APPROVED

STRUCTURAL NOTES - CONCRETE

UNLESS OTHERWISE CALLED FOR IN SPECS OR DRAWINGS, ALL CONCRETE WORK SHALL CONFORM TO ALL REQUIREMENTS AND RECOMMENDATIONS OF THE F.B.C.,2023 8th ED. CHAPTER 19, AND ACI 318-14

CONCRETE TO BE A MIX DESIGNED IN ACCORDANCE WITH ASTM C94/C94M-13 TO ACHIEVE A STRENGTH IN 28 DAYS AS STATED BELOW, WITH A PLASTIC AND WORKABLE MIX. A CERTIFICATE OF MANUFACTURES' MIX & STRENGTH IS TO BE PROVIDED. NO WATER IS TO BE ADDED AFTER TRUCK LEAVES THE PLANT, WITHOUT APPROVAL OF THE ENGINEER OR PLANT ENGINEER. PLANT CONTROL SHALL BE REQUIRED. MAX. MIX TIME AT POINT OF DEPOSIT SHALL BE 90 MINUTES. MIN. COMPRESSIVE STRENGTH SHALL BE AS FOLLOWS: (U.O.N.)

CONCRETE BALCONY/EYEBROW: 4000 PSI
RETAINING WALL: 4000 PSI
COLUMNS & BEAMS: 4000 PSI
CONCRETE STRENGTH @ 28 DAYS SHALL BE MIN. 4000 PSI

GROUT SLUMP REQUIRED ----- 8" TO 10" PROVIDE CLEANOUT HOLES

MORTAR SHALL COMPLY WITH A.S.T.M. C 270-01a

MORTAR SLUMP REQUIRED ----- 5" TO 8" TYPE AS PER F.B.C 2017-6th EDITION

CONTRACTOR TO CONSOLIDATE GROUT LIFTS WITH 3/4" VIBRATOR

REINFORCING STEEL SHALL CONFORM TO ASTM A-615/A-615M-12 GRADE 60. REINFORCING STEEL SHALL BE DETAILED & FABRICATED ACCORDING TO THE " MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES". HOOK ALL DISCONTINUOUS TOP REINFORCING. PROVIDE CORNERS W/ (2) #5 X 5'-0" BARS. CLEAR COVER FOR REINFORCING BARS SHALL BE:

FOOTINGS	3"	UNFORMED FACES	3"
SLABS	3/4"	FORMED FACES IN	
BEAMS/COLUMNS	1 1/2"	CONTACT W/EARTH	2"

CONCRETE TESTING IS TO BE PERFORMED AS FOLLOWING: (1) SET OF (5) CYLINDERS FOR EVERY 50 CU. YDS. OF CONCRETE AS PER ASTM C-94/C94M-13

MAX. AGGREGATE SIZE SHALL BE 3/4", & SHALL CONFORM TO ASTM C-33/C33M-13

MASONRY CONSTRUCTION & MATERIALS SHALL CONFORM W/ ALL REQUIREMENTS OF THE "SPECIFICATIONS FOR MASONRY STRUCTURES (ACI 530/530.1/ASCE 5-13), AS PUBLISHED BY THE MASONRY STANDARDS JOINT COMMITTEE 13

ALL BLOCK WALLS SHALL BE TWO-CELL HOLLOW CONC. MASONRY REGULAR SIZE BLOCK MANUF. IN CONFORMANCE W/ ASTM C-90-14, GRADE N, f'm = 1500 psi. BLOCK SHALL BE PLACED USING RUNNING BOND U.O.N. LAY-UP MASONRY WALLS TO BTM. OF TIE BEAMS BEFORE PLACING CONC. FOR IN-WALL COLUMNS. GROUT USED TO FILL MASONRY CELLS SHALL COMPLY W/ ASTM C-476-02, & SHALL PROVIDE A MIN. COMPRESSIVE STRENGTH OF 3,000 psi AT 28 DAYS. THE GROUT MIX SHALL HAVE A MAX. 3/8" COARSE AGGREGATE, & SHALL BE PLACED W/ A SLUMP OF 8" TO 10". PLACE GROUT IN ACCORDANCE W/ ACI 530-13. TYPE S MORTAR SHALL BE USED EXCLUSIVELY ON THIS PROJECT. MORTAR SHALL BE PROPORTIONED & MIXED AS OUTLINED UNDER ASTM C-270. HORIZ. & VERT. MORTAR JOINTS SHALL BE 3/8" THICK U.O.N. REMOVE MORTAR PROTRUSIONS THAT EXTEND INTO CELLS TO BE FILLED.

