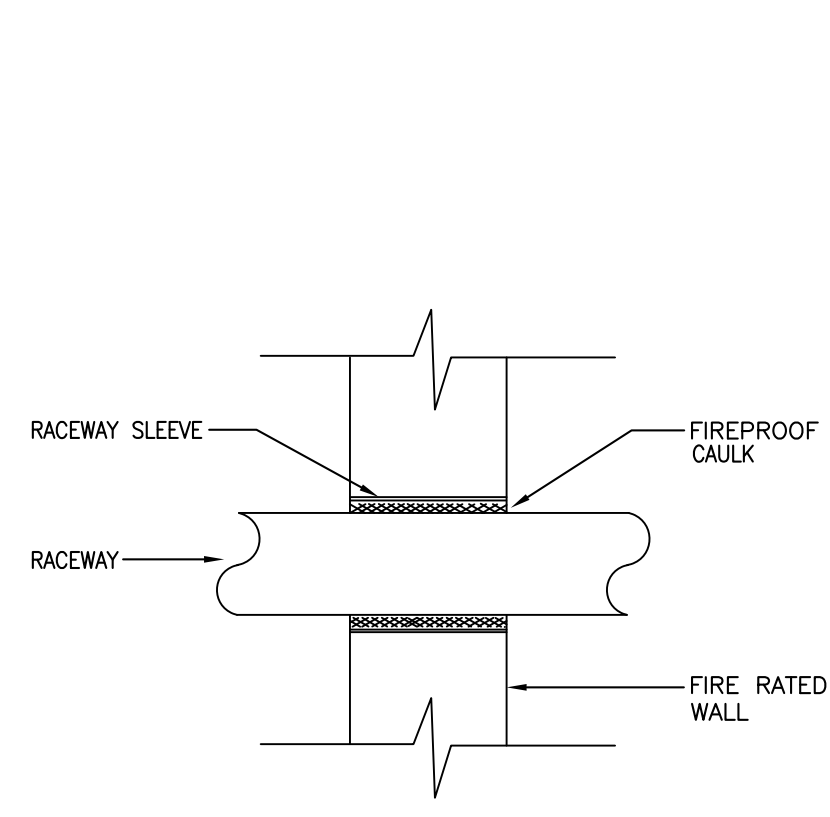
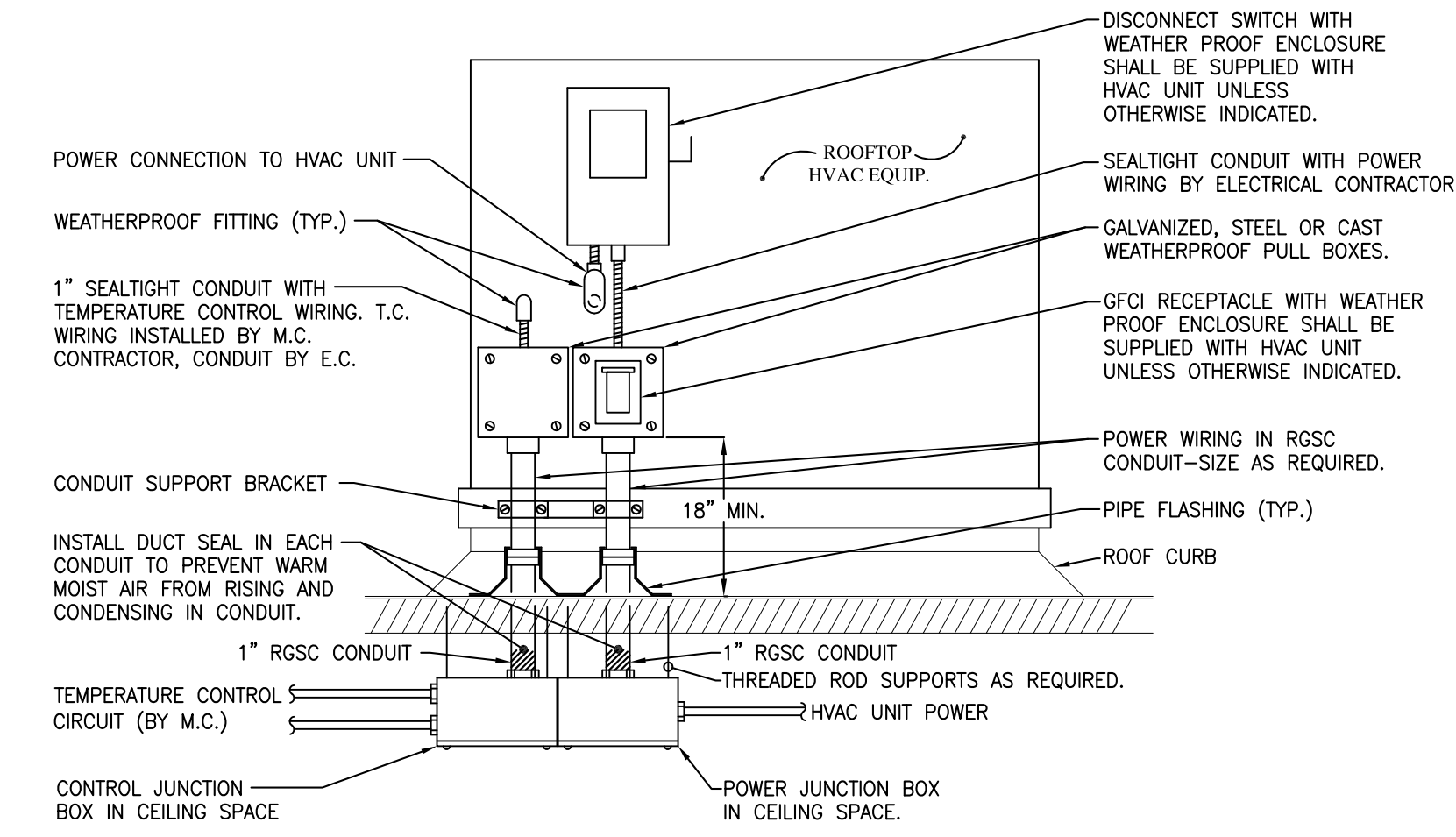


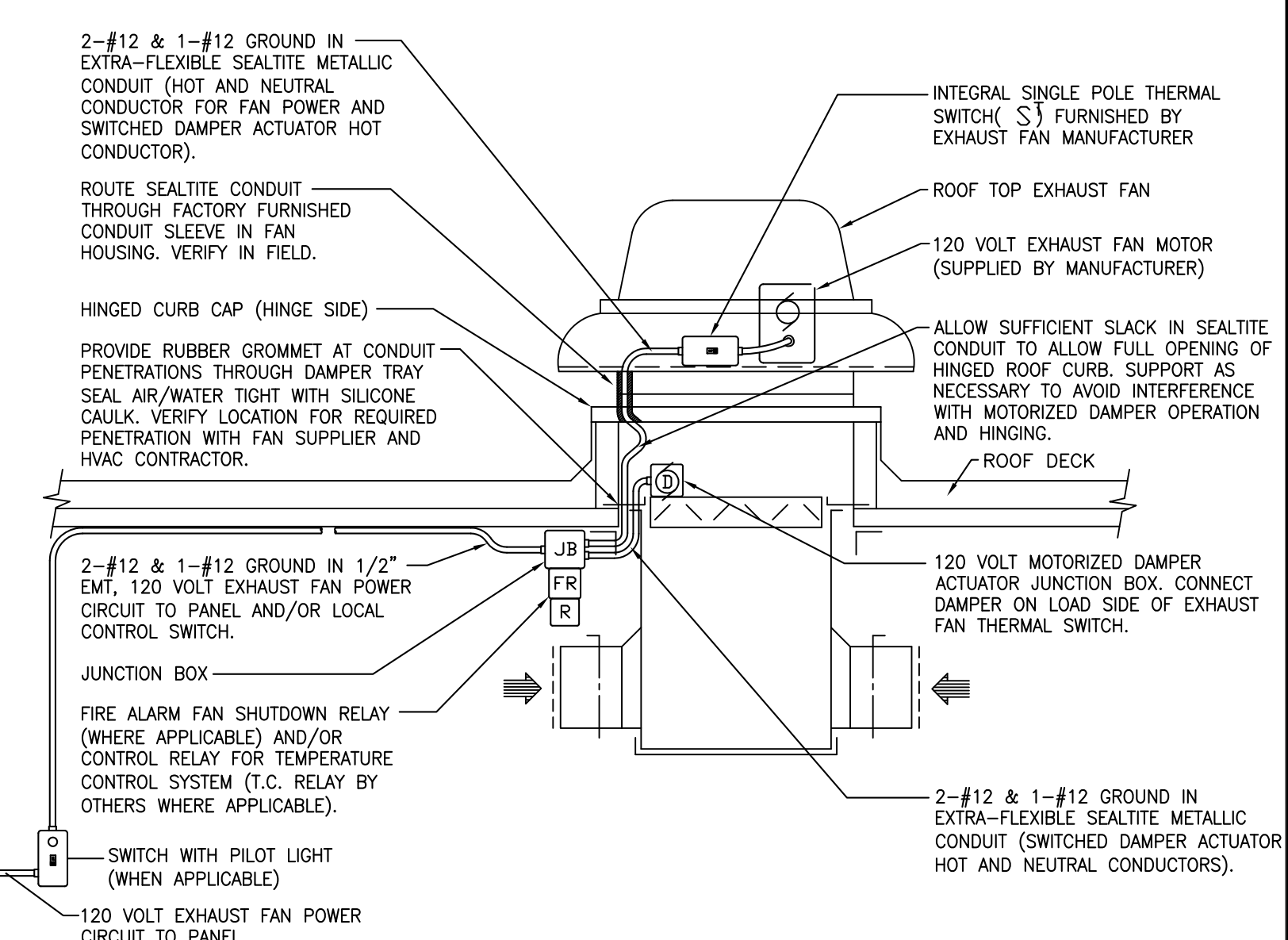
**1 CONDUIT/TRAPEZE MOUNTING DETAIL**  
 SCALE: N.T.S. Electrical Detail



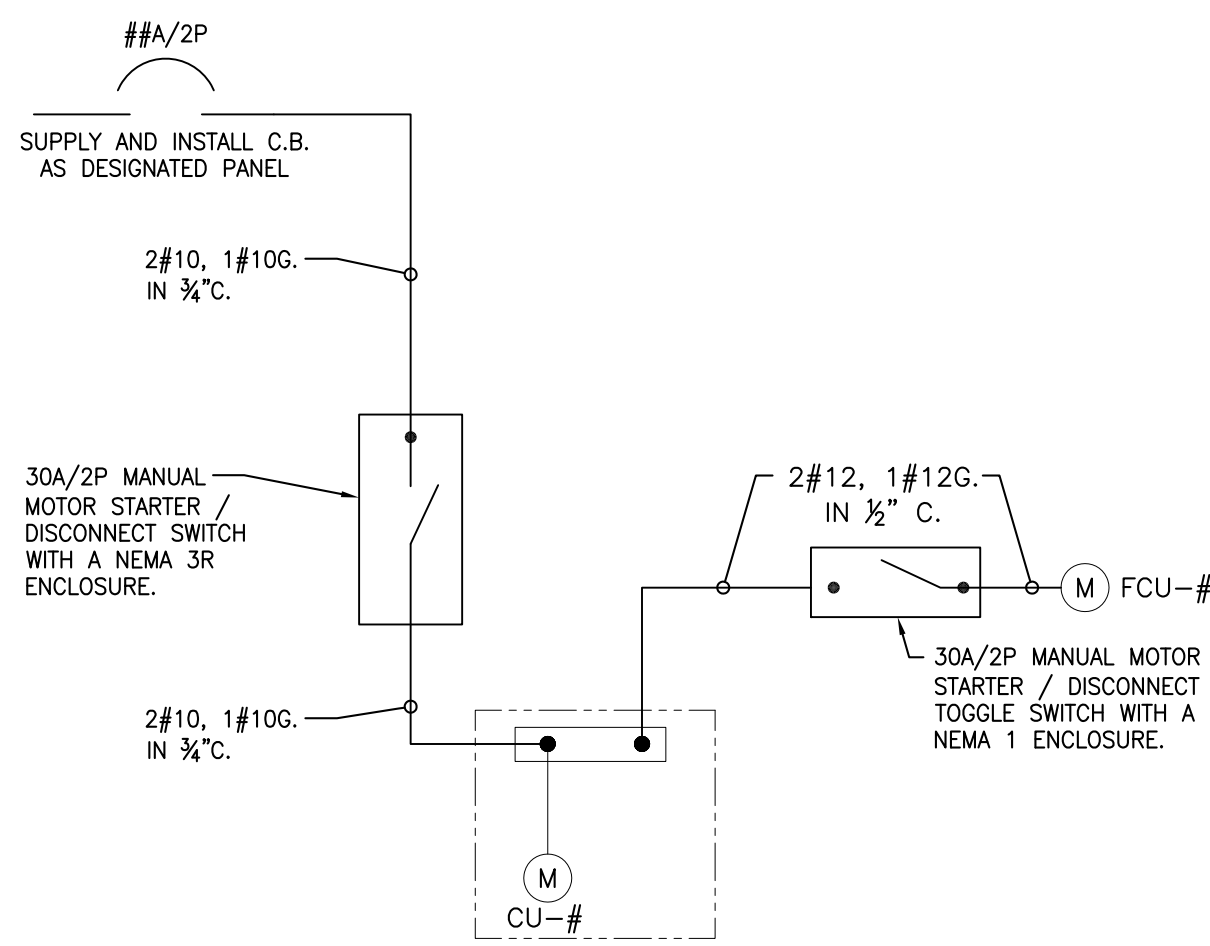
**2 RACEWAY PENETRATION THRU FIRE RATED WALL**  
 SCALE: N.T.S. Electrical Detail



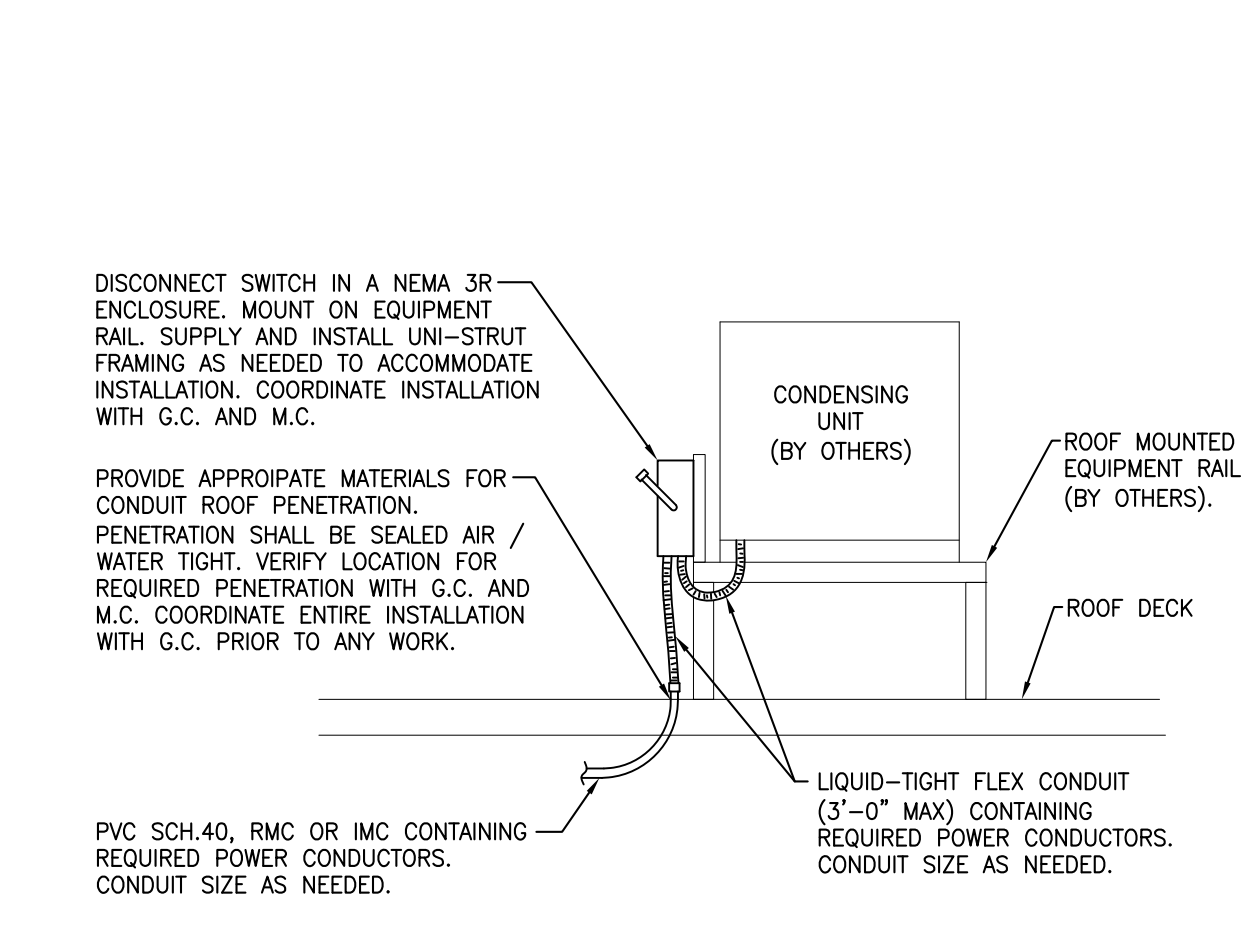
**3 TYPICAL ROOFTOP HVAC UNIT**  
 SCALE: N.T.S. Electrical Detail



