

ELECTRICAL SPECIFICATIONS

1. GENERAL PROVISIONS:
- A. PROVIDE ALL LABOR, MATERIALS, EQUIPMENT, NECESSARY FOR THE COMPLETE INSTALLATION OF THE ELECTRICAL SYSTEMS OUTLINED.
- B. OBTAIN ALL PERMITS, FEES, LICENSES, INSPECTIONS, AND CERTIFICATES OF COMPLIANCE OR APPROVAL AS REQUIRED BY THE AUTHORITIES.
- C. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE LATEST APPROVED EDITION OF THE NATIONAL ELECTRIC CODE (NEC) AND ALL APPLICABLE LAWS, CODES AND REGULATIONS OF THE GOVERNMENTAL BODIES HAVING JURISDICTION OVER THE SITE.
- D. ALL TESTINGS REQUIRED BY AUTHORITIES SHALL BE CONSIDERED PART OF THIS WORK.
- E. DURING CONSTRUCTION, ALL FIXTURES, EQUIPMENT, CONDUIT, ETC. SHALL BE COVERED, PLUGGED, OR CAPPED AS REQUIRED TO KEEP CLEAN AND UNDAMAGED. ALL DAMAGED ITEMS SHALL BE RESTORED TO ORIGINAL CONDITION OR REPLACED. ALL PROTECTIVE COVERINGS SHALL BE REMOVED BEFORE FINAL ACCEPTANCE.
- F. PROVIDE ALL NECESSARY CUTTING AND PATCHING OF WALLS, FLOORS, CEILINGS, AND ROOFS AS NECESSARY. PATCH AROUND ALL OPENINGS STRIKENATION ADJACENT AREA. COORDINATE WITH ROOFING WORK WITH OWNER OR RESPONSIBLE PARTY, SO THAT THE EXISTING ROOFING WARRANTY WILL BE MAINTAINED.
- G. CONTRACTOR SHALL GUARANTEE ALL WORK AND MATERIALS AGAINST DEFECTS FOR A PERIOD OF ONE YEAR FROM FINAL ACCEPTANCE.
- H. CONTRACTOR SHALL PROVIDE ACCESS PANELS WHERE NECESSARY FOR CONCEALED ELECTRICAL COMPONENTS.
2. OPERATION AND MAINTENANCE MANUALS:
- A. DURING THE COURSE OF CONSTRUCTION, COLLECT AND COMPILE OPERATING INSTRUCTIONS, WIRING DIAGRAMS, CATALOG CUTS, LIBERATION AND PREVENTATIVE MAINTENANCE INSTRUCTIONS, PARTS LISTS, ETC. FOR ALL EQUIPMENT FURNISHED UNDER THIS CONTRACT.
- B. ALL LITERATURE AND INSTRUCTIONS SHIPPED WITH THE EQUIPMENT SHALL BE SAVED FOR INCLUSION IN THE OPERATION AND MAINTENANCE MANUALS.
- C. ALL LITERATURE LISTED ABOVE AND ALL PAPERS LISTING WARRANTIES, ETC. SHALL BE COLLATED AND LABELED WITH THE PROJECT NAME, ADDRESS, ARCHITECT, ENGINEER, CONTRACTORS, ETC. CONTRACTORS, ETC. DOCUMENTS SHALL BE COMPILED AND BOUND IN DIGITAL FILE OR 3 RING BINDER.
3. MANUFACTURERS:
- A. MANUFACTURERS, MODEL NUMBERS, ETC. INDICATED OR SCHEDULED ON THE DRAWINGS SHALL BE INTERPRETED AS HAVING ESTABLISHED A STANDARD OF QUALITY AND SHALL NOT BE CONSTRUED AS LIMITING COMPETITION. ARTICLES, FIXTURES, ETC. OF EQUAL QUALITY BY MANUFACTURERS SHALL BE ACCEPTABLE, SUBJECT TO STRUCTURAL AND ELECTRICAL CONSTRAINTS OF THE PROJECT DESIGN, UNLESS NOTED OTHERWISE.
4. TESTING, AND BALANCING:
- A. ALL CIRCUITS SHALL BE TESTED FOR CONTINUITY, SHORTS, AND GROUNDS BEFORE CONNECTING TO THE PROPER PHASE AS DESIGNED TO BALANCE THE LOADS BETWEEN PHASES.
- B. POWER AND LIGHTING PANELS SHALL BE PROPERLY PHASED TO DISTRIBUTE THE LOAD AND SHALL BE CONNECTED AND ADJUSTED TO OPERATE AS SPECIFIED.
- C. ALL MOTORS AND SIMILAR EQUIPMENT SHALL BE CHECKED FOR PROPER PHASE ROTATION AND OPERATION.
5. RACEWAYS:
- A. CONDUIT INSIDE THE BUILDING SHALL BE METALLIC TUBING (EMT), BEARING THE UL LABEL, WITH COMPRESSION TYPE FITTINGS OR SCREW SET FITTINGS.
