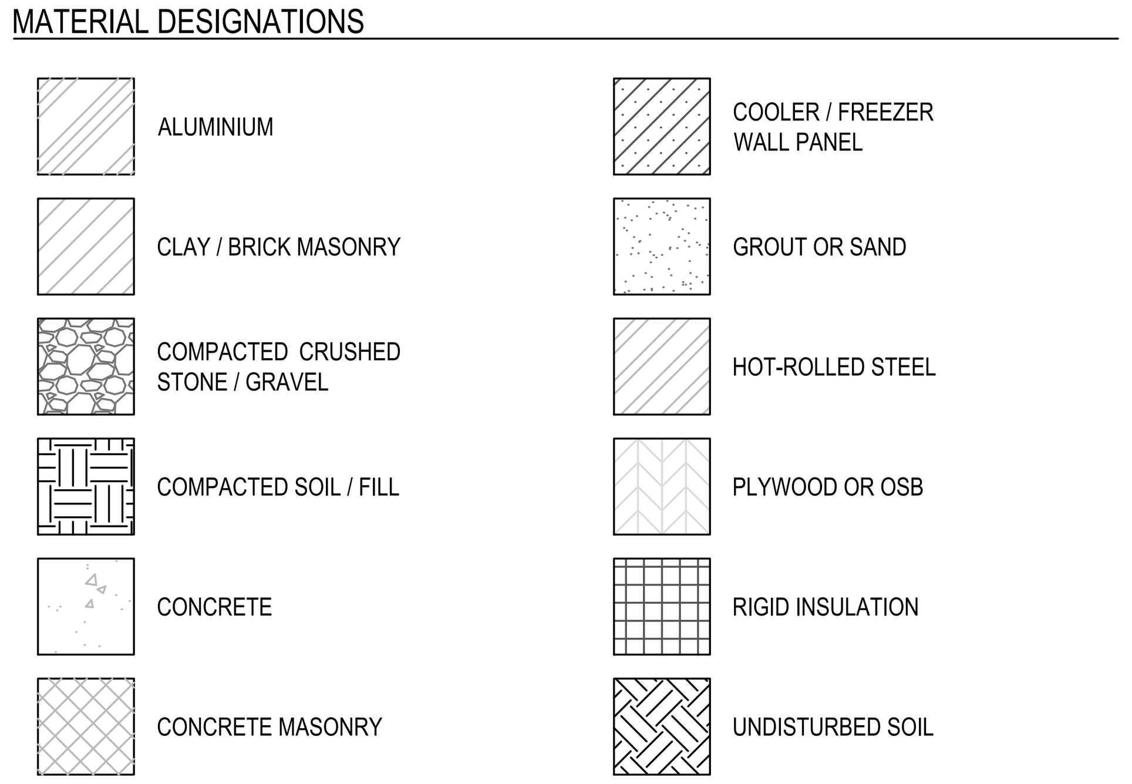
GENERAL ABBREVIATIONS

A/C	AIR CONDITIONING
AASHTO	AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS
AB	ANCHOR BOLT
ACI	AMERICAN CONCRETE INSTITUTE
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AISC	AMERICAN INSTITUTE OF STEEL CONSTRUCTION
AISI	AMERICAN IRON AND STEEL INSTITUTE
ALT	ALTERNATE
ARCH	ARCHITECT OR ARCHITECTURAL
ASCE	AMERICAN SOCIETY OF CIVIL ENGINEERS
ASD	ALLOWABLE STRESS DESIGN
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS
AWC	AMERICAN WOOD COUNCIL
BLDG	BUILDING
BM	BEAM
BO	BOTTOM OF
BOF	BOTTOM OF FOOTING
BOW	BOTTOM OF WALL
CCA	CHROMATED COPPER ARSENATE
CIP	CAST-IN-PLACE
CJ	CONTROL JOINT OR CONSTRUCTION JOINT
CL	CENTER LINE
CLR	CLEAR
CLT	CROSS-LAMINATED TIMBER
CMU	CONCRETE MASONRY UNIT
CO	CLEAN OUT
COL	COLUMN
CONC	CONCRETE
CONT	CONTINUOUS
CRSI	CONCRETE REINFORCING STEEL INSTITUTE
CT	CERAMIC TILE
CY	CUBIC YARD
D	NAIL (PENNY) SIZE OR DIAMETER
DBL	DOUBLE
DEPT	DEPARTMENT
DF	DOUGLAS FIR-LARCH
DIA	DIAMETER
DL	DEAD LOAD
DR	DOOR
DS	DOWNSPOUT
DWG	DRAWING
EA	EACH
EJ	EXPANSION JOINT
EL	ELEVATION
ELEC	ELECTRICAL
ELEV	ELEVATION
EOR	ENGINEER OF RECORD
EQ	EQUAL
EW	EACH WAY
EXIST	EXISTING
FA	FIRE ALARM
FD	FLOOR DRAIN
FE	FIRE EXTINGUISHER
FFE	FINISHED FLOOR ELEVATION
FIN	FINISH
FLR	FLOOR
FN	FIELD NAILING
FND	FOUNDATION
FS	FAR SIDE
FTG	FOOTING
GA	GAUGE
GAC	GALVANIZED AIRCRAFT CABLE
GALV	GALVANIZED
GLULAM	GLUED LAMINATED TIMBER
GR	GRADE
GYP	GYPSUM
HDG	HOT DIPPED GALVANIZED
HR	HOUR
HT	HEIGHT
HVAC	HEATING, VENTILATING AND AIR CONDITIONING
IBC	INTERNATIONAL BUILDING CODE
ICC	INTERNATIONAL CODE COUNCIL
ID	INSIDE DIAMETER
IEEE	INTERNATIONAL ELECTRICAL
IN	INCH
IN-SITU	LOCALLY ON SITE OR IN PLACE
INT	INTERIOR
INV	INVERT
JNT	JOINT
JST	JOIST
KSF	KIPS PER FOOT
L	LENGTH OR SPAN
LAM	LAMINATE
LAV	LAVATORY
LB(S)	POUND(S)
LL	LIVE LOAD
LLH	LONG LEG HORIZONTAL
LLR	ROOF LIVE LOAD
LLV	LONG LEG VERTICAL

