

# ABBREVIATIONS

| ABBREVIATION | DEFINITION  |
|--------------|---|
| AMPS         | AMPERE, AMPERAGE                                  |
| AC           | ABOVE COUNTER                                     |
| A/C          | ALTERNATING CURRENT                               |
| ADA          | AMERICANS WITH DISABILITIES ACT                   |
| AFF          | ABOVE FINISHED FLOOR                              |
| AFG          | ABOVE FINISHED GRADE                              |
| AIC          | ARC FLASH INTERRUPTING CURRENT                    |
| AL           | ALUMINUM  |
| ANSI         | AMERICAN NATIONAL STANDARD INSTITUTE              |
| ATSC         | AUTOMATIC TRANSFER SWITCH CONTROL                 |
| ATS          | AUTOMATIC TRANSFER SWITCH                         |
| AV           | AUDIO/VISUAL                                      |
| AWG          | AMERICAN WIRE GAUGE                               |
| BAS          | BUILDING AUTOMATION SYSTEM                        |
| CB           | BELOW FINISHED CEILING                            |
| CC           | CONDUIT   |
| CCTV         | CLOSED CIRCUIT TELEVISION                         |
| CKT          | CIRCUIT   |
| CT           | CURRENT TRANSFORMER                               |
| CU           | COPPER  |
| EX           | EXISTING  |
| DCC          | DIMMING OR DIMMER                                 |
| DC           | DIGITAL CONTROLS                                  |
| DB           | DISTRIBUTION BOARD                                |
| DIR          | DIRECT CURRENT                                    |
| DL           | DAY-LIGHTING                                      |
| DISC         | DISCONNECT SWITCH                                 |
| ECB          | EMERGENCY ENCLOSED CIRCUIT BREAKER                |
| EWC          | ELECTRIC WATER COOLER                             |
| EX           | EXISTING  |
| FUT          | FUTURE  |
| FA           | FIRE ALARM  |
| FACP         | FIRE ALARM CONTROL PANEL                          |
| FATC         | FIRE ALARM TERMINAL CABINET                       |
| FDR          | FEEDER  |
| GAA          | GENERATOR ALARM ANNUNCIATOR                       |
| GAP          | GENERATOR ALARM PANEL                             |
| GEN          | GENERATOR   |
| GFI          | GROUND ELECTRODE CONDUCTOR                        |
| GFCI         | GROUND FAULT INTERRUPTER                          |
| GFP          | GROUND FAULT EQUIPMENT PROTECTION                 |
| GFP          | GROUND FAULT PROTECTION                           |
| GND          | GROUND  |
| GRS          | GALVANIZED RIGID STEEL                            |
| HH           | HAND HOLE   |
| HOA          | HAND-OFF AUTOMATIC                                |
| HP           | HORSEPOWER  |
| IEEE         | INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS |
| IG           | ISOLATED GROUND                                   |
| KCMIL        | THOUSAND CIRCULAR MILS                            |
| KV           | KILOVOLT  |
| KVA          | KILOVOLT AMPS                                     |
| KW           | KILOWATT  |
| KWH          | KILOWATT HOURS                                    |
| LC           | LIGHTING CONTROL                                  |
| LS           | LOUD SPEAKER                                      |
| LSIG         | LONG TIME, SHORT TIME, INSTANTANEOUS              |
| MAX          | MAXIMUM   |
| MBC          | MAIN CIRCUIT BREAKER                              |
| MCC          | MOTOR CONTROL CENTER                              |
| MDP          | MAIN DISTRIBUTION PANEL                           |
| MIN          | MINIMUM   |
| MH           | MAN HOLE  |
| MLO          | MAIN LUGS ONLY                                    |
| MIS          | MANUAL TRANSFER SWITCH                            |
| N/A          | NOT APPLICABLE                                    |
| NC           | NORMALLY CLOSED                                   |
| NEC          | NATIONAL ELECTRIC CODE                            |
| NEMA         | NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION     |
| N or NEUT    | NEUTRAL   |
| NFPA         | NATIONAL FIRE PROTECTION ASSOCIATION              |
| NIC          | NOT IN CONTRACT                                   |
| NO           | NORMALLY OPEN                                     |
| OH           | OVER HEAD   |
| P            | POLE  |
| PA           | PUBLIC ADDRESS                                    |
| PB           | PULL BOX  |
| PC           | PHOTOCELL   |
| PH           | PHASE POTENTIAL TRANSFORMER                       |
| POT          | POTENTIAL TRANSFORMER                             |
| RC           | RECEPTACLE CONTACTOR                              |
| RSC          | RIGID STEEL CONDUIT                               |
| SEC          | SECURITY  |
| SPD          | SURGE PROTECTIVE DEVICE                           |
| SW           | SWITCH  |
| SWBD         | SWITCHBOARD                                       |
| SWGRT        | SWITCHGEAR  |
| TC           | TIME CLOCK  |
| TEMP         | TEMPORARY   |
| TGB          | TECHNOLOGY GROUND BAR                             |
| TOMB         | TECHNOLOGY MAIN GROUND BAR                        |
| TB           | TELEPHONE TERMINAL BOARD                          |
| TV           | TELEVISION  |
| TYP.         | TYPICAL   |
| UG           | UNDER COUNTER                                     |
| UG           | UNDERGROUND                                       |
| UGE          | UNDERGROUND ELECTRIC                              |
| UL           | UNDERWRITERS LABORATORIES                         |
| UON          | UNLESS OTHERWISE NOTED                            |
| UPS          | UNINTERRUPTIBLE POWER SUPPLY                      |
| V            | VOLTS, VOLTAGE                                    |
| VFD          | VARIABLE FREQUENCY DRIVE                          |
| WG           | WIRE GUARD  |
| WP           | WEATHERPROOF                                      |
| XFER         | TRANSFER  |
| XFMR         | TRANSFORMER                                       |

# DEMOLITION GENERAL NOTES:

- NOTIFY THE OWNER, IN WRITING, AT LEAST 7 DAYS IN ADVANCE OF ALL REQUIRED SHUTDOWNS ELECTRICAL UTILITIES. UPON WRITTEN RECEIPT OF APPROVAL FROM THE OWNER, SHUTDOWNS SHALL BE DISAPPOINTED AS DIRECTED BY THE OWNER AND SHALL BE CONDUCTED AT NO ADDITIONAL CONTRACT COST. AT THE COMPLETION OF EACH SHUT DOWN, ALL SERVICES SHALL BE RESTORED SO THAT NORMAL OPERATION OF ALL UTILITIES CAN RESUME.
- WHEN WORKING IN AND AROUND THE EXISTING BUILDING, EXTREME CARE SHALL BE EXERCISED IN REGARDS TO PROTECTION OF THE EXISTING STRUCTURE, MECHANICAL AND ELECTRICAL SERVICES WHICH WILL REMAIN, REPAIR, REPLACE OR RESTORE TO THE SATISFACTION OF THE OWNER/ARCHITECT/ENGINEER ALL EXISTING WORK DAMAGED IN THE PERFORMANCE OF DEMOLITION AND/OR NEW WORK.
- ALL EXISTING WIRING, EQUIPMENT, CONDUITS AND MATERIALS NOT REQUIRED FOR RE-USE OR RE-INSTALLATION (SHOWN OR OTHERWISE) SHALL BE REMOVED. ALL EXISTING MATERIALS AND EQUIPMENT WHICH ARE REMOVED AND DESIRED BY THE OWNER, OR ARE INDICATED TO REMAIN AS THE PROPERTY OF THE OWNER, SHALL BE DELIVERED TO THE OWNER ON THE PREMISES BY THE CONTRACTOR WHERE DIRECTED BY THE ARCHITECT. ALL OTHER MATERIALS AND EQUIPMENT WHICH ARE REMOVED SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED BY THE CONTRACTOR FROM THE PREMISES.
- EXISTING CONDITIONS (PRESENCE AND LOCATION OF PANELBOARDS, LIGHTING FIXTURES, RECEPTABLES, EQUIPMENT, MATERIALS AND CIRCUITRY) INDICATED ARE BASED ON INFORMATION OBTAINED FROM AVAILABLE RECORD DRAWINGS AND FIELD SURVEYS AND ARE NOT WARRANTED TO BE COMPLETE OR CORRECT. CONTRACTOR SHALL FIELD VERIFY EXACT LOCATION OF ALL CONDUITS, EQUIPMENT AND MATERIALS IN THE FIELD PRIOR TO STARTING ALL WORK.
- EXISTING EQUIPMENT SIZES NOTED ARE FOR THE CONVENIENCE OF THE CONTRACTOR ONLY AND ARE NOT WARRANTED TO BE CORRECT. CONTRACTOR SHALL VERIFY ALL SIZES IN THE FIELD IF EQUIPMENT IS IN PROJECT SCOPE.
- WHEN EXISTING MECHANICAL AND ELECTRICAL WORK IS REMOVED, ALL CONDUITS, WIRING AND MATERIALS SHALL BE REMOVED TO A POINT BELOW FINISHED FLOORS OR BEHIND FINISHED WALLS AND CAPPED. SUCH POINTS SHALL BE FAR ENOUGH BEHIND FINISHED SURFACES TO ALLOW FOR THE INSTALLATION OF THE NORMAL THICKNESS OF FINISHED MATERIAL.
- EXISTING MECHANICAL AND ELECTRICAL EQUIPMENT, CONDUIT, WIRING, DEVICES, AND MATERIALS AFFECTED BY DEMOLITION OR NEW WORK INSTALLATION AND REQUIRED TO REMAIN IN SERVICE SHALL BE REINSTALLED OR SUPPORTED AS REQUIRED IN ACCORDANCE WITH NEW WORK SPECIFICATIONS. ALL WORK SHALL BE COMPLETED TO THE SATISFACTION OF THE OWNER.
- IN GENERAL, ON DEMOLITION DRAWINGS, ALL EQUIPMENT AND MATERIALS SHOWN "LIGHT" ARE EXISTING TO REMAIN AND ALL EQUIPMENT AND MATERIALS SHOWN AS "HEAVY AND DASHED" ARE EXISTING TO BE DEMOLISHED.
- ENSURE THAT ALL ELECTRICAL WORK IS DONE DE-ENERGIZED. SPECIFICALLY WHERE ELECTRICAL EQUIPMENT IS OPENED EXPOSING LIVE PARTS, BREAKERS ARE REMOVED OR INSTALLED OR WHERE ELECTRICAL CONNECTIONS ARE MODIFIED. ALL POWER AT THE PANEL OR ENCLOSURE SHALL BE DE-ENERGIZED AT ITS SOURCE, PRIOR TO WORK BEING DONE.
- ALL TESTING, TROUBLESHOOTING AND VERIFICATION OF DEENERGIZATION IS TO BE DONE IN ACCORDANCE WITH NFPA 70E INCLUDING ESTABLISHING, ISOLATING IF REQUIRED, SHOCK PROTECTIVE AND ARC FLASH PROTECTIVE APPROACH BOUNDARIES AND WEARING PERSONAL PROTECTIVE EQUIPMENT APPROPRIATE FOR THE HAZARD.
- PRIOR TO THE REMOVAL OF A CIRCUIT FROM A PANELBOARD, THE CONTRACTOR SHALL VERIFY THAT NO EXISTING LOADS REMAIN ON THAT CIRCUIT. IF UNEXPECTED LOADS REMAIN ON THE CIRCUIT, NOTIFY EOR FOR DIRECTIONS TO PROCEED. ONCE CIRCUITS HAVE BEEN VERIFIED TO BE UNDER NO LOAD, BREAKERS IN THE CORRESPONDING PANELBOARD SHALL BE FLIPPED TO THE "OFF" POSITION AND MARKED AS SPARE AND READY FOR FUTURE WORK. ALL CONDUIT AND WIRING SHALL BE REMOVED BACK TO SOURCE.
- UPDATE PANEL SCHEDULES TO REFLECT NEW AND CHANGED LOAD. ALL PANEL SCHEDULES SHALL BE COMPUTER GENERATED.
- EXISTING FIRE ALARM SYSTEM SHALL BE MAINTAINED AND OPERABLE DURING DEMOLITION. CONTRACTOR SHALL TEMP EXISTING DEVICES TO ALLOW DEMOLITION OF EXISTING CONDUIT AND WIRING.

# GENERAL NOTES

- THE CONTRACTOR SHALL REFER TO THE ARCHITECTURAL PLANS FOR FLOOR PLAN DIMENSIONS. DO NOT SCALE THESE DRAWINGS.
- THE ELECTRICAL CONTRACTOR SHALL COORDINATE ANY AND ALL WORK WITH OTHER TRADES INVOLVED IN THE PROJECT, PRIOR TO THE INSTALLATION OF HIS EQUIPMENT SO TO AVOID CONFLICTS DURING CONSTRUCTION AND ALLOW FOR OPTIMUM MAINTENANCE AND WORKING SPACE.
- ALL LIGHT FIXTURES SHALL BE SUPPORTED INDEPENDENTLY OF THE SUSPENDED CEILING SYSTEM. REFER TO THE SPECIFICATIONS FOR MORE DETAILED INFORMATION.
- USE OF THE CONDUIT SYSTEM FOR EQUIPMENT GROUNDING SHALL NOT BE ACCEPTABLE. A SEPARATE GREEN GROUND WIRE SHALL RUN WITH THE CIRCUIT CONDUCTORS IN EACH CIRCUIT.
- IN ALL AREAS WHERE FIRE RATED WALLS, FLOORS AND CEILINGS ARE INSTALLED, ALL PENETRATIONS OF ELECTRICAL CONDUITS OR OTHER RELATED ELECTRICAL MATERIAL SHALL BE PROPERLY SEALED WITH APPROVED FIRE RATED MATERIALS TO MAINTAIN THE RATINGS OF THE BUILDING CONSTRUCTION.
- ALL FUSES, DISCONNECT SWITCHES, AND BREAKER SIZES SHOWN FOR MECHANICAL/PLUMBING/FIRE PROTECTION EQUIPMENT SHALL BE VERIFIED BEFORE THE PURCHASE OR INSTALLATION OF SAID EQUIPMENT, WITH THE EQUIPMENT SUPPLIER AND MECHANICAL/PLUMBING CONTRACTORS.
- ALL WORK AND MATERIAL SHALL BE PROVIDED IN ACCORDANCE WITH STATE, LOCAL AND NATIONAL CODES AND ORDINANCES.
- THE NEW FIRE ALARM EQUIPMENT SHOWN SHALL BE PROVIDED IN ACCORDANCE WITH THE MANUFACTURERS REQUIREMENTS. PROVIDE ALL WIRING AS REQUIRED FOR A COMPLETE SYSTEM.
- THE ELECTRICAL CONTRACTOR SHALL VERIFY ALL CEILING TYPES AND FINISHES BEFORE PURCHASE OF ANY LIGHT FIXTURES SO THAT THE PROPER TRIM WILL BE PROVIDED FOR THE CEILING TO BE INSTALLED. ANY DIFFERENCES SHALL BE THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR.
- EACH CONTRACTOR SHALL PROVIDE HIS OWN SUPPORT OF ALL DEVICES AND EQUIPMENT PROVIDED BY HIM AND SHALL SUPPORT SUCH EQUIPMENT PER APPROVED GOVERNING CODES OR PER APPROVAL OF THE LOCAL ENGINEER. UNACCEPTABLE WORKMANSHIP OR MATERIALS SHALL BE REPLACED AT THE REQUEST OF THE ENGINEER AT THE CONTRACTORS EXPENSE.
- ALL JUNCTION BOXES AND CONDUIT RUNS (WITH OR WITHOUT WIRES) SHALL BE COLOR CODED WITH PAINT, IN ACCORDANCE WITH SPECIFICATION 260563.
- THE MOUNTING HEIGHTS AND LOCATIONS OF ALL WALL MOUNTED OUTLETS AND JUNCTION BOXES SHALL BE REVIEWED AND COORDINATED WITH THE ARCHITECT AND OWNER PRIOR TO INSTALLATION. FOR USE WITH THE ACTUAL EQUIPMENT, CASEWORK AND MILLWORK TO BE FURNISHED.
- ALL WIRE AND CONDUIT SIZES ARE BASED ON 75°C 114NH OR THIN WIRE UNLESS OTHERWISE NOTED.
- THE ELECTRICAL CONTRACTOR SHALL COORDINATE WITH THE UTILITY POWER COMPANY THE WORK REQUIRED FOR CONNECTION TO THE UTILITY'S NEW TRANSFORMER METERING, ETC.
- WHERE MULTIPLE SWITCHES ARE SHOWN IN THE SAME LOCATION (EXCEPT CLASSROOM), THEY SHALL BE GANGED TOGETHER IN ONE MULTIPLE GANG BOX WITH MULTIPLE GANG BOX WITH MULTIPLE GANG BOX WITH MULTIPLE GANG BOX. THE ELECTRICAL CONTRACTOR SHALL LOOK AT BOTH POWER AND LIGHTING PLAN TO DETERMINE WHICH SWITCH IS APPLICABLE.
- THE LOCATION OF ALL WALL MOUNTED DEVICES, INCLUDING MOUNTING HEIGHTS, SHALL BE FIELD VERIFIED WITH THE ARCHITECT PRIOR TO INSTALLATION.
- THE ELECTRICAL CONTRACTOR SHALL COORDINATE WITH THE TELEPHONE AND CABLE TV COMPANIES THE LOCATION AND ROUTING OF THE UNDERGROUND INCOMING SERVICE. THE ELECTRICAL CONTRACTOR SHALL PAY FOR ALL NECESSARY CHARGES FOR INSTALLATION OF UNDERGROUND SERVICE, AS SHOWN ON THE PLANS.
- WHERE ELECTRICAL RACEWAY PENETRATES EXTERIOR WALLS OR THE ROOF, THEY SHALL BE PROPERLY SEALED WITH METHOD APPROVED BY THE ENGINEER. SUBMIT DETAIL OF PROPOSED SEALING METHOD.
- ALL EXTERIOR BUILDING LIGHTS AND EMERGENCY LIGHTING SHALL BE WIRED WITH #10 AWG, UNLESS OTHERWISE NOTED.
- THE ELECTRICAL CONTRACTOR SHALL COORDINATE THE LOCATION OF ALL CHAIN HUNG FIXTURES LOCATED IN MECHANICAL OR OTHER SPACES WITH OTHER TRADES, SO AS NOT TO CONFLICT WITH OTHER EQUIPMENT.
- ALL EMERGENCY LIGHTING, EXIT SIGNS AND EMERGENCY NIGHT LIGHTS SHALL BE WIRED AHEAD OF ANY SWITCH AND/OR BUILDING AUTOMATION SYSTEM.
- WHERE CONDUIT OR OUTLET BOXES CANNOT BE INSTALLED IN EXISTING WALLS FOR NEW DEVICES, THEN PROVIDE AND INSTALL SURFACE MOUNTED WIREMOLD RACEWAYS. CONFIRM ALL WIREMOLD WITH ARCHITECT PRIOR TO INSTALLATION.
- OUTLET BOXES ON OPPOSITE SIDES OF THE FIRE RESISTANT WALL OR SHAFT ENCLOSURE RATED TWO HOURS OR LESS SHALL BE SEPARATED BY A HORIZONTAL DISTANCE OF NOT LESS THAN 24".
- ELECTRICAL CONTRACTOR SHALL PROVIDE ALL ACCESS PANELS AS REQUIRED FOR ELECTRICAL CODE COMPLIANCE AND TO ACCESS ANY INSTALLATION THAT WILL REQUIRE FUTURE MAINTENANCE. THESE DOORS SHALL BE 20" X 20" EACH WITH A DRYWALL CEILING SHALL HAVE A MINIMUM OF ONE ACCESS DOOR PROVIDED BY THE ELECTRICAL CONTRACTOR. THE DRYWALL SUBCONTRACTOR WILL PROVIDE THE REQUIRED FRAMED OPENING AND INSTALL THE ACCESS DOORS.
- PROVIDE FIVE (5) 3/4" SPARE CONDUITS IN RECESSED ELECTRICAL PANELS FOR FUTURE ACCESS.
- ALL UNDERGROUND CONDUITS SHALL BE IDENTIFIED ON ASBUILD PLANS WITH DIMENSIONS LOCATING THE CONDUITS AND THEIR RESPECTIVE BURIAL DEPTHS.
- CONDUCTORS FOR BRANCH CIRCUITS SHALL BE SIZED TO PREVENT VOLTAGE DROP EXCEEDING 3% AT THE FARTHEST OUTLET OF POWER, HEATING AND LIGHTING LOADS, OR ANY COMBINATION OF SUCH LOADS. THE MAXIMUM TOTAL VOLTAGE DROP ON BOTH FEEDERS AND BRANCH CIRCUITS TO THE FARTHEST OUTLET SHALL NOT EXCEED 5%.
  - WHERE THE BRANCH CIRCUIT CONDUCTOR LENGTH FROM THE PANEL TO THE FIRST OUTLET ON A 277V CIRCUIT EXCEEDS 125'-0" THE BRANCH CIRCUIT CONDUCTORS FROM THE PANEL TO THE FIRST OUTLET SHALL NOT BE SMALLER THAN #10AWG. INCREASE THE BRANCH CIRCUIT CONDUCTOR SIZE AN ADDITIONAL WIRE SIZE FOR EACH ADDITIONAL 125' FOR THE ENTIRE CIRCUIT. THE GROUND CONDUCTOR SIZE SHALL BE INCREASED PROPORTIONALLY TO THE INCREASED PHASE CONDUCTORS AS PER NEC 2020 250.122 (B).
  - WHERE THE CONDUCTOR LENGTH FROM THE PANEL TO THE FIRST OUTLET ON A 120V CIRCUIT EXCEED 50'-0" THE BRANCH CIRCUIT CONDUCTORS FROM THE PANEL TO THE FIRST OUTLET SHALL NOT BE SMALLER THAN #10AWG. INCREASE THE BRANCH CIRCUIT CONDUCTOR SIZE AN ADDITIONAL WIRE SIZE FOR EACH ADDITIONAL 125' FOR THE ENTIRE CIRCUIT. THE GROUND CONDUCTOR SIZE SHALL BE INCREASED PROPORTIONALLY TO THE INCREASED PHASE CONDUCTORS AS PER NEC 2020 250.122 (B).
- THE CONTRACT DOCUMENTS ARE COMPLEMENTARY AND WHAT IS REQUIRED BY ONE SHALL BE BINDING AS IF REQUIRED BY ALL. IN THE CASE OF A CONFLICT, DISAGREEMENT OR AMBIGUITY, PROVIDE THE BETTER QUALITY. IN THE CASE OF A CONFLICT, DISAGREEMENT OR AMBIGUITY, PROVIDE THE GREATER QUANTITY OF WORK.
- ALL CONDUIT SHALL BE MINIMUM 3/4".
- REFER TO DETAIL FOR LIGHTING INTEGRATION WITH BUILDING AUTOMATION SYSTEM.
- EXCEPT WHERE SHOWN ON PLANS OR ABSOLUTELY NECESSARY (MUST BE APPROVED BY DESIGN TEAM), ALL CONDUITS AND PIPING SHALL BE CONCEALED IN BULKHEADS AND ABOVE CEILINGS AND NOT ROUTED THROUGH OPEN CEILINGS. REFER TO ARCHITECTURAL REFLECTED CEILING PLANS FOR THE LOCATION OF OPEN CEILINGS. WHEN CONDUITS ARE REQUIRED TO BE RUN EXPOSED, THEY ARE TO RUN TIGHT TO STRUCTURE AND BE PAINTED TO MATCH THE STRUCTURE.

# SYMBOL LEGEND (CONTINUED)

| SYMBOL | DESCRIPTION  | REMARKS                     |
|--------|--|-----------------------------|
|        | 3/4"x1/4" FIRE RETARDANT PLYWOOD BACK BOARD FOR MDF AND IDF CLOSETS  | REFER TO SPECIFICATIONS     |
|        | NAPCO X255 SECURITY PANEL - USE RISER ON E00.05/5.   | REFER TO SPECIFICATION      |
|        | CLASSROOM CEILING MOUNTED MOTION DETECTOR  | REFER TO SPECIFICATION      |
|        | MOTION SENSOR - WALL MOUNTED<br>WA = WIDE ANGLE, LR = LONG RANGE   | REFER TO SPECIFICATION      |
|        | NUMERICAL REMOTE SECURITY KEYPAD, LOCATE AT +60" AFF.  | REFER TO SPECIFICATION      |
|        | EXTERNAL DOOR SECURITY CARD READER, +48" TO TOP OF BOX REFER TO DETAILS E00.07/5, 6 AND 7.   | REFER TO SPECIFICATION      |
|        | SECURITY CARD ACCESS CONTROL SYSTEM  | REFER TO SPECIFICATION      |
|        | VIDEO SURVEILLANCE CAMERA - "CAM #\" INDICATES CAMERA NUMBER. PROVIDE CAT-4 WIRING TO CAMERA LOCATION. REFER TO DETAILS E00.07/3 AND E00.05/8.     | REFER TO SPECIFICATION      |
|        | DIGITAL TIME SWITCH/BACKLIT LED TIMER COUNTDOWN WITH ADJUSTMENTS FROM 5 MINUTES TO 12 HOURS.   | WATTSTOPPER TS-400 OR EQUAL |
|        | 120/208 VOLT PANELBOARD WITH NEUTRAL AND GROUND BUS ACCESSORIES.   | REFER TO SPECIFICATION      |
|        | 277/480 VOLT PANELBOARD WITH NEUTRAL AND GROUND BUS ACCESSORIES.   | REFER TO SPECIFICATION      |
|        | SURGE PROTECTIVE DEVICE  | REFER TO SPECIFICATION      |
|        | DRY TYPE STEP DOWN TRANSFORMER 480-120/208V 3 PHASE  | REFER TO SPECIFICATION      |
|        | DISCONNECT SWITCH, HEAVY DUTY.   | REFER TO SPECIFICATION      |
|        | WIRING AND CONDUIT INSTALLED CONCEALED IN WALL SPACE OR ABOVE FINISHED CEILING   | REFER TO SPECIFICATION      |
|        | UNSWITCHED WIRING AND CONDUIT LEG ON LIGHTING PLANS. UNDER FLOOR WIRING AND CONDUIT ON POWER PLANS. UNDER GROUND WIRING AND CONDUIT ON SITE PLANS. | REFER TO SPECIFICATION      |
|        | HOME RUN CIRCUIT TO PANELBOARD   | REFER TO SPECIFICATIONS     |
|        | CONDUIT SLEEVES - SIZE AND QUANTITY AS SHOWN ON PLANS  |                             |
|        | JUNCTION BOX WITH REMOVABLE COVER - SIZE PER NATIONAL ELECTRICAL CODE  |                             |

### ELECTRICAL SYSTEM AND EQUIPMENT

|                       |   |
|-----------------------|---|
| METHOD OF COMPLIANCE: |   |
| ENERGY CODE:          | PREScriptive <input checked="" type="checkbox"/> PERFORMANCE <input type="checkbox"/> |
| ASHRAE 90.1:          | PREScriptive <input type="checkbox"/> PERFORMANCE <input type="checkbox"/>            |

### LIGHTING SCHEDULE

|  |
|--|
| Lamp type required in future - See Fixture Schedule.   |
| Number of lamps in future - See Fixture Schedule.  |
| Ballast type used in the future - See Specifications.  |
| Number of ballasts in future - See Specifications.   |
| Total wattage per fixture - <input type="checkbox"/> Varies - See Fixture Schedule                 |
| Total interior wattage specified versus allowed: 16,831 watts versus 34,163 watts (whole building) |
| Total exterior wattage specified versus allowed: 569 watts versus 1920 watts                       |

### ADDITIONAL PRESCRIPTIVE COMPLIANCE

- 406.2 More Efficient HVAC Performance
- 406.3 Reduced Lighting Power Density
- 406.4 Enhanced Lighting Controls
- 406.5 On-Site Supply of Renewable Energy
- 406.6 Provision of Dedicated Outdoor HVAC Air System
- 406.7 High Efficiency Service Water Heating

### DESIGNER STATEMENT:

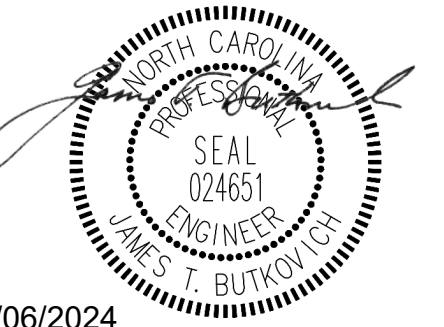
To the best of my knowledge and belief, the design of this building complies with the electrical system and equipment requirements of the 2018 North Carolina State Building Code, Energy Conservation Code.

# SHEET INDEX - ELECTRICAL

| Sheet Number | Sheet Name  | Current Revision | Current Revision Date |
|--------------|---|------------------|-----------------------|
| E101A        | ENLARGED POWER PLAN - MECHANICAL YARD PLAN                      |                  |                       |
| E103         | EQUIPMENT PLATFORM POWER PLAN                                   |                  |                       |
| E201         | GROUND FLOOR LIGHTING PLAN                                      |                  |                       |
| E202         | FIRST FLOOR LIGHTING PLAN                                       |                  |                       |
| E203         | EQUIPMENT PLATFORM LIGHTING PLAN                                |                  |                       |
| E301         | GROUND FLOOR TECHNOLOGY/SECURITY PLAN                           |                  |                       |
| E302         | FIRST FLOOR TECHNOLOGY/SECURITY PLAN                            |                  |                       |
| E401         | GROUND FLOOR FIRE ALARM PLAN                                    |                  |                       |
| E402         | FIRST FLOOR FIRE ALARM PLAN                                     |                  |                       |
| E403         | EQUIPMENT PLATFORM FIRE ALARM PLAN                              |                  |                       |
| E502         | DETAILS   |                  |                       |
| E503         | NEW FIRE ALARM RISER/MATRIX, DETAILS                            |                  |                       |
| E504         | EXISTING BUILDING FIRE ALARM RISER                              |                  |                       |
| E505         | DETAILS   |                  |                       |
| E506         | DAT/IT RISER DIAGRAM  |                  |                       |
| E700         | ALT. 2 CONNECTOR & ALT. 3 CORRIDOR RENOVATION - ELECTRICAL DEMO |                  |                       |
| E701         | ALT. 2 CONNECTOR & ALT. 3 CORRIDOR RENOVATION - POWER PLAN      |                  |                       |
| E702         | ALT. 2 CONNECTOR & ALT. 3 CORRIDOR RENOVATION - LIGHTING PLAN   |                  |                       |
| E703         | ALT. 2 CONNECTOR & ALT. 3 CORRIDOR RENOVATION - TECHNOLOGY PLAN |                  |                       |
| E704         | ALT. 2 CONNECTOR & ALT. 3 CORRIDOR RENOVATION - FIRE ALARM PLAN |                  |                       |
| E804         | PANEL SCHEDULES   |                  |                       |
| E900         | DEMOLITION SITE PLAN  |                  |                       |
| E901         | ELECTRICAL LEAD SHEET   |                  |                       |
| E100         | DEMOLITION  |                  |                       |
| E101         | GROUND FLOOR POWER PLAN   |                  |                       |
| E102         | FIRST FLOOR POWER PLAN  |                  |                       |
| E501         | DETAILS   |                  |                       |
| E601         | POWER RISERS/LOAD SUMMARY                                       |                  |                       |
| E801         | LIGHTING FIXTURE SCHEDULE                                       |                  |                       |
| E802         | PANEL SCHEDULES   |                  |                       |
| E803         | PANEL SCHEDULES   |                  |                       |

# SYMBOL LEGEND

| SYMBOL | DESCRIPTION   | REMARKS   |
|--------|---|---|
|        | LED LIGHT FIXTURE - LETTER DESIGNATES TYPE  | SEE FIXTURE SCHEDULE  |
|        | NIGHT LIGHT LED LIGHT FIXTURE - LETTER DESIGNATES TYPE  | SEE FIXTURE SCHEDULE  |
|        | LED LIGHT FIXTURE - LETTER DESIGNATES TYPE  | SEE FIXTURE SCHEDULE  |
|        | LED EMERGENCY LIGHT FIXTURE - LETTER DESIGNATES TYPE  | SEE FIXTURE SCHEDULE  |
|        | LINEAR LIGHTING FIXTURE   | SEE FIXTURE SCHEDULE  |
|        | BATTERY POWERED EMERGENCY FIXTURE - WALL MOUNTED  | SEE FIXTURE SCHEDULE  |
|        | EXIT LIGHT - ARROW INDICATES DIRECTION & SHADING INDICATES ILLUMINATED FACED  | SEE FIXTURE SCHEDULE  |
|        | SINGLE POLE TOGGLE SWITCH - +48" ABOVE FINISHED FLOOR TO TOP OF OUTLET, UNLESS OTHERWISE NOTED.   | HUBBELL 12214 WITH 97071 COVER EQUALS BY LEVITON OR P&S                     |
|        | 3-WAY SWITCH - INSTALL AT +48" ABOVE FINISHED FLOOR TO TOP OF OUTLET  | HUBBELL 12234 WITH 97071 COVER EQUALS BY LEVITON OR P&S                     |
|        | 4-WAY SWITCH - INSTALL AT +48" ABOVE FINISHED FLOOR TO TOP OF OUTLET  | HUBBELL 12244 WITH 97071 COVER EQUALS BY LEVITON OR P&S                     |
|        | SINGLE POLE KEY SWITCH - INSTALL AT +48" ABOVE FINISHED FLOOR TO TOP OF OUTLET, UNLESS OTHERWISE NOTED.   | HUBBELL LEVITON OR P&S STAINLESS STEEL COVER AND 2 KEYS PER SWITCH          |
|        | MECHANICALLY HELD LIGHTING CONTACTOR - # INDICATES CONTACTOR NUMBER. PROVIDE NUMBER OF CONTACTS AS REQUIRED. PROVIDE AS HAND OFF AUTO SWITCH FOR EACH LIGHTING CONTACTOR. REFER TO DETAIL E801/1.                           | SQUARE D CLX30XXX FUSED # CONTACTS AS NEEDED OR EQUAL BY SIEMENS OR Eaton   |
|        | CEILING MOUNTED DUAL TECHNOLOGY OCCUPANCY SENSOR WITH ISOLATED RELAY AND WIDE ANGLE LENS. TIME DELAYS OF NO LESS THAN 15 MINUTES. INSTALL AS PER MANUFACTURER'S INSTRUCTIONS.   | SEE DETAILS AND SPECIFICATION 260923  |
|        | CORNER MOUNTED DUAL TECHNOLOGY OCCUPANCY SENSOR WITH ISOLATED RELAY AND WIDE ANGLE LENS. TIME DELAYS OF NO LESS THAN 15 MINUTES. INSTALL AS PER MANUFACTURER'S INSTRUCTIONS.  | SEE DETAILS AND SPECIFICATION 260923  |
|        | PASSIVE INFRARED WALL SWITCH SENSOR - COVERAGE: MAJOR MOTION 35'X30'. MINOR MOTION 20'X15'. TIME DELAYS OF NO LESS THAN 15 MINUTES. MOUNT AT +48" TO TOP OF OUTLET BOX. INSTALL AS PER MANUFACTURER'S INSTRUCTIONS.         | SEE DETAILS AND SPECIFICATION 260923  |
|        | 120/277 VOLT LINE VOLTAGE 0-10V (1500VA) SLIDE DIMMER SWITCH WITH ON/OFF - COMPATIBLE WITH LED FIXTURE - MOUNT AT +48" TO TOP OF OUTLET BOX   | LEVITON ILLUMATEC SERIES #PT10LJ-Z OR EQUAL BY Eaton OR LUTRON              |
|        | 120 VOLT, 20 AMP, MOTOR RATED TOGGLE DISCONNECT SWITCH WITH JUNCTION BOX  | HUBBELL LEVITON OR P&S  |
|        | TWO POLE MOTOR RATED TOGGLE DISCONNECT SWITCH WITH JUNCTION BOX   | HUBBELL P&S OR LEVITON  |
|        | DUPLEX TAMPER RESISTANT GROUNDING TYPE RECEPTACLE - AT +10" ABOVE FINISHED FLOOR TO BOTTOM OF OUTLET, UON.  | HUBBELL 5262XTR W/ 97071 COVER, EQUALS LEVITON, P&S                         |
|        | TWO DUPLEX TAMPER RESISTANT GROUNDING TYPE RECEPTACLES IN A DOUBLE GANG MOUNT AT +10" ABOVE TO BOTTOM OF OUTLET. PROVIDE WITH STAINLESS STEEL COVER UON.  | HUBBELL 5262XTR W/ 97071 COVER, EQUALS LEVITON, P&S                         |
|        | TAMPER RESISTANT GFCI DUPLEX RECEPTACLE -GROUND FAULT INTERRUPTION TYPE INSTALL AT +10" ABOVE FINISHED FLOOR TO BOTTOM OF OUTLET, UON.  | HUBBELL GFRS262XTR WITH 5526 COVER, EQUALS LEVITON, P&S                     |
|        | TAMPER RESISTANT DUPLEX GROUNDING TYPE RECEPTACLE WITH WEATHERPROOF, IN-HOUSE COVER MOUNTED AT +10" ABOVE GRADE TO BOTTOM OF OUTLET BOX, UNLESS OTHERWISE NOTED, WITH HEAVY DUTY GRAY IN-HOUSE COVER (FRAYMAG OR EQUAL)     | HUBBELL GFRS262XTR WITH HEAVY DUTY IN USE COVER COVER EQUALS: P&S, LEVITON  |
|        | DATA OUTLET - REFER TO E03 SERIES PLANS AND DATA SCHEDULES FOR QUANTITY OF CAT-6 DROPS AT EACH OUTLET.  | SINGLE GANG BOX WITH 3/4" CONDUIT STUBBED ABOVE CEILING                     |
|        | 120 VOLT, 20 AMP FACELESS GFI DEVICE  |   |
|        | WIRELESS ACCESS POINT, WITH CAT-6A DATA DROP. REFER TO PLANS FOR LOCATIONS.   | SEE SPECIFICATION   |
|        | EXISTING BOGEN MULTI-COM 2000 INTERCOM HEAD-END UNIT  |   |
|        | WALL MOUNTED LOUDSPEAKER. EXACT MOUNTING HEIGHT FOR OUTDOOR SPEAKERS TO BE COORDINATED WITH ARCHITECT. W/WEATHERPROOF MOUNT ON INTERIOR AT +88" AFF.  | SEE SPECIFICATION   |
|        | RECESSED CEILING SPEAKER, WITH BACK BOX AND ACCESSORIES - MATCH EXISTING BOGEEEN SPEAKERS   | SEE SPECIFICATION   |
|        | HVAC CONTROL PANEL PROVIDED BY HVAC CONTRACTOR  |   |
|        | FIRE ALARM SYSTEM AMPLIFIER CABINET   | REFER TO SPECIFICATIONS   |
|        | FIRE ALARM SYSTEM NOTIFICATION APPLIANCE BOOSTER CABINET  | REFER TO SPECIFICATIONS   |
|        | VARIABLE FREQUENCY DRIVE FURNISHED BY HVAC CONTROLS CONTRACTOR AND INSTALLED/WIRED BY THE ELECTRICAL CONTRACTOR   | REFER TO SPECIFICATIONS   |
|        | IDF DATA RACK PROVIDED BY CONTRACTOR  | REFER TO SPECIFICATIONS   |
|        | IDF ROOM GROUND BAR. REFER TO SPECIFICATIONS AND REFER TO DETAILS E502/6 AND E505/5   | REFER TO SPECIFICATIONS   |
|        | CONDUITS SLEEVES TURN DOWN TO CEILING CAVITY BELOW.   |   |
|        | SINGLE GANG VOICE OUTLET WITH 1" CONDUIT STUBBED ABOVE NEAREST LAY-IN CEILING FOR: ELEVATOR, FIRE ALARM OR SECURITY INTRUSION SYSTEM. COORDINATE EXACT LOCATION AND REQUIREMENTS WITH SYSTEM PROVIDER. SEE DETAIL E00.08/3. |   |
|        | LIGHTING OVERRIDE SWITCH - PROVIDED AND WIRED BY MECHANICAL CONTROLS CONTRACTOR   | REFER TO SPECIFICATIONS AND MECHANICAL DRAWINGS FOR SEQUENCE OF OPERATIONS. |
|        | EXTERNAL DOOR SECURITY CARD READER. LOCATE 48" TO TOP OF BOX.   | SEE SPECIFICATIONS  |
|        | SECURITY DOOR CONTACT   | SEE SPECIFICATIONS  |
|        | REQUEST TO EXIT MOTION  | SEE SPECIFICATIONS  |
|        | SIMPLEX RECEPTACLE FOR ELEVATOR SUMP PUMP   | HUBBELL LEVITON OR P&S  |
|        | FIRE ALARM SIGNAL/SPEAKER - AUDIO/VISUAL, WALL MOUNTED AT +84" ABOVE FINISHED FLOOR. "WP" INDICATES WEATHERPROOF # CD INDICATES CANDELLA RATING OF STROBE.  | REFER TO SPECIFICATION  |
|        | FIRE ALARM SIGNAL - VISUAL, WALL MOUNTED AT +84" ABOVE FINISHED FLOOR. "WP" INDICATES WEATHERPROOF # CD INDICATES CANDELLA RATING OF STROBE.  | REFER TO SPECIFICATION  |
|        | CEILING MOUNTED FIRE ALARM STROBE - # CD INDICATES CANDELLA RATING OF STROBE  | REFER TO SPECIFICATION  |
|        | MANUAL FIRE ALARM PULL STATION - INSTALL AT +48" ABOVE FINISHED FLOOR TO TOP OF BOX (DOUBLE ACTION). PROVIDE LEXAN STOPPER II COVERS ON ALL PULL STATIONS.  | REFER TO SPECIFICATIONS PROVIDED WITH LEXAN PROTECTIVE COVER                |
|        | FIRE ALARM SPEAKER - AUDIO ONLY, WALL MOUNTED AT +84" ABOVE FINISHED FLOOR. "WP" INDICATES WEATHERPROOF   | REFER TO SPECIFICATION  |
|        | PHOTOELECTRIC TYPE SMOKE DETECTOR - CEILING MOUNTED   | REFER TO SPECIFICATION  |
|        | DUCT TYPE PHOTOELECTRIC SMOKE DETECTOR INSTALLED IN MECHANICAL DUCTWORK, FURNISHED BY ELECTRICAL CONTRACTOR, INSTALLED BY MECHANICAL CONTRACTOR WITH FINAL CONNECTION BY ELECTRICAL CONTRACTOR.                             | REFER TO SPECIFICATION  |
|        | RECESSED CEILING MOUNTED FIRE ALARM SPEAKER   | REFER TO SPECIFICATION  |
|        | SPRINKLER BELL  |   |
|        | REMOTE ALARM ANNUNCIATORS FOR DUCT DETECTORS. MOUNT AT +88" AFF UNLESS OTHERWISE NOTED. MUST BE KEY-OPERATED. "N" DENOTES AIR HANDLING UNIT NUMBER TO BE IDENTIFIED ON FACEPLATE.   | REFER TO SPECIFICATION  |
|        |   |   |

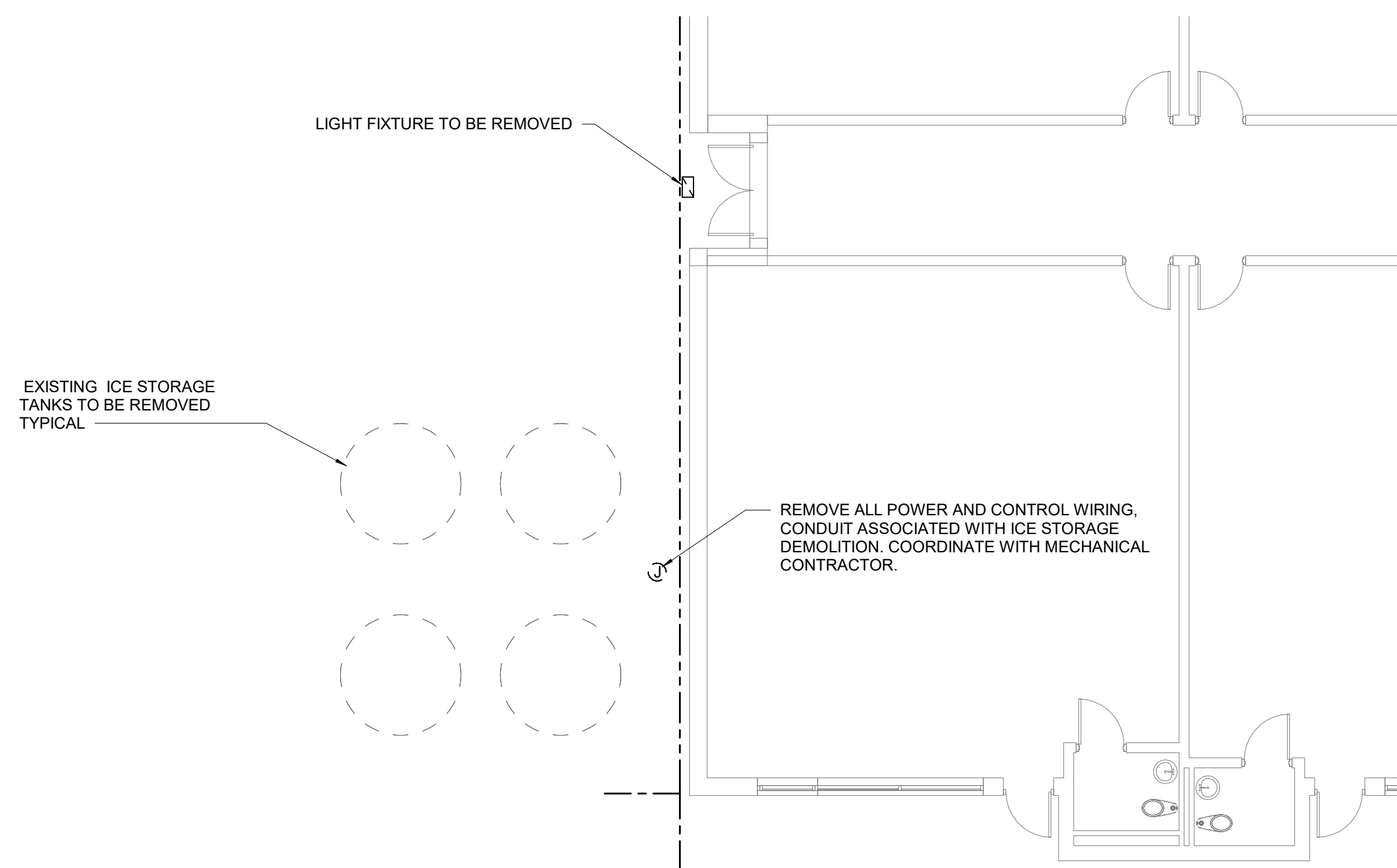


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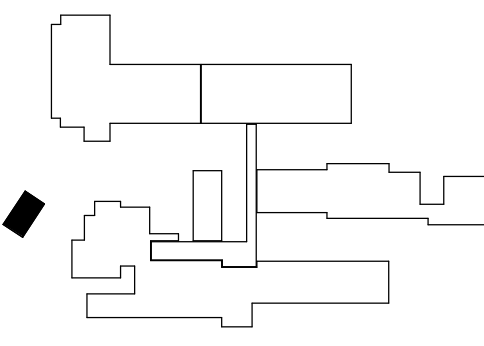
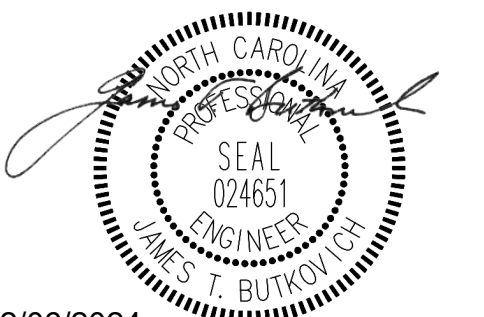
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PROJECT PHASE  
**2307**  
BOOMERANG DESIGN PROJECT NUMBER  
**02.07.2024**  
DRAWING RELEASE DATE

**DEMOLITION**  
SHEET TITLE  
**E100**  
SHEET



1 ICE STORAGE YARD DEMOLITION  
1/8" = 1'-0"



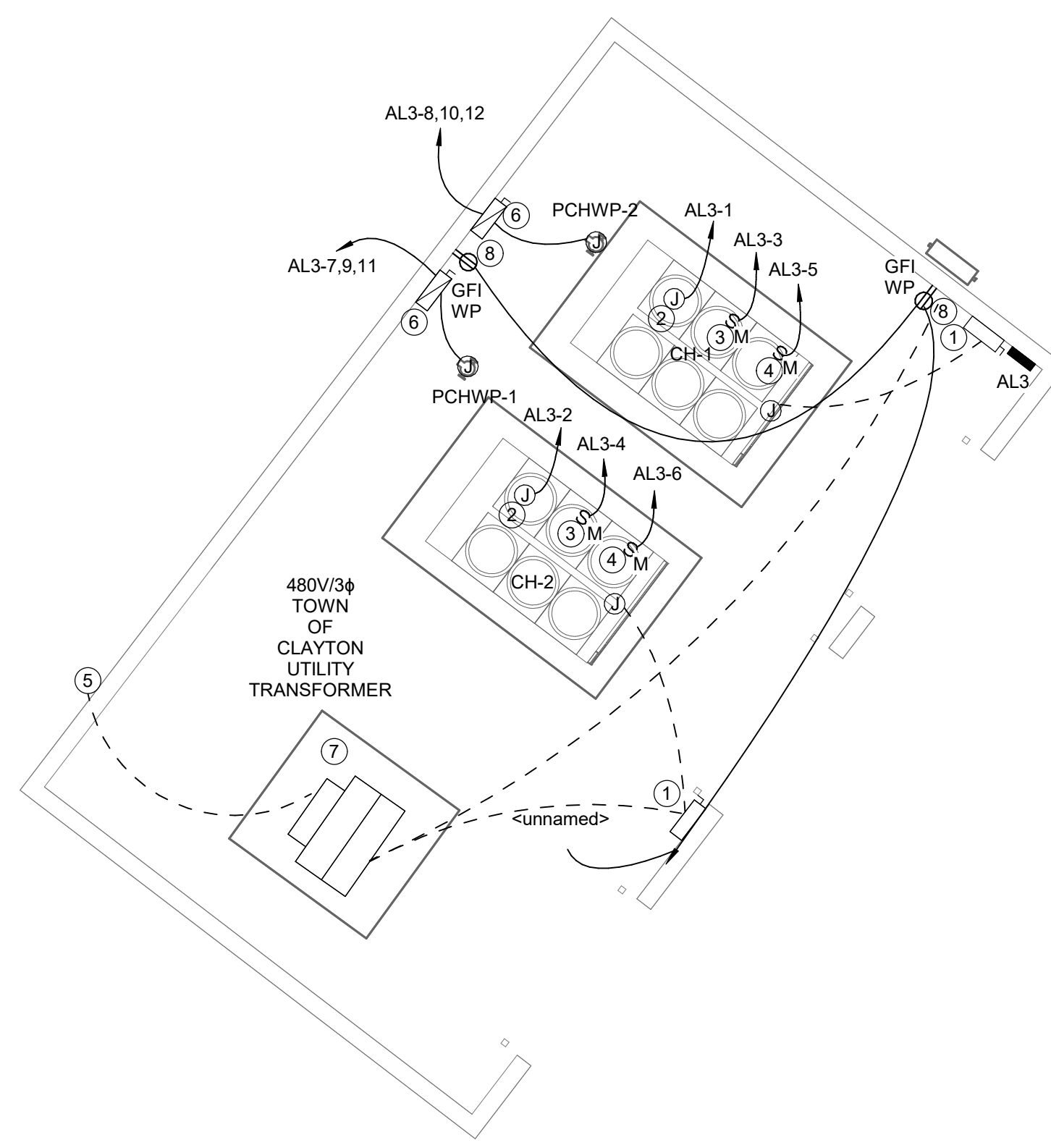
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**ENLARGED POWER  
PLAN - MECHANICAL  
YARD PLAN**  
SHEET TITLE

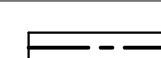
**E101A**  
SHEET



- GENERAL NOTES:**
- A. ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR SUPPORTING ALL DISCONNECTS, PANEL, RECEPTACLES ETC. IN SERVICE YARD. COORDINATE CLOSELY WITH HVAC CONTRACTOR.
  - B. REFER TO CIVIL SITE PLANS.
  - C. ALL UTILITY WORK SHALL BE COORDINATED WITH TOWN OF CLAYTON UTILITIES DEPARTMENT.
  - D. ALL RECEPTACLES SHALL BE TAMPER RESISTANT.

- KEYNOTES:**
1. SERVICE ENTRANCE RATED, 600 VOLT, 400 AMP, 3 POLE, NEMA-3R, FUSIBLE DISCONNECT SWITCH FOR CHILLER. COORDINATE EXACT LOCATION AND FUSE SIZES WITH MECHANICAL CONTRACTOR. MOUNT DISCONNECTS ON GALVANIZED STEEL ANGLE AND UNISTRUT SUPPORTS EMBEDDED IN CONCRETE.
  2. NEMA-3R, 120VAC JUNCTION BOX FOR HVAC CONTROLS. COORDINATE EXACT LOCATION WITH MECHANICAL CONTRACTOR.
  3. 120 VOLT, 20 AMP, N3R, MOTOR RATED TOGGLE DISCONNECT SWITCH FOR CHILLER HEAT TRACE. COORDINATE EXACT LOCATION WITH MECHANICAL CONTRACTOR.
  4. 120 VOLT, 20 AMP, N3R, MOTOR RATED TOGGLE DISCONNECT SWITCH FOR CHILLER PIPING HEAT TRACE. COORDINATE EXACT LOCATION WITH MECHANICAL CONTRACTOR.
  5. UTILITY COMPANY MEDIUM VOLTAGE PRIMARY COORDINATE WITH TOWN OF CLAYTON UTILITIES.
  6. 240V, 3ØA, 3P, N3R, FUSIBLE DISCONNECT SWITCH FOR PUMP. FUSE PER MANUFACTURER RECOMMENDATIONS. COORDINATE FINAL LOCATION WITH MECHANICAL CONTRACTOR. MOUNT DISCONNECTS ON GALVANIZED STEEL ANGLE AND UNISTRUT SUPPORTS EMBEDDED IN CONCRETE.
  7. PROVIDE 3000PSI CONCRETE PAD FOR UTILITY TRANSFORMER. COORDINATE FINAL SIZE AND OPENINGS WITH TOWN OF CLAYTON UTILITY DEPARTMENT.
  8. MOUNT RECEPTACLES TO SUPPORT FRAME.

