A HORIZONTAL LOADING OF 50 PLF OR 200 LBS APPLIED AT TOP RAIL IN ANY DIRECTION WITHOUT EXCEEDING ALLOWABLE STRESSES. STEEL PIPE POSTS SHALL BE 4'-0". DESIGN OF RAILS, POSTS, AND CONNECTIONS TO STRUCTURE SHALL BE THE RESPONSIBILITY OF THE RAIL DESIGNER.
- 6105 WOOD FRAMING CONNECTORS: CONNECTOR MODEL NUMBERS SHOWN ARE STRONG-TIE CONNECTORS AS MANUFACTURED BY SIMPSON STRONG-TIE CO., 1450 DOOLITTLE DR., P.O. BOX 1568, SAN LEANDRO, CA 94577. SUBSTITUTIONS ARE ACCEPTABLE WITH THE APPROVAL OF THE STRUCTURAL ENGINEER. UNLESS NOTED OTHERWISE, INSTALL SIZE AND NUMBER OF FASTENERS SHOWN IN LATEST SIMPSON CATALOG.
- B. CONNECTORS SHALL BE HOT-DIPPED GALVANIZED TO A G185 COATING (1.85 OZ. PER SQUARE FT.) PER ASTM A653 (SIMPSON ZMAX) WHEN ATTACHED TO UNTREATED WOOD OR WOOD TREATED WITH: CHROMATED COPPER ARSENATE (CCA-C); DOT SODIUM BORATE (SBX); ALKALINE COPPER QUAT ACQ-C AND ACQ-D (CARBONATE); COPPER AZOLE (CBA-A AND CA-B); BORATE (NON-DOT).
- C. CONNECTORS SHALL BE TYPE 316L STAINLESS STEEL (SIMPSON SST300) WHEN ATTACHED TO WOOD TREATED WITH AMMONIACAL COPPER ZINC ARSENATE (ACZA) OR OTHER PRESERVATIVES NOT LISTED ABOVE.
- D. FASTENERS SHALL BE HOT-DIPPED GALVANIZED TO G90 WHEN USED WITH GALVANIZED CONNECTORS AND STAINLESS STEEL WHEN USED WITH STAINLESS STEEL
- E. ALL STRAPS, JOIST HANGERS, AND METAL CONNECTORS SHALL BE INSTALLED DIRECTLY TO SOLID LUMBER. DO NOT INSTALL OVER PLYWOOD SHEATHING OR
- 6192 PRE-FABRICATED, METAL PLATE-CONNECTED WOOD TRUSSES: A. ENGINEERED WOOD TRUSS SYSTEMS SHALL BE DESIGNED BY SUPPLIER'S SPECIALTY ENGINEER TO CONFIGURATION AND LOAD-CARRYING CAPACITY SHOWN ON DRAWINGS AND SPECIFICATIONS AND SHALL BE DESIGNED AS A ROOF TRUSS SYSTEM WHICH DETAILS PERMANENT BRACING. ALTERNATE TRUSS LAYOUTS ARE ACCEPTABLE ONLY AS A CHANGE ORDER WHICH WILL INCLUDE ENGINEERING CHARGES FOR REDESIGN OF THE STRUCTURE BY THE ENGINEER OF RECORD. SUBMIT SHOP DRAWINGS FOR REVIEW PRIOR TO FABRICATION. SHOP DRAWINGS SHALL SHOW AND SPECIFY CONNECTOR TYPES UTILIZED WITHIN TRUSSES, AS WELL AS CONNECTORS UTILIZED IN OTHER CONNECTIONS AND ATTACHMENTS BETWEEN TRUSSES OR COMPONENTS SUPPLIED AS PART OF THE ENGINEERED TRUSS SYSTEM. AN ERECTION DRAWING SHALL BE INCLUDED, IDENTIFYING TRUSS SYSTEM COMPONENTS, AS WELL AS PERMANENT BRACING REQUIRED FOR TRUSS DESIGN.
- B. ALL TRUSSES AND OTHER ROOF STRUCTURAL COMPONENTS SHALL BE FABRICATED IN A PROPERLY EQUIPPED MANUFACTURING FACILITY OF A PERMANENT NATURE. THEY SHALL BE MANUFACTURED BY EXPERIENCED WORKMEN, USING PRECISION CUTTING AND TRUSS ASSEMBLY METHODS UNDER THE DIRECT SUPERVISION OF A QUALIFIED FOREMAN, ALL TRUSSES SHALL BE FABRICATED UNDER THE STRICT RULES OF THE TRUSS PLATE INSTITUTE (TPI).
- C. THE QUALIFIED COMPONENT MANUFACTURER MUST BE A MEMBER OF THE TRUSS PLATE INSTITUTE AND PARTICIPATE IN THE QUALITY CONTROL TEST CRITERIA PROGRAM. OR DEMONSTRATE TO THE ARCHITECT OR THEIR ENGINEER THE QUALITY ASSURANCE PROGRAM COMPARABLE TO THE TPI TESTING CRITERIA PROGRAM. THAT QUALITY ASSURANCE PROGRAM MUST INCLUDE. BUT NOT LIMITED TO THE INSPECTION OF ALL PHASES OF PRESSES OR ROLLERS, FABRICATION PROCEDURES AND COMPUTER DESIGN PROGRAMS SPECIFICALLY RELATING TO THE SPECIFIC TRUSS BEING FABRICATED FOR THE PROJECT AS APPROVED IN THE TRUSS DESIGN
- D. DEAD LOAD CHAMBER SHALL BE BUILT INTO THE TRUSSES, AS NOTED ON THE ENGINEERING TRUSS DESIGNS, BY PROPERLY POSITIONING THE MEMBERS IN THE
- E. ALL LUMBER USED IN TRUSSES SHALL HAVE A MOISTURE CONTENT OF NOT LESS THAN 11.1 AND NOT MORE THAN 19.1 AT THE TIME OF FABRICATION.
- F. GYPSUM CEILING DIRECTLY ATTACHED TO WOOD TRUSSES SHALL NOT BE
- CONSIDERED AS BRACING BOTTOM CHORD. G. ENGINEERED SHOP DRAWINGS SHALL BEAR THE SIGNATURE AND IMPRESSED SEAL OF AN ENGINEER LICENSED WITHIN THE JURISDICTION OF THE PROJECT AS THE SPECIALTY ENGINEER.
- H. SUSPENSION FROM ROOF STRUCTURE: CONDUIT, PIPING, OR EQUIPMENT SUSPENDED FROM STRUCTURE, UNLESS SPECIFICALLY NOTED ON ROOF FRAMING PLANS, MUST BE CONNECTED IN SUCH A FASHION TO NOT EXCEED DESIGN LOADS FOR TOP OR BOTTOM CHORD AS INDICATED ON THESE DRAWINGS. SPACING OF CONNECTIONS SHALL NOT EXCEED TRUSS SPACING IN EITHER DIRECTION. DO NOT ATTACH TO ROOF
- I. WOOD ROOF TRUSS DESIGN CRITERIA:

FABRICATING JIG.

PLYWOOD DECK.

- a. SUPERIMPOSED DEAD LOAD = 35 PSF TOTAL (25 PSF TOP CHORD / 10 PSF BOTTOM CHORD)
- b. SUPERIMPOSED DEAD LOAD TO RESIST UPLIFT = 12 PSF TOTAL (8 PSF TOP CHORD / 4 PSF BOTTOM CHORD)
- c. LIVE LOAD = 20 PSF TOTAL (20 PSF TOP CHORD / 10 PSF BOTTOM CHORD, NON-CONCURRENT)

LIVE LOAD = L / 360 UP TO 0.75 INCH MAXIMUM

TOTAL LOAD = L/240 UP TO 1.5 INCH MAXIMUM

- d. WIND LOADS: SEE GENERAL NOTES FOR WIND DESIGN CRITERIA. IN ADDITION TO CHORD MEMBERS, ALL WEB MEMBERS EXPOSED TO WIND MUST BE DESIGNED FOR APPLICABLE WIND PRESSURE, SUCH AS GABLE END TRUSSES.
- e. SEISMIC LOADS: SEE GENERAL NOTES FOR SEISMIC DESIGN CRITERIA. f. DEFLECTION CRITERIA:
- . PROPER ERECTION BRACING SHALL BE INSTALLED TO HOLD THE TRUSSES TRUE AND PLUMB AND IN SAFE CONDITION UNTIL PERMANENT TRUSS BRACING AND BRIDGING CAN BE SOLIDLY NAILED IN PLACE TO FORM A STRUCTURALLY SOUND FRAMING SYSTEM, ALL ERECTION AND PERMANENT BRACING SHALL BE INSTALLED AND ALL COMPONENTS PERMANENTLY FASTENED BEFORE THE APPLICATION OF ANY LOADS TO THE TRUSSES. ALL BRACING SHALL BE DESIGNED BY MANUFACTURER AND INDICATED ON SHOP DRAWINGS. CONTRACTOR SHALL COORDINATE WITH TRUSS FABRICATOR TO ENSURE THAT ALL BRACING IS PROVIDED INCLUDING BOTTOM CHORD BRACING BY WAY OF CEILING SHEATHING OR SPECIFIC BRACES AT PREDETERMINED LOCATIONS. ALL PREFABRICATED WOOD TRUSSES ARE TO BE INSTALLED IN ACCORDANCE WITH
- PLATE INSTITUTE AND THE WOOD TRUSS COUNCIL OF AMERICA. K. UNLESS NOTED OTHERWISE, PROVIDE 2x6 CONTINUOUS AT ALL ROOF EDGES INCLUDING ROOF PITS. NAIL DECK TO 2x6 PER EDGE FASTENING REQUIREMENTS OF