- B. CONDUIT EXPOSED TO THE WEATHER, INSTALLED UNDERGROUND, IN CONCRETE, OR USED FOR SERVICE ENTRANCE SHALL BE STANDARD RIGID CONDUIT (GALVANIZED) WITH THREADED FITTINGS.
- C. UNDERGROUND CONDUIT MAY BE POLYVINYL CHLORIDE WITH A DEFLECTION TEMPERATURE, UNDER LOAD AT 204 PSI, OF 10 DEGREES C, AND A TENSILE STRENGTH OF 5,200 PSI. JOINTS SHALL BE FUSED. SOLVENT WELDED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS. CONDUIT SHALL BE EQUAL TO CARLON POWER AND COMMUNICATIONS DUCT TYPE DB (DIRECT BURIAL). CONDUIT AND FITTINGS SHALL BE PROVIDED BY THE SAME MANUFACTURER.
- D. FLEXIBLE METAL CONDUIT SHALL ONLY BE USED FOR CONNECTIONS TO MOTORS, TRANSFORMERS, AND LIGHT FIXTURES. MAXIMUM LENGTH SHALL BE 6'-0".
6. CONDUCTORS:
- A. WIRES SHALL BE CONTINUOUS WITHOUT SPLICES OR TAPS IN CONDUIT RUNS. ALL SPLICES SHALL BE MADE IN JUNCTION, PULL, OR OUTLET BOXES. ALL WIRES SHALL BE INSTALLED IN CONDUIT, MINIRAYS, OR OTHER PROTECTIVE COVER SANCTIONED BY CODES.
- B. CONDUCTORS FOR LIGHTING AND POWER SHALL BE COPPER, MINIMUM NO. 12 A.M.S., 600 VOLT.
- C. NO. 10 GAUGE AND SMALLER CONDUCTORS SHALL BE TYPE THHN (WET LOCATIONS) OR THHN (DRY LOCATIONS), SOLID CONDUCTOR, UNLESS OTHERWISE INDICATED.
- D. NO. 8 GAUGE AND LARGER CONDUCTORS SHALL BE TYPE THHN (WET LOCATIONS) OR THHN (DRY LOCATIONS), STRANDED, UNLESS OTHERWISE INDICATED.
- E. SERVICE ENTRANCE AND PANEL FEEDER CONDUCTORS, NO. 3 GAUGE AND LARGER SHALL BE TYPE XHHW-2 (WET LOCATIONS) OR THHN (DRY LOCATIONS), STRANDED COPPER, UNLESS OTHERWISE INDICATED.
7. MC CABLE:
- A. MC CABLE SHALL CONSIST OF INTERLOCK ARMORED CABLE MADE OF THREE OR FOUR TYPE THIN SOLID (16 AWG AND LARGER MAY BE STRANDED) COPPER CONDUCTORS RATED 90°C FOR DRY LOCATIONS, WITH NYLON LISTED JACKET, PER UL STANDARD 83. THE THREE CONDUCTORS SHALL BE TWISTED TOGETHER WITH THE COPPER GROUNDING CONDUCTOR, SUITABLE FILLERS, AND WRAPPED IN BINDER TAPE. THE ASSEMBLY SHALL BE ARMORED WITH SPIRALLY WRAPPED INTERLOCKED ARMOR OF ALUMINUM OR GALVANIZED STEEL.
- B. CABLES SHALL BE TESTED IN ACCORDANCE WITH UL STANDARD 1564 FOR TYPE MC CABLE AND RATED AT 600 VOLTS, 90 DEG. C FOR DRY LOCATIONS AND 75 DEG. C FOR WET LOCATIONS.
8. WIRING DEVICES:
- A. WALL SWITCHES SHALL BE SPECIFICATION GRADE, QUIET TYPE, FLUSH TOGGLE SWITCH, RATED FOR 20 AMPS, WITH THERMOPLASTIC COVER PLATES.
- 1) SINGLE POLE: HUBBELL KC51221-X, OR EQUAL.
- 2) THREE WAY: HUBBELL KC51223-X, OR EQUAL.
- B. RECEPTACLES SHALL BE SPECIFICATION GRADE, DUPLEX, GROUNDING, THREE-WIRE TYPE, RATED FOR 20 AMPS, WITH THERMOPLASTIC COVER PLATES. HUBBELL KC59523-X, OR EQUAL.
- C. GROUND FAULT INTERRUPTER RECEPTACLES (GFI) SHALL BE HUBBELL #GF20-XL. DEVICE COVER PLATES SHALL BE AS HEREINBEFORE SPECIFIED.
- D. ISOLATED GROUND RECEPTACLES (IG) SHALL BE HUBBELL KC59523, ORANGE COLOR. DEVICE COVER PLATES SHALL BE AS HEREINBEFORE SPECIFIED.
