

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 TESTS 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 UNDAUNAGED. 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 SHALL MATCH ADJACENT AREA. COORDINATE ALL 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.
- I. CONTRACTOR SHALL PROMPTLY CALL ENGINEERS ATTENTION TO ANY APPARENT CONTRADICTIONS, AMBIGUITIES, ERRORS, DISCREPANCIES, OR OMISSIONS IN THE PLANS OR SPECIFICATIONS.
2. OPERATION AND MAINTENANCE MANUALS:
- A. DURING THE COURSE OF CONSTRUCTION, COLLECT AND COMPILE OPERATING INSTRUCTIONS, WIRING DIAGRAMS, CABLE AND CABLE TRAY LAYOUTS, 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 LABELLED 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 INTERPRETTED 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 LOADING 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 SCREEN SET FITTINGS.
- B. CONDUIT EXPOSED TO THE WEATHER, INSTALLED UNDERGROUND, IN CONCRETE, OR USED FOR SERVICE ENTRANCE SHALL BE STANDARD RIGID CONDUIT (GALVANIZED) WITH THROUGH FITTINGS.
- C. UNDERGROUND CONDUIT MAY BE POLY-VINYL CHLORIDE WITH A DEFLECTION TEMPERATURE UNDER LOAD AT 254 PSI OF 75 DEGREES C, AND A TENSILE STRENGTH OF 5,200 PSI. JOINTS SHALL BE FLUSH 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 WIRE SHALL BE INSTALLED IN CONDUIT, RACEWAYS, OR OTHER PROTECTIVE COVER SANCTIONED BY CODES.
- B. CONDUCTORS FOR LIGHTING AND POWER SHALL BE COPPER, MINIMUM NO. 12 AWG, 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 THHN SOLID (NO ANY AND LARGER MAY BE STRANDED) COPPER CONDUCTORS RATED 90°C FOR DRY LOCATIONS, WITH NYLON OR EQUIVALENT UL 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 1569 FOR TYPE MC CABLE AND RATED AT 600 VOLTS, 90 DEG. C FOR DRY LOCATIONS AND 75 DEG. C FOR WET LOCATIONS.
- C. MC CABLE INSTALLED IN PATIENT CARE AREAS SHALL BE HCF TYPE WITH GREEN INSULATED COPPER GROUNDING CONDUCTOR, BARE ALUMINUM GROUNDING/BONDING CONDUCTOR AND INTERLOCKED GREEN ALUMINUM ARMOR LISTED FOR USE AS AN EQUIPMENT GROUNDING CONDUCTOR IN CONJUNCTION WITH THE BARE ALUMINUM BONDING CONDUCTOR.
- 1) CABLES SHALL MEET ALL NEC REQUIREMENTS FOR ARTICLE 517 AND SHALL BE UL LISTED FOR USE IN HEALTH CARE FACILITIES.
- 2) HCF CABLE SHALL NOT BE USED IN HAZARDOUS ANESTHETIZING AREAS.
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 K561221-X, OR EQUAL.
- 2) THREE WAY: HUBBELL K561223-X, OR EQUAL.
- 3) AS SPECIFIED ON PLANS.
- B. RECEPTACLES SHALL BE SPECIFICATION GRADE, DUPLEX, GROUNDING, THREE-WIRE TYPE, RATED FOR 20 AMPS, WITH THERMOPLASTIC COVER PLATES. HUBBELL K5R5952-X, OR EQUAL.
- C. GROUND FAULT INTERRUPTER RECEPTACLES (GFI) SHALL BE HUBBELL K5P120-XL. DEVICE COVER PLATES SHALL BE AS HEREINBEFORE SPECIFIED.
- D. ISOLATED GROUND RECEPTACLES (IG) SHALL BE HUBBELL K5R59526, 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 K5P120-X OR EQUAL AND SHALL BE INSTALLED IN A WEATHERPROOF ENCLOSURE WHICH SHALL BE INTERMATIC INVENTION OR MECHANICAL DECADEST 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 489 AND NEMA AB-1. CIRCUIT BREAKERS SHALL BE BOLT-ON, GROUP 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.
- C. BREAKERS SHALL MEET APPLICABLE NEMA AND/OR UL SPECIFICATIONS.
- D. PANELBOARD BOXES SHALL BE GALVANIZED SHEET STEEL WITH AMPLIFIED 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 PIECE DOOR, CYLINDER TUMBLER TYPE LOCK, DIRECTORY CARD-HOLDER AND QUARTER-TURN ADJUSTABLE TRIM CLAMPS.
- E. 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.

ELECTRICAL SPECIFICATIONS (CONTINUED)

