

ABBREVIATIONS

ABS	ABSOLUTE	MECH	MECHANICAL
AC	ALTERNATING CURRENT	MCC	MOTOR CONTROL CENTER
AFF	ABOVE FINISHED FLOOR	MCM	THOUSAND CIRCULAR MILLS
AHU	AIR HANDLING UNIT	MFR	MANUFACTURER
AMP, A	AMPERE	MH	MANHOLE, MOUNTING HEIGHT
APP	APPROVED	MIN	MINIMUM
APPROX	APPROXIMATE	MISC	MISCELLANEOUS
ATS	AUTOMATIC TRANSFER SWITCH	MLO	MAIN LUG ONLY
AVG	AVERAGE	MOD	MOTOR OPERATED DAMPER
BLDG	BUILDING	MTD	MOUNTED
C	CONDUIT	(N)	NEW
CB	CIRCUIT BREAKER	NA	NOT APPLICABLE
COL	COLUMN	N.C.	NORMALLY CLOSED
CONN	CONNECTION	NEUT.	NEURAL
CONT	CONTINUED	NIC	NOT IN CONTRACT
CONTR	CONTRACTOR	NL	NIGHT LIGHT
DB	DECIBEL	N.O.	NORMALLY OPEN
DEG	DEGREE	NO.	NUMBER
DIA	DIAMETER	NTS	NOT TO SCALE
DN	DOWN	OD	OUTSIDE DIAMETER
DT	DOUBLE THROW	OH	OVERHEAD
DWG	DRAWING	OHD	OVERHEAD DOOR
(E)	EXISTING	%	PERCENT
E.C.	ELECTRICAL CONTRACTOR	PB	PUSH BUTTON
EF	EXHAUST FAN	PH	PHASE-ELECTRICAL
EL	ELEVATION	PNL	PANEL
ELEC	ELECTRICAL	PVC	POLYVINYL CHLORIDE PIPE
EQ	EQUAL	(R)	REMOVE EXISTING
EQUIP	EQUIPMENT	(RE)	RELOCATE EXISTING
EWV	ELECTRIC WATER COOLER	R&D	RESEARCH & DEVELOPMENT
EWV	ELECTRIC WATER HEATER	REQ	REQUIRED
EXT	EXTERIOR	RM	ROOM
°F	DEGREE FAHRENHEIT	SCH	SCHEDULE
FACP	FIRE ALARM CONTROL PANEL	SF	SQUARE FEET
FBO	FURNISHED BY OTHERS	SPD	SURGE PROTECTION DEVICE
FD	FLOOR DRAIN	SPEC	SPECIFICATION
FDC	FIRE DEPARTMENT CONNECTION	SQ	SQUARE
FHC	FIRE HOSE CABINET	SS	SAFETY SWITCH
FIN	FINISH	ST	SINGLE THROW
FF	FINISHED FLOOR	STD	STANDARD
FLR	FLOOR	STL	STEEL
FT	FEET	STRUC	STRUCTURAL
FU,F	FUSED	SW	SWITCH
GALV	GALVANIZED	SWBD	SWITCHBOARD
GFCI	GROUND FAULT CURRENT INTERRUPTER	SWGR	SWITCHGEAR
GRD, GND	GROUND	TEMP	TEMPERATURE
GWH	GAS WATER HEATER	TEL	TELEPHONE
HC	HANDICAP	THERM	THERMOMETER
HP	HORSEPOWER	TYP	TYPICAL
HR	HOOR	UG	UNDERGROUND
HT	HEIGHT	UH	UNIT HEATER
HTR	HEATER	UL	UNDERWRITER'S LABORATORY
HV	HIGH VOLTAGE	U.O.N.	UNLESS OTHERWISE NOTED
HVAC	HEATING VENTILATION AIR CONDITIONING	UTIL	UTILITY
		V	VOLTS
HZ	FREQUENCY-ELECTRICAL	VB	VACUUM BREAKER
ID	INSIDE DIAMETER	VERT	VERTICAL
ID	INDIRECT DRAIN	VFD	VARIABLE FREQUENCY DRIVE
JB	JUNCTION BOX	VIF	VERIFY IN FIELD
KV	KILOVOLTS	VPC	VIA PHOTOCCELL
KVA	KILOVOLT AMPERE	VTC	VIA TIME CLOCK
KW	KILOWATT	W	WIRE
KWH	KILOWATT HOUR	W/	WITH
LF	LINEAR FEET	WG	WIRE GUARD
LV	LOW VOLTAGE	WP	WEATHERPROOF
MAU	MAKE-UP AIR UNIT	W/O	WITHOUT
MAX	MAXIMUM	XFMR	TRANSFORMER
MCB	MAIN CIRCUIT BREAKER	YR	YEAR

GENERAL NOTES

- ALL WORK IS TO CONFORM WITH THE 2017 NATIONAL ELECTRICAL CODE AND ALL APPLICABLE CODES, REGULATIONS AND STANDARDS. NOT ALL CODE REQUIREMENTS HAVE BEEN DESCRIBED IN THIS SPECIFICATION OR INDICATED ON THE DRAWINGS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO BE FAMILIAR WITH THE CODES AND INSTALL THE WORK IN ACCORDANCE WITH CODES.
- OBTAIN AND PAY FOR ALL BUILDING PERMITS, INSPECTIONS, CONNECTION CHARGES, AND FEES.
- PROVIDE ALL LABOR, MATERIALS, EQUIPMENT AND SUPERVISION NECESSARY TO INSTALL COMPLETE OPERATING ELECTRICAL SYSTEMS AS INDICATED ON THE DRAWINGS AND SPECIFIED HEREIN, INCLUDING ALL SITE WORK ON THE SITE AND WITHIN THE PROPOSED CONSTRUCTION AREAS TO ACCOMPLISH THE REQUIRED WORK.
- THE CONTRACTOR IS TO BE RESPONSIBLE FOR COORDINATION OF ALL WORK ASSOCIATED WITH THE ELECTRIC UTILITY COMPANY. MAKE ALL ARRANGEMENTS IN A TIMELY FASHION FOR CONNECTION OF THE ELECTRICAL SERVICE.
- DRAWINGS AND SPECIFICATIONS ARE INTENDED TO BE TAKEN AS A WHOLE. IF A CONFLICT OR CONTRADICTION EXISTS BETWEEN THE DRAWINGS AND SPECIFICATIONS, THE MORE STRINGENT WILL APPLY. THE ARCHITECT'S AND ENGINEER'S INTERPRETATION OF THE DOCUMENTS ARE TO BE BINDING UPON THE CONTRACTOR.
- PROVIDE SHOP DRAWINGS OF ALL EQUIPMENT FOR REVIEW PRIOR TO ORDERING. COORDINATE ALL PHYSICAL DIMENSIONS PRIOR TO SHOP DRAWING SUBMISSION.
- IF THE CONTRACTOR ELECTS TO SUBMIT ALTERNATE EQUIPMENT, MANUFACTURERS, SYSTEMS, METHODS, OR MATERIALS NOT SPECIALLY IDENTIFIED IN THE DRAWINGS AND SPECIFICATIONS, IT IS THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE THE WORK WITH OTHER TRADES AND PAY FOR ANY ADDITIONAL COSTS ASSOCIATED WITH THE SUBSTITUTION OR CHANGE.
- THE CONTRACTOR IS TO SURVEY AND VERIFY ALL EXISTING CONDITIONS PRIOR TO BID SUBMISSION AND BECOME AWARE OF ALL CONDITIONS WHICH MAY IMPACT THE REQUIRED WORK. CONTRACTOR IS TO INCLUDE ALL ASSOCIATED COSTS (MATERIALS/LABOR) DETERMINED TO BE REQUIRED DURING SITE INSPECTIONS. CONTRACTOR'S BID SUBMISSION IS TO BE CONSIDERED PROOF THAT THIS REQUIREMENT HAS BEEN MET.
- FINAL LOCATIONS OF ALL DEVICES IN FINISHED SPACES ARE TO BE COORDINATED, AND APPROVED BY THE ARCHITECT/ OWNER PRIOR TO ROUGH-IN AND INSTALLATION.
- COORDINATE LOCATIONS AND ROUGH-IN REQUIREMENTS WITH ALL TRADES PRIOR TO INSTALLATION.
- PROVIDE 3/8" = 1'-0" SCALE DRAWINGS OF THE MAIN ELECTRICAL ROOM INDICATING ALL ELECTRICAL, MECHANICAL, PLUMBING, TELEPHONE, SECURITY, FIRE ALARM, AND LIFE SAFETY EQUIPMENT TO BE INSTALLED WITHIN THIS ROOM. ALL EXACT DIMENSIONS OF EQUIPMENT, PADS, ETC., ARE TO BE INDICATED. PROVIDE TWO CROSS-SECTIONS AT IMPORTANT POINTS. OBTAIN INFORMATION FROM OTHER SUB-CONTRACTORS AS NEEDED, AND APPROPRIATE. SUBMIT THE ABOVE FOR REVIEW, AND APPROVAL ALONG WITH ELECTRICAL EQUIPMENT SUBMITTALS. EQUIPMENT WILL NOT BE APPROVED PRIOR TO REVIEW OF THIS DRAWING.
- PROVIDE ALL EXPANSION MODULE(S) AND EQUIPMENT REQUIRED TO FACILITATE THE ADDITION OF SPEAKER/ STROBES TO THE EXISTING ADDRESSABLE FIRE ALARM SYSTEM WITH BATTERY BACKUP, MANUAL PULL STATIONS, DETECTORS, STROBES, DUCT DETECTORS, REMOTE ANNUNCIATOR, TELEPHONE AUTO DIALER, AND ALL ASSOCIATED CONTROLS, AND APPURTENANCES.
- PROVIDE POWER TO HVAC AND PLUMBING EQUIPMENT AS REQUIRED FOR COMPLETE, OPERATIONAL SYSTEMS.
- PROVIDE LIGHTING THROUGH-OUT, WITH EXTERIOR LIGHTING AT ALL EGRESS DOORS.
- THE CONTRACTOR IS TO BE RESPONSIBLE FOR SELECTING PARTICULAR MOUNTING ARRANGEMENTS OF FIXTURES TO SUIT THE CONSTRUCTION, OR CEILING TYPE. THE CONTRACTOR OR HIS AGENT IS TO REVIEW ALL ARCHITECTURAL PLANS, ELEVATIONS AND DETAILS TO VERIFY ALL CEILING TYPES PRIOR TO PREPARING SHOP DRAWINGS FOR SUBMISSION. IT IS NOT TO BE UNDERSTOOD THAT THE LIGHTING FIXTURE SCHEDULE ACCOUNTS FOR THE MOUNTING TYPES. CEILING TYPES ARE FREQUENTLY CHANGED AFTER THE SCHEDULE HAS BEEN COMPLETED.
- FIXTURES AND DEVICES RECESSED IN A FIRE-RATED CEILING ARE TO BE PROVIDED WITH A FIRE-RATED ENCLOSURE THAT MAINTAINS THE FIRE-RATING OF THE CEILING SYSTEM. THE INSTALLATION OF THE ENCLOSURE IS TO MEET THE REQUIREMENTS OF THE AUTHORITY HAVING JURISDICTION. WHERE APPLICABLE, FIXTURES AND DEVICES ARE TO BE RATED FOR INSULATION CONTACT (IC) FOR HIGH-TEMPERATURE OPERATION.
- ALL ROOMS ARE TO BE PROVIDED WITH LIGHTING CONTROLS. PROVIDE MANUAL SWITCH(ES) AND APPROPRIATE, CODE-REQUIRED LIGHTING CONTROL DEVICES, WIRING METHODS, AND COMPONENTS.
- PROVIDE EGRESS AND EMERGENCY LIGHTING AS REQUIRED BY CODE IN ALL SPACES TO MEET REQUIREMENTS OF THE AUTHORITY HAVING JURISDICTION. ALLOW FOR TEN ADDITIONAL FIXTURES TO BE INSTALLED WHERE DIRECTED BY THE AUTHORITY HAVING JURISDICTION.
- PROVIDE GROUNDING SYSTEM FOR FACILITY IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE.
- PROVIDE ROOF PENETRATIONS FOR ALL ASSOCIATED ELECTRICAL WORK.
- ALL DEVICES ARE TO BE INSTALLED SQUARE, LEVEL, PLUMB, AND TRUE.
- SWITCH PLATES AND OUTLET BACKBOXES ARE NOT TO BE INSTALLED BACK-TO-BACK IN ADJACENT ROOMS. BACKBOX LOCATIONS ARE TO BE OFFSET A MINIMUM OF 0'-3" TO REDUCE NOISE TRANSFER. THIS APPLIES TO RECEPTACLES, LIGHTING FIXTURES, TV OUTLETS, TELEPHONE OUTLETS, AND DATA OUTLETS.
- ALL DEVICES LOCATED ON OPPOSING SIDES OF A FIRE-RATED WALL ASSEMBLY ARE TO BE SEPARATED BY A HORIZONTAL DISTANCE OF NOT LESS THAN 2'-0".
- GROUND FAULT CIRCUIT INTERRUPTERS ARE TO BE PROVIDED FOR ALL OUTDOOR RECEPTACLE CIRCUITS. RECEPTACLE CIRCUITS WITHIN TOILET AND BATHROOMS, AREAS IN CLOSE PROXIMITY TO WATER, AND WHEREVER ELSE INDICATED ON THE DRAWINGS OR AS REQUIRED BY CODE. WHILE-IN-USE TYPE COVERS ARE TO BE USED FOR ALL EXTERIOR LOCATIONS.
- PROVIDE CODE REQUIRED SIGNAGE (I.E., NEC 110.34, NEC 700.8, AND 695.4 B3).
- PROVIDE THIRD-PARTY CERTIFICATION OF ALL PACKAGED SYSTEMS BY A NATIONALLY RECOGNIZED TESTING LABORATORY (NRTL) IN ACCORDANCE WITH OSHA FEDERAL REGULATIONS 29CFR1910.303 AND .399 AS WELL AS PAMPHLET #70 AND NATIONAL ELECTRICAL CODE ARTICLE 90-7.
- ALL EQUIPMENT PANELS, CONTROLS, SAFETY SWITCHES, AND DEVICES ARE TO BE PROVIDED WITH PERMANENT BLACK LAMINATED MICARTA WHITE CORE LABELS WITH 3/8" LETTERS. THIS ALSO APPLIES TO ALL CONTROLLERS, REMOTE START/ STOP PUSHBUTTONS, EQUIPMENT CABINETS, AND WHERE DIRECTED BY THE ARCHITECT AND ENGINEER. THIS REQUIREMENT DOES NOT APPLY TO INDIVIDUAL ROOM THERMOSTATS, AND LOCAL LIGHTING CONTROL DEVICES.
- ALL THREE PHASE STARTER EQUIPMENT IS TO BE PROVIDED BY THE MECHANICAL CONTRACTOR AND IS TO BE MAGNETIC, ACROSS-THE-LINE WITH AUXILIARY CONTACTS. ALL SINGLE PHASE STARTER EQUIPMENT IS TO BE PROVIDED BY ELECTRICAL CONTRACTOR.
- ALL WORK IS TO BE CONCEALED, UNLESS OTHERWISE INDICATED.
- ALL EXPOSED INTERIOR WIRING, PANEL FEEDERS, HOME RUNS, AND EQUIPMENT FEEDERS ARE TO BE INSTALLED IN EMT (ELECTRICAL METALLIC TUBING). ALL EMT IS TO BE SECURELY FASTENED AT INTERVALS NOT EXCEEDING 10'-0" AND WITHIN 3'-0" OF ALL BOXES. NOTE: "EXPOSED" INDICATES ALL WIRING METHODS NOT INSTALLED WITHIN WALLS, ABOVE SUSPENDED CEILINGS, OR WITHIN A PRE-MANUFACTURED RACEWAY. ANY EXPOSED RACEWAY IN A FINISHED SPACE IS TO BE COORDINATED WITH THE ARCHITECT/ ENGINEER PRIOR TO INSTALLATION.
- ALL CONCEALED BRANCH CIRCUIT WIRING METHODS INSTALLED ABOVE SUSPENDED CEILINGS, AND IN STUD PARTITIONS IS TO BE MC (METAL CLAD) CABLE. MC CABLE IS TO BE SECURELY FASTENED AT INTERVALS NOT EXCEEDING 4'-6", AND WITHIN 1'-0" OF ALL BOXES AND/OR FITTINGS.
- PROPERLY INSTRUCT OWNER'S PERSONNEL IN THE OPERATION AND MAINTENANCE OF ALL SYSTEMS AND EQUIPMENT. PROVIDE THREE INSTRUCTION AND MAINTENANCE MANUALS. SUBMIT MANUALS FOR REVIEW PRIOR TO OPERATING INSTRUCTION.
- PROVIDE ONE SET OF ELECTRONIC AS-BUILT DRAWINGS AT COMPLETION OF WORK. SUBMIT TO OWNER AND ENGINEER FOR REVIEW AND APPROVAL.

PROJECT DEDUCT/ ADD ALTERNATES

DEDUCT ALTERNATES:

- ALL PANELBOARD FEEDERS AND BRANCH CIRCUIT WIRING METHODS, 100 AMPS AND LARGER AS WELL AS PRIMARY CABLE, TRANSFORMER COILS, BUSWAYS AND SWITCHBOARDS ARE TO BE ALUMINUM IN LIEU OF COPPER PER SPECIFICATION SECTION 26 00 00.

NUMBER	NAME	Current Issue	Current Revision	Current Revision Date	Current Revision Description
E001	COVER SHEET- ELECTRICAL	BID SET			
ED101a	PARTIAL GROUND FLOOR DEMO AREA A- ELECTRICAL	BID SET			
ED101b	PARTIAL GROUND FLOOR DEMO AREA B- ELECTRICAL	BID SET			
ED101c	PARTIAL GROUND FLOOR DEMO AREA C- ELECTRICAL	BID SET			
ED101d	PARTIAL GROUND FLOOR DEMO AREA D- ELECTRICAL	BID SET			
ED102b	PARTIAL SECOND FLOOR DEMO AREA B- ELECTRICAL	BID SET			
ED102d	PARTIAL SECOND FLOOR DEMO AREA D- ELECTRICAL	BID SET			
ED102a	PARTIAL SECOND FLOOR DEMO AREA A- ELECTRICAL	BID SET			
ED102c	PARTIAL SECOND FLOOR DEMO AREA C- ELECTRICAL	BID SET			
ED103d	PARTIAL DEMO ROOF PLAN AREA D- ELECTRICAL	BID SET			
E101a	PARTIAL GROUND FLOOR AREA A - LIGHTING	BID SET			
E101b	PARTIAL GROUND FLOOR AREA B - LIGHTING	BID SET			
E101c	PARTIAL GROUND FLOOR AREA C - LIGHTING	BID SET			
E101d	PARTIAL GROUND FLOOR AREA D - LIGHTING	BID SET			
E102b	PARTIAL SECOND FLOOR AREA B - LIGHTING	BID SET			
E102d	PARTIAL SECOND FLOOR AREA D - LIGHTING	BID SET			
E201a	PARTIAL GROUND FLOOR AREA A - POWER	BID SET			
E201b	PARTIAL GROUND FLOOR AREA B - POWER	BID SET			
E201c	PARTIAL GROUND FLOOR AREA C - POWER	BID SET			
E201d	PARTIAL GROUND FLOOR AREA D - POWER	BID SET			
E202b	PARTIAL ROOF PLAN AREA B - POWER	BID SET			
E202d	PARTIAL SECOND FLOOR AREA D - POWER	BID SET			
E203d	PARTIAL ROOF PLAN AREA D- ELECTRICAL	BID SET			
E202a	PARTIAL ROOF PLAN AREA A - POWER	BID SET			
E202c	PARTIAL SECOND FLOOR AREA C - POWER	BID SET			
E301	ENLARGED FLOOR PLANS- ELECTRICAL	BID SET			
E401	DETAILS- ELECTRICAL	BID SET			
E400	DETAILS- ELECTRICAL	BID SET			
E403	DETAILS- ELECTRICAL	BID SET			
E501	SCHEDULES- ELECTRICAL	BID SET			

ELECTRICAL SYMBOLS AND ABBREVIATIONS

S

S<sub>3</sub>

S<sub>4</sub>

S<sub>D</sub>

SL<sub>Va</sub>

S<sub>E</sub>

S<sub>T</sub>

S<sub>P</sub>

S<sub>K</sub>

TV

TELEVISION OUTLET:

COMMON AREAS:  
PROVIDE BACK BOX WITH 3/4"Ø BUSHED CONDUIT WITH PULL-STRING TO ACCESSIBLE CEILING SPACE. DEVICES, WIRING METHODS, AND TERMINATIONS BY OTHERS. MOUNT 60" ABOVE FINISHED FLOOR TO CENTER OF DEVICE OR AS DIRECTED BY THE OWNER.

DATA OUTLET:  
PROVIDE BACK BOX WITH 3/4"Ø BUSHED CONDUIT WITH PULL-STRING TO ACCESSIBLE CEILING SPACE. DEVICES, WIRING METHODS, AND TERMINATIONS BY OTHERS.

TELEPHONE OUTLET:  
COMMON AREAS:  
PROVIDE BACK BOX WITH 3/4"Ø BUSHED CONDUIT WITH PULL-STRING TO ACCESSIBLE CEILING SPACE. DEVICES, WIRING METHODS, AND TERMINATIONS BY OTHERS.

COMBINATION TELEPHONE/ DATA OUTLET:  
COMMON AREAS:  
PROVIDE BACK BOX WITH 1"Ø. BUSHED CONDUIT WITH PULL-STRING TO ACCESSIBLE CEILING SPACE. DEVICES, WIRING METHODS, AND TERMINATIONS BY OTHERS.

SECURITY/ ACCESS CONTROL DEVICE DERIVES POWER FROM THE SECURITY/ ACCESS CONTROL HEAD-END EQUIPMENT. COORDINATE ALL POWER REQUIREMENTS WITH THE SECURITY/ ACCESS CONTROL VENDOR.

INDICATES DEVICE TYPE:  
AI = AI PHONE EQUIPMENT  
CR = CARD READER  
DC = DOOR CONTACT  
ES = ELECTRIC DOOR STRIKE  
EX = REQUEST TO EXIT  
KP = KEY PAD  
MD = MOTION DETECTOR  
ML = MAGNETIC LOCK  
RE = RFID EXCITER

VOLUME CONTROL DEVICE:  
PROVIDE BACK BOX WITH 3/4"Ø BUSHED CONDUIT WITH PULL-STRING TO ACCESSIBLE CEILING SPACE. DEVICES, WIRING METHODS, AND TERMINATIONS BY OTHERS. MOUNT 46" ABOVE FINISHED FLOOR TO CENTER OF DEVICE OR AS DIRECTED BY THE OWNER.

MICROPHONE OUTLET

SURFACE MOUNTED DISTRIBUTION PANEL SERVED VIA NORMAL POWER FEEDER

SURFACE MOUNTED LIGHTING, OR POWER BRANCH CIRCUIT PANEL SERVED VIA NORMAL POWER FEEDER

MOTOR

MOTOR RATED SWITCH (PROVIDE MANUAL MOTOR STARTER FOR OVERLOAD PROTECTION, AS REQUIRED)

UN-FUSED DISCONNECT SWITCH

FUSIBLE DISCONNECT SWITCH  
XXAF = FRAME CAPACITY  
XXAT = TRIP RATING

WIRING METHOD DESIGNATION (CONDUCTOR QUANTITY AND SIZE)

PANEL, AND POLE SPACE DESIGNATION (CONCEALED WIRING METHOD)

CONCEALED BRANCH CIRCUIT WIRING METHOD

JUNCTION BOX

DUPLEX RECEPTACLE DEVICE

TAG:  
D = DEDICATED OVERCURRENT PROTECTION DEVICE  
U = INTEGRAL USB OUTLETS  
C = DEVICE MOUNTED 0'-8" ABOVE COUNTER TOP  
T = TAMPER RESISTANT DEVICE

GFCI (GROUND-FAULT CIRCUIT-INTERRUPTER)  
DUPLEX RECEPTACLE DEVICE FOR PERSONAL PROTECTION

SWITCHED (BOTTOM OUTLET) DUPLEX RECEPTACLE DEVICE

INDICATES CORRESPONDING CONTROL DEVICE

SINGLE RECEPTACLE DEVICE FOR EQUIPMENT

DOUBLE DUPLEX RECEPTACLE DEVICE

SPECIAL RECEPTACLE DEVICE (COORDINATE NEMA CONFIGURATION WITH FINAL EQUIPMENT SELECTIONS)

POWER, CCTV, OR CATV  
W = WALL SOURCE  
F = FLOOR SOURCE  
X = 2, 3, OR 4 GANG BOX

FLUSH MOUNTED, ADJUSTABLE FLOOR BOX WITH POWER, IG POWER, AND VOICE/ DATA OUTLETS  
W = WALL SOURCE  
F = FLOOR SOURCE  
X = 2, 3, OR 4 GANG BOX

NOTICE

THE SCHEDULES AND DRAWINGS REPRESENT ONLY CERTAIN REQUIREMENTS OF THE PROJECT. THERE ARE ADDITIONAL REQUIREMENTS IN THE SPECIFICATIONS BOOKLET WHICH THE CONTRACTOR IS BOUND TO PROVIDE. A SUPPLIER OR CONTRACTOR'S PRICING, WHICH IS BASED ONLY ON DRAWINGS OR SCHEDULES, MAY LEAVE IMPORTANT COSTS UNACCOUNTED FOR WHICH WILL ULTIMATELY BE THE CONTRACTOR OR SUPPLIER'S RESPONSIBILITY TO PROVIDE.

