

**ELECTRICAL SPECIFICATIONS :**

- 1. GENERAL:
A. ALL WORK SHALL CONFORM TO THE ADOPTED MODEL OF ELECTRICAL AND BUILDING SUB CODES OF THE "I.C.C." ADMINISTRATIVE REGULATIONS AND LOCAL CODES.
B. OBTAIN ALL PERMITS AND APPROVALS FROM AUTHORITIES HAVING JURISDICTION AND PAYING ALL FEES REQUIRED.
C. SUBMIT SIX (6) SETS OF SHOP DRAWINGS FOR APPROVAL OF THE FOLLOWING:
1. WIRE 2. DEVICES 3. CONDUIT 4. PANELS 5. LIGHT FIXTURES 6. TRANSFORMERS
D. PROVIDE TEMPORARY POWER AS REQUIRED FOR THE PROJECT. THE TERM "TURNISH" SHALL MEAN TO OBTAIN AND SUPPLY TO THE JOB SITE. THE TERM "INSTALL" SHALL MEAN TO FIX IN POSITION AND CONNECT FOR USE. THE TERM "TERMINATE" SHALL MEAN TO FURNISH AND INSTALL. THE TERM "CONTRACTOR" SHALL MEAN ELECTRICAL CONTRACTOR.
E. ALL WORK SHALL BE DONE UNDER NORMAL WORKING HOURS, UNLESS OTHERWISE NOTED. ONLY WRITTEN CHANGES AND/OR MODIFICATIONS APPROVED BY THE ARCHITECT, CONSULTING ENGINEER OR OWNER'S REPRESENTATIVE WILL BE RECOGNIZED.
F. ROOF PENETRATIONS SHALL COMPLY WITH "S.M.A.C.N.A." AND "N.R.C.A." STANDARDS WITH REQUIREMENTS OF THE ROOFING WARRANTY OR GUARANTEE. DO NOT PERFORM ROOFING PENETRATIONS IN A MANNER WHICH WOULD VOID OR OTHERWISE LIMIT THE ROOFING WARRANTY OR GUARANTEE.
G. TELEPHONE/DATA WIRING TO BE FURNISHED AND INSTALLED BY OTHERS.
H. PROVIDE PROPERLY SIZED THERMAL ELEMENTS IN STARTERS AS REQUIRED.
I. FURNISH AND INSTALL ALL CODE REQUIRED SEISMIC BRACING AND SUPPORTS FOR ELECTRICAL EQUIPMENT AND RACKWAYS.
J. KEEP PREMISES FREE FROM RUBBISH. REMOVE ALL ELECTRICAL RUBBISH FROM SITE DAILY.
K. EFFECTIVELY PROTECT ALL MATERIALS AND EQUIPMENT FROM ENVIRONMENTAL AND PHYSICAL DAMAGE UNTIL FINAL ACCEPTANCE. CLOSE AND PROTECT ALL OPENINGS DURING CONSTRUCTION. PROVIDE NEW MATERIALS AND EQUIPMENT TO REPLACE ITEMS DAMAGED.
L. CONTRACTOR SHALL MAINTAIN ALL EXISTING EMERGENCY EGRESS LIGHTING, SECURITY SYSTEM DEVICES AND FIRE ALARM DEVICES. ALL PHASES OF NEW WORK ARE COMPLETE AND IN FULL OPERATION.
M. ELECTRICAL CONTRACTOR TO PROVIDE CIRCUIT IDENTIFICATION TAGS FOR ALL BRANCH CIRCUIT WIRING DEVICES. PANEL DESCRIPTION AND CIRCUIT NUMBER SHALL BE TYPE WRITTEN BLACK LETTERS AND CLEAR, SELF ADHESIVE TAPE STRIP SUITABLE FOR ALL WEATHER CONDITIONS.
N. ALL WORK TO BE INSPECTED BY MONTCLAIR STATE UNIVERSITY OFFICE OF CONSTRUCTION CODE COMPLIANCE FOR CONFORMITY OF THE UNIFORM CONSTRUCTION CODE OF THE STATE OF NEW JERSEY.

**2. GROUNDING AND BONDING :**

- A. GROUNDING SYSTEM: PERMANENTLY AND EFFECTIVELY GROUND ALL METALLIC CONDUITS, SUPPORTS, CABINETS, PANEL BOARDS AND SYSTEM GROUNDING NEUTRAL IN ACCORDANCE WITH THE REQUIREMENTS OF THE I.C.C. MAINTAIN CONTINUITY OF EQUIPMENT GROUND THROUGHOUT THE SYSTEM. GROUNDING CLAMPS SHALL BE LISTED FOR THE APPLICATION. WHERE GROUNDING CONDUCTOR IS ENCLOSED IN CONDUIT, GROUND CLAMP SHALL BE OF A TYPE WHICH GROUNDS BOTH CONDUCTOR AND CONDUIT.
B. GREEN EQUIPMENT BONDING CONDUCTORS SIZED IN ACCORDANCE WITH NEC 250-122 SHALL BE PROVIDED FOR ALL FEEDERS AND BRANCH CIRCUITS.
C. BOND SYSTEM GROUND TO WATER PIPES PER NEC REQUIREMENTS.

**3. IDENTIFICATION :**

- A. MODIFY DIRECTORIES OF EXISTING PANELS WHERE CHANGES AND/OR ADDITIONS HAVE BEEN MADE.
B. WIRE AND CABLE COLOR CODING

- 1. POWER WIRING: CONSISTENT PHASE IDENTIFICATION OF ALL WIRES SHALL BE MAINTAINED AS FOLLOWS:
200/230 VOLT, 3-PHASE
PHASE 'A' BLACK
PHASE 'B' RED
PHASE 'C' BLUE
NEUTRAL WIRE WHITE
GROUND WIRE GREEN
ISOLATED GROUND WIRE GREEN WITH YELLOW STRIPE
C. CONTROL WIRES: WIRES OF CONTROL CIRCUITS SHALL BE CONSISTENTLY COLOR CODED TO PERMIT EASY IDENTIFICATION OF CONDUCTORS.
D. PROVIDE IDENTIFICATION OF ALL BRANCH CIRCUIT WIRES IN PULL BOXES AND AT TERMINATIONS WITH PANEL AND CIRCUIT NUMBER, IDENTIFY PANEL DESIGNATION AND CIRCUIT NUMBER.
E. PROVIDE PLASTIC ENGRAVED LABELS ON PANELS, DISCONNECT SWITCHES AND TRANSFORMERS TO INDICATE POWER SOURCE AND VOLTAGE.

**4. WIRING METHODS :**

- A. BRANCH CIRCUIT AND FEEDER WIRING RUN WITHIN THE BUILDING SHALL BE INSTALLED IN MINIMUM 1/2" E.M.T. WITH COMPRESSION FITTINGS. RUN CONCEALED WHERE POSSIBLE, BUT NOT IN PLASTER OR CONCRETE. CONDUITS CANNOT BE CONCEALED. ARMORED CABLE (TYPE MC) SHALL BE PERMITTED IN CONCEALED AREAS ONLY AND TO THE EXTENT PERMITTED BY CODE.
B. BRANCH CIRCUIT AND FEEDER WIRING RUN OUTSIDE SHALL BE RUN IN RIGID GALVANIZED STEEL CONDUIT.
C. WIRING FOR CONTROLS, COMMUNICATIONS AND OTHER SYSTEMS SHALL BE IN RACEWAY SPECIFIED FOR BRANCH CIRCUITS UNLESS SPECIFICALLY NOTED OTHERWISE.
D. WIRING IN FINISHED AREAS WHICH CANNOT BE CONCEALED SHALL BE RUN IN SURFACE MOUNTED RACEWAY. EXACT ROUTING OF CONDUITS SHALL BE DETERMINED IN THE FIELD.
E. PROVIDE CONDUIT SEALS FOR RACEWAYS PASSING THROUGH FLOORS OR WALLS. REMOVE FIRE RATED SEALS WHERE REQUIRED. ALL WALL AND FLOOR PENETRATIONS THROUGHOUT THE BUILDING SHALL BE SEALED WITH AN "M" APPROVED FIRE STOPPING MATERIAL. SIMILARLY, ALL VERTICAL AND HORIZONTAL PENETRATIONS IN THE BASE BUILDING'S TELEPHONE AND ELECTRICAL CLOSETS SHOULD BE FIRE STOPPED WITH "M" APPROVED FLOOR AND WALL FIRE STOP. THE PROPOSED FIRE STOPPING MATERIAL SHOULD BE "M" APPROVED WITH AN HOURLY RATING GREATER THAN OR EQUAL TO THE WALL AND/OR FLOOR.
F. CONCEAL WIRING SYSTEM ABOVE SUSPENDED CEILING OR IN WALL OR FLOOR CONSTRUCTION WHERE POSSIBLE. INSTALL CONDUIT PARALLEL TO BUILDING LINES AND TO CLEAR ALL OPENINGS, DEPRESSIONS, PIPES, DUCTS, STRUCTURE, ETC.
G. FURNISH AND INSTALL ALL POWER WIRING AS REQUIRED FOR EQUIPMENT FURNISHED UNDER H.V.A.C., PLUMBING AND GENERAL TRADE SECTIONS, UNLESS OTHERWISE NOTED.
H. LIQUID TIGHT FLEXIBLE METAL CONDUIT IN LENGTHS OF 3' OR LESS WITH APPROVED TYPE FITTINGS SHALL BE USED FOR CONNECTIONS TO VIBRATING EQUIPMENT, MOTORS, AND OTHER OUTLETS WHERE WIRING WILL BE EXPOSED TO VIBRATIONS. MINIMUM SIZE SHALL BE 1/2".
I. INSTALL RACEWAYS FROM BOX TO BOX OR TERMINATION'S AS SHOWN ON THE DRAWINGS OR AS REQUIRED TO EFFECT CIRCUITING DESCRIBED WITH CIRCUIT NUMBERS ADJACENT TO EQUIPMENT. GROUPING HOME RUNS OR COMBINING WIRES IN COMMON RACEWAYS WILL BE ALLOWED WITH A MAXIMUM OF THREE SINGLE POLE CIRCUITS IN A RACEWAY. INCREASE WIRE SIZES AND RACEWAYS WHERE REQUIRED TO AVOID LOSS OF AMPACITY AS REQUIRED BY NATIONAL ELECTRIC CODE.
J. FLEXIBLE METAL CONDUIT IN MINIMUM 1/2" SIZE WITH APPROVED TYPE FITTINGS MAY BE USED IN LIMITED LENGTHS FOR CONNECTIONS TO RECESSED FIXTURES WHERE IT IS NECESSARY TO PROVIDE FLEXIBLE CONNECTIONS. WHERE STRUCTURAL MEMBERS PRECLUDE THE USE OF ELECTRICAL METALLIC TUBING OR CONDUITS FLEXIBLE METAL CONDUITS WITH EQUAL OR GREATER CAPACITY MAY BE USED.
K. INSTALL CONDUIT CONTINUOUS BETWEEN BOXES AND CABINETS WITH NO MORE THAN EQUIVALENT OF FOUR (4) 90 DEGREE BENDS. SECURELY FASTEN IN PLACE WITH STRAPS, HANGERS AND STEEL SUPPORTS AS REQUIRED. DO NOT SUPPORT CONDUIT FROM SUSPENDED CEILING GRID OR SUSPENSION WIRES. RIGID CONDUIT ENDS AND THROUGHOUGH CLEAN BEFORE INSTALLATION. OPENINGS SHALL BE PLUGGED OR COVERED TO KEEP CONDUIT CLEAN. TERMINALS ON SWITCHES AND RECEPTACLES SHALL NOT BE USED TO TIE-IN TO THE NEXT SWITCH OR RECEPTACLE. THE DISCONNECTING OR REMOVAL OF A DEVICE FROM A BOX SHALL NOT INTERFERE WITH OR INTERRUPT THE CIRCUIT CONTINUITY.
L. CONDUCTORS SHALL BE CONTINUOUS FROM CIRCUIT TO PANEL OR EQUIPMENT WITHOUT SPICES. WHERE TAP SPICES ARE NECESSARY AND APPROVED, THEY SHALL BE MADE WITH LISTED CONNECTORS IN JUNCTION BOXES.
M. ALL WIRE AND CABLE AMPACITIES INDICATED ON DRAWINGS ARE BASED ON 75°C TEMPERATURE RATING. ALL LUGS, BREAKERS, SWITCHES AND OTHER TERMINATION'S SHALL HAVE 75°C RATINGS AS A MINIMUM.
N. ALL UNDERGROUND WIRING SHALL BE INSTALLED IN RIGID STEEL CONDUIT SCHEDULE 80 PVC. ALL ELBOWS SHALL BE GALVANIZED ZINC COATED. MINIMUM UNDERGROUND RACEWAY SHALL BE 1".
O. ALL UNDERGROUND WIRING SHALL BE INSTALLED AT A MINIMUM OF 24" BELOW FINISHED GRADE TO TOP OF CONDUIT. PROVIDE CONTINUOUS RED PLASTIC STRIP 1"-0" BELOW GRADE.
P. ALL PENETRATIONS BELOW GRADE SHALL BE SEALED WITH WATERPROOF CONDUIT SEALS USING A UL LISTED PRODUCT.
Q. FOR CONDUITS CROSSING EXPANSION JOINTS, PROVIDE EXPANSION FITTINGS FOR SIZE 1/4" AND LARGER. PROVIDE SECTIONS OF FLEXIBLE CONDUIT WITH GROUNDING JUMPERS FOR SIZES 1" AND SMALLER.