- E. BUS BAR BRACS 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 SERVED, 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.
12. FUSES:
- A. FUSES PROTECTING CIRCUIT BREAKER PANELS SHALL BE CURRENT LIMITING U.L. CLASS RK-1 FUSES WITH 200,000 AMPERES RMS SYM INTERRUPTING CAPACITY. FUSING ELEMENTS SHALL BE SILVER FOR RATINGS ABOVE 60 AMPERES.
- B. ALL OTHER FUSES SHALL BE U.L. CLASS RK-5, DUAL-ELEMENT WITH A MINIMUM TIME-DELAY OF 10 SECONDS AT 800% RT IACH. FUSES SHALL HAVE CURRENT-LIMITING SHORT-CIRCUIT LINKS 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 GAGE GALVANIZED STEEL, PACK BETWEEN CONDUIT AND SLEEVE WITH FIRE RATING AND SEALANT 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 REGULATIONS. PROVIDE BONDING JUMPER INSIDE ALL FLEXIBLE CONDUIT.
- B. BOND METAL PIPING SYSTEMS IN COMPLIANCE WITH NEC 250.4(A)(4).
16. REMODELING WORK:
- A. DEMOLITION: DISCONNECT, DEMOLISH AND REMOVE ABANDONED ELECTRICAL MATERIALS AND EQUIPMENT INDICATED TO BE REMOVED AND NOT INDICATED TO BE SALVAGED OR REMAIN.
- B. EQUIPMENT TO BE SALVAGED:
- 1) DISCONNECT AND REMOVE EXISTING ELECTRICAL EQUIPMENT INDICATED TO BE REMOVED AND SALVAGED. DELIVER EQUIPMENT TO THE LOCATION DESIGNATED BY THE OWNER FOR STORAGE.
- 2) ALL MATERIALS AND EQUIPMENT DESIGNATED TO BE REUSED OR RELOCATED SHALL BE CAREFULLY REMOVED, AND STORED UNTIL NEEDED FOR REMODELING WORK. ALL ITEMS SHALL BE RESTORED TO LIKE NEW CONDITION WITH RUST OR CORROSION REMOVED, SURFACE PAINT TOUCHED UP OR REPAINTED AS REQUIRED TO MATCH NEW CONSTRUCTION, AND THOROUGHLY CLEANED AND INSPECTED. ANY ITEMS WHICH BECOME DAMAGED BEYOND REPAIR AS A RESULT OF CONSTRUCTION OR DEMOLITION ACTIVITY SHALL BE REPLACED WITH NEW MATERIAL, EQUIVALENT IN EVERY RESPECT.
- C. DISPOSAL AND CLEANUP: REMOVE FROM THE SITE AND LEGALLY DISPOSE OF DEMOLISHED MATERIALS AND EQUIPMENT NOT INDICATED TO BE SALVAGED.
- D. PROTECT ADJACENT MATERIALS INDICATED TO REMAIN. INSTALL AND MAINTAIN DUST AND NOISE BARRIERS TO KEEP DIRT, DUST, AND NOISE FROM BEING TRANSMITTED TO ADJACENT AREAS. REMOVE PROTECTION AND BARRIERS AFTER REMODELING OPERATIONS ARE COMPLETE.
- E. PROVIDE ALL ALTERATIONS AND REWORK INDICATED AND/OR REQUIRED FOR THE PROPER INSTALLATION AND OPERATION OF ALL EXISTING ELECTRICAL SYSTEMS, INTEGRATING THE NEW AND EXISTING AREAS. LOCATE, IDENTIFY, AND PROTECT ELECTRICAL SERVICES PASSING THROUGH REMODELING AREA AND SERVING OTHER AREAS OUTSIDE THE REMODELING LIMITS. MAINTAIN SERVICES TO AREAS OUTSIDE REMODELING LIMITS. WHEN SERVICES MUST BE INTERRUPTED, INSTALL TEMPORARY SERVICES FOR AFFECTED AREAS.
- 1) ABANDONED CONDUIT SHALL HAVE WIRE REMOVED AND SHALL BE CAPPED. ABANDONED OUTLETS IN WALLS OR PARTITIONS SHALL HAVE DEVICES AND WIRE REMOVED, AND SHALL BE COVERED.
- 2) WHERE EXISTING CONDUITS TERMINATE AT AN EXISTING OUTLET IN A WALL, CEILING, OR FLOOR TO BE REMOVED, DISCONNECT AND REMOVE DEVICE AND WIRE FROM CONDUIT. CONDUIT SHALL BE CUT BACK AND CAPPED (BELOW THE FLOOR OR ABOVE THE CEILING) SO NOT TO CREATE AN OBSTRUCTION. PATCH FLOOR TO MATCH EXISTING.
- 3) WHERE EXISTING CIRCUITS EXTEND BEYOND THE OUTLET IN THE EXISTING WALL, CEILING, OR FLOOR TO BE REMOVED, FURNISH AND INSTALL NEW CONDUIT AND WIRE TO EITHER REROUTE THE CIRCUIT OR FEED THE REMAINING OUTLET(S) FROM ANOTHER ELECTRICAL SOURCE, BUT IN SUCH A MANNER AS NOT TO REVISE THE CIRCUIT. ALL REROUTED CONDUIT SHALL BE APPROVED BY THE ARCHITECT.
- 4) WHERE EXISTING OUTLETS IN A WALL, CEILING, OR FLOOR TO BE REMOVED ARE ESSENTIAL TO MAINTAIN OPERATION OF OTHER REMAINING OUTLETS, RELOCATE THE OUTLET TO A NEW CONVENIENT LOCATION. EXISTING WIRING DEVICES SHALL NOT BE REUSED, UNLESS OTHERWISE INDICATED.
- 5) WHERE LIGHTING FIXTURES ARE INDICATED TO BE DEMOLISHED, REMOVE ALL WIRE AND MODIFY THE EXISTING CONDUIT (IF APPLICABLE) FOR THE NEW LIGHTING. ALL UNUSED CONDUIT SHALL BE REMOVED.
- 6) WHERE A TELEPHONE CIRCUIT EXTENDS BEYOND AN OUTLET IN AN EXISTING WALL, CEILING, OR FLOOR TO BE REMOVED, PROVIDE NECESSARY EMPTY CONDUIT AND WIRE TO THE OUTLET WHO WILL REQUEST THE OWNER TO ARRANGE WITH THE TELEPHONE COMPANY FOR NEW WIRING TO OUTLETS THAT REMAIN.
- 7) WHERE EXISTING CONDUIT AND WIRE RUNS ARE LOCATED IN OR ATTACHED TO AN EXISTING WALL, CEILING OR FLOOR TO BE REMOVED, THEY SHALL BE REROUTED IN EITHER NEW OR EXISTING CONSTRUCTION TO MAINTAIN CONTINUITY OF CIRCUITS UNLESS OTHERWISE INDICATED.
- 8) EXISTING WIRE SHALL BE DISCONNECTED AND REMOVED WHEREVER EXISTING CIRCUITS ARE ABANDONED.
17. 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 INCHES 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.
18. FIRE ALARM SYSTEM (AEGIS FIRE PROTECTION):
- ELECTRICAL CONTRACTOR SHALL PROVIDE DESIGN BUILD ENGINEERED SHOP DRAWINGS OF FIRE ALARM SYSTEM TO BE INSTALLED. PROVIDE DEVICES, CONDUIT, WIRES, CABLE, PROGRAMMING AND TESTING AS DIRECTED BY EQUIPMENT MANUFACTURER AND LOCAL FIRE DEPARTMENT FOR A CODE COMPLIANT FIRE ALARM/DETECTION SYSTEM. MATERIALS, EQUIPMENT, AND WORKMANSHIP SHALL MEET PREVAILING CODES. THE SYSTEM SHALL BE COMPLETE AND OPERABLE. SUBMIT ONE LINE DIAGRAM OF SYSTEM WITH SIZES AND BATTERY CALCULATIONS. EQUIPMENT TO BE NEW AND SHALL BE STAMPED, SIGNED, CALIBRATION DATING AND TOP TESTED BY FACTORY CERTIFIED TECHNICIAN. FIRE ALARM ARE SHOWN FOR INTENT ONLY FOR PERMITTING PROCESS. CONTRACTOR IS RESPONSIBLE FOR INCLUDING IN BID/DESIGN ALL NECESSARY DEVICES (ANNUNCIATOR(S)), NOTIFICATION APPLICANCES, INITIATING DEVICES, AND ADDITIONAL COMPONENTS).