THE "BUILDING COMPONENT SAFETY INFORMATION BOOKLET" BLSI 1-03 BY THE TRUSS

ABBREVIATIONS									
ADDL	- ADDITIONAL	FS	- FAR SIDE	PAF	- POWER ACTUATED FASTENERS				
AR	- ANCHOR ROD	FT	- FOOT	PART	- PARTITION				
ALT	- ALTERNATE	FTG	- FOOTING	PARTL	- PARTIAL				
APPROX	- APPROXIMATELY	FV	- FIELD VERIFY	PCJ	- PRECAST CONCRETE JOIST				
ARCH	- ARCHITECT	GA	- GAGE	PJP	- PARTIAL JOINT PENETRATION				
ARCHL	- ARCHITECTURAL	GALV	- GALVANIZED	PL	- PLATE				
B/	- BOTTOM OF	GC	- GENERAL CONTRACTOR	PLF	- POUNDS PER LINEAR FOOT				
BC	- BOTTOM CHORD	GT	- GIRDER TRUSS	PSF	- POUNDS PER SQUARE FOOT				
BLDG	- BUILDING	HC	- HOLLOW CORE	PSI	- POUNDS PER SQUARE INCH				
BM	- BEAM	HCP	- HOLLOW CORE PLANK	PT	- POST TENSIONED				
BOTT	- BOTTOM	HDG	- HOT DIPPED GALVANIZED	PrT	- PRESSURE TREATED				
BRG	- BEARING	HG	- HIP GIRDER	PNL	- PANEL				
C/C	- CENTER TO CENTER	HK	- HOOK	R	- RADIUS				
CF	- CONTINUOUS FOOTING	HORIZ	- HORIZONTAL	REG	- REGULAR				
CIP	- CAST IN PLACE	HP	- HIGH POINT	REINF	- REINFORCING				
CJ	- CONTRACTION JOINT	HS	- HIGH STRENGTH	REM	- REMAINDER				
CJP	<ul> <li>COMPLETE JOINT PENETRATION</li> </ul>	IJ	- ISOLATION JOINT	REQD	- REQUIRED				
CL, Ç	- CENTERLINE	INFO	- INFORMATION	REV	- REVISED/REVISION				
CLR	- CLEAR	INS	- INSULATION	RM	- ROOM				
CMU	- CONCRETE MASONRY UNIT	INT	- INTERIOR	RO	- ROUGH OPENING				
COL	- COLUMN	IRR	- IRREGULAR	RQMTS	- REQUIREMENTS				
CONC	- CONCRETE	JB	- JOIST BEARING	SCHED	- SCHEDULE				
CONFIG	- CONFIGURATION	JBE	- JOIST BEARING ELEVATION	SECT	- SECTION				
CONT	- CONTINUOUS	JR	- JAMB REINFORCING	SIM	- SIMILAR				
CONTR	- CONTRACTOR	JT	- JOINT	SL	- SLOPE				
CNTRD	- CENTERED	K	- KIP(s), 1000 POUNDS	SOG	- SLAB-ON-GRADE				
DBL	- DOUBLE	KLF	- KIPS PER LINEAR FOOT	SP	- SPIRAL				
DTL	- DETAIL	KJ	- CONSTRUCTION JOINT	SQ	- SQUARE				
DIA	- DIAMETER	L	- ANGLE	SS	- STAINLESS STEEL				
DIM	- DIMENSION	LG	- LONG	STD	- STANDARD				
DN	- DOWN	LLH	- LONG LEG HORIZONTAL	STL	- STEEL				
DR DWG	- DRAIN - DRAWING	LLV LP	- LONG LEG VERTICAL - LOW POINT	STRUCTL	- STRUCTURAL - SHEARWALL				
	- DRAWING - EACH	LW	- LOW POINT - LONG WAY	SW# SW	- SHEARWALL - SHORT WAY				
EA EE	- EACH - EACH END	LWT	- LIGHTWEIGHT	T/	- TOP OF				
EF	- EACH END - EACH FACE	MFR	- MANUFACTURER	TB	- TIE BEAM				
EJ	- EXPANSION JOINT	MAS	- MASONRY	TC	- TIE COLUMN				
EL	- ELEVATION	MO	- MASONRY OPENING	TEMP	- TEMPERATURE				
ELEV	- ELEVATION	MATL	- MATERIAL	TG	- TRUSS GIRDER				
ENGR	- ENGINEER	MAX	- MAXIMUM	TH	- TRUSS HIP				
EOR	- ENGINEER OF RECORD	MECHL	- MECHANICAL	THK	- THICK				
EOS	- EDGE OF SLAB	MTL	- METAL	TJ	- TRUSS JACK				
EQ	- EQUAL	MIN	- MINIMUM	TR	- TRUSS				
EW	- EACH WAY	MISC	- MISCELLANEOUS	TYP	- TYPICAL				
EXIST	- EXISTING	NS	- NEAR SIDE	UNO	- UNLESS NOTED OTHERWISE				
EXP	- EXPANSION	NIC	- NOT IN CONTRACT	VERT	- VERTICAL				
EXT	- EXTERIOR	NTS	- NOT TO SCALE	W/	- WITH				
FIN	- FINISH	NW	- NORMAL WEIGHT	W/O	- WITHOUT				
FLR	- FLOOR	OC	- ON CENTER	WD	- WOOD				
FND	- FOUNDATION	OH	- OPPOSITE HAND	WP	- WORK POINT				
FOM	- FACE OF MASONRY	OPNG	- OPENING	WWR	- WELDED WIRE REINFORCING				



# SANIBEL FIRE AND RESCUE

PROJECT LOCATION: 5171 SANIBEL-CAPTIVA SANIBEL, FLORIDA 33957



9510 Corkscrew Palms Circle, Unit 1 Estero, FL 33928 voice (239) 208-4846

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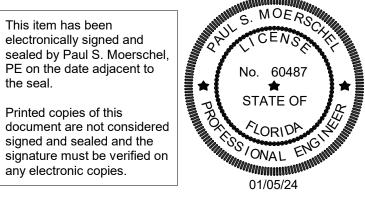
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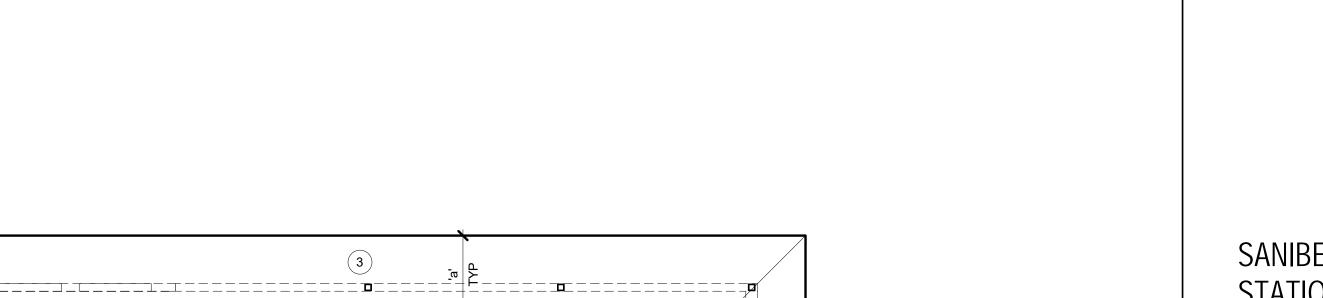
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STRUCTURAL NOTES ABBREVIATIONS

100% CONSTRUCTION DOCUMENTS

IV EDGE DISTANCE, "a" 3'-0"

**ROOF SLOPE** 4.00/12



(3) 

COMPONENT & CLADDING NOMINAL WIND PRESSURES

**WALLS** 

"Ae" INDICATES EFFECTIVE AREA AS DEFINED BY SECTION 26.2 OF ASCE 7. PRESSURE VALUES IN ABOVE TABLE ARE BASED ON THE PARAMETERS LISTED AT THE TOP OF THE TABLE.

PRESSURE VALUES IN ABOVE TABLE ARE FOR: ROOF - ENCLOSED BUILDING, GCPI =  $\pm 0.18$ 

ULTIMATE WIND SPEED, VULT 190 MPH

NOMINAL WIND SPEED, VASD

HIP ROOF  $7^{\circ} < 0 \le 20^{\circ}$  AND  $h \le 60$  FT

COMPONENT LOCATION

EFFECTIVE AREA, Ae

**ZONE 1: INTERIOR WITHIN** 

ft FROM HIPS AND RIDGES

ZONE 2: WITHIN "a" ft FROM

**HIPS AND RIDGES** 

**EAVES** 

FROM CORNERS

WALL - PARTIALLY ENCLOSED BUILDING, GCPI = ±0.55. 4. GLAZED OPENINGS SHALL BE PROTECTED IN ACCORDANCE WITH SECTION 26.10.3 OF ASCE 7.

POSITIVE OR NEGATIVE DESIGN PRESSURES SHALL NOT BE TAKEN LESS THAN 16 psf (ULTIMATE VALUE) OR 10 PSF (NOMINAL VALUE). POSITIVE WIND PRESSURES ACT TOWARD THE SURFACE AND NEGATIVE PRESSURES ACT AWAY FROM THE SURFACE.

COMPONENT & CLADDING NOMINAL WIND PRESSURES (PER ASCE 7-22)

**RISK CATEGORY** 

**EXPOSURE** 

DIRECTIONALITY FACTOR, Kd

"a" ft FROM EAVES TO "a" | +48.70 | +42.03 | +33.22 | +26.56 | -109.56 | -96.76 | -79.83 | -67.03

**OVERHANGS WITHIN "a" ft** N/A N/A N/A N/A -199.20 -180.90 -156.70 -138.40

POSITIVE PRESSURES (PSF) | NEGATIVE PRESSURES (PSF)

10 ft<sup>2</sup> | 20 ft<sup>2</sup> | 50 ft<sup>2</sup> | 100 ft<sup>2</sup> | 10 ft<sup>2</sup> | 20 ft<sup>2</sup> | 50 ft<sup>2</sup> | 100 ft<sup>2</sup>

+48.70 | +42.03 | +33.22 | +26.56 | -142.76 | -128.68 | -110.06 | -95.98

+48.70 | +42.03 | +33.22 | +26.56 | -153.83 | -138.47 | -118.16 | -102.80

7. PRESSURES IN TABLE ARE ALLOWABLE PRESSURES. NO FURTHER REDUCTIONS PERMITTED.

$\overline{2}$	TOWER ROOF	WIND	TABLE
S003	12" = 1'-0"		

2	TOWER ROOF WIND TABLE
S003	12" = 1'-0"

ULTIMATE WIND SPEED, VULT 190 MPH				RISK CATEGORY				EDGE DIS	TANCE, "a"	6'-6"
NOMINAL WIND SPEED, VASD 147 MPH				EXPOSURE					SLOPE	3.00/12
HIP ROOF 7° < 0 ≤ 20° AND h ≤ 60 FT  COMPONENT LOCATION			DIR	DIRECTIONALITY FACTOR, Kd  POSITIVE PRESSURES (PSF)						
			POSIT					NEGATIVE PRESSURES		
EFF	ECTIVE AREA, Ae		10 ft²	20 ft <sup>2</sup>	50 ft <sup>2</sup>	100 ft <sup>2</sup>	10 ft <sup>2</sup>	20 ft <sup>2</sup>	50 ft <sup>2</sup>	100 ft <sup>2</sup>
	ZONE 1: FROM 0.0 DISTANCE FRO RIDGES AND E	M HIPS,	+23.42	+21.95	+20.00	+18.54	-91.71	-85.66	-77.66	-71.61
ROOFS	ZONE 2: WITHI DISTANCE FRO RIDGES AND E	M HIPS,	+23.42	+21.95	+20.00	+18.54	-120.98	-113.20	-102.92	-95.14
	ZONE 3: WITHI FROM CORNERS WIDE		+23.42	+21.95	+20.00	+18.54	-120.98	-113.20	-102.92	-95.14
	OVERHANG: ZON	NE 1 & 1'	N/A	N/A	N/A	N/A	-82.93	-81.46	-79.52	-78.05
	OVERHANG: Z	ONE 2	N/A	N/A	N/A	N/A	-112.20	-101.83	-88.12	-77.74
	OVERHANG: Z	ONE 3	N/A	N/A	N/A	N/A	-156.10	-137.95	-113.96	-95.81
VAL 1 0	ZONE 4: INTE	RIOR	+75.61	+73.02	+69.59	+67.00	-80.49	-77.90	-74.47	-71.87
WALLS	ZONE 5: EXTE	'DIOD	+75.61	+73.02	+69.59	+67.00	-95.12	-89.94	-83.08	-77.90

INTERIOR ZONE

**CORNER ZONE** 

- NOTES:

  1. "Ae" INDICATES EFFECTIVE AREA AS DEFINED BY SECTION 26.2 OF ASCE 7.

  2. PRESSURE VALUES IN ABOVE TABLE ARE BASED ON THE PARAMETERS LISTED AT THE TOP OF THE TABLE.
- PRESSURE VALUES IN ABOVE TABLE ARE FOR : ROOF - ENCLOSED BUILDING, GCPI = ± 0.18

**PARAPETS** 

WALL - PARTIALLY ENCLOSED BUILDING, GCPI = ±0.55. 4. GLAZED OPENINGS SHALL BE PROTECTED IN ACCORDANCE WITH SECTION 26.10.3 OF ASCE 7. POSITIVE OR NEGATIVE DESIGN PRESSURES SHALL NOT BE TAKEN LESS THAN 16 psf (ULTIMATE VALUE) OR 10 PSF (NOMINAL VALUE).