**5. TRANSFORMERS :**

- A. TRANSFORMERS SHALL BE DRY TYPE WITH AVERAGE TEMPERATURE RISE NOT TO EXCEED 115°C.
B. TRANSFORMERS SHALL BE AS MANUFACTURED BY "SQUARE-D", "HAMMOND" OR "SIEMENS".
C. TRANSFORMERS SHALL BE FURNISHED WITH FULL WOUND COPPER ELECTROSTATIC SHIELDING AND K-FACTOR RATING OF K-13.
D. PANEL BOARDS / DISCONNECTS:
A. PANEL BOARDS SHALL BE FACTORY ASSEMBLED AS MANUFACTURED BY "SQUARE-D", "EATON" OR "SIEMENS". MEETING UL STANDARDS 30 AND 67, WITH UL LABEL. ALL CONDUCTOR TERMINALS TO BE UL LISTED FOR MINIMUM 75 DEGREE C.
B. BRACING SHALL BE EQUIVALENT TO, OR COMPARABLE WITH, THE RATED INTERRUPTING CAPACITY OF SMALLEST OVER CURRENT DEVICE IN THAT PANEL.
C. BREAKERS SHALL BE THERMAL MAGNETIC TYPE, BOLT-IN, QUICK-MAKE, QUICK-BREAK TYPE SINGLE UNIT CONSTRUCTION TYPE SETTINGS AND NUMBER OF POLES AS INDICATED ON DRAWINGS. TWO AND THREE POLE BREAKERS SHALL BE SINGLE UNIT COMMON TRIP TYPE. ALL BREAKERS CONNECTED TO LIGHTING BRANCH CIRCUITS SHALL BE APPROVED FOR THAT USE AND MARKED "SMO" MINIMUM 10 KAIC.
D. PANEL BOARD CABINETS SHALL BE ONE PIECE CODE GAGE GALVANIZED STEEL WITH MOUNTING STUDS. WIRING GUTTER OF AMPLE SIZE AND KNOCKOUTS FOR CONDUIT CONNECTIONS AS REQUIRED. BUS BARS SHALL BE 100% CONDUCTIVE COPPER, ARRANGED FOR SEQUENCE PHASING AND ALL CONNECTIONS SHALL BE SILVER PLATED. FRONTS SHALL BE CODE GAGE STEEL WITH ADJUSTABLE FASTENERS. DOOR IN DOOR TYPE. PROVIDE FLUSH MOUNT UNITS UNLESS OTHERWISE INDICATED. PROVIDE A PLASTIC COVERED TYPE WRITTEN SCHEDULE IDENTIFYING ALL BRANCH CIRCUITS INSIDE EACH CABINET. PROVIDE LOCK IN EACH PANEL DOOR WITH ALL LOCKS IN CONTROL KEYPAD ALIKE. PROVIDE 2 KEYS FOR EACH LOCK.
E. ALL PANELS SHALL HAVE TYPEWRITTEN DIRECTORIES.
F. DISCONNECT SWITCHES SHALL BE HEAVY-DUTY, QUICK-MAKE, QUICK-BREAK TYPE NEMA-3R (FOR OUTDOOR). SWITCHES SHALL BE AS MANUFACTURED BY "SQUARE-D", "EATON", OR "SIEMENS". FURNISH AND INSTALL ALL FUSES AS MANUFACTURED BY "BUSBMAN", "MERRISON" OR "LITTLE FUSE". ALL CONDUCTOR TERMINALS SHALL BE UL LISTED FOR MINIMUM 75 DEGREE C. NON FUSED RATINGS SHALL MATCH CONDUCTOR RATINGS, UNLESS OTHERWISE NOTED.
G. A STRUCT FRAME SHALL BE PROVIDED AT ALL LOCATIONS WHERE STRUCTURE WILL NOT ADEQUATELY SUPPORT EQUIPMENT, OR FOR FREESTANDING EQUIPMENT.

**7. CONDUCTORS :**

- A. CONDUCTORS SHALL BE INSULATED SOFT ANNEALED 80% PURE COPPER #10 AND SMALLER TO BE SOLID, #8 AND LARGER TO BE STRANDED. MINIMUM #12 UNLESS OTHERWISE INDICATED. ALUMINUM CONDUCTORS WILL NOT BE ALLOWED. ALL INSULATION TO BE RATED FOR 600 VOLTS AND TYPES AS FOLLOWS:
#10 AND SMALLER: THIN, THIN, OR THIN
#8 AND LARGER: THIN OR THIN
B. LAYOUT BRANCH CIRCUIT WIRING AND ARRANGEMENT OF HOME RUNS FOR ECONOMY AND EFFICIENCY. INCREASE WIRE SIZE IF VOLTAGE DROP EXCEEDS 2%.

**8. WIRING DEVICES - PLATES :**

- A. DEVICES SHALL BE MANUFACTURED BY "HUBBELL" OR EQUAL. ALL DEVICES SHALL BE INDUSTRIAL SPECIFICATION GRADE. COVER PLATES SHALL BE MATCH DEVICE, UNLESS OTHERWISE NOTED. STANDARD DUPLEX RECEPTACLES SHALL BE GROUNDING TYPE, 20 AMP, NEMA 5-20R, BACK AND SIDE WIRE. "HUBBELL" 5362 SERIES UNLESS OTHERWISE NOTED. SWITCHES SHALL BE "HUBBELL" 1221 SERIES OR EQUAL. OTHER DEVICES SHALL BE AS INDICATED ON THE DRAWINGS OR AS REQUIRED BY THE EQUIPMENT ITEM INTENDED TO BE SERVED. WHERE SWITCHES ARE GROUPED, PROVIDE GANGED PLATES. COORDINATE ALL DEVICE AND FACEPLATE TYPES AND COLORS WITH ARCHITECT PRIOR TO INSTALLATION.
B. TELEPHONE AND DATA OUTLETS SHALL BE MOUNTED IN SEPARATE BOXES ADJACENT TO POWER OUTLETS.
C. GROUND FAULT CIRCUIT INTERRUPTER RECEPTACLES, EXCEPT IN FINISHED SPACES, SHALL BE PROVIDED WITH WHILE-IN-USE METALLIC COVERS.

**9. LUMINAIRES AND LAMPS :**

- A. LUMINAIRES SHALL BE FURNISHED AND COMPLETE WITH NECESSARY MOUNTING OR HANGING HARDWARE AND WITH PLASTER FRAMES WHERE REQUIRED. REFER TO LIGHTING FIXTURE SCHEDULE FOR FIXTURE TYPE.
B. FLUORESCENT BALLASTS SHALL BE ELECTRONIC WITH LESS THAN 10% TOTAL HARMONIC DISTORTION.
C. THE ELECTRICAL CONTRACTOR SHALL VERIFY CEILING TYPE AND SPACE LIMITATIONS PRIOR TO ORDERING LUMINAIRES.
D. THE ELECTRICAL CONTRACTOR SHALL FIELD VERIFY ALL EXISTING VOLTAGES PRIOR TO ORDERING NEW FIXTURES.

**10. EQUIPMENT SUPPORTS :**

- A. PROVIDE ALL STRUCTURAL SUPPORTS AND MOUNTING DEVICES FOR THE PROPER ATTACHMENTS OF EQUIPMENT SUPPLIED BY THIS TRADE. THIS SHALL ALSO INCLUDE STARTERS, DISCONNECTS, CONTROLLERS, ETC. FURNISHED BY THE MECHANICAL TRADE.
B. CONDUIT SUPPORTS SHALL BE PLACED A MAXIMUM DISTANCE OF TEN FEET APART.
C. SUPPORT CEILING MOUNTED LIGHT FIXTURES FROM STRUCTURE ABOVE WITH METAL TE WIRES OR PROVIDE EARTHQUAKE CLIPS AS REQUIRED BY "NEC" AND/OR "I.B.C." CODES.
D. MAINTAIN CONTINUITY OF EXISTING CIRCUITS AFFECTED BY THIS WORK.
E. IN THE EVENT ANY WIRING OR EQUIPMENT TO BE REMOVED IS IN ACTIVE USE AS DETERMINED BY THE OWNER, PROVIDE TEMPORARY WIRING AS REQUIRED TO MAINTAIN SUCH USE UNTIL THE PERMANENT WIRING IS INSTALLED AND PLACED IN SERVICE.
F. ALL WORK REQUIRING AN OUTAGE OR AN INTERRUPTION OF SERVICE (POWER, TELEPHONE, ETC.) SHALL BE DONE ONLY AT SUCH TIME AS PERMITTED BY THE OWNER. PROVIDE A MINIMUM OF TWO WORKING DAYS NOTICE TO THE OWNER AND ENGINEER FOR SUCH SHUTDOWNS.
G. ELECTRICAL WORK SHALL INCLUDE ALL REQUIRED CUTTING, PATCHING AND THE FULL RESTORATION OF WALL AND FLOOR STRUCTURE AND SURFACES.

**12. FIRE ALARM SYSTEM :**

- A. FURNISH AND INSTALL ALL LABOR, MATERIALS AND EQUIPMENT REQUIRED FOR CONNECTION OF DEVICES TO THE EXISTING FIRE ALARM SYSTEM, AS COVERED BY THESE SPECIFICATIONS. INSTALL, CONNECT AND LEAVE IN FIRST CLASS OPERATING CONDITION. ALL EQUIPMENT AND CABLES SHALL BE UL LISTED, CONFORM TO "INTERNATIONAL BUILDING CODE", "NFPA" CODES 70, 72, 80A, AND 101. MODIFY THE EXISTING FIRE ALARM PANEL TO ACCOMMODATE ALL NEW DEVICES.
B. PROVIDE AND INSTALL FIRE ALARM DEVICES REQUIRED PER NFAC 5-23-7.2 BARRIER FREE SUB CODE.
C. FURNISH AND INSTALL DUCT SMOKE DETECTORS IN DUCTS OF ALL SUPPLY AND RETURN FANS WITH A CAPACITY GREATER THAN 2000 CF.M. WIRE INTO FIRE ALARM SYSTEM AND TO SHUT DOWN UNIT UPON ACTIVATION.
D. PROVIDE WIRING TO WATER FLOW AND TAMPER SWITCHES. REFER TO FIRE PROTECTION DRAWINGS FOR LOCATIONS.
E. REFER TO "N.E.S.U." FULL FIRE ALARM STANDARDS SPECIFICATIONS INCLUDED IN THIS DRAWING SET.

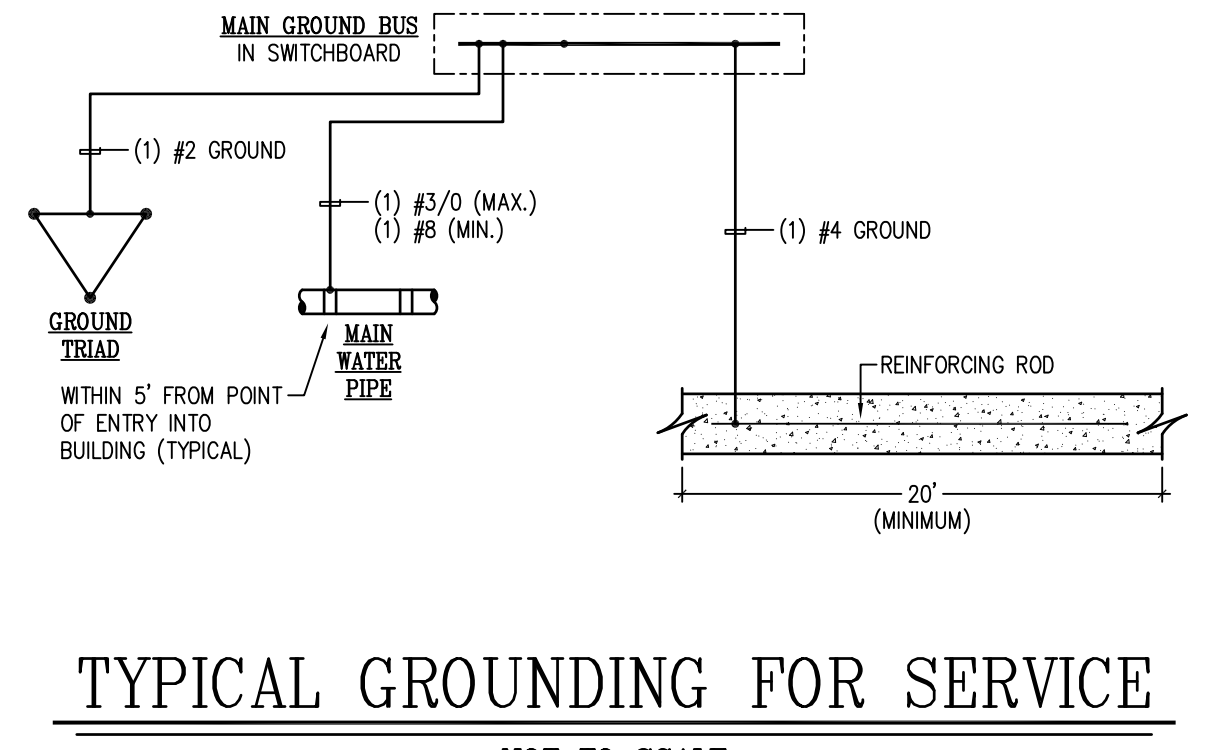
**13. COORDINATION :**

- A. REVIEW THE ARCHITECTURAL DRAWINGS IN ORDER TO UNDERSTAND THE FULL SCOPE OF WORK AND TO REVIEW THE CONSTRUCTION DETAILS.
B. REFER TO THE H.V.A.C., FIRE PROTECTION AND PLUMBING DRAWINGS FOR LOCATIONS OF EQUIPMENT AND CONTROL WIRING REQUIREMENTS. ONLY POWER FEED TO MECHANICAL EQUIPMENT ARE SCHEDULED ON THE ELECTRICAL DRAWINGS. FURNISH AND INSTALL ALL CODE REQUIRED DISCONNECT SWITCHES FOR MECHANICAL EQUIPMENT. ALL DISCONNECTS SHALL BE SUPPLIED BY THE MECHANICAL TRADE. PROVIDE FUSED SWITCHES WHEREVER MANUFACTURER REQUIRES THEM.
C. FURNISH AND INSTALL CONTROL WIRING.
D. VERIFY LOCATIONS OF ALL DEVICES WITH ARCHITECT AND OWNER BEFORE INSTALLATION.
E. FURNISH A SCHEDULE INDICATING HIS PORTION OF TIME, WITHIN THE OVERALL SCHEDULE, REQUIRED TO COMPLETE THE WORK, IN CONJUNCTION WITH ALL TRADES.