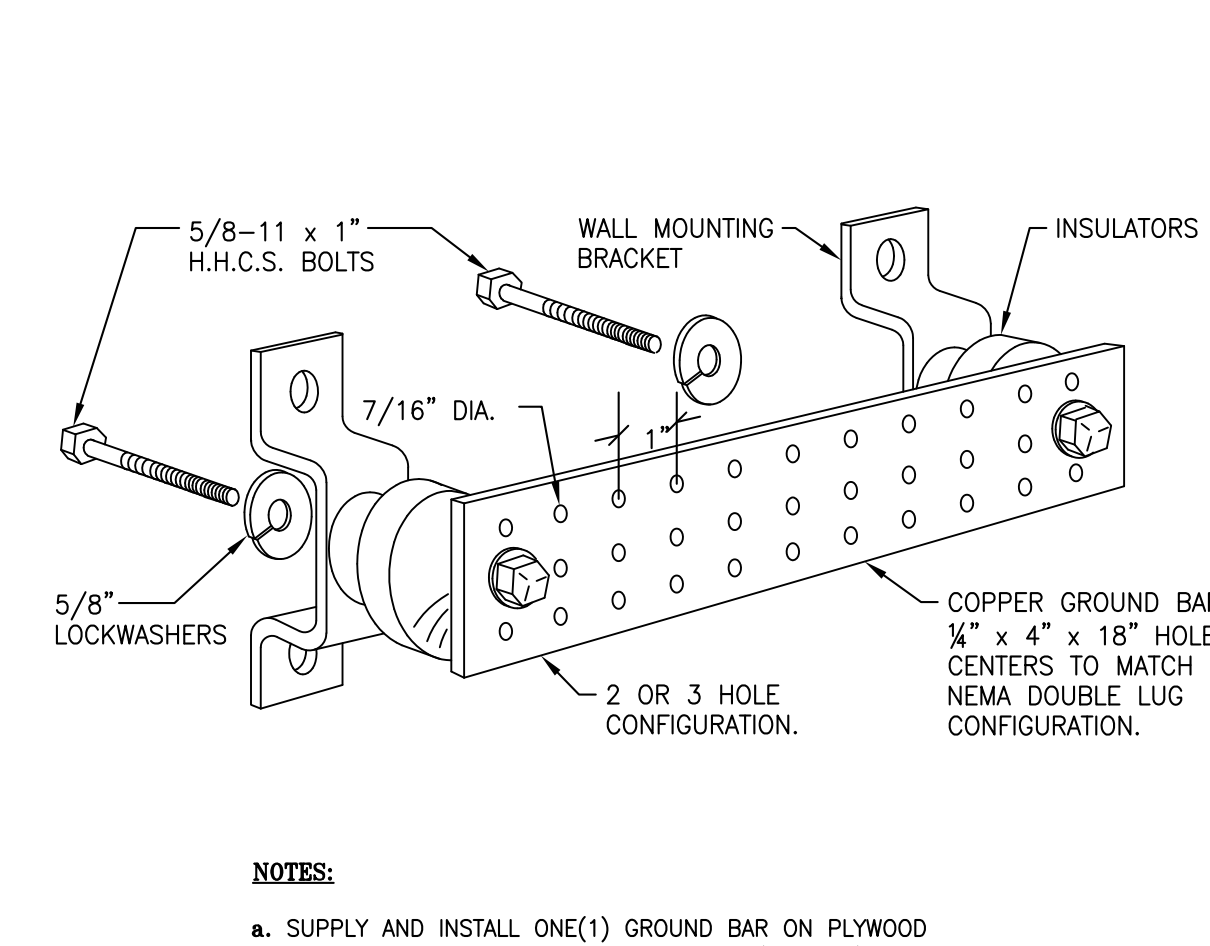
**4 TYPICAL 120V ROOFTOP EXHAUST FAN**  
 SCALE: N.T.S. Electrical Detail



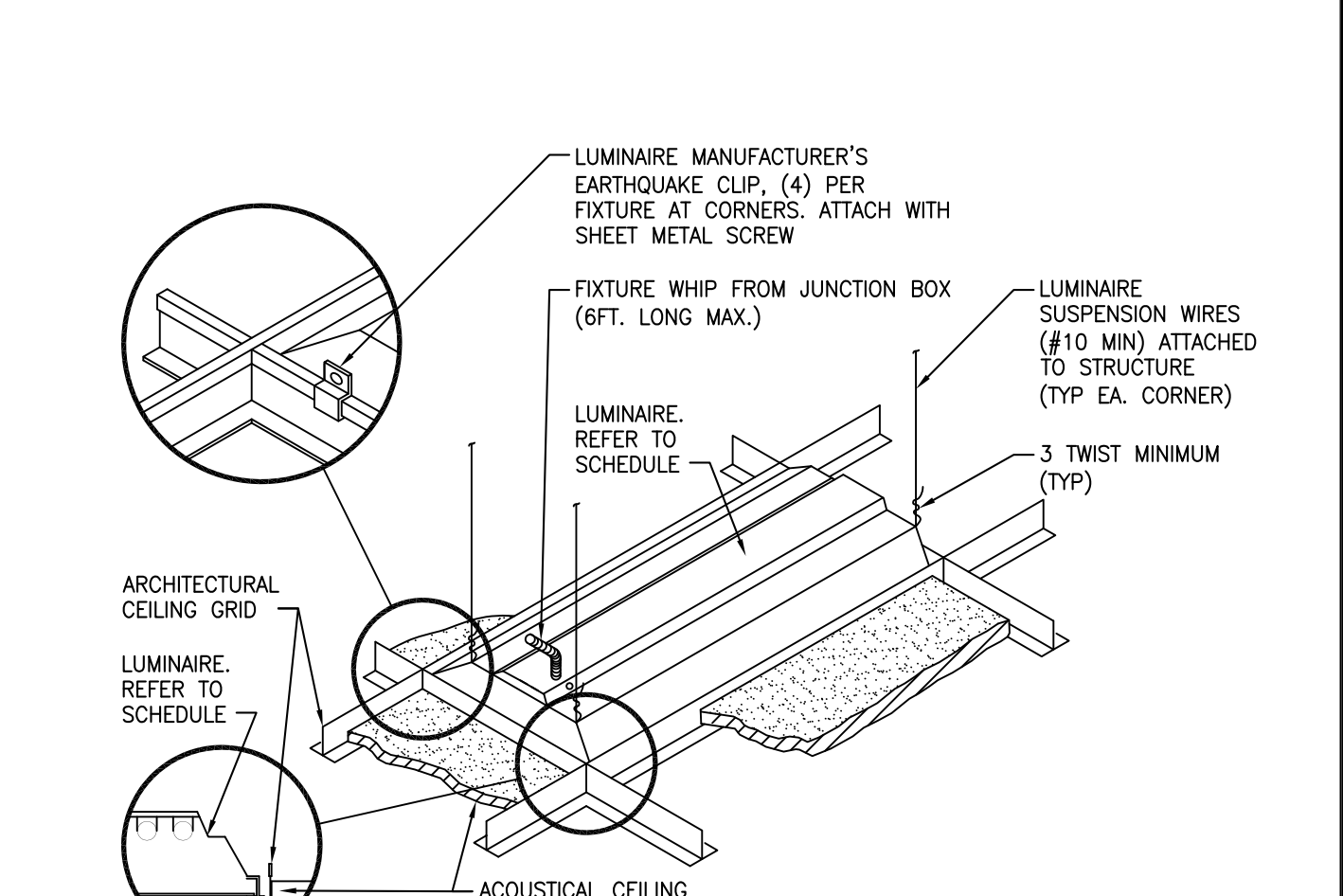
**5 AIR CONDITIONER / FAN COIL UNIT WIRING DIAGRAM**  
 SCALE: N.T.S. Electrical Detail



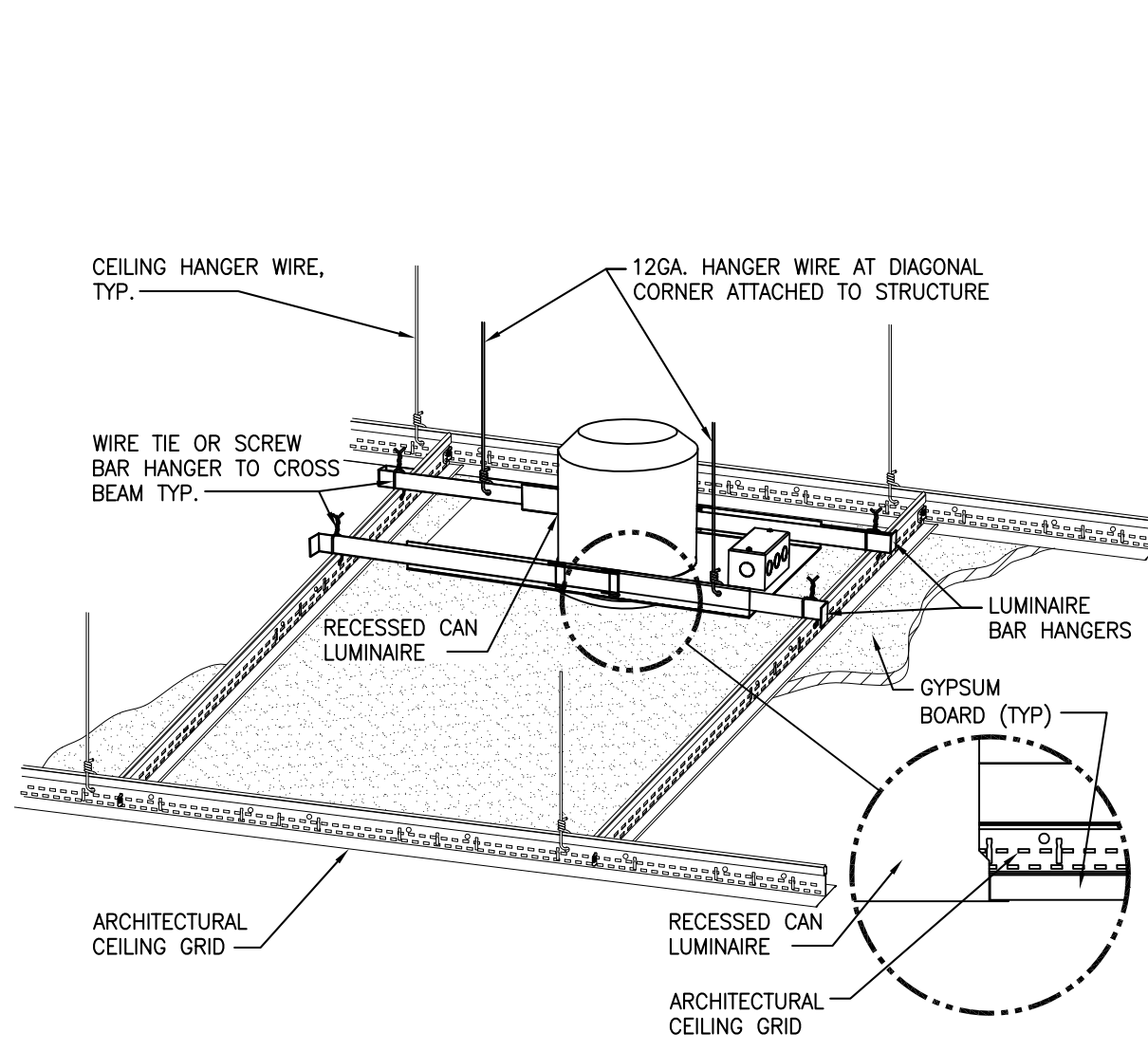
**6 TYPICAL ROOF MOUNT CONDENSING UNIT**  
 SCALE: N.T.S. Electrical Detail



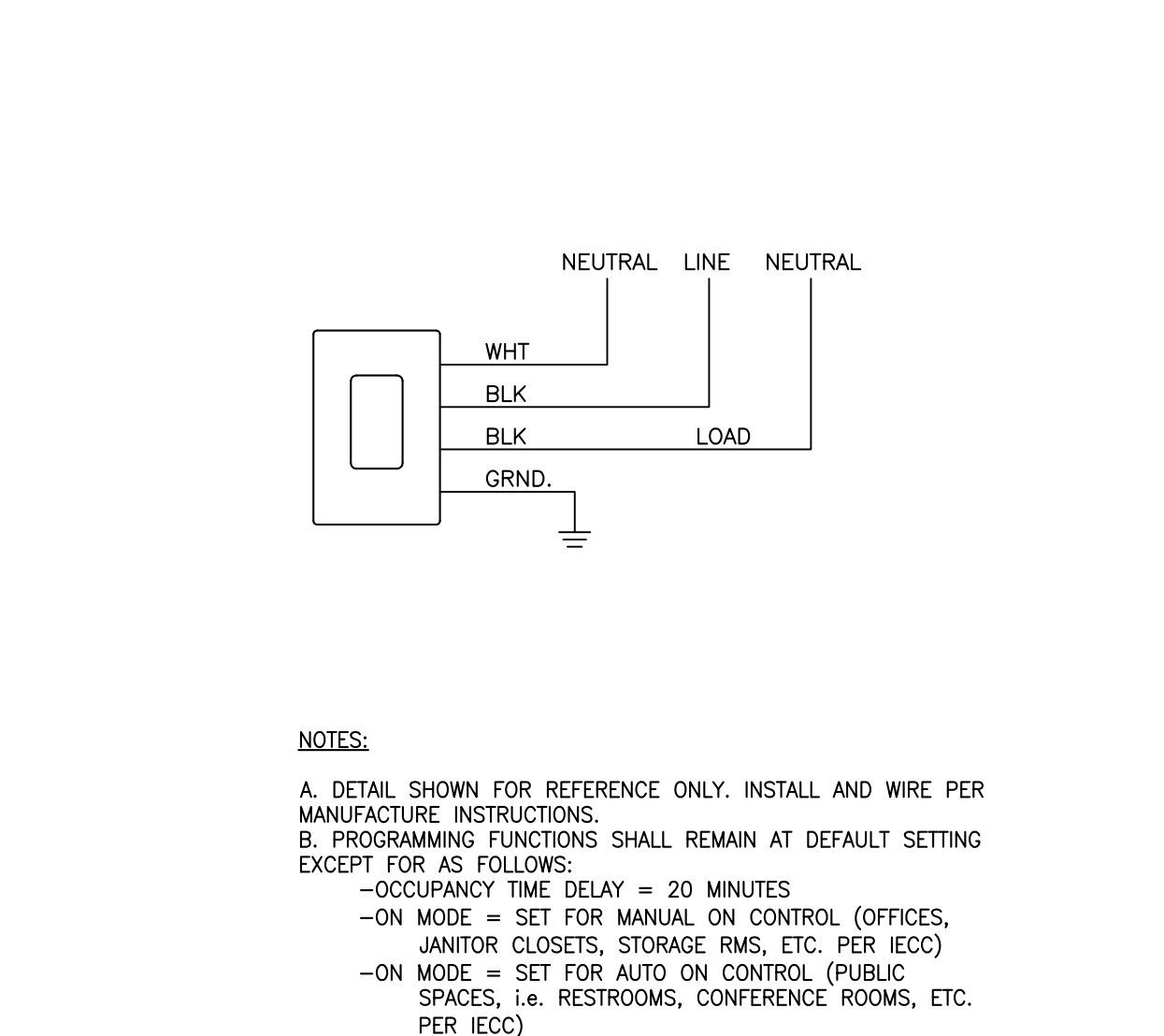
**7 TYPICAL COPPER GROUND BAR**  
 SCALE: N.T.S. Electrical Detail



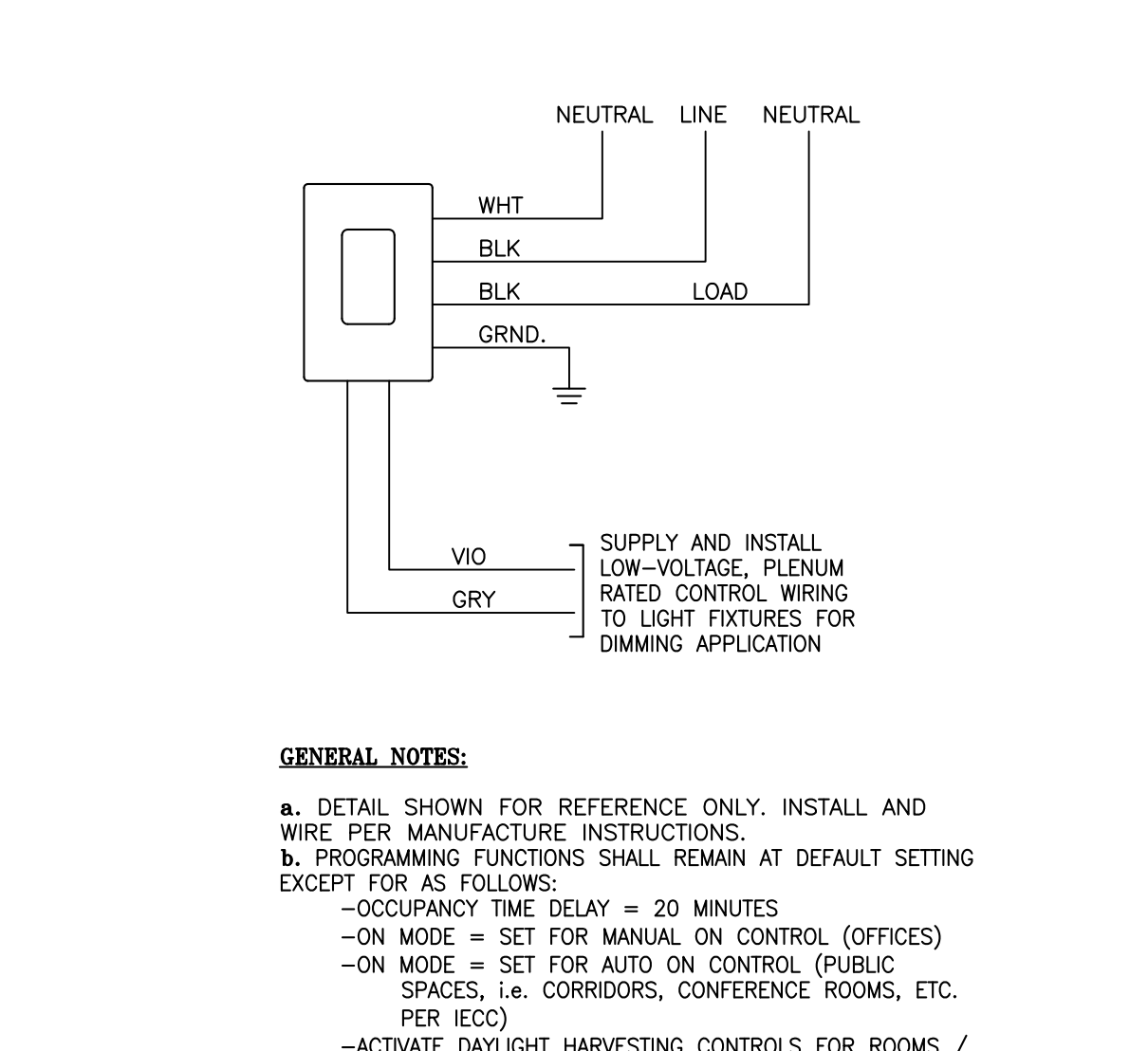
**8 LUMINAIRE MOUNTING - LAY-IN CEILING**  
 SCALE: N.T.S. Electrical Detail



