ELECTRICAL SYMBOL LIST

NOTE: THIS IS A MASTER SCHEDULE. NOT ALL SYMBOLS AND/OR ABBREVIATIONS CONTAINED HEREIN MAY APPEAR ON THE DRAWINGS.
SHEETS AND/OR DESCRIPTIONS IN THESE PLANS AND DIAGRAMS SHALL SUPERSEDE THIS SYMBOL LIST (SYMBOL DEFINITION, FUNCTION, MOUNTING HEIGHTS, ETC. MOUNTING HEIGHTS SHALL BE TO CENTER OF THE BOX U.O.N)

ABBREVIATIONS

A, AMPS	AMPERES
AL	ALUMINUM
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AFCI	ARC FAULT INTERRUPTER DEVICE
AIC	AMPERE INTERRUPTION CAPACITY
ATS	AUTOMATIC TRANSFER SWITCH
BKBD	BACKBOARD
C, C.	CONDUIT (W/ PULL CORD IF OTHERWISE EMPTY)
CU	COPPER
DIA.	DIAMETER
DIST	DISTRIBUTION
DH,H	DAYLIGHT HARVESTING
DMR	DIMMER
EVSE	ELECTRIC VEHICLE SUPPLY EQUIPMENT
(E)	EXISTING TO REMAIN
F	FUSE (DUAL-ELEMENT, TIME DELAY UON)
(F)	FUTURE
FBO	FURNISHED BY OTHERS
FF&E	FIXTURES, FURNISHINGS & EQUIPMENT
FPEN	FUSE PER EQUIPMENT NAMEPLATE
GFCI	GROUND FAULT CIRCUIT INTERRUPTER DEVICE
G, GND	GROUND
HOA	HAND-OFF-AUTOMATIC
HP	HORSEPOWER
ID	INSIDE DIMENSION
IG	ISOLATED GROUND
K	KCMIL (EXAMPLES 300 KCMIL = 300K)
LCP	LIGHTING CONTROL PANEL
(N)	NEW
NF	NON-FUSED
NIC	NOT IN CONTRACT
NL	NIGHT LIGHT
NTS	NOT TO SCALE
OD	OUTSIDE DIMENSION
P	POLES
P-, PNL	PANEL
PH	PHASE
(R)	EXISTING - RELOCATE
RCP	ROOM CONTROL PANEL
REQD	REQUIRED
RGS	RIGID GALVANIZED STEEL
SPD	SURGE PROTECTIVE DEVICE (AKA TVSS)
SVC	SERVICE
SWBD	SWITCHBOARD
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSION (AKA SPD)
UNSW	UNSWITCHED
UPS	UNINTERRUPTIBLE POWER SUPPLY
UON	UNLESS OTHERWISE NOTED
W	WIRES
WP	WEATHERPROOF (NEMA 3R)
(X)	EXISTING - REMOVE
T-, XFMR	TRANSFORMER
30/3	AMPS/POLES REPRESENTATION (EXAMPLE: 30/3=30A,3P)

ELECTRICAL TAGS

- 1 — SHEET NOTE DESIGNATION
- 1002 — FEEDER DESIGNATION
- FB** — FLOORBOX / POKE-THROUGH DESIGNATION (SEE FLOORBOX / POKE-THROUGH SCHEDULE)
- PB** — PULLBOX DESIGNATION (SEE PULLBOX SCHEDULE)
- T15 , T300 — TRANSFORMER DESIGNATION (SEE TRANSFORMER SCHEDULE)
- FC — MECHANICAL EQUIPMENT DESIGNATION
- CONNECTED: KVA (A) / DEMAND: KVA (A) / STANDBY: KVA (A) — DISTRIBUTION EQUIPMENT LOAD SUMMARY

LIGHT FIXTURES

- LIGHT FIXTURE - CEILING SURFACE MOUNTED. (DRAWN TO APPROXIMATE SHAPE AND SCALE OR ENLARGED FOR CLARITY)
- LIGHT FIXTURE - CEILING RECESSED MOUNTED. (DRAWN TO APPROXIMATE SHAPE AND SCALE OR ENLARGED FOR CLARITY)
- LIGHT FIXTURE - PENDANT, CHAIN, STEM OR CABLE SUSPENDED. (DRAWN TO APPROXIMATE SHAPE AND SCALE OR ENLARGED FOR CLARITY)
- LINEAR WALL BRACKET
- WALL SCONCE
- STEP LIGHT
- STRIP LIGHT FIXTURE - SURFACE MOUNTED
- STRIP LIGHT FIXTURE - PENDANT, CHAIN, STEM OR CABLE SUSPENDED
- STRIP LIGHT FIXTURE - WALL MOUNTED
- CONTINUOUS LIGHT FIXTURE ASSEMBLY - TAPE, NARROW CHANNEL, TUBE, ETC.

(LENGTH AS INDICATED)

- TRACK LIGHT SYSTEM (SHOWN W/ END FEED). NUMBER OF HEADS AS INDICATED ON PLANS.
- CHANDELIER (PROVIDE 5X STRUCTURAL BACKING)
- DECORATIVE WALL SCONCE
- POLE OR POST - ARM MOUNTED LUMINAIRE
- POLE OR POST - TOP MOUNTED LUMINAIRE
- BOLLARD LUMINAIRE - ROUND OR SQUARE
- EXIT SIGNS - FACES (FILLED IN), ARROWS, AND MOUNTING AS INDICATED ON PLANS
- EMERGENCY LIGHTING UNIT - CEILING SURFACE OR RECESSED MOUNTED PER SCHEDULE
- EMERGENCY LIGHTING UNIT - WALL MOUNTED. LOCATE 12" BELOW CEILING UON. (10' MAX. UON)

LIGHT FIXTURES TAGS AND MODIFIERS

- WALL-WASH OR ACCENT.
- FIXTURE AND/OR EQUIPMENT ON EMERGENCY POWER.
- A - LIGHT FIXTURE TYPE, SEE SCHEDULE
  1 - NUMBER INDICATES CIRCUIT NUMBER
  a - LOWER-CASE LETTER INDICATES SWITCH LEG
  z1 - LOWER-CASE "z" W/ NUMBER INDICATES CONTROL ZONE.

SWITCHES @ +46" UON (DECORA STYLE UON)

- S — SWITCH - SINGLE POLE
- S_2 — SWITCH - TWO POLE
- S_3 — SWITCH - THREE-WAY
- S_4 — SWITCH - FOUR-WAY
- S_X — SWITCH - EMERGENCY (W/VOLTAGE BARRIER FROM NORMAL POWER DEVICES)
- S_P — SWITCH - PILOT LIGHT (CONFIRM LIT POSITION)
- S_K — SWITCH - KEY OPERATED
- S_C — SWITCH - MOMENTARY CONTACT: SPDT CENTER OFF UON
- S_M — MANUAL MOTOR STARTER: POLES AS INDICATED, HEATERS AS REQD.
- S_T — COUNTDOWN TIMER SWITCH: DURATION AS INDICATED
- D — DIMMER SWITCH - SLIDER TYPE: 600W UON - MATCH FIXTURE CONTROL REQUIREMENTS (0-10V OR ELV UON) NOTE: 0-10V REQUIRES 2/C #18 STRANDED SHIELDED CONTROL WIRE. RUN SEPARATE FROM POWER WIRING.
- PE — PHOTOCELL SWITCH: 1500W, WP W/ ADJUSTABLE LIGHT GATE UON

OCCUPANCY / VACANCY SWITCHES @ +46" UON

NOTE: (ALL DUAL-TECHNOLOGY WITH INTEGRAL OR ADJACENT POWER PACK)

- M — SWITCH - SPST
- M — SWITCH - SPST CEILING MOUNTED
- M_2 — SWITCH - DPDT 2-CHANNEL HI-LOW CONTROL
- M_D — SWITCH - SPST DIMMER 0-10V OR W/ 10V-ELV POWER PACK ADAPTER
- M_P — SWITCH - SPST W/ AMBIENT LIGHT SENSOR (DAYLIGHT HARVESTING)
- M_{2P} — SWITCH - DPDT W/ AMBIENT LIGHT SENSOR
- M_{DP} — SWITCH - SPST DIMMER W/ AMBIENT LIGHT SENSOR 0-10V OR W/ 10V-ELV POWER PACK ADAPTER
- PE — LOCAL-ONLY PHOTOCELL W/ INTEGRAL DIMMER (0-10V OR ELV W/ POWER PACK ADAPTER AS REQD)

(ADJUSTABLE PICKUP LEVEL FOR DAYLIGHT HARVESTING)

LIGHTING CONTROL SYSTEM - DEVICES @ +46" UON

- MS — MASTER LIGHTING CONTROL STATION
- OV — SYSTEM OCCUPANCY/VACANCY SENSOR
- RCP# — ROOM CONTROLLER PANEL
- SYSTEM LIGHTING CONTROL STATION
- PS — SYSTEM PHOTOCELL SENSOR - CEILING UON

EQUIPMENT, CONTROLS & CONNECTIONS

- SWITCHBOARD / SWITCHGEAR
- PANELBOARD - FLUSH, SURFACE
- TRANSFORMER
- GROUNDING BUS BAR
- VFD — VARIABLE FREQUENCY DRIVE
- B — ENCLOSED CIRCUIT BREAKER
- F, N — DISCONNECT SWITCH: 30/3 UON. F=FUSED (FPEN), N=NONFUSED
- RELAY
- CONTACTOR W/ INTEGRAL HOA SELECTOR
- MOTOR STARTER W/ INTEGRAL CONTROL TRANSFORMER, PILOT LIGHT & HOA SELECTOR
- COMBINATION STARTER & FUSIBLE DISCONNECT, 30/3, SIZE 1 UON
- SINGLE-PHASE MOTOR CONTROL ASSEMBLY: HP-RATED SWITCH AND POWER RELAY - 20/1 UON
- JUNCTION BOX - SIZE PER NEC REQUIREMENTS
- PB** — PULLBOX - SIZE AND LOCATION AS SCHEDULED (OTHERWISE AS REQUIRED BY CODE)
- CONTROL STATION - FUNCTION AS INDICATED, +46" UON
- SHUNT TRIP STATION - +72" AFF UON
- MOTOR
- SIGN — SIGN OUTLET
- EQUIPMENT PACKAGE - TYPE AS INDICATED
- CEILING FAN OUTLET (PROVIDE 5X STRUCTURAL BACKING)

SPECIALTY EQUIPMENT

- DOUBLE: EV — SINGLE: EV — ELECTRIC VEHICLE EVSE CHARGING STATION, LEVEL 2 UON, PEDESTAL MOUNT UON
- EV — EV — SAME AS ABOVE EXCEPT WALL MOUNT - ADA-COMPLIANT MOUNTING.
- COMBINATION INTERCONNECTABLE SMOKE/CO DETECTOR W/INTEGRAL HORN, STROBE & BACK-UP BATTERY.

FEEDERS AND CIRCUITING

- ABOVE FLOOR OR GRADE — P — PRIMARY
- BELOW FLOOR OR GRADE — S — SECONDARY
- TURN UP — C — COMMUNICATIONS
- TURN DOWN — SERVICE GROUND POINT
- E — STUB OUT & CAP — SEAL-OFF FITTING
- TICS = NUMBER OF CIRCUIT WIRES IF MORE THAN TWO (= ISOLATED OR REDUNDANT GROUND WIRE)
- HOMERUN: REPRESENTATION (EXAMPLE: 6#12 + 1#12 GROUND WIRE IN MIN. 3/4" C. UON TO PANEL 'A', CIRCUITS 1,3,5) — A-1,3,5

POWER RECEPTACLES @ +18" UON (DECORA STYLE UON)

CLG. OR CASEWORK / WALL

- DUPLEX
- DUPLEX - INTEGRAL GFCI CIRCUITRY
- DUPLEX - HALF SWITCHED WITH "CONTROLLED" TEXT OR "⏻" SYMBOL ENGRAVING ON RECEPTACLE FACE
- DUPLEX - DOUBLE
- DUPLEX - DOUBLE W/ INTEGRAL GFCI CIRCUITRY
- DUPLEX - ISOLATED GROUND (ORANGE FACE) NEMA 5-20R/IG
- DUPLEX - WITH DUAL 200mA USB CHARGING PORTS
- H — H — DUPLEX - HOSPITAL GRADE (GREEN DOT) NEMA 5-20R/HG
- RECEPTACLE - SINGLE REGRESSED (CLOCK STYLE) HEIGHT AS INDICATED
- RECEPTACLE - SPECIAL (RATING AS INDICATED)
- A — A — RECEPTACLE - 30A. 125/250V. NEMA 14-30R (CLOTHES DRYER TYPE)
- B — B — RECEPTACLE - 50A. 125/250V. NEMA 14-50R (DOMESTIC RANGE TYPE)
- C — C — RECEPTACLE - 30A. 125/250V. NEMA L14-30R (TWIST LOCK TYPE)
- TP — TELE-POWER POLE (+ ▽ UON)
- SURFACE RACEWAY SYSTEM

RECEPTACLES & OUTLETS - MOUNTING AND ASSEMBLIES

- DEVICE MOUNTED IN OR ABOVE COUNTER BACKSPLASH MAX HEIGHT TO BE +46" UON (PER ADA)
- SD — DEVICES MOUNTED IN MULTIPLE UNDER COMMON COVERPLATE. MAX HEIGHT TO BE +46" UON (PER ADA)

FLOOR BOXES

NOTE: BASIC BOXES ARE SHOWN: ROUND PLASTIC BOX, IN CONCRETE SLAB, DECORA-STYLE DEVICES, FLUSH FLIP-LID OUTLET COVERS, FLANGED UNIVERSAL COVER PLATE (COLOR AS DIRECTED BY ARCHITECT)

- DUPLEX (DOUBLE-DUPLEX): HUBBELL #S1PFB-S1SP SERIES UON
- VOICE / DATA OUTLET (2 PORTS) - W/ 1" LOW VOLTAGE CONDUIT TO ACCESSIBLE ATTIC. HUBBELL #S1PFB-S1SP SERIES UON
- COMBINATION DUPLEX +2 PORT VOICE / DATA - W 1" LOW VOLTAGE CONDUIT TO ACCESSIBLE ATTIC HUBBELL #S1PFB-S1SP-SL21M SERIES UON
- FB** — FB — SPECIAL PURPOSE FLOOR BOX - TYPE AS SCHEDULED

LOW VOLTAGE SYSTEMS OUTLETS @ +18" UON

NOTE: THESE SYMBOLS ARE FOR OUTLETS OF GENERIC INSTALLATIONS. W/O FORMAL LOW VOLTAGE SYSTEMS DESIGN. IF COMMUNICATIONS/ITS SYSTEM DESIGN IS ISSUED FOR THIS PROJECT, THOSE SYMBOL'S AND REQUIREMENTS SHALL GOVERN.