**1 CHILLER YARD ELECTRICAL PLAN**  
18" = 1'-0"

FIRE RATED WALLS  
 1 HR RATED

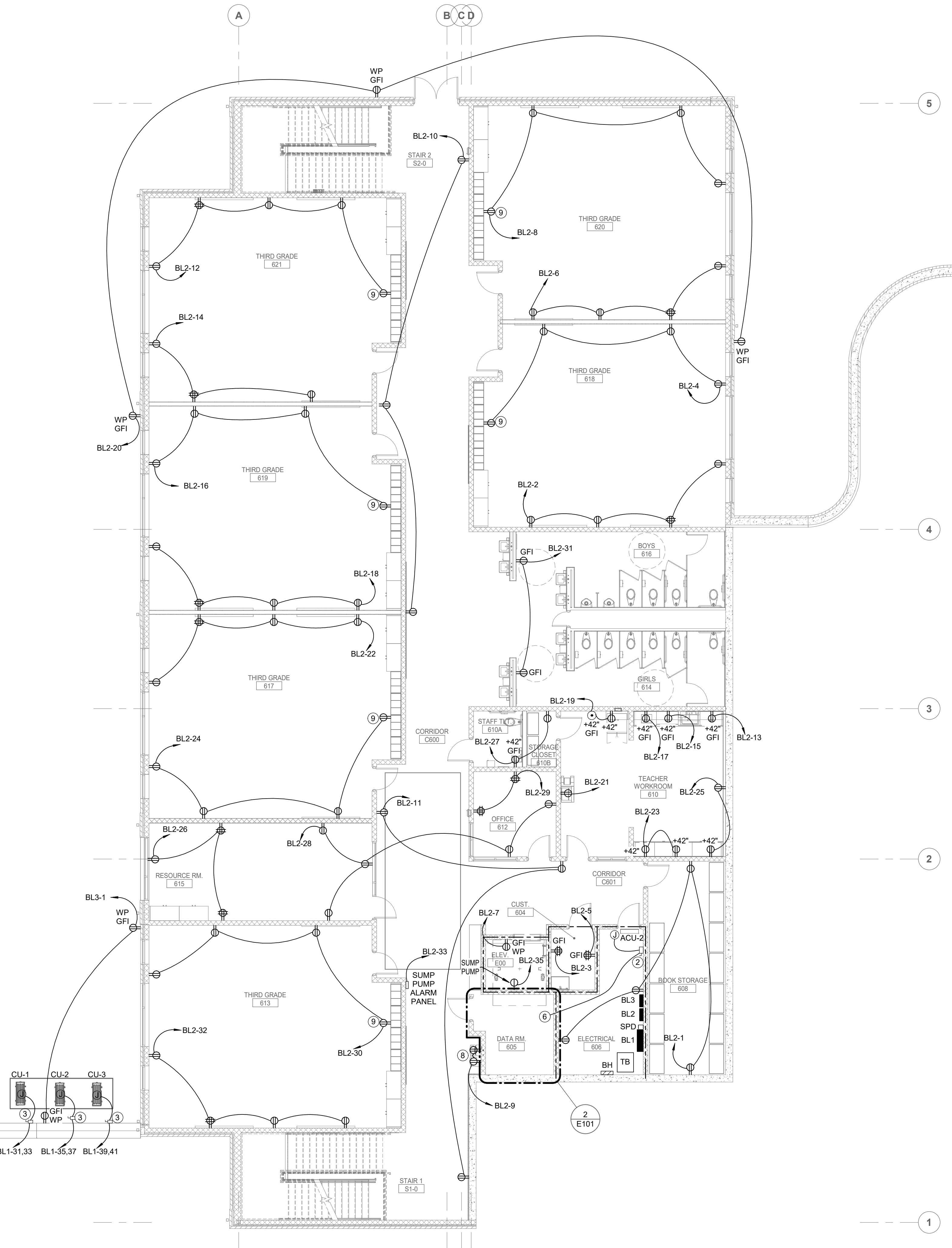
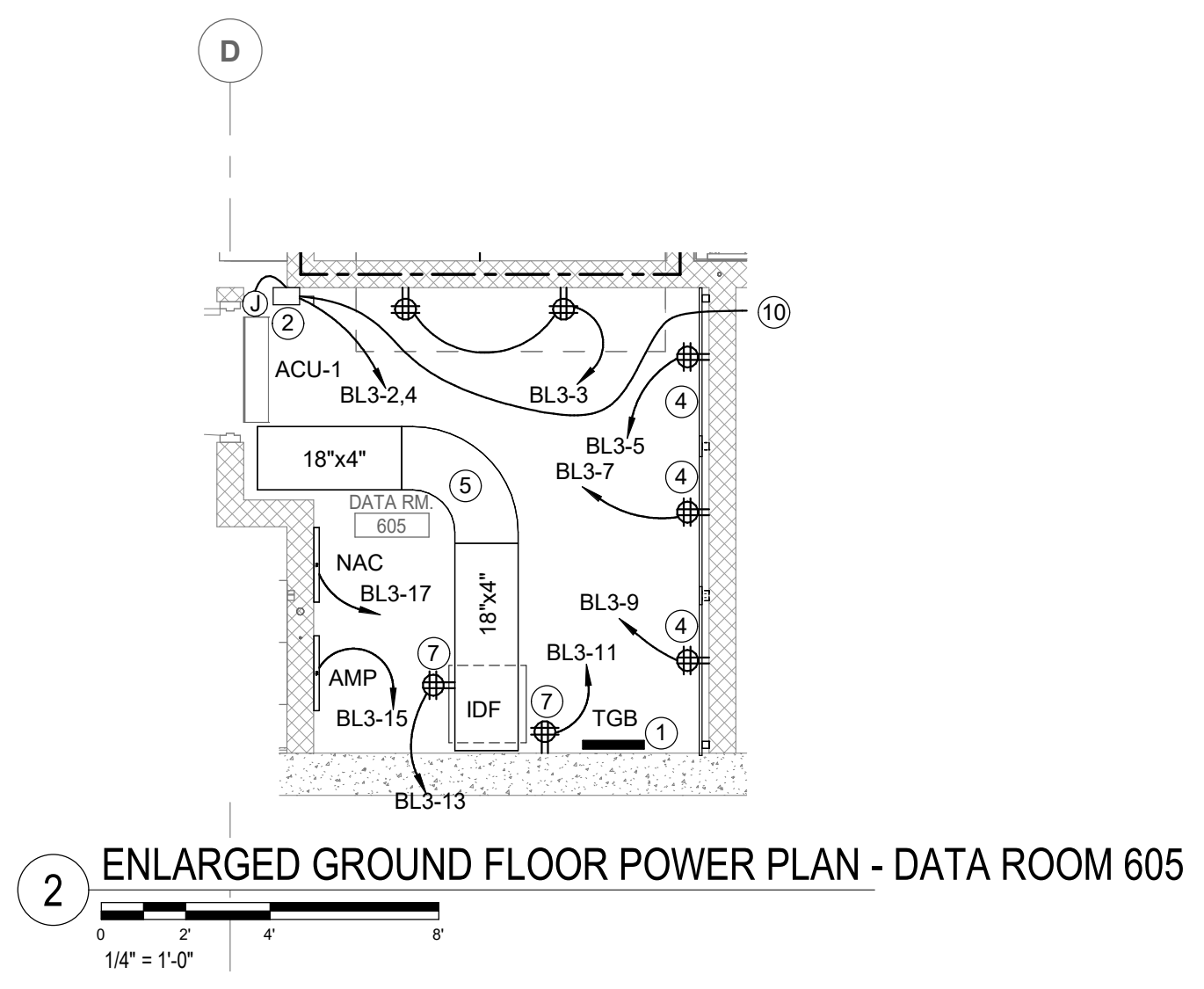
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 803/554-0027



- GENERAL NOTES:**
- A. REFER TO ELECTRICAL LEAD SHEET E001 FOR SYMBOLS, ABBREVIATIONS AND NOTES.
  - B. ALL WORK IN TELECOM ROOMS SHALL BE COORDINATED BETWEEN DIVISION 27, 28 AND ELECTRICAL CONTRACTOR PRIOR TO ROUGH-IN.
  - C. REFER TO E300 SERIES FOR TECHNOLOGY/SECURITY AND E400 SERIES FOR FIRE ALARM WORK IN THIS AREA.
  - D. REFER TO DRAWINGS E300 SERIES FOR CABLE TRAY AND CONDUIT SLEEVES.
  - E. ALL RECEPTACLES SHALL BE TAMPER RESISTANT.

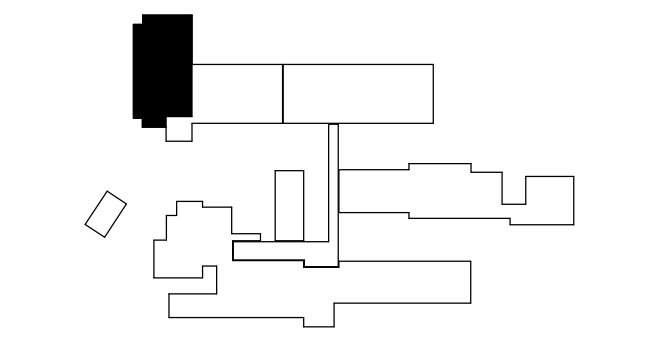
- KEYNOTES:**
- 1. TELECOMMUNICATIONS GROUND BAR - REFER TO DETAILS E502/6 AND E505/5.
  - 2. PROVIDE 240 VOLT, 30 AMP, 2 POLE, NEMA-1, FUSIBLE DISCONNECT SWITCH FUSE PER MANUFACTURER'S RECOMMENDATIONS. COORDINATE EXACT LOCATION WITH MECHANICAL CONTRACTOR.
  - 3. PROVIDE 240 VOLT, 30 AMP, 2 POLE, NEMA-3R, FUSIBLE DISCONNECT SWITCH, FUSE PER MANUFACTURER'S RECOMMENDATIONS. COORDINATE EXACT LOCATION WITH MECHANICAL CONTRACTOR.
  - 4. 4'x8'x3/4" FIRE RETARDANT PLYWOOD BACK BOARD.
  - 5. 18" x 4" LADDER RUNWAY TRAY.
  - 6. CONTINUE TO ACU-1.
  - 7. COORDINATE PLACEMENT OF RACK RECEPTACLES WITH OWNER'S IT DEPARTMENT PRIOR TO ROUGH-IN.
  - 8. COORDINATE LOCATION OF RECEPTACLE FOR WATER COOLER WITH PLUMBING CONTRACTOR SO CORD DOES NOT SHOW. PROVIDE GFCI CIRCUIT BREAKER FOR WATER COOLER.
  - 9. REFER TO DETAIL E505/4 FOR MOUNTING RECEPTACLE HORIZONTALLY BELOW CUBBIES.
  - 10. CONTINUE TO ACU-2.

**pdc**  
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 919-790-9989  
 License# C-0183  
 PROJECT #23015

**COOPER ACADEMY  
 A & R**  
 PROJECT TITLE

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02/06/2024  
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- 3. DO NOT SCALE OFF DIMENSIONS.

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**2307**  
 BOOMERANG DESIGN PROJECT NUMBER  
**02.07.2024**  
 DRAWING RELEASE DATE

**GROUND FLOOR  
 POWER PLAN**  
 SHEET TITLE

**E101**  
 SHEET

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FIRE RATED WALLS  
1 HR RATED

**GENERAL NOTES:**

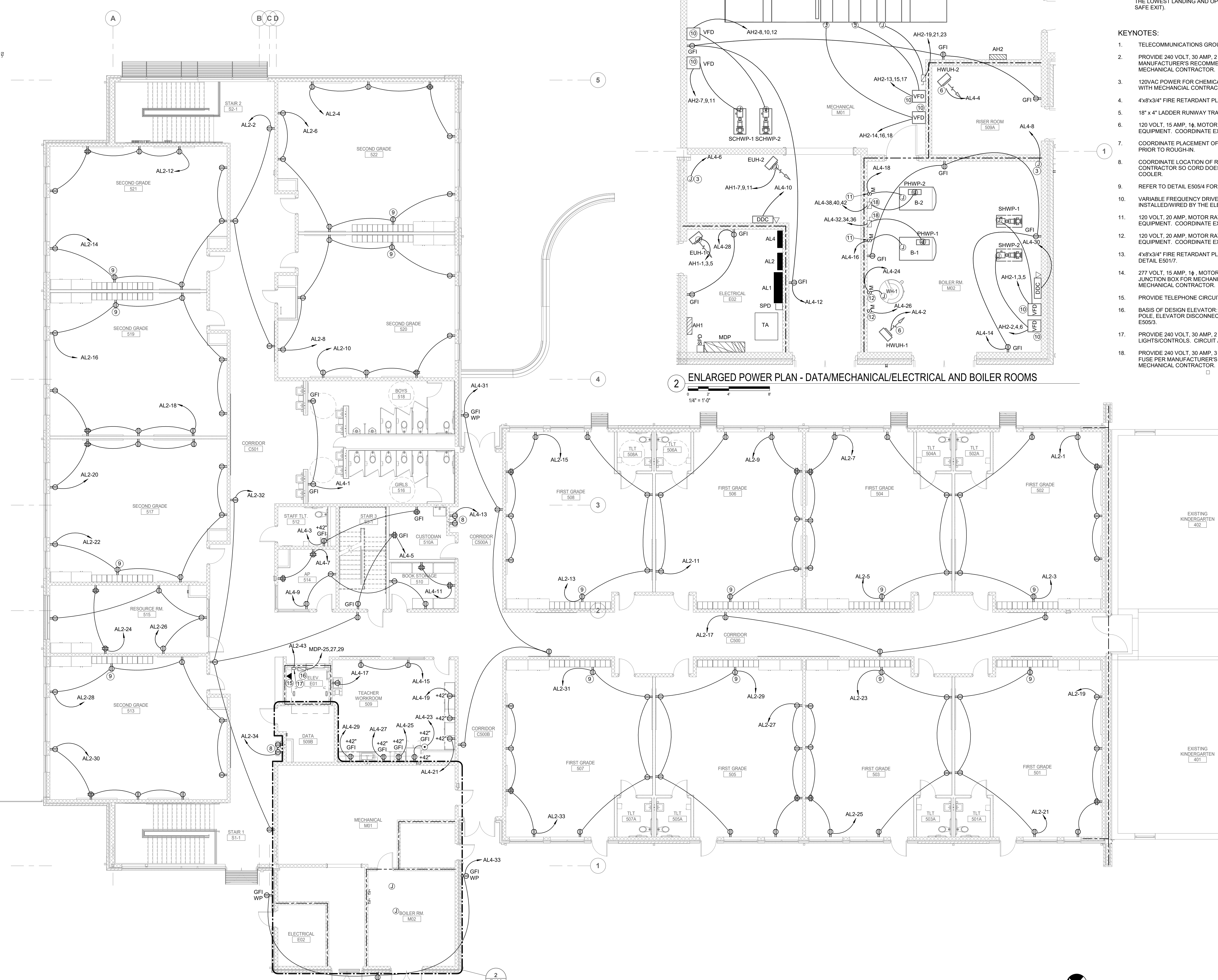
- A. REFER TO ELECTRICAL LEAD SHEET E001 FOR SYMBOLS, ABBREVIATIONS AND NOTES.
- B. ALL WORK IN TELECOM ROOMS SHALL BE COORDINATED BETWEEN DIVISION 27, 28 AND ELECTRICAL CONTRACTOR PRIOR TO ROUGH-IN.
- C. REFER TO E300 SERIES FOR TECHNOLOGY/SECURITY AND E400 SERIES FOR FIRE ALARM WORK IN THIS AREA.
- D. ALL RECEPTACLES SHALL BE TAMPER RESISTANT.
- E. ONLY ITEMS THAT PERTAIN TO THE OPERATION OF THE ELEVATOR ARE ALLOWED IN THE ELEVATOR HOISTWAY.
- F. WHERE ELEVATORS ARE EQUIPPED WITH "BATTERY LOWERING" CAPABILITY, THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING A CONTACT IN THE MAIN ELEVATOR POWER DISCONNECT THAT WILL DISABLE THE "BATTERY LOWERING" FEATURE OF THE ELEVATOR WHEN THE MAIN POWER DISCONNECT FOR THE ELEVATOR IS THROWN. THIS DISABLING CONTACT IS INTENDED TO BE USED FOR SERVICING THE ELEVATOR. ("BATTERY LOWERING" IS A FUNCTION OF THE ELEVATOR WHEREBY, UPON LOSS OF AC POWER, THE ELEVATOR, OPERATING UNDER BATTERY POWER, RETURNS TO THE LOWEST LANDING AND OPENS DOORS TO LET ANYONE TRAPPED IN THE ELEVATOR SAFE EXIT).

**KEYNOTES:**

1. TELECOMMUNICATIONS GROUND BAR - REFER TO DETAILS E5026 AND E505/5.
2. PROVIDE 240 VOLT, 30 AMP, 2 POLE, NEMA-1, FUSIBLE DISCONNECT SWITCH FUSE PER MANUFACTURER'S RECOMMENDATIONS. COORDINATE EXACT LOCATION WITH MECHANICAL CONTRACTOR.
3. 120VAC POWER FOR CHEMICAL FEED. COORDINATE REQUIREMENTS AND LOCATION WITH MECHANICAL CONTRACTOR.
4. 4"x8"x3/4" FIRE RETARDANT PLYWOOD BACK BOARD.
5. 18" x 4" LADDER RUNWAY TRAY.
6. 120 VOLT, 15 AMP, 1P, MOTOR RATED TOGGLE DISCONNECT SWITCH FOR MECHANICAL EQUIPMENT. COORDINATE EXACT LOCATION WITH MECHANICAL CONTRACTOR.
7. COORDINATE PLACEMENT OF RACK RECEPTACLES WITH OWNERS' DEPARTMENT PRIOR TO ROUGH-IN.
8. COORDINATE LOCATION OF RECEPTACLE FOR WATER COOLER WITH PLUMBING CONTRACTOR SO CORD DOES NOT SHOW. PROVIDE GFCI CIRCUIT BREAKER FOR WATER COOLER.
9. REFER TO DETAIL E505/4 FOR MOUNTING RECEPTACLE HORIZONTALLY BELOW CUBBIES.
10. VARIABLE FREQUENCY DRIVE (VFD) FURNISHED BY MECHANICAL CONTRACTOR AND INSTALLED/WIRED BY THE ELECTRICAL CONTRACTOR. COORDINATE CLOSELY.
11. 120 VOLT, 20 AMP, MOTOR RATED TOGGLE DISCONNECT SWITCH FOR MECHANICAL EQUIPMENT. COORDINATE EXACT LOCATION WITH MECHANICAL CONTRACTOR.
12. 120 VOLT, 20 AMP, MOTOR RATED TOGGLE DISCONNECT SWITCH FOR PLUMBING EQUIPMENT. COORDINATE EXACT LOCATION WITH MECHANICAL CONTRACTOR.
13. 4"x8"x3/4" FIRE RETARDANT PLYWOOD BACK BOARD FOR BDA EQUIPMENT. REFER TO DETAIL E501/7.
14. 277 VOLT, 15 AMP, 1P, MOTOR RATED TOGGLE DISCONNECT SWITCH WITH NEMA-3R JUNCTION BOX FOR MECHANICAL EQUIPMENT. COORDINATE EXACT LOCATION WITH MECHANICAL CONTRACTOR.
15. PROVIDE TELEPHONE CIRCUITS FOR ELEVATOR CONTROLLER.
16. BASIS OF DESIGN ELEVATOR: SCHINDLER 3100 MRL. PROVIDE 600 VOLT, 200 AMP, 3 POLE, ELEVATOR DISCONNECT SWITCH FOR MAIN ELEVATOR POWER. REFER TO DETAIL E502/3.
17. PROVIDE 240 VOLT, 30 AMP, 2 POLE, NEMA-1, FUSIBLE DISCONNECT SWITCH FOR LIGHTS/CONTROLS. CIRCUIT AS SHOWN.
18. PROVIDE 240 VOLT, 30 AMP, 3 POLE, NEMA-1 FUSIBLE DISCONNECT SWITCH FOR PUMP FUSE PER MANUFACTURER'S RECOMMENDATIONS. COORDINATE EXACT LOCATION WITH MECHANICAL CONTRACTOR.

**ENLARGED POWER PLAN - DATA/MECHANICAL/ELECTRICAL AND BOILER ROOMS**

1/4" = 1'-0"



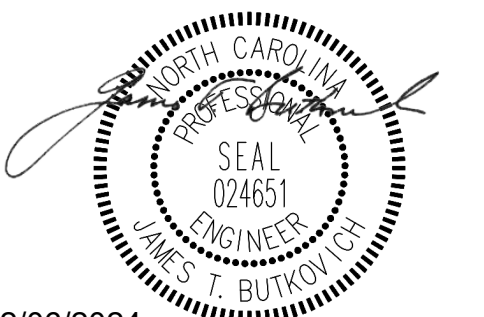
**FIRST FLOOR POWER PLAN**

1/8" = 1'-0"

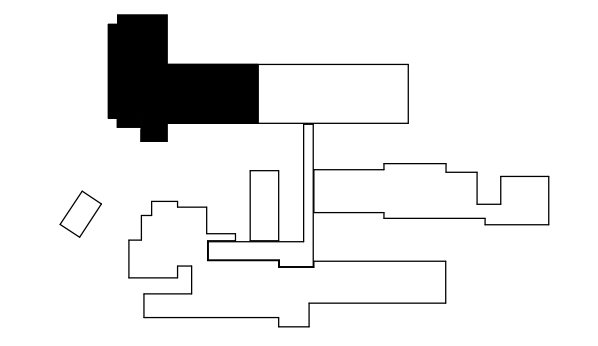
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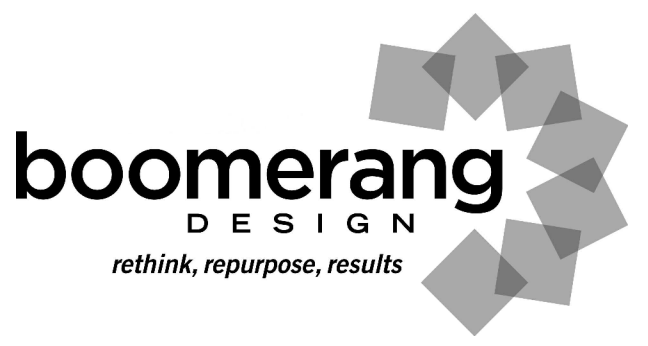
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**FIRST FLOOR POWER PLAN**  
SHEET TITLE

**E102**

SHEET

FIRE RATED WALLS  
 1 HR RATED

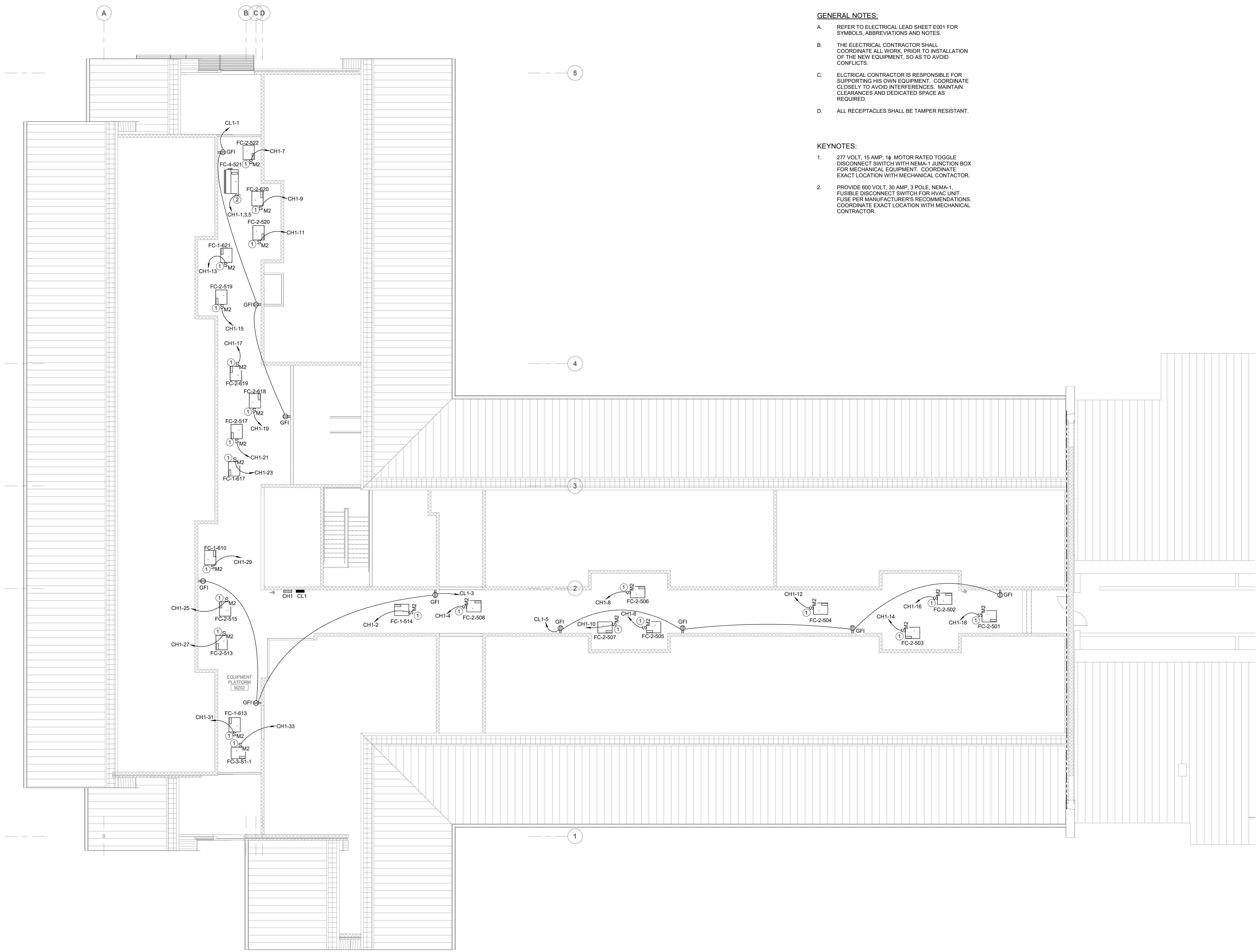


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**GENERAL NOTES:**

- A. REFER TO ELECTRICAL LEAD SHEET E001 FOR SYMBOLS, ABBREVIATIONS AND NOTES.
- B. THE ELECTRICAL CONTRACTOR SHALL COORDINATE ALL WORK, PRIOR TO INSTALLATION OF THE NEW EQUIPMENT, SO AS TO AVOID CONFLICTS.
- C. ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR SUPPORTING HIS OWN EQUIPMENT. COORDINATE CLOSELY TO AVOID INTERFERENCES. MAINTAIN CLEARANCES AND DEDICATED SPACE AS REQUIRED.
- D. ALL RECEPTACLES SHALL BE TAMPER RESISTANT.

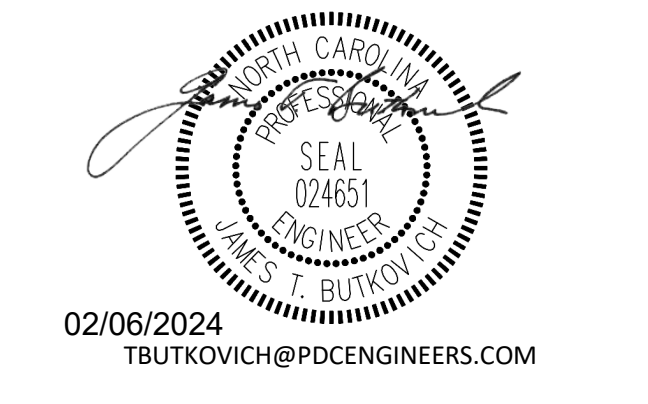
**KEYNOTES:**

- 1. 277 VOLT, 15 AMP, 1φ MOTOR RATED TOGGLE DISCONNECT SWITCH WITH NEMA-1 JUNCTION BOX FOR MECHANICAL EQUIPMENT. COORDINATE EXACT LOCATION WITH MECHANICAL CONTRACTOR.
- 2. PROVIDE 600 VOLT, 30 AMP, 3 POLE, NEMA-1, FUSIBLE DISCONNECT SWITCH FOR HVAC UNIT. FUSE PER MANUFACTURER'S RECOMMENDATIONS. COORDINATE EXACT LOCATION WITH MECHANICAL CONTRACTOR.

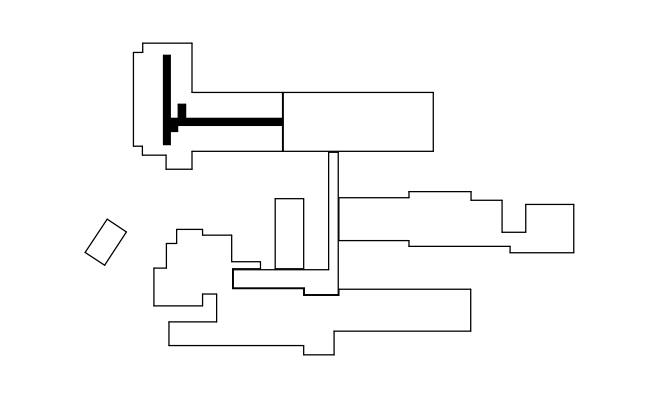
**pdc**  
**Progressive Design Collaborative, Inc.**  
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3. DO NOT SCALE OFF DIMENSIONS.

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 PROJECT PHASE  
**2307**  
 BOOMERANG DESIGN PROJECT NUMBER  
**02.07.2024**  
 DRAWING RELEASE DATE

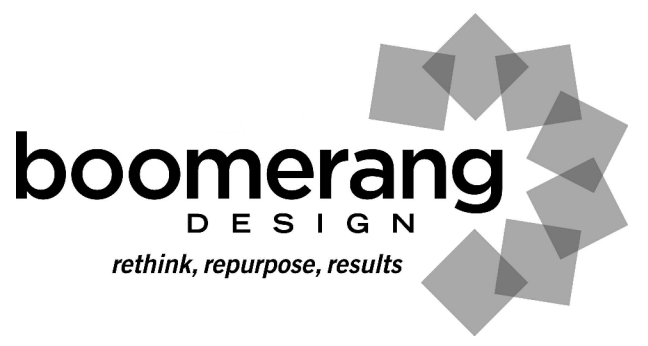
**EQUIPMENT  
 PLATFORM POWER  
 PLAN**  
 SHEET TITLE

**E103**  
 SHEET

2/6/2024 4:17:58 PM

**1** EQUIPMENT PLATFORM POWER PLAN  
 1/8" = 1'-0"

FIRE RATED WALLS  
 1 HR RATED

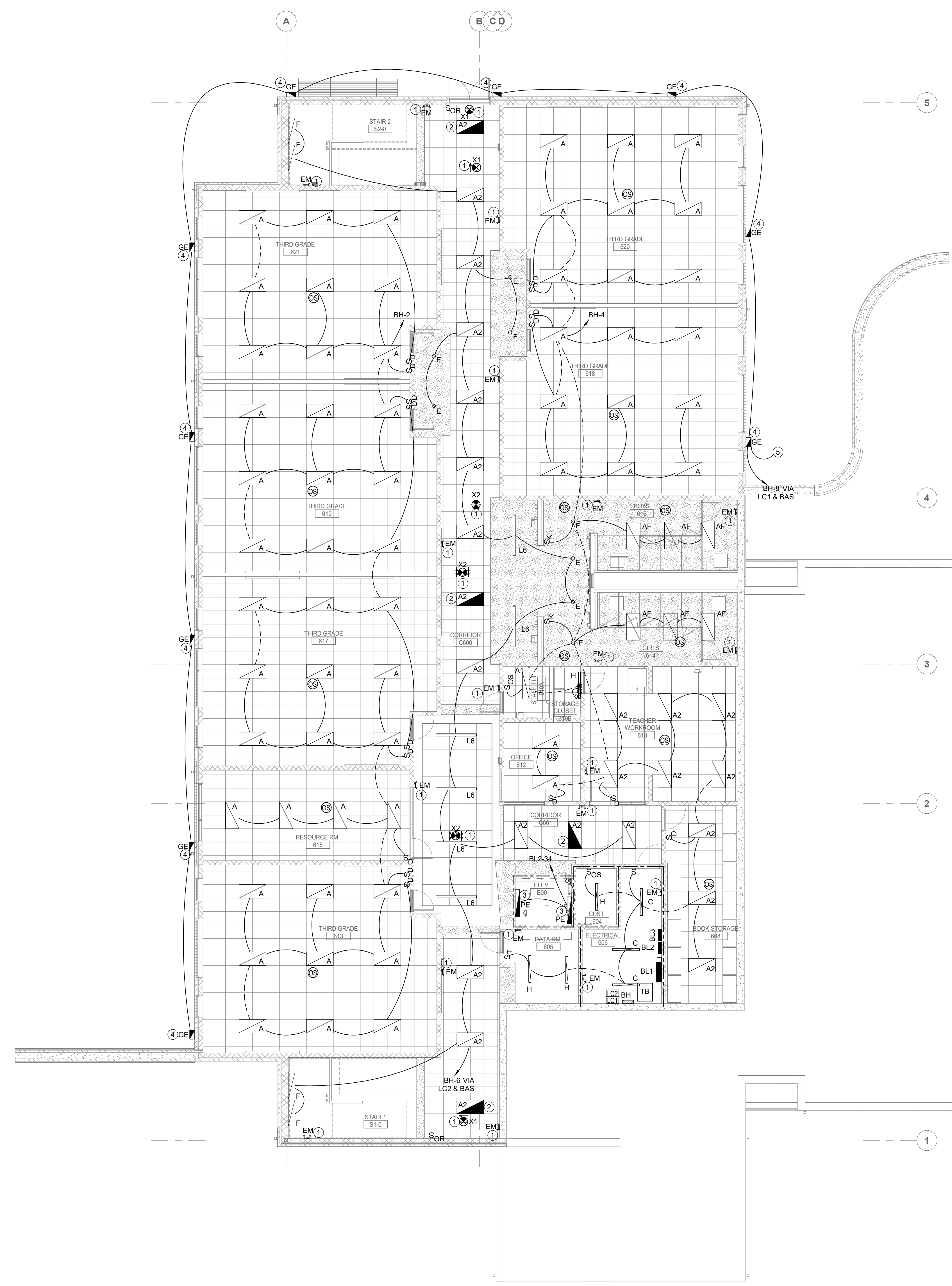


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LEWISTON  
 1070 S. Lake Dr., Suite J  
 Lewiston, NC 28119  
 910/754-0207



- KEYNOTES:
- EMERGENCY FIXTURE - WIRE AHEAD OF SWITCHES AND/OR BAS.
  - NIGHT LIGHT - WIRE AHEAD OF SWITCHES AND/OR BAS.
  - EMERGENCY FIXTURE WITH INTERNAL EMERGENCY BATTERY BACK-UP. WIRE FIXTURE SO FIXTURE TURNS ON/OFF WITH SWITCH, BUT MAINTAINS BATTERY CHARGE. UPON LOSS OF NORMAL POWER, FIXTURE SHALL ILLUMINATE.
  - EXTERIOR EMERGENCY FIXTURE WITH INTERNAL EMERGENCY BATTERY BACK-UP. WIRE FIXTURE SO FIXTURE TURNS ON/OFF WITH BAS, BUT MAINTAINS BATTERY CHARGE. UPON LOSS OF NORMAL POWER, FIXTURE SHALL ILLUMINATE.
  - CONTINUE TO EXTERIOR LIGHTING FIXTURES ON 1ST FLOOR, REFER TO DRAWINGS E102.

1 GROUND FLOOR LIGHTING PLAN  
 18" = 1'-0"

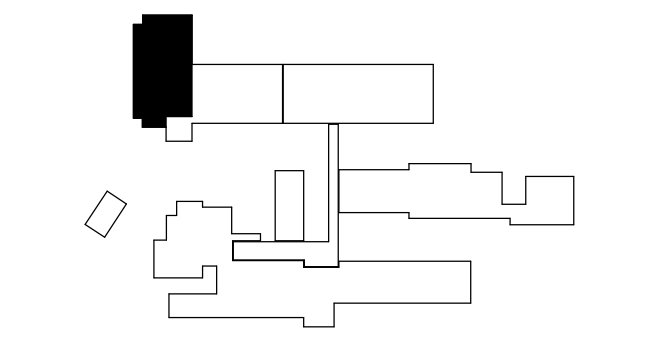
**pdc**  
 Progressive Design Collaborative, Ltd.  
 3101 Poplarwood Court, Suite 320  
 Raleigh, North Carolina 27604  
 919-790-9989  
 License# C-0183  
 PROJECT #23015

**COOPER ACADEMY  
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 PROJECT TITLE

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**GROUND FLOOR  
 LIGHTING PLAN**  
 SHEET TITLE

**E201**  
 SHEET

2/6/2024 4:17:58 PM

FIRE RATED WALLS  
 1 HR RATED

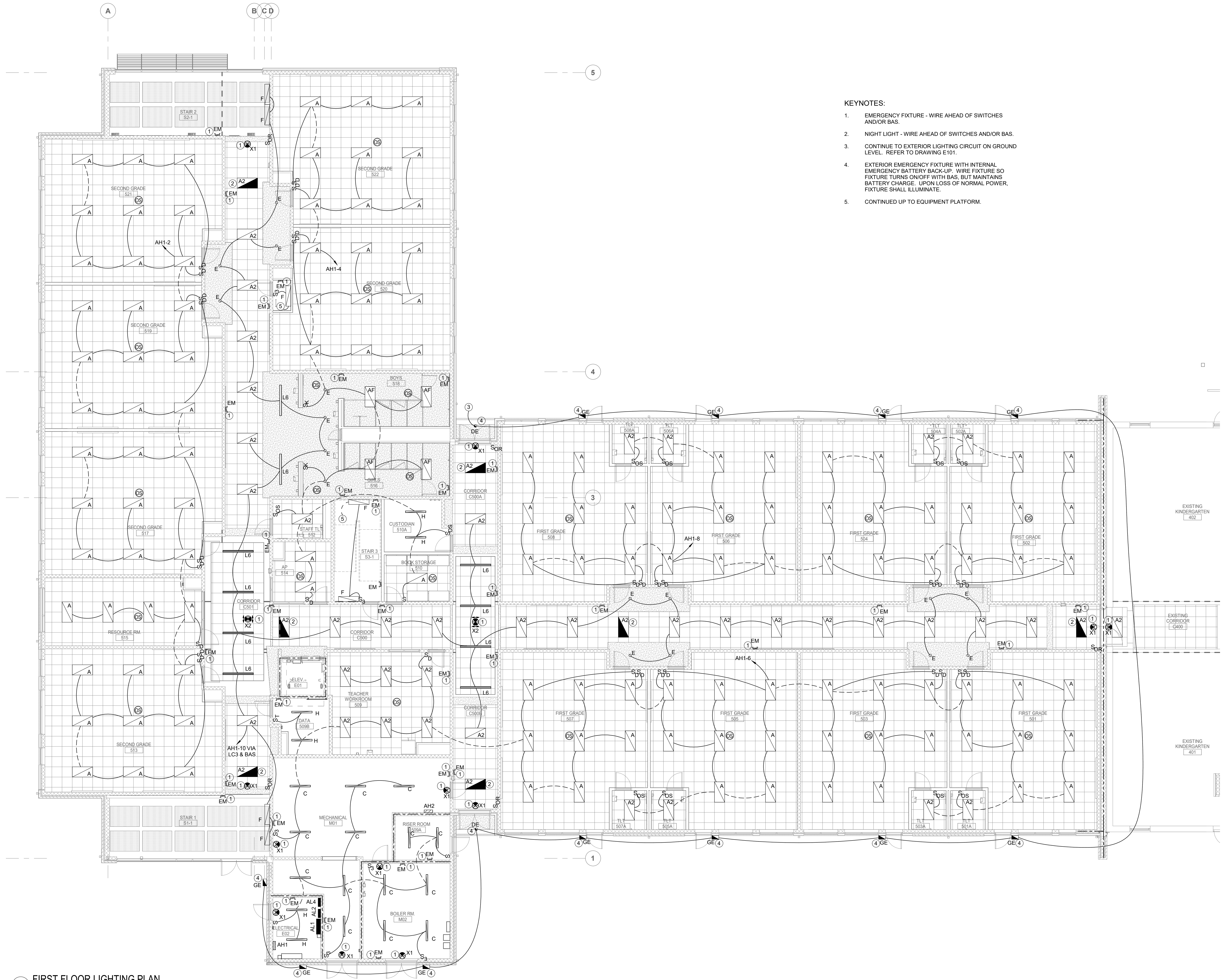


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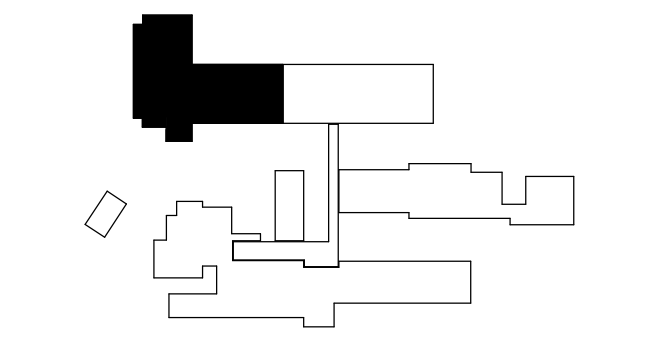
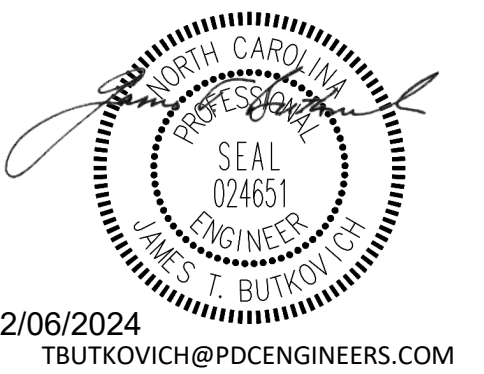
- KEYNOTES:**
- EMERGENCY FIXTURE - WIRE AHEAD OF SWITCHES AND/OR BAS.
  - NIGHT LIGHT - WIRE AHEAD OF SWITCHES AND/OR BAS.
  - CONTINUE TO EXTERIOR LIGHTING CIRCUIT ON GROUND LEVEL. REFER TO DRAWING E101.
  - EXTERIOR EMERGENCY FIXTURE WITH INTERNAL EMERGENCY BATTERY BACK-UP. WIRE FIXTURE SO FIXTURE TURNS ON/OFF WITH BAS, BUT MAINTAINS BATTERY CHARGE. UPON LOSS OF NORMAL POWER, FIXTURE SHALL ILLUMINATE.
  - CONTINUED UP TO EQUIPMENT PLATFORM.

1 FIRST FLOOR LIGHTING PLAN  
 1/8" = 1'-0"

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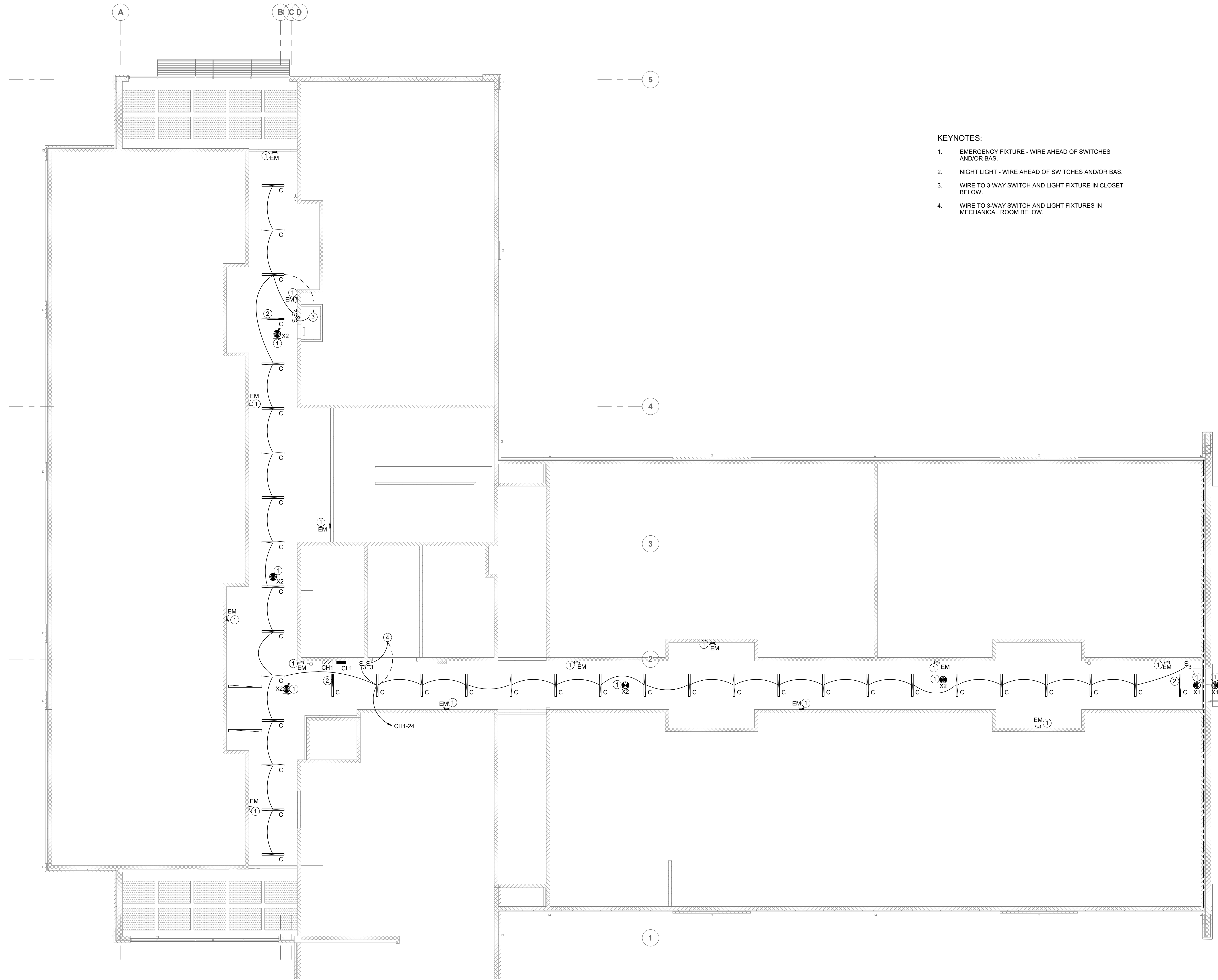
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**FIRST FLOOR  
 LIGHTING PLAN**  
 SHEET TITLE

**E202**  
 SHEET

2/6/2024 4:18:01 PM





- KEYNOTES:**
- EMERGENCY FIXTURE - WIRE AHEAD OF SWITCHES AND/OR BAS.
  - NIGHT LIGHT - WIRE AHEAD OF SWITCHES AND/OR BAS.
  - WIRE TO 3-WAY SWITCH AND LIGHT FIXTURE IN CLOSET BELOW.
  - WIRE TO 3-WAY SWITCH AND LIGHT FIXTURES IN MECHANICAL ROOM BELOW.



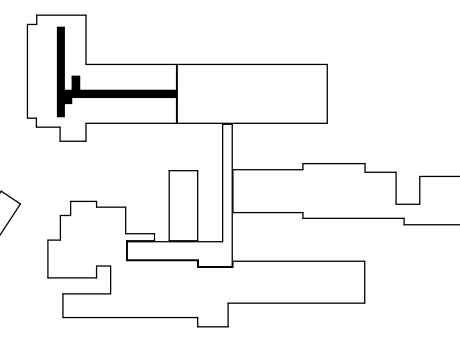
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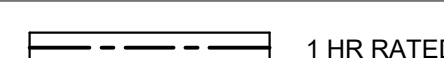
**EQUIPMENT  
PLATFORM LIGHTING  
PLAN**  
SHEET TITLE

**E203**

SHEET

2/6/2024 4:18:02 PM

**1** EQUIPMENT PLATFORM LIGHTING PLAN  
1/8" = 1'-0"

FIRE RATED WALLS  
 1 HR RATED

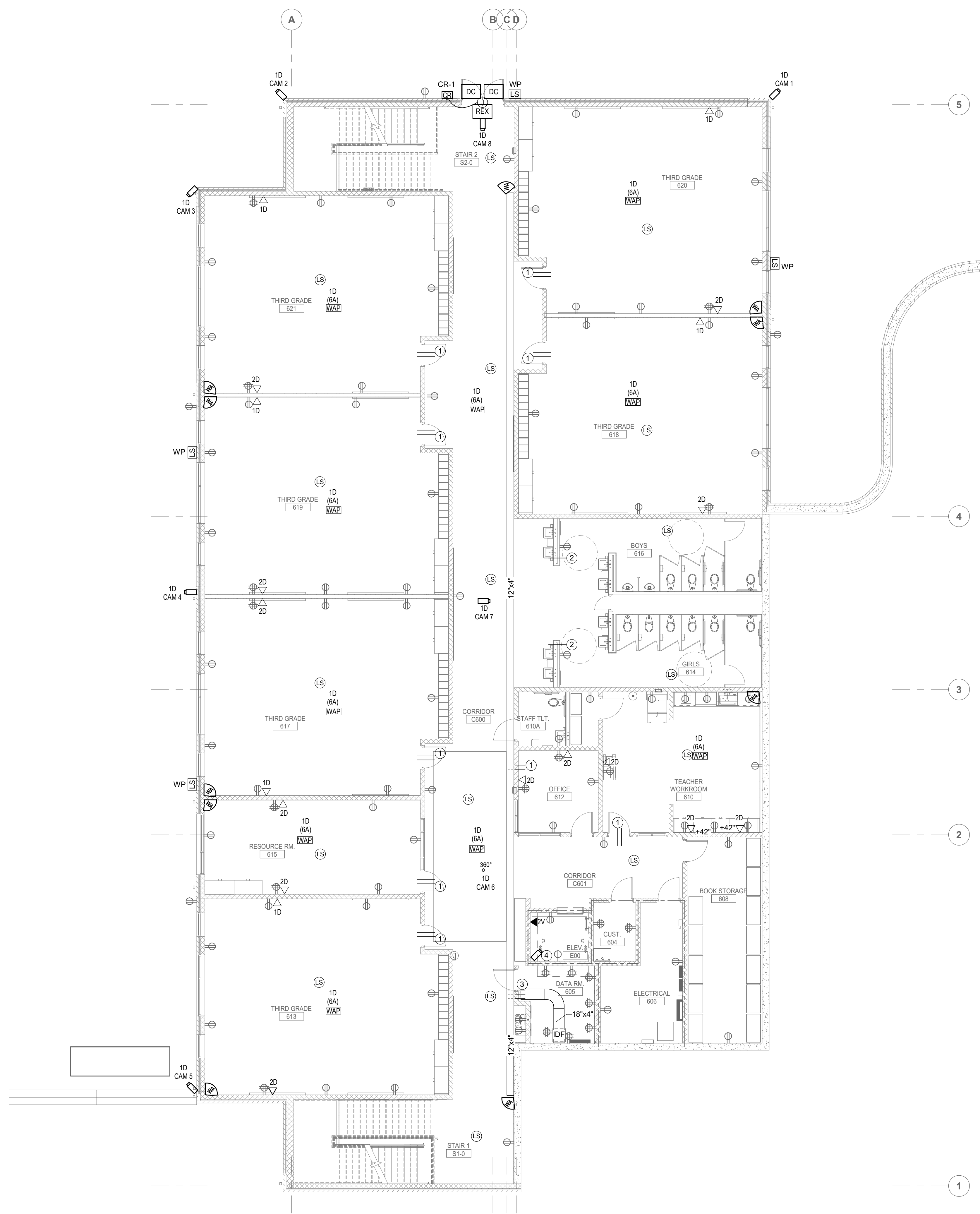
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**CAT. 6 PLENUM CABLE SCHEDULE**

| ROOM #   | QUANTITY       | TERMINATION |
|----------|----------------|-------------|
| 620      | 3              | IDF-605     |
| 621      | 3              | IDF-605     |
| 618      | 3              | IDF-605     |
| 619      | 3              | IDF-605     |
| 617      | 3              | IDF-605     |
| 615      | 4              | IDF-605     |
| 613      | 3              | IDF-605     |
| 612      | 4              | IDF-605     |
| 610      | 6              | IDF-605     |
| E00      | 2 (ELEV VOICE) | IDF-605     |
| EXTERIOR | 5 (CAM)        | IDF-605     |
| 600      | 5 (3 CAM)      | IDF-605     |

DATA TOTAL: 44

**CAT. 6A PLENUM CABLE SCHEDULE**

| ROOM # | QUANTITY | TERMINATION |
|--------|----------|-------------|
| 620    | 1        | IDF-605     |
| 621    | 1        | IDF-605     |
| 618    | 1        | IDF-605     |
| 619    | 1        | IDF-605     |
| 617    | 1        | IDF-605     |
| 615    | 1        | IDF-605     |
| 613    | 1        | IDF-605     |
| 610    | 1        | IDF-605     |
| 600    | 2        | IDF-605     |

DATA TOTAL: 10

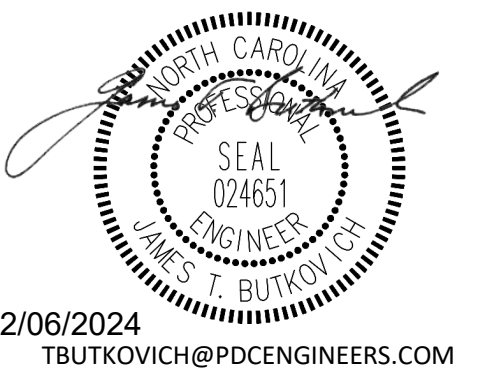
- GENERAL NOTES:**
- ALL WIRELESS ACCESS POINTS SHALL UTILIZE CAT-6A CABLE. ALL OTHER DATA DROPS SHALL BE CAT-6.
  - TRAY IN CORRIDORS SHALL BE BASKET TRAY. TRAY IN NETWORK CLOSET SHALL BE CABLE RUNWAY.
- KEYNOTES:**
- (2)-2" CONDUIT SLEEVES WITH INSULATED BUSHINGS ON BOTH ENDS. LOCATE ABOVE ACCESSIBLE LAY-IN CEILING.
  - (1)-2" CONDUIT SLEEVE WITH INSULATED BUSHINGS ON BOTH ENDS. LOCATE ABOVE ACCESSIBLE LAY-IN CEILING.
  - (3)-3" CONDUIT SLEEVES WITH INSULATED BUSHINGS ON BOTH ENDS. LOCATE ABOVE ACCESSIBLE LAY-IN CEILING.
  - CAMERA IN ELEVATOR AS PER NCDOL REQUIREMENTS. COORDINATE FINAL TERMINATION OF CAT-6 CABLE WITH OWNER AND ELEVATOR PROVIDER.