CASE A

- POSITIVE WIND PRESSURES ACT TOWARD THE SURFACE AND NEGATIVE PRESSURES ACT AWAY FROM THE SURFACE. 7. PRESSURES IN TABLE ARE ALLOWABLE PRESSURES. NO FURTHER REDUCTIONS PERMITTED.
- TRAINING ROOF WIND TABLE

CASE B

+182.51 | +171.91 | +157.89 | +147.28 | -122.67 | -117.37 | -110.36 | -105.05

 +182.51
 +171.91
 +157.89
 +147.28
 -137.63
 -129.68
 -119.17
 -111.21

4 PORCH ROOF WIND TABLE
S003 12" = 1'-0"

	COMPO	NENT & C		G NOMIN ASCE 7-22		PRESS	URES			
ULTIMATE V	VIND SPEED, VULT	190 MPH		RISK CA	TEGORY		IV	EDGE DIS	TANCE , "a	" 3'-0"
NOMINAL W	/IND SPEED, VASD	147 MPH		EXPO	SURE		D	ROOF	SLOPE	6.00/1
HIP ROOF 7	° < 0 ≤ 20° AND h ≤ 60 F	·T	DIR	ECTIONALI	TY FACTOR	R, Kd	0.85			
	ECTIVE AREA, Ae	N	POSIT	20 ft <sup>2</sup>	50 ft <sup>2</sup>	100 ft <sup>2</sup>	NEGA	20 ft <sup>2</sup>	50 ft <sup>2</sup>	100 ft
EFF	ECTIVE AREA, Ae  ZONE 1: INTERIO	R WITHIN								
	"a" ft FROM EAVES TO "a" ft FROM HIPS AND RIDGES		+43.88	+37.88	+29.94	+23.93	-78.79	-69.78	-57.88	-48.87
D0050	ZONE 2: WITHIN ": HIPS AND RII		+43.88	+37.88	+29.94	+23.93	-108.71	-93.70	-73.85	-58.84
ROOFS		ZONE 3: WITHIN "a" ft FROM EAVES		+37.88	+29.94	+23.93	-108.71	-93.70	-73.85	-58.84
	OVERHANG: Z OVERHANGS WIT FROM CORN	THIN "a" ft	N/A	N/A	N/A	N/A	-158.57	-140.91	-117.56	-99.90
WALLS	ZONE 4: INTE	RIOR	+77.29	+74.64	+71.14	+68.48	-82.28	-79.63	-76.12	-73.47
	ZONE 5: EXTI	EDIOD	+77.29	+74.64	+71.14	+68.48	-97.24	-91.94	-84.93	-79.63

1 ROOF UPLIFT DIAGRAM
S003 1/8" = 1'-0"

1. "Ae" INDICATES EFFECTIVE AREA AS DEFINED BY SECTION 26.2 OF ASCE 7.

PRESSURE VALUES IN ABOVE TABLE ARE BASED ON THE PARAMETERS LISTED AT THE TOP OF THE TABLE. PRESSURE VALUES IN ABOVE TABLE ARE FOR: ROOF - ENCLOSED BUILDING, GCPI = ± 0.18

WALL - PARTIALLY ENCLOSED BUILDING, GCPI = ±0.55. 4. GLAZED OPENINGS SHALL BE PROTECTED IN ACCORDANCE WITH SECTION 26.10.3 OF ASCE 7.

5. POSITIVE OR NEGATIVE DESIGN PRESSURES SHALL NOT BE TAKEN LESS THAN 16 psf (ULTIMATE VALUE) OR 10 PSF (NOMINAL VALUE). 6. POSITIVE WIND PRESSURES ACT TOWARD THE SURFACE AND NEGATIVE PRESSURES ACT AWAY FROM THE SURFACE.

7. PRESSURES IN TABLE ARE ALLOWABLE PRESSURES. NO FURTHER REDUCTIONS PERMITTED.

			(PER	ASCE 7-22	)					
ULTIMATE WIN	ND SPEED, VULT	190 MPH		RISK CA	TEGORY		IV	EDGE DIS	TANCE , "a'	<b>"</b> 6'-6"
NOMINAL WIN	ID SPEED, VASD	147 MPH	EXPOSURE				D	ROOF SLOPE		3.00/12
HIP ROOF 7° < 0 ≤ 20° AND h ≤ 60 FT		DIRECTIONALITY FACTOR, Kd				0.85				
COMPONENT LOCATION			POSITIVE PRESSURES (PSF)				NEGATIVE PRESSURES (PSF)			
EFFE	CTIVE AREA, Ae		10 ft <sup>2</sup>	20 ft <sup>2</sup>	50 ft <sup>2</sup>	100 ft <sup>2</sup>	10 ft²	20 ft <sup>2</sup>	50 ft <sup>2</sup>	100 ft²
	ZONE 1: INTERIOR "a" ft FROM EAVE ft FROM HIPS AND	S TO "a"	+47.86	+41.32	+32.66	+26.11	-107.69	-95.11	-78.47	-65.89
DOOES	ZONE 2: WITHIN "a' HIPS AND RID		+47.86	+41.32	+32.66	+26.11	-140.33	-126.49	-108.19	-94.34
ROOFS	ZONE 3: WITHIN "a' EAVES	'ft FROM	+47.86	+41.32	+32.66	+26.11	-151.21	-136.11	-116.15	-101.05
	OVERHANG: ZO OVERHANGS WITH FROM CORNE	IIN "a" ft	N/A	N/A	N/A	N/A	-195.80	-177.82	-154.03	-136.04
WALLS	ZONE 4: INTER	RIOR	+84.31	+81.41	+77.59	+74.70	-89.74	-86.85	-83.03	-80.14
WALLS	ZONE 5: EXTE	RIOR	+84.31	+81.41	+77.59	+74.70	-106.06	-100.28	-92.63	-86.85

COMPONENT & CLADDING NOMINAL WIND PRESSURES

1. "Ae" INDICATES EFFECTIVE AREA AS DEFINED BY SECTION 26.2 OF ASCE 7.

2. PRESSURE VALUES IN ABOVE TABLE ARE BASED ON THE PARAMETERS LISTED AT THE TOP OF THE TABLE. 3. PRESSURE VALUES IN ABOVE TABLE ARE FOR:

ROOF - ENCLOSED BUILDING, GCPI =  $\pm 0.18$ 

WALL - PARTIALLY ENCLOSED BUILDING, GCPI = ±0.55. 4. GLAZED OPENINGS SHALL BE PROTECTED IN ACCORDANCE WITH SECTION 26.10.3 OF ASCE 7.

5. POSITIVE OR NEGATIVE DESIGN PRESSURES SHALL NOT BE TAKEN LESS THAN 16 psf (ULTIMATE VALUE) OR 10 PSF (NOMINAL VALUE). 6. POSITIVE WIND PRESSURES ACT TOWARD THE SURFACE AND NEGATIVE PRESSURES ACT AWAY FROM THE SURFACE.

7. PRESSURES IN TABLE ARE ALLOWABLE PRESSURES. NO FURTHER REDUCTIONS PERMITTED.

3 MAIN ROOF WIND TABLE
S003 12" = 1'-0"

# SANIBEL FIRE AND RESCUE STATION 172

PROJECT LOCATION: 5171 SANIBEL-CAPTIVA SANIBEL, FLORIDA 33957



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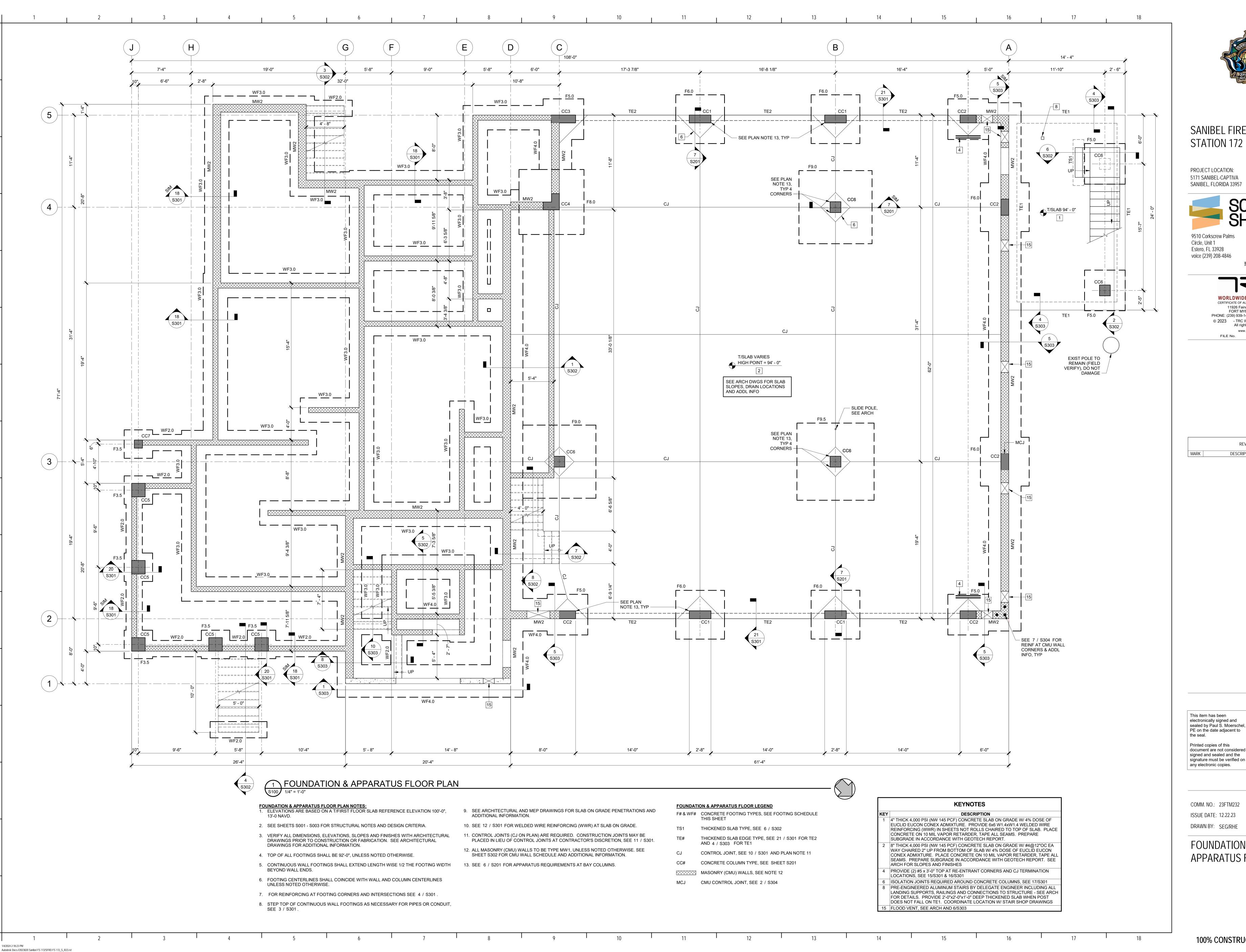
WIND PRESSURES

