

ELECTRICAL DRAWING / REVISION LOG		DATE		DATE		
SHEET NUMBER	SHEET TITLE	ISSUE	DESIGN DEVELOPMENT		PERMIT DRAWINGS	
			02/27/2024	03/18/2024	03/18/2024	03/25/2024
E0.01	ELECTRICAL COVER SHEET		●			
E0.02	ELECTRICAL NOTES		●			
E0.03	ELECTRICAL NOTES		●			
E0.04	ELECTRICAL SITE PLAN		●			
E1.01	ELECTRICAL 1ST AND 2ND FLOOR PLANS		●			
E1.02	ELECTRICAL 3RD FLOOR AND ROOF PLANS		●			
E4.01	ELECTRICAL DETAILS		●			
E4.02	ELECTRICAL DETAILS		●			
E4.03	ELECTRICAL DETAILS		●			
E5.01	ELECTRICAL RISER DIAGRAMS		●			
E5.02	LOW VOLTAGE RISER DIAGRAMS		●			
E6.01	ELECTRICAL UNIT PLANS		●			
E6.02	ELECTRICAL UNIT PLANS		●			
E6.03	ELECTRICAL UNIT PLANS		●			
E6.04	ELECTRICAL UNIT PLANS		●			
E7.01	ELECTRICAL PANEL SCHEDULES		●			

CODE COMPLIANCE		
1	OCCUPANCY TYPE	RESIDENTIAL, R-2
2	GOVERNING CODES AND REGULATIONS	INTERNATIONAL BUILDING CODE NJ, 2021. UNIFORM CONSTRUCTION CODE, CHAPTER 23, TITLE 5, NJ ADMINISTRATIVE CODE. NATIONAL ELECTRICAL CODE, NEC 2020. NFPA 72 - 2019 EDITION. ENERGY CODE: ASHRAE 90.1-2019.

CODE COMPLIANT INSTALLATION MEANS/METHODS AND MATERIAL USED	
ALL REFERENCES IN THE CONSTRUCTION DOCUMENTS, INCLUDING SPECIFICATIONS, TO THE TYPE OF MATERIALS AND COMMON INSTALLATION PRACTICES SHALL BE USED AS A GUIDELINE AND MAY BE MODIFIED BY THE CONTRACTOR. ANY MODIFICATION SHALL COMPLY WITH APPLICABLE CODE REQUIREMENTS (SHARED NEUTRAL, GROUNDING, COMBINING CIRCUITRY, COPPER VERSUS ALUMINUM, ETC.) AND OTHER DIRECTIVES, AND REGULATIONS MANDATED BY LOCAL AUTHORITIES HAVING JURISDICTION.	

POWER CONDUCTORS AND CABLES AND INSTALLATION METHODS:		
ALL OF THE BELOW ARE GENERAL REFERENCE ONLY. RACEWAYS AND WIRING METHODS MUST BE UTILIZED ONLY WHERE AND WHEN PERMITTED BY CODE.		
FEEDER/ BRANCH CIRCUITS	LOCATION	CONDUCTORS/CABLES
FEEDERS	CONCEALED IN CEILINGS, WALLS, PARTITIONS	CONDUCTORS IN EMT, MC CABLE
FEEDERS	CONCEALED IN CONCRETE BELOW SLAB GRADE, UNDERGROUND	CONDUCTORS IN PVC/RGS CONDUITS
FEEDERS	OUTDOOR, EXPOSED, DAMP OR WET LOCATIONS	CONDUCTORS IN RGS CONDUITS
FEEDERS	SERVICE ENTRANCE	SCHEDULE 40 PVC WITH RGS ELBOW AND STUB UPS THROUGH CONCRETE SLABS
BRANCH CIRCUITS	EXPOSED, INCLUDING CRAWL SPACES	CONDUCTORS IN EMT CONDUITS
BRANCH CIRCUITS	CONCEALED IN CEILINGS, WALLS AND PARTITIONS.	CONDUCTORS IN EMT CONDUIT, AC CABLE/ MC CABLE

GENERAL LIGHTING NOTES
REFER TO LIGHTING CONSULTANT AND ARCHITECTURAL DRAWINGS FOR FIXTURE SCHEDULES AND INFORMATION RELATED TO LIGHTING. OBTAIN LATEST CONTROL DRAWINGS AND COORDINATE REQUIRED CIRCUITING.

SECURITY AND TELECOMMUNICATION NOTE
THIS CONTRACTOR IS RESPONSIBLE FOR OBTAINING COPIES OF ANY SECURITY AND TELECOM DRAWINGS AND PROVIDING ALL ROUGH-IN, INCLUDING EMPTY CONDUITS, SLEEVES, STUB-UPS AND BACK BOXES AS WELL AS POWER CIRCUITS, DEVICES AND OTHER APPURTENANCES AS NECESSARY FOR A COMPLETE, OPERATIONAL, SECURITY AND TELECOM SYSTEM FOR THE BUILDING AS SPECIFIED THEREIN. ALL ASSOCIATED SECURITY AND TELECOM WORK IS PART OF THIS CONTRACT AND SHALL BE INCLUDED IN THE ELECTRICAL CONTRACTOR'S BID.

ELECTRICAL POWER SYMBOLS LEGEND	
⊕	JUNCTION BOX
⊕ <sup>1</sup>	SINGLE POLE, 120/277V LIGHT SWITCH: COMMERCIAL GRADE 'W' REPRESENTS CONTROL DESIGNATION
⊕ <sup>3</sup>	SINGLE POLE, 120/277V 3-WAY LIGHT SWITCH: COMMERCIAL GRADE 'W' REPRESENTS CONTROL DESIGNATION
⊕ <sup>4</sup>	SINGLE POLE, 120/277V 4-WAY LIGHT SWITCH: HUBBELL COMMERCIAL SERIES CS8020 'W' REPRESENTS CONTROL DESIGNATION
⊕ <sup>5</sup>	OCCUPANCY (AUTO ON/AUTO OFF) SENSOR SWITCH: WATTSTOPPER #DW-100 (VS INDICATES VACANCY MODE (MANUAL ON/AUTO OFF))
⊕ <sup>6</sup>	OCCUPANCY (AUTO ON/AUTO OFF) SENSOR DIMMER SWITCH: WATTSTOPPER #PW-311 (VS INDICATES VACANCY MODE (MANUAL ON/AUTO OFF))
⊕ <sup>7</sup>	SINGLE POLE, 120/277V DIMMER SWITCH: COMMERCIAL GRADE 'W' REPRESENTS CONTROL DESIGNATION.
⊕ <sup>8</sup>	LOW VOLTAGE MOMENTARY SWITCH (WATTSTOPPER DDC2 OR APPROVED EQUAL) 'W' REPRESENTS CONTROL DESIGNATION.
⊕ <sup>9</sup>	CEILING MTD, OCCUPANCY SENSOR, WATTSTOPPER #DT-300 W/ BZ-150 POWERPACK 'W' REPRESENTS CONTROL DESIGN. 'VS' REPRESENTS VACANCY MODE (MANUAL ON/AUTO OFF).
⊕ <sup>10</sup>	120V 20A DUPLEX RECEPTACLE COMMERCIAL GRADE. 'U' DENOTES WITH USBC PORTS.
⊕ <sup>11</sup>	120V 20A DUPLEX RECEPTACLE COMMERCIAL GRADE W/ YOE BROKEN TO PROVIDE ½ SWITCHED AND ½ HOT AT ALL TIMES
⊕ <sup>12</sup>	120V 20A GFI DUPLEX RECEPTACLE COMMERCIAL GRADE, MOUNTED @ 42" A.F.F. (U O.N.) 'U' DENOTES WITH USBC PORTS.
⊕ <sup>13</sup>	120V 20A DEDICATED DUPLEX RECEPTACLE COMMERCIAL GRADE.
⊕ <sup>14</sup>	120V 20A QUAD RECEPTACLE COMMERCIAL GRADE.
⊕ <sup>15</sup>	120V 20A DEDICATED QUAD RECEPTACLE COMMERCIAL GRADE.
⊕ <sup>16</sup>	240V, DEDICATED SPECIAL RECEPTACLE COMMERCIAL GRADE. REFER TO ELECTRICAL PLANS FOR SPECIFIC NEMA CONFIGURATION.
⊕ <sup>17</sup>	120V 20A CEILING MTD. DUPLEX RECEPTACLE COMMERCIAL GRADE.
⊕ <sup>18</sup>	WIREMOLD SERIES 8800CM-1 FLOOR BOX WITH 817-C FLANGE, 828R RECEPTACLE FACEPLATE, & 8295TC COMM. PROVIDE (1) 1/2" RECEPTACLE. PROVIDE (1) 3/4" EC FOR POWER RUN IN SLAB AND UP NEAREST FULL HEIGHT WALL.
⊕ <sup>19</sup>	WIREMOLD SERIES 8800M-1 FLOOR BOX WITH 817-C FLANGE, 828R RECEPTACLE FACEPLATE, & 8295TC COMM. PROVIDE (1) 1/2" RECEPTACLE. PROVIDE (1) 3/4" EC FOR POWER RUN IN SLAB AND UP NEAREST FULL HEIGHT WALL.
⊕ <sup>20</sup>	WIREMOLD SERIES 8800MG-1 FLOOR BOX WITH 827-C FLANGE, 828R RECEPTACLE FACEPLATE, & 8295TC COMM. PROVIDE (1) 1/2" RECEPTACLE. PROVIDE (1) 3/4" EC FOR POWER & (1) 1/2" EC FOR TELEDATA/RUN IN SLAB AND UP NEAREST FULL HEIGHT WALL.
⊕ <sup>21</sup>	WIREMOLD 8800M2-1 G-ANG CONCRETE FLOOR BOX, PROVIDE 8175 FLANGE AND 828LR COVER PLATE. PROVIDE EITHER (1) 240V, 20A RECEPTACLE OR (1) 240V, 20A COMMERCIAL GRADE AS NEEDED. REFER TO ELECTRICAL POWER PLANS FOR SPECIFIC NEMA CONFIGURATION. PROVIDE (1) 3/4" EC FOR POWER RUN IN SLAB AND UP NEAREST FULL HEIGHT WALL.
⊕ <sup>22</sup>	THERMAL DISCONNECT SWITCH, SIZE AS REQUIRED.
⊕ <sup>23</sup>	UNFUSED DISCONNECT SWITCH. 'A'=NEMA RATING, 'B'=SWITCH RATING, 'C'=NUMBER OF POLES.
⊕ <sup>24</sup>	FUSED DISCONNECT SWITCH. 'A'=NEMA RATING, 'B'=SWITCH RATING, 'C'=FUSE SIZE, 'D'=NUMBER OF POLES.
⊕ <sup>25</sup>	FLUSH MOUNTED ELECTRICAL PANELBOARD: IN APT. UNITS TOP MOST BREAKER IN PANEL SHALL NOT BE MORE THAN 48" HIGH.
⊕ <sup>26</sup>	SURFACE MOUNTED ELECTRICAL PANELBOARD.
⊕ <sup>27</sup>	APT. DATA JACK W/ BACKBOX & 3/4" CDT STUB-UP & (1) CAT6 4 PAIR RUN TO TELCO CLOSET
⊕ <sup>28</sup>	APTS: COMBINATION VOICE DATA JACK WITH (1) CAT6 2 PAIR & (1) CAT6 4 PAIR TO TELCO BOX
⊕ <sup>29</sup>	14" FLUSH MEDIA PANEL WITH DUPLEX RECEPTACLE

SPRINKLER/SMOKE ALARM LEGEND	
⊕ <sup>1</sup>	SMOKE DETECTOR
⊕ <sup>2</sup>	SMOKE DETECTOR (WALL MOUNTED)
⊕ <sup>3</sup>	MONITOR MODULE FOR WATER FLOW
⊕ <sup>4</sup>	MONITOR MODULE FOR TAMPER SWITCH
⊕ <sup>5</sup>	MONITOR MODULE FOR PRESSURE SWITCH
⊕ <sup>6</sup>	SPRINKLER ALARM LOCAL BELL
⊕ <sup>7</sup>	SPRINKLER/SMOKE ALARM RELAY
⊕ <sup>8</sup>	SPRINKLER/SMOKE ALARM INDIVIDUAL ADDRESSABLE MODULE
⊕ <sup>9</sup>	SPRINKLER/SMOKE ALARM INDIVIDUAL ADDRESSABLE MODULE WITH RELAY
⊕ <sup>10</sup>	SPRINKLER/SMOKE ALARM TEST/RESET KEY SWITCH W/ LED
⊕ <sup>11</sup>	SPRINKLER/SMOKE ALARM CONTROL PANEL

RESIDENTIAL ALARM LEGEND	
⊕ <sup>1</sup>	RESIDENTIAL 120V SMOKE ALARM
⊕ <sup>2</sup>	RESIDENTIAL 120V CARBON MONOXIDE ALARM
⊕ <sup>3</sup>	RESIDENTIAL 120V COMBINATION SMOKE & CARBON MONOXIDE ALARM
⊕ <sup>4</sup>	RESIDENTIAL 120V SMOKE ALARM (WALL MOUNTED)
⊕ <sup>5</sup>	RESIDENTIAL 120V CARBON MONOXIDE ALARM (WALL MOUNTED)
⊕ <sup>6</sup>	RESIDENTIAL 120V COMBINATION SMOKE & CARBON MONOXIDE ALARM (WALL MOUNTED)

ELECTRICAL UNDERGROUND SCOPE NOTES	
1.	COORDINATE ALL INCOMING SERVICES WORK WITH THE UTILITY COMPANY.
2.	ALL TELECOMM CONDUITS RUNNING BELOW SLAB OR THE BUILDING STRUCTURE SHALL BE INSPECTED PRIOR TO COVERING WITH EARTH OR CONCRETE.
3.	VERIFY LOCATION OF EQUIPMENT IN IDF CLOSETS TO COORDINATE CONDUITS RISER LOCATION/TERMINATION POINT.
4.	VERIFY THAT NO CONDUITS EXIST WHICH WOULD PROHIBIT THE INSTALLATION OF ALL CONDUITS BELOW THE SLAB.
5.	ALL WORKS SHOWN ON THE DRAWINGS SHALL BE COORDINATED WITH STRUCTURAL ENGINEER, PLUMBING ENGINEER AND ALL OTHER TRADES.
6.	WHERE CONDUITS ARE CROSSING OR RUNNING PARALLEL TO OTHER SERVICES, UNDERGROUND CONDUITS SHALL BE SPACED AS APPROVED.
7.	TELECOMIT CONDUITS, PROVIDE ALL REQUIRED SUPPORTS, PULL BOXES, HAND HOLES, ETC AND COORDINATE ALL WORK AND EXACT REQUIREMENTS WITH IT CONSULTANT.
8.	RACEWAY ENCLOSURES, BOXES SHALL BE MECHANICALLY JOINED TO FORM A CONTINUOUS ELECTRICAL CONDUCTOR.
9.	CONDUIT JOINTS AND ENDS SHALL BE CAREFULLY REAMED AFTER APPLICATION OF DIE. ENDS SHALL BE KEPT PLUGGED OR CAPPED DURING CONSTRUCTION.
10.	FURNISH MINIMUM #14 GALV. GALVANIZED STEEL DRAG WIRE OR EQUIVALENT IN ALL EMPTY CONDUIT RUNS. DRAG WIRE SHALL BE SECURELY FASTENED AT EACH END.
11.	THE USE OF ALUMINUM CONDUIT WILL NOT BE PERMITTED U.O.R.
12.	FURNISH EXPANSION FITTINGS ON ALL CONDUITS PASSING THROUGH STRUCTURAL EXPANSION JOINTS.
13.	FOR EXPOSED FEEDERS USE RIGID GALVANIZED STEEL CONDUIT WITH THREADED FITTINGS.
14.	ELECTRIC RACEWAY AND SUPPORTING SYSTEMS SHALL BE FURNISHED AND INSTALLED COMPLETE WITH ALL MATERIALS, FITTINGS, CONNECTIONS AND ACCESSORIES NECESSARY TO PROVIDE IN EACH INSTANCE A COMPLETE OPERATING INSTALLATION AS DESCRIBED HEREIN AND INDICATED ON THE DRAWINGS.
15.	UNDERGROUND RACEWAY SHALL BE SCHEDULE 80 PVC CONDUIT.
16.	ALL UNDERGROUND HANGERS TO BE STAINLESS STEEL.
17.	ALL UNDERGROUND CONDUITS SHALL BE PROPERLY SUPPORTED FROM PILE CAPS DURING CONSTRUCTION AND INSTALLATION BEFORE SLAB IS SET AND POURED.
18.	ALL WORK ON THIS DRAWING IS UNDERGROUND. FIRST FLOOR LAYOUT IS SHOWN FOR COORDINATION AND INFORMATION ONLY. WITH OWNERS APPROVAL CONTRACTOR MAY RUN AT FIRST FLOOR CEILING LEVEL. IN LIEU OF UNDERGROUND, PROVIDED THAT CONTRACTOR WILL COORDINATE WITH STRUCTURAL ENGINEER AND OTHER TRADES.
19.	COORDINATE UNDERGROUND ELECTRICAL SERVICE RUNS WITH BUILDING STRUCTURE BEAMS AND PILES.
20.	AFTER CONDUCTORS ARE INSTALLED IN UNDERGROUND CONDUITS, PROPERLY SEAL BOTH ENDS OF THE CONDUITS TO PREVENT WATER/CONDENSATION ENTERING THE BUILDING.
21.	ALL CONDUITS STUB-OUT 5'-0" FROM BUILDING FOR UTILITY. EXTERIOR ROUTING AS SHOWN IS FOR REFERENCE ONLY. ACTUAL ROUTE WILL BE DETERMINED BY PSES. COORDINATE ALL INCOMING SERVICES WITH UTILITY COMPANY.

OWNER UNIT LIGHTING FIXTURE SCHEDULE									
SYMBOL	DESCRIPTION	MANF.	MODEL	LAMPS		VOLTS	WATTS	MOUNTING	REMARKS
				NO.	TYPE				
S1	18-INCH SQUARE CYLINDER OUTDOOR WALL MOUNT	PROGRESS LIGHTING	P564-31 W/ P9004T-031 AND LED BULBS	1	LED	120	29W	SURFACE	EXTERIOR ENTRY DOOR, EXTERIOR BALCONY AND EXTERIOR GARAGE.
S2	JUNO WAFER 6" REGRESSED SWITCHABLE DOWNLIGHT 950 LUMENS	LITHONIA	WF6 REG 500WS 90CRI MW IM	1	LED	120	13W	RECESSED	-
S3	24-INCH WHITE STRIP LIGHT	PROGRESS LIGHTING	P7300-430-330	1	LED	120	20W	SURFACE	PRIVATE GARAGE AND VANITY LIGHT.
S4	TAPE LIGHT	GM LIGHTING	LTR-P-12V-1.5W-30K	1	LED	24VDC / 120V	1.5 WFT	SURFACE	UNDERCABINET LIGHT. DETERMINE LENGTHS PER ARCHITECTURAL DRAWINGS. PROVIDE W/ 120V DRIVER.
S5	PENDING CEILING LIGHT	PROGRESS LIGHTING	P50065-009-30	1	LED	120	9W	PENDANT	KITCHEN ISLAND.

LIGHTING FIXTURE SCHEDULE									
SYMBOL	DESCRIPTION	MANF.	MODEL	LAMPS		VOLTS	WATTS	MOUNTING	REMARKS
				NO.	TYPE				
F <sup>EM</sup>	EMERGENCY LIGHTING UNIT	DUAL-LITE	LZ-2-1-03L	2	LED	DUAL	10W	SURFACE	90-MINUTE BATTERY BACKUP.
F <sup>J</sup>	VAPORITE 'JELLY JAR' FIXTURE	HUBBELL	WVGL-2 / VBGL-2	1	LED	DUAL	20	SURFACE	SEE POWER DRAWING FOR LOCATIONS
F <sup>RG</sup>	RED GLOBE VAPORITE 'JELLY JAR' FIXTURE	HUBBELL	WVGL-2 / VBGL-2 VGL-RD	1	LED	DUAL	20	SURFACE	AT FDC CONNECTIONS
F <sup>21A</sup>	2FT LINEAR LED LIGHTING	MERCURY LIGHTING	LW14 2 2700 40K HTA 1% UNI	1	LED	UNV	22	SURFACE	-
F <sup>21</sup>	4FT LINEAR LED LIGHTING	MERCURY LIGHTING	LW14 4 5000 40K HTA 1% UNI	1	LED	UNV	39	SURFACE	-

- NOTES:
- CONFIRM LIGHTING WITH OWNER PRIOR TO COMMENCEMENT.
  - FIXTURES COLORS AND FINISHES SHALL BE VERIFIED WITH ARCHITECT PRIOR TO RELEASE OF MATERIAL FOR MANUFACTURE.
  - ALL RECESSED LIGHT FIXTURES MUST FOLLOW THE FIRE RESISTANCE RATING OUTLINED IN THE G531 UL SYSTEM. A MAXIMUM OF 4 FIXTURES PER 100 SQ. FT. OF CEILING AREA ARE ALLOWED. IF THESE GUIDELINES CANT BE FOLLOWED, CONTRACTOR SHALL PROVIDE FIRE RATED ENCLOSURE ABOVE ALL RECESSED LIGHTS. ALL RECESSED LIGHT FIXTURES SHALL BE FITTED WITH LED LAMPS, 75% OF ALL APARTMENT LIGHTING MUST USE HIGH EFFICACY LAMPS SUCH AS LED OR CFL.
  - THE BATTERY PACK FOR ALL EXIT AND EMERGENCY LIGHT FIXTURES SHALL BE CAPABLE OF PROVIDING EMERGENCY POWER TO THE FIXTURES FOR A MINIMUM OF 90 MINUTES
  - ALL RECESSED FIXTURES INSTALLED IN CLINGS INDICATED BY ARCHITECT AS HAVING INSULATION INSTALLED OVER CLING AND FIXTURES SHALL BE RATED FOR DIRECT CONTACT WITH INSULATION OR INSTALLED INSIDE APPROPRIATE AIR-TIGHT ASSEMBLY WITH A 5 INCH CLARENCE FROM COMBUSTIBLE MATERIALS AND WITH 3 INCHES CLEARANCE FROM INSULATION MATERIAL. VERIFY WITH ARCHITECTURAL PLANS
  - ALL RECESSED FIXTURES RECESSED IN FIRE RATED CLINGS, SHALL BE INSTALLED WITH AN APPROVED TENT ENCLOSURE BY G.C OR BE U.L RATED FOR USE IN FIRE RATED CLINGS. VERIFY WITH ARCHITECTURAL PLANS
  - VERIFY ALL FIXTURE VOLTAGES PRIOR TO ORDERING.
  - REGARDLESS OF MODEL NUMBER, THE ELECTRICAL CONTRACTOR SHALL PROVIDE DIMMING BALLASTS FOR ALL FLUORESCENT LIGHT FIXTURES CONTROLLED DIMMING SWITCHES.
  - REFER TO LIGHTING NOTES ON E003.

LIGHTING CONTROL NOTES:	
A.	CLOSETS/SMALL STORAGE RM < 50 SQFT:
5.	CONTROLLED VIA WALL OCCUPANCY SENSOR SWITCH.
6.	AUTOMATIC ON/AUTO-OFF 5-MINUTE OFF SETTING.
7.	PROVIDE LOCAL OVERRIDE
B.	UTILITY ROOMS:
1.	CONTROLLED VIA LOCAL MANUAL ON/OFF SWITCH. CIRCUITS ON EMERGENCY PANELS
C.	EXTERIOR SITE LIGHTING. (TIME CONTROLLED)
1.	CONTROLLED VIA TIME SCHEDULE DEVICE AND PHOTOCELL. SHALL OPERATE AS PHOTOCELL ON AND TIME SCHEDULE OFF. COORDINATE WITH OWNER FOR SCHEDULE.
2.	PROVIDE SYSTEM OVERRIDE SWITCH. MAXIMUM OVERRIDE 2HRS.
D.	FUNCTIONAL TESTING:
1.	ELECTRICAL CONTRACTOR SHALL TEST ALL LIGHTING CONTROL SYSTEM TO ENSURE THAT CONTROL HARDWARE AND SOFTWARE ARE CALIBRATED, ADJUSTED, PROGRAMMED AND IN PROPER WORKING CONDITION IN ACCORDANCE WITH THE CONSTRUCTION DOCUMENTS AND MANUFACTURERS INSTALLATION INSTRUCTIONS.
E.	THE FOLLOWING SHALL BE PERFORMED FOR TESTING OF OCCUPANCY SENSORS, TIME CONTROL SYSTEMS, PHOTOSENSORS OR DAYLIGHTING SYSTEMS:
1.	CONFIRM THAT THE PLACEMENT, SENSITIVITY AND TIME-OUT ADJUSTMENTS FOR OCCUPANCY SENSORS YIELD ACCEPTABLE PERFORMANCE.
2.	CONFIRM THAT THE TIME CONTROL SYSTEMS ARE PROGRAMMED TO TURN THE LIGHTS OFF.
3.	CONFIRM THAT THE PLACEMENT AND SENSITIVITY ADJUSTMENTS FOR PHOTOCENOR CONTROLS REDUCE ELECTRIC LIGHT BASED ON THE AMOUNT FOR USABLE DAYLIGHT IN THE SPACE AS SPECIFIED.
F.	COORDINATE WITH OWNER FOR EXACT SCHEDULE SHUTOFF PRIOR TO INSTALLATION.

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**MONTGOMERY CROSSING - BLDG B**  
 EAST HARTWICK DRIVE  
 MONTGOMERY TOWNSHIP  
 COUNTY OF SOMERSET, NJ

SHARBELL DEVELOPMENT CORP.  
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ARMEN KHACHATURIAN  
 PRINCIPAL IN CHARGE  
**CM, JP, SM**  
 PROJECT TEAM  
**AK**  
 CHECKED BY  
 SHEET DESCRIPTION  
**ELECTRICAL COVER SHEET**

RELEASED FOR	DATE
<input type="checkbox"/> SCHEMATIC DESIGN	1/26/2024
<input checked="" type="checkbox"/> DESIGN DEVELOPMENT	2/21/2024
<input type="checkbox"/> 50% CDS	3/18/2024
<input type="checkbox"/> PERMIT	3/25/2024



**GENERAL NOTES**

1. ALL WORK ON THE DRAWINGS SHALL BE CONSIDERED AS NEW UNLESS IF EXPLICITLY CALLED OUT AS EXISTING. UPON COMPLETION OF ALL ELECTRICAL WORK, ELECTRICAL CONTRACTOR SHALL ADJUST AND TEST ALL CIRCUITS, OUTLETS, SWITCHES, LIGHTS, MOTORS, AND ANY OTHER ELECTRICAL ITEMS INSTALLED.
2. ELECTRICAL DRAWINGS ARE DIAGRAMMATIC. SIZES AND LOCATION OF EQUIPMENT AND WIRING ARE SHOWN TO SCALE WHERE POSSIBLE. BUT MAY BE DISTORTED FOR CLARITY ON THE DRAWINGS. FINAL LOCATION OF OUTLETS AND EQUIPMENT SHALL BE AS APPROVED BY THE ARCHITECT OR HIS REPRESENTATIVE. IT IS NOT WITHIN THE SCOPE OF DRAWINGS TO SHOW ALL NECESSARY BENDS, OFFSETS, PULL BOXES AND OBSTRUCTIONS. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO INSTALL HIS WORK TO CONFORM TO THE STRUCTURE, PRESERVE HEADROOM AND KEEP OPENINGS AND PASSAGEWAYS CLEAN.
3. BIDDERS, BEFORE SUBMITTING A PROPOSAL, SHALL VISIT AND CAREFULLY EXAMINE THE AREAS AFFECTED BY THIS WORK TO BECOME FAMILIAR WITH CONDITIONS AND WITH THE DIFFICULTIES THAT WILL ATTEND THE EXECUTION OF THIS WORK. SUBMISSION OF A PROPOSAL WILL BE CONSTRUED AS EVIDENCE THAT SUCH AN EXAMINATION HAS BEEN MADE. LATER CLAIMS WILL NOT BE RECOGNIZED FOR EXTRA LABOR, EQUIPMENT OR MATERIALS REQUIRED BECAUSE OF DIFFICULTIES ENCOUNTERED WHICH COULD HAVE BEEN FORESEEN HAD SUCH EXAMINATION BEEN MADE.
4. FURNISH AND INSTALL WIRING FOR EQUIPMENT FURNISHED BY OTHERS, AS SHOWN ON ARCHITECTURAL, HVAC, PLUMBING AND/OR ELECTRICAL DRAWINGS. COORDINATE WITH OTHER TRADES FOR DETAILS OF INSTALLATION AND WIRING REQUIREMENTS. THE TERM "WIRING" AS USED HEREIN SHALL INCLUDE FURNISHING AND INSTALLING CONDUIT, WIRES, JUNCTION/OUTLET BOXES, DISCONNECTS, OVERCURRENT PROTECTION AND FINAL CONNECTIONS. COORDINATE FINAL CONDUCTOR SIZES, QUANTITIES, VOLTAGE REQUIREMENTS, AND OVERCURRENT DEVICE AND OUTLET RATINGS WITH ACTUAL EQUIPMENT TO BE FURNISHED TO THE SITE PRIOR TO FINISHING WIRING. INSTALLATION MINOR ADJUSTMENTS TO WIRING REQUIREMENTS NECESSARY TO ACCOMMODATE ACTUAL FURNISHED EQUIPMENT SHALL BE PROVIDED AT NO ADDITIONAL COST TO OWNER.
5. VERIFY LOCATIONS AND QUANTITY OF ALL ELECTRICAL EQUIPMENT WITH ARCHITECTURAL DRAWINGS OR INTERIOR DETAILS. IN CENTERING OUTLETS AND LOCATING BOXES OR OUTLETS, ALLOW FOR OVERHEAD PIPES, DUCTS, MECHANICAL EQUIPMENT, VARIATIONS IN FIREPROOFING AND PLASTERING, WINDOW AND DOOR TRIM, PANELING, HUNG CEILING, ETC., AND CORRECT ANY INACCURACY RESULTING FROM FAILURE TO DO SO WITHOUT EXPENSE TO OWNER.
6. VERIFY THAT NO CONFLICTS EXIST WHICH WOULD PROHIBIT THE INSTALLATION OF AND ALL MECHANICAL, TELEPHONE, ELECTRICAL, LIGHTING, PLUMBING AND SPRINKLER EQUIPMENT INCLUDING ALL REQUIRED PIPING, DUCTWORK AND CONDUITS DUE TO CLEARANCE REQUIREMENTS FOR MAINTENANCE AND ACCESS TO ALL TRADES EQUIPMENT AS PER N.E.C. DEDICATED SPACE REQUIREMENTS.
7. ALL WORK SHALL BE PERFORMED SUCH AS TO LEAST INTERFERE OR INCONVENIENCE NORMAL OPERATIONS OF ADJACENT SPACES.
8. ALL WORKS SHOWN ON THE DRAWINGS SHALL BE FURNISHED AND INSTALLED BY THIS CONTRACTOR, UNLESS OTHERWISE INDICATED.
9. SEE MECHANICAL CONTRACT DOCUMENTS FOR EXACT QUANTITY, LOCATION AND ELECTRICAL CHARACTERISTICS OF MECHANICAL EQUIPMENT.
10. SEE PLUMBING/FIRE PROTECTION CONTRACT DOCUMENTS FOR EXACT QUANTITY, LOCATION AND ELECTRICAL CHARACTERISTICS OF PLUMBING/FIRE PROTECTION EQUIPMENT.
11. ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR ALL FINAL CONNECTIONS.
12. ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR ALL CONNECTION TO EQUIPMENT TERMINALS. IF NOT AN INTEGRAL PART OF THE EQUIPMENT, AND SPLICES SHALL BE BY MEANS OF APPROVED COMPRESSION TYPE COPPER CONNECTORS.
13. ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR VERIFICATION OF ALL DIMENSIONS AND LOCATION OF LIGHT FIXTURES ON PLAN. COORDINATE FIXTURE LOCATIONS WITH FIRE PROTECTION AND MECHANICAL CONTRACTOR. NOTIFY ARCHITECT OF ANY CONFLICTS.
14. SEE ARCHITECTURAL FOR EXACT QUANTITY & LOCATIONS OF LIGHTING FIXTURES AND TYPE OF CEILING CONSTRUCTION. WHERE DISCREPANCIES IN LOCATION OCCUR BETWEEN ARCHITECTURAL AND ENGINEERING DRAWINGS, THE ARCHITECTURAL DRAWINGS GOVERN.
15. SEE ARCHITECTURAL ELEVATIONS AND DETAILS FOR EXACT QUANTITY & LOCATIONS AND MOUNTING HEIGHTS OF RECEPTACLES AND OUTLETS FOR ELECTRICAL DEVICES, WHERE APPLICABLE.
16. COORDINATE LOCATION OF ALL DEVICES (I.E., DETECTORS, FIXTURES, AND ALL OTHER CEILING MOUNTED DEVICES) WITH OTHER TRADES (I.E., DUCTWORK, SPRINKLERS, ETC.).
17. LIGHTING AND APPLIANCE CIRCUIT NUMBERS NOTED ON PLANS ARE INTENDED AS A GUIDE. FINAL NUMBERING SYSTEM TO BE NOTED ON AS-BUILT DRAWINGS AND ON TYPED PANELBOARD DIRECTORY CARDS.
18. WHENEVER A CIRCUIT OR HOMERUN IS NOTED (I.E., AT EACH LOCATION WHERE A JUNCTION/PULL BOX WITH A HOMERUN NOTATION IS INDICATED FOR AN ITEM OF EQUIPMENT, AT EACH LOCATION WHERE A DISCONNECT SWITCH FOR A MOTOR IS INDICATED WITH THE FEEDER SIZING PER SCHEDULE, ETC.), CONNECT THE ITEM WITH THE REQUIRED CONDUIT AND WIRE FROM SOURCE TO LOAD.
19. QUANTITY AND SIZE OF WIRE (CABLE) AND SIZE OF CONDUIT SHALL BE AS REQUIRED BY CODE IF NOT SPECIFICALLY INDICATED. NOTES SIZES ARE FOR REFERENCE AND ARE MINIMUMS. INCREASE WIRE SIZE AS REQUIRED FOR VOLTAGE DROP.
20. PROVIDE ALL NECESSARY CONNECTIONS.
21. PROVIDE ALL REQUIRED GROUNDING. ALL GROUND WIRE SHALL BE ENCLOSED IN CONDUIT.
22. PROVIDE ALL AUXILIARY STEEL MEMBERS AS REQUIRED FOR THE SUPPORT OF ELECTRICAL WORK TO BUILDING STRUCTURE. SECURE ALL SUPPORTS TO BUILDING STRUCTURE AS REQUIRED.
23. RACEWAY ROUTING SHOWN IS DIAGRAMMATIC AND INDICATES GENERAL INTENT. ACTUAL ROUTING MUST BE COORDINATED WITH FIELD CONDITIONS AND ADJUSTED AS REQUIRED.
24. UNLESS OTHERWISE INDICATED ALL RACEWAYS SHALL BE INSTALLED CONCEALED IN FINISHED AREAS.
25. RUN EXPOSED RACEWAYS PARALLEL TO OR AT RIGHT ANGLES TO WALLS.
26. MINIMUM CONDUCTOR SIZE, UNLESS OTHERWISE NOTED, SHALL BE #12 AWG FOR ALL BRANCH CIRCUIT. INCREASE CONDUIT SIZE TO SUIT AS REQUIRED TO COMPLY WITH VOLTAGE DROP REQUIREMENTS AND NOT TO EXCEED 3% OF VOLTAGE DROP FROM CIRCUIT BREAKER TO THE FURTHEST OUTLET. QUANTITY OF CONDUCTORS SHALL BE AS REQUIRED.
27. FURNISH FISH WIRE IN EACH RACEWAY RUN IN WHICH WIRING IS NOT INSTALLED.
28. WIRING TO AND FROM AN ITEM SHALL BE SIZED THE SAME UNLESS OTHERWISE REQUIRED. PIPE SLEEVES SHALL BE PROVIDED WHERE CONDUITS ARE ROUTED THROUGH FOUNDATION WALLS.
29. PIPE SLEEVES SHALL BE GROUDED IN WALLS. SEALANT SHALL BE APPLIED AROUND