- E. RECEPTACLES OUTSIDE BUILDINGS AND WHERE NOTED AS WEATHERPROOF, SHALL BE LISTED WEATHER-RESISTANT HUBBELL #GFTR20-X OR EQUAL AND SHALL BE INSTALLED IN A WEATHERPROOF ENCLOSURE WHICH SHALL BE INTERMATIC WP1010XND OR WP1010XNDX DECAST METAL WEATHERPROOF RECEPTACLE COVER. COVER SHALL BE WEATHER PROOF RATED WHILE IN USE.
- F. VERIFY DEVICES AND DEVICE COVERPLATES COLOR AND STYLE WITH ARCHITECT.
9. BOXES:
- A. HOT DIPPED GALVANIZED STEEL BOXES. PROVIDE TYPE TO SUIT CONDITIONS FOR INSTALLATION.
- B. ALL BOXES SHALL BE FLUSH MOUNTED, UNLESS INDICATED OTHERWISE.
10. PANELBOARDS:
- A. FURNISH AND INSTALL CIRCUIT BREAKER PANELBOARDS AS SHOWN ON THE DRAWINGS. PANELBOARDS SHALL BE LISTED BY UL AND SO LABELED, AND SHALL BE FULLY RATED FOR THE VOLTAGE AND CURRENT CAPACITY INDICATED ON THE PANEL SCHEDULE. PANELBOARDS SHALL BE EQUAL TO SQUARE D TYPE NG OR NF WITH BOLT-IN TYPE BREAKERS. PANELBOARD LUGS SHALL BE RATED AT 75°C.
- 1) CIRCUIT BREAKER INTERRUPTING CAPACITIES SHALL MEET OR EXCEED THE AVAILABLE RMS SYMMETRICAL FAULT CURRENTS INDICATED AND AS REQUIRED TO MEET OR EXCEED THE AVAILABLE FAULT CURRENT FROM LOCAL UTILITY.
- B. CIRCUIT BREAKERS SHALL MEET APPLICABLE PORTIONS OF UL STANDARD 484 AND NEMA AB-1. CIRCUIT BREAKERS SHALL BE BOLT-ON, GROUND MOUNTED, AMBIENT MAGNETIC, WITH COMMON TRIP, UL RATED TO CARRY 80% OF NAMEPLATE RATING CONTINUOUSLY IN FREE AIR AT 40° C. CIRCUIT BREAKERS SHALL BE TRIP INDICATING AND FULLY INTERCHANGEABLE WITHOUT DISTURBING ADJACENT UNITS. WIRE TERMINALS SHALL BE RATED 75 DEGREES C. THE OPERATING MECHANISM SHALL BE TRIP-FREE SO THAT CONTACTS CANNOT BE HELD CLOSED AGAINST ANY ABNORMAL OVERCURRENT OR SHORT CIRCUIT CONDITION.
- a) BREAKERS SHALL MEET APPLICABLE NEMA AND/OR UL SPECIFICATIONS.
- C. PANELBOARD BOXES SHALL BE GALVANIZED SHEET STEEL WITH AMPLE WIRING GUTTER SPACE IN ACCORDANCE WITH NEC. FRONTS SHALL BE OF SHEET STEEL PAINTED LIGHT GREY OVER A SUITABLE RUST INHIBITOR PRIMER. PANELBOARDS SHALL BE EQUIPPED WITH ONE REAR DOOR, CYLINDER TUMBLER TYPE LOCK, DIRECTORY CARD-HOLDER AND QUARTER-TURN ADJUSTABLE TRIM CLAMPS.
- D. PANELBOARD INTERIORS SHALL CONSIST OF REINFORCED GALVANIZED SHEET STEEL FRAMES WITH ALUMINUM BUS BARS AND CIRCUIT BREAKERS, PROPERLY SUPPORTED TO PREVENT VIBRATIONS AND BREAKAGE IN HANDLING. BUS BARS SHALL BE SEQUENCE PHASED. PANELBOARD SHALL HAVE A FULL SIZED SOLID ALUMINUM NEUTRAL AND GROUND BUS.
- E. BUS BAR BRACING SHALL BE UL LISTED AS INDICATED ON DRAWINGS. ADDITIONAL BRACING SHALL BE PROVIDED AS REQUIRED TO MEET OR EXCEED INDICATED AVAILABLE FAULT CURRENTS.
- F. DIRECTORY CARDS SHALL BE COMPLETELY FILLED IN BY TYPEWRITER, LISTING CIRCUIT NUMBERS AND LOAD SERVICE, INCLUDING EXISTING CIRCUITS. CIRCUIT BREAKERS SHALL BE IDENTIFIED BY CIRCUIT NUMBER LABELS AS HEREINBEFORE SPECIFIED.
11. DISCONNECTS:
- A. DISCONNECTS SHALL BE EXTERNALLY OPERATED, QUICK-MAKE, QUICK-BREAK, SAFETY, WITH PROVISIONS FOR PAD LOCKING. FUSED AND NON-FUSED DISCONNECT SWITCHES SHALL BE PROVIDED AS INDICATED.
- B. INDOOR SWITCHES SHALL BE NEMA 1 AND OUTDOOR SWITCHES SHALL BE NEMA 3R, UNLESS INDICATED OTHERWISE.