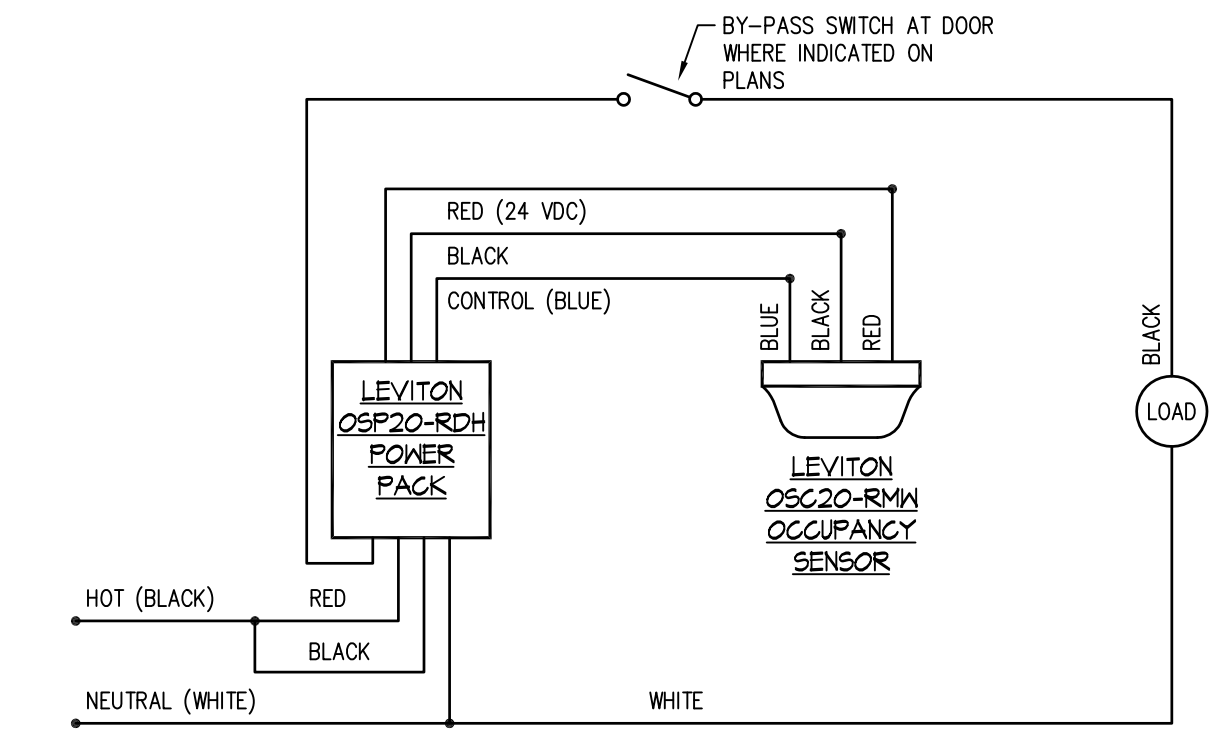
**14. CLOSE OUT :**

- A. ALL ELECTRICAL EQUIPMENT SHALL BE ADJUSTED AND TESTED FOR PROPER OPERATION AFTER WIRES ARE IN PLACE AND CONNECTED TO DEVICES AND EQUIPMENT TEST THE SYSTEM FOR SHORTS AND GROUND. ALL HOT AND NEUTRAL CONDUCTORS, IF SHORTED OR GROUNDED, SHALL BE REMOVED AND REPLACED. FURNISH ALL METERS, INSTRUMENTS, CABLE CONNECTIONS, EQUIPMENT OR APPARATUS NECESSARY FOR MAKING ALL TESTS.
B. TOUCH-UP OR REFRESH DAMAGED SURFACES OF FIXTURES AND EQUIPMENT.
C. FURNISH WRITTEN ONE YEAR GUARANTEE FOR ALL ELECTRICAL WORK AND EQUIPMENT.
D. SUBMIT "AS-BUILT" DRAWINGS AT COMPLETION OF PROJECT.

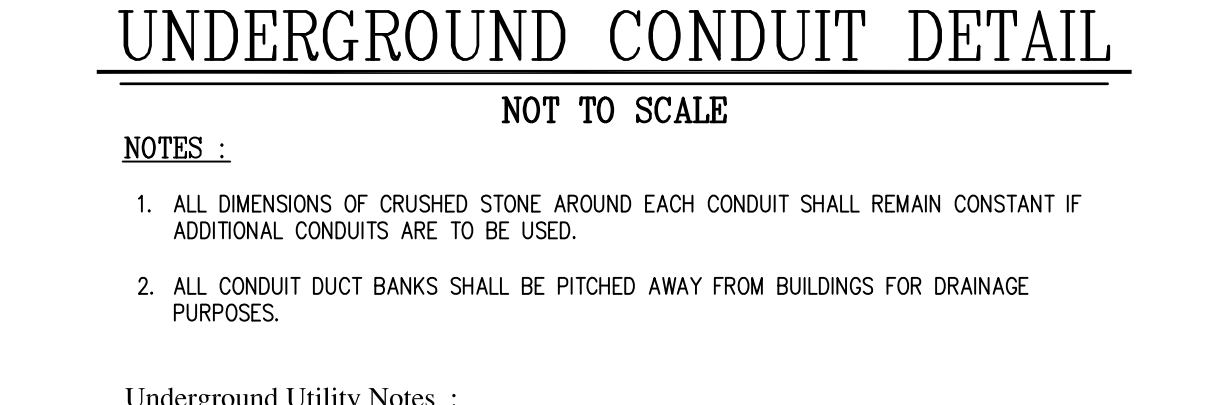
LIGHTING SCHEDULE table with columns: SYMBOL, ITEM #, DESCRIPTION, MANUFACTURER / DISTRIBUTOR, MODEL #, SUPPLIER, LAMPS, QUANTITY, COMMENTS. Includes items for VEER 2X2 LED, WALL MOUNTED LED, RECESSED WET LOCATION LED, WET LOCATION ADA COMPLIANT, WET LOCATION ADA COMPLIANT WALL MTD, 1X4 SURFACE OR PENDANT MOUNTED WRAP, SURFACE MOUNTED LED, ELEMENTUM WS-72 WALL MOUNTED LED, UNIVERSAL MOUNTED SELF CONTAINED EXIT LIGHT, UNIVERSAL MOUNTED SELF CONTAINED EXIT LIGHT WITH EMERGENCY LIGHTING HEADS, DUAL WEATHERPROOF REMOTE EMERGENCY LIGHTING HEADS FOR ABOVE, UNIVERSAL MOUNTED SELF CONTAINED EMERGENCY BATTERY LIGHT.



TYPICAL GROUNDING FOR SERVICE NOT TO SCALE

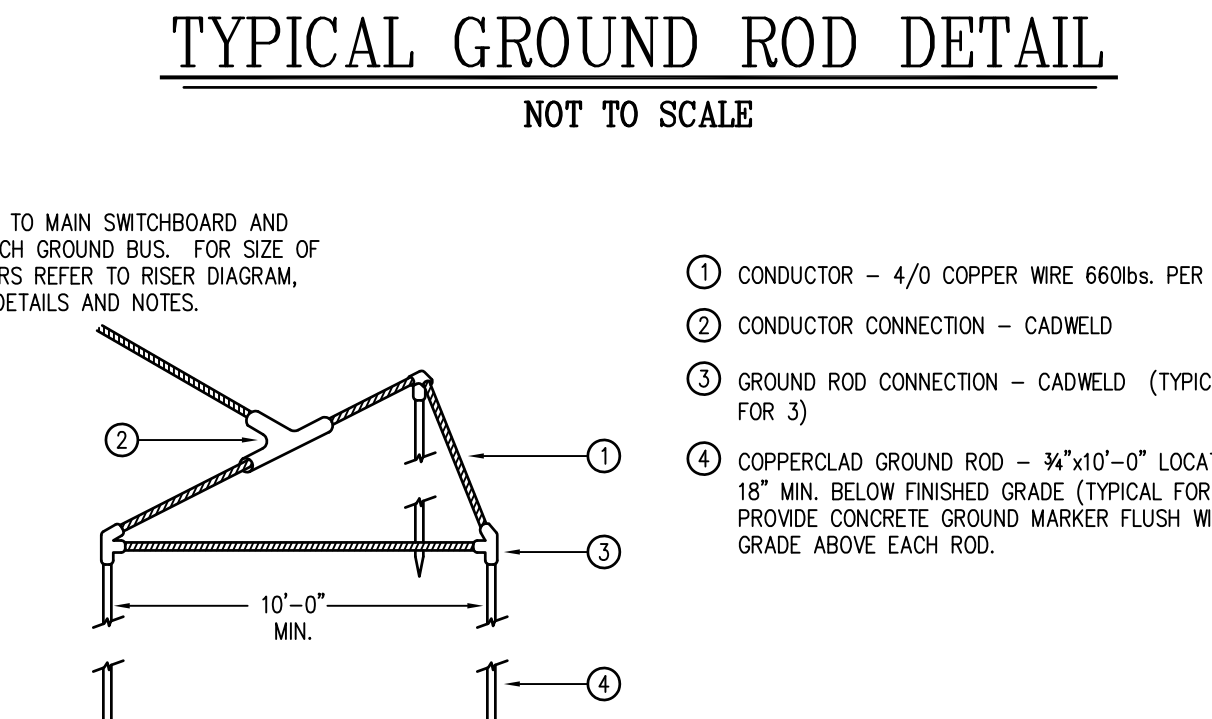


OCCUPANCY SENSOR WITH POWER PACK WIRING DIAGRAM NOT TO SCALE



UNDERGROUND CONDUIT DETAIL NOT TO SCALE

- NOTES:
1. ALL DIMENSIONS OF CRUSHED STONE AROUND EACH CONDUIT SHALL REMAIN CONSTANT IF ADDITIONAL CONDUITS ARE TO BE USED.
2. ALL CONDUIT DUCT BANKS SHALL BE PITCHED AWAY FROM BUILDINGS FOR DRAINAGE PURPOSES.
Underground Utility Notes:
1. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY ALL EXISTING SITE CONDITIONS BOTH ABOVE AND BELOW THE SURFACE PRIOR TO COMMENCING WORK. ANY DISCREPANCIES BETWEEN THE INFORMATION SHOWN ON THE DRAWINGS AND ACTUAL FIELD CONDITIONS SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT, ENGINEER AND OWNER IN WRITING PRIOR TO COMMENCING WORK.
2. THE CONTRACTOR SHALL NOTIFY ALL UNDERGROUND FACILITY OPERATORS, SO THAT UTILITY SERVICE LINES ARE PROPERLY MARKED PRIOR TO EXCAVATION TO MINIMIZE FACILITY DAMAGE, ON THE JOB INJURIES AND CONTRACTOR LIABILITY.
3. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO REPAIR ANY DAMAGE AND/OR RESTORE ANY INTERRUPTION TO ANY UTILITY SERVICE THAT MAY BE CAUSED BY THE CONTRACTOR'S CONSTRUCTION OR EQUIPMENT, AT THE CONTRACTOR'S EXPENSE WITH NO ADDITIONAL EXPENSE TO THE OWNER.
4. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY ALL EXISTING SEWERS, GAS, WATER, STEAM, ELECTRIC UTILITY LINES AND STRUCTURES WITHIN THE CONTRACT AREA THAT SHALL REMAIN, UNLESS SPECIFICALLY NOTED.



TYPICAL GROUND ROD DETAIL NOT TO SCALE

- 1. CONDUCTOR - 4/0 COPPER WIRE 660ohms PER 1000'.
2. CONDUCTOR CONNECTION - CADWELD
3. GROUND ROD CONNECTION - CADWELD (TYPICAL FOR 3)
4. COPPERCLAD GROUND ROD - 3/4"x10'-0" LOCATED 18" MIN. BELOW FINISHED GRADE (TYPICAL FOR 3) PROVIDE CONCRETE GROUND MARKER FLUSH WITH GRADE ABOVE EACH ROD.
MAIN GROUND TRIAD NOT TO SCALE

**ELECTRICAL LEGEND**

Table mapping symbols to descriptions and specifications. Includes symbols for wall mounted incandescent, ceiling or pendant mounted fluorescent, exit light, lighting fixture, emergency battery unit, compact fluorescent lamp holder, wet location ADA compliant, surface mounted LED, universal mounted self contained exit light, dual weatherproof remote emergency lighting heads, universal mounted self contained emergency battery light, home run, transformer, distribution panel, fuses, new addressable smoke detector, recessed fire alarm horn, water flow switch, tamper switch, security door device, security system card reader, security system door contacts, telephone/data outlet, above finished floor, amperes interrupting capacity, below finished grade, conduit, mounting above counter or sink, electrical contractor, emergency, existing in its relocated position, ground fault interrupter, existing to be removed, existing to be relocated, mounted in millwork, new, night light, unless otherwise noted, weatherproof.

GENERAL NOTES:
1. COORDINATE ALL DEVICE TYPES AND COLORS WITH ARCHITECT AND OWNER PRIOR TO PURCHASING ANY DEVICE.