1 GROUND FLOOR TECHNOLOGY PLAN  
 1/8" = 1'-0"

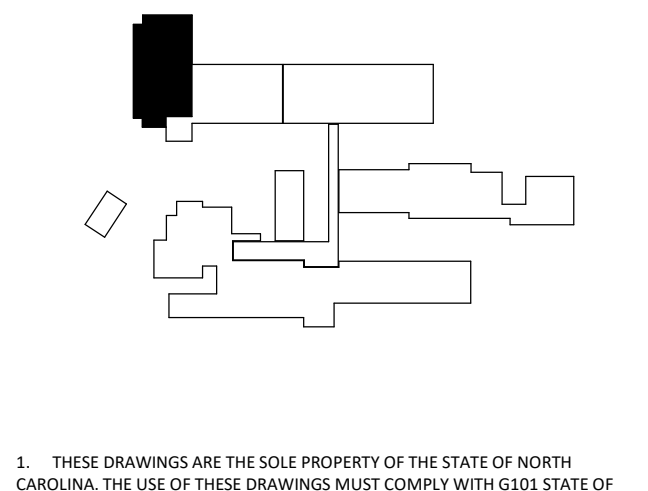
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**2307**  
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**GROUND FLOOR TECHNOLOGY/SECURITY PLAN**  
 SHEET TITLE

**E301**  
 SHEET

2/6/2024 4:18:03 PM

FIRE RATED WALLS  
1 HR RATED

### CAT. 6 PLENUM CABLE SCHEDULE

| ROOM #   | QUANTITY | TERMINATION |
|----------|----------|-------------|
| S21      | 3        | IDF-509B    |
| S22      | 3        | IDF-509B    |
| S20      | 3        | IDF-509B    |
| S19      | 3        | IDF-509B    |
| S17      | 3        | IDF-509B    |
| S15      | 4        | IDF-509B    |
| S13      | 3        | IDF-509B    |
| S14      | 4        | IDF-509B    |
| S09      | 6        | IDF-509B    |
| S08      | 3        | IDF-509B    |
| S07      | 3        | IDF-509B    |
| S06      | 3        | IDF-509B    |
| S05      | 3        | IDF-509B    |
| S04      | 3        | IDF-509B    |
| S03      | 3        | IDF-509B    |
| S02      | 3        | IDF-509B    |
| S01      | 3        | IDF-509B    |
| M01      | 2        | IDF-509B    |
| M02      | 2        | IDF-509B    |
| EXTERIOR | 4 (CAMS) | IDF-509B    |
| S2-1     | 2 (CAMS) | IDF-509B    |
| C500     | 2 (CAMS) | IDF-509B    |
| C501     | 2 (CAMS) | IDF-509B    |
| S1-1     | 1 (CAM)  | IDF-509B    |

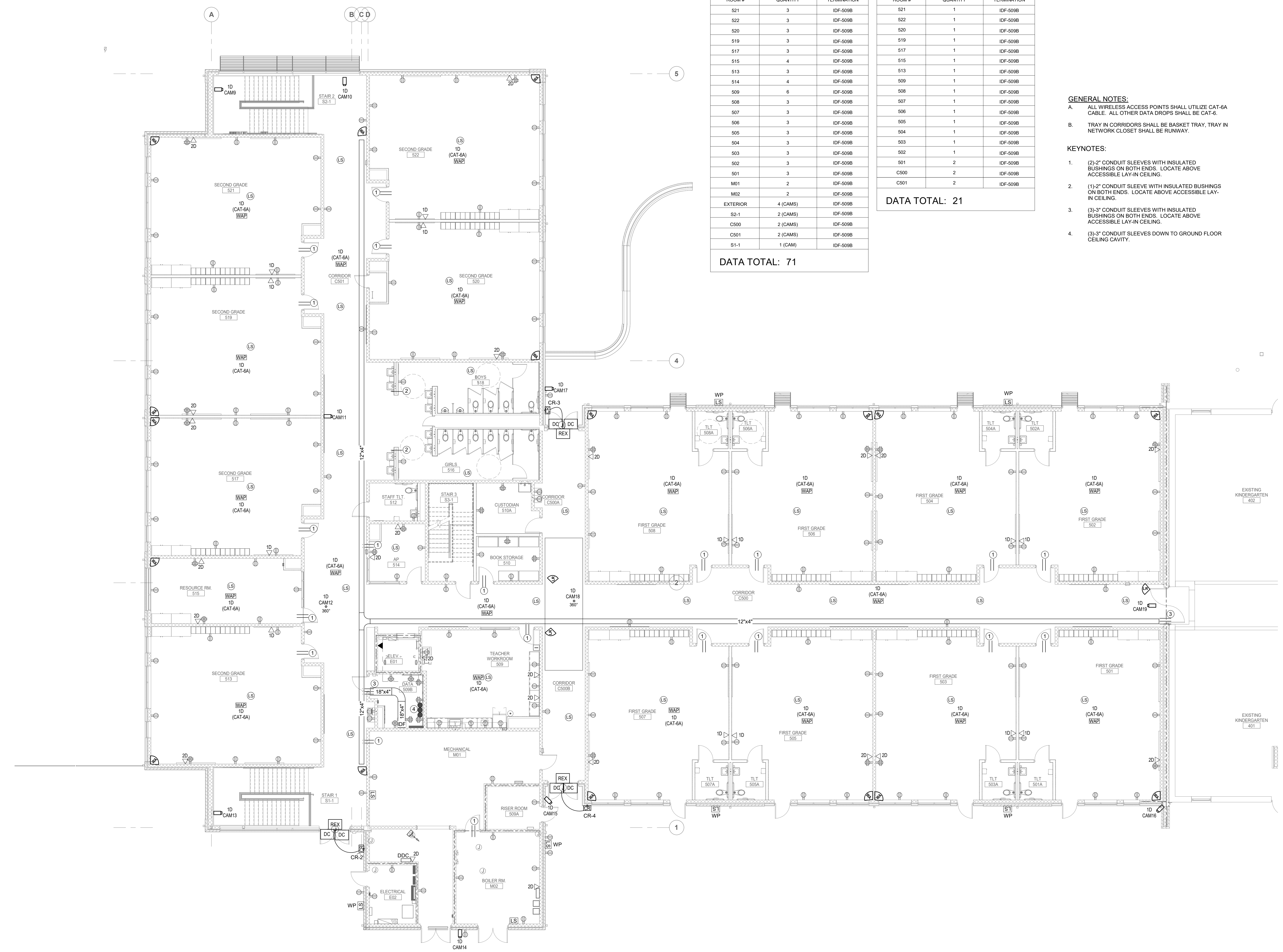
DATA TOTAL: 71

### CAT. 6A PLENUM CABLE SCHEDULE

| ROOM # | QUANTITY | TERMINATION |
|--------|----------|-------------|
| S21    | 1        | IDF-509B    |
| S22    | 1        | IDF-509B    |
| S20    | 1        | IDF-509B    |
| S19    | 1        | IDF-509B    |
| S17    | 1        | IDF-509B    |
| S15    | 1        | IDF-509B    |
| S13    | 1        | IDF-509B    |
| S09    | 1        | IDF-509B    |
| S08    | 1        | IDF-509B    |
| S07    | 1        | IDF-509B    |
| S06    | 1        | IDF-509B    |
| S05    | 1        | IDF-509B    |
| S04    | 1        | IDF-509B    |
| S03    | 1        | IDF-509B    |
| S02    | 1        | IDF-509B    |
| S01    | 2        | IDF-509B    |
| C500   | 2        | IDF-509B    |
| C501   | 2        | IDF-509B    |

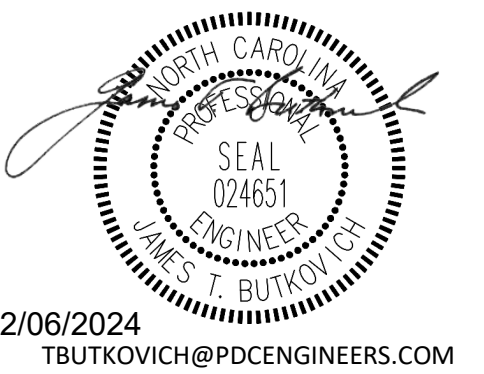
DATA TOTAL: 21

- GENERAL NOTES:**
- ALL WIRELESS ACCESS POINTS SHALL UTILIZE CAT-6A CABLE. ALL OTHER DATA DROPS SHALL BE CAT-6.
  - TRAY IN CORRIDORS SHALL BE BASKET TRAY, TRAY IN NETWORK CLOSET SHALL BE RUNWAY.
- KEYNOTES:**
- (2)-2" CONDUIT SLEEVES WITH INSULATED BUSHINGS ON BOTH ENDS. LOCATE ABOVE ACCESSIBLE LAY-IN CEILING.
  - (1)-2" CONDUIT SLEEVE WITH INSULATED BUSHINGS ON BOTH ENDS. LOCATE ABOVE ACCESSIBLE LAY-IN CEILING.
  - (3)-3" CONDUIT SLEEVES WITH INSULATED BUSHINGS ON BOTH ENDS. LOCATE ABOVE ACCESSIBLE LAY-IN CEILING.
  - (3)-3" CONDUIT SLEEVES DOWN TO GROUND FLOOR CEILING CAVITY.



1 FIRST FLOOR TECHNOLOGY PLAN  
1/8" = 1'-0"

**COOPER ACADEMY A & R**  
PROJECT TITLE  
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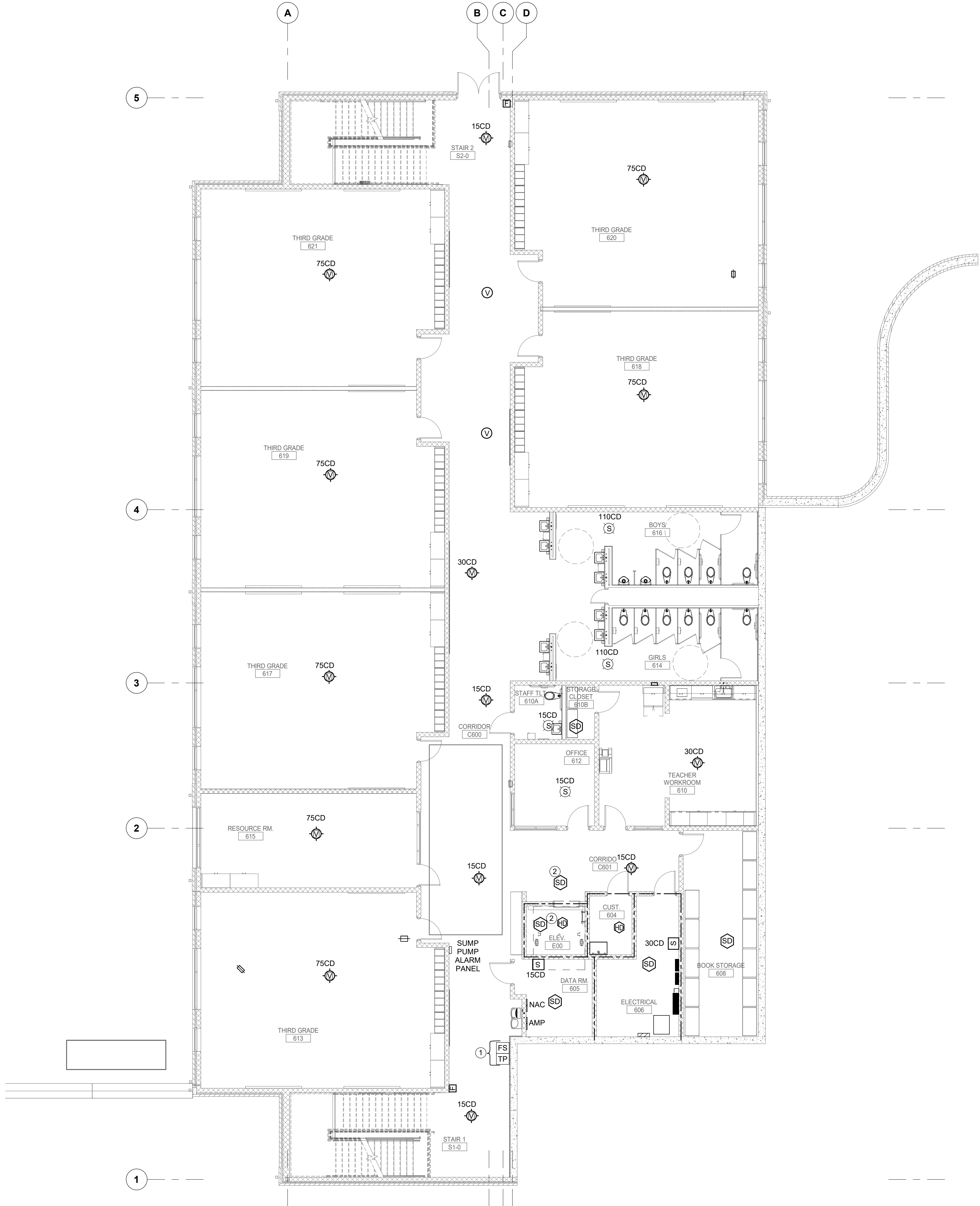
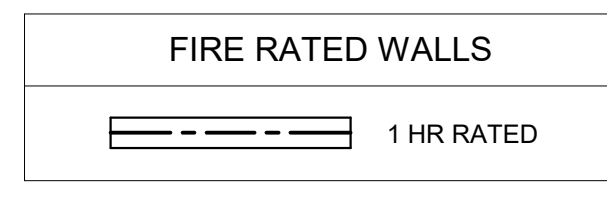
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**02.07.2024**  
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**FIRST FLOOR TECHNOLOGY/SECURITY PLAN**  
SHEET TITLE

**E302**  
SHEET



**1** GROUND FLOOR FIRE ALARM PLAN  
1/8" = 1'-0"

- GENERAL NOTES:**
- A. ALL FIRE ALARM WIRING SHALL BE IN MINIMUM 3/4" CONDUIT.
  - B. LOCATIONS OF NOTIFICATION APPLIANCE CABINETS (NAC) AND AMPLIFIER CABINETS (AMP) SHALL BE COORDINATED CLOSELY FOR PROPER CLEARANCES AND ACCESSIBILITY.
  - C. ALL 120V POWER FOR NAC PANELS AND AMPLIFIER CABINETS SHALL BE PROVIDED BY THE ELECTRICAL CONTRACTOR FROM THE NEAREST AVAILABLE 120/208VOLT PANEL. BREAKERS FOR THOSE CIRCUITS SHALL HAVE RED BREAKER LOCKS.
  - D. FOR FIRE PROTECTION DEVICES (I.E. TAMPER SWITCHES, FLOW SWITCHES, FIRE PUMP, ETC.) REFER TO FP-SERIES FIRE PROTECTION DRAWINGS AND FIRE PROTECTION CONTRACTOR SHOP SUBMITTAL DRAWINGS PRIOR TO ANY ROUGH-IN.
  - E. EXCEPT WHERE SHOWN ON PLANS OR ABSOLUTELY NECESSARY (MUST BE APPROVED BY DESIGN TEAM), ALL CONDUITS AND PIPING SHALL BE CONCEALED IN BULKHEADS AND ABOVE CEILINGS AND NOT ROUTED THROUGH OPEN CEILINGS. REFER TO ARCHITECTURAL REFLECTED CEILING PLANS FOR THE LOCATION OF OPEN CEILINGS. WHEN CONDUITS ARE REQUIRED TO BE RUN EXPOSED, THEY ARE TO RUN TIGHT TO STRUCTURE AND BE PAINTED TO MATCH THE STRUCTURE.
  - F. ONLY ITEMS ASSOCIATED WITH THE ELEVATOR SHALL BE PERMITTED IN THE ELEVATOR HOISTWAY OR ELEVATOR MACHINE ROOM.

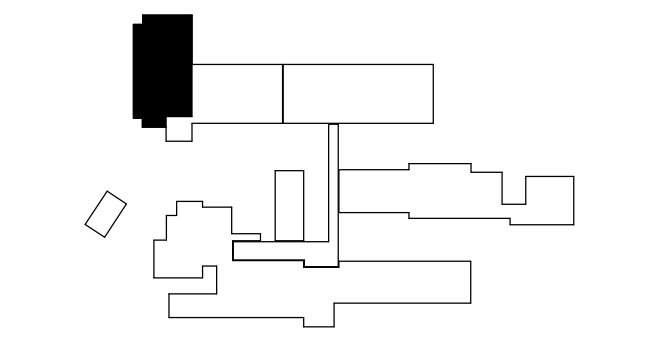
- KEYNOTES:**
- 1. FIRE PROTECTION FLOOR CONTROL VALVE ASSEMBLY, COORDINATE WITH FIRE PROTECTION CONTRACTOR.
  - 2. SMOKE DETECTORS ARE REQUIRED IN EACH ELEVATOR LOBBY, MACHINE ROOM AND EACH SPRINKLER HEAD LOCATION IN HOISTWAY. ONLY THESE DETECTORS, WHEN ACTIVATED, SHALL PUT THE ELEVATOR IN FIREMAN'S RECALL OPERATION.

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PROJECT TITLE

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**2307**  
BOOMERANG DESIGN PROJECT NUMBER  
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**GROUND FLOOR FIRE ALARM PLAN**  
SHEET TITLE  
**E401**  
SHEET

2/6/2024 4:18:06 PM

FIRE RATED WALLS  
 1 HR RATED

**boomerang DESIGN**  
 rethink, repurpose, results

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- GENERAL NOTES:**
- ALL FIRE ALARM WIRING SHALL BE IN MINIMUM 3/4" CONDUIT.
  - SMOKE DETECTORS LOCATED AT MAGNETIC DOOR OPENERS SHALL BE CENTERED AT DOORWAY AT NO GREATER THAN 5'-0" FROM DOOR OPENING.
  - LOCATIONS OF NOTIFICATION APPLIANCE CABINETS (NAC) AND AMPLIFIER CABINETS (AMP) SHALL BE COORDINATED CLOSELY FOR PROPER CLEARANCES AND ACCESSIBILITY.
  - ALL 120V POWER FOR NAC PANELS AND AMPLIFIER CABINETS SHALL BE PROVIDED BY THE ELECTRICAL CONTRACTOR FROM THE NEAREST AVAILABLE 120/208 VOLT PANEL. BREAKERS FOR THOSE CIRCUITS SHALL HAVE RED BREAKER LOCKS.
  - FOR FIRE PROTECTION DEVICES (I.E. TAMPER SWITCHES, FLOW SWITCHES, ETC.) REFER TO FIP-SERIES FIRE PROTECTION DRAWINGS AND FIRE PROTECTION CONTRACTOR SHOP SUBMITTALS PRIOR TO ANY ROUGH-IN.
  - EXCEPT WHERE SHOWN ON PLANS OR ABSOLUTELY NECESSARY (MUST BE APPROVED BY DESIGN TEAM), ALL CONDUITS AND PIPING SHALL BE CONCEALED IN BULKHEADS AND ABOVE CEILINGS AND NOT ROUTED THROUGH OPEN CEILINGS. REFER TO ARCHITECTURAL REFLECTED CEILING PLANS FOR THE LOCATION OF OPEN CEILINGS. WHEN CONDUITS ARE REQUIRED TO BE RUN EXPOSED, THEY ARE TO RUN TIGHT TO STRUCTURE AND BE PAINTED TO MATCH THE STRUCTURE.

- KEYNOTES:**
- FIRE PROTECTION FLOOR CONTROL VALVE ASSEMBLY. COORDINATE WITH FIRE PROTECTION CONTRACTOR.
  - SMOKE DETECTORS ARE REQUIRED IN EACH ELEVATOR LOBBY, MACHINE ROOM AND EACH SPRINKLER HEAD LOCATION IN HOISTWAY. ONLY THESE DETECTORS, WHEN ACTIVATED, SHALL PUT THE ELEVATOR IN FIREMAN'S RECALL OPERATION.
  - COORDINATE SPRINKLER BELL VOLTAGE WITH FIRE PROTECTION CONTRACTOR PRIOR TO ANY ROUGH-IN.

1 FIRST FLOOR FIRE ALARM PLAN  
 1" = 1'-0"

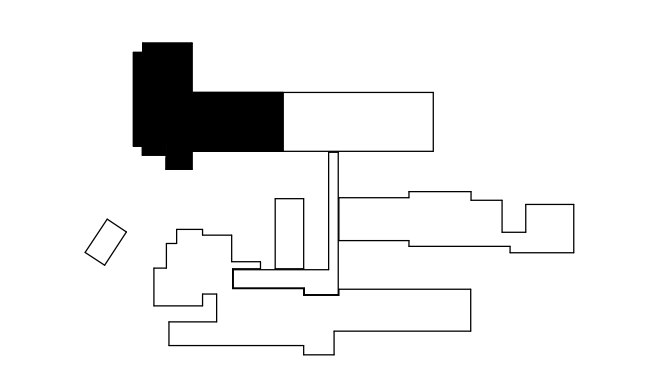
**pdc**  
 Progressive Design Collaborative, Inc.  
 3101 Poplarwood Court, Suite 320  
 Raleigh, North Carolina 27604  
 919-790-9989  
 License# C-0183  
 PROJECT #23015

**COOPER ACADEMY A & R**  
 PROJECT TITLE

"CLIENT'S PROJECT" # - XXX

Professional Engineer Seal for T. B. Kovich, License # 024651, State of North Carolina. The seal is circular and contains the text "NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 024651 T. B. KOVICH".

02/06/2024  
 TBTKOVICH@PDCENGINEERS.COM



- THESE DRAWINGS ARE THE SOLE PROPERTY OF THE STATE OF NORTH CAROLINA. THE USE OF THESE DRAWINGS MUST COMPLY WITH GOOD STATE OF NORTH CAROLINA STANDARD FORM OF AGREEMENT BETWEEN OWNER AND DESIGNER.
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- DO NOT SCALE OFF DIMENSIONS.

**REVISIONS**

| NO. | DATE | DESCRIPTION |
|-----|------|-------------|
|     |      |             |

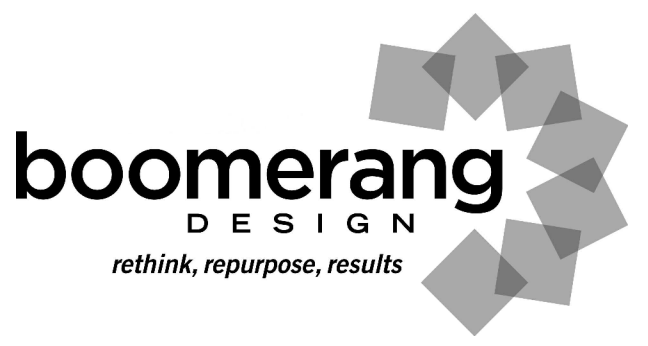
**BID SET**  
 PROJECT PHASE  
**2307**  
 BOOMERANG DESIGN PROJECT NUMBER  
**02.07.2024**  
 DRAWING RELEASE DATE

**FIRST FLOOR FIRE ALARM PLAN**  
 SHEET TITLE

**E402**  
 SHEET

2/6/2024 4:18:08 PM

FIRE RATED WALLS  
 1 HR RATED

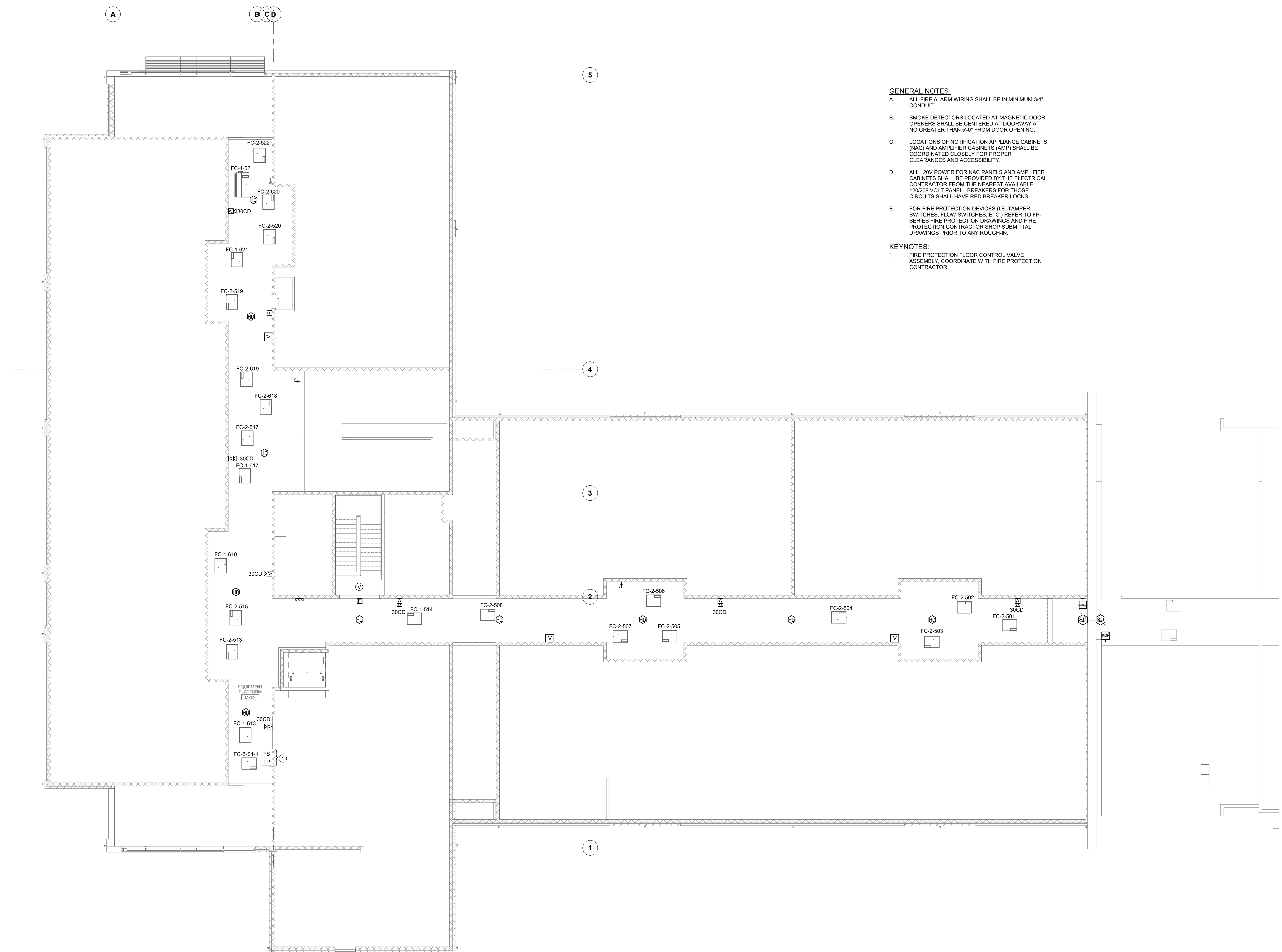


SHELBY  
 201 S. Washington St., Suite 200  
 Shelby, NC 28150  
 704/956-6000

CHARLOTTE  
 1230 W. Morehead St., Suite 214  
 Charlotte, NC 28208  
 704/731-7000

RALEIGH  
 6131 Falls of Neuse Rd., Suite 204  
 Raleigh, NC 27609  
 919/373-6600

LEWISTON  
 1070 S. Lake Dr., Suite J  
 Lewiston, NC 28119  
 803/554-0027



**GENERAL NOTES:**

- ALL FIRE ALARM WIRING SHALL BE IN MINIMUM 3/4" CONDUIT.
- SMOKE DETECTORS LOCATED AT MAGNETIC DOOR OPENERS SHALL BE CENTERED AT DOORWAY AT NO GREATER THAN 5'-0" FROM DOOR OPENING.
- LOCATIONS OF NOTIFICATION APPLIANCE CABINETS (NAC) AND AMPLIFIER CABINETS (AMP) SHALL BE COORDINATED CLOSELY FOR PROPER CLEARANCES AND ACCESSIBILITY.
- ALL 120V POWER FOR NAC PANELS AND AMPLIFIER CABINETS SHALL BE PROVIDED BY THE ELECTRICAL CONTRACTOR FROM THE NEAREST AVAILABLE 120/208 VOLT PANEL. BREAKERS FOR THOSE CIRCUITS SHALL HAVE RED BREAKER LOCKS.
- FOR FIRE PROTECTION DEVICES (I.E. TAMPER SWITCHES, FLOW SWITCHES, ETC.) REFER TO FIRE PROTECTION DRAWINGS AND FIRE PROTECTION CONTRACTOR SHOP SUBMITTAL DRAWINGS PRIOR TO ANY ROUGH-IN.

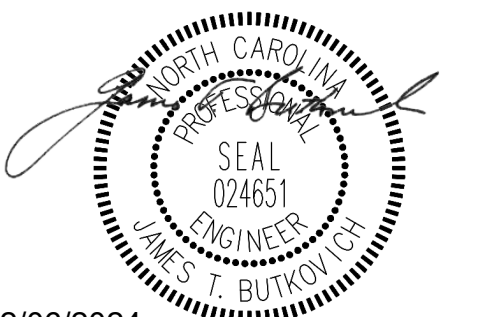
**KEYNOTES:**

- FIRE PROTECTION FLOOR VALVE ASSEMBLY, COORDINATE WITH FIRE PROTECTION CONTRACTOR.

**pdc**  
**Progressive Design Collaborative, Ltd.**  
 3101 Poplarwood Court, Suite 320  
 Raleigh, North Carolina 27604  
 919-790-9989  
 License# C-0183  
 PROJECT #23015

**COOPER ACADEMY  
 A & R**  
 PROJECT TITLE

"CLIENT'S PROJECT" # - XXX



02/06/2024  
 T.BUTKOVICH@PDCENGINEERS.COM

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 2. MATERIALS, DIMENSIONS AND ALL OTHER CONDITIONS WHICH ARE NOT OTHERWISE SPECIFIED ON THIS DRAWING SHALL BE CONTROLLED BY HAVING THE SAME MEANING AS SIMILARLY INDICATED CONDITIONS WHICH ARE MORE FULLY DEFINED ELSEWHERE ON THIS PROJECT OR OTHER DRAWINGS OF THIS PROJECT.  
 3. DO NOT SCALE OFF DIMENSIONS.

| NO. | DATE | DESCRIPTION |
|-----|------|-------------|
|     |      |             |

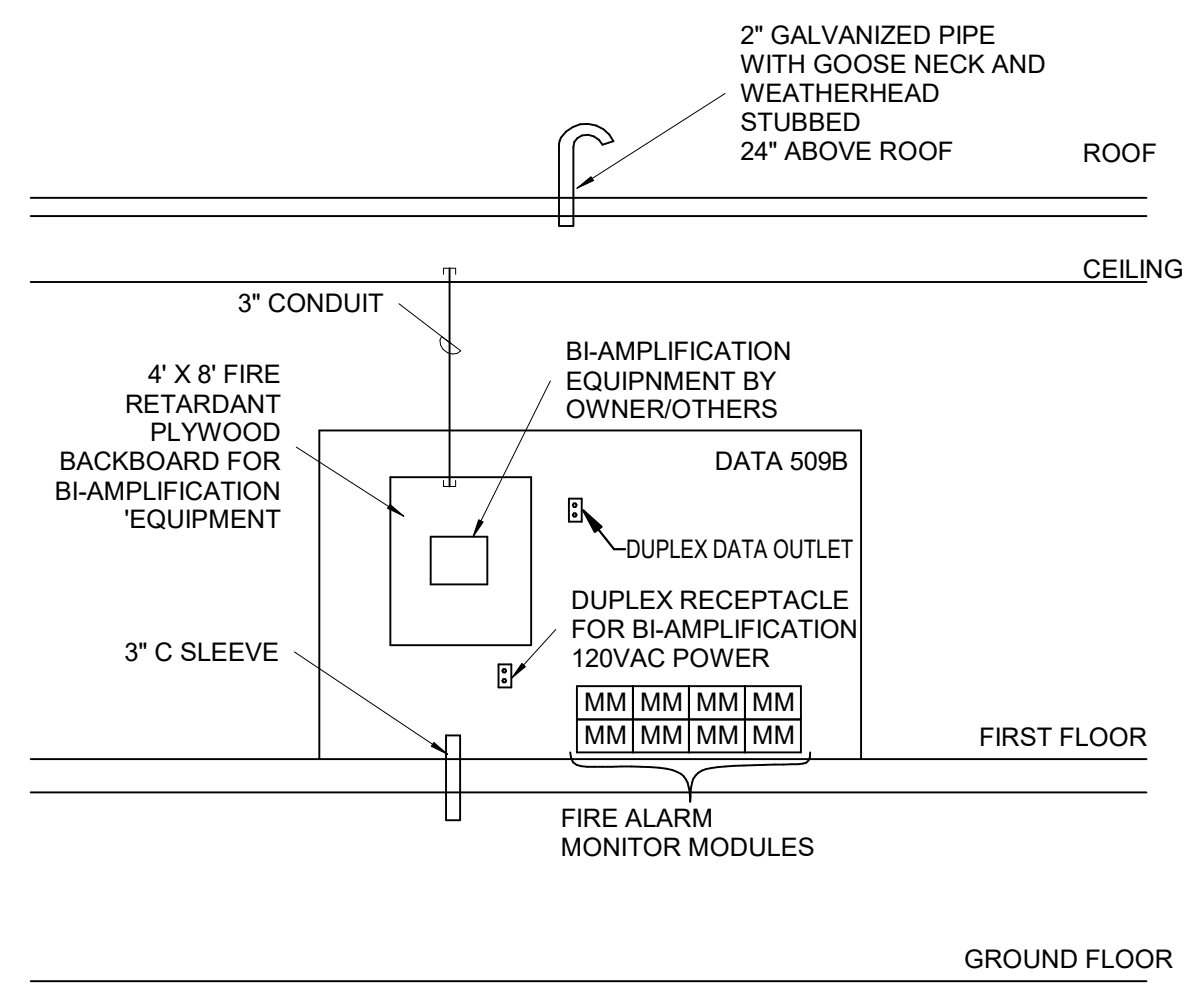
**BID SET**  
 PROJECT PHASE  
**2307**  
 BOOMERANG DESIGN PROJECT NUMBER  
**02.07.2024**  
 DRAWING RELEASE DATE

**EQUIPMENT  
 PLATFORM FIRE  
 ALARM PLAN**  
 SHEET TITLE

**E403**  
 SHEET

2/6/2024 4:18:09 PM

1 EQUIPMENT PLATFORM FIRE ALARM PLAN  
 1/8" = 1'-0"



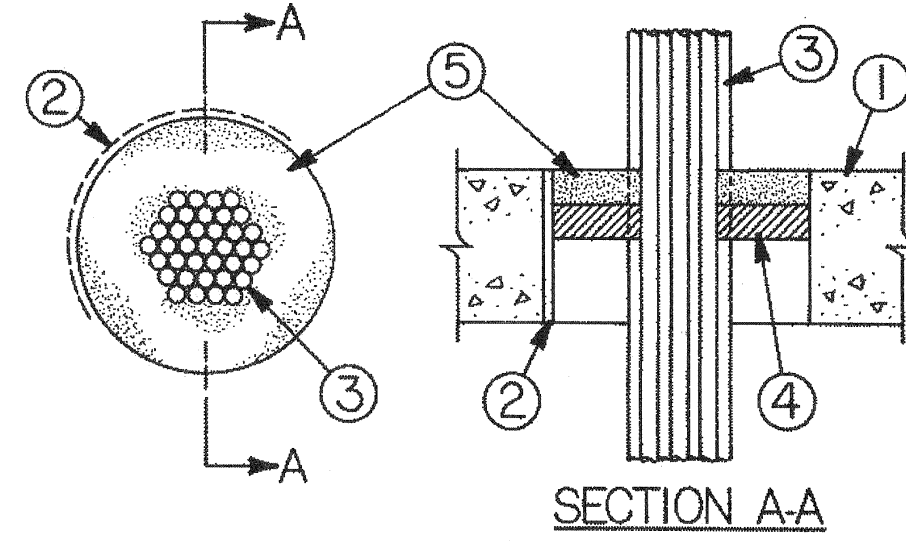
**GENERAL NOTES:**

- A. ELECTRICAL CONTRACTOR SHALL PROVIDE DUPLEX RECEPTACLE, PLYWOOD BACKBOARD, 2" GALVANIZED CONDUIT AND ALL 3" FLOOR CONDUIT SLEEVES.
- B. ALL BI-AMPLIFICATION EQUIPMENT AND ASSOCIATED CABLING SHALL BE PROVIDED BY OWNER/OTHERS.
- C. ANY CABLING USED ABOVE CEILINGS SHALL BE PLENUM RATED.
- E. IF ROOF PENETRATIONS ARE NOT USED, BY OWNER/OTHERS THEY SHALL BE SEALED AND CAPPED FOR FUTURE USE. COORDINATE WITH OWNER PRIOR TO ROUGH-IN.
- F. BI-AMPLIFICATION EQUIPMENT SHALL BE MONITORED BY THE FACILITY FIRE ALARM SYSTEM. THE BDA CONTRACTOR SHALL COORDINATE INTEGRATION WITH THE FIRE ALARM/ELECTRICAL CONTRACTOR'S PRIOR TO ROUGH-IN.

**1** DETAIL - (BDA) PUBLIC SAFETY RADIO INFRASTRUCTURE  
NOT TO SCALE

System No. C-AJ-3030  
March 05, 2007

F Ratings — 1-1/2, 2 and 3 Hr (See Item 5)  
T Rating — 0 Hr  
L Rating At Ambient — 129 CFM/sq ft  
L Rating At 400 F — 92 CFM/sq ft



**1. Floor or Wall Assembly** — Min 2-1/2 in. (64 mm) thick lightweight or normal weight (100-150 pcf or 1600-2400 kg/m<sup>3</sup>) concrete. Wall may also be constructed of any UL Classified Concrete Blocks\*. Max diam of opening is 2 in. (51 mm). See Concrete Block (CAZT) category in the Fire Resistance Directory for names of manufacturers.

**2. Sleeve** — (Optional) — Nom 8 in. (203 mm) diam (or smaller) Schedule 40 (or heavier) steel pipe or nom 6 in. (152 mm) diam (or smaller) Schedule 40 polyvinyl chloride (PVC) pipe cast into floor or wall assembly. Sleeve to be flush with or project max 2 in. (51 mm) from top surface of floor or both surfaces of wall. When PVC sleeve is used, max cable conductor size is No. 12 AWG. As an alternate, nom 8 in. (203 mm) diam (or smaller) sleeve fabricated from nom 0.19 in. (4.8 mm) thick galv steel cast or grouted into floor or wall assembly flush with floor or wall surfaces.

**3. Cables** — Aggregate cross-sectional area of cables to be min 10 percent to max 40 percent of the cross-sectional area of the opening. Cables to be rigidly supported on both sides of the floor or wall assembly. Any combination of the following types and sizes of cables may be used:

- A. Max 1000 kcmil single-conductor copper or aluminum power cable; cross-linked polyethylene insulation.
- B. Max No. 2/0 AWG multiconductor copper or aluminum power cables; cross-linked polyethylene, polyvinyl chloride, neoprene rubber, hypalon or silicone rubber insulation and jacket materials.
- C. Max No. 12 AWG multiconductor copper control cables; cross-linked polyethylene, polyvinyl chloride, neoprene rubber, hypalon or silicone rubber insulation and jacket materials.
- D. Max 400 pair No. 24 AWG copper telephone cables; polyvinyl chloride insulation and jacket materials.
- E. Multiple fiber optical communication cable jacketed with PVC and having a max outside diam of 5/8 in.
- F. Max 200 pair No. 22 AWG (or smaller) copper conductor with polyvinyl chloride (PVC) insulation and jacketing material.
- G. Max 3/0 No. 3/0 AWG (or smaller) copper or aluminum conductor SER cables with PVC insulation and jacket.
- H. Max 3/0 No. 2/0 AWG (or smaller) copper conductor PVC jacketed aluminum clad or steel clad TECK 90 cable.
- I. Max 3/0 with ground No. 8 AWG (or smaller) copper conductor NM cable with PVC insulation and jacket.
- J. RG/U coaxial cable with fluorinated ethylene (FE) or PVC insulation and jacket.
- K. Max 4 pair No. 24 AWG (or smaller) copper conductor data cable with tyler jacket and insulation.
- L. Max 3/0 No. 12 AWG (or smaller) MC (BX) copper cable with polyvinyl chloride insulation and jacket materials.
- M. Through Penetrating Product\* — Any cables, Armored Cable or Metal Clad Cable\* currently classified under the Through Penetrating Product category. See Through Penetrating Product (XHL) category in the Fire Resistance Directory for names of manufacturers.

**4. Packing Material** — Min 1 in. (25 mm) thickness of 4 pcf (84 kg/m<sup>3</sup>) mineral wool batt insulation firmly packed into opening as a permanent form. Packing material to be recessed from top surface of floor or sleeve or from both surfaces of wall or ends of sleeve as required to accommodate the required thickness of fill material (Item 5).

**5. Fill, Void or Cavity Material\*** — Caulk or Sealant — Applied to fill the through opening to a min thickness of 1 in. (25 mm) flush with the top surface of the floor or sleeve or both surfaces of wall or ends of sleeve. Caulk to be forced into interstices of cable group to max extent possible. F Rating of firestop systems is dependent upon the through opening size, the thickness of the concrete, the sleeve type and percent cable fill, as tabulated below:

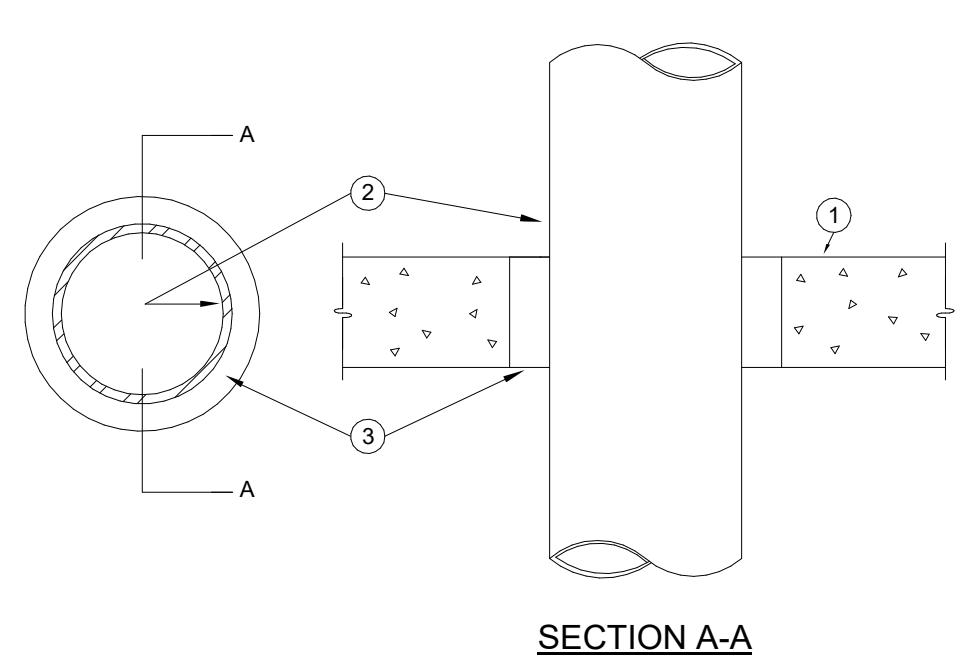
| Max Through Opening Diam. In. (mm) | Min Concrete Thk. In. (mm) | Sleeve Type | % Cable Fill | F Rating Hr |
|------------------------------------|----------------------------|-------------|--------------|-------------|
| 8 (152)                            | 2-1/2 (64)                 | PVC         | 15-40        | 2           |
| 8 (152)                            | 2-1/2 (64)                 | PVC         | 10-15        | 3           |
| 8 (152)                            | 4-1/2 (114)                | PVC         | 10-40        | 3           |
| 8 (152)                            | 4-1/2 (114)                | None        | 10-40        | 3           |
| 8 (152)                            | 4-1/2 (114)                | Steel       | 10-40        | 3           |
| 8 (203)                            | 2-1/2 (64)                 | None        | 15-40        | 1-1/2       |
| 8 (203)                            | 4-1/2 (114)                | None        | 15-33        | 2           |
| 8 (203)                            | 2-1/2 (64)                 | None        | 10-15        | 3           |
| 8 (203)                            | 2-1/2 (64)                 | Steel       | 15-40        | 1-1/2       |
| 8 (203)                            | 2-1/2 (64)                 | Steel       | 10-15        | 3           |
| 8 (203)                            | 4-1/2 (114)                | Steel       | 10-22        | 3           |

3M COMPANY — CP 25WB+ or FB-3000 WT.

\*Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.

Last Updated on 2007-03-05

**5** CABLE PENETRATION DETAIL  
NOT TO SCALE



- 1. NON-RATED WALL.
- 2. THROUGH PENETRANTS - ONE PIPE, OR CONDUIT.
- 3. FILL, VOID, OR CAVITY MATERIAL: SILICON CAULK.

**NON-RATED WALL PIPE PENETRATION**

System No. C-AJ-1044

March 15, 2007

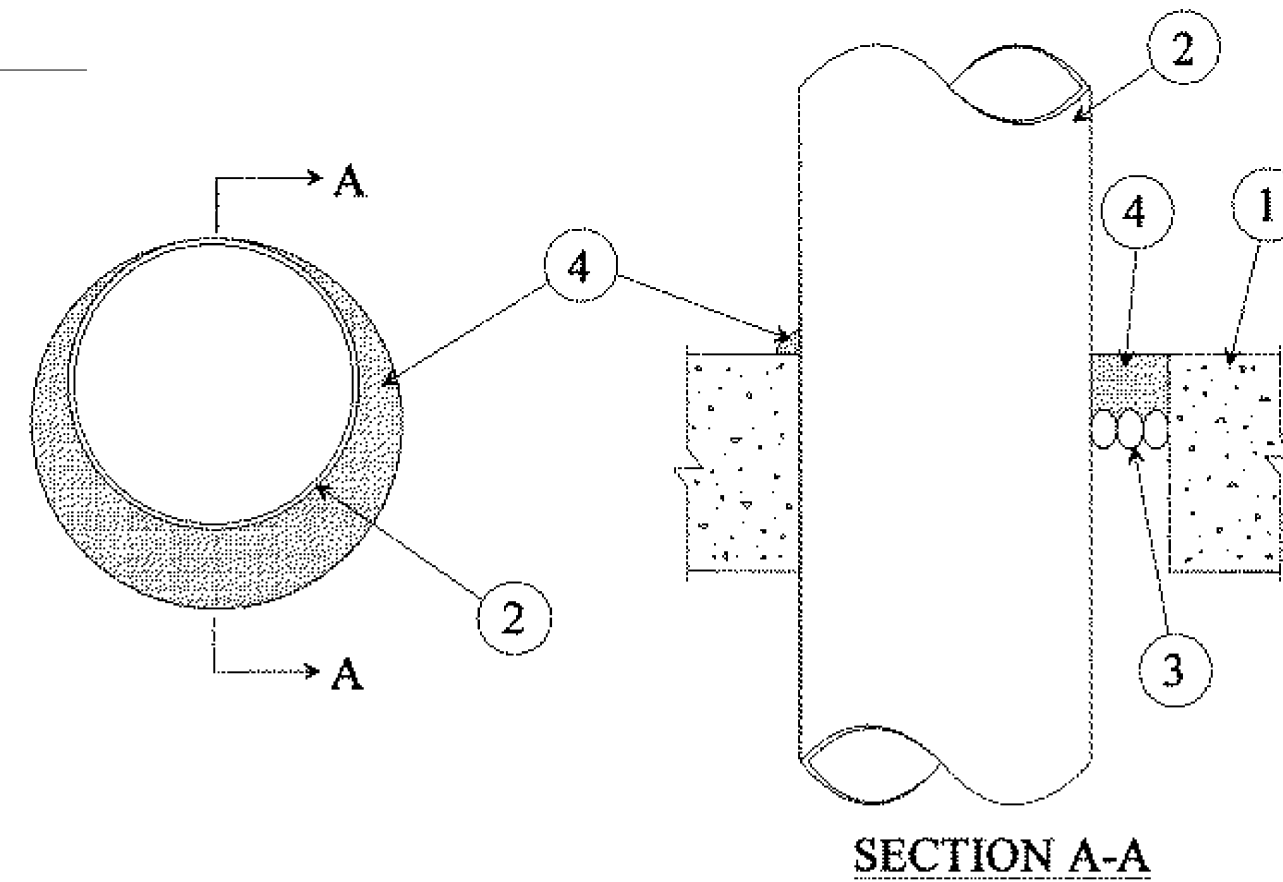
F Ratings — 2, 3, and 4 Hr (See Items 2A and 4)

T Rating — 0 Hr

L Rating At Ambient — 2 CFM/sq ft

L Rating At 400 F — less than 1 CFM/sq ft

W Rating — Class 1 (See Item 4)



**1. Floor or Wall Assembly** — Lightweight or normal weight (100-150 pcf or 1600-2400 kg/m<sup>3</sup>) concrete. Except as noted in table under Item 4, min thickness of solid concrete floor or wall assembly is 4-1/2 in. (114 mm). Floor may also be constructed of any min 6 in. (152 mm) thick UL Classified hollow core Precast Concrete Units\*. When floor is constructed of hollow core precast concrete units, packing material (Item 3) and caulk fill material (Item 4) to be installed symmetrically on both sides of floor, flush with floor surface. Wall assembly may also be constructed of any UL Classified Concrete Blocks\*. Max diam of opening in solid lightweight or normal weight concrete floor is 22 in. (563 mm). Max diam of opening in floor constructed of hollow-core precast concrete units is 7 in. (178 mm)

See Concrete Blocks (CAZT) and Precast Concrete Units (CFV) categories in the Fire Resistance Directory for names of manufacturers.

**1A. Steel Sleeve** — (Optional) — Nom 16 in. (406 mm) diam (or smaller) Schedule 10 (or heavier) steel sleeve cast or grouted into floor or wall assembly. Sleeve may extend a max of 2 in. (51 mm) above top of floor or beyond either surface of wall. As an alternate, nom 16 in. (406 mm) diam (or smaller) min 0.028 (0.71 mm) thick galvanized sheet steel sleeve cast or grouted into floor or wall assembly flush with floor or wall surfaces.

**2. Through Penetrants** — One metallic pipe, conduit or tubing to be installed either concentrically or eccentrically within the firestop system. Max annular space between pipe, conduit or tubing and edge of through opening or sleeve is dependent on the parameters shown in Item 4. Min annular space between pipe or conduit and edge of through opening is 0 in. (point contact). Max annular space to be as shown in the table in Item 4. Pipe, conduit or tubing to be rigidly supported on both sides of floor or wall assembly. The following types and sizes of metallic pipes, conduits or tubing may be used:

- A. **Steel Pipe** — Nom 30 in. (762 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe.
- B. **Iron Pipe** — Nom 30 in. (762 mm) diam (or smaller) cast or ductile iron pipe.
- C. **Conduit** — Nom 6 in. (152 mm) diam (or smaller) rigid steel conduit.
- D. **Conduit** — Nom 4 in. (102 mm) diam (or smaller) steel electrical metallic tubing.
- E. **Copper Tubing** — Nom 6 in. (152 mm) diam (or smaller) Type L (or heavier) copper tube.
- F. **Copper Pipe** — Nom 6 in. (152 mm) diam (or smaller) Regular (or heavier) copper pipe.

**3. Packing Material** — Polyethylene backer rod or nom 1 in. (25 mm) thickness of tightly-packed mineral wool batt or glass fiber insulation firmly packed into opening as a permanent form. Packing material to be recessed from top surface of floor or from both surfaces of wall as required to accommodate the required thickness of caulk fill material (Item 4).

**3A. Forming Material\*** — As an alternate to the packing material in Item 3, nom 4 in. (102 mm) wide strips of min 1/2 in. (13 mm) thick compressible mat to be stacked to a thickness greater than the width of the annular space and compression-fitted, edge-first, to fill the annular space to a min 4 in. (102 mm) depth. As an option, the strips of min 1/2 in. (13 mm) thick compressible mat may be folded in half, lengthwise, and stacked to a thickness greater than the width of the annular space and compression-fitted, edge-first, to the annular space to a min 2 in. (51 mm) depth. Top of forming material to be recessed from top surface of floor or from both surfaces of wall as necessary to accommodate the required thickness of caulk fill material.

3M COMPANY — Fire Barrier Packing Material

**4. Fill, Void or Cavity Material\*** — Caulk, Sealant — Applied to fill the annular space flush with top surface of floor. In wall assemblies, required caulk thickness to be installed symmetrically on both sides of wall, flush with wall surface. At point contact location between penetrant and sleeve or between penetrant and concrete, a min 1/4 in. (6 mm) diam bead of caulk shall be applied at top surface of floor and at both surfaces of wall. The hourly F Ratings and the min required caulk thicknesses are dependent upon a number of parameters, as shown in the following table:

| Min Floor or Wall Thkns In. | Nom Pipe Tube or Conduit Diam In. | Max Annular Space In. | Min Caulk Thkns In. | F Rating Hr |
|-----------------------------|-----------------------------------|-----------------------|---------------------|-------------|
| 2-1/2 (64)                  | 1/2-1/2 (13-305)                  | 1-3/8 (35)            | 1/2 (13)            | 2           |
| 2-1/2 (64)                  | 1/2-1/2 (13-305)                  | 3-1/4 (83)            | 1 (25)              | 2           |
| 4-1/2 (114)                 | 1/2-6 (13-152)                    | 1-3/8 (35)            | 1/4 (6)             | 2           |
| 4-1/2 (114)                 | 1/2-1/2 (13-305)                  | 1-1/4 (32)            | 1/2 (13)            | 3           |
| 4-1/2 (114)                 | 1/2-20 (13-508)                   | 2 (51)                | 1 (25)              | 3           |
| 4-1/2 (114)                 | 1/2-20 (13-508)                   | 2 (51)                | 1 (25)              | 3           |
| 4-1/2 (114)                 | 1/2-12 (13-305)                   | 3-1/4 (83)            | 1 (25)              | 3           |
| 4-1/2 (114)                 | 22-30 (558-762)                   | 2 (51)                | 2 (51)              | 3           |
| 5-1/2 (140)                 | 1/2-6 (13-152)                    | 1-3/8 (35)            | 1 (25) (b)          | 4           |

(a) Min 2 in. (51 mm) thickness of mineral wool batt insulation or forming material (Item 3A) required in annular space.

(b) Min 1 in. (25 mm) thickness of mineral wool batt insulation required in annular space on both sides of floor or wall assembly. Min 1 in. (25 mm) thickness of caulk to be installed flush with each surface of floor or wall assembly.

3M COMPANY — CP 25WB+ or FB-3000 WT.

(Note - W Rating applies only when FB-3000 WT is used.)

\*Bearing the UL Classification Mark. Reprinted from the Online Certifications Directory with permission from Underwriters Laboratories Inc. Copyright © 2012 Underwriters Laboratories Inc. ©

Last Updated on 2007-03-15

**4** CONDUIT PENETRATION DETAILS  
NOT TO SCALE

System No. C-AJ-1013

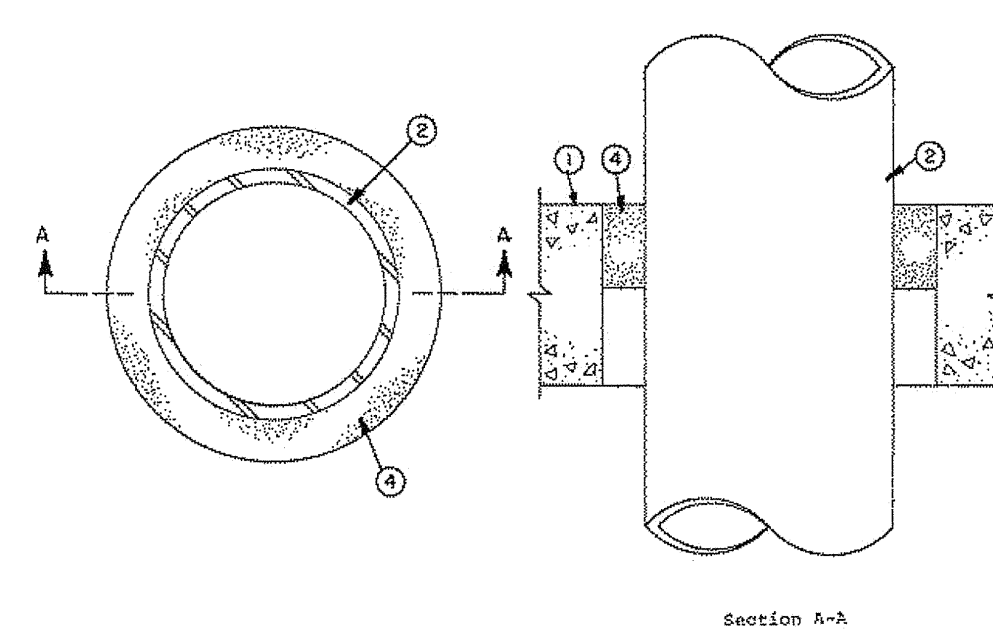
May 09, 2013

F Rating — 1 Hr

T Rating — 0 Hr

L Rating At Ambient — Less Than 1 CFM/sq ft

L Rating At 400 F — Less Than 1 CFM/sq ft



**1. Floor or Wall Assembly** — Min 5 in. (127 mm) thick reinforced normal weight (140-155 pcf) concrete. Wall may also be constructed of any UL Classified Concrete Blocks\*. Max diam of opening is 6 in. (152 mm). See Concrete Block (CAZT) category in the Fire Resistance Directory.