CLG. OR CASEWORK / WALL

- COMMUNICATION (VOICE/DATA) OUTLET (4-11/16" X 2-1/8" BOX W/ 1"C. TO ACCESSIBLE ATTIC UON)
- HC — HC — HIGH CAPACITY COMMUNICATION (VOICE/DATA) OUTLET (5" SQUARE X 3" BOX W/ 1-1/4"C. TO ACCESSIBLE ATTIC UON)
- TELEVISION OUTLET (4-11/16" X 2-1/8" BOX W/ 1"C. TO ACCESSIBLE ATTIC UON)
- COMBINATION TV OUTLET (COAX + DATA) (5" SQUARE X 3" BOX W/ 1-1/4"C. TO ACCESSIBLE ATTIC UON)
- M — MICROPHONE OUTLET (4-11/16" X 2-1/8" BOX W/ 1"C. TO ACCESSIBLE ATTIC UON)
- VC — VOLUME CONTROL OUTLET (4-11/16" X 2-1/8" BOX W/ 1"C. TO ACCESSIBLE ATTIC UON)
- S — SPEAKER OUTLET INSTALL BACK BOX (FURNISHED BY OTHERS UON)

ACCESS CONTROL OUTLETS

NOTE: THESE SYMBOLS ARE FOR OUTLETS OF GENERIC INSTALLATIONS. W/O FORMAL ACCESS CONTROL DESIGN. IF ACCESS CONTROL DESIGN IS ISSUED IS ISSUED FOR THIS PROJECT, THOSE SYMBOLS AND REQUIREMENTS SHALL GOVERN.

CLG. OR CASEWORK / WALL

- AC — AC — INITIATING DEVICE OUTLET @ +46" UON (KEYPAD, CARD SWIPE, REQUEST-TO-EXIT, MOTION SENSOR, ETC.)
- AC — ACTUATION DEVICE IN OR NEAR DOOR FRAME UON (STRIKE, LATCH, ELECTROMAGNET, MOTOR, ETC.)

DRAWING INDEX

SHEET NUMBER	SHEET TITLE	PERMIT SET DATE: 05/24/2021				
E000	SYMBOL LIST	●				
E001	SPECIFICATIONS	●				
E002	SINGLE LINE DIAGRAM	●				
E003	PANEL SCHEDULES	●				
E004	LIGHTING FIXTURE SCHEDULE AND COMPLIANCE CERTIFICATE	●				
ED100	DEMOLITION POWER PLAN	●				
ED300	DEMOLITION LIGHTING PLAN	●				
ED400	DEMOLITION POWER PLAN SECOND FLOOR	●				
E100	POWER PLAN	●				
E300	LIGHTING PLAN	●				
E400	ELECTRICAL SECOND FLOOR - PARTIAL PLAN	●				
	TOTAL	11				

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Sheet Name
Project Name

DELTA NO.	REVISION NO.	DESCRIPTION	DATE

Project Number	20427
Date	05/24/2021
Drawn By	MSA
Checked By	PE

E000

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ELECTRICAL SPECIFICATIONS

PART ONE - GENERAL

1.1. THE WORK: ALL WORK SHALL BE NEW UNLESS OTHERWISE NOTED. THE CONTRACTOR SHALL PROVIDE THE WORK SHOWN ON THE DRAWINGS AND SPECIFIED FOR ITS INDIVIDUAL SECTIONS OF WORK. THE WORD "WORK" IS DEFINED AS ALL LABOR, TRANSPORTATION, MATERIAL, EQUIPMENT, TOOLS, INSTALLATION, SUPERVISION AND ANY OTHER INCIDENTAL ITEMS OR SERVICES NECESSARY FOR THE PROPER INSTALLATION AND OPERATION OF THE COMPLETE SYSTEMS, WHICH SHALL BE PROVIDED BY THIS CONTRACTOR WHETHER OR NOT SPECIFICALLY INDICATED OR NOTED.

1.2. RESPONSIBILITY: THIS CONTRACTOR IS SOLELY RESPONSIBLE FOR THE ACTIONS OF ITS PERSONNEL, SUPPLIERS, AND SUB-CONTRACTORS. THIS CONTRACTOR SHALL BE RESPONSIBLE FOR THE PERFORMANCE OF ALL WORK AS MAY BE REQUIRED TO ACCOMMODATE OR SUPPORT THE ELECTRICAL WORK. EXAMPLES: PAINTING, STRUCTURAL SUPPORTS, CUTTING AND PATCHING, EXCAVATION AND BACKFILL, CONCRETE PADS, ROOF JACKS, ETC. REQUIRING THIS CONTRACTOR'S ENGAGEMENT OF APPROPRIATE TRADES TO PERFORM SUCH WORK FOR THE PROPER INSTALLATION AND OPERATION OF COMPLETE ELECTRICAL SYSTEMS.

1.3. MINIMUM REQUIREMENTS: THESE SPECIFICATIONS ESTABLISH THE MINIMUM REQUIREMENTS FOR THE WORK AND MATERIALS, EQUIPMENT AND METHODS TO BE PROVIDED. THE DRAWINGS MAY INDICATE REQUIREMENTS WHICH EXCEED THESE MINIMUMS.

1.4. GENERAL CONDITIONS: ALL GENERAL CONDITIONS, SPECIAL REQUIREMENTS OR GENERAL REQUIREMENTS OF THE CONSTRUCTION SPECIFICATIONS ARE MADE PART OF THIS SPECIFICATION AND HAVE THE SAME FORCE AND EFFECT AS IF COMPLETELY REPRODUCED.

1.5. DEFINITIONS:
AHJ: AUTHORITY HAVING JURISDICTION.
ASSEMBLY: AN INSTALLATION OR SYSTEM OF MULTIPLE COMPONENTS REQUIRING MULTIPLE CONNECTIONS. (EXAMPLES: TRASH COMPACTOR, MOTORIZED DOOR, HVAC SPLIT SYSTEM, ETC.).
EQUAL: ACCEPTED BY THE ENGINEER AS EQUAL.
FF&E: FURNISHINGS, FIXTURES AND EQUIPMENT - PROVIDED BY OTHERS AT JOBSITE. RECEIVE, PROTECT, STORE, ASSEMBLE, INSTALL AND CONNECT. PROVIDE MINIMUM 5x STRUCTURAL BACKING. (EXAMPLES: CHANDELIERS, PROJECTORS, ETC.).
PROVIDE: FURNISH, INSTALL, ACTIVATE, AND COMMISSION.
CODES: ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE LATEST ADOPTED EDITIONS OF THE NATIONAL ELECTRICAL CODE (NEC) AND ALL OTHER APPLICABLE FEDERAL, STATE, AND LOCAL REGULATIONS.

1.6. PERMITS: PAY ALL FEES AND OBTAIN ALL PERMITS AND INSPECTIONS REQUIRED FOR THE WORK.

1.7. DRAWINGS: DRAWINGS ARE DIAGRAMMATIC AND SCHEMATIC IN NATURE, AND INDICATE THE TYPE, SIZE, ARRANGEMENT AND LOCATIONS OF MATERIALS AND EQUIPMENT. WORK INCLUDES CERTAIN COMPONENTS, APPURTENANCES, AND RELATED SPECIALTIES THAT MAY NOT BE SHOWN. PROVIDE ALL NECESSARY ITEMS TO COMPLETE THE WORK ACCORDING TO INDUSTRY STANDARDS. IT IS THE INTENT OF THE DRAWINGS AND SPECIFICATIONS TO REQUIRE FINISHED WORK, TESTED AND READY FOR OPERATION. DO NOT SCALE DRAWINGS. ARRANGEMENT OF EQUIPMENT AND ROUTING OF FEEDERS AND BRANCH CIRCUITING SHALL BE PLUMB AND AT RIGHT ANGLES TO BUILDING CONSTRUCTION, AND MAY REQUIRE MODIFICATION DUE TO UNFORESEEN CONDITIONS REQUIRING ONSITE REVISIONS DURING CONSTRUCTION. (SEE ALSO "BIDDING").

1.8. COORDINATION: THIS PROJECT REQUIRES A HIGH LEVEL OF COORDINATION AND COOPERATION WITH OWNER, ARCHITECT, OTHER TRADES, VENDORS, AND SPECIALTY CONTRACTORS. CAREFULLY EXAMINE ALL CONTRACT DOCUMENTS INCLUDING, BUT NOT LIMITED TO, SHOP DRAWINGS, ETC. FOR ALL GENERAL CONSTRUCTION, STRUCTURAL, MECHANICAL, PLUMBING, ELECTRICAL, AND SPECIALTY CONTRACTOR WORK. PRIOR TO ROUGH-IN, COORDINATE THE WORK WITH ALL OTHER TRADES, TAKING RESPONSIBILITY FOR THE PROPER FITTING OF MATERIAL INTO THE BUILDING AS PLANNED WITHOUT INTERFERENCE WITH OTHER WORK. ESTABLISH AND VERIFY LOCATIONS, HEIGHTS, CONNECTION METHODS, ETC. WITH EQUIPMENT INSTALLER (AND OWNER, ARCHITECT, AND/OR INTERIOR DESIGNER FOR FF&E ITEMS), AND MAKE REASONABLE MODIFICATIONS IN THE LAYOUTS NEEDED TO PREVENT CONFLICTS WITH OTHER TRADES IN ORDER TO PROVIDE ACCESS FOR THE PROPER EXECUTION OF THE WORK.

1.9. IDENTICAL: ALL WORK REQUIRED FOR IDENTICAL ITEMS AND ASSEMBLIES OF THE PROJECT SHALL BE PROVIDED, ALTHOUGH EACH SPECIFIC IDENTICAL ITEM MAY NOT BE SHOWN IN DETAIL.

1.10. VERIFICATION: CHECK AND VERIFY ALL SIZES, DIMENSIONS, AND CONDITIONS BEFORE STARTING ANY WORK. ANY DEVIATION(S) OR PROBLEM(S) SHALL BE TRANSMITTED TO THE ENGINEER FOR REVIEW.

1.11. CONNECTIONS: CONNECT ALL EQUIPMENT, SYSTEMS, AND ASSEMBLIES PROVIDED BY OTHERS INCLUDING CONTROLS, SAFETY DEVICES AND INTERCONNECTIONS. EXCEPTION: DO NOT INTERCONNECT THE CONTROL SYSTEMS OF THOSE MECHANICAL AND PLUMBING SYSTEMS WHICH ARE SPECIFICALLY NOTED TO BE THE RESPONSIBILITY OF THOSE TRADES. PROVIDE FUSIBLE DISCONNECT SWITCHES AND MOTOR STARTERS FOR ALL EQUIPMENT EXCEPT THOSE ITEMS WHICH ARE SPECIFICALLY LISTED WITH INTEGRAL STARTERS/DISCONNECT SWITCHES. WHERE STARTERS AND/OR DISCONNECT SWITCHES ARE FURNISHED TOGETHER WITH EQUIPMENT, RECEIVE, INSTALL, AND CONNECT THOSE ITEMS.

1.12. SUBMITTAL: SUBMIT TO THE ENGINEER COMPLETE ELECTRONIC SETS OF SHOP DRAWINGS AND TECHNICAL DATA SHEETS FOR ALL EQUIPMENT AND MATERIALS SPECIFIED HEREIN. THE ENGINEER SHALL REVIEW SHOP DRAWINGS AND TECHNICAL DATA SHEETS FOR CONFORMANCE WITH THE CONTRACT DOCUMENTS AND ISSUE A WRITTEN ASSESSMENT TO THE OWNER PRIOR TO COMMENCEMENT OF WORK. THE ENGINEER'S FAILURE TO CORRECT ERRORS IN THE SUBMITTAL SHALL NOT RELIEVE THE CONTRACTOR OF THE OBLIGATION TO PERFORM THE WORK AS SHOWN AND/OR SPECIFIED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL ENGINEERING FEES NECESSARY TO CHANGE PROJECT DOCUMENTS BASED ON ALTERNATE SUBMITTAL PACKAGES/EQUIPMENT SUBSTITUTIONS.

1.13. OR-EQUAL SUBSTITUTIONS: ALL PROPOSED "OR EQUAL" SUBSTITUTIONS SHALL BE SUBMITTED TO THE ENGINEER FOR CONSIDERATION PRIOR TO BIDDING AND AFTER ALL REQUIREMENTS ASSOCIATED WITH SUBSTITUTED EQUIPMENT AND/OR MATERIALS HAVE BEEN COORDINATED WITH OTHER BUILDING TRADES, INCLUDING ALL MECHANICAL, STRUCTURAL, AND/OR ARCHITECTURAL ELEMENTS. THE OWNER'S REPRESENTATIVE SHALL PRE-APPROVE ANY PROPOSED SUBSTITUTION IN WRITING. IDENTIFY AND ANNOTATE ALL REVISED REQUIREMENTS PER BUILDING TRADE ON THE SHOP DRAWINGS. ALSO IDENTIFY ALL COST DEBITS OR CREDITS IN WRITING FOR THE PROPOSED CHANGES PER BUILDING TRADE AND SUMMARIZE THESE AS A TOTAL NET-TO-OWNER CHARGE OR CREDIT FOR CONSIDERATION.

1.14. AS-BUILT: UPON COMPLETION OF CONSTRUCTION, SUPPLY THE ENGINEER WITH AS-BUILT DOCUMENTS ACCURATELY SHOWING THE MATERIALS AND EQUIPMENT AS INSTALLED. PROVIDE OPERATION AND MAINTENANCE MANUAL(S) CONTAINING APPROVED SHOP DRAWINGS, OPERATING AND MAINTENANCE INSTRUCTION FOR SWITCHGEAR, LIGHTING FIXTURES, CONTROLS, AND SPECIALTY EQUIPMENT

1.15. GUARANTEE: ALL MATERIALS AND WORKMANSHIP SHALL BE GUARANTEED FOR A MINIMUM OF ONE (1) YEAR FROM DATE OF ACCEPTANCE BY OWNER (LONGER IF REQUIRED BY GENERAL AND/OR SPECIAL CONDITIONS). IN ADDITION, THE INSTALLATION SHALL BE GUARANTEED TO PERFORM AS SPECIFIED AND FULFILL EACH AND EVERY REQUIREMENT OF THE DRAWINGS AND SPECIFICATIONS WHEN OPERATED IN ACCORDANCE WITH THE CONTRACTOR'S INSTRUCTIONS. SHOULD THE INSTALLATION IN ANY WAY FAIL TO DO SO, THE CONTRACTOR WILL, WITHOUT DELAY AND WITHOUT COST TO THE OWNER, PROVIDE WHATEVER ADDITIONAL EQUIPMENT, MATERIAL, AND LABOR REQUIRED TO CORRECT THE DEFICIENCY AND COMPLY WITH THE REQUIREMENTS OF THE DRAWINGS AND SPECIFICATIONS. WHERE SPECIFIED EQUIPMENT HAS A LONGER GUARANTEE PERIOD, THE TERMS OF THAT GUARANTEE SHALL GOVERN (EXAMPLE: LED SYSTEM WITH 5 YEAR GUARANTEE). INCANDESCENT LAMPS ARE EXEMPT BUT SHALL BE NEW AND UNUSED AT THE TIME OF FINAL ACCEPTANCE.