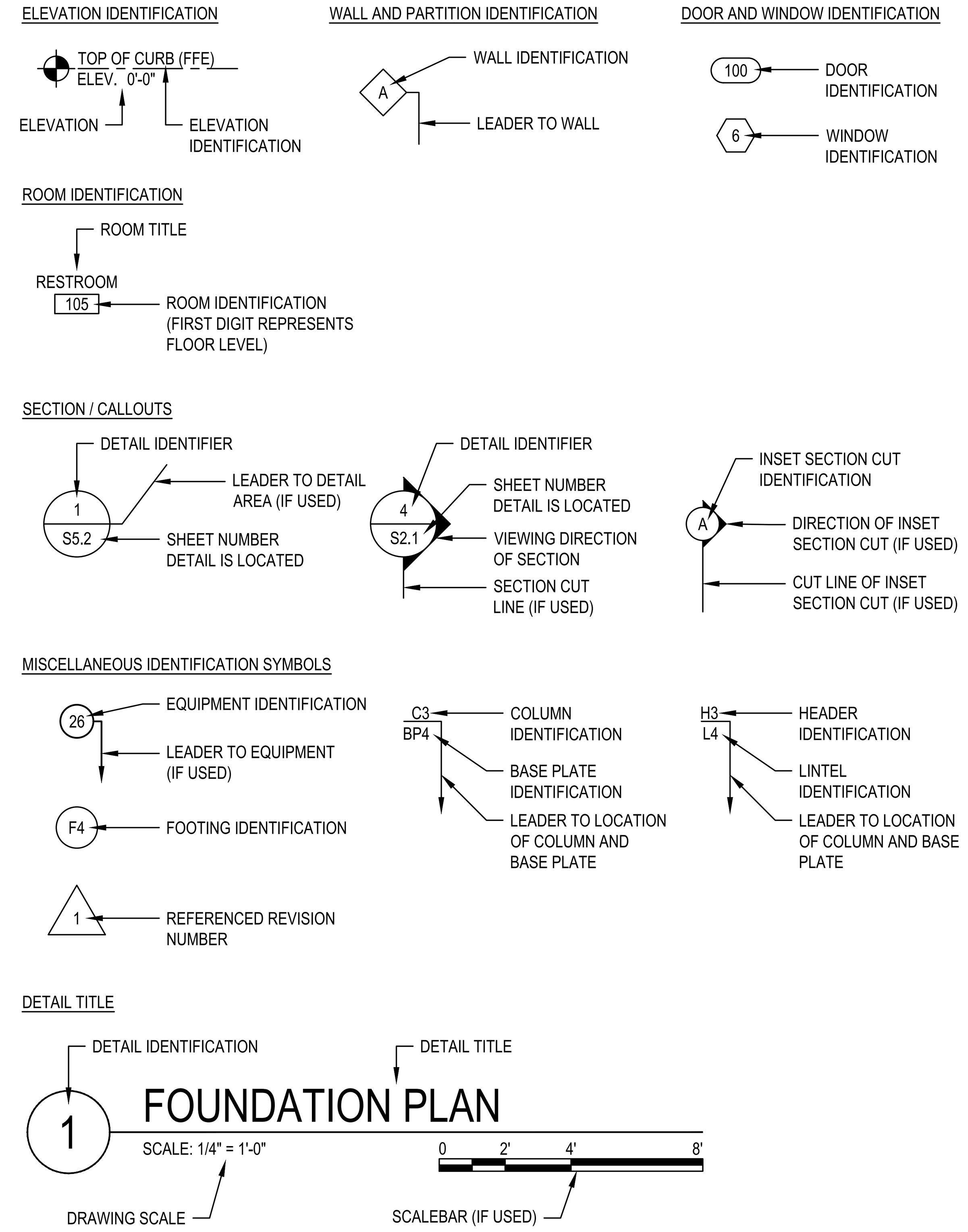
LRFD	LOAD AND RESISTANCE FACTOR DESIGN
LVL	LAMINATED VENEER LUMBER
MAX	MAXIMUM
MECH	MECHANICAL
MEZZ	MEZZANINE
MFR	MANUFACTURE OR MANUFACTURER
MIN	MINIMUM
MISC	MISCELLANEOUS
MPH	MILES PER HOUR
MTL	METAL
MUL	MULLION
N/A	NOT APPLICABLE
NCMA	NATIONAL CONCRETE MASONRY ASSOCIATION
NDS	NATIONAL DESIGN STANDARD
NO	NUMBER
NOM	NOMINAL
NS	NEAR SIDE
NTS	NOT TO SCALE
OC	ON-CENTER
OD	OUTSIDE DIAMETER
OH	OVER HEAD
OHD	OVER HEAD DOOR
OSB	ORIENTED STRAND BOARD
PAF	POWER-ACTUATED FASTENER
PL	PROPERTY LINE
PL(T)	PLATE
PLF	POUNDS PER LINEAR FOOT
PLUM	PLUMBING
PLYWD	PLYWOOD
PROJ	PROJECT
PROP	PROPERTY
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PT	PRESSURE PRESERVATIVE TREATED
QT	QUARRY TILE
QTY	QUANTITY
R(AD)	RADIUS
RD	ROOF DRAIN
REF	REFERENCE
REINF	REINFORCED OR REINFORCEMENT
REQD	REQUIRED
REV	REVISION OR REVISED
RM	ROOM
RO	ROUGH OPENING
ROW	RIGHT OF WAY
SCH	SCHEDULE
SEC	SECOND(S)
SECT	SECTION
SF	SQUARE FOOT
SHT	SHEET
SL	SNOW LOAD
SP	SOUTHERN PINE
SPEC	SPECIFICATION
SPF	SPRUCE-PINE-FIR (SOUTH)
SPT	STANDARD PENETRATION TEST
SQ	SQUARE
SS	STAINLESS STEEL
SST	SIMPSON STRONG-TIE
STD	STANDARD
STL	STEEL
STR	STRUCTURE OR STRUCTURAL
T&G	TONGUE AND GROOVE
THRU	THROUGH
TMS	THE MASONRY SOCIETY
TO	TOP OF
TOB	TOP OF BEAM
TOC	TOP OF CONCRETE
TOS	TOP OF STEEL
TOW	TOP OF WALL
TYP	TYPICAL
UNO	UNLESS NOTED OTHERWISE
VB	VAPOR BARRIER
VIF	VERIFY IN FIELD
W/	WITH
W/D	WASHER AND DRYER
W/O	WITHOUT
WC	WATER CLOSET
WD	WOOD
WH	WATER HEATER
WL	WIND LOAD
WP	WORK POINT
WT	WEIGHT
YD	YARD
#	NUMBER
%	PERCENT(AGE)
&	AND
@	AT
'	FEET OR MINUTE
"	INCH OR SECONDS
°	ANGLE OR DEGREES
±	PLUS OR MINUS
Ø	DIAMETER
Θ	ANGLE
℄	CENTERLINE

NOTE:
LETTERS FOUND IN PARENTHESIS ( ) BEFORE OR AFTER THE ABBREVIATION MAY BE ADDED TO THE ORIGINAL ABBREVIATION ON THE ACTUAL PLANS.

MATERIAL DESIGNATIONS



IDENTIFICATION AND SYMBOLS LEGEND



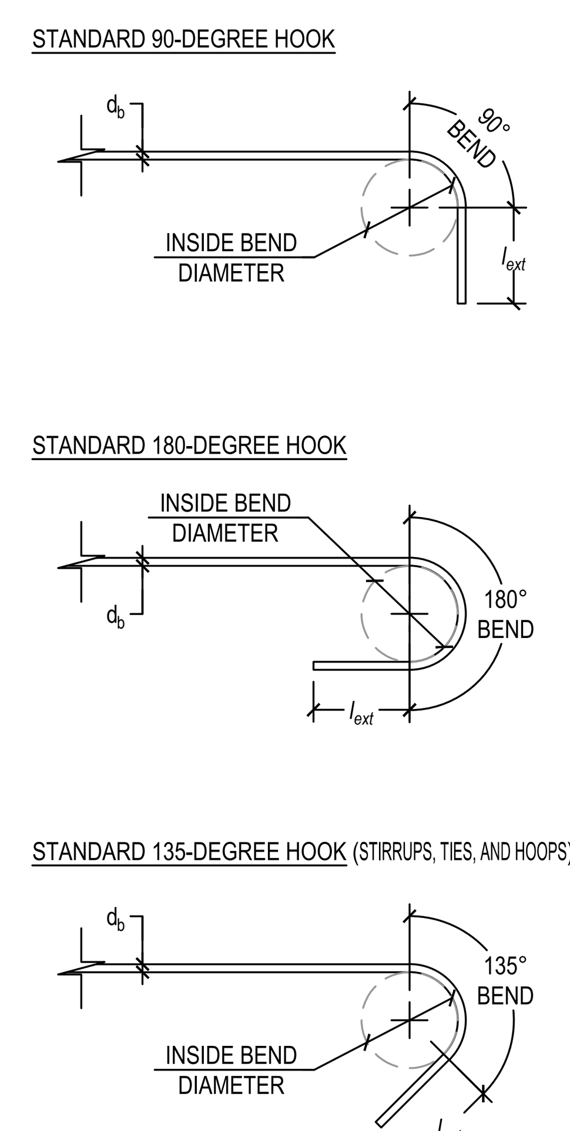
CONCRETE REINFORCEMENT HOOK GEOMETRY REQUIREMENTS

STANDARD ACI HOOK GEOMETRY			
TYPE OF HOOK	BAR SIZE	MINIMUM INSIDE BEND DIAMETER	STRAIGHT EXTENSION, l_{ext}
90° HOOK	NO. 3 THROUGH NO. 8	6 x d_b	12 x d_b
	NO. 9 THROUGH NO. 11	8 x d_b	
	NO. 14 THROUGH NO. 18	10 x d_b	
180° HOOK	NO. 3 THROUGH NO. 8	6 x d_b	GREATER OF 4 x d_b AND 2.5-INCH
	NO. 9 THROUGH NO. 11	8 x d_b	
	NO. 14 THROUGH NO. 18	10 x d_b	