- SENSOR NOTES:
1. LOCATION OF ALL SENSORS IS APPROXIMATE. REVIEW INSTALLATION INSTRUCTIONS BEFORE INSTALLING SENSORS.
2. TO PREVENT FALSE ACTIVATION, ULTRASONIC CEILING MOUNT SENSORS SHOULD BE MOUNTED AWAY FROM THE PATH OF STRONG AIR TURBULENCE. IN NORMAL AIRFLOW CONDITIONS SENSORS SHOULD BE MOUNTED FOUR TO SIX FEET AWAY FROM SOURCE. FOR TYPICAL PLACEMENT REFER TO LOCATION DIAGRAMS. IN LOCATIONS WITH STRONG AIR TURBULENCE A PER CLING SENSOR SHOULD BE CONSIDERED.
3. CONTRACTOR IS RESPONSIBLE FOR PROPER TIME DELAY AND SENSITIVITY ADJUSTMENTS WHEN APPLICABLE.
4. CONTRACTOR SHOULD FOLLOW MANUFACTURER'S RECOMMENDED PLACEMENT AND VERIFY CIRCUITS WITH RESPECT TO POWER PACKS AND ROOM CONTROLLERS NEEDED IN THE FIELD.
5. CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFICATION OF THE NUMBER OF POWER PACKS AND ROOM CONTROLLERS NEEDED. ONE POWER PACK PER CIRCUIT.
6. PROVIDE PHASE LOSS SENSOR IN CEILING OF EACH ROOM INDICATED WITH SWITCHED EMERGENCY LIGHTING FIXTURES TO TURN ON LIGHTING INDICATED AS EMERGENCY TO FULL BRIGHTNESS IN THE EVENT OF POWER LOSS. (TYPICAL)
7. ALL OCCUPANCY SENSORS WITH SPACES WITH WINDOWS AND/OR GLASS PARTITIONS CONTRACTOR SHALL AM SENSORS AS REQUIRED TO AVOID FALSE TRIGGERING BY MOVEMENT BEYOND GLASS PARTITION. WIRE PER MANUFACTURER INSTRUCTIONS.

CLIENT: MONTCLAIR STATE UNIVERSITY 1 NORMAL AVE MONTCLAIR, NJ 07043

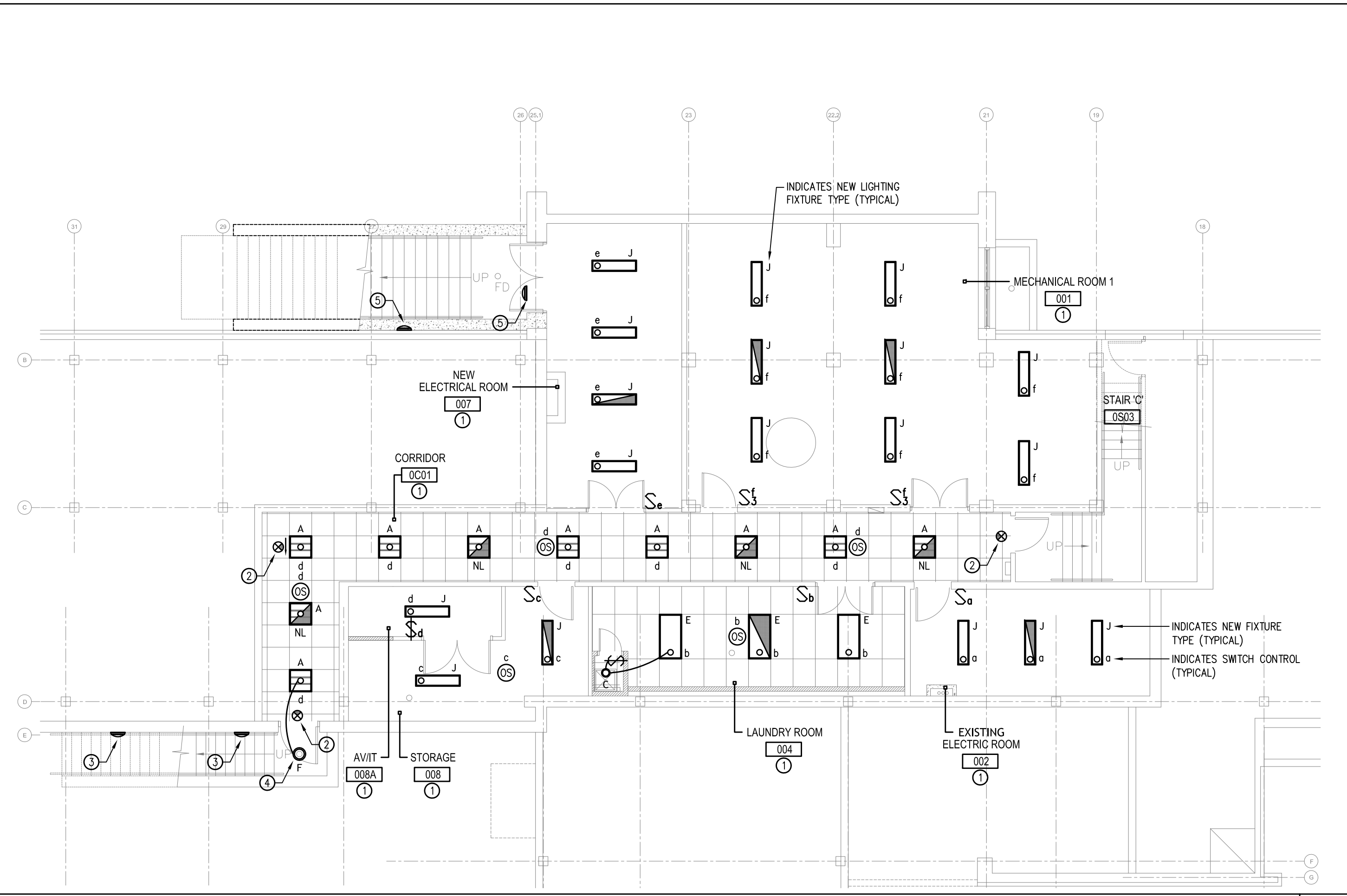
CONSULTANT: TMG Engineering Inc. Consulting Mechanical and Electrical Engineers 100 King George Post Rd. Suite No. 400 Edison, New Jersey 08837 Phone: 732-738-8972 Fax: 732-738-9972 New Jersey Certificate of Authorization Number: 244-03098-900

FRANK S. RADOSIN N.J.P.E. 33923 TMG JOB NUMBER 15-236

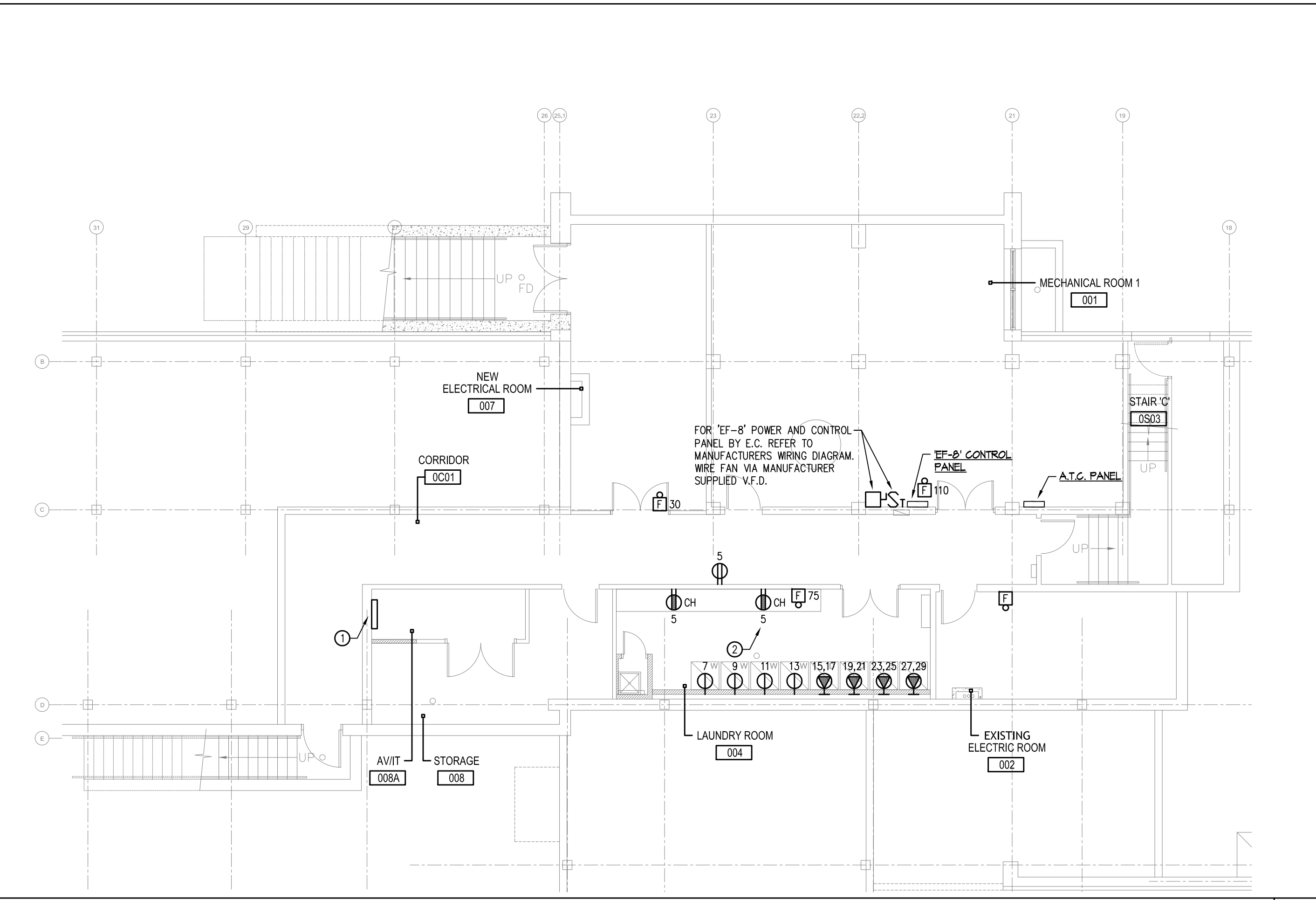
DESIGN BID, PERMIT & DELIVERABLE: CONSTRUCTION ISSUE DATE: 10/30/15 PROJECT NUMBER: 15087 DRAWN BY: Ken S. CHECKED BY: F.M. SHEET TITLE: ELECTRICAL LEGEND, SPECIFICATIONS, NOTES AND DETAILS SHEET NUMBER: E-100

CLIENT: MONTCLAIR STATE UNIVERSITY 1 NORMAL AVE MONTCLAIR, NJ 07043





**PARTIAL BASEMENT FLOOR PLAN NEW LIGHTING**  
1/8" = 1'-0" **1**



**PARTIAL BASEMENT FLOOR PLAN NEW POWER AND SIGNAL**  
1/8" = 1'-0" **2**

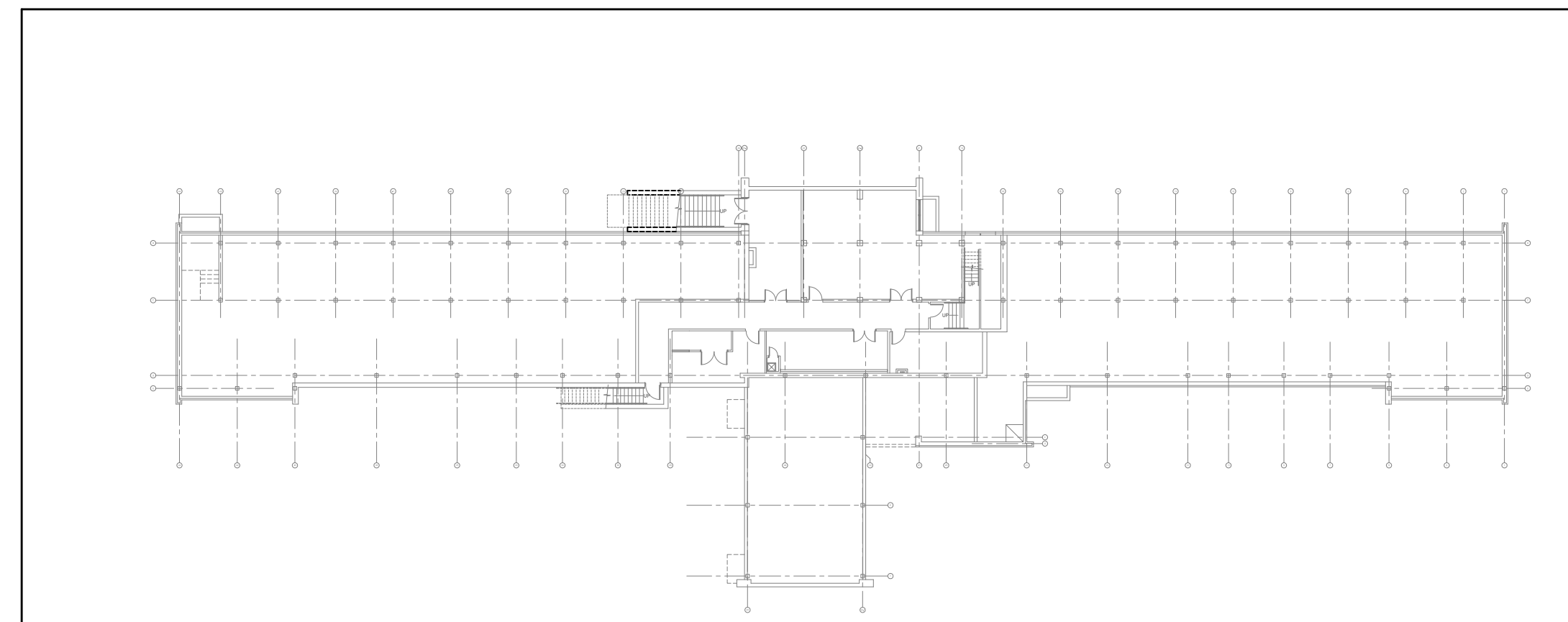
- LIGHTING NOTES :**
- ALL NEW LIGHTING INDICATED ON THIS PLAN ARE CIRCUITED TO EXISTING LIGHTING CIRCUITS SAFED OFF DURING DEMOLITION WORK, UNLESS OTHERWISE NOTED. WIRE ALL NEW LIGHTING WITH (2) #12 AND (1) #12 GROUND.
  - ALL EMERGENCY LIGHTING FIXTURES INDICATED IN CORRIDORS, VESTIBULES, BREAK ROOMS, OPEN SPACE AREAS, RESTROOMS AND LOUNGES REMAIN ON AT ALL TIMES (UNSWITCHED) AS NIGHT LIGHTING (TYPICAL).
  - ALL EXIT LIGHTING FIXTURES INDICATED SHALL BE WIRED TO REMAIN ON AT ALL TIMES.
  - ALL COMPONENTS REQUIRED FOR OCCUPANCY SENSORS, I.E. POWER PACKS AND ROOM CONTROLLERS IN ROOMS WITH INACCESSIBLE CEILINGS SHALL BE MOUNTED ABOVE NEAREST ACCESSIBLE CEILING AND LABELED WITH ROOM CONTROLLED.
  - ALL CORRIDOR AND OPEN AREA LIGHTING CONTROLS SHALL BE PROGRAMMED FOR AUTOMATIC ON AND VACANCY OFF. ALL STORAGE ROOMS, CLOSETS, ETC. SHALL BE PROGRAMMED FOR MANUAL ON VACANCY OFF.