1.16. IECC COMPLIANCE: COMPLY WITH ALL REQUIREMENTS SET FORTH IN THE IECC COMPLIANCE CERTIFICATE INCLUDED IN THESE DOCUMENTS. HIRE A COMMISSIONING AGENT TO COMPLY WITH AND PERFORM ALL ASPECTS OF SECTION C408 OF THE 2018 IECC.

BIDDING

1.17. SITE VISIT: CONTRACT DOCUMENTS INDICATE NEW WORK TO BE PERFORMED AND DO NOT PURPORT TO SHOW ALL EXISTING CONDITIONS. VISIT THE SITE PRIOR TO SUBMITTING A BID TO BECOME FAMILIAR WITH EXISTING CONDITIONS. COMPARE THE WORK SPECIFIED IN THE CONTRACT DOCUMENTS AGAINST EXISTING CONDITIONS, AND IDENTIFY AND ANNOTATE ALL WORK OR CONDITIONS THAT ARE DIFFERENT FROM THE CONTRACT DOCUMENTS OR THEIR INTENT. UPON DISCOVERY, IMMEDIATELY NOTIFY AND REPORT IN WRITING ANY DISCREPANCIES TO THE ENGINEER. NO EXTRAS OR CHANGE ORDERS WILL BE ALLOWED FOR FAILURE TO PERFORM THE PRE-BID SITE VISIT.

1.18. BASIS OF PROPOSAL: PROPOSAL SHALL BE BASED ON MANUFACTURERS AND MODELS AS LISTED UNLESS "OR EQUAL" IS INDICATED. PROVIDE SUBSTITUTION REQUESTS A MINIMUM OF FIVE (5) BUSINESS DAYS PRIOR TO BID DATE CLOSING TO ALLOW TIME FOR DUE CONSIDERATION OF PROPOSED ALTERNATE AND SUBSEQUENT NOTIFICATION TO ALL OTHER BIDDERS IN THE EVENT SUBSTITUTION IS DEEMED ACCEPTABLE. DETERMINATION OF SUBSTITUTION EQUALITY RESTS SOLELY WITH THE ENGINEER.

1.19. VALUE ENGINEERING (V.E.) INITIATIVES: IN ADDITION TO THE "AS SPECIFIED/OR EQUAL" BASE BID, A COST REDUCTION INITIATIVE(S) MAY BE PROPOSED BASED ON SUBSTITUTIONS OF EQUIPMENT, MATERIALS, AND/OR METHODS. EACH SUCH PROPOSAL SHALL INCLUDE A DATA SHEET(S) ON THE SPECIFIED ITEM(S), THE PROPOSED SUBSTITUTE(S), AND THE NET CREDIT TO THE OWNER, INCLUDING ALL CREDITS AND CHARGES FROM ALL MEMBERS OF THE CONSTRUCTION TEAM. THE ENGINEER WILL REVIEW AND RENDER AN OPINION TO THE OWNER. IF THE V.E. INITIATIVE IS DECLINED, PROVIDE THE SPECIFIED EQUIPMENT/MATERIAL/METHOD. IF THE V.E. INITIATIVE IS ACCEPTED, AND IF SUCH ACCEPTANCE RESULTS IN A REQUIREMENT TO REVISE ANY DESIGN DOCUMENTS, THE CHARGES FOR THESE REVISIONS SHALL BE BILLED TO THE CONTRACTOR AND THE INVOICING SHALL BE SETTLED BEFORE THE PROJECT IS SIGNED OFF FOR FINAL ACCEPTANCE.

1.20. BIDDING: THE CIVIL, ARCHITECTURAL, MECHANICAL, KITCHEN, AND/OR INTERIOR DRAWINGS CONTAIN DETAILED DESCRIPTIONS, CIRCUITING, AND CONNECTION REQUIREMENTS WHICH ARE PART OF THIS CONTRACTOR'S RESPONSIBILITIES. DO NOT SUBMIT BIDS ON THIS PROJECT PRIOR TO REVIEWING ALL PROJECT DRAWINGS, SPECIFICATIONS, AND ADDENDA.

PART TWO - PRODUCTS

2.1. MATCH EXISTING: EXISTING EQUIPMENT AND SYSTEMS SHALL BE CONSIDERED A MINIMUM STANDARD TO BE MET, IF NOT OTHERWISE EXCEEDED BY THESE PLANS AND SPECIFICATIONS. NEW MATERIALS AND EQUIPMENT SHALL MATCH EXISTING IN APPEARANCE AND FUNCTION.

2.2. EXISTING SWITCHGEAR: CHANGES TO EXISTING PANELBOARDS AND DISTRIBUTION EQUIPMENT SHALL BE MADE WITH MATCHING COMPONENTS. NEW CIRCUIT PROTECTIVE DEVICES SHALL BE MANUFACTURER-CERTIFIED AS COMPATIBLE WITH EXISTING EQUIPMENT, AND SHALL EQUAL OR EXCEED EQUIPMENT FAULT CURRENT (AIC) RATINGS.

2.3. EQUIPMENT STANDARDS: ALL MATERIALS AND EQUIPMENT SHALL BE NEW AND OF THE HIGHEST QUALITY AVAILABLE ("SPECIFICATION GRADE"). EQUIPMENT SHALL BE CONSTRUCTED TO NEMA STANDARDS AND SHALL BE LABELED FOR THEIR INTENDED PURPOSE BY A RECOGNIZED TESTING AGENCY ACCEPTABLE TO THE AHJ (U.L., CSA, ETL, ETC.).

2.4. ACCEPTABLE MANUFACTURERS AND SUPPLIERS: WHERE EQUIPMENT AND MATERIALS ARE NOT SPECIFIED BY NAME THEY ARE DEEMED TO GENERIC, SUBJECT TO THE REQUIREMENTS LISTED HEREIN. THESE MANUFACTURERS ARE CONSIDERED CAPABLE OF OFFERING EQUIVALENT PRODUCTS. MINIMUM STANDARD IN ALL INSTANCES IS COMMERCIAL GRADE:
SWITCHGEAR: EATON, GENERAL ELECTRIC, SIEMENS, SQUARE D
LIGHT FIXTURES: ACUITY, COOPER, HUBBELL, THOMAS
WIRING DEVICES: HUBBELL, LEVITON, LEGRAND, WIREMOLD

2.5. CIRCUITING: ALL WIRING SHALL BE IN CONDUIT, CONCEALED EXCEPT WHERE NOTED. EMT WITH STEEL INSULATED THROAT SET SCREW FITTINGS MAY BE USED IN DRY, PROTECTED INTERIOR LOCATIONS. PVC SCHEDULE 40 SHALL BE USED BELOW GRADE AT MINIMUM -24". WRAPPED RIGID ELBOWS AND RISERS SHALL BE USED FOR ALL THROUGH-GRADE TRANSITIONS AND STUB-UPS. RGS OR IMC CONDUIT WITH THREADED FITTINGS SHALL BE USED IN ALL LOCATIONS WHERE EXPOSED TO THE ELEMENTS OR SUBJECT TO PHYSICAL DAMAGE. IMC OR RIGID CONDUIT BELOW GRADE SHALL BE HALF-LAP WRAPPED WITH 20 MIL PVC TAPE. TYPE ENT RACEWAY IS NOT ALLOWED. CONNECT RECESSED AND SUSPENDED LIGHTING FIXTURES, MOTORIZED AND/OR VIBRATING EQUIPMENT WITH STEEL FLEX OR SEALTITE CONDUIT. ALL CONDUIT SHALL HAVE PULL CORD IF OTHERWISE EMPTY.

2.6. MC CABLE: MC CABLE MAY BE USED IN LOCAL 1- AND 2-CIRCUIT APPLICATIONS ACCEPTABLE TO THE AHJ. HOMERUNS AND FEEDERS SHALL BE CONDUIT AND WIRE.

2.7. WIRING: ALL WIRE SHALL BE COPPER, STRANDED IN SIZES #8 AWG AND LARGER. INSULATION SHALL BE TYPE THWN OR THHN. SINGLE PHASE BRANCH CIRCUITS SHALL INCLUDE A SEPARATE NEUTRAL WIRE WITH EACH PHASE WIRE. NEUTRAL SHALL BE WHITE WITH COLOR STRIPE MATCHING COLOR OF PHASE WIRE.

2.8. FUSES AND CIRCUIT BREAKERS: FUSES AND CIRCUIT BREAKERS SHALL BE SIZED PER ACTUAL RESPECTIVE APPLICATION (i.e., MOTOR CIRCUIT PROTECTOR, GROUND FAULT CIRCUIT INTERRUPTER, ARC FAULT CIRCUIT INTERRUPTER, ETC.). FUSES SHALL BE DUAL ELEMENT, CURRENT-LIMITING, AND SHALL BE INTERCHANGEABLE BETWEEN FRAME SIZES WITH STANDARD FACTORY FUSE REDUCERS. PROVIDE LOCKABLE SPARE FUSE CABINET WITH (3) SPARE FUSES OF EACH SIZE USED.

2.9. PANELBOARDS: PANELS SHALL HAVE COPPER BUS AND HARDWARE, BOLT-ON CIRCUIT BREAKERS, FLUSH MONO-FLAT TRIM, PIANO HINGED DOORS AND COVER (DOOR-IN-DOOR) WITH LOCKABLE MASTER-KEYED FLUSH LATCHES. FLUSH-MOUNTED PANELS SHALL HAVE EMPTY CONDUITS STUBBED TO ACCESSIBLE ATTIC SPACE: (1) 3/4" CONDUIT FOR EACH THREE (3) SPARE/SPACE CIRCUITS.

2.10. SAFETY SWITCHES: SWITCHES SHALL BE GENERAL DUTY UP TO 250 VOLTS, HEAVY DUTY ABOVE 250 VOLTS. FUSIBLE SWITCHES SHALL BE FUSED PER THE NAMEPLATE REQUIREMENTS OF THE EQUIPMENT BEING CONNECTED.

2.11. MOTOR STARTERS: STARTERS SHALL BE MINIMUM NEMA SIZE 1 WITH INTEGRAL CONTROL TRANSFORMER, RED NEON "RUN" PILOT LIGHT AND "ON-OFF-AUTO" SELECTOR SWITCH ON COVER. OVERLOAD DEVICES SHALL BE SIZED PER THE NAMEPLATE AMPERAGE OF THE EQUIPMENT BEING CONTROLLED.

2.12. CONTACTORS: CONTACTORS SHALL BE ELECTRICALLY HELD WITH "ON-OFF-AUTO" SELECTOR SWITCH ON COVER.

2.13. RATINGS: ALL ELECTRICAL EQUIPMENT SHALL BE FULLY RATED FOR BRACING IN EXCESS OF THE MAXIMUM AVAILABLE FAULT CURRENT CALCULATED AND SHOWN AT THE EQUIPMENT CONNECTION POINT WITHIN THE DISTRIBUTION SYSTEM. MINIMUM RATING SHALL BE 10K AIC.

2.14. WIRING DEVICES: WIRING DEVICES (SWITCHES, RECEPTACLES, ETC.) SHALL BE SPECIFICATION GRADE "DECORA" STYLE, MINIMUM 20-AMP RATED. COVER PLATES SHALL BE NYLON. DEVICE AND PLATE COLOR(S) SHALL BE AS SPECIFIED BY ARCHITECT OR INTERIOR DESIGNER - VERIFY PRIOR TO COMMENCEMENT OF WORK. WIRING DEVICES EXPOSED TO THE ELEMENTS SHALL HAVE WEATHERPROOF-IN-USE LOCKABLE COVERS. RAISED STEEL BOX COVERS MAY BE USED IN UTILITY AREAS. REFER TO FOOD SERVICE NOTES (IF APPLICABLE TO THIS PROJECT) FOR ADDITIONAL REQUIREMENTS.

2.15. LIGHTING FIXTURES: LIGHT FIXTURES SHALL BE PROVIDED WITH ALL ASSOCIATED HARDWARE (HANGER BARS, PENDANTS, STEMS, RESTRAINTS, CHAINS, CORDS, LAMPS, ETC.). LENSES SHALL BE ACRYLIC, REFLECTORS SHALL BE ANODIZED. FLUORESCENT BALLASTS SHALL BE ELECTRONIC, PROGRAM RAPID START, THD LESS THAN 10%. FLUORESCENT LAMPS SHALL HAVE MINIMUM CRI OF 80%. INCANDESCENT LAMPS SHALL BE 130 VOLT, INSIDE FROST, MINIMUM 2000 HOUR LIFE. LOW VOLTAGE INCANDESCENT LAMPS SHALL BE HIR HALOGEN, MINIMUM 3000 HOUR LIFE. EXTERIOR LIGHTING FIXTURES SHALL BE INSTALLED TO PREVENT WATER, DUST AND INSECT INTRUSION, WITH GASKETING FOR DOOR/BACKPLATE AND SEALANT AT THE WIRING ENTRY POINT. REFER TO LIGHTING FIXTURE SCHEDULE WITHIN PLAN SET FOR ADDITIONAL REQUIREMENTS (LED CRITERIA, ETC.).

2.16. TAMPERPROOF: ALL EQUIPMENT AND CIRCUITING ACCESSIBLE BY THE PUBLIC SHALL BE DEMONSTRATED TO BE TAMPERPROOF AND VANDAL RESISTANT. OPENABLE DEVICES AND EQUIPMENT SHALL BE PAD LOCKABLE.