HORIZ. MORTAR JOINTS SHALL BE REINF. W/ #9 GAGE "LADDER TYPE" HORIZ. JOINT REINF. (ASTM CLASS B-2, HOT-DIPPED GALV.) AT ALTERNATE COURSES (16" ON CENTER), U.O.N. JOINT REINF. SHALL BE CONT. & SHALL LAP A MIN. 8".

VERTICAL CELLS FOR MASONRY SHALL HAVE VERTICAL ALIGNMENT SUFFICIENT TO MAINTAIN A CLEAR, UNOBSTRUCTED CONTINUOUS CELL.

CLEAN OUT OPENINGS SHALL BE PROVIDED AT THE BOTTOM OF GROUTED CELLS AT EACH LIFT. CLEAN OUTS SHALL BE SEALED AFTER CLEANING & INSPECTION AND BEFORE GROUTING.

ALL DOWELS, SLEEVES, CONDUITS, INSERTS, BLOCK OUTS, ANCHOR BOLTS & DRAINS SHALL BE IN PLACE BEFORE CONCRETING. FOR OPENINGS & SPECIAL FEATURES OMITTED ON THESE PLANS, SEE ARCHITECTURAL &/OR MECHANICAL DWGS.

SLAB SHALL BE A MIN. 4" THK. CONC. SLAB W/ 6"x6" 1.4w/1.4 W.W.M. SUPPORTED 36" O.C. EA. WAY (DBL. REINF. FOR 60" @ PERIMETER) IN THE MIDDLE TO UPPER ONE-THIRD OF THE SLAB W/ APPROVED "CHAIR", OVER 6 MIL. VISQUEEN VAPOR BARRIER, ON WELL COMPACTED, TERMITE TREATED, CLEAN FILL

SCRAPE SLAB AREA CLEAR OF ALL ORGANIC MATERIAL AND FILL W/ CLEAN SAND TO THE ELEVATION OF THE BTM. OF THE SLAB. SURFACE MATERIAL CAN BE USED AS SITE FILL.

ANY ADDITIONAL FILL PLACED ON THE BLDG. PAD SHALL BE COMPACTED TO A DRY DENSITY OF AT LEAST 98% OF THE MODIFIED PROCTOR MAXIMUM DRY DENSITY, DETERMINED IN ACCORDANCE WITH ASTM D-1557. THE AREA OF THE BTM. OF THE FTGS. SHALL BE COMPACTED, PRIOR TO PLACEMENT OF STEEL, W/ A VIBRATORY COMPACTOR TO INSURE UNIFORM DENSITY BENEATH THE FOOTING. DENSITY TESTS SHALL BE TAKEN IN THE FOOTING AREAS.

SOIL SHALL BE TREATED FOR TERMITES FOR A DISTANCE OF FOUR (4) FEET BEYOND THE PERIMETER OF ALL FOOTINGS AND/OR SLAB EDGES.

ALL PLATES, ANGLES AND MISCELLANEOUS METAL ITEMS TO BE EMBEDDED IN CONCRETE SHALL BE SECURELY AND ACCURATELY FASTENED TO THE CONCRETE FORM WORK BY A MINIMUM OF TWO (2) FASTENERS PRIOR TO CONCRETE PLACEMENT.