**2. Through Penetrants** — One metallic pipe, or conduit to be centered within the firestop system. Pipe or conduit to be rigidly supported on both sides of floor or wall assembly. The following types and sizes of metallic pipes or conduits may be used:

A. **Steel Pipe** — Nom 4 in. (102 mm) diam (or smaller) Schedule 5 (or heavier) steel pipe. A nom annular space of 3/4 in. (19 mm) is required within the firestop system.

B. **Conduit** — Nom 4 in. (102 mm) diam (or smaller) steel electrical metallic tubing or steel conduit. A nom annular space of 3/4 in. (19 mm) is required within the firestop system.

**3. Packing Material** — (Not Shown) — Nom 1 in. (25 mm) diam open cell polyurethane foam backer rod friction-fitted into the opening as a permanent form. Packing material to be recessed from top surface of floor or from both surfaces of wall as required to accommodate the required thickness of fill material.

**4. Fill, Void or Cavity Material\*** — Sealant — Min 3/4 in. (19 mm) thickness of fill material applied within annulus, flush with top surface of floor or with both surfaces of wall.  
3M COMPANY — Types FB-1000 NS, FB-1003SL (floors only), FB-2000 or FB-2000+.

\*Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.

Last Updated on 2013-05-05

System No. W-L-1001

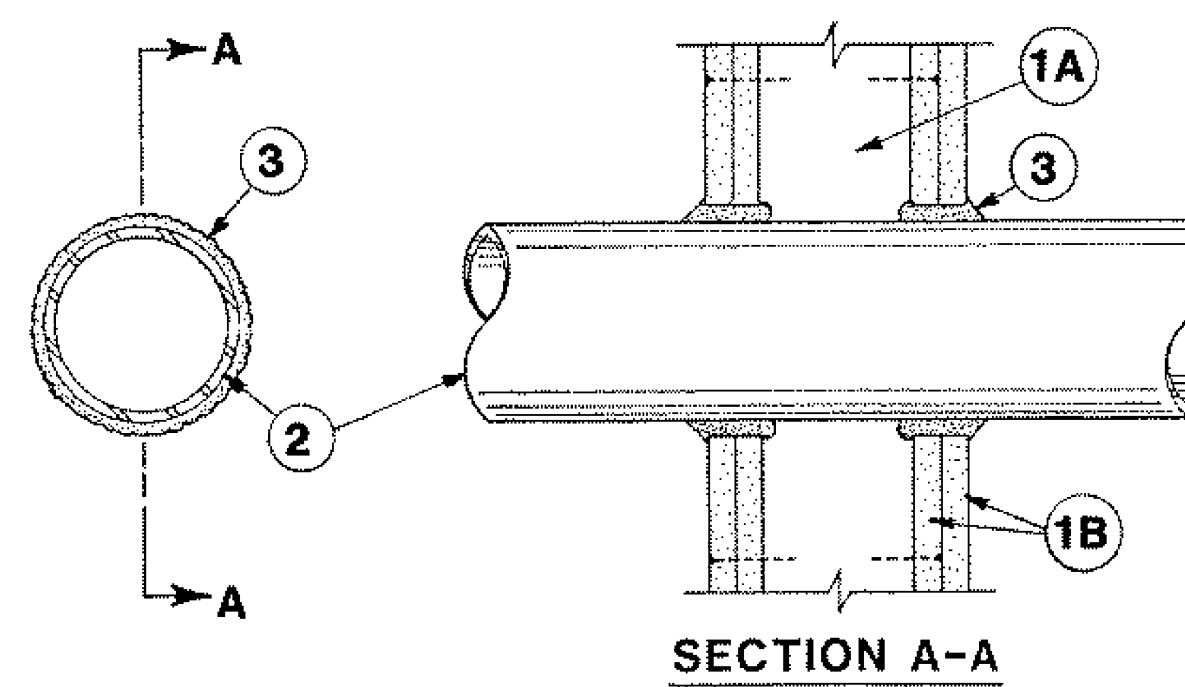
June 15, 2005

F Ratings — 1, 2, 3 and 4 Hr (See Items 2 and 3)

T Ratings — 0, 1, 2, 3, and 4 Hr (See Item 3)

L Rating At Ambient — less than 1 CFM/sq ft

L Rating At 400 F — less than 1 CFM/sq ft



**1. Wall Assembly** — The 1, 2, 3 or 4 hr fire-rated gypsum wallboard/stud wall assembly shall be constructed of the materials and in the manner described in the individual U300 or U400 Series Wall or Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:

A. **Studs** — Wall framing may consist of either wood studs (max 2 hr fire rated assemblies) or steel channel studs. Wood studs to consist of nom 2 by 4 in. (51 by 102 mm) lumber spaced 16 in. (406 mm) OC with nom 2 by 4 in. (51 by 102 mm) lumber and plates and cross braces. Steel studs to be min 3-5/8 in. (92 mm) wide by 1-3/8 in. (35 mm) deep channels spaced max 24 in. (610 mm) OC.

B. **Gypsum Board\*** — Nom 1/2 or 5/8 in. (13 or 16 mm) thick, 4 ft. (122 cm) wide with square or tapered edges. The gypsum wallboard type, thickness, number of layers, fastener type and sheet orientation shall be as specified in the individual U300 or U400 Series Design in the UL Fire Resistance Directory. Max diam of opening is 26 in. (660 mm).

**2. Through-Penetrant** — One metallic pipe, conduit or tubing installed either concentrically or eccentrically within the firestop system. The annular space between pipe, conduit or tubing and periphery of opening shall be min 0 in. (0 mm). (point contact) to max 2 in. (51 mm) pipe, conduit or tubing to be rigidly supported on both sides of wall assembly. The following types and sizes of metallic pipes, conduits or tubing may be used:

- A. **Steel Pipe** — Nom 24 in. (610 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe.
- B. **Iron Pipe** — Nom 24 in. (610 mm) diam (or smaller) service weight (or heavier) cast iron soil pipe, nom 12 in (305 mm) diam (or smaller) or Class 50 (or heavier) ductile iron pressure pipe.
- C. **Conduit** — Nom 6 in. (152 mm) diam (or smaller) steel conduit or nom 4 in (102 mm) diam (or smaller) steel electrical metallic tubing.
- D. **Copper Tubing** — Nom 6 in. (152 mm) diam (or smaller) Type L (or heavier) copper tubing.
- E. **Copper Pipe** — Nom 6 in. (152 mm) diam (or smaller) Regular (or heavier) copper pipe.
- F. **Through Penetrating Product\*** — Flexible Metal Piping The following types of steel flexible metal gas piping may be used:

- 1. Nom 2 in. (51 mm) diam (or smaller) steel flexible metal gas piping. Plastic covering on piping may or may not be removed on both sides of floor or wall assembly.
- 2. Nom 1 in. (25 mm) diam (or smaller) steel flexible metal gas piping. Plastic covering on piping may or may not be removed on both sides of floor or wall assembly.

OMEGA FLEX INC

2. Nom 1 in. (25 mm) diam (or smaller) steel flexible metal gas piping. Plastic covering on piping may or may not be removed on both sides of floor or wall assembly.

GASTITE, DIV OF TITEXFL

3. Nom 1 in. (25 mm) diam (or smaller) steel flexible metal gas piping. Plastic covering on piping may or may not be removed on both sides of floor or wall assembly.

WARD MFG L L C

**3. Fill, Void or Cavity Material\*** — Caulk or Sealant — Min 5/8, 1-1/4, 1-7/8 and 2-1/2 in. (16, 32, 48 and 64 mm) thickness of caulk for 2, 3, 3 and 4 hr rated assemblies, respectively, applied within annulus, flush with both surfaces of wall. Min 1/4 in. (6 mm) diam bead of caulk applied to gypsum board/penetrant interface at point contact location on both sides of wall. The hourly F Rating of the firestop system is dependent upon the hourly fire rating of the wall assembly in which it is installed, as shown in the following table. The hourly T rating of the firestop system is dependent upon the type or size of the pipe or conduit and the hourly fire rating of the wall assembly in which it is installed, as tabulated below:

| Max Pipe or Conduit Diam In. (mm) | F Rating Hr | T Rating Hr |
|-----------------------------------|-------------|-------------|
| 1 (25)                            | 1 or 2      | 0+ , 1 or 2 |
| 1 (25)                            | 3 or 4      | 3 or 4      |
| 4 (102)                           | 1 or 2      | 0           |
| 6 (152)                           | 3 or 4      | 0           |
| 12 (305)                          | 1 or 2      | 0           |

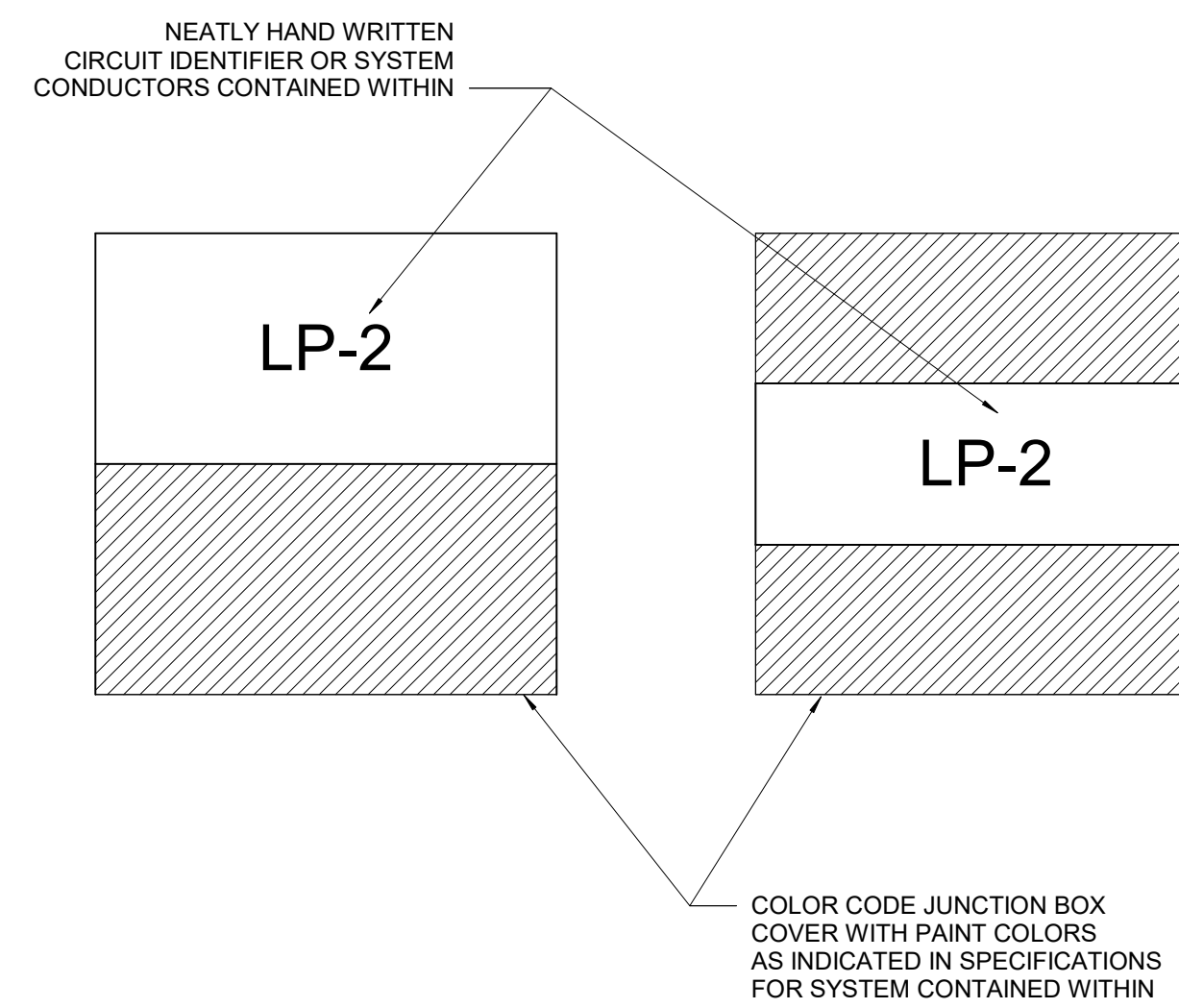
+When copper pipe is used, T Rating is 0 h.

3M COMPANY — CP 25WB+ or FB-3000 WT.

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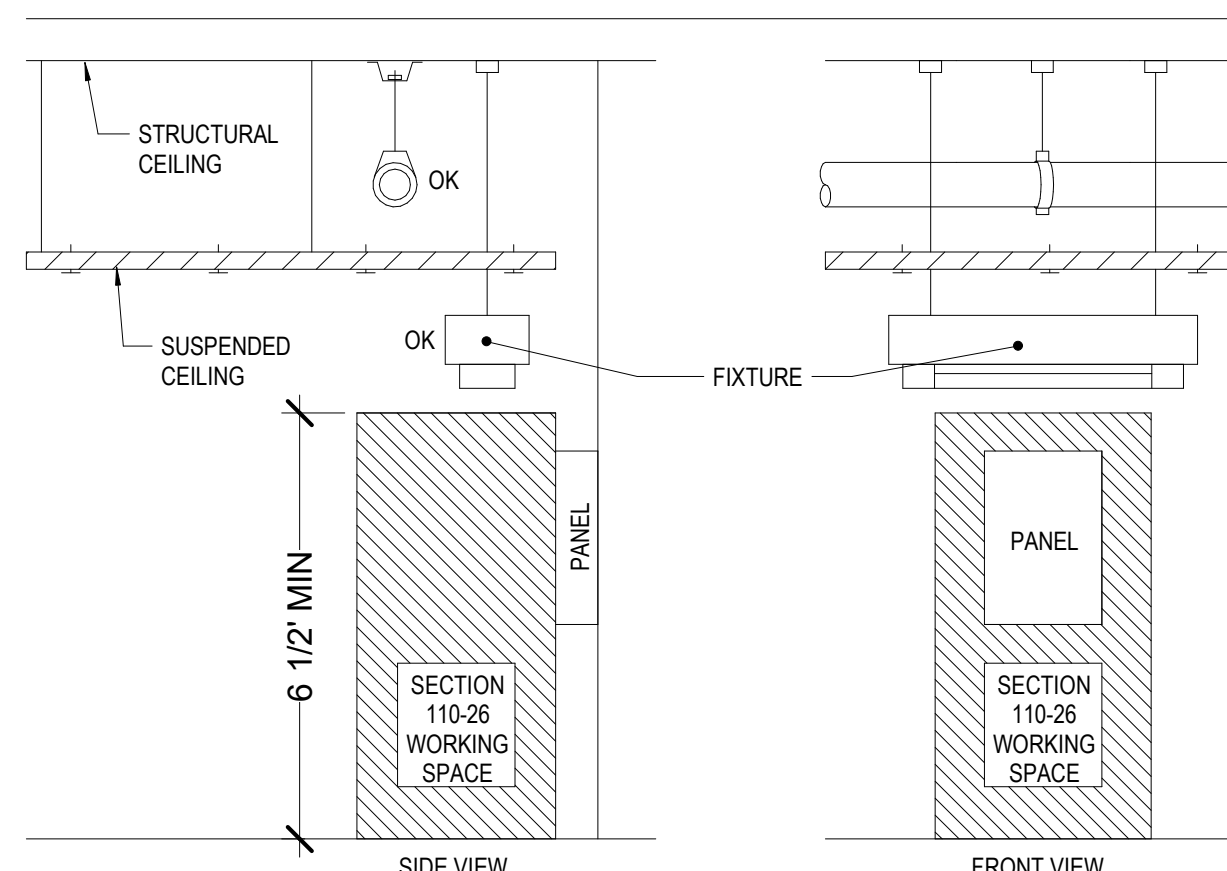
**3** RECEPTACLE GROUNDING  
NOT TO SCALE



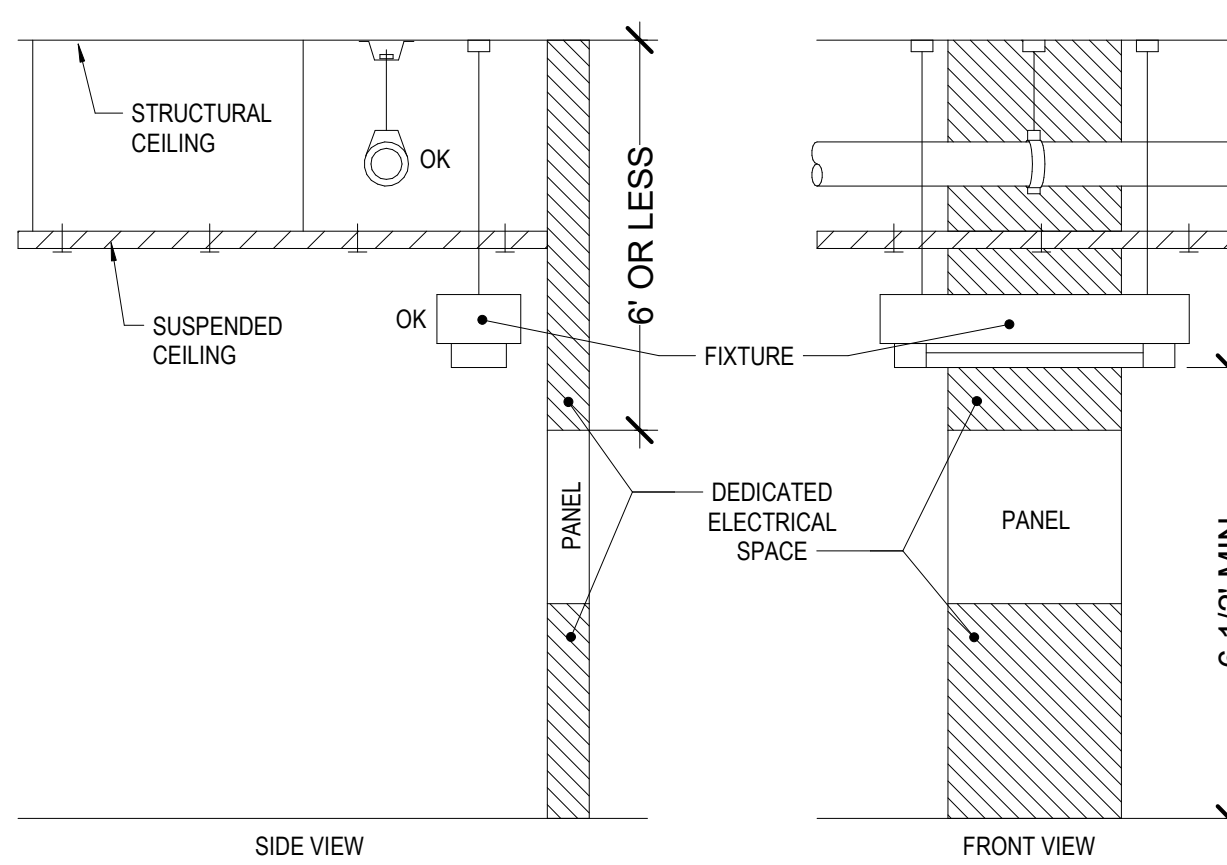
**NOTE:**

CONTRACTOR SHALL IDENTIFY JUNCTION BOX COVERS WITH ONE OF THE TWO METHODS SHOW ABOVE, BUT NOT BOTH. ALL JUNCTION BOX COVERS SHALL BE CONSISTENTLY IDENTIFIED ACROSS THE ENTIRE PROJECT.

**2** JUNCTION BOX LABELING  
NOT TO SCALE

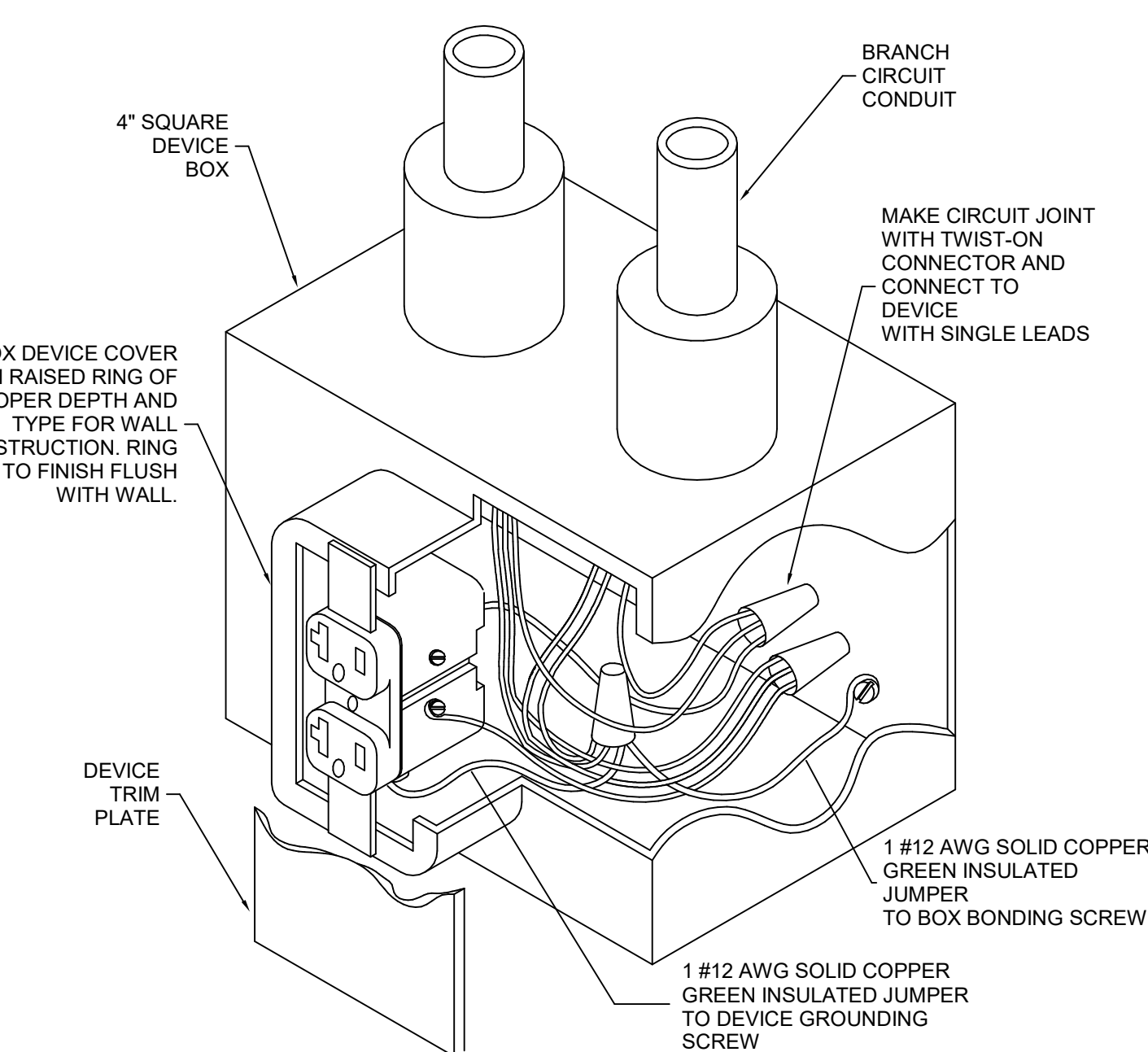


**WORKING CLEARANCE FOR ELECTRICAL EQUIPMENT**  
N.E.C ARTICLE 110-26



**DEDICATED SPACE FOR ELECTRICAL EQUIPMENT**  
N.E.C ARTICLE 110-26

**1** ELECTRICAL EQUIPMENT CLEARANCE  
NOT TO SCALE



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3. DO NOT SCALE OFF DIMENSIONS.

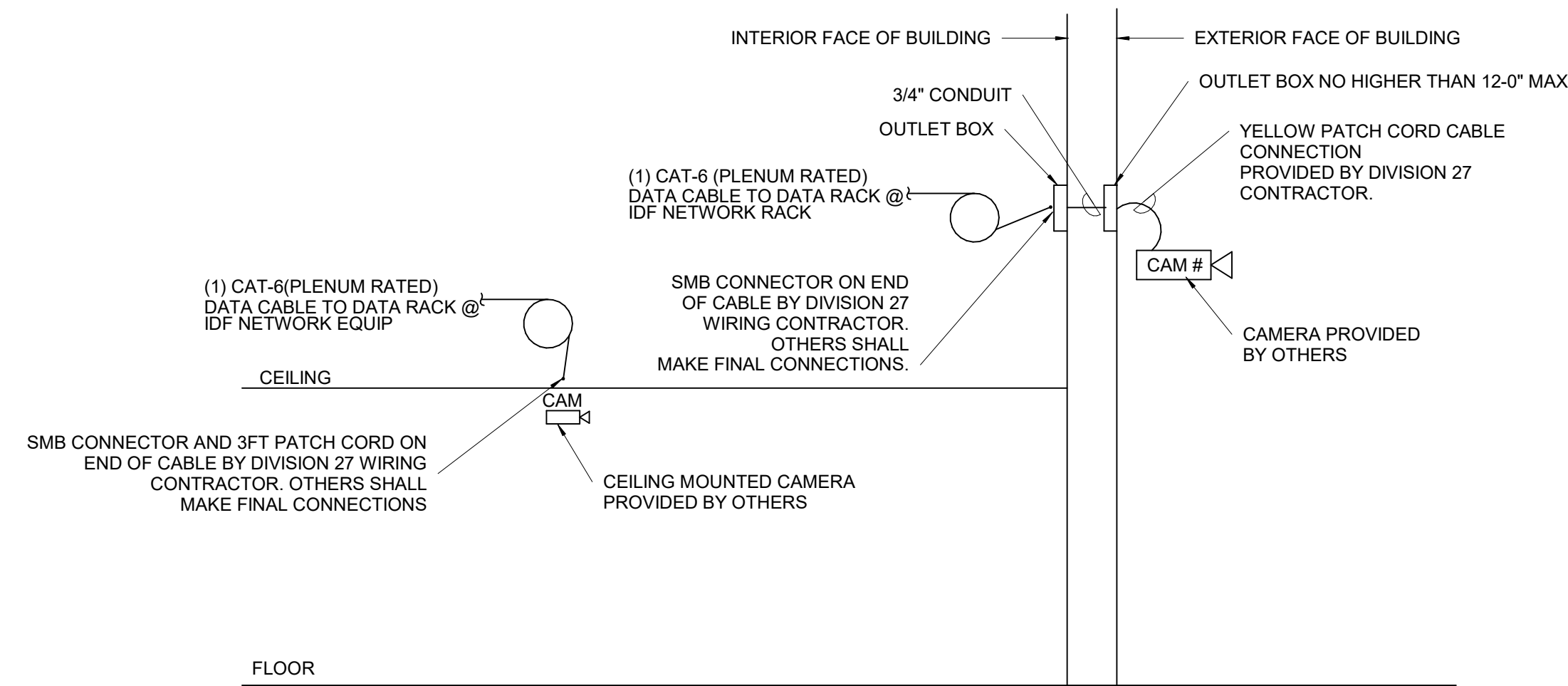
REVISIONS

| NO. | DATE | DESCRIPTION |
|-----|------|-------------|
|     |      |             |

**BID SET**  
PROJECT PHASE  
**2307**  
BOOMERANG DESIGN PROJECT NUMBER  
**02.07.2024**  
DRAWING RELEASE DATE

**DETAILS**  
SHEET TITLE  
**E501**  
SHEET

2/16/2024 4:18:10 PM

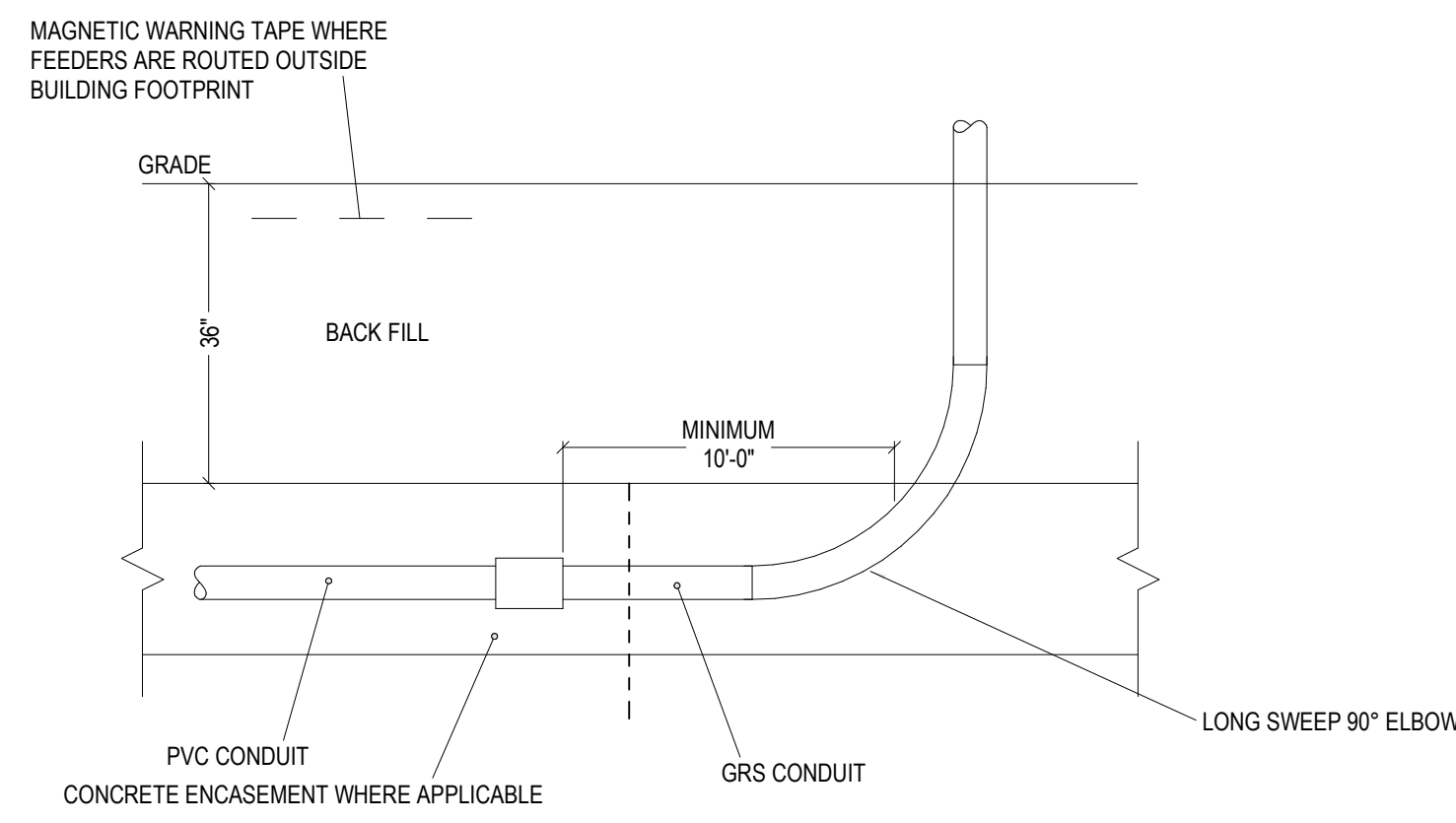


**GENERAL NOTES:**

- A. ALL CONDUIT AND OUTLET BOXES BY ELECTRICAL CONTRACTOR.
- B. ALL CAT-6 CAMERA CABLING SHALL BE BLUE AND PROVIDED BY DIV 27 CONTRACTOR. CAMERA PATCH CABLES AT PATCH PANEL AND CAMERA END SHALL BE GREEN.
- C. SEE SPECIFICATION 271000.
- D. PROVIDE 15-0" SERVICE LOOP AT CAMERA LOCATION.
- E. PLEASE NOTE: DIV 27 CONTRACTOR, OWNER'S CONTRACTOR SHALL COORDINATE CLOSELY. THE CAMERAS ARE PROVIDED BY OWNER'S CONTRACTOR. WIRING SHALL BE PROVIDED BY THE DIV 27 CONTRACTOR. THE CABLE NUMBER SHALL ALSO BE IDENTIFIED ON THE CABLE JACKET ABOVE THE CEILING AND AT THE CAMERA END. COORDINATE ALL WORK WITH JCSS SCHOOLS SECURITY DEPT AND IT DEPARTMENT PRIOR TO INSTALLATION/ROUGH-IN.
- F. CAMERA CABLES SHALL BE TERMINATED ON SEPARATE PATCH PANELS @ DATA RACKS IN IDFs. NETWORK POE SWITCHES AND VIDEO SERVER SHALL BE PROVIDED AND INSTALLED BY JCSS.
- G. CAT-6 CAMERA DATA CABLE LENGTHS SHALL NOT EXCEED 90 METERS. CONTRACTOR SHALL TAKE CARE IN MAINTAINING THESE LENGTHS.
- H. ALL CAMERA CABLES SHALL BE TESTED IN COMPLIANCE WITH THE DATA CABLE REQUIREMENTS.

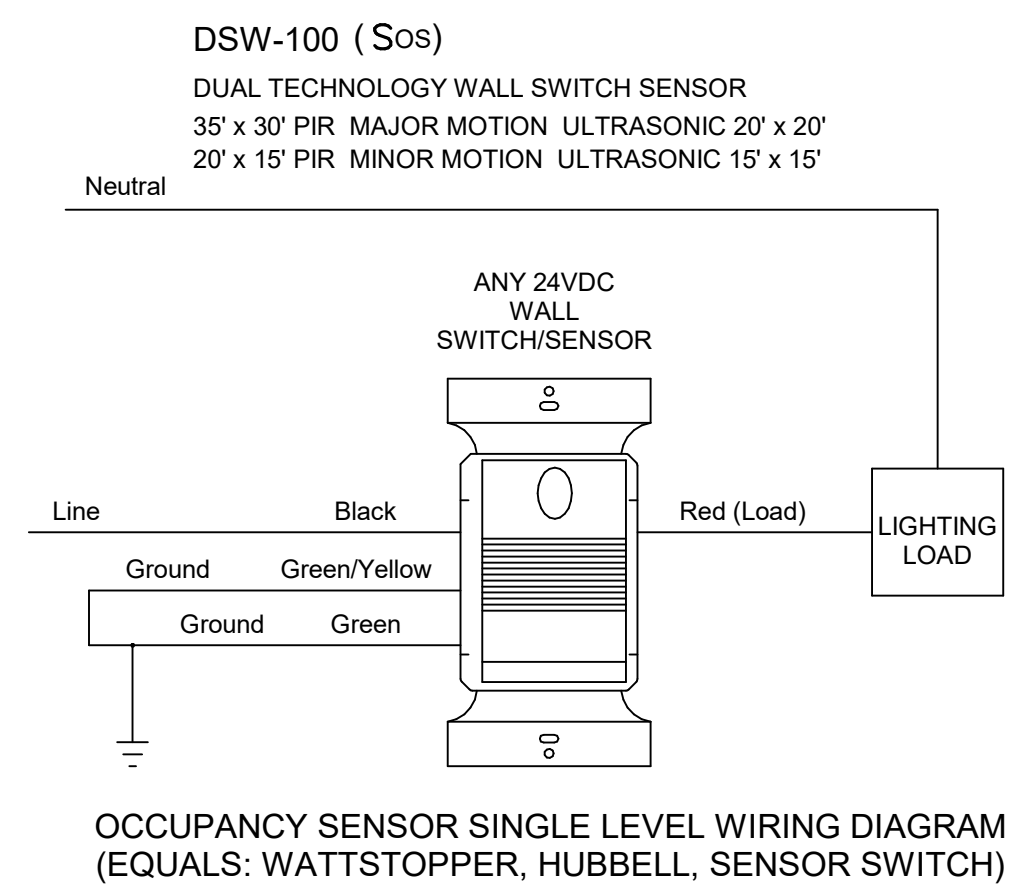
**9 SECURITY CAMERA WIRING DETAIL**

NOT TO SCALE



**8 CONDUIT IN DUCTBANK-GRS-PVC TRANSITION DETAIL**

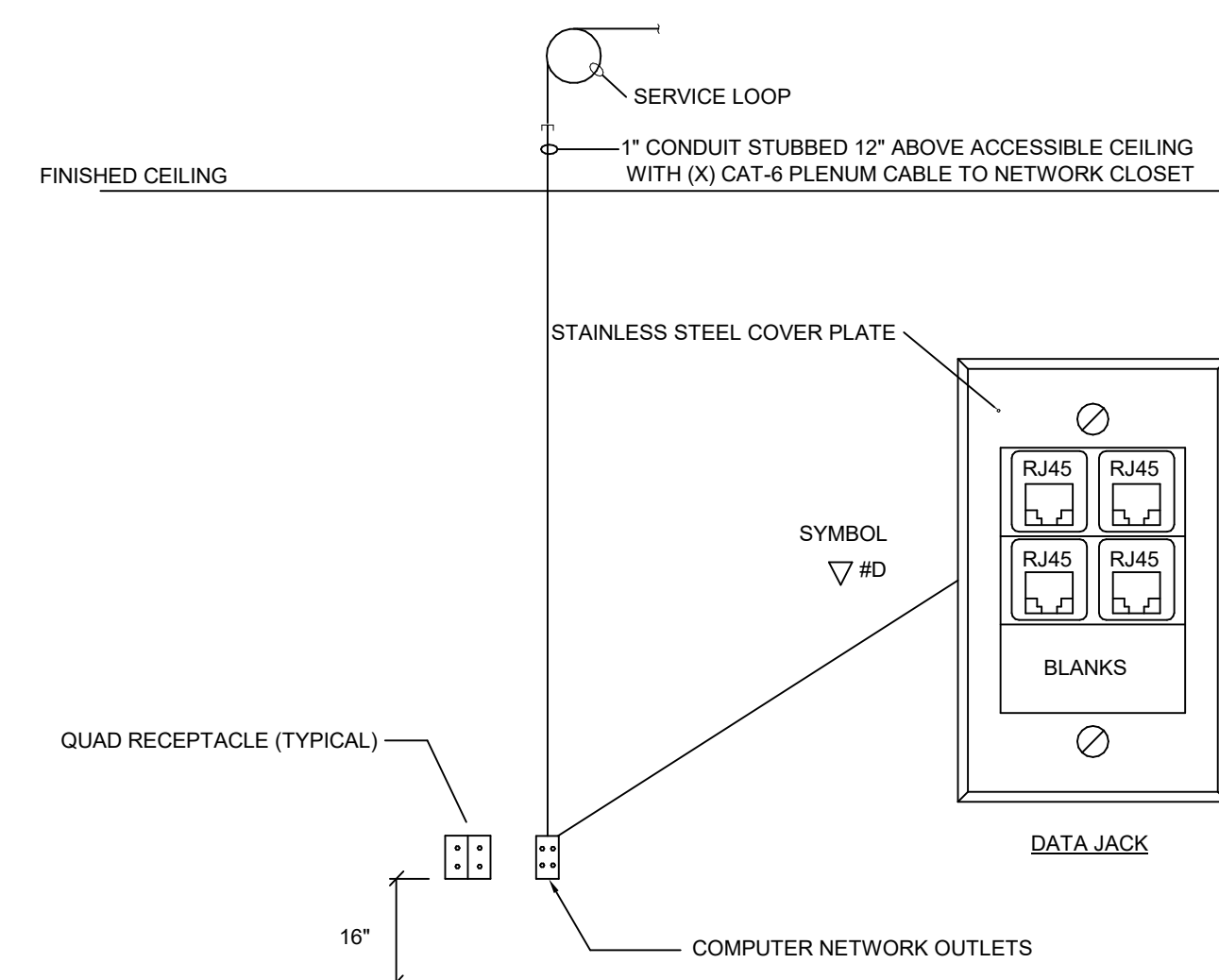
NOT TO SCALE



OCCUPANCY SENSOR SINGLE LEVEL WIRING DIAGRAM (EQUALS: WATTSTOPPER, HUBBELL, SENSOR SWITCH)

**5 DETAIL - OCCUPANCY SENSOR WIRING DIAGRAMS**

NOT TO SCALE

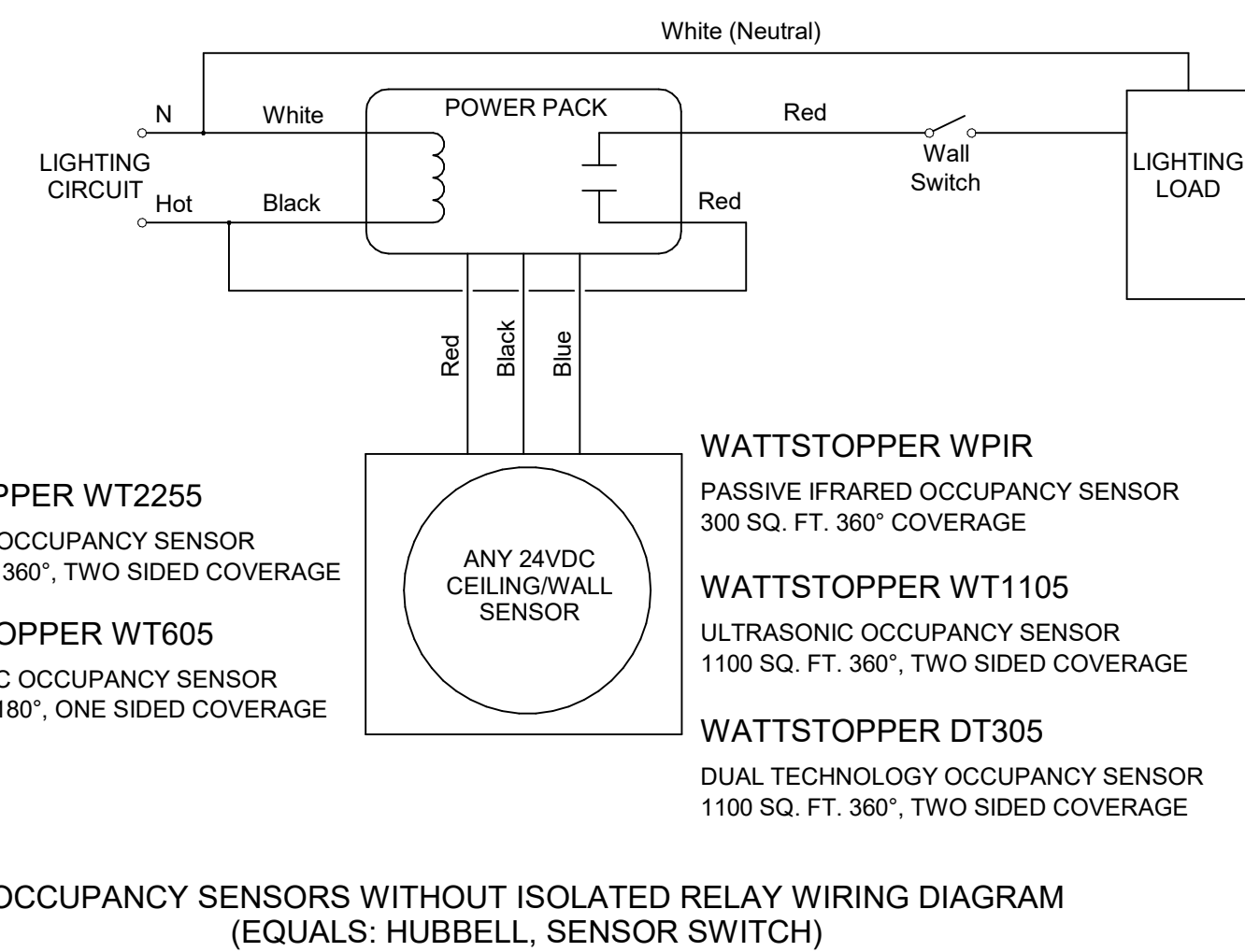


**GENERAL NOTES:**

- A. CONTRACTOR SHALL PROVIDE ALL CONDUIT, BOXES AND RECEPTACLES.
- B. CONTRACTOR SHALL PROVIDE ALL CAT-6 PLENUM WIRING, FACEPLATES AND RJ45 CONNECTORS.
- C. CONTRACTOR SHALL UTILIZE CONDUIT AND TRAY SYSTEM FOR EASE OF ROUTING WHERE APPLICABLE.
- D. CONTRACTOR SHALL VERIFY LOCATIONS OF CASEWORK, CHALK BOARDS AND TACK BOARDS PRIOR TO INSTALLATION.
- E. ALL COMPUTER NETWORK OUTLETS SHALL HAVE THE QUANTITY CAT-6 DROPS AS INDICATED WITH THE NUMBER NEXT TO THE DROP. (I.E. 4D7) WHERE NO QUANTITY IS SHOWN, PROVIDE AN EMPTY CONDUIT WITH BLANK FACEPLATE AND PULL STRINGS.

**7 DETAIL - TYPICAL NETWORK OUTLET**

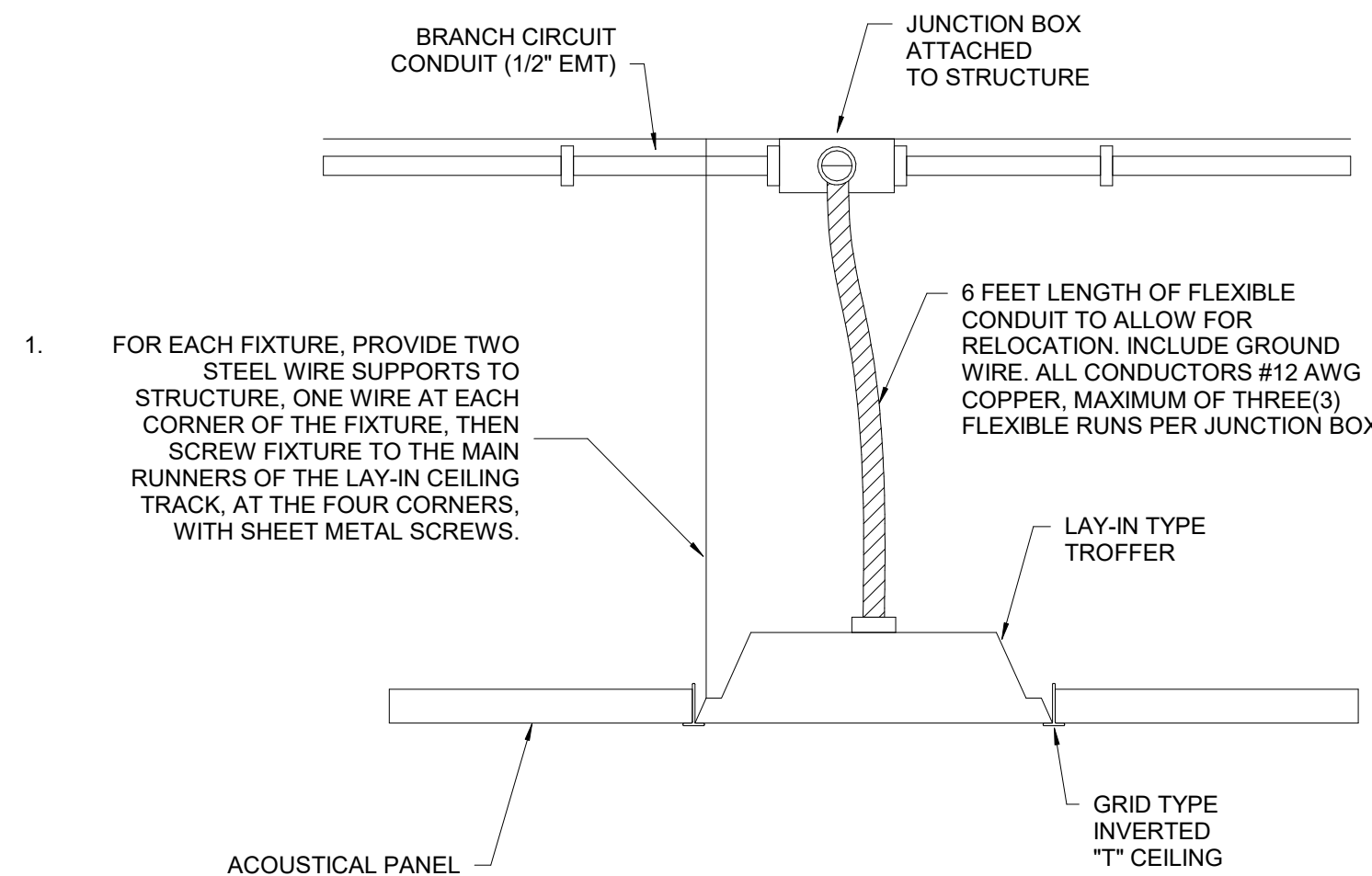
NOT TO SCALE



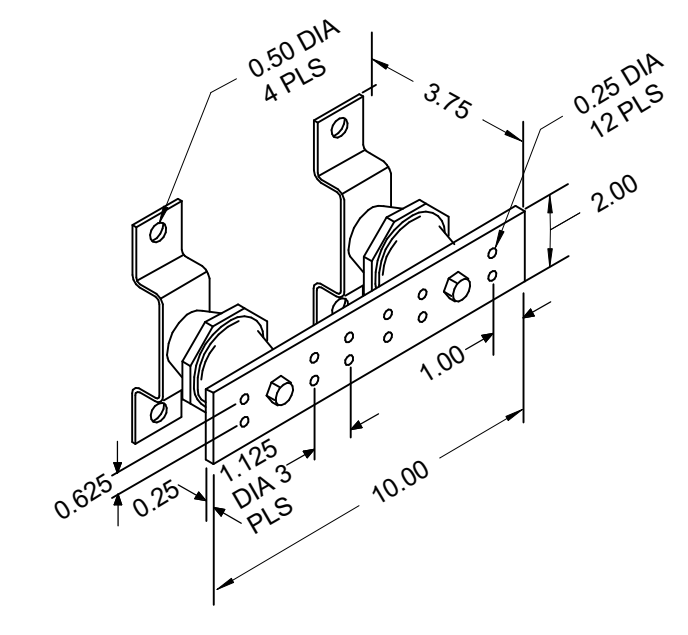
OCCUPANCY SENSORS WITHOUT ISOLATED RELAY WIRING DIAGRAM (EQUALS: HUBBELL, SENSOR SWITCH)

**4 LAY-IN FIXTURE MOUNTING**

NOT TO SCALE



- 1. FOR EACH FIXTURE, PROVIDE TWO STEEL WIRE SUPPORTS TO STRUCTURE. ONE WIRE AT EACH CORNER OF THE FIXTURE. THEN SCREW FIXTURE TO THE MAIN RUNNERS OF THE LAY-IN CEILING TRACK, AT THE FOUR CORNERS, WITH SHEET METAL SCREWS.



TGB

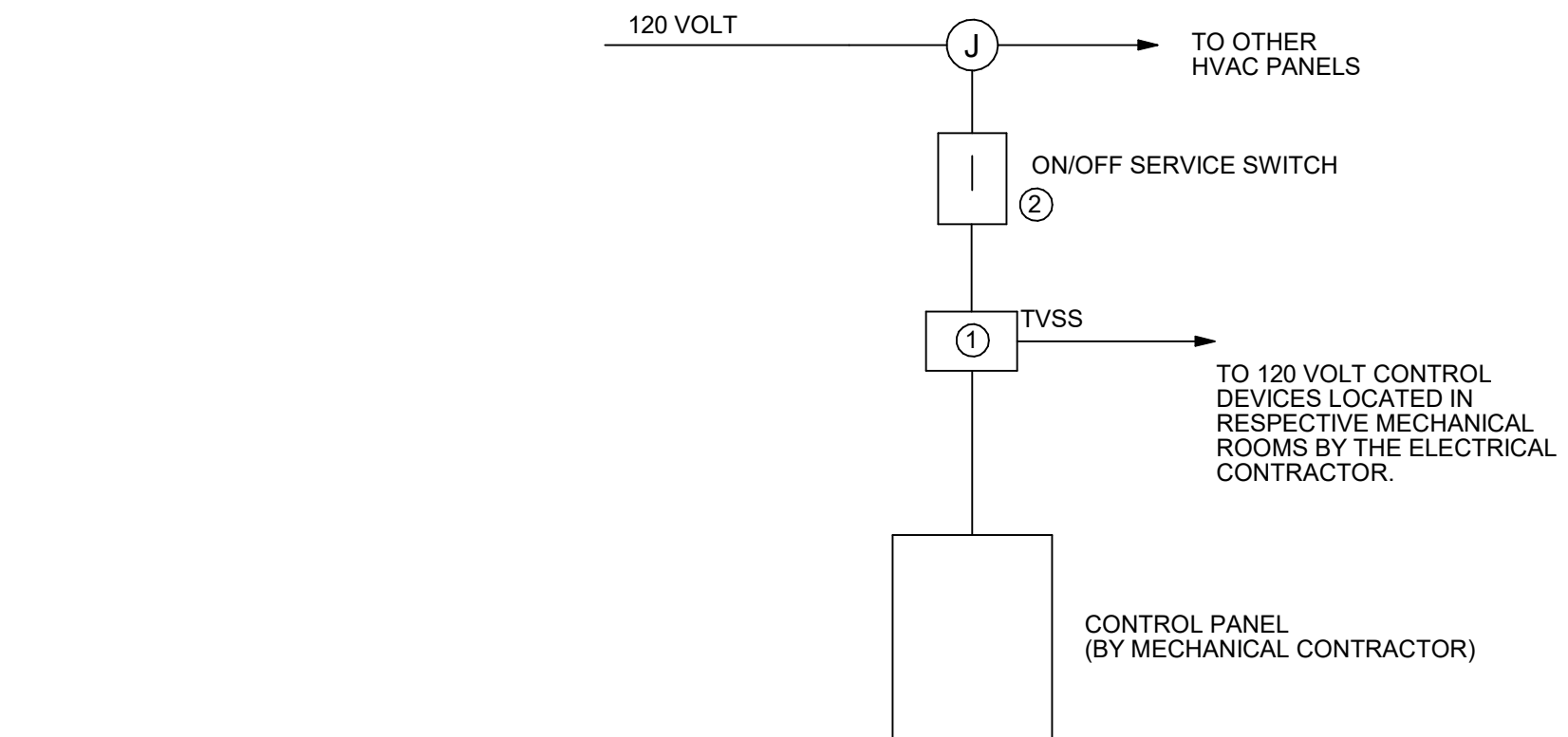
**GENERAL NOTES:**

- A. TYPICAL BUSBARS, INSULATORS AND BACKBOARD MOUNTING BRACKETS SHOWN HERE REFLECT TIA STANDARDS -COMPLIANT DIMENSIONS.
- B. MOUNT BACKBOARD MOUNTED BUSBARS @ 24" AFF. UNLESS DIRECTED OTHERWISE BY OWNER.
- C. REFER TO SPECIFICATION 271000. THIS GROUNDING DETAIL IS APPLICABLE TO IDF(TELECOM) CLOSETS.