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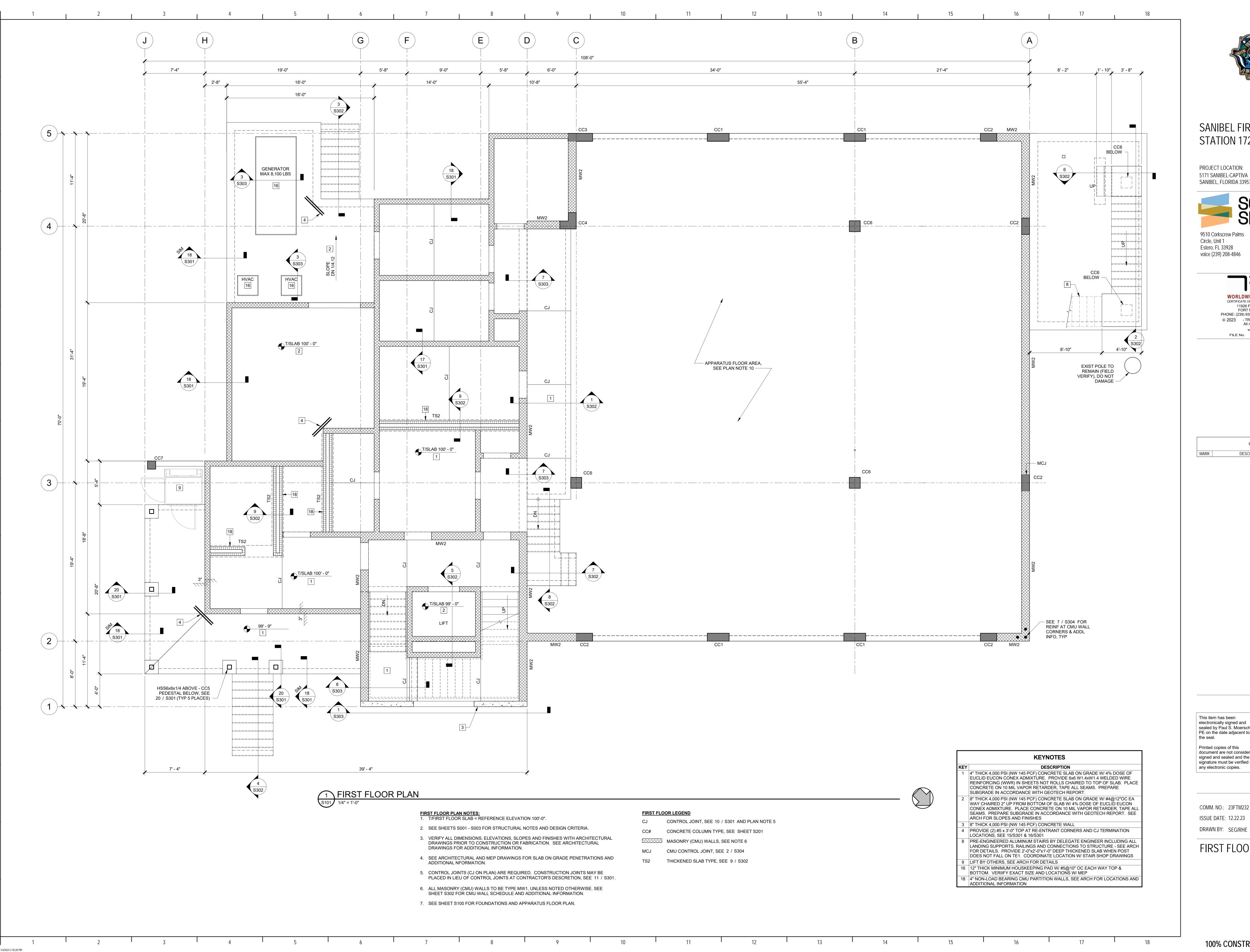
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FOUNDATION AND APPARATUS FLOOR PLAN

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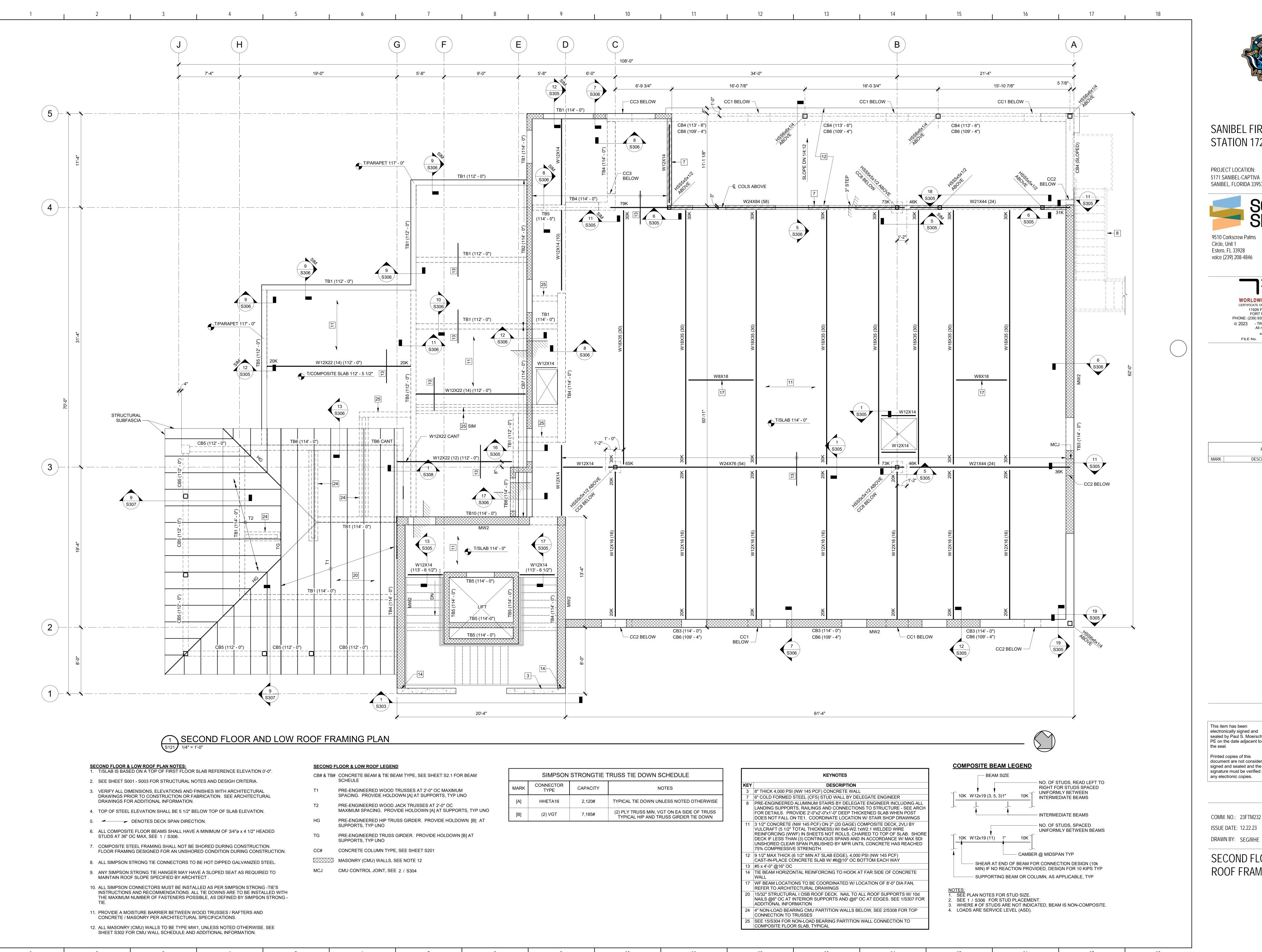
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FIRST FLOOR PLAN

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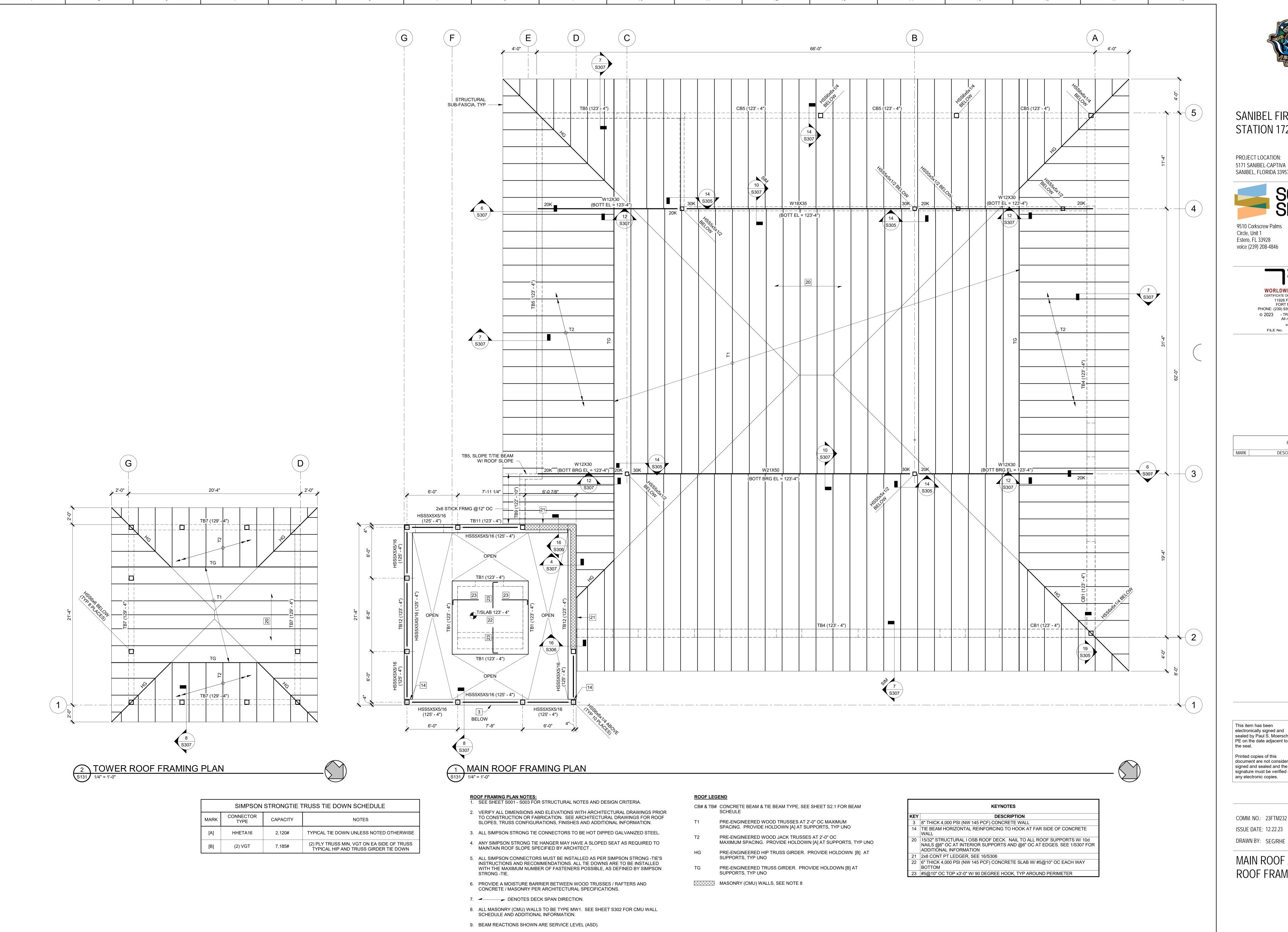
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SECOND FLOOR AND LOW ROOF FRAMING PLAN





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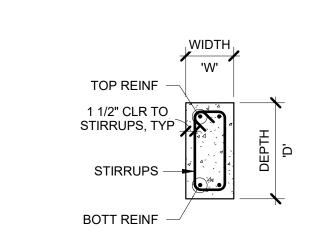
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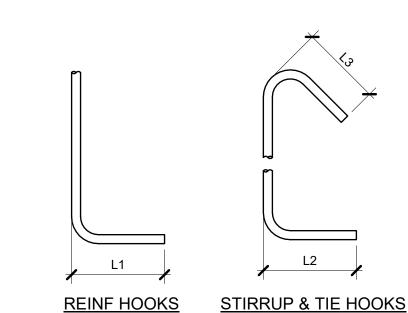
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MAIN ROOF AND TOWER ROOF FRAMING PLANS