ELECTRICAL SPECIFICATIONS (CONTINUED)

12. FUSES:
- A. FUSES PROTECTING CIRCUIT BREAKER PANELS SHALL BE CURRENT LIMITING UL, CLASS RK-1 FUSES WITH 200,000 AMPERES RMS SYM INTERRUPTING CAPACITY. FUSING ELEMENTS SHALL BE SILVER FOR RATINGS ABOVE 40 AMPERES.
- B. ALL OTHER FUSES SHALL BE UL, CLASS RK-5, DUAL-ELEMENT WITH A MINIMUM TIME DELAY OF 10 SECONDS AT 800% RATING. FUSES SHALL HAVE CURRENT-LIMITING SHORT-CIRCUIT LINES AND 200,000 AMPERES RMS SYM INTERRUPTING CAPACITY. FUSING ELEMENTS SHALL BE COPPER.
13. LIGHT FIXTURES:
- A. WHERE LIGHT FIXTURES ARE MOUNTED IN A LAY-IN CEILING, PROVIDE A MINIMUM OF 2 SUPPORT WIRES ATTACHED DIRECTLY BETWEEN EACH LIGHT FIXTURE AND THE BUILDING STRUCTURE. SUPPORT WIRES SHALL BE A MINIMUM OF 12 GAUGE GALVANIZED STEEL WIRE, SOFT ANNEALED.
- B. FIXTURES ARE REQUIRED AT ALL LIGHTING OUTLETS SHOWN ON THE DRAWINGS. APPROVED LIGHTING FIXTURE WIRE IS REQUIRED IN ALL FIXTURES AND FIXTURE RACEWAYS. WEATHERPROOF WIRING IS REQUIRED FOR EXTERIOR FIXTURES. ALL PARTS OF FIXTURES AND WIRING SHALL BE IN ACCORDANCE WITH NEC REQUIREMENTS.
- C. ALL FIXTURES SHALL CARRY UL AND ETL LABELS.
14. SLEEVES:
- A. PROVIDE, SET, AND PROPERLY LOCATE PIPE SLEEVES AS REQUIRED FOR THIS WORK.
- B. INTERIOR PARTITIONS: 16 GAUGE GALVANIZED STEEL, PACK BETWEEN CONDUIT AND SLEEVE WITH FIRE RATING AND GULF AT EACH END WITH FIRE RESISTANT SEALANT.
- C. ROOF: PROSET OR EQUAL, MANUFACTURED PVC SCHEDULE 40 PIPE SLEEVE WITH WEATHERPROOF SEAL. COORDINATE WITH ROOFING CONTRACTOR AND FLASH AS REQUIRED TO MAINTAIN ROOF WARRANTY.
15. GROUNDING:
- A. GROUND ALL ELECTRICAL APPARATUS IN ACCORDANCE WITH THE NATIONAL ELECTRIC CODE (NEC) 250, AND ANY LOCAL REQUIREMENTS. INSURE CONTINUOUS BOND WHERE FLEXIBLE CONDUIT IS USED. PROVIDE BONDING JUMPER INSIDE ALL FLEXIBLE CONDUIT.
- B. BOND METAL PIPING SYSTEMS IN COMPLIANCE WITH NEC 250.4(A)(4).
16. BOXES IN FIRE RATED ASSEMBLIES:
- A. OUTLET BOXES THAT DO NOT EXCEED 16 SQUARE INCHES AND INSTALLED IN FIRE RATED WALLS SHALL NOT BE INSTALLED CLOSER THAN 24" HORIZONTAL, NGES TO OTHER OUTLET BOXES.
- B. IF BOXES MUST BE INSTALLED WITHIN 24" OF EACH OTHER THAN BOTH OUTLET BOXES SHALL BE PROTECTED WITH LISTED PUTTY PADS, 3M FIRE BARRIER MOLDABLE PUTTY, OR EQUAL.

ELECTRICAL SYMBOLS LIST	
CIRCUITING & NOTES	
+48"	SPECIAL MOUNTING HEIGHT FOR ASSOCIATED DEVICE (CENTERLINE OF DEVICE)
GFI	GROUND FAULT CIRCUIT INTERRUPTER DEVICE
WP	WEATHERPROOF ENCLOSURE ON DEVICE
WR	WEATHERPROOF RESISTANT DEVICE
X	ELECTRICAL FLOOR PLAN NOTE WITH DESIGNATION
2 LP	CONDUIT CONCEALED WHERE POSSIBLE OR AS NOTED, ARROWS INDICATE HOME RUN TO PANEL. CIRCUIT NUMBERS INDICATED
⎓	#12 WIRE IN CONDUIT, UNLESS NOTED OTHERWISE ON DRAWINGS OR SPECIFICATION
⎓	GROUNDING CONDUCTOR, #12 WIRE UNLESS NOTED OTHERWISE ON DRAWINGS OR SPECIFICATION
⎓	CONDUIT ROUTED UNDER FLOOR/GRADE
LIGHTING	
⎓	EMERGENCY TWIN HEAD LIGHT FIXTURE
⎓	EXIT LIGHT WITH DIRECTIONAL ARROWS INDICATED
⎓	STRIP FIXTURE WITH TYPE DESIGNATION
⎓	RECESSED OR SURFACE MOUNTED FIXTURE WITH TYPE DESIGNATION
⎓	NIGHT LIGHT, CONNECT TO UNSWITCHED CIRCUIT
⎓	CEILING OR RECESSED FIXTURE WITH TYPE DESIGNATION
⎓	WALL MOUNTED FIXTURE WITH TYPE DESIGNATION
POWER DEVICES	
⎓	DUPLEX RECEPTACLE, BOTTOM OF BOX AT 16" AFF, UNLESS NOTED OTHERWISE
⎓	FOURPLEX RECEPTACLE, BOTTOM OF BOX AT 16" AFF, UNLESS NOTED OTHERWISE
⎓	DEVICE MOUNTED ABOVE COUNTER AND/OR SPLASH GUARD
⎓	HEAVY DUTY OUTLET - NEMA CONFIGURATION SIZE PER EQUIPMENT MANUFACTURER'S RECOMMENDATION
⎓	PANEL BOARD, TOP OF BOX 6'-0" AFF
⎓	JUNCTION BOX
⎓	NON-FUSED DISCONNECT SWITCH
⎓	FUSED DISCONNECT SWITCH
⎓	MOTOR WITH DESIGNATION
CONTROLS	
S	SINGLE POLE WALL SWITCH, TOP OF BOX AT 48" AFF
S ₂	TWO POLE WALL SWITCH, TOP OF BOX AT 48" AFF
S ₃	THREE-WAY WALL SWITCH, TOP OF BOX AT 48" AFF
S ₄	FOUR-WAY WALL SWITCH, TOP OF BOX AT 48" AFF
S _m	MANUAL MOTOR STARTER WITH OVERLOADS
COMMUNICATIONS	
▼	DATA/TELEPHONE OUTLET WITH MINIMUM 3/4" CONDUIT STUBBED UP TO ABOVE ACCESSIBLE CEILING, BOTTOM OF BOX AT 16", UNLESS NOTED OTHERWISE. PROVIDE WITH PULL STRING
MISCELLANEOUS	
⎓	120V AUDIBLE BASE CEILING MOUNT SMOKE DETECTOR, WIRE TO CIRCUIT F-15 WITH #12AWG.