- KEY NOTES :**
- CONTRACTOR TO PROVIDE AND INSTALL ALL NEW LIGHTING FIXTURES AS INDICATED. WIRE INTO EXISTING CIRCUIT SAFED OFF DURING DEMOLITION WORK AND TO EFFECT NEW CONTROLS AS INDICATED. IN ALL ROOMS WITH EXPOSED CEILINGS CHAIN HANG FIXTURES ±8'-0" A.F.F. COORDINATE ALL FIXTURE LOCATIONS WITH EXISTING AND NEW UTILITIES.
  - APPROXIMATE LOCATION OF EXISTING EXIT SIGN TO BE REPLACED WITH NEW EXIT SIGN TYPE 'EX'. PROVIDE FACES AND ARROWS PER PLANS.
  - APPROXIMATE LOCATION OF EXISTING LIGHTING FIXTURE TO BE REPLACED WITH NEW TYPE 'C' EMERGENCY FIXTURE. PROVIDE FIXTURES WITH BUILT-IN PHOTO CELL. CONTRACTOR SHALL BE RESPONSIBLE TO ENSURE EXISTING CIRCUITS ARE FUNCTIONING AND MAKE ALL REPAIRS AS REQUIRED.
  - NEW LIGHTING FIXTURE - TIE INTO EXISTING BASEMENT CORRIDOR LIGHTING CIRCUIT. PROVIDE FIXTURE WITH PHOTO CELL FOR CONTROL.
  - NEW TYPE 'C' EMERGENCY FIXTURE. PROVIDE FIXTURES WITH BUILT-IN PHOTO CELL. CONTRACTOR SHALL WIRE INTO EXISTING BASEMENT LIGHTING CIRCUIT.

- POWER AND SIGNAL NOTES :**
- ALL EXISTING POWER AND SIGNAL EQUIPMENT, DEVICES, WIRING ETC. WITHIN THESE ROOMS ARE TO REMAIN, UNLESS OTHERWISE NOTED ON THIS PLAN AND/OR DEMOLITION AND NEW WORK PLAN.
  - ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE TO PROVIDE CORD AND PLUG FOR EACH DRYER IF NOT EQUIPPED FROM THE MANUFACTURER. RECEPTACLES AND CORDS SHALL BE 'NEMA' 6-30.
- KEY NOTES :**
- CONTRACTOR TO WIRE A/C SPLIT SYSTEM AIR CONDITIONER BEING INSTALLED BY OTHERS. CIRCUIT TO 'MDP-A' CIRCUIT #1 AND #3. PROVIDE WIRING TO INDOOR UNIT AND OUTDOOR UNIT. PROVIDE DISCONNECT AT INDOOR UNIT AND WEATHERPROOF DISCONNECT AT OUTDOOR UNIT.
  - INDICATES A NEW CIRCUIT TO 'MDP-A', UNLESS OTHERWISE NOTED - REFER TO PANEL SCHEDULES.

JOB NAME: MSU - STONE HALL RATING: 209/120V, 4W, 3PH, 600A										JOB NO: 15 LOCATION: Existing Electric Room									
CKT NO.	CIRCUIT DESCRIPTION	POLE	LOAD KVA	BKR	BRANCH CIRCUIT			BKR	LOAD KVA	POLE	CIRCUIT DESCRIPTION	CKT NO.							
					A	B	C												
1	1T Room Light System	2	1.5	30	3#10 & 1#10EG IN 3/4"	2.5	2.5	1.0	3	Duplex Ejector Pump	2								
3	Receptacles & EF-1	1	0.6	20	2#12 & 1#12EG IN 3/4"	2.4	2.4	1.0	3	Exhaust Fan EF-5	4								
7	Washer Receptacle	1	0.8	20	2#12 & 1#12EG IN 3/4"	2.4	2.0	1.0	1	Exhaust Fan EF-5	8								
9	Washer Receptacle	1	0.8	20	2#12 & 1#12EG IN 3/4"	2.4	2.0	1.0	1	Exhaust Fan EF-5	10								
11	Washer Receptacle	1	0.8	20	2#12 & 1#12EG IN 3/4"	2.4	2.0	1.0	1	Exhaust Fan EF-5	12								
13	Washer Receptacle	1	0.8	20	2#12 & 1#12EG IN 3/4"	3.7	3.7	2.0	3	'CHWP-1' (HACR TYPE)	14								
15	Dryer Receptacle	2	1.5	30	3#10 & 1#10EG IN 3/4"	4.4	4.4	2.0	3	'CHWP-2' (HACR TYPE)	16								
17	Dryer Receptacle	2	1.5	30	3#10 & 1#10EG IN 3/4"	4.4	4.4	2.0	3	'CHWP-2' (HACR TYPE)	18								
19	Dryer Receptacle	2	1.5	30	3#10 & 1#10EG IN 3/4"	4.4	4.4	2.0	3	'CHWP-2' (HACR TYPE)	20								
21	Dryer Receptacle	2	1.5	30	3#10 & 1#10EG IN 3/4"	3.5	3.5	2.0	3	'HWP-1' (HACR TYPE)	22								
23	Dryer Receptacle	2	1.5	30	3#10 & 1#10EG IN 3/4"	3.5	3.5	2.0	3	'HWP-2' (HACR TYPE)	24								
25	Dryer Receptacle	2	1.5	30	3#10 & 1#10EG IN 3/4"	3.5	3.5	2.0	3	'HWP-1' (HACR TYPE)	26								
27	Dryer Receptacle	2	1.5	30	3#10 & 1#10EG IN 3/4"	2.5	2.5	2.0	3	'HWP-2' (HACR TYPE)	28								
29	Dryer Receptacle	2	1.5	30	3#10 & 1#10EG IN 3/4"	2.5	2.5	2.0	3	'HWP-2' (HACR TYPE)	30								
31	A.T.C. Panel & EF-3 Cont. Panel	1	0.5	20	2#12 & 1#12EG IN 3/4"	2.5	2.0	2.0	3	'HWP-2' (HACR TYPE)	32								
33	Space	2								SPACE	34								
35	Space	2								SPACE	36								
37	Existing 'STONE-MDP'	3		600	SEE RISER DIAGRAM	0.0	0.0			SPACE	38								
39	Space	2								SPACE	40								
41	Space	2								SPACE	42								
TOTAL (PHASE)					19.0	18.8	18.7												
TOTAL CONN.					54.5	SPARE CAPACITY 0 %													
TOT. CONN. + SPARE					54.5	DEMAND FACTOR 100 %													
DEMAND					54.5	KVA													
DEMAND					151.5	AMPS													

JOB NAME: MSU - STONE HALL RATING: 209/120V, 4W, 3PH, 600A										JOB NO: 15 LOCATION: Existing Electric Room									
CKT NO.	CIRCUIT DESCRIPTION	POLE	LOAD KVA	BKR	BRANCH CIRCUIT			BKR	LOAD KVA	POLE	CIRCUIT DESCRIPTION	CKT NO.							
					A	B	C												
1	EXISTING PANEL RP-1A	3	7.6		4#3 & 1#8EG IN 1-1/2"	15.1	15.1	7.5	3		EXISTING PANEL RP-1B	2							
3	EXISTING PANEL RP-1A	3	4.7		4#3 & 1#8EG IN 1-1/2"	11.2	11.2	5.8	3		EXISTING PANEL RP-2B	4							
5	EXISTING PANEL RP-2A	3	5.8		4#3 & 1#8EG IN 1-1/2"	11.2	11.2	5.8	3		EXISTING PANEL RP-2B	6							
7	EXISTING AC1S THRU AC10S	2	4.7		4#3 & 1#8EG IN 1-1/2"	11.2	11.2	5.8	3		EXISTING PANEL RP-2B	8							
9	EXISTING AC1S THRU AC10S	2	4.7		4#3 & 1#8EG IN 1-1/2"	11.2	11.2	5.8	3		EXISTING PANEL RP-2B	10							
11	EXISTING AC1S THRU AC10S	2	4.9		4#3 & 1#8EG IN 1-1/2"	11.2	11.2	5.8	3		EXISTING PANEL RP-2B	12							
13	EXISTING AC1S THRU AC10S	2	4.9		4#3 & 1#8EG IN 1-1/2"	11.2	11.2	5.8	3		EXISTING PANEL RP-2B	14							
15	EXISTING AC1S THRU AC10S	2	1.0	15	3#12 & 1#12EG IN 3/4"	4.0	4.0	3.0	3		EXISTING CU-15 (HACR TYPE)	16							
17	ORIGINAL BUILDING MDP (Being Replaced)	3	1.0	300	4#350 MCM & 1#4EG IN 3"	0.5	0.5	3.0	1		'CUH-1', 'CUH-2' & 'UH-1', 'UH-3' Disconnect (By E.C.)	18							
19	New 'AHU-1'	2	0.7	15	3#12 & 1#12EG IN 3/4"	1.4	1.4	1.0	1		'DWH-1' AND 'CP-1'	20							
21	New 'CU-1'	2	1.2	25	3#10 & 1#10EG IN 3/4"	1.7	1.7	1.0	1		'EF-5' Via VFD (By Others) & Disconnect (By E.C.)	22							
23	Space	1									SPACE	24							
25	Space	1									SPACE	26							
27	Space	1									SPACE	28							
29	Space	1									SPACE	30							
31	Space	1									SPACE	32							
33	Space	1									SPACE	34							
35	Space	1									SPACE	36							
37	Space	1									SPACE	38							
39	Space	1									SPACE	40							
41	Space	1									SPACE	42							
TOTAL (PHASE)					32.4	27.9	28.2												
TOTAL CONN.					87.6	SPARE CAPACITY 0 %													
TOT. CONN. + SPARE					87.6	DEMAND FACTOR 100 %													
DEMAND					87.6	KVA													
DEMAND					243.4	AMPS													