BUNDLE ALL STRUCTURAL BEAM TOP BARS IN PAIRS OVER SUPPORT WITH TOP BARS FROM ADJACENT BEAM.

EXTEND BOTTOM BARS 8" PAST ALL OPENINGS GREATER THAN 3'-0" ON BOTH SIDES.

BOND BEAMS SHALL BE CONTINUOUS REINFORCEMENT, PROVIDED BY LAPPING SPLICES NOT LESS THAN 30". CONTINUITY SHALL BE PROVIDED AT ALL CORNERS BY BENDING 2 BARS FROM EACH DIRECTION AROUND THE CORNER 30" OR BY ADDING 2# 5 BENT 30" EACH LEG.

CONTINUITY @ COLS. SHALL BE PROVIDED BY CONTINUING HORIZONTAL REBARS THRU COLUMNS OR BY BENDING HORIZ. REINF. INTO COLS. A DISTANCE OF 30".

HOOK TOP OF VERTICAL BARS IN ALL TERMINATING COLUMNS 2" BELOW TOP OF SLAB AND 3" BELOW TOP OF THE BOND BEAM.

STRUCTURAL STL. SHALL BE FABRICATED & ERECTED IN ACCORDANCE W/ THE LATEST A.I.S.C. STL. CONSTR. MANUAL & SHALL CONFORM W/ THE LATEST A.S.T.M. SPECS. BOLTS SHALL CONFORM TO A.S.T.M. A325, ANCHOR BOLTS SHALL CONFORM TO A.S.T.M. A307. ALL WELDING SHALL BE PERFORMED BY CERTIFIED WELDERS.

REINFORCING STEEL fy = 60,000 P.S.I. fs = 24,000 P.S.I. Es = 29,000,000 P.S.I.
Em = 1,500,000 P.S.I. N = Es/Em = 21.48

TEMPORARY SHORING FOR CONCRETE FLOORS AND BALCONIES SHALL USE STANDARD POST SHORES AT 4'-0" ON CENTER WITH DOUBLE 2X12 SILL NAILED WITH 16D NAILS AT 4" SPACING IN EACH DIRECTION. USE 4"X8" J-HEAD ON TOP OF EACH POST SHORE. USE 4"X6" BEAMS (SOUTHERN PINE #2 TYPICAL) SPANNING FROM POST SHORE TO POST SHORE. USE 4"X4" PURLINS AT 2'-0" SPACING SPANNING FROM BEAM TO BEAM. USE 3/4" PLYWOOD FOR CONCRETE FORM. ALL POST SHORES SHOULD BE BRACED AT MID-HEIGHT IN EACH DIRECTION. EACH ROW OF POST SHORES SHOULD HAVE A KNEE BRACE AT EACH ROW. CONSTRUCTION AND REMOVAL OF ALL FORMWORK SHALL BE DONE ACCORDING TO ACI 347.

CONTRACTOR IS RESPONSIBLE FOR THE ADEQUACY OF FORMS AND SHORING AND FOR SAFE PRACTICE IN THEIR USE AND REMOVAL. CONTRACTOR TO MAINTAIN FLOORS 100% SHORED. CONTRACTOR SHALL ERECT FORM WORK IN STRICT COMPLIANCE WITH ACI 347. PROVIDE CHAMFERS AT ALL CORNERS IN CONCRETE MEMBERS EXPOSED TO VIEW. FORM WORK TO REMAIN IN PLACE UNTIL CONCRETE HAS ATTAINED ENOUGH STRENGTH TO SUPPORT ALL DEAD LOADS PLUS A MINIMUM OF 50 P.S.F. OF ADDITIONAL CONSTRUCTION LOAD. CONTRACTOR SHALL COORDINATE ALL OPENINGS AS REQUIRED FOR OTHER TRADES. OPENINGS WHERE SHOWN ON THE STRUCTURAL DRAWINGS ARE TO IDENTIFY DESIGN INTENT ONLY. THE SPECIFIC DIMENSIONS AND LOCATIONS SHALL BE FURNISHED OR CONFIRMED BY THE TRADE REQUIRING THE OPENING.