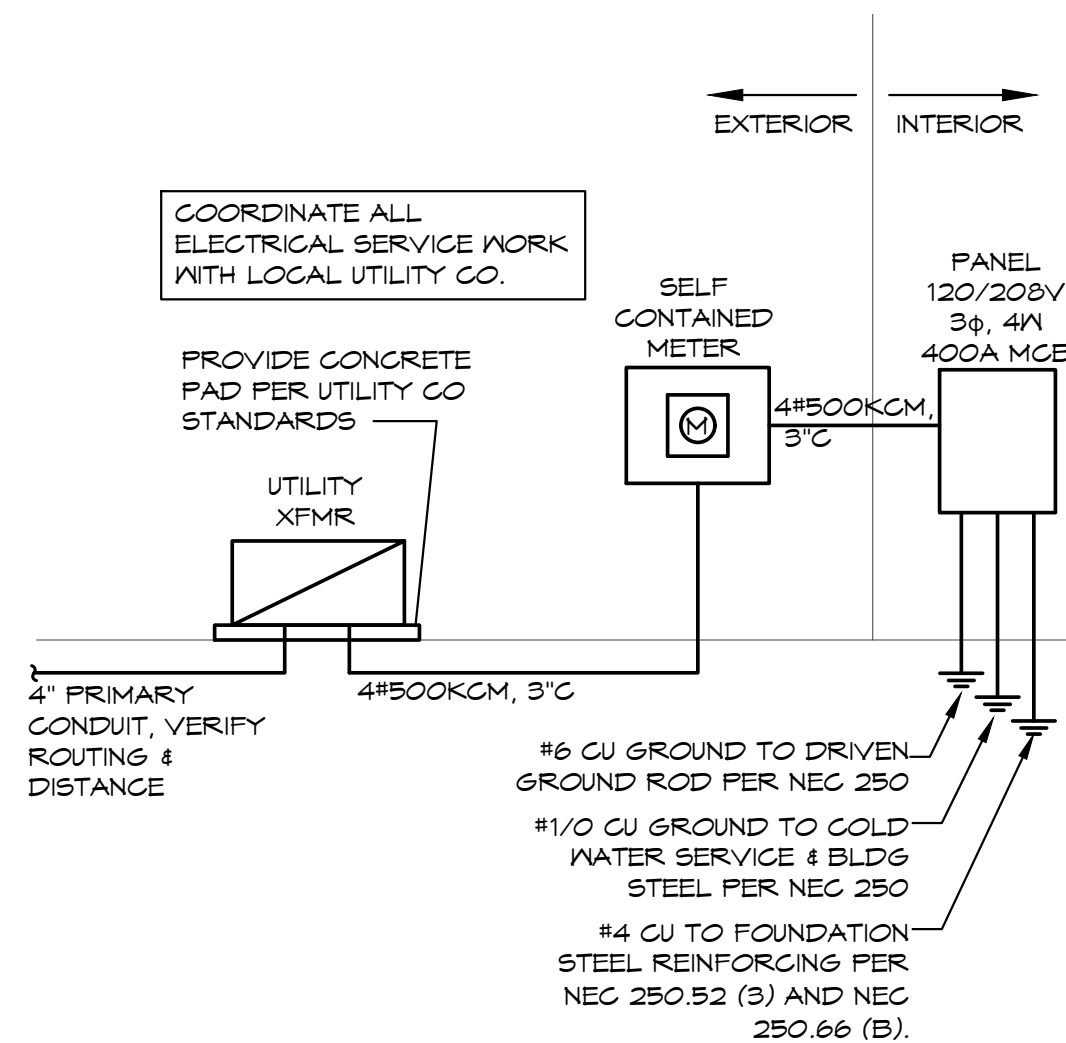
LIGHT FIXTURE SCHEDULE

MARK NO.	MANUFACTURER & CATALOG NUMBER	VOLTS WATTS	LIGHT SOURCE	DESCRIPTION
A	8' LED FIXTURE	120 150	LED	8' LED FIXTURE IN HANGER. VERIFY MOUNTING WITH OWNER/ARCHITECT.
B	8' LED FIXTURE	120 150	LED	8' LED FIXTURE IN HANGER. VERIFY MOUNTING WITH OWNER/ARCHITECT.
C	WALL MOUNTED FIXTURE	120 50	LED	EXTERIOR RATED EXTERIOR FIXTURE. VERIFY LOCATION WITH OWNER/ARCHITECT.
D	WALL MOUNTED FIXTURE	120 25	LED	WALL MOUNTED FIXTURE FOR STORAGE UNDER STAIRS.
F	WALL MOUNTED FIXTURE	120 25	LED	WALL MOUNTED FIXTURE ABOVE VANITY MIRROR IN RESTROOM.
R	6" IC RATED LED CAN	120 20	LED	6" IC RATED LED CAN
WP	EXTERIOR WALL PACK	120 75	LED	EXTERIOR WALL PACK WITH INTEGRAL PHOTOCELL. VERIFY EXACT LOCATION WITH OWNER/ARCHITECT
⎓	WALL MOUNTED EMERGENCY LIGHT	120 1	INCL	EMERGENCY LIGHT WITH TWIN ADJUSTABLE LED HEADS AND BATTERY, MOUNT AT 7'-6", TO CLEAR OBSTACLES.
⎓	WALL MOUNTED COMBINATION EXIT/EMERGENCY LIGHT	120 3	INCL	COMBINATION EMERGENCY/EXIT LIGHT WITH LED LAMPS, RED LETTERS ON WHITE BACKGROUND, TWIN LED EMERGENCY LIGHT HEADS, UNIVERSAL MOUNT, BATTERY BACKUP
⎓	WALL MOUNTED COMBINATION EXIT/EMERGENCY LIGHT AND REMOTE TWIN HEAD EMERGENCY LIGHT	120 5	INCL	COMBINATION EMERGENCY/EXIT LIGHT WITH LED LAMPS, RED LETTERS ON WHITE BACKGROUND, TWIN EMERGENCY LIGHT HEADS, UNIVERSAL MOUNT, HIGH CAPACITY BATTERY BACKUP AND REMOTE TWIN HEAD OUTDOOR RATED FIXTURE

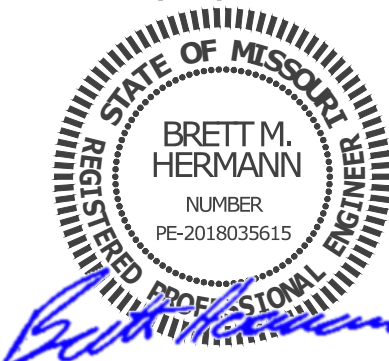
PANEL: F		VOLTS: 120/208V			PH: 3Ø		WIRE: 4W		LOCATION: HANGER			MOUNTING: SURFACE					
BUS: 400A		MAIN: 400A MCB			IG: 22,000		RMS SYM AMPS						FEEDER: SEE RISER DIAGRAM				
CKT	DESCRIPTION	AMPS	POLE	WIRE	ØA	ØB	ØC	ØA	ØB	ØC	WIRE	POLE	AMPS	DESCRIPTION	CKT NO		
1	BNH-1	100	2	3	9,000			840			12	1	20	UH-1	2		
3						9,000			840		10	1	20	UH-2	4		
5	BNH-2	100	2	3			9,000			7,020	4	2	70	AHU-1	6		