THE DELIVERY OF THIS DRAWING SHOULD NOT BE CONSTRUED TO PROVIDE AN EXPRESS WARRANTY OR GUARANTEE TO ANYONE THAT ALL THE DIMENSIONS AND DETAILS ARE EXACT OR TO INDICATE THAT THE USE OF THIS DRAWING IMPLIES THE REVIEW AND APPROVAL BY THE DESIGN PROFESSIONAL OF ANY FUTURE USE. ANY USE OF THIS INFORMATION WITHOUT THE WRITTEN APPROVAL BY THE DESIGN PROFESSIONAL IS AT THE SOLE RISK AND LIABILITY OF THE USER. THE DESIGN PROFESSIONAL RESERVES THE RIGHT TO REMOVE OUR PROFESSIONAL SEAL AND/OR TITLE BLOCK.

CHESTER UPLAND S.D.

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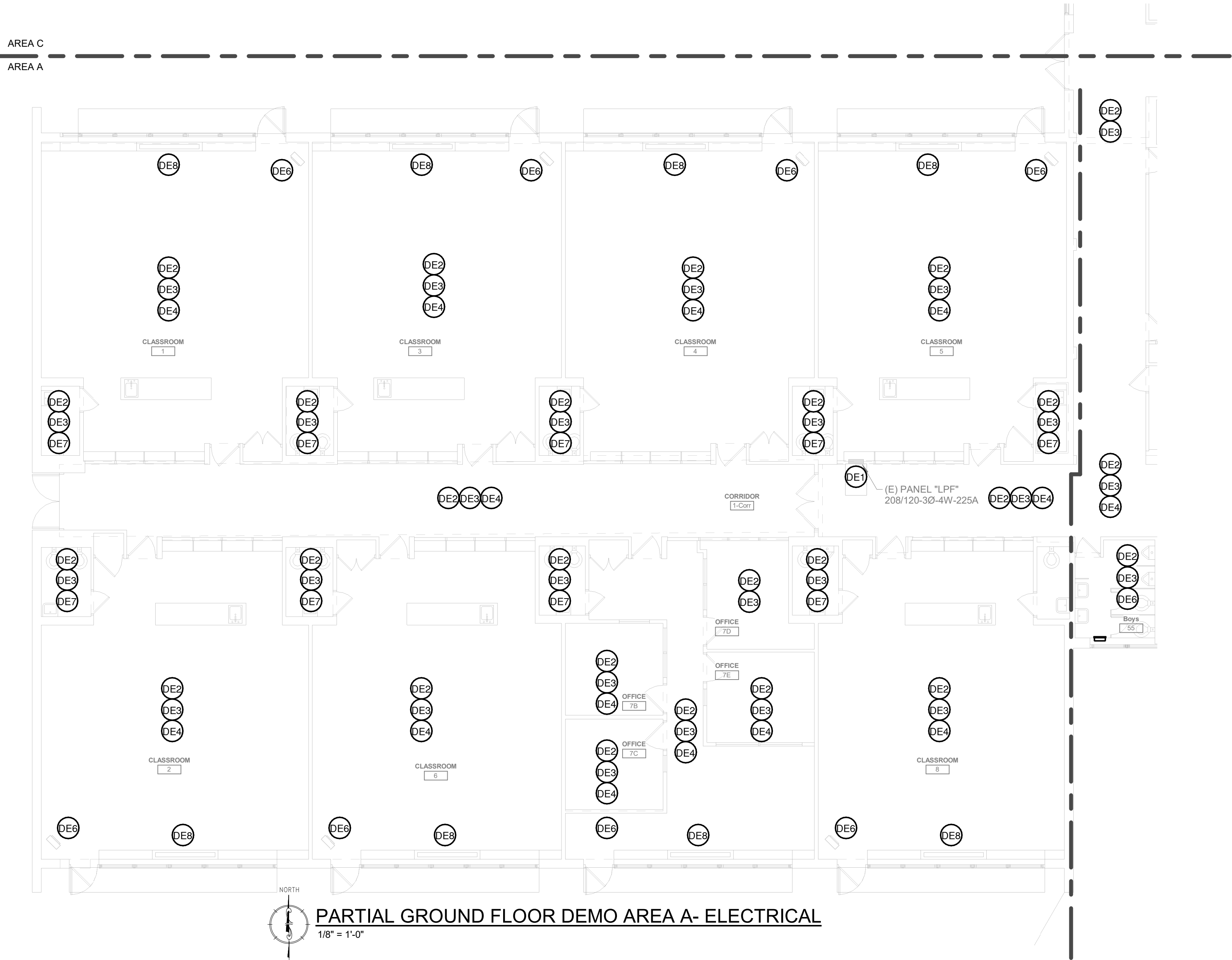
PROJECT NO.: 2022-237

DRAWN BY: MG, BD

DATE: 03/15/2023

SCALE: AS NOTED

Rev. No.	Date	Description
△	10/29/22	SCHEMATIC DESIGN ISSUE
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**ELECTRICAL DEMOLITION NOTES:**

- ELECTRICAL CONTRACTOR IS TO VERIFY ALL EXISTING CONDITIONS IN FIELD PRIOR ANY WORK. ALL DEMOLISHED EQUIPMENT AND DEVICES ARE TO BE REMOVED FROM THE SITE BY THE ELECTRICAL CONTRACTOR.
- REMOVE BRANCH CIRCUIT WIRING METHODS TO POINT OF ORIGIN (OR TO ITS NEAREST ACTIVE DEVICE). RESTORE ALL CIRCUITS INTERRUPTED BY DEMOLITION WORK TO MAINTAIN CIRCUIT CONTINUITY.
- ALL OVERCURRENT PROTECTION DEVICES THAT BECOME "SPARE" AS A RESULT OF DEMOLITION WORK ARE TO BE LABELED SET IN THE "OFF" POSITION AND LABELED "SPARE".
- ALL PANELBOARDS IMPACTED BY RENOVATION WORK ARE TO BE PROVIDED WITH UPDATED DIRECTORIES.
- FIRE ALARM DEVICES ARE TO REMAIN OPERATIONAL AND ARE TO BE PROPERLY PROTECTED DURING CONSTRUCTION. REINSTALL EXISTING DEVICES IN NEW CEILINGS.
- ALL POWER SHUTDOWNS ARE TO BE SCHEDULED AND COORDINATED WITH OWNER.
- THE INTENT IS FOR ALL ADJACENT AREAS TO REMAIN ENERGIZED DURING CONSTRUCTION. THE CONTRACTOR IS TO MODIFY ALL EXISTING WIRING METHODS TO FACILITATE THIS INTENT.
- THE INTENT IS TO REMOVE ALL ELECTRICAL WIRING DEVICES WHICH INTERFERE WITH NEW CONSTRUCTION WORK, OR DEMOLITION WORK WHETHER SPECIFICALLY IDENTIFIED OR NOT.

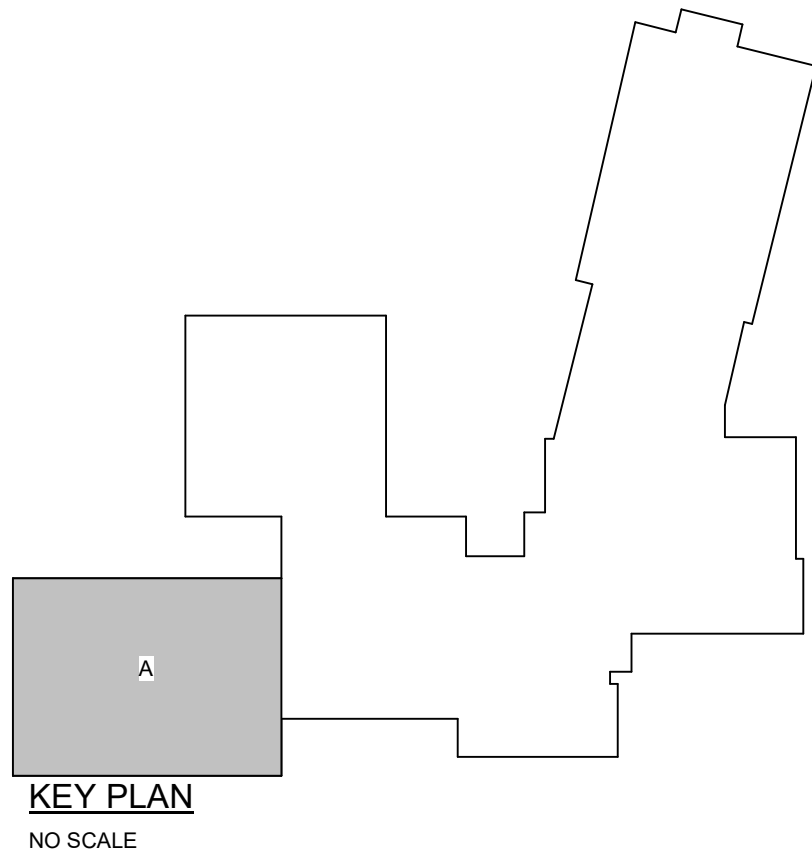
**ELECTRICAL DEMOLITION KEYNOTES:**

- DE1 EXISTING DISTRIBUTION AND/ OR BRANCH CIRCUIT PANELBOARD EQUIPMENT IS TO REMAIN.
- DE2 UNLESS OTHERWISE NOTED, ALL LUMINAIRES AND CONTROLS IN THIS AREA ARE TO BE REMOVED. EXISTING BRANCH CIRCUIT WIRING METHODS ARE TO BE REUSED TO SERVE NEW LUMINAIRES IN NEW CEILING GRID. EXTEND ALL WIRING METHODS AS REQUIRED TO SERVE NEW LUMINAIRES AND CONTROLS AS REQUIRED.
- DE3 UNLESS OTHERWISE NOTED, ALL CEILING-MOUNTED RECEPTACLE AND LOW VOLTAGE OUTLET DEVICES, AND CLOCK(S)/ SPEAKER(S) IN THIS AREA ARE TO BE REMOVED. EXISTING BRANCH CIRCUIT WIRING METHODS ARE TO BE REUSED TO SERVE NEW LUMINAIRES IN NEW CEILING GRID. EXTEND ALL WIRING METHODS AS REQUIRED TO SERVE NEW LUMINAIRES AND CONTROLS AS REQUIRED.
- DE4 UNLESS OTHERWISE NOTED, ALL WALL-MOUNTED RECEPTACLE AND LOW VOLTAGE OUTLET DEVICES IN THIS AREA ARE TO BE REMAIN.
- DE5 UNLESS OTHERWISE NOTED, ALL SURFACE-MOUNTED RACEWAY IN THIS AREA IS TO BE REMOVED AND ALL WIRING METHODS REMOVED TO POINT OF ORIGIN.
- DE6 EXISTING UNIT HEATER EQUIPMENT IS TO REMAIN AND ALL WIRING METHODS REUSED. ELECTRICAL CONTRACTOR IS TO DE-ENERGIZE AND DISCONNECT BRANCH CIRCUIT WIRING METHODS AT THE UNIT. EXISTING BRANCH CIRCUIT WIRING IS TO BE MADE SAFE FOR RECONNECTION OF EQUIPMENT IN NEW CEILING.
- DE7 THE ELECTRICAL CONTRACTOR IS TO REMOVE ALL WIRING METHODS ASSOCIATED WITH DEMOLISHED EXHAUST FAN EQUIPMENT TO POINT OF ORIGIN.
- DE8 THE ELECTRICAL CONTRACTOR IS TO REMOVE ALL DISCONNECTING MEANS AND WIRING METHODS ASSOCIATED WITH DEMOLISHED HVAC EQUIPMENT TO POINT OF ORIGIN.
- DE9 THE ELECTRICAL CONTRACTOR IS TO REMOVE ALL SERVICE DISCONNECTING MEANS AND ASSOCIATED WIRING METHODS TO POINT OF ORIGIN.

**NOTICE**

THE SCHEDULES AND DRAWINGS REPRESENT ONLY CERTAIN REQUIREMENTS OF THE PROJECT. THERE ARE ADDITIONAL REQUIREMENTS IN THE SPECIFICATIONS BOOKLET WHICH THE CONTRACTOR IS BOUND TO PROVIDE. A SUPPLIER OR CONTRACTOR'S PRICING, WHICH IS BASED ONLY ON DRAWINGS OR SCHEDULES, MAY LEAVE IMPORTANT COSTS UNACCOUNTED FOR WHICH WILL ULTIMATELY BE THE CONTRACTOR OR SUPPLIER'S RESPONSIBILITY TO PROVIDE.

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**CHESTER UPLAND S.D.**

TOBY FARMS INTERMEDIATE SCHOOL, HVAC and WINDOW UPGRADES

201 BRIDGEWATER ROAD  
BROOKHAVEN, PA 19015

**PARTIAL GROUND FLOOR DEMO AREA A-  
ELECTRICAL**



135 Eagle Street, Ambler, PA 19002  
265.411898  
1950 Route 700, Ambler, PA 19002  
265.411898

**100% Bid Set- 15 March 2023**

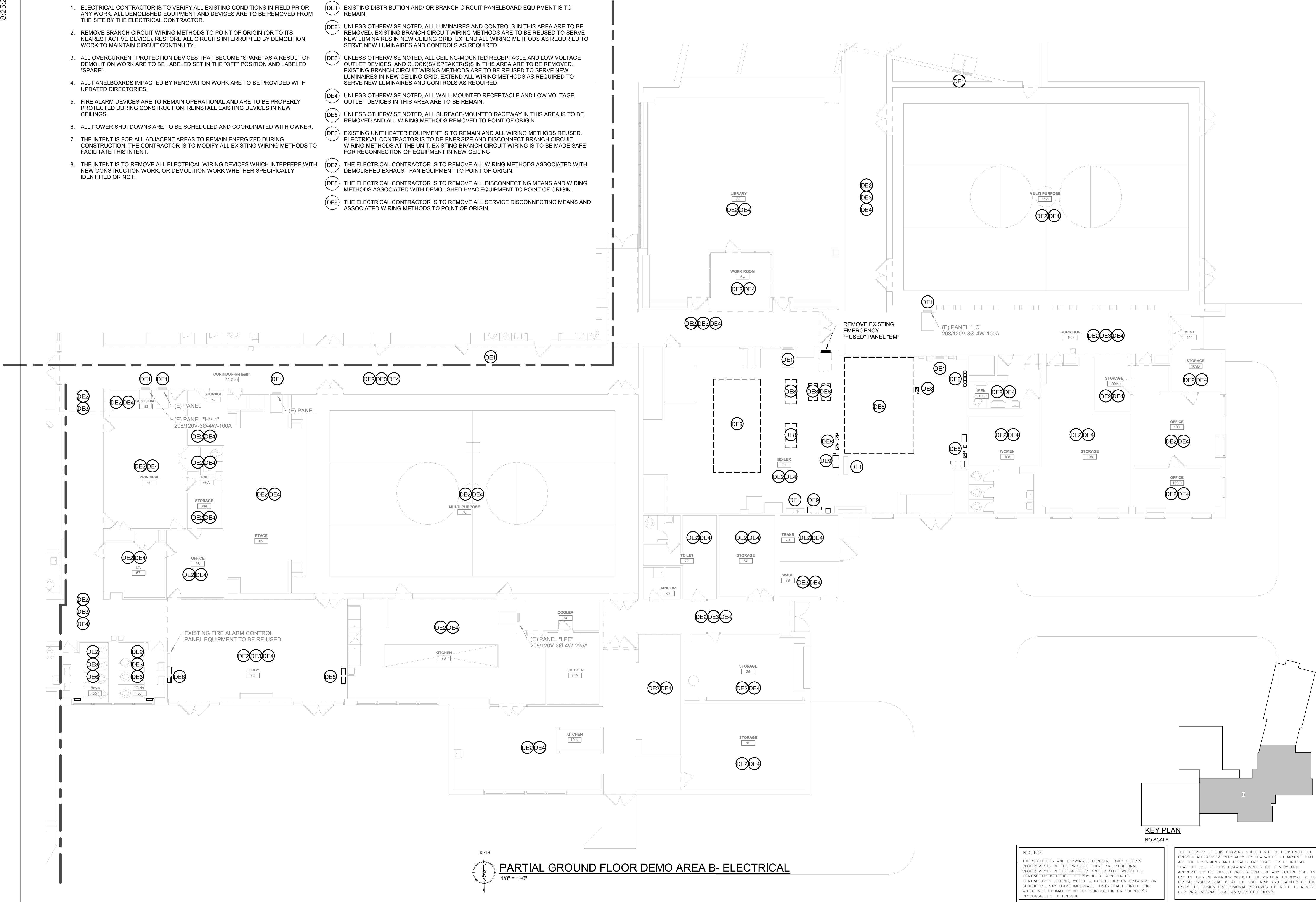
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CHESTER UPLAND S.D.

TOBY FARMS INTERMEDIATE SCHOOL, HVAC and WINDOW UPGRADES

201 BRIDGEWATER ROAD  
BROOKHAVEN, PA 19015

PARTIAL GROUND FLOOR DEMO AREA B-  
ELECTRICAL

PROJECT NO: 2022-327

DRAWN BY: MGD

DATE: 03/15/2023

SCALE: AS NOTED



ENGINEERING ASSOCIATES, INC.

135 Ridge Street, Ambler, PA 19002

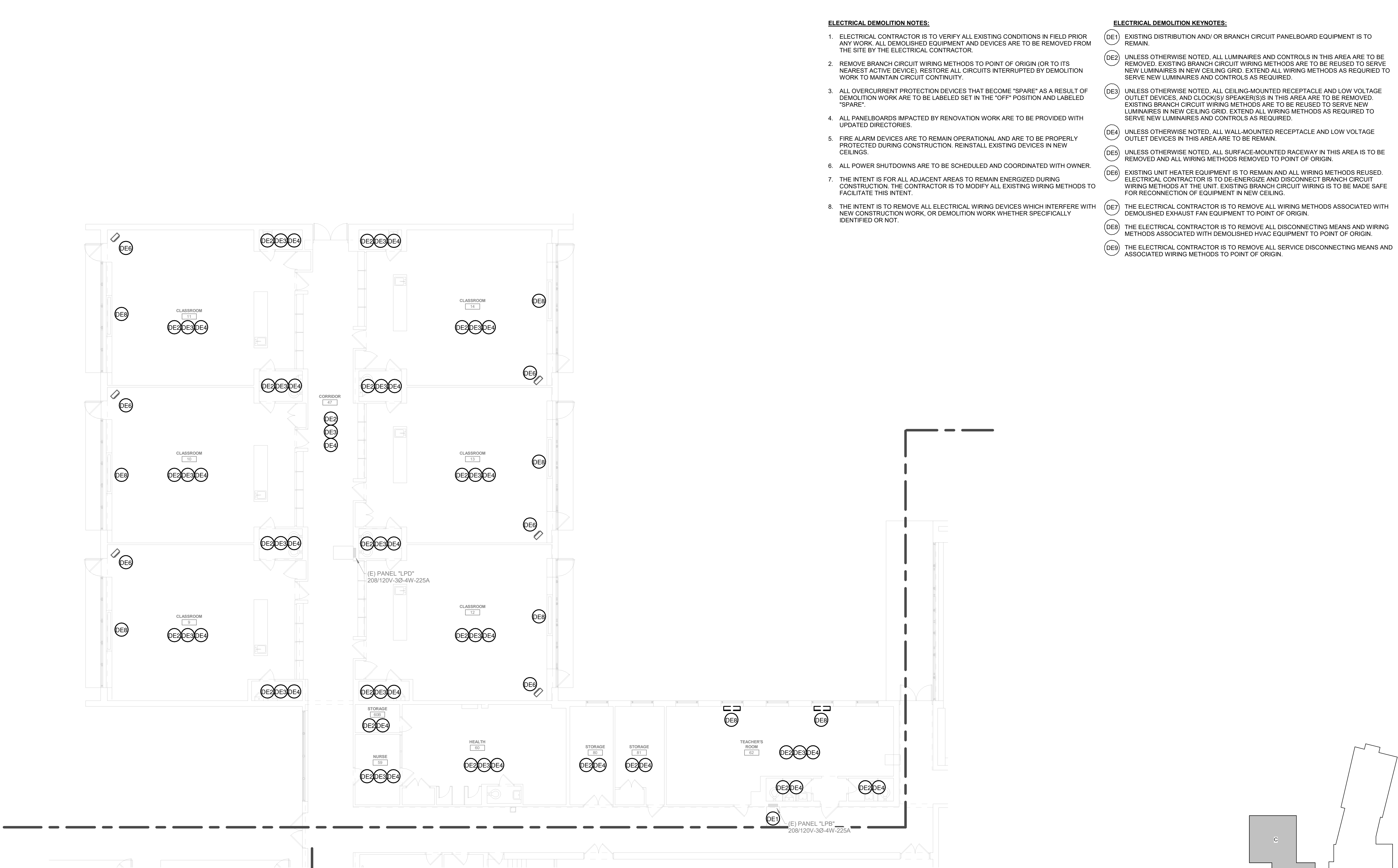
26041189

1950 Route 700, Suite 200, Ambler, NJ 08003

100% Bid Set- 15 March 2023

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**PARTIAL GROUND FLOOR DEMO AREA C- ELECTRICAL**  
1/8" = 1'-0"

**KEY PLAN**  
NO SCALE

**NOTICE**

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**PARTIAL GROUND FLOOR DEMO AREA C-  
ELECTRICAL**

PROJECT NO: 2022-327

DRAWN BY: MGD

DATE: 03/15/2023

SCALE: AS NOTED



ENGINEERING ASSOCIATES INC.

135 Ridge Street, Ambler, PA 19002  
1950 Route 70, Ambler, PA 19002  
2641188

**100% Bid Set- 15 March 2023**

Rev. No.	Date	Description
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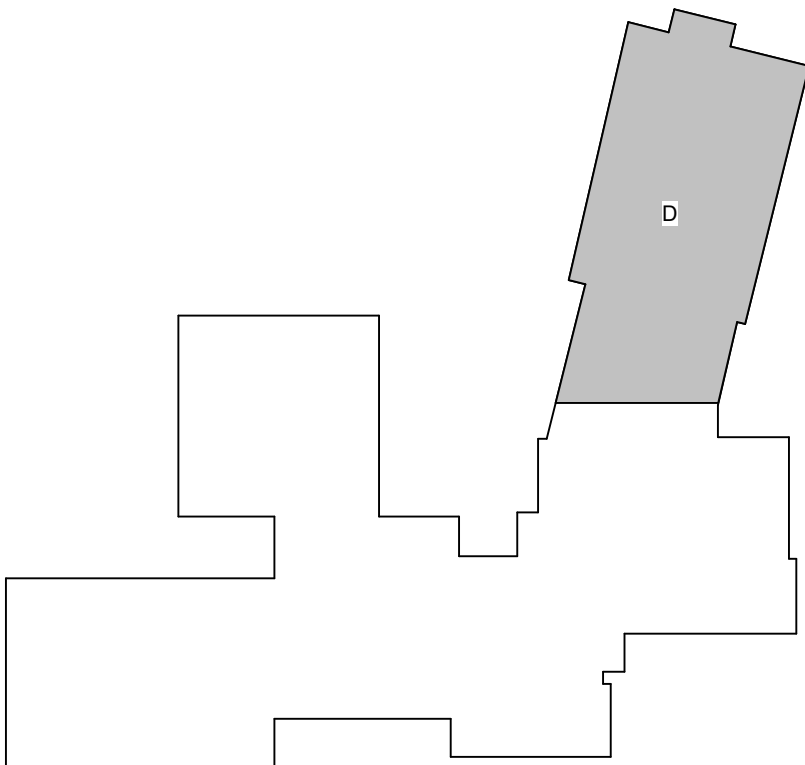


**ELECTRICAL DEMOLITION NOTES:**

1. ELECTRICAL CONTRACTOR IS TO VERIFY ALL EXISTING CONDITIONS IN FIELD PRIOR ANY WORK. ALL DEMOLISHED EQUIPMENT AND DEVICES ARE TO BE REMOVED FROM THE SITE BY THE ELECTRICAL CONTRACTOR.
2. REMOVE BRANCH CIRCUIT WIRING METHODS TO POINT OF ORIGIN (OR TO ITS NEAREST ACTIVE DEVICE). RESTORE ALL CIRCUITS INTERRUPTED BY DEMOLITION WORK TO MAINTAIN CIRCUIT CONTINUITY.
3. ALL OVERCURRENT PROTECTION DEVICES THAT BECOME "SPARE" AS A RESULT OF DEMOLITION WORK ARE TO BE LABELED SET IN THE "OFF" POSITION AND LABELED "SPARE".
4. ALL PANELBOARDS IMPACTED BY RENOVATION WORK ARE TO BE PROVIDED WITH UPDATED DIRECTORIES.
5. FIRE ALARM DEVICES ARE TO REMAIN OPERATIONAL AND ARE TO BE PROPERLY PROTECTED DURING CONSTRUCTION. REINSTALL EXISTING DEVICES IN NEW CEILINGS.
6. ALL POWER SHUTDOWNS ARE TO BE SCHEDULED AND COORDINATED WITH OWNER.
7. THE INTENT IS FOR ALL ADJACENT AREAS TO REMAIN ENERGIZED DURING CONSTRUCTION. THE CONTRACTOR IS TO MODIFY ALL EXISTING WIRING METHODS TO FACILITATE THIS INTENT.
8. THE INTENT IS TO REMOVE ALL ELECTRICAL WIRING DEVICES WHICH INTERFERE WITH NEW CONSTRUCTION WORK, OR DEMOLITION WORK WHETHER SPECIFICALLY IDENTIFIED OR NOT.