**KEY PLAN**  
N.T.S. **K**

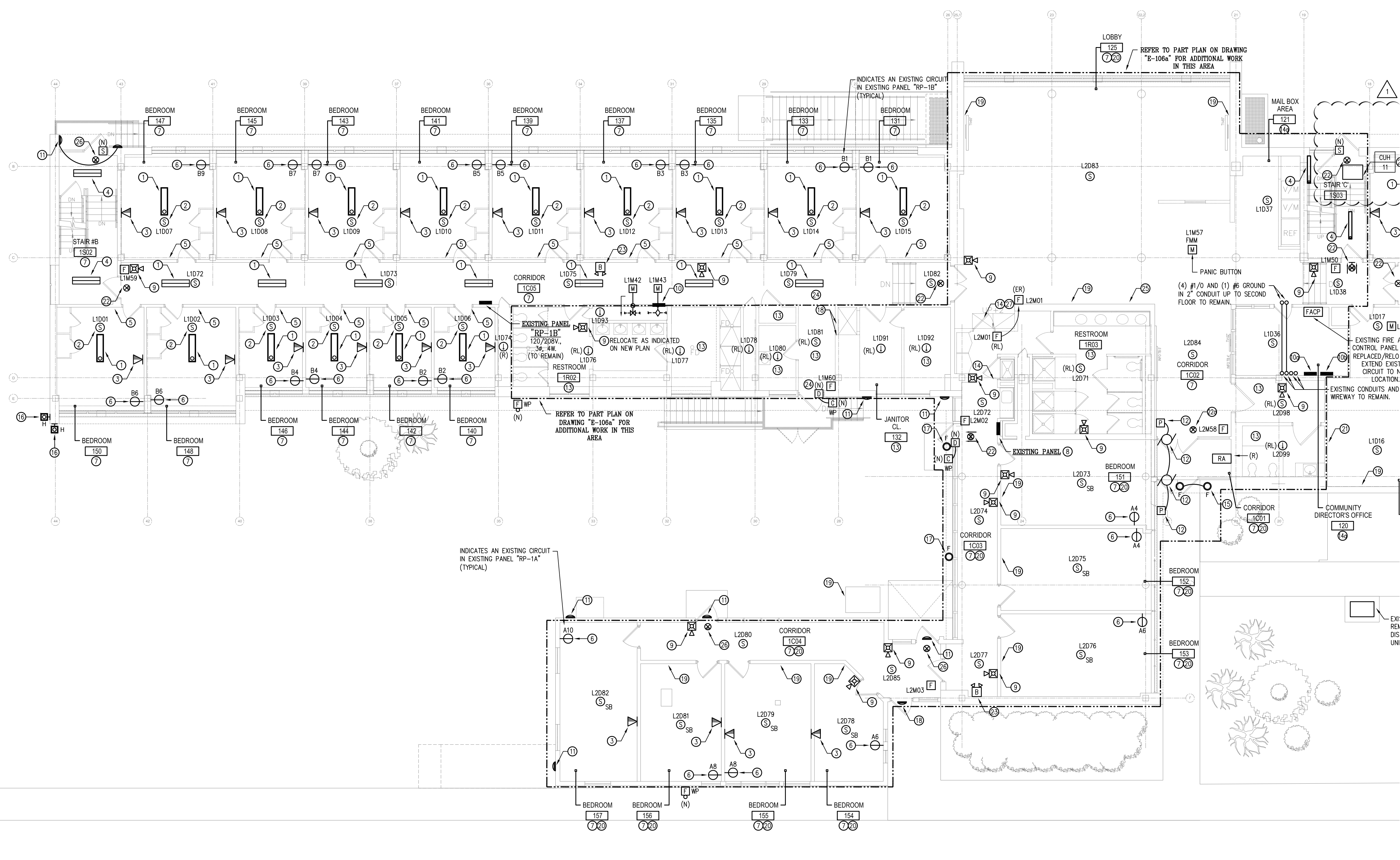
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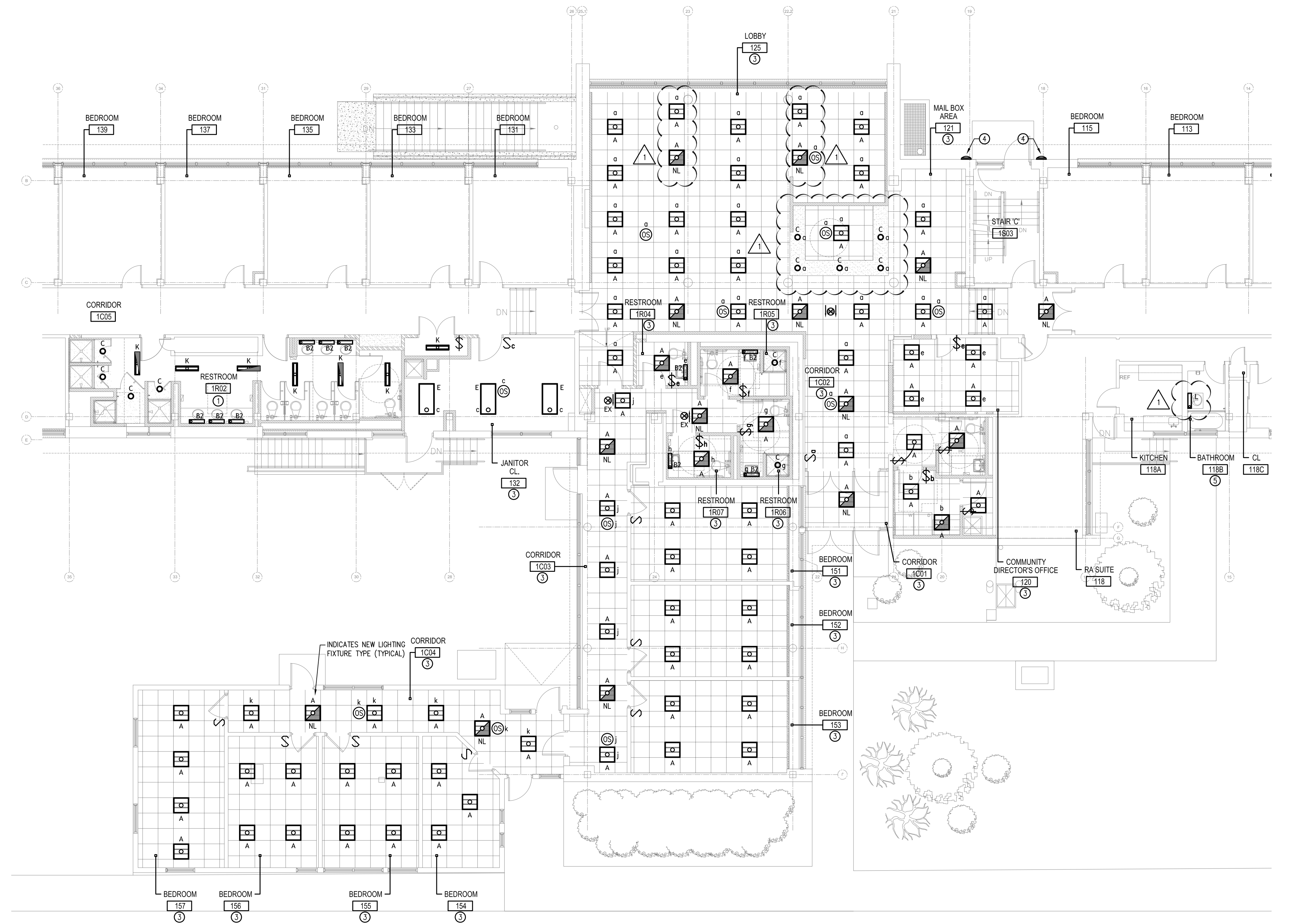
PROJECT NUMBER: 15087  
DRAWN BY: Ken S.  
CHECKED BY: F.M.

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SHEET TITLE:  
**ELECTRICAL BASEMENT FLOOR PLANS**

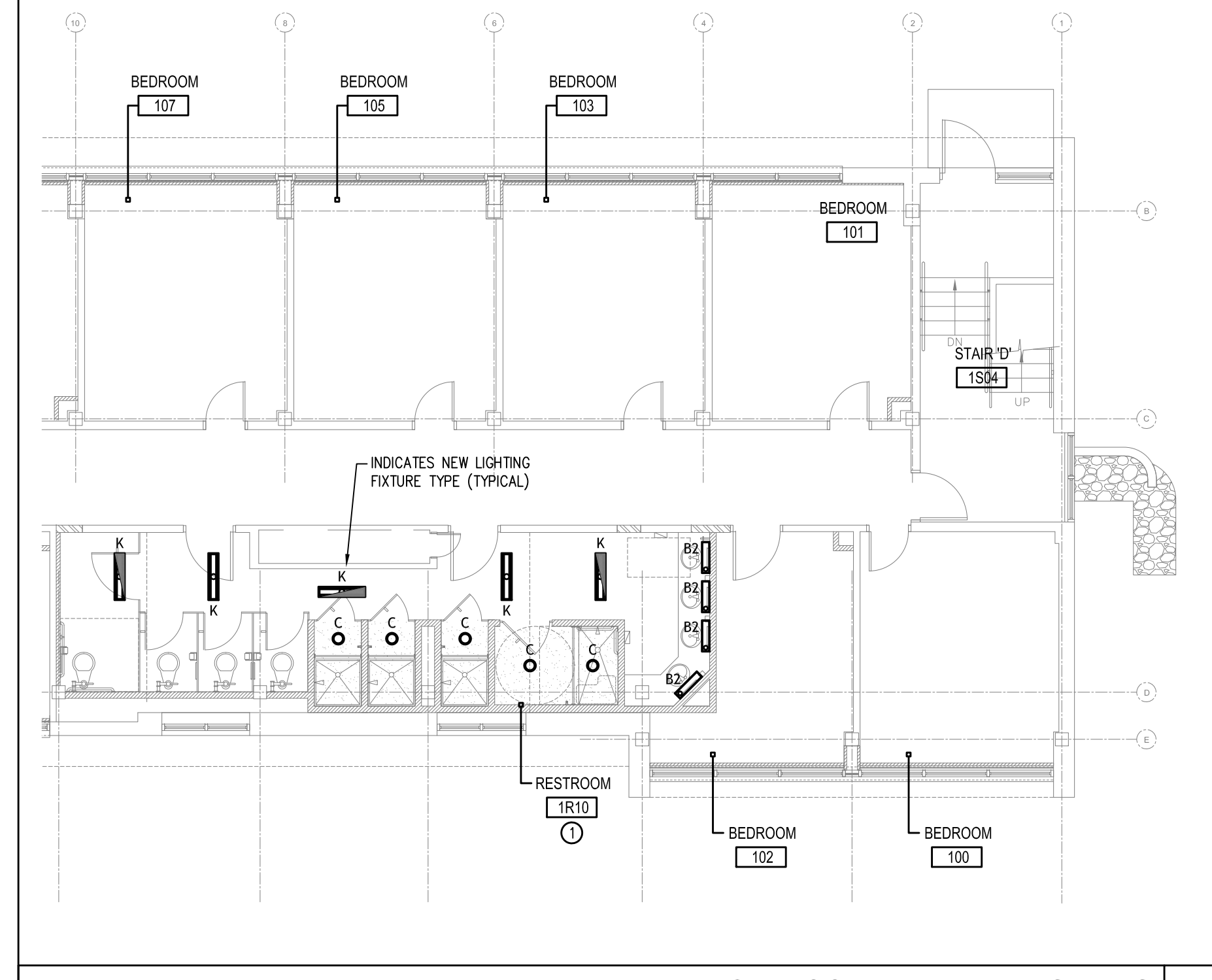
SHEET NUMBER:  
**E-105a**

**MONTCLAIR STATE UNIVERSITY**  
**STONE HALL RENOVATION**  
1 NORMAL AVE  
MONTCLAIR, NJ 07043  
CLIENT: MONTCLAIR STATE UNIVERSITY





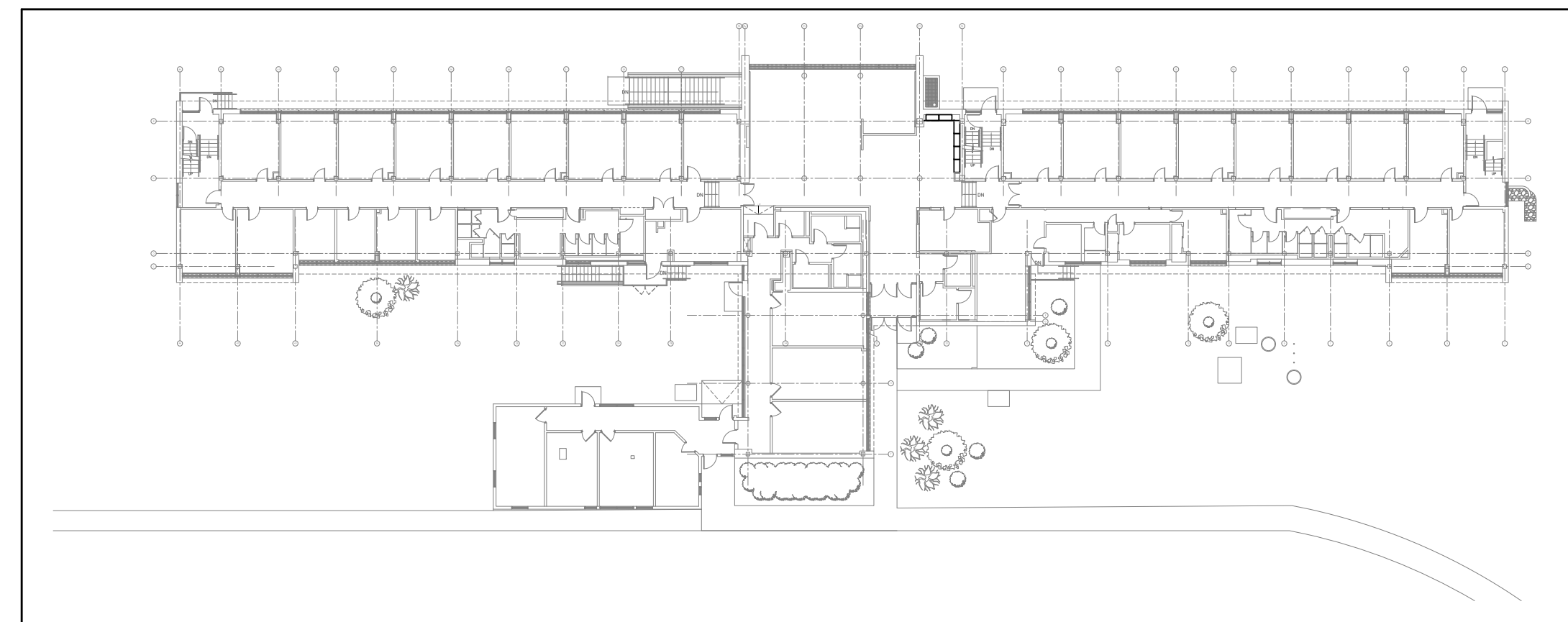
PARTIAL FIRST FLOOR PLAN NEW LIGHTING 1/8" = 1'-0" **1**



PARTIAL FIRST FLOOR PLAN NEW LIGHTING 1/8" = 1'-0" **2**

- LIGHTING NOTES :**
1. ALL NEW LIGHTING INDICATED ON THIS PLAN ARE CIRCUITED TO EXISTING LIGHTING CIRCUITS SAFED OFF DURING DEMOLITION WORK, UNLESS OTHERWISE NOTED. WIRE ALL NEW LIGHTING WITH (2) #12 AND (1) #12 GROUND.
  2. ALL EMERGENCY LIGHTING FIXTURES INDICATED IN CORRIDORS, VESTIBULES, BREAK ROOMS, OPEN SPACE AREAS, RESTROOMS AND LOUNGES REMAIN ON AT ALL TIMES (UNSWITCHED) AS NIGHT LIGHTING (TYPICAL, U.O.N.).
  3. ALL EXIT LIGHTING FIXTURES INDICATED SHALL BE WIRED TO REMAIN ON AT ALL TIMES.
  4. ALL COMPONENTS REQUIRED FOR OCCUPANCY SENSORS, I.E. POWER PACKS AND ROOM CONTROLLERS IN ROOMS WITH INACCESSIBLE CEILING SHALL BE MOUNTED ABOVE NEAREST ACCESSIBLE CEILING AND LABELED WITH ROOM CONTROLLED.
  5. ALL CORRIDOR AND OPEN AREA LIGHTING CONTROLS SHALL BE PROGRAMMED FOR AUTOMATIC ON AND VACANCY OFF. ALL STORAGE ROOMS, CLOSETS, ETC. SHALL BE PROGRAMMED FOR MANUAL ON VACANCY OFF.