7					9,000			7,020							8		
9	CU-1	40	2	6		2,600			7,020		4	2	70	AHU-2	10		
11							2,600			7,020					12		
13	CU-2	40	2	6	2,600			646			12	1	20	EF-3	14		
15						2,600			1,000		10	1	20		EXT LTS	16	
17	OVERHEAD DOOR	20	2	10			1,200			500	12	1	20	SMOKE DETECTORS [HL]	18		
19					1,200			720			12	1	20	MAIN FLR GEN/RR RECS	20		
21	HANGER QUAD	20	1	10		360			1,000		12	1	20	MAIN FLR COUNTER/DISP [GF]	22		
23	HANGER QUAD	20	1	10			360			1,500	10	1	20	MAIN FLR MICROWAVE [GF]	24		
25	HANGER QUAD	20	1	10	360			1,500			10	1	20	MAIN FLR MICROWAVE [GF]	26		
27	HANGER QUAD	20	1	10		360			1,440		10	1	20	MAIN FLR OFFICE RECS	28		
29	HANGER QUAD	20	1	10			360			1,440	8	1	20	MAIN FLR OFFICE RECS	30		
31	HANGER QUAD	20	1	10	360			1,440			8	1	20	MAIN FLR OFFICE RECS	32		
33	HANGER QUAD	20	1	10		360			1,440		8	1	20	MAIN FLR OFFICE RECS	34		
35	EXT REC	20	1	12			180			900	12	1	20	UPPER FLR GEN/RR RECS	36		
37	SPARE	20	1					1,500			10	1	20	UPPER FLR MICROWAVE [GF]	38		
39	OFFICE LTS	20	1	12		1,315			1,500		10	1	20	UPPER FLR MICROWAVE [GF]	40		
41	HANGER LTS	20	1	12			1,650			1,260	10	1	20	UPPER FLR OFFICE RECS	42		
43	SPARE	20	1					1,260			10	1	20	UPPER FLR OFFICE RECS	44		
45	SPARE	20	1						1,260		8	1	20	UPPER FLR OFFICE RECS	46		
47	SPARE	20	1							1,260	8	1	20	UPPER FLR OFFICE RECS	48		
49	BUSSED SPACE											1	20	SPARE	50		
51	BUSSED SPACE											1	20	SPARE	52		
53	BUSSED SPACE											1	20	SPARE	54		
55	BUSSED SPACE													BUSSED SPACE	56		
57	BUSSED SPACE													BUSSED SPACE	58		
59	BUSSED SPACE													BUSSED SPACE	60		
NOTES:					22,520	16,545	15,350	14,976	15,500	20,900							
[HL]-HANDLE LOCK, [GF]-GFCI BRKR 5mA					37,446		32,045		36,250		TOTAL CONNECTED LOAD:					105,841	VA
											NEG DEMAND LOAD:					104,712	VA
											DEMAND AMPS @ 208 VOLT / 3Ø:					240.82	A