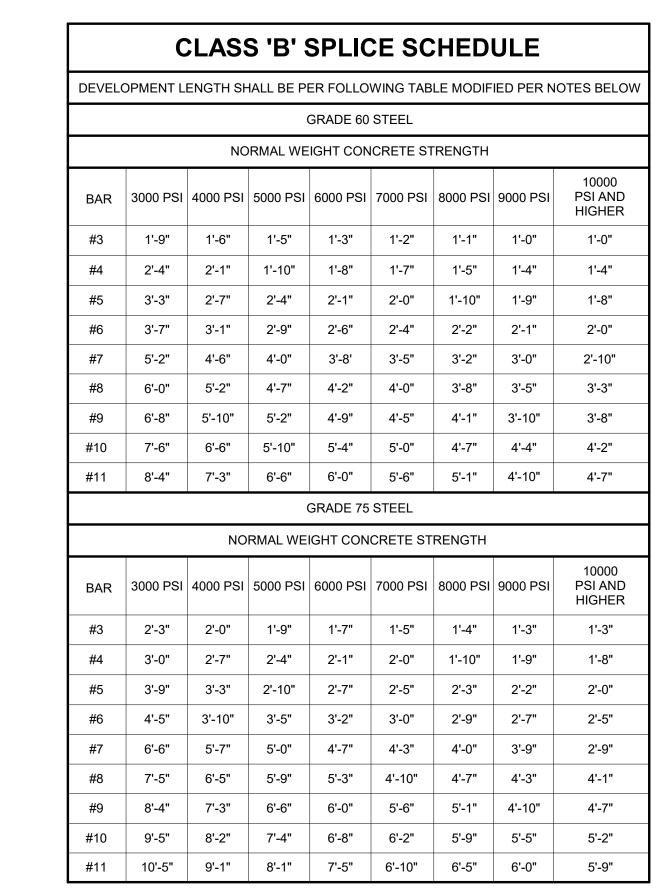
TIE BEAM REINFORCING DETAIL

3/4" = 1'-0"



	SCHE	DULE				
D.4.D.0175	REINF HOOK	STIRRUP & TIE HOOKS				
BAR SIZE	L1	L2	L3			
#3	6"	4"	2 1/2"			
#4	8"	4 1/2"	3"			
#5	10"	-	-			
#6	1'-0"	-	-			
#7	1'-2"	-	-			
#8	1'-4"	-	-			
#9	1'-7"	-	-			
#10	1'-10"	-	-			
#11	2'-0"	-	-			

# 3 STD HOOK LENGTHS S201 1" = 1'-0"

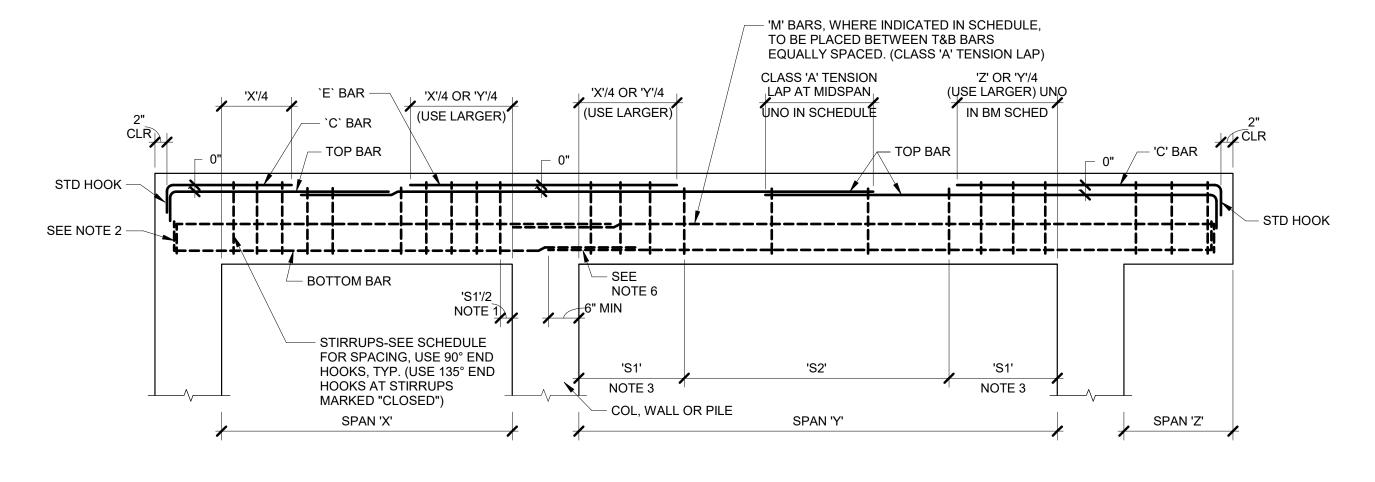


1. FOR CLEAR SPACING BETWEEN BARS <db AND/OR CLEAR COVER <db, MULTIPLY BY 1.5. 2. FOR TOP BARS MULTIPLY BY 1.3.

3. FOR EPOXY COATED BARS, IF SPECIFIED OR APPROVED AS AN ALTERMNATE, MULTIPLY

- FOR MMFX BARS, IF SPECIFIED OR USED, USE GRADE 75 KSI VALUES.
   WHERE MORE THAN ONE FACTOR APPLIES, PRODUCT OF ALL APPLICABLE FACTORS
- SHALL BE APPLIED.
- 6. IF DETAILER IS TO USE A DIFFERENT SCHEDULE, HE/SHE MUST SUBMIT A SEALED LETTER INDICATING THAT HIS/HER VALUES CORRESPOND TO CURRENT ACI 318 CODE.



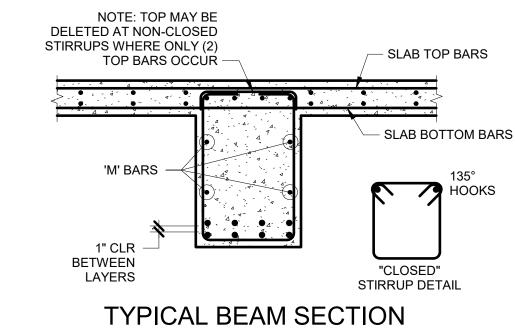


# TYPICAL BENDING DIAGRAM FOR BEAMS & ONE WAY SLABS

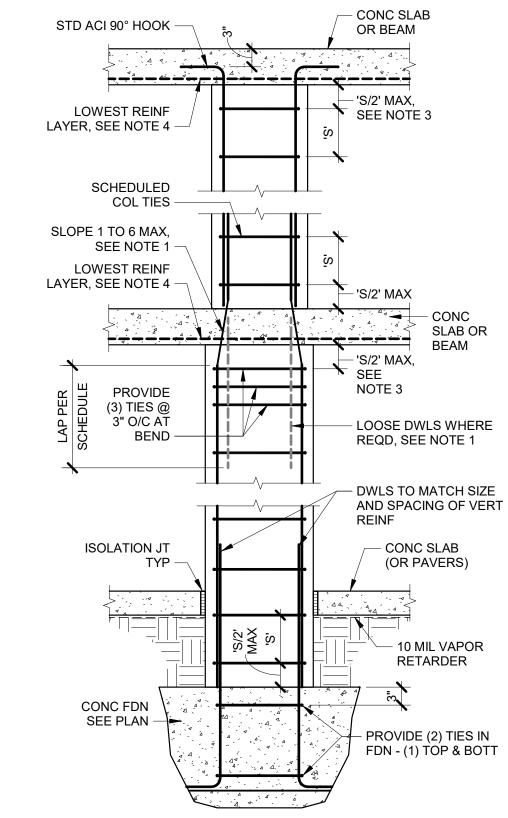
BEAM NOTES:

1. START STIRRUP SPACING @ 'S1'/2 FROM FACE OF SUPPORT.

- 2. EXTEND A MINIMUM OF 1/4 OF THE MAXIMUM BOTTOM REINFORCEMENT (2 BAR MINIMUM) TO DEVELOP FULL TENSION CAPACITY & HOOK AT SUPPORT.
- 3. 'S1' AND 'S2' DENOTE STIRRUP SPACING. S2 IS 18" ON CENTER UNLESS NOTED OTHERWISE
- 4. \* INDICATES STIRRUP SPACING S1 TO BE MAINTAINED THROUGHOUT SPAN.
- 5. FOR ALL BEAMS OVER 24" DEEP, PROVIDE #4@12" HORIZONTAL REINFORCING EACH FACE IN ADDITION TO THE TOP AND BOTTOM REINFORCING, UNO - TYPE 'M' BARS.
- 6. LAP A MINIMUM OF 1/4 OF THE MAXIMUM BOTTOM REINFORCEMENT (2 BAR MINIMUM) AT THE SUPPORT WITH A CLASS "A" TENSION LAP SPLICE OR PROVIDE CONTINUOUS BOTTOM BARS.



# TYPICAL BENDING DIAGRAM FOR BEAMS & ONE WAY SLABS 3/4" = 1'-0"

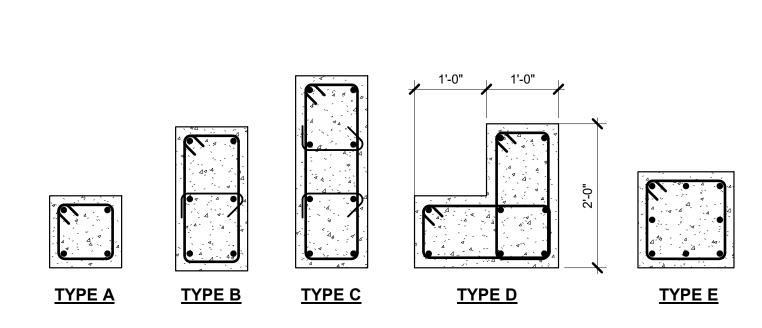


- 1. WHERE COLUMN FACE ABOVE IS OFFSET 3" OR GREATER, VERTICAL BARS SHALL NOT BE OFFSET BENT, LOOSE DOWELS SHALL BE PROVIDED. 2. 'S' DENOTES SCHEDULED COLUMN TIE SPACING, SEE COLUMN SCHEDULE.
- 'S/2' DENOTES 1/2 THE SCHEDULED COLUMN TIE SPACING. 3. WHERE BEAMS FRAME FROM FOUR DIRECTIONS, TERMINATE TIES NO MORE THAN 3" BELOW THE LOWEST HORIZONTAL REINFORCEMENT IN THE SHALLOWEST BEAM.

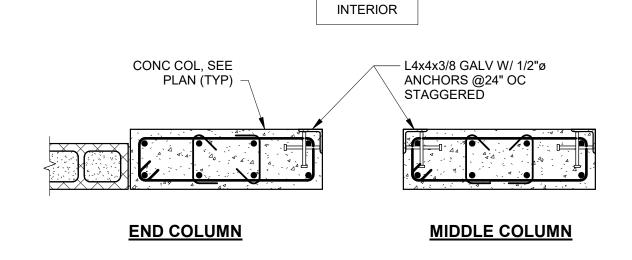
4. ASSUME 1" ABOVE SLAB OFFSET FOR PT CONSTRUCTION WHERE NO

BOTTOM BARS ARE PRESENT.