- LIGHTING KEY NOTES :**
- ① ALL LIGHTING WITHIN THIS ROOM IS TO REMAIN ON AT ALL TIMES (UNSWITCHED). TIE INTO EXISTING LIGHTING CIRCUIT SAFED OFF DURING DEMOLITION WORK.
  - ② APPROXIMATE LOCATION OF EXISTING EXIT SIGN TO BE REPLACED WITH NEW EXIT SIGN TYPE 'EX'. PROVIDE FACES AND ARROWS PER PLANS.
  - ③ WIRE ALL NEW LIGHTING WITHIN THIS ROOM TO EXISTING LIGHTING CIRCUIT SAFED-OFF DURING DEMOLITION WORK. WIRE TO EFFECT NEW SWITCHING AND/OR OCCUPANCY SENSOR CONTROL AS REQUIRED.
  - ④ NEW TYPE 'C' EMERGENCY FIXTURE. PROVIDE FIXTURES WITH BUILT-IN PHOTO CELL. WIRE INTO EXISTING STAIR LIGHTING CIRCUIT WITH (2) #12 AND (1) #12 GROUND IN 3/4" CONDUIT.
  - ⑤ WIRE NEW LIGHTING WITHIN THIS ROOM TO EXISTING LIGHTING CIRCUIT IN ROOM WITH (2) #12 AND (1) #12 GROUND.



KEY PLAN N.T.S. **k**

REV	DATE	DESCRIPTION

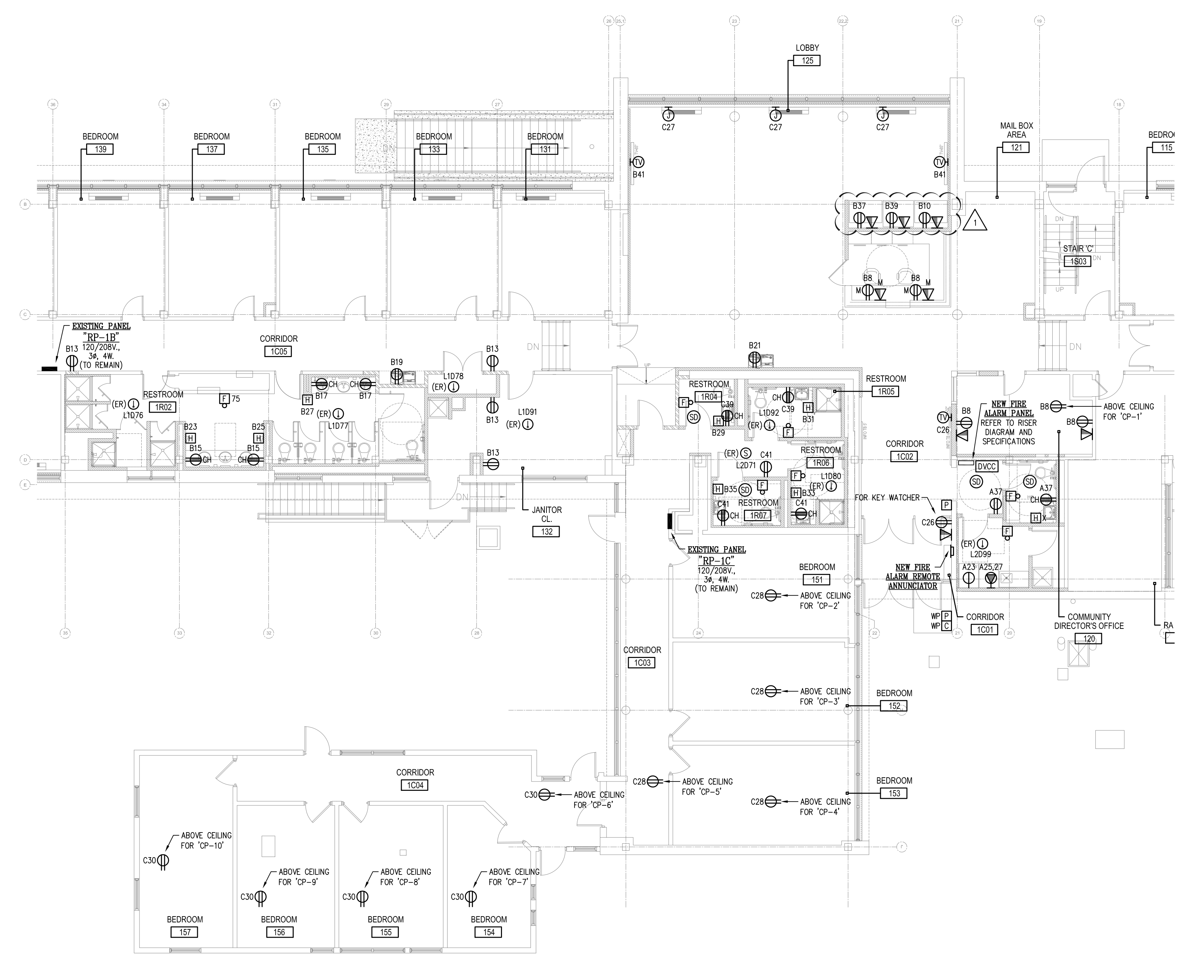
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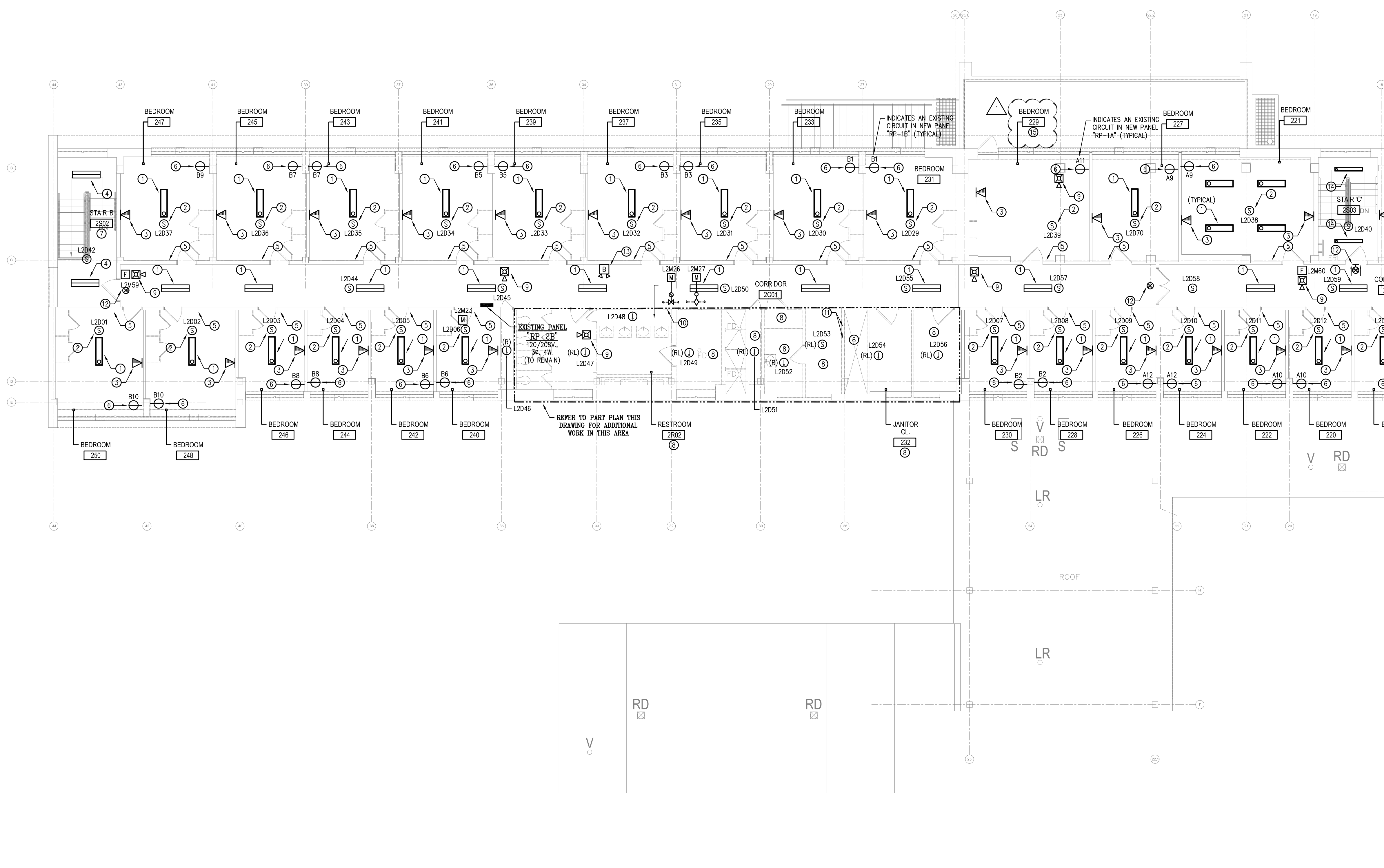
PROJECT NUMBER: 15087  
DRAWN BY: Ken S.  
CHECKED BY: F.M.

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SHEET TITLE:  
**ELECTRICAL FIRST FLOOR PLANS**

SHEET NUMBER:  
**E-106a**





SECOND FLOOR PLAN A: DEMOLITION PLAN  
1/8" = 1'-0" **1A**

- ELECTRICAL DEMOLITION NOTES :**
1. THE CONTRACTOR SHALL DISCONNECT AND REMOVE ALL ELECTRICAL WIRING AND EQUIPMENT AS REQUIRED WITHIN ALL AREAS TO BE DEMOLISHED. CONTRACTOR TO PAY CLOSE ATTENTION TO KEY NOTES AND NOTING ON ALL DRAWINGS FOR EXTENT OF WORK TO BE PERFORMED. CONTRACTOR SHALL TURN ALL ELECTRICAL PANELS BEING REMOVED OVER TO THE UNIVERSITY, COORDINATE WITH UNIVERSITY MAINTENANCE. CONTRACTOR SHALL ALSO DISCONNECT AND REMOVE/RELOCATE ALL POWER AS REQUIRED ASSOCIATED WITH ALL PARTITION REMOVALS.
  2. CONTRACTOR SHALL VISIT THE SITE TO VERIFY EXISTING CONDITIONS PRIOR TO SUBMISSION OF BID. NO ADDITIONAL COMPENSATION SHALL BE CONSIDERED FOR FAILURE TO OBSERVE THIS REQUIREMENT.
  3. THE CONTRACTOR SHALL DISCONNECT AND REMOVE ALL EXISTING CIRCUITS IN THEIR ENTIRETY TO MECHANICAL EQUIPMENT BEING REMOVED. REFER TO ALL MECHANICAL DEMOLITION DRAWINGS AND NOTES FOR LOCATIONS.
  4. WHERE ELECTRICAL ITEMS ARE REMOVED, ALL BRANCH DEVICES' WIRING, CONDUITS, BOXES, ETC. SHALL BE REMOVED BACK TO PANEL SERVING THE EQUIPMENT.
  5. THE CONTRACTOR SHALL MAINTAIN CONTINUITY OF EXISTING CIRCUITS THAT ARE TO REMAIN IN OPERATION.
  6. THE CONTRACTOR SHALL REFER TO ARCHITECTURAL DEMOLITION DRAWINGS FOR ADDITIONAL INFORMATION AND SCOPE OF DEMOLITION.
  7. ALL MATERIALS AND EQUIPMENT REMOVALS SHALL BE DISPOSED OF AS DIRECTED BY THE OWNER OR THE ARCHITECT.
  8. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING POWER TO ALL EXISTING SUMP PUMPS AND THE EXISTING FIRE ALARM EQUIPMENT UNTIL THE PROJECT IS COMPLETE AND THE NEW ELECTRIC SERVICE IS ON LINE.
  9. CONTRACTOR SHALL MAINTAIN ALL EXISTING INCOMING TELEPHONE/DATA WIRING TO THE BUILDING AND ALL ASSOCIATED EXISTING EQUIPMENT FOR CONNECTION OF ALL NEW TELEPHONE/DATA WITHIN THE BUILDING. COORDINATE ALL WORK WITH I.T. CONSULTANTS.
  10. ALL EXISTING FIRE ALARM DEVICES INDICATED ARE BASED ON EXISTING AS-BUILT FIRE ALARM DRAWINGS. CONTRACTOR SHALL CONFIRM EACH DEVICE WITH CURRENT FIELD CONDITIONS. CONTRACTOR SHALL PROTECT ALL EXISTING DEVICES TO REMAIN DURING ALL PHASES OF CONSTRUCTION AND REPLACE ANY DAMAGED OR INOPERABLE DEVICES. CONTRACTOR SHALL ALSO COORDINATE COMPATIBILITY WITH ALL EXISTING DEVICES TO REMAIN WITH NEW FIRE ALARM SYSTEM AS SPECIFIED HEREIN. CONTRACTOR TO PROVIDE ALL REQUIRED COMPONENTS, WIRING, PANELS, PROGRAMMING, ETC. TO BE ALL EXISTING AND NEW DEVICES INTO NEW FIRE ALARM EQUIPMENT FOR A COMPLETE OPERATING SYSTEM. REFER TO NEW POWER AND SIGNAL PLANS FOR LOCATIONS OF ALL NEW FIRE ALARM DEVICES.