- THE CONDUIT IN THE SLEEVE IN ORDER TO PREVENT INGRESS OF MOISTURE. THE WALL PENETRATION SHALL BE COMPLETELY WATERPROOFED.
30. BOLT ON TYPE LUGS SHALL BE FASTENED WITH TWO BOLTS MINIMUM.
31. INTERCONNECT DEVICES/FIXTURES WITH SAME CIRCUIT NUMBER WITH REQUIRED WIRE AND CONDUIT AND ENERGIE FROM CIRCUIT IN ASSOCIATED PANEL.
32. PROVIDE ALL REQUIRED PULL, JUNCTION, OUTLET BOXES AND TROUGHS.
33. COVERS OF JUNCTION AND PULL BOXES SHALL BE ACCESSIBLE.
34. PROVIDE BACKBOXES FOR ALL DEVICES, EQUIPMENT, ETC.
35. PROVIDE BLANK COVER PLATES OVER ALL UNUSED OPENINGS IN PANELBOARDS, PULL AND JUNCTION BOXES AND TROUGHS.
36. INSTALL AND CONNECT EVERY STARTER AND VARIABLE FREQUENCY DRIVE FURNISHED BY OTHER TRADES/VENDORS ON THIS PROJECT.
37. RATING OF DISCONNECT SWITCHES TO MATCH OVERCURRENT PROTECTIVE DEVICE U.O.N.
38. EXIT LIGHTS, EMERGENCY BATTERY PACKS & NIGHT LIGHTS SHALL NOT BE SWITCHED. CONNECT TO UNSWITCHED LEG OF ASSOCIATED CIRCUIT.
39. CIRCUITS FOR COMPUTER RECEPTACLES AND LIGHTING SHALL BE PROVIDED WITH A SEPARATE GROUND WIRE.
40. EACH BRANCH CIRCUIT SERVING SHALL BE PROVIDED WITH GROUND WIRE AS REQUIRED.
41. PROVIDE ALL NECESSARY TEMPORARY AND INTERIM ELECTRICAL POWER WORK (PANELS, LIGHTING FIXTURES, DISCONNECT SWITCHES, RECEPTACLES, WIRE, CONDUITS, BREAKERS, CONNECTIONS, FUSES, GENERATORS, FUEL, ETC.) REQUIRED TO INSTALL THE PERMANENT WORK.
42. WHENEVER EXCAVATION OR CUTTING OF SLABS ARE PERFORMED, THE CONTRACTOR SHALL HIRE AN EXPERT TO PERFORM SUBSURFACE SCANS TO IDENTIFY AND FLAG UTILITIES, SO THEY ARE NOT DAMAGED. NOTIFY THE APPROPRIATE AGENCIES AND PERFORM A MARK-OUT PRIOR TO ANY EXCAVATION.
43. LOCATE JUNCTION AND PULL BOXES TO BE CONCEALED IN FINISH SPACES, WHERE NECESSARY. REROUTE RACEWAYS OR MAKE OTHER ARRANGEMENTS FOR CONCEALMENT. PROVIDE PULL BOXES WHERE NECESSARY FOR WIRE PULLING. COORDINATE WITH OTHER TRADES. COVERS OF JUNCTION AND PULL BOXES SHALL BE ACCESSIBLE.
44. UPON COMPLETION OF ALL ELECTRICAL WORK, ELECTRICAL CONTRACTOR SHALL BALANCE ALL PANELBOARDS AFFECTED TO WITHIN 10% DEVIATION BETWEEN PHASES.
45. AFTER COMPLETION OF WORK, CLEAN UP ALL RESULTANT DEBRIS AND REMOVE FROM THE SITE.
46. ALL PENETRATIONS THROUGH FIRE RATED WALLS OR FLOORS SHALL BE SEALED TO PREVENT THE SPREAD OF SMOKE AND FIRE. THE FIRE RATING OF THE PENETRATION SEALING METHOD SHALL MATCH THE RATING OF THE WALL OR FLOOR. PROVIDE ONLY UL LISTED MATERIAL AND COMPONENTS.
47. PROVIDE GFI TYPE PROTECTION FOR ANY DEVICE WITHIN 6' OF SINK, WATER OR LIQUIDS AND LOCATED OUTSIDE OF THE BUILDING.
48. THE CONTRACTOR SHALL TAG EACH AND EVERY PANELBOARD, DISCONNECT SWITCH MOTOR STARTER OR CONTROLLER AND CONTROL DEVICE INSTALLED OR WIRED UNDER THIS CONTRACT. TAGGING SHALL BE BY MEANS OF ENGRAVED PHENOLIC NAMEPLATES (WHITE LETTERING, BLACK BACKGROUND), EMERGENCY DISTRIBUTION SYSTEM COMPONENTS SHALL UTILIZE WHITE LETTERING ON RED BACKGROUNDS.
49. THE ELECTRICAL CONTRACTOR SHALL COMPLY WITH THE FOLLOWING CODES AND STANDARDS:  
 A. UNDERWRITERS LABORATORIES, INC. (UL)  
 B. OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA)  
 C. AMERICAN DISABILITIES ACT (ADA), 2010  
 D. ALL LOCAL JURISDICTION DIRECTIVES AND REQUIREMENTS.  
 E. APPLICABLE NFPA SECTIONS.
50. WHERE DISCREPANCIES IN EQUIPMENT, DEVICE, AND FIXTURE LOCATIONS OCCUR BETWEEN ARCHITECTURAL AND ENGINEERING DRAWINGS, ARCHITECTURAL DRAWINGS GOVERN.
51. ALL ABOVE COUNTER RECEPTACLE OUTLETS IN THE KITCHEN(S) SHALL BE GFI TYPE.
52. "BACK-TO-BACK" ELECTRICAL OUTLETS IN ADJACENT ROOMS SHALL BE INSTALLED AS FOLLOWS:  
 A. BOXES LOCATED ON OPPOSITE SIDES OF WALLS OR PARTITIONS SHALL BE SEPARATED BY A MINIMUM HORIZONTAL DISTANCE OF 24". THIS MINIMUM SEPARATION DISTANCE BETWEEN BOXES MAY BE REDUCED WHEN WALL OPENING PROTECTIVE MATERIALS (CLV) ARE INSTALLED ACCORDING TO THE REQUIREMENTS OF THE CLASSIFICATION.
54. JUNCTION BOXES WITHIN FIRE RATED FLOORS, WALLS, AND CEILINGS SHALL BE PROPERLY FIRE RATED SUCH THAT REQUIRED FIRE RESISTANCE WILL NOT BE REDUCED USING FIRE BARRIER MOLDABLE PUTTY PADS AS MANUFACTURED BY 3M OR OTHER FIRE PROTECTIVE MEANS APPROVED BY ARCHITECT AND AUTHORITIES HAVING JURISDICTION. ALL PENETRATIONS SHALL COMPLY WITH NJ BC 714.4.2.
55. UNLESS INDICATED OTHERWISE, ALL CURRENT CARRYING CONDUCTORS SHALL BE COPPER.
56. PROVIDE CABLE SUPPORT BOXES IN ALL VERTICAL CONDUIT RUNS AS PER CODE REQUIRED SPACING.
57. GROUNDING  
 A. GROUND SHALL CONSIST OF CONNECTING THE NEUTRAL CONDUCTOR OF THE EQUIPMENT TO A GROUND SOURCE.
57. GROUND CONTINUITY SHALL BE MAINTAINED THROUGHOUT.
58. DISTRIBUTION EQUIPMENT SHALL BE BRACED TO WITHSTAND THE AVAILABLE SHORT CIRCUIT CURRENT.
59. NOTIFY ENGINEER OF CONFLICTS BETWEEN DRAWINGS AND SPECIFICATIONS BEFORE SUBMITTAL OF BID PROPOSAL. THE ENGINEER'S DECISION WILL GOVERN EITHER BEFORE OR AFTER BIDDING.
60. FURNISH ALL PERMITS AND FILINGS AS REQUIRED AS A PART OF THIS CONTRACT.
61. COLOR OF ALL WIRING DEVICES (SWITCHES, RECEPTACLES, PLATES, ETC.) SHALL BE APPROVED BY THE ARCHITECT PRIOR TO PURCHASE.
62. ELECTRICAL CONTRACTOR SHALL COORDINATE FINAL LOCATION OF REMOTE CONTROL OVERRIDE RELAY SWITCHES IN FIELD WITH ARCHITECT OR REFER TO ARCHITECT'S DRAWINGS.
63. FURNISH ALL PERMITS AND FILINGS AS REQUIRED AS PART OF THIS CONTRACT. PAY ALL REQUIRED APPLICATION AND FILING FEES.

**FIRE ALARM NOTES:**

1. ALL ROUTING OF CABLES FOR FIRE ALARM SYSTEM SHALL BE DIRECTED AND APPROVED BY ARCHITECT.
2. THE FIRE ALARM RISER DIAGRAM SHOWN IS AN INDICATION OF THE WORK REQUIRED AND SHALL BE USED FOR ESTIMATING PURPOSES ONLY AND IS NOT A POINT-TO-POINT WIRING DIAGRAM.
3. THE OPERATION OF THE FIRE ALARM INSTALLATION DOES NOT CONSTITUTE AN ACCEPTANCE OF THE WORK BY THE OWNER. FINAL ACCEPTANCE IS TO BE MADE AFTER THE CONTRACTOR HAS DEMONSTRATED THAT THE WORK FULFILLS THE REQUIREMENTS OF THE PLANS AND SPECIFICATIONS AND HAS FURNISHED ALL REQUIRED CERTIFICATES OF APPROVAL FROM THE STATE AUTHORITIES, MUNICIPAL AUTHORITIES FIRE DEPARTMENT AND UNDERWRITERS.
4. INCLUDE ALL FEES FOR FILING APPROVALS OF THE FIRE ALARM INSTALLATION.
5. SYSTEM SHALL INCLUDE ELEVATOR RECALL AND FAN SHUTDOWN FUNCTIONS PER THE SEQUENCE OF OPERATION. UTILIZE INTELLIGENT DEVICES AND MODELS AS SHOWN ON THE DRAWINGS.
6. THE FOLLOWING SPECIAL INSPECTIONS SHALL BE PERFORMED BY THE ELECTRICAL CONTRACTOR:  
 A. FIRE ALARM TEST.
7. THE FIRE ALARM CONTRACTOR SHALL PROVIDE ALL REQUIRED RELAYS AND MODULES. CONTRACTOR TO PROVIDE WEIGHT TO THE STARTER OR VFD TO ENSURE SHUTDOWN NO MATTER WHAT POSITION DEVICE IS IN (I.E. HAND, AUTO, ETC.). WHEN BMS IS PROVIDED, BMS SYSTEM MUST ALSO RECEIVE A SIGNAL FROM THIS RELAY SO THAT A "SECONDARY SHUTDOWN" CAN BE PERFORMED TO PREVENT UNNECESSARY ALARMS.
8. DEVICES AND OUTLETS WHERE SUBJECTED TO PHYSICAL DAMAGE (AS DEFINED BY ARCHITECT) SHALL BE PROPERLY PROTECTED BY MEANS OF GUARDMESH, PLEXIGLAS COVERS, ETC.
9. ALL WIRING, POWER, CONDUCTORS, CONDUITS ETC. SHALL MEET APPLICABLE EDITION OF NATIONAL ELECTRICAL CODE ARTICLES 725 AND 760.
10. ALL WORK SHALL BE IN ACCORDANCE WITH THE APPLICABLE BUILDING CODE AND NFPA 72.
11. ALL FIRE ALARM CIRCUITS SHALL BE SIZED TO A MAXIMUM OF 80% OF CAPACITY.
12. ALL FIRE ALARM CIRCUITS SHALL BE WIRED NFPA CLASS B WITH THE EXCEPTION OF THE NETWORK CIRCUIT AND MAIN RISER SHALL BE NFPA CLASS A.
13. CONDUITS MAY NOT ENTER THE TOP OF ANY FIRE ALARM EQUIPMENT CABINET.
14. ALL FIRE ALARM EQUIPMENT SHALL BE INSTALLED WITH AESTHETICS IN MIND. UNLESS REQUIRED OTHERWISE, CABINETS SHALL BE SEMI FLUSH MOUNTED AND CABLE TRAYS SHALL BE HIDDEN.
15. ALL FIRE ALARM WIRE SHALL BE CLEARLY LABELED IN JUNCTION BOXES AND CABINETS. ALL TERMINALS SHALL BE NUMBERED AND LABELED. ALL CONNECTIONS SHALL BE EITHER SOLDERED, APPROVED TERMINAL STRIPS OR SCOTCH LOCKS.
16. ALL LOW VOLTAGE FIRE ALARM CONDUCTORS SHALL BE PROTECTED BY EITHER BUILDING CONSTRUCTION OR CONDUIT TO 8 FEET ABOVE THE FINISHED FLOOR. LOADING DOCKS, GARAGES, SUPPRESSION AND EXTINGUISHING SYSTEM WIRING, MECHANICAL AND ELECTRICAL ROOMS AND OTHER LOCATIONS SUBJECT TO MECHANICAL DAMAGE SHALL BE IN FULL RIGID CONDUIT.

17. FIRE ALARM CABLES SHALL NOT BE MIXED WITH NON FIRE ALARM CABLING. LOW VOLTAGE FIRE ALARM CABLING SHALL NOT BE MIXED OR WIRED NEAR ANY AC CIRCUIT.
18. ALL NOTIFICATION CIRCUITS SHALL BE A MINIMUM OF 14 AWG AND ALL OTHER LOW VOLTAGE FIRE ALARM CIRCUITS SHALL BE 18 AWG MINIMUM.
19. POLARITY SHALL BE OBSERVED ON ALL CIRCUITS. T-TAPPING SHALL NOT BE ALLOWED ON ANY NOTIFICATION CIRCUITS (HORN, STROBE OR SPEAKER). T-TAPPING SHALL NOT BE PERMITTED ON ADDRESSABLE CIRCUITS WITHOUT THE EXPRESS PERMISSION OF THE ENGINEER.
20. ALL WIRING SHALL BE INSPECTED TO ASSURE THERE ARE NO OPENS, SHORTS OR EARTH GROUNDS.
21. SHIELDED CONDUCTORS OR RUNNING IN SEPARATE RACEWAY SHALL BE AS INSTRUCTED BY THE FIRE ALARM MANUFACTURER'S DOCUMENTATION. ALL NON-POWER LIMITED WIRING, INCLUDING CIRCUITS FOR CENTRALIZED AMPLIFIERS SHALL RUN IN A SEPARATE RACEWAY (NOTE: CENTRALIZED AMPLIFIERS "AMP RACKS" ARE NOT PERMITTED).
22. ALL FIRE ALARM CONTROL PANELS SHALL BE GROUNDED USING A MINIMUM #10AWG GREEN THHN OR EQUIVALENT, CONNECTED TO THE BUILDING ELECTRIC SERVICE GROUND BUS. THE GROUND SHALL BE CONTINUED TO ALL OTHER FIRE ALARM EQUIPMENT CABINETS.
22. A CENTRAL STATION DIALER AND TWO DEDICATED PHONE LINES SHALL BE PROVIDED. THE DIALER SHALL BE CAPABLE OF SENDING DEDICATED SIGNALS FOR THE FOLLOWING EVENTS: ALARM, MANUAL STATION, WATERFLOW, SUPERVISORY TROUBLE, FIRE PUMP RUNNING AND PUMP TROUBLE. IF A SEPARATE CENTRAL STATION DIALER IS PROVIDED (NOT PANEL MOUNTED), INCLUDE DEDICATED POWER CIRCUIT.  
 A. ALTERNATE TO DEDICATED PHONE LINES- PROVIDE WIRELESS CONNECTION TO CENTRAL STATION AS PERMITTED BY LOCAL AUTHORITIES HAVING JURISDICTION.
23. ALL AREA OR DUCT SMOKE DETECTORS SHALL BE PHOTO-ELECTRIC TYPE.
24. SMOKE DETECTORS MUST BE MOUNTED AT LEAST 3 FT AWAY FROM ANY AIR REGISTER.
25. ALL CEILING MOUNT DEVICES MUST BE SECURELY FASTENED TO BUILDING CONSTRUCTION.
26. DEVICE LOCATIONS MUST BE READILY ACCESSIBLE TO ALLOW FOR MAINTENANCE AND REPAIR.
27. NOT USED.
28. MANUAL STATIONS SHALL BE MOUNTED 48 INCHES ABOVE THE FINISHED FLOOR TO THE HANDLE OF THE STATION AND SHALL BE PAINTED FIRE DEPARTMENT RED. ALL MANUAL STATION SHALL BE INSTALLED SO THAT THEY ARE KEPT UN-OBJECTED AT ALL TIMES.
29. ALL STROBE LIGHTS SHALL BE ADA AND UL-1971 APPROVED LISTED. THE MINIMUM CANDELA IS 75 UNLESS OTHERWISE NOTED. A 1575 STROBE MAY BE UTILIZED WHERE 15 CANDELA STROBES MEET NFPA REQUIREMENTS (CORRIDORS AND 20 X 20 SPACES).
30. NOTIFICATION DEVICES THAT INCLUDE A STROBE SHALL BE MOUNTED 80 INCHES OFF THE FINISHED FLOOR TO THE BOTTOM OF THE STROBE, NOT THE ELECTRICAL BOX.
31. ALL AUXILIARY RELAYS FOR FAN SHUTDOWN, DOOR RELEASE, DAMPER CONTROL, ELEVATOR CONTROL, ETC. SHALL BE WIRED A MAXIMUM OF 3 FT FROM THE CONTROLLED DEVICE. THE AUXILIARY RELAY SHALL FUNCTION WITHIN THE REQUIRED VOLTAGE AND CURRENT OF THE CONTROLLED DEVICE. SLAVE OR INTERPOSING RELAYS SHALL BE INCLUDED AND POWERED BY THE FIRE ALARM CONTROL PANEL IN A FAIL-SAFE (FIRE FUNCTION) POSITION. POWER TO THE INTERPOSING RELAY SHALL BE MONITORED BY THE FIRE ALARM SYSTEM.
32. THE FIRE DEPARTMENT SHALL APPROVE THE PLANS PRIOR TO THE BEGINNING OF ANY WORK.
33. LOCATIONS OF ALL FIRE ALARM EQUIPMENT SHALL BE SUBJECT TO THE FIRE DEPARTMENT APPROVAL. NO CHANGE OR MODIFICATION TO THE SYSTEM OR PLANS SHALL BE PERMITTED WITHOUT WRITTEN APPROVAL FROM THE ENGINEER OF RECORD. IF ANY CHANGES ARE MADE TO THE DRAWINGS PRIOR TO OR DURING INSTALLATION, AS BUILT PLANS SHALL BE PREPARED BY THE ENGINEER AND FILED WITH THE APPROPRIATE AGENCIES FOR FINAL ACCEPTANCE.
34. THE CONTRACTOR SHALL RETAIN PROFESSIONAL ENGINEER LICENSED IN THE STATE (PE) TO SIGN AND SEAL ALL NECESSARY DOCUMENTS REQUIRED FOR INSPECTION AND TO OBTAIN A FINAL LETTER OF APPROVAL. THIS SHALL INCLUDE A SIGNED AND SEALED AS-BUILT DRAWING, STATEMENT OF OPERATION, AN NFPA PROGRAMMING MATRIX OR SEQUENCE OF OPERATION, THESE DOCUMENTS SHALL BE SUBMITTED AS NECESSARY TO THE FIRE DEPARTMENT AND DEPARTMENT OF BUILDINGS TO OBTAIN A FIRE ALARM INSPECTION. IF A LETTER OF DEFECT IS ISSUED, THE CONTRACTOR SHALL CORRECT ALL ITEMS AND SUBMIT A SIGNED AND SEALED CORRECTIONS TO THE FIRE DEPARTMENT TO OBTAIN A FINAL LETTER OF APPROVAL AT NO ADDITIONAL COST.
35. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING ANY AND ALL ABANDONED FIRE ALARM CABINETS, DEVICES, AND WIRE. PAINT, PATCH AND CLEANUP SHALL ALSO BE INCLUDED.

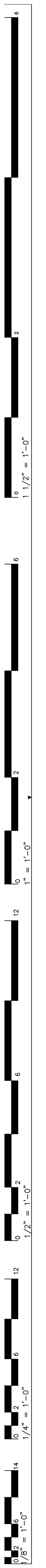
66. AUDIBLE NOTIFICATION DESIGN GOALS FOR THIS PROJECT ARE AS FOLLOWS:

AUDIBLE NOTIFICATIONS DEVICES - DESIGN CRITERIA	AMBIENT LEVEL	DESIGN GOAL
CORRIDORS	55dBA	>70dBA
MECHANICAL ROOMS	55dBA	>70dBA
PLACES OF ASSEMBLY	55dBA	>100dBA
OTHER SPACES	AS PER NFPA 72	AS PER NFPA 72

37. NOT USED.
38. NOT USED.
39. NOT USED.
40. ALL FIRE ALARM WIRING SHALL BE INSTALLED IN CONDUIT UNLESS CONCEALED IN CEILING AND WALL VOIDS. ALL WIRING SHALL BE UL APPROVED FOR ITS USE AND INSTALLATION.
41. ALL FIRE ALARM SYSTEM JUNCTION BOXES, CABINETS, ENCLOSURES, ETC. MUST BE IDENTIFIED AS PER NFPA 72 AND N.E.C. REQUIREMENTS.
42. COMMUNICATION AND ALARM SYSTEMS SHALL BE INSTALLED IN FULL COMPLIANCE WITH NFPA 72, INCLUDING SURVIVABILITY AND FIRE RATING REQUIREMENTS.
43. SHOP DRAWINGS FOR FIRE ALARM SYSTEMS SHALL BE SUBMITTED FOR REVIEW AND APPROVAL PRIOR TO SYSTEM INSTALLATION, AND SHALL INCLUDE, BUT NOT BE LIMITED TO, ALL OF THE FOLLOWING:  
 A. A FLOOR PLAN THAT INDICATES THE USE OF ALL ROOMS.  
 B. LOCATIONS OF ALARM-INITIATING DEVICES.  
 C. LOCATIONS OF ALARM NOTIFICATION APPLIANCES, INCLUDING CANDELA RATINGS FOR VISIBLE ALARM NOTIFICATION APPLIANCES.  
 D. LOCATION OF FIRE ALARM CONTROL UNIT, TRANSDUCERS AND NOTIFICATION POWER SUPPLIES.  
 E. AMPLIFIATORS.  
 F. POWER CONNECTION.  
 G. BATTERY CALCULATIONS.  
 H. CONDUCTOR TYPE AND SIZES.  
 I. VOLTAGE DROP CALCULATIONS.  
 J. MANUFACTURER'S DATA SHEETS INDICATING MODEL NUMBERS AND LISTING INFORMATION FOR EQUIPMENT, DEVICES AND MATERIALS.  
 K. DETAILS OF CEILING HEIGHT AND CONSTRUCTION.  
 L. THE INTERFACE OF FIRE SAFETY CONTROL FUNCTIONS.  
 M. CLASSIFICATION OF THE SUPERVISING STATION.
44. ALL FIRE ALARM DEVICES IN GARAGE AREA SHALL BE WEATHERPROOF TYPE.