**TELECOMMUNICATIONS GROUNDING**

**6 DETAIL - TELECOMMUNICATIONS GROUNDING**

NOT TO SCALE

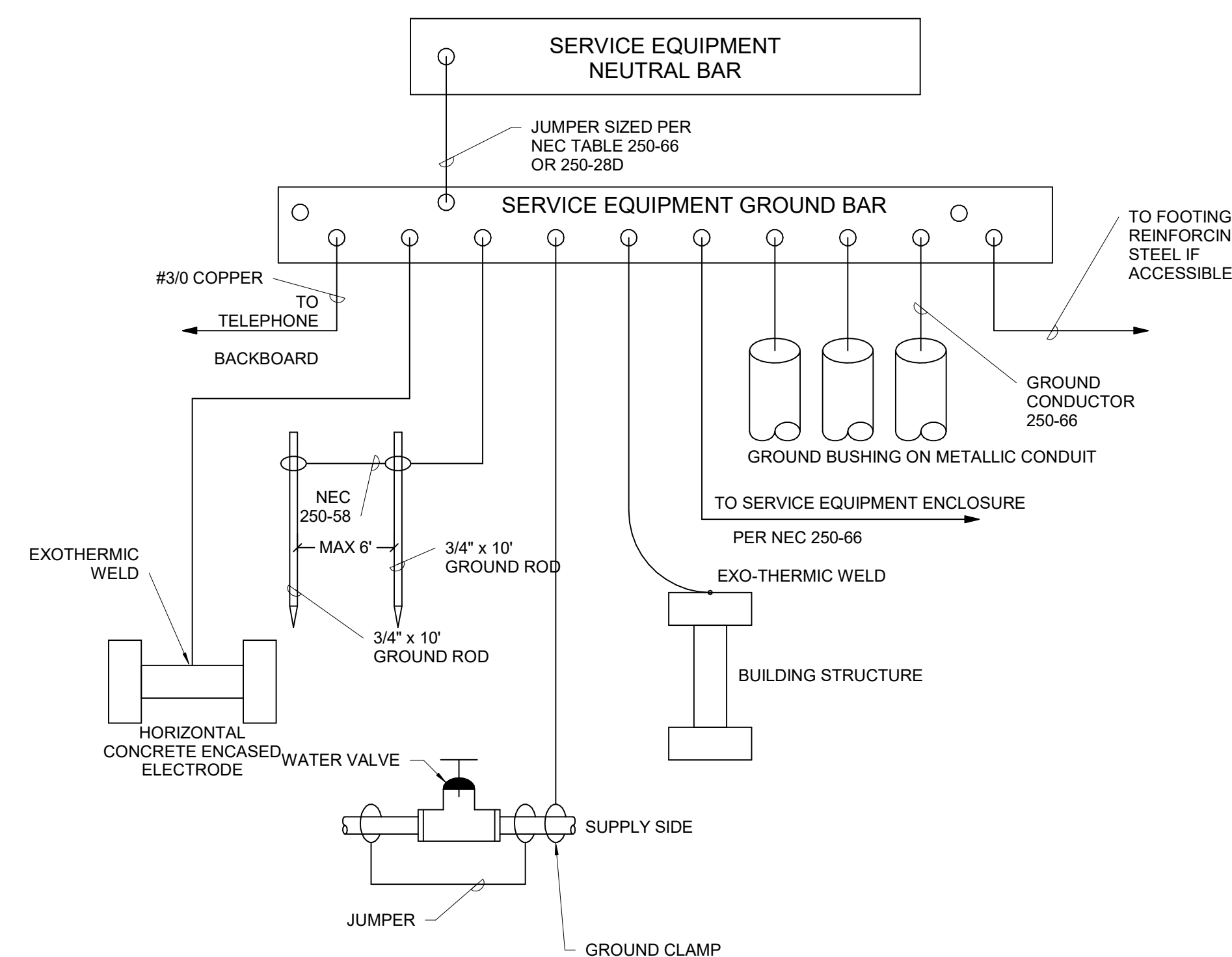


**DETAIL KEYED NOTES:**

- 1. TRANSIENT VOLTAGE SURGE SUPPRESSOR PROVIDED AND BY THE MECHANICAL CONTROLS CONTRACTOR.
- 2. SINGLE POLE TOGGLE SWITCH WITH HUBBELL #96081 COVER TO BE USED AS ON/OFF SERVICE SWITCH FOR CONTROLS. LABEL COVER "MECHANICAL CONTROLS".

**3 DETAIL - CONTROLS SURGE PROTECTION**

NOT TO SCALE



**GENERAL NOTES:**

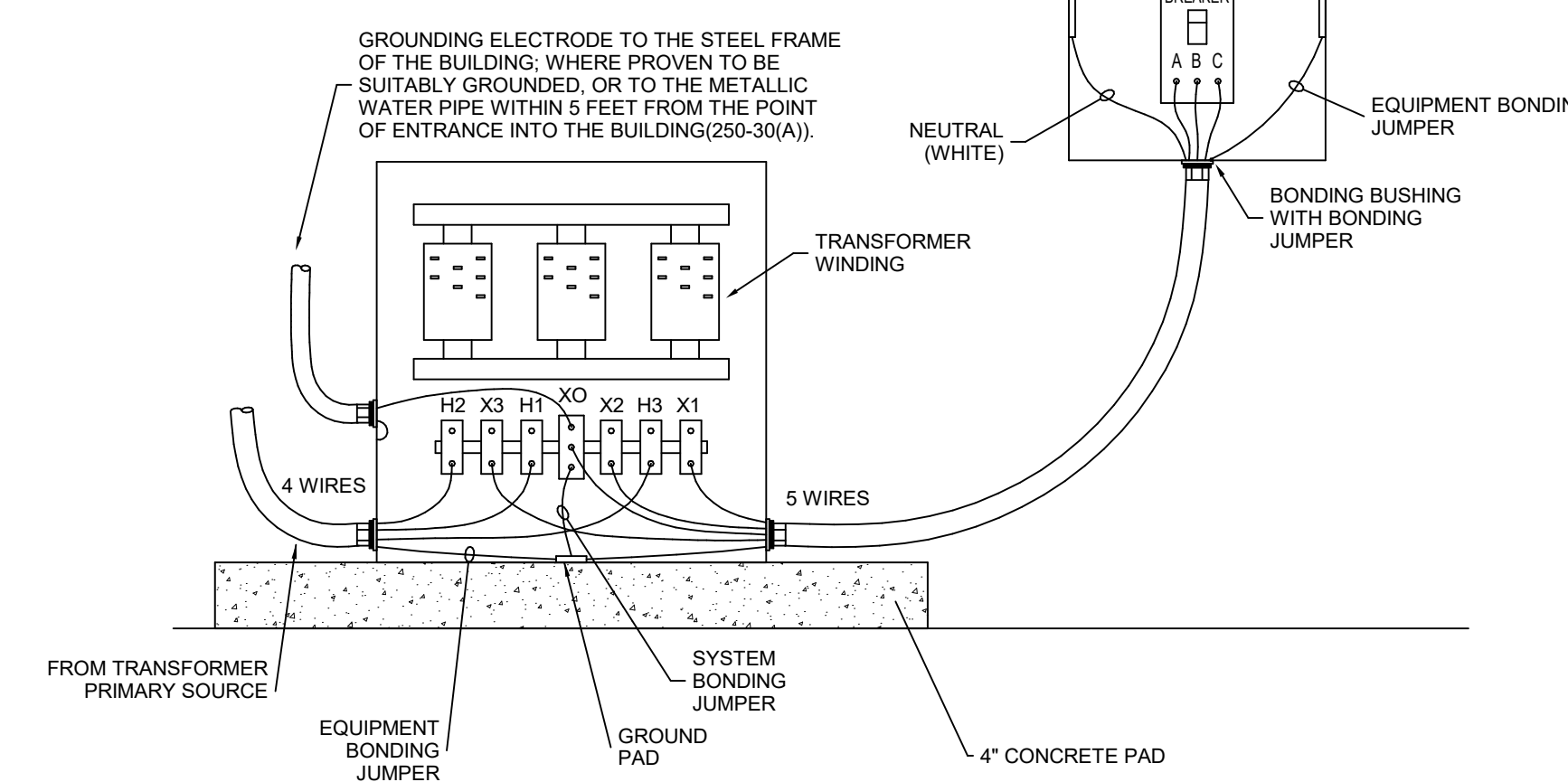
- A. THIS SCHEMATIC IS NOT INTENDED TO SHOW ALL NEC AND OTHER CODES REQUIRED BONDING AND GROUNDING. RATHER, IT IS INTENDED TO ALERT THE CONTRACTOR TO TYPICAL MISAPPLICATIONS AND/OR OVERSIGHTS THAT OCCUR IN THE FIELD. THE CONTRACTOR IS A LICENSED PROFESSIONAL AND REMAINS RESPONSIBLE FOR ADHERENCE TO ALL INSTALLATION CODES WHETHER SHOWN OR NOT.
- B. ALL CONDUCTORS SHOWN ON THIS SCHEMATIC SHALL BE SIZED PER NEC 250-66 UNLESS NOTED OTHERWISE.
- C. ALL GROUNDING AND BONDING SHOWN IS REQUIRED TO BE INSTALLED IF PRESENT ON THE PROJECT.
- D. SEE OTHER DETAILS FOR ADDITIONAL GROUNDING AND BONDING OF OTHER EQUIPMENT AND/OR SYSTEMS.
- E. COORDINATE CONCRETE ENCASED ELECTRODES WITH STRUCTURAL ENGINEER.

**2 DETAIL - BONDING AND GROUNDING SCHEMATIC**

NOT TO SCALE

**GENERAL NOTES:**

- A. TRANSFORMER BONDING STRAP. IF NOT PROVIDED BY THE TRANSFORMER MANUFACTURER THIS STRAP SHOULD BE THE SAME SIZE AS THE MAIN BONDING JUMPER/PER 250-66).
- B. USE A BONDING BUSHING AND JUMPER AT THE CONDUIT TERMINATION. JUMPER SHOULD BE THE SAME SIZE AS THE GROUNDING ELECTRODE CONDUCTOR CONTAINED IN THE CONDUIT.
- C. USE A BONDING CLAMP AT THE TERMINATION OF THE GROUNDING ELECTRODE CONDUCTOR TO THE ELECTRODE.
- D. TRANSFORMERS SHALL BE IN COMPLIANCE WITH ASHRAE 2010 & DOE 2016 EFFICIENCY REQUIREMENTS.



**DETAIL - DRY TRANSFORMER GROUNDING**

NOT TO SCALE

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3. DO NOT SCALE OFF DIMENSIONS.

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**2307**  
BOOMERANG DESIGN PROJECT NUMBER  
**02.07.2024**  
DRAWING RELEASE DATE

**DETAILS**  
SHEET TITLE  
**E502**  
SHEET

2/6/2024 4:18:11 PM



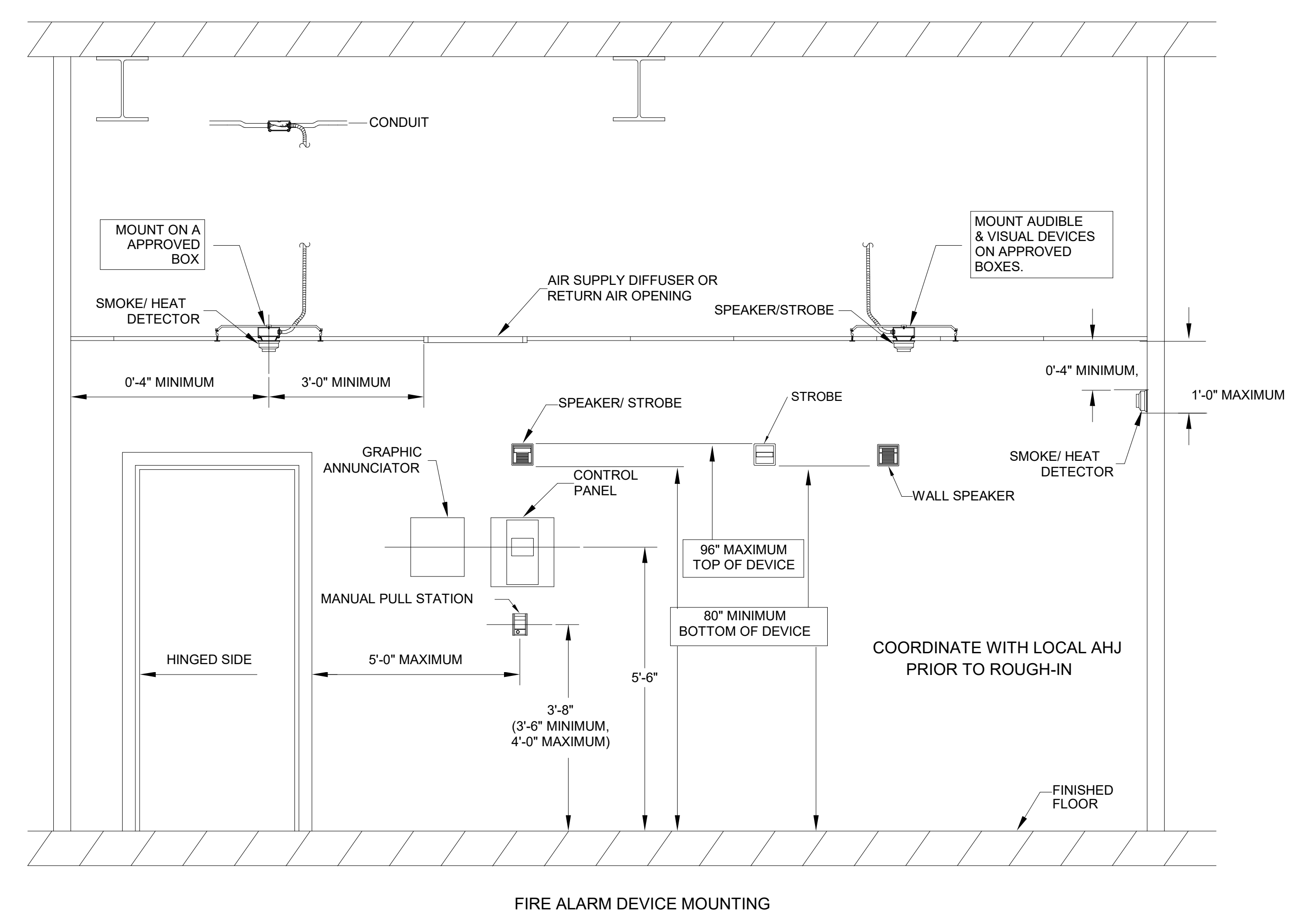
**GENERAL MATRIX NOTE:**  
A. VERIFY OPERATION WITH LOCAL AHU PRIOR TO PROGRAMMING.

**SYSTEM INPUTS**

|   | A | B | C | D | E | F | G | H | I | J | K | L | M | O | P | Q | R | S | T | U | V | W | X |    |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|
| 1. MANUAL PULL STATIONS GROUND FLOOR  | o | o |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | 1  |
| 2. MANUAL PULL STATIONS FIRST FLOOR   | o | o |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | 2  |
| 3. MANUAL PULL STATIONS MECHANICAL PLATFORM   | o | o |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | 3  |
| 4. SMOKE DETECTORS GROUND FLOOR   | o | o |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | 4  |
| 5. SMOKE DETECTORS FIRST FLOOR  | o | o |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | 5  |
| 6. SMOKE DETECTORS MECHANICAL PLATFORM  | o | o |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | 6  |
| 7. HEAT DETECTORS GROUND FLOOR  | o | o |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | 7  |
| 8. HEAT DETECTORS FIRST FLOOR   | o | o |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | 8  |
| 9. HEAT DETECTORS MECHANICAL PLATFORM   | o | o |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | 9  |
| 10. DUCT DETECTORS  | o | o |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | 10 |
| 11. AHU OVERRIDE SWITCH   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | 11 |
| 12. TAMPER SWITCH @ PIV   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | 12 |
| 13. TAMPER SWITCHES AT SPRINKLER RISERS   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | 13 |
| 14. FLOW SWITCH AT SPRINKLER RISERS   | o | o |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | 14 |
| 15. FIRE ALARM SYSTEM AC POWER FAILURE  |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | 15 |
| 16. FIRE ALARM SYSTEM LOW BATTERY   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | 16 |
| 17. NAC PANELS LOW BATTERY  |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | 17 |
| 18. OPEN CIRCUIT  |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | 18 |
| 19. GROUND FAULT  |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | 19 |
| 20. NOTIFICATION APPLIANCE SHORT CIRCUIT  |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | 20 |
| 21. TEMPERATURE SENSOR @ FIRELINE BACKFLOW PREVENTER  |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | 21 |
| 22. CARBON MONOXIDE DETECTOR  |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | 22 |
| 23. BDA - LOSS OF NORMAL AC POWER   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | 23 |
| 24. BDA - SYSTEM BATTERY CHARGER FAILURE  |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | 24 |
| 25. BDA - MALFUNCTION OF DONOR ANTENNAS   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | 25 |
| 26. BDA - FAILURE OF ACTIVE RF EMITTING DEVICES   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | 26 |
| 27. BDA - LOW BATTERY CAPACITY AT 70% REDUCTION OF OPERATING CAPACITY   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | 27 |
| 28. BDA - FAILURE OF CRITICAL EQUIPMENT COMPONENTS  |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | 28 |
| 29. BDA - OSCILLATION OF ACTIVE OF RF EMITTING DEVICES  |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | 29 |
| 30. BDA - COMMUNICATION LINE BETWEEN FIRE ALARM SYSTEM AND THE IN BUILDING TWO-WAY EMERGENCY RESPONDER COMMUNICATIONS COVERAGE SYSTEM |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | 30 |

**3 FIRE ALARM SYSTEM OPERATIONAL MATRIX DETAIL**  
NOT TO SCALE

**NFPA 72 AND ADA DEVICE INSTALLATION REQUIREMENTS**



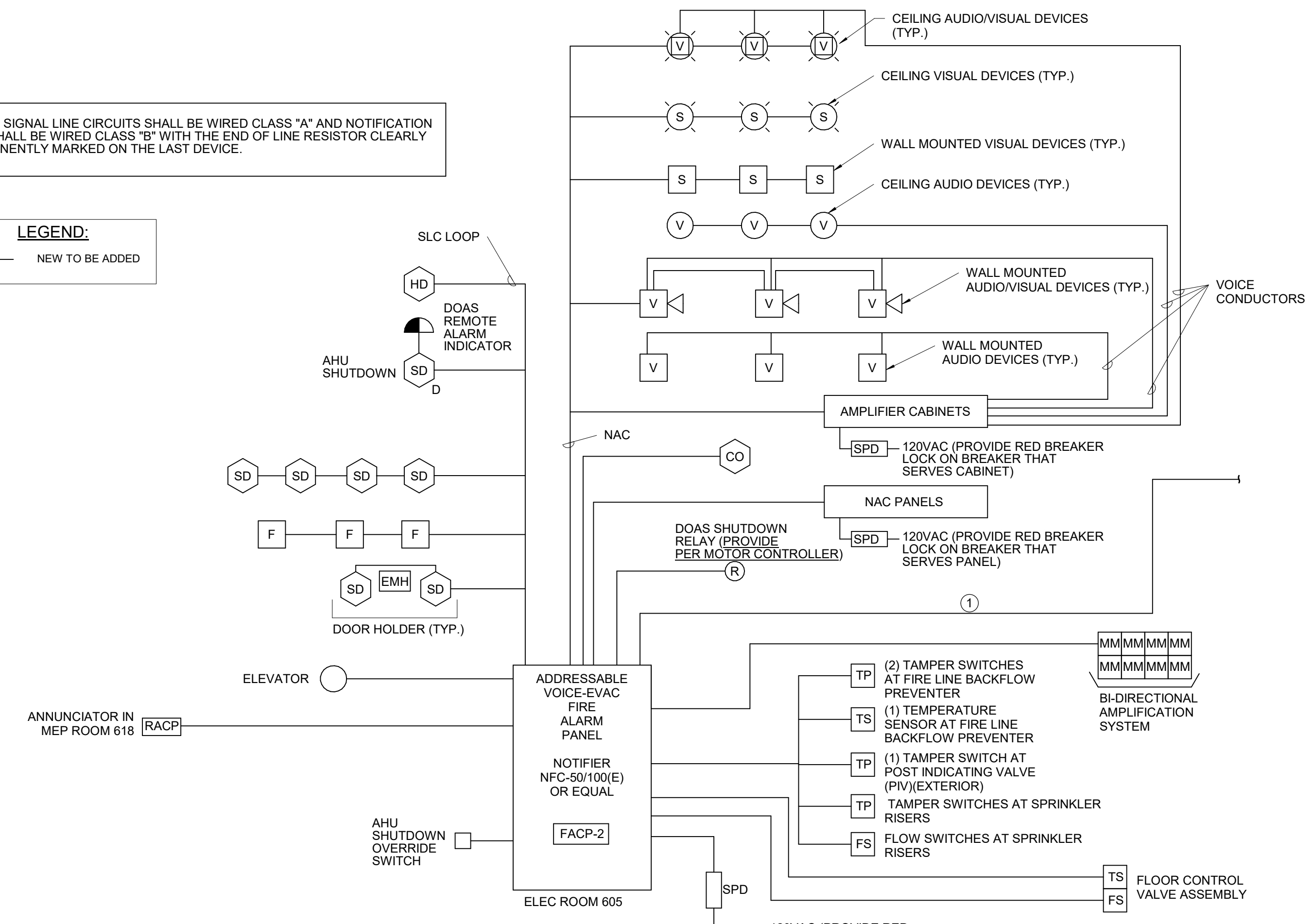
**2 FIRE ALARM DEVICE MOUNTING DETAIL**  
NOT TO SCALE

**GENERAL FIRE ALARM RISER NOTES:**

- REFER TO ARCHITECT'S SPECIFICATIONS 012300 FOR OWNER'S PREFERRED MANUFACTURER, NOTIFIER, FOR FIRE ALARM SYSTEM.
  - SEE PLANS FOR LOCATIONS AND QUANTITIES OF ALL DEVICES.
  - ALL WIRING SHALL BE IN MINIMUM 3/4" CONDUIT.
  - BATTERY CALCULATIONS ARE REQUIRED WITH ALL SUBMITTALS.
  - TEST RESULTS ARE REQUIRED FOR ALL DEVICES.
  - PROVIDE SHUT-DOWN DEVICES FOR NEW AIR HANDLERS, FAN COIL UNITS AND SUPPLY FANS OF ALL MECHANICAL EQUIPMENT.
  - VERIFY ROOM NUMBERS WITH ARCHITECT PRIOR TO PROGRAMMING SYSTEM.
  - RAAP SHALL BE SEMI-RECESSED WITH INTEGRAL PUSH-TO-TALK MICROPHONE AND ZONE SELECTION SWITCHES.
  - A SMOKE DETECTOR SHALL BE MOUNTED WITHIN 15'-0" OF FACP, RACP, AMP AND NAC PANELS.
  - IF ANY ARCHITECTURAL CHANGES ARE MADE THAT SHALL AFFECT ANY DEVICE PLACEMENT, THIS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO INSTALLATION.
  - THE MANUFACTURER'S AUTHORIZED REPRESENTATIVE SHALL BE NICET LEVEL 3 CERTIFIED AND HAVE AT LEAST 2 YEARS OF EXPERIENCE INSTALLING FIRE ALARM SYSTEMS. NOTE: PROJECT MANAGER SHALL BE NICET LEVEL 4 CERTIFIED AND HAVE AT LEAST 5 YEARS EXPERIENCE INSTALLING FIRE ALARM SYSTEMS.
  - THE SHOP DRAWINGS SUBMITTALS FOR DEVICE LOCATIONS SHALL BE SUBMITTED TO ENGINEER AND LOCAL (AHJ) FIRE MARSHALL PRIOR TO ANY INSTALLATION/ROUGH-IN FOR FIRE ALARM DEVICES.
  - WIRING DIAGRAMS, LOCATION DRAWINGS, DEVICE CUT SHEETS AND VOLTAGE DROP CALCULATIONS ARE REQUIRED WITH ALL SUBMITTALS.
  - THE FIRE ALARM SYSTEM PROVIDER SHALL PROVIDE ALL DOCUMENTATION AS SPECIFIED IN THE INTERNATIONAL FIRE CODE SECTION 907 REQUIREMENTS AS PART OF HIS SHOP DRAWING SUBMITTALS.
- THIS INCLUDES:
- LOCATION DRAWINGS OF ALARM INITIATING AND NOTIFICATION DEVICES.
  - WIRING DIAGRAMS WITH CONDUCTOR TYPE AND SIZES.
  - LOCATIONS OF ALARM CONTROL AND TROUBLE SIGNALING EQUIPMENT.
  - POWER CONNECTION DETAILS AND WIRING SCHEMATICS.
  - BATTERY CALCULATIONS.
  - VOLTAGE DROP CALCULATIONS.
  - MANUFACTURER'S MODEL NUMBERS, LISTING INFORMATION FOR EQUIPMENT, DEVICES AND MATERIALS.
  - THE INTERFACE OF FIRE SAFETY CONTROL FUNCTIONS.

FIRE ALARM SIGNAL LINE CIRCUITS SHALL BE WIRED CLASS "A" AND NOTIFICATION CIRCUITS SHALL BE WIRED CLASS "B" WITH THE END OF LINE RESISTOR CLEARLY AND PERMANENTLY MARKED ON THE LAST DEVICE.

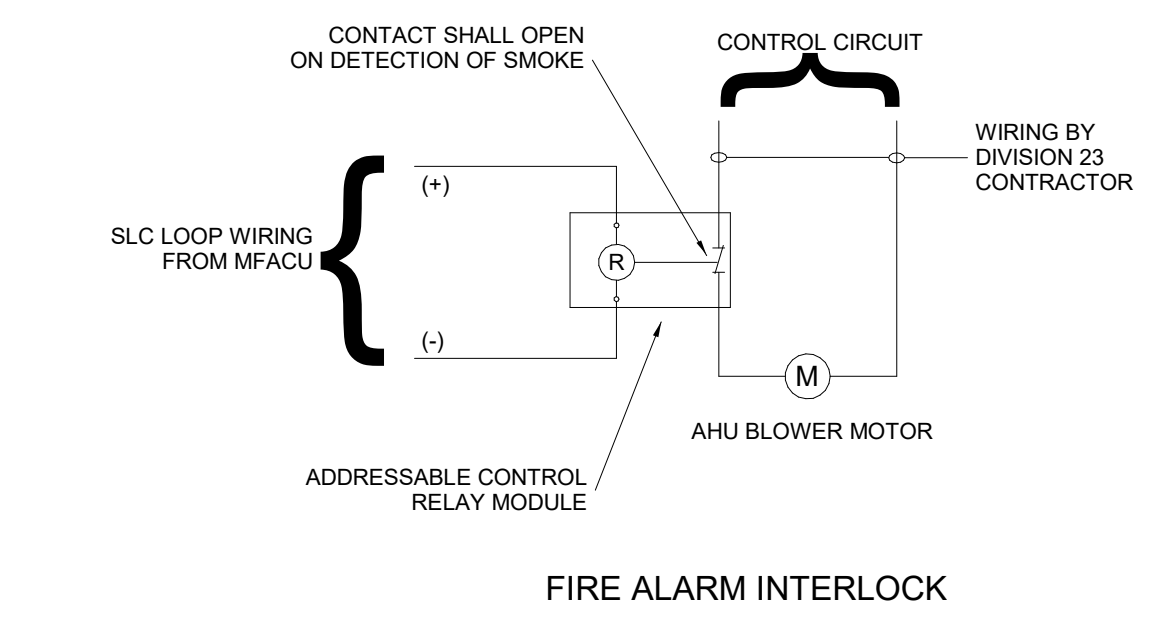
**LEGEND:**  
— NEW TO BE ADDED



**KEYNOTES:**

- INTERCONNECT NEW VOICE-EVAC PANEL AT NEW BUILDING WITH THE EXISTING NOTIFIER NFS-640 MAIN BUILDING PANEL FACP-1. THESE SYSTEMS SHALL BE CAPABLE OF OPERATING/SILENCING THE SYSTEMS FROM EITHER THE MAIN FACP IN ADMIN AREA OR THE VOICE-EVAC FACP IN THE NEW BUILDING. THIS ALSO INCLUDES ANY LCD ANNUNCIATOR LOCATIONS. PROVIDE ALL NECESSARY NETWORK CARDS, ETC. FOR A COMPLETE SYSTEM.

**1 FIRE ALARM RISER DETAIL**  
NOT TO SCALE



THE FIRE ALARM CONTRACTOR SHALL PROVIDE A FIRE ALARM RELAY FOR THE SUPPLY FANS) AT EACH AHU. THE RELAY SHALL BE WIRED DIRECTLY TO THE FAN VARIABLE FREQUENCY DRIVE FOR AHU SHUTDOWN BY THE BAS CONTRACTOR.

THE RELAY SHALL ALSO HAVE AN AUXILIARY CONTACT. THE BAS CONTRACTOR SHALL WIRE FROM THE AUXILIARY CONTACT TO THE BAS CONTROLLER TO MONITOR FA SHUTDOWN FOR THAT FAN ON THE BAS FRONT END.

FOR AHU RETURN FANS, THE SCOPE SHALL BE THE SAME AS FOR THE SUPPLY FANS. RETURN FANS DO NOT REQUIRE AN AUXILIARY CONTACT OR BAS MONITORING OF FA SHUTDOWN STATUS.

**4 DOAS SHUTDOWN**  
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3. DO NOT SCALE OFF DIMENSIONS.

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| NO. | DATE | DESCRIPTION |
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**2307**  
BOOMERANG DESIGN PROJECT NUMBER  
**02.07.2024**  
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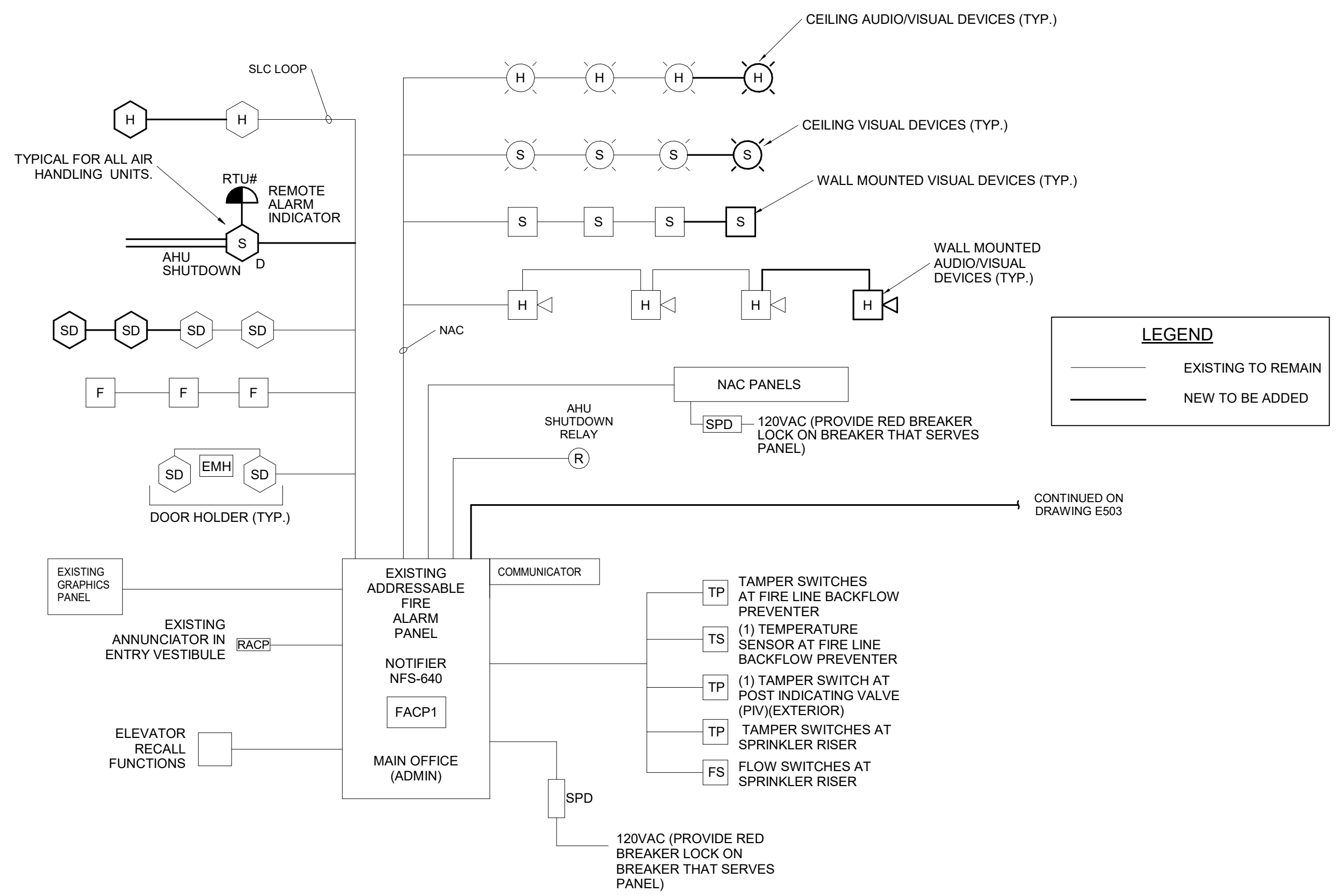
**NEW FIRE ALARM RISER/MATRIX, DETAILS**  
SHEET TITLE

**E503**  
SHEET

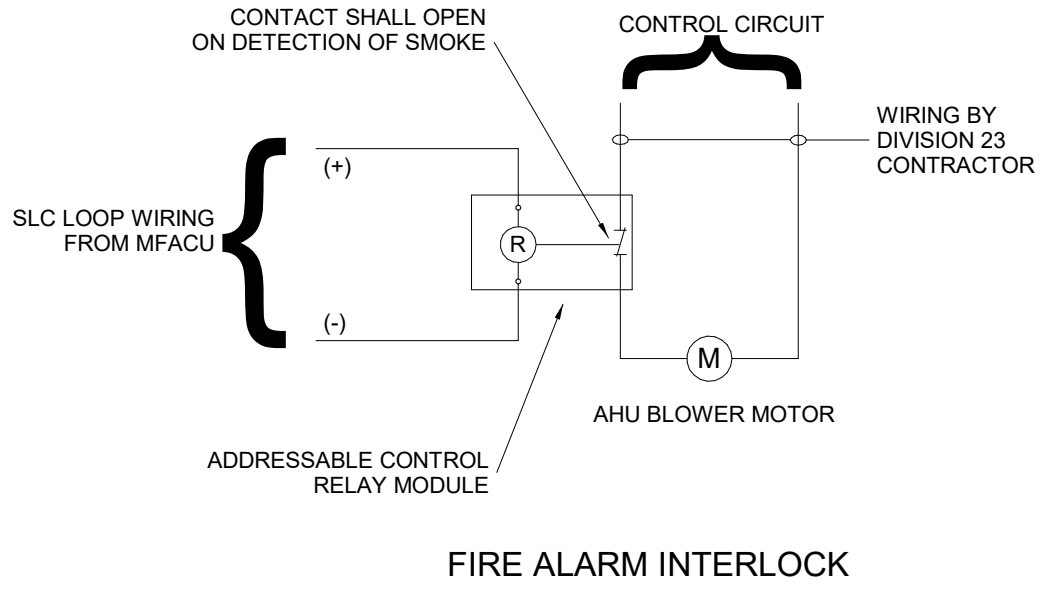
**GENERAL FIRE ALARM RISER NOTES:**

- A. ALL NEW DEVICES SHALL BE COMPATIBLE WITH EXISTING NFS-640 NOTIFIER FACP.
- B. SEE PLANS FOR LOCATIONS AND QUANTITIES OF ALL DEVICES.
- C. ALL WIRING SHALL BE IN MINIMUM 3/4" CONDUIT.
- D. BATTERY CALCULATIONS ARE REQUIRED WITH ALL SUBMITTALS.
- E. TEST RESULTS ARE REQUIRED FOR ALL DEVICES.
- F. PROVIDE SHUT-DOWN DEVICES FOR NEW ROOF TOP UNITS.
- G. VERIFY ROOM NUMBERS WITH ARCHITECT PRIOR TO PROGRAMMING SYSTEM.
- H. ALL NAC PANELS AND AMPLIFIER PANELS SHALL HAVE A SMOKE DETECTOR MOUNTED WITHIN 15'-0" OF PANEL.
- I. A SMOKE DETECTOR SHALL BE MOUNTED WITHIN 15'-0" OF FACP AND NAC PANELS.
- J. IF ANY ARCHITECTURAL CHANGES ARE MADE THAT SHALL AFFECT ANY DEVICE PLACEMENT, THIS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO INSTALLATION.
- K. THE MANUFACTURER'S AUTHORIZED REPRESENTATIVE SHALL BE NICET LEVEL 3 CERTIFIED AND HAVE AT LEAST 2 YEARS OF EXPERIENCE INSTALLING FIRE ALARM SYSTEMS.
- L. THE PROJECT MANAGER SHALL BE NICET LEVEL 4 CERTIFIED AND HAVE AT LEAST 5 YEARS OF EXPERIENCE INSTALLING FIRE ALARM SYSTEMS.
- M. THE SHOP DRAWINGS SUBMITTALS FOR DEVICE LOCATIONS SHALL BE SUBMITTED TO ENGINEER AND LOCAL (AHJ) FIRE MARSHALL PRIOR TO ANY INSTALLATION/ROUGH-IN FOR FIRE ALARM DEVICES.
- N. WIRING DIAGRAMS, LOCATION DRAWINGS, DEVICE CUT SHEETS AND VOLTAGE DROP CALCULATIONS ARE REQUIRED WITH ALL SUBMITTALS.
- O. THE FIRE ALARM SYSTEM PROVIDER SHALL PROVIDE ALL DOCUMENTATION AS SPECIFIED IN THE INTERNATIONAL FIRE CODE SECTION 907 REQUIREMENTS AS PART OF HIS SHOP DRAWING SUBMITTALS.  
THIS INCLUDES:
  - 1. LOCATION DRAWINGS OF ALARM INITIATING AND NOTIFICATION DEVICES.
  - 2. WIRING DIAGRAMS WITH CONDUCTOR TYPE AND SIZES.
  - 3. LOCATIONS OF ALARM CONTROL AND TROUBLE SIGNALING EQUIPMENT.
  - 4. POWER CONNECTION DETAILS AND WIRING SCHEMATICS.
  - 5. BATTERY CALCULATIONS.
  - 6. VOLTAGE DROP CALCULATIONS.
  - 7. MANUFACTURER'S MODEL NUMBERS, LISTING INFORMATION FOR EQUIPMENT, DEVICES AND MATERIALS.
  - 8. THE INTERFACE OF FIRE SAFETY CONTROL FUNCTIONS.
- P. REFER TO DIVISION 28 SPECIFICATIONS.
- Q. FIRE ALARM SIGNAL LINE CIRCUITS SHALL BE WIRED CLASS "A" AND NOTIFICATION CIRCUITS SHALL BE WIRED CLASS "B" WITH THE END OF LINE RESISTOR CLEARLY AND PERMANENTLY MARKED ON THE LAST DEVICE.
- R. PROVIDE SPARE PARTS AS DEFINED IN SPECIFICATIONS.
- S. ALL FIRE ALARM SYSTEM WORK SHALL BE APPROVED BY THE LOCAL FIRE MARSHAL PRIOR TO COMMENCING ANY FIRE ALARM WORK.
- T. FIRE ALARM SYSTEM SHALL BE PROVIDED AND INSTALLED IN ACCORDANCE WITH NFPA 72, 2013.
- U. ELECTRICAL CONTRACTOR SHALL COORDINATE CLOSELY WITH FIRE ALARM SUB-CONTRACTOR FOR ALL 120V AC POWER REQUIRED FOR THIS SYSTEM. IF ANY ADDITIONAL CIRCUITS ARE REQUIRED THAT ARE NOT IDENTIFIED ON PLANS THE ELECTRICAL CONTRACTOR SHALL PROVIDE THAT CIRCUIT FROM THE NEAREST 120V PANEL. AS-BUILTS SHALL BE UPDATED TO REFLECT THE INSTALLED CONDITION. THIS SHALL BE DONE AT NO ADDITIONAL COST TO THE PROJECT.
- V. ELECTRICAL CONTRACTORS (FIRE ALARM SUB-CONTRACTOR) SHALL COORDINATE CLOSELY WITH THE HVAC CONTROLS CONTRACTOR.

FIRE ALARM SIGNAL LINE CIRCUITS SHALL BE WIRED CLASS "A" AND NOTIFICATION CIRCUITS SHALL BE WIRED CLASS "B" WITH THE END OF LINE RESISTOR CLEARLY AND PERMANENTLY MARKED ON THE LAST DEVICE.



**1 DETAIL - FIRE ALARM RISER (EXISTING BUILDING)**  
NOT TO SCALE



THE FIRE ALARM CONTRACTOR SHALL PROVIDE A FIRE ALARM RELAY FOR THE SUPPLY FAN(S) AT EACH AHU. THE RELAY SHALL BE WIRED DIRECTLY TO THE FAN VARIABLE FREQUENCY DRIVE FOR AHU SHUTDOWN BY THE BAS CONTRACTOR.

THE RELAY SHALL ALSO HAVE AN AUXILIARY CONTACT. THE BAS CONTRACTOR SHALL WIRE FROM THE AUXILIARY CONTACT TO THE BAS CONTROLLER TO MONITOR FA SHUTDOWN FOR THAT FAN ON THE BAS FRONT END.

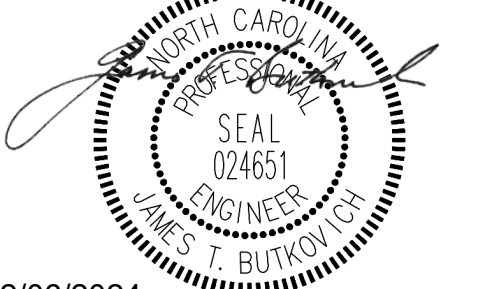
FOR AHU RETURN FANS, THE SCOPE SHALL BE THE SAME AS FOR THE SUPPLY FANS. RETURN FANS DO NOT REQUIRE AN AUXILIARY CONTACT OR BAS MONITORING OF FA SHUTDOWN STATUS.

**2 AHU SHUTDOWN**  
NOT TO SCALE

**Progressive Design Collaborative, Inc.**  
3101 Poplarwood Court, Suite 320  
Raleigh, North Carolina 27604  
919-790-9589  
License# C-0183  
PROJECT #23015

**COOPER ACADEMY A & R**  
PROJECT TITLE

"CLIENT'S PROJECT" # - XXX



02/06/2024  
T.BUTKOVICH@PDCENGINEERS.COM

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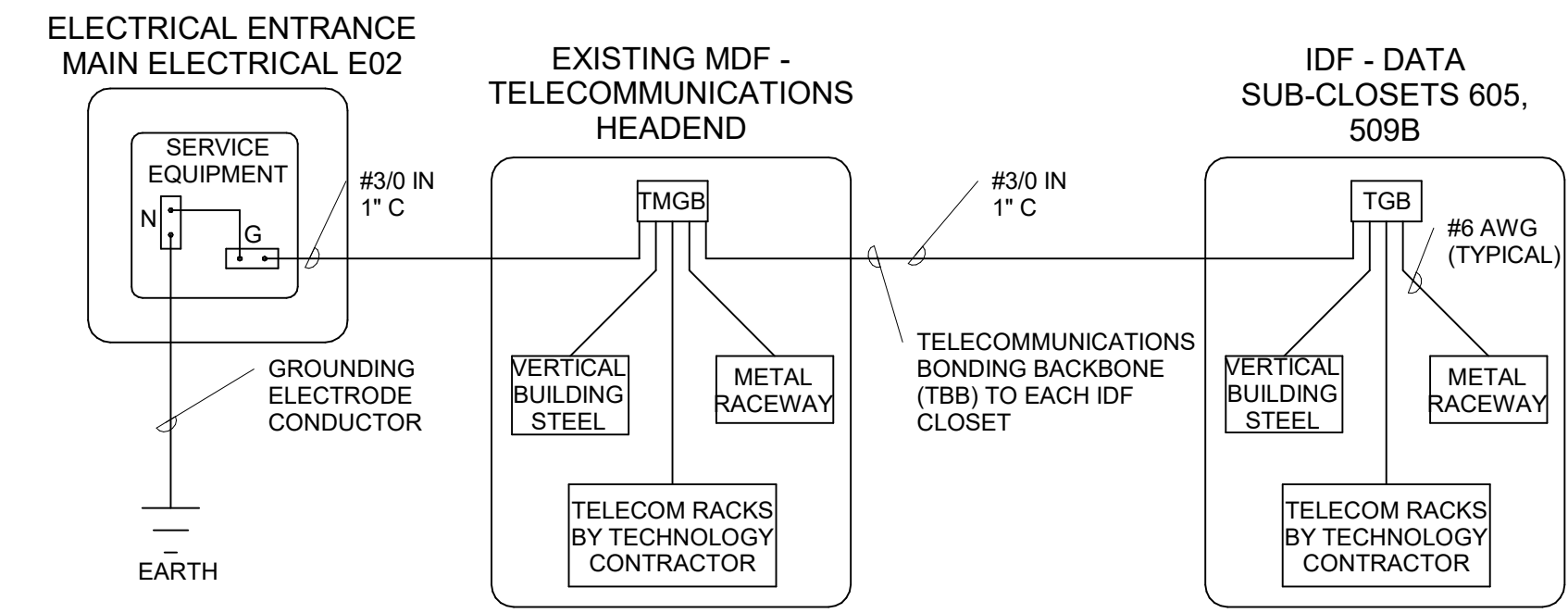
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**EXISTING BUILDING FIRE ALARM RISER**  
SHEET TITLE

**E504**  
SHEET

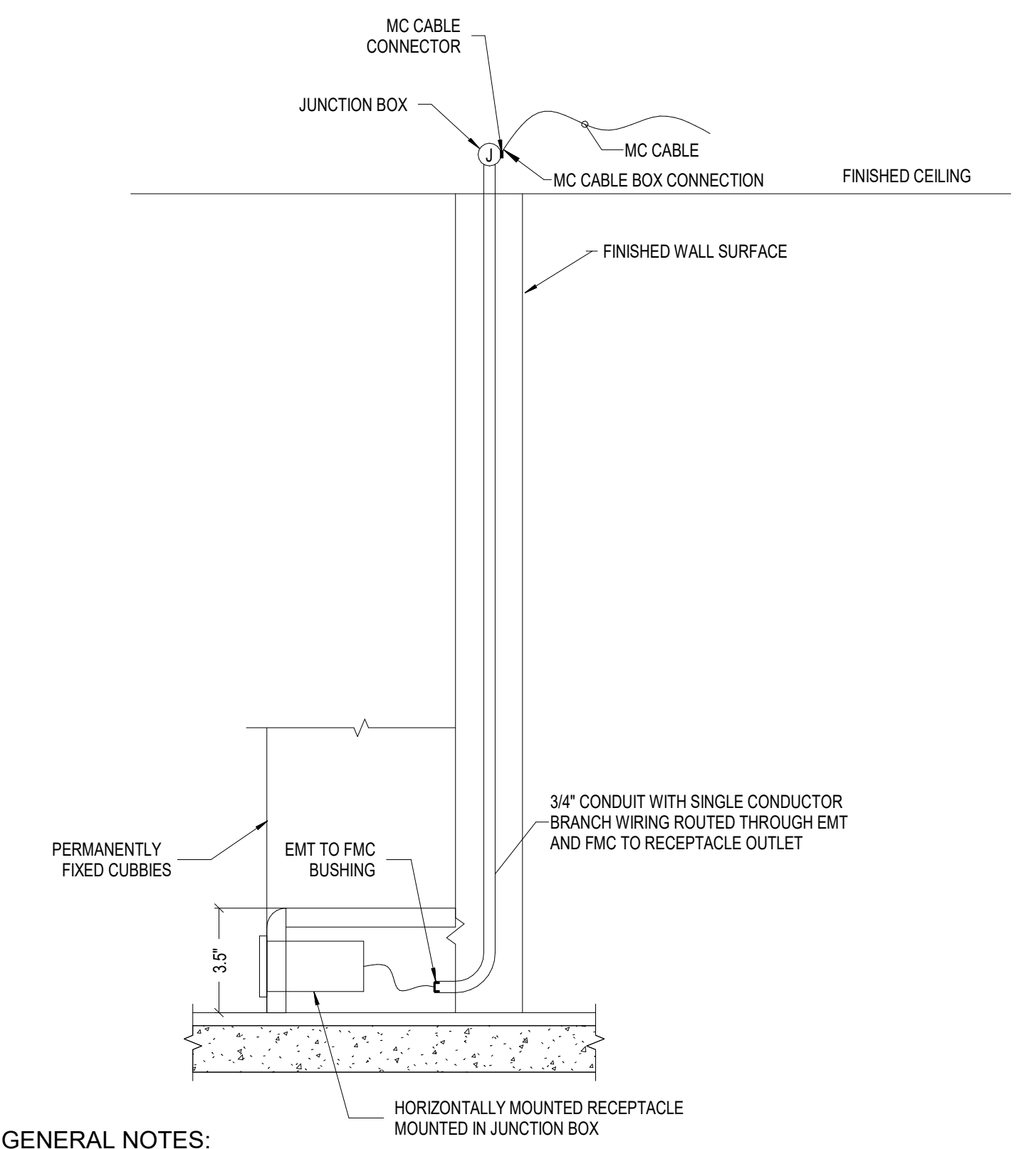
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- NOTES:**
- IT IS THE INTENT FOR THE TELECOMMUNICATIONS GROUNDING SYSTEM TO UTILIZE THE "GROUND ELECTRODE CONDUCTOR (GEC)" ASSOCIATED WITH THE ELECTRICAL SERVICE ENTRANCE TO THE PROJECT SITE.
  - FROM THE GEC, THE ELECTRICAL CONTRACTOR SHALL INSTALL A BONDING CONDUCTOR WHICH WILL CONNECT THE GEC TO A TELECOMMUNICATIONS MAIN GROUNDING BUS BAR (TMGB) LOCATED IN THE EXISTING MDF. THE BONDING CONDUCTOR SHALL BE BONDED TO THE GEC AND THE TMGB. ADDITIONALLY, THE TMGB SHALL BE BONDED TO THE CLOSEST VERTICAL BUILDING STEEL AND STEEL CONDUIT RACEWAY OR CABLE TRAY DESIGNATED FOR TELECOMMUNICATIONS USE.
  - A BONDING CONDUCTOR (THE TELECOMMUNICATIONS BONDING BACKBONE) SHALL CONNECT THE TMGB TO ALL TELECOMMUNICATION CLOSETS (IDFs) WITHIN THE FACILITY, SPECIFICALLY TO A TELECOMMUNICATIONS GROUNDING BUSBAR (TGB) LOCATED IN EACH IDF. ADDITIONALLY, THE TGB WILL BE BONDED TO THE CLOSEST AVAILABLE VERTICAL BUILDING STEEL AND STEEL CONDUIT RACEWAY OR CABLE TRAY DESIGNATED FOR TELECOMMUNICATIONS USE.
  - COMPONENTS CRITERIA:
    - BUSBARS:
      - PREDRILLED ELECTROPLATED COPPER BUSBAR PROVIDED WITH STANDARD NEMA BOLT HOLE SIZING AND SPACING FOR TWO HOLE COMPRESSION CONNECTORS OR EXOTHERMIC TYPE WELDED CONNECTORS.
      - REFER TO DETAIL E00.03-2 FOR TELECOM BUSBAR REQUIREMENTS.
      - THE BUSBAR SHALL BE INSULATED FROM ITS SUPPORT. MINIMUM 50mm SEPARATION IS RECOMMENDED.
    - BONDING CONDUCTOR
      - TELECOMMUNICATIONS BONDING BACKBONE SHALL BE A MINIMUM OF 6AWG STRANDED AND INSULATED CONDUCTOR IN 3/4" EMT.
      - THE CONDUCTOR SHALL BE CONTINUOUS AND ROUTED IN THE SHORTEST POSSIBLE STRAIGHT LINE PATH FROM THE MDF TO IDFS.