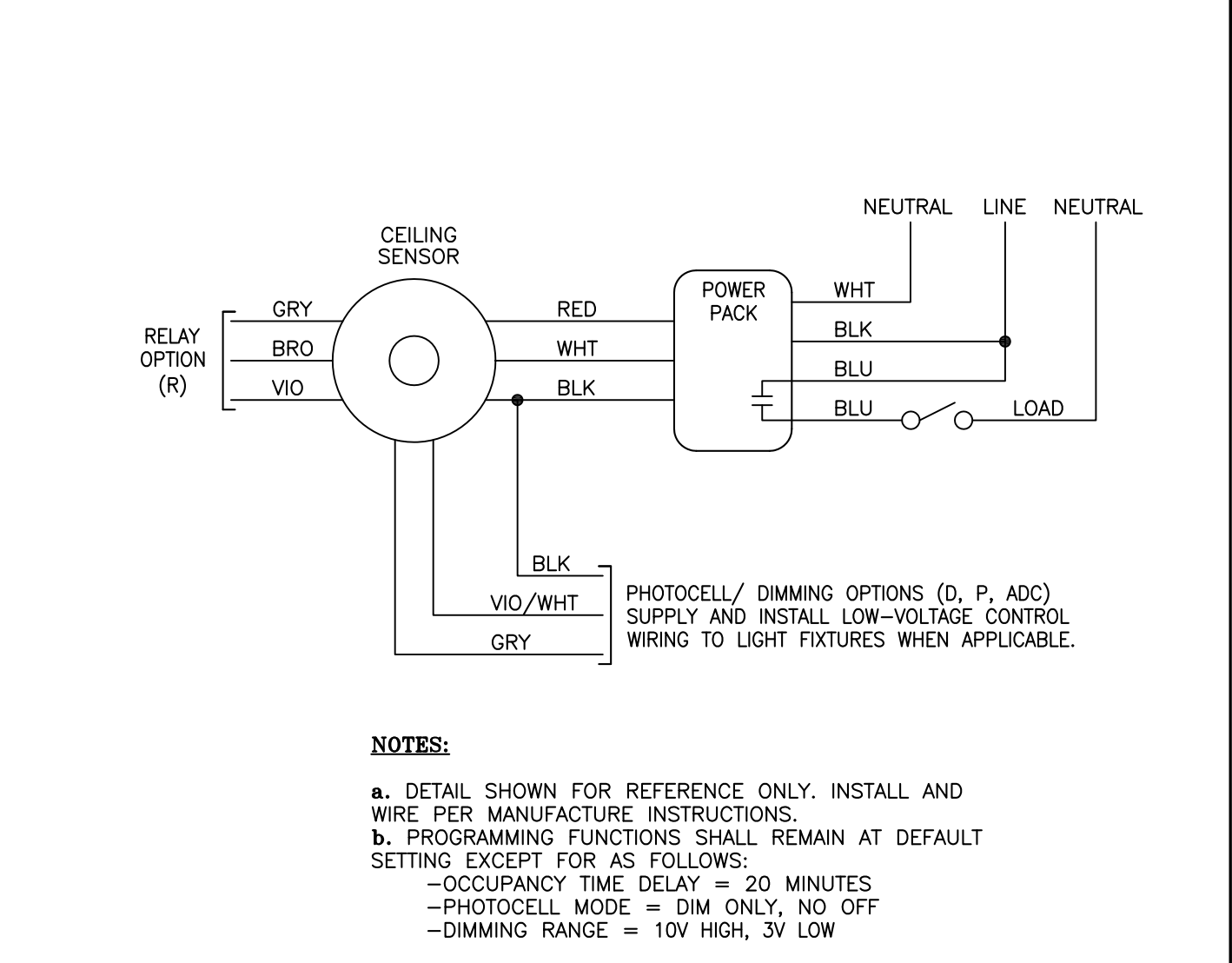
**9 DOWNLIGHT MOUNTING - LAY-IN CEILING**  
 SCALE: N.T.S. Electrical Detail



**10 TYPICAL 1-POLE WALL SWITCH / OCCUPANY SENSOR**  
 SCALE: N.T.S. Electrical Detail

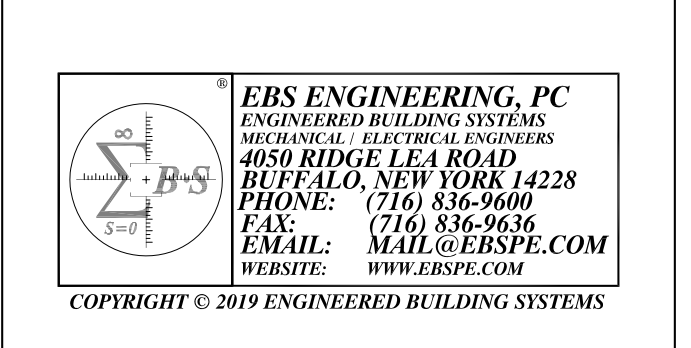


**11 TYPICAL 0-10V DIMMING SWITCH**  
 SCALE: N.T.S. Electrical Detail



**12 TYPICAL LOW-VOLTAGE CEILING MOUNT OCCUPANY SENSOR**  
 SCALE: N.T.S. Electrical Detail

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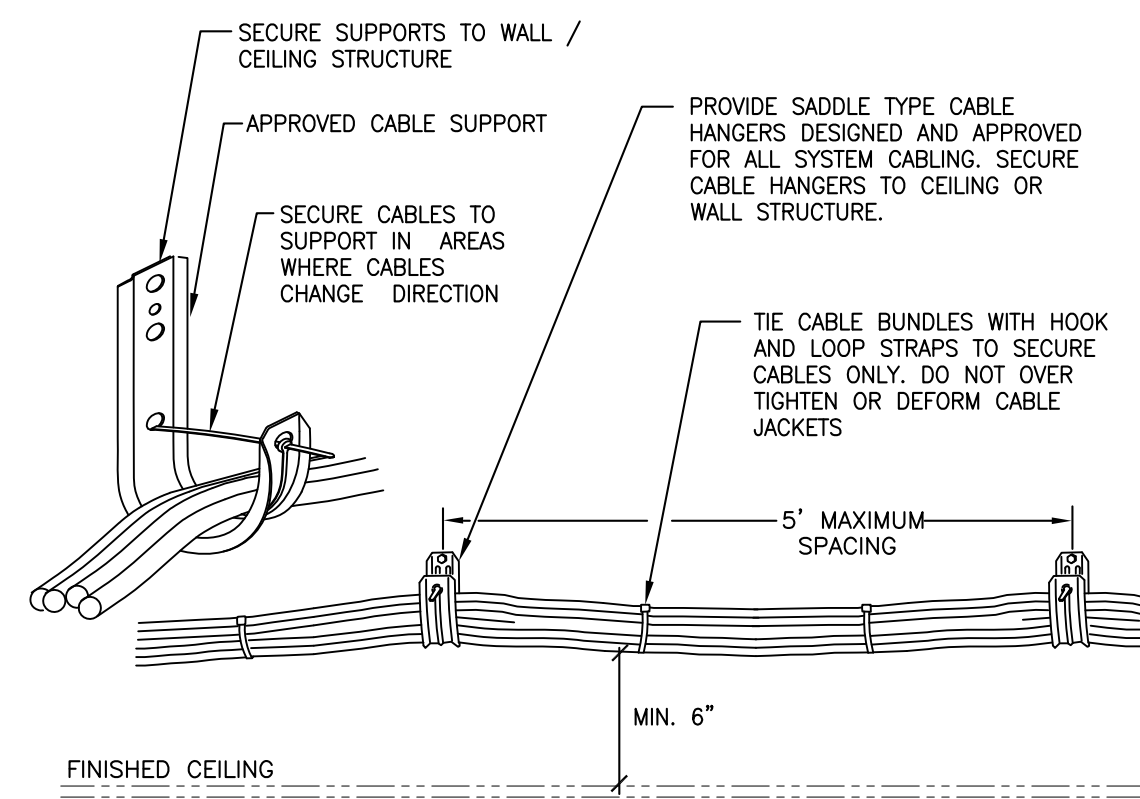
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TITLE:  
**ELECTRICAL DETAILS**



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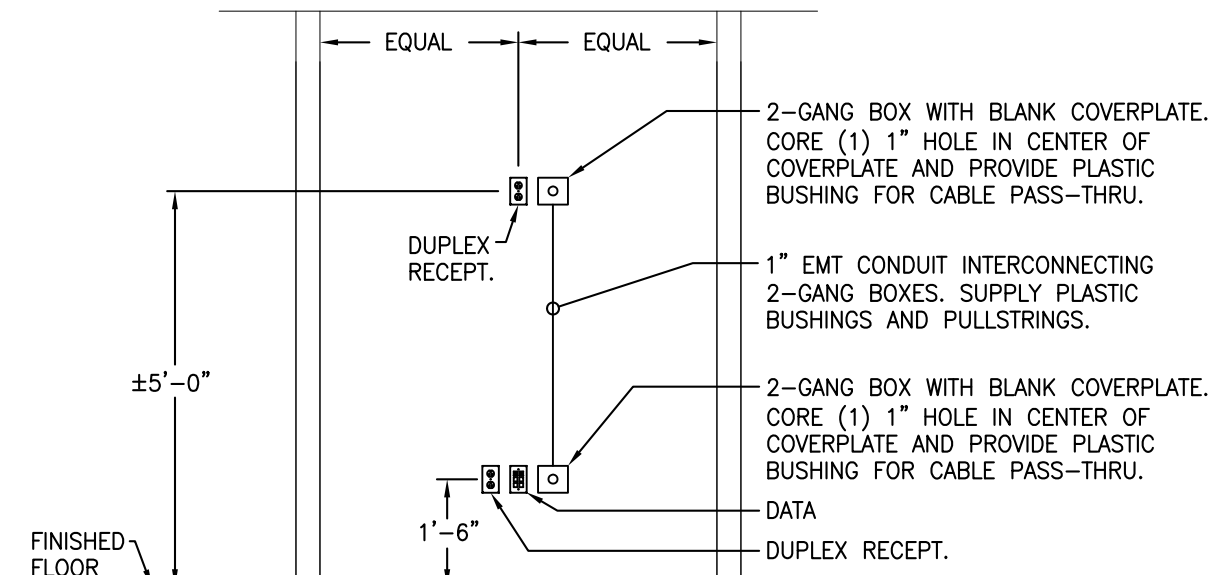
DRAWING #: E-3



**GENERAL NOTES:**

- a. LOCATE CABLE BUNDLES A MINIMUM OF 6" ABOVE REMOVABLE CEILINGS TO MAINTAIN CLEARANCE ALONG WALLS WHERE POSSIBLE. LOCATE IN AREAS THAT ARE ACCESSIBLE.
- b. USE 2 OR MORE CABLE HANGERS AT ALL TURNS TO MAINTAIN MANUFACTURER'S BEND RADIUS REQUIREMENTS.

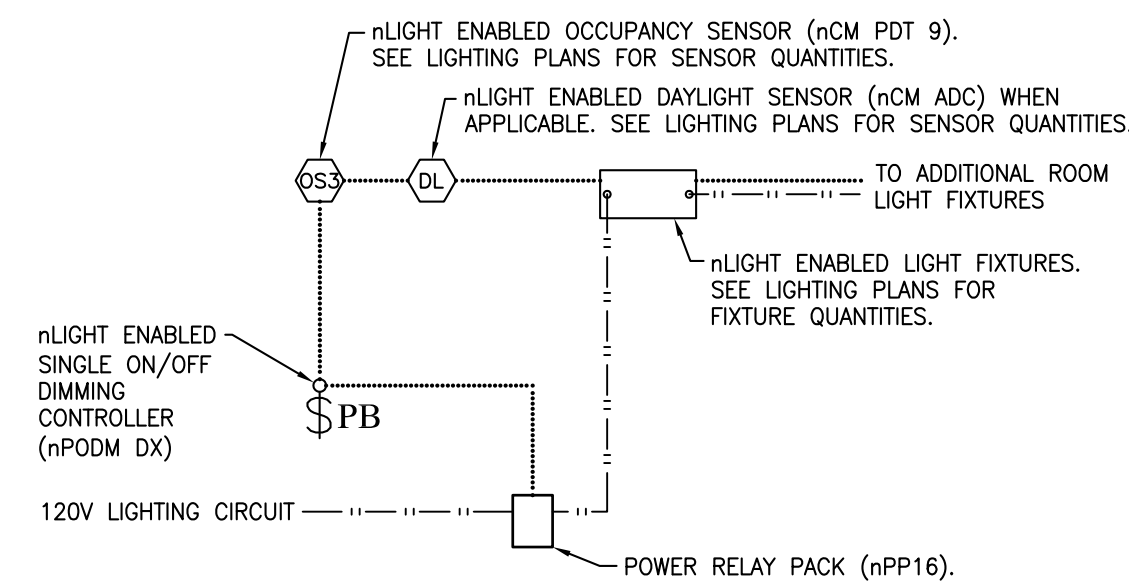
**1**  
**E-4** **TYPICAL J-HOOK INSTALLATION**  
SCALE: N.T.S. Electrical Detail



**GENERAL NOTES:**

- a. ELECTRICAL DEVICES AND EMPTY BOXES / CONDUITS SHOWN ARE INTENDED TO ACCOMMODATE POWER/DATA CONNECTIONS FOR SKYPING.
- b. CONFIRM ELECTRICAL BOX LOCATIONS WITH G.C. AND IT PERSONAL PRIOR TO ROUGH-IN.
- c. INSTALL ELECTRICAL BOXES FLUSH TO FINISHED WALL.

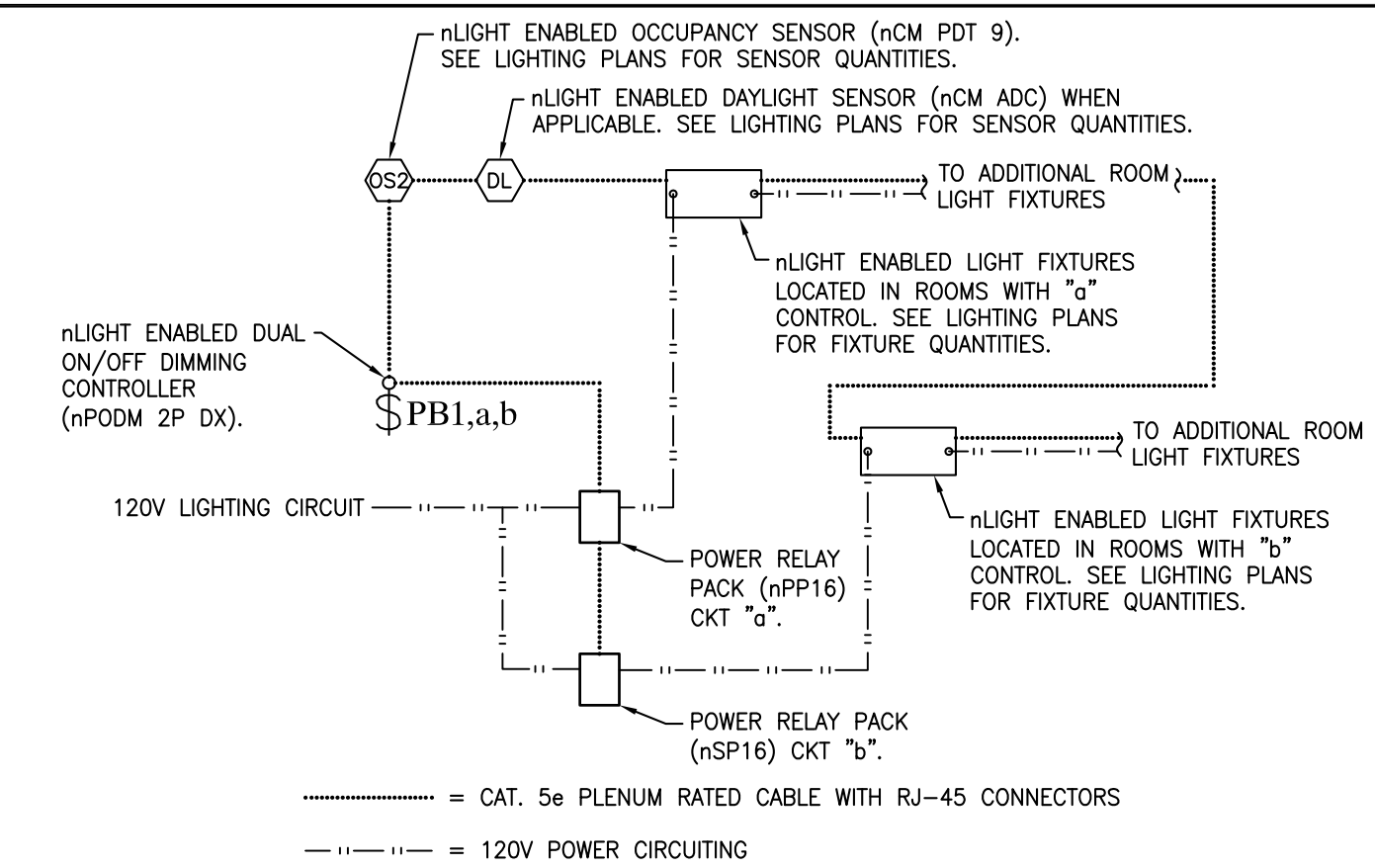
**2**  
**E-4** **MICRO CLASS TYPICAL REAR WALL ELEVATION**  
SCALE: N.T.S. Electrical Detail



**GENERAL NOTES:**

- a. LIGHTING CONTROLS ARE BASED ON ACUITY BRAND SENSOR SWITCH nLIGHT CONTROLS OR APPROVED EQUAL.
- b. PROGRAM CEILING SENSOR TO TURN ON LIGHTING WITH 50% LIGHT OUTPUT UPON INITIAL OCCUPANCY. SET TIME DELAY FOR 15 MINUTES.
- c. INSTALL POWER PACK RELAY ABOVE FINISHED CEILING MOUNTED TO A 4"SQ. J-BOX.
- d. DIAGRAM IS FOR REFERENCE ONLY. LIGHTING CONTROL SYSTEM SHALL BE SUPPLIED, INSTALLED, WIRED AND PROGRAMMED PER MANUFACTURE INSTRUCTION.

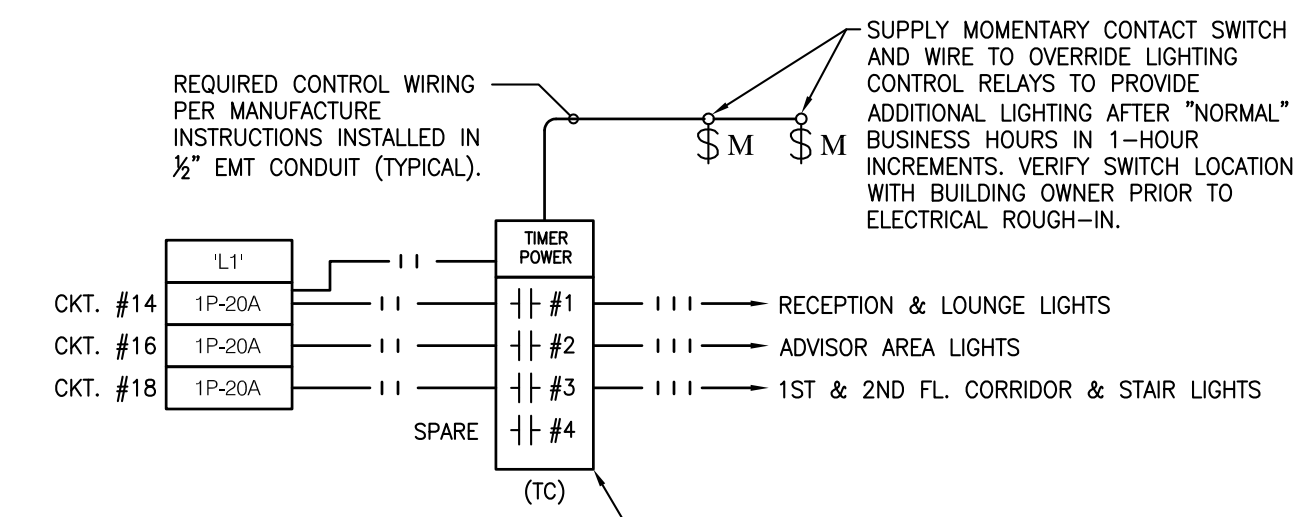
**3**  
**E-4** **TYPICAL LIGHTING CONTROL WIRING DIAGRAM - SINGLE ROOM**  
SCALE: N.T.S. Electrical Detail



**GENERAL NOTES:**

- a. LIGHTING CONTROLS ARE BASED ON ACUITY BRAND SENSOR SWITCH nLIGHT CONTROLS OR APPROVED EQUAL.
- b. DUAL ON/OFF DIMMING CONTROLLER SHALL HAVE 1-POLE PROGRAMMED TO CONTROL LIGHT FIXTURES WITHIN SAME ROOM. THE REMAINING POLE SHALL BE PROGRAMMED TO CONTROL LIGHT FIXTURES IN ADJACENT ROOM. CONTROLLER SHALL BE ABLE TO CONTROL LIGHTING WITHIN SAME ROOM WHEN WALL DIVIDER IS CLOSED OR FOR BOTH ROOMS WHEN DIVIDER IS OPENED PROVIDING 3-WAY CONTROL FROM EITHER LOCATION.
- c. PROGRAM CEILING SENSOR TO TURN ON LIGHTING WITH 50% LIGHT OUTPUT UPON INITIAL OCCUPANCY. SET TIME DELAY FOR 15 MINUTES. SENSOR SHALL BE PROGRAMMED TO CONTROL LIGHT FIXTURES WITHIN SAME ROOM AS IDENTIFIED BY LOWER CASE LETTERS (a / b).
- d. INSTALL POWER PACK RELAYS ABOVE FINISHED CEILING MOUNTED TO A 4"SQ. J-BOX.
- e. DIAGRAM IS FOR REFERENCE ONLY. LIGHTING CONTROL SYSTEM SHALL BE SUPPLIED, INSTALLED, WIRED AND PROGRAMMED PER MANUFACTURE INSTRUCTION.