NOTES:
1. DIAMETER OF MINIMUM BEND IS MEASURED FROM THE INSIDE FACE OF THE BAR.
2. STANDARD HOOK GEOMETRY FOR BARS USED AS STIRRUPS, TIES, AND HOOPS SHALL UTILIZE TABLE BELOW.

STANDARD ACI HOOK GEOMETRY FOR STIRRUPS, TIES, AND HOOPS			
TYPE OF HOOK	BAR SIZE	MINIMUM INSIDE BEND DIAMETER	STRAIGHT EXTENSION, l_{ext}
90° HOOK	NO. 3 THROUGH NO. 5	4 x d_b	12 x d_b
	NO. 6 THROUGH NO. 8	6 x d_b	
135° HOOK	NO. 3 THROUGH NO. 5	4 x d_b	GREATER OF 6 x d_b AND 3.0-INCH
	NO. 6 THROUGH NO. 8	6 x d_b	
180° HOOK	NO. 3 THROUGH NO. 5	4 x d_b	GREATER OF 4 x d_b AND 2.5-INCH
	NO. 6 THROUGH NO. 8	6 x d_b	

NOTES:
1. DIAMETER OF MINIMUM BEND IS MEASURED FROM THE INSIDE FACE OF THE BAR.

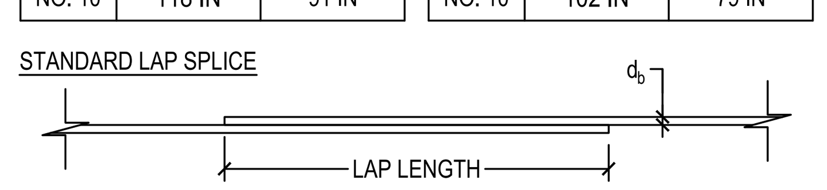


CONCRETE REINFORCEMENT LAP REQUIREMENTS

CONCRETE REINFORCEMENT LAP SCHEDULE (f_c' = 3,000 PSI)		
BAR SIZE	LAP LENGTH	
	TOP REINF.	OTHER
NO. 3	28 IN	22 IN
NO. 4	37 IN	29 IN
NO. 5	47 IN	36 IN
NO. 6	56 IN	43 IN
NO. 7	81 IN	63 IN
NO. 8	93 IN	72 IN
NO. 9	105 IN	81 IN
NO. 10	118 IN	91 IN

CONCRETE REINFORCEMENT LAP SCHEDULE (f_c' = 4,000 PSI)		
BAR SIZE	LAP LENGTH	
	TOP REINF.	OTHER
NO. 3	24 IN	19 IN
NO. 4	32 IN	25 IN
NO. 5	40 IN	31 IN
NO. 6	48 IN	37 IN
NO. 7	70 IN	54 IN
NO. 8	80 IN	62 IN
NO. 9	91 IN	70 IN
NO. 10	102 IN	79 IN

STANDARD LAP SPLICE



NOTES:
1. TABULATED VALUES ARE BASED ON GRADE 60 REINFORCING BARS.
2. TABULATED VALUES ARE BASED ON CLASS B LAP SPLICES. CLASS A LAP SPLICES SHALL NOT BE USE WITHOUT WRITTEN APPROVAL FROM ENGINEER OF RECORD.
3. TOP REINFORCEMENT VALUES ARE FOR HORIZONTAL BARS WITH MORE THAN 12-INCHES OF FRESH CONCRETE CAST BELOW THE BAR.
4. LAP SPLICES FOR EPOXY-COATED BARS SHALL UTILIZE THE TABULATED LAP SPLICE LENGTH TIMES A FACTOR OF 1.50 (I.E., 1.50 X LAP LENGTH).
5. LAP SPLICES FOR GRADE 75 REINFORCING BARS SHALL UTILIZE THE TABULATED LAP SPLICE LENGTH TIMES A FACTOR OF 1.25 (I.E., 1.25 X LAP LENGTH).
6. WHERE SPLICED REINFORCING BARS VARY IN SIZE, THE SPLICE LENGTH OF THE LARGER REINFORCING BAR SHALL CONTROL.
7. LAPPED BARS SHALL BE FASTENED TOGETHER USING WIRE TIES.

STRUCTURAL NOTES

A. GENERAL NOTES
1. ALL WORK SHALL CONFORM TO THE INTERNATIONAL BUILDING CODE, LATEST REVISION OR AS SPECIFIED IN THE DESIGN REFERENCES, AS WELL AS ALL LOCAL AND FEDERAL REQUIREMENTS.
2. STRUCTURAL DRAWINGS ARE INTENDED TO BE USED WITH THE RELEVANT CIVIL, ARCHITECTURAL, PRE-ENGINEERED METAL BUILDING, PLUMBING, MECHANICAL, AND ELECTRICAL DRAWINGS. CONTRACTOR IS RESPONSIBLE FOR COORDINATING SUCH REQUIREMENTS INTO THEIR SHOP DRAWINGS.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR REVIEWING THE DIMENSIONAL REQUIREMENTS OF THE STRUCTURAL DRAWINGS AND ADVISING THE ENGINEER OF RECORD OF ANY DISCREPANCIES BETWEEN THE RELEVANT CIVIL, ARCHITECTURAL, PRE-ENGINEERED METAL BUILDING, PLUMBING, MECHANICAL, AND ELECTRICAL DRAWINGS PRIOR TO COMMENCING CONSTRUCTION.
4. NO CHANGE IN SIZE, MATERIAL, OR PLACEMENT OF ANY STRUCTURAL MEMBER OR FOUNDATION ELEMENT SHALL BE MADE WITHOUT WRITTEN APPROVAL FROM THE ENGINEER OF RECORD.
5. STRUCTURAL MEMBERS SHALL NOT BE NOTCHED, CUT, OR OTHERWISE REDUCED IN STRENGTH WITH WRITTEN APPROVAL FROM THE ENGINEER.
6. THE CONTRACTOR IS RESPONSIBLE FOR LIMITING THE AMOUNT OF CONSTRUCTION LOAD IMPOSED ON THE STRUCTURE. CONSTRUCTION LOADS SHALL NOT EXCEED THE DESIGN CAPACITY OF THE STRUCTURE AT THE TIME THE LOADS ARE IMPOSED.
7. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONAL REQUIREMENTS PRIOR TO INSTALLATION.
8. CONTRACTOR SHALL VERIFY ALL EXISTING FIELD CONDITIONS PRIOR TO INITIATING ANY NEW CONSTRUCTION WORK.
9. THE CONTRACTOR SHALL BE RESPONSIBLE TO INFORM THE ENGINEER OF ANY DIMENSIONAL DISCREPANCIES BETWEEN FIELD CONDITIONS AND STRUCTURAL DRAWINGS PRIOR TO CONSTRUCTION.
10. THESE STRUCTURAL DRAWINGS DO NOT CONTAIN THE NECESSARY REQUIREMENTS FOR SAFETY DURING CONSTRUCTION. BRACE ALL STRUCTURAL COMPONENTS DURING CONSTRUCTION TO PREVENT DAMAGE FROM WIND AND WATER AND FROM CONSTRUCTION LOADS UNTIL ALL SUPPORTING STRUCTURES ARE IN PLACE.
11. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO INFORM THE ENGINEER OF ANY UNSAFE ITEMS OR CODE VIOLATIONS (FEDERAL, STATE, AND LOCAL) BEFORE COMMENCING CONSTRUCTION.
12. ENGINEER IS NOT RESPONSIBLE FOR THE CONTRACTOR'S MEANS, METHODS, TECHNIQUES, SEQUENCES, OR PROCEDURES OF CONSTRUCTION. SUPERVISION OF ALL WORK IS THE RESPONSIBILITY OF THE CONTRACTOR.
13. DO NOT SCALE THESE DRAWINGS; USE DIMENSIONS PROVIDED.