PART THREE - EXECUTION

3.1. GROUNDING: GROUND ALL EQUIPMENT AND SYSTEM NEUTRAL IN ACCORDANCE WITH THE REQUIREMENTS OF NEC ARTICLE 250. PROVIDE CODE-SIZED EQUIPMENT GROUNDING CONDUCTOR IN ALL FEEDERS AND BRANCH CIRCUIT RACEWAYS. WHERE ISOLATED GROUNDS ARE INDICATED, PROVIDE INSULATED CONDUCTOR (GREEN WITH YELLOW STRIPE).

3.2. DEMOLITION: PROVIDE COMPLETE ELECTRICAL DEMOLITION - REMOVE EXISTING OUTLETS AND EQUIPMENT IN CONFLICT WITH NEW CONDITIONS. EXISTING CONDUITS REMOVED FROM SERVICE MAY BE ABANDONED IN PLACE IF IN A CONCEALED LOCATION. REMOVE ALL WIRE FROM ABANDONED RACEWAYS. CONTRACTOR SHALL ENSURE CONTINUITY OF EXISTING CIRCUITING PASSING THROUGH DEMOLITION AREAS - EXTEND AND/OR RELOCATE AS NECESSARY. SHIFT OR RELOCATE EXISTING EQUIPMENT AND CIRCUITING AS REQUIRED TO ACCOMMODATE NEW WORK.

3.3. SALVAGE: ALL EXISTING EQUIPMENT REMOVED DURING THE COURSE OF THIS PROJECT SHALL BE OFFERED TO OWNER FOR SALVAGE. ANY EQUIPMENT SELECTED BY OWNER SHALL BE DELIVERED TO OWNER ON SITE. ALL REMAINING EQUIPMENT BECOMES THE PROPERTY OF THIS CONTRACTOR AND SHALL BE REMOVED FROM THE SITE.

3.4. EXISTING SWITCHGEAR: REUSE EXISTING SWITCHGEAR AND PANELBOARDS IN PLACE WHERE SO INDICATED - MODIFY AS REQUIRED TO ACCOMMODATE NEW REQUIREMENTS. PROVIDE NEW CIRCUIT BREAKERS AND/OR FUSES AS REQUIRED WITH AIC RATING TO MEET OR EXCEED THAT OF EXISTING DEVICES. REARRANGE EXISTING CIRCUITS WITHIN PANELS TO AGREE WITH NEW PANEL SCHEDULES. TRACE AND IDENTIFY ALL EXISTING CIRCUITS ON NEW TYPED AS-BUILT PANEL SCHEDULES.

3.5. EXISTING OUTLETS: EXISTING OUTLETS AND CIRCUITING NOT IN CONFLICT WITH NEW CONDITIONS SHALL REMAIN. EXTEND OUTLETS TO NEW SURFACES, CAULK AND PROVIDE JUMBO PLATES AS REQUIRED TO PRESENT A SERVICEABLE AND FINISHED APPEARANCE.

3.6. TEMPORARY CONSTRUCTION POWER: PROVIDE TEMPORARY ELECTRICAL POWER DISTRIBUTION AND LIGHTING AS REQUIRED FOR ALL TRADES THAT REQUIRE SERVICE DURING THE COURSE OF THIS PROJECT IN COMPLIANCE WITH ALL NEC AND OSHA REQUIREMENTS. OWNER SHALL NOT BE RESPONSIBLE FOR TEMPORARY POWER CHARGES.

3.7. LOCATIONS: INDICATED LOCATIONS OF ALL OUTLETS AND EQUIPMENT ARE SUBJECT TO CHANGE. SHIFT/RELOCATE/RECONFIGURE ANY OUTLET, EQUIPMENT OR CONNECTION POINT UP TO 10' AS DIRECTED BY ENGINEER AT NO ADDED COST.

3.8. WORKMANSHIP: THE WORK SHALL BE INSTALLED PARALLEL AND AT RIGHT ANGLES TO THE BUILDING LINES, LEVEL AND PLUMB. THE WORK SHALL BE WELL SUPPORTED AND SOLIDLY MOUNTED. DRESS AND TIE WIRING IN PANELBOARDS AND SWITCHGEAR. THE WORK SHALL BE LEFT CLEAN WITH NO DIRT, DENTS, ABRASIONS, PAINT SPLATTERS, OR OTHER IRREGULARITIES.

3.9. FIRE STOPPING: ALL PENETRATED FIRE RATED SURFACES SHALL BE FIRE SEALED WITH APPROVED U.L. LISTED SEALANTS AS LISTED WITHIN ARCHITECTURAL SPECIFICATIONS. DO NOT EXCEED MAXIMUM ALLOWABLE SURFACE PENETRATIONS DEPENDENT ON RATING OF SURFACES. REFER TO ARCHITECTURAL DRAWINGS FOR DETERMINATION OF PENETRATION LOCATIONS THROUGH FIRE RATED ASSEMBLIES.

3.10. SUPPORTS AND HANGERS: PROVIDE 3" HIGH HOUSEKEEPING CONCRETE PAD BENEATH FLOOR MOUNTED EQUIPMENT, EXTENDING 3" BEYOND EQUIPMENT FOOTPRINT. SUPPORT AND ALIGN ALL RACEWAYS, CABINETS, BOXES, BACK BOXES, FIXTURES, AND EQUIPMENT FROM STRUCTURE. SECURE ALL SUPPORTING METHODS BY MEANS OF TOGGLE BOLTS IN HOLLOW MASONRY, EXPANSION BOLTS IN SOLID MASONRY, CONCRETE PRESET INSERTS OR EXPANSION BOLTS IN CONCRETE, MACHINE SCREWS OR BOLTS IN METAL, AND WOOD SCREWS IN WOOD CONSTRUCTION. ALL SUPPORTING SYSTEMS AND COMPONENTS SHALL BE RATED FOR A MINIMUM OF FIVE (5) TIMES THE ACTUAL LOAD.

3.11. SLEEVES AND PENETRATIONS: PENETRATIONS OF ALL SURFACES SHALL BE PROVIDED WITH SLEEVES THAT SHALL BE SEALED WITH LIKE MATERIALS AND SHALL BE FINISHED WITH ESCUTCHEON PLATES. PENETRATIONS BELOW GRADE LEVEL SHALL BE WATERTIGHT. PENETRATIONS AT EXTERIOR WALLS SHALL BE WEATHERPROOF. ROOF PENETRATIONS SHALL BE FLASHED AND COUNTER FLASHED.

3.12. EXPANSION AND CONTRACTION: RACEWAYS PASSING THROUGH BUILDING EXPANSION JOINTS, ON ROOF, AND IN AREAS OF TEMPERATURE VARIATIONS GREATER THAN 30°F SHALL BE INSTALLED WITH EXPANSION FITTINGS.

3.13. IDENTIFICATION: IDENTIFY ALL EQUIPMENT, SWITCHBOARD CIRCUITS AND ELECTRICALLY-CONNECTED EQUIPMENT WITH ENGRAVED NAMEPLATES. BOXES SHALL BE MARKED WITH PANEL AND CIRCUIT NUMBERS (PERMANENT PEN ACCEPTABLE ABOVE CEILING). NAMEPLATES SHALL BE FASTENED WITH A MINIMUM OF TWO (2) SCREWS. PANEL DIRECTORIES SHALL BE TYPED. CONDUCTORS SHALL BE TAGGED WITH CIRCUIT NUMBERS AT SOURCE, JUNCTION BOXES, AND ALL OUTLET BOXES WITH PERMANENT ADHESIVE MARKER STRIP. IDENTIFY WIRING DEVICES WITH SELF ADHESIVE CLEAR SATIN FINISH LABELS WITH SOURCE AND CIRCUIT NUMBER.

3.14. ELECTRIC ROOM CODE COMPLIANCE: DUE TO THE DIAGRAMMATIC NATURE OF THE DESIGN DOCUMENTS (ELECTRICAL, MECHANICAL, PLUMBING, FIRE SPRINKLER, ETC.), COORDINATE WITH ALL OTHER SUBCONTRACTORS AT THE START OF THIS PROJECT TO INFORM AND VERIFY THAT NO FOREIGN SYSTEMS OR EQUIPMENT ARE MOUNTED ABOVE ELECTRICAL EQUIPMENT OR PASS THROUGH THE DESIGNATED ELECTRIC ROOMS, AND THAT A MINIMUM OF 7'-0" IS PROVIDED AS CLEAR HEADROOM ALONG ACCESS PATHS TO ELECTRIC ROOMS. ANY REROUTING OR RELOCATION OF SYSTEMS THAT A SUBCONTRACTOR FEELS WILL COMPROMISE THE DESIGN INTENT SHALL BE DESCRIBED IN WRITING AND FORWARDED TO THE DESIGN ENGINEER FOR FURTHER REVIEW. ALL PIPING TO HVAC UNITS THAT COOL ELECTRIC ROOMS SHALL BE LOCATED ABOVE ENTRY DOOR. THE SPRINKLER PIPING TO PROVIDE PROTECTION FOR THE ELECTRIC ROOM IS PREFERRED TO ENTER THE ROOM ABOVE THE ENTRY DOOR AND RUN DOWN THE AISLE SPACES OF THE ROOM. ALL INSTALLATIONS SHALL BE FULLY COORDINATED AMONGST ALL TRADES.

3.15. ELECTRICALLY-OPERATED EQUIPMENT: VERIFICATION AND SUBSTITUTION: FEEDERS AND OVER-CURRENT DEVICES (INCLUDING STARTERS, DISCONNECTS, ETC.) HAVE BEEN DESIGNED BASED ON INFORMATION PROVIDED BY THE RESPONSIBLE CONSULTANT AND/OR DESIGNATED SUPPLIER. PRIOR TO ROUGH-IN, COORDINATE WITH THE APPROPRIATE TRADE AND/OR INSTALLER TO DETERMINE THAT THE ACTUAL NAMEPLATE ELECTRICAL REQUIREMENTS MATCH THIS DESIGN. ALL ADDITIONAL ELECTRICAL COSTS RELATED TO THE CONNECTION OF EQUIPMENT WHICH VARIES FROM THE ORIGINAL SPECIFICATIONS SHALL BE RESOLVED WITHIN THE CONSTRUCTION TEAM AT NO ADDITIONAL COST TO THE OWNER.

3.16. ADDITIONAL SYSTEMS AND EQUIPMENT CONNECTIONS: IN ADDITION TO EQUIPMENT POWER FEEDERS AND CONNECTIONS INDICATED ON THE ELECTRICAL DRAWINGS, PROVIDE 120V CONTROL POWER CONNECTIONS TO SMOKE/FIRE DAMPERS, VAV BOXES, TEMPERATURE CONTROL, FIRE ALARM PANELS, DOOR HOLDING/LATCHING DEVICES, ETC. AS INDICATED IN THE PROJECT DRAWINGS AND SPECIFICATIONS AS WELL AS ALL DESIGN-BUILD SYSTEM DRAWING.

ITEM	POWER SOURCE	MAX NO. PER 20A CIRCUIT	PROVIDE SMOKE DETECTORS
FIRE/SMOKE DAMPER	EMERGENCY	10	YES
VAV TERMINAL (NO FAN)	NORMAL (VERIFY)	10	NO
TEMPERATURE CONTROL PANEL	EMERGENCY (VERIFY)	1	NO
FIRE ALARM PANEL	EMERGENCY	1	NO
DOOR HOLDING/LATCHING DEVICES	EMERGENCY	10	NO

3.17. HOURS OF OPERATION: CONDUCT WORK TO MINIMIZE DISRUPTION OF OWNER'S ONGOING BUSINESS OPERATIONS. PROVIDE BARRICADES, NOISE ABATEMENT, AND DUST CONTAINMENT MEASURES TO ENSURE THE SAFETY AND COMFORT OF PATRONS, STAFF, AND WORKERS. INTERRUPTIONS OF EXISTING POWER, COMMUNICATIONS, AND/OR FIRE ALARM SYSTEMS SHALL BE PERFORMED ONLY AT SUCH TIMES AS DIRECTED BY OWNER OR RESIDENT ENGINEER. OUTAGES SHALL BE MOMENTARY IN NATURE, EACH SUCH OUTAGE (OR OPERATION WHICH MAY POSE RISK OF AN ACCIDENTAL OUTAGE) SHALL BE SCHEDULED A MINIMUM OF FORTY-EIGHT (48) HOURS IN ADVANCE.

3.18. COMMUNICATIONS SYSTEMS: THE ELECTRICAL CONTRACTOR SHALL PROVIDE OUTLETS AND RACEWAYS FOR COMMUNICATION SYSTEMS AS INDICATED HEREIN, INCLUDING TELEPHONE, DATA, POINT-OF-SALE, SOUND, SECURITY, AUDIO/VISUAL, CCTV, MATV, ETC. CABLING AND DEVICES SHALL BE INSTALLED AND TERMINATED BY OTHERS.

PART FOUR - SPECIAL SYSTEMS

4.1 NEW DESIGN/BUILD FIRE ALARM SYSTEM: THESE DOCUMENTS DO NOT INDICATE DEVICES, OUTLETS, CONNECTIONS, AND CIRCUITRY NECESSARY FOR A COMPLETE FIRE ALARM SYSTEM. PROVIDE A COMPLETE, NEW FIRE ALARM DETECTION AND ALARM SYSTEM WITH CLASS 1 CIRCUITING INCLUDING, BUT NOT LIMITED TO, INITIATING DEVICES, DUCT DETECTORS, ADA HORN/STROBES, ETC. WHICH SHALL BE IN FULL COMPLIANCE WITH ALL LOCAL, STATE, AND ADA REQUIREMENTS. CONTROL PANEL SHALL INCLUDE INTEGRAL STANDBY BATTERIES, CHARGER, AND MUNICIPAL TIE MODULE OR AGENCY APPROVED AUTO-DIALER CONNECTED TO THE TELEPHONE SYSTEM (CONNECTION AND MONITORING CHARGES BY OWNER). SUBMIT PROPOSED DESIGN AND OBTAIN FIRE MARSHAL APPROVED SHOP DRAWINGS PRIOR TO COMMENCEMENT OF WORK. AFTER RECEIPT OF PLAN APPROVAL BY THE FIRE MARSHAL, PROVIDE ONE (1) SET OF STAMPED DRAWINGS (PRINT OR ELECTRONIC COPY) ALONG WITH AN APPROVED EQUIPMENT SUBMITTAL TO THE ELECTRICAL ENGINEER. ALL CONNECTIONS TO SYSTEM SHALL BE PERFORMED BY FACTORY-CERTIFIED TECHNICIAN AND SHALL BE ACCEPTED BY OWNER'S SYSTEM-MONITORING AGENCY.