REINFORCING STEEL:

REINFORCING STEEL SHALL BE DEFORMED BARS CONFORMING TO ASTM A-615-12 GRADE 60 (Fy = 60KSI).

WELDED WIRE FABRIC SHALL BE 6"x6"-#10x#10

TIE-WIRES SHALL CONFORM WITH ASTM A82.
REBARS IN BEAMS, COLUMNS, AND SLABS SHALL BE FULLY SECURED PRIOR TO FINAL POUR.

REINFORCING STEEL SHALL BE CLEAN AND FREE FROM FOREIGN DEBRIS, NONMETALLIC COATINGS. THE REINFORCEMENT STEEL SHALL ALSO BE FREE FROM RESIDUES SUCH AS OIL, MUD, DIRT, SCALE ANY PITTING AND NICKS THAT IS MORE THAN 2% OF THE TOTAL CROSS-SECTIONAL AREA OF ANY REBAR.

REINFORCING STEEL SHALL HAVE THE FOLLOWING MINIMUM COVER:

ANY CONCRETE POURED AGAINST EARTH	3.0"
ALL FOOTINGS TOP, BOTTOM AND SIDES	3.0"
BEAMS PRIMARY REINFORCEMENT AND STIRRUPS	
TOP AND BOTTOM SIDES	1.5"
COLUMNS PRIMARY REINFORCEMENT, TIES AND SPIRALS	1.5"
SLAB-ON-GRADE BOTTOM COVER	2.0"
SLABS	1.5"

VERTICAL BARS IN CONCRETE COLUMNS MUST BE CONTINUOUS. REBARS SHALL BE LAPPED EQUIVALENT TO 42 DIAMETER OF LARGER SIZE LAPPING BARS OR MINIMUM 30 INCHES OR OTHERWISE AS NOTED. LAPPING BARS MUST BE SECURED WITH MINIMUM 3 TWIST TIES.
CORNER BARS IN CONCRETE BEAMS MUST LAP WITH MAIN BARS IN BEAMS
A LENGTH EQUIVALENT TO 42 BAR DIAMETER OF LARGER SIZE BARS OR
VERTICAL COLUMN REINFORCEMENT MUST LAP WITH HORIZONTAL REBARS IN
MINIMUM 36 INCHES OR OTHERWISE AS NOTED. LAPPING BARS MUST BE
BEAMS A LENGTH EQUIVALENT TO 15 BAR DIAMETER OF LARGER SIZE LAPPING
SECURED WITH MINIMUM 4 TWIST TIES.
BARS OR MINIMUM 12 INCHES OR OTHERWISE AS NOTED. LAPPING BARS MUST
CORNER BARS IN CONCRETE FOOTERS MUST LAP WITH ALL MAIN FOOTER
BE SECURED WITH MINIMUM 2 TWIST TIES.
REBARS A LENGTH EQUIVALENT TO 42 BAR DIAMETER OF LARGER SIZE
BARS OR MINIMUM 36 INCHES OR OTHERWISE AS NOTED. LAPPING BARS SHALL
VERTICAL COLUMN REINFORCEMENT MUST LAP WITH HORIZONTAL REBARS IN
BE SECURED WITH MINIMUM 4 TWIST TIES.

FOOTER AND SLAB A LENGTH EQUIVALENT TO 15 BAR DIAMETER OF LARGER SIZE LAPPING BARS OR MINIMUM 12 INCHES OR OTHERWISE AS NOTED. LAPPING BARS MUST BE SECURED BY MINIMUM 2 TWIST TIES.