B. FOUNDATIONS
1. MAXIMUM ALLOWABLE SOIL PRESSURE SHALL BE 2,000 PSF (PRESUMPTIVE). ALLOWABLE BEARING PRESSURE SHALL BE VERIFIED BY A QUALIFIED GEOTECHNICAL ENGINEER BEFORE FOUNDATION ELEMENTS ARE INSTALLED.
2. CONCRETE SLAB DESIGN IS BASED ON A MODULUS OF SUBGRADE REACTION OF 100 POUNDS PER CUBIC INCH (PCI). SUBGRADE MODULUS REACTION VALUE SHALL BE VERIFIED BY A QUALIFIED GEOTECHNICAL ENGINEER BEFORE FOUNDATION ELEMENTS ARE INSTALLED.
3. FOOTINGS SHALL BE PLACED THE SAME DAY THAT EXCAVATION IS PERFORMED. IF THIS IS NOT FEASIBLE, FOOTINGS SHALL BE ADEQUATELY PROTECTED AGAINST DETRIMENTAL CHANGES IN SUPPORTING SOIL CONDITIONS INCLUDING, BUT NOT LIMITED TO, CONSTRUCTION EQUIPMENT DISTURBANCES, RAIN, OR FREEZING.
4. ALL FILL SHALL BE SELECT MATERIAL FREE FROM ROOTS, TRASH, WOOD SCRAPS, OR OTHER EXTRANEOUS MATERIALS. PLACE FILL IN LIFTS NOT EXCEEDING 8-INCHES AND MECHANICALLY COMPACT EACH EXCEEDING LIFT TO 95% DENSITY AT OPTIMUM MOISTURE CONTENT AS MEASURED BY ASTM D698, LATEST EDITION.
5. FILL WHICH WILL BE STRESSED BY FOUNDATION LOADS SHALL BE APPROVED GRANULAR MATERIAL COMPACTED TO A DRY DENSITY OF 98% AS MEASURED BY ASTM D698, LATEST EDITION.
6. LARGE AREAS OF FILL SHALL REQUIRE FIELD DENSITY TESTS TO BE PERFORMED FOR EVERY 3000 SQUARE FEET OF BUILDING AREA, AND FOR EACH LIFT TO ENSURE PROPER COMPACTION IS BEING ACHIEVED.
7. ALL FOUNDATION ELEMENTS SHALL HAVE A MINIMUM EMBEDMENT OF 12 INCHES BELOW GRADE PER LOCAL JURISDICTION.
8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING AND PROTECTING ALL EXISTING UNDERGROUND UTILITIES BEFORE PROCEEDING WITH EXCAVATION.
9. ANY CHANGES BY THE CONTRACTOR WHICH MAY AFFECT THE LOCATION OR REACTIONS OF A FOUNDATION ELEMENT SHALL BE BROUGHT TO THE ENGINEER'S ATTENTION IMMEDIATELY FOR REVIEW AND POSSIBLE REDESIGN.
10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL LAYOUT OF THE FOUNDATIONS AND SHALL COORDINATE THE LOCATIONS OF ALL THE FOOTINGS, ANCHOR BOLTS, AND OTHER EMBEDDED ITEMS WITH THE STRUCTURAL DRAWINGS.