4.19. THIRD PARTY TESTING: PROVIDE ALL ASSOCIATED COSTS FOR THIRD PARTY TESTING OF ALL EQUIPMENT, CONDUCTORS, GROUND FAULT, GROUND FAULT COORDINATION STUDY WITH REPORT PREPARATION, ETC. AS REQUIRED BY THE NEC, AHJ AND ALL OTHER GOVERNING AUTHORITIES.

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Sheet Name
Project Name

DELTA NO.	REVISION NO.	DESCRIPTION	DATE

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Project Number	20427
Date	05/24/2021
Drawn By	MSA
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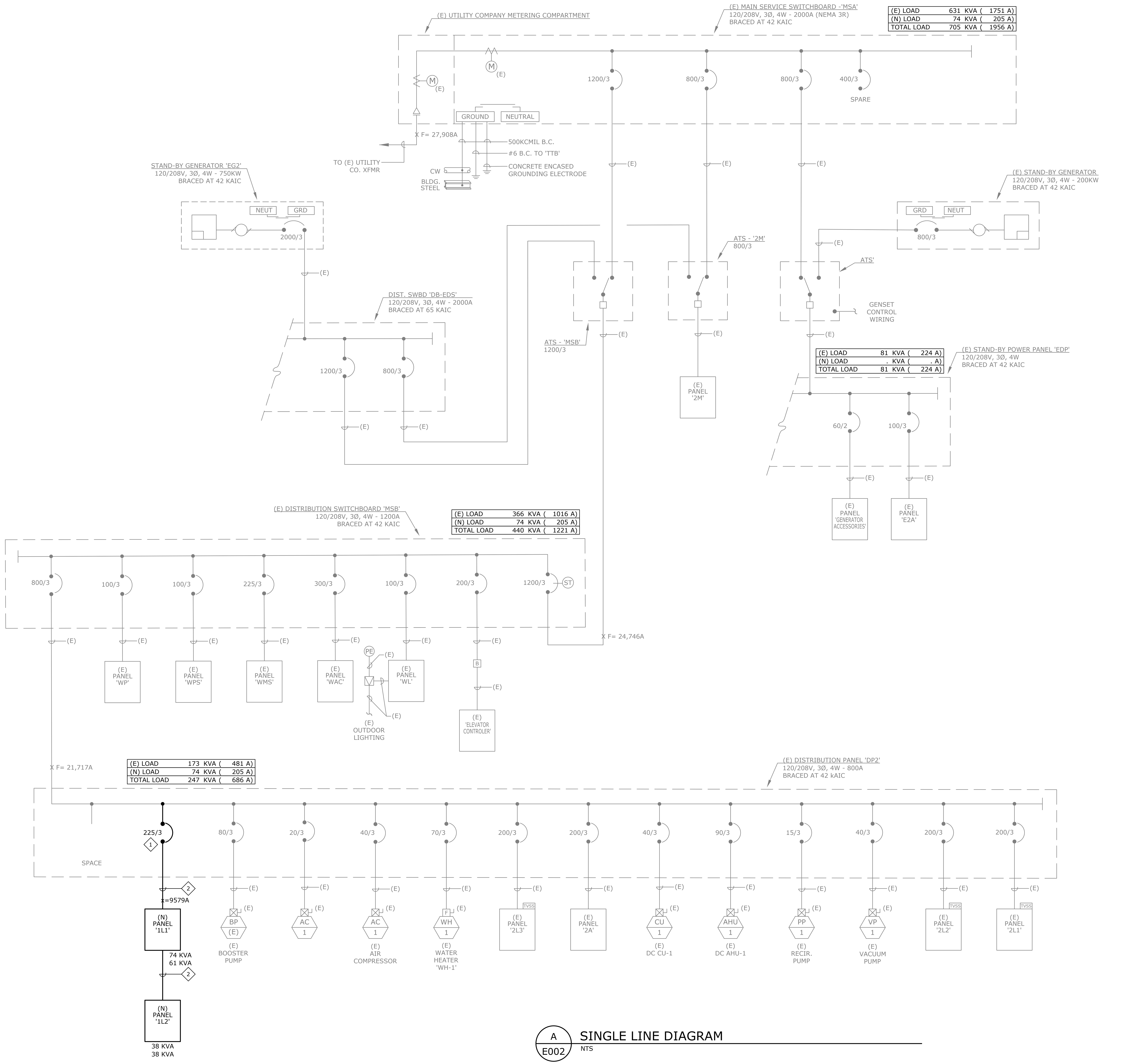
E001



A SINGLE LINE DIAGRAM
E002 NTS

GENERAL NOTES:

1. MINIMUM EQUIPMENT A.I.C. RATINGS ARE 14K A.I.C. @ 480/277V AND 10K A.I.C. @ 208/120V UNLESS OTHERWISE NOTED.
2. THE DESIGN PROFESSIONAL HAS PERFORMED ALL REQUIRED SHORT CIRCUIT CALCULATIONS AND THE A.I.C. RATINGS INDICATED FOR EACH DEVICE ARE ADEQUATE TO PROTECT THE EQUIPMENT AND THE ELECTRICAL SYSTEM.
3. THE DESIGN PROFESSIONAL HAS PERFORMED ALL THE REQUIRED VOLTAGE DROP CALCULATIONS FOR ALL BRANCH CIRCUITS AND FEEDERS PER 2017 NATIONAL ELECTRICAL CODE ARTICLE 210.19(A)(1), FPN NO. 4.
4. PANELBOARD LOAD SUMMARIES INCLUDE ADDITIONAL 25% OF ALL CONTINUOUS AND LARGEST MOTOR LOADS WHERE APPLICABLE.

SHEET NOTES:

1. PROVIDE NEW CIRCUIT BREAKER INDICATED WITH ALL REQUIRED MOUNTING HARDWARE. NEW CIRCUIT BREAKER AIC RATING SHALL MATCH EXISTING.
2. 2"C - 4#4/0, 1#4 GND THHN/THWN CU.

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SINGLE LINE DIAGRAM

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Project Number	20427
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E002

NEW PANEL '1L2' SCHEDULE

NOTE	TYPE	DESCRIPTION	LOAD	BREAKER	CKT		CKT	BREAKER	LOAD	DESCRIPTION	TYPE	NOTE
	R	LOGIC+ BIOSAFETY	830	20	1		2	20	830	ERV-1	M	
	R		830	2	3		4	2	830		M	
	R	LOGIC+ BIOSAFETY	830	20	5		6	20/1	180	ERV-1 (CONTROL)	M	
	R		830	2	7		8	20	290	VFC-1	M	
	M	CP-1	200	20/1	9		10	2	290		M	
	M		5600	70	11		12	20	120	VFC-2	M	
	M	VCU-1A	5600		13		14	2	120		M	
	M		5600	3	15		16	20	140	VFC-3	M	
	M		4140	50	17		18	2	140		M	
	M	VCU-1B	4140		19		20	20	840	VFC-4	M	
	M		4140	3	21		22	2	840		M	
		SPARE		20/1	23		24	20	25	VFC-5	M	
		SPARE		20/1	25		26	2	25		M	
		SPARE		20/1	27		28	20	25	VFC-6	M	
		SPARE		20/1	29		30	2	25		M	
		SPARE		20/1	31		32	20	70	BCC-1	M	
		SPARE		20/1	33		34	2	70		M	
		SPARE		20/1	35		36		25	MAINTENANCE RECEPTACLE	R	
		SPARE		20/1	37		38	20/1		SPARE		
		SPARE		20/1	39		40	20/1		SPARE		
		SPARE		20/1	41		42	20/1		SPARE		

VOLTS: (●) 208 /120V, 3Ø, 4W.
AMPS: ( ) 100A (●) 225A ( ) 400A ( ) .
MAIN: ( ) MCB . (●) MLO
LUGS: ( ) DBL. LUGS ( ) FEED-THRU
MTD: (●) SURFACE ( ) FLUSH
BUSS: (●) COPPER ( ) ALUMINUM
DOOR: (●) DOOR IN DOOR ( ) STANDARD
NEMA RATING: 1
NEUTRAL BUS: (●) 100% ( ) 200%
GROUND BUS: (●) STANDARD ( ) ISOLATED
AIC RATING: (●) 10K ( ) 14K ( ) 22K ( ) .
SERIES RATING: ( ) ./ .

LOADS BY PHASE:

A0:	14	KVA	(113 A)
B0:	13	KVA	(108 A)
C0:	11	KVA	(92 A)

LOAD-TYPE SUBTOTALS:

LIGHTING:	0	KVA
FOOD SERVICE:	0	KVA
LARGEST MOTOR:	0	KVA

LOAD SUBTOTAL:	38	KVA	(104 A)

NEC FACTORED LOADS:

LOAD FACTOR AT 1.25:	0	KVA	(0 A)
LOAD FACTOR AT 0.65	0	KVA	(0 A)
LOAD FACTOR AT 1.25:	0	KVA	(0 A)
CALCULATED LOAD:	38	KVA	(104 A)

NEW PANEL '1L1' SCHEDULE

NOTE	TYPE	DESCRIPTION	LOAD	BREAKER	CKT		CKT	BREAKER	LOAD	DESCRIPTION	TYPE	NOTE
	R	PANTHER RECEPTACLE	700	20	1		2	20/1	800	XN-550i RECEPTACLE	R	
	R		700	2	3		4	30	1500	ATELLIC IM 1300	R	
	R	CENTRIFUGE RECEPTACLE	1400	20/1	5		6	2	1500		R	
	R	3-DOOR REFRIGERATOR	600	20/1	7		8	30	950	ATELLICA CH 930	R	
	R	3-DOOR REFRIGERATOR	600	20/1	9		10	2	950		R	
	R	BIOPLEX 2200 RECEPTACLE	1000	20/1	11		12	30	950	ATELLICA SH	R	
	R	LIASON XL RECEPTACLE	1000	20/1	13		14	2	950		R	
	R	HOOD	250	20/1	15		16	20/1	720	COUNTER RECEPTACLE	R	
	R	HOOD	250	20/1	17		18	20/1	540	COUNTER RECEPTACLE(FUTURE)	R	
	R	VITROS RECEPTACLE	1440	20/1	19		20	20/1	540	COUNTER RECEPTACLE(FUTURE)	R	
	R	REVCO REFRIGERATOR	1200	20/1	21		22	20/1	360	HOT LAB RECEPTACLE	R	
	R	REVCO REFRIGERATOR	1200	20/1	23		24	20/1	360	HOT LAB RECEPTACLE	R	
	R	GENERAL RECEPTACLE	900	20/1	25		26	20/1	900	BREAK RM RECEPTACLE	R	
	R	WIREMOLD RECEPTACLE	180	20/1	27		28	20/1	600	BREAK RM REFRIGERATOR	R	
	R	WIREMOLD (XN-550i)RECEPTACLE	540	20/1	29		30	20/1	600	BREAK RM GARBAGE DISPOSER	R	
	R	WAREHOUSE/CORRIDOR RECEPTACLE	720	20/1	31		32	20/1	180	BREAK RM COUNTER RECEPTACLE	R	
	R	OFFICE 145 RECEPTACLE	900	20/1	33		34	20/1	1200	BREAK RM MICROWAVE	R	
	R	OFFICE 146 RECEPTACLE	900	20/1	35		36	20/1	400	EWC	R	
	R	RR RECEPTACLES	360	20/1	37		38	20/1	590	LIGHTING OFFICES/CORRIDORS	L	
	R	OFFICE 142 RECEPTACLE	720	20/1	39		40	20/1	880	LIGHTING BREAK RM/LAB	L	
	R	OFFICE 142 RECEPTACLE	720	20/1	41		42	20/1	600	LIGHTING OFFICES	L	

VOLTS: (●) 208 /120V, 3Ø, 4W.
AMPS: ( ) 100A (●) 225A ( ) 400A ( ) .
MAIN: ( ) MCB . (●) MLO
LUGS: ( ) DBL. LUGS (●) FEED-THRU
MTD: (●) SURFACE ( ) FLUSH
BUSS: (●) COPPER ( ) ALUMINUM
DOOR: (●) DOOR IN DOOR ( ) STANDARD
NEMA RATING: 1
NEUTRAL BUS: (●) 100% ( ) 200%
GROUND BUS: (●) STANDARD ( ) ISOLATED
AIC RATING: (●) 10K ( ) 14K ( ) 22K ( ) .
SERIES RATING: ( ) ./ .

LOADS BY PHASE:

A0:	24	KVA	(202 A)
B0:	24	KVA	(198 A)
C0:	22	KVA	(184 A)

LOAD-TYPE SUBTOTALS:

LIGHTING:	0	KVA
FOOD SERVICE:	0	KVA
LARGEST MOTOR:	17	KVA

LOAD SUBTOTAL:	70	KVA	(194 A)

NEC FACTORED LOADS:

LOAD FACTOR AT 1.25:	0	KVA	(0 A)
LOAD FACTOR AT 0.65	0	KVA	(0 A)
LOAD FACTOR AT 1.25:	21	KVA	(59 A)
CALCULATED LOAD:	74	KVA	(206 A)

GENERAL NOTES:

1. MINIMUM EQUIPMENT A.I.C. RATINGS ARE 14K A.I.C. @ 480/277V AND 10K A.I.C. @ 208/120V UNLESS OTHERWISE NOTED.
2. THE DESIGN PROFESSIONAL HAS PERFORMED ALL REQUIRED SHORT CIRCUIT CALCULATIONS AND THE A.I.C. RATINGS INDICATED FOR EACH DEVICE ARE ADEQUATE TO PROTECT THE EQUIPMENT AND THE ELECTRICAL SYSTEM.
3. THE DESIGN PROFESSIONAL HAS PERFORMED ALL THE REQUIRED VOLTAGE DROP CALCULATIONS FOR ALL BRANCH CIRCUITS AND FEEDERS PER 2017 NATIONAL ELECTRICAL CODE ARTICLE 210.19(A)(1), FPN NO. 4.
4. PANELBOARD LOAD SUMMARIES INCLUDE ADDITIONAL 25% OF ALL CONTINUOUS AND LARGEST MOTOR LOADS WHERE APPLICABLE.