REINFORCED UNIT MASONRY NOTES

THE REINFORCED UNIT MASONRY DESIGN FOR THIS STRUCTURE IS BASED ON RATIONAL ANALYSIS PER FBC

MASONRY BLOCK:

ALL BLOCK WALLS SHALL BE TWO-CELL HOLLOW CONC. MASONRY REGULAR SIZE BLOCK MANUF. IN CONFORMANCE W/ ASTM C90 & FBE 2017 6tH ED. CHAPTER 21, NI OR NII, PROVIDE PRECAST LINTELS AS NECESSARY. SHALL HAVE A MINIMUM PRISM STRENGTH OF f'm = 1500 psi. IN 28 DAYS IN ACCORDANCE WITH A.S.T.M. C1314-07. UNITS SHALL BE A MINIMUM OF 48 BLOCK SHALL BE PLACED USING RUNNING BOND U.O.N. LAY-UP MASONRY WALLS TO BTM. OF TIE BEAMS BEFORE PLACING CONC. FOR IN-WALL COLUMNS.

GROUT:

GROUT USED TO FILL MASONRY CELLS SHALL COMPLY W/ ASTM C-476, & SHALL BE OF PEA ROCK PUMP MIX AND PROVIDE A MIN. COMPRESSIVE STRENGTH OF 3,000 psi AT 28 DAYS .THE GROUT MIX SHALL HAVE A MAX. 3/8" COARSE AGGREGATE, & SHALL BE PLACED W/ A SLUMP OF 8" TO 10". PLACE GROUT IN ACCORDANCE WITH FBC 2017 - 6tH ED. CHAPTER 21

MORTAR:

TYPE S MORTAR IN ACCORDANCE WITH FBC 2017 - 6th ED. CHAPTER 21 SHALL BE USED EXCLUSIVELY ON THIS PROJECT. MORTAR SHALL BE PROPORTIONED & MIXED HORIZ. & VERT. MORTAR JOINTS SHALL BE 3/8" THICK U.O.N. REMOVE MORTAR PROTRUSIONS THAT EXTEND INTO CELLS TO BE FILLED. ALLOW MIN. OF 24 HRS FOR MORTER TO CURE BEFORE PLACING GROUT.

REINFORCEMENT:

CONCRETE MASONRY BLOCKS SHALL BE INSTALLED WITH MASONRY JOINT REINFORCEMENT AT OTHER COURSE. REINFORCEMENT SHALL BE CONTINUOUS WITH (2) BLOCK WIDTH LAPSE AT ENDS AND SHALL BE INSERTED INTO CELLS OR TIE COLUMNS MIN. 4"

THE MINIMUM SIZE OF HORIZONTAL JOINT REINFORCEMENT SHALL BE GAUGE 9 "LADDER" TYPE REINFORCEMENT.