**ELECTRICAL DEMOLITION KEYNOTES:**

- DE1 EXISTING DISTRIBUTION AND/ OR BRANCH CIRCUIT PANELBOARD EQUIPMENT IS TO REMAIN.
- DE2 UNLESS OTHERWISE NOTED, ALL LUMINAIRES AND CONTROLS IN THIS AREA ARE TO BE REMOVED. EXISTING BRANCH CIRCUIT WIRING METHODS ARE TO BE REUSED TO SERVE NEW LUMINAIRES IN NEW CEILING GRID. EXTEND ALL WIRING METHODS AS REQUIRED TO SERVE NEW LUMINAIRES AND CONTROLS AS REQUIRED.
- DE3 UNLESS OTHERWISE NOTED, ALL CEILING-MOUNTED RECEPTACLE AND LOW VOLTAGE OUTLET DEVICES, AND CLOCK(S) SPEAKER(S) IN THIS AREA ARE TO BE REMOVED. EXISTING BRANCH CIRCUIT WIRING METHODS ARE TO BE REUSED TO SERVE NEW LUMINAIRES IN NEW CEILING GRID. EXTEND ALL WIRING METHODS AS REQUIRED TO SERVE NEW LUMINAIRES AND CONTROLS AS REQUIRED.
- DE4 UNLESS OTHERWISE NOTED, ALL WALL-MOUNTED RECEPTACLE AND LOW VOLTAGE OUTLET DEVICES IN THIS AREA ARE TO BE REMAIN.
- DE5 UNLESS OTHERWISE NOTED, ALL SURFACE-MOUNTED RACEWAY IN THIS AREA IS TO BE REMOVED AND ALL WIRING METHODS REMOVED TO POINT OF ORIGIN.
- DE6 EXISTING UNIT HEATER EQUIPMENT IS TO REMAIN AND ALL WIRING METHODS REUSED. ELECTRICAL CONTRACTOR IS TO DE-ENERGIZE AND DISCONNECT BRANCH CIRCUIT WIRING METHODS AT THE UNIT. EXISTING BRANCH CIRCUIT WIRING IS TO BE MADE SAFE FOR RECONNECTION OF EQUIPMENT IN NEW CEILING.
- DE7 THE ELECTRICAL CONTRACTOR IS TO REMOVE ALL WIRING METHODS ASSOCIATED WITH DEMOLISHED EXHAUST FAN EQUIPMENT TO POINT OF ORIGIN.
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- DE9 THE ELECTRICAL CONTRACTOR IS TO REMOVE ALL SERVICE DISCONNECTING MEANS AND ASSOCIATED WIRING METHODS TO POINT OF ORIGIN.



**NOTICE**

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**CHESTER UPLAND S.D.**

TOBY FARMS INTERMEDIATE SCHOOL, HVAC and WINDOW UPGRADES

201 BRIDGEWATER ROAD  
BROOKHAVEN, PA 19015

**PARTIAL GROUND FLOOR DEMO AREA D-  
ELECTRICAL**

PROJECT NO: 2022-327

DRAWN BY: MG, DD

DATE: 03/15/2023

SCALE: AS NOTED



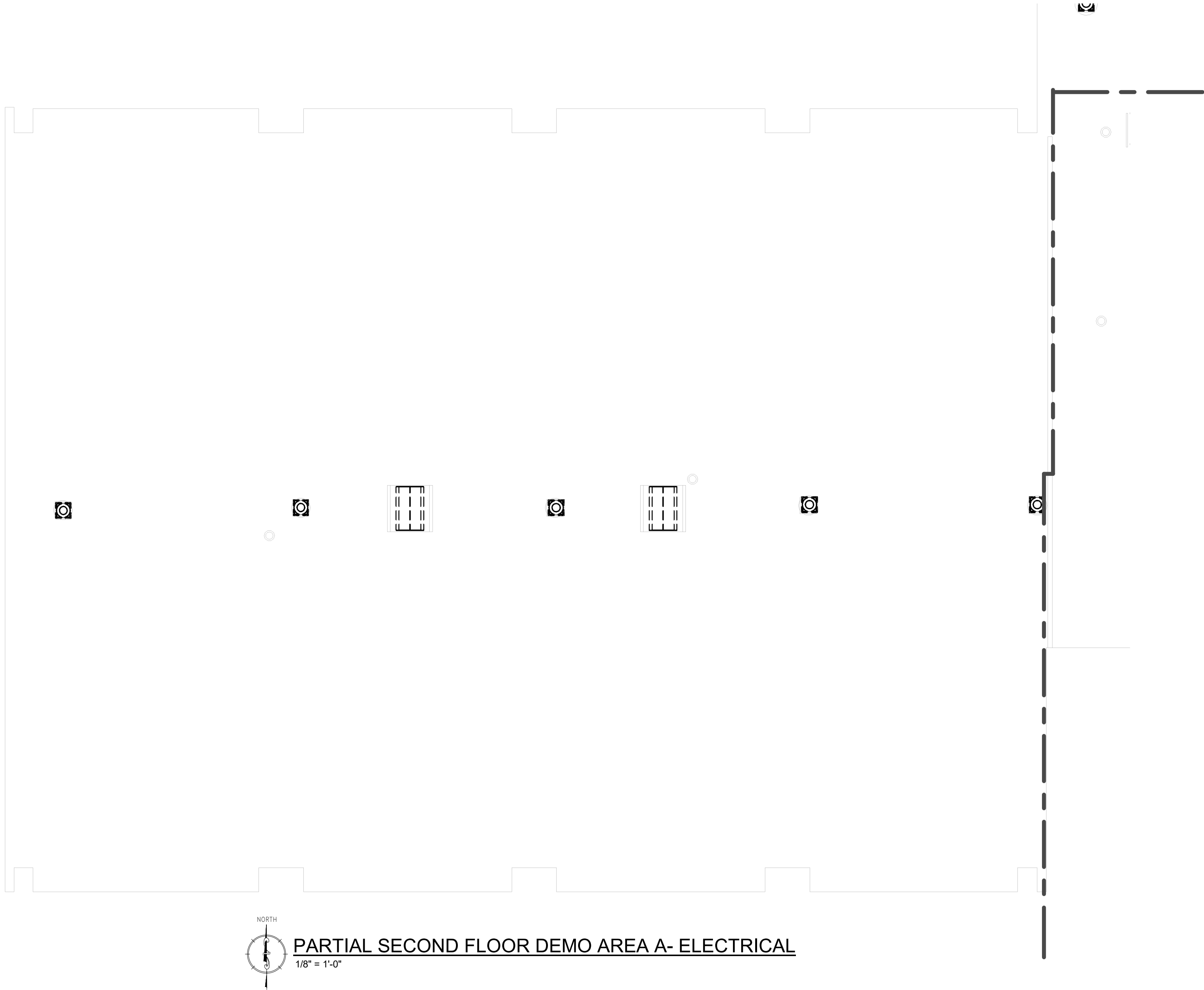
ENGINEERING ASSOCIATES INC.

135 Eagle Street, Ambler, PA 19002  
1950 Route 70, Brookhaven, PA 19003  
264.41188

**100% Bid Set- 15 March 2023**

Rev. No.	Date	Description
1	10/28/22	SCHEMATIC DESIGN ISSUE
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Please, specifications, reports, documents, or other information recorded on or transmitted as electronic data files shall be maintained in accordance with the project schedule, including, but not limited to, among other things, transmission, conversion, alteration, or other modification of the original product, nor as a record document. Any reliance on such information shall be deemed to be unenforceable and void. All drawings, specifications, and related documents are copyright of the architect and must be used in accordance with the terms of the license. Specifications and related documents in part or in whole shall not be reproduced without the architect's written permission. Do not scale drawings.



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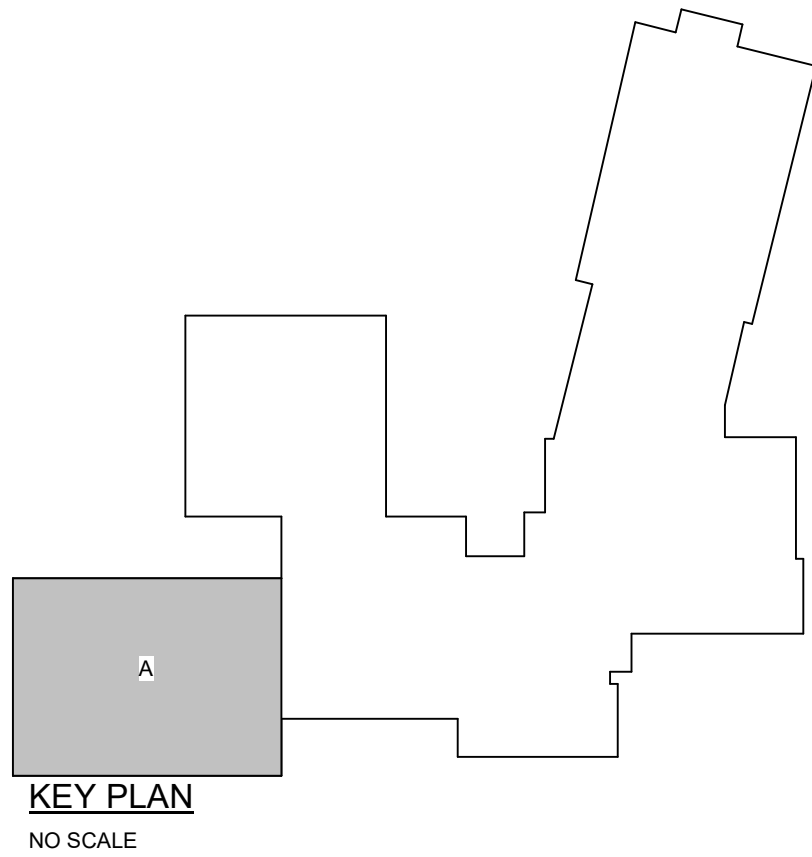
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**CHESTER UPLAND S.D.**

TOBY FARMS INTERMEDIATE SCHOOL, HVAC and WINDOW UPGRADES

201 BRIDGEWATER ROAD  
BROOKHAVEN, PA 19015

**PARTIAL SECOND FLOOR DEMO AREA A-  
ELECTRICAL**



135 Padgett Street, Ambler, PA 19002  
215-641-1898  
www.mchugheng.com

**100% Bid Set- 15 March 2023**

PROJECT NO: 2022-327  
DRAWN BY: MG, DD  
DATE: 03/15/2023  
SCALE: AS NOTED

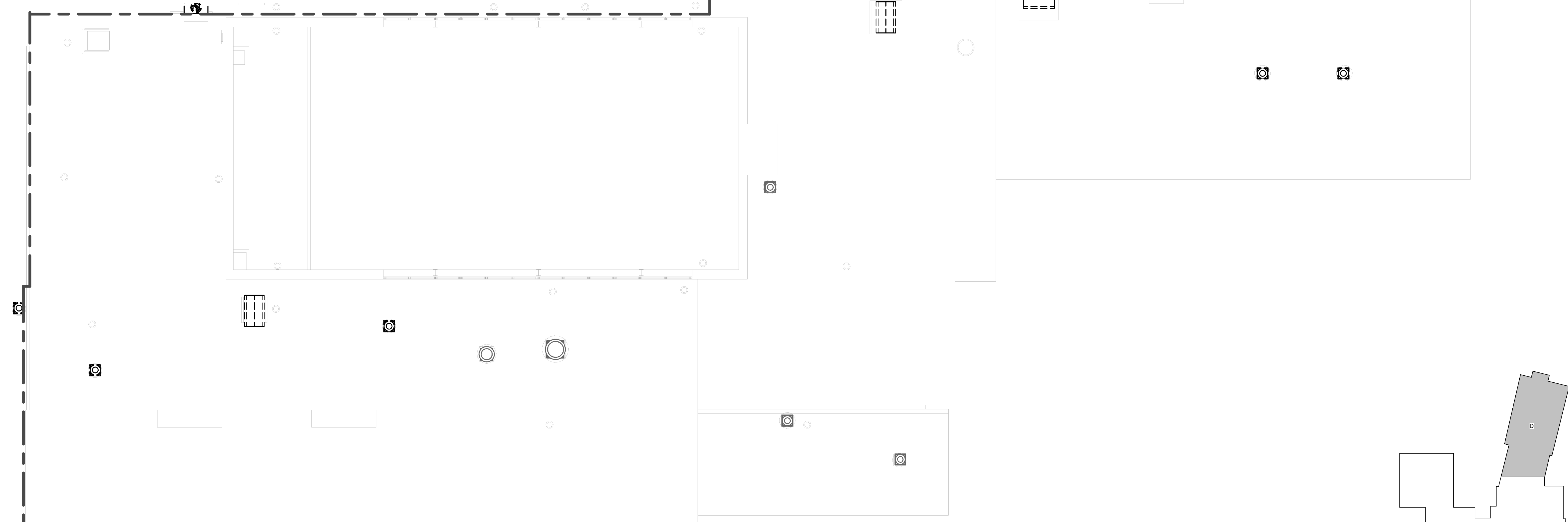
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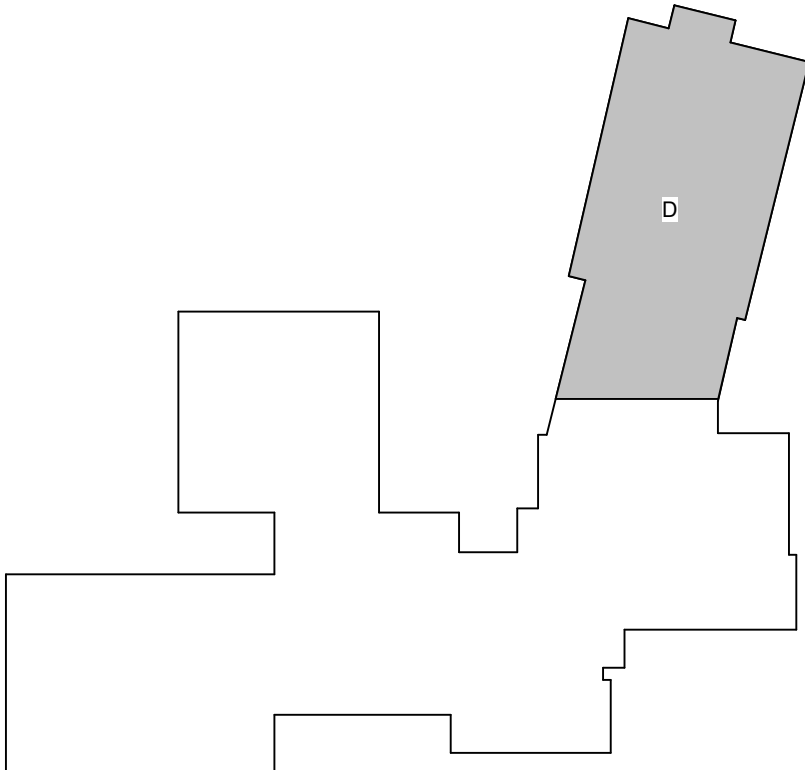
**PARTIAL SECOND FLOOR DEMO AREA B- ELECTRICAL**  
1/8" = 1'-0"

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**KEY PLAN**  
NO SCALE



**CHESTER UPLAND S.D.**

TOBY FARMS INTERMEDIATE SCHOOL, HVAC and WINDOW UPGRADES

201 BRIDGEWATER ROAD  
BROOKHAVEN, PA 19015

**PARTIAL SECOND FLOOR DEMO AREA B- ELECTRICAL**

PROJECT NO: 2022-327

DRAWN BY: MG, DD

DATE: 03/15/2023

SCALE: AS NOTED

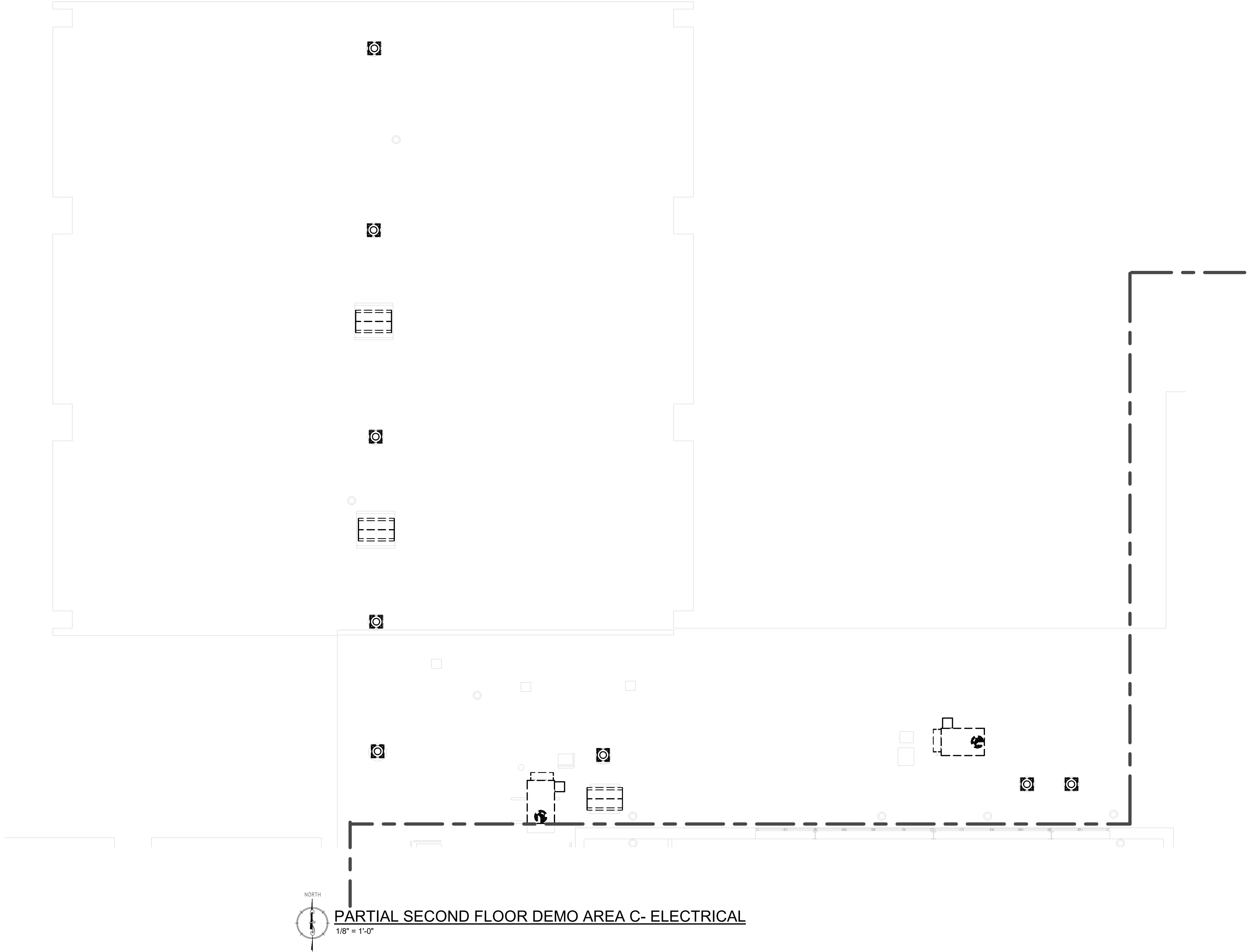


**McHUGH**  
ENGINEERING ASSOCIATES INC.

135 Padgett Street, Ambler, PA 19002  
1950 Route 70, Brookhaven, PA 19003  
2644188  
www.mchugheng.com

**100% Bid Set- 15 March 2023**

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PARTIAL SECOND FLOOR DEMO AREA C- ELECTRICAL

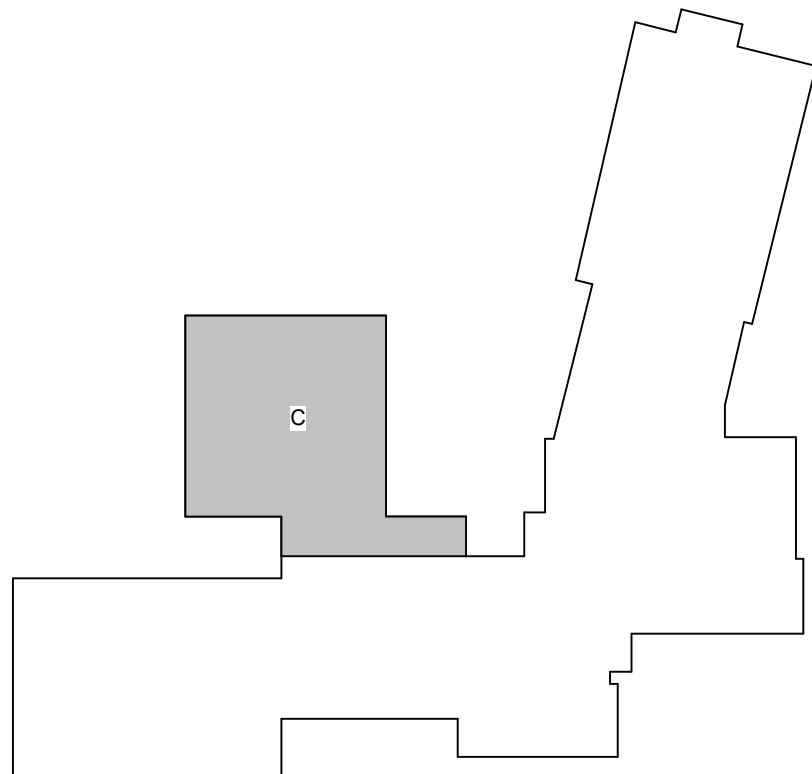
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- DE4 UNLESS OTHERWISE NOTED, ALL WALL-MOUNTED RECEPTACLE AND LOW VOLTAGE OUTLET DEVICES IN THIS AREA ARE TO BE REMAIN.
- DE5 UNLESS OTHERWISE NOTED, ALL SURFACE-MOUNTED RACEWAY IN THIS AREA IS TO BE REMOVED AND ALL WIRING METHODS REMOVED TO POINT OF ORIGIN.
- DE6 EXISTING UNIT HEATER EQUIPMENT IS TO REMAIN AND ALL WIRING METHODS REUSED. ELECTRICAL CONTRACTOR IS TO DE-ENERGIZE AND DISCONNECT BRANCH CIRCUIT WIRING METHODS AT THE UNIT. EXISTING BRANCH CIRCUIT WIRING IS TO BE MADE SAFE FOR RECONNECTION OF EQUIPMENT IN NEW CEILING.
- DE7 THE ELECTRICAL CONTRACTOR IS TO REMOVE ALL WIRING METHODS ASSOCIATED WITH DEMOLISHED EXHAUST FAN EQUIPMENT TO POINT OF ORIGIN.
- DE8 THE ELECTRICAL CONTRACTOR IS TO REMOVE ALL DISCONNECTING MEANS AND WIRING METHODS ASSOCIATED WITH DEMOLISHED HVAC EQUIPMENT TO POINT OF ORIGIN.
- DE9 THE ELECTRICAL CONTRACTOR IS TO REMOVE ALL SERVICE DISCONNECTING MEANS AND ASSOCIATED WIRING METHODS TO POINT OF ORIGIN.



KEY PLAN  
NO SCALE

NOTICE

THE SCHEDULES AND DRAWINGS REPRESENT ONLY CERTAIN REQUIREMENTS OF THE PROJECT. THERE ARE ADDITIONAL REQUIREMENTS IN THE SPECIFICATIONS BOOKLET WHICH THE CONTRACTOR IS BOUND TO PROVIDE. A SUPPLIER OR CONTRACTOR'S PRICING, WHICH IS BASED ONLY ON DRAWINGS OR SCHEDULES, MAY LEAVE IMPORTANT COSTS UNACCOUNTED FOR WHICH WILL ULTIMATELY BE THE CONTRACTOR OR SUPPLIER'S RESPONSIBILITY TO PROVIDE.

THE DELIVERY OF THIS DRAWING SHOULD NOT BE CONSTRUED TO PROVIDE AN EXPRESS WARRANTY OR GUARANTEE TO ANYONE THAT ALL THE DIMENSIONS AND DETAILS ARE EXACT OR TO INDICATE THAT THE USE OF THIS DRAWING IMPLIES THE REVIEW AND APPROVAL BY THE DESIGN PROFESSIONAL OF ANY FUTURE USE. ANY USE OF THIS INFORMATION WITHOUT THE WRITTEN APPROVAL BY THE DESIGN PROFESSIONAL IS AT THE SOLE RISK AND LIABILITY OF THE USER. THE DESIGN PROFESSIONAL RESERVES THE RIGHT TO REMOVE OUR PROFESSIONAL SEAL AND/OR TITLE BLOCK.

CHESTER UPLAND S.D.