C. CONCRETE
1. CONCRETE WORK SHALL CONFORM TO ACI 318, BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE, AND ACI 301, SPECIFICATIONS FOR STRUCTURAL CONCRETE, LATEST EDITIONS, INCLUDING ALL SUPPLEMENTS AND ADDENDUMS.
2. CONCRETE INSTALLED IN HOT WEATHER CONDITIONS SHALL CONFORM TO ACI 305R, GUIDE TO HOT WEATHER CONCRETING, LATEST EDITION.
3. CONCRETE INSTALLED IN COLD WEATHER CONDITIONS SHALL CONFORM TO ACI 306R, GUIDE TO COLD WEATHER CONCRETING, LATEST EDITION.
4. FORMWORK FOR CONCRETE SHALL CONFORM TO ACI 347R, GUIDE TO FORMWORK FOR CONCRETE, LATEST EDITION.
5. CONCRETE EXPOSED TO WEATHER SHALL BE AIR-ENTRAINED.
6. FOOTINGS
   - A) CONCRETE FOR FOOTINGS SHALL REACH A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI AT 28 DAYS, NORMAL WEIGHT.
   - B) FOOTINGS HAVE BEEN DESIGNED INDEPENDENT OF EXISTING FLOOR CONDITIONS OR EXISTING ADJACENT FOUNDATION ELEMENTS, UNLESS NOTED OTHERWISE.
7. SLAB-ON-GROUND
   - A) CONCRETE FOR SLABS SHALL REACH A MINIMUM COMPRESSIVE STRENGTH OF 4,000 PSI AT 28 DAYS, NORMAL WEIGHT.
   - B) ENGINEER SHALL NOT BE RESPONSIBLE FOR ANY EXISTING SLAB OR OTHER FLOOR MATERIALS.
   - C) SLABS-ON-GROUND HAVE BEEN DESIGNED BASED ON ACI 360R-10, GUIDE TO DESIGN OF SLABS-ON-GROUND.
   - D) SLAB-ON-GROUND CONCRETE THICKNESS AND REINFORCEMENT SHALL BE AS SHOWN ON PLAN INSTALLED OVER A 6 MIL., CLASS 1, NON-PERMEABLE VAPOR BARRIER OVER 4-INCH #57 STONE BASE, UNLESS NOTED OTHERWISE. VAPOR BARRIER MAY BE OMITTED AT THE DISCRETION OF THE CONTRACTOR AND OWNER IF SLAB IS FULLY EXPOSED TO THE WEATHER.
   - E) PROVIDE CONSTRUCTION OR CONTROL JOINTS IN SLAB-ON-GROUND AT OFFSETS, COLUMN GRIDS, CHANGES IN DIRECTION, AND AT 20-FEET MAXIMUM, OR AS SHOWN ON PLANS.
   - F) SAW CUT JOINTS SOON AFTER CONCRETE HAS HARDENED JUST ENOUGH TO PREVENT RAVELING OUT OF THE AGGREGATE AND DAMAGE TO EDGE, BUT NOT LATER THAN 24-HOURS AFTER THE CONCRETE WAS PLACED. SAW CUTTING MAY BE DELAYED AS NECESSARY AT CONSTRUCTION JOINTS WHERE BOND IS BROKEN BETWEEN TWO POURS.
   - G) AFTER SAW CUTTING, CLEAN ALL CONTAMINANTS IN THE JOINTS WITH A MINIMUM 1,000 PSI PRESSURE WATER BLASTER.
   - H) JOINT SEALANT TO BE SUITABLE FOR OCCUPANCY LOADING. SEALANT TO BE INSTALLED IN ACCORDANCE TO MANUFACTURER'S RECOMMENDATIONS.
   - I) SLABS-ON-GROUND SHALL HAVE A PLANAR HARD CLOSED SMOOTH SURFACE WITH A MAXIMUM GAP OF 1/8-INCH UNDER A 10-FEET STRAIGHT EDGE, UNLESS NOTED OTHERWISE.
8. STEEL REINFORCEMENT
   - A) BARS SHALL BE ROLLED FROM NEW BILLET-STEEL CONFORMING TO ASTM A-615, STANDARD SPECIFICATION FOR DEFORMED AND PLAIN BILLET-STEEL BARS FOR CONCRETE REINFORCEMENT, INCLUDING SUPPLEMENTARY REQUIREMENT S1.
   - B) REINFORCING BARS SHALL BE GRADE 60.
   - C) WELDED WIRE REINFORCEMENT SHALL CONFORM TO ASTM A1064, STANDARD SPECIFICATION FOR CARBON-STEEL WIRE AND WELDED WIRE REINFORCEMENT, PLAN AND DEFORMED, FOR CONCRETE, LATEST EDITION.
   - D) DETAIL AND FABRICATE REINFORCING STEEL IN ACCORDANCE WITH THE AMERICAN CONCRETE INSTITUTE (ACI) DETAILING MANUAL, 2004, PUBLICATION SP-66(04).
   - E) CONCRETE REINFORCEMENT SHALL CONFORM TO THE CONCRETE REINFORCING STEEL INSTITUTE (CRSI) MANUAL OF STANDARD PRACTICE, 29TH EDITION, UNLESS NOTED OTHERWISE.
   - F) REINFORCEMENT SHALL BE SUPPORTED WITH CONCRETE BRICKS OR METAL CHAIRS AS REQUIRED TO ACHIEVE CONCRETE COVERS AND CLEARANCES.
   - G) PROVIDE BARS AT CORNERS AND INTERSECTIONS OF THE SAME NUMBER AND SIZE AS THE LONGITUDINAL BARS SPECIFIED FOR THE RESPECTIVE CONCRETE MEMBER.
   - H) REINFORCEMENT IN FOOTINGS, WALLS, AND BEAMS SHALL BE CONTINUOUS. REFER TO CONCRETE REINFORCEMENT LAP REQUIREMENTS SCHEDULE, THIS SHEET, FOR MINIMUM LAP OF REINFORCING.
   - I) WHERE HOOKS ARE INDICATED, PROVIDE STANDARD HOOKS PER ACI AND CRSI. SEE HOOK GEOMETRY SCHEDULE ON SHEET S-1 FOR ADDITIONAL INFORMATION.
   - J) MINIMUM CONCRETE COVER, UNLESS NOTED OTHERWISE:
     - UNFORMED SURFACES IN CONTACT WITH THE GROUND .... 3.00 INCH
     - FORMED SURFACES EXPOSED TO EARTH OR WEATHER .... 2.00 INCH
     - FORMED SURFACES NOT EXPOSED TO EARTH OR WEATHER .... 1.50 INCH
   - K) PROVIDE STANDEES, AS NECESSARY, TO SUPPORT TOP REINFORCEMENT FOR FOOTINGS, PILE CAPS, AND MAT FOUNDATIONS TO ACHIEVE CLEARANCES PER DRAWINGS.
   - L) PROVIDE INDIVIDUAL HIGH CHAIRS WITH SUPPORT BARS, AS NECESSARY, TO SUPPORT THE TOP REINFORCEMENT FOR SUPPORTED SLABS. STANDEES SHALL NOT BE PERMITTED.

D. ANCHORAGE
4. ANCHOR RODS SHALL BE ASTM F1554, GR. 55, UNLESS NOTED OTHERWISE.
   - A) ALLOWABLE TENSILE STEEL STRENGTH FOR THREADED ROD BASED ON 33% OF THE ULTIMATE STEEL STRENGTH.
   - B) ALLOWABLE SHEAR STEEL STRENGTH FOR THREADED ROD BASED ON 17% OF THE ULTIMATE STEEL STRENGTH.
2. ANCHOR RODS SHALL BE GALVANIZED TO RESIST CORROSION, UNLESS NOTED OTHERWISE.
   - A) IF ANCHOR RODS ARE COMPLETELY ENCASED IN CONCRETE, ANCHOR RODS ARE NOT REQUIRED TO BE GALVANIZED.
   - B) STAINLESS STEEL ANCHOR RODS ARE NOT REQUIRED TO BE GALVANIZED.
3. ANCHOR BOLTS INSTALLED IN CONCRETE OR MASONRY SHALL BE STEEL BOLTS WITH HEX NUTS AND WASHERS, ASTM A307, GRADE A, HOT-DIPPED GALVANIZED, UNLESS NOTED OTHERWISE.
   - A) IF ANCHOR BOLTS ARE COMPLETELY ENCASED IN CONCRETE, ANCHOR BOLTS ARE NOT REQUIRED TO BE GALVANIZED.
   - B) STAINLESS STEEL ANCHOR BOLTS ARE NOT REQUIRED TO BE GALVANIZED.
4. CHEMICALLY-SET ANCHORAGE IS BASED ON AN EPOXY ADHESIVE SYSTEM FOR USE IN NORMAL-WEIGHT CONCRETE.
   - A) ALLOWABLE DESIGN STRENGTH BASED ON THE LESSER OF THE ALLOWABLE STEEL STRENGTH AND THE ALLOWABLE BOND CAPACITIES.
   - B) ALLOWABLE LOAD CAPACITIES OF BOND STRENGTH BASED ON A MINIMUM SAFETY FACTOR OF 4.0.
   - C) ALLOWABLE LOADS FOR THREADED ROADS TO RESIST SHORT-TERM LOADS SUCH AS SEISMIC OR WIND HAS BEEN INCREASED TO 33.3% FOR THE DURATION OF THE LOAD, WHERE PERMITTED BY CODE.
   - D) ALLOWABLE CAPACITIES HAVE BEEN SPECIFICALLY DESIGNED FOR REDUCTIONS DUE TO ANCHOR BOLT SPACING AND EDGE DISTANCES FOR NORMAL-WEIGHT CONCRETE.
   - E) HOLE SHALL BE FREE OF DEBRIS PRIOR TO DISPENSING EPOXY INTO ANCHOR HOLE.
   - F) CONTRACTOR SHALL INSTALL CHEMICALLY-SET ANCHOR OR REINFORCING STEEL PER THE MANUFACTURER'S RECOMMENDATIONS.
   - G) MINIMUM PHYSICAL PROPERTIES FOR EPOXY ASSUMED TO BE AS FOLLOWS:
     - COMPRESSIVE STRENGTH .... 14,470 PSI
     - TENSILE STRENGTH .... 7,400 PSI
     - FLEXURAL STRENGTH .... 6,700 PSI
     - SLANT SHEAR STRENGTH .... 6,700 PSI
5. IF REINFORCING STEEL IS ENCOUNTERED DURING DRILLING TO INSTALL POST-INSTALLED ANCHORS, CEASE DRILLING AND UTILIZE A SENSOR TO LOCATE THE SURROUNDING REINFORCEMENT AND THEN INSTALL ANCHORS AS CLOSE AS POSSIBLE TO INTENDED LOCATION. CONTACT ENGINEER OF RECORD IF REVISED LOCATION IS GREATER THAN 2-INCHES FROM THE ORIGINAL LOCATION OR IF THE ANCHOR FUNCTION IS SIGNIFICANTLY ALTERED.