RELEASED FOR	DATE
SCHEMATIC DESIGN	1/26/2024
DESIGN DEVELOPMENT	2/21/2024
50% CDS	3/18/2024
PERMIT	3/25/2024





POWER DISTRIBUTION NOTES

- 1. UNLESS OTHERWISE NOTED, ALL ELECTRICAL OUTLETS AND EQUIPMENT LOCATED WITHIN AREA DESIGNATED ON ELECTRICAL PLANS SHALL BE CIRCUITED TO ELECTRICAL PANELS LOCATED IN THE SAME AREA. THE ELECTRICAL CONNECTIONS SHALL BE AS FOLLOWS:
A. 'AP' PANELS:
- LIGHTING (120V) AND RECEPTACLE OUTLETS.
- MISCELLANEOUS APPLIANCE LOADS SMALLER THAN 10VA.
- MECHANICAL SYSTEM EQUIPMENT RATED FOR 120V OR 240V SYSTEM OPERATION.
2. EQUIPMENT INSTALLATION
B. MOTOR CONTROL EQUIPMENT (MOTOR STARTERS, VFD'S, ETC.) FOR ALL HVAC AND PLUMBING SYSTEMS SHALL BE FURNISHED BY RESPECTIVE TRADE AND INSTALLED AS PART OF ELECTRICAL WORK AS REQUIRED. INCLUDE THIS WORK FOR EACH HVAC AND PLUMBING SYSTEM MOTOR THAT IS NOT A PART OF A PACKAGE SYSTEM. PROVIDE DISCONNECT SWITCH SIZED AS REQUIRED FOR EACH MECHANICAL EQUIPMENT MOTOR UNLESS COMBINATION MOTOR STARTER OR VFD IS PROVIDED AT MOTOR LOCATION.
C. REFER TO HVAC AND PLUMBING DRAWINGS FOR MORE INFORMATION REGARDING MOTOR CONTROL EQUIPMENT AND ALL MECHANICAL EQUIPMENT EXACT LOCATIONS, TYPES (MOTOR STARTERS OR VFD'S), SIZES AND QUANTITIES.
D. IT IS RESPONSIBILITY OF THIS CONTRACTOR TO COORDINATE WITH MECHANICAL AND PLUMBING TRADES TO IDENTIFY EQUIPMENT THAT THE ELECTRICAL CONTRACTOR WILL BE REQUIRED TO INSTALL AND OR FURNISH.
3. CIRCUITRY GROUND RULES:
A. PROVIDE CIRCUITRY FOR ALL 'NON-STANDARD' WIRING DEVICES (OTHER THAN 20A, 120V OUTLETS) ON THE BASIS OF ONE DEVICE PER CIRCUIT (OVERCURRENT DEVICE IN PANEL SIZED TO MATCH AMPERE RATING OF 'NON-STANDARD' WIRING DEVICE WIRED TO THE PANEL AS REQUIRED.
B. PROVIDE ONE (1) DEDICATED CIRCUIT FOR EACH HVAC AND PLUMBING ITEM (SUPPLY AND EXHAUST FANS, PUMPS RATED FOR 120V OR 240V SYSTEM OPERATION, ELECTRICAL HEATERS, ETC.), SECURITY, IT AND AV EQUIPMENT AND DEVICES. REFER TO HVAC, PLUMBING, SECURITY, IT AND AV DRAWINGS FOR FINAL LOCATIONS, SIZES AND QUANTITIES OF THESE ITEMS. THE CIRCUITS PROVISIONS SHALL BE AS FOLLOWS:
1) ELECTRICAL LOADS RATED FOR 120V, 1 PH SYSTEM OPERATION:
- 2#12 & 1#12G CONDUCTORS IN 3/4" CONDUIT.
- 1P-20A OVERCURRENT PROTECTION DEVICE IN THE NEAREST 'AP' PANEL.
2) ELECTRICAL LOADS RATED FOR 240V, 1 PH SYSTEM OPERATION:
- 2#12 & 1#12G CONDUCTORS IN 3/4" CONDUIT.
- 2P-20A OVERCURRENT PROTECTION DEVICE IN THE NEAREST 'AP' PANEL.
3) ALL OTHER LOADS:
- AS SHOWN ON PANEL SCHEDULES AND/OR AS REQUIRED.
C. UNLESS OTHERWISE NOTED, EACH 20A CIRCUIT SHALL BE PROVIDED WITH #12 AWG CONDUCTORS (QUANTITIES AS REQUIRED FOR THE CONNECTED LOAD) IN 3/4" CONDUIT (MINIMUM). WIRE SIZE SHALL BE INCREASED AS REQUIRED TO ACCOMMODATE VOLTAGE DROP. VOLTAGE DROP SHALL BE LIMITED TO 2% FOR EACH FEEDER AND 3% FOR BRANCH CIRCUITRY.
D. PROVIDE ONE (1) 20A, 120V BRANCH CIRCUIT FOR MAXIMUM OF FOUR (4) 20A, 120V COMPUTER RECEPTACLE OUTLETS.
E. PROVIDE CIRCUITRY FOR CONVENIENCE RECEPTACLES ON THE BASIS OF EIGHT (8) DUPLEX RECEPTACLES PER 20 AMP CIRCUIT WIRED TO THE NEAREST NORMAL LIGHTING AND APPLIANCE PANEL.
F. PROVIDE DEDICATED 120V, 20A CIRCUIT TO EACH SOLENOID VALVE.
G. PROVIDE WIRING FROM EACH SOLENOID VALVE TO BMS AND FIRE ALARM PANEL.
4. PROVIDE CABLE SUPPORT BOXES AND PULL BOXES AS REQUIRED. SIZE AS PER ASSOCIATED SECTIONS OF APPLICABLE ELECTRICAL CODE.
5. PROVIDE ALL CONVENIENCE AND SPECIAL DEDICATED OUTLETS, HARDWIRED CONNECTIONS.
6. WITH ALL ASSOCIATED CIRCUITRY AND OVERCURRENT DEVICES AS REQUIRED FOR EACH DEVICE OR EQUIPMENT THAT REQUIRES ELECTRICAL POWER, REFER TO ARCHITECTURAL, MECHANICAL, LOW VOLTAGE SYSTEM SYSTEM INCLUDING SECURITY, IT AND AV, ETC. CONTRACT DOCUMENTS FOR EXACT LOCATIONS, QUANTITIES AND POWER REQUIREMENTS FOR SUCH ITEMS.
7. REFER TO ARCHITECTURAL DRAWINGS FOR EXACT LOCATIONS, QUANTITIES, AND MOUNTING HEIGHTS OF ALL ELECTRICAL DEVICES.
8. LOCATING AND ROUTING CIRCUITRY:
A. ALL CIRCUITRY SHALL BE RUN CONCEALED EXCEPT AS FOLLOWS:
1) HORIZONTALLY AT THE CEILING OF PERMANENTLY UNFINISHED SPACES WHICH ARE NOT ASSIGNED TO MECHANICAL OR ELECTRICAL EQUIPMENT.
2) HORIZONTALLY AND VERTICALLY IN MECHANICAL EQUIPMENT SPACES.
3) HORIZONTALLY AND VERTICALLY IN ELECTRICAL EQUIPMENT ROOMS.
4) WHERE SPECIFICALLY ALLOWED BY THE ARCHITECT AND OWNER.
9. FINAL LOCATIONS OF NEW ELECTRICAL PANELS NOT BEING INSTALLED IN ELECTRICAL SPACES SHALL BE COORDINATED WITH THE ARCHITECT.
10. BRANCH CIRCUIT SIZES AND MAX LENGTHS SHALL COMPLY WITH VOLTAGE DROP REQUIREMENTS AND SATISFY LOADS.
11. ALL FREE STANDING ELECTRICAL EQUIPMENT SHALL BE PROVIDED WITH 3" HIGH CONCRETE PAD.
12. MISCELLANEOUS LOW VOLTAGE, SECURITY AND COMMUNICATIONS SYSTEMS:
A. THE CONTRACTOR IS RESPONSIBLE FOR FURNISHING AND INSTALLING EMPTY CONDUITS, RACEWAYS, BOXES, ETC. FOR VARIOUS LOW VOLTAGE SYSTEMS SUCH AS:
1) TELECOMMUNICATION
2) CABLE TV
3) SECURITY
4) AUDIO VISUAL
5) OTHER SYSTEMS AS REQUIRED.
B. SPECIFIC REQUIREMENTS OF EACH SYSTEM SHALL BE AS OUTLINED IN RELEVANT LOW VOLTAGE SYSTEM CONTRACT DOCUMENTS.
C. ALL THE ABOVE SYSTEMS' CENTRAL EQUIPMENT, DEVICES AND VARIOUS COMPONENTS, WIRING AND CONNECTIONS ARE FURNISHED AND INSTALLED SEPARATE FROM ELECTRICAL WORK.
D. THE CONTRACTOR SHALL PROVIDE ALL POWER CIRCUITRY AS REQUIRED FOR LOW VOLTAGE SYSTEMS' CENTRAL EQUIPMENT AND DEVICES. FINAL LOCATIONS AND POWER REQUIREMENTS FOR THESE ITEMS SHALL BE COORDINATED WITH RESPECTIVE CONSULTANTS.
E. THIS CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING AND INSTALLING ALL 120 VOLT POWER WIRING.
F. THIS CONTRACTOR SHALL CONTACT SYSTEM PROVIDER/VENDOR TO VERIFY HIS FULL SCOPE OF WORK.
G. PROVIDE JUNCTION BOX WITH BUSHED HOLE COVER PLATE FOR EACH CCTV CAMERA.
H. PROVIDE ALL REQUIRED OUTLETS AND OUTLET TYPES IN THE TELECOM ROOMS AS PER TELECOMMUNICATION DRAWINGS.
14. IN ELEVATOR MACHINE ROOM AS REQUIRED PROVIDE THE FOLLOWING:
A. FOR EACH ELEVATOR PROVIDE TOP OF SHAFT COMMUNICATION AND ALARM FACILITIES AS FOLLOWS:
1) TELEPHONE OUTLET BOX COMPLETE WITH 3/4" EMPTY CONDUIT TO NEAREST TELEPHONE CLOSET FACILITY.
2) CLOSED CIRCUIT TV (CCTV) OUTLET BOX AT TOP OF SHAFT. COMPLETE WITH 3/4" CONDUIT EXTENSION TO CCTV JUNCTION BOX LOCATED IN ELEVATOR MACHINE ROOM AS DESCRIBED HEREINAFTER.
B. FOR THE GROUP CONTROLLER IN EACH ELECTRIC HOIST ELEVATOR MACHINE ROOM, PROVIDE A 30A, 3 PHASE 4 WIRE SUPPLY FROM POWER PANEL DEDICATED TO THE ELEVATOR EQUIPMENT.
C. FOR EACH ELEVATOR MACHINE ROOM PROVIDE A SINGLE 20A, 120V EMERGENCY CIRCUIT FROM POWER PANEL DEDICATED TO THE ELEVATOR EQUIPMENT.
D. PROVIDE A FUSED DISCONNECT SWITCH, ADJACENT TO THE CONTROLLER FOR EACH CONNECTION TO THE CONTROLLER.
E. FROM EACH ELEVATOR SHAFT PROVIDE 2 1/2" EMPTY CONDUITS (INTENDED FOR ELEVATOR COMMUNICATION, SIGNALING AND ALARM) TO THE ELEVATOR DISPATCHERS PANEL.
F. FOR EACH ELEVATOR MACHINE ROOM PROVIDE A 2" EMPTY CONDUIT (INTENDED FOR CLOSED CIRCUIT TV CABLES) RUN TO THE CONCIERGE'S DESK SECURITY OFFICE OR ELSEWHERE AS DIRECTED BY THE ARCHITECT, CONDUIT SHALL TERMINATE IN CCTV JUNCTION BOX AT BOTH ENDS OF RUN.
G. ON THE LINE SIDE OF EACH MAIN LINE DISCONNECT SWITCH, A MEANS TO ABSORB POWER THAT MAY BE REGENERATED BY THE ELEVATOR HOIST MOTOR DURING EMERGENCY POWER OPERATION.
H. FOR ALL ELEVATORS, PROVIDE A DEDICATED 110 VOLT, 30 AMP SINGLE PHASE POWER SUPPLY WITH DISCONNECTING MEANS LOCATED INSIDE EACH MACHINE ROOM OR CONTROL ROOM TO OPERATE THE GROUP SUPERVISORY SYSTEM. THIS POWER SUPPLY MUST BE ARRANGED SO AS NOT TO BE INTERRUPTED IN CASE OF A TRANSFER TO EMERGENCY POWER. DISCONNECTING MEANS SHALL BE FULLY ENCLOSED, EXTERNALLY OPERATED, FUSED CIRCUIT SWITCH OR CIRCUIT BREAKER CAPABLE OF BEING LOCKED IN THE 'OPEN' POSITION.
I. A SEPARATE 120 VOLT, 20 AMP POWER SUPPLY (ON EMERGENCY POWER CIRCUIT IF AVAILABLE) AND DISCONNECTING MEANS FOR EACH ELEVATOR LOCATED INSIDE THE MACHINE ROOM OR CONTROL ROOM TO OPERATE LIGHTING FIXTURES AND EXHAUST FAN UNITS INSIDE THE ELEVATOR CAR. THE FUSED DISCONNECT SWITCH OR CIRCUIT BREAKER SHALL BE CAPABLE OF BEING LOCKED IN THE 'OPEN' POSITION. THE DISCONNECTING MEANS SHALL BE LABELED TO IDENTIFY THE APPROPRIATE ELEVATOR NUMBER AND MARKED 'CAR LIGHTS'.
J. SEPARATE 120 VOLT, 15 AMP POWER SUPPLY (ON EMERGENCY POWER CIRCUIT IF AVAILABLE) AND DISCONNECTING MEANS FOR EACH ELEVATOR LOCATED INSIDE THE MACHINE ROOM OR CONTROL ROOM TO OPERATE THE AUXILIARY ELEVATOR DEVICES ON THE CAR. THE FUSED DISCONNECT SWITCH OR CIRCUIT BREAKER SHALL BE CAPABLE OF BEING LOCKED IN THE 'OPEN' POSITION. THE DISCONNECTING MEANS SHALL BE LABELED TO IDENTIFY THE APPROPRIATE ELEVATOR NUMBER AND MARKED 'AUXILIARY CAR DEVICES'.
K. PERMANENT LIGHTING FIXTURES AND 120 VOLT (GFCI PROTECTED) DUPLEX RECEPTACLES INSIDE EACH MACHINE ROOM, MACHINE SPACE, SHEAVE ROOM, SECONDARY LEVEL AND/OR CONTROL ROOM. ILLUMINATION SHALL BE NO LESS THAN 19-FOOT CANDLES AT FLOOR LEVEL. A MANUAL LIGHT SWITCH MUST BE PROVIDED IMMEDIATELY ADJACENT TO THE MACHINE ROOM OR CONTROL ROOM ENTRANCE DOOR ON THE LOCK/JAMB SIDE OF THE ACCESS DOOR. ILLUMINATION SHALL NOT BE LESS THAN 200 LX (19 FC) AT FLOOR LEVEL. PROVIDE A LIGHT CONTROL SWITCH AND A LIGHTING FIXTURE AT THE MACHINE SPACE FOR MACHINE ROOM-LESS ELEVATORS.
L. A 120 VOLT DUPLEX (GFCI TYPE) RECEPTACLE AND PERMANENT LIGHTING FIXTURE EQUIPPED WITH PROTECTIVE GUARD FOR EACH ELEVATOR PIT. ILLUMINATION SHALL BE NO LESS THAN 100 LX (9 FOOT CANDLES) AT THE PIT FLOOR AND AT A PIT PLATFORM IF PROVIDED. A MANUAL LIGHT SWITCH MUST BE PROVIDED IN A READILY ACCESSIBLE LOCATION FROM THE PIT ENTRANCE DOOR OR ACCESS LADDER.
M. A DEDICATED 120 VOLT, 20 AMP SINGLE POWER SUPPLY AND DISCONNECTING MEANS INSIDE EACH MACHINE ROOM OR CONTROL ROOM TO OPERATE ACCESS CARD READER DEVICE IN ALL ELEVATORS AND RELATED CARD READER CONTROL EQUIPMENT. THE DISCONNECTING MEANS SHALL BE FULLY ENCLOSED, EXTERNALLY OPERATED, FUSED OR FURNISHED WITH CIRCUIT BREAKERS, AND ARRANGED TO BE LOCKED IN THE 'OPEN' POSITION. ALSO, ACCESS CARD READER DEVICES SHALL BE PROVIDED FOR INSTALLATION BY THE ELEVATOR CONTRACTOR IN THE ELEVATOR CAR OPERATION STATIONS. ELECTRICAL WIRING CONNECTING BETWEEN THE CARD READER MASTER CONTROL STATION LOCATED IN THE MACHINE ROOM OR CONTROL ROOM AND THE ELEVATOR CONTROL EQUIPMENT SHALL BE PROVIDED BY THE ELEVATOR CONTRACTOR.
N. 120 VOLTS, 1 PHASE, 60 HERTZ, 20A DUPLEX OUTLET (ON EMERGENCY POWER CIRCUIT, IF AVAILABLE) IN SECURITY OFFICE FOR ELEVATOR REMOTE MONITOR AND CONTROL STATION.
O. A 2" EMPTY CONDUIT SHALL BE PROVIDED BETWEEN EACH ELEVATOR OR GROUP OF ELEVATORS AND REMOTE CONTROL PANEL. WIRING AND CONNECTIONS SHALL BE PROVIDED BY THE ELEVATOR CONTRACTORS.
P. CLOSED CIRCUIT TV CAMERA IN EACH ELEVATOR CAB ENCLOSURE AND CONDUIT AND WIRING WITH FINAL CONNECTIONS TO THE BUILDING SECURITY SYSTEMS. THE ELEVATOR CONTRACTOR SHALL PROVIDE POWER SOURCE ON TOP OF EACH CAR AND WIRING FROM THE SECURITY ITEMS IN THE CAB TO A TERMINAL STRIP LOCATED IN ELEVATOR MACHINE ROOM OR CONTROL ROOM.
Q. TELEPHONE COMMUNICATION WIRING TERMINATING IN A JUNCTION BOX LOCATED IN EACH ELEVATOR MACHINE ROOM OR CONTROL ROOM ADJACENT TO ELEVATOR REMOTE CONTROL AND MONITOR PANEL.
R. 120 VOLTS, 1 PHASE, 60 HERTZ, 20A DUPLEX (ON EMERGENCY POWER CIRCUIT, IF AVAILABLE) IN MACHINE ROOM OR CONTROL ROOM FOR INTERCOMMUNICATIONS SYSTEM.
S. 120 VOLTS, 1 PHASE, 60 HERTZ, 15A DUPLEX OUTLET (ON EMERGENCY POWER CIRCUIT, IF AVAILABLE) FOR ELEVATOR REMOTE MONITOR AND CONTROL PANELS AND ADDITIONAL DUPLEX OUTLETS OF THE SAME SPECIFICATIONS FOR EACH INTERCOM MASTER STATION.
T. LIGHT AND RECEPTACLES (GFCI TYPE) IN MACHINE SPACE (TOP LANDING) AND IN PIT (BOTTOM LANDING) OF ESCALATORS.

LIGHTING NOTES

- 1. GENERAL:
A. ELECTRICAL DRAWINGS INDICATE LIGHTING POWER AND CIRCUITING REQUIREMENTS ONLY. LIGHTING LAYOUTS AND LOCATION OF CONTROL DEVICES INCLUDING OCCUPANCY/VACANCY SENSORS SHALL BE AS PER ARCHITECTURAL AND/OR LIGHTING CONSULTANT DRAWINGS.
B. CONNECT EXIT SIGNS TO A DEDICATED 20A CIRCUIT, ONE CIRCUIT PER FLOOR. PROVIDE ON-POSITION LOCK-OUT ON THE CIRCUIT BREAKER.
D. LIGHTING FIXTURES IN MORE THAN ONE ROOM OR AREA MAY BE CONNECTED TO THE SAME 20A CIRCUIT.
E. PROVIDE EMERGENCY BYPASS RELAY FOR EACH GROUP OF EMERGENCY LIGHTS CONTROLLED BY WALL SWITCH SUCH THAT THE SWITCH WILL BE BYPASSED AND EMERGENCY LIGHTS WILL COME ON IN THE EVENT OF FAILURE OF NORMAL POWER.
F. LIGHTING CONTROL SHALL COMPLY WITH APPLICABLE ENERGY CONSERVATION CODE REQUIREMENTS, INCLUDING DAYLIGHT ZONES. DAYLIGHT ZONE SHALL INCLUDE ANY FIXTURE WITHIN FIFTEEN FEET FROM THE WINDOW. ALL FIXTURES WITHIN DAYLIGHT ZONE SHALL BE SEPARATELY SWITCHED FROM FIXTURES THAT ARE NOT IN THE DAYLIGHT ZONE. COORDINATE THE EXTENT OF DAYLIGHT ZONE WITH LIGHTING CONSULTANT.
G. OCCUPANCY SENSORS - AUTO 'ON' AND AUTO 'OFF':
1) LOW VOLTAGE CEILING AND/OR WALL MOUNTED.
2) DUAL TECHNOLOGY (ULTRASOUND, INFRARED) ONLY.
H. VACANCY SENSOR MANUAL 'ON' AND AUTO 'OFF':
1) LOW VOLTAGE CEILING AND/OR WALL MOUNTED.
2) DUAL TECHNOLOGY (ULTRASOUND, INFRARED) ONLY.
3) PROVIDE IN FOLLOWING SPACES:
a) CONFERENCE/MEETING ROOM
b) OFFICES SMALLER THAN 200 S.F. IN AREA.
I. EMERGENCY LIGHTING FIXTURES SHALL BE FED FROM EMERGENCY CIRCUIT.
J. EMERGENCY FIXTURES NOT REQUIRED OR INTENDED FOR CONTINUOUS OPERATION SHALL BE CONTROLLED BY OCCUPANCY SENSORS WITH MANUAL SWITCH WITH BYPASS RELAY.
K. NORMAL LIGHTING FIXTURES SHALL BE FED FROM NORMAL POWER CIRCUITS AND SHALL BE CONTROLLED BY A CEILING MOUNTED OCCUPANCY/VACANCY SENSOR, A LOCAL SWITCH AND RELAY PANEL.
L. ALL SPACES, EXCEPT THOSE INTENDED FOR 24 HOUR OPERATION, OR WHERE AUTOMATIC SHUTOFF WOULD ENDANGER THE SAFETY OF THE OCCUPANTS, MUST HAVE OCCUPANCY SENSORS OR AUTOMATIC LEVEL LIGHTING CONTROLS.
2. OFFICES:
A. LIGHTING SHALL BE CONTROLLED BY LOCAL WALL MOUNTED SWITCHES AND VACANCY SENSORS.
3. RESTROOMS:
A. EMERGENCY LIGHTING FIXTURES, MINIMUM TWO LIGHTING FIXTURES IN EACH RESTROOM SHALL BE FED FROM EMERGENCY CIRCUIT AND CONTROLLED BY RELAY PANEL.
B. NORMAL LIGHTING FIXTURES SHALL BE FED FROM NORMAL POWER CIRCUITS AND SHALL BE CONTROLLED BY A CEILING MOUNTED OCCUPANCY SENSOR, A SWITCH AND RELAY PANEL.
4. MECHANICAL/ELECTRICAL/EQUIPMENT ROOMS:
A. CONNECT AT LEAST ONE LIGHTING FIXTURE AT THE DOOR TO EMERGENCY LIGHTING PANEL. IN LARGER AREAS, EVERY 3RD FIXTURE SHALL BE FED FROM EMERGENCY CIRCUIT.
B. PROVIDE WALL SWITCHES, ONE FOR NORMAL AND ONE FOR EMERGENCY LIGHTING FIXTURE(S).
5. CORRIDORS, OPEN PUBLIC SPACES:
A. NORMAL LIGHTS SHALL BE CONTROLLED BY PROGRAMMABLE RELAY PANEL WITH OVERRIDE SWITCHES AND OCCUPANCY SENSORS WHERE INDICATED.
B. EMERGENCY LIGHTING FIXTURES SHALL NOT BE SWITCHED OR CONTROLLED, UNLESS INDICATED OTHERWISE.
6. STAIR LIGHTING:
A. TWO LEVELS OF CONTROL SHALL BE PROVIDED. ONE LEVEL WILL CONSIST OF EMERGENCY LIGHTS AND ONE LEVEL OF NORMAL. EMERGENCY LIGHTS SHALL BE FED FROM UNSWITCHED LEG OF THE EMERGENCY CIRCUIT.
7. EXIT SIGNS:
A. EXIT SIGNS SHALL BE FED FROM UNSWITCHED LEG OF THE EMERGENCY CIRCUITS. EXIT SIGNS SHALL NOT BE SWITCHED.
8. STORAGE:
A. LIGHTING SHALL BE CONTROLLED BY LOCAL WALL MOUNTED SWITCHES AND VACANCY SENSORS.
9. EXTERIOR:
A. FIXTURE SHALL BE CONTROLLED BY PROGRAMMABLE RELAY PANEL WITH PHOTOCELL AND MANUAL OVERRIDE.
10. ALL OTHER SPACES:
A. FIXTURES SHALL BE CONTROLLED AS INDICATED ON PLANS AND AS PER APPLICABLE ENERGY CODE REQUIREMENTS. WHERE DISCREPANCY OCCURS BETWEEN ENERGY CODE REQUIREMENTS AND DRAWINGS, ENERGY CODE REQUIREMENTS SHALL GOVERN.
11. SAFE AREAS FIXTURE SHALL BE PROVIDED WITH EMERGENCY FIXTURES SHALL (NOT BE SWITCHED) AND SHALL PROVIDE MINIMUM 5 FOOT CANDLES AT THE FLOOR LEVEL, STAIRS, STEPS, RAMPS AND ESCALATORS WITHIN THE SAFE AREA.
12. LIGHTING SYSTEM
A. PROVIDE LIGHTING FIXTURES, EXIT SIGNS, LIGHT SWITCHES, OCCUPANCY SENSORS, DIMMING SYSTEMS AND OTHER DEVICES AND EQUIPMENT FOR LIGHTING AND LIGHTING CONTROL SYSTEMS AS REQUIRED.
B. FINAL CONNECTION TO LIGHTING FIXTURES SHALL BE MADE USING 90 DEGREE CELSIUS WIRE. PROVIDE ALL CONDUIT AND WIRE, BOXES CEILING OUTLETS, FIXTURE WHIPS, LIGHTING CONTROL DEVICES AND COVER PLATES REQUIRED TO IMPLEMENT THE CIRCUITING AS REQUIRED.
C. ALL FLUORESCENT FIXTURES SHALL BE EQUIPPED WITH ENERGY EFFICIENT LAMPS AND ELECTRONIC BALLASTS.
D. WHERE MORE THAN ONE SWITCH OCCURS IN THE SAME LOCATION, THEY SHALL BE INSTALLED IN A GANG-TYPE BOX UNDER ONE COVER PLATE.
E. PROVIDE GROUND WIRE WITH ALL FLEXIBLE CONDUIT CONNECTION TO EACH LIGHTING FIXTURE.
F. REFER TO ARCHITECTURAL DRAWINGS FOR SYMBOLS AND LOCATIONS OF LIGHTING CONTROL DEVICES SUCH AS LIGHTING SWITCHES, OCCUPANCY SENSORS, LIGHT SENSORS, ETC.
G. REFER TO LIGHTING CONSULTANT AND LIGHTING CONTROL SYSTEM LOAD SCHEDULES FOR INFORMATION REGARDING LIGHTING ZONES.
H. SEE SPECIFICATIONS FOR LIGHTING FIXTURE DESCRIPTIONS, OPERATING VOLTAGE AND LAMPING.
I. SEE SPECIFICATIONS FOR LIGHTING CONTROL STRATEGY FOR ALL AREAS.
J. SEE ARCHITECTURAL REFLECTED CEILING PLANS AND DETAILS TO CONFIRM EXACT LOCATION OF ALL FIXTURES AND MOUNTING.
K. PROVIDE ONE CENTRAL PHOTOCELL AND RELATED CONTROL PANEL TO CONTROL ALL EXTERIOR LIGHTING.
L. PROVIDE ALL CONDUIT, WIRE AND BOXES AS WELL AS CEILING OUTLETS AND WHIPS REQUIRED TO ENERGIZE LIGHTING FIXTURES AS SHOWN.
M. CIRCUIT NUMBERS ARE FOR REFERENCE ONLY AND INDICATE DESIGN INTENT ONLY.
N. ALL BRANCH CIRCUIT WIRING SHALL BE RUN CONCEALED IN WALLS AND ABOVE HUNG CEILING, U.O.N. FINAL CONNECTIONS TO LIGHTING FIXTURES SHALL BE MADE WITH WIRING HAVING 90°C RATED INSULATION.
O. LIGHTING FIXTURES USED AS EMERGENCY 'NIGHT LIGHT', EMERGENCY LIGHTING IN STAIRS AND EXIT SIGNS SHALL BE UNSWITCHED.
P. FOR ADDITIONAL LIGHTING INFORMATION SEE ARCHITECTURAL DRAWINGS.
Q. LIGHTING FIXTURES LOADS CIRCUITED FROM 20A/1P CIRCUIT BREAKER SHALL NOT EXCEED 1500 WATT FOR 120V AND 3000 WATT FOR 277V DISTRIBUTION.
R. SYMBOLS FOR LIGHTING FIXTURES ARE BASED ON ARCHITECTS DRAWINGS, INCLUDED FOR COORDINATION AND INFORMATION PURPOSES ONLY. REFER TO ARCHITECTS DRAWINGS FOR EXACT TYPE, SYMBOLS, LOCATION AND QUANTITY OF FIXTURES.
S. PROVIDE DIMMING BALLAST OR COMPATIBLE LED DRIVER FOR ALL LIGHTING FIXTURES REQUIRED TO BE DIMMED.
T. REFER TO ARCHITECTURAL DRAWINGS FOR FIXTURE INFORMATION RELATED TO LIGHTING, CERTAIN LATEST CONTROL AND LUTRON DRAWINGS AND COORDINATE REQUIRED CIRCUITING.
U. 80 PERCENT OF LIGHT FIXTURES MUST BE ENERGY STAR QUALIFIED OR HAVE ENERGY STAR QUALIFIED LAMPS INSTALLED.
V. UNLESS PERMITTED OTHERWISE, ALL SPACES SHALL BE PROVIDED WITH CEILING MOUNTED OCCUPANCY/VACANCY SENSORS FOR AUTOMATIC CONTROL AND ASSOCIATED WALL SWITCHES FOR MANUAL OVERRIDE. PROVIDE ONE OCCUPANCY/VACANCY SENSOR PER 400 SQUARE FEET.

Table with 2 columns: RELEASED FOR, DATE. Rows include SCHEMATIC DESIGN (1/26/2024), DESIGN DEVELOPMENT (2/21/2024), 50% CDS (3/18/2024), PERMIT (3/25/2024).

REVISIONS table with columns for revision number and description.





**ELECTRICAL SITE PLAN**  
SCALE: 3/32" = 1'-0"

**ELECTRICAL GENERAL NOTES:**

1. THESE DRAWINGS SHOW THE INTENT OF THE NEW CIRCUITING DESIGN. IT IS THE ELECTRICAL CONTRACTOR'S RESPONSIBILITY TO FOLLOW THIS INTENT WHILE ADAPTING TO THE CONDITIONS FOUND IN THE FIELD.
2. ALL WIRING/CABLEING AND TELEDATA/CABLE DEVICES SHOWN SHALL BE FURNISHED AND INSTALLED BY ELECTRICAL CONTRACTOR UNLESS OTHERWISE NOTED.
3. COORDINATE ALL WORK WITH OTHER CONTRACTORS PRIOR TO START OF WORK.
4. ANY PENETRATION THRU WALLS CROSSING EXPANSION JOINTS SHALL BE EQUIPPED WITH EXPANSION FITTINGS. PROVIDE SEAL TIGHT FOR ALL CONDUITS CROSSING EXPANSION JOINTS OR CROSSING BETWEEN BUILDING AND GARAGE.
5. ELECTRICAL CONTRACTOR MUST FURNISH AND INSTALL ALL NECESSARY ACCESSORIES IN ORDER FOR A FULL WORKING SYSTEM AS INDICATED ON THIS DRAWING AND OTHERS AS PER ALL MANUFACTURER AND KEA ENGINEERS RECOMMENDATIONS.
6. COORDINATE ALL UNDERGROUND CONDUIT RUNS WITH STRUCTURAL DRAWINGS PRIOR TO INSTALLATION.
7. PROVIDE AN UN-SWITCHED HOT LEG FOR ALL EMERGENCY AND NIGHT LIGHT (N/EM) FIXTURES AND EXIT SIGNS.

**ELECTRICAL KEYNOTES:**

1. ELECTRICAL CONTRACTOR SHALL INSTALL (2) STATION LEVEL 2 EV CHARGER PEDESTAL AND WIRING TO HOUSE PANEL SHOWN.
2. ELECTRIC SERVICE LOCATION. PROVIDE SECONDARY WIRING TO UTILITY PAD MOUNTED TRANSFORMER PER POWER RISER. SEE POWER RISER ON SHEET E5.01.
3. PROPOSED UTILITY PAD MOUNTED TRANSFORMER LOCATION FOR BUILDING 'A'. ELECTRICAL CONTRACTOR TO PROVIDE PAD AND BOLLARDS PER PSE&G SPECIFICATIONS.
4. COORDINATE LOCATION OF TELEPHONE AND CABLE TV POINT OF SERVICE AT RIGHT OF WAY WITH RESPECTIVE UTILITY. PROVIDE SERVICE CONDUITS TO HOUSE PHONE BOARD IN UTILITY CLOSET. SEE RISER ON SHEET E5.02.
5. TRANSFORMER LOCATION FOR BUILDING 'A'. ELECTRICAL CONTRACTOR TO PROVIDE PAD AND BOLLARDS PER PSE&G SPECIFICATIONS.

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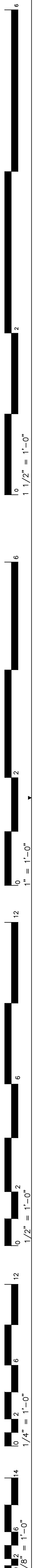
ARMEN KHACHATURIAN  
PRINCIPAL IN CHARGE  
CM, JP, SM  
PROJECT TEAM  
AK  
CHECKED BY  
ELECTRICAL SITE PLAN

RELEASED FOR	DATE
<input type="checkbox"/> SCHEMATIC DESIGN	1/26/2024
<input checked="" type="checkbox"/> DESIGN DEVELOPMENT	2/21/2024
<input checked="" type="checkbox"/> 50% CDS	3/18/2024
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REVISIONS


2697  
PROJECT NUMBER

**E0.04**



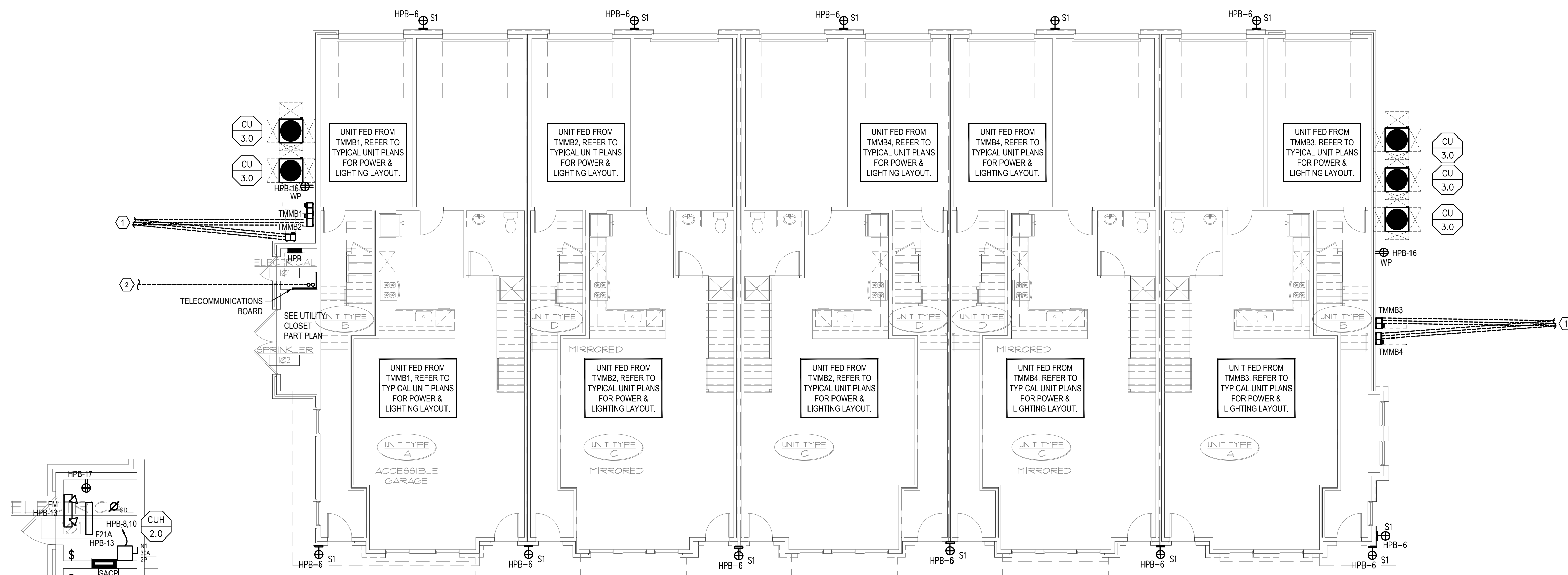


**ELECTRICAL GENERAL NOTES:**

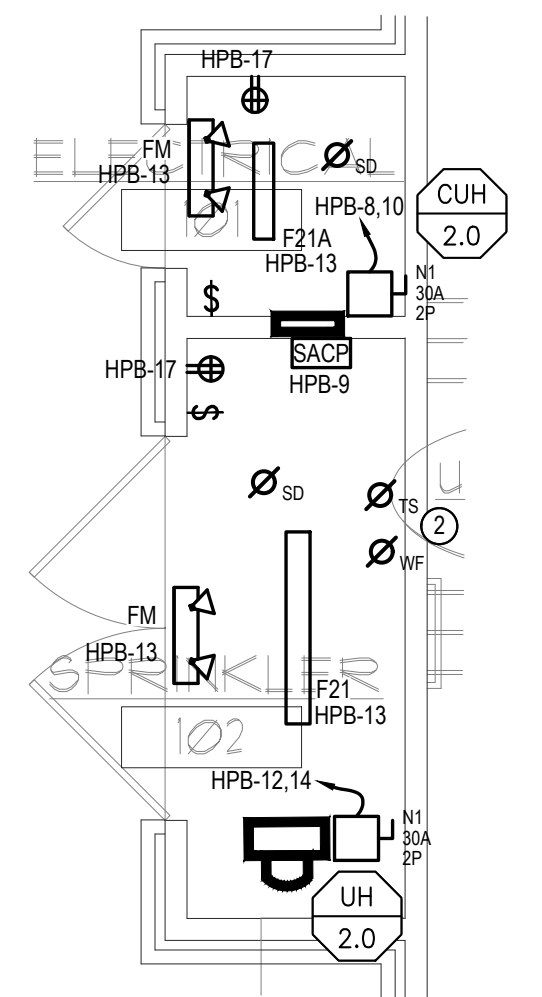
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2. ALL WIRING/CABLING AND TEL/DATA/CABLE DEVICES SHOWN SHALL BE FURNISHED AND INSTALLED BY ELECTRICAL CONTRACTOR UNLESS OTHERWISE NOTED.
3. COORDINATE ALL WORK WITH OTHER CONTRACTORS PRIOR TO START OF WORK.
4. ANY PENETRATION THRU WALLS CROSSING EXPANSION JOINTS SHALL BE EQUIPPED WITH EXPANSION FITTINGS. PROVIDE SEAL TIGHT FOR ALL CONDUITS CROSSING EXPANSION JOINTS OR CROSSING BETWEEN BUILDING AND GARAGE.
5. ELECTRICAL CONTRACTOR MUST FURNISH AND INSTALL ALL NECESSARY ACCESSORIES IN ORDER FOR A FULL WORKING SYSTEM AS INDICATED ON THIS DRAWING AND OTHERS AS PER ALL MANUFACTURER AND KEA ENGINEERS RECOMMENDATIONS.
6. COORDINATE ALL UNDERGROUND CONDUIT RUNS WITH STRUCTURAL DRAWINGS PRIOR TO INSTALLATION.
7. PROVIDE AN UN-SWITCHED HOT LEG FOR ALL EMERGENCY AND NIGHT LIGHT (NLEM) FIXTURES AND EXIT SIGNS.