TOBY FARMS INTERMEDIATE SCHOOL, HVAC and WINDOW UPGRADES

201 BRIDGEWATER ROAD  
BROOKHAVEN, PA 19015

PARTIAL SECOND FLOOR DEMO AREA C-  
ELECTRICAL

PROJECT NO: 2022-327

DRAWN BY: MG, DD

DATE: 03/15/2023

SCALE: AS NOTED



135 Eagle Street, Ambler, PA 19002  
1950 Route 70, Ambler, PA 19003  
2644189

100% Bid Set- 15 March 2023

Rev. No.	Date	Description
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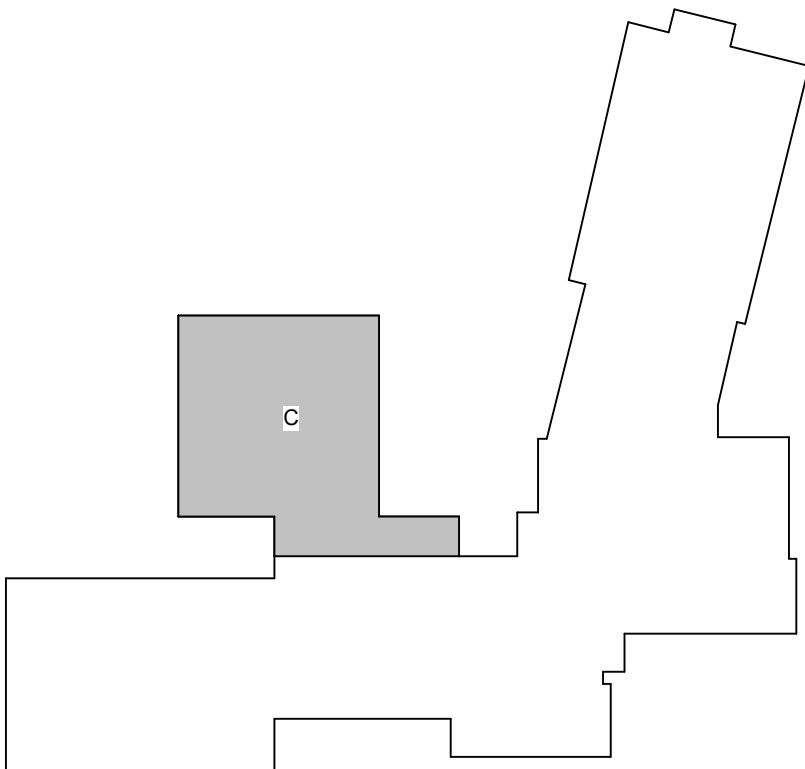
PARTIAL SECOND FLOOR DEMO AREA D- ELECTRICAL

ELECTRICAL DEMOLITION NOTES:

1. ELECTRICAL CONTRACTOR IS TO VERIFY ALL EXISTING CONDITIONS IN FIELD PRIOR ANY WORK. ALL DEMOLISHED EQUIPMENT AND DEVICES ARE TO BE REMOVED FROM THE SITE BY THE ELECTRICAL CONTRACTOR.
2. REMOVE BRANCH CIRCUIT WIRING METHODS TO POINT OF ORIGIN (OR TO ITS NEAREST ACTIVE DEVICE). RESTORE ALL CIRCUITS INTERRUPTED BY DEMOLITION WORK TO MAINTAIN CIRCUIT CONTINUITY.
3. ALL OVERCURRENT PROTECTION DEVICES THAT BECOME "SPARE" AS A RESULT OF DEMOLITION WORK ARE TO BE LABELED SET IN THE "OFF" POSITION AND LABELED "SPARE".
4. ALL PANELBOARDS IMPACTED BY RENOVATION WORK ARE TO BE PROVIDED WITH UPDATED DIRECTORIES.
5. FIRE ALARM DEVICES ARE TO REMAIN OPERATIONAL AND ARE TO BE PROPERLY PROTECTED DURING CONSTRUCTION. REINSTALL EXISTING DEVICES IN NEW CEILINGS.
6. ALL POWER SHUTDOWNS ARE TO BE SCHEDULED AND COORDINATED WITH OWNER.
7. THE INTENT IS FOR ALL ADJACENT AREAS TO REMAIN ENERGIZED DURING CONSTRUCTION. THE CONTRACTOR IS TO MODIFY ALL EXISTING WIRING METHODS TO FACILITATE THIS INTENT.
8. THE INTENT IS TO REMOVE ALL ELECTRICAL WIRING DEVICES WHICH INTERFERE WITH NEW CONSTRUCTION WORK, OR DEMOLITION WORK WHETHER SPECIFICALLY IDENTIFIED OR NOT.

ELECTRICAL DEMOLITION KEYNOTES:

- DE1 EXISTING DISTRIBUTION AND/ OR BRANCH CIRCUIT PANELBOARD EQUIPMENT IS TO REMAIN.
- DE2 UNLESS OTHERWISE NOTED, ALL LUMINAIRES AND CONTROLS IN THIS AREA ARE TO BE REMOVED. EXISTING BRANCH CIRCUIT WIRING METHODS ARE TO BE REUSED TO SERVE NEW LUMINAIRES IN NEW CEILING GRID. EXTEND ALL WIRING METHODS AS REQUIRED TO SERVE NEW LUMINAIRES AND CONTROLS AS REQUIRED.
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KEY PLAN  
NO SCALE

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135 Poplar Street, Ambler, PA 19002  
1950 Route 70, Suite 200, Ambler, NJ 08003  
264.41188

CHESTER UPLAND S.D.

TOBY FARMS INTERMEDIATE SCHOOL, HVAC and WINDOW UPGRADES

201 BRIDGEWATER ROAD

BROOKHAVEN, PA 19015

PARTIAL SECOND FLOOR DEMO AREA D- ELECTRICAL

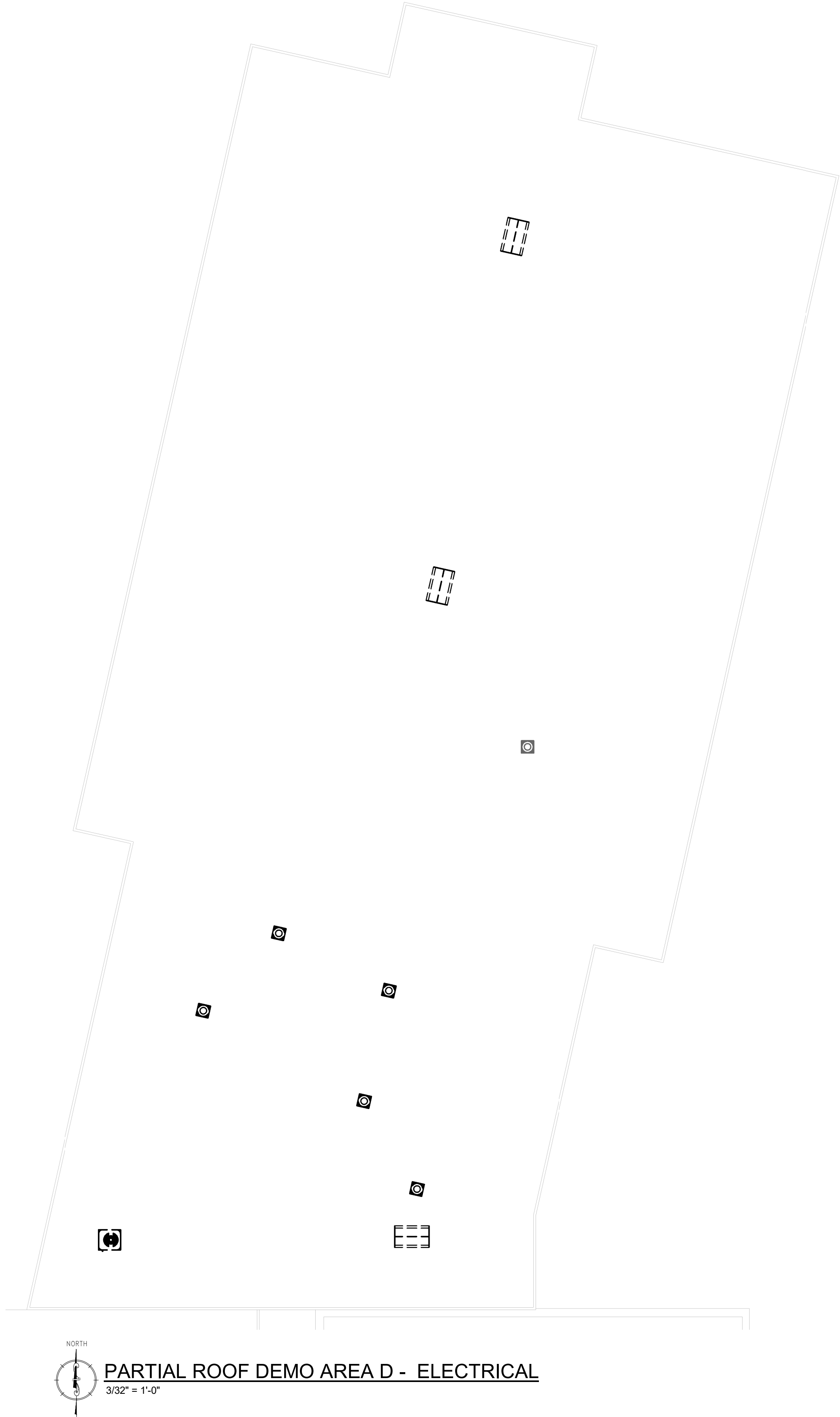
PROJECT NO: 2022-327

DRAWN BY: MG, DD

DATE: 03/15/2023

SCALE: AS NOTED

Rev. No.	Date	Description
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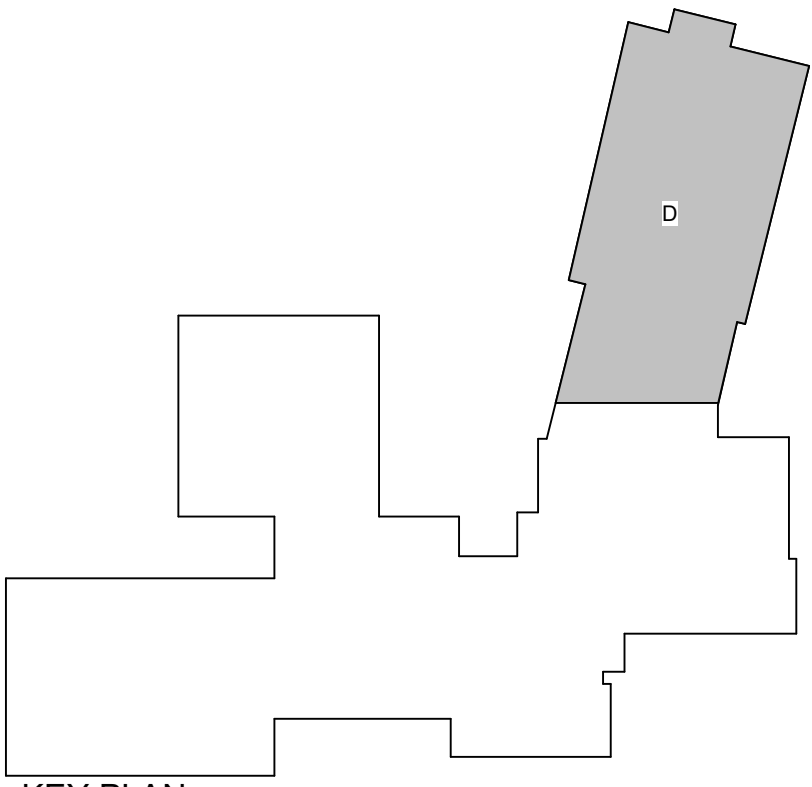


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201 BRIDGEWATER ROAD  
BROOKHAVEN, PA 19015

**PARTIAL DEMO ROOF PLAN AREA D - ELECTRICAL**

PROJECT NO: 2022-327

DRAWN BY: MG, DD

DATE: 03/15/2023

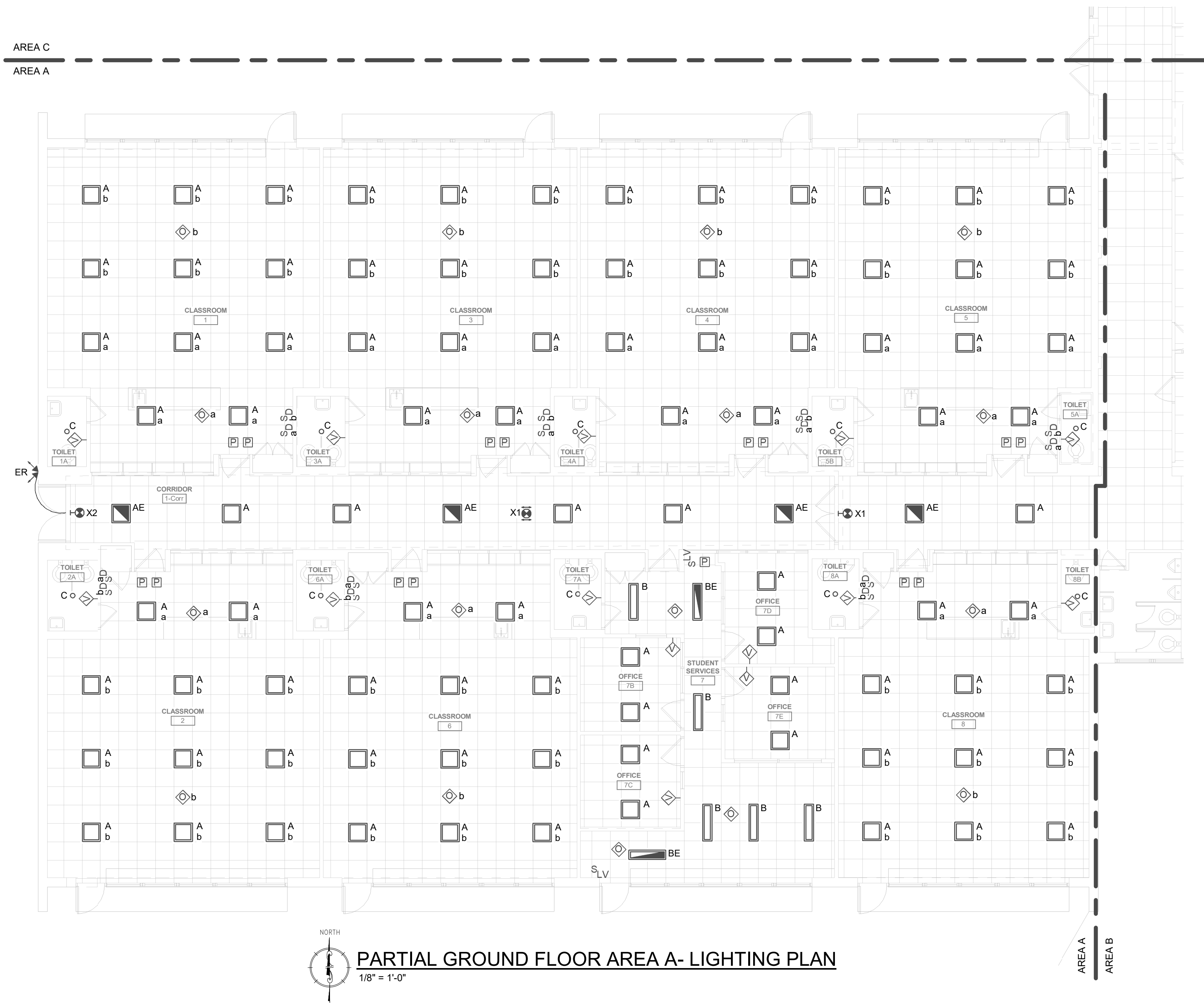
SCALE: AS NOTED



135 Eagle Street, Ambler, PA 19002  
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www.mchugheng.com

**100% Bid Set- 15 March 2023**

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GENERAL LUMINAIRE NOTES:

1. ALL BATTERY EQUIPPED EMERGENCY AND EXIT SIGNAGE LUMINAIRES ARE TO BE CIRCUITED VIA THE UN-SWITCHED LEG OF THE LOCAL AREA LUMINAIRE CIRCUIT.
2. ALL LUMINAIRE LOCATIONS AND MOUNTING HEIGHTS ARE TO BE COORDINATED WITH THE ARCHITECTURAL AND INTERIOR DESIGN DRAWINGS.
3. UNLESS OTHERWISE NOTED, ALL NORMAL POWER LUMINAIRE BRANCH CIRCUIT NUMBERS ARE VIA EXISTING BRANCH CIRCUITS IN EXISTING PANELS. EXISTING WIRING METHODS ARE TO BE RE-USED TO SERVE NEW LUMINAIRES. EXTEND ALL WIRING METHODS AS REQUIRED TO SERVE NEW LUMINAIRES.
4. UNLESS OTHERWISE NOTED, ALL EMERGENCY POWER LUMINAIRES ARE TO BE PROVIDED WITH LEGAL BATTERY BACK-UP AND ARE TO BE CIRCUITED AS NIGHTLIGHTS FOR 24/7 OPERATION.
5. ALL LUMINAIRE CONTROL DEVICES ARE TO BE GANGED TOGETHER, HAVE A COMMON FACE PLATE, AND BE LABELED WITH THEIR AREA(S) OF CONTROL. ALL CONTROL WIRING METHODS ARE TO BE NEW AND ARE TO BE AS REQUIRED BY THE MANUFACTURER.
6. UNLESS OTHERWISE NOTED, ALL LUMINAIRE CONTROL SENSOR DEVICES IN A SPACE ARE TO BE INTERCONNECTED SO THAT ALL LUMINAIRES WITHIN THE SPACE ARE ENERGIZED WHEN ANY OCCUPANCY SENSOR DEVICE IS ACTIVATED.
7. CONTRACTOR IS TO PROVIDE A MANUALLY CONTROLLED, OVERRIDE WALL BOX DEVICE FOR ROOM OCCUPANCY SENSORS.
8. ALL OVERCURRENT PROTECTION DEVICES THAT ARE NOT RE-USED TO SERVE NEW LUMINAIRE LOADS ARE TO BE SET TO "OFF" AND LABELED "SPARE".

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REV.#	REV. DATE	REV. NOTES

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Do not scale drawings



136 Poplar Street, Ambler, PA 19002  
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www.mchugheng.com  
215.641.1158

**100% Bid Set- 15 March 2023**

CHESTER UPLAND S.D.

TOBY FARMS INTERMEDIATE SCHOOL, HVAC and WINDOW UPGRADES

201 BRIDGEWATER ROAD  
BROOKHAVEN, PA 19015

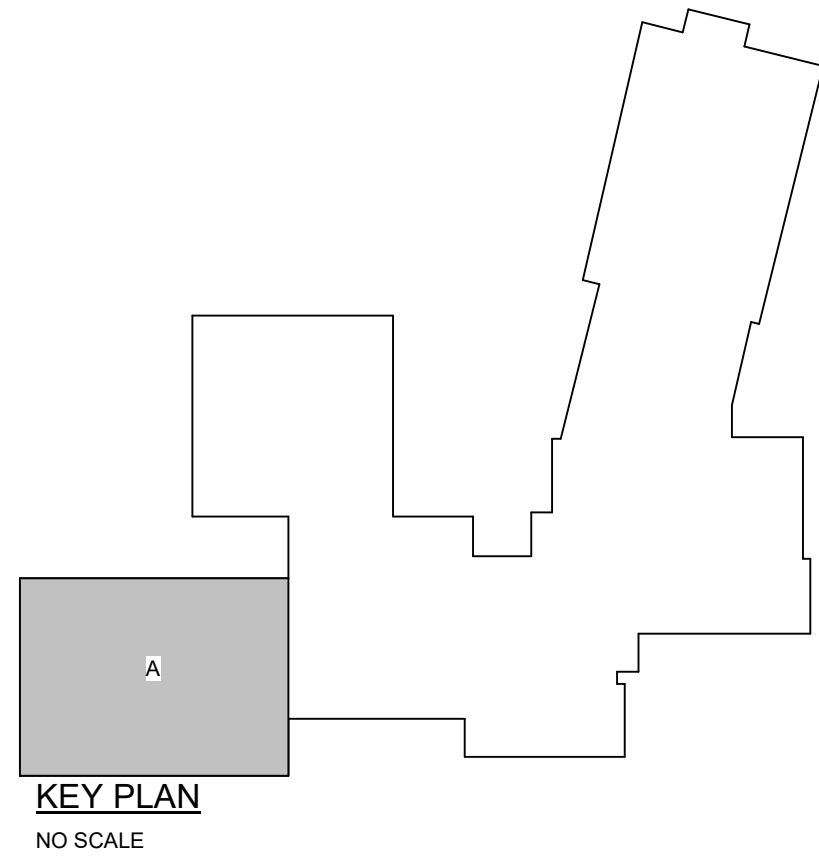
## PARTIAL GROUND FLOOR AREA A - LIGHTING

SCALE: AS NOTED

NOTICE

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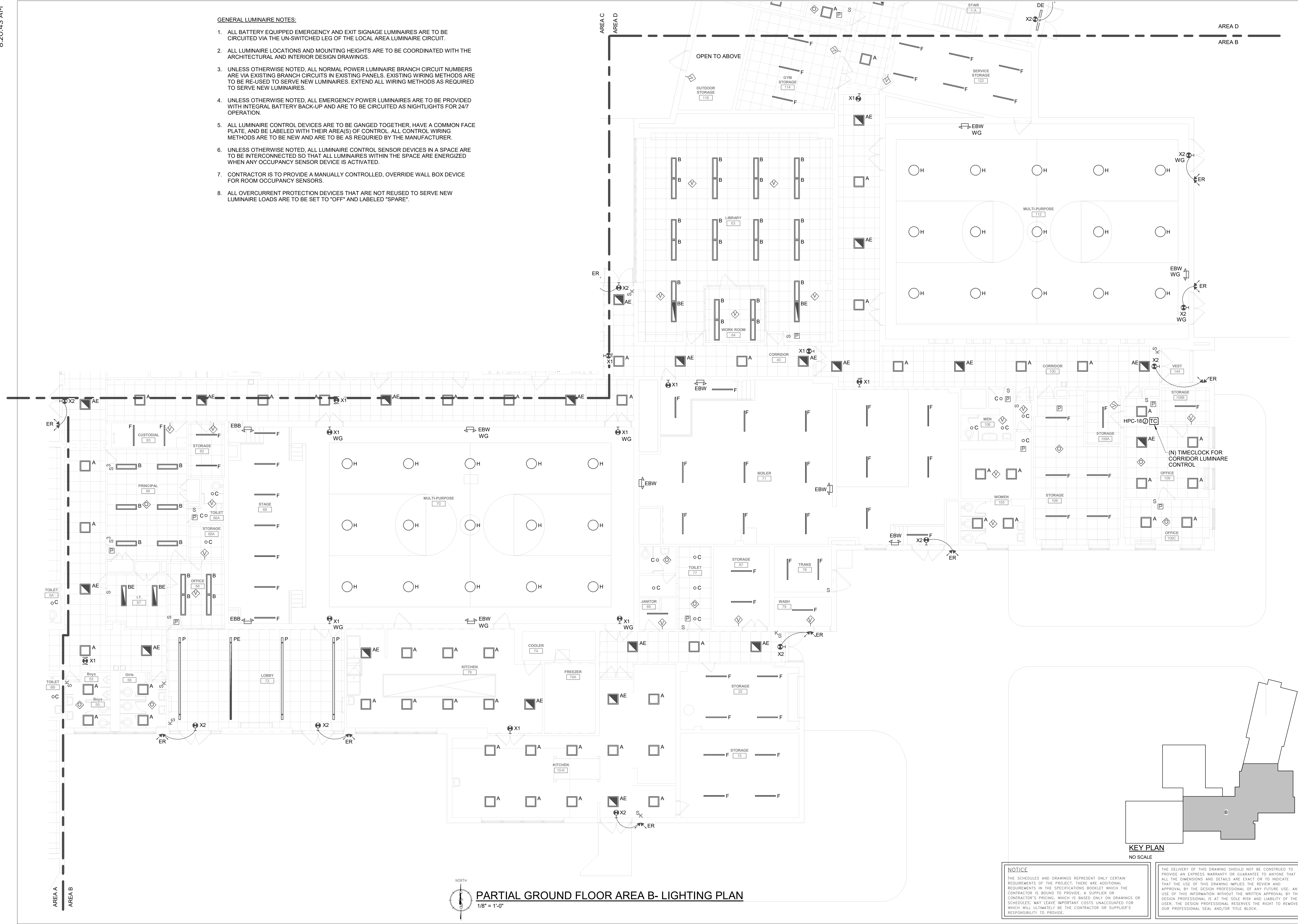


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GENERAL LUMINAIRE NOTES:

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CHESTER UPLAND S.D.