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PANEL SCHEDULES

Southern Nevada Health District

SNHD LAB EXPANSION

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Sheet Name

Project Name

DELTA NO.	REVISION NO.	DESCRIPTION	DATE

Project Number	20427
Date	05/24/2021
Drawn By	MSA
Checked By	PE

E003

LIGHTING COMPLIANCE CERTIFICATE

COMcheck Software Version 4.1.5.1

Interior Lighting Compliance Certificate

Project Information

Energy Code: 2018 IECC
Project Title: SNHD LAB EXPANSION
Project Type: Alteration

Construction Site:
700 SOUTH MARTIN LUTER KING BLVD
LAS VEGAS, NV 89106

Owner/Agent:

Designer/Contractor:

Allowed Interior Lighting Power

A Area Category	B Floor Area (ft2)	C Allowed Watts / ft2	D Allowed Watts (B X C)
1-OFFICES (Common Space Types:Office - Enclosed)	921	0.93	857
2-LAB (Common Space Types:Laboratory For Medical/Industrial/Research)	1388	1.45	2013
3-WAREHOUSE (Warehouse Storage:Medium/Bulky/Pallet Material)	259	0.35	91
4-RESTROOM (Common Space Types:Restrooms)	136	0.85	116
5-CORRIDOR (Common Space Types:Corridor/Transition >=8 ft wide)	680	0.66	449
6-BREAK ROOM (Common Space Types:Lounge/Breakroom)	314	0.62	195
		Total Allowed Watts =	3719

Proposed Interior Lighting Power

A Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast	B Lamps/ Fixture	C # of Fixtures	D Fixture Watt.	E (C X D)
OFFICES (Common Space Types:Office - Enclosed 921 sq.ft.)				
LED 1: L5/L5E: LED 2X4 TROFFER: Other:	1	18	40	720
LAB (Common Space Types:Laboratory For Medical/Industrial/Research 1388 sq.ft.)				
LED 2: L5/L5E: LED 2X4 TROFFER: Other:	1	20	40	800
LED 8: L6E: LED 2X4 TROFFER: Other:	1	1	48	48
WAREHOUSE (Warehouse Storage:Medium/Bulky/Pallet Material 259 sq.ft.)				
LED 3: L2/L2E: 8' LED STRIP LIGHT: Other:	1	2	75	150
RESTROOM (Common Space Types:Restrooms 136 sq.ft.)				
LED 1: L3E: 6" DOWNLIGHT: Other:	1	2	20	40
LED 5: L4: COVE LIGHT: Other:	1	2	56	112
CORRIDOR (Common Space Types:Corridor/Transition >=8 ft wide 680 sq.ft.)				
LED 6: L1/L1E: 4' STRIP LIGHT: Other:	1	3	38	114
BREAK ROOM (Common Space Types:Lounge/Breakroom 314 sq.ft.)				
LED 7: L5/L5E: LED 2X4 TROFFER: Other:	1	5	40	200
			Total Proposed Watts =	2184

Interior Lighting PASSES

Interior Lighting Compliance Statement

Compliance Statement: The proposed interior lighting alteration project represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed interior lighting systems have been designed to meet the 2018 IECC requirements in COM*check* Version 4.1.5.1 and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

Name - Title _____ Signature _____ Date _____

LIGHTING FIXTURE SCHEDULE

FIXTURE SCHEDULE GENERAL NOTES:

1. FIXTURES SHALL HAVE APPROPRIATE U.L. LABEL (i.e., DAMP OR WET) AS REQUIRED BY CODES AND ORDINANCES.
2. FIXTURES SHALL INCLUDE ALL ACCESSORIES NECESSARY FOR INSTALLATION ACCORDING TO MANUFACTURER'S SHOP DRAWINGS AND AS REQUIRED BY CODES AND LOCAL ORDINANCES.
3. PRIOR TO ORDERING ANY LIGHTING EQUIPMENT, THE CONTRACTOR SHALL COORDINATE ALL FIXTURE LOCATIONS WITH ARCHITECTURAL REFLECTED CEILING PLANS AND CEILING CAVITY DEPTHS.
4. ALL LAMPS SHALL BE PROVIDED AND INSTALLED ACCORDING TO THE ATTACHED FIXTURE SCHEDULE AND SPECIFICATIONS. ENSURE COMPATIBILITY BETWEEN FIXTURE, LAMP(S) AND BALLAST(S). (OSRAM SYLVANIA SERIES)
5. CONTRACTOR SHALL VERIFY FIXTURE VOLTAGES AND CEILING TRIM COMPATIBILITY PRIOR TO ORDERING FIXTURE.
6. PROVIDE APPROVED FIRE-RATED ENCLOSURES FOR ALL LIGHTING FIXTURES LOCATED IN FIRE-RATED CEILINGS.
7. LIGHTING FIXTURE CATALOG NUMBERS ARE SERIES TYPE ONLY. PROVIDE ALL NECESSARY HARDWARE AS REQUIRED BY THE SPECIFICATIONS, DRAWINGS, AND PROJECT CONDITIONS FOR A COMPLETE INSTALLATION.
8. ENSURE COMPATIBILITY OF ALL LIGHTING SYSTEM COMPONENTS, ESPECIALLY DIMMED SYSTEMS. FIXTURES, LED DRIVERS, LAMPS, BALLAST(S), AND DIMMING SYSTEMS/INDIVIDUAL CONTROLS SHALL BE FACTORY CERTIFIED COMPATIBLE FOR FULL RANGE OF DIMMING COMPATIBILITY.
9. PROVIDE CLEARANCES FROM COMBUSTIBLES: A MINIMUM OF 1/2" (OTHER THAN AT POINTS OF SUPPORT) AND 3" FROM INSULATION FOR RECESSED LIGHTING FIXTURES WHICH ARE NON-IC RATED.
10. FOR FIXTURES RECESSED IN SUSPENDED T-BAR CEILING, PROVIDE A MINIMUM OF TWO (2) #12 SUPPORT WIRES ATTACHED TO BUILDING FRAME IN ADDITION TO T-BAR CLIPS.
11. FIXTURES WITH EMERGENCY BATTERY BACKUP SHALL BE WIRED AHEAD OF ANY LOCAL SWITCHING IN COMPLIANCE WITH NEC ARTICLE 700.
12. EMERGENCY LIGHTING UNITS SHALL BE EQUIPPED WITH FACTORY-INSTALLED INTEGRAL TEST SWITCHES.
13. FOR ALL FIXTURES LOCATED IN FOOD SERVICE AREAS, PROVIDE DOOR-TO-FRAME AND LENS-TO-DOOR GASKETING, INVERTED LENS, AND FOOD SERVICE RATING.
14. LED FIXTURES SHALL EQUAL OR EXCEED THE FOLLOWING MINIMUM REQUIREMENTS:
    - L8/50: 80% OF LUMEN OUTPUT AT 50,000 HOURS
    - CRI GREATER THAN OR EQUAL TO 80.
    - LUMENS PER WATT: DOWNLIGHTS = GREATER THAN 60, OTHERWISE GREATER THAN 90.
    - UNIFORMITY: (3) MCADAMS ELLIPSES.
    - FUNCTIONAL LIFE: GREATER THAN 60,000 HOURS
    - INTERIOR AMBIENT: GREATER THAN 40°C, 104°F
    - EXTERIOR AMBIENT: GREATER THAN 50°C, 122°F
    - SEAL AGAINST DUST AND INSECT ENTRY.
    - POWER FACTOR: 0.9 OR BETTER.
    - MANUFACTURERS GUARANTEE: 5 YEARS.
15. FOR LED RETROFIT LAMPS, PROVIDE SELF-BALLASTED LED LAMPS WITH THESE CHARACTERISTICS:
    - CRI GREATER THAN OR EQUAL TO 80.
    - COLOR = 2700K OR 3000K
    - LIFE = GREATER THAN OR EQUAL 25,000 HOURS
    - MANUFACTURERS GUARANTEE = 5 YEARS.
    - DIMMABLE AS NOTED.
    - LUMENS AS NOTED.
16. WHERE FIXTURE AND/OR LAMP IS SPECIFIED BY MANUFACTURER AND CATALOG NUMBER, PERFORMANCE OF PROPOSED SUBSTITUTE SHALL EQUAL OR EXCEED PUBLISHED DATA OF THE SPECIFIED FIXTURE.

TYPE	DESCRIPTION	LAMP	CONTROL	VOLTAGE	LOAD	MANUFACTURER	SERIES	NOTES
L1	4' LED LENSED STRIP	LED	N/A	120V	38W	COOPER LIGHTING	# 4SNLED-LD5-44SL-LW-UNV-L840-CD1-U	
L1E	4' LED LENSED STRIP WITH EMERGENCY BATTERY BACK UP	LED	N/A	120V	38W	COOPER LIGHTING	# 4SNLED-LD5-44SL-LW-UNV-EL14W-L840-CD1-U	
L2	8' LED LENSED STRIP	LED	N/A	120V	75W	COOPER LIGHTING	# 8TSNLED-LD5-88SL-LW-UNV-L840-CD1-U	
L2E	8' LED LENSED STRIP WITH EMERGENCY BATTERY BACK UP	LED	N/A	120V	75W	COOPER LIGHTING	# 8TSNLED-LD5-88SL-LW-UNV-EL14W-L840-CD1-U	
L3E	6" DOWNLIGHT WITH EMERGENCY BATTERY BACK UP	LED	N/A	120V	20W	COOPER LIGHTING	#HC620D010REM14-HM612840-61MDCXX	
L4	ASSYMETRIC COVE	LED	N/A	120V	56W	FINELITE	#HP-WS-6W-2D-*-S-835-SW-120V-SC-WB-SW-TXL-*-*-*-SF	
L5	2'x4' LED TROFFER	LED	N/A	120V	40W	COOPER LIGHTING	# 24RDI-40-UNV-L840-CD1-U	
L5E	2'x4' LED TROFFER WITH EMERGENCY BATTERY BACK UP	LED	N/A	120V	40W	COOPER LIGHTING	# 24RDI-40-UNV-L840-EL14W-CD1-U	
L6E	2'x4' LED TROFFER (WET LOCATION)	LED	N/A	120V	48W	COOPER LIGHTING	#GRW-24-4-FA-LD4-64-40-A12125-EDD1-EL14W-INV	
X1	DIE-CAST EXIT SIGN. SINGLE OR DOUBLE FACE PER PLANS. MOUNTING PER PLANS. RED STROKE BRUSHED ALUMINUM HOUSING.	LED	N/A	MVOLT	5W	ISOLITE	#EDC-EM-R-U-BA-BA	

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LIGHTING FIXTURE SCHEDULE AND COMPLIANCE CERTIFICATE
Southern Nevada Health District
SNHD LAB EXPANSION
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Sheet Name
Project Name

DELTA NO.	REVISION NO.	DESCRIPTION	DATE

Project Number	20427
Date	05/24/2021
Drawn By	MSA
Checked By	PE

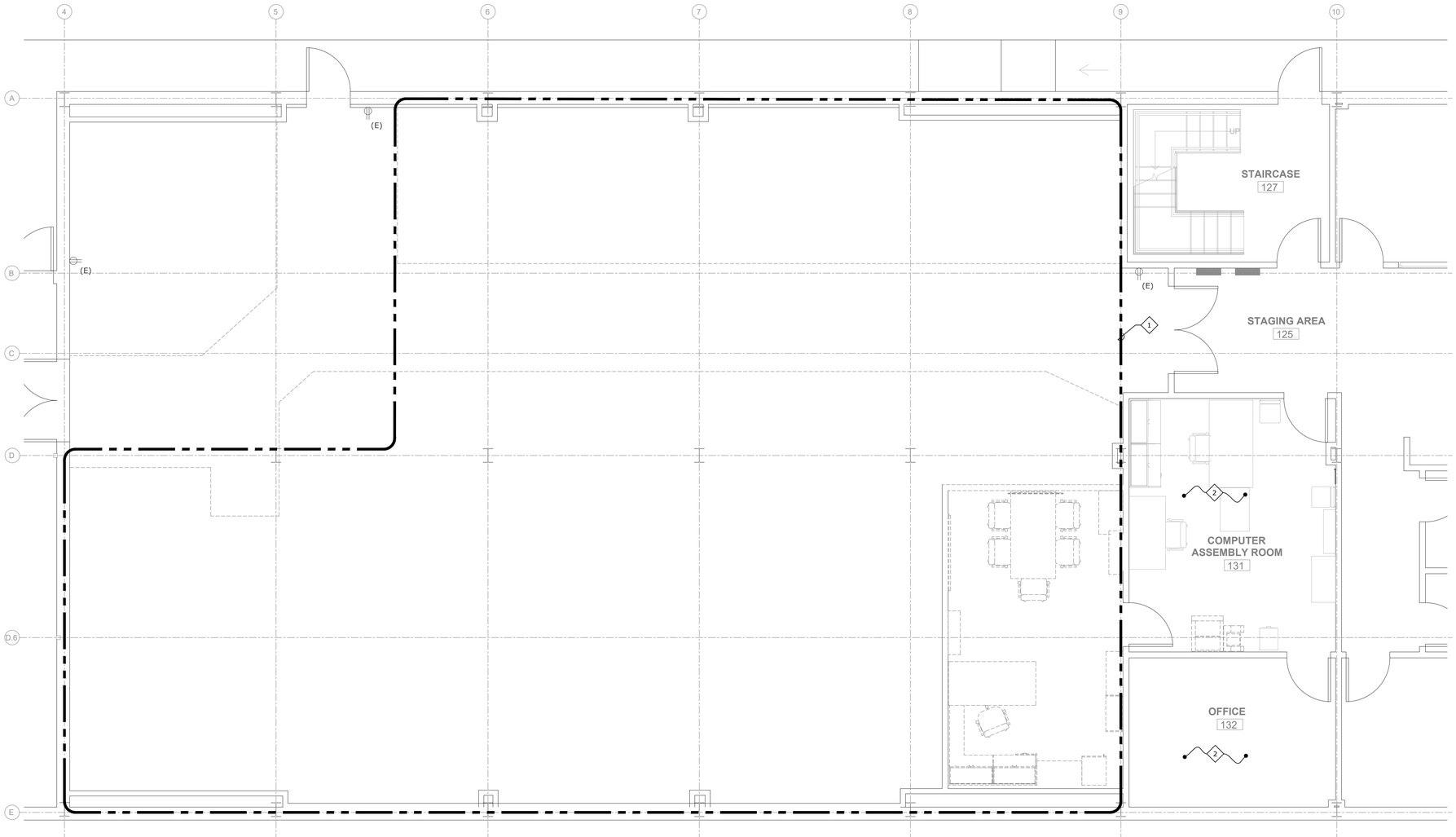
E004

GENERAL NOTES:

1. THE CONTRACTOR SHALL REMOVE ITEMS AS INDICATED. REMOVAL SHALL INCLUDE BUT IS NOT LIMITED TO DEVICE, JUNCTION BOXES, CONDUITS, CONDUCTORS, ETC. BACK TO SOURCE.
2. THE CONTRACTOR SHALL BE RESPONSIBLE TO MAINTAIN THE CONTINUITY OF ALL FEEDERS AND BRANCH CIRCUITS SCHEDULED TO REMAIN WHICH MAY ROUTE THROUGH THE AREA OF DEMOLITION.
3. REFER TO THE ARCHITECTURAL DRAWINGS FOR THE EXACT LIMITS OF DEMOLITION.