**4**  
**E-4** **TYPICAL LIGHTING CONTROL WIRING DIAGRAM - MULTI-ROOM**  
SCALE: N.T.S. Electrical Detail



**GENERAL NOTES:**

- a. TIME CLOCK SHALL BE PROGRAMMED TO TURN DESIGNATED LIGHTING ON/OFF AUTOMATICALLY AT TIMES GIVEN BY OWNER. MOMENTARY CONTACT SWITCHES SHALL BE SUPPLIED, INSTALLED, WIRED AND PROGRAMMED TO OVERRIDE TENANT LIGHTING SUPPLYING 1-HOUR OF ADDITIONAL LIGHTING WHEN USED. LOCATE ONE SWITCH IN 1ST AND 2ND FLOOR LOBBY'S. SUPPLY LABELS FOR SWITCH COVERPLATES STATING "LIGHTING OVERRIDE" SWITCH.

**5**  
**E-4** **DIGITAL TIME CLOCK WIRING DIAGRAM (TC)**  
SCALE: N.T.S. Electrical Detail

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SEAL:

TITLE:  
**ELECTRICAL  
DETAILS**



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ARCHITECTS · PC**

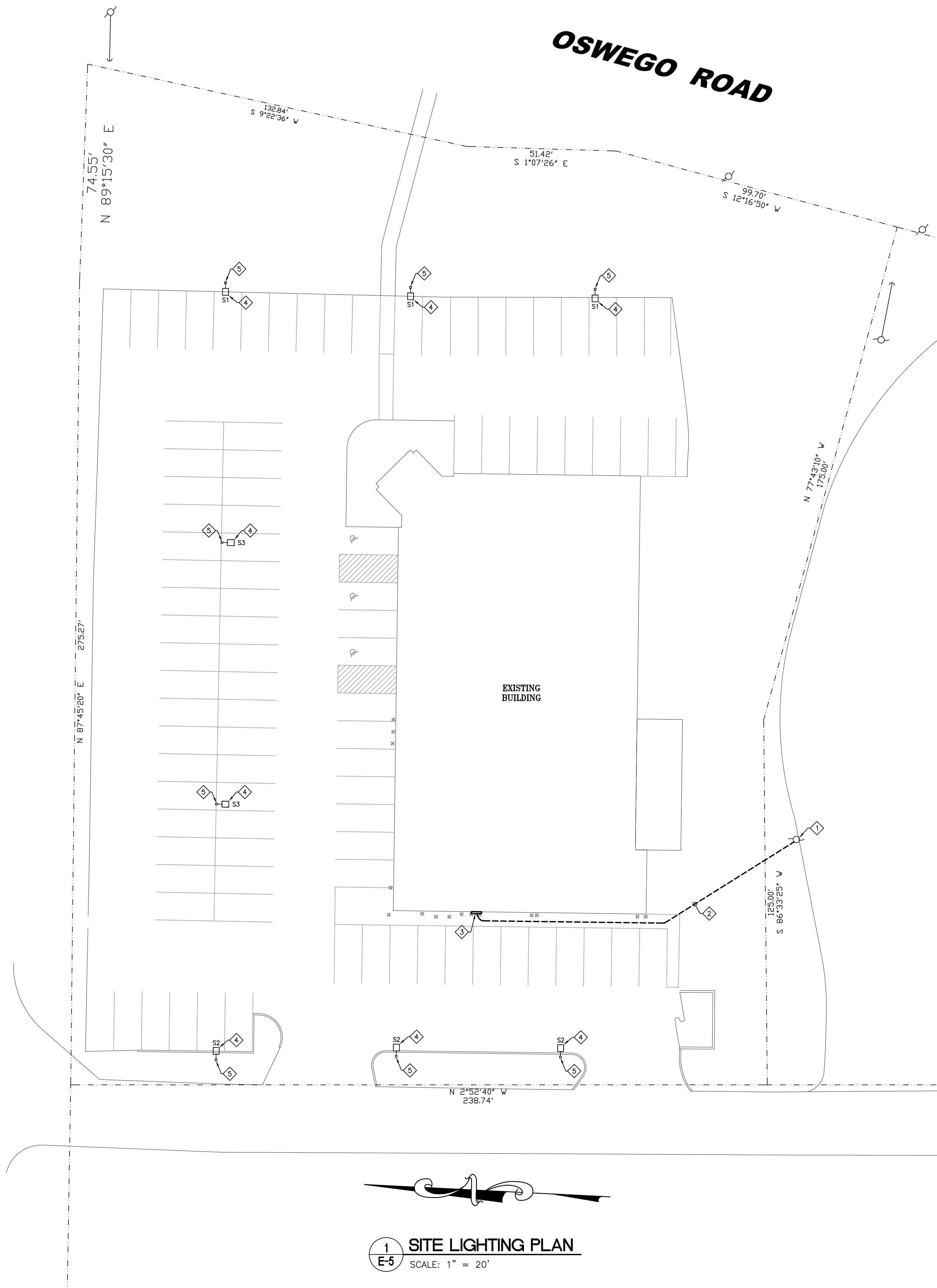
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DRAWING #: **E-4**

**WETZEL ROAD**

**OSWEGO ROAD**



| SITE LIGHTING SCHEDULE |                                                                                                                                                                                                                                 |                                             |       |     |                             |                                                                   |
|------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------|-------|-----|-----------------------------|-------------------------------------------------------------------|
| SYMBOL                 | DESCRIPTION                                                                                                                                                                                                                     | LAMP TYPE                                   | VOLT  | VA  | MOUNTING HEIGHT             | MANUFACTURER/ MODEL #                                             |
| S1<br>□                | SITE LUMINAIRE WITH A ONE-PIECE, DIE CAST ALUMINUM HOUSING, POWDER COAT FINISH, TYPE TFM OPTICAL SYSTEM AND AN INTEGRAL PHOTOCELL / MOTION / AMBIENT SENSOR. MEETS "NIGHTTIME FRIENDLY" CRITERIA.                               | 30 LED <sub>s</sub> DRIVEN AT 530ma/ 4000'K | MVOLT | 54W | TOP OF EXISTING SQUARE POLE | LITHONIA LIGHTING DSX1-LED-P1-40K-TFM-MVOLT-SPA-PIR1FC3V-DBLXD    |
| S2<br>□                | SITE LUMINAIRE WITH A ONE-PIECE, DIE CAST ALUMINUM HOUSING, POWDER COAT FINISH, TYPE T4M OPTICAL SYSTEM AND AN INTEGRAL PHOTOCELL / MOTION / AMBIENT SENSOR. ORDER WITH HOUSE SIDE SHIELD. MEETS "NIGHTTIME FRIENDLY" CRITERIA. | 30 LED <sub>s</sub> DRIVEN AT 530ma/ 4000'K | MVOLT | 54W | TOP OF EXISTING SQUARE POLE | LITHONIA LIGHTING DSX1-LED-P1-40K-T4M-MVOLT-SPA-PIR1FC3V-HS-DBLXD |
| S3<br>□                | SITE LUMINAIRE WITH A ONE-PIECE, DIE CAST ALUMINUM HOUSING, POWDER COAT FINISH, TYPE T5M OPTICAL SYSTEM AND AN INTEGRAL PHOTOCELL / MOTION / AMBIENT SENSOR. MEETS "NIGHTTIME FRIENDLY" CRITERIA.                               | 30 LED <sub>s</sub> DRIVEN AT 530ma/ 4000'K | MVOLT | 54W | TOP OF EXISTING SQUARE POLE | LITHONIA LIGHTING DSX1-LED-P1-40K-T5M-MVOLT-SPA-PIR1FC3V-DBLXD    |

**LIGHTING SCHEDULE NOTES:**  
 a. CONTACTOR SHALL OBTAIN A TEMPLATE FROM LIGHTING MANUFACTURE FOR USE TO SET UP AND DRILL HOLES IN EXISTING SQUIRE POLE TO MOUNT NEW LUMINAIRE.  
 b. CONFIRM EXISTING SITE LIGHTING VOLTAGE SUPPLY. ENSURE SPECIFIED LUMINAIRE CONTROLS ARE COMPATIBLE WITH EXISTING VOLTAGE SUPPLY PRIOR TO ORDERING.

**DRAWING KEYNOTES:**

- EXISTING UTILITY RISER POLE WITH 3Ø TRANSFORMER BANK. SEE ONE-LINE DIAGRAM 1-E-2 FOR FURTHER INFORMATION.
- UNDERGROUND ELECTRIC SERVICE CONDUITS. SEE ONE-LINE DIAGRAM 1-E-2 FOR FURTHER INFORMATION.
- PROPOSED UTILITY CT CABINET AND METER. RELOCATE EXISTING BOLLARDS AS REQUIRED TO ACCOMMODATE NEW EQUIPMENT AND UNDERGROUND CONDUIT LOCATIONS. FIELD VERIFY AND COORDINATE ALL REQUIRED WORK WITH G.C. AND POWER COMPANY. SEE ONE-LINE DIAGRAM 1-E-2 FOR FURTHER INFORMATION.
- REMOVE EXISTING POST-TOP LUMINAIRE. RETAIN EXISTING SQUARE POLE AND CAP TOP OF POLE AS NEEDED. MOUNT NEW LUMINAIRE TO SIDE OF POLE ±4" FROM TOP. USE A TEMPLATE OBTAINED FROM LUMINAIRE MANUFACTURER TO SET UP AND DRILL HOLES IN EXISTING POLE FOR MOUNTING. REUSE EXISTING CONDUIT, WIRING AND SITE LIGHTING CONTROLS FOUND IN MECH/ELEC 122 TO POWER NEW LED LUMINAIRE. FIELD VERIFY ALL NECESSARY WORK REQUIRED TO OBTAIN A 100% COMPLETE INSTALLATION.
- SAND, PRIME & PAINT EXISTING STEEL POLE. NEW COLOR SHALL MATCH NEW LED LUMINAIRE. PAINT SHALL BE SUITABLE FOR OUTDOOR USE AND RUST-RESISTANT.

**1 SITE LIGHTING PLAN**  
 E-5 SCALE: 1" = 20'

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SEAL:

TITLE:  
**SITE LIGHTING PLAN**



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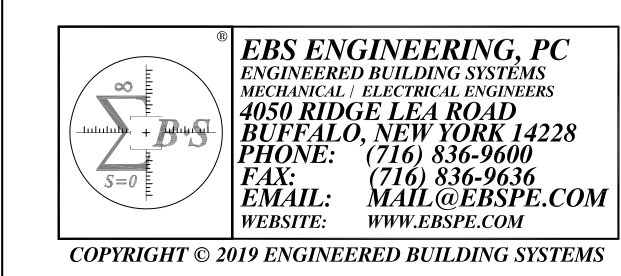
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TITLE:  
**ELECTRICAL POWER  
 1ST & 2ND  
 FLOOR PLANS**

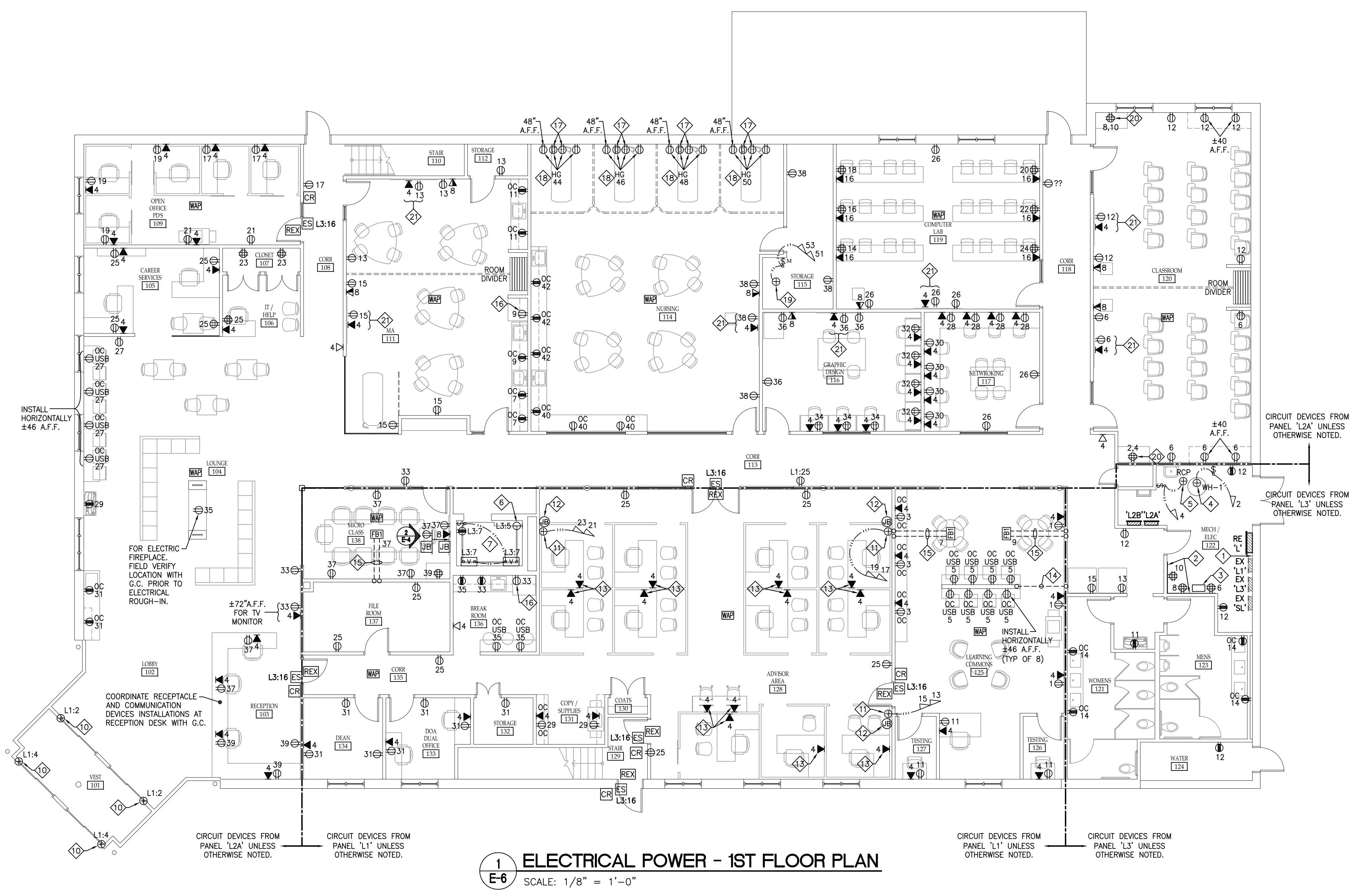


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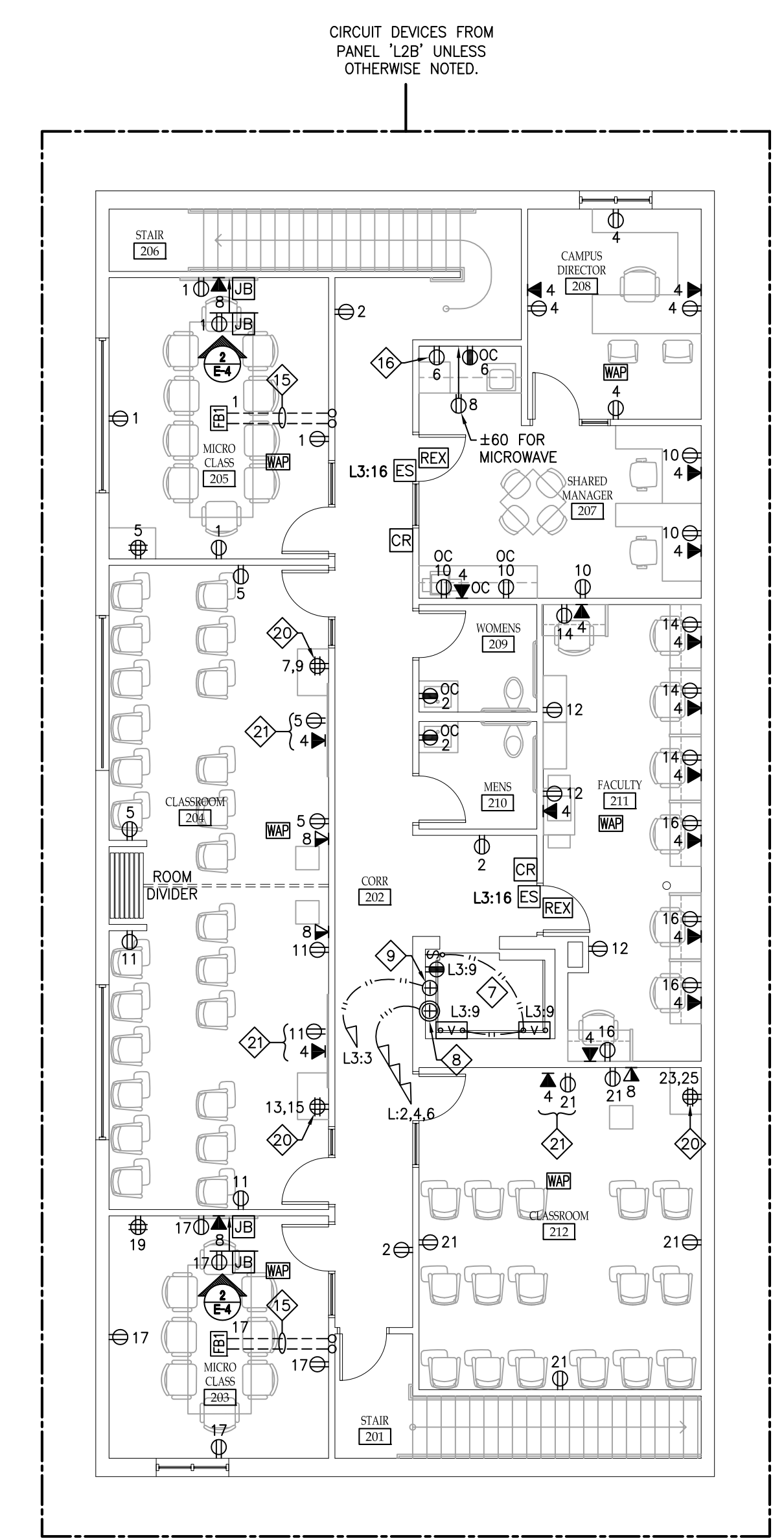
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DRAWING #: E-6



**1 ELECTRICAL POWER - 1ST FLOOR PLAN**  
 E-6 SCALE: 1/8" = 1'-0"



**2 ELECTRICAL POWER - 2ND FLOOR PLAN**  
 E-6 SCALE: 1/8" = 1'-0"

**GENERAL KEYNOTES:**

- WIRING SHALL BE PROVIDED TO DEVICES SHOWN, UNLESS OTHERWISE INDICATED. MINIMUM WIRING SIZE SHALL BE #12 AWG. AMPACITY, DERATING AND CONDUIT FILL SHALL BE AS REQUIRED BY THE NEC.
- DEVICES WITH "OC" DESIGNATIONS SHALL BE INSTALLED ABOVE COUNTER TOP. COORDINATE INSTALLATION HEIGHT WITH G.C. AND ARCHITECTURAL MILLWORK/ELEVATION PLANS AS REQUIRED.
- ALL COMMUNICATION (DATA/TELEPHONE) WALL PLATE LOCATIONS MUST BE CONFIRMED BY TENANT IT PERSONAL PRIOR TO ELECTRICAL ROUGH-INS.
- PROVIDE PRINTED LABELS IDENTIFYING THE FOLLOWING:
  - RECEPTACLE WALL PLATES = PANEL AND CIRCUIT DESIGNATIONS.
  - COMMUNICATIONS WALL PLATES = CORRESPONDING PATCH PANEL PORT FOR EACH CAT. 6 CABLE DROP.