TOBY FARMS INTERMEDIATE SCHOOL, HVAC and WINDOW UPGRADES

201 BRIDGEWATER ROAD  
BROOKHAVEN, PA 19015

PARTIAL GROUND FLOOR AREA B -  
LIGHTING

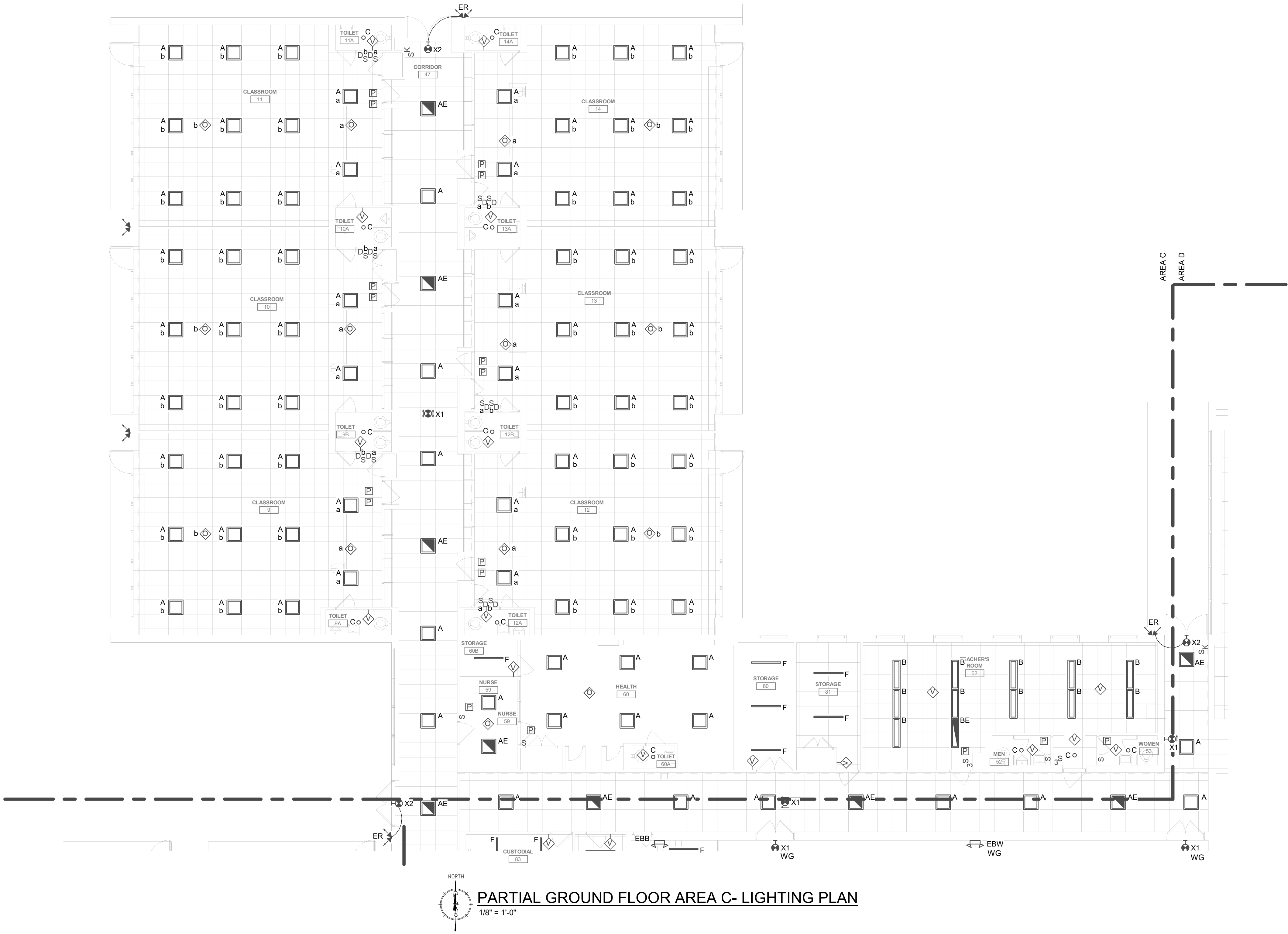


135 Ridge Street, Ambler, PA 19002  
1950 Route 70, Suite 200, Brookhaven, NJ 08033  
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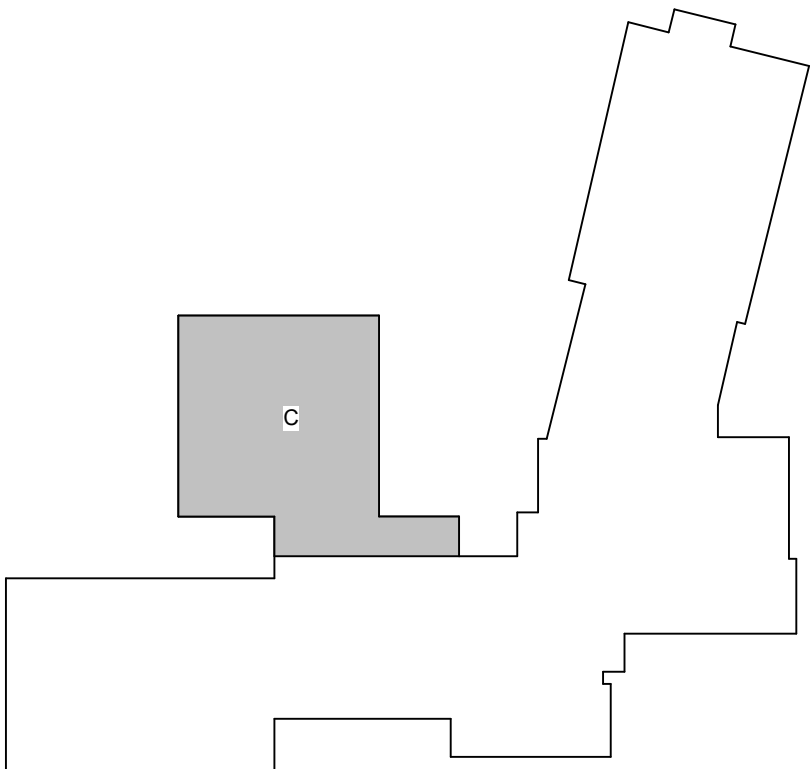
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PARTIAL GROUND FLOOR AREA C- LIGHTING PLAN

1/8" = 1'-0"



KEY PLAN  
NO SCALE

- GENERAL LUMINAIRE NOTES:
1. ALL BATTERY EQUIPPED EMERGENCY AND EXIT SIGNAGE LUMINAIRES ARE TO BE CIRCUITED VIA THE UN-SWITCHED LEG OF THE LOCAL AREA LUMINAIRE CIRCUIT.
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**McHUGH**  
ENGINEERING ASSOCIATES INC.  
135 Ridge Street, Ambler, PA 19002  
1950 Route 70, Suite 200, Marlton, NJ 08053  
264.411588  
www.mchugheng.com

**100% Bid Set- 15 March 2023**

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201 BRIDGEWATER ROAD  
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**PARTIAL GROUND FLOOR AREA C - LIGHTING**

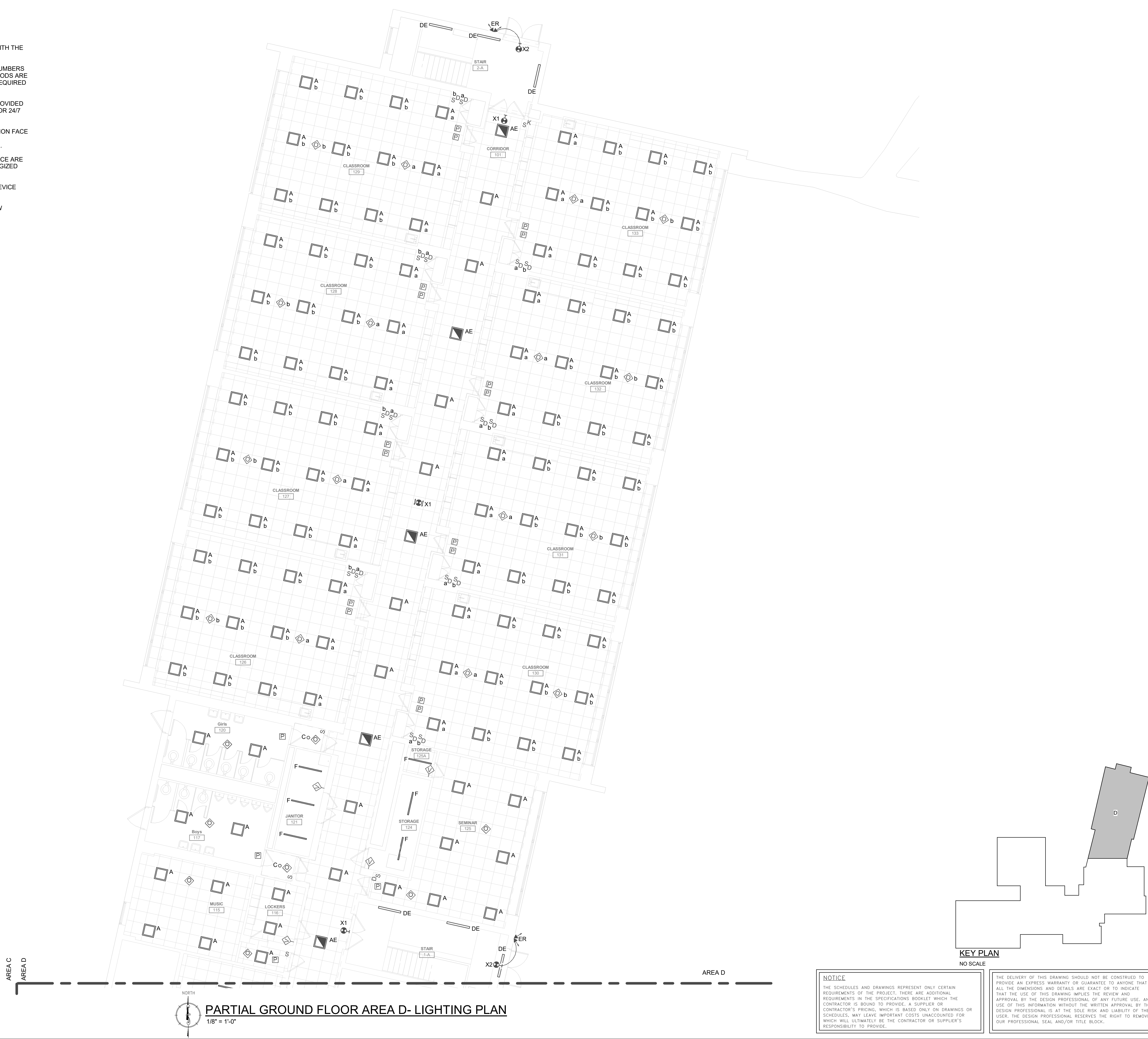
PROJECT NO: 2022-327  
DRAWN BY: WJ, DD  
DATE: 03/15/2023  
SCALE: AS NOTED

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1. ALL BATTERY EQUIPPED EMERGENCY AND EXIT SIGNAGE LUMINAIRES ARE TO BE CIRCUITED VIA THE UN-SWITCHED LEG OF THE LOCAL AREA LUMINAIRE CIRCUIT.
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  3. UNLESS OTHERWISE NOTED, ALL NORMAL POWER LUMINAIRE BRANCH CIRCUIT NUMBERS ARE VIA EXISTING BRANCH CIRCUITS IN EXISTING PANELS. EXISTING WIRING METHODS ARE TO BE RE-USED TO SERVE NEW LUMINAIRES. EXTEND ALL WIRING METHODS AS REQUIRED TO SERVE NEW LUMINAIRES.
  4. UNLESS OTHERWISE NOTED, ALL EMERGENCY POWER LUMINAIRES ARE TO BE PROVIDED WITH INTEGRAL BATTERY BACK-UP AND ARE TO BE CIRCUITED AS NIGHTLIGHTS FOR 24/7 OPERATION.
  5. ALL LUMINAIRE CONTROL DEVICES ARE TO BE GANGED TOGETHER, HAVE A COMMON FACE PLATE, AND BE LABELED WITH THEIR AREA(S) OF CONTROL. ALL CONTROL WIRING METHODS ARE TO BE NEW AND ARE TO BE AS REQUIRED BY THE MANUFACTURER.
  6. UNLESS OTHERWISE NOTED, ALL LUMINAIRE CONTROL SENSOR DEVICES IN A SPACE ARE TO BE INTERCONNECTED SO THAT ALL LUMINAIRES WITHIN THE SPACE ARE ENERGIZED WHEN ANY OCCUPANCY SENSOR DEVICE IS ACTIVATED.
  7. CONTRACTOR IS TO PROVIDE A MANUALLY CONTROLLED, OVERRIDE WALL BOX DEVICE FOR ROOM OCCUPANCY SENSORS.
  8. ALL OVERCURRENT PROTECTION DEVICES THAT ARE NOT REUSED TO SERVE NEW LUMINAIRE LOADS ARE TO BE SET TO "OFF" AND LABELED "SPARE".



**NOTICE**

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**CHESTER UPLAND S.D.**  
TOBY FARMS INTERMEDIATE SCHOOL, HVAC and WINDOW UPGRADES  
201 BRIDGEWATER ROAD  
BROOKHAVEN, PA 19015  
**PARTIAL GROUND FLOOR AREA D -  
LIGHTING**

PROJECT NO: 2022-327  
DRAWN BY: NG, DD  
DATE: 03/15/2023  
SCALE: AS NOTED

**McHUGH**  
ENGINEERING ASSOCIATES INC.  
135 Poplar Street, Ambler, PA 19002  
1950 Route 70, Suite 200, Millville, NJ 08003  
264.411898  
www.mchugheng.com

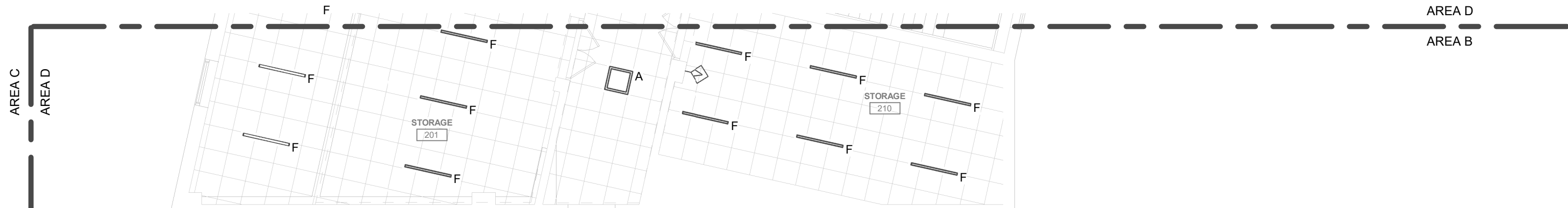
**100% Bid Set- 15 March 2023**

Rev. No.	Date	Description
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PARTIAL SECOND FLOOR AREA B- LIGHTING PLAN

1/8" = 1'-0"

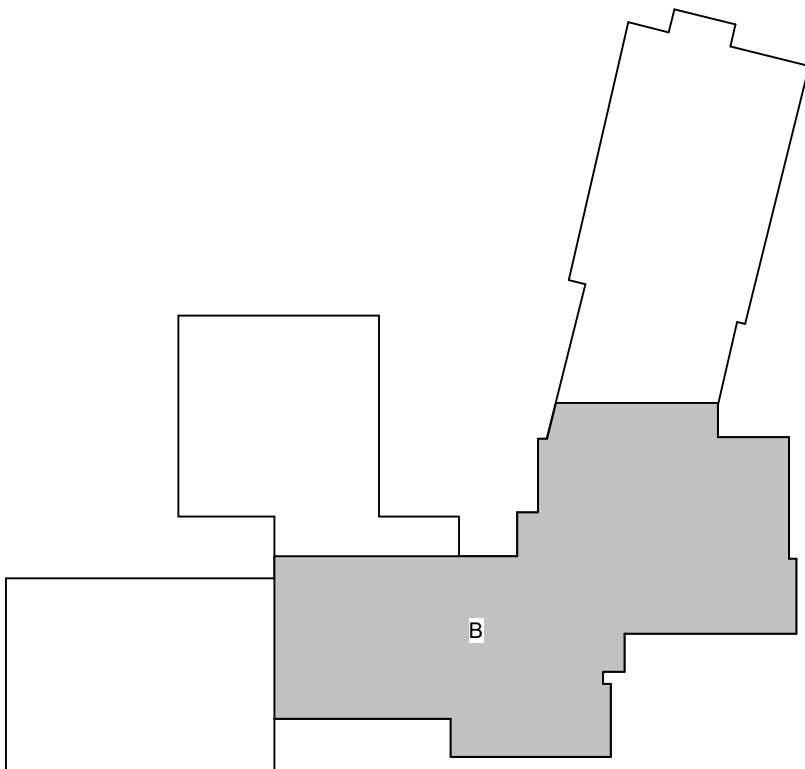


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KEY PLAN  
NO SCALE



CHESTER UPLAND S.D.

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201 BRIDGEWATER ROAD  
BROOKHAVEN, PA 19015

PARTIAL SECOND FLOOR AREA B -  
LIGHTING

PROJECT NO: 2022-327

DRAWN BY: MG, DD

DATE: 03/15/2023

SCALE: AS NOTED



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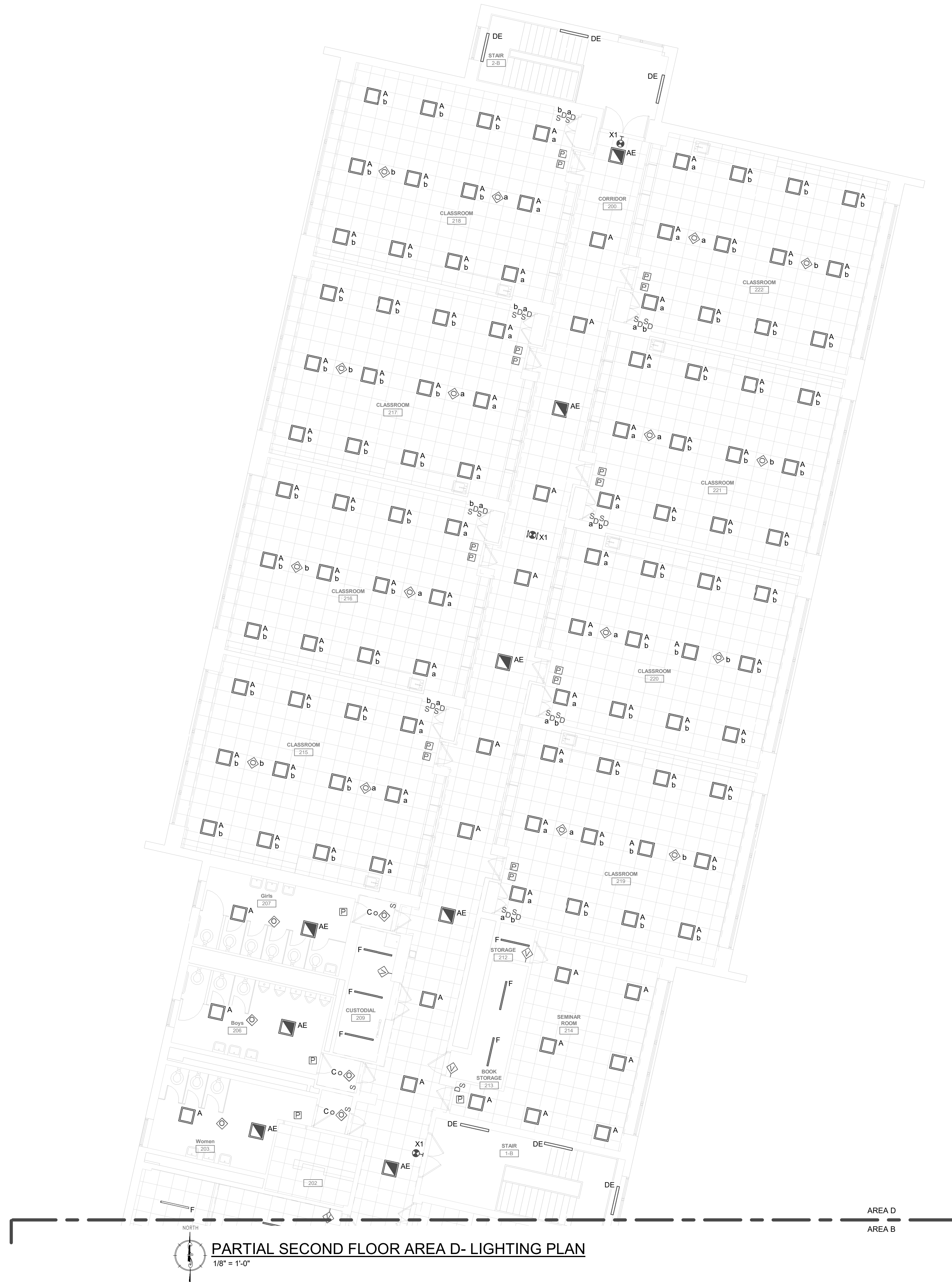
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GENERAL LUMINAIRE NOTES:

1. ALL BATTERY EQUIPPED EMERGENCY AND EXIT SIGNAGE LUMINAIRES ARE TO BE CIRCUITED VIA THE UN-SWITCHED LEGS OF THE LOCAL AREA LUMINAIRE CIRCUIT.
2. ALL LUMINAIRE LOCATIONS AND MOUNTING HEIGHTS ARE TO BE COORDINATED WITH THE ARCHITECTURAL AND INTERIOR DESIGN DRAWINGS.
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4. UNLESS OTHERWISE NOTED, ALL EMERGENCY POWER LUMINAIRES ARE TO BE PROVIDED WITH EGGRAL BATTERY BACK-UP AND ARE TO BE CIRCUITED AS NIGHTLIGHTS FOR 24/7 OPERATION.
5. ALL LUMINAIRE CONTROL DEVICES ARE TO BE GANGED TOGETHER, HAVE A COMMON FACE PLATE, AND BE LABELED WITH THEIR AREA(S) OF CONTROL. ALL CONTROL WIRING METHODS ARE TO BE NEW AND ARE TO BE AS REQUIRED BY THE MANUFACTURER.
6. UNLESS OTHERWISE NOTED, ALL LUMINAIRE CONTROL SENSOR DEVICES IN A SPACE ARE TO BE INTERCONNECTED SO THAT ALL LUMINAIRES WITHIN THE SPACE ARE ENERGIZED WHEN ANY OCCUPANCY SENSOR DEVICE IS ACTIVATED.
7. CONTRACTOR IS TO PROVIDE A MANUALLY CONTROLLED, OVERRIDE WALL BOX DEVICE FOR ROOM OCCUPANCY SENSORS.
8. ALL OVERCURRENT PROTECTION DEVICES THAT ARE NOT REUSED TO SERVE NEW LUMINAIRE LOADS ARE TO BE SET TO "OFF" AND LABELED "SPARE".

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**100% Bid Set- 15 March 2023**

CHESTER UPLAND S.D.