7 CONCRETE COLUMN OR TIE COLUMN DETAIL







6 APPARATUS REQUIREMENTS AT BAY COLUMNS
3/4" = 1'-0"

POTTOM TOD 'M' (# of Porc EE) 101 'E'												
MARK	SIZE WxD (IN)	BOTTOM REINFORCING	TOP REINFORCING	'M' (# of Bars EF) REINFORCING	'C' REINFORCING	'E' REINFORCING	STIRRUP	COMMENTS				
CB1	12x16	(2) #6	(2) #6	-	-	-	#3@6" OC					
CB3	12x32	(3) #7	(3) #7	-	-	-	#3@12" OC					
CB4	12x34	(3) #7	(3) #7	-	-	-	#3@12" OC	TOP OF BEAM SLOPES W/ SLAB SLOPE, SEE PLAN				
CB5	8x16	(2) #7	(2) #7	-	-	-	#3@6" OC					
CB6	12x16	(2) #7	(2) #7	-	-	-	#3@6" OC					
CB7	8x32	(2) #8	(2) #8	-	-	-	#3@6" OC					
TB1	8x16	(2) #5	(2) #5	-	-	-	#3@24" OC	<varies></varies>				
TB2	8x40	(2) #6	(2) #6	(3) #6	-	-	#3@24" OC					
TB3	12x32	(2) #6	(2) #6	(2) #6	-	-	#3@24" OC					
TB4	12x16	(2) #6	(2) #6	-	-	-	#3@24" OC					
TB5	8x24	(2) #5	(2) #5	(1) #5	-	-	#3@24" OC					
TB6	8x32	(2) #5	(2) #5	(2) #5	-	-	#3@24" OC					
TB7	8x12	(2) #6	(2) #6	-	-	-	#3@6" OC					
TB8	12x30	(2) #6	(2) #6	-	-	-	#3@24" OC					
TB9	8x10	(2) #6	(2) #6	-	-	-	#3@24" OC					
TB10	12x38	(2) #6	(2) #6	-	-	-	#3@24" OC					
TB11	12x12	(2) #6	(2) #6	-	-	-	#3@24" OC					
TB12	12x32	(2) #6	(2) #6	(4) #6	-	-	#3@24" OC					

CONCRETE COLUMN SCHEDULE (CC#)									
MARK	SIZE	VERT REINF	TIES	TYPE	COMMENTS				
CC1	12x32	(8) #8	#3@12" OC	С					
CC2	12x24	(6) #8	#3@12" OC	В					
CC3	12x36	(8) #8	#3@12" OC	С					
CC4	12x24x24	(8) #8	#3@12" OC	D					
CC5	20x20	(8) #7	#3@12" OC	Α	CONCRETE PEDESTAL				
CC6	16x16	(8) #8	#3@12" OC	E					
CC7	12x12	(4) #7	#3@12" OC	Α					

FOOTING SCHEDULE										
MARK	LENGTH	FTG WIDTH	THICKNESS	BOTTOM REINFORCING LONG WAY	BOTTOM REINFORCING SHORT WAY	TOP REINFORCING LONG WAY	TOP REINFORCING SHORT WAY	COMMENTS		
						-	-			
F3.5	3'-6"	3'-6"	1'-4"	(5) #5	(5) #5	-	-			
F5.0	5'-0"	5'-0"	1'-4"	(6) #6	(6) #6	-	-			
F6.0	6'-0"	6'-0"	1'-4"	(7) #6	(7) #6	-	-			
F8.0	8'-0"	8'-0"	1'-6"	(9) #7	(9) #7	-	-			
F9.0	9'-0"	9'-0"	1'-8"	(10) #8	(10) #8	-	-			
F9.5	9'-6"	9'-6"	1'-8"	(10) #8	(10) #8	-	-			
WF2.0	CONT	2'-0"	1'-4"	(3) #5	#5@8" OC	-	-			
WF3.0	CONT	3'-0"	1'-4"	(4) #5	#5@12" OC	-	-			
WF4.0	CONT	4'-0"	1'-4"	(5) #5	#5@12" OC	-	-			



# SANIBEL FIRE AND RESCUE STATION 172

PROJECT LOCATION: 5171 SANIBEL-CAPTIVA SANIBEL, FLORIDA 33957



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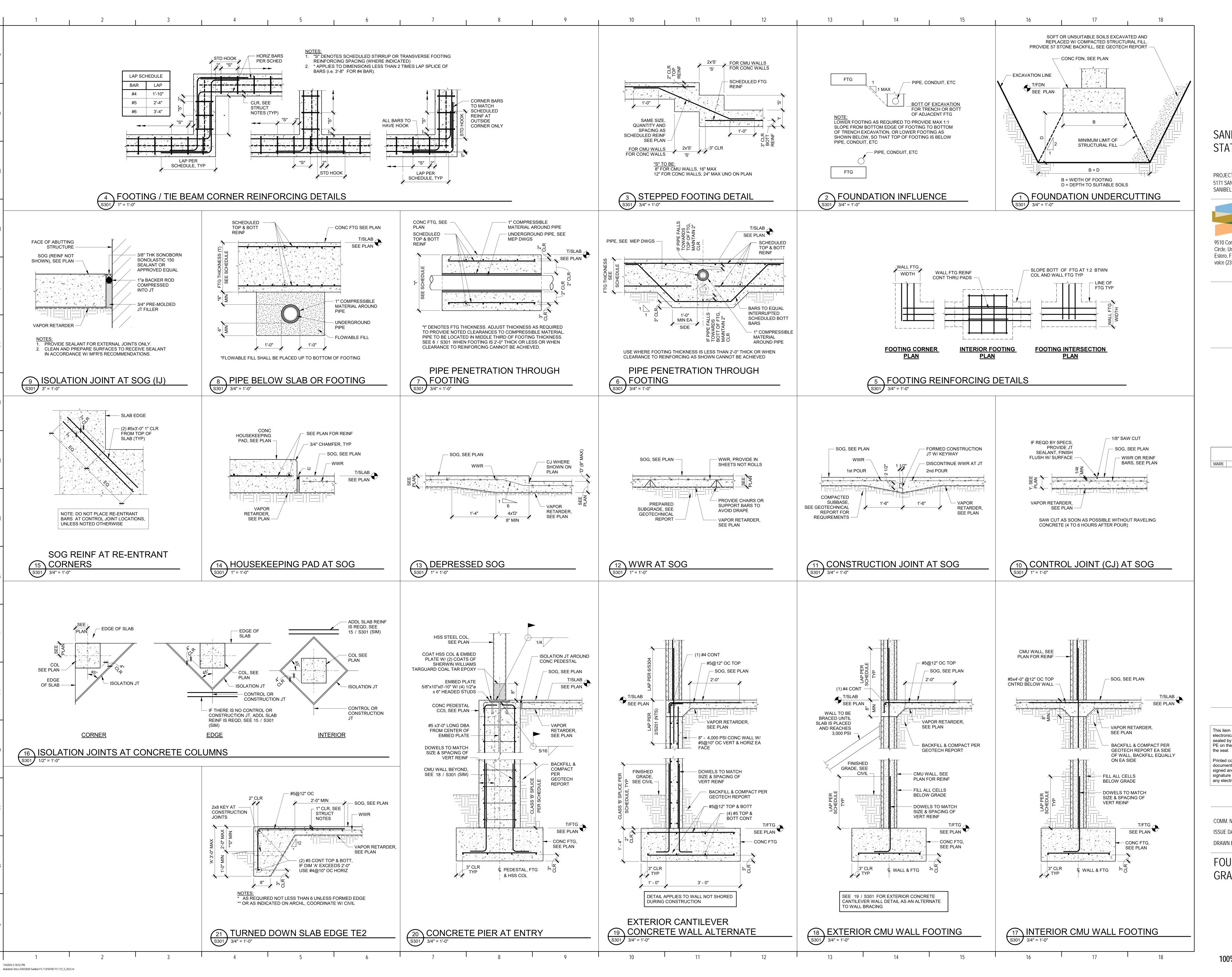
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SCHEDULES & DETAILS

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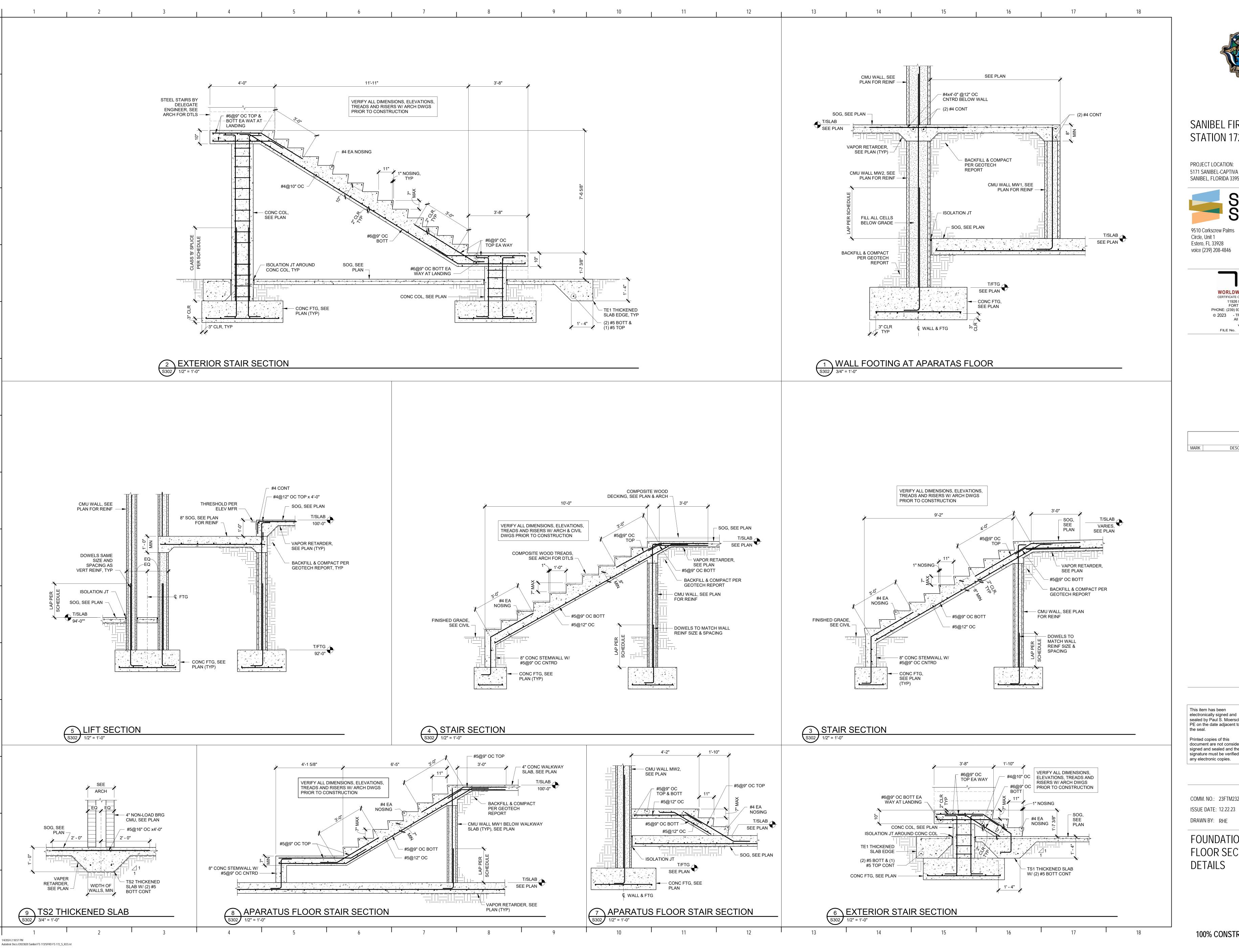
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FOUNDATION & SLAB ON GRADE (SOG) DETAILS