**ADD ALTERNATE #1**

INCLUDE SEPARATE PRICE TO PROVIDE POWER CONNECTIONS TO THREE(3) ROOM DIVIDER DOOR MOTORS. EACH MOTOR WILL REQUIRE A 1Ø, 120V POWER CONNECTION FED FROM A DEDICATED 20A C.B. CONTROLS SHALL BE SUPPLIED BY DOOR MANUFACTURER, INSTALLED AND WIRED BY E.C.

**DRAWING KEYNOTES:**

- IF NOT REMOVED DURING DEMOLITION, DISCONNECT AND REMOVE EXISTING CONTACTORS, RELAYS AND ASSOCIATED CONTROLS THAT ARE NO LONG IN USE. EXISTING SITE LIGHTING CONTACTORS AND ASSOCIATED CONTROLS SHALL REMAIN AS-IS WITH NO ALTERATIONS. NEW LIGHTING CONTROLS FOR INTERIOR LIGHTING ARE INCLUDED IN DESIGN DOCUMENTS TO MEET CURRENT ENERGY CODES.
- SUPPLY THREE(3) 4'x8'x½" SHEETS OF FIRE RATED PLYWOOD AND MOUNT VERTICALLY LINING TWO WALLS (±10 LINEAR FT.). SURFACE MOUNT QUAD RECEPTACLES ±40" ON PLYWOOD BACKBOARD. FIELD VERIFY PLYWOOD AND QUAD RECEPTACLE LOCATIONS WITH OWNER I.T. PERSONAL AND G.C. PRIOR TO INSTALLATION.
- FLOOR MOUNTED EQUIPMENT RACK. CONFIRM RACK EQUIPMENT CONFIGURATION WITH OWNER I.T. PERSONAL PRIOR TO ANY WORK. ADDITIONAL SWITCHES, SERVERS AND OTHER EQUIPMENT SHALL BE SUPPLIED AND INSTALLED BY OTHERS.
- FEED HOT WATER HEATER WITH A 1-PHASE, 120V POWER CONNECTION. SUPPLY A SINGLE-POLE, 120V TOGGLE SWITCH, 4" SQ. ELECTRICAL BOX AND INDUSTRIAL RAISED COVER FOR DISCONNECTING MEANS. MOUNT DISCONNECT SWITCH ON WALL ADJACENT TO WATER HEATER IN AN ACCESSIBLE LOCATION AND LABEL ACCORDINGLY. COORDINATE INSTALLATION WITH P.C.
- FEED RECIRCULATING PUMP WITH A 1-PHASE, 120V POWER CONNECTION. SUPPLY A SINGLE-POLE, 120V TOGGLE SWITCH, 4" SQ. ELECTRICAL BOX AND INDUSTRIAL RAISED COVER FOR DISCONNECTING MEANS. MOUNT DISCONNECT SWITCH ON WALL NEAR PUMP IN AN ACCESSIBLE LOCATION AND LABEL ACCORDINGLY. CONFIRM PUMP LOCATION AND COORDINATE INSTALLATION WITH P.C.
- INSTALL SINGLE RECEPTACLE TO POWER SUMP PUMP CONTROLLER. LOCATE RECEPTACLE WITHIN 4' OF CONTROLLER. VERIFY SUMP PUMP CONTROLLER LOCATION WITH P.C. PRIOR TO ELECTRICAL ROUGH-IN. INSTALL RECEPTACLE PER ALL N.E.C. AND ELEVATOR CODE REQUIREMENTS.
- INSTALL TOGGLE SWITCH, LIGHT FIXTURES AND GFI RECEPTACLE IN ELEVATOR PIT AND TOP OF ELEVATOR SHAFT PER ALL CODE REQUIREMENTS. FIELD VERIFY LOCATIONS WITH G.C. AND ELEVATOR CONTRACTOR PRIOR TO ELECTRICAL ROUGH-IN.
- SEE ELECTRICAL ONE-LINE DIAGRAM 1/E-2 FOR ELEVATOR MOTOR POWER REQUIREMENTS.
- FEED ELEVATOR CONTROLS AND CAB LIGHTS WITH A 1Ø, 120V POWER CONNECTION. WIRE BRANCH CIRCUIT THROUGH A SINGLE-POLE, FUSED DISCONNECT SWITCH IN A NEMA 1 ENCLOSURE WITH LOCKING PROVISIONS. VERIFY POWER TERMINATION REQUIREMENTS TO ELEVATOR CONTROLS AND CAB LIGHTS WITH ELEVATOR CONTRACTOR. COORDINATE LOCATIONS OF ALL ELEVATOR EQUIPMENT WITH ELEVATOR SHOP DRAWINGS AND ELEVATOR CONTRACTOR PRIOR TO ELECTRICAL ROUGH-IN. ALSO SUPPLY ELEVATOR CAB WITH A DEDICATED TELEPHONE LINE FOR EMERGENCY PHONE CONNECTION. COORDINATE TELEPHONE LINE INSTALLATION WITH G.C. AND ELEVATOR CONTRACTOR.
- RETAIN POWER CONNECTIONS TO EXISTING DOOR OPERATOR MOTORS. FIELD VERIFY EXISTING CIRCUITS SERVING EACH DOOR MOTOR AS NEEDED.
- FEED PRE-WIRED CUBICLE GROUP WITH 120V POWER CONNECTIONS FED FROM TWO(2) SINGLE-POLE, 20A CIRCUIT BREAKERS. EACH CIRCUIT MAY FEED UP TO EIGHT(8) CUBICLE RECEPTACLES. CONCEAL WIRING WITHIN WALL UTILIZING FLEXIBLE CONNECTION TO CUBICLE BASE AS NEEDED. COORDINATE POWER TERMINATION REQUIREMENTS TO CUBICLE GROUP WITH G.C. AND FURNITURE SUPPLIER.
- FLUSH MOUNT A 4"x4" SQ. JUNCTION BOX ±12 A.F.F. WITH TWO(2) ¾" EMT CONDUITS ROUTED WITHIN WALL FROM J-BOX TO ACCESSIBLE CEILING SPACE. J-BOX AND CONDUITS SHALL BE UTILIZED TO SUPPLY CUBICLE GROUP WITH REQUIRED COMMUNICATIONS CABLING.
- INSTALL COMMUNICATION CONNECTOR WITHIN BASE OF CUBICLE PARTITION. SUPPLY REQUIRED COVERPLATE THAT IS COMPATIBLE WITH FURNITURE PARTITION. COORDINATE INSTALLATION WITH G.C. AND FURNITURE SUPPLIER.
- 1" PVC SCH.40 CONDUIT INSTALLED WITHIN FLOOR FROM HALF WALL TO FULL HEIGHT WALL. TRANSITION TO EMT CONDUIT IN FULL HEIGHT WALL AND CONTINUE INSTALLATION VERTICALLY TO ACCESSIBLE CEILING SPACE. CONDUIT SHALL BE UTILIZED TO SUPPLY RECEPTACLES AT DESK AREA WITH REQUIRED POWER WIRING. SAW-CUT EXISTING CONCRETE FLOOR AND PATCH AS NEEDED TO FACILITATE CONDUIT INSTALLATIONS. COORDINATE ENTIRE INSTALLATION WITH G.C. PRIOR TO ANY WORK.
- TWO(2) 1" PVC SCH.40 CONDUITS INSTALLED WITHIN FLOOR FROM FLOOR BOX, TO FULL HEIGHT WALL. TRANSITION TO EMT CONDUIT IN FULL HEIGHT WALL AND CONTINUE INSTALLATION VERTICALLY TO ACCESSIBLE CEILING SPACE. ONE CONDUIT SHALL BE UTILIZED TO SUPPLY FLOOR BOX WITH REQUIRED POWER WIRING AND THE REMAINING CONDUIT SHALL BE UTILIZED TO SUPPLY FLOOR BOX WITH REQUIRED COMMUNICATIONS WIRING. WHEN APPLICABLE, SAW-CUT EXISTING CONCRETE FLOOR AND PATCH AS NEEDED TO FACILITATE CONDUIT INSTALLATIONS. COORDINATE ENTIRE INSTALLATION WITH G.C. PRIOR TO ANY WORK.
- WIRE FROM GFCI PROTECTED SIDE OF COUNTER RECEPTACLE POWERED FROM THE SAME CIRCUIT.
- MOUNT RECEPTACLES IN MEDICAL ENCLOSURE CONTAINING MEDICAL GAS CONNECTIONS. COORDINATE INSTALLATION REQUIREMENTS WITH G.C. ONE RECEPTACLE SHALL BE RED IN COLOR TO SIMULATE EMERGENCY POWER.
- UTILIZE HEALTH CARE RATED (HCF) CABLE TO WIRE HOSPITAL GRADE RECEPTACLES.
- FEED MEDICAL AIR COMPRESSOR WITH A 1Ø, 208V POWER CONNECTION. SUPPLY A 2-POLE, 30A MANUAL MOTOR STARTER AND MOUNT ON WALL ADJACENT TO COMPRESSOR FOR DISCONNECTING MEANS. FIELD VERIFY POWER TERMINATION REQUIREMENTS TO COMPRESSOR. COORDINATE ENTIRE INSTALLATION WITH G.C.
- WIRE EACH DUPLEX RECEPTACLES FOR WITH A DEDICATED CIRCUIT.
- INSTALL FLUSH TO FINISHED CEILING FOR SCREEN PROJECTOR POWER AND COMMUNICATION CONNECTIONS. DATA PORT SHALL BE WIRED TO ORANGE COLORED RJ-45 CONNECTOR LOCATED IN WALLPLATE ADJACENT TO PROJECTOR WITHIN THE SAME ROOM. CONFIRM DEVICE LOCATIONS WITH G.C. AND IT PERSONAL PRIOR TO ELECTRICAL ROUGH-IN.

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 JOB CAPT. S.Hunt INTERIORS N.Catuzza

SEAL:

TITLE:  
**ELECTRICAL HVAC POWER  
 1ST & 2ND  
 FLOOR PLANS**

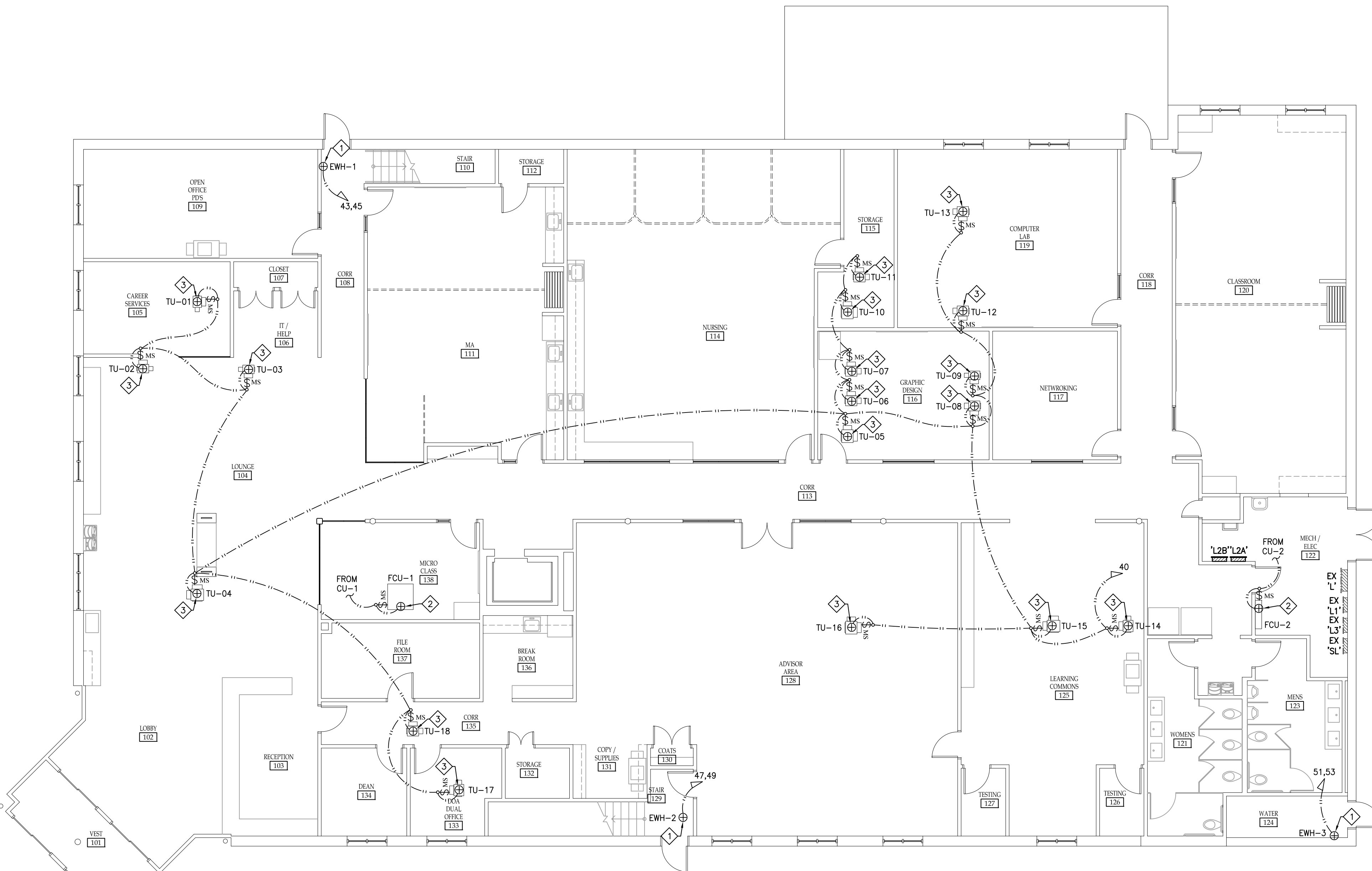


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 ARCHITECTS · PC**

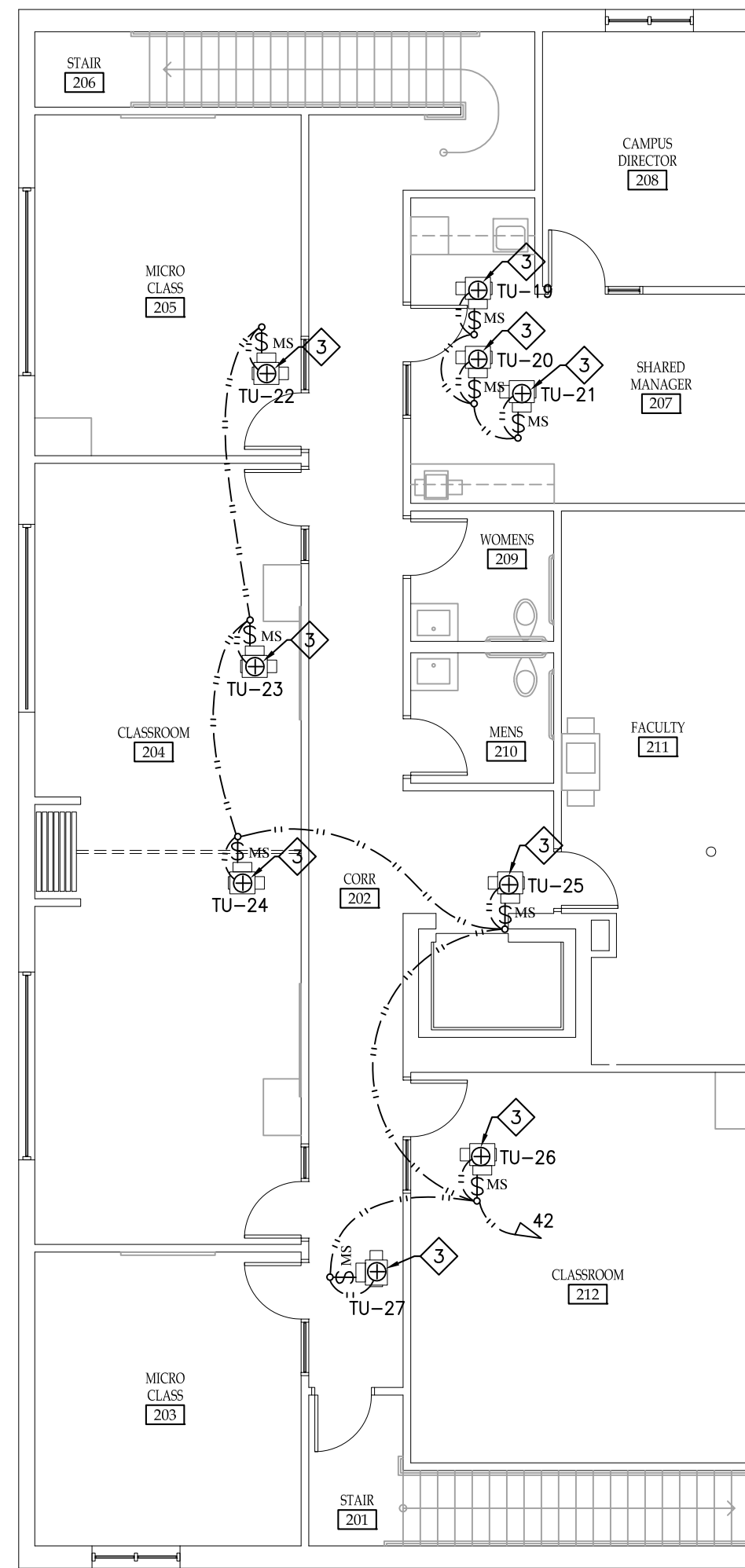
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SA JOB #: 18161.01 DATE: 04-08-19