TOBY FARMS INTERMEDIATE SCHOOL, HVAC and WINDOW UPGRADES

201 BRIDGEWATER ROAD  
BROOKHAVEN, PA 19015

## PARTIAL SECOND FLOOR AREA D - LIGHTING

PROJECT NO: 2022-327

DRAWN BY: KG, DD

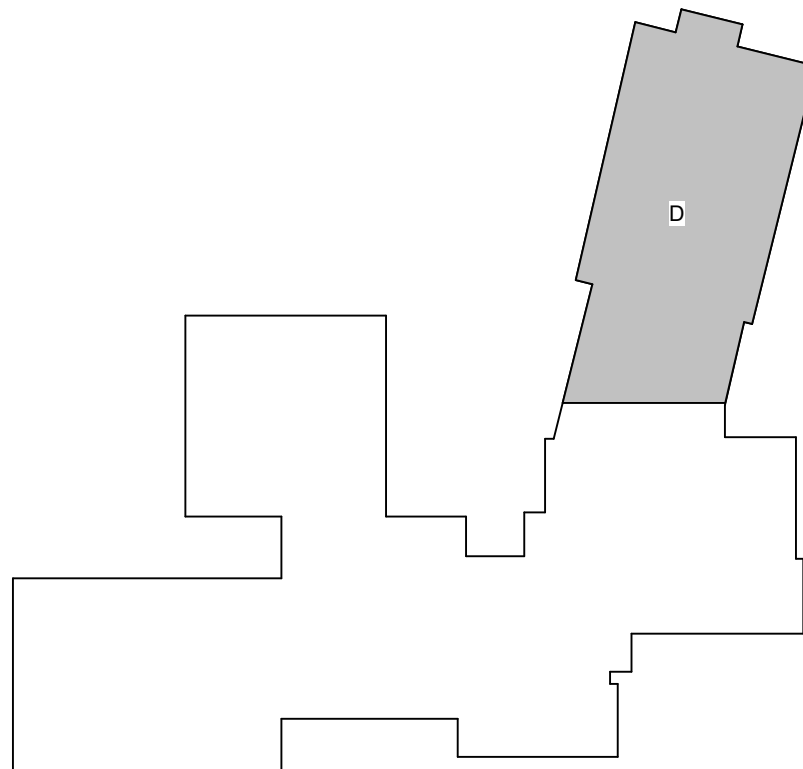
DATE: 03/15/2023

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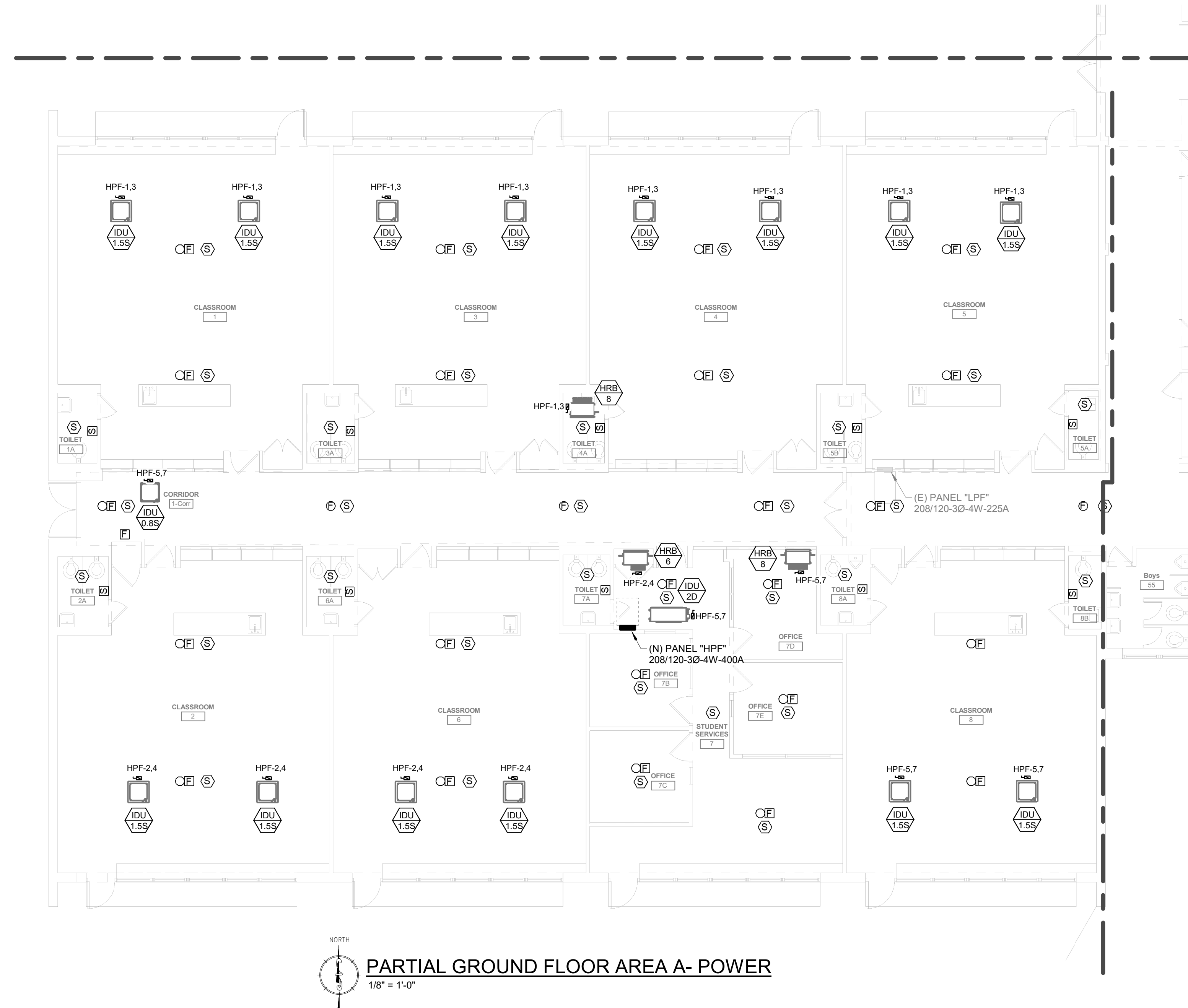


**KEY PLAN**  
NO SCALE

E102d







**GENERAL POWER AND LOW VOLTAGE NOTES:**

1. COORDINATE LOCATIONS AND MOUNTING HEIGHTS OF ALL WIRING DEVICES WITH OWNER/ TENANT/ ARCHITECT PRIOR TO ROUGH-IN. REFER TO DETAILS AND SPECIFICATIONS FOR TYPICAL MOUNTING HEIGHTS.
2. UNLESS OTHERWISE NOTED, BRANCH CIRCUIT NUMBERS ARE VIA EXISTING BRANCH CIRCUITS IN EXISTING PANELS.
3. UNLESS OTHERWISE NOTED, ALL HVAC BRANCH CIRCUIT NUMBERS ARE VIA NEW PANELS AS INDICATED. ALL DISCONNECTING MEANS ASSOCIATED WITH NEW HVAC EQUIPMENT ARE TO BE 30 AMP FRAME/ 15 AMP FUSE.
4. CONTRACTOR IS TO CONCEAL WIRING WHENEVER POSSIBLE. ALL EXPOSED WIRING IS TO BE INSTALLED IN EMT. CONTRACTOR IS TO PAINT AS DIRECTED BY THE ARCHITECT. CONDUIT PATH IS TO BE AS INCONSPICUOUS AS POSSIBLE. COORDINATE CONDUIT ROUTE WITH ARCHITECT/ OWNER PRIOR TO ROUGH-IN AND INSTALLATION.
5. ALL NETWORK, POE, AND IT INFRASTRUCTURE IS TO BE PROVIDED BY THE GENERAL CONTRACTOR.
6. ALL CABLE TERMINATIONS, AND CERTIFICATIONS FOR PATCH PANELS ARE TO BE PROVIDED BY THE GENERAL CONTRACTOR.
7. POWER, AND DATA/ COAX FOR SECURITY TV, NVR, AND IT EQUIPMENT CLOSET WITH RACKS, AND TERMINATIONS ARE TO BE BY THE GENERAL CONTRACTOR.

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CHESTER UPLAND S.D.

TOBY FARMS INTERMEDIATE SCHOOL, HVAC and WINDOW UPGRADES

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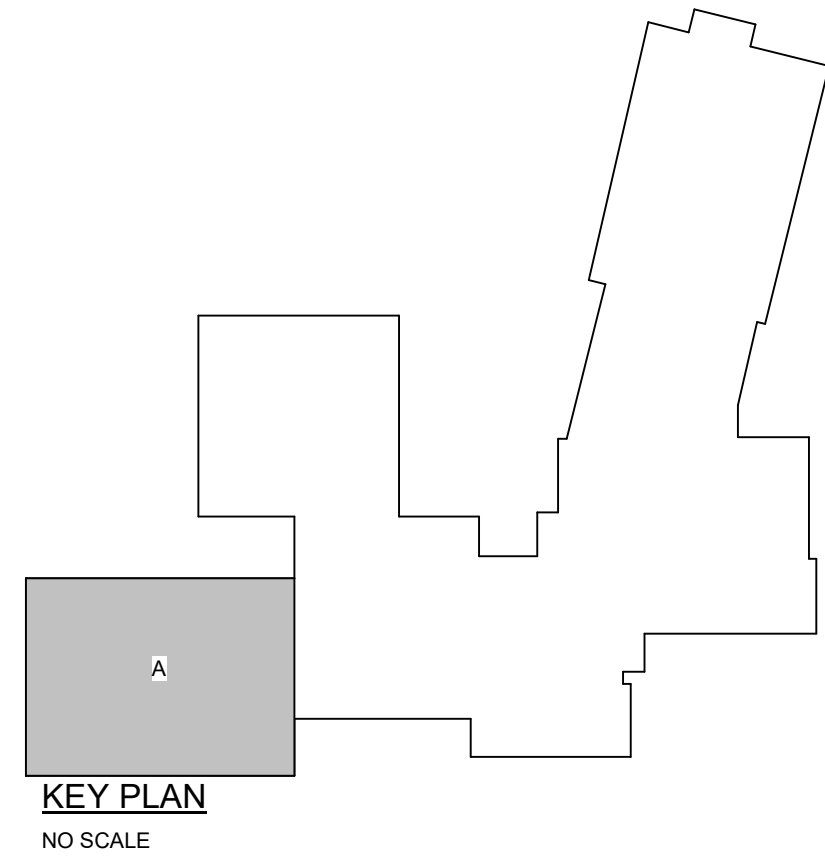
## PARTIAL GROUND FLOOR AREA A - POWER

SCALE: AS NOTED

NOTICE

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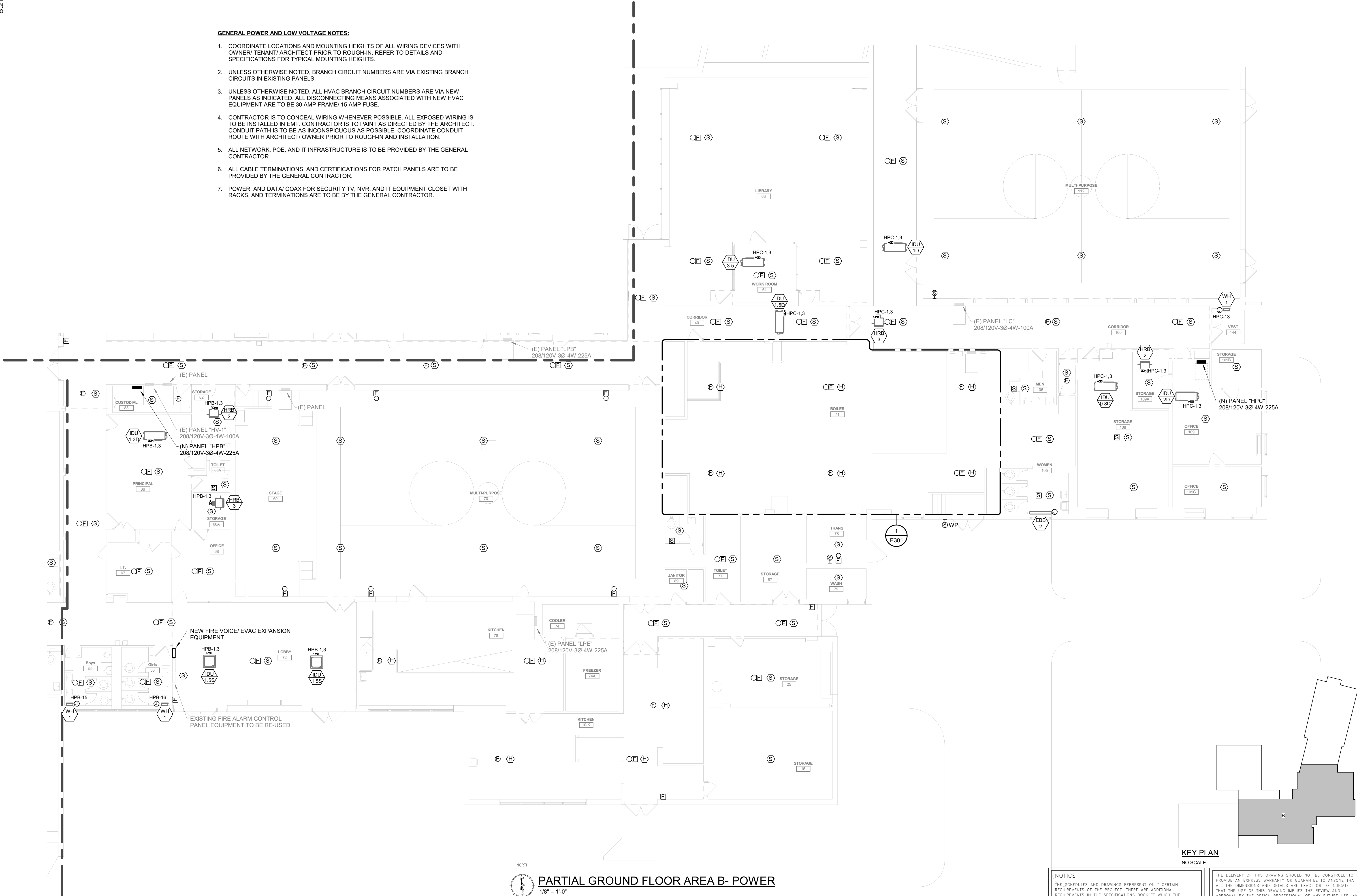


E201a



**GENERAL POWER AND LOW VOLTAGE NOTES:**

1. COORDINATE LOCATIONS AND MOUNTING HEIGHTS OF ALL WIRING DEVICES WITH OWNER/ TENANT/ ARCHITECT PRIOR TO ROUGH-IN. REFER TO DETAILS AND SPECIFICATIONS FOR TYPICAL MOUNTING HEIGHTS.
2. UNLESS OTHERWISE NOTED, BRANCH CIRCUIT NUMBERS ARE VIA EXISTING BRANCH CIRCUITS IN EXISTING PANELS.
3. UNLESS OTHERWISE NOTED, ALL HVAC BRANCH CIRCUIT NUMBERS ARE VIA NEW PANELS AS INDICATED. ALL DISCONNECTING MEANS ASSOCIATED WITH NEW HVAC EQUIPMENT ARE TO BE 30 AMP FRAME/ 15 AMP FUSE.
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5. ALL NETWORK, POE, AND IT INFRASTRUCTURE IS TO BE PROVIDED BY THE GENERAL CONTRACTOR.
6. ALL CABLE TERMINATIONS, AND CERTIFICATIONS FOR PATCH PANELS ARE TO BE PROVIDED BY THE GENERAL CONTRACTOR.
7. POWER, AND DATA/ COAX FOR SECURITY TV, NVR, AND IT EQUIPMENT CLOSET WITH RACKS, AND TERMINATIONS ARE TO BE BY THE GENERAL CONTRACTOR.



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**PARTIAL GROUND FLOOR AREA B - POWER**

PROJECT NO: 2022-327

DRAWN BY: MGD

DATE: 03/15/2023

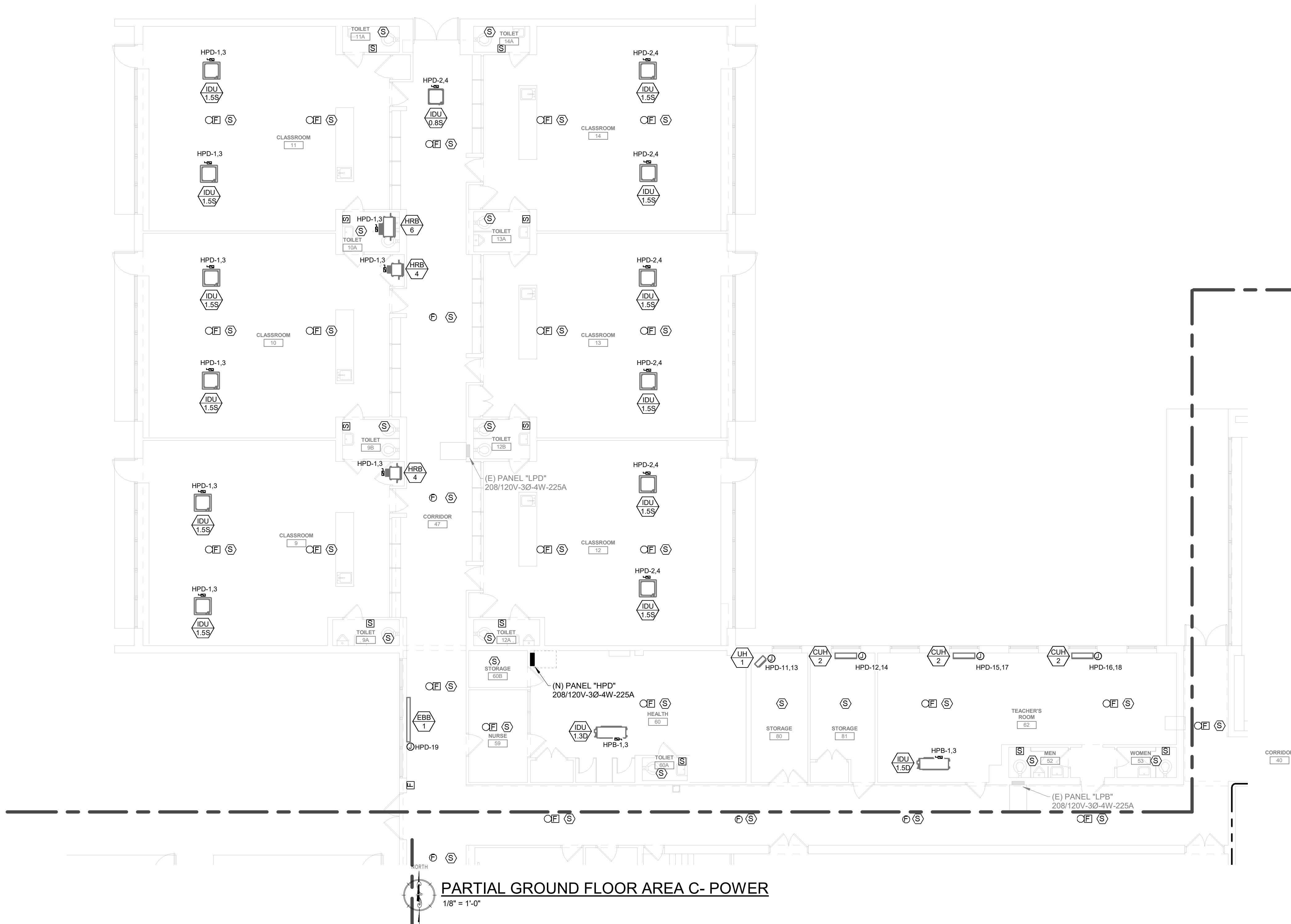
SCALE: AS NOTED



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PARTIAL GROUND FLOOR AREA C- POWER

$$1/8'' = 1'-0''$$

**GENERAL POWER AND LOW VOLTAGE NOTES:**

1. COORDINATE LOCATIONS AND MOUNTING HEIGHTS OF ALL WIRING DEVICES WITH OWNER/ TENANT/ ARCHITECT PRIOR TO ROUGH-IN. REFER TO DETAILS AND SPECIFICATIONS FOR TYPICAL MOUNTING HEIGHTS.
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## PARTIAL GROUND FLOOR AREA C - POWER

PROJECT NO: 2022-327

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DATE: 03/15/2023

SCALE: AS NOTED

NOTICE

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**GENERAL POWER AND LOW VOLTAGE NOTES:**

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## PARTIAL GROUND FLOOR AREA D - POWER

PROJECT NO: 2022-327

DRAWN BY: KG, DD

DATE: 03/15/2023

SCALE: AS NOTED

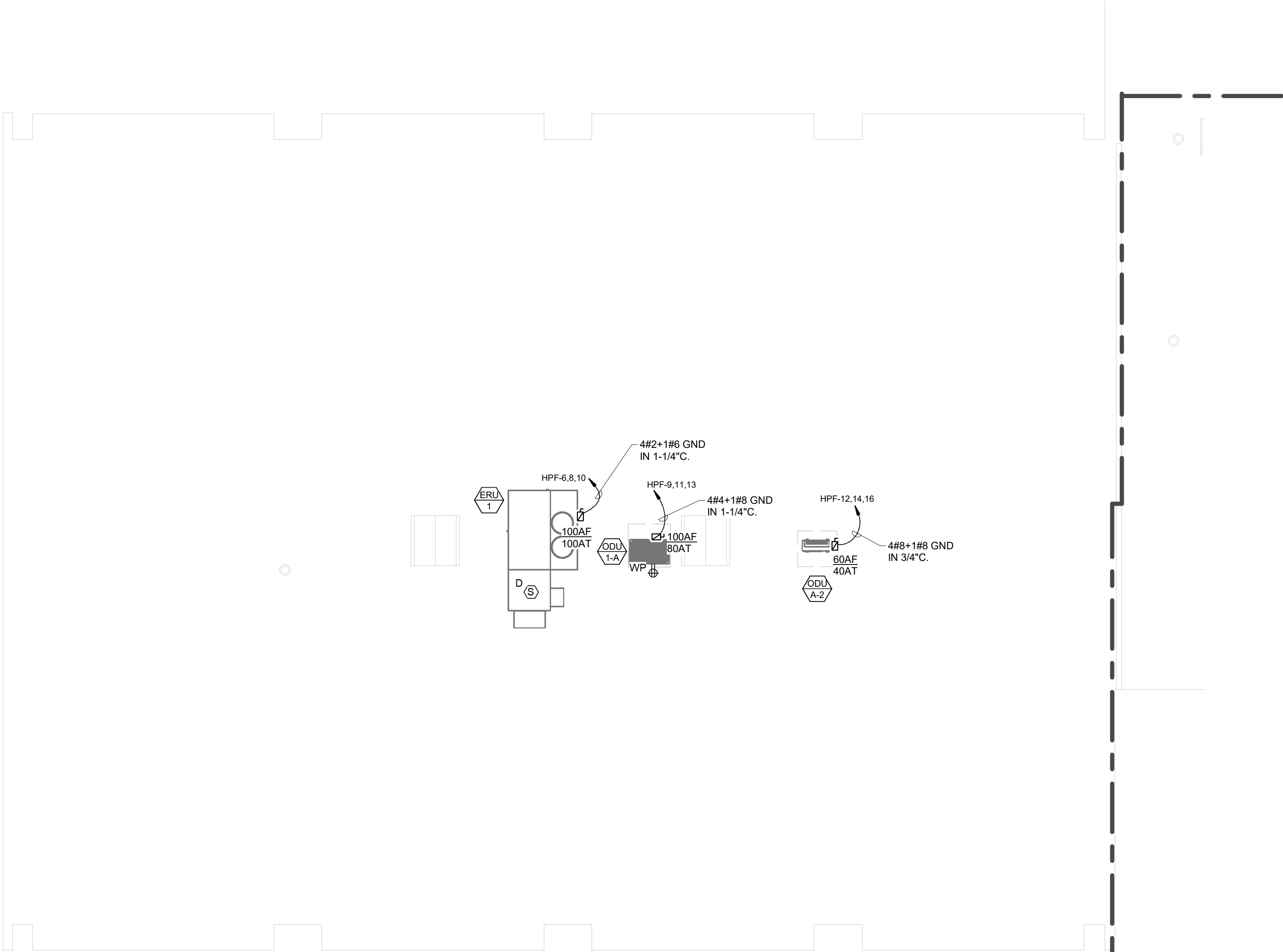
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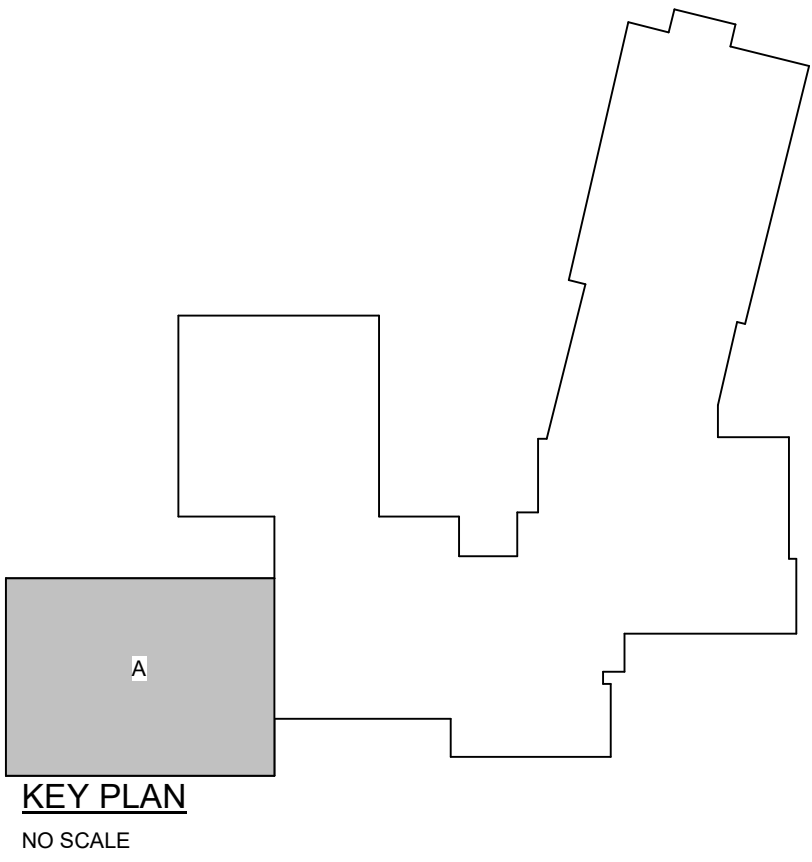
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**PARTIAL ROOF PLAN AREA A- POWER**  
1/8" = 1'-0"



**NOTICE**

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**PARTIAL ROOF PLAN AREA A - POWER**