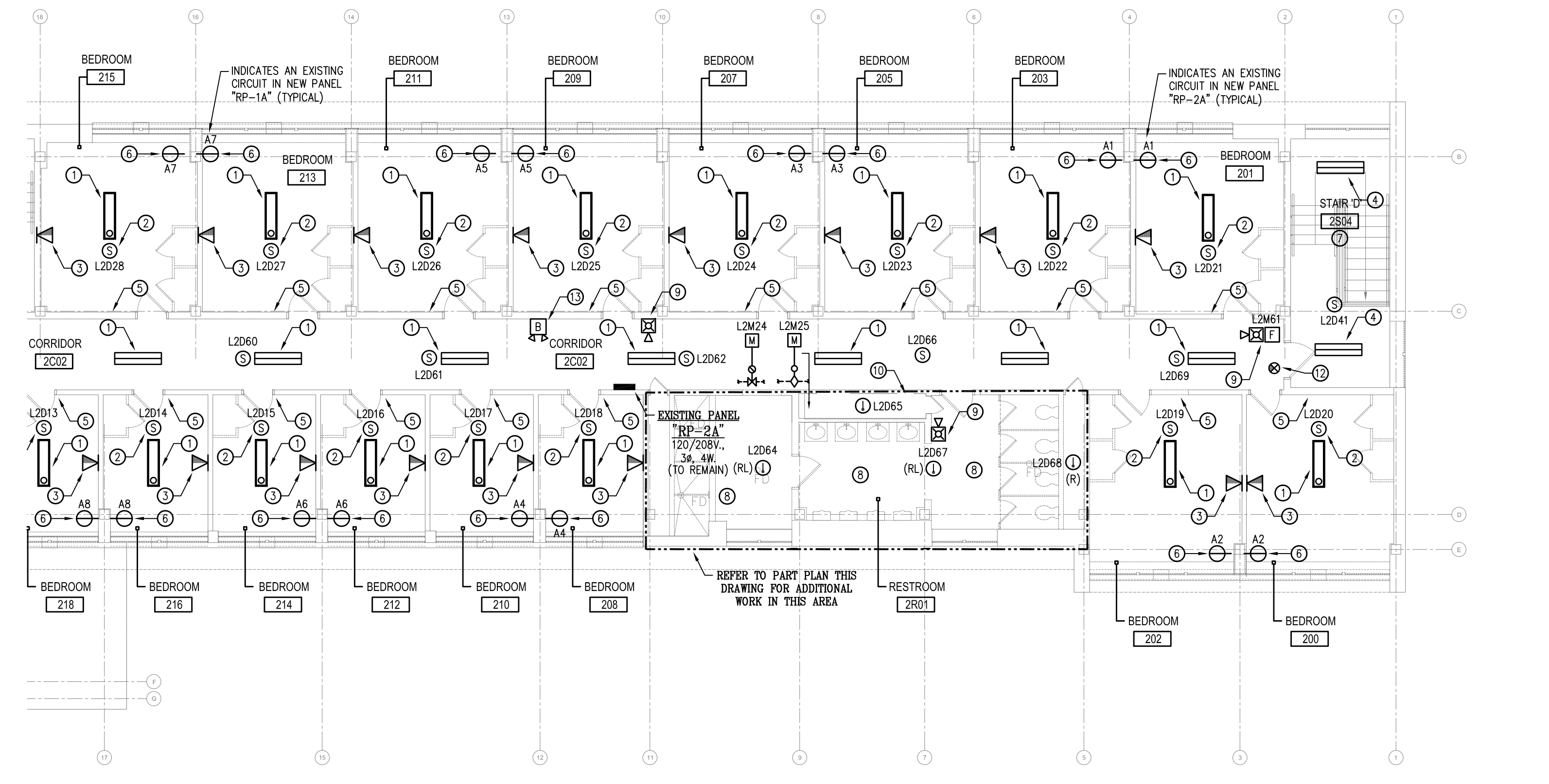
- KEY NOTES :**
1. EXISTING LIGHTING FIXTURE AND CONTROLS TO REMAIN - TYPICAL FOR ALL ROOMS INDICATED.
  2. EXISTING ADDRESSABLE FIRE ALARM SMOKE DETECTOR TO REMAIN. ELECTRICAL CONTRACTOR SHALL TEST AND REPAIR/REPLACE ANY NON-FUNCTIONING DEVICE AS REQUIRED.
  3. EXISTING SURFACE MOUNTED COMBINATION TELEPHONE/DATA/T.V TO BE MODIFIED BY UNIVERSITY.
  4. NEW SURFACE MOUNTED TWO LAMP FLUORESCENT WRAP AROUND FIXTURE WITH BUILT-IN BATTERY PACK EQUAL TO 'LITHONIA' No. 578-232-120-SEB105-1/3-EL14. MOUNTED IN LOCATION OF EXISTING FIXTURE. RELOCATE ANY EXISTING CEILING MOUNTED DEVICES AS REQUIRED TO CENTER FIXTURE.
  5. ELECTRICAL CONTRACTOR TO REMOVE ALL EXISTING TELEPHONE DEVICES AND WIRING BACK TO SOURCE.
  6. EXISTING AIR CONDITIONING RECEPTACLE BE REMOVED. CONTRACTOR SHALL UTILIZE EXISTING CIRCUIT TO FEED NEW FAN COIL UNIT(S). EXTEND EXISTING CONDUIT, WIRING, ETC. AS REQUIRED. REFER TO H.V.A.C. DRAWINGS FOR ADDITIONAL INFORMATION.
  7. ALL EXISTING CONVENIENCE RECEPTACLES WITHIN THIS ROOM ARE TO REMAIN. ELECTRICAL CONTRACTOR TO TEST EACH DEVICE AND REPLACE ANY DEFECTIVE DEVICE.
  8. ALL EXISTING LIGHTING, LIGHTING CONTROLS AND POWER DEVICES WITHIN THIS ROOM ARE TO BE REMOVED INCLUDING ALL WIRING, CONDUITS, JUNCTION BOXES, ETC. BACK TO SOURCE, UNLESS OTHERWISE NOTED.
  9. EXISTING FIRE ALARM HORN STROBE TO BE REPLACED WITH NEW SPEAKER STROBE UNIT. CONTRACTOR TO CONFIRM COMPATIBILITY OF EXISTING WIRING WITH NEW DEVICE AND REPLACE AS REQUIRED. CONTRACTOR SHALL ALSO PROVIDE ALL REQUIRED HARDWARE, PROGRAMMING ETC. TO BE INTO NEW FIRE ALARM PANEL.
  10. APPROXIMATE LOCATION OF EXISTING ELECTRIC PANEL TO BE REPLACED WITH A NEW 100 AMP RATED, 30 CIRCUIT PANEL WITH BREAKERS TO MATCH EXISTING CIRCUITS. PROVIDE ALL REQUIRED HARDWARE, BACK BOXES, PANELS, TRIMS, CUTTING, PATCHING ETC. EXTEND ALL EXISTING CIRCUITS TO NEW PANEL. CONTRACTOR SHALL INSPECT ALL EXISTING WIRING WITHIN EXISTING PANEL AND IMMEDIATELY NOTIFY THE UNIVERSITY AND THE ARCHITECT OF ANY DAMAGED WIRING REQUIRING REPLACEMENT. CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR TRACING OUT EXISTING CIRCUITS IN THIS PANEL THAT FEED EXISTING RECEPTACLES IN ALL ROOMS TO BECOME BEDROOMS AND CHANGE EXISTING CIRCUIT BREAKERS OUT TO NEW ARC-FAULT TYPE CIRCUIT BREAKERS. TURN ALL REMOVED BREAKERS OVER TO THE UNIVERSITY.
  11. ELECTRICAL CONTRACTOR SHALL DISCONNECT AND REMOVE ANY/ALL EXISTING COMPONENTS ASSOCIATED WITH ABANDONED DUMB WATER AND INCINERATOR INCLUDING ALL CONDUIT AND WIRING BACK TO ITS SOURCE.
  12. APPROXIMATE LOCATION OF EXISTING EXIT SIGN TO BE REPLACED WITH NEW EXIT SIGN TYPE 'EXIT'. PROVIDE FACES AND ARROWS PER PLANS.
  13. APPROXIMATE LOCATION OF EXISTING EMERGENCY LIGHTING TO BE REPLACED WITH NEW TYPE 'EM'.
  14. NEW SURFACE MOUNTED TWO LAMP FLUORESCENT WRAP AROUND FIXTURE WITH BUILT-IN BATTERY PACK EQUAL TO 'LITHONIA' No. 578-232-120-SEB105-1/3-EL14. MOUNTED IN LOCATION OF EXISTING FIXTURE OR INSTALLED AS SHOWN. WIRE INTO EXISTING LIGHTING CIRCUIT. RELOCATE ANY EXISTING DEVICES AS REQUIRED TO CENTER FIXTURE.
  15. ALL EXISTING LIGHTING WITHIN THIS ROOM ARE TO BE REMOVED. SAFE OFF EXISTING CIRCUIT FOR CONNECTION TO NEW LIGHTING AS INDICATED ON NEW LIGHTING PLANS. EXISTING SWITCHING IS TO REMAIN.

**EXISTING F.A.C.P. CONTAINS MODULES:**

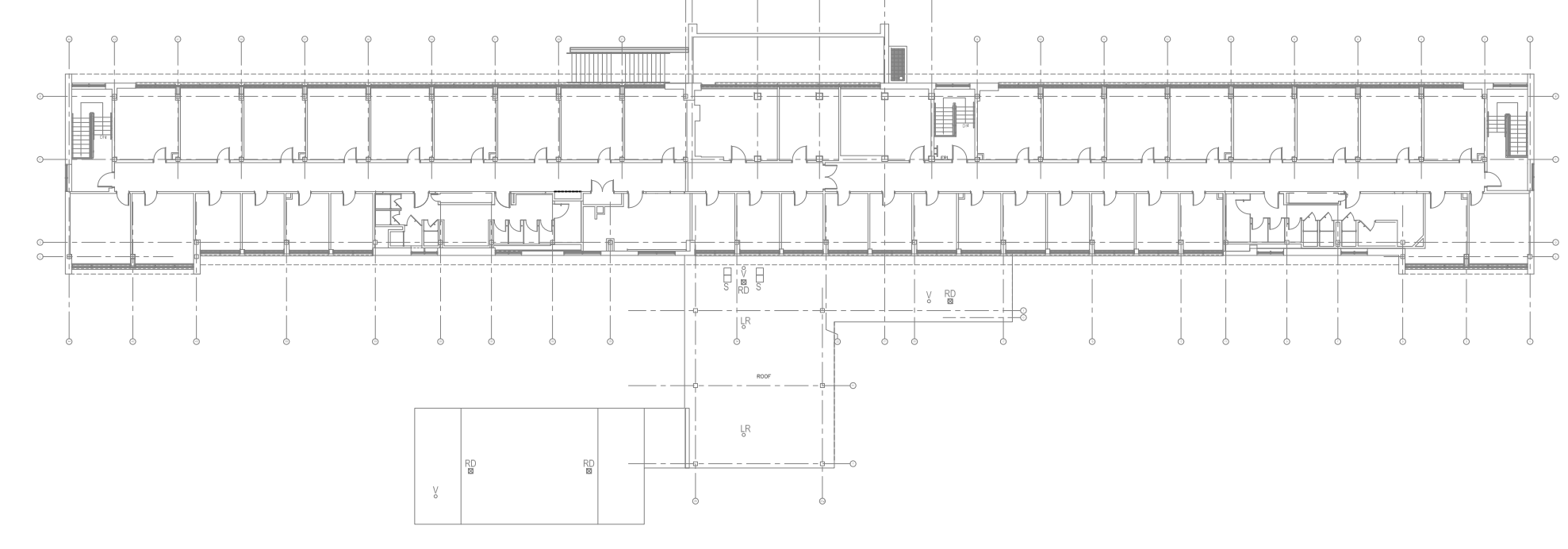
LIM01	SOUNDER BASE TRIP
LIM02	DOOR XPP
LIM03	DOOR XPP RELAY 2
LIM14	SECURITY FRONT DECK PANIC BUTTON
LIM15	SPARE PANEL
LIM16	SPARE PANEL
LIM17	SPARE PANEL
LIM18	SPARE PANEL
LIM19	SPARE PANEL
LIM20	BASEMENT HORN/STROBES
LIM21	1ST FLOOR HORN/STROBES
LIM22	2ND FLOOR HORN/STROBES
LIM23	1ST FLOOR DAY CARE HORNS
LIM24	HORN SPRINKLER BELL
LIM25	HORN SPARE
LIM26	HORN SPARE
LIM27	HORN SPARE

**EXISTING FIRE ALARM SYMBOL LIST**

SYMBOL	QTY	DESCRIPTION
⊙	110	EXISTING SMOKE DETECTOR
⊙SB	7	EXISTING SMOKE DETECTOR WITH SOUNDER BASE
⊙	54	EXISTING HEAT DETECTOR
⊙	13	EXISTING FIRE ALARM MANUAL STATION
⊙	29	EXISTING HORN/STROBE UNIT
⊙	1	EXISTING FIRE ALARM CONTROL PANEL
⊙	9	EXISTING TAMPER SWITCH
⊙	7	EXISTING WATERFLOW SWITCH
⊙	30	EXISTING MONITOR MODULES
⊙	3	EXISTING RELAY MONITOR
⊙	8	EXISTING CONTROL MODULE
⊙	1	EXISTING REMOTE ANNUNCIATOR



SECOND FLOOR PLAN B: DEMOLITION PLAN  
1/8" = 1'-0" **1B**



KEY PLAN  
N.T.S. **K**