DRAWING #: E-7



**1**  
**E-7** **ELECTRICAL HVAC POWER - 1ST FLOOR PLAN**  
 SCALE: 1/8" = 1'-0"



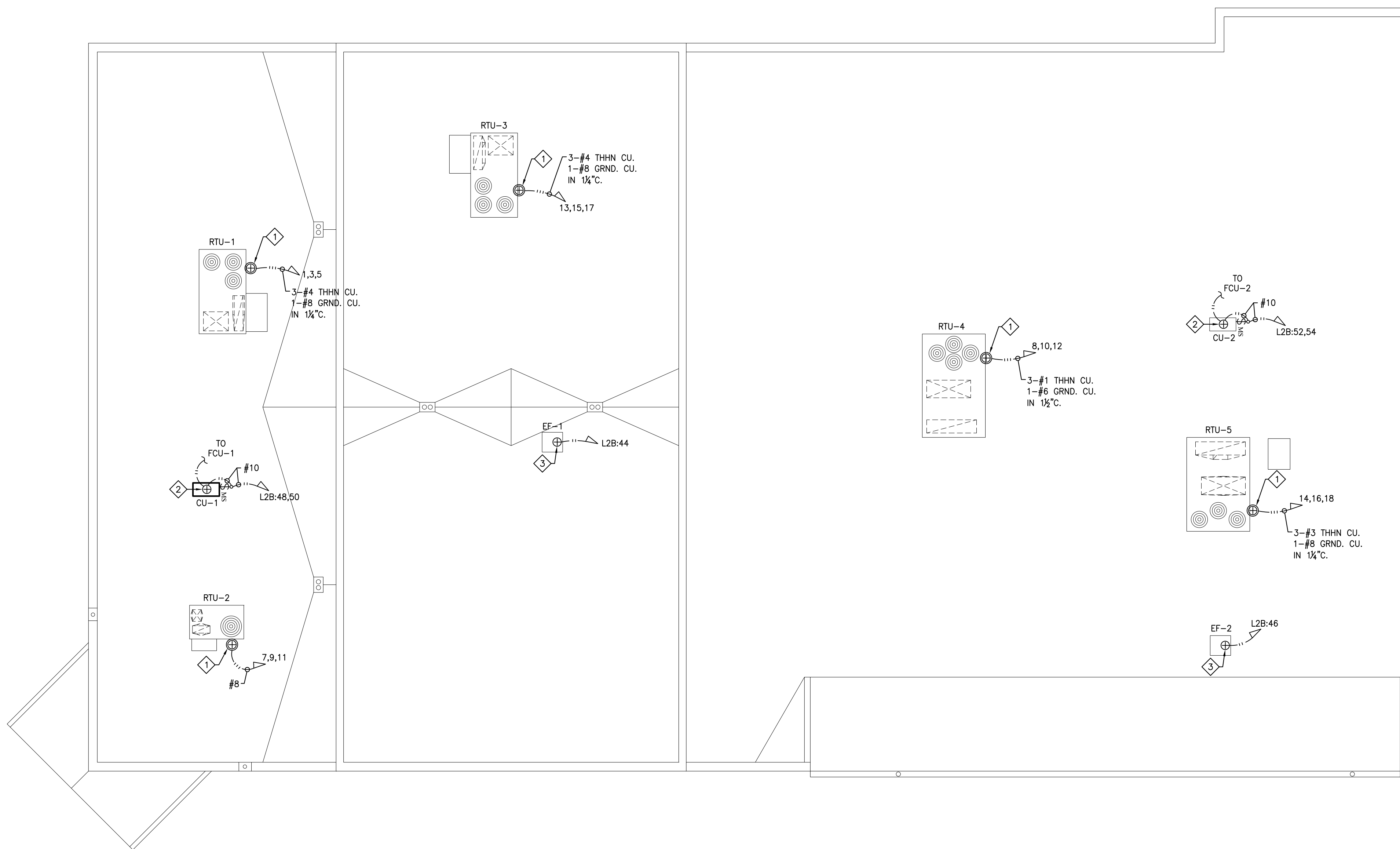
**2**  
**E-7** **ELECTRICAL HVAC POWER - 2ND FLOOR PLAN**  
 SCALE: 1/8" = 1'-0"

**GENERAL KEYNOTES:**

- a. CIRCUIT HVAC EQUIPMENT FROM PANEL 'L2B' UNLESS OTHERWISE NOTED.

**DRAWING KEYNOTES:**

1. FEED ELECTRIC WALL HEATER WITH A 1Ø, 208V POWER CONNECTION. HEATER SHALL BE EQUIPPED WITH AN INTEGRAL NON-FUSED DISCONNECT SWITCH. COORDINATE INSTALLATION WITH M.C.
2. FAN COIL UNIT SHALL BE POWERED BY THE ASSOCIATED CONDENSING UNIT. SUPPLY A 3ØA MANUAL MOTOR CONTROLLER AND MOUNT ON UNIT HOUSING FOR DISCONNECTING MEANS. WIRE FAN COIL UNIT PER MANUFACTURE INSTRUCTIONS SUPPLYING ALL REQUIRED WIRING, HARDWARE, MATERIALS ETC. TO OBTAIN A 100% COMPLETE INSTALLATION. COORDINATE ENTIRE INSTALLATION WITH M.C. COORDINATE ENTIRE INSTALLATION WITH M.C.
3. FEED HVAC VARIABLE AIR VOLUME TERMINAL UNIT (TU-#) WITH A 1Ø, 120V POWER CONNECTION. SUPPLY A NEMA 1, 3ØA RATED MANUAL MOTOR CONTROLLER AND MOUNT ON UNIT HOUSING IN AN ACCESSIBLE LOCATION. COORDINATE INSTALLATION WITH M.C.



**1** ELECTRICAL POWER - ROOF PLAN  
**E-8** SCALE: 1/8" = 1'-0"

**GENERAL KEYNOTES:**

- a. CIRCUIT HVAC EQUIPMENT FROM PANEL 'L' UNLESS OTHERWISE NOTED.

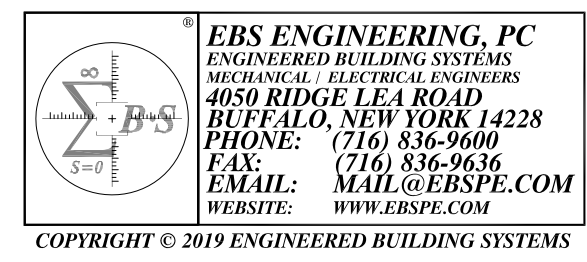
**DRAWING KEYNOTES:**

1. FEED ROOF TOP UNIT WITH A 3 $\phi$ , 208V POWER CONNECTION. UNIT SHALL BE EQUIPPED WITH AN INTEGRAL NON-FUSED DISCONNECT SWITCH AND PRE-WIRED GFCI RECEPTACLE. FIELD VERIFY ALL NECESSARY WORK WITH G.C. AND M.C. COORDINATE ENTIRE INSTALLATION WITH M.C.
2. FEED CONDENSING UNIT WITH A 1 $\phi$ , 208V POWER CONNECTION. SUPPLY A 2-POLE, NON-FUSED DISCONNECT SWITCH WITH A NEMA 3R ENCLOSURE FOR DISCONNECTING MEANS. MOUNT DISCONNECT SWITCH ON UNI-STRUT FRAMING ADJACENT TO CONDENSING UNIT. UNI-STRUT FRAMING MAY BE AN EXTENSION TO CONDENSING UNIT ROOF FRAMING SYSTEM AS NEEDED. FIELD VERIFY ALL NECESSARY WORK WITH G.C. AND M.C. CONDENSING UNIT SHALL SUPPLY POWER TO ASSOCIATED FAN COIL UNIT PER MANUFACTURE INSTRUCTIONS. SUPPLY ALL REQUIRED HARDWARE, MATERIALS ETC. TO OBTAIN A 100% COMPLETE INSTALLATION. COORDINATE ENTIRE INSTALLATION WITH M.C.
3. FEED ROOF EXHAUST FAN WITH A 1 $\phi$ , 120V POWER CONNECTION. EXHAUST FAN SHALL BE EQUIPPED WITH AN INTEGRAL PLUG TYPE DISCONNECT SWITCH. COORDINATE INSTALLATION WITH M.C.

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 JOB CAPT. S.Hunt INTERIORS N.Catuzza

SEAL:

TITLE:  
**ELECTRICAL POWER ROOF PLAN**



**SILVESTRI ARCHITECTS PC**

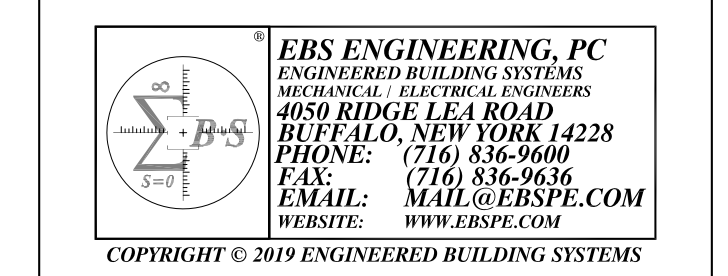
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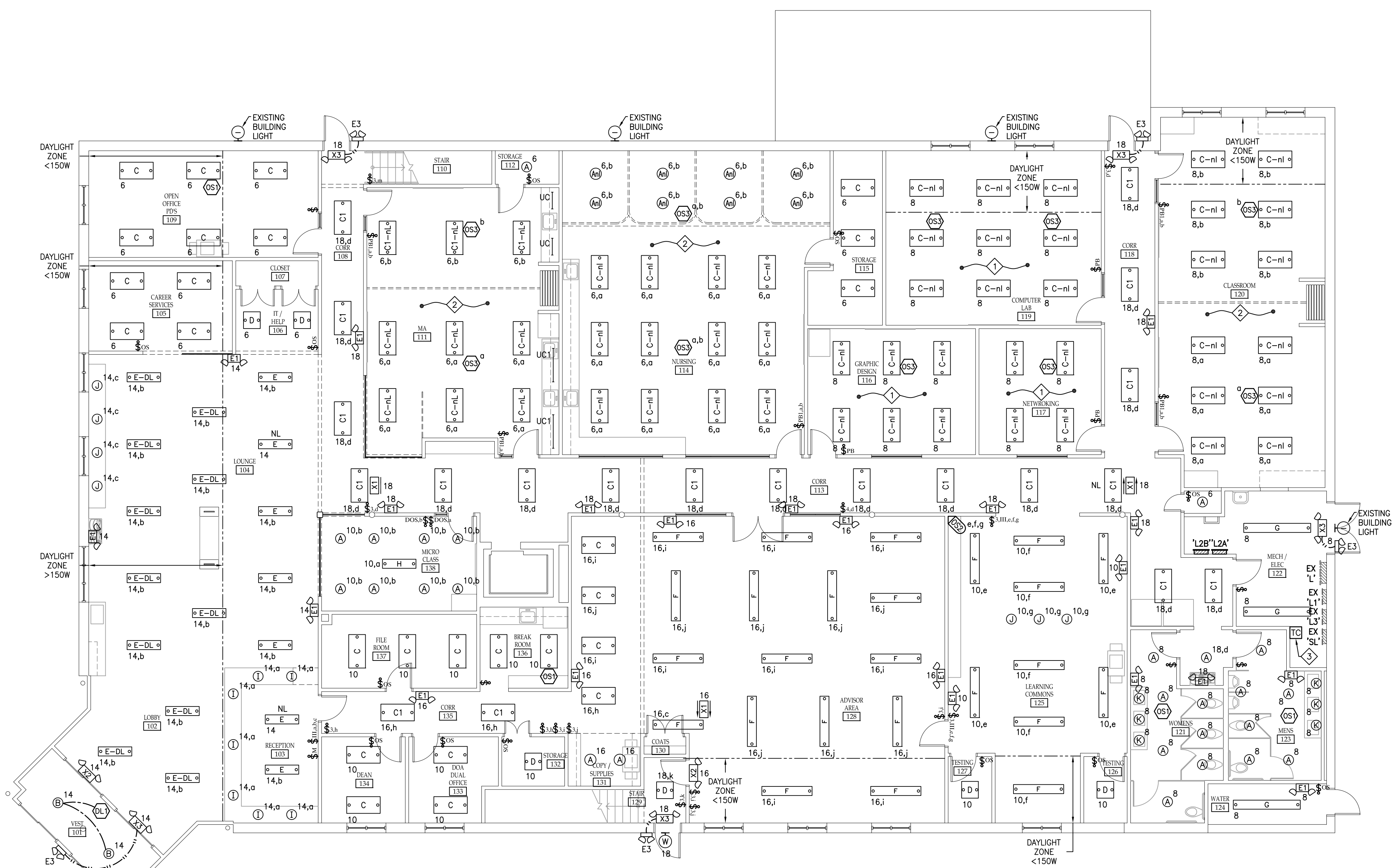
SEAL:

TITLE:  
**ELECTRICAL LIGHTING  
 1ST & 2ND  
 FLOOR PLANS**

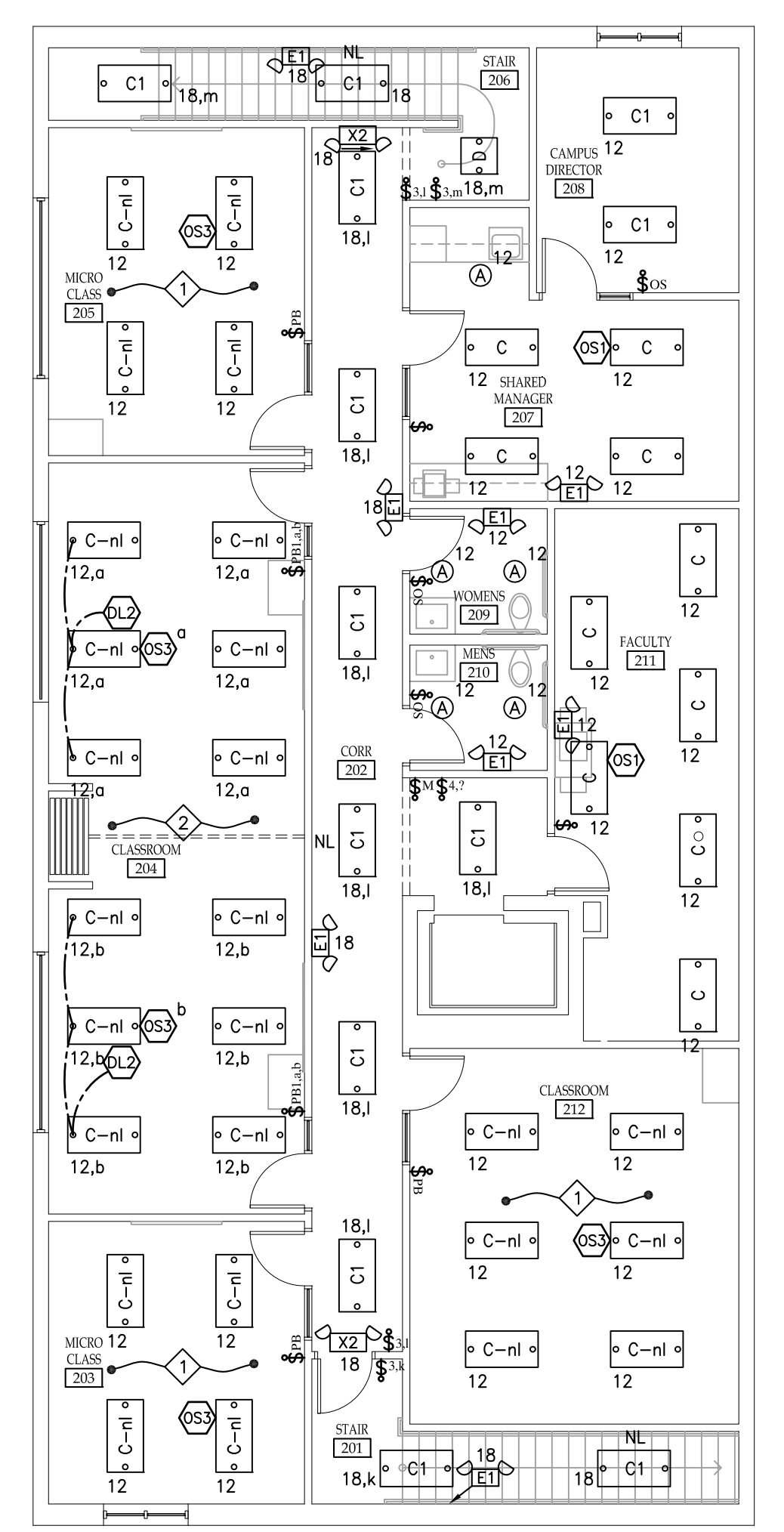


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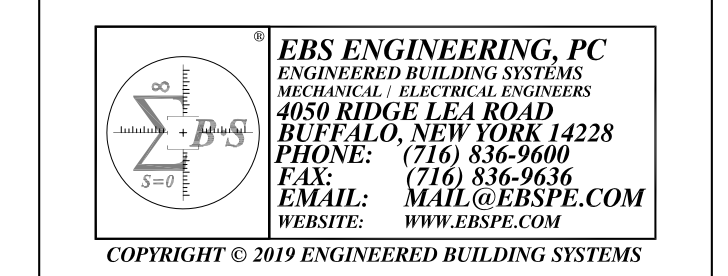
**1**  
**E-9** **ELECTRICAL LIGHTING - 1ST FLOOR PLAN**  
 SCALE: 1/8" = 1'-0"



**2**  
**E-9** **ELECTRICAL LIGHTING - 2ND FLOOR PLAN**  
 SCALE: 1/8" = 1'-0"

- GENERAL NOTES:**
- CIRCUIT ALL LIGHTING FROM PANEL 'L1'. CIRCUIT DESIGNATIONS ARE SHOWN NEXT TO EACH SYMBOL.
  - TOGGLE SWITCH, SENSOR/SWITCH AND/OR CEILING SENSOR SHALL BE WIRED TO CONTROL LIGHTING FIXTURES LOCATED WITHIN ASSOCIATED ROOM. IN CASES WHERE SWITCHING SCHEME IS NOT OBVIOUS, LOWERCASE LETTERS (E.G., 'a', 'b', 'c' ETC.) WILL BE SHOWN IDENTIFY SWITCHING SCHEME.
  - EMERGENCY LIGHT PACKS, EXIT SIGNS AND FIXTURES WITH "NL" DESIGNATIONS SHALL BE SUPPLIED WITH CONSTANT 120V POWER WIRED FROM LOCAL AREA LIGHTING CIRCUIT BYPASSING LOCAL SWITCHING AND TIME CLOCK CONTROL.
  - RETAIN BRANCH WIRING AND ASSOCIATED CONTROLS SERVING EXTERIOR BUILDING AND SITE LIGHTING. REPLACE INOPERABLE BALLASTS AND BURNT OUT LAMPS AS NEEDED AND ENSURE ALL EXISTING LIGHTING IS 100% OPERATIONAL BY COMPLETION OF CONSTRUCTION.
- LIGHTING KEYNOTES:**
- SEE DETAIL 3/E-4 FOR LIGHTING CONTROL WIRING DIAGRAM.
  - SEE DETAIL 4/E-4 FOR LIGHTING CONTROL WIRING DIAGRAM.
  - DIGITAL TIME CLOCK (TC) SHALL BE SUPPLIED AND INSTALLED TO PROVIDE AUTOMATIC CONTROL FOR COMMON AREA LIGHTING THAT IS NOT CONTROLLED BY LOCAL OCCUPANCY SENSORS. SEE WIRING DIAGRAM 5/E-4 FOR FURTHER INFORMATION.