ELECTRICAL SYMBOLS LIST	
CIRCUITING & NOTES	
+46"	SPECIAL MOUNTING HEIGHT FOR ASSOCIATED DEVICE (CENTERLINE OF DEVICE)
GFI	GROUND FAULT CIRCUIT INTERRUPTER DEVICE
WP	WEATHERPROOF ENCLOSURE ON DEVICE
E	EXISTING DEVICE TO REMAIN
	ELECTRICAL FLOOR PLAN NOTE WITH DESIGNATION
	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
S2	TWO POLE WALL SWITCH, TOP OF BOX AT 48" AFF
S3	THREE-WAY WALL SWITCH, TOP OF BOX AT 48" AFF
S4	MANUAL MOTOR STARTER WITH OVERLOADS
S5	DIMMER SWITCH, TOP OF BOX AT 48" AFF. VERIFY DIMMER TYPE AND COMPATIBILITY WITH FIXTURE (0-10V, ELV, LINE VOLTAGE)
S10	THREE WAY DIMMER SWITCH, TOP OF BOX AT 48" AFF. VERIFY DIMMER TYPE AND COMPATIBILITY WITH FIXTURE (0-10V, ELV, LINE VOLTAGE)
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
	FLAT SCREEN TELEVISION - PROVIDE AND INSTALL ONE (1) HUBBELL #RR1510X RECESSED TAMPER-RESISTANT DUPLEX RECEPTACLE WITH COVERPLATE AND ONE(1) HUBBELL #HBL260 TWO GANG LARGE CAPACITY WALL BOX (UP TO 2" KNOCKOUT) W/ MUD RING AND COVERPLATE FOR DATA. PROVIDE 2" C/WITH PULL STRING TO ABOVE ACCESSIBLE CEILING FOR DATA CABLES. MOUNT BOX AT 7'-6" AFF UNLESS NOTED OTHERWISE (VERIFY)
FIRE ALARM - FIRE ALARM SYSTEM IS EXISTING TO REMAIN. PROVIDE ADDITIONAL COMPATIBLE DEVICES AND CONNECT TO EXISTING SYSTEM AS REQUIRED.	
	DUCT MOUNT SMOKE DETECTOR
	FIRE ALARM HORN-STROBE COMBINATION SIGNAL, CENTERLINE AT 6'-8" AFF
	FIRE ALARM VISUAL STROBE, CENTERLINE AT 6'-8" AFF
	RELAY TO SHUT DOWN FAN POWERED BOX IN ALARM CONDITION
MISCELLANEOUS	
	COMBINATION POWER AND DATA FLOORBOX
	LINE VOLTAGE THERMOSTAT

ELECTRICAL GENERAL NOTES:

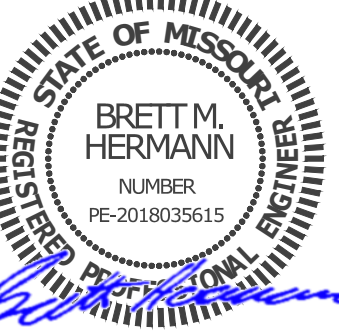
1. COORDINATE ALL WORK WITH OTHER TRADES AND EXISTING CONDITIONS AS REQUIRED TO PROPERLY INSTALL ALL SYSTEMS AS INTENDED, WITHIN THE CONFINES OF THE SPACES AVAILABLE, AND WITHOUT INTERFERENCES.
2. WHERE CONDUIT IS SHOWN UNDER FLOOR, SAW CUT EXISTING FLOOR SLAB AS REQUIRED FOR INSTALLATION OF UNDER FLOOR CONDUIT. NO STRUCTURAL ELEMENTS SHALL BE OR SAW CUT. WHEN SAW CUTTING, PATCH FLOOR TO MATCH EXISTING SURFACE AS REQUIRED.
3. IT IS THE ELECTRICAL CONTRACTORS RESPONSIBILITY TO PROPERLY BALANCE ALL BRANCH CIRCUITS BETWEEN THE PHASES OF THE SYSTEM REGARDLESS OF CIRCUITING INDICATED.
4. ALL EXPOSED RACEWAYS SHALL BE IN EMT CONDUIT, MC CABLE IS NOT PERMITTED IN EXPOSED AREAS.
5. ELECTRICAL CONTRACTOR SHALL REMOVE ALL EXISTING ELECTRICAL EQUIPMENT, FIXTURES, SYSTEMS, CONDUIT AND WIRE, ETC. NOT BEING REUSED. DO NOT JUST ABANDON.
6. 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.
7. REFER TO ARCHITECTURAL DRAWINGS FOR EXACT LOCATION OF LIGHT FIXTURES AND DEVICES.
8. 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.
9. 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.
10. EACH BRANCH CIRCUIT SHALL HAVE A DEDICATED NEUTRAL PER NEC 210.4.
11. FIRE ALARM SYSTEM(AEGIS FIRE PROTECTIONS) IS SHOWN FOR SCHEMATIC PURPOSES. THE FIRE ALARM CONTRACTOR IS RESPONSIBLE FOR PROVIDING DESIGN AND SHOP DRAWINGS SUBMITTAL TO FIRE MARSHAL FOR APPROVAL AS REQUIRED BY THE FIRE MARSHAL. IT IS THE CONTRACTORS RESPONSIBILITY TO PROVIDE ADDITIONAL DEVICES, POWER SUPPLIES, ETC FOR COMPLIANCE WITH CODE.
12. 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.
13. PROVIDE LOW VOLTAGE WIRING BETWEEN ALL 0-10V DIMMING DRIVERS. CONTROLLED BY 0-10V DIMMERS PER MANUFACTURER'S INSTRUCTIONS WHETHER INDICATED ON PLANS OR NOT.
14. REFER TO ARCHITECTURAL ELEVATIONS FOR MOUNTING HEIGHT OF POWER/DATA OUTLETS.