DESIGN LOADS AND STANDARDS

A. THE DESIGN CRITERIA PROVIDED IS BASED ON THE MINIMUM DESIGN REQUIREMENTS FOR A SITE SPECIFIC STRUCTURE WITH THE FOLLOWING LISTED LOADING CONSTRAINTS AND ASSUMED SITE CONDITIONS.

B. DESIGN REFERENCES

2018 IBC	2018 INTERNATIONAL BUILDING CODE WITH 2018 STATE AMENDMENTS
ACI 318-14	AMERICAN CONCRETE INSTITUTE: BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE, 2014
ACI 360R-10	AMERICAN CONCRETE INSTITUTE: GUIDE TO DESIGN OF SLABS-ON-GROUND, 2010
AISC 360-10	AMERICAN INSTITUTE OF STEEL CONSTRUCTION: SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS, 2010
ASCE 7-16	AMERICAN SOCIETY OF CIVIL ENGINEERS: MINIMUM DESIGN LOADS FOR BUILDING AND OTHER STRUCTURES, 2016
AWS D1.1	AMERICAN WELDING SOCIETY: STRUCTURAL WELDING - STEEL

C. SITE CONDITIONS
1. RISK CATEGORY III
2. SURFACE ROUGHNESS CATEGORY C
3. EXPOSURE OF ROOF .... PARTIALLY EXPOSED

E. DEAD LOADING
1. 50 KVA TRANSFORMER DEAD LOAD, DL (ERMCO) .... 883 LBS
2. 100 KVA TRANSFORMER DEAD LOAD, DL (ERMCO) .... 1,160 LBS
3. 167 KVA TRANSFORMER DEAD LOAD, DL (ERMCO) .... 1,675 LBS
4. 25 KV THREE PHASE CABINET ASSUMED DEAD LOAD, DL .... 500 LBS
5. LID DEAD LOAD, DL (10-INCH SLAB) .... 125.0 PSF
6. FOUNDATION SLAB DEAD LOAD, DL (12-INCH SLAB) .... 150.0 PSF

F. LIVE LOADING
1. FLOOR LIVE LOAD, LL .... 100.0 PSF

G. SNOW LOADING
1. IMPORTANCE FACTOR, I_S 1.10
2. GROUND SNOW LOAD, p_g .... 5.00 PSF
3. EXPOSURE FACTOR, C_e 1.00
4. THERMAL FACTOR, C_t 1.20
5. ROOF SLOPE FACTOR, C_s 1.00
6. FLAT ROOF SNOW LOAD, p_f .... 4.62 PSF
7. MINIMUM SNOW LOAD FOR LOW SLOPE ROOFS, p_m .... 5.00 PSF
8. SLOPED ROOF SNOW LOADS, p_s .... 4.62 PSF
9. RAIN-ON-SNOW SURCHARGE .... N/A

H. WIND LOADING
1. BASIC WIND SPEED (3-SECOND GUST), V .... 156 MPH
2. TOPOGRAPHIC FACTOR, K_{zt} 1.00
3. WIND DIRECTIONALITY FACTOR, K_d 0.90
4. WIND EXPOSURE CATEGORY .... D

I. SEISMIC LOADING
1. IMPORTANCE FACTOR, I_e 1.25
2. SEISMIC DESIGN CATEGORY .... D
3. SPECTRAL RESPONSE ACCELERATION
   - A) SHORT PERIOD (0.2-SEC) $S_S = 0.477$ $S_{DS} = 0.451$
   - B) 1.0-SECOND PERIOD $S_1 = 0.158$ $S_{D1} = 0.240$
4. SITE CLASSIFICATION .... D

DATA SOURCE: ☐ FIELD TEST ☒ PRESUMPTIVE ☐ HISTORICAL DATA

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SOUTH CAROLINA
SUMMEY ENGINEERING ASSOCIATES PLLC
No. CO 4767
CERTIFICATE OF AUTHORIZATION

Summey Engineering Associates, PLLC
Engineering - Consulting - Surveying
PO Box 968, Asheboro, NC 27204
Ph: 336-328-0902 Fx: 336-328-0922
www.summeyengineering.com

SC ENGINEERING FIRM CERTIFICATE OF AUTHORIZATION: 4767 SEA JOB NO. E-8223

NO.	REVISIONS	DATE
0	BID ISSUE	11.30.2022

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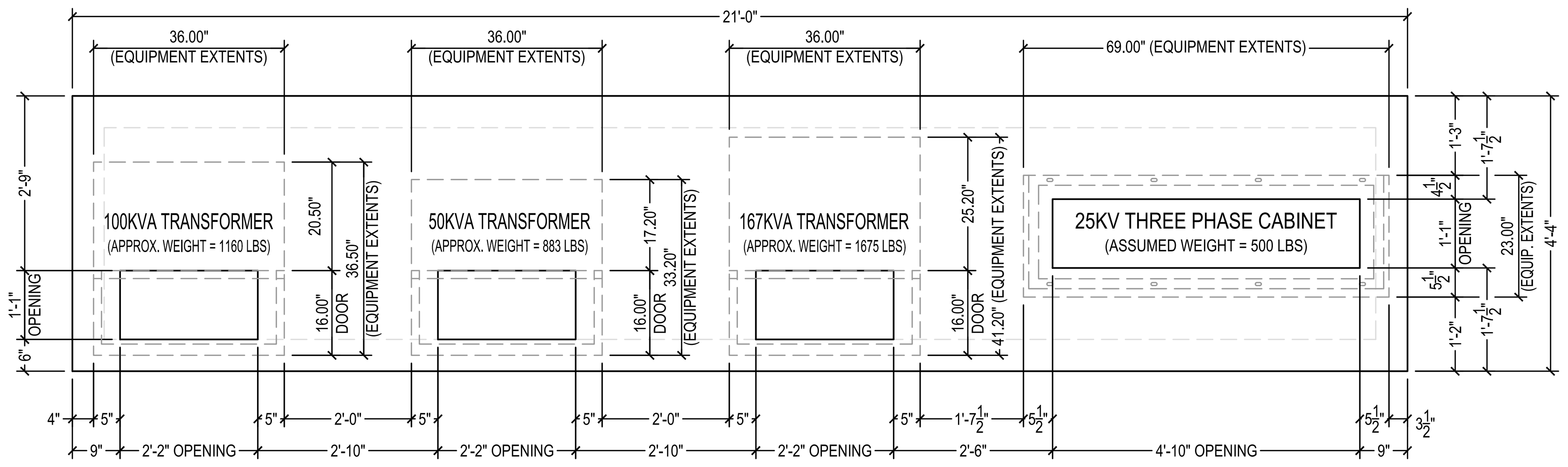
REVISION 11/30/22

CITY OF GEORGETOWN
GEORGETOWN, SC

FRONT ST ELECTRIC UPGRADE - PH. 2
GENERAL STRUCTURAL NOTES

UTEC UTILITY TECHNOLOGY ENGINEERS - CONSULTANTS, PLLC
P.O. Box 2629 • Asheboro, North Carolina • 27204