TELECOMMUNICATIONS GROUNDING SYSTEM TO BE PROVIDED BY THE ELECTRICAL CONTRACTOR

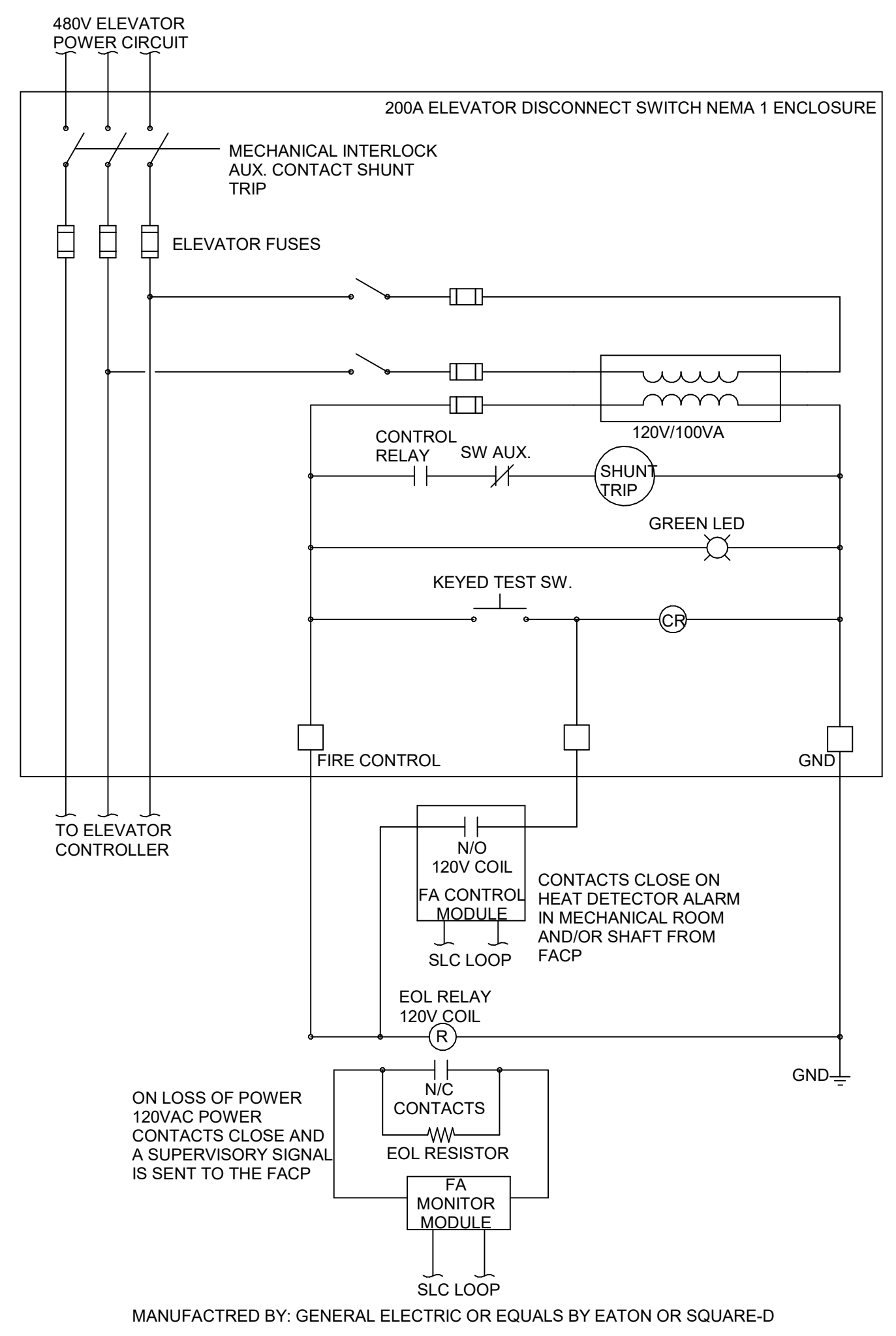
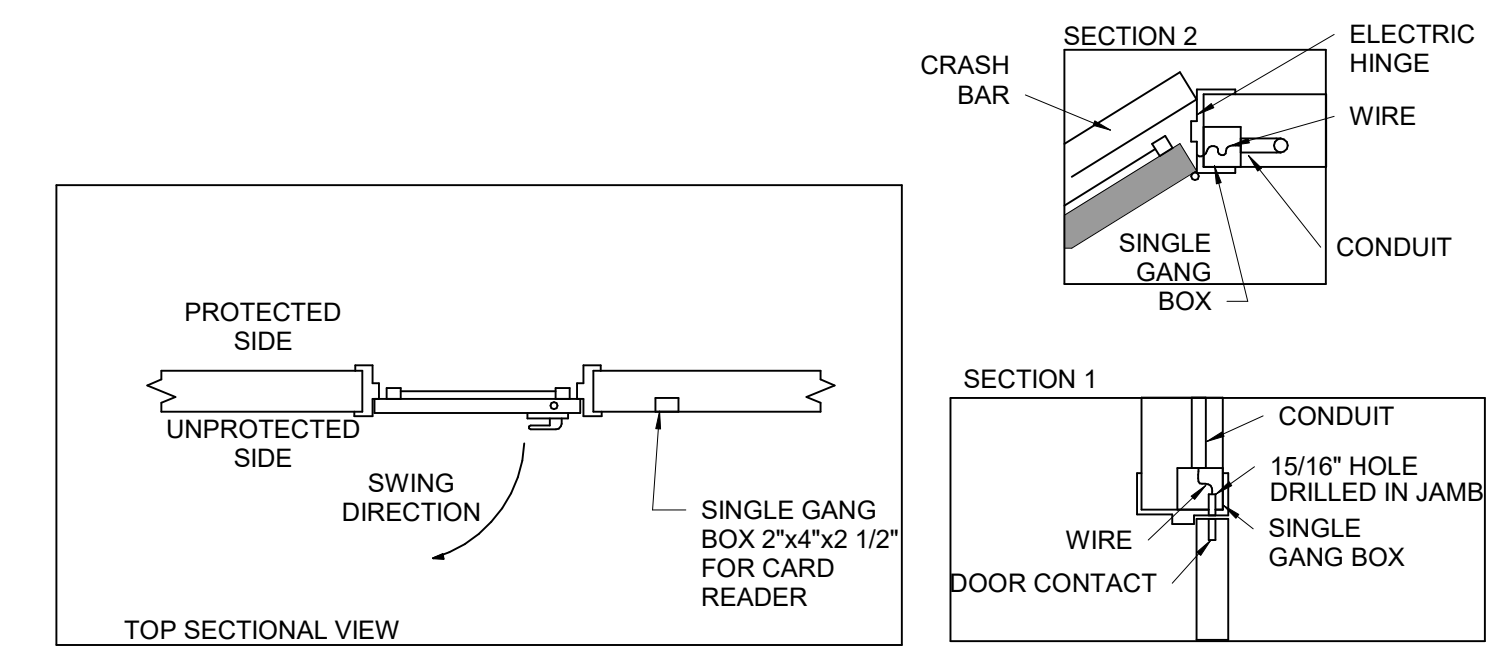
**5** DETAIL - TELECOMMUNICATIONS SYSTEM GROUNDING  
NOT TO SCALE



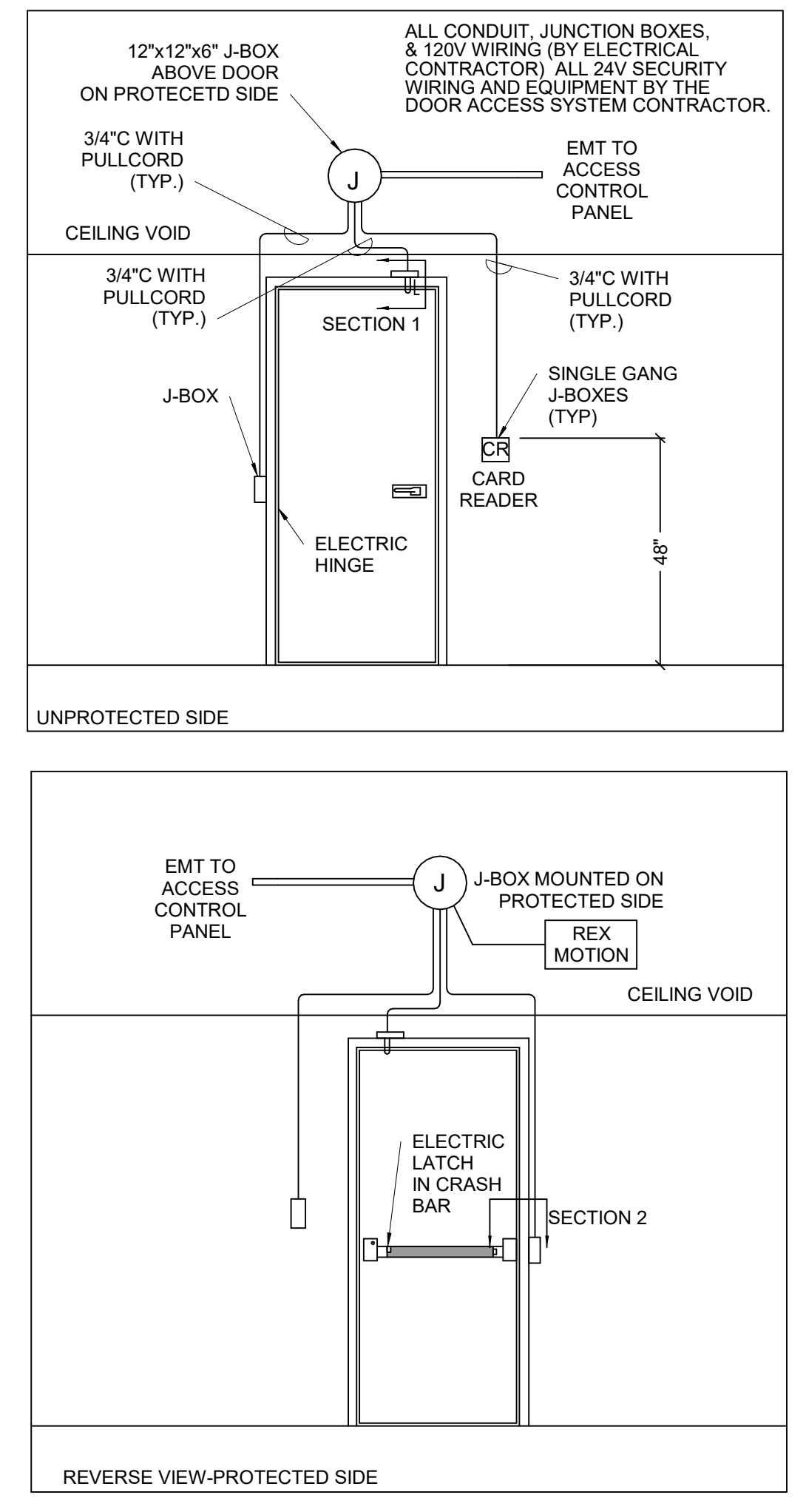
**GENERAL NOTES:**

- ALL RECEPTACLES SHOWN MOUNTED IN BOOKCASES SHALL BE MOUNTED HORIZONTAL IN THE SPACE. COORDINATE WITH GENERAL CONTRACTOR.
- ALL BOXES SHALL BE GROUNDED.

**4** HORIZONTAL MOUNTING  
NOT TO SCALE



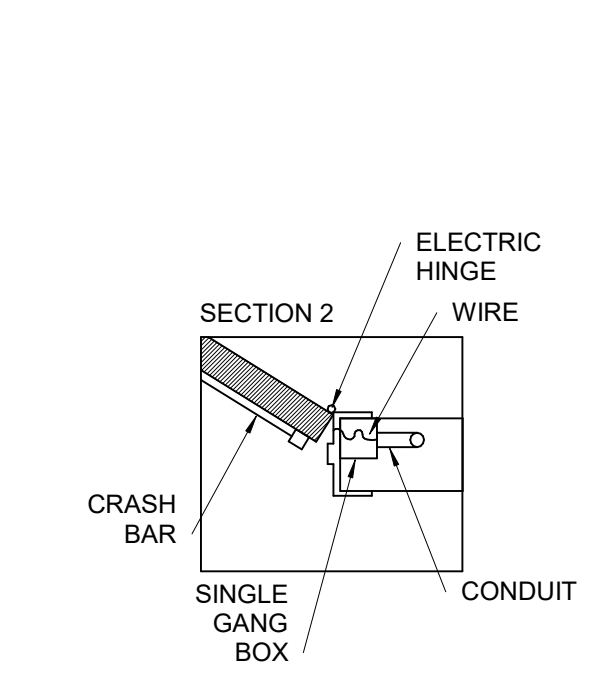
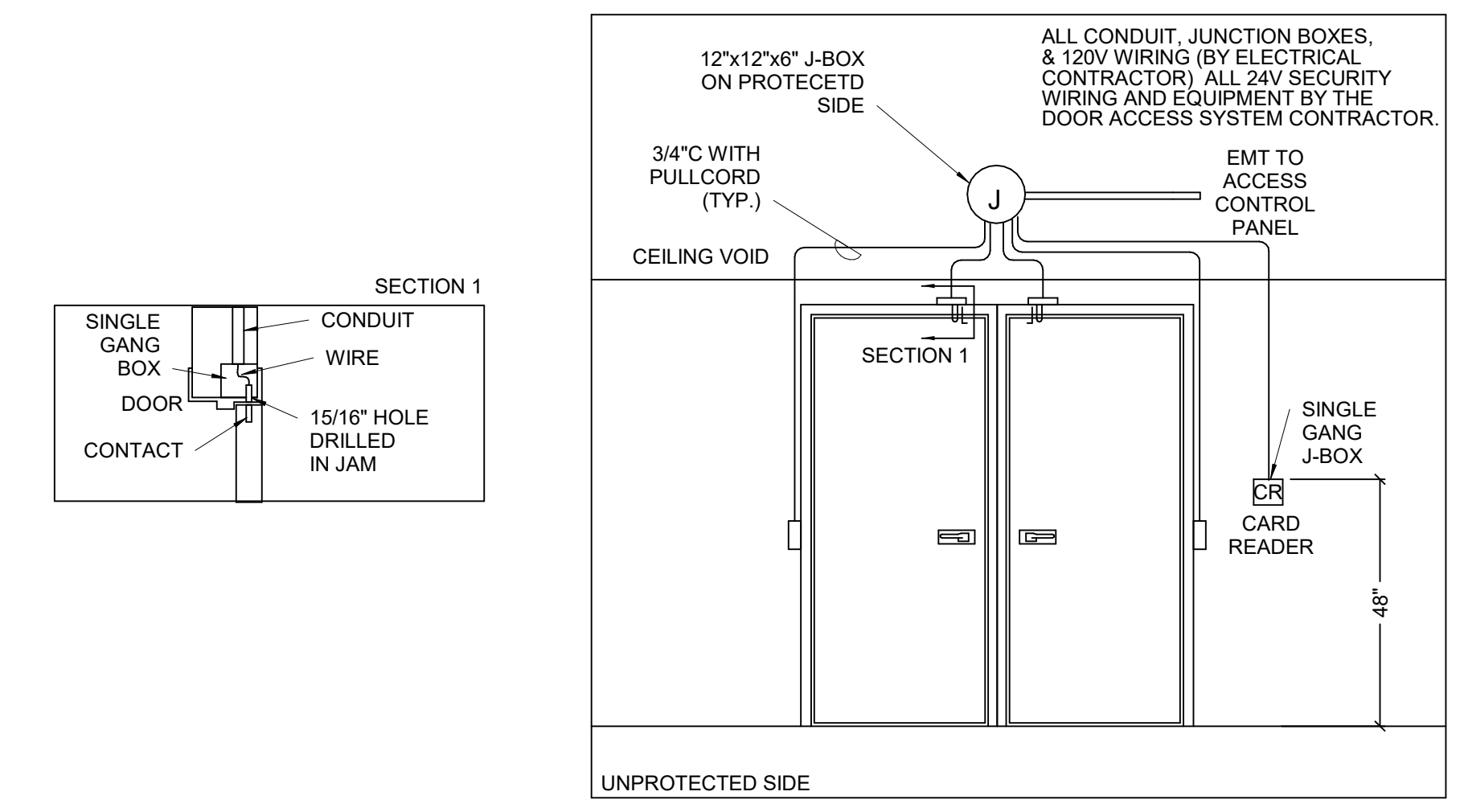
**3** ELEVATOR DISCONNECT SWITCH  
NOT TO SCALE



**GENERAL NOTES:**

- REFER TO DOOR HARDWARE SPECIFICATION FOR DOOR HARDWARE.
- THE INSTALLATION OF ALL CONDUIT, WIRING, JUNCTION BOXES, TERMINATIONS, CARD READERS AND DEVICES SHALL BE COORDINATED BETWEEN THE ELECTRICAL, SECURITY AND DOOR HARDWARE CONTRACTORS PRIOR TO INSTALLATION.
- POWER SUPPLIES SHALL BE LOCATED IN READILY ACCESSIBLE LOCATION AT NEAREST NETWORK CLOSET, NOT ABOVE CEILINGS.

**2** DETAIL - EXTERIOR SINGLE DOORS W/CRAH BAR  
NOT TO SCALE



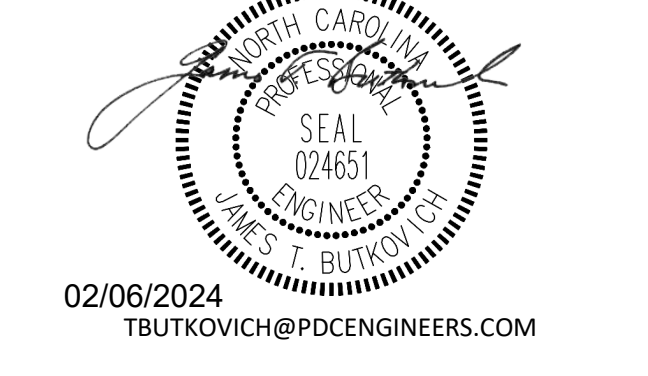
**GENERAL NOTES:**

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- THE INSTALLATION OF ALL CONDUIT, WIRING, JUNCTION BOXES, TERMINATIONS, CARD READERS AND DEVICES SHALL BE COORDINATED BETWEEN THE ELECTRICAL, SECURITY AND DOOR HARDWARE CONTRACTORS PRIOR TO INSTALLATION.
- POWER SUPPLIES SHALL BE LOCATED IN READILY ACCESSIBLE LOCATION AT NEAREST NETWORK CLOSET, NOT ABOVE CEILINGS.
- THIS DOOR DETAIL IS A GENERAL DETAIL AND DOES NOT REFLECT THE ACTUAL DOOR PROVIDED. THE CONTRACTORS SHALL COORDINATE WITH ALL APPLICABLE TRADES.

**1** DETAIL - EXTERIOR DOUBLE DOORS W/CRAH BARS  
NOT TO SCALE

**COOPER ACADEMY**  
A & R  
PROJECT TITLE

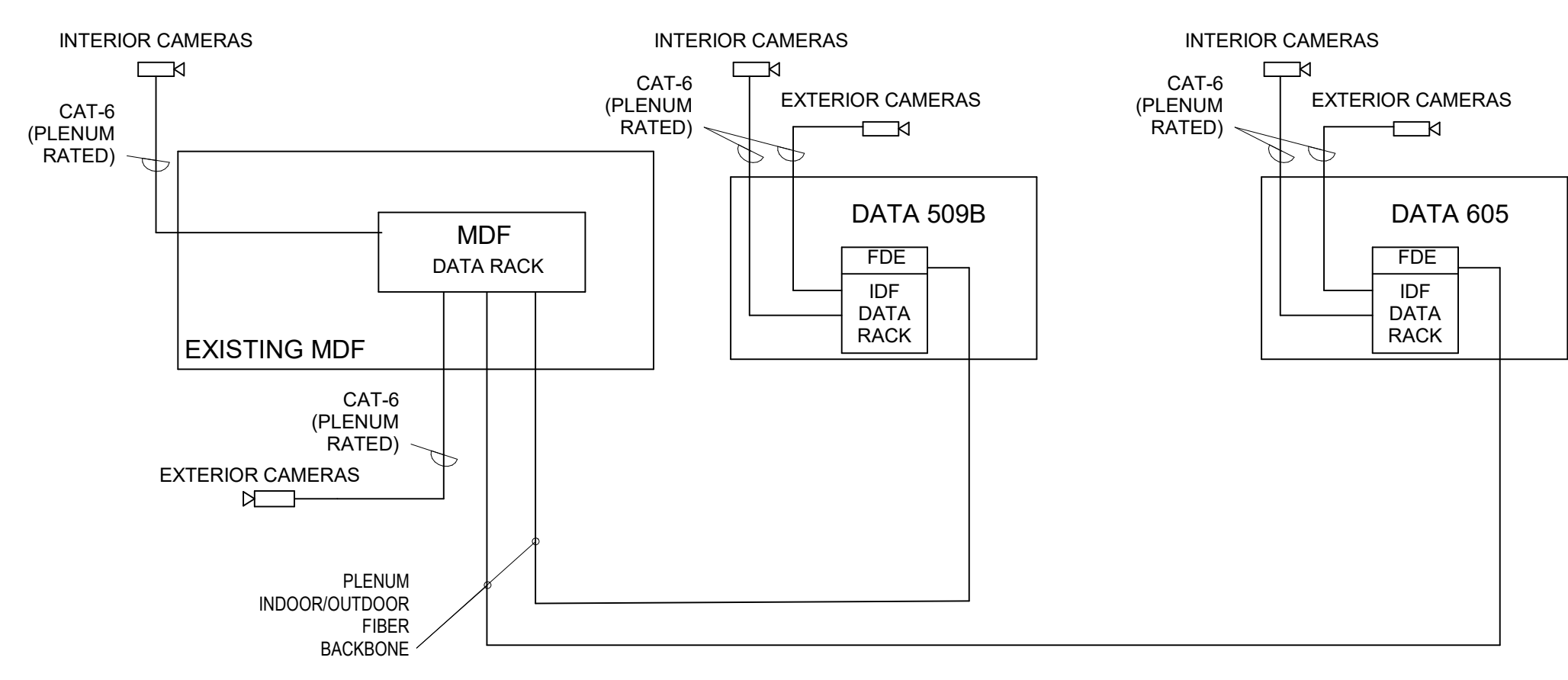
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**2** DETAIL - CAMERA SYSTEM RISER  
NOT TO SCALE

**GENERAL NOTES:**

- A. QUANTITY AND LOCATIONS AS SHOWN ON PLANS.
- B. ALL CAMERA EQUIPMENT INCLUDING: CAMERAS, MOUNTS, FINAL CONNECTIONS, PROGRAMMING, LABELING OF ALL CAMERAS ON SERVER AND SYSTEM TESTING SHALL BE PROVIDED BY THE OWNER'S SECURITY CONTRACTOR. THE VIDEO SERVER SHALL BE PROVIDED AND INSTALLED BY JCSS IT DEPARTMENT.
- C. ALL CAMERA LOCATIONS SHALL BE COORDINATED WITH (JCSS) SECURITY DEPARTMENT PRIOR TO ROUGH-IN.
- D. SEE SPECIFICATION 28 23 00.
- E. ALL CAT-6 CABLES FOR THE CAMERA SYSTEM SHALL HAVE GREEN JACKET. THESE CABLES SHALL BE TERMINATED ON THEIR OWN DESIGNATED PATCH PANELS. COORDINATE CLOSELY FOR ARRANGEMENTS AND LABELING. ALL POE SWITCHES SHALL BE OWNER PROVIDED. ALL CABLING SHALL BE TESTED AND DOCUMENTED UNDER THE REQUIREMENTS OF THE DIVISION 27 SPECIFICATIONS. PATCH CABLES AT PATCH PANEL END AND SMB CONNECTOR END SHALL BE GREEN AND PROVIDED BY DIVISION 27 CONTRACTOR.
- F. RJ45 CONNECTOR & SMB SHALL BE PLACED AT CAMERA END BY STRUCTURED WIRING CONTRACTOR FOR OWNER'S SECURITY CONTRACTOR TO MAKE FINAL CONNECTIONS.
- G. CAMERA DATA CABLES SHALL MEET DATA CABLE LENGTH REQUIREMENTS IN SPECIFICATIONS 271000. IF LENGTH IS EXCEEDED, CABLE SHALL BE REPULLED WITH SHORTER LENGTH AT NO ADDITIONAL COST TO OWNER.
- H. ASBUILT DRAWINGS SHALL IDENTIFY ALL CAMERA LOCATIONS.
- I. REFER TO DATA RISER DETAIL ON THIS SHEET FOR FIBER BACKBONE QUANTITIES.
- J. CLOSE COORDINATION IS REQUIRED BETWEEN DIVISIONS 26, 27 AND OWNER'S SECURITY CAMERA CONTRACTOR PRIOR TO COMMENCING WORK. A PRE-INSTALLATION MEETING IS REQUIRED.

**GENERAL NOTES:**

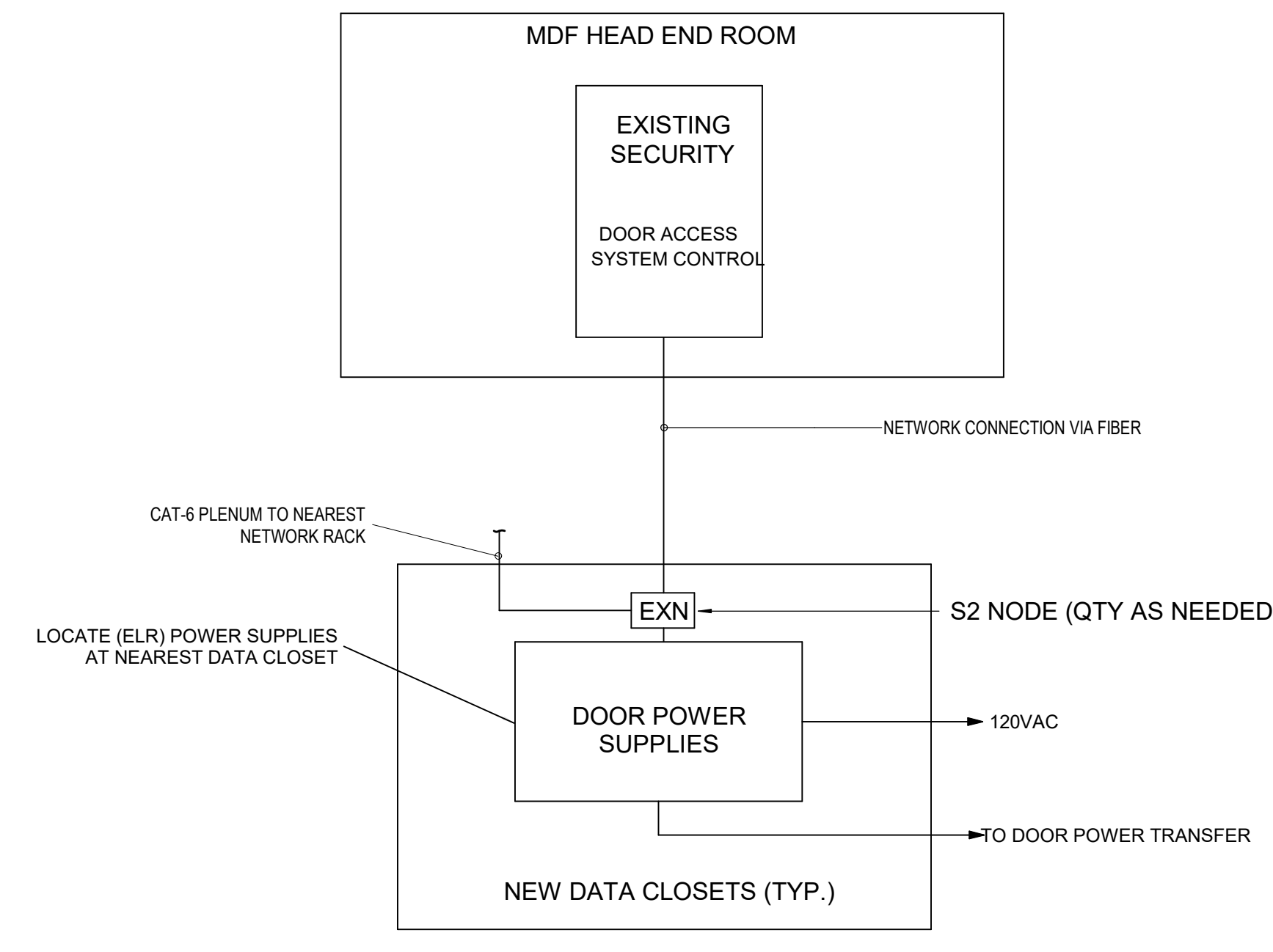
- A. REFER TO SPECIFICATION 271000.
- B. PLENUM RATED WIRING SHALL BE PROVIDED IN ACCORDANCE WITH THE APPLICABLE EIA/TIA REQUIREMENTS.
- C. CONFIRM CORRECTNESS OF ALL ROOM NUMBERS WITH ARCHITECT PRIOR TO LABELLING.
- D. A PRE-PLANNING MEETING SHALL TAKE PLACE PRIOR TO ANY TELECOMMUNICATIONS WORK BEING PERFORMED.
- E. ALL INSTALLATION WORK SHALL BE NEAT. CONTRACTORS SHALL NOT USE TIE WRAPS WHEN SUPPORTING CABLES.
- F. CAT-6 BRIDAL RINGS WITH SADDLES PLENUM RATED SHALL BE UTILIZED ROUTING CABLES.
- G. ALL RACKS SHALL BE GROUNDED VIA #6 AWG INSULATED GROUND TO TELECOM GROUND BARS.
- H. ANY CABLES THAT ARE ROUTED IN HALLWAYS SHALL BE ACCESSIBLE SO THAT THEY ARE NOT MORE THAN 10'-0" AFF. OR 12" ABOVE ACCESSIBLE CEILING.
- I. PROVIDE 18" WIDE CABLE RUNWAY ABOVE RACKS IN ALL DATA ROOMS AND 18"x4" BASKET TRAY ABOVE ACCESSIBLE LAY-IN CEILINGS IN CORRIDORS.

**RISER KEYNOTES:**

- 1. 24 STRAND 50 MICRON OM3 AQUA (PLENUM RATED) MULTI-MODE FIBER CABLE ROUTED IN 1 1/4" PLENUM RATED INNER DUCT.
- 2. PROVIDE NEW FIBER PATCH PANELS AT EXISTING MDF TO ACCOMMODATE NEW FIBER BACKBONE CABLES.

**FIBER BACK BONE CABLES**

| FLOOR         | ROOM # | # OF FIBER CONDUCTORS | TERMINATION      |
|---------------|--------|-----------------------|------------------|
| GROUND        | 605    | 24                    | EXIST MDF-RMC05G |
| FIRST         | 509B   | 24                    | EXIST MDF-RMC05G |
| TOTAL FIBERS: |        | 48                    |                  |



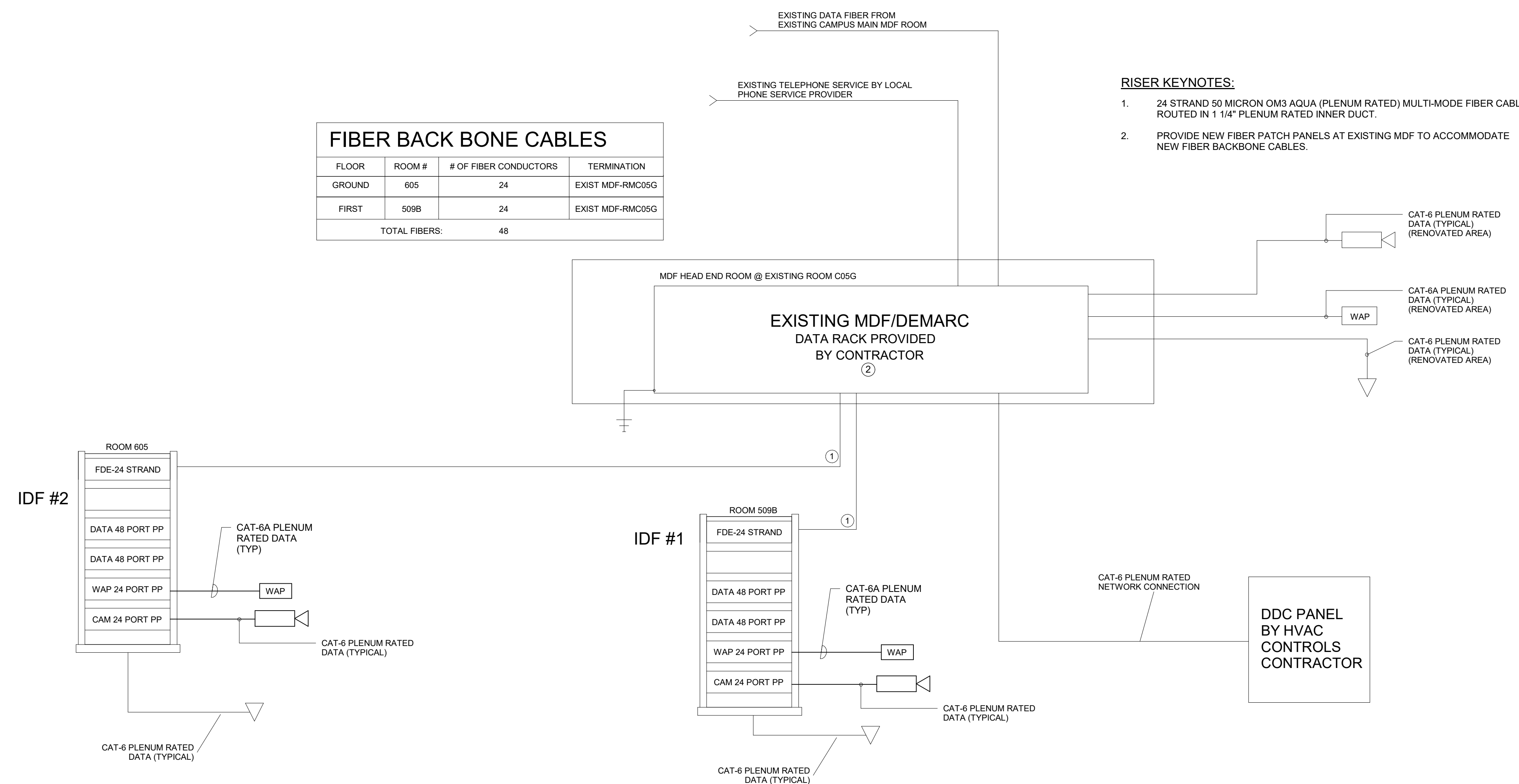
**CARD READER SCHEDULE**

| CARD READER# | DOOR LOCATION            |
|--------------|--------------------------|
| CR#1         | GROUND FLOOR             |
| CR#2         | FIRST FLOOR              |
| CR#3         | FIRST FLOOR              |
| CR#4         | FIRST FLOOR              |
| CR#5         | FIRST FLOOR              |
| CR#6         | CONNECTOR (ALTERNATE #2) |
| CR#7         | CONNECTOR (ALTERNATE #2) |
| CR#8         | CONNECTOR (ALTERNATE #2) |

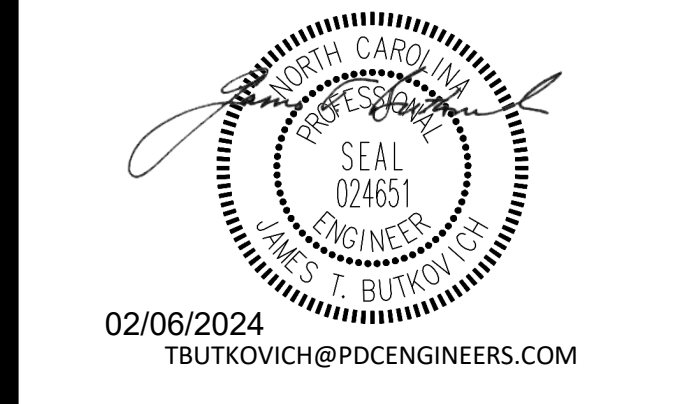
**GENERAL NOTES:**

- A. REFER TO SPECIFICATION 281300.
- B. ALL WORK SHALL BE COORDINATED BETWEEN OWNER, ARCHITECT, ELECTRICAL CONTRACTOR, ACCESS CONTROL CONTRACTOR AND DOOR HARDWARE CONTRACTOR PRIOR TO ROUGH-IN. A PRE-INSTALLATION MEETING SHALL OCCUR PRIOR TO INSTALLATION.
- C. REFER TO DOOR HARDWARE SPECIFICATIONS.
- D. THE SYSTEM SHALL BE 100% COMPLETE AND OPERATIONAL UPON COMPLETION OF PROJECT.
- E. AS-BUILT DRAWINGS SHALL BE SUBMITTED AS PART OF O&M MANUALS.
- F. POWER SUPPLIES SHALL BE LOCATED AT IDF CLOSETS AS REQUIRED FOR EASE OF MAINTENANCE BY JOHNSTON COUNTY SCHOOLS SECURITY.
- G. ALL 120VAC POWER THAT IS REQUIRED FOR SYSTEM SHALL BE COORDINATED AND PROVIDED AND INSTALLED BY THE ELECTRICAL CONTRACTOR.
- H. DOOR DETAILS E505/02 ARE FOR REFERENCE ONLY. THE INSTALLATION REQUIREMENTS SHALL BE AS PER DOOR HARDWARE REQUIREMENTS. CARD READERS, STRIKES, POWER SUPPLIES, REX MOTIONS AND ASSOCIATED CONDUIT AND WIRING SHALL BE COORDINATED CLOSELY BETWEEN TRADES.
- I. CARD READERS MOUNTED IN SINGLE GANG BOX WITH 3/4" CONDUIT TO JUNCTION BOX AND/OR CEILING VOID. \*COORDINATE CLOSELY\*.
- J. COORDINATE WITH JOHNSTON COUNTY SCHOOLS PREFERRED S2 SECURITY SUPPLIER. REFER TO ARCHITECT'S ALTERNATES SECTION 01 23 00.
- K. WIRING SHALL BE PLENUM RATED.

**3** DETAIL - DOOR ACCESS RISER  
NOT TO SCALE



**1** DATA RISER DIAGRAM  
NOT TO SCALE



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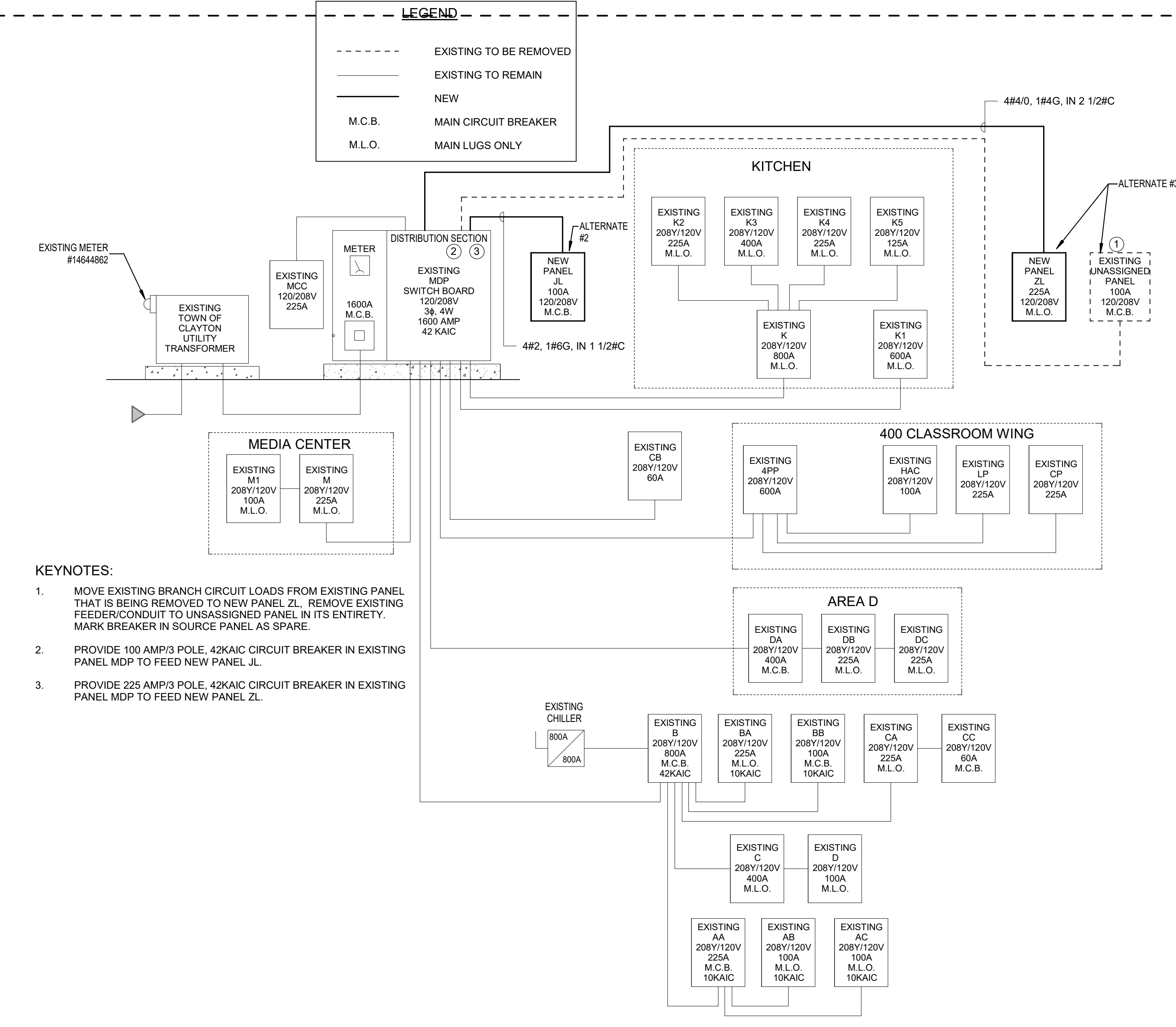
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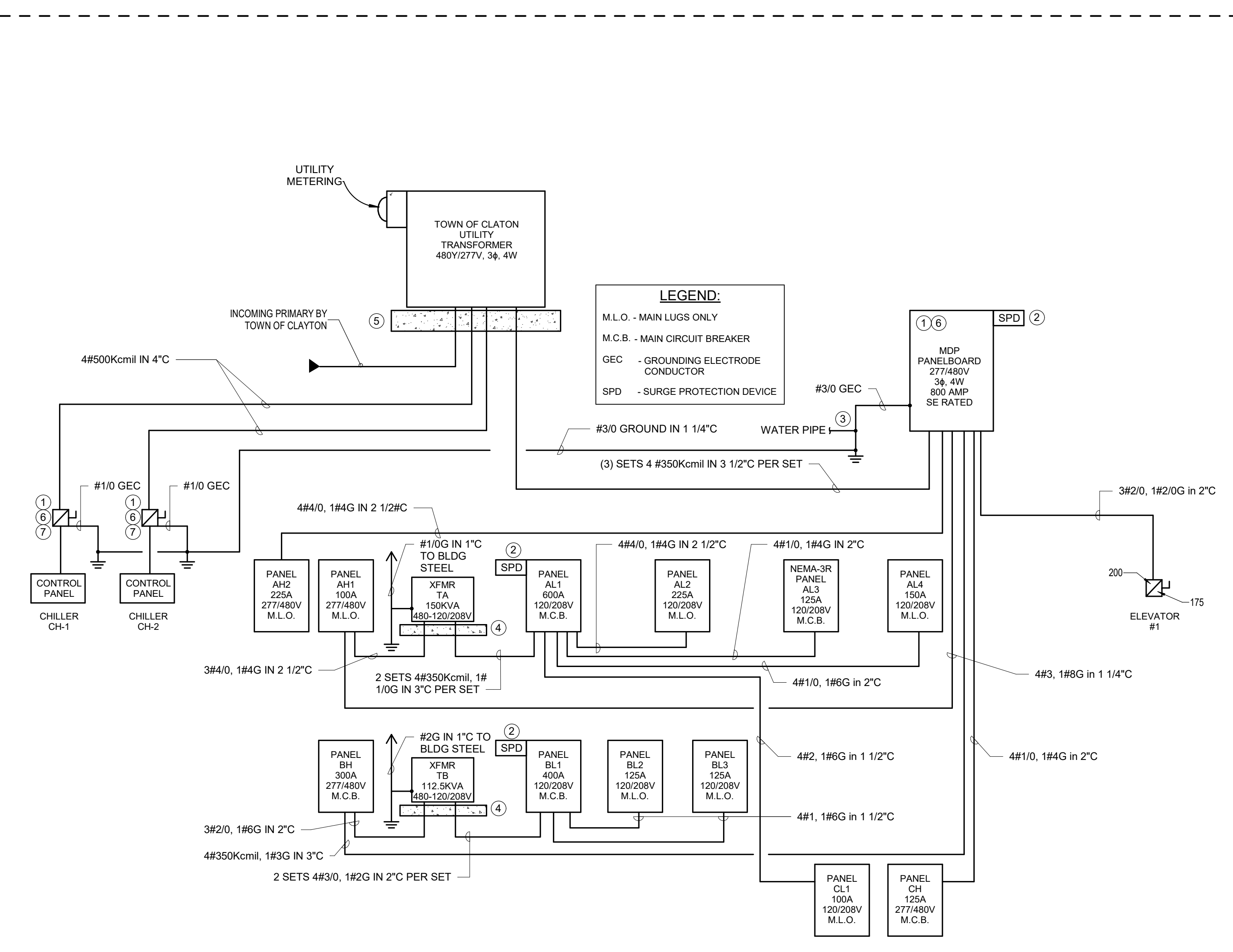
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**DATA/IT RISER**  
DIAGRAM  
SHEET TITLE

**E506**  
SHEET



1 EXISTING POWER RISER DIAGRAM  
NOT TO SCALE



- KEYNOTES:**
1. PROVIDE MAXIMUM FAULT CURRENT PLACARD AS PER NEC 110.24.
  2. PROVIDE SURGE PROTECTIVE DEVICE (SPD). REFER TO SPECIFICATIONS.
  3. REFER TO SERVICE GROUNDING DETAIL E502/2.
  4. PROVIDE 4" HIGH REINFORCED HOUSEKEEPING PAD, COORDINATE SIZE WITH EQUIPMENT SUBMITTAL.
  5. PROVIDE 2500PSI CONCRETE PAD FOR UTILITY TRANSFORMER. COORDINATE FINAL SIZE AND OPENINGS WITH TOWN OF CLAYTON UTILITIES.
  6. PROVIDE SERVICE PLACARD AS PER NEC 225.37.
  7. PROVIDE 400A/3P, 600V, N3R FUSIBLE DISCONNECT SWITCH. SERVICE ENTRANCE RATED MOUNTED ON GALVANIZED STEEL ANGLE/UNISTRUT RACK EMBEDDED IN CONCRETE.

2 POWER RISER  
NOT TO SCALE

**NEW SERVICE LOAD SUMMARY**

|                             | CONNECTED KVA | TOTAL DIVERSITY              | DEMAND KVA  |
|-----------------------------|---------------|------------------------------|-------------|
| MISCELLANEOUS               | 24.32         | x1.0                         | 24.32       |
| LIGHTING                    | 16.63         | x1.25                        | 20.79       |
| MOTORS                      | 82.55         | x1.0                         | 82.55       |
| HVAC                        | 82.13         | x1.0                         | 82.13       |
| GENERAL PURPOSE RECEPTACLES | 25.4          | { 10.0 x 1.0<br>15.4 x 0.5 } | 10.0<br>7.7 |
| CHILLER 1                   | 172.017       | x1.0                         | 172.017     |
| CHILLER 2                   | 172.017       | x1.0                         | 172.017     |
|                             | 575.064       |                              | 571.524     |

$I = \frac{571.524 \times (1000)}{480 \times \sqrt{3}} = 688 \text{ AMPS}$

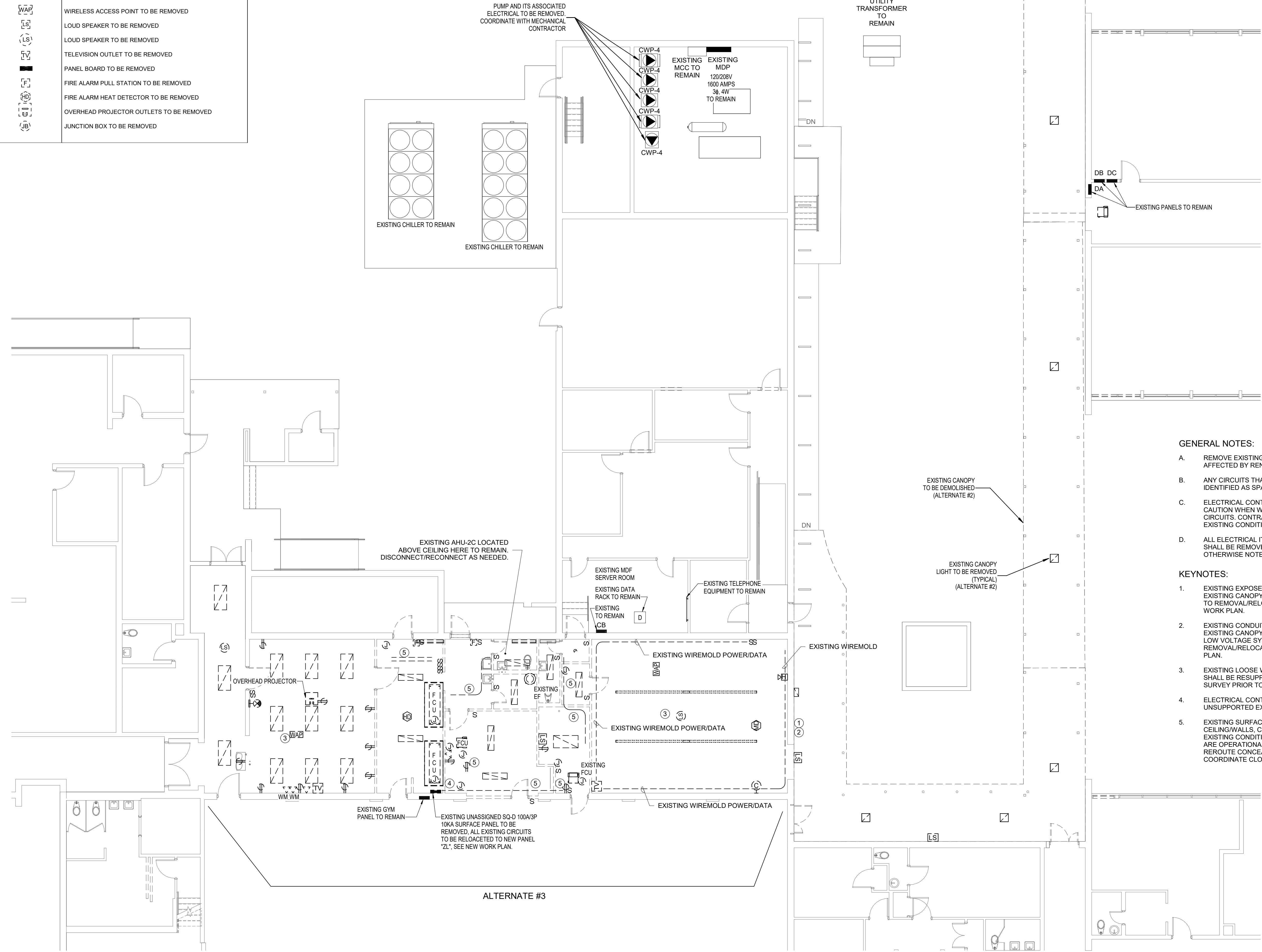
**EXISTING 1600 AMP SERVICE LOAD SUMMARY**  
TOWN OF CLAYTON PEAK DEAND: 305KW (358 KVA) X 1.25 = 450 KVA (1250A)

|                                     | CONNECTED KVA | TOTAL DIVERSITY | DEMAND KVA |
|-------------------------------------|---------------|-----------------|------------|
| LIGHTING LOAD REMOVED               | (-0.96)       | x1.25           | (-1.2)     |
| LIGHTING LOAD ADDED                 | 3.83          | x1.25           | 4.79       |
| HVAC LOAD REMOVED                   | (-1.38)       | x1.0            | (-1.38)    |
| HVAC LOAD ADDED                     | 14.21         | x1.0            | 14.21      |
| GENERAL PURPOSE RECEPTACLES REMOVED | (-3.96)       | x1.0            | (-3.96)    |
| GENERAL PURPOSE RECEPTACLES ADDED   | 9.18          | x1.0            | 9.18       |
| KITCHEN LOAD ADDED                  | 4.2           | x1.0            | 4.2        |
| OTHER LOADS ADDED                   | 8.62          | x1.0            | 8.62       |
|                                     | 33.74         |                 | 34.46      |

$I = \frac{34.46 \times (1000)}{208 \times \sqrt{3}} = 95.7 \text{ AMPS ADDED TO EXISTING 1600 AMP SERVICE}$

**DEMOLITION SYMBOL LEGEND**

| SYMBOL | DESCRIPTION                              |
|--------|--|
|        | LIGHT FIXTURE TO BE REMOVED              |
|        | LIGHT FIXTURE TO BE REMOVED              |
|        | LIGHT FIXTURE TO BE REMOVED              |
|        | LIGHT FIXTURE TO BE REMOVED              |
|        | CANOPY LIGHT FIXTURE TO BE REMOVED       |
|        | EXIT LIGHT FIXTURE TO BE REMOVED         |
|        | LIGHT SWITCH TO BE REMOVED               |
|        | CONDUIT/WIRING TO BE REMOVED             |
|        | WIREFORM TO BE REMOVED                   |
|        | RECEPTACLE TO BE REMOVED                 |
|        | WIRELESS ACCESS POINT TO BE REMOVED      |
|        | LOUD SPEAKER TO BE REMOVED               |
|        | LOUD SPEAKER TO BE REMOVED               |
|        | TELEVISION OUTLET TO BE REMOVED          |
|        | PANEL BOARD TO BE REMOVED                |
|        | FIRE ALARM PULL STATION TO BE REMOVED    |
|        | FIRE ALARM HEAT DETECTOR TO BE REMOVED   |
|        | OVERHEAD PROJECTOR OUTLETS TO BE REMOVED |
|        | JUNCTION BOX TO BE REMOVED               |



- GENERAL NOTES:**
- REMOVE EXISTING WIREFORM IN AREAS AFFECTED BY RENOVATION.
  - ANY CIRCUITS THAT BECAME UNUSED SHALL BE IDENTIFIED AS SPARE AT PANELS.
  - ELECTRICAL CONTRACTOR SHALL TAKE CAUTION WHEN WORKING ON ENERGIZED CIRCUITS. CONTRACTOR SHALL SURVEY EXISTING CONDITIONS PRIOR TO PERFORMING.
  - ALL ELECTRICAL ITEMS SHOWN AS DASHED SHALL BE REMOVED IN THEIR ENTIRETY UNLESS OTHERWISE NOTED.
- KEYNOTES:**
- EXISTING EXPOSED WIRING ON TOP OF EXISTING CANOPY SHALL BE IDENTIFIED PRIOR TO REMOVAL/RELOCATION. REFER TO NEW WORK PLAN.
  - EXISTING CONDUIT ROUTED ON TOP OF EXISTING CANOPY SHALL BE IDENTIFIED FOR LOW VOLTAGE SYSTEM CONTAINED PRIOR TO REMOVAL/RELOCATION. REFER TO NEW WORK PLAN.
  - EXISTING LOOSE WIRING ABOVE CEILINGS SHALL BE RESUPPORTED. CONTRACTOR SHALL SURVEY PRIOR TO BID.
  - ELECTRICAL CONTRACTOR SHALL RESUPPORT UNSUPPORTED EXISTING FLEXIBLE CONDUIT.
  - EXISTING SURFACE MOUNTED CONDUITS ON CEILING WALLS. CONTRACTOR SHALL SURVEY EXISTING CONDITION. IF CONDUITS AND WIRING ARE OPERATIONAL, THEN CONTRACTOR SHALL REROUTE CONCEALED AS PART OF PROJECT. COORDINATE CLOSELY WITH ARCHITECT.



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- DO NOT SCALE OFF DIMENSIONS.