**ELECTRIC SERVICE KEYNOTES:**

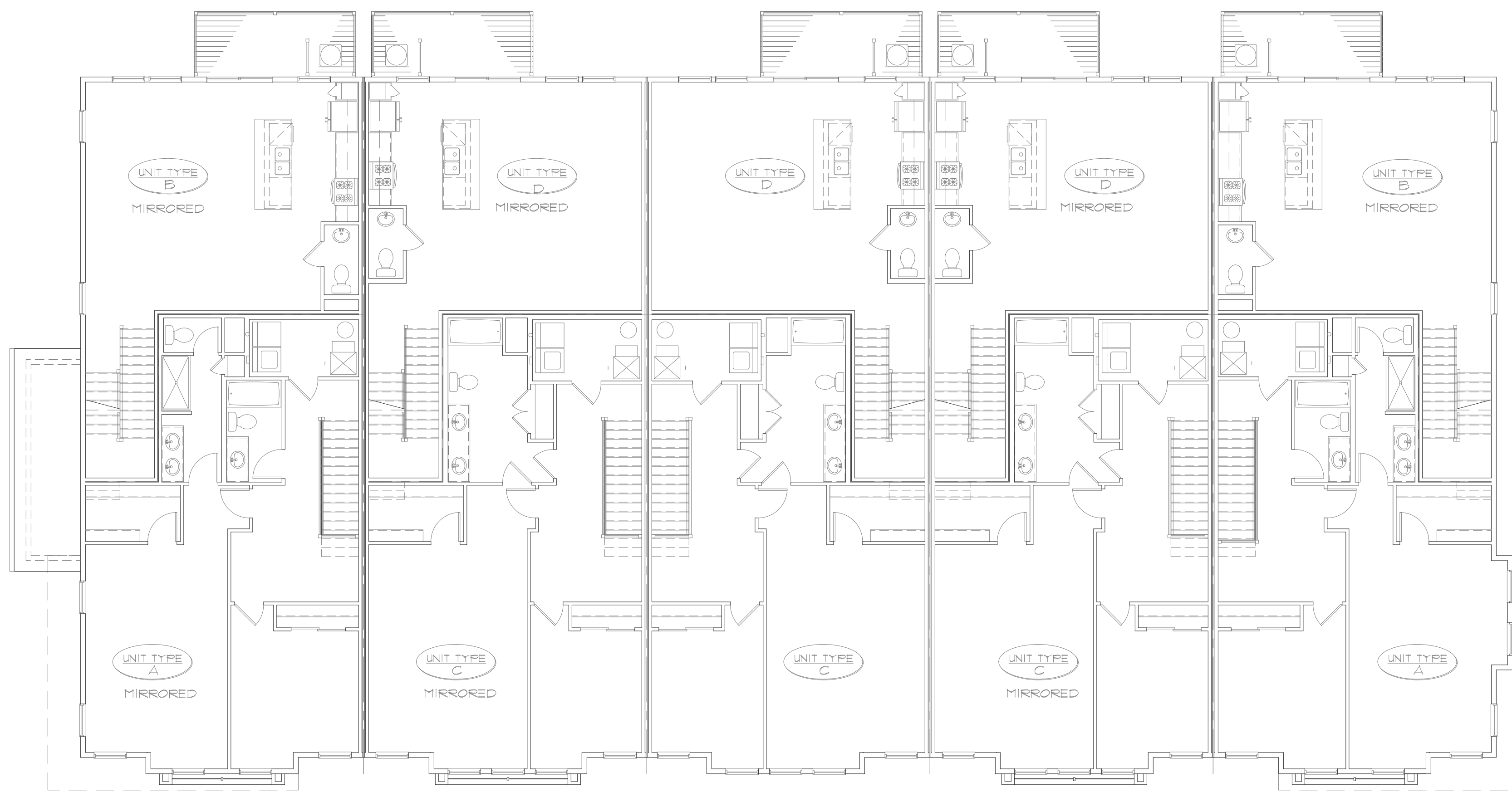
1. INCOMING CONDUITS FROM UTILITY TRANSFORMER SECONDARY. COORDINATE ROUTING WITH ALL OTHER UTILITIES AND TRADES. PROVIDE TWO (2) 2" RIGID EMPTY CONDUITS WITH DRAG STRINGS STUBBED AND BUSSED FROM T/F TO JCPAL POLE/MANHOLE. COORDINATE EXACT ROUTING WITH JCPAL AND STRUCTURAL DRAWINGS.
2. TWO (2) 4" CONDUITS FROM TELECOM POLE (CONFIRM EXACT LOCATION IN FIELD) UP TO MAIN TELECOM BACKBOARD.



**ELECTRICAL FIRST FLOOR PLAN**  
SCALE: 1/8" = 1'-0"



**UTILITY CLOSET PART PLAN**  
SCALE: 1/4" = 1'-0"



**ELECTRICAL SECOND FLOOR PLAN**  
SCALE: 1/8" = 1'-0"

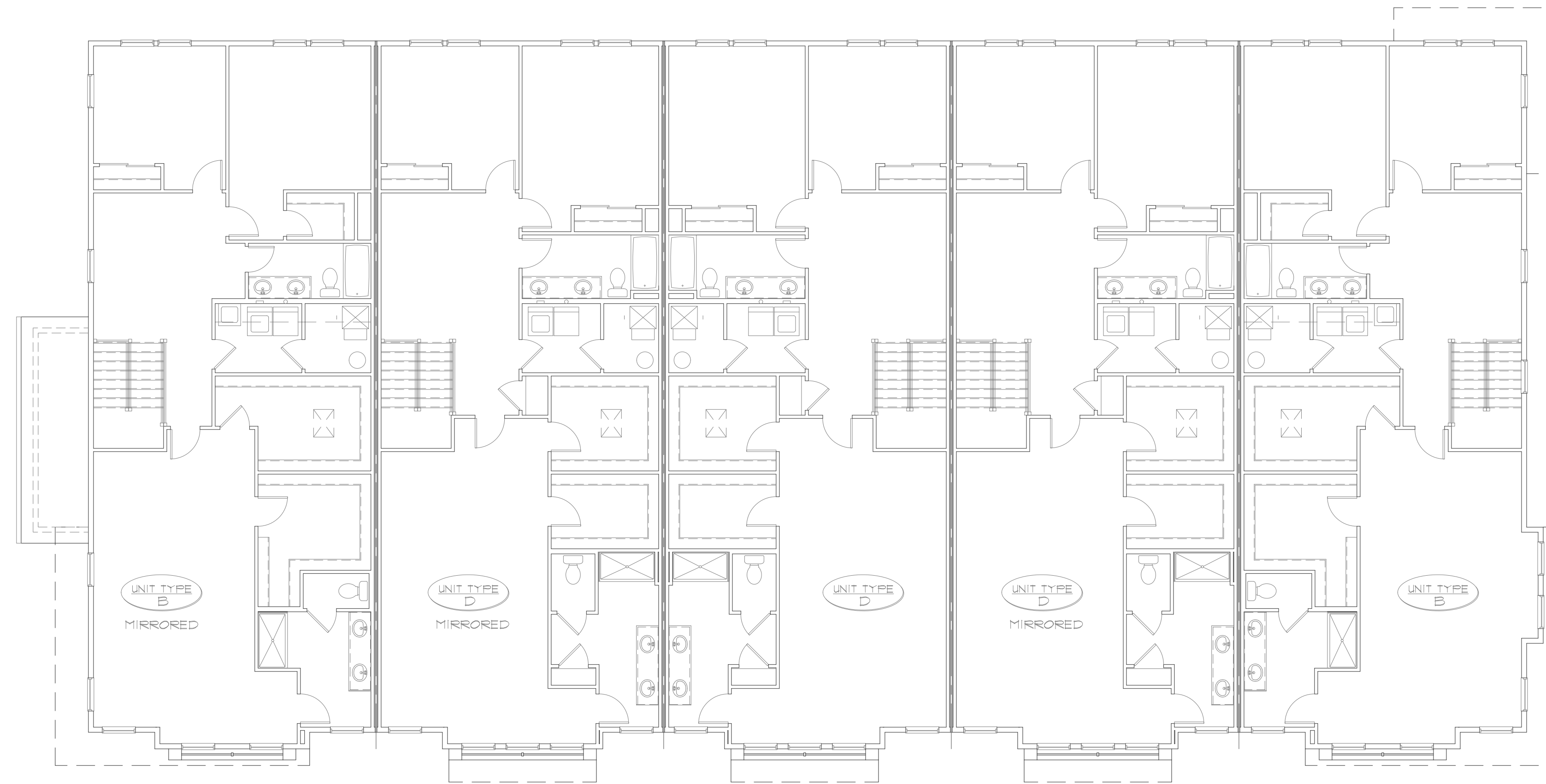
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SCHEMATIC DESIGN	1/26/2024
DESIGN DEVELOPMENT	2/21/2024
50% CDS	3/18/2024
PERMIT	3/25/2024

REVISION	DATE	DESCRIPTION

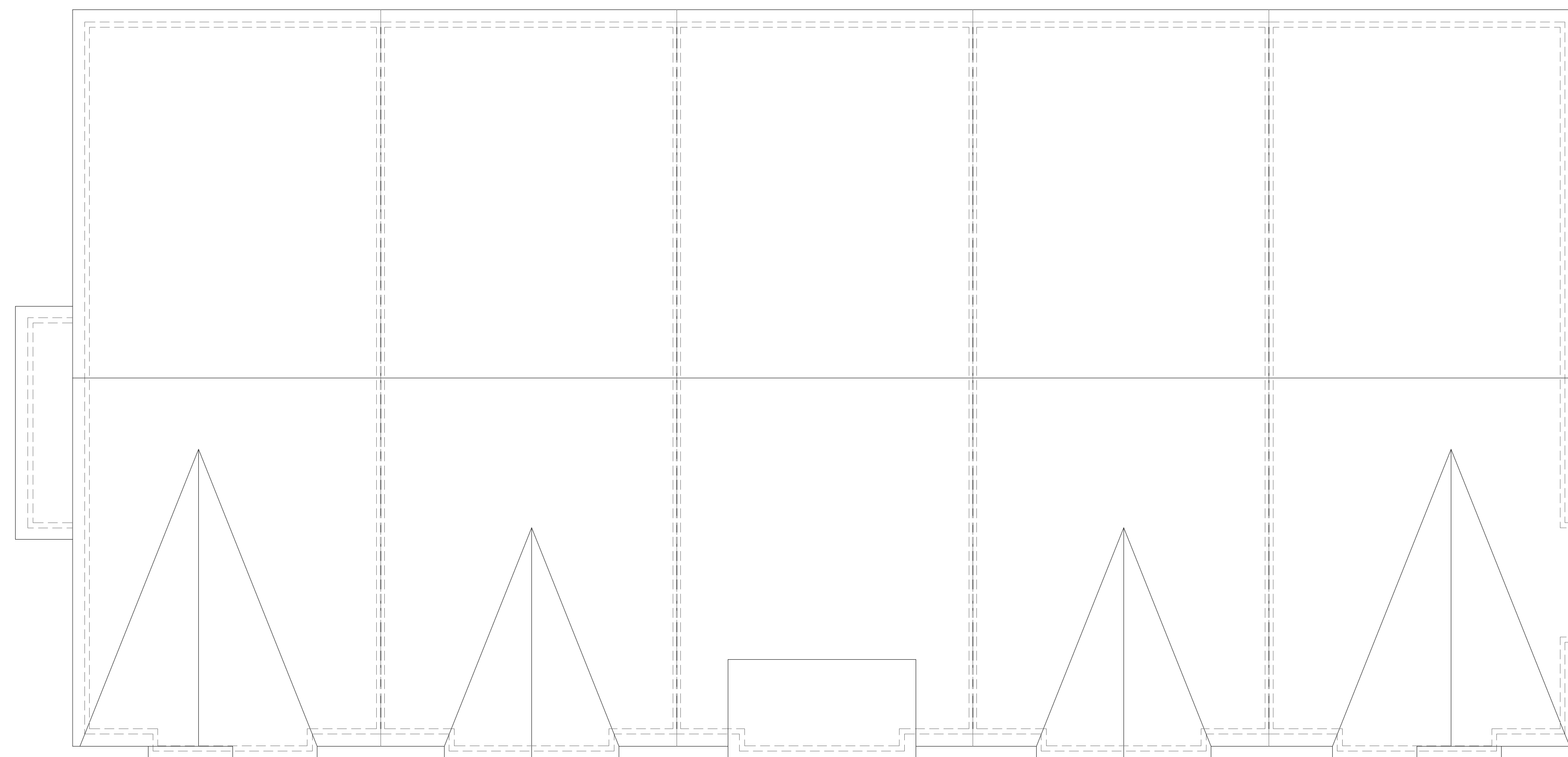


**ELECTRICAL GENERAL NOTES:**

1. THESE DRAWINGS SHOW THE INTENT OF THE NEW CIRCUITING DESIGN. IT IS THE ELECTRICAL CONTRACTOR'S RESPONSIBILITY TO FOLLOW THIS INTENT WHILE ADAPTING TO THE CONDITIONS FOUND IN THE FIELD.
2. ALL WIRING/CABLING AND TEL/DATA/CABLE DEVICES SHOWN SHALL BE FURNISHED AND INSTALLED BY ELECTRICAL CONTRACTOR UNLESS OTHERWISE NOTED.
3. COORDINATE ALL WORK WITH OTHER CONTRACTORS PRIOR TO START OF WORK.
4. ANY PENETRATION THRU WALLS CROSSING EXPANSION JOINTS SHALL BE EQUIPPED WITH EXPANSION FITTINGS. PROVIDE SEAL TIGHT FOR ALL CONDUITS CROSSING EXPANSION JOINTS OR CROSSING BETWEEN BUILDING AND GARAGE.
5. ELECTRICAL CONTRACTOR MUST FURNISH AND INSTALL ALL NECESSARY ACCESSORIES IN ORDER FOR A FULL WORKING SYSTEM AS INDICATED ON THIS DRAWING AND OTHERS AS PER ALL MANUFACTURER AND KEA ENGINEERS RECOMMENDATIONS.
6. COORDINATE ALL UNDERGROUND CONDUIT RUNS WITH STRUCTURAL DRAWINGS PRIOR TO INSTALLATION.
7. PROVIDE AN UN-SWITCHED HOT LEG FOR ALL EMERGENCY AND NIGHT LIGHT (NLEM) FIXTURES AND EXIT SIGNS.



**ELECTRICAL THIRD FLOOR PLAN**  
SCALE: 1/8" = 1'-0"



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

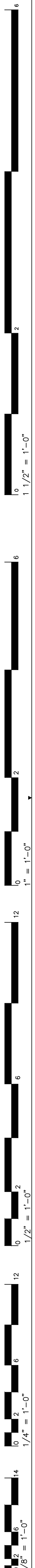
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**ELECTRICAL 3RD FLOOR AND ROOF PLANS**

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<input type="checkbox"/> SCHEMATIC DESIGN	1/26/2024
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<input checked="" type="checkbox"/> 50% CDS	3/18/2024
<input checked="" type="checkbox"/> PERMIT	3/25/2024

REVISIONS

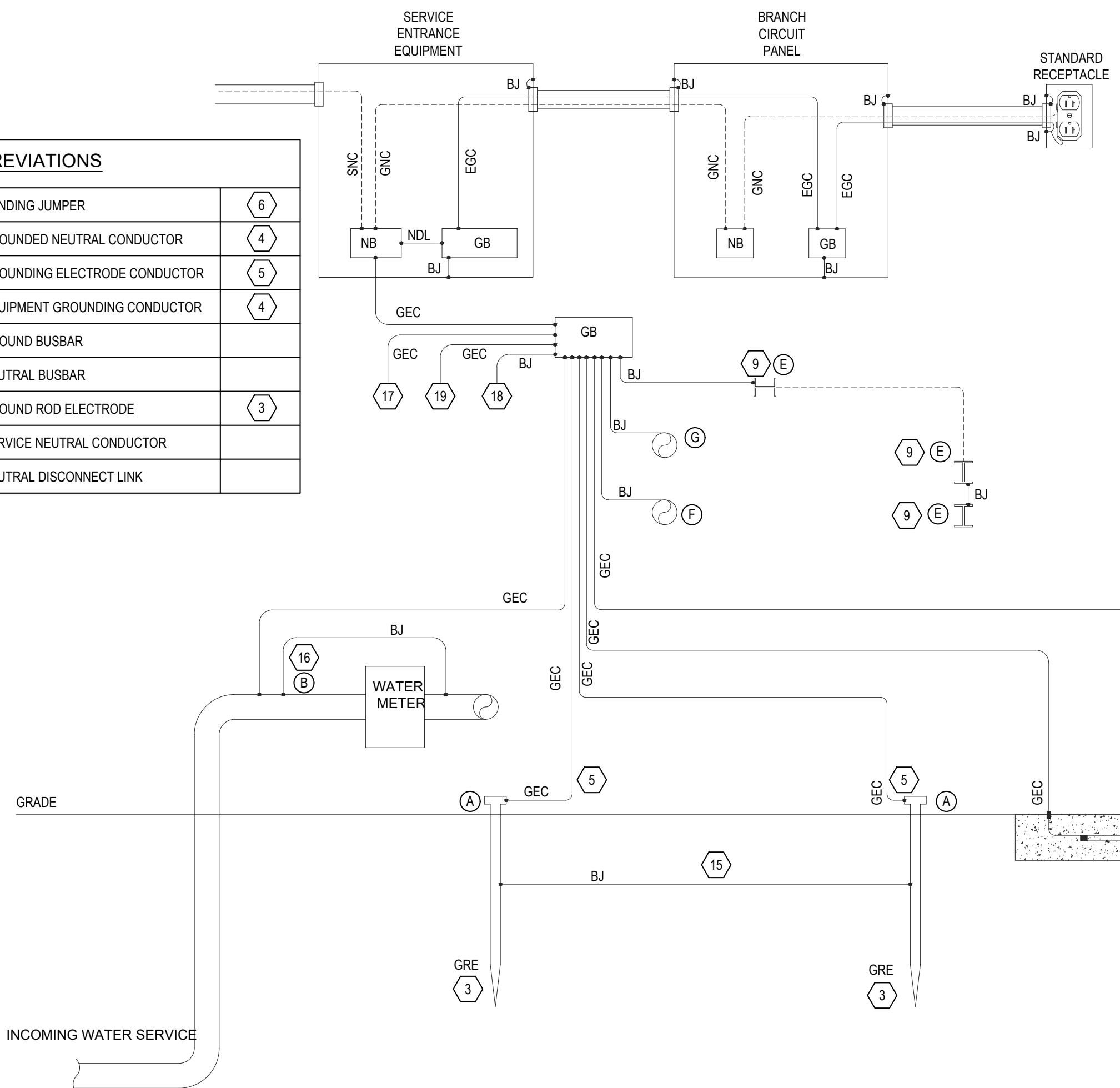
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**ABBREVIATIONS**

BJ	BONDING JUMPER	(E)
GNC	GROUNDING NEUTRAL CONDUCTOR	(4)
GEC	GROUNDING ELECTRODE CONDUCTOR	(5)
EGC	EQUIPMENT GROUNDING CONDUCTOR	(4)
GB	GROUND BUSBAR	
NB	NEUTRAL BUSBAR	
GRE	GROUND ROD ELECTRODE	(3)
SNC	SERVICE NEUTRAL CONDUCTOR	
NDL	NEUTRAL DISCONNECT LINK	



**ELECTRICAL GROUNDING AND BONDING DETAILS**

SCALE: NONE 1 2 3 4 5 6 7 8 9 10 11 12

**DETAIL NOTES:**

- DETAIL IS TYPICAL AND IS INTENDED TO ILLUSTRATE METHODS OF GROUNDING AND BONDING OF ELECTRICAL DISTRIBUTION SYSTEM COMPONENTS AND BUILDING ELEMENTS. CONTRACTOR SHALL ADAPT DETAILS TO SUIT THE PARTICULAR APPLICATION AND MAY SUBMIT ALTERNATIVE METHODS TO THE ENGINEER FOR CONSIDERATION.
- DETAIL IS TYPICAL FOR METALLIC AND NONMETALLIC RACEWAY AND BOX SYSTEMS. FOR METALLIC RACEWAY SYSTEMS WITH U.L. LISTED AND APPROVED BONDING LOCKNUTS OR BUSHINGS AND NONMETALLIC RACEWAYS AND/OR BOXES, ELIMINATE THE BONDING JUMPERS BETWEEN THE RACEWAY AND THE BOX.
- GROUNDING ELECTRODE ROD SHALL NOT BE LESS THAN 3/4" DIAMETER AND 10 FEET IN LENGTH AND SHALL CONSIST OF THE FOLLOWING:
  - COPPER CLAD.
  - TOP OF GROUNDING ROD SHALL BE MINIMUM 12" ABOVE FINISHED GRADE.
- INSTALLATION AND CONNECTION OF DRIVEN GROUND RODS MUST BE WITNESSED BY THE AUTHORITY HAVING JURISDICTION AND THE LOCATION(S) DOCUMENTED BY RECORDING THE DEPTH OF COVER AND MEASURED DISTANCES FROM TWO FIXED PERMANENT OBJECTS OR BUILDING APPURTENANCES.
- GROUNDING ELECTRODE CONDUCTORS (GEC) SHALL BE INSULATED AND SHALL BE GREEN.
- BONDING JUMPERS (BJ) MAY BE BARE WHERE COMPLETELY CONTAINED WITHIN AN ENCLOSURE OR INSTALLED EXPOSED IN LENGTHS OF SIX FEET OR LESS, WHERE INSTALLED IN RACEWAY OR EXPOSED IN LENGTHS GREATER THAN SIX FEET THEY SHALL BE INSULATED AND SHALL BE GREEN.
- METHODS OF ESTABLISHING THE GROUNDING ELECTRODE SYSTEM SHALL BE AS PER NEC 250.53, INCLUDING COMBINATIONS OF GROUNDING ELECTRODE CONDUCTORS AND SUPPLEMENTAL ELECTRODES.
- REFER TO NATIONAL ELECTRICAL CODE "GROUNDING ELECTRODE CONDUCTORS" TABLE (NEC 250.66) AND "EQUIPMENT GROUNDING CONDUCTORS" TABLE (NEC 250.122) FOR SIZING OF GROUNDING AND BONDING CONDUCTORS THAT ARE NOT INDICATED IN THE SCHEDULES OR DIAGRAMS.
- NONE OF THE BUILDING STEEL IS INTENTIONALLY GROUND TO THE EXTENT THAT IT MAY BE USED AS THE GROUNDING ELECTRODE.
- CONTRACTOR SHALL GROUND THE BUILDING STEEL OR BOND IT TO THE SERVICE ENTRANCE EQUIPMENT.
- REFER TO PROJECT STRUCTURAL STEEL DRAWINGS TO DETERMINE THE QUANTITY AND LOCATION OF BONDING JUMPERS ACROSS EXPANSION JOINTS IN THE INTERIOR STRUCTURAL STEEL FRAMING SYSTEM, WHERE PORTIONS OF THE BUILDING HAVING INTERIOR STRUCTURAL STEEL FRAMING ARE PHYSICALLY CONNECTED BUT SEPARATED BY CONNECTING CORRIDORS/BREEZEWAYS, ETC. THAT DO NOT CONTAIN INTERIOR STRUCTURAL STEEL, THE CONTRACTOR SHALL PROVIDE BONDING JUMPERS BETWEEN ELEMENTS OF THE INTERIOR STEEL FRAMING. NOTE: METAL ROOF DECKS AND METAL ROOF AND FLOOR JOISTS IN MASONRY BUILDINGS DO NOT CONSTITUTE INTERIOR STRUCTURAL STEEL.
- ELECTRICALLY CONTINUOUS METAL BAR JOISTS IN MASONRY CONSTRUCTION SHALL BE BONDED TO THE SERVICE ENTRANCE EQUIPMENT ENCLOSURE OR TO INTERIOR GROUNDING, STRUCTURAL STEEL IN OTHER PORTIONS OF THE BUILDING.
- THE EQUIPMENT GROUNDING CONDUCTOR OF CONDUITS SERVING GAS APPLIANCES MAY SERVE AS THE REQUIRED BONDING CONNECTION.
- THE CONCRETE SURROUNDING A CONCRETE ENCASED ELECTRODE SHALL BE IN DIRECT CONTACT WITH THE EARTH, VAPOR BARRIERS AND THE LIKE NEGATE ITS USE AS A GROUNDING ELECTRODE. ELECTRODE SHALL BE LOCATED WITHIN AND NEAR THE BOTTOM OF A FOOTING. ELECTRODE SHALL CONSIST OF 20 FT. OF #30 AWG BARE COPPER CONDUCTOR BONDED TO THE REINFORCING STEEL AT FOUR POINTS. COORDINATE INSPECTION OF PIGTAIL, SLEEVE AND CONNECTION TO ELECTRODE WITH AUTHORITY HAVING JURISDICTION.
  - ENCASED IN A MINIMUM OF 2" CONCRETE.
  - CLAMPS SHALL BE U.L. LISTED.
- STRUCTURAL STEEL MAY BE USED AS GROUNDING AS FOLLOWS:
  - MINIMUM OF 10 FEET OF SINGLE STRUCTURAL METAL MEMBER IS IN DIRECT CONTACT WITH THE EARTH OR INCASED IN CONCRETE THAT IS IN DIRECT CONTACT WITH EARTH.
  - STRUCTURAL METAL FRAME IS BONDED TO ONE OR MORE GROUNDING ELECTRODES AS DEFINED BY APPLICABLE NEC SECTION.
- 14B MINIMUM BARE SOFT DRAWN COPPER CONDUCTOR.
- WATER METER WITH JUMPER, TAP BEFORE THE METER SHALL BE WITHIN 6 FEET FROM THE POINT OF WATER PIPE ENTRANCE TO THE BUILDING.
- SEPARATELY DERIVED GROUNDING SYSTEM SHALL BE GROUND AS PER NEC 250.30 AND GROUNDING ELECTRODE CONDUCTOR SHALL BE AS PER NEC 250.66.
- TO GROUND LOOP CONDUCTOR INTERCONNECTING LIGHTNING PROTECTION SYSTEM GROUNDING ELECTRODES (WHERE PROVIDED).
- TO TELECOMMUNICATION SYSTEM MAIN GROUND BUSBAR (WHERE PROVIDED). SEE SHEET E502.

**KEY LEGEND GROUNDING ELECTRODES**

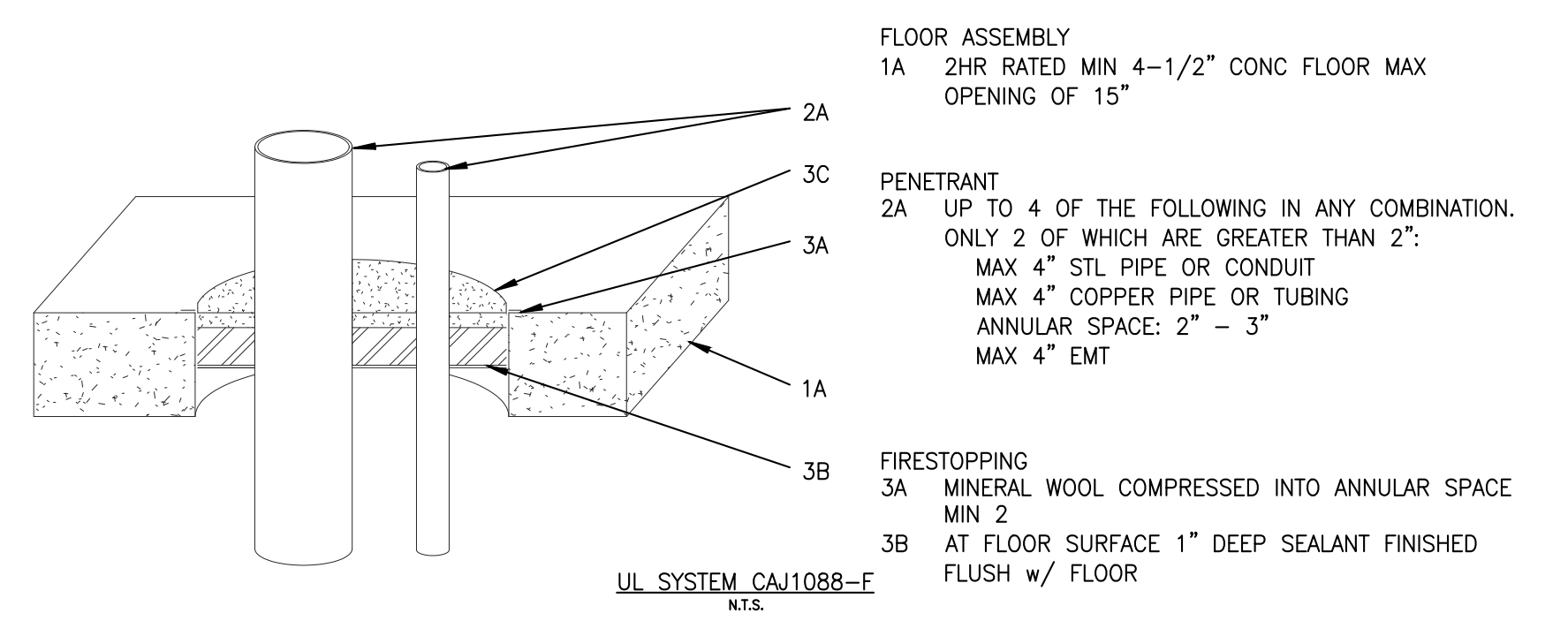
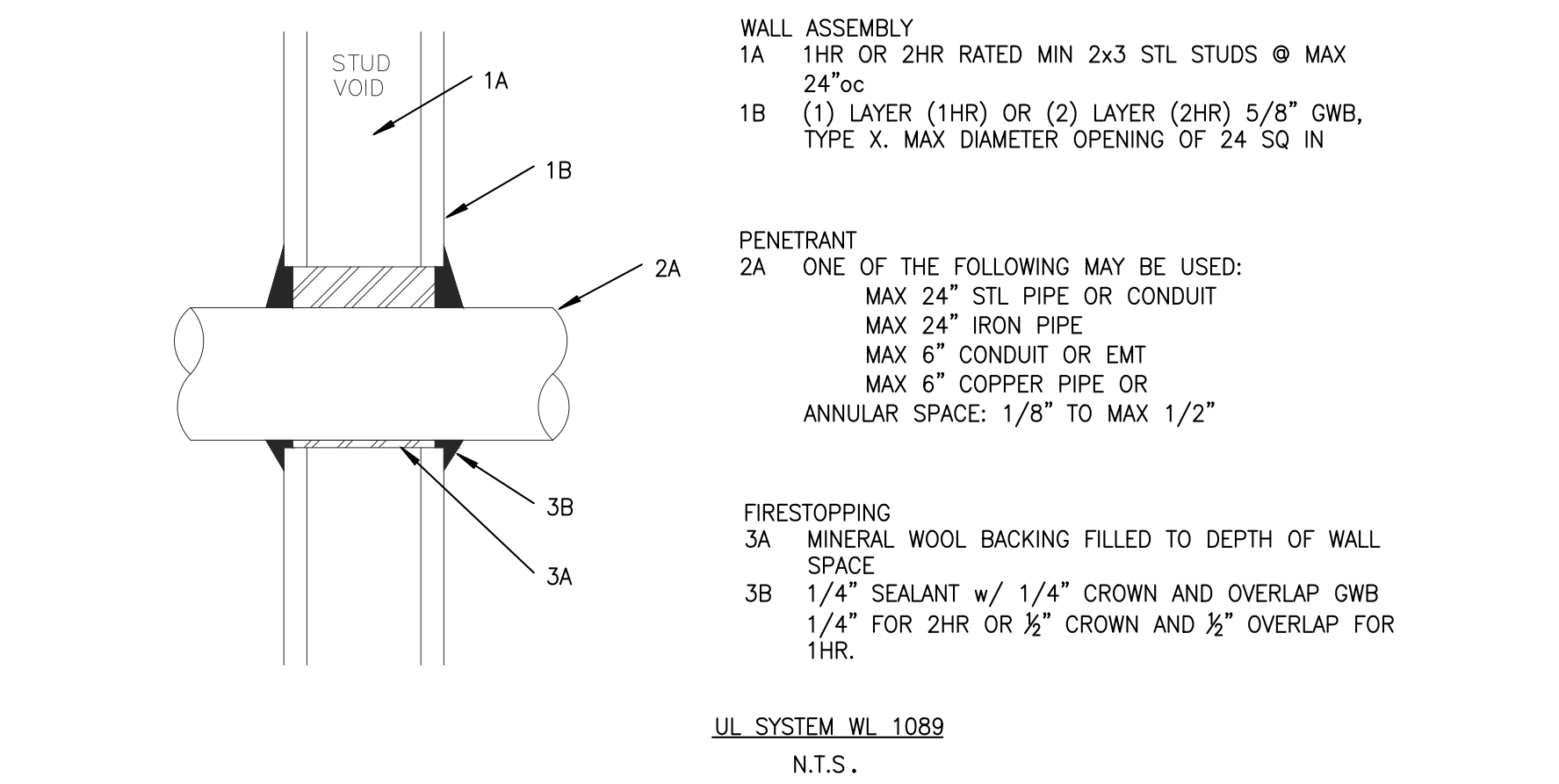
(A)	GROUND ROD ELECTRODE NEC 250.52(A)(5)
(B)	METAL UNDERGROUND WATER SERVICE PIPE NEC 250.52(A)(1)
(C)	GROUNDING INTERIOR STRUCTURAL STEEL NEC 250.52(A)(2)
(D)	CONCRETE ENCASED ELECTRODE NEC 250.52(A)(3)

NOTES:  
 1. GROUNDING ELECTRODE CONDUCTORS SHALL BE SIZED AS PER NEC 250.66.  
 2. OTHER GROUNDING ELECTRODES MAY BE USED AS PER NEC 250.52 WHEN APPROVED BY THE ENGINEER AND LOCAL AUTHORITIES HAVING JURISDICTION.

**KEY LEGEND BONDING OF PIPING AND EXPOSED STRUCTURAL METAL**

(E)	EXPOSED STRUCTURAL STEEL NEC 250.104(C) AND NEC 250.104(D)(2)
(F)	LOCAL INTERIOR HOT & COLD WATER PIPING NEC 250.104(A)(1) AND NEC 250.104(D)(1)
(G)	METAL GAS SERVICE PIPING, AFTER THE METER NEC 250.104(B)

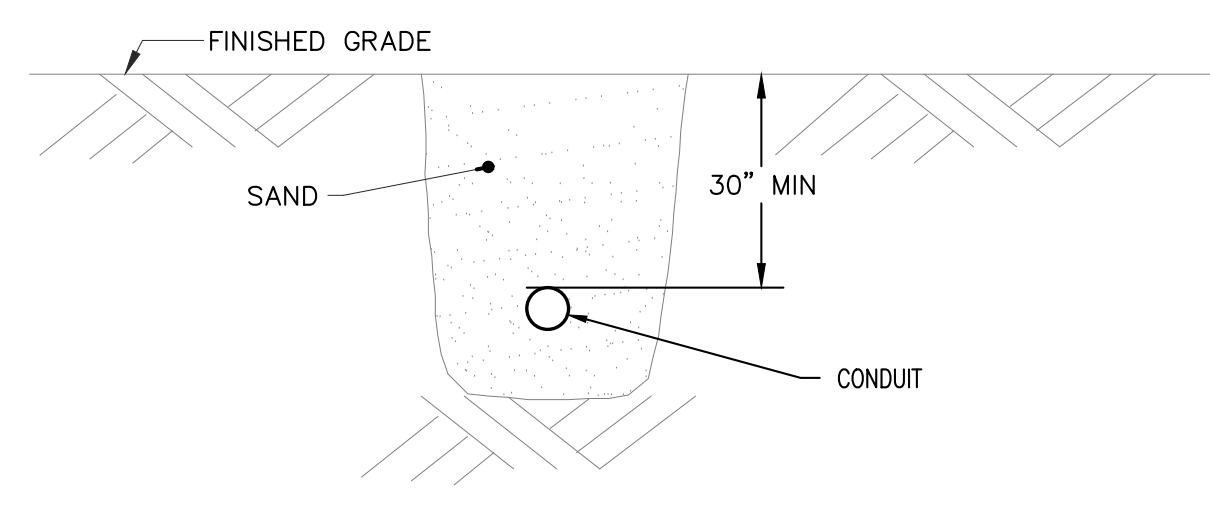
NOTES:  
 1. BONDING CONDUCTORS SHALL BE AS PER NEC 250.102.  
 2. BONDING METHOD SHALL BE AS PER NEC 250.104.