SHEET NOTES:

1. ALL EXISTING OUTLETS IN AREA TO BE REMOVED. THIS SHALL INCLUDE, BUT NOT LIMITED TO OUTLETS, OUTLET BOXES, CONDUIT, CONDUCTORS, ETC. BACK TO NEAREST ACCESSIBLE POINT OF ORIGINATION OR SOURCE.
2. EXISTING ELECTRICAL EQUIPMENT TO REMAIN. THE CONTRACTOR SHALL MAINTAIN THE CONTINUITY OF ALL EXISTING FEEDERS AND BRANCH CIRCUITS THROUGHOUT CONSTRUCTION.



A ED100 DEMOLITION POWER PLAN
1/4" = 1'-0"

0' 1' 2' 4' 8'

NORTH

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DEMOLITION POWER PLAN
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Southern Nevada Health District
700 South Martin Luther King Blvd.
Las Vegas, Nevada 89106

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Drawn By	MSA
Checked By	PE

ED100

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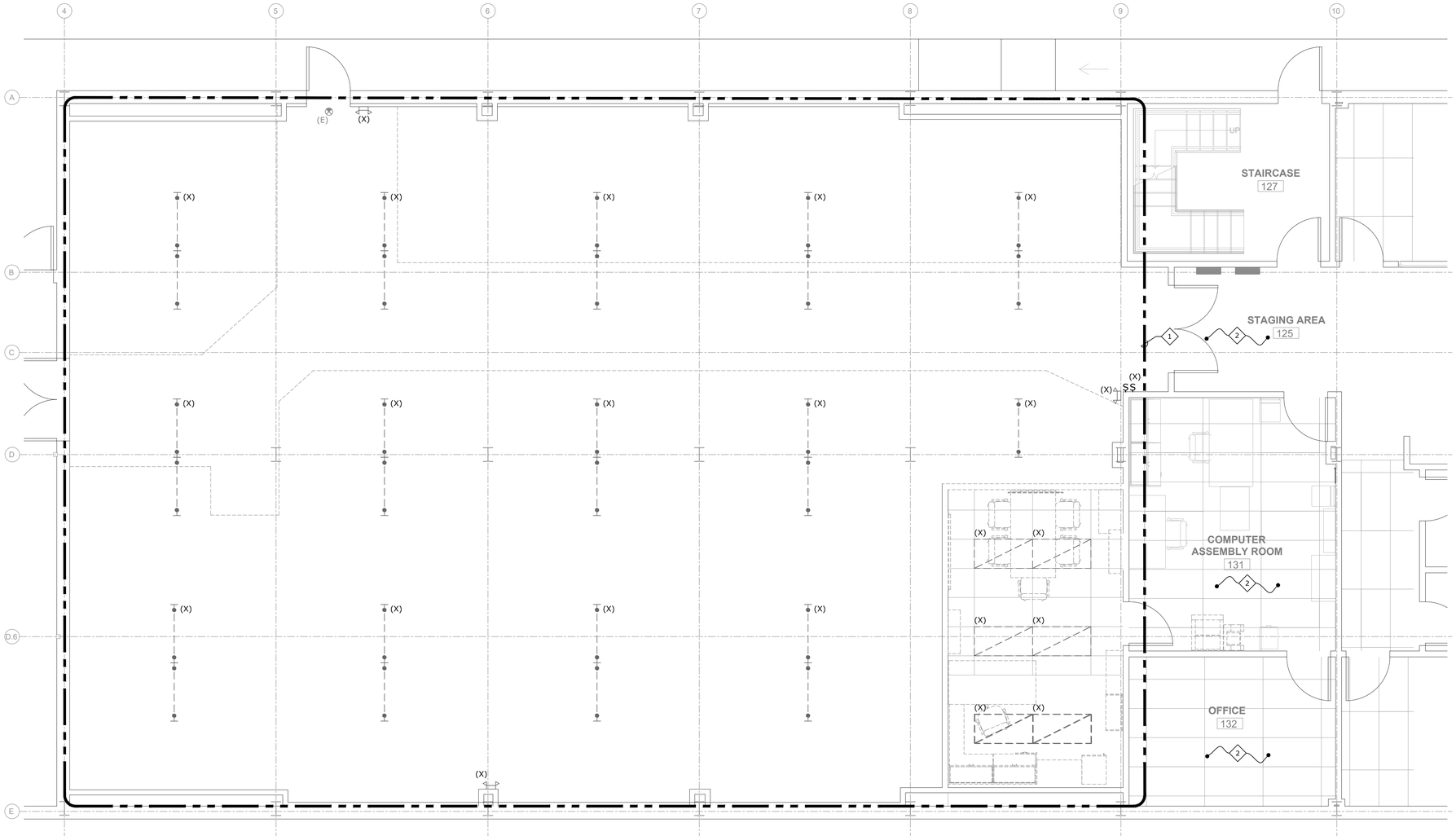
GENERAL NOTES:

1. THE CONTRACTOR SHALL REMOVE ITEMS AS INDICATED. REMOVAL SHALL INCLUDE BUT IS NOT LIMITED TO DEVICE, JUNCTION BOXES, CONDUITS, CONDUCTORS, ETC. BACK TO SOURCE.
2. THE CONTRACTOR SHALL BE RESPONSIBLE TO MAINTAIN THE CONTINUITY OF ALL FEEDERS AND BRANCH CIRCUITS SCHEDULED TO REMAIN WHICH MAY ROUTE THROUGH THE AREA OF DEMOLITION.
3. REFER TO THE ARCHITECTURAL DRAWINGS FOR THE EXACT LIMITS OF DEMOLITION.

SHEET NOTES:

1. ALL EXISTING LIGHT FIXTURES IN AREA TO BE REMOVED. THIS SHALL INCLUDE, BUT NOT LIMITED TO LIGHT FIXTURE, CONDUIT, CONDUCTORS, OUTLET BOX, ETC. BACK TO NEAREST ACCESSIBLE POINT OF ORIGINATION OR SOURCE.
2. EXISTING LIGHTING IN THIS AREA TO REMAIN. THE CONTRACTOR SHALL MAINTAIN THE CONTINUITY OF ALL EXISTING CIRCUITING THROUGHOUT CONSTRUCTION.
3. LIGHTING FIXTURES IN THIS AREA WILL BE REPLACED WITH NEW LED FIXTURES. REFER TO SHEET E300 FOR MORE INFORMATION.



A ED300 DEMOLITION LIGHTING PLAN
1/4" = 1'-0"

0' 1' 2' 4' 8'

NORTH

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DEMOLITION LIGHTING PLAN

Southern Nevada Health District

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ED300

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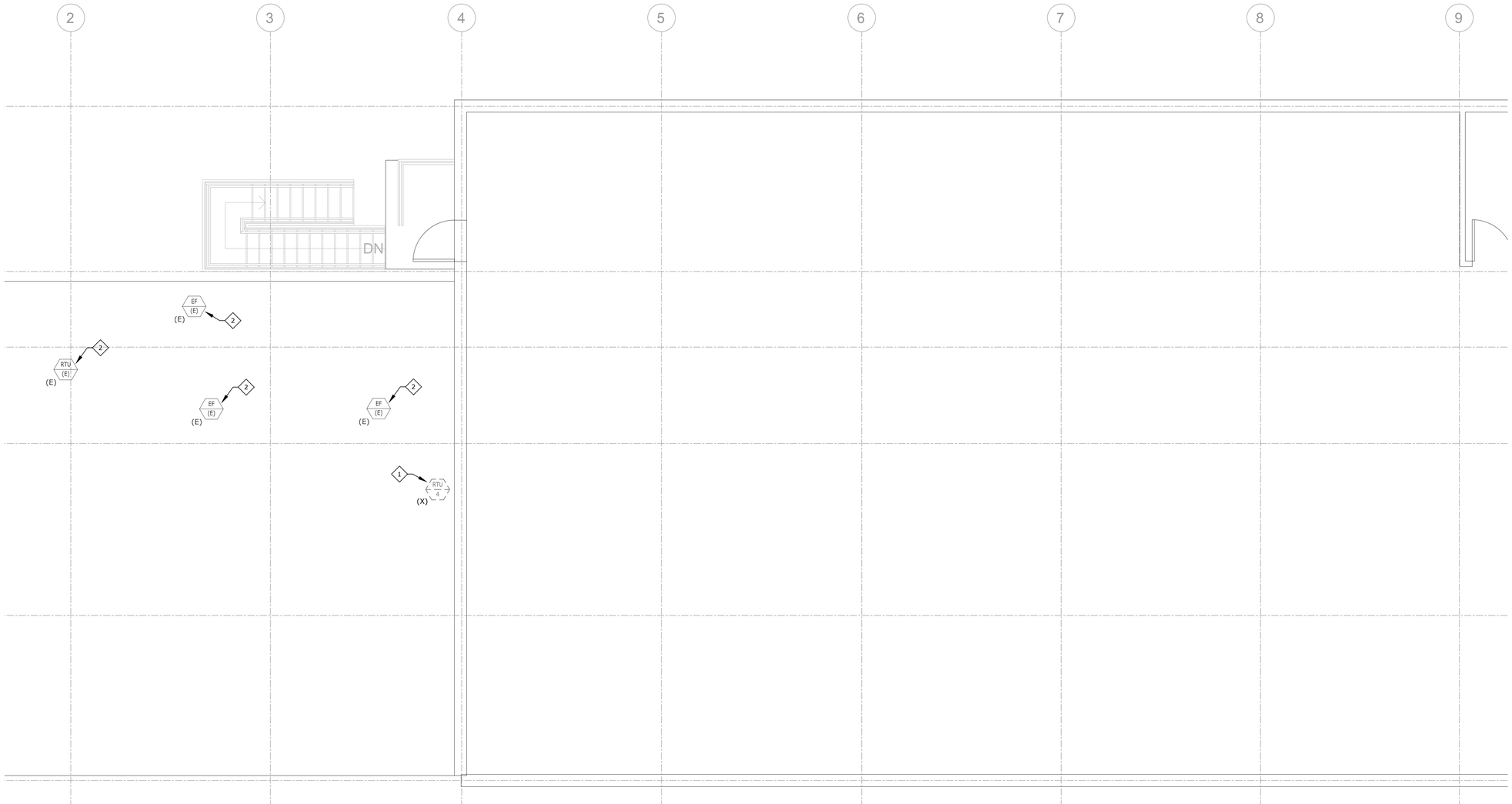
DEMOLITION NOTES:

1. THE CONTRACTOR SHALL REMOVE ITEMS AS INDICATED. REMOVAL SHALL INCLUDE BUT IS NOT LIMITED TO DEVICE, JUNCTION BOXES, CONDUITS, CONDUCTORS, ETC. BACK TO SOURCE.
2. THE CONTRACTOR SHALL BE RESPONSIBLE TO MAINTAIN THE CONTINUITY OF ALL FEEDERS AND BRANCH CIRCUITS SCHEDULED TO REMAIN WHICH MAY ROUTE THROUGH THE AREA OF DEMOLITION.
3. REFER TO THE ARCHITECTURAL DRAWINGS FOR THE EXACT LIMITS OF DEMOLITION.

SHEET NOTES:

1. EXISTING MECHANICAL EQUIPMENT TO BE REMOVED. REFER TO MECHANICAL DRAWINGS FOR ADDITIONAL REQUIREMENTS. THIS SHALL INCLUDE, BUT NOT LIMITED TO ELECTRICAL CONNECTION TO EQUIPMENT, DISCONNECT SWITCHES, CONDUIT, CONDUCTORS, JUNCTION BOXES, ETC. BACK TO NEAREST ACCESSIBLE POINT OF ORIGINATION OR SOURCE.
2. EXISTING MECHANICAL EQUIPMENT TO REMAIN. THE CONTRACTOR SHALL MAINTAIN THE CONTINUITY OF ALL EXISTING CIRCUITING THROUGHOUT CONSTRUCTION



A ED400 DEMOLITION POWER PLAN SECOND FLOOR
1/4" = 1'-0"

0' 1' 2' 4' 8'

NORTH

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DEMOLITION POWER PLAN SECOND FLOOR
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Project Number 20427
Date 05/24/2021
Drawn By MSA
Checked By PE

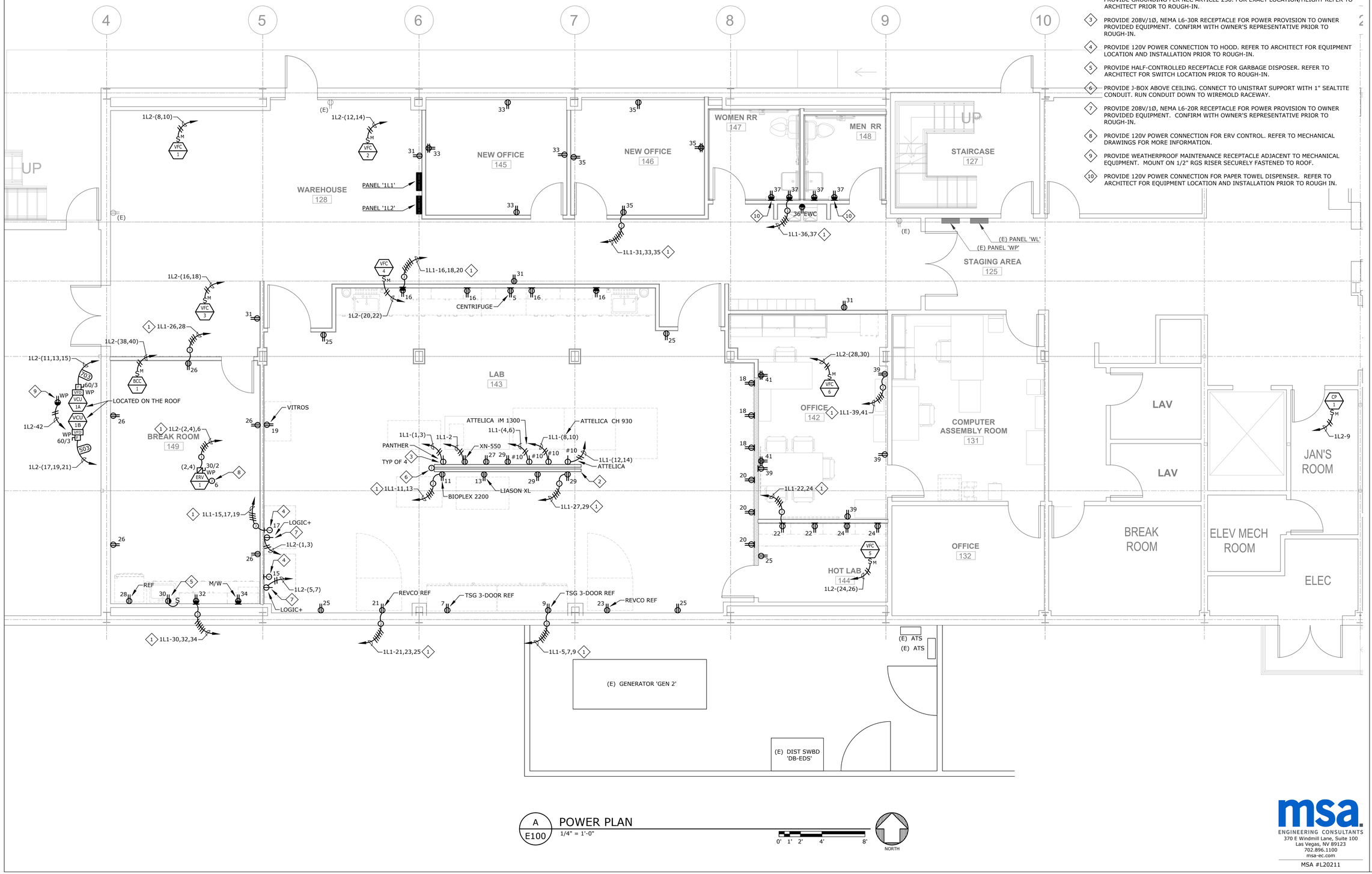
ED400

GENERAL NOTES:

1. VERIFY EXACT LOCATION OF ALL OUTLETS WITH ARCHITECT/INTERIOR DESIGNER PRIOR TO ROUGH-IN.

SHEET NOTES:

1. EXTEND AND CONNECT CIRCUITING FROM JUNCTION BOX TO OUTLETS IN AREA WITH SAME CIRCUIT NUMBERS, ROUTE #12 CONDUCTORS (MINIMUM) THROUGHOUT, UON.
2. PROVIDE WIREMOLD ALA4800 SERIES WIREWAY, ALUMINUM FINISH, 2-CHANNEL COMPARTMENT (POWER/DATA). COORDINATE RECEPTACLES TYPE/LOCATION PER FINAL EQUIPMENT LAYOUT. RACEWAY SHELL BE SUSPENDED FROM THE CEILING. PROVIDE ALL MOUNTING HARDWARE. REFER TO MANUFACTURER FOR MOUNTING AND INSTALLATION. PROVIDE GROUNDING PER NEC ARTICLE 250. FOR EXACT LOCATION/HEIGHT REFER TO ARCHITECT PRIOR TO ROUGH-IN.
3. PROVIDE 208V/1Ø, NEMA L6-30R RECEPTACLE FOR POWER PROVISION TO OWNER PROVIDED EQUIPMENT. CONFIRM WITH OWNER'S REPRESENTATIVE PRIOR TO ROUGH-IN.
4. PROVIDE 120V POWER CONNECTION TO HOOD. REFER TO ARCHITECT FOR EQUIPMENT LOCATION AND INSTALLATION PRIOR TO ROUGH-IN.
5. PROVIDE HALF-CONTROLLED RECEPTACLE FOR GARBAGE DISPOSER. REFER TO ARCHITECT FOR SWITCH LOCATION PRIOR TO ROUGH-IN.
6. PROVIDE J-BOX ABOVE CEILING. CONNECT TO UNISTRAT SUPPORT WITH 1" SEALTITE CONDUIT. RUN CONDUIT DOWN TO WIREMOLD RACEWAY.
7. PROVIDE 208V/1Ø, NEMA L6-20R RECEPTACLE FOR POWER PROVISION TO OWNER PROVIDED EQUIPMENT. CONFIRM WITH OWNER'S REPRESENTATIVE PRIOR TO ROUGH-IN.
8. PROVIDE 120V POWER CONNECTION FOR ERV CONTROL. REFER TO MECHANICAL DRAWINGS FOR MORE INFORMATION.
9. PROVIDE WEATHERPROOF MAINTENANCE RECEPTACLE ADJACENT TO MECHANICAL EQUIPMENT. MOUNT ON 1/2" RGS RISER SECURELY FASTENED TO ROOF.
10. PROVIDE 120V POWER CONNECTION FOR PAPER TOWEL DISPENSER. REFER TO ARCHITECT FOR EQUIPMENT LOCATION AND INSTALLATION PRIOR TO ROUGH IN.



A E100 POWER PLAN

1/4" = 1'-0"

0' 1' 2' 4' 8'

NORTH

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POWER PLAN
SNHD LAB EXPANSION
Southern Nevada Health District
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Las Vegas, Nevada 89106

Sheet Name

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Project Number	20427
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Drawn By	MSA
Checked By	PE

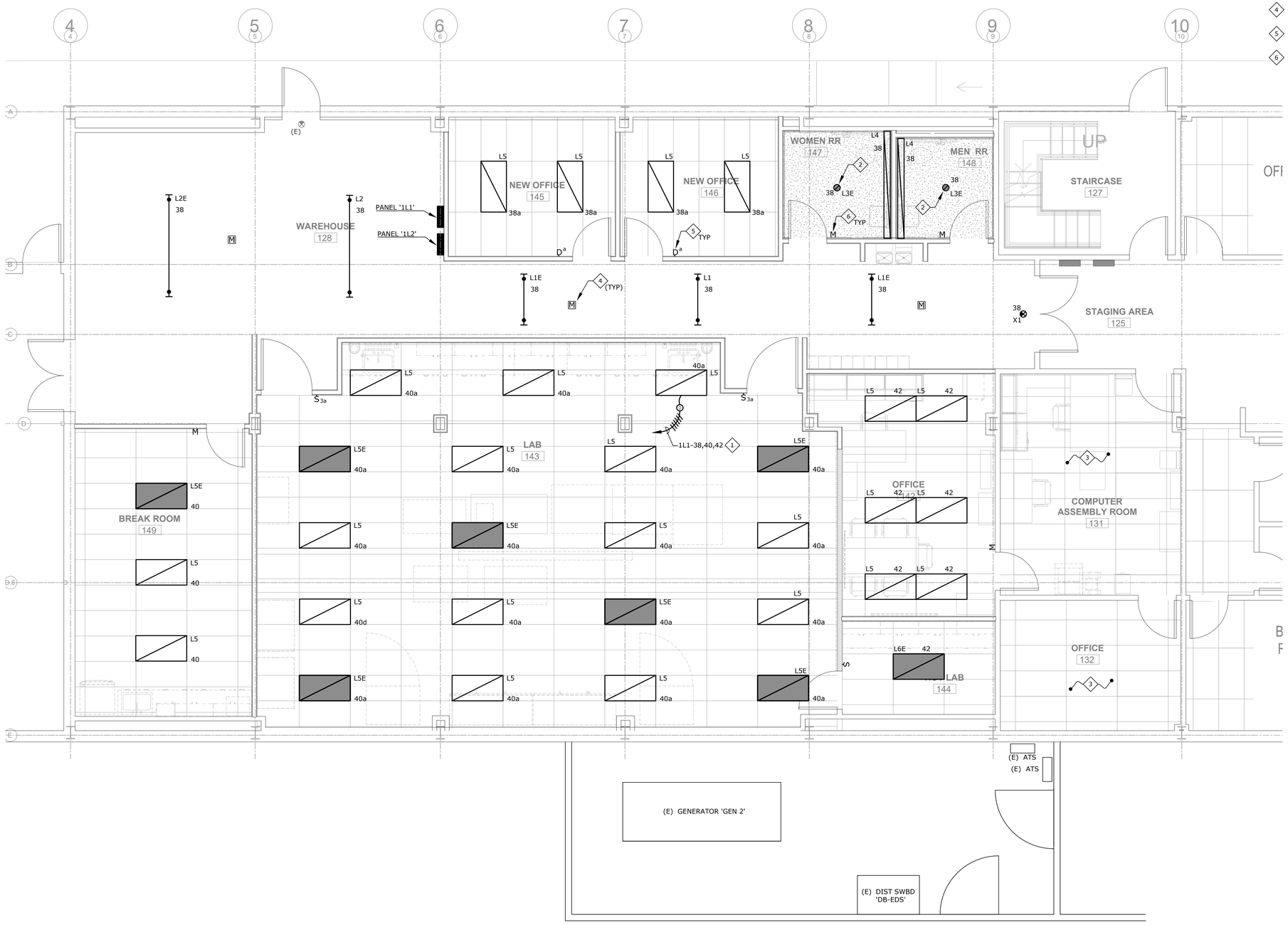
E100

GENERAL NOTES:

1. VERIFY EXACT LOCATION OF ALL OUTLETS WITH ARCHITECT/INTERIOR DESIGNER PRIOR TO ROUGH-IN.

SHEET NOTES:

1. EXTEND AND CONNECT CIRCUITING FROM JUNCTION BOX TO OUTLETS IN AREA WITH SAME CIRCUIT NUMBERS, ROUTE #12 CONDUCTORS (MINIMUM) THROUGHOUT, UON.
2. PROVIDE LIGHT FIXTURES WITH GYPBOARD FLANGE KIT FOR RECESSED INSTALLATIONS IN GYPBOARD CEILING.
3. LIGHTING FIXTURES IN THIS AREA WILL BE EXISTING TO REMAIN. THE CONTRACTOR IS TO MAINTAIN THE CONTINUITY OF ALL EXISTING CIRCUITS THROUGOUT CONSTRUCTION.
4. PROVIDE CEILING MOUNTED OCCUPANCY SWITCH SENSOR 'OAC-DT-1000' OR EQUIVALENT.
5. PROVIDE WALL MOUNTED OCCUPANCY DIMMER SWITCH SENSOR 'OSW-D-010' OR EQUIVALENT.
6. PROVIDE WALL MOUNTED OCCUPANCY SWITCH SENSOR 'ONW-D-1001' OR EQUIVALENT.



A E300 LIGHTING PLAN
1/4" = 1'-0"

0' 1' 2' 4' 8'

NORTH

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LIGHTING PLAN

Southern Nevada Health District

SNHD LAB EXPANSION

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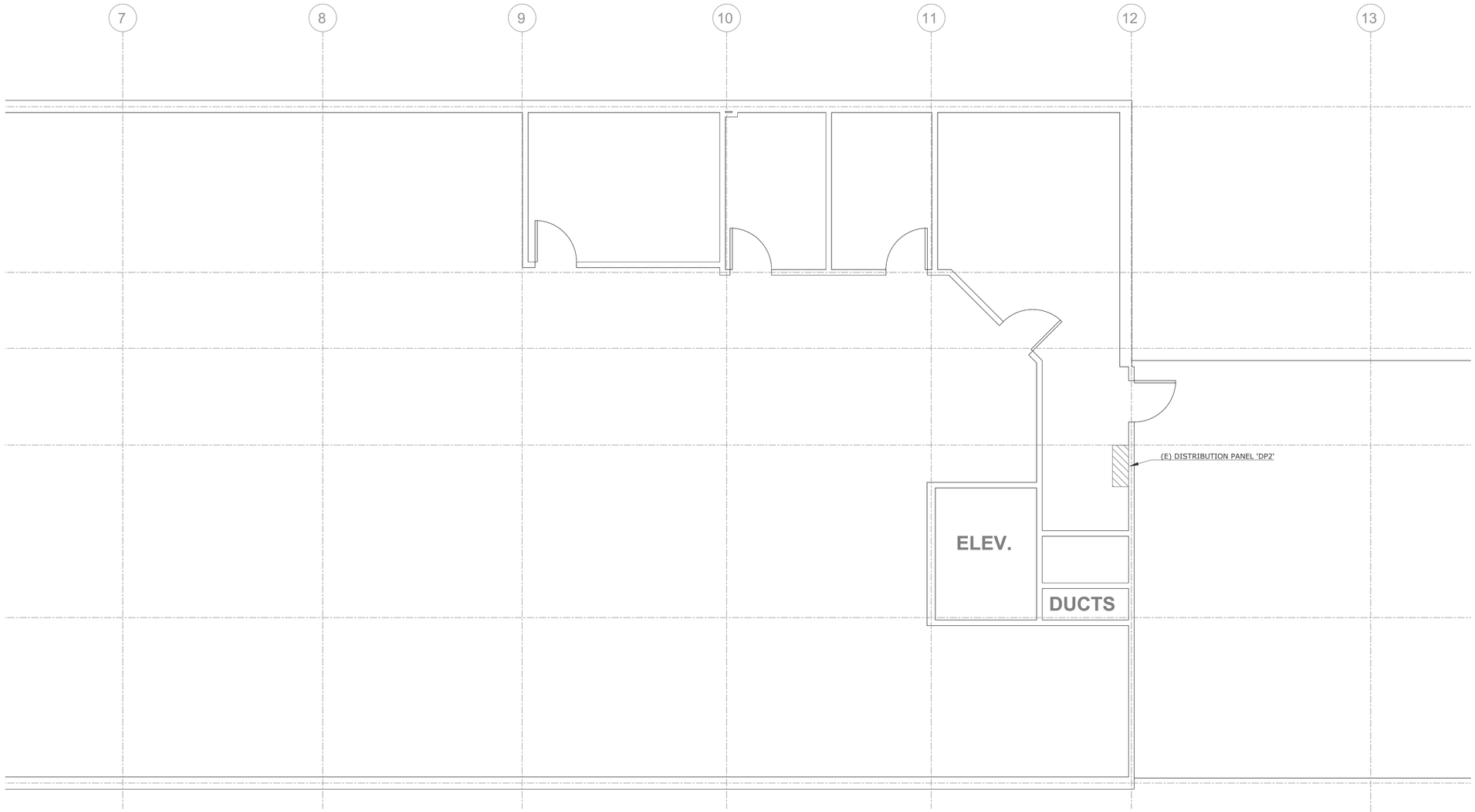
Checked By	PE

E300



A
E400
ELECTRICAL SECOND FLOOR - PARTIAL PLAN
1/4" = 1'-0"

0' 1' 2' 4' 8'

NORTH

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DELTA NO.	REVISION NO.	DESCRIPTION	DATE

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Project Name

Project Number 20427
Date 05/24/2021
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