**REVISIONS**

| NO. | DATE | DESCRIPTION |
|-----|------|-------------|
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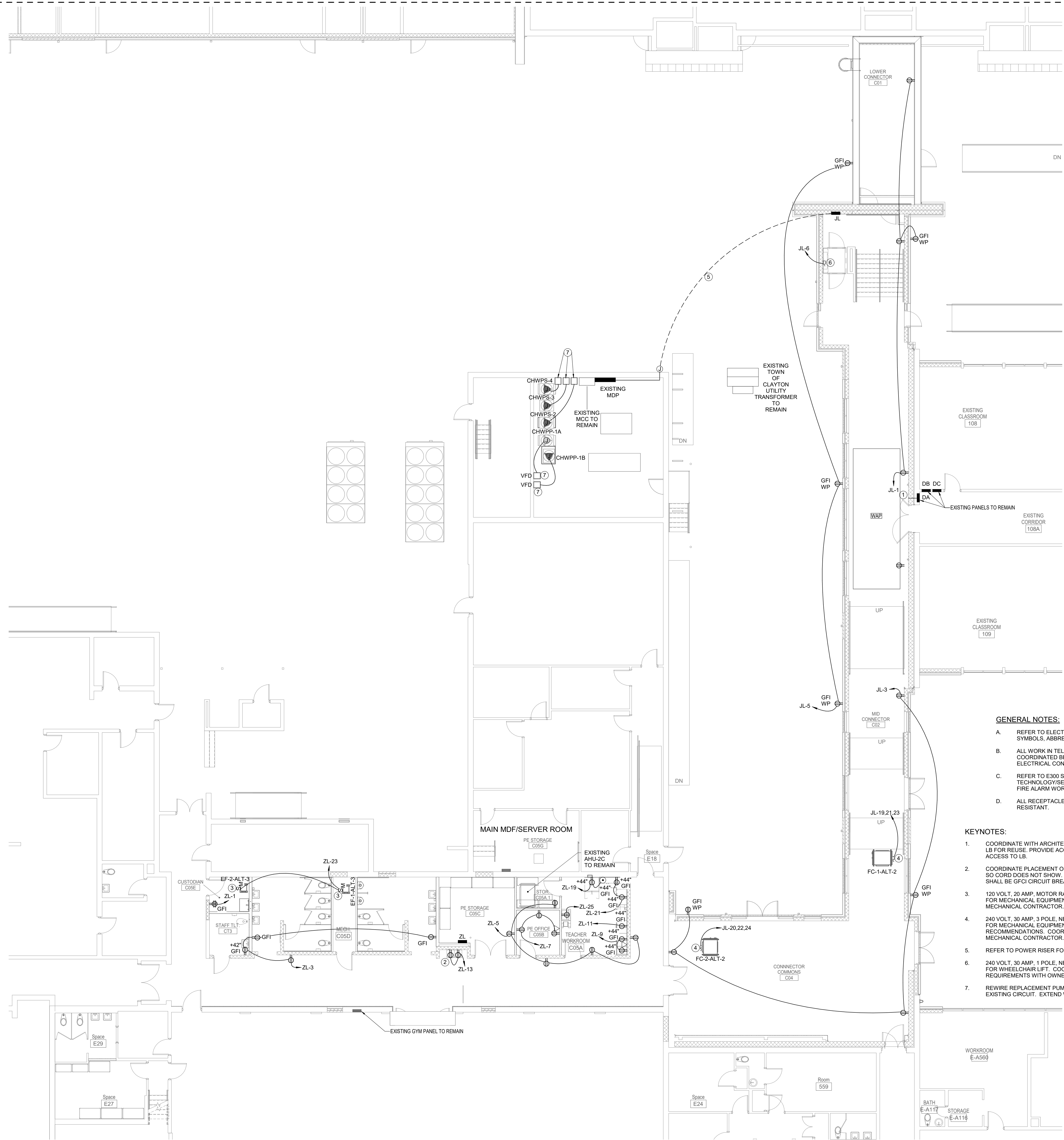
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PROJECT PHASE

**2307**  
BOOMERANG DESIGN PROJECT NUMBER

**02.07.2024**  
DRAWING RELEASE DATE

**ALT. 2 CONNECTOR &  
ALT. 3 CORRIDOR  
RENOVATION -  
ELECTRICAL DEMO**  
SHEET TITLE

**E700**



- GENERAL NOTES:**
- REFER TO ELECTRICAL LEAD SHEET E001 FOR SYMBOLS, ABBREVIATIONS AND NOTES.
  - ALL WORK IN TELECOM ROOMS SHALL BE COORDINATED BETWEEN DIVISION 27, 28 AND ELECTRICAL CONTRACTOR PRIOR TO ROUGH-IN.
  - REFER TO E300 SERIES FOR TECHNOLOGY/SECURITY AND E400 SERIES FOR FIRE ALARM WORK IN THIS AREA.
  - ALL RECEPTACLES SHALL BE TAMPER RESISTANT.
- KEYNOTES:**
- COORDINATE WITH ARCHITECT. PROTECT EXISTING CONDUIT AND LB FOR REUSE. PROVIDE ACCESS PANEL IN NEW WALL TO GAIN ACCESS TO LB.
  - COORDINATE PLACEMENT OF RECEPTACLES FOR WATER COOLER, SO CORD DOES NOT SHOW. CIRCUIT THAT SERVES WATER COOLER SHALL BE GFCI CIRCUIT BREAKER.
  - 120 VOLT, 20 AMP, MOTOR RATED TOGGLE DISCONNECT SWITCH FOR MECHANICAL EQUIPMENT. COORDINATE FINAL LOCATION WITH MECHANICAL CONTRACTOR.
  - 240 VOLT, 30 AMP, 3 POLE, NEMA-1, FUSIBLE DISCONNECT SWITCH FOR MECHANICAL EQUIPMENT. FUSE PER MANUFACTURER'S RECOMMENDATIONS. COORDINATE EXACT LOCATION WITH MECHANICAL CONTRACTOR.
  - REFER TO POWER RISER FOR CONDUIT AND WIRE SIZE.
  - 240 VOLT, 30 AMP, 1 POLE, NEMA-1 FUSIBLE DISCONNECT SWITCH FOR WHEELCHAIR LIFT. COORDINATE EXACT LOCATION AND REQUIREMENTS WITH OWNER/LIFT PROVIDER.
  - REWIRE REPLACEMENT PUMPS. CONNECT TO NEW VFD USING EXISTING CIRCUIT. EXTEND WIRING/CONDUIT AS NEEDED.

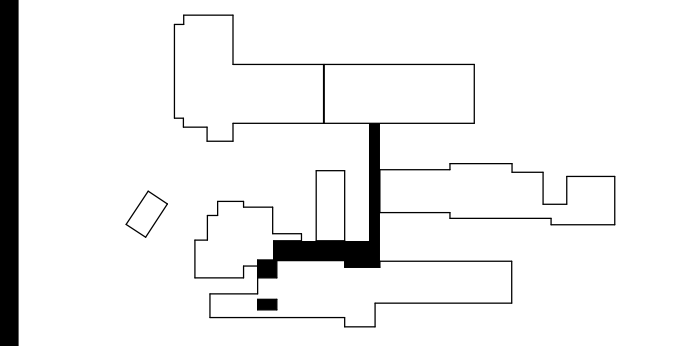
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PROJECT #23015

**COOPER ACADEMY  
A & R**  
PROJECT TITLE

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**REVISIONS**

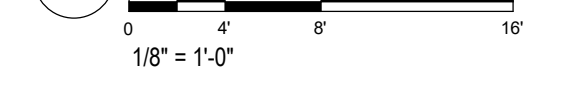
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**BID SET**  
PROJECT PHASE  
**2307**  
BOOMERANG DESIGN PROJECT NUMBER  
**02.07.2024**  
DRAWING RELEASE DATE

**ALT. 2 CONNECTOR &  
ALT. 3 CORRIDOR  
RENOVATION -  
POWER PLAN**  
SHEET TITLE

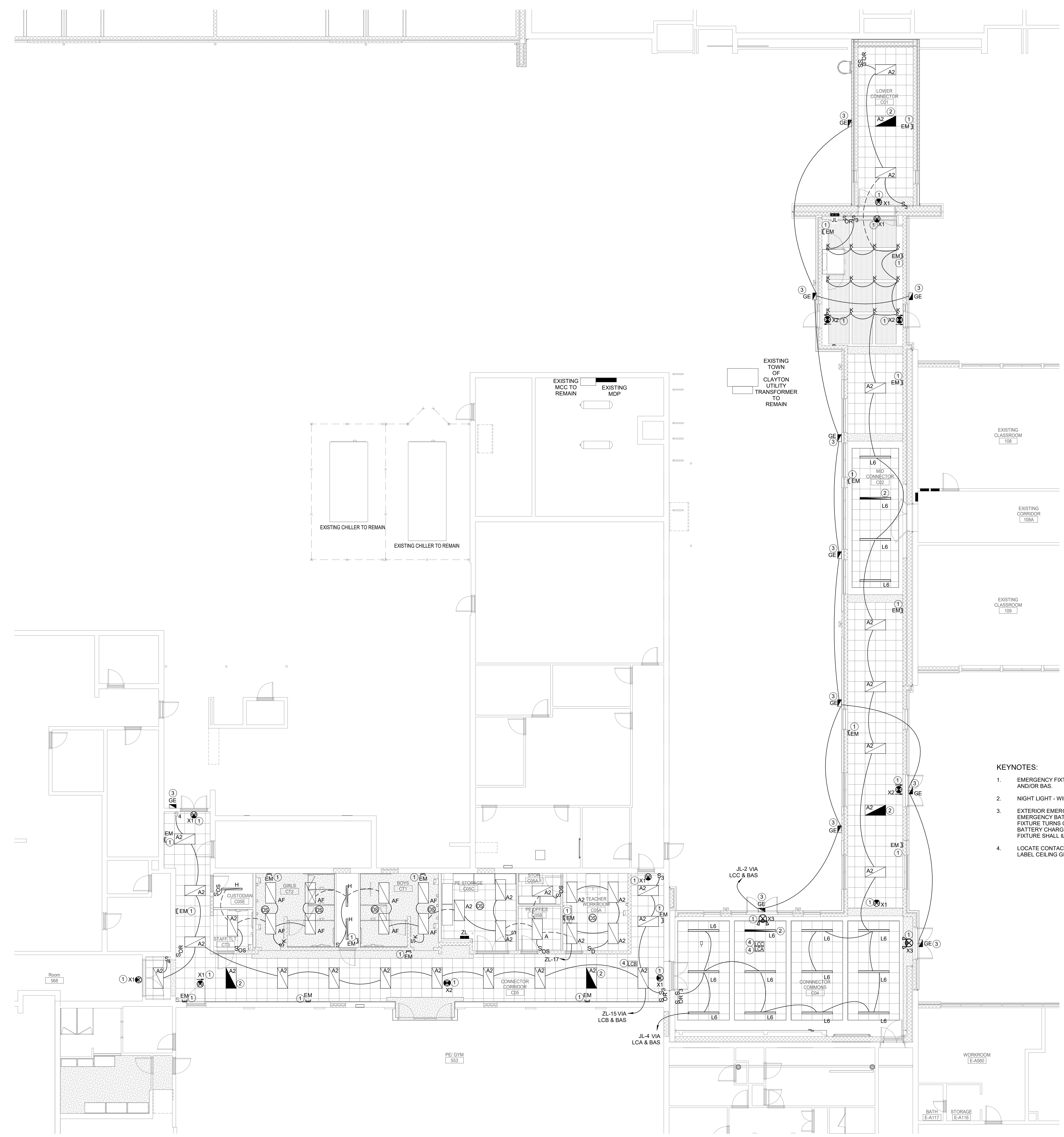
**E701**  
SHEET

1 ALT. 2 CONNECTOR ADDITION & ALT. 3 CORRIDOR RENOVATION - POWER



PE/ GYM  
559

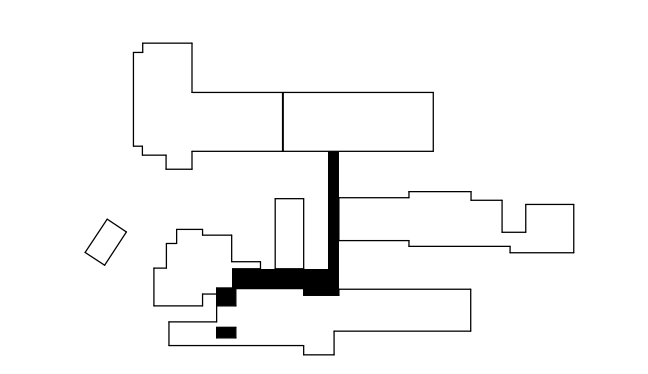
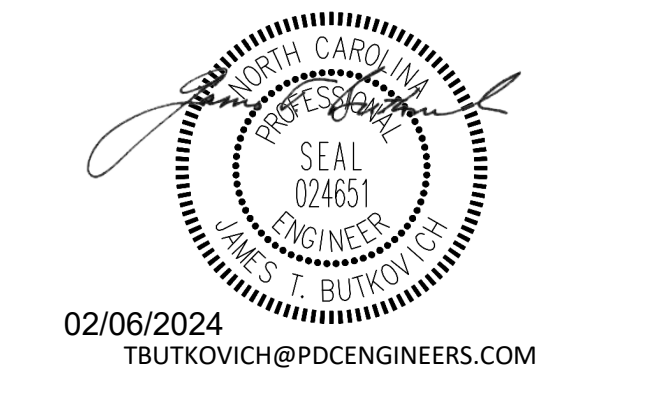
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- KEYNOTES:**
- EMERGENCY FIXTURE - WIRE AHEAD OF SWITCHES AND/OR BAS.
  - NIGHT LIGHT - WIRE AHEAD OF SWITCHES AND/OR BAS.
  - EXTERIOR EMERGENCY FIXTURE WITH INTERNAL EMERGENCY BATTERY BACK-UP. WIRE FIXTURE SO FIXTURE TURNS ON/OFF WITH BAS, BUT MAINTAINS BATTERY CHARGE. UPON LOSS OF NORMAL POWER, FIXTURE SHALL ILLUMINATE.
  - LOCATE CONTACTORS ABOVE ACCESSIBLE CEILING, LABEL CEILING GRID RUNNER INDICATING "LCF ABOVE"

**COOPER ACADEMY**  
**A & R**  
PROJECT TITLE

"CLIENT'S PROJECT" # - XXX



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**REVISIONS**

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BOOMERANG DESIGN PROJECT NUMBER  
**02.07.2024**  
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**ALT. 2 CONNECTOR & ALT. 3 CORRIDOR RENOVATION - LIGHTING PLAN**  
SHEET TITLE

**E702**  
SHEET

1 ALT. 2 CONNECTOR ADDITION & ALT. 3 CORRIDOR RENOVATION - CEILING PLAN - LIGHTING  
1/8" = 1'-0"

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**CAT. 6 PLENUM CABLE SCHEDULE**

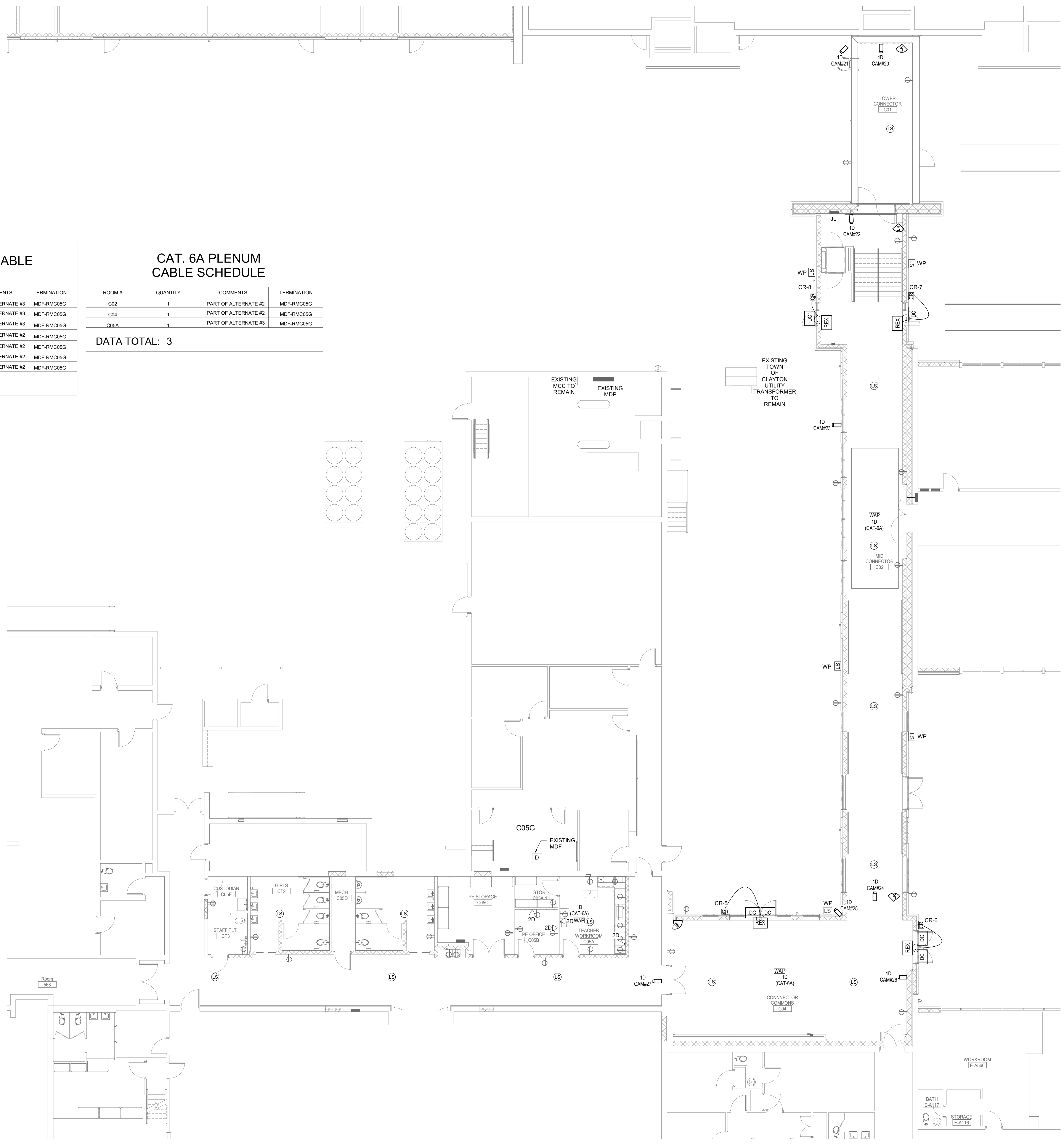
| ROOM #   | QUANTITY | COMMENTS             | TERMINATION |
|----------|----------|----------------------|-------------|
| C05B     | 4        | PART OF ALTERNATE #3 | MDF-RMC05G  |
| C05A     | 4        | PART OF ALTERNATE #3 | MDF-RMC05G  |
| C05      | 1 (CAM5) | PART OF ALTERNATE #3 | MDF-RMC05G  |
| C04      | 1 (CAM5) | PART OF ALTERNATE #2 | MDF-RMC05G  |
| C02      | 2 (CAM5) | PART OF ALTERNATE #2 | MDF-RMC05G  |
| C01      | 1 (CAM)  | PART OF ALTERNATE #2 | MDF-RMC05G  |
| EXTERIOR | 3 (CAM5) | PART OF ALTERNATE #2 | MDF-RMC05G  |

DATA TOTAL: 16

**CAT. 6A PLENUM CABLE SCHEDULE**

| ROOM # | QUANTITY | COMMENTS             | TERMINATION |
|--------|----------|----------------------|-------------|
| C02    | 1        | PART OF ALTERNATE #2 | MDF-RMC05G  |
| C04    | 1        | PART OF ALTERNATE #2 | MDF-RMC05G  |
| C05A   | 1        | PART OF ALTERNATE #3 | MDF-RMC05G  |

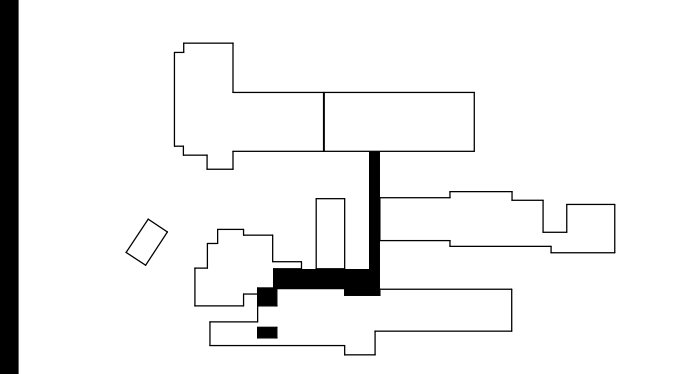
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1 ALT. 2 CONNECTOR ADDITION & ALT. 3 CORRIDOR RENOVATION - TECHNOLOGY

1/8" = 1'-0"

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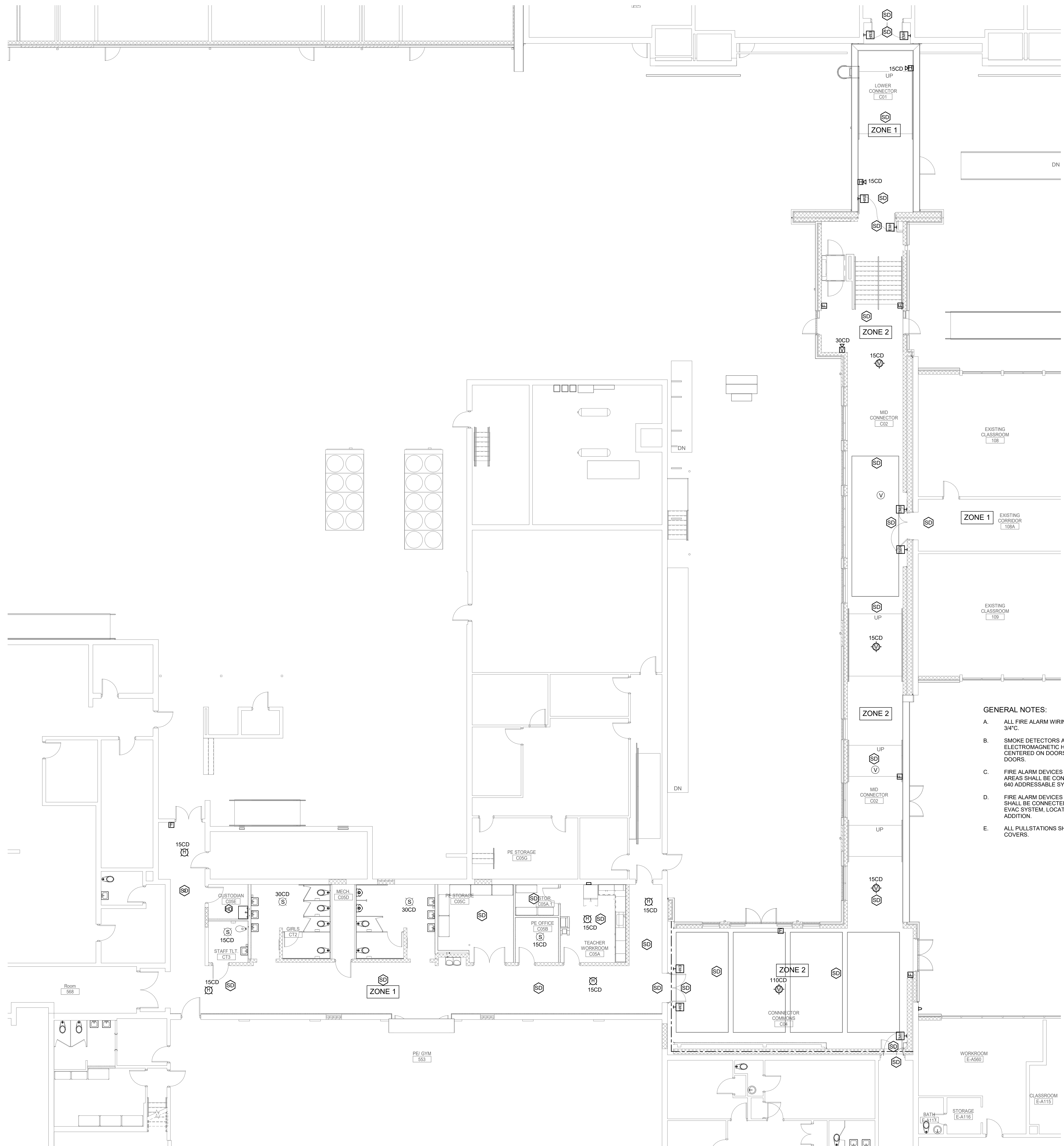
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PROJECT PHASE  
**2307**  
BOOMERANG DESIGN PROJECT NUMBER  
**02.07.2024**  
DRAWING RELEASE DATE

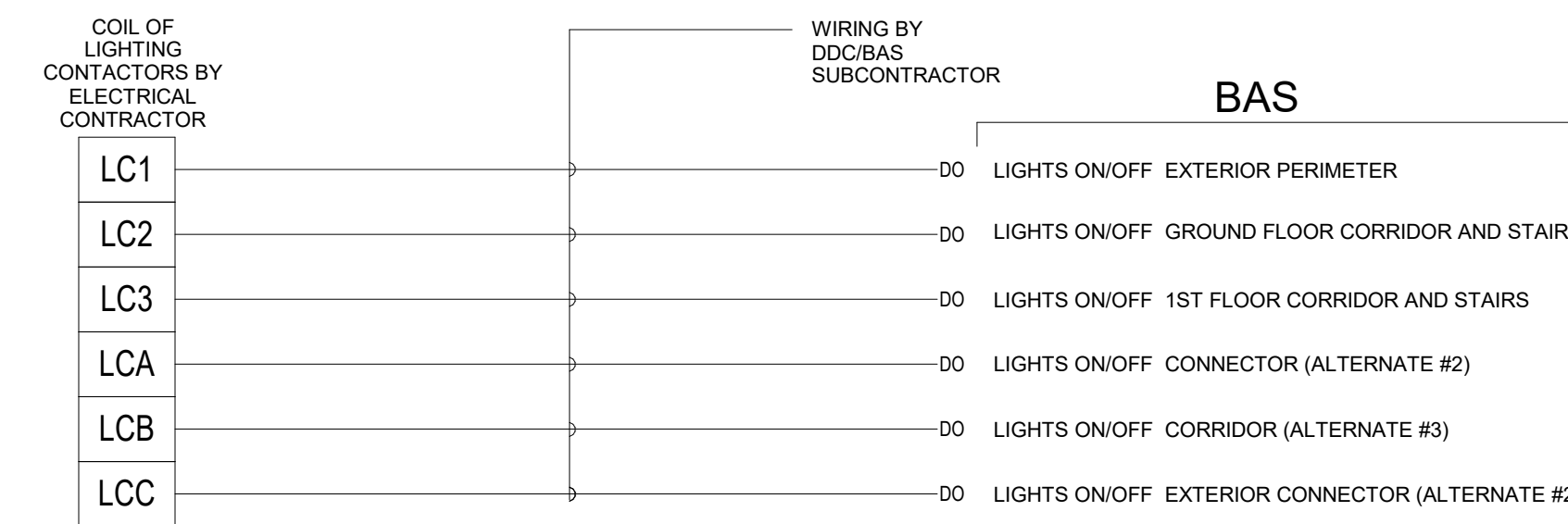
**ALT. 2 CONNECTOR & ALT. 3 CORRIDOR RENOVATION - TECHNOLOGY PLAN**  
SHEET TITLE



1 ALT. 2 CONNECTOR ADDITION & ALT. 3 CORRIDOR RENOVATION - FIRE ALARM  
1/8" = 1'-0"

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| COOPER ACADEMY LIGHTING FIXTURE SCHEDULE |                            |                          |       |  |                      |   |                                    |       |
|--|----------------------------|--------------------------|-------|--|----------------------|---|------------------------------------|-------|
| MARK                                     | SIZE                       | MOUNTING                 | VOLT  | MANUFACTURER AND MODEL NO.   | EQUALS               | DESCRIPTION   | LAMP                               | WATTS |
| A  | 2'W X 4'L X 5'D            | RECESSED                 | MVOLT | COLUMBIA #LJT24-40-HL-G-FS-A12125-ED1-U                              | WILLIAMS, LITHONIA   | 2' X 4' LED LAY-IN, 0-10V (DIM TO 1%), 125° LENS, 80CRI   | 4000K LED<br>5526 LUMENS           | 45    |
| A1                                       | 1'W X 4'L X 5'D            | RECESSED                 | MVOLT | COLUMBIA #LJT14-40-ML-G-FS-A12125-ED1-U                              | WILLIAMS, LITHONIA   | 1' X 4' LED LAY-IN, 0-10V (DIM TO 1%), 125° LENS, 80CRI   | 4000K LED<br>4834 LUMENS           | 38    |
| A2                                       | 2'W X 4'L X 5'D            | RECESSED                 | MVOLT | COLUMBIA #LJT24-40-ML-G-FS-A12125-ED1-U                              | WILLIAMS, LITHONIA   | 2' X 4' LED LAY-IN, 0-10V (DIM TO 1%), 125° LENS, 80CRI   | 4000K LED<br>4792 LUMENS           | 38    |
| AF                                       | 2'W X 4'L X 5'D            | RECESSED                 | MVOLT | COLUMBIA #LJT24-40-ML-G-FS-A12125-ED1-U-FK24                         | WILLIAMS, LITHONIA   | 2' X 4' LED LAY-IN, FLANG KIT, 0-10V (DIM TO 1%), 125° LENS, 80CRI  | 4000K LED<br>4792 LUMENS           | 38    |
| C  | 14"W X 48"L X 7"D          | SUSPENDED                | MVOLT | WILLIAMS #62-4-L64/840-VBY-CHAINS-DRV-UNV-WG-8214                    | COLUMBIA, LITHONIA   | 4' INDUSTRIAL LED CHAIN HUNG, WITH WIRE GUARD, 82CRI  | 4000K LED<br>6526 LUMENS           | 43    |
| DE                                       | 6" DIA                     | RECESSED                 | MVOLT | WILLIAMS #6DR-TL-L20-8-40-DIM-UNV-O-M-CS-N-WET/CC-EM10WRTS           | PRESCOLITE, LITHONIA | 6" RECESSED LED DOWNLIGHT, 80CRI, WITH 90 MINUTE BATTERY BACKUP AND REMOTE TEST SWITCH, WET LOCATION LISTED           | 4000K LED<br>2061 LUMENS           | 19    |
| E  | 6" DIA                     | RECESSED                 | MVOLT | WILLIAMS #6DR-TL-L10-8-40-DIM-UNV-O-M-CS-N                           | PRESCOLITE, LITHONIA | 6" RECESSED LED DOWNLIGHT, 80CRI  | 4000K LED<br>1000 LUMENS           | 16    |
| F  | 5-7/8"H X 48"L X 5-11/16"D | WALL                     | 277   | WILLIAMS #SLF-4-LS2-8-40-HIA-UNV                                     | COLUMBIA, LITHONIA   | 4' STAIRWELL LED LIGHT FIXTURE, K10 RATED, 16 GAUGE CRS, FROSTED HIGH IMPACT ACRYLIC LENS, 80CRI                      | 4000K LED<br>5092 LUMENS           | 38    |
| GE                                       | 8.5"H X 17"W X 10 3/4"D    | WALL                     | MVOLT | LITHONIA #WST-LED-P2-40K-VF-MVOLT-E20WH-SPECIAL COLOR (BY ARCHITECT) | DECO, GARDDCO        | LED EXTERIOR FULL CUT OFF WALL SCONCE, VANDAL RESISTANT, WET LABEL LISTED, 70CRI, 2500 LUMEN 90 MINUTE BATTERY BACKUP | 4000K LED<br>3469 LUMENS           | 25    |
| H  | 4'-0"L X 5.3"W X 2"D       | SURFACE                  | MVOLT | COLUMBIA #CNW4-LSCS  | WILLIAMS, LITHONIA   | 4' NARROW WRAP, SWITCHABLE, 0-10V DIMMABLE TO 10%, ACRYLIC LENS, CEILING OR WALL MOUNT                                | 4000K LED<br>4060 LUMENS           | 35    |
| JE                                       | 43"L X 3.6"H X 5.4"D       | MOUNTED ON MULLION       | MVOLT | LUMINAIRE #AEL-36IN-NODIM-30E-40K-MVOLT-CP-CUST-EM80R                | LIGMAN, CUSTOM       | ARCHITECTURAL EGRESS LUMINAIRE, FULL CUT-OFF, ALUMINUM, DIFFUSED POLYCARBONATE LENS, GASKETS, WET LOCATION LISTED     | 4000K LED<br>3143 LUMENS           | 30    |
| K  | 41/8" DIA. X 8"H           | PENDANT                  | MVOLT | LUMINWERX #AE4CYP-9-6" CFH-BVLD-FTMW-CL-SW-50DEG-2STP-80CRI-40K-UNV  | PRESCOLITE, LITHONIA | 4" DIAMETER PENDANT SUSPENDED CYLINDER LED FIXTURE, 0-10V DIMMABLE, 50 DEGREE, ARCHITECT SELECT FINAL MOUNTING HEIGHT | 4000K LED<br>2775 LUMEN            | 28    |
| L6                                       | 4.75"H X 4"W X 72"L        | RECESSED                 | MVOLT | FINELITE# HP4-R-D-72"-B-840-F-98L-G-277-SC-FC-10%-C2-FE              | AXIS, HE WILLIAMS    | 6FT LINEAR LED DIRECT FIXTURE, 0-10V DIMMABLE TO 10%, RECESS MOUNTED  | 4000K LED<br>2960 LUMENS<br>80-CRI | 28    |
| PE                                       | 7"W X 4.5"D X 48"L         | WALL                     | MVOLT | COLUMBIA #LXEM-4-40-ML-RFA-E-U-ELL14                                 | PHILLIPS, LITHONIA   | ELEVATOR HOISTWAY LED, VAPORLUME, 4000K, WITH 90 MINUTE 1400 LUMEN BATTERY BACKUP, IK10 RATED                         | 4000K LED<br>9646 LUMENS           | 42    |
| X1                                       | 12"W X 9"H X 2"D           | UNIVERSAL                | MVOLT | EMERGLITE #W-PREM-SNX-R  | DUALITE, LITHONIA    | SINGLE FACE LED EXIT SIGN, UNIVERSAL MOUNT, THERMOPLASTIC, SPEC GRADE, FIELD SELECTABLE CHEVRONS, UL924               | LED                                | 4     |
| X2                                       | 12"W X 9"H X 2"D           | UNIVERSAL                | MVOLT | EMERGLITE #W-PREM-SNX-R  | DUALITE, LITHONIA    | DUAL FACE LED EXIT SIGN, UNIVERSAL MOUNT, THERMOPLASTIC, SPEC GRADE, FIELD SELECTABLE CHEVRONS, UL924                 | LED                                | 4     |
| X3                                       | 17"W X 12"H X 3.4"D        | UNIVERSAL                | MVOLT | EMERGLITE #W-PR-1224M-1-R-2-LJ                                       | DUALITE, LITHONIA    | 12V, COMBINATION EXIT/EMERGENCY LED SIGN, UNIVERSAL MOUNTING, 90 MINUTE BATTERY BACKUP, FIELD SELECTABLE CHEVRONS     | LED                                | 23    |
| EM                                       | 11"W X 5.25"W X 3.5"D      | WALL MOUNTED AT 7.5' AFF | MVOLT | EMERGLITE #12JSM36-2-150-LJ-FM                                       | DUALITE, LITHONIA    | TWO HEAD LED EMERGENCY EGRESS FIXTURE, NICAD BATTERY BACKUP   | LED                                | 20    |



**GENERAL NOTES:**

- A. REFER TO SPECIFICATION 260923 AND HVAC CONTROL SEQUENCE OF OPERATION.
- B. LOCAL OVERRIDE SWITCH S<sub>OR</sub> PROVIDED BY HVAC CONTROLS CONTRACTOR.

**1 BAS/DDC MONITORING**  
NOT TO SCALE

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| NO. | DATE | DESCRIPTION |
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**BID SET**  
PROJECT PHASE  
**2307**  
BOOMERANG DESIGN PROJECT NUMBER  
**02.07.2024**  
DRAWING RELEASE DATE

**LIGHTING FIXTURE SCHEDULE**  
SHEET TITLE  
**E801**  
SHEET

| PANEL AL2 |           |          |                                   |      |    |    |    |    |       |       |   |    |    |    |    |      |                     |          |           |     |
|-----------|-----------|----------|-----------------------------------|------|----|----|----|----|-------|-------|---|----|----|----|----|------|---------------------|----------|-----------|-----|
| CKT       | LOAD TYPE | LOAD KVA | DESCRIPTION                       | C    | PH | N  | G  | CB | PHASE |       |   | CB | PH | N  | G  | C    | DESCRIPTION         | LOAD KVA | LOAD TYPE | CKT |
|           |           |          |                                   |      |    |    |    |    | A     | B     | C |    |    |    |    |      |                     |          |           |     |
| 1         | R         | 0.900    | RECEPT - 502                      | 3/4" | 10 | 10 | 10 | 20 | 1.440 |       |   | 20 | 10 | 10 | 10 | 3/4" | RECEPT - C501       | 0.900    | R         | 2   |
| 3         | R         | 0.720    | RECEPT - 502                      | 3/4" | 10 | 10 | 10 | 20 | 1.600 |       |   | 20 | 10 | 10 | 10 | 3/4" | RECEPT - 522        | 0.900    | R         | 4   |
| 5         | R         | 0.720    | RECEPT - 504                      | 3/4" | 10 | 10 | 10 | 20 |       | 1.600 |   | 20 | 10 | 10 | 10 | 3/4" | RECEPT - 522        | 0.900    | R         | 6   |
| 7         | R         | 0.900    | RECEPT - 504                      | 3/4" | 10 | 10 | 10 | 20 | 1.800 |       |   | 20 | 10 | 10 | 10 | 3/4" | RECEPT - 520        | 0.900    | R         | 8   |
| 9         | R         | 0.900    | RECEPT - 506                      | 3/4" | 10 | 10 | 10 | 20 | 1.800 |       |   | 20 | 10 | 10 | 10 | 3/4" | RECEPT - 520        | 0.900    | R         | 10  |
| 11        | R         | 0.720    | RECEPT - 506                      | 3/4" | 10 | 10 | 10 | 20 |       | 1.600 |   | 20 | 10 | 10 | 10 | 3/4" | RECEPT - 521        | 0.900    | R         | 12  |
| 13        | R         | 0.720    | RECEPT - 508                      | 3/4" | 10 | 10 | 10 | 20 | 1.620 |       |   | 20 | 10 | 10 | 10 | 3/4" | RECEPT - 521        | 0.900    | R         | 14  |
| 15        | R         | 0.900    | RECEPT - 508                      | 3/4" | 12 | 12 | 12 | 20 |       | 1.800 |   | 20 | 10 | 10 | 10 | 3/4" | RECEPT - 519        | 0.900    | R         | 16  |
| 17        | R         | 0.540    | RECEPT - C500                     | 3/4" | 10 | 10 | 10 | 20 | 1.440 |       |   | 20 | 10 | 10 | 10 | 3/4" | RECEPT - 519        | 0.900    | R         | 18  |
| 19        | R         | 0.900    | RECEPT - 501                      | 3/4" | 10 | 10 | 10 | 20 | 1.800 |       |   | 20 | 10 | 10 | 10 | 3/4" | RECEPT - 517        | 0.900    | R         | 20  |
| 21        | R         | 0.720    | RECEPT - 501                      | 3/4" | 10 | 10 | 10 | 20 | 1.620 |       |   | 20 | 10 | 10 | 10 | 3/4" | RECEPT - 517        | 0.900    | R         | 22  |
| 23        | R         | 0.720    | RECEPT - 503                      | 3/4" | 10 | 10 | 10 | 20 |       | 1.440 |   | 20 | 10 | 10 | 10 | 3/4" | RECEPT - 515        | 0.720    | R         | 24  |
| 25        | R         | 0.900    | RECEPT - 503                      | 3/4" | 10 | 10 | 10 | 20 | 1.620 |       |   | 20 | 10 | 10 | 10 | 3/4" | RECEPT - 515        | 0.720    | R         | 26  |
| 27        | R         | 0.900    | RECEPT - 505                      | 3/4" | 10 | 10 | 10 | 20 |       | 1.800 |   | 20 | 12 | 12 | 12 | 3/4" | RECEPT - 513        | 0.900    | R         | 28  |
| 29        | R         | 0.720    | RECEPT - 505                      | 3/4" | 10 | 10 | 10 | 20 |       | 1.620 |   | 20 | 12 | 12 | 12 | 3/4" | RECEPT - 513        | 0.900    | R         | 30  |
| 31        | R         | 0.900    | RECEPT - 507                      | 3/4" | 12 | 12 | 12 | 20 | 1.440 |       |   | 20 | 10 | 10 | 10 | 3/4" | RECEPT - C501       | 0.900    | R         | 32  |
| 33        | R         | 0.720    | RECEPT - 507                      | 3/4" | 12 | 12 | 12 | 20 | 1.680 |       |   | 20 | 12 | 12 | 12 | 3/4" | EWG - C501 (NOTE 2) | 0.960    | O         | 34  |
| 35        | O         | 0.600    | NAC PANEL - 509B (NOTE 1)         | 3/4" | 12 | 12 | 12 | 20 |       | 1.140 |   | 20 | 10 | 10 | 10 | 3/4" | RECEPT - EXTERIOR   | 0.540    | R         | 36  |
| 37        | O         | 0.800    | AMPLIFIER/CABINET - 509B (NOTE 1) | 3/4" | 12 | 12 | 12 | 20 | 1.400 |       |   | 20 | 12 | 12 | 12 | 3/4" | RECEPT - 509B       | 0.600    | R         | 38  |
| 39        | O         | 1.000    | NETWORK RACK - 509B               | 3/4" | 12 | 12 | 12 | 20 | 1.600 |       |   | 20 | 12 | 12 | 12 | 3/4" | RECEPT - 509B       | 0.600    | R         | 40  |
| 41        | O         | 1.000    | NETWORK RACK - 509B               | 3/4" | 12 | 12 | 12 | 20 |       | 2.000 |   | 20 | 12 | 12 | 12 | 3/4" | BDA EQUIPMENT-509B  | 1.000    | O         | 42  |
| 43        | O         | 0.800    | ELEVATOR LTRISCONTROLS            | 3/4" | 12 | 12 | 12 | 20 | 0.800 |       |   | 20 |    |    |    |      | SPARE               |          | O         | 44  |
| 45        | O         | 0.900    | BATTERY LOWERING                  | 3/4" | 12 | 12 | 12 | 20 | 0.900 |       |   | 20 |    |    |    |      | SPARE               |          | O         | 46  |
| 47        | O         | 0.400    | SPRINKLER BELL                    | 3/4" | 12 | 12 | 12 | 20 |       | 0.400 |   | 20 |    |    |    |      | SPARE               |          | O         | 48  |
| 49        | O         |          | SPARE                             |      |    |    |    |    | 0.000 |       |   | 20 |    |    |    |      | SPARE               |          | O         | 50  |
| 51        | O         |          | SPARE                             |      |    |    |    |    | 0.000 |       |   | 20 |    |    |    |      | SPARE               |          | O         | 52  |
| 53        | O         |          | SPARE                             |      |    |    |    |    | 0.000 |       |   | 20 |    |    |    |      | SPARE               |          | O         | 54  |
| 55        | R         |          | SPARE                             |      |    |    |    |    | 0.000 |       |   | 20 |    |    |    |      | SPARE               |          | O         | 56  |
| 57        | R         |          | SPARE                             |      |    |    |    |    | 0.000 |       |   | 20 |    |    |    |      | SPARE               |          | O         | 58  |
| 59        | R         |          | SPARE                             |      |    |    |    |    | 0.000 |       |   | 20 |    |    |    |      | SPARE               |          | O         | 60  |

|                |                |                   |        |       |
|----------------|----------------|-------------------|--------|-------|
| LOAD TOTAL:    |                | 11.92             | 12.82  | 11.28 |
| LOAD TYPE      |                | CONNECTED         | DEMAND |       |
| 208Y120 V      | 3 PHASE 4 WIRE | (R) RECEPTACLES   | 28.56  | 68%   |
| MAINS: MLO     | 225 A BUS      | (M) MOTOR         | 0.00   | 100%  |
| 22000 AIC      | SE LABEL       | (H) HVAC          | 0.00   | 100%  |
|                |                | (L) LIGHTING      | 0.00   | 125%  |
|                |                | (O) OTHER         | 7.46   | 100%  |
|                |                | (K) KITCHEN EQUIP | 0.00   | 100%  |
| ELECTRICAL E02 |                | TOTAL             | 36.02  | 74%   |

| PANEL AL3 |           |          |                          |      |    |     |    |    |       |       |   |    |    |     |    |      |                          |          |           |     |
|-----------|-----------|----------|--------------------------|------|----|-----|----|----|-------|-------|---|----|----|-----|----|------|--------------------------|----------|-----------|-----|
| CKT       | LOAD TYPE | LOAD KVA | DESCRIPTION              | C    | PH | N   | G  | CB | PHASE |       |   | CB | PH | N   | G  | C    | DESCRIPTION              | LOAD KVA | LOAD TYPE | CKT |
|           |           |          |                          |      |    |     |    |    | A     | B     | C |    |    |     |    |      |                          |          |           |     |
| 1         | O         | 0.600    | CHILLER CH-1 CONTROLS    | 3/4" | 10 | 10  | 10 | 20 | 1.200 |       |   | 20 | 10 | 10  | 10 | 3/4" | CHILLER CH-2 CONTROLS    | 0.600    | O         | 2   |
| 3         | O         | 1.000    | CH-1 HEAT TRACE (NOTE 1) | 3/4" | 10 | 10  | 10 | 20 | 2.000 |       |   | 20 | 10 | 10  | 10 | 3/4" | CH-2 HEAT TRACE (NOTE 1) | 1.000    | O         | 4   |
| 5         | O         | 1.000    | CH-1 HEAT TRACE (NOTE 1) | 3/4" | 10 | 10  | 10 | 20 |       | 2.000 |   | 20 | 10 | 10  | 10 | 3/4" | CH-2 HEAT TRACE (NOTE 1) | 1.000    | O         | 6   |
| 7         | M         | 1.320    | SPARE                    |      |    |     |    |    | 2.640 |       |   | 20 | 12 | N/A | 12 | 3/4" | SPARE                    | 1.320    | M         | 8   |
| 9         | M         | 1.320    | PUMP PCHWP-1 [3HP]       | 3/4" | 12 | N/A | 12 | 20 |       | 2.640 |   | 20 | 12 | N/A | 12 | 3/4" | PUMP PCHWP-2 [3HP]       | 1.320    | M         | 10  |
| 11        | M         | 1.320    | SPARE                    |      |    |     |    |    |       | 2.640 |   | 20 |    |     |    |      | SPARE                    | 1.320    | M         | 12  |
| 13        | R         | 0.540    | RECEPT - EXTERIOR        | 3/4" | 10 | 10  | 10 | 20 | 0.540 |       |   | 20 |    |     |    |      | SPARE                    |          | O         | 14  |
| 15        | O         |          | SPARE                    |      |    |     |    |    | 0.000 |       |   | 20 |    |     |    |      | SPARE                    |          | O         | 16  |
| 17        | O         |          | SPARE                    |      |    |     |    |    | 0.000 |       |   | 20 |    |     |    |      | SPARE                    |          | O         | 18  |
| 19        | O         |          | SPARE                    |      |    |     |    |    | 0.000 |       |   | 20 |    |     |    |      | SPARE                    |          | O         | 20  |
| 21        | O         |          | SPARE                    |      |    |     |    |    | 0.000 |       |   | 20 |    |     |    |      | SPARE                    |          | O         | 22  |
| 23        | O         |          | SPARE                    |      |    |     |    |    | 0.000 |       |   | 20 |    |     |    |      | SPARE                    |          | O         | 24  |
| 25        | O         |          | SPARE                    |      |    |     |    |    | 0.000 |       |   | 20 |    |     |    |      | SPARE                    |          | O         | 26  |
| 27        | O         |          | SPARE                    |      |    |     |    |    | 0.000 |       |   | 20 |    |     |    |      | SPARE                    |          | O         | 28  |
| 29        | O         |          | SPARE                    |      |    |     |    |    | 0.000 |       |   | 20 |    |     |    |      | SPARE                    |          | O         | 30  |

|              |                |                   |        |      |
|--------------|----------------|-------------------|--------|------|
| LOAD TOTAL:  |                | 4.38              | 4.64   | 4.64 |
| LOAD TYPE    |                | CONNECTED         | DEMAND |      |
| 208Y120 V    | 3 PHASE 4 WIRE | (R) RECEPTACLES   | 0.84   | 100% |
| MAINS: MCB   | 125 A MCB      | (M) MOTOR         | 7.92   | 100% |
| 22000 AIC    | SE LABEL       | (H) HVAC          | 0.00   | 100% |
|              |                | (L) LIGHTING      | 0.00   | 125% |
|              |                | (O) OTHER         | 5.20   | 100% |
|              |                | (K) KITCHEN EQUIP | 0.00   | 100% |
| SERVICE YARD |                | TOTAL             | 13.66  | 100% |

| PANEL AL4 |           |          |                                       |      |    |    |    |    |       |       |   |    |    |     |    |      |                     |          |           |     |
|-----------|-----------|----------|---------------------------------------|------|----|----|----|----|-------|-------|---|----|----|-----|----|------|---------------------|----------|-----------|-----|
| CKT       | LOAD TYPE | LOAD KVA | DESCRIPTION                           | C    | PH | N  | G  | CB | PHASE |       |   | CB | PH | N   | G  | C    | DESCRIPTION         | LOAD KVA | LOAD TYPE | CKT |
|           |           |          |                                       |      |    |    |    |    | A     | B     | C |    |    |     |    |      |                     |          |           |     |
| 1         | R         | 0.600    | RECEPT - 516, 518                     | 3/4" | 10 | 10 | 10 | 20 | 0.600 |       |   | 15 | 12 | 12  | 12 | 3/4" | HVLUH-1             | 0.250    | H         | 2   |
| 3         | R         | 0.600    | RECEPT - 510A, 512                    | 3/4" | 10 | 10 | 10 | 20 | 0.850 |       |   | 15 | 12 | 12  | 12 | 3/4" | HVLUH-2             | 0.250    | H         | 4   |
| 5         | R         | 0.600    | RECEPT - 510A, 53-1                   | 3/4" | 10 | 10 | 10 | 20 |       | 1.200 |   | 20 | 12 | 12  | 12 | 3/4" | CHEMICAL FEED - M01 | 0.600    | H         | 6   |
| 7         | R         | 0.720    | RECEPT - 514                          | 3/4" | 10 | 10 | 10 | 20 | 1.320 |       |   | 20 | 12 | 12  | 12 | 3/4" | CHEMICAL FEED - M02 | 0.600    | H         | 8   |
| 9         | R         | 0.720    | RECEPT - 510, 514                     | 3/4" | 10 | 10 | 10 | 20 |       | 1.320 |   | 20 | 12 | 12  | 12 | 3/4" | DDC PANEL - M01     | 0.600    | H         | 10  |
| 11        | R         | 0.720    | RECEPT - 510                          | 3/4" | 10 | 10 | 10 | 20 | 1.440 |       |   | 20 | 12 | 12  | 12 | 3/4" | RECEPT - M01, 509A  | 0.720    | R         | 12  |
| 13        | O         | 0.960    | EWG - C500A (NOTE 1)                  | 3/4" | 10 | 10 | 10 | 20 | 1.680 |       |   | 20 | 12 | 12  | 12 | 3/4" | RECEPT - M02        | 0.720    | R         | 14  |
| 15        | R         | 0.360    | RECEPT - 509                          | 3/4" | 12 | 12 | 12 | 20 | 0.809 |       |   | 15 | 12 | 12  | 12 | 3/4" | BOILER B-1          | 0.449    | H         | 16  |
| 17        | O         | 1.200    | COPIER - 509                          | 3/4" | 12 | 12 | 12 | 20 | 1.649 |       |   | 20 |    |     |    |      | BOILER B-2          | 0.449    | H         | 18  |
| 19        | R         | 0.360    | RECEPT - 509                          | 3/4" | 12 | 12 | 12 | 20 | 0.360 |       |   | 20 |    |     |    |      | SPARE               |          | O         | 20  |
| 21        | R         | 0.300    | RECEPT - 509                          | 3/4" | 12 | 12 | 12 | 20 | 0.300 |       |   | 20 |    |     |    |      | SPARE               |          | O         | 22  |
| 23        | O         | 1.200    | REFRIGERATOR - 509                    | 3/4" | 12 | 12 | 12 | 20 |       | 1.400 |   | 15 | 12 | 12  | 12 | 3/4" | WATER HEATER WH-1   | 0.200    | O         | 24  |
| 25        | O         | 1.500    | MICROWAVE - 509                       | 3/4" | 12 | 12 | 12 | 20 | 1.700 |       |   | 15 | 12 | 12  | 12 | 3/4" | RECIRCULATION PUMP  | 0.200    | O         | 26  |
| 27        | R         | 0.300    | RECEPT - 509                          | 3/4" | 12 | 12 | 12 | 20 | 0.680 |       |   | 20 | 12 | 12  | 12 | 3/4" | RECEPT - ED2        | 0.360    | R         | 28  |
| 29        | R         | 0.300    | RECEPT - 509                          | 3/4" | 12 | 12 | 12 | 20 | 0.900 |       |   | 20 | 12 | 12  | 12 | 3/4" | DDC PANEL - M02     | 0.600    | H         | 30  |
| 31        | R         | 0.720    | RECEPT - C500, C500A, C500B, EXTERIOR | 3/4" | 10 | 10 | 10 | 20 | 2.040 |       |   | 20 |    |     |    |      | PHWP-1 [3HP]        | 1.320    | M         | 32  |
| 33        | R         | 0.720    | RECEPT - EXTERIOR                     | 3/4" | 10 | 10 | 10 | 20 | 2.040 |       |   | 20 | 12 | N/A | 12 | 3/4" | PHWP-1 [3HP]        | 1.320    | M         | 34  |
| 35        | O         |          | SPARE                                 |      |    |    |    |    | 0.000 |       |   | 20 |    |     |    |      | PHWP-2 [3HP]        | 1.320    | M         | 36  |
| 37        | O         |          | SPARE                                 |      |    |    |    |    | 1.320 |       |   | 20 | 12 | N/A | 12 | 3/4" | PHWP-2 [3HP]        | 1.320    | M         | 38  |
| 39        | O         |          | SPARE                                 |      |    |    |    |    | 1.320 |       |   | 20 |    |     |    |      | SPARE               |          | O         | 40  |
| 41        | O         |          | SPARE                                 |      |    |    |    |    | 1.320 |       |   | 20 |    |     |    |      | SPARE               |          | O         | 42  |
| 43        | O         |          | SPARE                                 |      |    |    |    |    | 0.000 |       |   | 20 |    |     |    |      | SPARE               |          | O         | 44  |
| 45        | O         |          | SPARE                                 |      |    |    |    |    | 0.000 |       |   | 20 |    |     |    |      | SPARE               |          | O         | 46  |
| 47        | O         |          | SPARE                                 |      |    |    |    |    | 0.000 |       |   | 20 |    |     |    |      | SPARE               |          | O         | 48  |
| 49        | O         |          | SPARE                                 |      |    |    |    |    | 0.000 |       |   | 20 |    |     |    |      | SPARE               |          | O         | 50  |
| 51        | O         |          | SPARE                                 |      |    |    |    |    | 0.000 |       |   | 20 |    |     |    |      | SPARE               |          | O         | 52  |
| 53        | O         |          | SPARE                                 |      |    |    |    |    | 0.000 |       |   | 20 |    |     |    |      | SPARE               |          | O         | 54  |
| 55        | O         |          | SPARE                                 |      |    |    |    |    | 0.000 |       |   | 20 |    |     |    |      | SPARE               |          | O         | 56  |
| 57        |           |          |                                       |      |    |    |    |    |       |       |   |    |    |     |    |      |                     |          |           |     |