PROJECT NO: 2022-327

DRAWN BY: MG, DD

DATE: 03/15/2023

SCALE: AS NOTED



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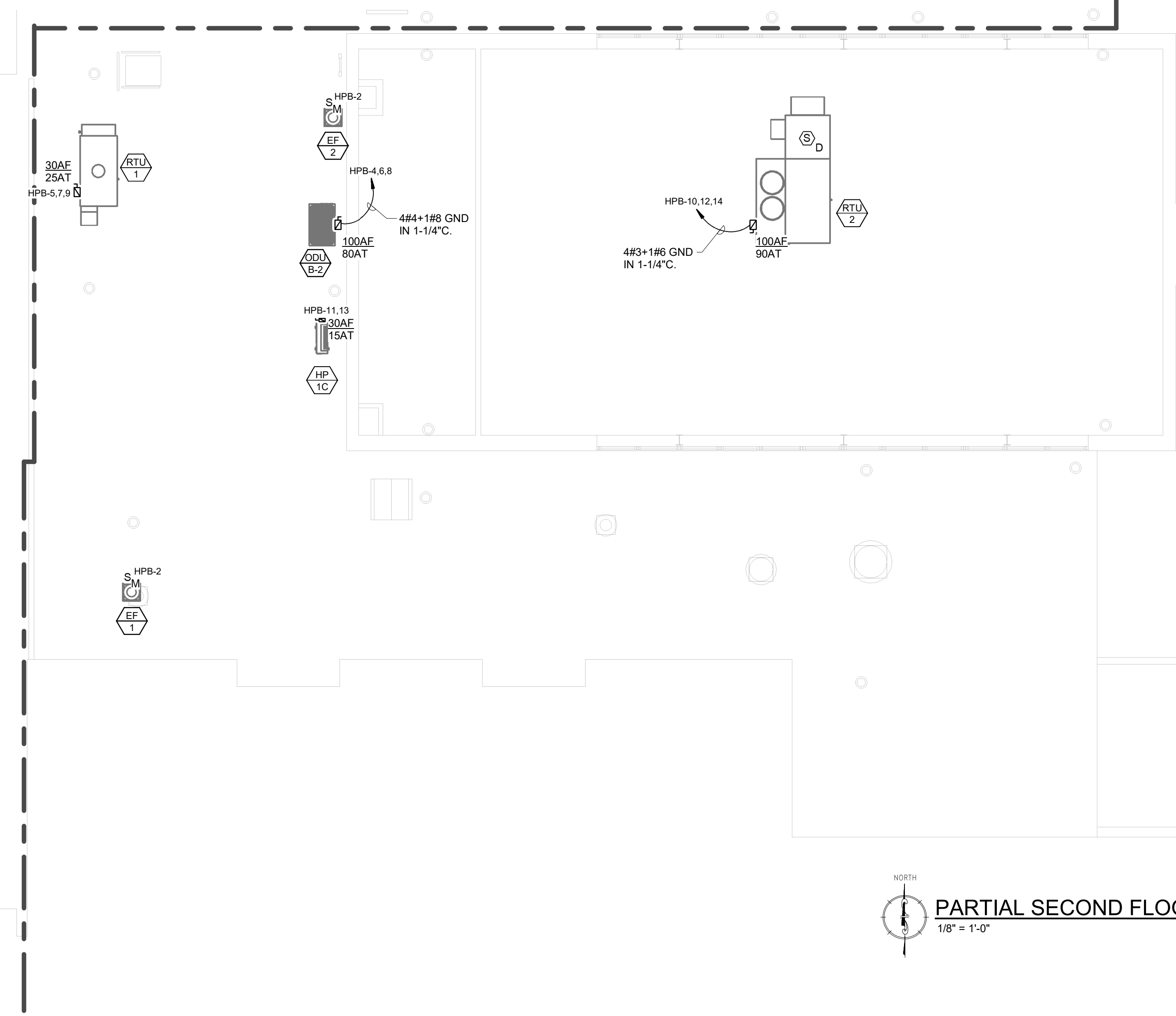
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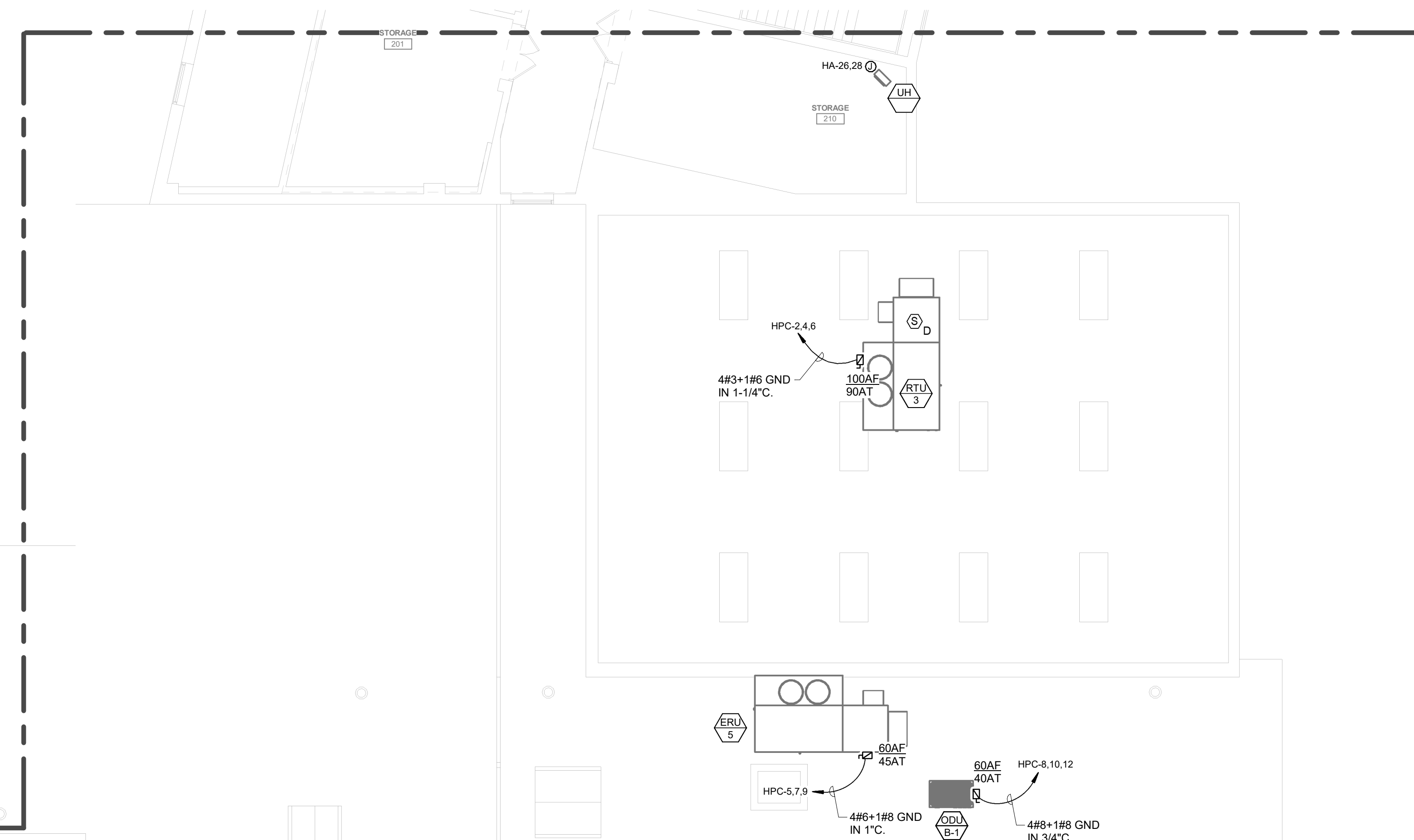
**ELECTRICAL ROOF PLAN NOTES:**

- COORDINATE LOCATIONS AND MOUNTING HEIGHTS OF ALL WIRING DEVICES WITH MANUFACTURER'S REQUIREMENTS.
- UNLESS OTHERWISE NOTED, BRANCH CIRCUIT NUMBERS ARE VIA NEW BRANCH CIRCUIT PANEL(S).



**PARTIAL SECOND FLOOR AREA B- POWER**

1/8" = 1'-0"



**KEY PLAN**  
NO SCALE

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**PARTIAL ROOF PLAN AREA B - POWER**

PROJECT NO: 2022-327

DRAWN BY: MGD

DATE: 03/15/2023

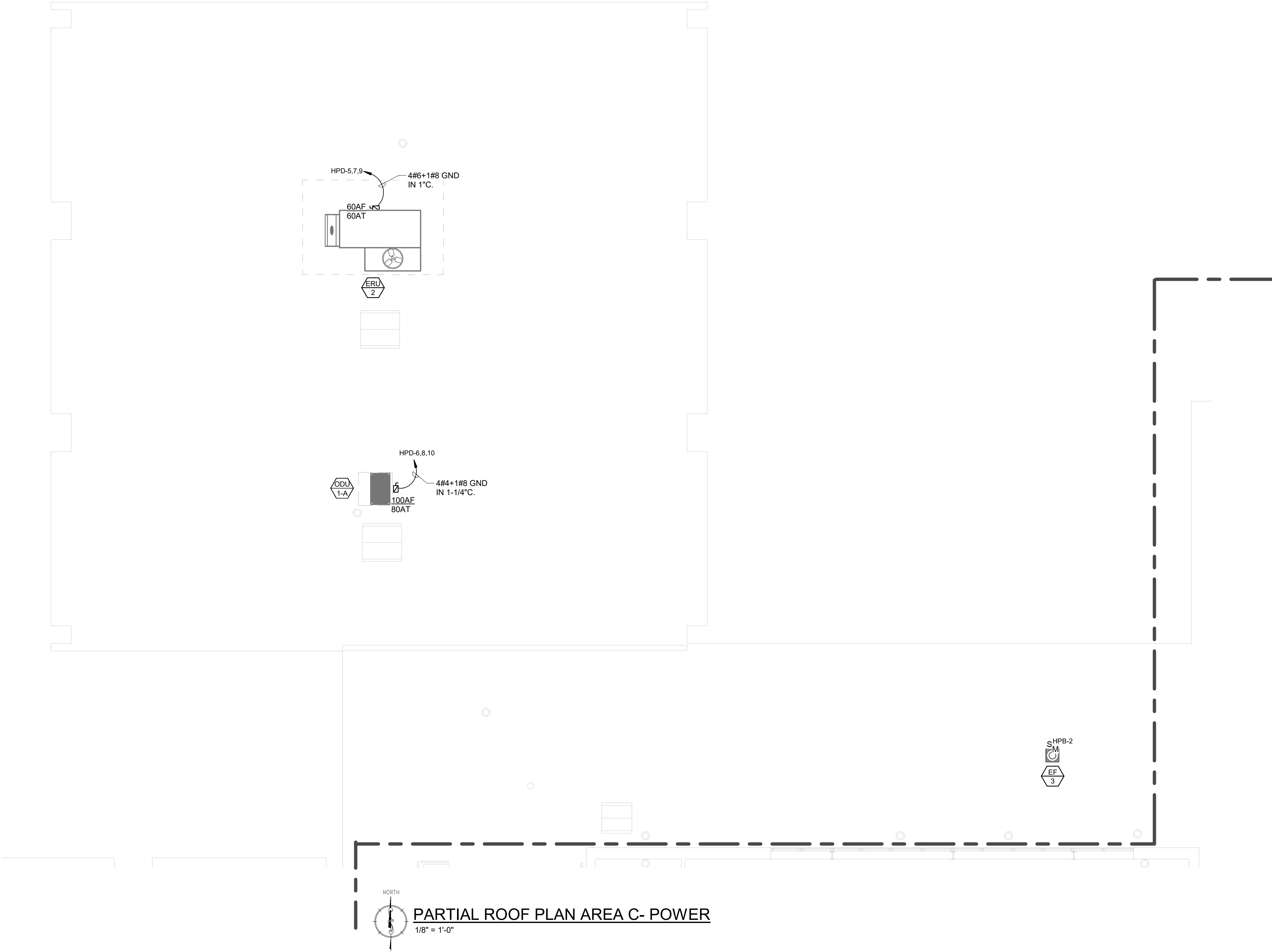
SCALE: AS NOTED



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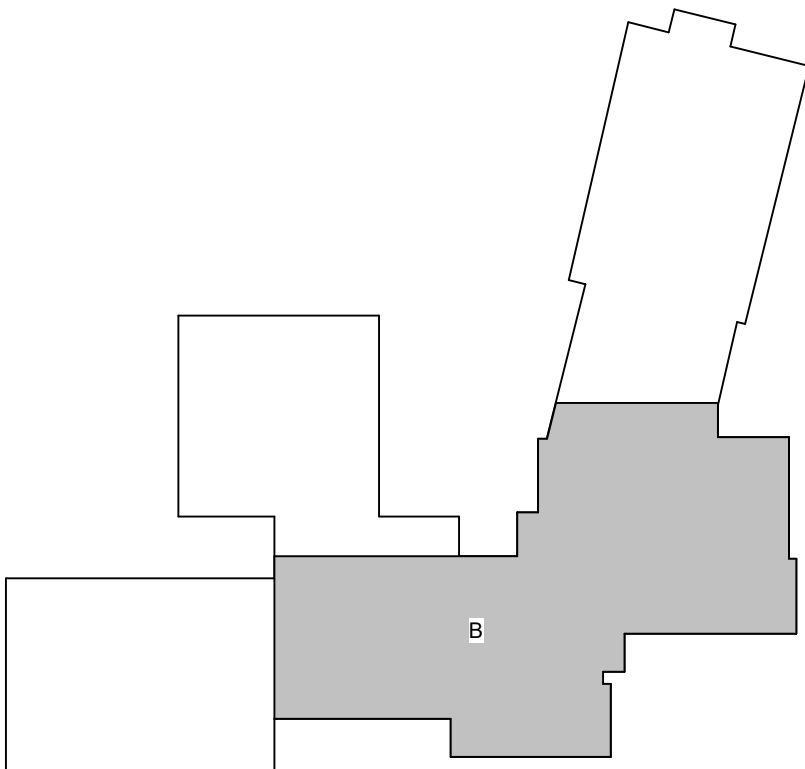


- ELECTRICAL ROOF PLAN NOTES:**
- COORDINATE LOCATIONS AND MOUNTING HEIGHTS OF ALL WIRING DEVICES WITH MANUFACTURER'S REQUIREMENTS.
  - UNLESS OTHERWISE NOTED, BRANCH CIRCUIT NUMBERS ARE VIA NEW BRANCH CIRCUIT PANEL(S).

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**CHESTER UPLAND S.D.**

TOBY FARMS INTERMEDIATE SCHOOL, HVAC and WINDOW UPGRADES

201 BRIDGEWATER ROAD  
BROOKHAVEN, PA 19015

**PARTIAL SECOND FLOOR AREA C - POWER**

PROJECT NO: 2022-327

DRAWN BY: WJ, DD

DATE: 03/15/2023

SCALE: AS NOTED



135 Eagle Street, Ambler, PA 19002  
1950 Route 70, Suite 200, Ambler, NJ 08003  
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**GENERAL POWER AND LOW VOLTAGE NOTES:**

1. COORDINATE LOCATIONS AND MOUNTING HEIGHTS OF ALL WIRING DEVICES WITH OWNER/ TENANT/ ARCHITECT PRIOR TO ROUGH-IN. REFER TO DETAILS AND SPECIFICATIONS FOR TYPICAL MOUNTING HEIGHTS.
2. UNLESS OTHERWISE NOTED, BRANCH CIRCUIT NUMBERS ARE VIA EXISTING BRANCH CIRCUITS IN EXISTING PANELS.
3. UNLESS OTHERWISE NOTED, ALL HVAC BRANCH CIRCUIT NUMBERS ARE VIA NEW PANELS AS INDICATED. ALL DISCONNECTING MEANS ASSOCIATED WITH NEW HVAC EQUIPMENT ARE TO BE 30 AMP FRAME/ 15 AMP FUSE.
4. CONTRACTOR IS TO CONCEAL WIRING WHENEVER POSSIBLE. ALL EXPOSED WIRING IS TO BE INSTALLED IN EMT. CONTRACTOR IS TO PAINT AS DIRECTED BY THE ARCHITECT. CONDUIT PATH IS TO BE AS INCONSPICUOUS AS POSSIBLE. COORDINATE CONDUIT ROUTE WITH ARCHITECT/ OWNER PRIOR TO ROUGH-IN AND INSTALLATION.
5. ALL NETWORK, POE, AND IT INFRASTRUCTURE IS TO BE PROVIDED BY THE GENERAL CONTRACTOR.
6. ALL CABLE TERMINATIONS, AND CERTIFICATIONS FOR PATCH PANELS ARE TO BE PROVIDED BY THE GENERAL CONTRACTOR.
7. POWER, AND DATA/ COAX FOR SECURITY TV, NVR, AND IT EQUIPMENT CLOSET WITH RACKS, AND TERMINATIONS ARE TO BE BY THE GENERAL CONTRACTOR.

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201 BRIDGEWATER ROAD  
BROOKHAVEN, PA 19015

## PARTIAL SECOND FLOOR AREA D - POWER

PROJECT NO: 2022-327

DRAWN BY: KG, DD

DATE: 03/15/2023

SCALE: AS NOTED

NOTICE

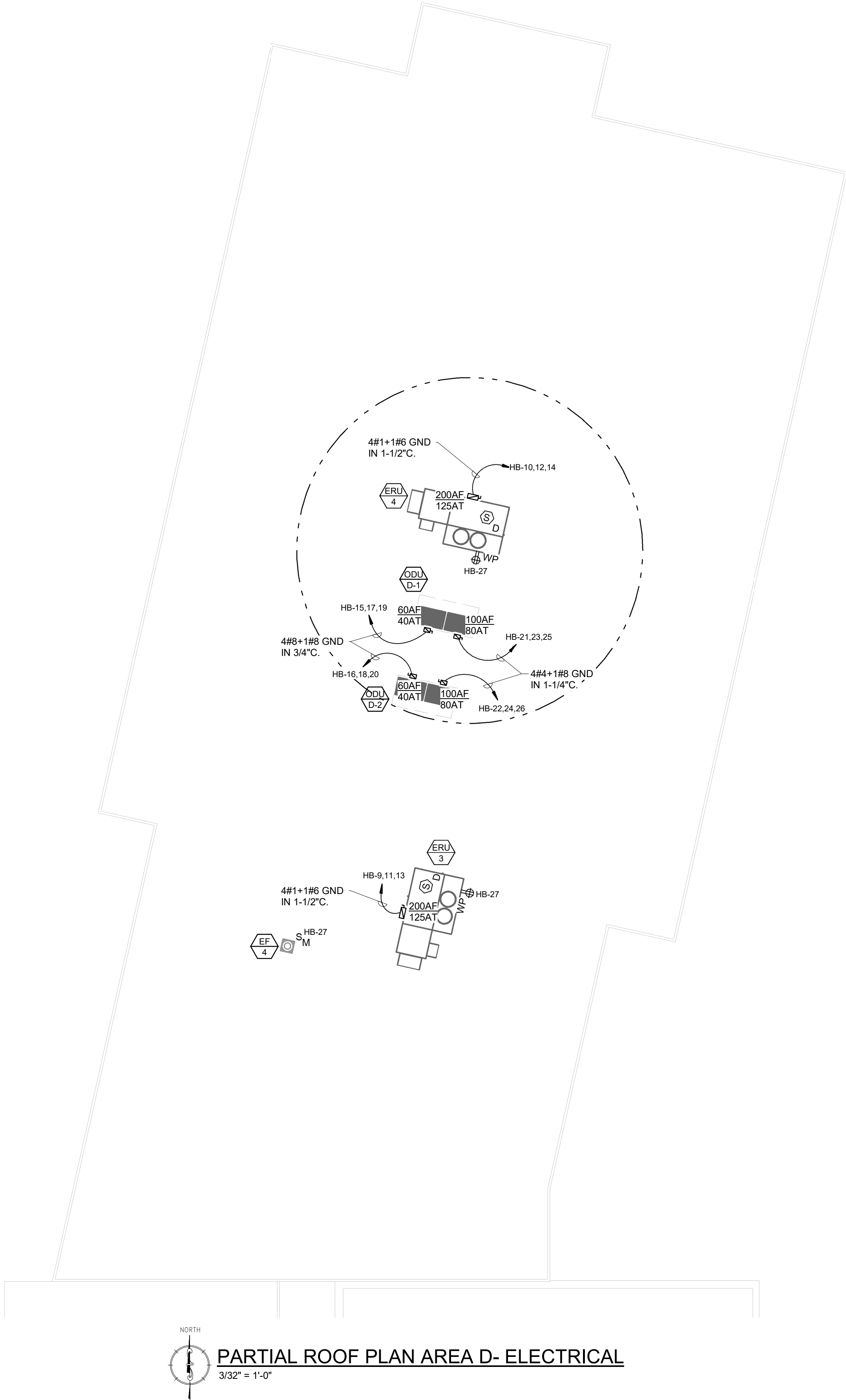
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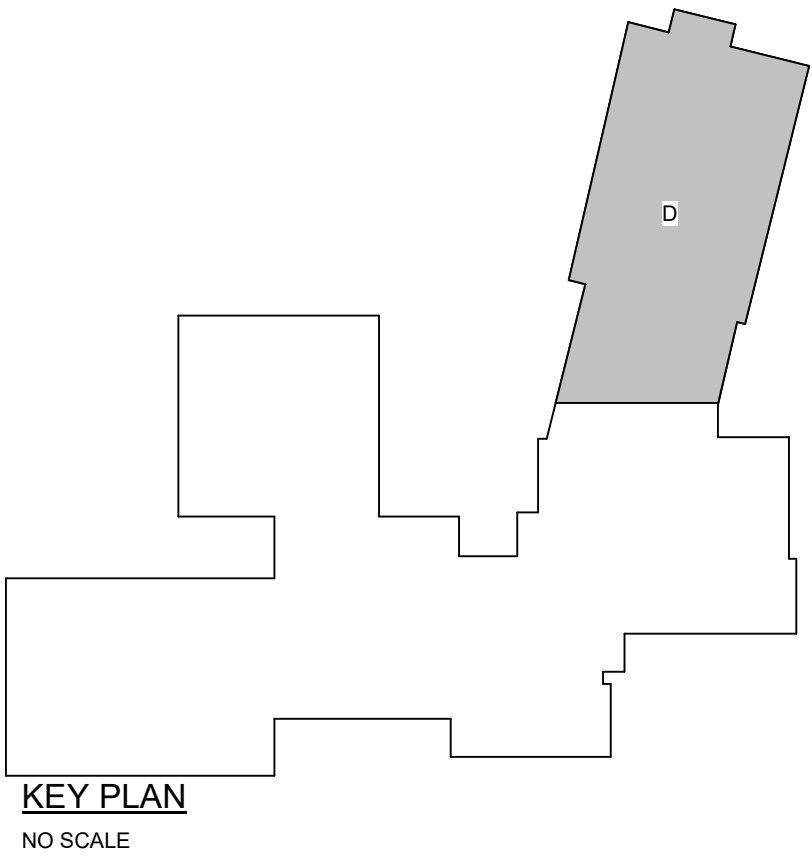
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- ELECTRICAL ROOF PLAN NOTES:**
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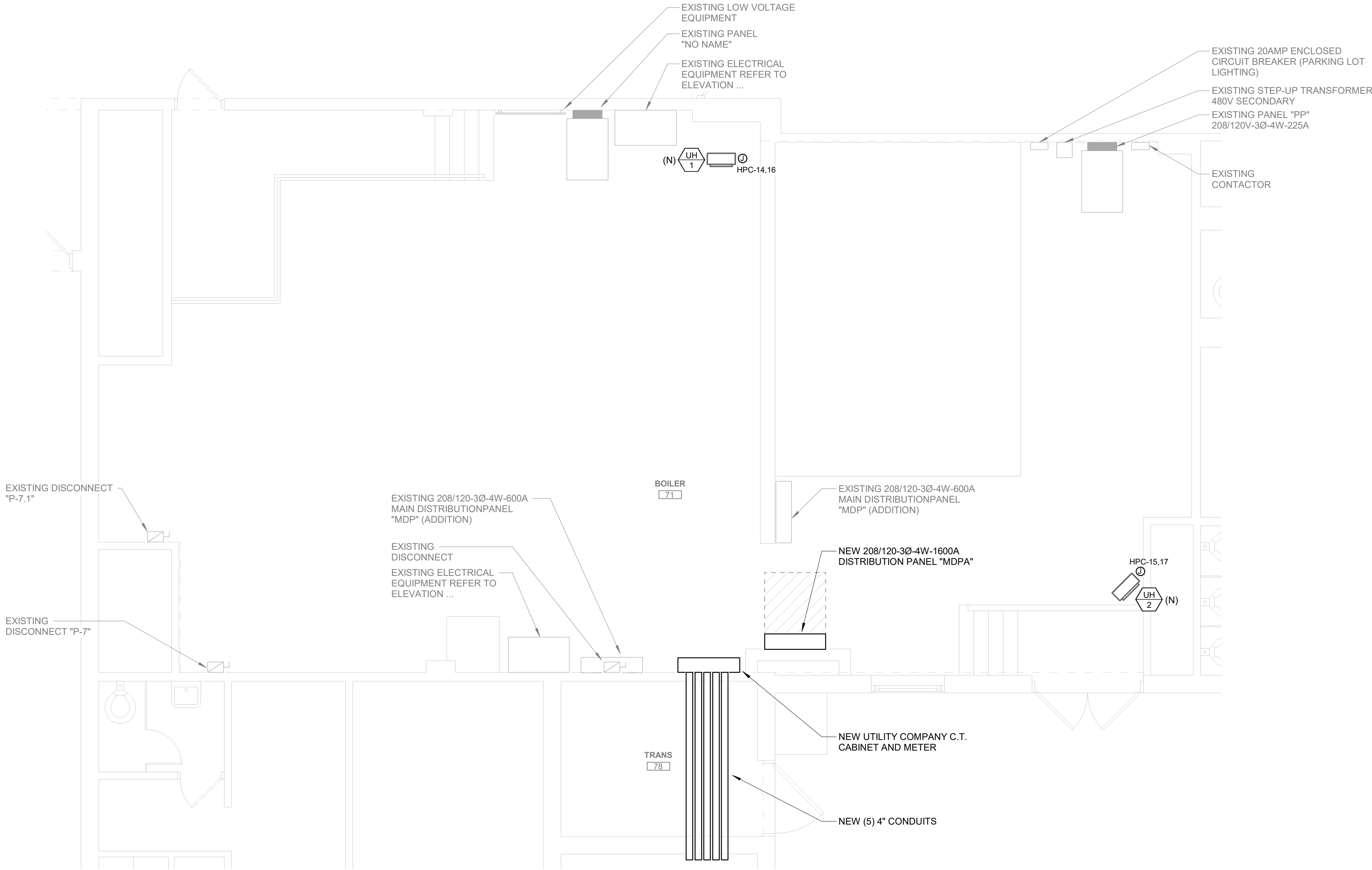
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201 BRIDGEWATER ROAD  
BROOKHAVEN, PA 19015  
**PARTIAL ROOF PLAN AREA D- ELECTRICAL**

PROJECT NO: 2022-327  
DRAWN BY: MG, DD  
DATE: 03/15/2023  
SCALE: AS NOTED

**McHUGH**  
ENGINEERING ASSOCIATES INC.  
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**ENLARGED BOILER ROOM PLAN - ELECTRICAL**  
1/4" = 1'-0"