- NOTE:**
- THE ABOVE DETAILS ARE PROVIDED TO AID IN THE INSTALLATION AND SELECTION OF THE UL LISTED DESIGN (FLAMESAFE FS-1900 SERIES SEALANT). THE CONTRACTOR SHALL SUBMIT PRODUCT DATA DETAILS AND SHOP DWGS FOR ALL PENETRATIONS.
  - SYSTEM DESIGN EVALUATED TO THE UL 1479 (ASTM E814) FIRE TESTS OF THROUGH - PENETRATION FIRESTOPS.
  - REFER TO THE UL LIST DESIGN FOR COMPLETE INFORMATION AND THE UL FIRE RESISTANCE DIRECTORY FOR COMPONENTS REQUIRING UL CLASSIFICATION.

**TYPICAL DETAILS OF CONDUITS THRU RATED WALLS OR FLOORS**

NOT TO SCALE



- NOTE:**
- PROVIDE PVC TO RGS COUPLING AND RGS CONDUIT FOR ALL STUB-UPS THROUGH PAVED AREAS.

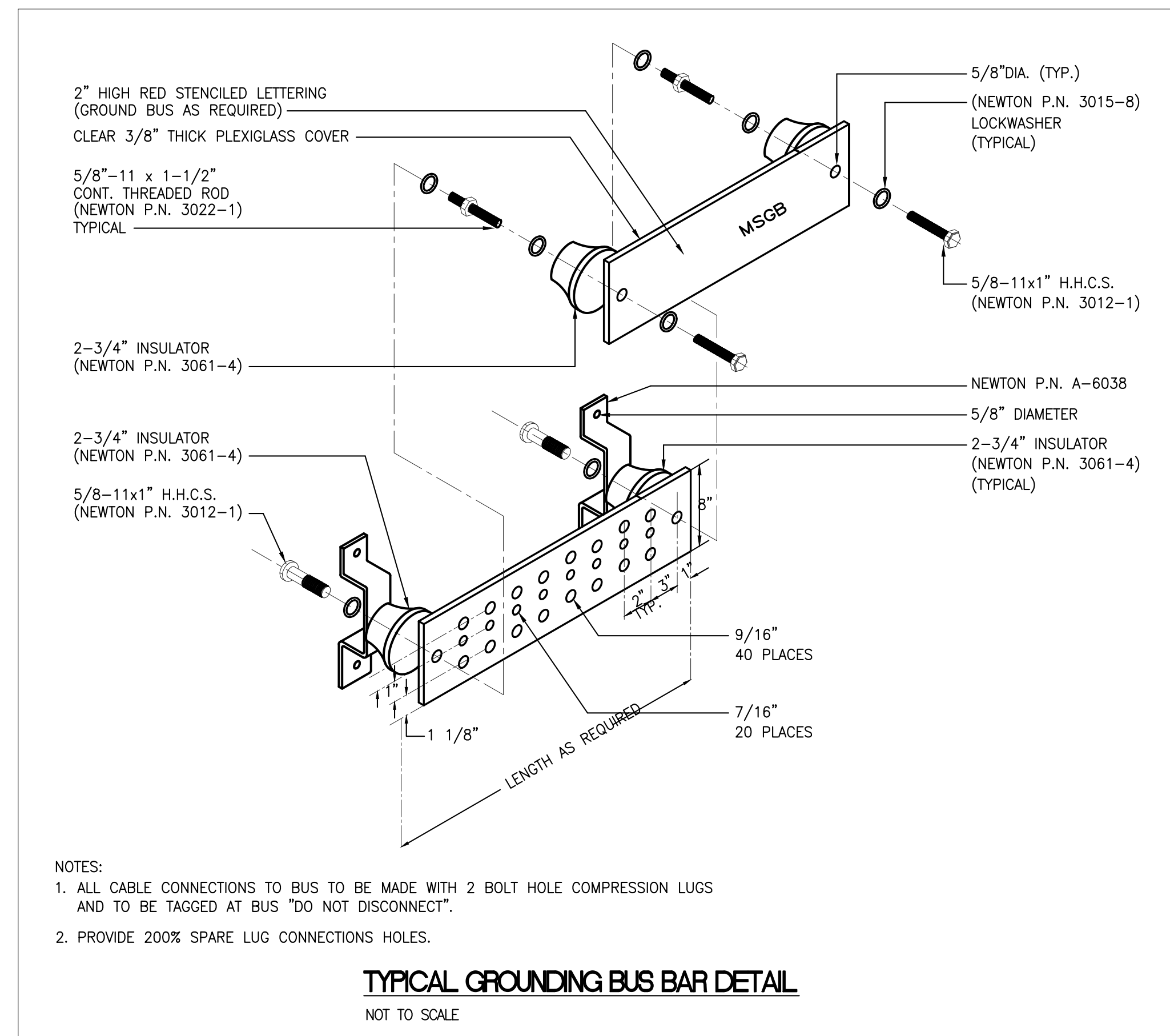
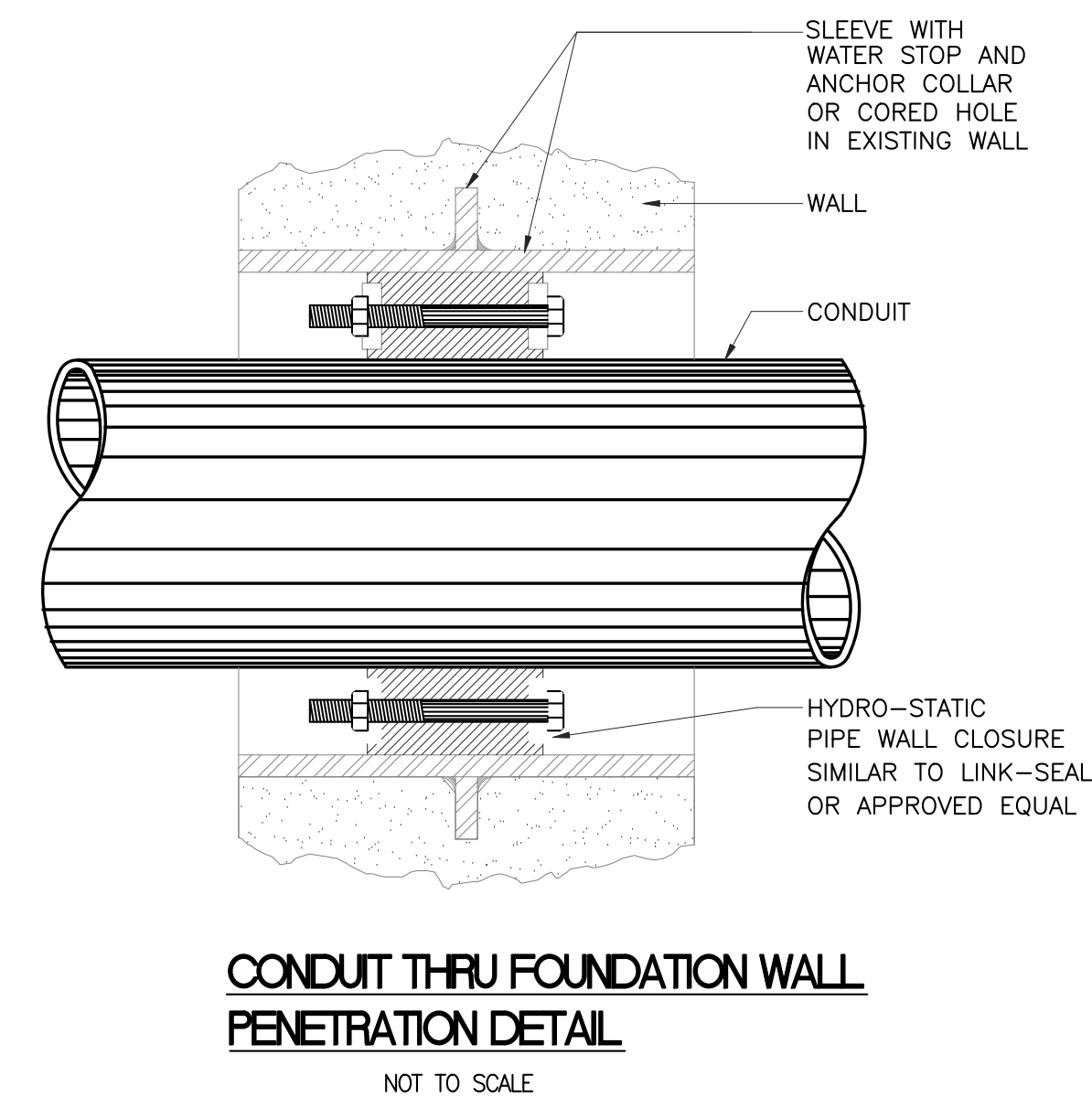
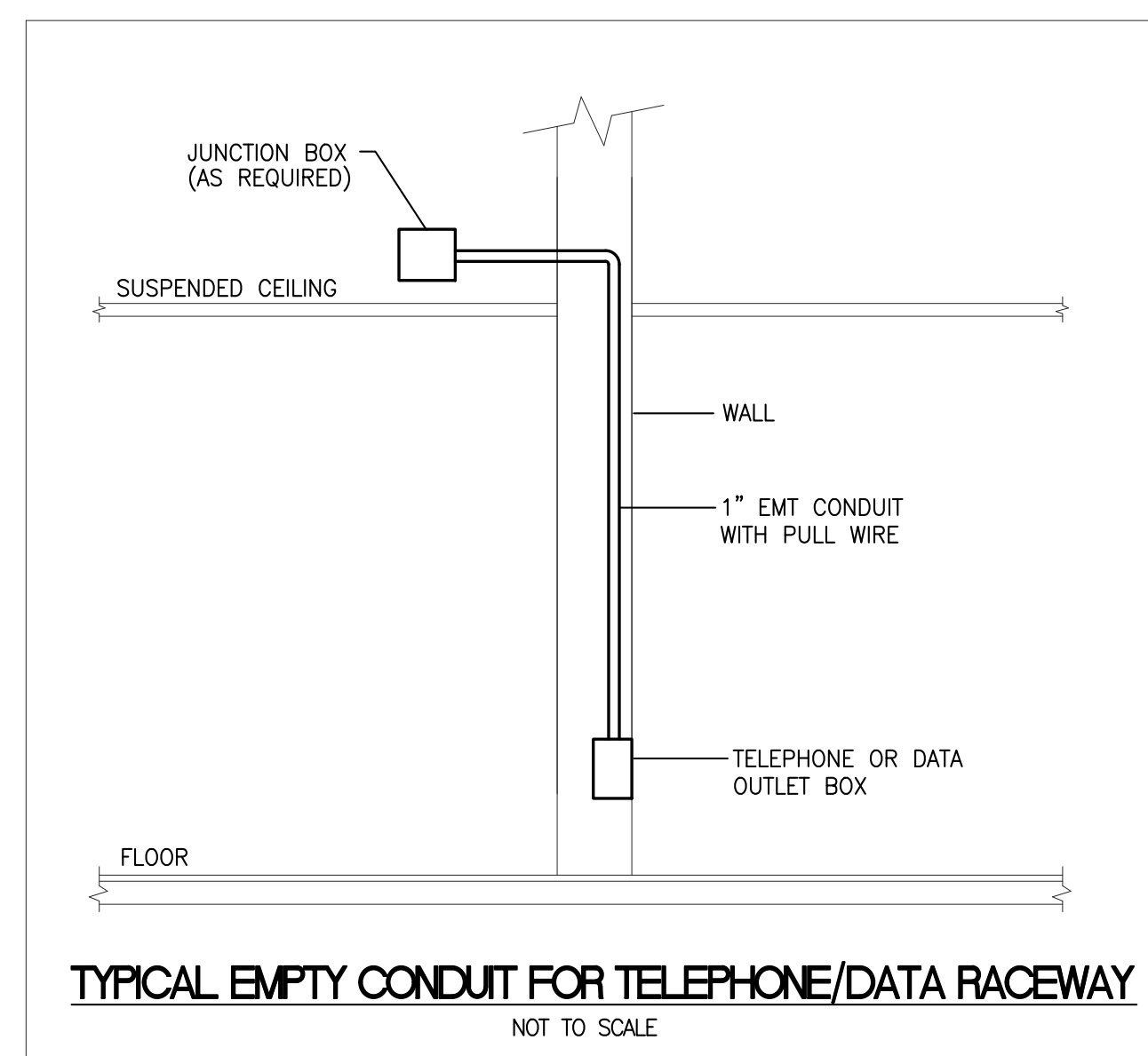
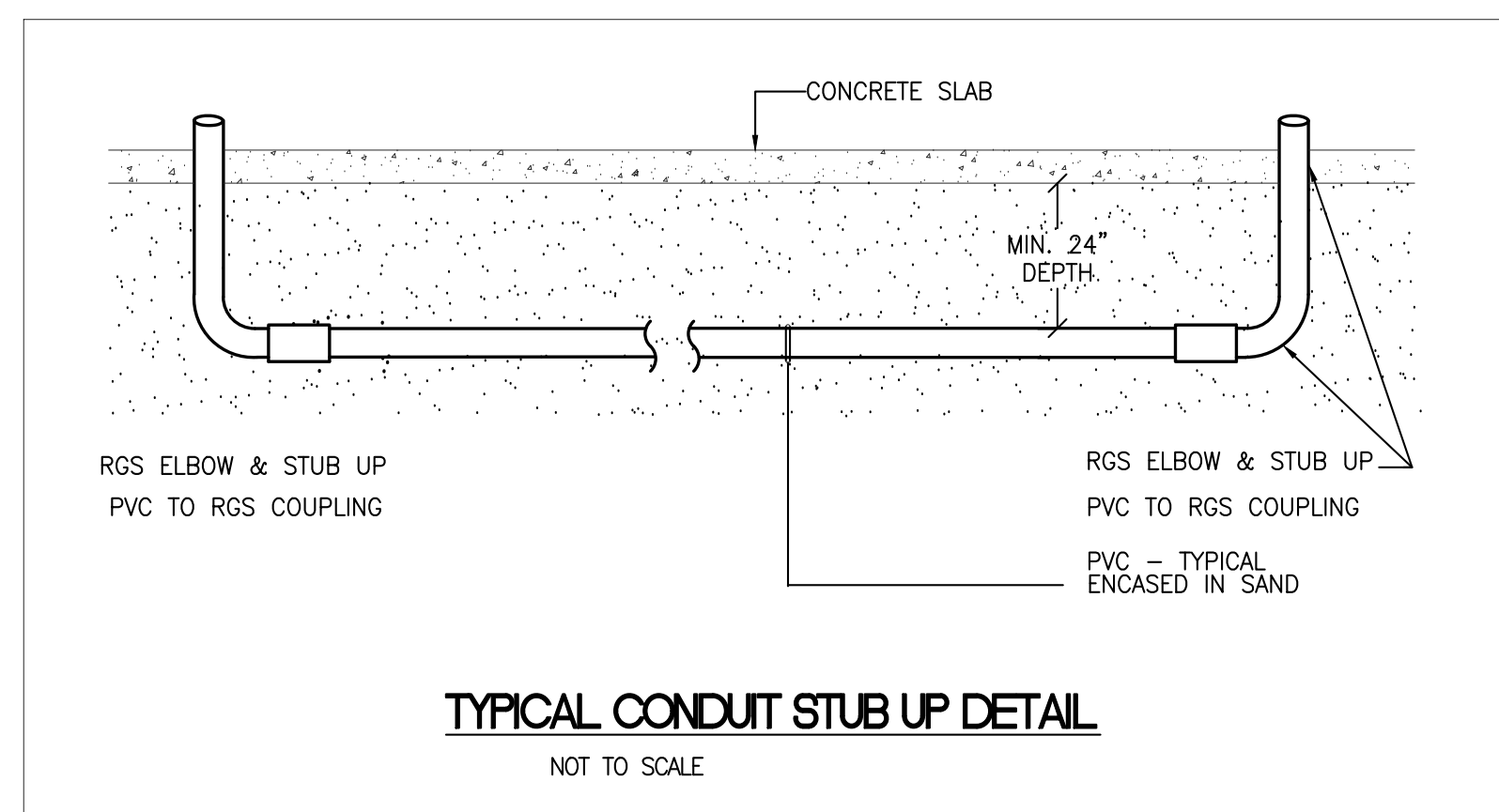
**TYPICAL BURIED CONDUIT DETAIL**

NOT TO SCALE

RELEASED FOR	DATE
<input type="checkbox"/> SCHEMATIC DESIGN	1/26/2024
<input type="checkbox"/> DESIGN DEVELOPMENT	2/21/2024
<input checked="" type="checkbox"/> 50% CDS	3/18/2024
<input type="checkbox"/> PERMIT	3/25/2024

REVISIONS



**COPPER BRANCH CIRCUIT WIRE SIZING TABLES - 240V - 3% VOLTAGE DROP**

C/B TRIP	240V, 2P, 2W 120V/240V, 2P, 3W	120V, 1P, 2W		
		DISTANCE IN FEET	MINIMUM WIRE SIZE	MINIMUM CONDUIT SIZE
15	DISTANCE IN FEET	146 232 370 588	88 136 214 333 500 625	
	MINIMUM WIRE SIZE	12 10 8 6	12 10 8 6 4 3	
20	DISTANCE IN FEET	109 174 278 441	66 102 161 250 375 469	
	MINIMUM WIRE SIZE	12 10 8 6	12 10 8 6 4 3	
30	DISTANCE IN FEET	116 185 294 467	68 107 167 250 313 375	
	MINIMUM WIRE SIZE	10 8 6 4	10 8 6 4 3 2	
40	DISTANCE IN FEET	139 220 350 442	80 125 188 234 281 352	
	MINIMUM WIRE SIZE	8 6 4 3	8 6 4 3 2 1	
50	DISTANCE IN FEET	111 176 280 354	64 100 150 188 225 281	
	MINIMUM WIRE SIZE	8 6 4 3	8 6 4 3 2 1	
60	DISTANCE IN FEET	147 233 295 373	83 125 156 188 234	
	MINIMUM WIRE SIZE	6 4 3 2	6 4 3 2 1	

**NOTES:**

1. READ ACROSS TO THE RIGHT FROM C/B TRIP TO DESIRED VOLTAGE CHARACTERISTICS AND NEXT GREATER DISTANCE THAN CIRCUIT IN QUESTION.
2. READ DOWN TO MINIMUM WIRE SIZE.
3. DISTANCES ARE TO THE CENTER OF CONCENTRATED LOAD SUCH AS CLASSROOM LIGHTING OR THE MIDPOINT OF DISTRIBUTED LOAD SUCH AS CORRIDOR LIGHTING.
4. EQUIPMENT GROUNDING CONDUCTORS SHALL BE INCREASED IN SIZE PROPORTIONATELY PER NEC.

**RACEWAY SIZING**

ALL RACEWAYS SHALL BE SIZED IN ACCORDANCE WITH THE CURRENT NATIONAL ELECTRICAL CODE IN EFFECT AS A MINIMUM SIZE. THE MORE COMMON SIZES ARE INCLUDED HERE FOR THE CONTRACTOR'S CONVENIENCE.

WIRE SIZE	NO. OF CONDUCTORS	MINIMUM CONDUIT SIZE	WIRE SIZE	NO. OF CONDUCTORS	MINIMUM CONDUIT SIZE
12	3	3/4"	8	3	3/4"
12	4	3/4"	8	4	3/4"
12	5	3/4"	8	5	3/4"
12	6	3/4"	8	6	1"
12	7	3/4"	8	7	1"
12	8	3/4"	8	8	1"
10	3	3/4"	6	3	3/4"
10	4	3/4"	6	4	3/4"
10	5	3/4"	6	5	1"
10	6	3/4"	6	6	1"
10	7	3/4"	6	7	1-1/4"
10	8	3/4"	6	8	1-1/4"

**NOTES TO PANELBOARD SCHEDULES AND BRANCH CIRCUIT WIRE SIZING TABLES:**

**WIRE SIZING**  
UNLESS OTHERWISE INDICATED, MINIMUM WIRE AMPACITY SHALL BE GREATER THAN OR EQUAL TO THE BRANCH CIRCUIT TRIP BASED ON COPPER CONDUCTOR WITH 90-DEGREE C THHN INSULATION APPLIED AT ITS 75-DEGREE C AMPACITY.

REFER TO THE BRANCH CIRCUIT WIRE SIZING TABLES FOR DISTANCE LIMITATIONS FOR THE MINIMUM WIRE SIZE AND FOR SELECTING THE PROPER WIRE SIZE FOR THE DISTANCE AND VOLTAGE DROP INVOLVED.

**NUMBER OF CONDUCTORS**  
QUANTITIES OF WIRES SHALL BE BASED ON AN INDIVIDUAL HOMERUN FOR EACH CIRCUIT AS FOLLOWS:

	PHASE CONDUCTOR	FULL CIRCUIT SIZE NEUTRAL CONDUCTOR	FULL CIRCUIT SIZE EQUIPMENT GROUNDING CONDUCTOR	FULL CIRCUIT SIZE ISOLATED GROUND CONDUCTOR
1 POLE CIRCUIT	1	1	1	0
1 POLE DATA/COMPUTER CIRCUIT	1	1	1	1
2 POLE CIRCUIT	2	1	1	0

	PHASE CONDUCTOR	FULL CIRCUIT SIZE NEUTRAL CONDUCTOR	FULL CIRCUIT SIZE EQUIPMENT GROUNDING CONDUCTOR	FULL CIRCUIT SIZE ISOLATED GROUND CONDUCTOR
TWO 1 POLE HOMERUNS	2	2	1	0
TWO 1 POLE DATA/COMP. CIRCUIT HOMERUNS	2	2	1	1
THREE 1 POLE HOMERUNS	3	3	1	0
THREE 1 POLE DATA/COMP. CIRCUIT HOMERUNS	3	3	1	1

CONSECUTIVE INDIVIDUAL 20 AMP LINE TO NEUTRAL BRANCH CIRCUITS MAY NOT BE COMBINED INTO MULTIWIRE BRANCH CIRCUITS HAVING HOMERUNS WITH A COMMON NEUTRAL CONDUCTOR.

SINGLE PHASE, TWO POLE, TWO WIRE, LINE TO LINE, BRANCH CIRCUITS AND SINGLE PHASE, TWO POLE, THREE WIRE, LINE TO LINE PLUS NEUTRAL, BRANCH CIRCUITS SHALL HAVE INDIVIDUAL UNCOMBINED HOMERUNS.

COMBINED TWO AND THREE CIRCUIT HOMERUNS SHALL HAVE SEPARATE NEUTRALS FOR EACH BUT A COMMON EQUIPMENT GROUNDING CONDUCTOR AND A COMMON ISOLATED GROUNDING CONDUCTOR MAY BE USED.

RELEASED FOR	DATE
<input type="checkbox"/> SCHEMATIC DESIGN	1/26/2024
<input type="checkbox"/> DESIGN DEVELOPMENT	2/21/2024
<input checked="" type="checkbox"/> 50% CDS	3/18/2024
<input type="checkbox"/> PERMIT	3/25/2024







**RISER KEYNOTES**

- CONFIRM HOT/COLD SEQUENCE REQUIREMENTS FOR ALL UTILITY METERING PRIOR TO FABRICATION AND INSTALLATION WITH UTILITY COMPANY.
- E.C. TO FURNISH AND INSTALL TWO (2) 5" RGS EMPTY CONDUITS WITH DRAG STRINGS STUBBED AND BUSSED FROM TRANSFORMER TO JCP&L POLEMANHOLE. COORDINATE EXACT ROUTING WITH P&E&G AND STRUCTURAL DRAWINGS.
- PROVIDE ONE (1) ADDITIONAL EMPTY CONDUIT OF THE SAME SIZE.

**APARTMENT FEEDER SCHEDULE (AFX00)**

TAG	AMPS	FEEDER
AF100	100	(1) 3#1 PLUS 1#6 GND. AL MC <sup>1</sup>
AF125	125	(1) 3#20 PLUS 1#4 GND. AL MC <sup>2</sup>
AF150	150	(1) 3#30 PLUS 1#4 GND. AL MC <sup>3</sup>
AF200	200	(1) 3#250MCM PLUS 1#4 GND. AL MC <sup>4</sup>

**NOTES:**

- ALL RUNS OVER 125' SHALL UTILIZE (1)3#10 PLUS 1#4G AL MC FEEDER  
ALL RUNS OVER 150' SHALL UTILIZE (1)3#20 PLUS 1#4G AL MC FEEDER  
ALL RUNS OVER 190' SHALL UTILIZE (1)3#30 PLUS 1#4G AL MC FEEDER  
ALL RUNS OVER 240' SHALL UTILIZE (1)3#40 PLUS 1#2G AL MC FEEDER  
ALL RUNS OVER 310' SHALL UTILIZE (1)3#250MCM PLUS 1#1G AL MC FEEDER
- ALL RUNS OVER 150' SHALL UTILIZE (1)3#30 PLUS 1#2G AL MC FEEDER  
ALL RUNS OVER 190' SHALL UTILIZE (1)3#40 PLUS 1#1G AL MC FEEDER  
ALL RUNS OVER 240' SHALL UTILIZE (1)3#250MCM PLUS 1#10G AL MC FEEDER  
ALL RUNS OVER 290' SHALL UTILIZE (1)3#300MCM PLUS 1#20G AL MC FEEDER  
ALL RUNS OVER 340' SHALL UTILIZE (1)3#300MCM PLUS 1#30G AL MC FEEDER
- ALL RUNS OVER 160' SHALL UTILIZE (1)3#40 PLUS 1#2G AL MC FEEDER  
ALL RUNS OVER 200' SHALL UTILIZE (1)3#250MCM PLUS 1#20G AL MC FEEDER  
ALL RUNS OVER 240' SHALL UTILIZE (1)3#300MCM PLUS 1#1G AL MC FEEDER  
ALL RUNS OVER 280' SHALL UTILIZE (1)3#300MCM PLUS 1#10G AL MC FEEDER  
ALL RUNS OVER 320' SHALL UTILIZE (1)3#400MCM PLUS 1#10G AL MC FEEDER
- ALL RUNS OVER 180' SHALL UTILIZE (1)3#300MCM PLUS 1#3G AL MC FEEDER  
ALL RUNS OVER 210' SHALL UTILIZE (1)3#300MCM PLUS 1#2G AL MC FEEDER  
ALL RUNS OVER 240' SHALL UTILIZE (1)3#400MCM PLUS 1#1G AL MC FEEDER  
ALL RUNS OVER 280' SHALL UTILIZE (1)3#500MCM PLUS 1#1G AL MC FEEDER  
ALL RUNS OVER 340' SHALL UTILIZE (1)3#600MCM PLUS 1#10G AL MC FEEDER

**FEEDER SCHEDULE (FX00)**

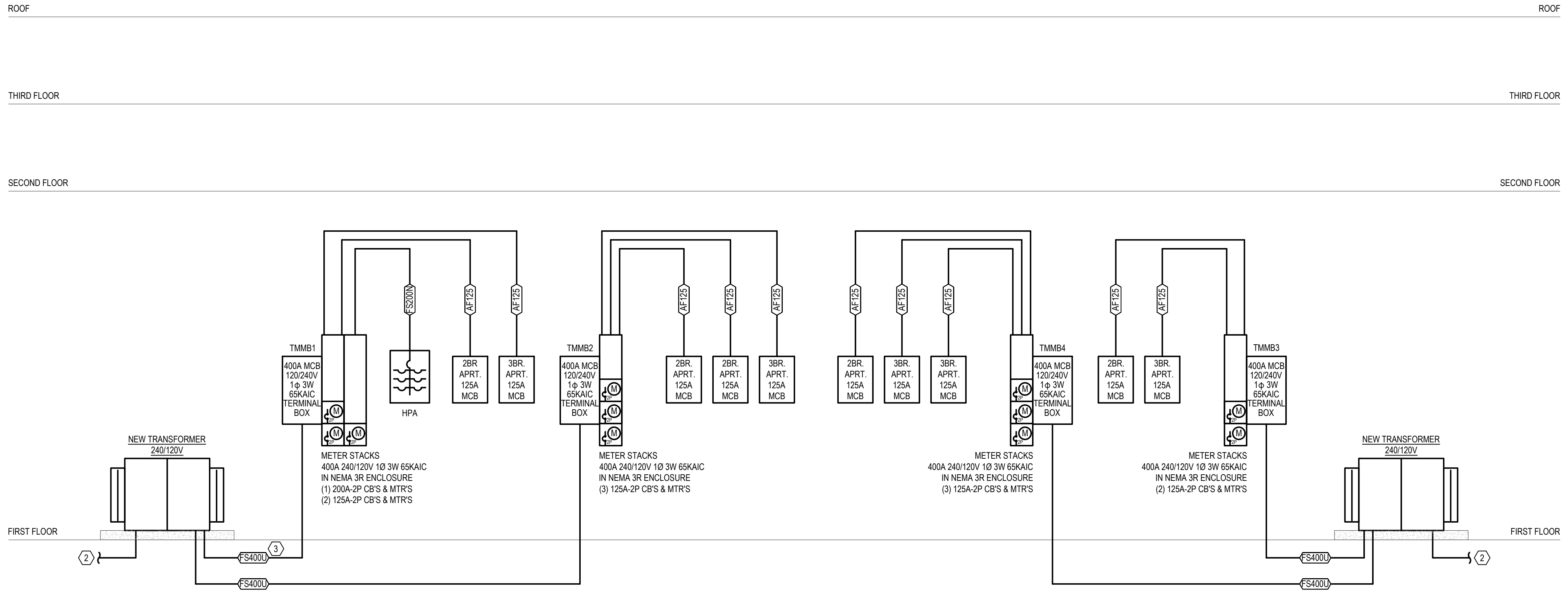
TAG	OCPD AMPS	COPPER		ALUMINUM	
		SETS, # OF CONDUCTORS, CONDUIT	SETS, # OF CONDUCTORS, CONDUIT	SETS, # OF CONDUCTORS, CONDUIT	SETS, # OF CONDUCTORS, CONDUIT
F20	20	1 3#12	1#12 G	3#4" C	3#4" C
F30	30	1 3#10	1#10 G	3#4" C	3#4" C
F30N	30	1 4#10	1#10 G	3#4" C	3#4" C
F40	40	1 3#8	1#10 G	1" C	1" C
F40N	40	1 4#8	1#10 G	1" C	1" C
F45	45	1 3#6	1#10 G	1" C	1" C
F45N	45	1 4#6	1#10 G	1" C	1" C
F50	50	1 3#6	1#10 G	1" C	1" C
F50N	50	1 4#6	1#10 G	1" C	1" C
F60	60	1 3#4	1#10 G	1" C	1" C
F60N	60	1 4#4	1#10 G	1" C	1" C
F70	70	1 3#4	1#8 G	1" C	1" C
F70N	70	1 4#4	1#8 G	1" C	1" C
F80	80	1 3#3	1#8 G	1" C	1" C
F80N	80	1 4#3	1#8 G	1" C	1" C
F90	90	1 3#2	1#8 G	1" C	1" C
F90N	90	1 4#2	1#8 G	1" C	1" C
F100	100	1 3#1	1#8 G	1" C	1" C
F100N	100	1 3#1	1#8 G	1" C	1" C
FS100N	110	1 3#1	1#8 G	1" C	1" C
F110	110	1 3#1	1#6 G	1" C	1" C
F110N	110	1 4#1	1#6 G	2" C	2" C
F125	125	1 3#1	1#6 G	2" C	2" C
F125N	125	1 3#1	1#6 G	2" C	2" C
F150	150	1 3#1/0	1#6 G	2" C	2" C
F150N	150	1 4#1/0	1#6 G	2" C	2" C
F175	175	1 3#0	1#6 G	2" C	2" C
F175N	175	1 4#0	1#6 G	2" C	2" C
F200	200	1 3#0	1#6 G	2" C	2" C
F200N	200	1 4#0	1#6 G	2" C	2" C
FS200N	1	2 #500MCM	1#4 G	2" C	2" C
F225	225	1 3#4/0	1#4 G	2" C	2" C
F225N	225	1 4#4/0	1#4 G	2" C	2" C
F250	250	1 3#250MCM	1#4 G	2" C	2" C
F250N	250	1 4#250MCM	1#4 G	2" C	2" C
F300	300	1 3#500MCM	1#4 G	3" C	3" C
F300N	300	1 4#500MCM	1#4 G	3" C	3" C
F350	350	1 3#500MCM	1#3 G	3" C	3" C
F350N	350	1 4#500MCM	1#3 G	3" C	3" C
F400	400	1 3#500MCM	1#3 G	3" C	3" C
F400N	400	1 4#500MCM	1#3 G	3" C	3" C
FS400N	1	3 #500MCM	1#3 G	3" C	3" C
F450	450	2 3#400	1#2 G	2" C	2" C
F450N	450	2 4#400	1#2 G	2" C	2" C
F500	500	2 3#250MCM	1#2 G	2" C	2" C
F500N	500	2 4#250MCM	1#2 G	2" C	2" C
F600	600	2 3#500MCM	1#1 G	2" C	2" C
F600N	600	2 4#500MCM	1#1 G	2" C	2" C
F700	700	2 3#500MCM	1#1 G	3" C	3" C
F700N	700	2 4#500MCM	1#1 G	3" C	3" C
F800	800	2 3#500MCM	1#1 G	3" C	3" C
F800N	800	2 4#500MCM	1#1 G	3" C	3" C
F900N	1000	3 3#400MCM	1#2 G	3" C	3" C
F1000N	1000	3 4#400MCM	1#2 G	3" C	3" C
F1200	1200	3 3#500MCM	1#3 G	4" C	4" C
F1200N	1200	3 4#500MCM	1#3 G	4" C	4" C