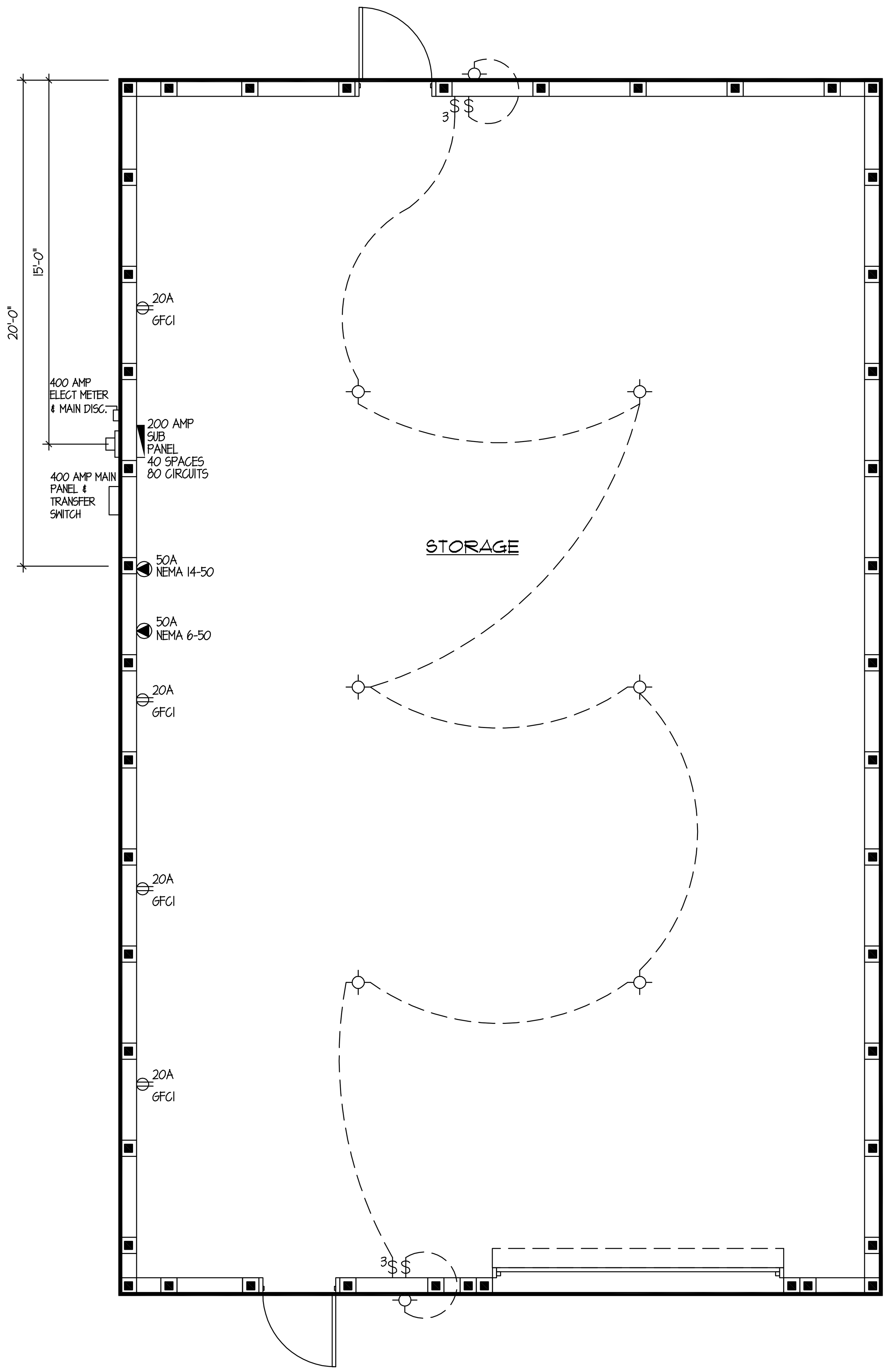
REINFORCED UNIT MASONRY SHALL BE STEEL REINFORCED GROUTED HOLLOW UNIT MASONRY. THE DESIGN OF BUILDINGS AND STRUCTURES OF REINFORCED UNIT MASONRY SHALL BE BY PROFESSIONAL ENGINEER.

GROUTED CELLS WITH REINFORCING SHALL HAVE A MINIMUM IF (1) # 5 VERTICAL AT EACH CORNER, EACH SIDE OF WALL OPENINGS, AND MAXIMUM OF 4'-0" THEREAFTER. SEE PLAN FOR LOCATION AND SIZE OF REINFORCEMENT.

REINFORCING BARS SHALL BE NEW BILLET STEEL PER FBC GRADE 60, LAP REINFORCING AS NOTED ON PLANS.

TIE BEAM AND FILLED CELLS SHALL BE PLACED IN SEPERATE LIFTS AND CONSOLIDATED AS REQUIRED TO COMPLETELY FILL EACH CELL. CLEAN OUT OPENINGS SHALL BE PROVIDED AT THE BOTTOM OF ALL FILLED CELLS FOR INSPECTION.

CLEANOUT OPENINGS SHALL BE PROVIDED AT THE BOTTOM OF GROUTED CELLS AT EACH LIFT OVER 4'-0" HIGH. CLEANOUTS SHALL BE SEALED AFTER CLEANING AND INSPECTION, AND BEFORE GROUTING.