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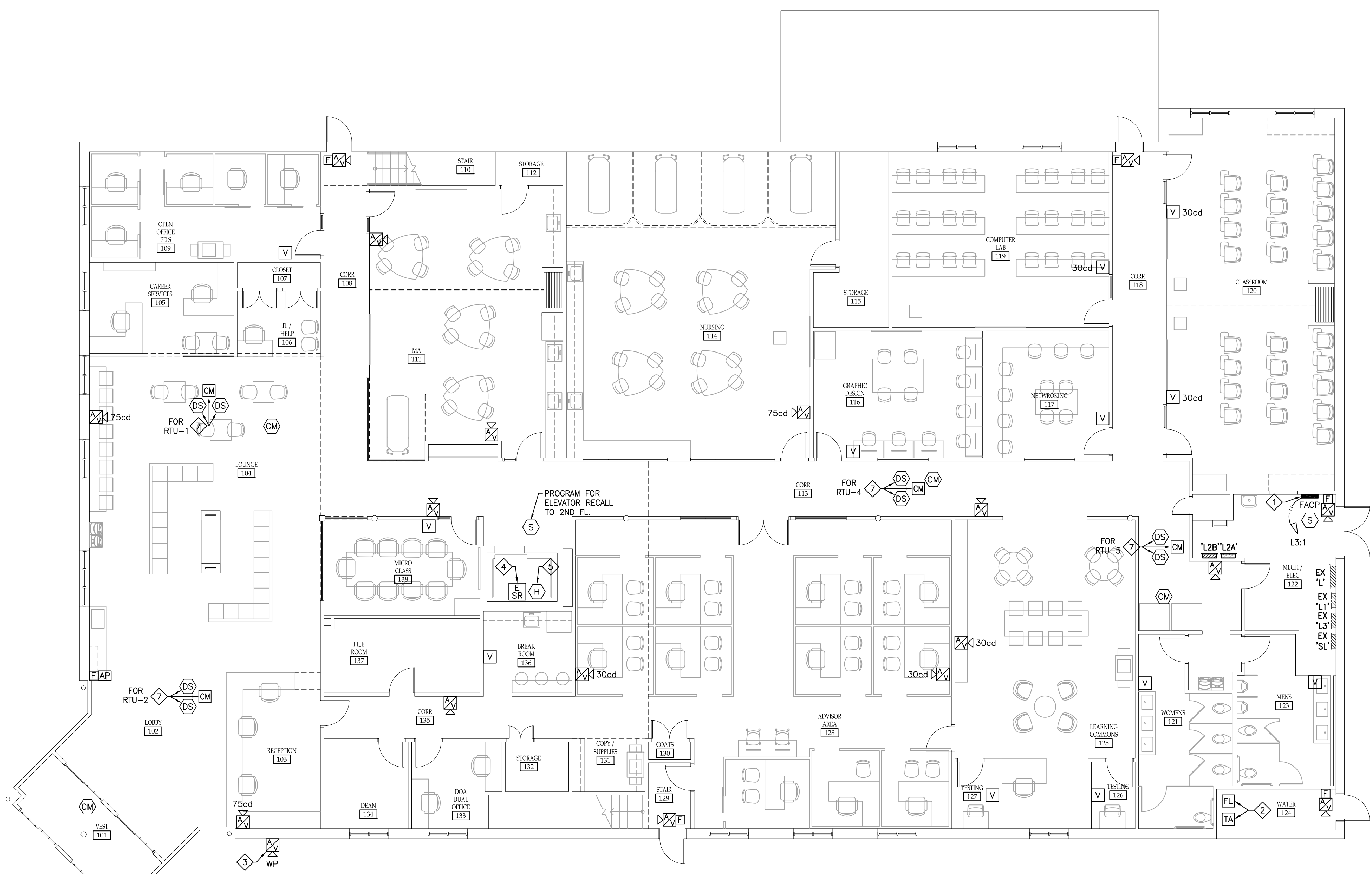
SEAL:

TITLE:  
**FIRE ALARM  
 1ST & 2ND  
 FLOOR PLANS**

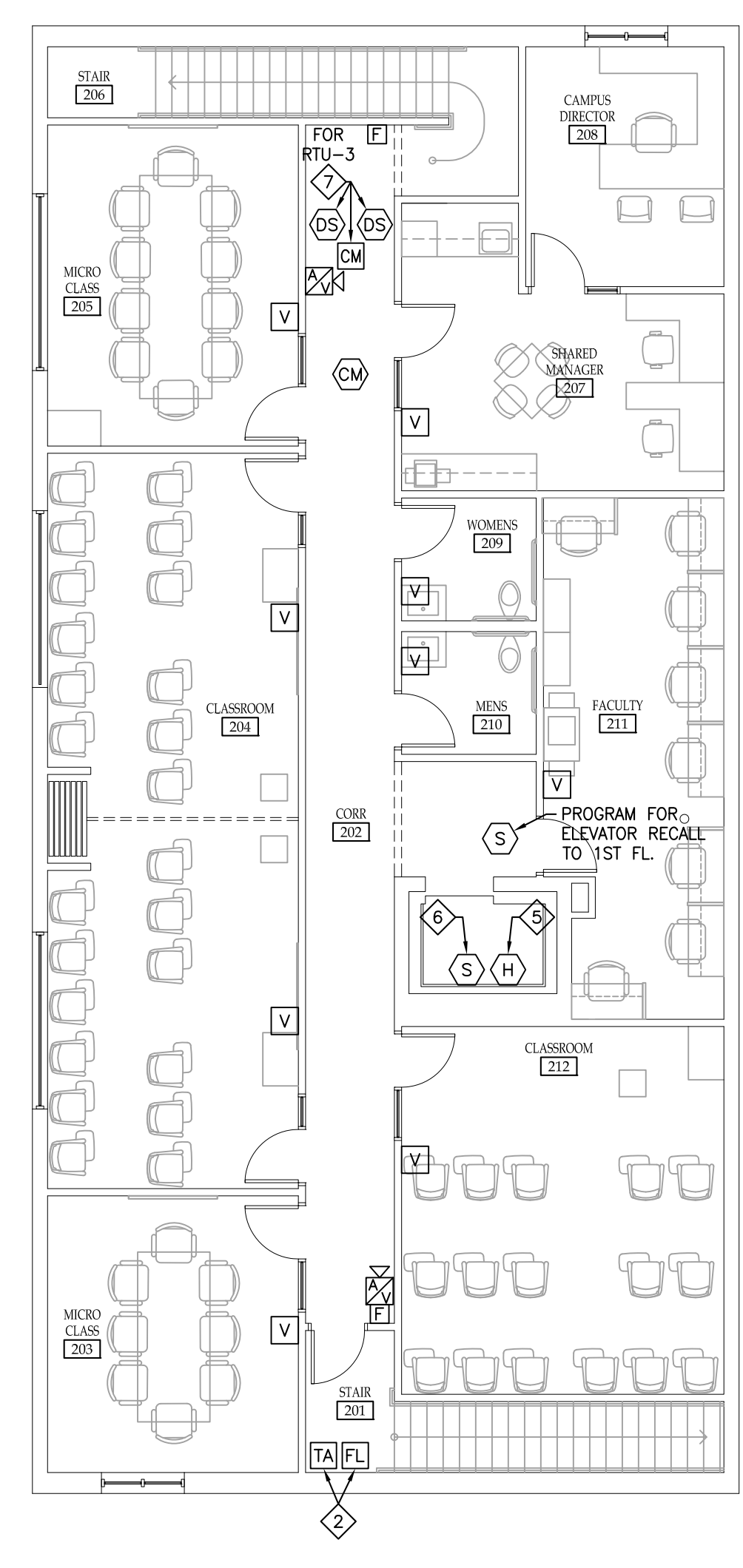


SA JOB #: 18161.01 DATE: 04-08-19

DRAWING #: **E-10**



**1**  
**E-10** FIRE ALARM - 1ST FLOOR PLAN  
 SCALE: 1/8" = 1'-0"



**2**  
**E-10** FIRE ALARM - 2ND FLOOR PLAN  
 SCALE: 1/8" = 1'-0"

**GENERAL NOTES:**

- a. ENSURE ALL SMOKE AND HEAT DETECTORS ARE PLACED A MINIMAL DISTANCE OF 3'-0" FROM HVAC SUPPLY / RETURN AIR GRILLS. LOCATIONS SHOWN ON PLANS ARE SUGGESTED.
- b. ENSURE CARBON MONOXIDE DETECTORS ARE INSTALLED AT LOCATIONS MEETING CURRENT INTERNATIONAL CODES.
- c. FIRE ALARM VISUAL (STROBE) DEVICE CANDELA RATINGS SHALL BE SET AT 15cd UNLESS OTHERWISE NOTED.

**LIGHTING KEYNOTES:**

1. FEED FIRE ALARM PANEL WITH A 1#, 120V POWER CONNECTION FROM A DEDICATED CIRCUIT IN THE DESIGNATED PANEL. SUPPLY FAC WITH TWO(2) DEDICATED "OUTSIDE" TELEPHONE LINES FOR SYSTEM MONITORING. COORDINATE TELEPHONE REQUIREMENTS WITH LOCAL FIRE MARSHAL.
2. FLOW AND TAMPER SWITCHES SHALL BE SUPPLIED AND INSTALLED BY SPRINKLER CONTRACTOR, WIRED INTO BUILDING FAC BY E.C. FINAL QUANTITIES AND LOCATIONS MUST BE CONFIRMED WITH PROJECT DESIGN BUILD SPRINKLER CONTRACTOR PRIOR TO SUBMITTAL PHASE. LOCATIONS SHOWN ON DRAWING ARE FOR REFERENCE ONLY. SUPPLY ALL REQUIRED DEVICES, MATERIALS AND PROGRAMMING OF FAC TO OBTAIN A 100% COMPLETE INSTALLATION.
3. WEATHER-PROOF AUDIO/VISUAL DEVICE SHALL BE INSTALLED ON EXTERIOR OF BUILDING TO INDICATE WATER FLOW FROM SPRINKLER RISER UPON SYSTEM ACTIVATION. FIELD VERIFY LOCATION WITH G.C. AND LOCAL FIRE MARSHAL PRIOR TO ANY WORK.
4. SUPPLY ALL REQUIRED PERIPHERALS, MATERIALS AND PROGRAMMING OF FAC FOR ELEVATOR RECALL WHEN FIRE ALARM SYSTEM IS IN ALARM MODE.
5. HEAT DETECTOR SHALL BE INSTALLED AT BOTTOM AND TOP OF ELEVATOR SHAFT WITHIN 2' OF SPRINKLER HEADS. WIRE HEAT DETECTORS INTO INITIATING CIRCUITS OF BUILDING FIRE ALARM SYSTEM WITH AUXILIARY CONTACTS WIRED INTO 3-POLE SHUNT TRIP C.B., POWERING ELEVATOR MOTOR, AND SOLENOID VALVE FOR SPRINKLER HEAD. ACTIVATION OF HEAT DETECTOR AND / OR SPRINKLER HEAD SHALL TRIGGER ELEVATOR MOTOR SHUNT-TRIP C.B. TO DISCONNECT POWER TO ELEVATOR EQUIPMENT PRIOR TO DISCHARGE OF WATER FROM SPRINKLER SYSTEM. SUPPLY ALL REQUIRED DEVICES, MATERIALS AND PROGRAMMING OF FAC TO OBTAIN A 100% COMPLETE INSTALLATION.
6. SMOKE DETECTOR SHALL BE INSTALLED AT TOP OF ELEVATOR SHAFT. WIRE SMOKE DETECTOR INTO INITIATING CIRCUITS OF BUILDING FIRE ALARM SYSTEM WITH AUXILIARY CONTACTS WIRED INTO ELEVATOR RECALL SYSTEM. SUPPLY ALL REQUIRED DEVICES, MATERIALS AND PROGRAMMING OF FAC TO OBTAIN A 100% COMPLETE INSTALLATION.
7. INSTALL DUCT SMOKE DETECTOR, WITH SAMPLING TUBE, IN SUPPLY AND RETURN AIR DUCT OF ROOF TOP UNIT (RTU). FIELD VERIFY EXACT LOCATION WITH M.C. SUPPLY EACH WITH A REMOTE TEST STATION AND INSTALL IN MECH/ELEC. RM. 122. FIELD VERIFY TEST STATION LOCATIONS AND LABEL ACCORDINGLY. CONTROL MODULE SHALL BE WIRED INTO HVAC UNIT CONTROLLER FOR AUTOMATIC UNIT SHUT-DOWN UPON FIRE ALARM SYSTEM ACTIVATION. SUPPLY ALL REQUIRED DEVICES, MATERIALS AND PROGRAMMING OF FAC TO OBTAIN A 100% COMPLETE INSTALLATION.



**WIRING DEVICES****A. GENERAL:**

- PROVIDE WIRING DEVICES, IN TYPES, CHARACTERISTICS, GRADES AND ELECTRICAL RATINGS FOR APPLICATIONS INDICATED WHICH ARE UL LISTED AND WHICH COMPLY WITH NEMA WD 1 AND OTHER APPLICABLE UL AND NEMA STANDARDS.
- WIRING DEVICE COLOR SHALL BE SELECTED BY ARCHITECT, UNLESS OTHERWISE INDICATED.
- PROVIDE COVER OR DEVICE PLATES FOR OUTLET BOXES AS FOLLOWS UNLESS OTHERWISE NOTED:
  - FINISHED AREAS: THERMOPLASTIC – COLOR TO MATCH DEVICE.
  - UNFINISHED AREAS: ZINC COATED SHEET METAL, ALUMINUM, OR CAST METAL, AS APPROPRIATE FOR THE TYPE OF BOX.
  - EXTERIOR AREAS: COPPER FREE ALUMINUM WITH GRAY, POWDER EPOXY FINISH, GASKET, WEATHERPROOF, CROUSE-HINDS "WLRD" FOR DUPLEX RECEPTACLES AND "WLRS" FOR SINGLE RECEPTACLES OR EQUAL.
  - TELEPHONE, COMMUNICATION, AND SIGNAL OUTLET PLATES, SHALL MATCH THOSE USED FOR RECEPTACLES AND SWITCHES. ALL OUTLET AND/OR JUNCTION BOXES SHALL BE COMPLETE WITH A COVER PLATE BY THIS CONTRACTOR.
  - WHERE DEVICES ARE GANGED, THEY SHALL BE INSTALLED UNDER A COMMON COVERPLATE.
- LOCATE SWITCHES AND WALL SWITCH SENSORS AT A MAXIMUM HEIGHT OF 4'-0" A.F.F., MEASURED TO CENTER OF BOX, OR NEAREST BLOCK COURSE (WITHIN A.D.A. REQUIREMENTS) UNLESS OTHERWISE INDICATED. THE LONG DIMENSION OF THE SWITCHES SHALL BE VERTICAL. INSTALL ALL SWITCHES ON STRIKE SIDE OF DOOR.
- LOCATE RECEPTACLES AT A MINIMUM HEIGHT OF 1'-6" A.F.F., MEASURED TO CENTER OF BOX, OR NEAREST BLOCK COURSE (WITHIN A.D.A. REQUIREMENTS), UNLESS NOTED OTHERWISE. THE LONG DIMENSION OF RECEPTACLES SHALL BE VERTICAL.
- ALL WIRING DEVICES SHALL BE INSTALLED NEATLY AND PARALLEL WITH BUILDING LINES.

**B. SUBMITTALS:**

- SUBMIT DEVICE PRODUCT DATA SHEETS IDENTIFYING MANUFACTURE AND MODEL NUMBERS.

**C. RECEPTACLES:**

- PROVIDE NEMA CONFIGURATION 5-20R DUPLEX 125 VOLT GROUNDING TYPE RECEPTACLES RATED FOR 20 AMPERES UNLESS OTHERWISE INDICATED ON THE DRAWINGS.
- STANDARD RECEPTACLES SHALL BE SPECIFICATION GRADE.
- GFI RECEPTACLES SHALL BE SPECIFICATION GRADE.
- RECEPTACLES REQUIRING AMPERAGES, VOLTAGES OR CONFIGURATIONS DIFFERENT FROM THE DUPLEX CONVENIENCE RECEPTACLES ABOVE SHALL BE AS INDICATED ON THE DRAWINGS OR AS REQUIRED FOR EQUIPMENT SUPPLIED BY OTHERS.
- CONNECT WIRING DEVICE GROUNDING TERMINAL TO BRANCH CIRCUIT EQUIPMENT GROUNDING CONDUCTOR.
- PROVIDE OTHER RECEPTACLES OF A QUALITY, MATERIAL AND WORKMANSHIP EQUAL TO THAT OF ABOVE DESCRIPTIONS.
- ACCEPTABLE MANUFACTURES INCLUDED EATON/ARROW HART, LEGRAND (P&S), LUTRON, LEVITON OR APPROVED EQUAL. ALL DEVICES SELECTED FOR PROJECT SHALL BE SUPPLIED BY THE SAME MANUFACTURE.

**D. WALL SWITCHES:**

- PROVIDE SINGLE-POLE, THREE-WAY, AND FOUR-WAY 20A, 120/277 VOLT HEAVY-DUTY SPECIFICATION GRADE DEVICES WITH COPPER ALLOY CONTACT ARM, HEAVY DUTY BUMPER PADS FOR QUIET SMOOTH OPERATION, HIGH STRENGTH THERMOPLASTIC POLYCARBONATE TOGGLE, AND SILVER ALLOY CONTACTS.
- ACCEPTABLE MANUFACTURES INCLUDE EATON/ARROW HART, LUTRON, LEVITON, LEGRAND OR APPROVED EQUAL. ALL DEVICES SELECTED FOR PROJECT SHALL BE SUPPLIED BY THE SAME MANUFACTURE.