**NOTES:**

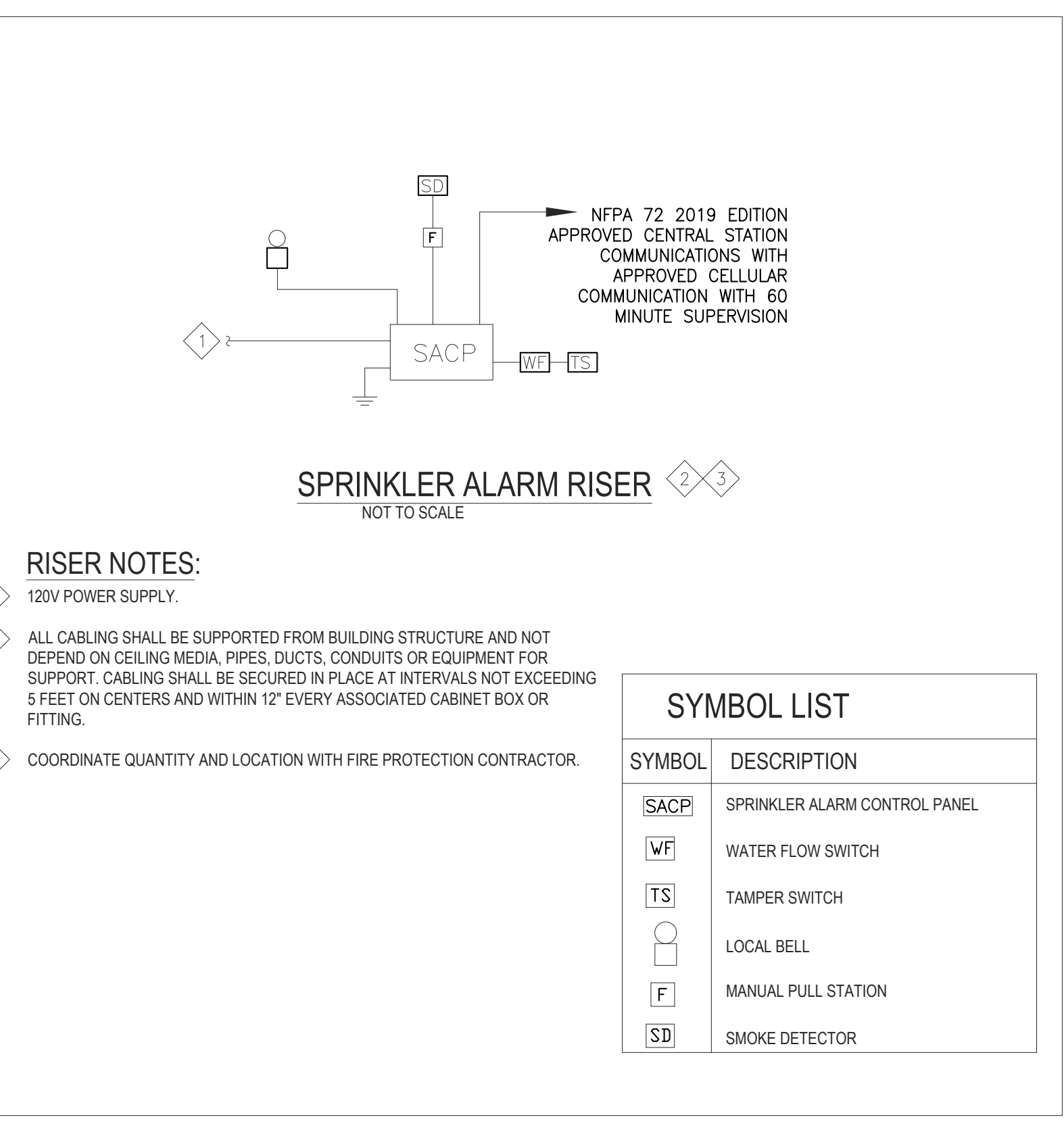
- THIS TABLE IS BASED ON THE 90 DEGREE RATING FOR 100A AND BELOW AND 75 DEGREE RATING FOR ABOVE 100A RATING, THIN/THIN, 600V RATED CONDUCTORS IN ELECTRIC METAL TUBING CONDUIT (EMT).
- 1.1 AT NO COST TO THE OWNER, CONDUIT SIZE SHALL BE ADJUSTED AS PER NATIONAL ELECTRICAL CODE WHEN PROVIDED CONDUIT IS NOT EMT.
- 1.2 AT NO COST TO THE OWNER, WIRING SHALL BE MODIFIED AS PER NATIONAL ELECTRICAL CODE AS REQUIRED TO COMPLY WITH VOLTAGE DROP LIMITATIONS, INCLUDING MODIFICATIONS TO THE CONDUIT SIZE WHERE REQUIRED.
2. ALUMINUM CONDUCTORS ARE PERMITTED ONLY WITH OWNER APPROVAL AND FOR FEEDERS RATED 100A OR LARGER.
- 2.1 ALUMINUM FEEDERS MUST BE TERMINATED UTILIZING COMPRESSION TYPE CONNECTORS.
3. ANY DISCREPANCY BETWEEN SIZES INDICATED IN THIS TABLE AND SIZES REQUIRED BY NATIONAL ELECTRICAL CODE, NATIONAL CODE SHALL GOVERN.
4. OVERCURRENT PROTECTION DEVICES (OCPD) AMPACITY SHALL BE USED FOR FEEDER SIZING, UNLESS INDICATED OTHERWISE ELSEWHERE IN CONTRACT DOCUMENTS. ANY DISCREPANCIES SHALL BE BROUGHT UP TO IMMEDIATE ATTENTION OF THE ENGINEER.
5. FEEDERS SHALL BE COMPATIBLE WITH EQUIPMENT LUG RATING AND MATERIAL.
6. WHERE UNGROUND CONDUCTORS ARE INCREASED IN SIZE FROM WHAT SHOWN IN THE TABLE ABOVE, GROUNDING CONDUCTORS SHALL BE INCREASED IN SIZE PROPORTIONALLY ACCORDING TO THE CIRCULAR MIL AREA OF THE UNGROUND CONDUCTORS.

NOT PERMITTED

- ELECTRICAL RISER DIAGRAM GENERAL NOTES**
- SHORT CIRCUIT AND COORDINATION STUDY REQUIREMENTS:
    - ELECTRICAL CONTRACTOR SHALL PERFORM ARC-FLASH ANALYSIS AND PROVIDE WITH SUBMITTALS.
    - ELECTRICAL CONTRACTOR SHALL PROVIDE AND INSTALL ARC-FLASH LABELS ON ALL ELECTRIC EQUIPMENT WITH DISCONNECTING MEANS AND OVERCURRENT PROTECTION (EXCLUDING DWELLING UNIT APARTMENT PANELS). LABELS SHALL PROVIDE THE HAZARD LEVEL AND BOUNDARY DISTANCE AS WELL AS CUSTOMER PPE REQUIREMENTS.
    - ELECTRICAL CONTRACTOR SHALL SOURCE COORDINATION STUDY THROUGH ELECTRICAL EQUIPMENT MANUFACTURER OR LICENSED PROFESSIONAL AND PROVIDE COMPLETE STUDY WITH SUBMITTALS.
    - ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL UTILITY FAULT CURRENT INFORMATION AND CABLE LENGTHS TO STUDY PROVIDER.
    - ALL EQUIPMENT PROVIDED SHALL BE RATED TO OPERATE AT FAULT CURRENTS INDICATED IN STUDY.
  - SURGE PROTECTION
    - PROVIDE REQUIRED SURGE PROTECTIVE DEVICES (UL 1449 LISTED) FOR THE FOLLOWING:
      - ALL SERVICES SUPPLYING DWELLING UNITS
      - ENTRANCES OR CONDUIT COMMUNICATION AND ANTENNA SYSTEMS INCLUDING BUN NOT LIMITED TO CATV, ALARM AND DATA
    - UNLESS OTHERWISE SPECIFIED, SPD DEVICE SHALL BE EXTERNAL AND LOCATED IMMEDIATELY ADJACENT TO THE PROTECTED EQUIPMENT.
  - ELECTRICAL MEANS AND METHODS:
    - SERVICE EQUIPMENT SHALL BE PROPERLY GROUNDED.
    - SERVICE DISCONNECTING MEANS SHALL BE INDIVIDUALLY MOUNTED OR LOCATED IN THE DEDICATED VERTICAL ENCLOSURE WITH REQUIRED BARRIERS.
    - ALL TRANSFORMERS SHALL BE PROPERLY GROUNDED AT SECONDARY AS REQUIRED BY NATIONAL ELECTRICAL CODE FOR SEPARATELY DERIVED SYSTEM.
    - ALL OVERCURRENT PROTECTION DEVICES FOR OR ADJUSTABLE TO 1200A OR LARGER SHALL BE PROVIDED WITH A MEANS TO REDUCE THE CLEARING TIME BE ONE OF THE MEANS INDICATED BELOW.
      - ZONE SELECTIVE INTERLOCKING (CIRCUIT BREAKERS ONLY)
      - DIFFERENTIAL RELAY PROTECTION
      - ENERGY REDUCTION MAINTENANCE SWITCH WITH LOCAL STATUS INDICATION
      - ENERGY-REDUCING ACTIVE ARC FLASH MITIGATION SYSTEM
      - INSTANTANEOUS TRIP SETTING (CIRCUIT BREAKERS ONLY) TEMPORARY ADJUSTMENT OF INSTANTANEOUS TRIP SETTING TO ACHIEVE ARC ENERGY REDUCTION SHALL NOT BE PERMITTED.
      - INSTANTANEOUS OVERRIDE (CIRCUIT BREAKERS ONLY)
      - CURRENT LIMITING, ELECTRONICALLY ACTUATED FUSE WITH A 0.1 SECOND CLEARING TIME (FUSES ONLY)
  - UNLESS OTHERWISE INDICATED, FEEDERS SHALL BE SIZED TO MATCH OVERCURRENT PROTECTION RATING. ALL FEEDERS SHALL INCLUDE FULL SIZED DEDICATED NEUTRAL AND GROUND CONDUCTORS.
    - WHEN ALUMINUM CONDUCTORS ARE PERMITTED TO BE USED IN LIEU OF COPPER, CONTRACTOR SHALL PROVIDE ALUMINUM OF EQUAL OR HIGHER AMPACITY. ALUMINUM CONDUCTORS SHALL BE SIZED TO COMPLY WITH CODE REQUIRED VOLTAGE DROP LIMITATIONS.
    - FEEDER SIZES INDICATED ARE MINIMUM AND SHALL BE INCREASED TO LIMIT THE OVERALL VOLTAGE DROP FROM THE POWER SOURCE TO THE FINAL UTILIZATION POINT TO NOT EXCEED 5%.
  - ADVANCED COORDINATION WITH ALL TRADES SHALL BE DONE TO ENSURE ALL FUSE BULBS ARE LOCATED AND INSTALLED SO THAT THEY WILL BE FULL ACCESSIBLE AFTER ALL CONSTRUCTION WORK IS COMPLETED.
  - ELECTRICAL CONTRACTOR IS RESPONSIBLE TO ENSURE ALL WORKING CLEARANCES PROVIDED FOR ELECTRICAL EQUIPMENT SHOWN ON POWER DRAWINGS AND RISER DIAGRAMS IS IN STRICT COMPLIANCE WITH NATIONAL ELECTRICAL CODE CHAPTER 1, PART B, SECTION 110.26(A). LOCATIONS ON FLOOR PLANS ARE SCHEMATIC AND DIAGRAMMATIC IN NATURE.
  - POWER DISTRIBUTION EQUIPMENT SUPPLIER SHALL PROVIDE EQUIPMENT APPROPRIATELY RATED AND RATED TO ACCOMMODATE THE AVAILABLE FAULT CURRENT AT THE UTILITY COMPANY TRANSFORMER SECONDARIES. THE ELECTRICAL CONTRACTOR SHALL PROVIDE THIS SUPPLIER WITH COPIES OF THE ELECTRICAL DOCUMENTS AS REQUIRED SO THAT PROPERLY RATED/DERATED EQUIPMENT IS PROVIDED UNDER BASE BID.
  - CONDUCTORS BELOW GRADE OR SUBJECT TO MOISTURE SHALL BE "XHHW-2".
  - PARALLEL FEEDERS SHALL HAVE IDENTICAL ELECTRICAL CHARACTERISTICS. BE CUT TO EXACTLY THE SAME LENGTHS FROM THE SAME FACTORY RUN AND WHEN INSTALLED TORQUE TO IDENTICAL VALUE.
  - DESIGN TEMPERATURE OF CONDUCTORS AND TERMINATING LUGS/PROVISIONS SHALL BE 75°C.
  - LUG SHALL BE RATED TO SUPPORT MULTIPLE CABLES IF INTENDED FOR THIS PURPOSE.
  - ELECTRICAL CONTRACTOR SHALL PROVIDE A LETTER FROM MANUFACTURER OF THE MANUFACTURERS LETTERHEAD INDICATING THAT ALL TORQUE REQUIREMENTS HAVE BEEN MET.
  - ELECTRICAL EQUIPMENT AND MATERIAL SHALL BE LISTED, LABELED, AND INSTALLED BY RECOGNIZED TESTING LABORATORY.
  - PRIOR TO PURCHASING AND FINALIZING EQUIPMENT LAYOUT, ELECTRICAL CONTRACTOR SHALL COORDINATE AND OBTAIN FORMAL METERING CONFIGURATION APPROVAL FROM UTILITY COMPANY. ANY REQUIRED MODIFICATION TO METERING ARRANGEMENT SHALL BE PROVIDED AT NO EXTRA COST.
- EACH DISCONNECTING MEANS SHALL BE IDENTIFIED AS PER NEC SECTIONS 110.21 AND 110.22.
  - LABELING
    - EVERY CIRCUIT AND CIRCUIT MODIFICATION SHALL BE LEGIBLY IDENTIFIED AS PER NEC SECTION 408.4 (A).
    - ALL SWITCHBOARDS, SWITCHGEAR AND PANELBOARDS IN OTHER THAN ONE OR TWO-FAMILY DWELLINGS SHALL BE PERMANENTLY MARKED TO INDICATE EQUIPMENT WHERE THE POWER ORIGINATES AS PER NEC 408.4 (B).
  - TERMINATIONS
    - CONTRACTOR SHALL VERIFY THAT TERMINATIONS AND/OR LUGS ARE RATED TO ACCOMMODATE INDICATED RATINGS OF THE FEEDERS.
      - WHEN TERMINALS AND/OR LUGS ARE NOT CAPABLE TO ACCOMMODATE INDICATED RATINGS, CONTRACTOR SHALL MODIFY POWER DISTRIBUTION AS REQUIRED TO SUPPORT ELECTRICAL EQUIPMENT WITHOUT ADDITIONAL COST TO THE OWNER. ANY SUCH MODIFICATIONS SHALL BE APPROVED BY THE ENGINEER.
      - TIGHTENING TORQUE VALUES SHALL COMPLY WITH MANUFACTURERS' INSTALLATION INSTRUCTIONS.



**1 ELECTRICAL RISER DIAGRAM**  
NOT TO SCALE



- SPRINKLER ALARM SEQUENCE OF OPERATION**
- OPERATION OF A SPRINKLER WATER FLOW SWITCH AUTOMATICALLY SHALL:
    - SOUND AN AUDIBLE AND FLASH THE GENERAL ALARM LED AT THE SPRINKLER AND SMOKE DETECTION ALARM PANEL.
    - VISUALLY ANNUNCIATE THE DEVICE IN ALARM AT THE SPRINKLER AND SMOKE DETECTION ALARM PANEL.
    - ACTIVATE THE ALARM BELL AT THE SPRINKLER ALARM CONTROL PANEL.
    - OPERATE CONTROL RELAY CONTACTS TO INITIATE TRANSMISSION OF A DEVICE SPECIFIC ALARM SIGNAL TO A CENTRAL STATION VIA TELEPHONE LINES.
  - OPERATION OF A SPRINKLER TAMPER SWITCH AUTOMATICALLY SHALL:
    - SOUND AN AUDIBLE SIGNAL AND FLASH THE SUPERVISORY LED AT THE SPRINKLER ALARM CONTROL PANEL.
    - VISUALLY ANNUNCIATE THE DEVICE REPORTING OFF NORMAL CONDITIONS AT THE SPRINKLER ALARM PANEL.
    - OPERATE CONTROL RELAYS TO INITIATE A TRANSMISSION OF A TROUBLE SIGNAL TO A SUPERVISORY SIGNAL TO A CENTRAL STATION VIA TELEPHONE LINES.
  - TROUBLE CONDITIONS AUTOMATICALLY SHALL:
    - SOUND AN AUDIBLE SIGNAL AND FLASH THE SYSTEM TROUBLE LED AT THE SPRINKLER ALARM CONTROL PANEL.
    - VISUALLY ANNUNCIATE THE DEVICE OR CIRCUIT REPORTING TROUBLE.
    - OPERATE CONTROL RELAYS TO INITIATE A TRANSMISSION OF A TROUBLE SIGNAL TO A CENTRAL STATION VIA TELEPHONE LINES.

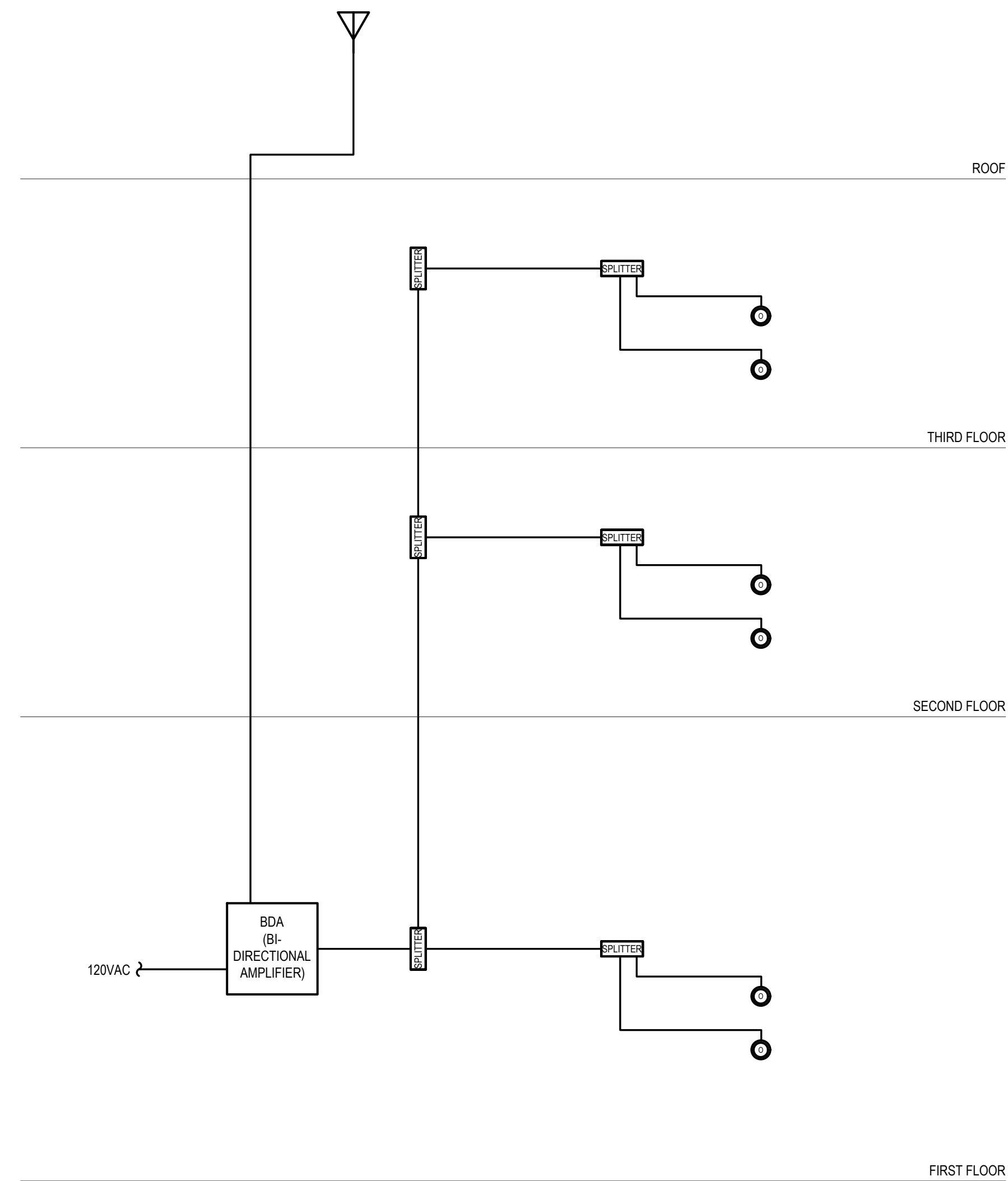
- SPRINKLER ALARM NOTES:**
- THE SPRINKLER ALARM RISER DIAGRAM SHOWN IS AN INDICATION OF THE WORK REQUIRED AND SHALL BE USED FOR ESTIMATING PURPOSES ONLY AND IS NOT A POINT-TO-POINT WIRING DIAGRAM. THE CONTRACTOR SHALL OBTAIN A POINT-TO-POINT WIRING DIAGRAM FROM THE BUILDING FIRE ALARM MAINTENANCE CONTRACTOR AND PERFORM ALL WORK IN ACCORDANCE WITH THAT DIAGRAM.
  - THE OPERATION OF THE SPRINKLER ALARM INSTALLATION DOES NOT CONSTITUTE AN ACCEPTANCE OF THE WORK BY THE OWNER. FINAL ACCEPTANCE IS TO BE MADE AFTER THE CONTRACTOR HAS DEMONSTRATED THAT THE WORK FULFILLS THE REQUIREMENTS OF THE PLANS AND SPECIFICATIONS AND HAS FURNISHED ALL REQUIRED CERTIFICATES OF APPROVAL FROM THE STATE AUTHORITIES, MUNICIPAL AUTHORITIES AND UNDERWRITERS.
  - INCLUDE ALL FEES FOR FILING APPROVALS, AND SELF CERTIFICATION OF THE SPRINKLER ALARM INSTALLATION.

- SPRINKLER ALARM SPECIFICATIONS**
- NEW SPRINKLER ALARM SYSTEM WORK
    - THE SYSTEM SHALL BE A SPRINKLER ALARM SYSTEM PER BUILDING CODE.
    - ALL NEW EQUIPMENT SHALL BE IN COMPLIANCE WITH ALL APPLICABLE LOCAL CODES AND REGULATIONS.
  - SPRINKLER ALARM SYSTEM DIVISION OF WORK IS AS FOLLOWS:
    - SPRINKLER ALARM VENDOR WILL PROVIDE THE FOLLOWING INSTALLATION PACKAGE UNDER THIS CONTRACT:
      - FURNISH ALL DRAWINGS, MATERIAL AND PROGRAM CHANGES.
      - FILE DRAWINGS WITH LOCAL AUTHORITIES HAVING JURISDICTION.
      - COORDINATE INSPECTIONS WITH LOCAL AUTHORITIES HAVING JURISDICTION.
      - PROVIDE BUILDING OWNER WITH A LETTER ATTESTING THAT SAID SYSTEM(S) ARE FULLY OPERATIONAL PRIOR TO TENANT MOVE IN.
    - ELECTRICAL CONTRACTOR SHALL:
      - PURCHASE EQUIPMENT, DRAWINGS AND FILING FROM SYSTEM VENDOR.
      - INSTALL EQUIPMENT AND WIRE RUNS TO DESIGNATED POINTS PER VENDOR DRAWINGS.
      - CONTRACTOR SHALL BE AVAILABLE ON THE DATE OF ANY INSPECTION OR TEST OF SUCH SYSTEMS.
    - TENANTS WILL NOT BE PERMITTED TO MOVE IN OR OCCUPY ANY AREAS UNTIL SPRINKLER ALARM SYSTEM IS COMPLETE AND SYSTEM VENDOR CONFIRMS, IN WRITING, THAT THE SYSTEM(S) ARE OPERATIONAL.



LEGEND	
	COAXIAL CABLE
	CABLE SPLITTER
	OMNIDIRECTIONAL BUILDING ANTENNA
	YAGI ANTENNA

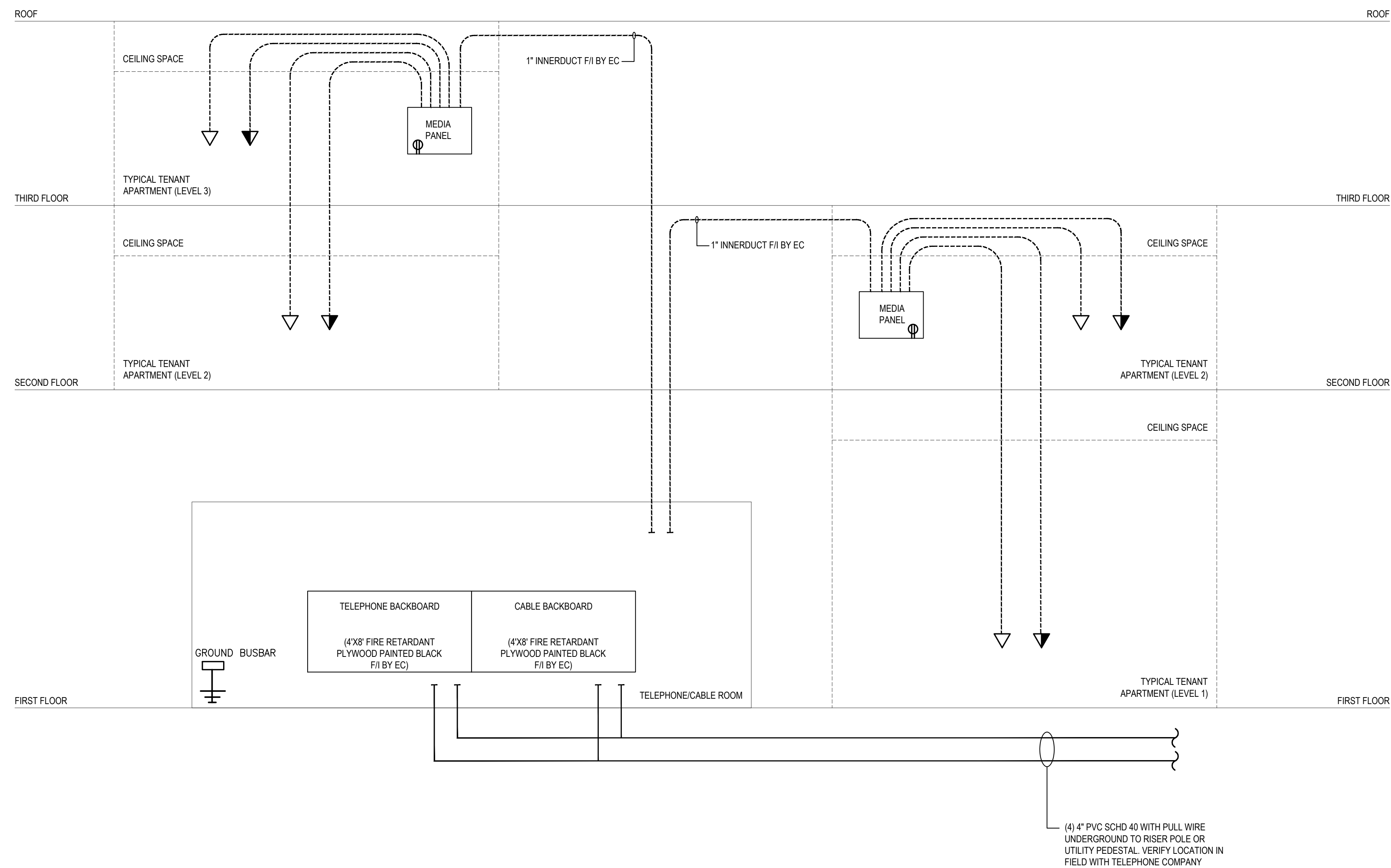
- NOTES**
1. PROVIDE EMERGENCY RADIO RESPONDER COVERAGE IN COMPLIANCE WITH IBC 918 & IFC 510. DESIGN OF SYSTEM TO BE COORDINATED WITH LOCAL AHJ REQUIREMENTS.
  2. THIS RISER DIAGRAM IS SCHEMATIC AND MAY NOT CONTAIN THE CORRECT QUANTITY OF DEVICES. IT SHOULD BE USED AS A WIRING AND DESIGN REFERENCE ONLY.
  3. CONTRACTOR TO PROVIDE FULL SHOP DRAWINGS DETAILING THE DESIGN, INCLUDING RISER DIAGRAMS, FLOOR PLANS, AND EQUIPMENT SPECIFICATIONS. SCOPE OF WORK TO ALSO INCLUDE SURVEY OF SIGNAL STRENGTH PRIOR TO CONSTRUCTION AND POST CONSTRUCTION FOR THE PURPOSES OF SYSTEM DESIGN. CONTACT STAN MRUCZKOWSKI (SMRUCZKOWSKI@PINNACLEWIRELESS.COM) AT PINNACLE WIRELESS, (201) 749-7829, FOR SYSTEM DESIGN.
  4. BDA (BIDIRECTIONAL AMPLIFIER) SHALL BE HOUSED IN (2) NEMA 4 ENCLOSURES LOCATED IN AN APPROVED LOCATION BY FIRE MARSHALL.



2 EMERGENCY RESPONDER RADIO COVERAGE RISER DIAGRAM  
NOT TO SCALE

APARTMENT LOW VOLTAGE DEVICE SCHEDULE	
	COMBINATION VOICE DATA JACK W/ BACKBOX (1) CAT5 4 PAIR & (1) CAT 6 6 PAIR HOME RUN TO MEDIA PANEL
	APTS: TEL/CABLE BOX (FBO); EC TO INSTALL AND FURNISH AND INSTALL INNERDUCT TO LOW VOLTAGE UTILITY ROOM

- NOTES**
1. THIS RISER DIAGRAM IS SCHEMATIC AND DOES NOT CONTAIN THE TOTAL QUANTITY OF EACH DEVICE. IT SHOULD BE USED AS A WIRING AND DESIGN REFERENCE ONLY. REFER TO FLOOR PLANS FOR EXACT QUANTITIES OF EACH DEVICE.
  2. ALL FLOOR AND WALL PENETRATIONS SHALL BE SEALED WITH FIRE RETARDANT BETWEEN THE EXTERIOR OF THE CONDUIT AND THE PENETRATION.