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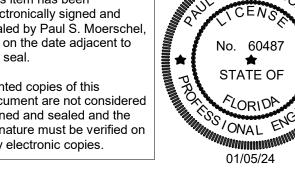
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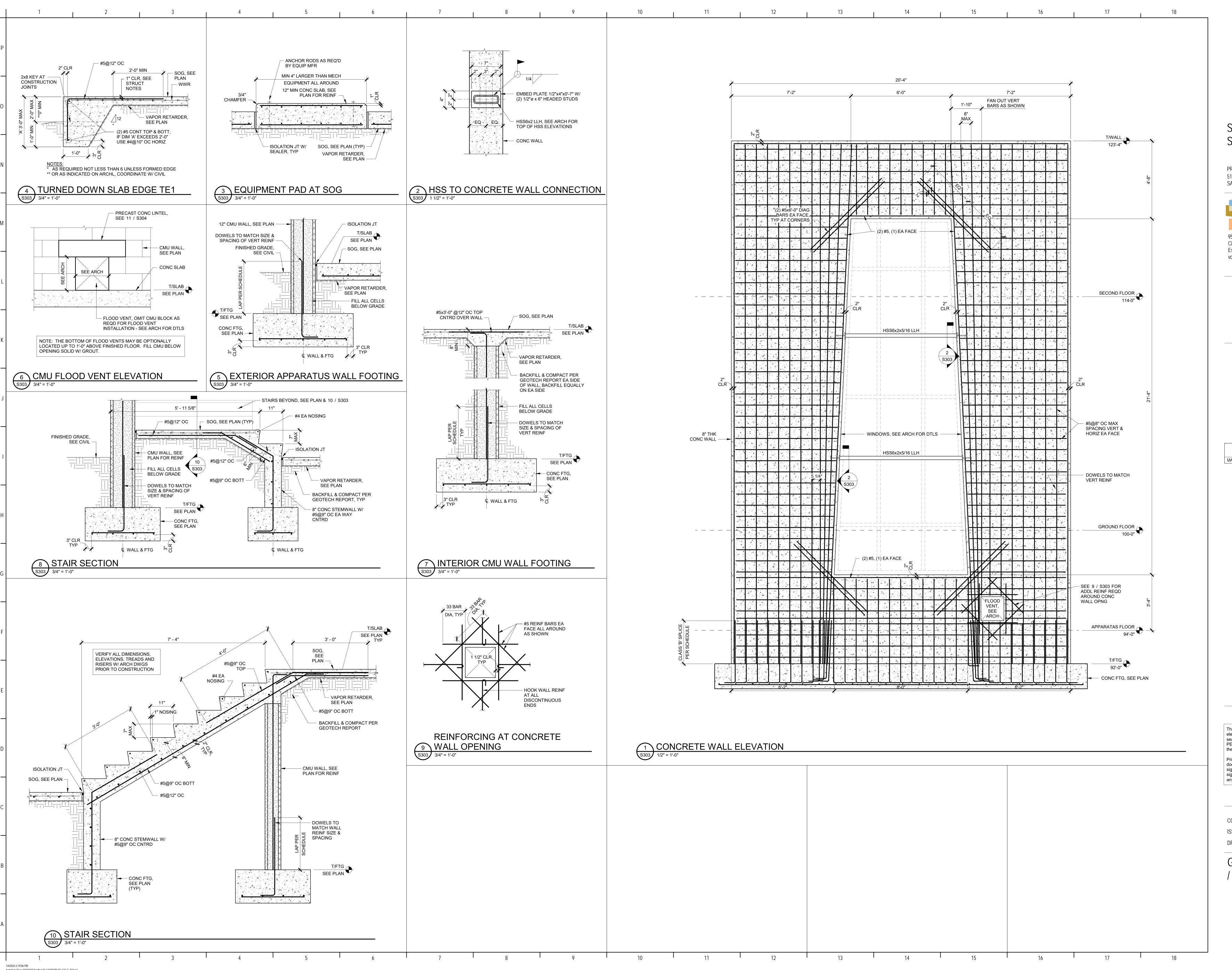


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FOUNDATION / GROUND FLOOR SECTIONS &

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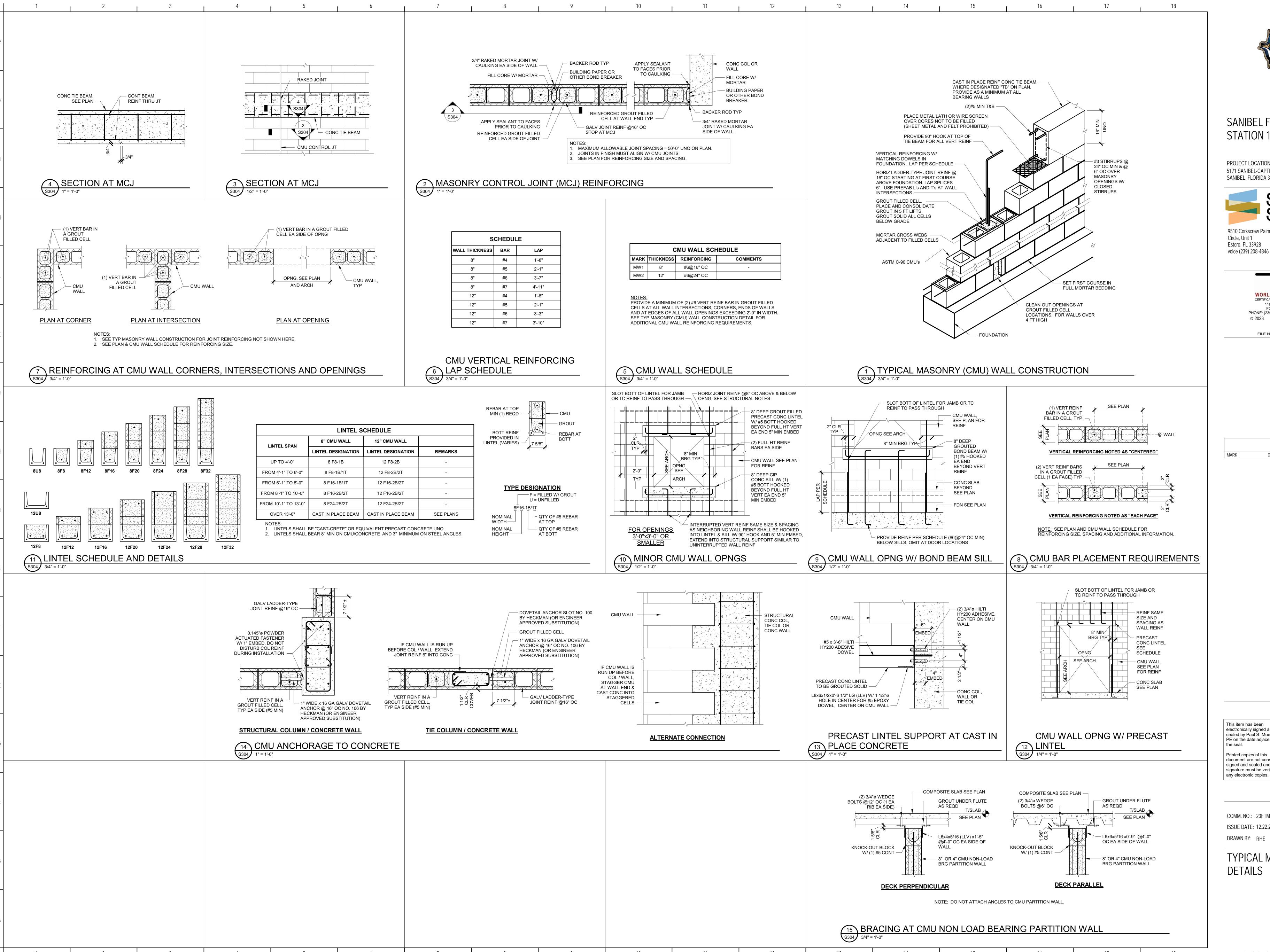
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GROUND FLOOR SECTIONS / CONC WALL ELEVATION

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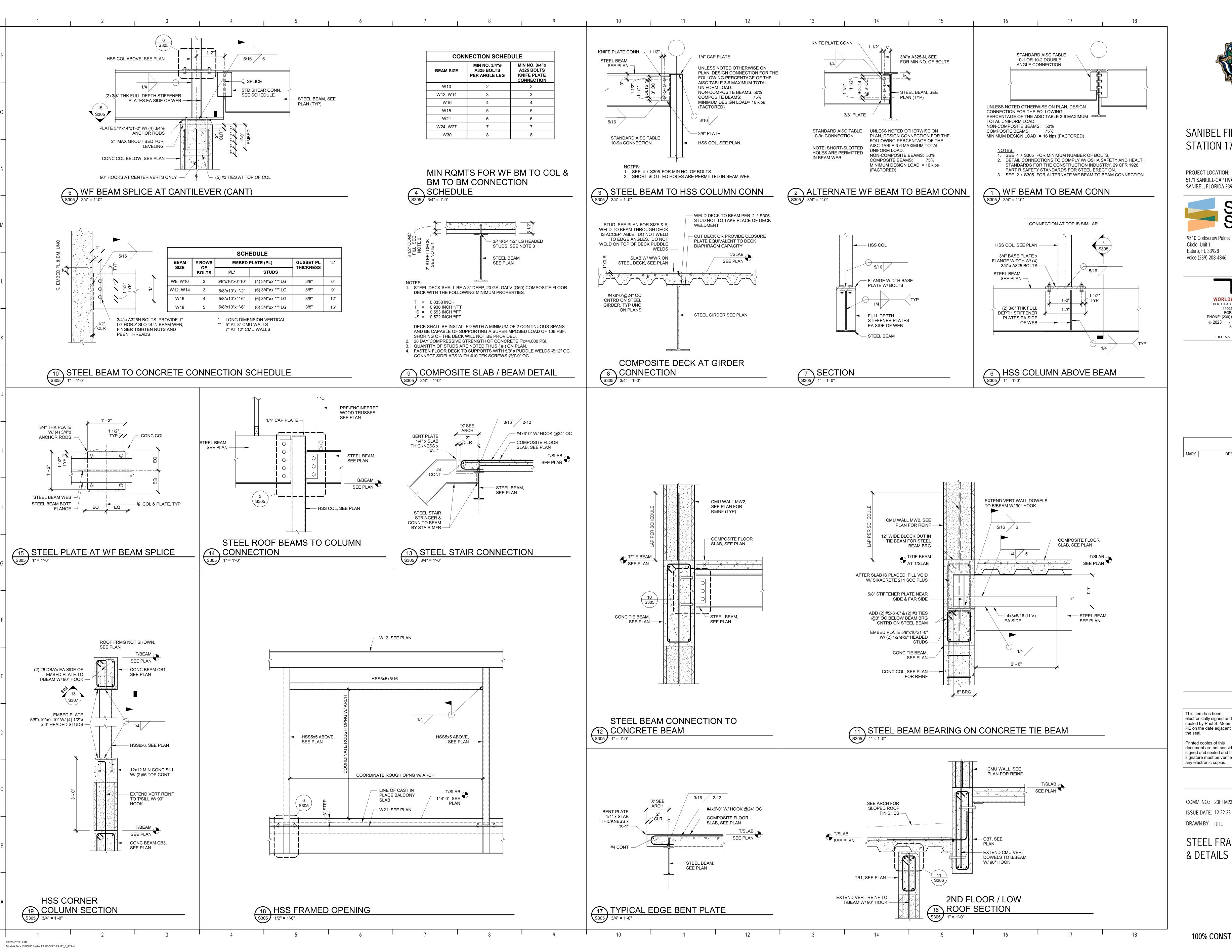
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TYPICAL MASONRY (CMU) DETAILS