| PANEL CH1    |           |          |                |      |        |     |    |    |                   |        |       |       |                |     |      |      |                 |          |           |     |  |  |  |  |
|--------------|-----------|----------|----------------|------|--------|-----|----|----|-------------------|--------|-------|-------|----------------|-----|------|------|-----------------|----------|-----------|-----|--|--|--|--|
| CKT          | LOAD TYPE | LOAD KVA | DESCRIPTION    | C    | PH     | N   | G  | CB | PHASE             |        |       | CB    | PH             | N   | G    | C    | DESCRIPTION     | LOAD KVA | LOAD TYPE | CKT |  |  |  |  |
|              |           |          |                |      |        |     |    |    | A                 | B      | C     |       |                |     |      |      |                 |          |           |     |  |  |  |  |
| 1            | H         | 1.524    | FC-4-521 [3HP] | 3/4" | 10     | N/A | 10 | 15 | 3.389             |        |       | 15    | 10             | N/A | 10   | 3/4" | FC-1-514        | 1.865    | H         | 2   |  |  |  |  |
| 3            | H         | 1.524    |                | 3/4" | 10     | N/A | 10 | 15 | 3.389             |        |       | 15    | 10             | N/A | 10   | 3/4" | FC-2-508        | 1.865    | H         | 4   |  |  |  |  |
| 5            | H         | 1.524    |                | 3/4" | 10     | N/A | 10 | 15 | 3.389             |        |       | 15    | 10             | N/A | 10   | 3/4" | FC-2-509        | 1.865    | H         | 6   |  |  |  |  |
| 7            | H         | 1.865    | FC-2-522       | 3/4" | 10     | N/A | 10 | 15 | 3.730             |        |       | 15    | 10             | N/A | 10   | 3/4" | FC-2-506        | 1.865    | H         | 8   |  |  |  |  |
| 9            | H         | 1.865    | FC-2-620       | 3/4" | 10     | N/A | 10 | 15 | 3.730             |        |       | 15    | 10             | N/A | 10   | 3/4" | FC-2-507        | 1.865    | H         | 10  |  |  |  |  |
| 11           | H         | 1.865    | FC-2-520       | 3/4" | 10     | N/A | 10 | 15 | 3.730             |        |       | 15    | 10             | N/A | 10   | 3/4" | FC-2-504        | 1.865    | H         | 12  |  |  |  |  |
| 13           | H         | 1.865    | FC-1-621       | 3/4" | 10     | N/A | 10 | 15 | 3.730             |        |       | 15    | 10             | N/A | 10   | 3/4" | FC-2-503        | 1.865    | H         | 14  |  |  |  |  |
| 15           | H         | 1.865    | FC-2-519       | 3/4" | 10     | N/A | 10 | 15 | 3.730             |        |       | 15    | 10             | N/A | 10   | 3/4" | FC-2-502        | 1.865    | H         | 16  |  |  |  |  |
| 17           | H         | 1.865    | FC-2-619       | 3/4" | 10     | N/A | 10 | 15 | 3.730             |        |       | 15    | 10             | N/A | 10   | 3/4" | FC-2-501        | 1.865    | H         | 18  |  |  |  |  |
| 19           | H         | 1.865    | FC-2-618       | 3/4" | 10     | N/A | 10 | 15 | 1.865             |        |       | 20    |                |     |      |      | SPARE           |          | O         | 20  |  |  |  |  |
| 21           | H         | 1.865    | FC-2-517       | 3/4" | 10     | N/A | 10 | 15 | 1.865             |        |       | 20    |                |     |      |      | SPARE           |          | O         | 22  |  |  |  |  |
| 23           | H         | 1.865    | FC-1-617       | 3/4" | 10     | N/A | 10 | 15 | 3.413             |        |       | 20    | 12             | N/A | 12   | 3/4" | LTS - MEZZANINE | 1.548    | L         | 24  |  |  |  |  |
| 25           | H         | 1.865    | FC-2-515       | 3/4" | 10     | N/A | 10 | 15 | 1.865             |        |       | 20    |                |     |      |      | SPARE           |          | O         | 26  |  |  |  |  |
| 27           | H         | 1.865    | FC-2-513       | 3/4" | 10     | N/A | 10 | 15 | 1.865             |        |       | 20    |                |     |      |      | SPARE           |          | O         | 28  |  |  |  |  |
| 29           | H         | 1.865    | FC-1-610       | 3/4" | 10     | N/A | 10 | 15 | 1.865             |        |       | 20    |                |     |      |      | SPARE           |          | O         | 30  |  |  |  |  |
| 31           | H         | 1.865    | FC-1-613       | 3/4" | 10     | N/A | 10 | 15 | 1.865             |        |       | 20    |                |     |      |      | SPARE           |          | O         | 32  |  |  |  |  |
| 33           | H         | 1.865    | FC-3-ST-1      | 3/4" | 10     | N/A | 10 | 15 | 1.865             |        |       | 20    |                |     |      |      | SPARE           |          | O         | 34  |  |  |  |  |
| 35           | O         |          | SPARE          |      |        |     |    |    | 0.000             |        |       | 20    |                |     |      |      | SPARE           |          | O         | 36  |  |  |  |  |
| 37           | O         |          | SPARE          |      |        |     |    |    | 0.000             |        |       | 20    |                |     |      |      | SPARE           |          | O         | 38  |  |  |  |  |
| 39           | O         |          | SPARE          |      |        |     |    |    | 0.000             |        |       | 20    |                |     |      |      | SPARE           |          | O         | 40  |  |  |  |  |
| 41           | O         |          | SPARE          |      |        |     |    |    | 0.000             |        |       | 20    |                |     |      |      | SPARE           |          | O         | 42  |  |  |  |  |
| LOAD TOTAL:  |           |          |                |      |        |     |    |    | 16.44             | 16.44  | 16.13 |       |                |     |      |      |                 |          |           |     |  |  |  |  |
| LOAD TYPE    |           |          |                |      |        |     |    |    | CONNECTED         | DEMAND |       |       |                |     |      |      |                 |          |           |     |  |  |  |  |
| 480Y/277 V   |           |          |                |      |        |     |    |    | (R) RECEPTACLES   | 0.00   | 100%  | 0.00  | FED FROM: MDP  |     |      |      |                 |          |           |     |  |  |  |  |
| MAINS: MCB   |           |          |                |      |        |     |    |    | (M) MOTOR         | 0.00   | 100%  | 0.00  | MOUNT: SURFACE |     |      |      |                 |          |           |     |  |  |  |  |
| 22000_AIC    |           |          |                |      |        |     |    |    | (H) HVAC          | 47.47  | 100%  | 47.47 | NEMA: 1        |     |      |      |                 |          |           |     |  |  |  |  |
|              |           |          |                |      |        |     |    |    | (L) LIGHTING      | 1.55   | 125%  | 1.94  |                |     |      |      |                 |          |           |     |  |  |  |  |
|              |           |          |                |      |        |     |    |    | (C) OTHER         | 0.00   | 100%  | 0.00  |                |     |      |      |                 |          |           |     |  |  |  |  |
|              |           |          |                |      |        |     |    |    | (K) KITCHEN EQUIP | 0.00   | 100%  | 0.00  |                |     |      |      |                 |          |           |     |  |  |  |  |
|              |           |          |                |      |        |     |    |    | TOTAL             | 49.02  | 101%  | 49.40 |                |     |      |      |                 |          |           |     |  |  |  |  |
| MEZZANINE    |           |          |                |      |        |     |    |    |                   |        |       |       |                |     |      |      |                 |          |           |     |  |  |  |  |
| NOTES:       |           |          |                |      |        |     |    |    |                   |        |       |       |                |     |      |      |                 |          |           |     |  |  |  |  |
| 1.           |           |          |                |      |        |     |    |    |                   |        |       |       |                |     |      |      |                 |          |           |     |  |  |  |  |
| 2.           |           |          |                |      |        |     |    |    |                   |        |       |       |                |     |      |      |                 |          |           |     |  |  |  |  |
| 3.           |           |          |                |      |        |     |    |    |                   |        |       |       |                |     |      |      |                 |          |           |     |  |  |  |  |
| 4.           |           |          |                |      |        |     |    |    |                   |        |       |       |                |     |      |      |                 |          |           |     |  |  |  |  |
| PANEL TOTALS |           |          |                |      |        |     |    |    |                   |        |       |       |                |     |      |      |                 |          |           |     |  |  |  |  |
| PHASE A      |           |          |                |      | 16.574 |     |    |    |                   | KVA    |       |       |                |     | 59.8 |      |                 |          |           | AMP |  |  |  |  |
| PHASE B      |           |          |                |      | 16.574 |     |    |    |                   | KVA    |       |       |                |     | 59.8 |      |                 |          |           | AMP |  |  |  |  |
| PHASE C      |           |          |                |      | 16.254 |     |    |    |                   | KVA    |       |       |                |     | 58.7 |      |                 |          |           | AMP |  |  |  |  |

| PANEL CL1          |           |          |                             |      |       |    |    |    |                   |        |      |      |                     |   |     |   |             |          |           |     |  |  |  |  |
|--------------------|-----------|----------|-----------------------------|------|-------|----|----|----|-------------------|--------|------|------|---------------------|---|-----|---|-------------|----------|-----------|-----|--|--|--|--|
| CKT                | LOAD TYPE | LOAD KVA | DESCRIPTION                 | C    | PH    | N  | G  | CB | PHASE             |        |      | CB   | PH                  | N | G   | C | DESCRIPTION | LOAD KVA | LOAD TYPE | CKT |  |  |  |  |
|                    |           |          |                             |      |       |    |    |    | A                 | B      | C    |      |                     |   |     |   |             |          |           |     |  |  |  |  |
| 1                  | R         | 0.540    | RECEPT - EQUIPMENT PLATFORM | 3/4" | 12    | 12 | 12 | 20 | 0.540             |        |      | 20   |                     |   |     |   | SPARE       |          | O         | 2   |  |  |  |  |
| 3                  | R         | 0.540    | RECEPT - EQUIPMENT PLATFORM | 3/4" | 12    | 12 | 12 | 20 | 0.540             |        |      | 20   |                     |   |     |   | SPARE       |          | O         | 4   |  |  |  |  |
| 5                  | R         | 0.720    | RECEPT - EQUIPMENT PLATFORM | 3/4" | 12    | 12 | 12 | 20 | 0.720             |        |      | 20   |                     |   |     |   | SPARE       |          | O         | 6   |  |  |  |  |
| 7                  | O         |          | SPARE                       |      |       |    |    |    | 0.000             |        |      | 20   |                     |   |     |   | SPARE       |          | O         | 8   |  |  |  |  |
| 9                  | O         |          | SPARE                       |      |       |    |    |    | 0.000             |        |      | 20   |                     |   |     |   | SPARE       |          | O         | 10  |  |  |  |  |
| 11                 | O         |          | SPARE                       |      |       |    |    |    | 0.000             |        |      | 20   |                     |   |     |   | SPARE       |          | O         | 12  |  |  |  |  |
| 13                 | O         |          | SPARE                       |      |       |    |    |    | 0.000             |        |      | 20   |                     |   |     |   | SPARE       |          | O         | 14  |  |  |  |  |
| 15                 | O         |          | SPARE                       |      |       |    |    |    | 0.000             |        |      | 20   |                     |   |     |   | SPARE       |          | O         | 16  |  |  |  |  |
| 17                 | O         |          | SPARE                       |      |       |    |    |    | 0.000             |        |      | 20   |                     |   |     |   | SPARE       |          | O         | 18  |  |  |  |  |
| 19                 | O         |          | SPACE                       |      |       |    |    |    | 0.000             |        |      | 20   |                     |   |     |   | SPACE       |          | O         | 20  |  |  |  |  |
| 21                 | O         |          | SPACE                       |      |       |    |    |    | 0.000             |        |      | 20   |                     |   |     |   | SPACE       |          | O         | 22  |  |  |  |  |
| 23                 | O         |          | SPACE                       |      |       |    |    |    | 0.000             |        |      | 20   |                     |   |     |   | SPACE       |          | O         | 24  |  |  |  |  |
| LOAD TOTAL:        |           |          |                             |      |       |    |    |    | 0.54              | 0.54   | 0.72 |      |                     |   |     |   |             |          |           |     |  |  |  |  |
| LOAD TYPE          |           |          |                             |      |       |    |    |    | CONNECTED         | DEMAND |      |      |                     |   |     |   |             |          |           |     |  |  |  |  |
| 208Y/120 V         |           |          |                             |      |       |    |    |    | (R) RECEPTACLES   | 1.80   | 100% | 1.80 | FED FROM: PANEL AL1 |   |     |   |             |          |           |     |  |  |  |  |
| MAINS: MCB         |           |          |                             |      |       |    |    |    | (M) MOTOR         | 0.00   | 100% | 0.00 | MOUNT: SURFACE      |   |     |   |             |          |           |     |  |  |  |  |
| 22000_AIC          |           |          |                             |      |       |    |    |    | (H) HVAC          | 0.00   | 100% | 0.00 | NEMA: 1             |   |     |   |             |          |           |     |  |  |  |  |
|                    |           |          |                             |      |       |    |    |    | (L) LIGHTING      | 0.00   | 125% | 0.00 |                     |   |     |   |             |          |           |     |  |  |  |  |
|                    |           |          |                             |      |       |    |    |    | (C) OTHER         | 0.00   | 100% | 0.00 |                     |   |     |   |             |          |           |     |  |  |  |  |
|                    |           |          |                             |      |       |    |    |    | (K) KITCHEN EQUIP | 0.00   | 100% | 0.00 |                     |   |     |   |             |          |           |     |  |  |  |  |
|                    |           |          |                             |      |       |    |    |    | TOTAL             | 1.80   | 100% | 1.80 |                     |   |     |   |             |          |           |     |  |  |  |  |
| EQUIPMENT PLATFORM |           |          |                             |      |       |    |    |    |                   |        |      |      |                     |   |     |   |             |          |           |     |  |  |  |  |
| NOTES:             |           |          |                             |      |       |    |    |    |                   |        |      |      |                     |   |     |   |             |          |           |     |  |  |  |  |
| 1.                 |           |          |                             |      |       |    |    |    |                   |        |      |      |                     |   |     |   |             |          |           |     |  |  |  |  |
| 2.                 |           |          |                             |      |       |    |    |    |                   |        |      |      |                     |   |     |   |             |          |           |     |  |  |  |  |
| 3.                 |           |          |                             |      |       |    |    |    |                   |        |      |      |                     |   |     |   |             |          |           |     |  |  |  |  |
| 4.                 |           |          |                             |      |       |    |    |    |                   |        |      |      |                     |   |     |   |             |          |           |     |  |  |  |  |
| PANEL TOTALS       |           |          |                             |      |       |    |    |    |                   |        |      |      |                     |   |     |   |             |          |           |     |  |  |  |  |
| PHASE A            |           |          |                             |      | 0.540 |    |    |    |                   | KVA    |      |      |                     |   | 4.5 |   |             |          |           | AMP |  |  |  |  |
| PHASE B            |           |          |                             |      | 0.540 |    |    |    |                   | KVA    |      |      |                     |   | 4.5 |   |             |          |           | AMP |  |  |  |  |
| PHASE C            |           |          |                             |      | 0.720 |    |    |    |                   | KVA    |      |      |                     |   | 6.0 |   |             |          |           | AMP |  |  |  |  |

| PANEL JL (ALTERNATE #2) |           |          |                   |      |       |     |    |    |                   |        |      |      |                        |     |      |      |                 |          |           |     |  |  |  |  |
|-------------------------|-----------|----------|-------------------|------|-------|-----|----|----|-------------------|--------|------|------|------------------------|-----|------|------|-----------------|----------|-----------|-----|--|--|--|--|
| CKT                     | LOAD TYPE | LOAD KVA | DESCRIPTION       | C    | PH    | N   | G  | CB | PHASE             |        |      | CB   | PH                     | N   | G    | C    | DESCRIPTION     | LOAD KVA | LOAD TYPE | CKT |  |  |  |  |
|                         |           |          |                   |      |       |     |    |    | A                 | B      | C    |      |                        |     |      |      |                 |          |           |     |  |  |  |  |
| 1                       | R         | 0.540    | RECEPT - C01, C02 | 3/4" | 10    | 10  | 10 | 20 | 0.815             |        |      | 20   | 12                     | 12  | 12   | 3/4" | LTS - EXTERIOR  | 0.275    | L         | 2   |  |  |  |  |
| 3                       | R         | 0.900    | RECEPT - C02, C04 | 3/4" | 10    | 10  | 10 | 20 | 1.961             |        |      | 20   | 12                     | 12  | 12   | 3/4" | LTS - C01-C04   | 1.061    | L         | 4   |  |  |  |  |
| 5                       | R         | 0.540    | RECEPT - EXTERIOR | 3/4" | 10    | 10  | 10 | 20 | 2.460             |        |      | 20   | 10                     | 10  | 10   | 3/4" | WHEELCHAIR LIFT | 1.920    | O         | 6   |  |  |  |  |
| 7                       | O         |          | SPARE             |      |       |     |    |    | 0.000             |        |      | 20   |                        |     |      |      | SPARE           |          | O         | 8   |  |  |  |  |
| 9                       | O         |          | SPARE             |      |       |     |    |    | 0.000             |        |      | 20   |                        |     |      |      | SPARE           |          | O         | 10  |  |  |  |  |
| 11                      | O         |          | SPARE             |      |       |     |    |    | 0.000             |        |      | 20   |                        |     |      |      | SPARE           |          | O         | 12  |  |  |  |  |
| 13                      | O         |          | SPARE             |      |       |     |    |    | 0.000             |        |      | 20   |                        |     |      |      | SPARE           |          | O         | 14  |  |  |  |  |
| 15                      | O         |          | SPARE             |      |       |     |    |    | 0.000             |        |      | 20   |                        |     |      |      | SPARE           |          | O         | 16  |  |  |  |  |
| 17                      | O         |          | SPARE             |      |       |     |    |    | 0.000             |        |      | 20   |                        |     |      |      | SPARE           |          | O         | 18  |  |  |  |  |
| 19                      | H         | 0.828    |                   |      |       |     |    |    | 1.404             |        |      | 15   | 10                     | N/A | 10   | 3/4" |                 | 0.576    | H         | 20  |  |  |  |  |
| 21                      | H         | 0.828    | FC-1-ALT-2        | 3/4" | 10    | N/A | 10 | 15 | 1.404             |        |      | 15   | 10                     | N/A | 10   | 3/4" | FC-2-ALT-2      | 0.576    | H         | 22  |  |  |  |  |
| 23                      | H         | 0.828    |                   |      |       |     |    |    | 1.404             |        |      | 15   | 10                     | N/A | 10   | 3/4" |                 | 0.576    | H         | 24  |  |  |  |  |
| LOAD TOTAL:             |           |          |                   |      |       |     |    |    | 2.22              | 3.37   | 3.86 |      |                        |     |      |      |                 |          |           |     |  |  |  |  |
| LOAD TYPE               |           |          |                   |      |       |     |    |    | CONNECTED         | DEMAND |      |      |                        |     |      |      |                 |          |           |     |  |  |  |  |
| 208Y/120 V              |           |          |                   |      |       |     |    |    | (R) RECEPTACLES   | 1.98   | 100% | 1.98 | FED FROM: EXISTING MDP |     |      |      |                 |          |           |     |  |  |  |  |
| MAINS: MCB              |           |          |                   |      |       |     |    |    | (M) MOTOR         | 0.00   | 100% | 0.00 | MOUNT: FLUSH           |     |      |      |                 |          |           |     |  |  |  |  |
| 22000_AIC               |           |          |                   |      |       |     |    |    | (H) HVAC          | 4.21   | 100% | 4.21 | NEMA: 1                |     |      |      |                 |          |           |     |  |  |  |  |
|                         |           |          |                   |      |       |     |    |    | (L) LIGHTING      | 1.34   | 125% | 1.67 |                        |     |      |      |                 |          |           |     |  |  |  |  |
|                         |           |          |                   |      |       |     |    |    | (C) OTHER         | 1.92   | 100% | 1.92 |                        |     |      |      |                 |          |           |     |  |  |  |  |
|                         |           |          |                   |      |       |     |    |    | (K) KITCHEN EQUIP | 0.00   | 100% | 0.00 |                        |     |      |      |                 |          |           |     |  |  |  |  |
|                         |           |          |                   |      |       |     |    |    | TOTAL             | 9.45   | 104% | 9.78 |                        |     |      |      |                 |          |           |     |  |  |  |  |
| CONNECTOR               |           |          |                   |      |       |     |    |    |                   |        |      |      |                        |     |      |      |                 |          |           |     |  |  |  |  |
| NOTES:                  |           |          |                   |      |       |     |    |    |                   |        |      |      |                        |     |      |      |                 |          |           |     |  |  |  |  |
| 1.                      |           |          |                   |      |       |     |    |    |                   |        |      |      |                        |     |      |      |                 |          |           |     |  |  |  |  |
| 2.                      |           |          |                   |      |       |     |    |    |                   |        |      |      |                        |     |      |      |                 |          |           |     |  |  |  |  |
| 3.                      |           |          |                   |      |       |     |    |    |                   |        |      |      |                        |     |      |      |                 |          |           |     |  |  |  |  |
| 4.                      |           |          |                   |      |       |     |    |    |                   |        |      |      |                        |     |      |      |                 |          |           |     |  |  |  |  |
| PANEL TOTALS            |           |          |                   |      |       |     |    |    |                   |        |      |      |                        |     |      |      |                 |          |           |     |  |  |  |  |
| PHASE A                 |           |          |                   |      | 2.297 |     |    |    |                   | KVA    |      |      |                        |     | 19.1 |      |                 |          |           | AMP |  |  |  |  |
| PHASE B                 |           |          |                   |      | 3.484 |     |    |    |                   | KVA    |      |      |                        |     | 29.0 |      |                 |          |           | AMP |  |  |  |  |
| PHASE C                 |           |          |                   |      | 4.001 |     |    |    |                   | KVA    |      |      |                        |     | 33.3 |      |                 |          |           | AMP |  |  |  |  |

| PANEL BH    |           |          |                |   |    |   |   |    |                 |        |       |       |               |    |    |      |  |          |           |     |
|-------------|-----------|----------|----------------|---|----|---|---|----|-----------------|--------|-------|-------|---------------|----|----|------|--|----------|-----------|-----|
| CKT         | LOAD TYPE | LOAD KVA | DESCRIPTION    | C | PH | N | G | CB | PHASE           |        |       | CB    | PH            | N  | G  | C    | DESCRIPTION                                | LOAD KVA | LOAD TYPE | CKT |
|             |           |          |                |   |    |   |   |    | A               | B      | C     |       |               |    |    |      |  |          |           |     |
| 1           | S         | 12.190   |                |   |    |   |   |    | 13.990          |        |       | 20    | 12            | 12 | 12 | 3/4" | LTS - 613, 615, 617, 619, 621              | 1.800    | L         | 2   |
| 3           | S         | 13.730   | TRANSFORMER TB |   |    |   |   |    | 15.477          |        |       | 20    | 12            | 12 | 12 | 3/4" | LTS - 605, 606, 608, 610A,B, 614, 616, 618 | 1.747    | L         | 4   |
| 5           | S         | 13.663   |                |   |    |   |   |    | 14.669          |        |       | 20    | 12            | 12 | 12 | 3/4" | LTS - 52-0, 51-0, C600, C601               | 1.006    | L         | 6   |
| 7           | O         |          |                |   |    |   |   |    | 0.569           |        |       | 20    | 10            | 10 | 10 | 3/4" | LTS - EXTERIOR PERIMETER                   | 0.569    | L         | 8   |
| 9           | O         |          | SPARE          |   |    |   |   |    | 0.000           |        |       | 20    |               |    |    |      | SPARE                                      |          | O         | 10  |
| 11          | O         |          |                |   |    |   |   |    | 0.000           |        |       | 20    |               |    |    |      | SPARE                                      |          | O         | 12  |
| 13          | O         |          | SPACE          |   |    |   |   |    | 0.000           |        |       | 20    |               |    |    |      | SPACE                                      |          | O         | 14  |
| 15          | O         |          | SPACE          |   |    |   |   |    | 0.000           |        |       | 20    |               |    |    |      | SPACE                                      |          | O         | 16  |
| 17          | O         |          | SPACE          |   |    |   |   |    | 0.000           |        |       | 20    |               |    |    |      | SPACE                                      |          | O         | 18  |
| 19          | O         |          | SPACE          |   |    |   |   |    | 0.000           |        |       | 20    |               |    |    |      | SPACE                                      |          | O         | 20  |
| 21          | O         |          | SPACE          |   |    |   |   |    | 0.000           |        |       | 20    |               |    |    |      | SPACE                                      |          | O         | 22  |
| 23          | O         |          | SPACE          |   |    |   |   |    | 0.000           |        |       | 20    |               |    |    |      | SPACE                                      |          | O         | 24  |
| 25          | O         |          | SPACE          |   |    |   |   |    | 0.000           |        |       | 20    |               |    |    |      | SPACE                                      |          | O         | 26  |
| 27          | O         |          | SPACE          |   |    |   |   |    | 0.000           |        |       | 20    |               |    |    |      | SPACE                                      |          | O         | 28  |
| 29          | O         |          | SPACE          |   |    |   |   |    | 0.000           |        |       | 20    |               |    |    |      | SPACE                                      |          | O         | 30  |
| LOAD TOTAL: |           |          |                |   |    |   |   |    | 14.56           | 15.48  | 14.67 |       |               |    |    |      |  |          |           |     |
| LOAD TYPE   |           |          |                |   |    |   |   |    | CONNECTED       | DEMAND |       |       |               |    |    |      |  |          |           |     |
| 480Y/277 V  |           |          |                |   |    |   |   |    | (R) RECEPTACLES | 23.96  | 72%   | 16.53 | FED FROM: MDP |    |    |      |  |          |           |     |
| MAINS: MCB  |           |          |                |   |    |   |   |    | (M) MOTOR       |        |       |       |               |    |    |      |  |          |           |     |

| EXISTING PANEL UNASSIGNED (NOTE 1) (ALTERNATE #3) |           |          |                       |          |    |   |     |       |                   |           |      |      |                 |                           |      |              |                       |          |           |     |     |
|---|-----------|----------|-----------------------|----------|----|---|-----|-------|-------------------|-----------|------|------|-----------------|---------------------------|------|--------------|-----------------------|----------|-----------|-----|-----|
| CKT   | LOAD TYPE | LOAD KVA | DESCRIPTION           | C        | PH | N | G   | CB    | PHASE             |           |      | CB   | PH              | N                         | G    | C            | DESCRIPTION           | LOAD KVA | LOAD TYPE | CKT |     |
|   |           |          |                       |          |    |   |     |       | A                 | B         | C    |      |                 |                           |      |              |                       |          |           |     |     |
| 1   | O         |          | WATER COOLER          | EXISTING |    |   | 20  | 0.000 |                   |           |      | 20   | EXISTING        |                           |      |              | RECEPTACLES           |          | R         | 2   |     |
| 3   | R         |          | RECEPT - HALL         | EXISTING |    |   | 20  | 0.000 |                   |           |      | 20   | EXISTING        |                           |      |              | LIGHTS                |          | L         | 4   |     |
| 5   | O         |          | ICE MACHINE           | EXISTING |    |   | 20  | 0.000 |                   |           |      | 20   | EXISTING        |                           |      |              | RECEPTACLES "OFF"     |          | R         | 6   |     |
| 7   | S         |          |                       |          |    |   |     | 0.000 |                   |           |      |      |                 |                           |      |              |                       |          | K         | 8   |     |
| 9   | S         |          | FEED TO PANEL         | EXISTING |    |   | 100 | 0.000 |                   |           |      | 20   | EXISTING        |                           |      |              | HOOD EXHAUST FAN      |          | K         | 10  |     |
| 11  | S         |          |                       |          |    |   |     | 0.000 |                   |           |      |      |                 |                           |      |              |                       |          | K         | 12  |     |
| 13  | L         |          | LTS - CONFERENCE ROOM | EXISTING |    |   | 20  | 0.000 |                   |           |      | 20   | EXISTING        |                           |      |              | 3-DOOR REFRIGERATOR   |          | K         | 14  |     |
| 15  | H         |          | FCU-1C, FCU-2C, EF    | EXISTING |    |   | 20  | 0.000 |                   |           |      | 20   | EXISTING        |                           |      |              | COMPUTER - LEFT SIDE  |          | O         | 16  |     |
| 17  | H         |          | UC-5C, UC-6C          | EXISTING |    |   | 20  | 0.000 |                   |           |      | 20   | EXISTING        |                           |      |              | COMPUTER - RIGHT SIDE |          | O         | 18  |     |
| 19  | O         |          | EXISTING LOAD         | EXISTING |    |   | 30  | 0.000 |                   |           |      | 20   | EXISTING        |                           |      |              | RECEPT - LEFT WALL    |          | R         | 20  |     |
| 21  | O         |          |                       |          |    |   |     | 0.000 |                   |           |      | 20   | EXISTING        |                           |      |              | RECEPT - BACK WALL    |          | R         | 22  |     |
| 23  | H         |          | ACH/HEAT PUMP - ROOF  | EXISTING |    |   | 80  | 0.000 |                   |           |      | 20   | EXISTING        |                           |      |              | RECEPT - RIGHT WALL   |          | R         | 24  |     |
| 25  | H         |          |                       |          |    |   |     | 0.000 |                   |           |      |      |                 |                           |      |              | SPACE                 |          | O         | 26  |     |
| 27  | O         |          | SPACE                 |          |    |   |     | 0.000 |                   |           |      |      |                 |                           |      |              | SPACE                 |          | O         | 28  |     |
| 29  | O         |          | FIRE SUPPRESSION "ON" | EXISTING |    |   | 20  | 0.000 |                   |           |      | 20   |                 |                           |      |              | SPACE                 |          | O         | 30  |     |
| LOAD TOTAL:                                       |           |          |                       |          |    |   |     |       | 0.00              | 0.00      | 0.00 |      |                 |                           |      |              |                       |          |           |     |     |
| LOAD TYPE   |           |          |                       |          |    |   |     |       | CONNECTED         | DEMAND    |      |      | FED FROM:       |                           |      | EXISTING MDP |                       |          |           |     |     |
| 208Y/120 V  |           |          |                       |          |    |   |     |       | 3 PHASE           | 4 WIRE    |      |      | (R) RECEPTACLES | 0.00                      | 100% | 0.00         | MOUNT: SURFACE        |          |           |     |     |
| MAINS: MCB  |           |          |                       |          |    |   |     |       | 100 A MCB         | (M) MOTOR | 0.00 | 100% | 0.00            | NEMA: 1                   |      |              |                       |          |           |     |     |
| 10000 AIC   |           |          |                       |          |    |   |     |       | SE LABEL          | (H) HVAC  | 0.00 | 100% | 0.00            | MFG/MODEL#: SQUARE-D/NOOD |      |              |                       |          |           |     |     |
|   |           |          |                       |          |    |   |     |       | (L) LIGHTING      | 0.00      | 125% | 0.00 |                 |                           |      |              |                       |          |           |     |     |
|   |           |          |                       |          |    |   |     |       | (O) OTHER         | 0.00      | 100% | 0.00 |                 |                           |      |              |                       |          |           |     |     |
|   |           |          |                       |          |    |   |     |       | (K) KITCHEN EQUIP | 0.00      | 100% | 0.00 |                 |                           |      |              |                       |          |           |     |     |
| TOTAL:  |           |          |                       |          |    |   |     |       | 0.00              | 0%        | 0.00 |      |                 |                           |      |              |                       |          |           |     |     |
| NOTES:  |           |          |                       |          |    |   |     |       |                   |           |      |      |                 |                           |      |              | PANEL TOTALS          |          |           |     |     |
| 1. REFER TO PANEL SCHEDULE Z.                     |           |          |                       |          |    |   |     |       |                   |           |      |      |                 |                           |      |              | PHASE A               | 0.000    | KVA       | 0.0 | AMP |
| 2.  |           |          |                       |          |    |   |     |       |                   |           |      |      |                 |                           |      |              | PHASE B               | 0.000    | KVA       | 0.0 | AMP |
| 3.  |           |          |                       |          |    |   |     |       |                   |           |      |      |                 |                           |      |              | PHASE C               | 0.000    | KVA       | 0.0 | AMP |
| 4.  |           |          |                       |          |    |   |     |       |                   |           |      |      |                 |                           |      |              |                       |          |           |     |     |

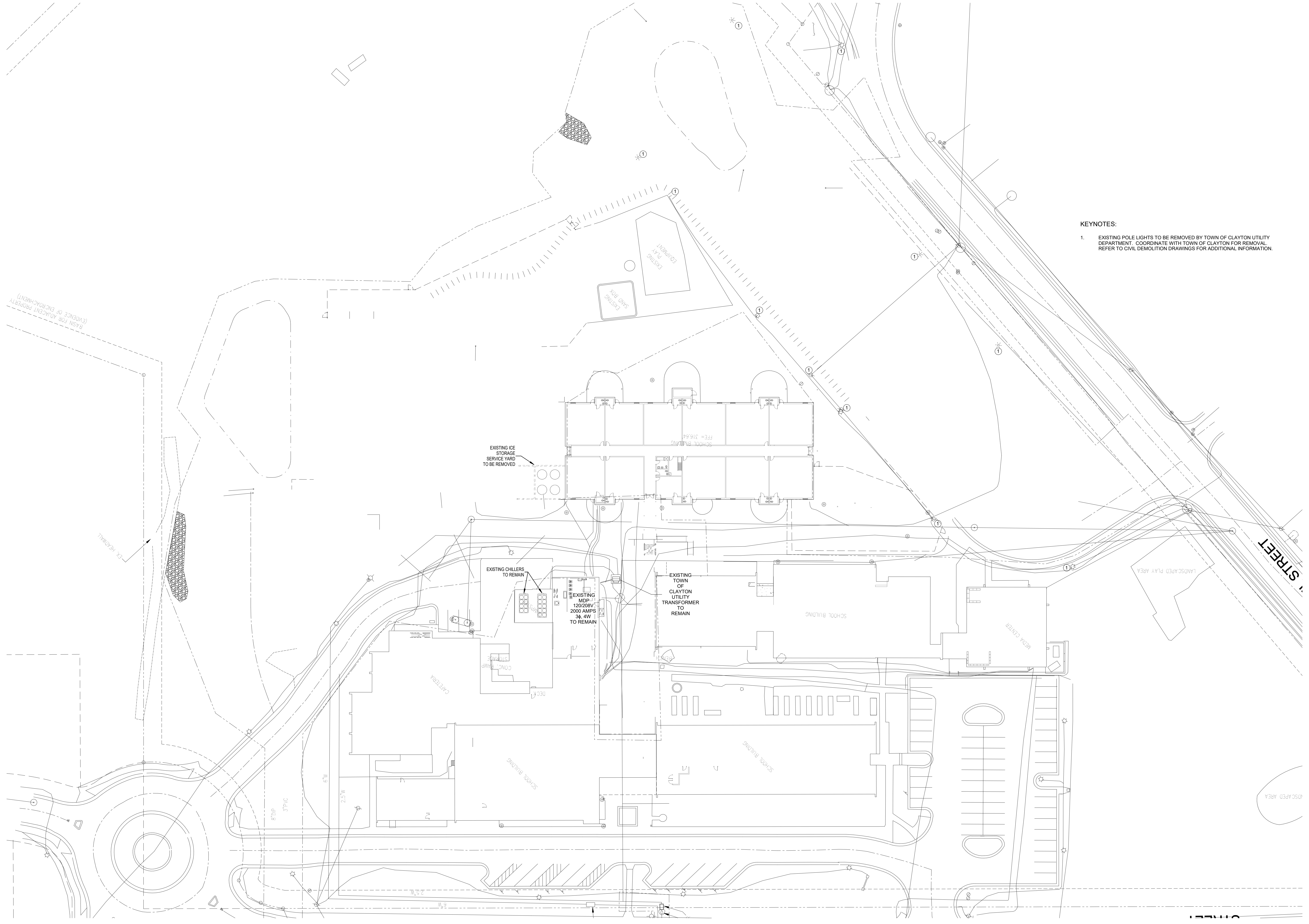
| PANEL ZL (PART OF ALTERNATE #3)                             |           |          |  |        |    |     |    |       |                   |           |       |       |                 |         |      |              |                                 |          |           |       |     |
|---|-----------|----------|--|--------|----|-----|----|-------|-------------------|-----------|-------|-------|-----------------|---------|------|--------------|---------------------------------|----------|-----------|-------|-----|
| CKT   | LOAD TYPE | LOAD KVA | DESCRIPTION                            | C      | PH | N   | G  | CB    | PHASE             |           |       | CB    | PH              | N       | G    | C            | DESCRIPTION                     | LOAD KVA | LOAD TYPE | CKT   |     |
|   |           |          |  |        |    |     |    |       | A                 | B         | C     |       |                 |         |      |              |                                 |          |           |       |     |
| 1   | R         | 0.360    | RECEPT - CT0                           | 3/4"   | 12 | 12  | 12 | 20    | 1.260             |           |       | 20    | 12              | 12      | 12   | 3/4"         | WATER COOLER (NOTE 2)           | 0.900    | O         | 2     |     |
| 3   | R         | 0.720    | RECEPT - C05, CT1, CT2, CT3            | 3/4"   | 12 | 12  | 12 | 20    | 1.080             |           |       | 20    | 12              | 12      | 12   | 3/4"         | RECEPT - HALL (NOTE 2)          | 0.360    | R         | 4     |     |
| 5   | R         | 0.900    | RECEPT - C05, C05A, C05A.1, C05C       | 3/4"   | 12 | 12  | 12 | 20    |                   |           | 1.800 | 20    | 12              | 12      | 12   | 3/4"         | ICE MACHINE (NOTE 2)            | 0.900    | O         | 6     |     |
| 7   | R         | 0.540    | RECEPT - C05B                          | 3/4"   | 12 | 12  | 12 | 20    | 1.160             |           |       | 20    | 12              | 12      | 12   | 3/4"         | LTS - CONFERENCE ROOM (NOTE 2)  | 0.620    | L         | 8     |     |
| 9   | R         | 0.360    | RECEPT - C05A                          | 3/4"   | 12 | 12  | 12 | 20    | 1.062             |           |       | 20    | 12              | 12      | 12   | 3/4"         | FCU-1C, FCU-2C, EF (NOTE 2)     | 0.702    | H         | 10    |     |
| 11  | O         | 1.200    | MICROWAVE - C05A                       | 3/4"   | 12 | 12  | 12 | 20    | 1.650             |           |       | 20    | 12              | 12      | 12   | 3/4"         | UC-5C, UC-6C (NOTE 2)           | 0.450    | H         | 12    |     |
| 13  | O         | 0.900    | EWC - C05 (NOTE 1)                     | 3/4"   | 12 | 12  | 12 | 20    | 1.300             |           |       | 20    | 12              | 12      | 12   | 3/4"         | FIRE SUPPRESSION (NOTE 2)       | 0.400    | O         | 14    |     |
| 15  | L         | 0.572    | LTS - C05                              | 3/4"   | 10 | 10  | 10 | 20    | 1.292             |           |       | 20    | 12              | 12      | 12   | 3/4"         | RECEPT - OFFICE (NOTE 2)        | 0.720    | R         | 16    |     |
| 17  | L         | 0.796    | LTS - C05A, C05B, C05C, C05E, CT1, CT2 | 3/4"   | 10 | 10  | 10 | 20    | 1.346             |           |       | 20    | 12              | 12      | 12   | 3/4"         | LIGHTS (NOTE 2)                 | 0.550    | L         | 18    |     |
| 19  | O         | 1.200    | REFRIGERATOR - C05A                    | 3/4"   | 12 | 12  | 12 | 20    | 1.920             |           |       | 20    | 12              | 12      | 12   | 3/4"         | RECEPT - OFFICE (NOTE 2)        | 0.720    | R         | 20    |     |
| 21  | R         | 0.360    | RECEPT - C05A                          | 3/4"   | 12 | 12  | 12 | 20    | 1.440             |           |       |       |                 |         |      |              | HOOD EXHAUST FAN (NOTE 2)       | 1.080    | K         | 22    |     |
| 23  | H         | 0.366    | ALTERNATE #3 - FANS EF-1 AND EF-2      | 3/4"   | 12 | 12  | 12 | 15    | 1.476             |           |       | 15    | 10              | N/A     | 10   | 3/4"         |                                 | 1.080    | K         | 24    |     |
| 25  | O         | 1.200    | COPPER                                 | 3/4"   | 12 | 12  | 12 | 20    | 2.280             |           |       |       |                 |         |      |              |                                 | 1.080    | K         | 26    |     |
| 27  | O         | 1.500    | PARKING GATE                           | 1"     | 8  | 8   | 10 | 20    | 2.460             |           |       | 20    | 12              | 12      | 12   | 3/4"         | 3-DOOR REFRIGERATOR (NOTE 2)    | 0.960    | K         | 28    |     |
| 29  | O         |          | SPARE                                  |        |    |     | 20 |       |                   |           | 0.960 | 20    | 12              | 12      | 12   | 3/4"         | COMPUTER - LEFT SIDE (NOTE 2)   | 0.960    | O         | 30    |     |
| 31  | O         |          | SPARE                                  |        |    |     | 20 |       |                   |           | 0.960 | 20    | 12              | 12      | 12   | 3/4"         | COMPUTER - RIGHTS SIDE (NOTE 2) | 0.960    | O         | 32    |     |
| 33  | O         |          | SPARE                                  |        |    |     | 20 |       |                   |           | 0.720 | 20    | 12              | 12      | 12   | 3/4"         | RECEPT - LEFT WALL (NOTE 2)     | 0.720    | R         | 34    |     |
| 35  | O         |          | SPARE                                  |        |    |     | 20 |       |                   |           | 0.720 | 20    | 12              | 12      | 12   | 3/4"         | RECEPT - BACK WALL (NOTE 2)     | 0.720    | R         | 36    |     |
| 37  | O         |          | SPARE                                  |        |    |     | 20 |       |                   |           | 0.720 | 20    | 12              | 12      | 12   | 3/4"         | RECEPT - RIGHT WALL (NOTE 2)    | 0.720    | R         | 38    |     |
| 39  | H         | 6.240    | EXISTING ACH/HEAT PUMP (NOTE 2)        | 1 1/4" | 3  | N/A | 6  | 80    | 6.240             |           |       | 20    |                 |         |      |              | SPACE                           |          | O         | 40    |     |
| 41  | H         | 6.240    |  |        |    |     |    |       |                   |           | 6.240 | 20    |                 |         |      |              | SPACE                           |          | O         | 42    |     |
| 43  | O         |          | SPARE                                  |        |    |     | 20 | 0.000 |                   |           |       | 20    |                 |         |      |              | SPACE                           |          | O         | 44    |     |
| 45  | O         |          | SPARE                                  |        |    |     | 20 | 0.000 |                   |           |       | 20    |                 |         |      |              | SPACE                           |          | O         | 46    |     |
| 47  | O         |          | SPACE                                  |        |    |     | 20 |       |                   |           | 0.000 | 20    |                 |         |      |              | SPACE                           |          | O         | 48    |     |
| 49  | O         |          | SPACE                                  |        |    |     |    |       |                   |           | 0.000 |       |                 |         |      |              | SPACE                           |          | O         | 50    |     |
| 51  | O         |          | SPACE                                  |        |    |     |    |       |                   |           | 0.000 |       |                 |         |      |              | SPACE                           |          | O         | 52    |     |
| 53  | O         |          | SPACE                                  |        |    |     |    |       |                   |           | 0.000 |       |                 |         |      |              | SPACE                           |          | O         | 54    |     |
| 55  | O         |          | SPACE                                  |        |    |     |    |       |                   |           | 0.000 |       |                 |         |      |              | SPACE                           |          | O         | 56    |     |
| 57  | O         |          | SPACE                                  |        |    |     |    |       |                   |           | 0.000 |       |                 |         |      |              | SPACE                           |          | O         | 58    |     |
| 59  | O         |          | SPACE                                  |        |    |     |    |       |                   |           | 0.000 |       |                 |         |      |              | SPACE                           |          | O         | 60    |     |
| LOAD TOTAL:   |           |          |  |        |    |     |    |       | 9.60              | 14.29     | 14.19 |       |                 |         |      |              |                                 |          |           |       |     |
| LOAD TYPE   |           |          |  |        |    |     |    |       | CONNECTED         | DEMAND    |       |       | FED FROM:       |         |      | EXISTING MDP |                                 |          |           |       |     |
| 208Y/120 V  |           |          |  |        |    |     |    |       | 3 PHASE           | 4 WIRE    |       |       | (R) RECEPTACLES | 7.20    | 100% | 7.20         | MOUNT: SURFACE                  |          |           |       |     |
| MAINS: MLO  |           |          |  |        |    |     |    |       | 225 A BUS         | (M) MOTOR | 0.00  | 100%  | 0.00            | NEMA: 1 |      |              |                                 |          |           |       |     |
| 22000 AIC   |           |          |  |        |    |     |    |       | SE LABEL          | (H) HVAC  | 14.03 | 100%  | 14.03           |         |      |              |                                 |          |           |       |     |
|   |           |          |  |        |    |     |    |       | (L) LIGHTING      | 2.54      | 125%  | 3.17  |                 |         |      |              |                                 |          |           |       |     |
|   |           |          |  |        |    |     |    |       | (O) OTHER         | 10.12     | 100%  | 10.12 |                 |         |      |              |                                 |          |           |       |     |
|   |           |          |  |        |    |     |    |       | (K) KITCHEN EQUIP | 4.20      | 100%  | 4.20  |                 |         |      |              |                                 |          |           |       |     |
| TOTAL:  |           |          |  |        |    |     |    |       | 38.09             | 102%      | 38.72 |       |                 |         |      |              |                                 |          |           |       |     |
| NOTES:  |           |          |  |        |    |     |    |       |                   |           |       |       |                 |         |      |              | PANEL TOTALS                    |          |           |       |     |
| 1. PROVIDE GFCI CIRCUIT BREAKER.                            |           |          |  |        |    |     |    |       |                   |           |       |       |                 |         |      |              | PHASE A                         | 9.790    | KVA       | 81.3  | AMP |
| 2. EXISTING LOAD MOVED FROM UNASSIGNED PANEL TO THIS PANEL. |           |          |  |        |    |     |    |       |                   |           |       |       |                 |         |      |              | PHASE B                         | 14.532   | KVA       | 121.1 | AMP |
| 3.  |           |          |  |        |    |     |    |       |                   |           |       |       |                 |         |      |              | PHASE C                         | 14.428   | KVA       | 120.2 | AMP |
| 4.  |           |          |  |        |    |     |    |       |                   |           |       |       |                 |         |      |              |                                 |          |           |       |     |

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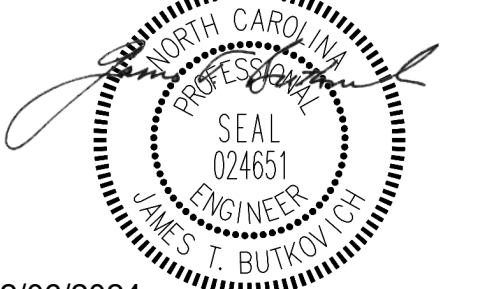
**KEYNOTES:**

- EXISTING POLE LIGHTS TO BE REMOVED BY TOWN OF CLAYTON UTILITY DEPARTMENT. COORDINATE WITH TOWN OF CLAYTON FOR REMOVAL. REFER TO CIVIL DEMOLITION DRAWINGS FOR ADDITIONAL INFORMATION.

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**Progressive Design Collaborative, Ltd.**  
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Raleigh, North Carolina 27604  
919-790-9989  
License# C-0183  
PROJECT #23015

**COOPER ACADEMY**  
**A & R**  
PROJECT TITLE

"CLIENT'S PROJECT" # - XXX



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**BID SET**  
PROJECT PHASE  
**2307**  
BOOMERANG DESIGN PROJECT NUMBER  
**02.07.2024**  
DRAWING RELEASE DATE

**DEMOLITION SITE PLAN**  
SHEET TITLE

**E900**  
SHEET

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**1 ELECTRICAL SITE PLAN - DEMOLITION**

1. ALL AREAS OF WORK SHALL BE SURVEYED PRIOR TO COMMENCING ANY WORK.
2. ANY ROUTING OF COMMUNICATIONS CABLING IN EXISTING BUILDINGS SHALL BE ROUTED USING J-HOOK SUPPORTS ABOVE ACCESSIBLE LAY-IN CEILING. IF ANY AREAS ARE EXPOSED, CABLING SHALL BE IN CONDUIT.
3. ALL FIRE ALARM CABLING SHALL BE IN MINIMUM 3/4" CONDUIT.
4. IF ANY CONDUIT SLEEVES ARE REQUIRED FOR ROUTING CABLING, THOSE SLEEVES SHALL BE ADDED AS NEEDED TO ACCOMMODATE A FULLY FUNCTIONING SYSTEM.

**KEYNOTES:**

1. ELECTRICAL CONTRACTOR SHALL PROVIDE CONDUIT AND WIRING AND MAKE FINAL CONNECTIONS AT ALL BACKFLOW PREVENTER HEATERS. CIRCUIT AS SHOWN. COORDINATE WITH UTILITY CONTRACTOR. CIRCUIT AS SHOWN.
2. ELECTRICAL CONTRACTOR SHALL PROVIDE 1" CONDUIT AND FIRE ALARM WIRING AND MAKE FINAL CONNECTIONS AT POST INDICATOR VALVE (PIV) TAMPER SWITCH. COORDINATE WITH UTILITY CONTRACTOR.
3. ELECTRICAL CONTRACTOR SHALL PROVIDE 1" CONDUIT AND FIRE ALARM WIRING AND MAKE FINAL CONNECTIONS AT TAMPER SWITCHES AND TEMPERATURE SENSOR AT FIRELINE BACK FLOW PREVENTER. COORDINATE WITH UTILITY CONTRACTOR. WIRE TO NEW FIRE ALARM PANEL IN NEW ADDITION.
4. PROPOSED LOCATIONS FOR NEW POLE LIGHTS - PROVIDED AND INSTALLED BY TOWN OF CLAYTON UTILITIES.
5. 240 VOLT, 60 AMP, 3 POLE, NEMA-3R, FUSIBLE DISCONNECT SWITCH FOR SEWAGE LIFT PUMP STATION. COORDINATE FINAL FUSE SIZE AND LOCATION WITH UTILITY CONTRACTOR. ELECTRICAL CONTRACTOR SHALL PROVIDE ALL CONDUIT/WIRING, SEAL-OFFS AND MAKE FINAL CONNECTIONS. COORDINATING CLOSELY WITH UTILITY CONTRACTOR. REFER TO CIVIL DRAWINGS FOR PUMP STATION DETAILS.
6. (3)-3" CONDUITS FROM IDF-5098 VIA HANDHOLES AND JUNCTION BOX TO EXISTING MDF SERVER ROOM FOR FIBER, SECURITY AND FIRE ALARM WIRING.
7. (2)-2" COMMUNICATION CONDUITS ROUTED UNDERGROUND VIA JUNCTION BOXES BETWEEN BUILDINGS. CONDUITS SHALL RISE ON EXTERIOR TO BUILDING TO ABOVE ACCESSIBLE LAY-IN CEILING. CONDUITS SHALL BE FOR INTERCOM WIRING ROUTED BACK TO EXISTING BOGEN MULTICOM 2000.
8. QUARTZITE HANDHOLE - 30x48 TIER 22 WITH WEATHRPROOF, BOLTED, GASKETED COVER AND OPEN BOTTOM. INSTALL PER MANUFACTURER'S REQUIREMENTS.
9. EXISTING NAPCO MA3000 PANEL TO BE REPLACED WITH NEW NAPCO X255 PANEL.

**GENERAL NOTES:**

**Progressive Design Collaborative, Ltd.**  
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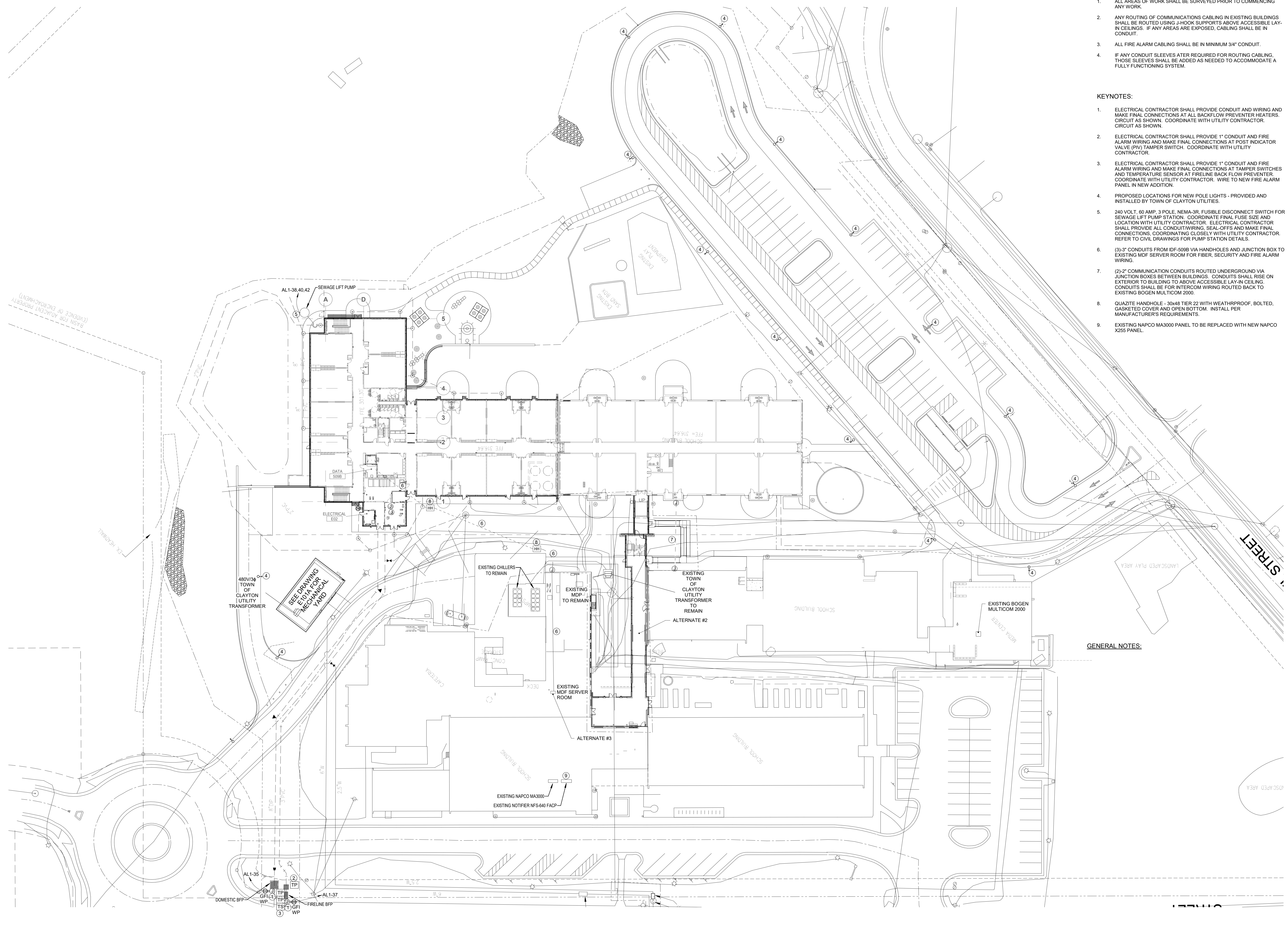
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**BID SET**  
PROJECT PHASE  
**2307**  
BOOMERANG DESIGN PROJECT NUMBER  
**02.07.2024**  
DRAWING RELEASE DATE

**NEW WORK SITE PLAN**  
SHEET TITLE

**E901**  
SHEET



**1 ELECTRICAL SITE PLAN - NEW WORK**

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