1 TELECOMMUNICATIONS WIRING RISER DIAGRAM  
NOT TO SCALE

ARMEN KHACHATURIAN  
PRINCIPAL IN CHARGE  
CM, JP, SM  
PROJECT TEAM  
AK  
CREATED BY  
AK  
SHEET DESCRIPTION  
LOW VOLTAGE RISER  
DIAGRAMS

RELEASED FOR	DATE
	SCHEMATIC DESIGN 1/26/2024
	DESIGN DEVELOPMENT 2/21/2024
	50% CDS 3/18/2024
	PERMIT 3/25/2024

REVISIONS

NO.	DESCRIPTION



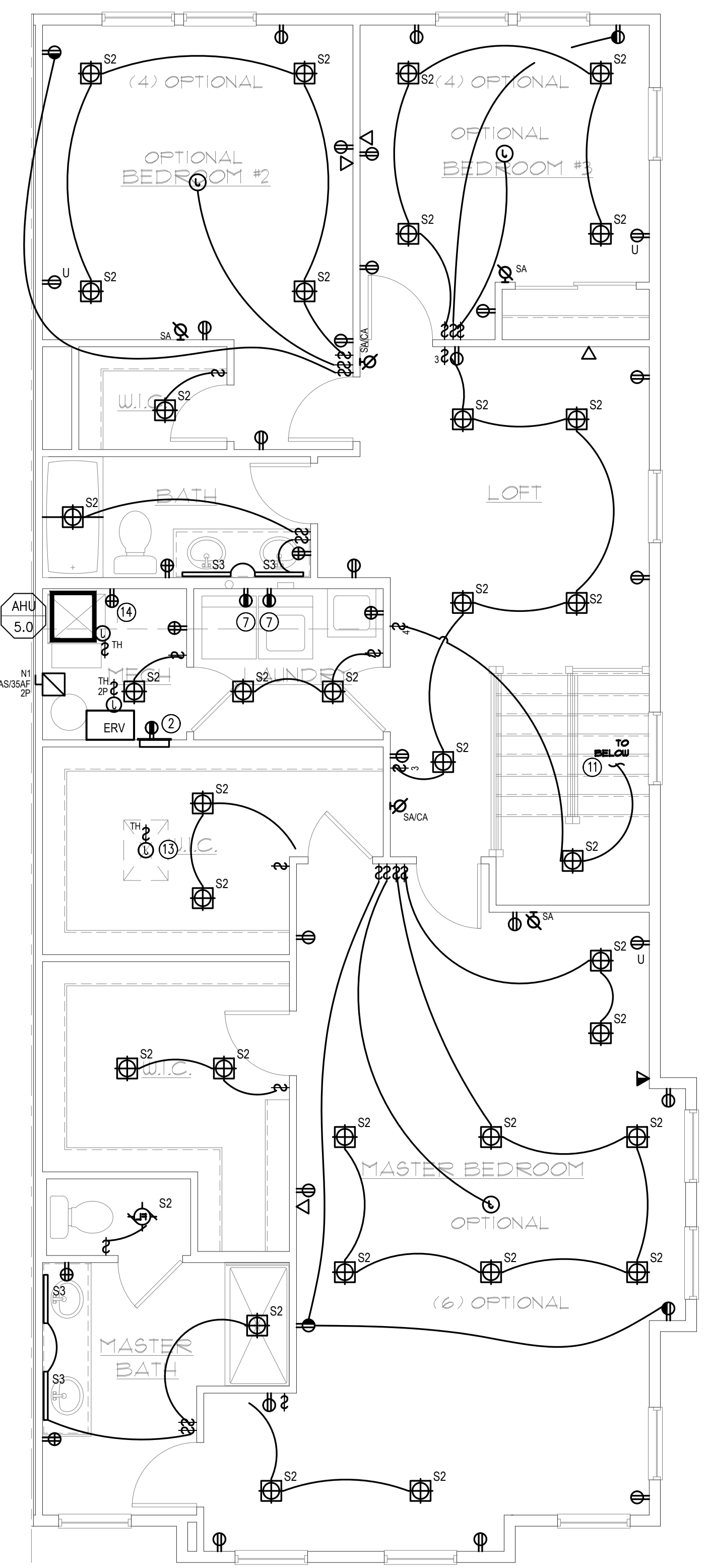
**ELECTRICAL GENERAL NOTES:**

1. THESE DRAWINGS SHOW THE INTENT OF THE NEW CIRCUITING DESIGN. IT IS THE ELECTRICAL CONTRACTOR'S RESPONSIBILITY TO FOLLOW THIS INTENT WHILE ADAPTING TO THE EXISTING CONDITIONS FOUND IN THE FIELD.
2. ALL WIRING/CABLING AND TEL/DATA/CABLE DEVICES SHOWN SHALL BE FURNISHED AND INSTALLED BY THE ELECTRICAL CONTRACTOR UNLESS OTHERWISE NOTED.
3. FOR ALL SWITCHED CONTROLLED RECEPTACLES, ONLY HALF OF THE RECEPTACLE SHALL BE SWITCHED.
4. ALL DEVICES SHALL BE CIRCUITED TO THE DEDICATED DWELLING UNIT PANEL (U.O.N.).
5. ALL OUTLET LOCATIONS SHOWN ARE DIAGRAMMATIC. ALL WALL PENETRATIONS BETWEEN DEMISING/FIRE RATED WALLS INCLUDING (BUT NOT LIMITED TO) ELECTRICAL AND TEL/DATA OUTLETS SHALL BE STAGGERED SO THAT A MINIMUM OF 24" IS BETWEEN TWO OUTLETS. OFFSET BOXES MINIMUM (1) STUD SPARE AND SEAL OPENINGS THRU THE PARTITIONS AND FLOORS.
6. ALL SWITCHES CONTROLLING LIGHTING LOADS MUST ADHERE TO NATIONAL ELECTRIC CODE ARTICLE 404.2.
7. ALL RECEPTACLES IN THE UNITS SHALL MEET ARTICLE 210.52 OF APPLICABLE NATIONAL ELECTRICAL CODE.
8. PROVIDE LOCAL DISCONNECT FOR AC UNITS. REFER TO MECHANICAL PLANS FOR EXACT LOCATION OF ALL MECHANICAL EQUIPMENT.
9. PROVIDE GROUND-FAULT CIRCUIT-INTERRUPTER PROTECTION (GFCI) AS PER NEC 210.8(A) FOR THE FOLLOWING AREAS:
  - A. AS PER NEC SECTION 210.8(A) - ALL 125-VOLT THRU 250-VOLT, SINGLE PHASE RECEPTACLES RATED 150-VOLTS OR LESS TO GROUND INSTALLED FOR THE FOLLOWING:
    - 1) BATHROOMS
    - 2) GARAGES
    - 3) OUTDOORS
    - 4) CRAWLSPACES
    - 5) BASEMENTS
    - 6) KITCHENS
    - 7) WITHIN 6 FEET FROM THE TOP EDGE OF THE BOWL OF THE SINK, INCLUDING SPACES UNDER THE SINK AND ABOVE
    - 8) BATHTUBS OR SHOWER STALLS WITHIN 6 FEET FROM THE OUTSIDE EDGE
    - 9) LAUNDRY AREA
    - 10) DISHWASHER
    - 11) INDOOR DAMP OR WET LOCATIONS
  - B. AS PER SECTIONS 210.8(C),(D),(E),(F)
    - 1) 120V LIGHTING OUTLETS IN CRAWL SPACES
    - 2) RECEPTACLES EQUIPMENT REQUIRING SERVICING
    - 3) OUTDOOR OUTLETS RATED 150V TO GROUND OR LESS AND 50A OR LESS, EXCEPT FOR LIGHTING IN OTHER THAN CRAWLS SPACES.
  - C. RECEPTACLE OUTLET THAT ARE NOT READILY ACCESSIBLE SHALL BE PROTECTED BY GFCI RATED CIRCUIT BREAKER IN LIEU OF GFCI RECEPTACLE.
  - D. FOR THE INSTALLATION OF ELECTRICAL HEATED CABLES IN HEATED FLOORS IN BATHROOMS.
  - E. FOR FIXED OUTDOOR ELECTRICAL DE-ICING AND SNOW MELTING EQUIPMENT.
10. PROVIDE ARC-FAULT CIRCUIT INTERRUPTER PROTECTION (AFCI) CIRCUIT BREAKER AS PER NEC ARTICLE 210.12.A.
  - A. DWELLING UNITS: ALL 120V, 15A AND 20A BRANCH CIRCUITS SUPPLYING OUTLETS IN

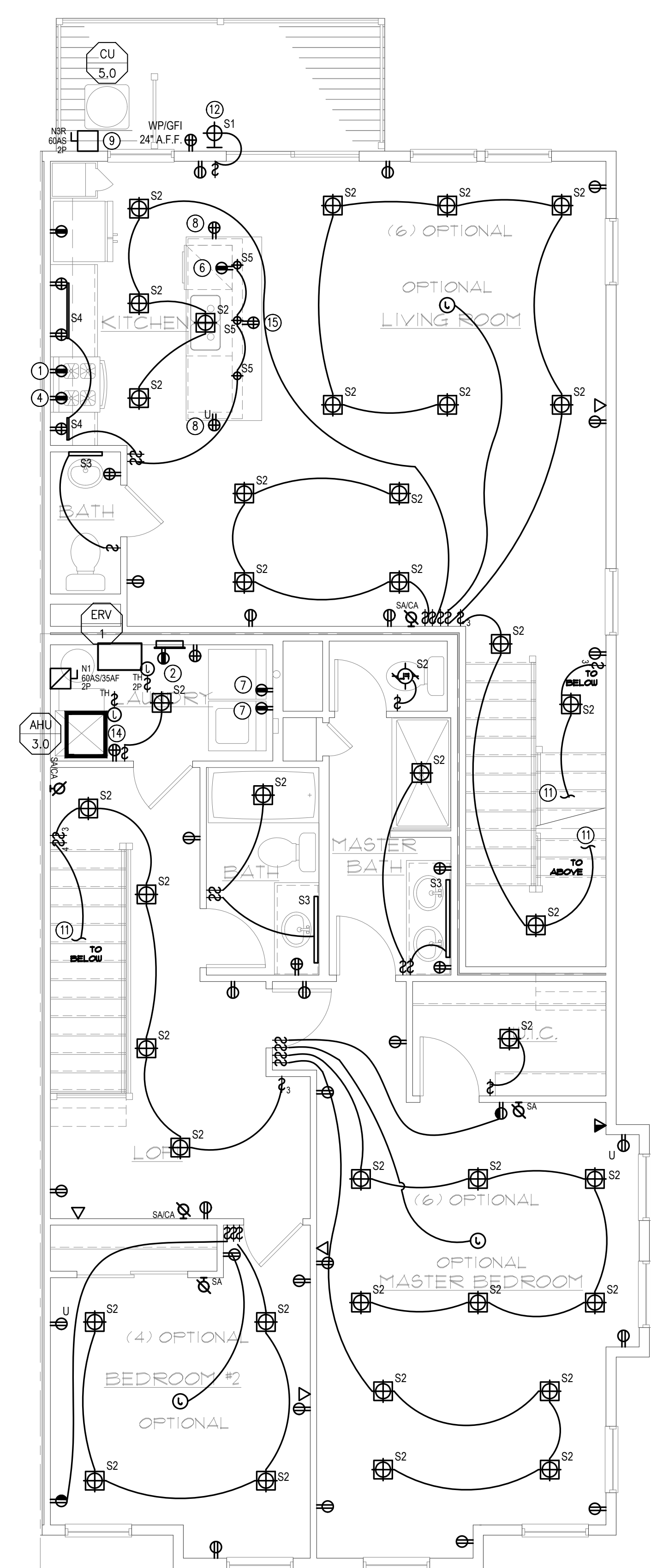
11. PROVIDE TAMPER RESISTANT RECEPTACLES IN DWELLING UNITS IN ALL AREAS SPECIFIED IN NEC ARTICLE 210.52. FOR ALL 125-VOLT, 15 AND 20 AMPERE RECEPTACLES.
12. UNLESS INDICATED OTHERWISE, PROVIDE #10 WIRING FOR ALL BRANCH CIRCUIT PROTECTED WITH 25A AND 30A CIRCUIT BREAKERS.
13. APARTMENT SCHEDULES ARE TYPICAL FOR SEVERAL UNITS. REFER TO PLAN DRAWINGS FOR EXACT CIRCUITING.
14. APARTMENT PANELS AND NID BOXES SHALL HAVE WHITE FINISH, UNLESS DIRECTED OTHERWISE BY THE ARCHITECT.
15. UNLESS PERMITTED OTHERWISE BY LOCAL AUTHORITIES HAVING JURISDICTION, APARTMENT PANELS SHALL BE LOCATED 48 INCHES ABOVE FINISHED FLOOR TO THE TOP OF THE PANEL. COORDINATION EXACT MOUNTING AND ELEVATION WITH ARCHITECT.
16. UNLESS PERMITTED OTHERWISE BY APPLICABLE ENERGY CONSERVATION CODE, ALL NEWLY INSTALLED PERMANENT LIGHTING FIXTURES SHALL BE PROVIDED WITH HIGH EFFICACY LAMPS.
17. UNLESS INDICATED OTHERWISE, PROVIDE #12 WIRING FOR ALL BRANCH CIRCUITS PROTECTED WITH 20A CIRCUIT BREAKERS.
18. UNLESS INDICATED OTHERWISE, PROVIDE #14 WIRING FOR ALL BRANCH CIRCUITS PROTECTED WITH 15A CIRCUIT BREAKERS.

**ELECTRICAL KEYNOTES:**

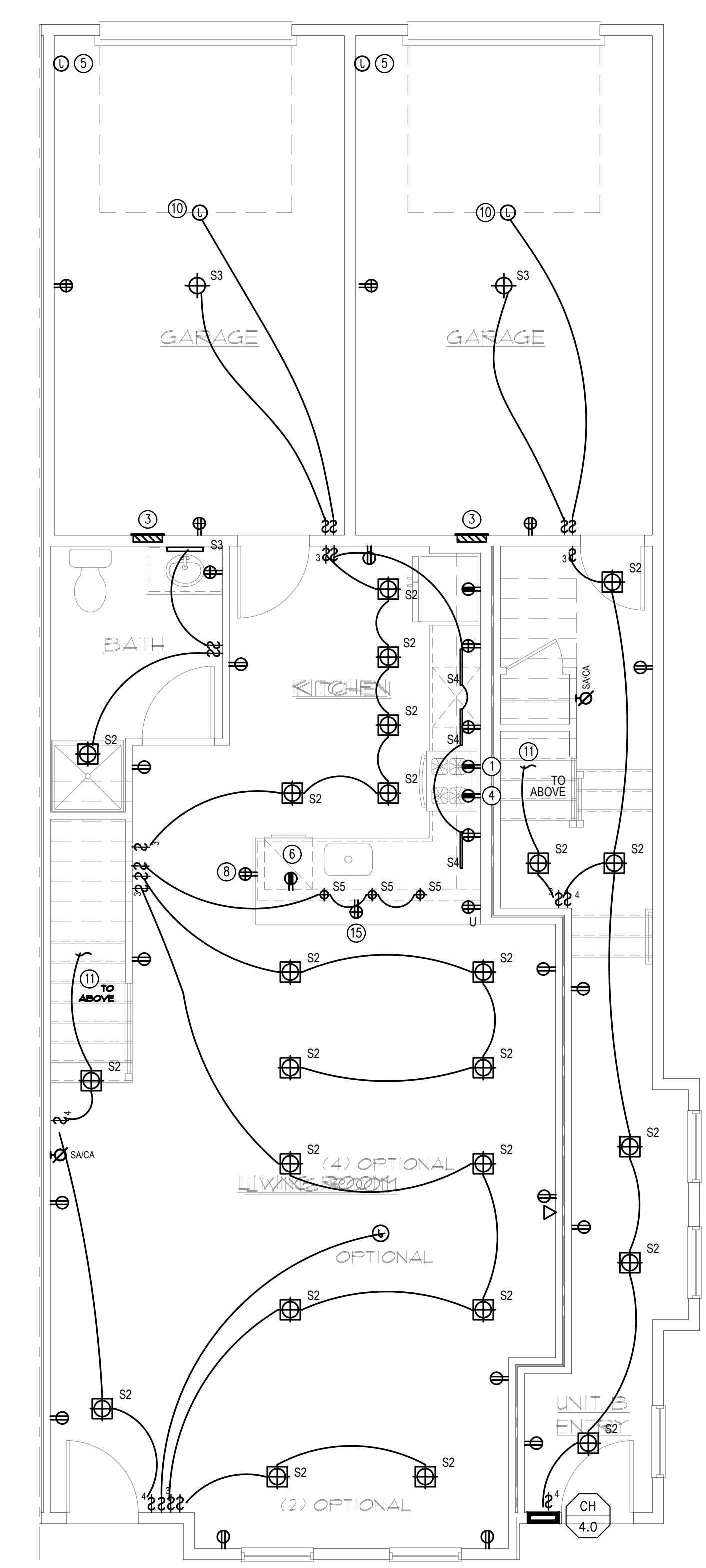
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2. FLUSH MOUNTED TEL/CABLE MEDIA CABINET WITH DUPLEX RECEPTACLE FURNISHED AND INSTALLED BY E.C.
3. PROPOSED LOCATION OF APARTMENT UNIT PANEL, MOUNTED PER ADA GUIDELINES. OBTAIN APPROVAL OF LOCATION OF PANEL WITH OWNERSHIP PRIOR TO ROUGH IN.
4. STOVE/RANGE - COORDINATE RECEPTACLE TYPE AND HEIGHT WITH APPLIANCE CUT SHEETS.
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8. GFI RECEPTACLE - INSTALLED NOT MORE THAN 12" BELOW THE COUNTER TOP.
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14. PROVIDE RECEPTACLE FOR AHU CONDENSE/AE PUMP.
15. MOUNT RECEPTACLE 18" A.F.F.



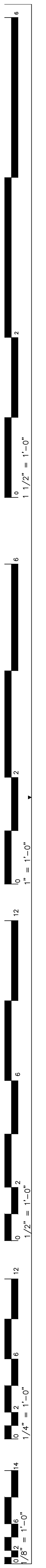
**TYPICAL ELECTRICAL THIRD FLOOR PLAN - A + B**  
SCALE: 1/4" = 1'-0"



**TYPICAL ELECTRICAL SECOND FLOOR PLAN - A + B**  
SCALE: 1/4" = 1'-0"



**TYPICAL ELECTRICAL FIRST FLOOR PLAN - A + B**  
SCALE: 1/4" = 1'-0"



**ELECTRICAL UNIT PLANS**

RELEASED FOR	DATE
<input type="checkbox"/> SCHEMATIC DESIGN	1/26/2024
<input checked="" type="checkbox"/> DESIGN DEVELOPMENT	2/21/2024
<input checked="" type="checkbox"/> 50% CDS	3/18/2024
<input checked="" type="checkbox"/> PERMIT	3/25/2024

REVISIONS

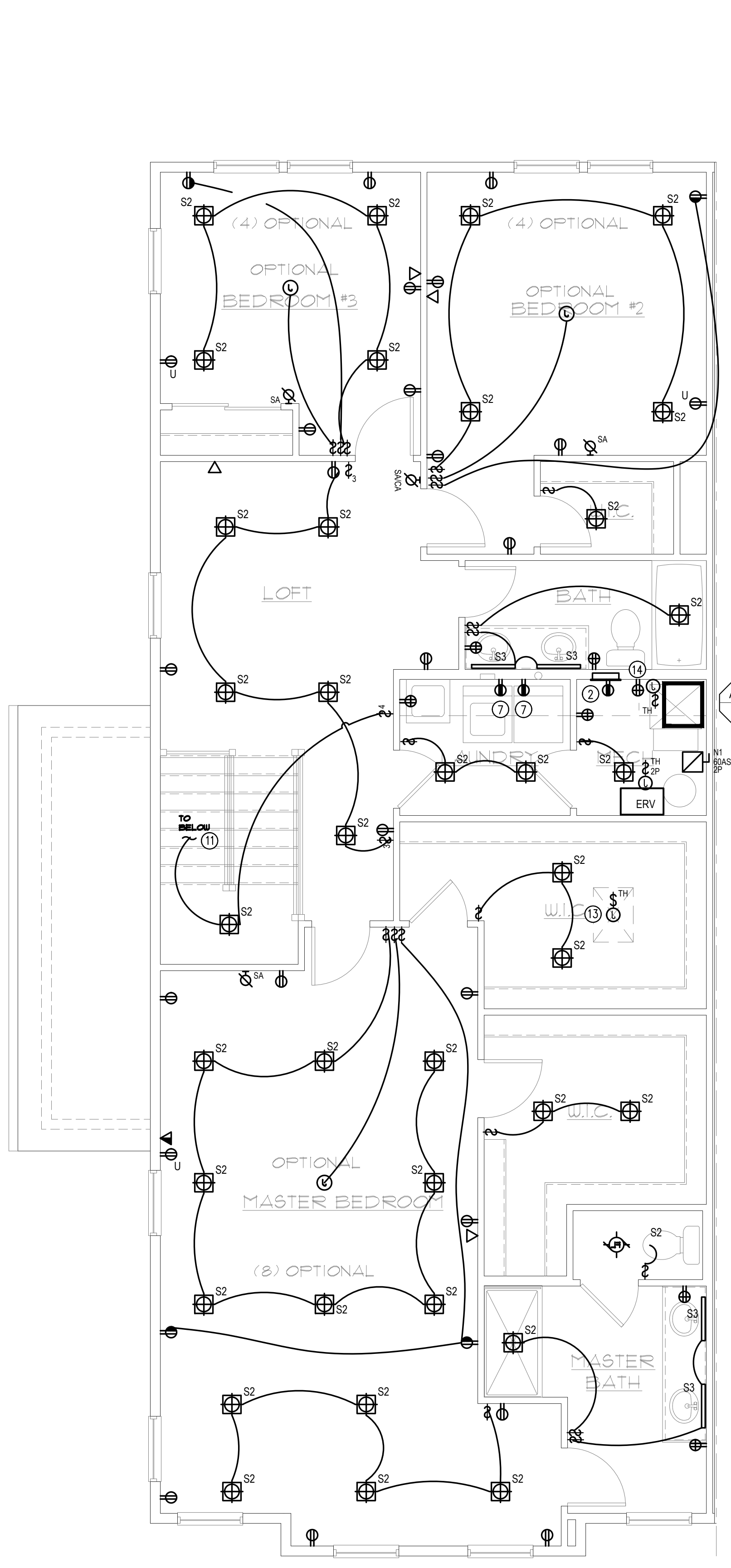



**ELECTRICAL GENERAL NOTES:**

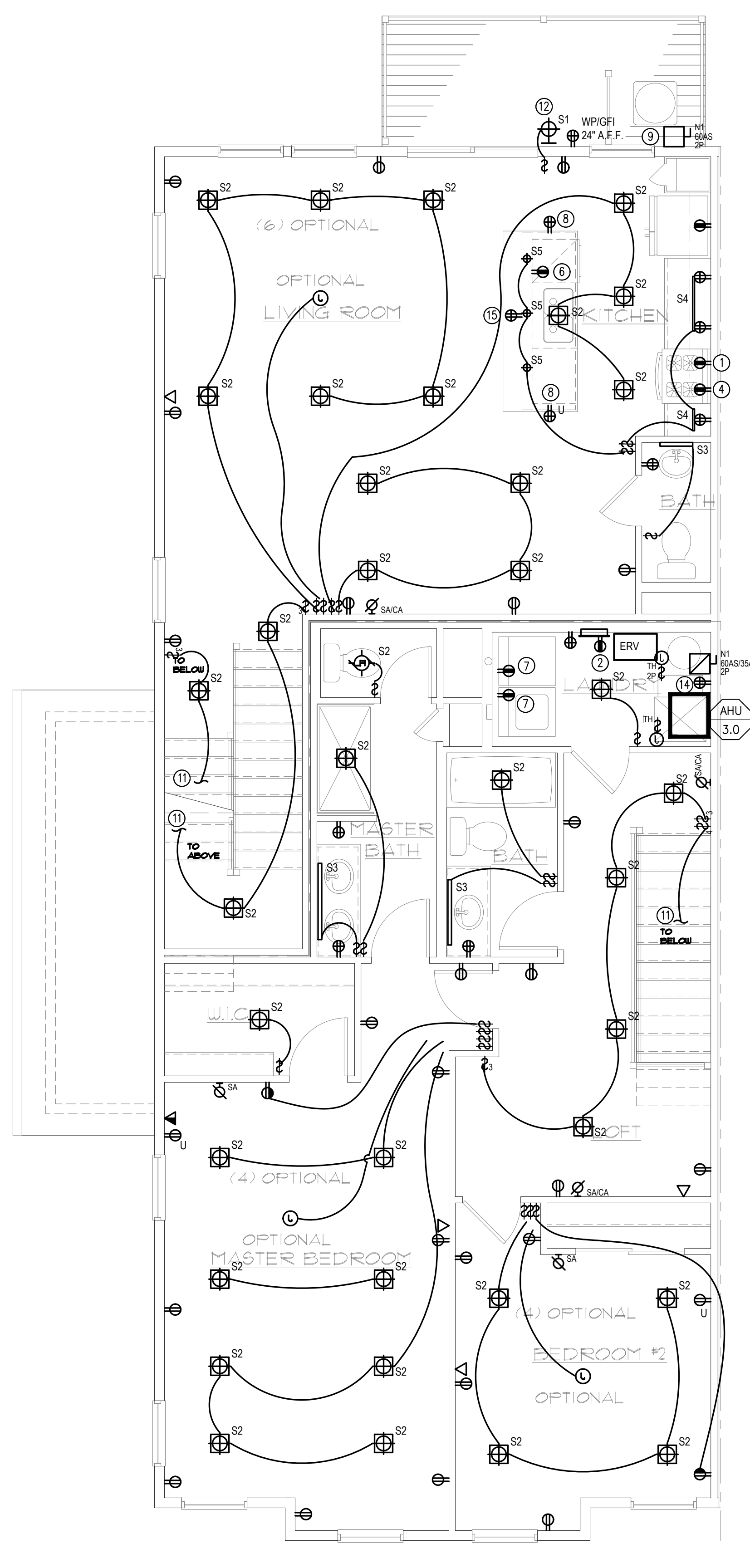
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    - 5) BASEMENTS
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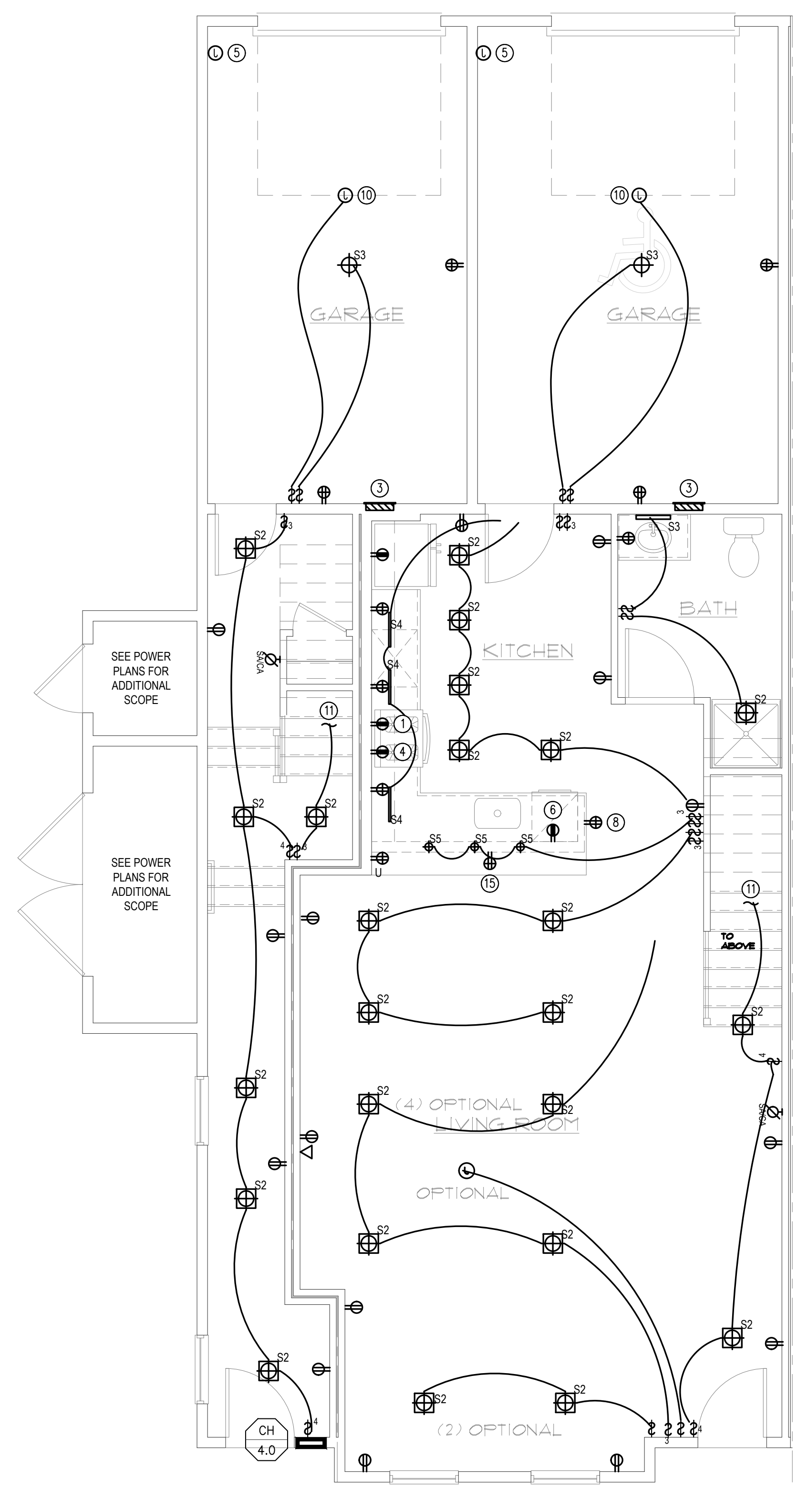
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14. PROVIDE RECEPTACLE FOR AHU CONDENSED PUMP.
15. MOUNT RECEPTACLE 18" A.F.F.



**ELECTRICAL THIRD FLOOR PLAN - A + B (MIRRORED)**  
SCALE: 1/4" = 1'-0"



**ELECTRICAL SECOND FLOOR PLAN - A + B (MIRRORED)**  
SCALE: 1/4" = 1'-0"



**ELECTRICAL FIRST FLOOR PLAN - A + B (MIRRORED)**  
SCALE: 1/4" = 1'-0"

**ELECTRICAL UNIT PLANS**

RELEASED FOR	DATE
SCHEMATIC DESIGN	1/26/2024
DESIGN DEVELOPMENT	2/21/2024
50% CDS	3/18/2024
PERMIT	3/25/2024



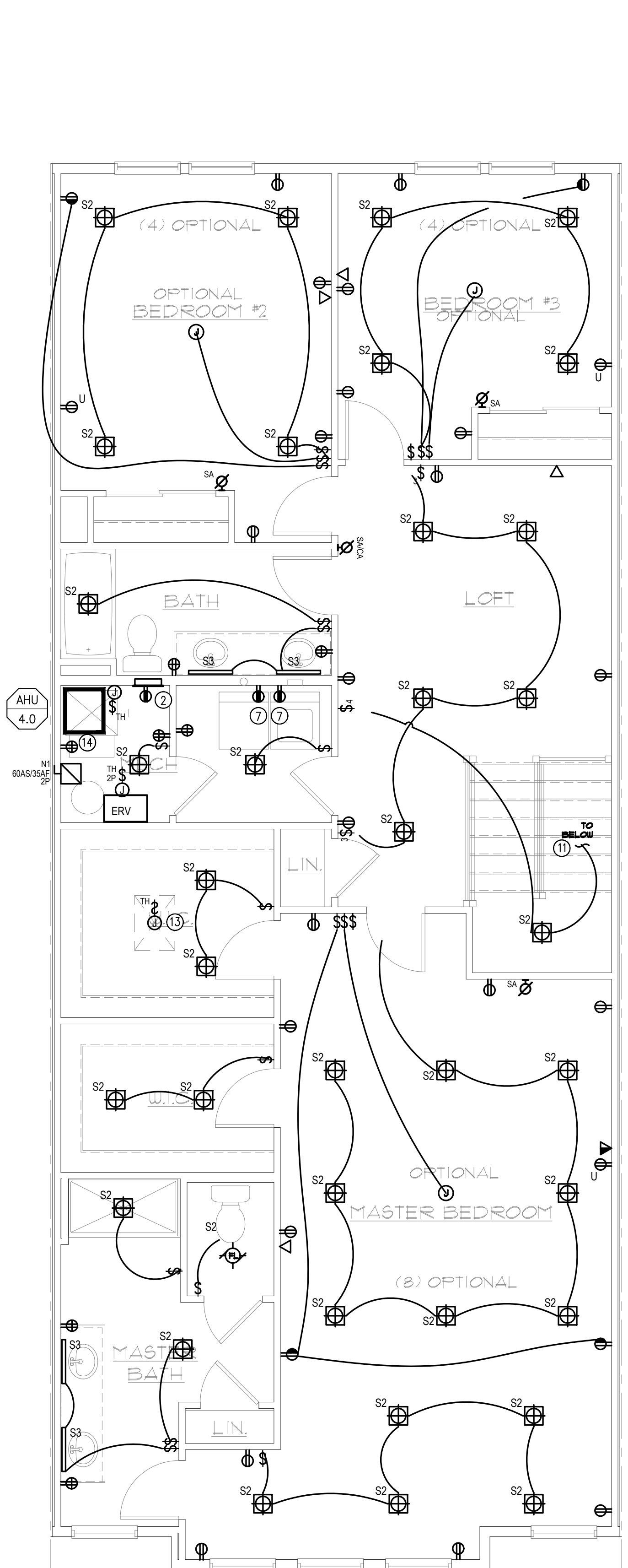
**ELECTRICAL GENERAL NOTES:**

1. THESE DRAWINGS SHOW THE INTENT OF THE NEW CIRCUITING DESIGN. IT IS THE ELECTRICAL CONTRACTOR'S RESPONSIBILITY TO FOLLOW THIS INTENT WHILE ADAPTING TO THE EXISTING CONDITIONS FOUND IN THE FIELD.
2. ALL WIRING/CABLING AND TEL/CODATA/CABLE DEVICES SHOWN SHALL BE FURNISHED AND INSTALLED BY THE ELECTRICAL CONTRACTOR UNLESS OTHERWISE NOTED.
3. FOR ALL SWITCHED CONTROLLED RECEPTACLES, ONLY HALF OF THE RECEPTACLE SHALL BE SWITCHED.
4. ALL DEVICES SHALL BE CIRCUITED TO THE DEDICATED DWELLING UNIT PANEL (U.O.N.).
5. ALL OUTLET LOCATIONS SHOWN ARE DIAGRAMMATIC. ALL WALL PENETRATIONS BETWEEN DEMISING/FIRE RATED WALLS INCLUDING (BUT NOT LIMITED TO) ELECTRICAL AND TEL/DATA OUTLETS SHALL BE STAGGERED SO THAT A MINIMUM OF 24" IS BETWEEN TWO OUTLETS. OFFSET BOXES MINIMUM (1) STUD SPARE AND SEAL OPENINGS THRU THE PARTITIONS AND FLOORS.
6. ALL SWITCHES CONTROLLING LIGHTING LOADS MUST ADHERE TO NATIONAL ELECTRIC CODE ARTICLE 404.2.
7. ALL RECEPTACLES IN THE UNITS SHALL MEET ARTICLE 210.52 OF APPLICABLE NATIONAL ELECTRICAL CODE.
8. PROVIDE LOCAL DISCONNECT FOR AC UNITS. REFER TO MECHANICAL PLANS FOR EXACT LOCATION OF ALL MECHANICAL EQUIPMENT.
9. PROVIDE GROUND-FAULT CIRCUIT-INTERRUPTER PROTECTION (GFCI) AS PER NEC 210.8(A) FOR THE FOLLOWING AREAS:
  - A. AS PER NEC SECTION 210.8.A - ALL 125-VOLT THRU 250-VOLT, SINGLE PHASE RECEPTACLES RATED 150-VOLTS OR LESS TO GROUND INSTALLED FOR THE FOLLOWING:
    - 1) BATHROOMS
    - 2) GARAGES
    - 3) OUTDOORS
    - 4) CRAWLSPACES
    - 5) BASEMENTS
    - 6) KITCHENS
    - 7) WITHIN 6 FEET FROM THE TOP EDGE OF THE BOWL OF THE SINK, INCLUDING SPACES UNDER THE SINK AND ABOVE.
    - 8) BATHTUBS OR SHOWER STALLS WITHIN 6 FEET FROM THE OUTSIDE EDGE
    - 9) LAUNDRY AREA
    - 10) DISHWASHER
    - 11) INDOOR DAMP OR WET LOCATIONS
  - B. AS PER SECTIONS 210.8.(C),(D),(E),(F)
    - 1) 120V LIGHTING OUTLETS IN CRAWL SPACES
    - 2) RECEPTACLES EQUIPMENT REQUIRING SERVICING
    - 3) OUTDOOR OUTLETS RATED 150V TO GROUND OR LESS AND 50A OR LESS, EXCEPT FOR LIGHTING IN OTHER THAN CRAWLS SPACES.
  - C. RECEPTACLE OUTLET THAT ARE NOT READILY ACCESSIBLE SHALL BE PROTECTED BY GFCI RATED CIRCUIT BREAKER IN LIEU OF GFCI RECEPTACLE.
  - D. FOR THE INSTALLATION OF ELECTRICAL HEATED CABLES IN HEATED FLOORS IN BATHROOMS.
  - E. FOR FIXED OUTDOOR ELECTRICAL DE-ICING AND SNOW MELTING EQUIPMENT.
10. PROVIDE ARC-FAULT CIRCUIT INTERRUPTER PROTECTION (AFCI) CIRCUIT BREAKER AS PER NEC ARTICLE 210.12.A.
  - A. DWELLING UNITS: ALL 120V, 15A AND 20A BRANCH CIRCUITS SUPPLYING OUTLETS IN