**E. WALL DIMMER / SWITCHES:**

- PROVIDE SINGLE-POLE, THREE-WAY 120/277 VOLT SPECIFICATION GRADE 0-10V LED DIMMER DEVICES WITH THERMOPLASTIC POLYCARBONATE CONSTRUCTION, SEPERATE ON/OFF CONTROL AND SLIDE ADJUSTER FOR DIMMING. FOR USE WHEN SERVING LED FIXTURES WITH 0-10V DIMMING DRIVERS. INCLUDE LOW-VOLTAGE CONTROL WIRING INSTALLED FROM SENSOR TO DESIGNATED LIGHT FIXTURES FOR DIMMING OPERATION.
- PROVIDE SINGLE-POLE, THREE-WAY 120/277 VOLT SPECIFICATION GRADE ELECTRONIC LOW-VOLTAGE (ELV) AND/OR CFL-LED COMPATIBLE DIMMER DEVICES WITH THERMOPLASTIC POLYCARBONATE CONSTRUCTION, TOGGLE/ROCKER ON/OFF CONTROL AND SLIDE ADJUSTER FOR DIMMING. FOR USE WHEN SERVING LINE-VOLTAGE LED FIXTURES.
- ACCEPTABLE MANUFACTURERS INCLUDE EATON/ARROW HART, LUTRON, LEVITON, LEGRAND OR APPROVED EQUAL. ALL DEVICES SELECTED FOR PROJECT SHALL BE SUPPLIED BY THE SAME MANUFACTURE.

**G. AUTOMATIC LIGHTING CONTROL DEVICES:**

- ALL LIGHTING CONTROL DEVICES MUST BE SELECTED, INSTALLED AND WIRED TO MEET CURRENT LOCAL AND STATE ENERGY CODE REQUIREMENTS. WHEN LOCAL AND STATE CODES ARE NOT APPLICABLE THE 2015 IECC (INTERNATIONAL ENERGY CONSERVATION CODE) SHALL BE APPLIED. ANY DISCREPANCIES BETWEEN THESE DESIGN DOCUMENTS AND CURRENT ENERGY CODES MUST BE BROUGHT TO THE ENGINEERS ATTENTION PRIOR TO BID SUBMISSION.
- PROVIDE SINGLE RELAY, DUAL TECHNOLOGY, 120/277 VOLT, OCCUPANCY SENSOR WALL SWITCH, UNLESS OTHERWISE INDICATED IN DESIGN DOCUMENTS. BASIC PROGRAMMING SHALL INCLUDE MANUAL ON, AUTOMATIC OFF WITH THE OCCUPANCY SENSOR TIME DELAY SET FOR 15 MINUTES IN OFFICES, JANITOR CLOSETS, STORAGE RMS ETC. PER IECC. ALTERNATE PROGRAMMING SHALL INCLUDE AUTOMATIC ON, AUTOMATIC OFF WITH THE OCCUPANCY SENSOR TIME DELAY SET FOR 15 MINUTES IN RESTROOMS, CONFERENCE ROOMS, ETC. PER IECC. REMAINING PROGRAMMING OPTIONS SHALL BE FACTORY DEFAULT UNLESS OTHERWISE INDICATED OR REQUIRED.
- PROVIDE SINGLE ZONE, DUAL TECHNOLOGY 120/277V CEILING MOUNT DIMMING AND PHOTOCONTROL OCCUPANCY SENSOR WITH 360 DEGREE VIEWING ANGLE, UNLESS OTHERWISE INDICATED IN DESIGN DOCUMENTS. PROVIDE ALL REQUIRED POWER PACKS, SLAVE POWER PACKS, CONTROL UNITS, RELAYS, BACKBOXES, MOUNTING PLATES AND OTHER EQUIPMENT NECESSARY FOR PROPER SYSTEM OPERATION. BASIC PROGRAMMING SHALL INCLUDE OCCUPANCY SENSOR TIME DELAY SET FOR 15 MINUTES AND DIMMING SET TO 3V. REMAINING PROGRAMMING OPTIONS SHALL BE FACTORY DEFAULT UNLESS OTHERWISE INDICATED.
- ACCEPTABLE MANUFACTURERS INCLUDE SENSOR SWITCH, WATTSTOPPER, EATON/ARROW HART, LUTRON, LEVITON, LEGRAND OR APPROVED EQUAL. ALL DEVICES SELECTED FOR PROJECT SHALL BE SUPPLIED BY THE SAME MANUFACTURE.

**LIGHTING****A. GENERAL:**

- SEE SHEET E-1 FOR PROJECT LIGHT FIXTURE SPECIFICATIONS.
- ALL LIGHTING FIXTURES SHALL BE UL LISTED AND BARE THE UL LABEL OF APPROVAL.
- LIGHT FIXTURE HOUSINGS RECESSED WITHIN FIRE RATED CEILINGS MUST BE SUPPLIED WITH FIRE RATED COVERS. UTILIZE TENMAT PRODUCTS OR EQUAL. CONFIRM FIRE RATED CEILING LOCATIONS AND TYPES WITH ARCHITECTURAL DRAWINGS.
- SET LEVEL, PLUMB, AND SQUARE WITH CEILINGS AND WALLS UNLESS OTHERWISE INDICATED.
- INSTALL LAMPS IN EACH LUMINAIRE AS NEEDED.
- FIXTURES SHALL BE SUPPORTED FROM BUILDING STRUCTURE.
- WHERE FIXTURES ARE INSTALLED ON DRYWALL CEILINGS, THEY SHALL BE SUPPORTED FROM THE CEILING FRAMING SYSTEM OR THE BUILDING STRUCTURE. SUPPORT FROM DRYWALL IS NOT ACCEPTABLE.
- NFPA 70 REQUIRES MINIMUM SUPPORT FOR FIXTURES. REFER TO "LAY-IN CEILING LIGHTING FIXTURES SUPPORTS" PARAGRAPH BELOW FOR MORE SPECIFIC SUPPORT REQUIREMENTS AND FOR REQUIREMENTS EXCEEDING CODE MINIMUMS. FOR PROJECTS REQUIRING SEISMIC DESIGN, ADDITIONAL SUPPORTS, AND RESTRAINING DEVICES BEYOND THOSE SPECIFIED HERE MAY BE REQUIRED.

**B. SUBMITTALS:**

- SUBMIT LIGHT FIXTURE DATA SHEETS IDENTIFYING MANUFACTURE AND MODEL NUMBERS.

**C. LAY-IN CEILING LIGHTING FIXTURES SUPPORTS:**

- USE GRID AS A SUPPORT ELEMENT.
- INSTALL CEILING SUPPORT SYSTEM RODS OR WIRES FOR EACH FIXTURE. LOCATE NOT MORE THAN 6 INCHES FROM LIGHTING FIXTURE CORNERS.
- SUPPORT CLIPS: FASTEN TO LIGHTING FIXTURES AND TO CEILING GRID MEMBERS AT OR NEAR EACH FIXTURE CORNER WITH CLIPS THAT ARE UL LISTED FOR THE APPLICATION.
- FIXTURES OF SIZES LESS THAN CEILING GRID: INSTALL AS INDICATED ON REFLECTED CEILING PLANS OR CENTER IN ACOUSTICAL PANEL, AND SUPPORT FIXTURES INDEPENDENTLY WITH AT LEAST TWO 3/4-INCH METAL CHANNELS SPANNING AND SECURED TO CEILING TEES.

**D. SUSPENDED LIGHTING FIXTURE SUPPORT:**

- PENDANTS AND RODS: WHERE LONGER THAN 48 INCHES (1200 MM), BRACE TO LIMIT SWINGING.
- STEM-MOUNTED, SINGLE-UNIT FIXTURES: SUSPEND WITH TWIN-STEM HANGERS.
- CONTINUOUS ROWS: USE TUBING OR STEM FOR WIRING AT ONE POINT AND TUBING OR ROD FOR SUSPENSION FOR EACH UNIT LENGTH OF FIXTURE CHASSIS, INCLUDING ONE AT EACH END.
- DO NOT USE GRID AS SUPPORT FOR PENDANT LUMINAIRES. CONNECT SUPPORT WIRES OR RODS TO BUILDING STRUCTURE.

**E. GYPSUM CEILING LIGHTING FIXTURE SUPPORT**

- USE CEILING BEAMS AS SUPPORT ELEMENT.
- INSTALL CEILING SUPPORT SYSTEM WIRES FOR EACH FIXTURE. LOCATE NOT MORE THAN 6 INCHES FROM LIGHTING FIXTURE CORN
- SUPPORT SCREWS / WIRE TIES: FASTEN TO LIGHTING FIXTURES AND TO CEILING BEAMS AT OR NEAR FIXTURE CORNER

- IMMEDIATELY PRIOR TO OCCUPANCY, DAMP CLEAN ALL DIFFUSERS, GLASSWARE, FIXTURE TRIMS, REFLECTORS, LAMPS AND REPLACE BURNED OUT LAMPS.

**SAFETY SWITCHES & FUSES****A. SWITCHES:**

- SAFETY SWITCHES SHALL BE THE ENCLOSED HEAVY-DUTY TYPE (TYPE HD) WITH QUICK-MAKE, QUICK-BREAK MECHANISM AND EXTERNAL PAD LOCKABLE OPERATING HANDLE.
- SAFETY SWITCHES SHALL BE RATED FOR 240 OR 600 VOLTS AS APPLICABLE. THEY SHALL BE HORSEPOWER RATED WHEN USED IN MOTOR CIRCUITS.
- SAFETY SWITCHES SHALL BE FUSIBLE OR NON-FUSIBLE, 2, 3, OR 4 POLE AS INDICATED ON THE DRAWINGS.
- SAFETY SWITCHES SHALL BE SINGLE THROW UNLESS OTHERWISE INDICATED ON THE DRAWINGS.
- ENCLOSURES SHALL BE NEMA 1 INDOORS AND NEMA 3R OUTDOORS UNLESS OTHERWISE INDICATED ON DRAWINGS.
- MANUFACTURER SHALL BE SQUARE D, SIEMENS, OR CUTLER-HAMMER. ALL SAFETY SWITCHES SHALL BE BY ONE MANUFACTURER.
- MOUNT THE SAFETY SWITCHES SECURELY BETWEEN 3' X 6' LEVELS ABOVE THE FLOOR UNLESS OTHERWISE INDICATED ON THE DRAWINGS.
- SWITCHES ON BLOCK WALLS SHALL BE MOUNTED ON A 3/4" PLYWOOD BACKBOARD, WHERE LOCATED INDOORS.

**B. FUSES:**

- THE CONTRACTOR SHALL FURNISH A COMPLETE SET OF FUSES FOR ALL SWITCHES, PLUS FUSIBLE EQUIPMENT FURNISHED BY OTHER TRADES. UNLESS INDICATED OTHERWISE ON PLANS, THE FUSE SHALL BE OF THE FOLLOWING TYPES:
  - FUSES 601 TO 6000 AMPS SHALL BE UL CLASS. TRADE TYPE SHALL BE KRP-C AS MANUFACTURED BY THE BUSSMANN COMPANY.
  - FUSES 1/10 TO 600 AMPS SHALL BE UL CLASS RK1. TRADE TYPE SHALL BE LOW PEAK LPS-RK (600V) AND LPN-RK (250V) AS MANUFACTURED BY BUSSMANN COMPANY.
  - ALL OTHER SAFETY SWITCHES SHALL BE DUAL-ELEMENT CURRENT-LIMITING TYPE WITH 200,000 AMPERES SYMMETRICAL INTERRUPTING CAPACITY.
  - FUSES SHALL BE MANUFACTURED BY BUSSMANN, GOULD-SHAUMUTT, OR RELIANCE.
  - SPARE FUSES AMOUNTING TO A DUPLICATE SET OF EACH SIZE INSTALLED SHALL BE TURNED OVER TO THE OWNER UPON COMPLETION OF THE PROJECT. PROVIDE AND PLACE IN A SPARE FUSE CABINET SIMILAR TO BUSSMANN # SFC.
  - THIS CONTRACTOR SHALL REPLACE ALL FUSES BLOWN DURING CONSTRUCTION.

**C. MOTOR CONTROLLERS:**

- TYPE A (FULL VOLTAGE, NON-MAGNETIC, SINGLE PHASE): TOGGLE SWITCH, STAINLESS STEEL ENCLOSURE, THERMOPLASTIC COVERPLATE; SIEMENS CLASS SMF SERIES, OR ACCEPTED EQUAL.
- TYPE A1 (FULL VOLTAGE, NON-MAGNETIC SINGLE PHASE): SIMILAR TO TYPE A ABOVE, EXCEPT WITH RED PILOT LIGHT; SIEMENS CLASS SMF SERIES, OR ACCEPTED EQUAL.
- TYPE B (FULL VOLTAGE MAGNETIC): NEMA 1 ENCLOSURE WITH PILOT LIGHT; SIEMENS CLASS 14 SERIES WITH AUXILIARY CONTACTS, OR ACCEPTED EQUAL.
- TYPE B1 (FULL VOLTAGE, COMBINATION MAGNETIC): FUSIBLE DISCONNECT SWITCH TYPE, NEMA 1 ENCLOSURE, PILOT LIGHT AND HOA IN COVER; SIEMENS CLASS 17 SERIES WITH AUXILIARY CONTACTS, OR ACCEPTED EQUAL.

**PANELBOARDS****A. MANUFACTURER:**

- ALL EQUIPMENT IDENTIFIED IN THIS SECTION, AND THROUGHOUT DESIGN DOCUMENTS, IS BASED ON THE MANUFACTURER OF SQUARE-D. ACCEPTABLE ALTERNATE MANUFACTURES INCLUDE CUTLER-HAMMER, SIEMENS OR EQUAL PROVIDED EQUIPMENT MEETS ALL DESIGN CRITERIA AND PHYSICAL CHARACTERISTICS OF THE PROJECT.

**B. SUBMITTALS:**

- SUBMIT EQUIPMENT DATA SHEETS INCLUDING CIRCUIT BREAKERS AND ALL ASSOCIATED ACCESSORIES. INFORMATION SHALL INCLUDE EQUIPMENT MANUFACTURE, MODEL NUMBERS AND APPLICABLE SHOP DRAWINGS.

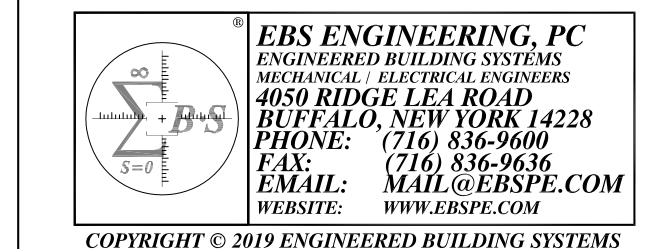
**C. GENERAL:**

- PANELBOARDS SHALL BE FULLY RATED TO INTERRUPT SYMMETRICAL SHORT CIRCUIT AT THE TERMINALS.
- PANELBOARDS SHALL BE LABELED WITH PHENOLIC NAMEPLATES INSCRIBED AS INDICATED ON THE DRAWINGS. PROVIDE ARC FLASH ANALYSIS WITH WARNING LABELS AFFIXED TO PANELBOARDS AS REQUIRED BY NFPA 70E.
- PANELBOARDS SHALL BE ENCLOSED DEAD FRONT SAFETY TYPE WITH FEATURES AND RATINGS AS SCHEDULED ON THE DRAWINGS.
- PANELBOARDS SHALL HAVE COPPER OR ALUMINUM (SEE #5 BELOW) BUS WITH BOLTED BREAKERS, FULLY RATED NEUTRAL BUS AND FULLY RATED INTERRUPTING CAPACITY; NO SERIES RATED SYSTEM PERMITTED. PROVIDE WITH BLANK END WALLS (NO PRE-PUNCHED BOXES), DOOR-IN-DOOR OR HINGED TRIM, INTERRUPTING RATING AS CALLED FOR, 24 CIRCUIT MINIMUM PANEL SIZE, FLUSH OR SURFACE MOUNTED AS INDICATED.
- ALL BUS BARS SHALL BE RECTANGULAR SOLID COPPER. ALUMINUM BUS BARS ARE ACCEPTABLE WHEN ALUMINUM FEEDERS ARE SPECIFIED.
- PANELS KNOWN AS "LOAD CENTERS" ARE UNACCEPTABLE.
- SPACES, AS IDENTIFIED IN PANEL SCHEDULES, FOR FUTURE PROTECTIVE DEVICES SHALL INCLUDE BUS AND SUPPORT.
- INSTALL CABINETS SO THAT CENTER OF THE TOP BREAKER DOES NOT EXCEED 6'-6" ABOVE THE FINISHED FLOOR. APARTMENT UNIT LOAD CENTERS SHALL BE INSTALLED AT HEIGHTS TO MEET ADA REQUIREMENTS.
- MOLDED CASE CIRCUIT BREAKERS SHALL BE AS SCHEDULED ON THE DRAWINGS AND SPECIFIED IN THIS DIVISION.
- ALL BREAKERS SHALL BE BOLT-ON TYPE.
- ALL BOLTED CONNECTIONS SHALL BE TORQUED IN ACCORDANCE WITH MANUFACTURER'S STANDARDS.
- ELECTRICAL CONTRACTOR SHALL ARRANGE CIRCUITS AS NEAR AS POSSIBLE TO CIRCUIT NUMBERS ON THE DRAWINGS. AT COMPLETION OF JOB, ELECTRICAL CONTRACTOR SHALL TAKE CURRENT READING CHECKS OF RESPECTIVE PHASES. A MINIMUM OF CIRCUIT CONNECTIONS SHALL BE REARRANGED TO BALANCE, AS CLOSELY AS POSSIBLE, THE LOAD IN THE PANEL.
- GFCI CIRCUIT BREAKERS: SINGLE-POLE AND TWO-POLE CONFIGURATIONS WITH CLASS A GROUND-FAULT PROTECTION (6-MA TRIP).
- GROUND-FAULT EQUIPMENT PROTECTION (GFEP) CIRCUIT BREAKERS: CLASS B GROUND-FAULT PROTECTION (30-MA TRIP).
- ARC-FAULT CIRCUIT INTERRUPTER (AFCI) CIRCUIT BREAKERS: COMPLY WITH UL 1699; 120/240-V, SINGLE-POLE CONFIGURATION.
- PROVIDE (3) SPARE 1" CONDUITS INTO ACCESSIBLE CEILING SPACE WHERE PANELS ARE FLUSH-MOUNTED. PROVIDE REMOVABLE CAP OR PLUG AT CONDUIT AND ABOVE CEILING.
- ENTRIES ON DIRECTORY CARDS SHALL BE TYPED, COMPLETE AND ACCURATE.
- FOR EXISTING PANELBOARDS, PROVIDE NEW QUICK MAKE, QUICK BREAK, THERMAL MAGNETIC, TOGGLE MECHANISM, MOLDED CASE CIRCUIT BREAKERS AS RECOMMENDED BY EQUIPMENT MANUFACTURER. PROVIDE AMPACITY AND POLES AS INDICATED ON PLANS WITH APPROPRIATE AMPERE INTERRUPTING RATING TO MATCH EXISTING EQUIPMENT. MULTIPOLE BREAKERS SHALL HAVE COMMON TRIP. MAKE TO MATCH EXISTING PANELBOARDS.
- FOR EXISTING PANELBOARDS, RELABEL EXISTING PANELBOARD DIRECTORIES TO REFLECT ALL BRANCH CIRCUIT REVISIONS; PROVIDE TYPEWRITTEN WITH ROOM NUMBERS, FUNCTION, ETC. TO POSITIVELY IDENTIFY EACH BRANCH CIRCUIT.

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