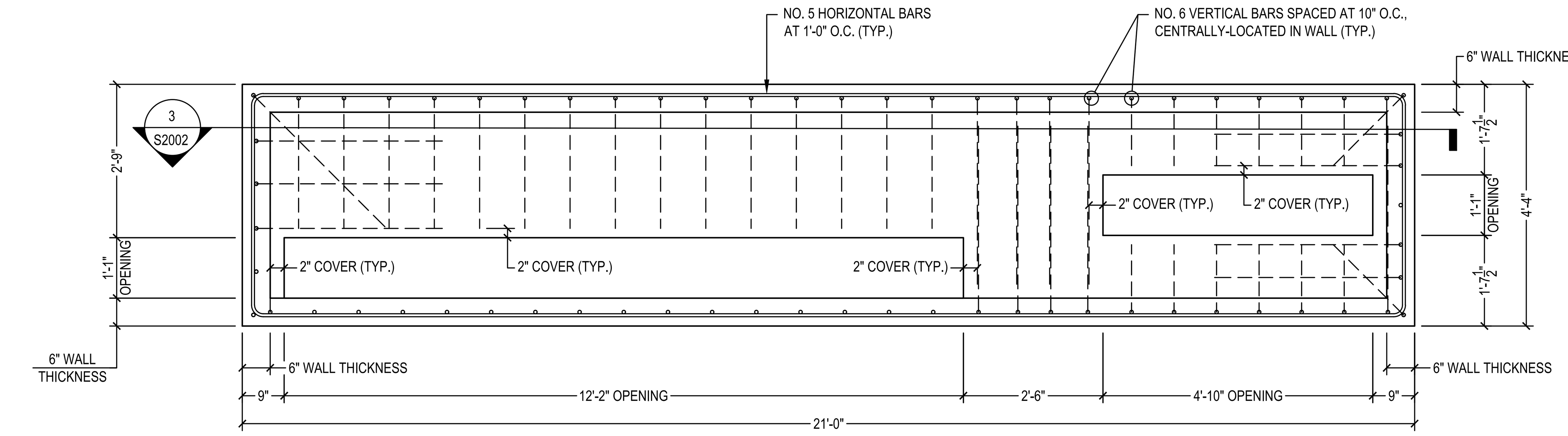
DWN.	WBA	DATE:	11/30/22	DWG. NO.	S2001
SCALE:	NONE	JOB NO.	220901	SHEET NO.	1 OF 1



T3 TRANSFORMER BOX FOUNDATION

1 OVERALL BOX FOUNDATION (PLAN)

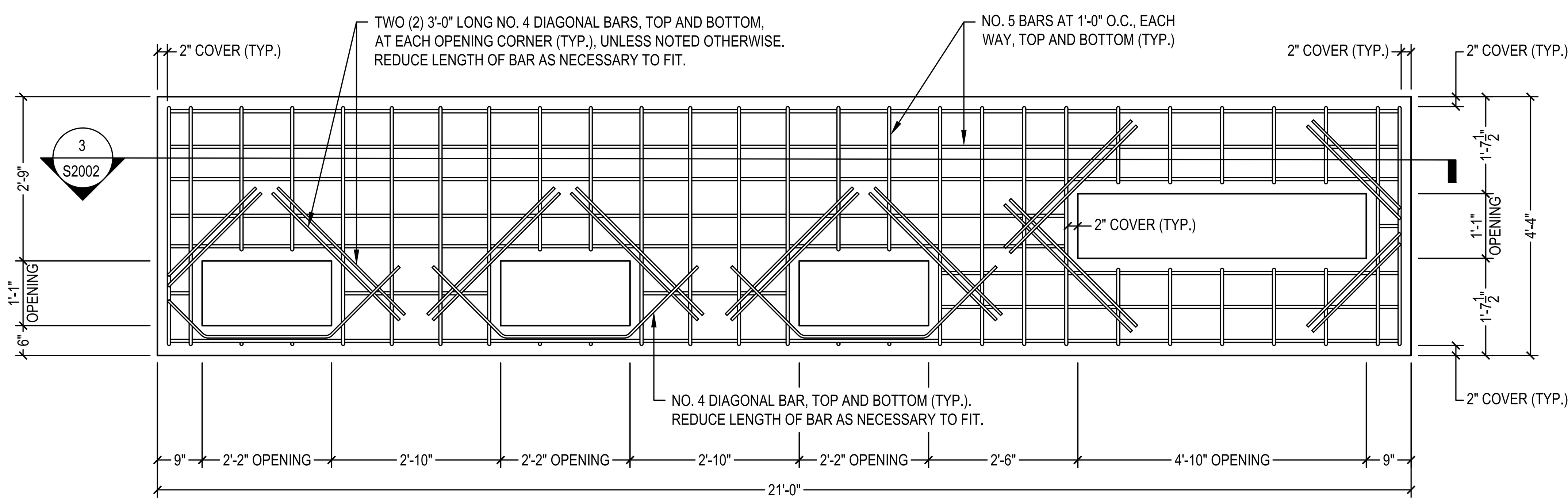
SCALE: 1/2" = 1'-0"



T3 TRANSFORMER BOX FOUNDATION

4 FOUNDATION WALL REINFORCEMENT (PLAN)

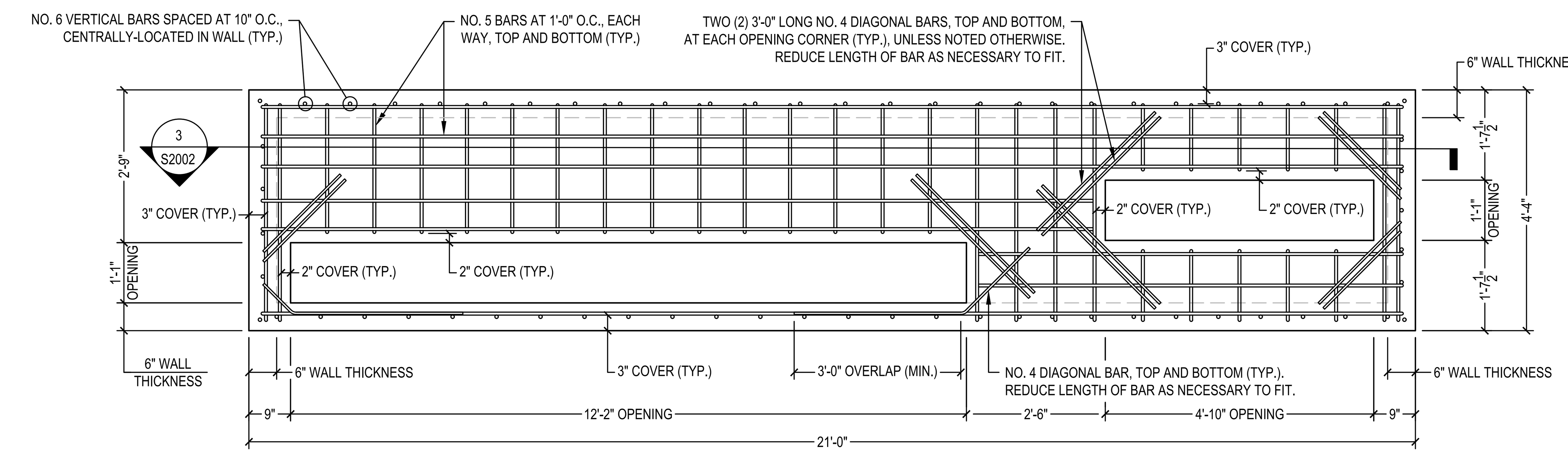
SCALE: 1/2" = 1'-0"