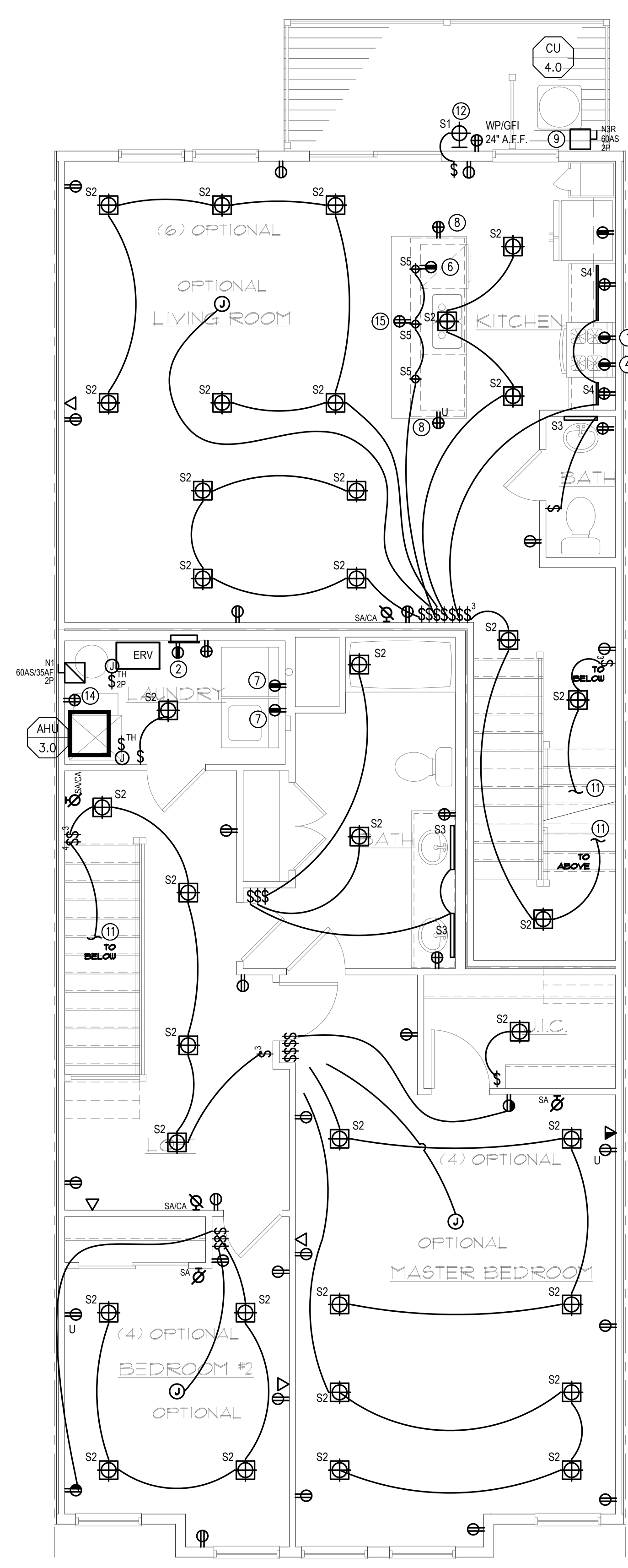
11. PROVIDE TAMPER RESISTANT RECEPTACLES IN DWELLING UNITS IN ALL AREAS SPECIFIED IN NEC ARTICLE 210.52. FOR ALL 125-VOLT, 15 AND 20 AMPERE RECEPTACLES.
12. UNLESS INDICATED OTHERWISE, PROVIDE #10 WIRING FOR ALL BRANCH CIRCUIT PROTECTED WITH 25A AND 30A CIRCUIT BREAKERS.
13. APARTMENT SCHEDULES ARE TYPICAL FOR SEVERAL UNITS. REFER TO PLAN DRAWINGS FOR EXACT CIRCUITING.
14. APARTMENT PANELS AND NID BOXES SHALL HAVE WHITE FINISH, UNLESS DIRECTED OTHERWISE BY THE ARCHITECT.
15. UNLESS PERMITTED OTHERWISE BY LOCAL AUTHORITIES HAVING JURISDICTION, APARTMENT PANELS SHALL BE LOCATED 48 INCHES ABOVE FINISHED FLOOR TO THE TOP OF THE PANEL. COORDINATION EXACT MOUNTING AND ELEVATION WITH ARCHITECT.
16. UNLESS PERMITTED OTHERWISE BY APPLICABLE ENERGY CONSERVATION CODE, ALL NEWLY INSTALLED PERMANENT LIGHTING FIXTURES SHALL BE PROVIDED WITH HIGH EFFICACY LAMPS.
17. UNLESS INDICATED OTHERWISE, PROVIDE #12 WIRING FOR ALL BRANCH CIRCUITS PROTECTED WITH 20A CIRCUIT BREAKERS.
18. UNLESS INDICATED OTHERWISE, PROVIDE #14 WIRING FOR ALL BRANCH CIRCUITS PROTECTED WITH 15A CIRCUIT BREAKERS.

**ELECTRICAL KEYNOTES:**

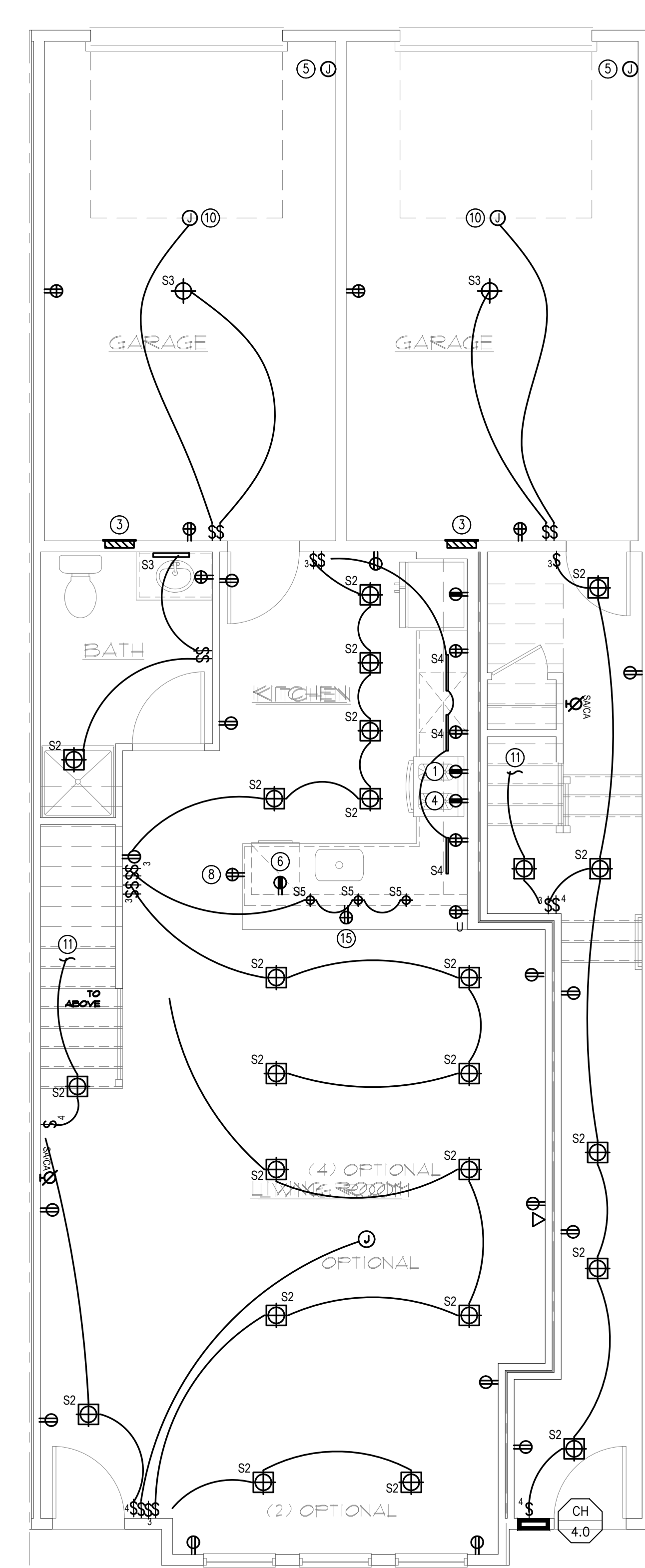
1. MICROWAVE RECEPTACLE ABOVE RANGE. COORDINATE FINAL LOCATION WITH KITCHEN CABINET SUPPLIER. RECEPTACLE SHALL BE CONTROLLED VIA SWITCH FOR UNITS THAT REQUIRE TO MEET ADA STANDARDS.
2. FLUSH MOUNTED TEL/CABLE MEDIA CABINET WITH DUPLEX RECEPTACLE FURNISHED AND INSTALLED BY E.C.
3. PROPOSED LOCATION OF APARTMENT UNIT PANEL, MOUNTED PER ADA GUIDELINES. OBTAIN APPROVAL OF LOCATION OF PANEL WITH OWNERSHIP PRIOR TO ROUGH IN.
4. STOVE/RANGE - COORDINATE RECEPTACLE TYPE AND HEIGHT WITH APPLIANCE CUT SHEETS.
5. PREWIRED JUNCTION BOX FOR FUTURE EV CHARGER.
6. DISHWASHER - CONFIRM EXACT LOCATION, MOUNTING HEIGHT AND ALL OTHER ELECTRICAL REQUIREMENTS WITH MANUFACTURER INSTRUCTIONS. PRIOR TO INSTALLATION.
7. DRYER/WASHER - COORDINATE RECEPTACLE TYPE WITH APPLIANCE CUT SHEETS AND LOCATION WITH PLUMBING AND HVAC CONTRACTORS.
8. GFI RECEPTACLE - INSTALLED NOT MORE THAN 12" BELOW THE COUNTER TOP.
9. CONDENSING UNIT - COORDINATE ALL ELECTRICAL REQUIREMENTS WITH MECHANICAL CONTRACTOR AND MANUFACTURER.
10. SWITCH & JUNCTION BOX SHALL BE UTILIZED FOR GARAGE DOOR POWER AND CONTROL. CONFIRM DOOR SPEC WITH ARCHITECT/OWNERSHIP AND COORDINATE ALL ELECTRICAL REQUIREMENTS WITH MANUFACTURER.
11. SWITCH SHALL BE UTILIZED TO CONTROL STAIR LIGHTING.
12. SWITCH SHALL BE UTILIZED TO CONTROL BALCONY LIGHTING.
13. PROVIDE POWER TO RADON EXHAUST FAN IN THE ATTIC. COORDINATE EXACT LOCATION AND ALL ELECTRICAL REQUIREMENTS WITH RADON MITIGATION CONTRACTOR AND MANUFACTURER.
14. PROVIDE RECEPTACLE FOR AHU CONDENSED PUMP.
15. MOUNT RECEPTACLE 18" A.F.F.



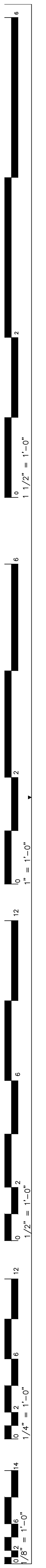
**ELECTRICAL THIRD FLOOR PLAN - C + D**  
SCALE: 1/4" = 1'-0"



**ELECTRICAL SECOND FLOOR PLAN - C + D**  
SCALE: 1/4" = 1'-0"



**ELECTRICAL FIRST FLOOR PLAN - C + D**  
SCALE: 1/4" = 1'-0"



RELEASED FOR	DATE
<input type="checkbox"/> SCHEMATIC DESIGN	1/26/2024
<input checked="" type="checkbox"/> DESIGN DEVELOPMENT	2/21/2024
<input type="checkbox"/> 50% CDS	3/18/2024
<input type="checkbox"/> PERMIT	3/25/2024

REVISIONS



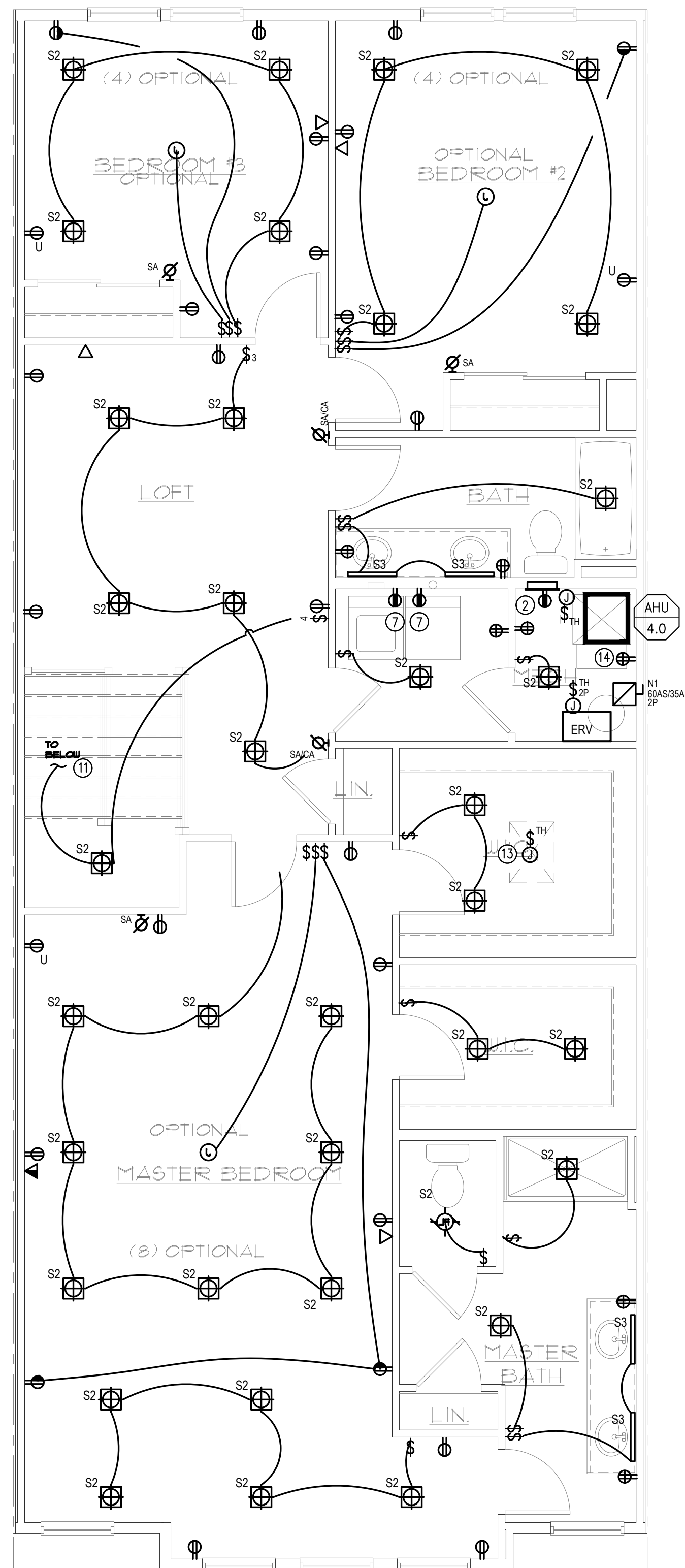

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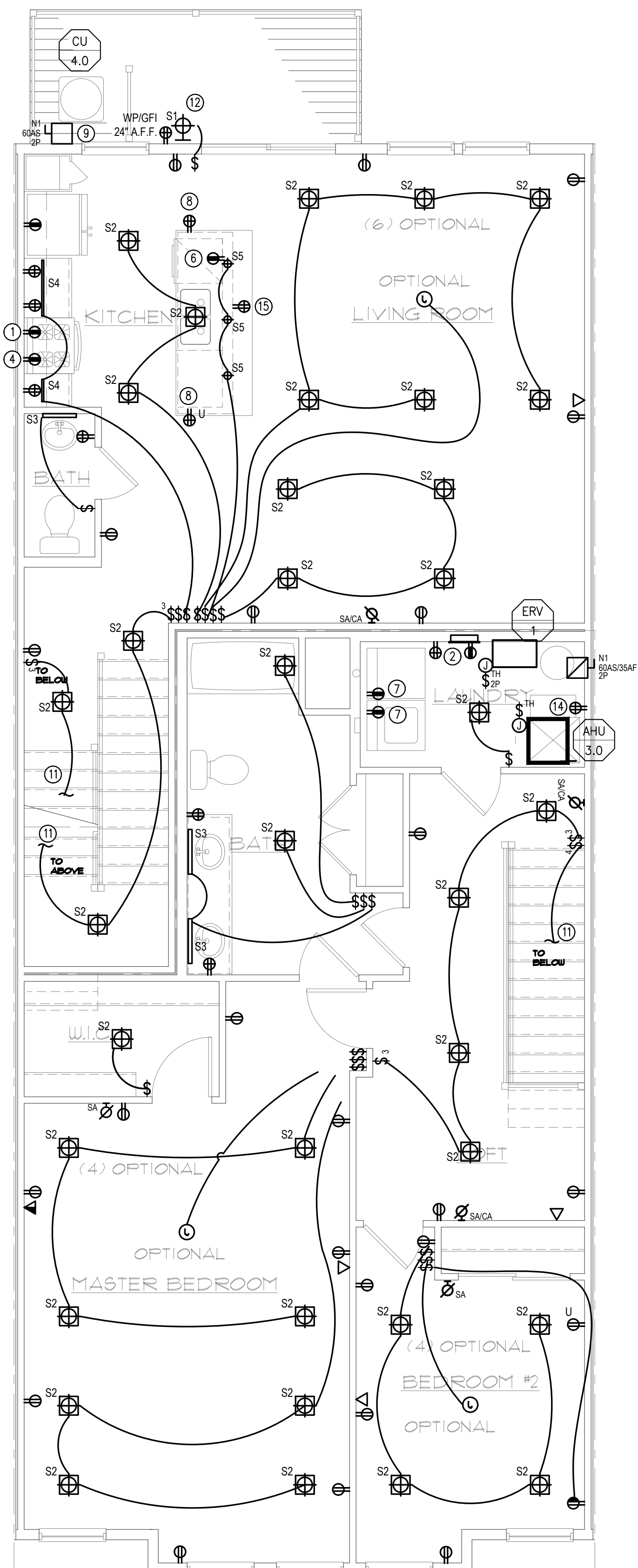
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**ELECTRICAL KEYNOTES:**

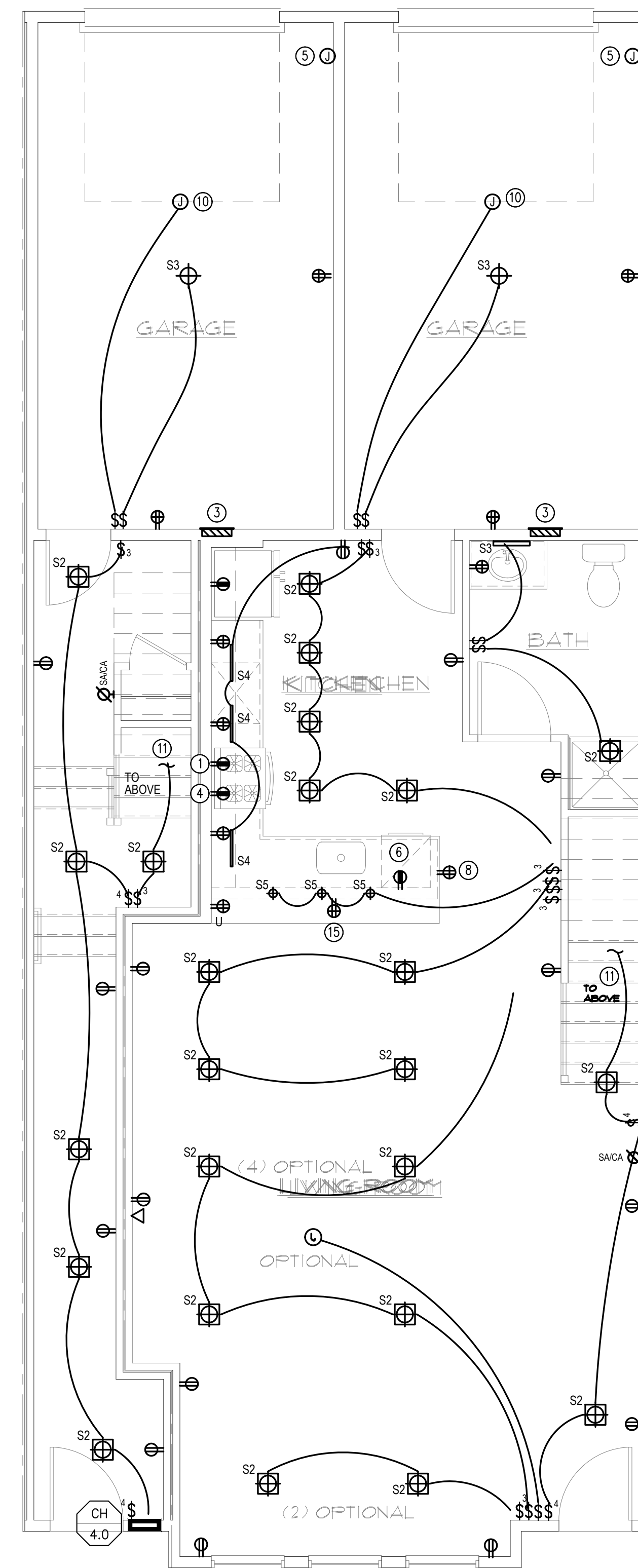
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**ELECTRICAL THIRD FLOOR PLAN - C + D (MIRRORED)**  
SCALE: 1/4" = 1'-0"



**ELECTRICAL SECOND FLOOR PLAN - C + D (MIRRORED)**  
SCALE: 1/4" = 1'-0"



**ELECTRICAL FIRST FLOOR PLAN - C + D (MIRRORED)**  
SCALE: 1/4" = 1'-0"

**ELECTRICAL UNIT PLANS**

RELEASED FOR	DATE
<input type="checkbox"/> SCHEMATIC DESIGN	1/26/2024
<input checked="" type="checkbox"/> DESIGN DEVELOPMENT	2/21/2024
<input checked="" type="checkbox"/> 50% CDS	3/18/2024
<input checked="" type="checkbox"/> PERMIT	3/25/2024

REVISIONS

NO.	DESCRIPTION



# HOUSE PANEL

# TYPICAL THREE-BEDROOM DWELLING UNIT

# TYPICAL TWO-BEDROOM DWELLING UNIT

PANEL DESIGNATION		HPB		VOLTAGE		PHASE		POLES		WIRES		AIC	
G WIRE SIZE	Ø WIRE SIZE	Ø WIRE No.	DESCRIPTION	CB AMPS	CB POLES	PH. A VA	PH. B VA	CB AMPS	CB POLES	Ø WIRE No.	Ø WIRE SIZE	Ø WIRE No.	Ø WIRE SIZE
1#10	2#8	1	EV CHARGER	40	2	3600	3600	2	30	2	2#10	1#10	
1#10	2#8	5	EV CHARGER	40	2	3600	3600	1	20	6	2#12	1#12	
1#12	2#12	9	SACP	20	1	500	950	2	20	8	2#12	1#12	
1#12	2#12	11	TIMECLOCK	20	1	1000	200			10	2#12	1#12	
1#12	2#12	13	LIGHTING UTILITY ROOMS	20	1	100	950	2	20	12	2#12	1#12	
1#12	2#12	15	TELEPHONE BOARD RECEPTACLE	20	1	360	360	1	20	14	2#12	1#12	
1#12	2#12	17	RECEPTACLES UTILITY ROOMS	20	1	360	360	1	20	16	2#12	1#12	
		19	SPARE	20	1			1	20	20	2#12	1#12	
		21	SPARE	20	1			1	20	22	2#12	1#12	
		23	SPARE	20	1			1	20	24	2#12	1#12	
		25	SPARE	20	1			1	20	26	2#12	1#12	
		27	SPARE	20	1			1	20	28	2#12	1#12	
		29	SPARE	20	1			1	20	30	2#12	1#12	
		31	SPARE	20	1			1	20	32	2#12	1#12	
		33	SPARE	20	1			1	20	34	2#12	1#12	
		35	SPARE	20	1			1	20	36	2#12	1#12	
		37	SPARE	20	1			1	20	38	2#12	1#12	
		39	SPARE	20	1			1	20	40	2#8	1#10	
		41	SPARE	20	1			2	60	42	2#6	1#12	

CONNECTED LOAD	MAIN	OPTIONS
KVA: 31.5	BUS: 400	<input type="checkbox"/> 200% NEUTRAL
AMPS: 133.0	BRKR: 200	<input type="checkbox"/> GROUND BUS
REMARKS:	<input type="checkbox"/> ISOLATED GROUND BUS	<input type="checkbox"/> DOOR-IN-DOOR CONSTRUCTION
(L) HANDLE LOCK ON DEVICE	<input type="checkbox"/> MAIN CIRCUIT BREAKER	<input type="checkbox"/> STAINLESS STEEL COVER
	<input type="checkbox"/> MAIN LISS ONLY	<input type="checkbox"/> NEMA 3R PANEL
	<input type="checkbox"/> FLUSH MOUNTED	<input type="checkbox"/> SUB-FEED MAIN C.B. (3P) QTY: _____
	<input type="checkbox"/> SURFACE MOUNTED	<input type="checkbox"/> CONTACTOR AMPS: _____
	<input type="checkbox"/> BOTTOM FEED	<input type="checkbox"/> OTHER: _____
	<input type="checkbox"/> TOP FEED	<input type="checkbox"/> OTHER: _____

△ PROVIDE DEDICATED, PLUG-ON TYPE SURGE PROTECTION DEVICE (SPD). SPD SHALL BE TYPE 2, 2 POLE, 120/240V MODULE OR CIRCUIT BREAKER WITH LED VISUAL INDICATOR. SPD SHALL BE CLOSEST TO MAIN CIRCUIT BREAKER OR INCOMING MLO.

◇ CIRCUIT BREAKER FOR PHOTOVOLTAIC INVERTER MUST BE MOUNTED AT OPPOSITE END OF PANEL BUS UTILITY CONNECTION IN END POLE POSITIONS. PER NEC 705.12 (B) (3) (2) AND PROVIDE LABEL ADJACENT TO BACK FED BREAKER TO READ "WARNING: POWER SOURCE OUTPUT CONNECTION- DO NOT RELOCATE THIS OVERCURRENT DEVICE". COORDINATE FINAL CIRCUIT BREAKER AND WIRE SIZES WITH SOLAR CONTRACTOR.

□ PANELBOARD BUS RATING IS SIZED AT 400A TO MEET NEC NEC 705.12 (B) (3) (2) FOR PV POWER SOURCE.

PANEL DESIGNATION		TYPICAL THREE BEDROOM UNIT		VOLTAGE		PHASE		POLES		WIRES		AIC	
G WIRE SIZE	Ø WIRE SIZE	Ø WIRE No.	DESCRIPTION	CB AMPS	CB POLES	PH. A VA	PH. B VA	CB AMPS	CB POLES	Ø WIRE No.	Ø WIRE SIZE	Ø WIRE No.	Ø WIRE SIZE
(AFG)	1#12	2#12	1	REFRIGERATOR RECEPTACLE	20	1				2	2#10	1#10	
(AF)	1#12	2#12	3	KITCHEN GFI RECEPTACLES	20	1			0	2	30		
(AF)	1#12	2#12	5	KITCHEN GFI RECEPTACLES	20	1			1	20			
(AFG)	1#12	2#12	7	MICROWAVE RECEPTACLE	20	1				1	20		
(AFG)	1#12	2#12	9	DISHWASHER	20	1				1	20		
(AFG)	1#12	2#12	11	GAS RANGE	20	1			1	20			
	1#10	2#8	13	HVAC OUTDOOR UNIT	40	2			1	20			
			15	SPARE	20	1			1	20			
	1#12	2#12	17	HVAC INDOOR UNIT	20	1			1	20			
			19	SPARE	20	1			1	20			
			21	WATER HEATER	35	2			1	20			
			23	SPARE	20	1			1	20			
(GFI)	1#10	2#8	25	FUTURE EV CHARGER	40	2			1	20			
			27	SPARE	20	1			1	20			
	1#12	2#12	29	WASHER RECEPTACLE	20	1			1	20			
	1#12	2#12	31	DRYER RECEPTACLE	20	1			1	20			
	1#12	2#12	33	ERV	15	2			1	20			
			35	SPARE	20	1			1	20			
	1#10	2#10	37	ENTRANCE CABINET HEATER CUH-4	30	2			1	20			
			39	SPARE	20	1			1	20			
			41	SPARE	20	1			1	20			

CONNECTED LOAD	MAIN	OPTIONS
KVA: -	BUS: 200	<input type="checkbox"/> 200% NEUTRAL
AMPS: -	BRKR: 125	<input type="checkbox"/> GROUND BUS
REMARKS:	<input type="checkbox"/> ISOLATED GROUND BUS	<input type="checkbox"/> DOOR-IN-DOOR CONSTRUCTION
(GFI) DENOTES GFCI CIRCUIT BREAKER	<input type="checkbox"/> MAIN CIRCUIT BREAKER	<input type="checkbox"/> STAINLESS STEEL COVER
(AFG) DENOTES ARC FAULT GFCI CIRCUIT BREAKER	<input type="checkbox"/> MAIN LISS ONLY	<input type="checkbox"/> NEMA 3R PANEL
(AF) DENOTES ARC FAULT CIRCUIT BREAKER	<input type="checkbox"/> FLUSH MOUNTED	<input type="checkbox"/> SUB-FEED MAIN C.B. (3P) QTY: _____
(L) HANDLE LOCK ON DEVICE	<input type="checkbox"/> SURFACE MOUNTED	<input type="checkbox"/> CONTACTOR AMPS: _____
	<input type="checkbox"/> BOTTOM FEED	<input type="checkbox"/> OTHER: _____
	<input type="checkbox"/> TOP FEED	<input type="checkbox"/> OTHER: _____

NOTE: PROVIDE ARC-FAULT CIRCUIT BREAKERS FOR CIRCUITS SERVING FAMILY ROOMS, DINING ROOMS, LIVING ROOMS, PARLORS, LIBRARIES, DEN'S, BEDROOMS, SUN ROOMS, REC ROOMS, HALLWAYS CLOSET, SMOKE DETECTORS, KITCHEN, LAUNDRY AREAS AND SIMILAR AREAS.

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PANEL DESIGNATION		TYPICAL TWO BEDROOM UNIT		VOLTAGE		PHASE		POLES		WIRES		AIC	
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	1#10	2#10	13	HVAC OUTDOOR UNIT CU-3	30	2			1	20			
			15	SPARE	20	1			1	20			
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			23	SPARE	20	1			1	20			
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			39	SPARE	20	1			1	20			
			41	SPARE	20	1			1	20			

CONNECTED LOAD	MAIN	OPTIONS
KVA: -	BUS: 200	<input type="checkbox"/> 200% NEUTRAL
AMPS: -	BRKR: 125	<input type="checkbox"/> GROUND BUS
REMARKS:	<input type="checkbox"/> ISOLATED GROUND BUS	<input type="checkbox"/> DOOR-IN-DOOR CONSTRUCTION
(GFI) DENOTES GFCI CIRCUIT BREAKER	<input type="checkbox"/> MAIN CIRCUIT BREAKER	<input type="checkbox"/> STAINLESS STEEL COVER
(AFG) DENOTES ARC FAULT GFCI CIRCUIT BREAKER	<input type="checkbox"/> MAIN LISS ONLY	<input type="checkbox"/> NEMA 3R PANEL
(AF) DENOTES ARC FAULT CIRCUIT BREAKER	<input type="checkbox"/> FLUSH MOUNTED	<input type="checkbox"/> SUB-FEED MAIN C.B. (3P) QTY: _____
(L) HANDLE LOCK ON DEVICE	<input type="checkbox"/> SURFACE MOUNTED	<input type="checkbox"/> CONTACTOR AMPS: _____
	<input type="checkbox"/> BOTTOM FEED	<input type="checkbox"/> OTHER: _____
	<input type="checkbox"/> TOP FEED	<input type="checkbox"/> OTHER: _____

NOTE: PROVIDE ARC-FAULT CIRCUIT BREAKERS FOR CIRCUITS SERVING FAMILY ROOMS, DINING ROOMS, LIVING ROOMS, PARLORS, LIBRARIES, DEN'S, BEDROOMS, SUN ROOMS, REC ROOMS, HALLWAYS CLOSET, SMOKE DETECTORS, KITCHEN, LAUNDRY AREAS AND SIMILAR AREAS.

△ PROVIDE DEDICATED, PLUG-ON TYPE SURGE PROTECTION DEVICE (SPD). SPD SHALL BE TYPE 2, 2 POLE, 120/240V MODULE OR CIRCUIT BREAKER WITH LED VISUAL INDICATOR. SPD SHALL BE CLOSEST TO MAIN CIRCUIT BREAKER OR INCOMING MLO.

RELEASED FOR	DATE
<input type="checkbox"/> SCHEMATIC DESIGN	1/26/2024
<input checked="" type="checkbox"/> DESIGN DEVELOPMENT	2/21/2024
<input checked="" type="checkbox"/> 50% CDS	3/18/2024
<input checked="" type="checkbox"/> PERMIT	3/25/2024