HEALTH CARE FACILITY NOTES:

1. PATIENT AREAS (DRAW AND ALL EXAM) SHALL COMPLY WITH NEC ARTICLE 517 FOR HEALTH CARE FACILITIES.
2. ALL BRANCH CIRCUITS SUPPLYING PATIENT AREAS (DRAW AND ALL EXAM) SHALL HAVE REDUNDANT GROUNDING PER NEC 517.13(a) & (b). ALL UNDER FLOOR CONDUITS FOR BRANCH CIRCUITS SHALL BE METALLIC.
3. ALL DEVICES IN PATIENT CARE AREAS (DRAW AND ALL EXAM) SHALL BE HOSPITAL GRADE, GROUNDING, THREE WIRE TYPE, RATED FOR 20 AMPS, WITH COVER PLATES. HUBBELL #HBL6300-H, OR EQUAL. VERIFY COLOR WITH ARCHITECT.

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TENANT SPACE RENOVATION
BLUE SKY FERTILITY
451 NW MURRAY ROAD
LEE'S SUMMIT, MO 64081

REVISIONS		DESCRIPTION	DATE
REV. #	1	CITY COMMENTS	2/22/2022
2	2	EXISTING REVISIONS	4/1/2022
3	3	ELECTRICAL SUB PANEL	10/28/22

BID SET

PROJ. NO. 2146
DRAWING TITLE
SCALE: As indicated

ELECTRICAL SPECIFICATIONS

DRAWING NUMBER

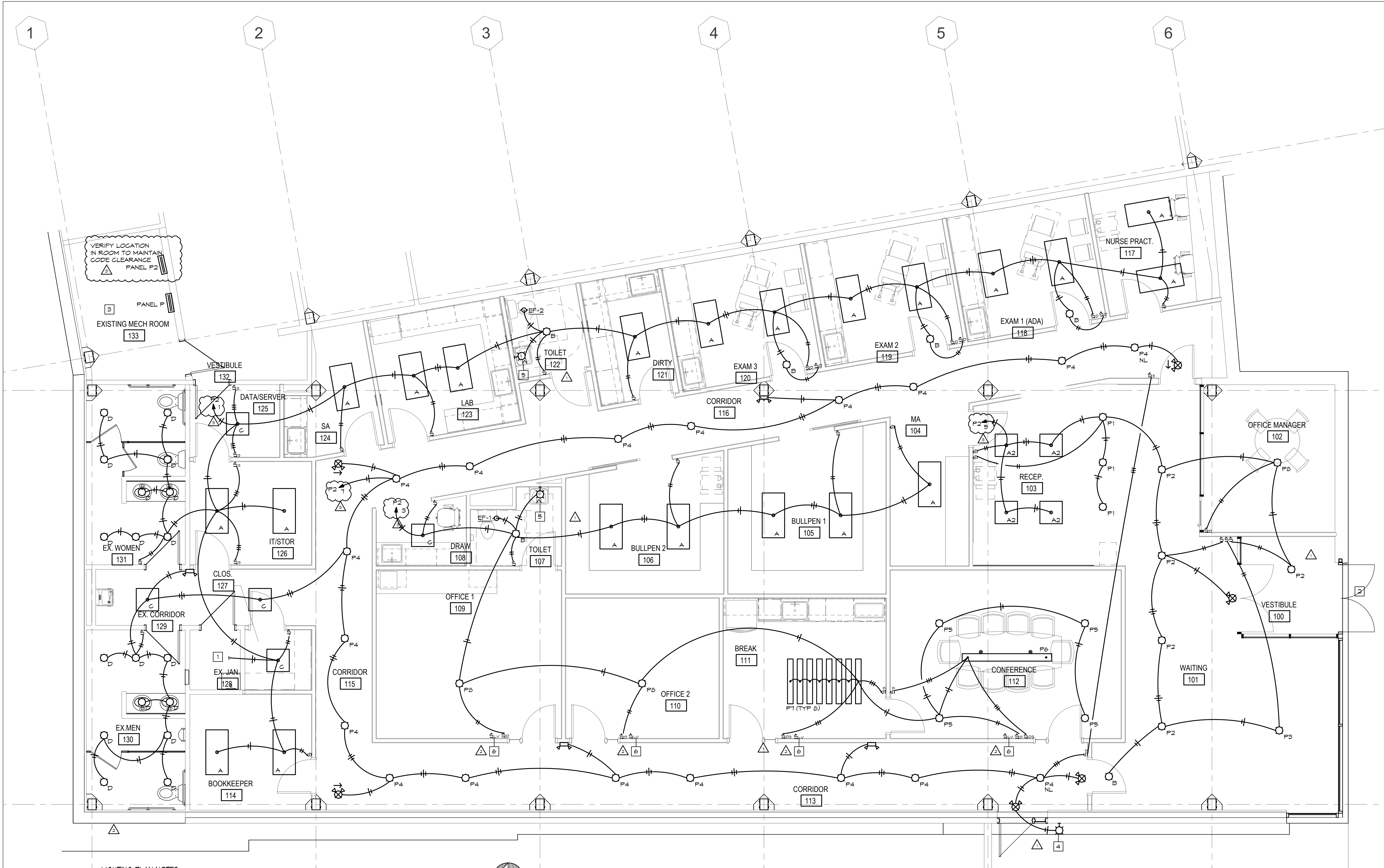
E000

BC PROJECT #: 21759
MISSOURI PE COA #2009003629

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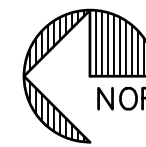
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LIGHTING PLAN NOTES:

- 1 CONNECT TO EXISTING LIGHTING IN THIS ROOM TO REMAIN.
- 2 EXTERIOR LIGHTING BY LANDLORD, VERIFY EXISTING EXTERIOR EGRESS EMERGENCY LIGHT TO REMAIN.
- 3 LIGHTS AND CONTROLS IN LANDLORD ROOM ARE EXISTING TO REMAIN. NO WORK TO BE DONE. VERIFY CODE COMPLIANT EMERGENCY LIGHT FOR PANEL AND PROVIDE AS REQUIRED.
- 4 EXTERIOR EGRESS EMERGENCY LIGHT ONLY TO MATCH EXISTING BUILDING STANDARD. VERIFY SPEC WITH LANDLORD.
- 5 SLIM LINE J-BOX PROVIDED WITH FIXTURE.
- 6 CONNECT MICROSHADE AT CLEARSTORY TO GENERAL RECEPTACLE CIRCUIT IN AREA. PROVIDE LOW VOLTAGE WIRING DOWN TO SWITCH PROVIDED WITH SHADE. INSTALL COMPLETE PER MFGR INSTRUCTIONS.



ELECTRICAL LIGHTING PLAN

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

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10/28/2022



TENANT SPACE RENOVATION

BLUE SKY FERTILITY
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LEE'S SUMMIT, MO 64081

REVISIONS		DESCRIPTION
REV. #	DATE	
1	2/2/2022	CITY COMMENTS
2	4/1/2022	FIXTURE REVISIONS
3	10/28/22	ELECTRICAL SUB PANEL

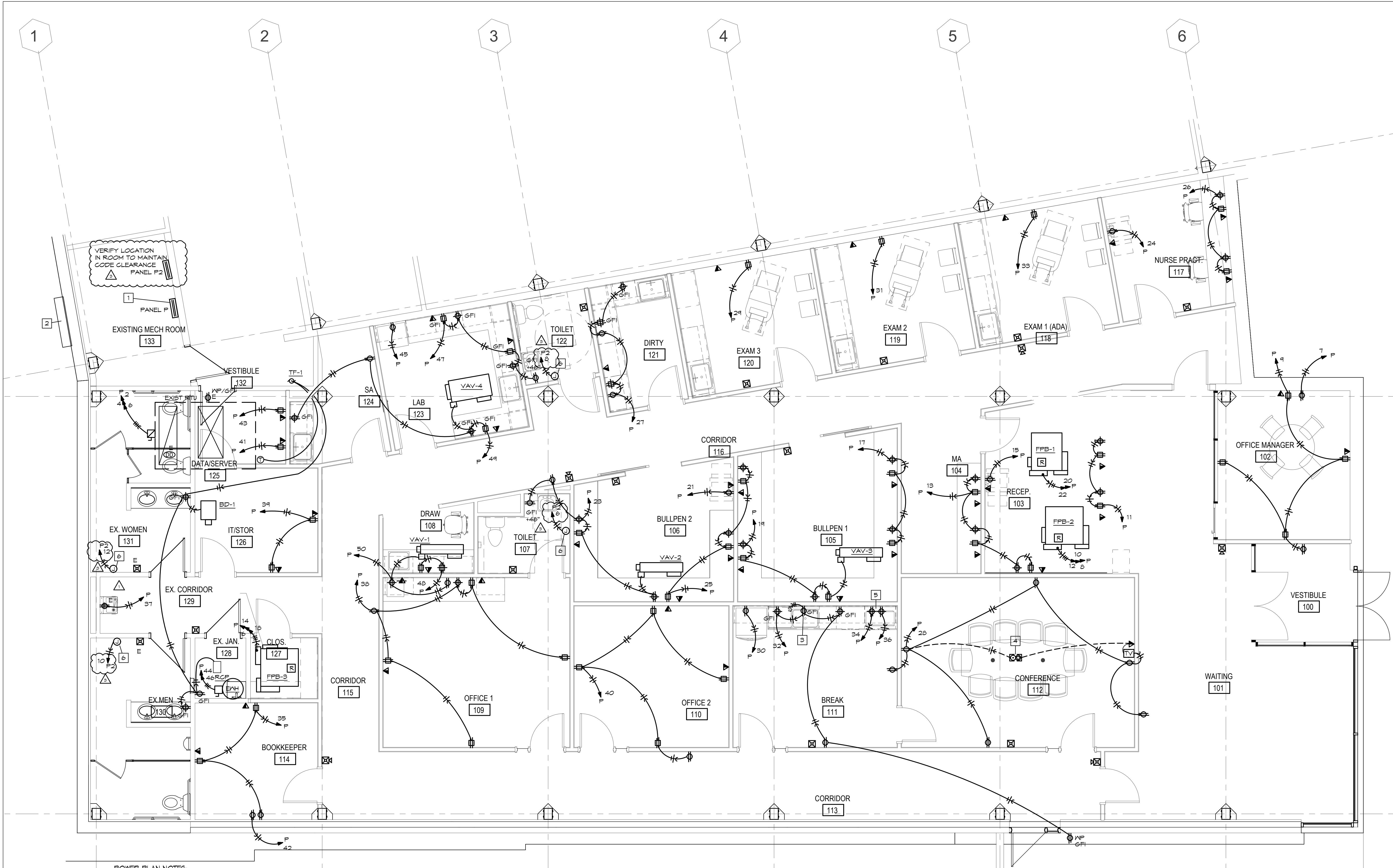
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PROJ. NO. 2146
SCALE: As indicated

ELECTRICAL LIGHTING PLAN

DRAWING NUMBER

E100



POWER PLAN NOTES:

1. INSTALL PANEL IN EXISTING COMMON MECHANICAL ROOM. FIELD VERIFY EXACT LOCATION TO INSTALL IN ROOM TO PROVIDE ADEQUATE CLEARANCES PER NEC.
2. APPROXIMATE LOCATION OF EXISTING ELECTRICAL SERVICE METER AND DISCONNECT. FIELD VERIFY LOCATION.
3. SWITCHED DUPLEX RECEPTALCE FOR GARBAGE DISPOSAL
4. FLUSH SERVICE FLOOR BOX RATED FOR SLAB ON GRADE WITH FOURPLEX RECEPTACLE AND HDMI/DATA PROVISIONS. PROVIDE 1-1/2" CONDUIT FROM FLOOR BOX COVER TO WALL UP TO BOX AT 16" AND FROM BOX AT 16" PROVIDE 1-1/2" CONDUIT TUP TO TV BOX. PROVIDE WITH FULL STRING. VERIFY FINISH AND STYLE OF BOX COVER WITH ARCHITECT.
5. REFER TO ARCHITECTURAL ELEVATIONS FOR MOUNTING HEIGHT OF OUTLETS FOR STACKED MICROWAVE.
6. CONNECT TO HAND DRYER PER MFRG INSTRUCTIONS. VERIFY LOCATION WITH ARCH PLANS.



ELECTRICAL POWER PLAN

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

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REVISIONS		DESCRIPTION
REV. #	DATE	CITY COMMENTS
1	2/22/2022	FIXTURE REVISIONS
2	4/17/2022	ELECTRICAL SUB PANEL
3	10/28/2022	