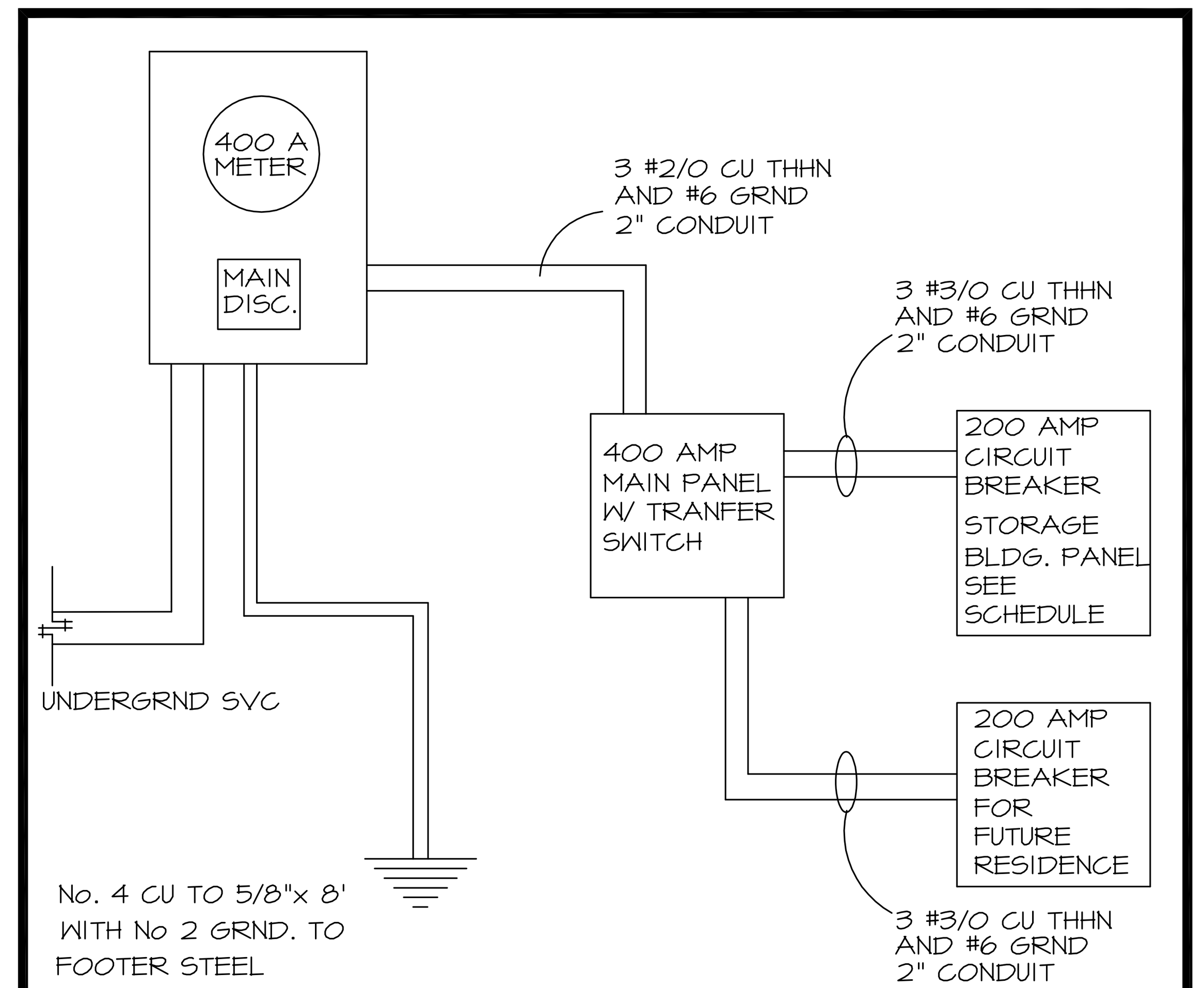


ELECTRICAL PLAN

SCALE 1/4" = 1'-0"