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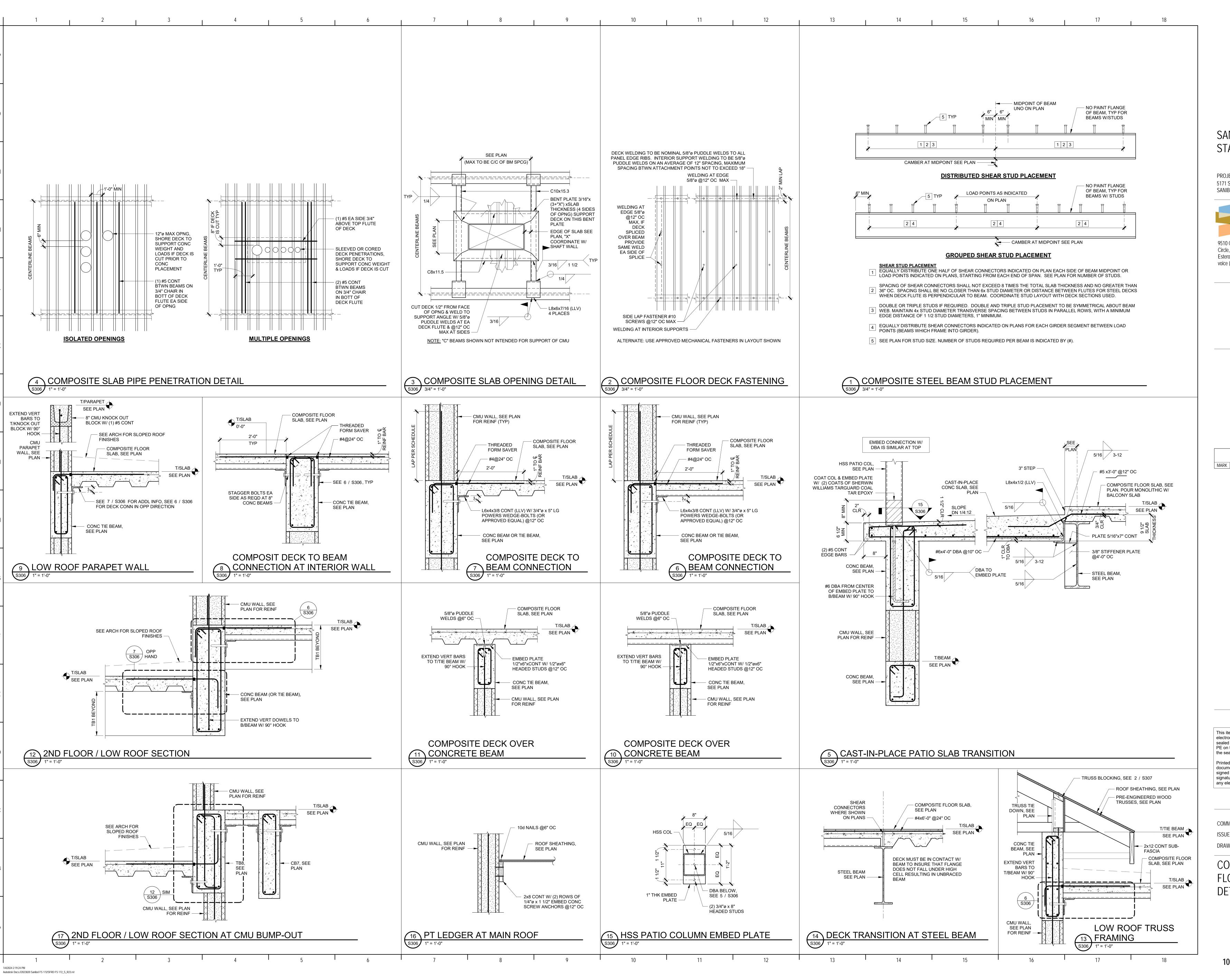
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STEEL FRAMING SECTIONS

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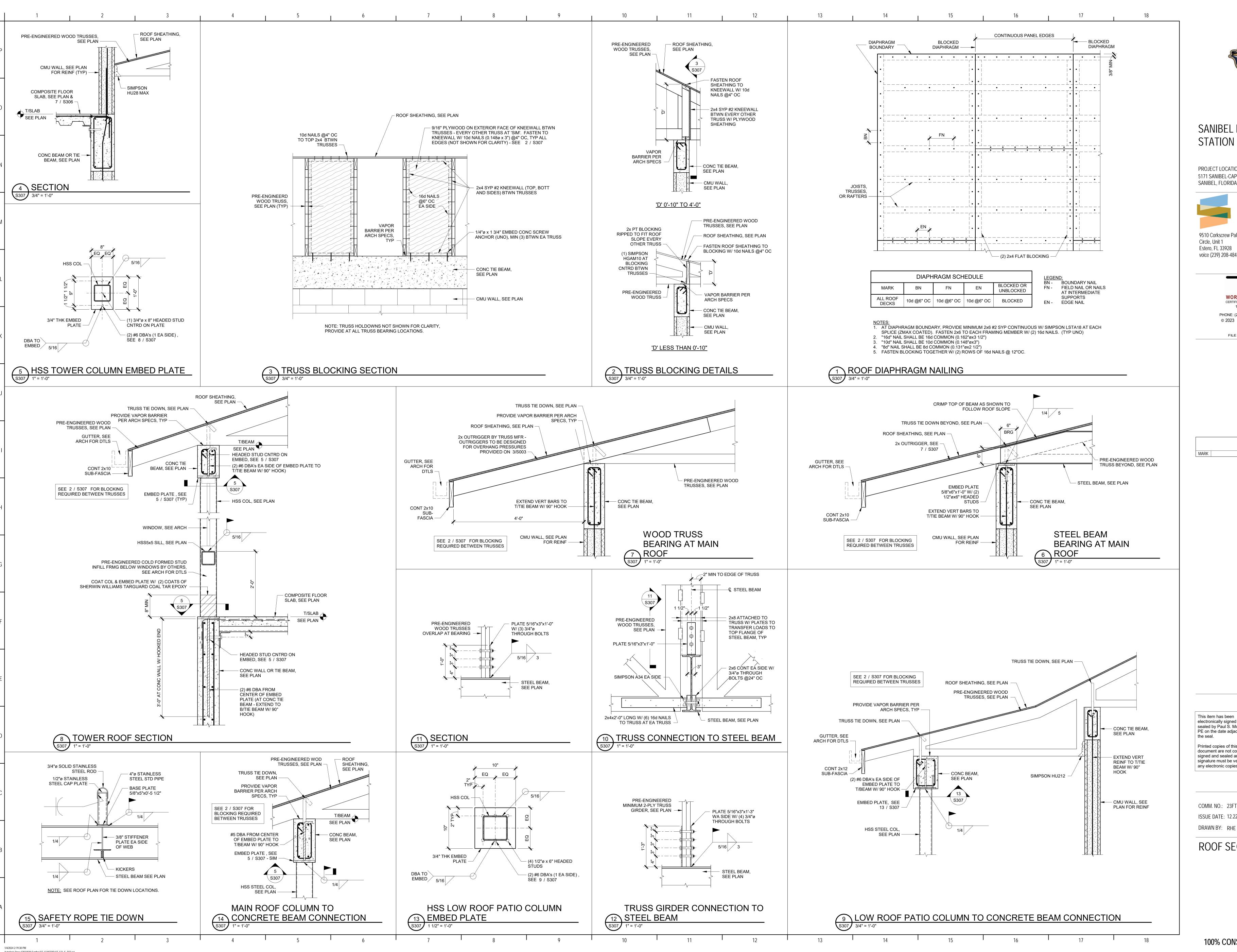
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COMPOSITE & SECOND FLOOR SECTIONS & DETAILS





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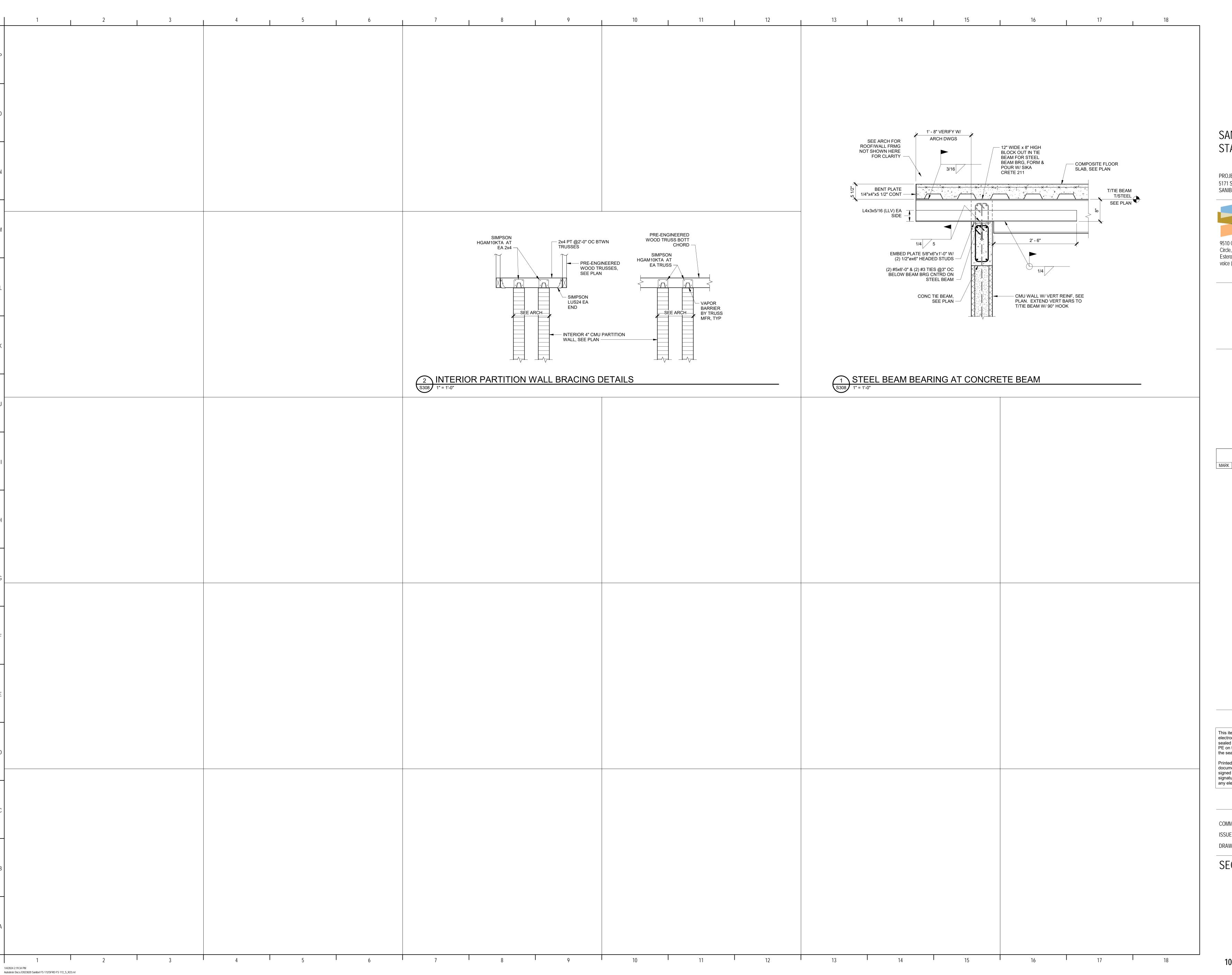
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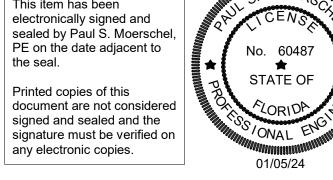
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