ELECTRICAL GENERAL NOTES:

1. COORDINATE ALL WORK WITH OTHER TRADES AND EXISTING CONDITIONS AS REQUIRED TO PROPERLY INSTALL ALL SYSTEMS AS INTENDED, WITHIN THE CONFINES OF THE SPACES AVAILABLE, AND WITHOUT INTERFERENCES.
2. IT IS THE ELECTRICAL CONTRACTOR'S RESPONSIBILITY TO PROPERLY BALANCE ALL BRANCH CIRCUITS BETWEEN THE PHASES OF THE SYSTEM REGARDLESS OF CIRCUITING INDICATED.
3. ALL EXPOSED RACEWAYS SHALL BE EMT CONDUIT, MC CABLE IS NOT PERMITTED IN EXPOSED AREAS.
4. ELECTRICAL CONTRACTOR TO COORDINATE MANUFACTURER ELECTRICAL REQUIREMENTS FOR HVAC EQUIPMENT BEING FURNISHED WITH MECHANICAL CONTRACTOR PRIOR TO ROUGH-IN. EQUIPMENT DISCONNECTS TO BE PROVIDED BY ELECTRICAL CONTRACTOR UNLESS NOTED OTHERWISE IN MECHANICAL SCHEDULES.
5. REFER TO ARCHITECTURAL DRAWINGS FOR EXACT LOCATION OF LIGHT FIXTURES AND DEVICES.
6. REFER TO ARCHITECTURAL & STRUCTURAL DRAWINGS FOR REQUIREMENTS FOR SUPPORTING TRANSFORMERS, EQUIPMENT, ETC. FROM THE STRUCTURE. PROVIDE ADDITIONAL STEEL AS REQUIRED TO PROPERLY SUPPORT SYSTEMS FROM THE STRUCTURE.
7. ALL MATERIALS EXPOSED WITHIN PLENUMS SHALL BE NONCOMBUSTIBLE OR SHALL HAVE A FLAME SPREAD INDEX OF NOT MORE THAN 25 AND A SMOKE-DEVELOPED INDEX OF NOT MORE THAN 50 WHEN TESTED IN ACCORDANCE WITH ASTM E 84.
8. EACH BRANCH CIRCUIT SHALL HAVE A DEDICATED NEUTRAL PER NEC 210.4.
9. ALL BRANCH CIRCUITS SHALL BE SIZED TO ALLOW FOR A MAXIMUM OF 3% VOLTAGE DROP. ALL FEEDERS SHALL BE SIZED TO ALLOW FOR A MAXIMUM OF 2% VOLTAGE DROP. ELECTRICAL CONTRACTOR SHALL VERIFY WIRING INDICATED IS SUFFICIENT AND INCREASE CONDUCTOR SIZE AS REQUIRED BASED OFF ACTUAL INSTALLED LENGTH OF CONDUCTORS.
10. REFER TO ELECTRICAL SCOPE OF WORK ON SHEET A102 FOR MORE INFORMATION.

ELECTRICAL RISER DIAGRAM
SCALE: NONE

5/14/2020



Signature
BUILDERS
KC, LLC

Signature Builders KC, LLC
2751 NE Douglas St. - Suite R
Lee's Summit, Missouri 64064
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Website:
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New Airplane Hangar

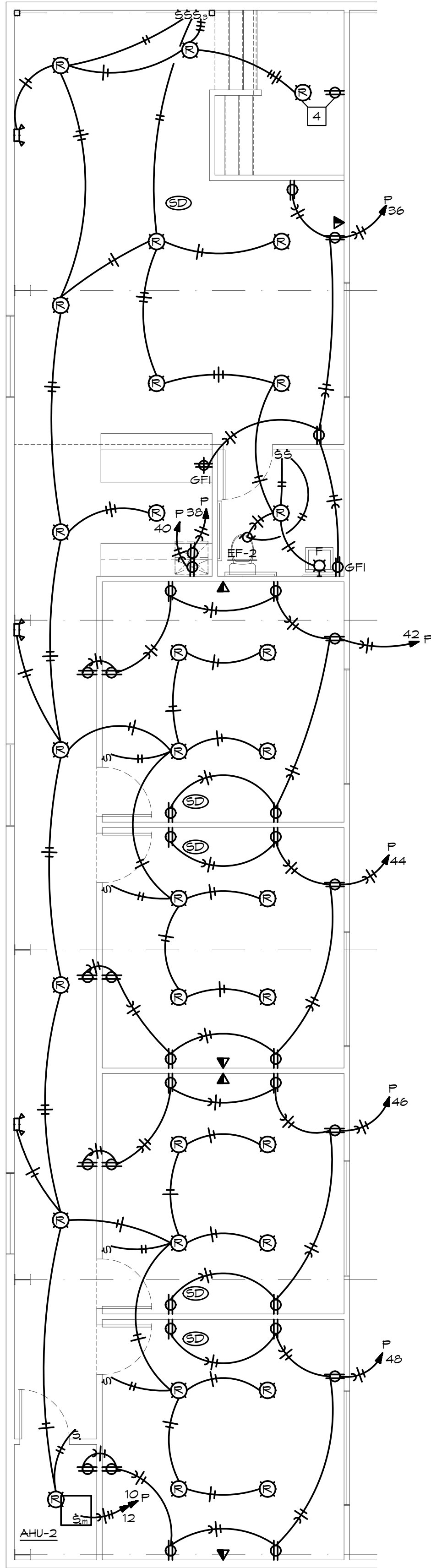
CAD Construction Documents
Voice / Text : 913.638.3241
mgspencer@sbcglobal.net