ELECTRICAL NOTES:

1. CONTRACTOR SHALL VERIFY WITH FP&L THE LOCATION OF SERVICE AND SHALL LOCATE METER AND PANELS AS REQUIRED.
2. ALL WIRE SHALL BE THHN COPPER, UNLESS OTHERWISE NOTED.
3. WHERE REQUIRED BY OTHER CODES, SERVICE AND FEEDER CONDUCTORS SHALL BE COPPER OF EQUAL AMPACITY.
4. ALL BRANCH CIRCUITS IN RACEWAY OR NON-METALLIC SHEATHED CABLE.
5. COORDINATE RACEWAY INSTALLATIONS WITH OTHER TRADES PRIOR TO CONSTRUCTION.
6. VERIFY ALL CONDUCTORS AND BREAKERS WITH EQUIPMENT MANUFACTURER'S SPECIFICATIONS.
7. PROVIDE DISCONNECT SWITCH OF SIZE AS REQUIRED BY LOAD AND UNITS.
8. PROVIDE NON-FUSIBLE GENERAL DUTY SAFETY SWITCHES AT A/C EQUIPMENT, AND AT PUMPS NOT VISIBLE FROM CIRCUIT BREAKER PANEL AND AS PER MANUFACTURER'S RECOMMENDATIONS.
9. PROVIDE GFI BREAKERS OR OUTLETS FOR ALL BATHROOMS, GARAGE AND EXTERIOR OUTLETS AND AS SHOWN ON PLANS.
10. ELECTRICAL FIXTURES, TRIM AND APPLIANCES SHALL BE UL APPROVED AND AS SELECTED BY OWNER.
11. PROVIDE PRE-WIRED TELEPHONE OUTLETS AS SHOWN ON PLANS.
12. PROVIDE PRE-WIRED TV OUTLETS FOR CABLE AS SHOWN ON PLANS.
13. SMOKE DETECTORS TO BE 120V, INTERCONNECTED W /BATTERY BACKUP & WIRED ON KITCHEN OR BATHROOM LTG CIRCUITS AHEAD OF ALL SWITCHES.
14. AFCI CIRCUIT REQ'D FOR ALL BEDROOM RECEPTACLES



ELECTRICAL RISER

NOT TO SCALE

ELECTRIC CONTRACTOR TO VERIFY ALL PANEL LOADS AND CIRCUITS PRIOR TO CONSTRUCTION AND THE ENGINEER SHALL BE NOTIFIED OF ANY DISCREPANCY FROM THE PLANS PRIOR TO CONSTRUCTION.

LOAD CALCULATIONS

ELECTRICAL EQUIPMENT		WATTS
1 CAR CHARGER -	50 AMP #6 WIRE	9600
1 WELDER CIRCUIT -	30 AMP #10 WIRE	3000
4 GENERAL OUTLET CIRCUITS -	20 AMP #12 WIRE	1200
1 LIGHTING CIRCUIT -	15 AMP #14 WIRE	1200
TOTAL		15000 W
TOTAL SERVICE LOAD 15000 :- 240V		62.5 AMPS

ELECTRICAL SYMBOL LEGEND

	DUPLEX RECEPTACLE		SURFACE MOUNTED LIGHTING
GFCI WP	GROUND FAULT INTERRUPT WATER PROOF		WALL MOUNTED LIGHTING
	240 VOLT OUTLET		ELECT PANEL
$	SWITCH		ELECT METER
$ 3	3 WAY SWITCH		

REVISIONS	BY

John T Lamb
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DRAWN	STEVE S.
CHECKED	JOHN L.
DATE	2-15-2024
SCALE	AS NOTED
JOB NO.	202-24
SHEET	A-4

ELECTRICAL PLAN

OF 4 SHEETS