T3 TRANSFORMER BOX FOUNDATION

2 LID REINFORCEMENT (PLAN)

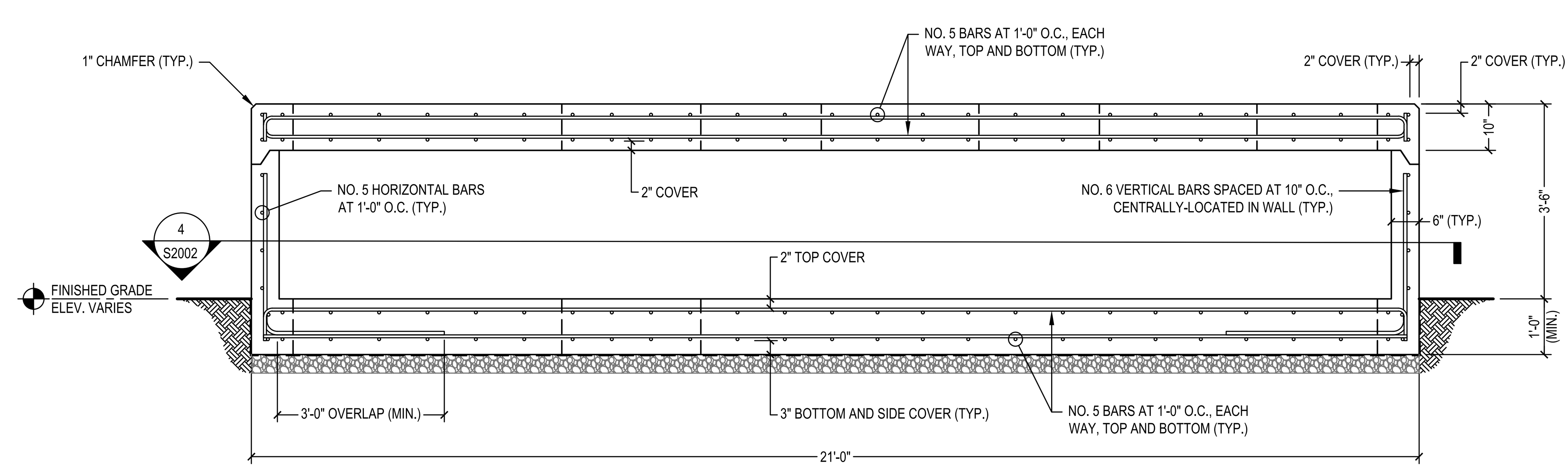
SCALE: 1/2" = 1'-0"



T3 TRANSFORMER BOX FOUNDATION

5 FOUNDATION SLAB REINFORCEMENT (PLAN)

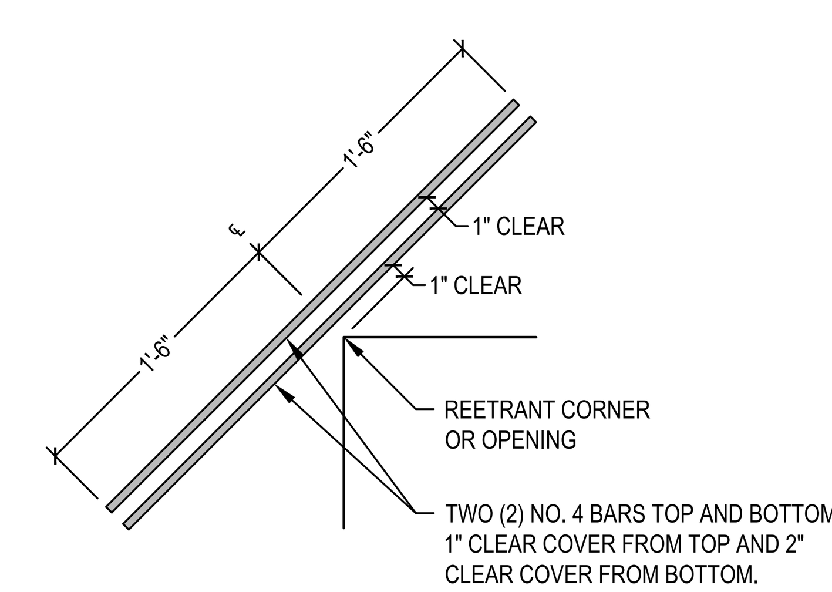
SCALE: 1/2" = 1'-0"



T3 TRANSFORMER BOX FOUNDATION

3 TYPICAL ELEVATION SECTION VIEW

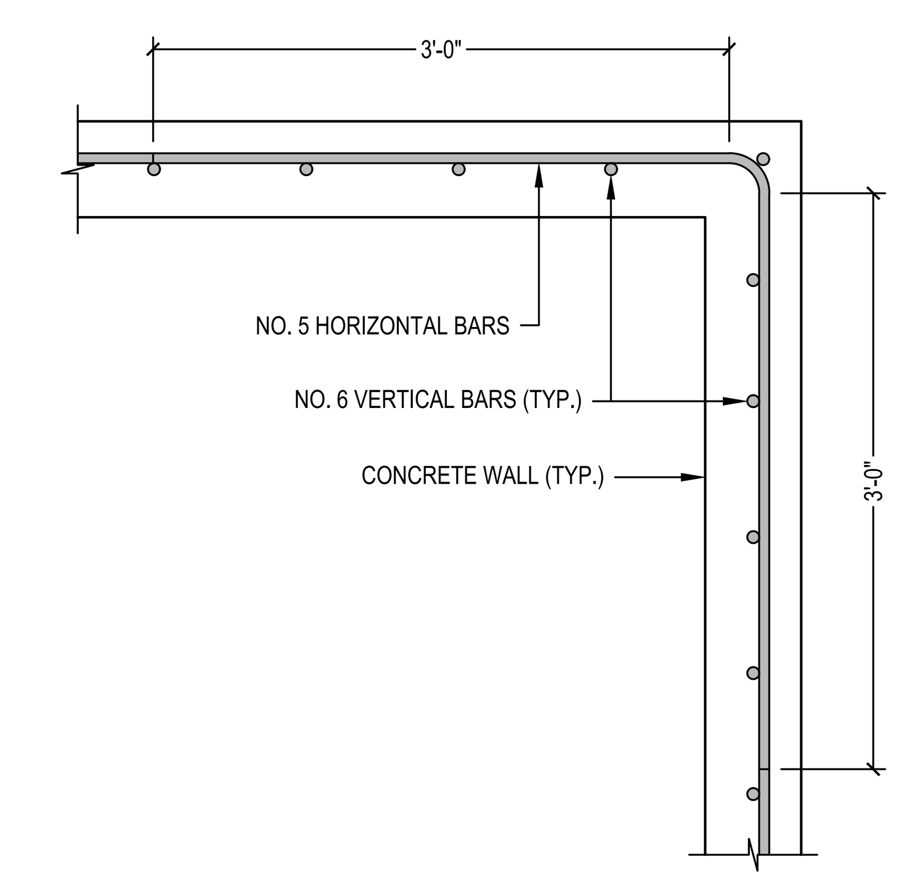
SCALE: 1/2" = 1'-0"



NOTE: DO NOT LET REINFORCEMENT CROSS SAWCUTS NEARBY OR OTHER JOINTS THAT ALLOW FOR MOVEMENT.

6 STND. REETRANT CORNER (PLAN)

NOT TO SCALE



7 TYP. WALL CORNER (PLAN)

NOT TO SCALE

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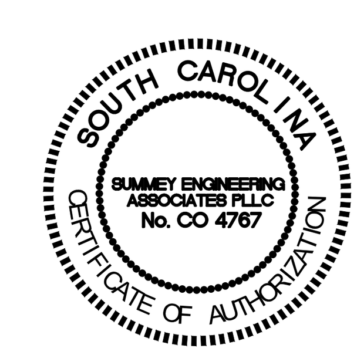

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FRONT ST ELECTRIC UPGRADE - PH. 2
TRANSFORMER PAD

UTEC UTILITY TECHNOLOGY
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DWN.	WBA	DATE:	11/30/22	DWG. NO.	S2002
SCALE:	AS NOTED	JOB NO.	220901	SHEET NO.	1 OF 1

Nov 30, 2022 - 4:45pm C:\Users\Will\AppData\Local\Temp\AcPublish_10696\2022.11.30.BASE.A (E-8223).dwg Layout: S2002