Residential AutoCAD Drafting
and Design Services

No.	Description	Date

CONSTRUCTION
DOCUMENTS

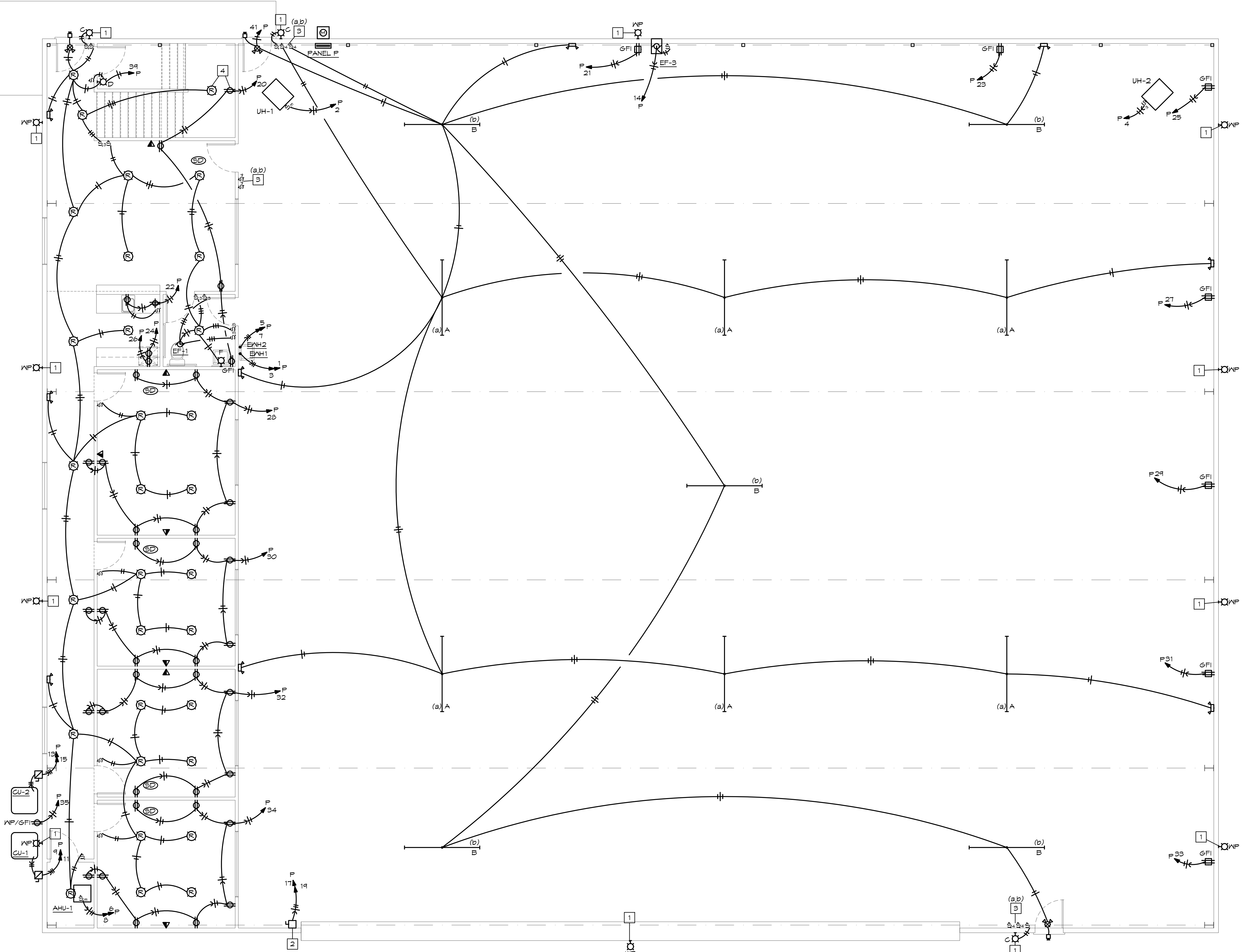
Project Number	2019.03
Date	2020 MAY 14
Drawn By	SP/BH
Checked By	EK/DS



UPPER FLOOR ELECTRICAL PLAN
 SCALE: 3/16" = 1'-0"

ELECTRICAL PLAN NOTES:

- 1 CONNECT EXTERIOR LIGHT TO CIRCUIT P-16 WITH #10AWG.
- 2 CONNECT TO OVERHEAD DOOR OPERATOR PER MANUFACTURERS INSTRUCTIONS. INSTALL COMPLETE. VERIFY EXACT LOCATION AND ELECTRICAL REQUIREMENTS.
- 3 MAKE CONNECTION BETWEEN 3-WAY/4-WAY SWITCHES CONTROLLING HANGER LIGHTS AS INDICATED BY (a,b).
- 4 LIGHT FIXTURE AND RECEPTACLE SHOWN ON BOTH MAIN FLOOR AND UPPER FLOOR PLAN.



MAIN FLOOR ELECTRICAL PLAN
 SCALE: 3/16" = 1'-0"

BC PROJECT #: 20388
 MISSOURI PE COA #2009003629
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No.	Description	Date

CONSTRUCTION DOCUMENTS

Project Number 2019.03
 Date 2020 MAY 14
 Drawn By SP/BH
 Checked By EK/DS

E-100

Scale 3/16" = 1'-0"