BID SET

PROJ. NO. 2146

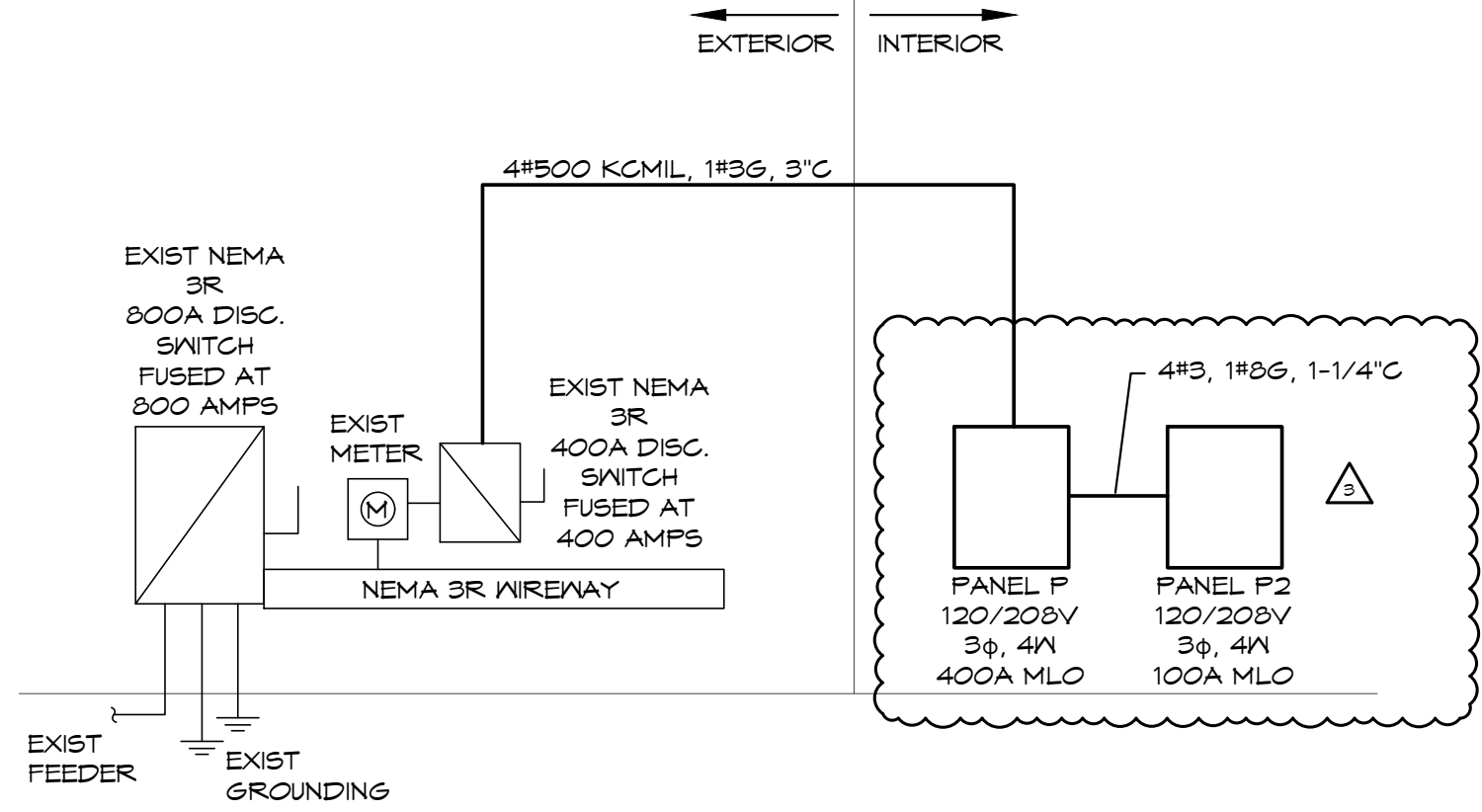
DRAWING TITLE

ELECTRICAL POWER PLAN

DRAWING NUMBER

E200

LIGHT FIXTURE SCHEDULE					
MARK NO.	MANUFACTURER & CATALOG NUMBER	VOLTS WATTS	LIGHT SOURCE	DESCRIPTION	EQUIVALENT MANUFACTURERS
A	H.E. WILLIAMS LP-24-L50/835-DIM- UNV	120 49	LED - 3500K 5000 LUMS	2'X4' GRID LAY-IN LED FLAP PANEL.	COLUMBIA, LITHONIA, SIGNIFY, OR EQUAL
B	H.E. WILLIAMS 6DR-TL-L15/835-DIM- UNV-O-N-OF-CS-N-F1	120 14	LED - 3500K 1500 LUMS	6" LED DOWN LIGHT WITH WIDE DISTRIBUTION, CLEAR SEMI-SPECULAR REFLECTOR/TRIM, AND 0-10V DIMMING.	FRESCOLITE, LITHONIA, SIGNIFY, OR EQUAL
C	H.E. WILLIAMS LP-22-L50/835-DIM- UNV	120 39	LED - 3500K 5000 LUMS	2'X2' GRID LAY-IN LED FLAP PANEL.	COLUMBIA, LITHONIA, SIGNIFY, OR EQUAL
D	H.E. WILLIAMS 2DR-L12-835-UNV-O-N-ZF-S6	120 14	LED - 3500K 1200 LUMS	2" RECESSED DOWNLIGHT WITH MUD-IN FLANGE AND OPEN REFLECTOR SATIN-GLOW ANIDIZED FINISH	COLUMBIA, LITHONIA, SIGNIFY, OR EQUAL
P1	EUREKA MONK 4175-LED-13-35-120-C-60- ANTE-ANTE-CLR	120 13	LED -3500K 999 LUMENS	CABLE MOUNT DECORATIVE PENDANT, ANTHRACITE FINISH ON CANOPY AND SHADE. VERIFY MOUNTING HEIGHT WITH ARCHITECT	OR EQUAL APPROVED BY ARCHITECT
P2	EUREKA STELLA 4272D16-LED-35-80-120-AC -BLKE-BLKE-NH	120 35	LED - 3500K 2620 LUMENS	CABLE MOUNT 16" DIAMETER DIRECT ONLY DECORATIVE PENDANT, BLACK FINISH WITH WHITE DIFFUSER. VERIFY MOUNTING HEIGHT WITH ARCHITECT	OR EQUAL APPROVED BY ARCHITECT
P3	LIGHTART ACOUSTIC RING ACC-SHPE-RING-6D-24H-DK -STD-835-STM	120 135	LED - 3500K	6" DIAMETER, 24" HIGH AIRCRAFT CABLE MOUNT, DUSK FINISH, VERIFY MOUNTING HEIGHT WITH ARCHITECT	OR EQUAL APPROVED BY ARCHITECT
P4	EUREKA MILL 4277D1-25-LED-REG-LON- 35-80-120-AC-60-RC1-BLKE -BLKE-NBF-NH	120 28	LED - 3500K 2000 LUMENS	DIRECT/INDIRECT DECORATIVE PENDANT, AIR CRAFT CABLE MOUNT, VERIFY MOUNTING HEIGHT WITH ARCHITECT. VERIFY COLOR FINISH WITH ARCHITECT REGULAR OUTPUT DIRECT, LOW OUTPUT INDIRECT	OR EQUAL APPROVED BY ARCHITECT
P5	EUREKA STELLA 4272D4-LED-35-80-120-DV-AC-BLKE-BLKE-NH	120 28	LED - 3500K 2050 LUMENS	CABLE MOUNT 9" DIAMETER DIRECT ONLY DECORATIVE PENDANT, BLACK FINISH WITH WHITE DIFFUSER. VERIFY MOUNTING HEIGHT WITH ARCHITECT, 0-10 VOLT DIMMING	OR EQUAL APPROVED BY ARCHITECT
P6	LIGHTART WING 2.0 ACC-SHPE-WING-96L-DK- DKT-STD-835-BPC-BK	120 14	LED - 3500K	CABLE MOUNT 8" WING FIXTURE, DUSK AND BLACK FINISH, VERIFY WITH ARCHITECT. VERIFY MOUNTING HEIGHT WITH ARCHITECT. 0-10 VOLT DIMMING	OR EQUAL APPROVED BY ARCHITECT
P7	LIGHTART ACC-STAT-BEAM-48L-12H-NI -NME-FM-CUSR-STD-ID835-IHE-DHE-PO1-SC-CS-BPC-BK -120	120 12	LED - 3500K	48"LX12"H LINEAR ACOUSTIC BAFFLE WITH DIRECT/INDIRECT LIGHT, HIGH EFFICIENCY OUTPUT, NICKEL/MAPLE WITH BLACK FINISH, VERIFY WITH ARCHITECT. VERIFY MOUNTING HEIGHT WITH ARCHITECT. 0-10 VOLT DIMMING	OR EQUAL APPROVED BY ARCHITECT
P8	EUREKA CALDERA 4246-46-LED-HO-35-80-120-DV-AC-60-RC1-BLKE-B LKE-	120 105	LED - 3500K 6900 LUMENS	46" DIAMETER LED, AIRCRAFT CABLE, VERIFY MOUNTING HEIGHT WITH ARCHITECT. BLACK FINISH, 0-10 VOLT DIMMING	OR EQUAL APPROVED BY ARCHITECT
N	EUREKA EXPO 3545-24-LED-35-80-120-SL -BLKE-NH-3980B-	120 9	LED - 3500K 1214 LUMENS	24" HORIZONTAL MOUNT LED ABOVE MIRROR, VERIFY ROUGH-IN HEIGHT WITH ARCHITECT. BLACK FINISH. PROVIDE WITH SLIM LINE COVER AND SLIM LINE INSTALL J-BOX	OR EQUAL APPROVED BY ARCHITECT
EL	DUAL-LITE EV2	120 1	INCL	EMERGENCY LIGHT WITH TWIN ADJUSTABLE 1 WATT LED HEADS AND BATTERY, MOUNT AT T-6", TO CLEAR OBSTACLES. (PROVIDES 1 FC AVG. ON 27" CENTER FIXTURE SPACING)	SURE-LITES LITHONIA OR EQUAL
EL	DUAL-LITE EVC-U-R-N	120 3	INCL	COMBINATION EMERGENCY/EXIT LIGHT WITH LED LAMPS, RED LETTERS ON WHITE BACKGROUND, TWIN LED EMERGENCY LIGHT HEADS, UNIVERSAL MOUNT, BATTERY BACKUP	SURE-LITES LITHONIA OR EQUAL



ELECTRICAL RISER DIAGRAM
SCALE: NONE

PANEL: P		VOLTS: 120/208V			PH: 3Φ		WIRE: 4W		LOCATION: MECH RM		MOUNTING: SURFACE				
BUS: 400A		MAIN: 400A MLO			IC: 22,000		RMS SYM AMPS			FEEDER: SEE RISER DIAGRAM					
CKT	DESCRIPTION	AMPS	POLE	WIRE	ΦA	ΦB	ΦC	ΦA	ΦB	ΦC	WIRE	POLE	AMPS	DESCRIPTION	CKT NO
1					4,300			10,560							2
3	PANEL P2	100	3	3		3,900			10,560		3	3	100	ROOFTOP UNIT (FIELD VERIFY RTU BRKR RGD)	4
5							4,500			10,560					6
7	OFFICE MANAGER OUTLET	20	1	12	100			3,600							8
9	OFFICE MANAGER OUTLETS	20	1	12		1,620			3,600		5	3	40	FAN POWERED BOX FFB-2	10
11	RECEPTION OUTLETS	20	1	12			1,000			3,600					12
13	RECEPTION OUTLETS	20	1	12	1,620			4,500							14
15	COPIER	20	1	12		1,200			4,500		6	3	50	FAN POWERED BOX FFB-3	16
17	BULLPEN 1 OUTLETS	20	1	12			1,000			4,500					18
19	BULLPEN 1 OUTLETS	20	1	12	1,000			1,400			12	2	20	FAN POWERED BOX FFB-1	20
21	COPIER	20	1	12		1,200			1,400						22
23	BULLPEN 2 OUTLETS	20	1	12			1,000			1,200	12	1	20	NURSE PRACT COPIER	24
25	BULLPEN 2 OUTLETS	20	1	12	900			1,000			12	1	20	NURSE PRACT OUTLETS	26
27	DIRTY OUTLETS	20	1	12		1,260			1,440		12	1	20	CONF OUTLETS	28
29	EXAM 3 OUTLETS	20	1	12			360			1,000	12	1	20	REFRIGERATOR (GF)	30
31	EXAM 2 OUTLETS	20	1	12	360			1,200			12	1	20	BREAK COUNTER OUTLETS	32
33	EXAM 1 OUTLETS	20	1	12		360			1,200		12	1	20	MICROWAVE (GF)	34
35	BOOK KEEPER OUTLETS	20	1	12			900			1,200	12	1	20	MICROWAVE (GF)	36
37	DRINKING FOUNTAIN (GF)	20	1	12	200			1,000			12	1	20	OFFICE 1 OUTLETS	38
39	IT/STORAGE OUTLETS	20	1	12		120			1,620		12	1	20	OFFICE 2 OUTLETS	40
41	IT OUTLETS	20	1	12			800			100	12	1	20	BOOK KEEPER	42
43	IT OUTLETS	20	1	12	800			2,250			10	2	30	WATER HEATER	44
45	LAB REFRIGERATOR (GF)	20	1	12		1,000			2,250						46
47	LAB OUTLETS	20	1	12			1,260			120	12	1	20	DRAIN OUTLETS	48
49	LAB OUTLETS	20	1	12	540			800			12	1	20	OFFICE 1 PRINTER/AC REFRIG	50
51	SPARE	20	1						100		12	1	20	EXIST RESTROOM EXHAUST	52
53	SPARE	20	1									1	20	SPARE	54
55															56
57															58
59															60
NOTES:					9,900	11,260	11,060	27,190	26,670	22,960	TOTAL CONNECTED LOAD: 109,120 VA NEG DEMAND LOAD: 101,625 VA DEMAND AMPS @ 200 VOLT / 3Φ: 202.00 A				
(GF)-GFCI BRKR 5mA, (HL)-HANDLE LOCK					31,170		31,930		34,020						

PANEL: P2		VOLTS: 120/208V			PH: 3Φ		WIRE: 4W		LOCATION: MECH RM			MOUNTING: SURFACE			
BUS: 100A		MAIN: 100A MLO			IC: 22,000		RMS SYM AMPS						FEEDER: SEE RISER DIAGRAM		
CKT	DESCRIPTION	AMPS	POLE	WIRE	ΦA	ΦB	ΦC	ΦA	ΦB	ΦC	WIRE	POLE	AMPS	DESCRIPTION	CKT NO
1	LIGHTS	20	1	12	1,500			900			12	1	20	RESTROOM CKT (EXIST)	2
3	LIGHTS	20	1	12		1,500			900		12	1	20	EXIST CKT	4
5	LIGHTS	20	1	12			1,500			1,500	12	1	20	HAND DRYER	6
7	LIGHTS	20	1	12	400			1,500			12	1	20	HAND DRYER	8
9	SPARE	20	1						1,500		12	1	20	HAND DRYER	10
11	SPARE	20	1							1,500	12	1	20	HAND DRYER	12
13	SPARE	20	1									1	20	SPARE	14
15	SPARE	20	1									1	20	SPARE	16
17	SPARE	20	1									1	20	SPARE	18
19	SPARE	20	1									1	20	SPARE	20
21	SPARE	20	1									1	20	SPARE	22
23	BUSSED SPACE													BUSSED SPACE	24
25	BUSSED SPACE													BUSSED SPACE	26
27	BUSSED SPACE													BUSSED SPACE	28
29	BUSSED SPACE													BUSSED SPACE	30
NOTES:					1,900	1,500	1,500	2,400	2,400	3,000	TOTAL CONNECTED LOAD:				
					4,300		3,900		4,500						
															NEG DEMAND LOAD:
										DEMAND AMPS @ 208 VOLT / 3Φ:					
										12,700 VA					
										13,925 VA					
										38.65 A					

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MISSOURI PE COA #2009003629

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10/28/2022



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REVISIONS		DESCRIPTION
REV. #	DATE	CITY COMMENTS
1	2/2/2022	EXISTURE REVISIONS
2	4/1/2022	ELECTRICAL SUB PANEL
3	10/28/22	

BID SET

PROJ. NO. 2146
DRAWING TITLE
SCALE: As indicated

ELECTRICAL SCHEDULES

DRAWING NUMBER

E300