**GENERAL POWER AND LOW VOLTAGE NOTES:**

1. EXISTING EQUIPMENT IS INDICATED FOR REFERENCE ONLY.

**NOTICE**

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201 BRIDGEWATER ROAD  
BROOKHAVEN, PA 19015

**ENLARGED FLOOR PLANS- ELECTRICAL**

PROJECT NO: 2022-327

DRAWN BY: MG, DD

DATE: 03/15/2023

SCALE: AS NOTED



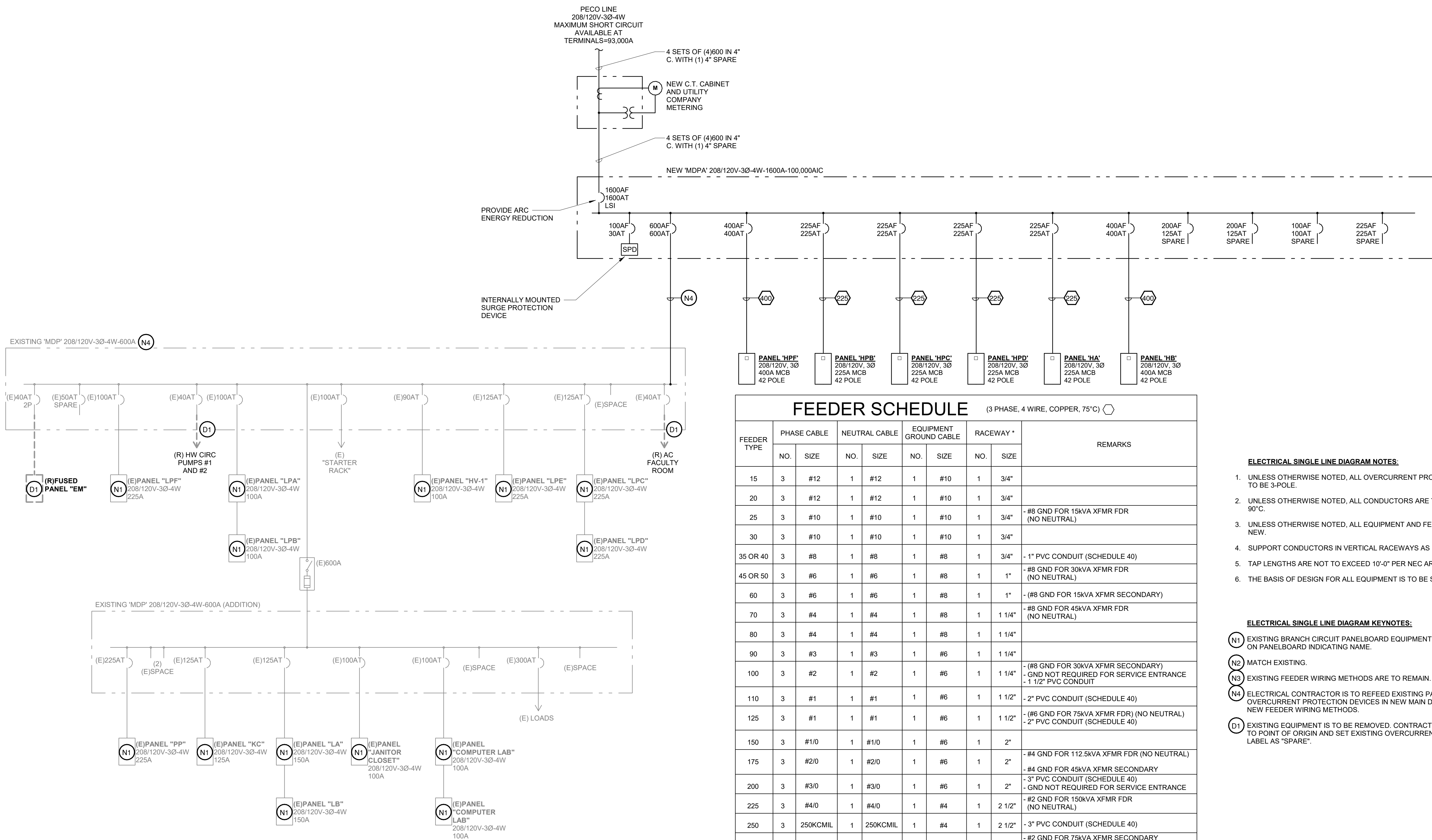
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## DEMOLITION AND NEW WORK ELECTRICAL SINGLE LINE DIAGRAM

NOT TO SCALE

FEEDER SCHEDULE							(3 PHASE, 4 WIRE, COPPER, 75°C) 		
FEEDER TYPE	PHASE CABLE		NEUTRAL CABLE		EQUIPMENT GROUND CABLE		RACEWAY *		REMARKS
	NO.	SIZE	NO.	SIZE	NO.	SIZE	NO.	SIZE	
15	3	#12	1	#12	1	#10	1	3/4"	
20	3	#12	1	#12	1	#10	1	3/4"	
25	3	#10	1	#10	1	#10	1	3/4"	- #8 GND FOR 15kVA XFMR FDR (NO NEUTRAL)
30	3	#10	1	#10	1	#10	1	3/4"	
35 OR 40	3	#8	1	#8	1	#8	1	3/4"	- 1" PVC CONDUIT (SCHEDULE 40)
45 OR 50	3	#6	1	#6	1	#8	1	1"	- #8 GND FOR 30kVA XFMR FDR (NO NEUTRAL)
60	3	#6	1	#6	1	#8	1	1"	- (#8 GND FOR 15kVA XFMR SECONDARY)
70	3	#4	1	#4	1	#8	1	1 1/4"	- #8 GND FOR 45kVA XFMR FDR (NO NEUTRAL)
80	3	#4	1	#4	1	#8	1	1 1/4"	
90	3	#3	1	#3	1	#6	1	1 1/4"	
100	3	#2	1	#2	1	#6	1	1 1/4"	- (#8 GND FOR 30kVA XFMR SECONDARY) - GND NOT REQUIRED FOR SERVICE ENTRANCE - 1 1/2" PVC CONDUIT
110	3	#1	1	#1	1	#6	1	1 1/2"	- 2" PVC CONDUIT (SCHEDULE 40)
125	3	#1	1	#1	1	#6	1	1 1/2"	- (#6 GND FOR 75kVA XFMR FDR) (NO NEUTRAL) - 2" PVC CONDUIT (SCHEDULE 40)
150	3	#1/0	1	#1/0	1	#6	1	2"	
175	3	#2/0	1	#2/0	1	#6	1	2"	- #4 GND FOR 112.5kVA XFMR FDR (NO NEUTRAL) - #4 GND FOR 45kVA XFMR SECONDARY
200	3	#3/0	1	#3/0	1	#6	1	2"	- 3" PVC CONDUIT (SCHEDULE 40) - GND NOT REQUIRED FOR SERVICE ENTRANCE
225	3	#4/0	1	#4/0	1	#4	1	2 1/2"	- #2 GND FOR 150kVA XFMR FDR (NO NEUTRAL)
250	3	250KCMIL	1	250KCMIL	1	#4	1	2 1/2"	- 3" PVC CONDUIT (SCHEDULE 40)
275	3	300KCMIL	1	300KCMIL	1	#4	1	3"	- #2 GND FOR 75kVA XFMR SECONDARY - 2 1/2" EMT
300	3	350KCMIL	1	350KCMIL	1	#3	1	3"	- 2 1/2" EMT
350	3	500KCMIL	1	500KCMIL	1	#3	1	3"	- 4" PVC CONDUIT (SCHEDULE 40) - #1/0 GND FOR 225kVA XFMR FDR (NO NEUTRAL)
400	3	600KCMIL	1	600KCMIL	1	#2	1	4"	- #1/0 GND FOR 112.5kVA XFMR SECONDARY - GND NOT REQUIRED FOR SERVICE ENTRANCE - 3" EMT
450	6	#4/0	2	#4/0	2	#2	2	2 1/2"	- #1/0 GND FOR 300kVA XFMR FDR (NO NEUTRAL)
500	6	250KCMIL	2	250KCMIL	2	#1	2	2 1/2"	
600	6	350KCMIL	2	350KCMIL	2	#1/0	2	3"	- #1/0 GND FOR 150kVA XFMR SECONDARY - GND NOT REQUIRED FOR SERVICE ENTRANCE - 2 1/2" EMT
700	6	500KCMIL	2	500KCMIL	2	#1/0	2	3"	- 4" PVC CONDUIT (SCHEDULE 40)
800	6	600KCMIL	2	600KCMIL	2	#2/0	2	4"	- (#1/0 GND FOR 225kVA XFMR SECONDARY) - GND NOT REQUIRED FOR SERVICE ENTRANCE - 3" EMT
900	9	350KCMIL	3	350KCMIL	3	#2/0	3	3"	
1000	9	400KCMIL	3	400KCMIL	3	#2/0	3	3"	- GND NOT REQUIRED FOR SERVICE ENTRANCE
1200	12	350KCMIL	4	350KCMIL	4	#3/0	4	3"	- (#3/0GND FOR 300kVA XFMR SECONDARY) - GND NOT REQUIRED FOR SERVICE ENTRANCE - 2 SPARE CONDUITS
1600	15	600KCMIL	5	600KCMIL	5	#2/0	5	4"	- 1 SPARE CONDUITS
2000	18	500KCMIL	6	500KCMIL	-	-	6	4"	- 2 SPARE CONDUITS - SERVICE ENTRANCE ONLY

\* GRS CONDUIT, SCHEDULE 40 PVC, EMT OR IMC UNLESS NOTED OTHERWISE. REFER TO SPECIFICATIONS FOR APPLICATION REQUIREMENTS.

### ELECTRICAL SINGLE LINE DIAGRAM NOTES:

1. UNLESS OTHERWISE NOTED, ALL OVERCURRENT PROTECTION DEVICES AND SPACES ARE TO BE 3-POLE.
2. UNLESS OTHERWISE NOTED, ALL CONDUCTORS ARE TO BE COPPER, TYPE THW OR THHN, 90°C.
3. UNLESS OTHERWISE NOTED, ALL EQUIPMENT AND FEEDER WIRING METHODS ARE TO BE NEW.
4. SUPPORT CONDUCTORS IN VERTICAL RACEWAYS AS REQUIRED BY NEC ARTICLE 300.19.
5. TAP LENGTHS ARE NOT TO EXCEED 10'-0" PER NEC ARTICLE 240.21.
6. THE BASIS OF DESIGN FOR ALL EQUIPMENT IS TO BE SQUARE D.

**ELECTRICAL SINGLE LINE DIAGRAM KEYNOTES:**

- (N1) EXISTING BRANCH CIRCUIT PANELBOARD EQUIPMENT IS TO REMAIN. PROVIDE NEW SIGNAGE ON PANELBOARD INDICATING NAME.
- (N2) MATCH EXISTING.
- (N3) EXISTING FEEDER WIRING METHODS ARE TO REMAIN.
- (N4) ELECTRICAL CONTRACTOR IS TO REFEEED EXISTING PANELBOARD EQUIPMENT VIA NEW OVERCURRENT PROTECTION DEVICES IN NEW MAIN DISTRIBUTION PANEL "MDPA". PROVIDE NEW FEEDER WIRING METHODS.
- (D1) EXISTING EQUIPMENT IS TO BE REMOVED. CONTRACTOR IS TO REMOVE ALL WIRING METHODS TO POINT OF ORIGIN AND SET EXISTING OVERCURRENT PROTECTION DEVICE TO "OFF" AND LABEL AS "SPARE".

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## CHESTER UPLAND S.D.

### TOBY FARMS INTERMEDIATE SCHOOL, HVAC and WINDOW UPGRADES

201 BRIDGEWATER ROAD  
BROOKHAVEN, PA 19015

### DETAILS- ELECTRICAL

PROJECT NO: 3322-327

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DRAWN BY: KGL/DD

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DATE: 03/15/2023

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SCALE: AS NOTED

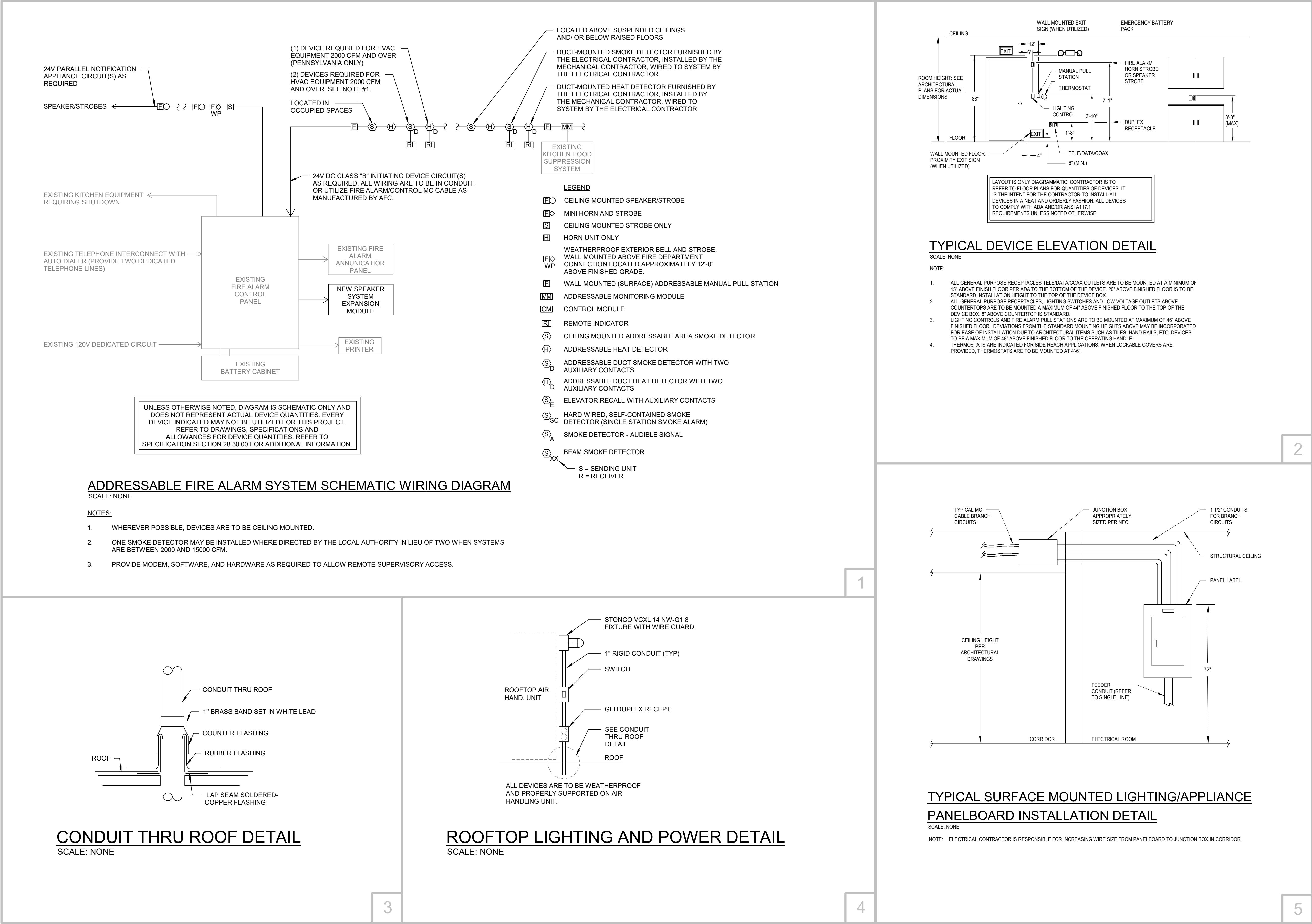
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**NOTICE**

THE SCHEDULES AND DRAWINGS REPRESENT ONLY CERTAIN REQUIREMENTS OF THE PROJECT. THERE ARE ADDITIONAL REQUIREMENTS IN THE SPECIFICATIONS BOOKLET WHICH THE CONTRACTOR IS BOUND TO PROVIDE. A SUPPLIER OR CONTRACTOR'S PRICING, WHICH IS BASED ONLY ON DRAWINGS OR SCHEDULES, MAY LEAVE IMPORTANT COSTS UNACCOUNTED FOR WHICH WILL ULTIMATELY BE THE CONTRACTOR OR SUPPLIER'S RESPONSIBILITY TO PROVIDE.

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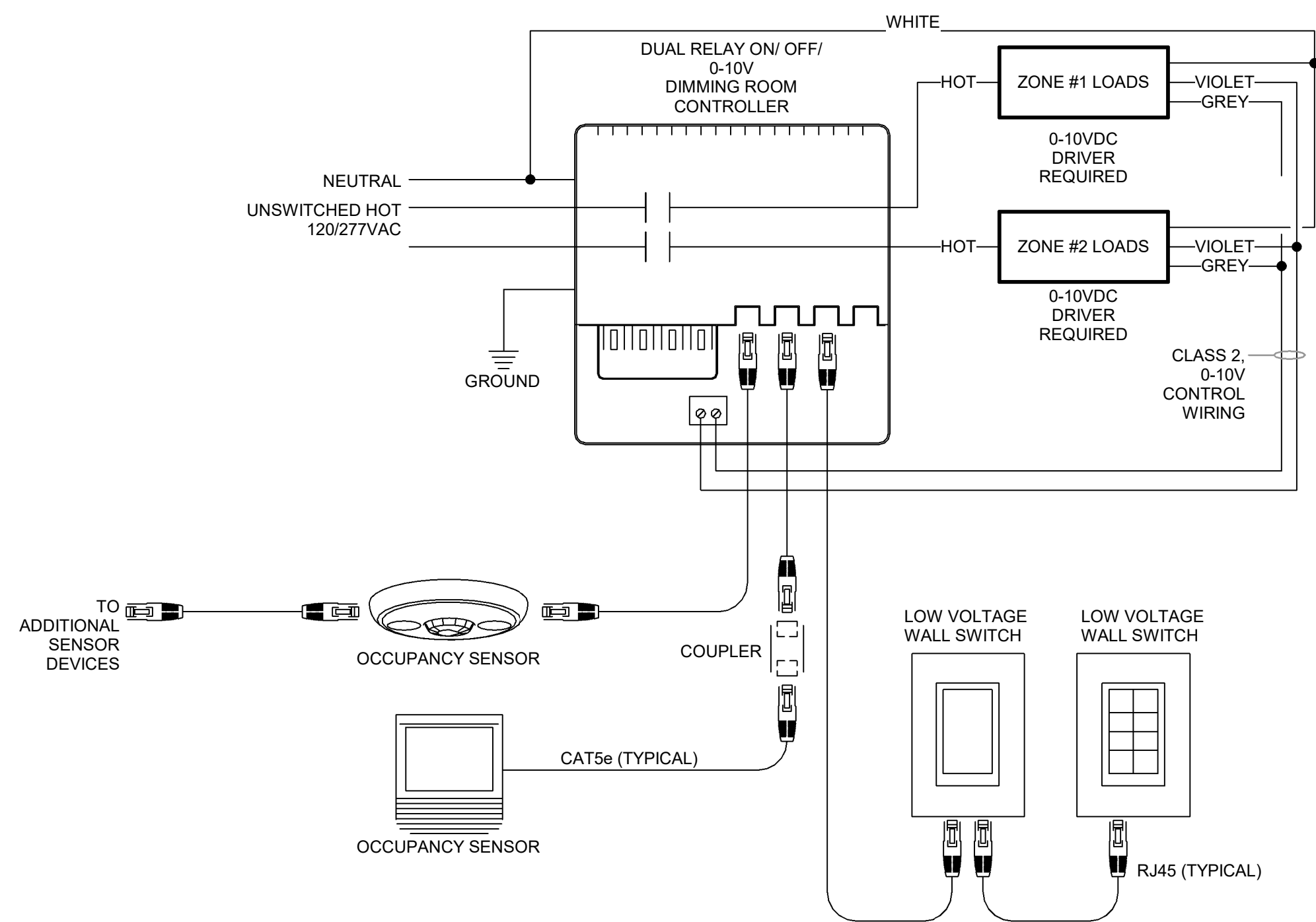
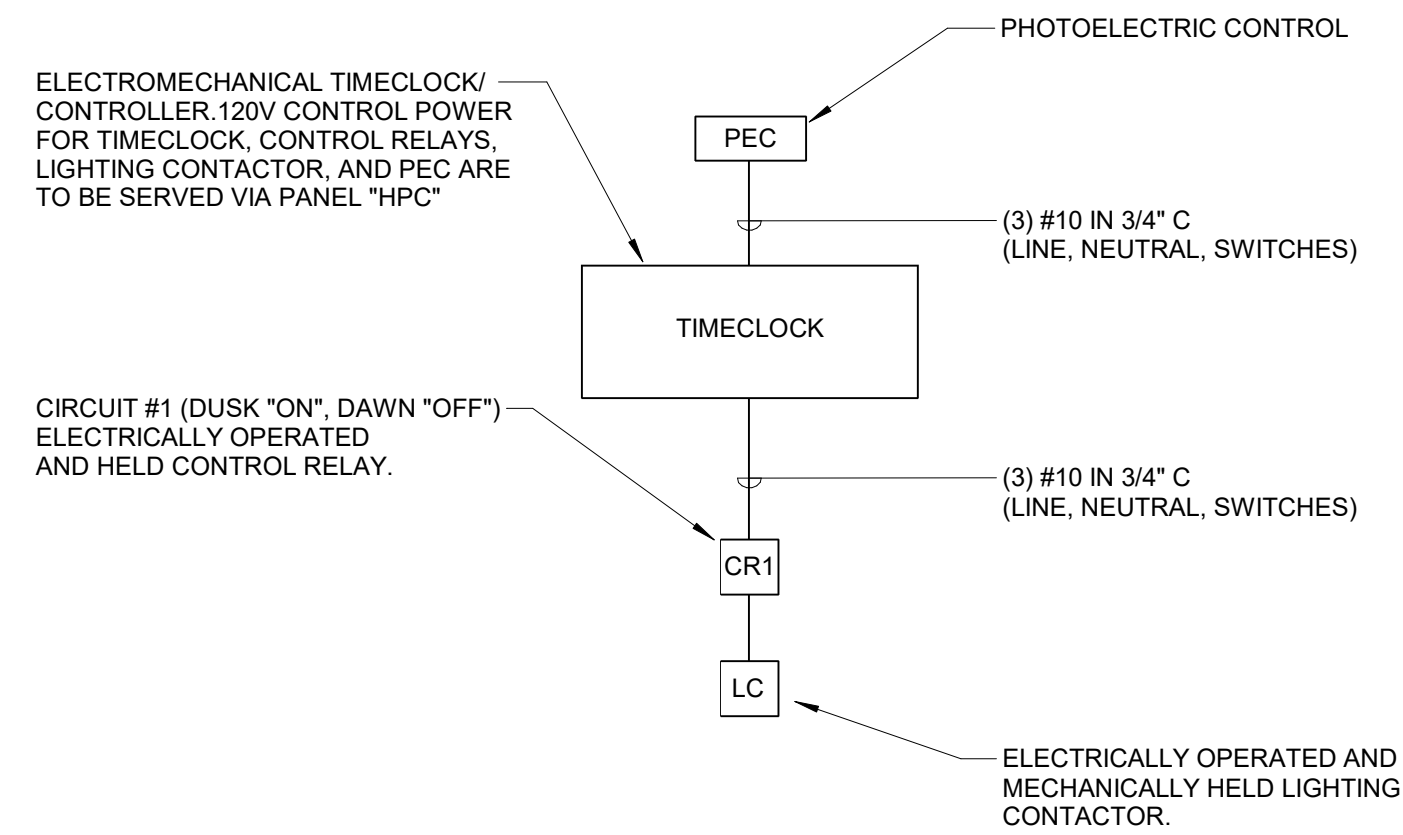


DIAGRAM IS SCHEMATIC ONLY AND DOES NOT REPRESENT ACTUAL DEVICE QUANTITIES. EVERY DEVICE INDICATED MAY NOT BE UTILIZED FOR THIS PROJECT. REFER TO FLOOR PLAN DRAWINGS FOR DEVICE QUANTITIES. REFER ALSO TO SPEC SECTION 26720 FOR FURTHER INFORMATION.

- SEQUENCE OF OPERATION:
1. DEFAULTS TO MANUAL "ON"/ AUTOMATIC "OFF" OPERATION.
  2. AT SYSTEM STARTUP, DEFAULT DIMMING PARAMETERS ARE ESTABLISHED INCLUDING:
    - A. LEVELS FOR PRESET(S).
    - B. FADE TIMES; AND FADE AND RAMP RATES.
    - C. DIMMING AND SYSTEM PARAMETERS MAY BE CUSTOMIZED.

ROOM CONTROLLER DEVICE IS TO BE MOUNTED IN A CONCEALED, ACCESSIBLE LOCATION.

# SINGLE RELAY, 0-10V LIGHTING CONTROL WIRING DIAGRAM



# CORRIDOR LIGHTING CONTROL WITH ELECTROMECHANICAL TIMECLOCK

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CHESTER UPLAND S.D.

TOBY FARMS INTERMEDIATE SCHOOL, HVAC and WINDOW UPGRADES

201 BRIDGEWATER ROAD  
BROOKHAVEN PA 19015

## DETAILS-ELECTRICAL

PROJECT NO. 2022-327

DRAWN BY: KG.DD

DATE: 03/15/2023

SCALE: AS NOTED



McHUGH  
ENGINEERING ASSOCIATES INC.

136 Poplar Street, Ambler, PA 19002  
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www.mchugheng.com  
215.641.1950

**100% Bid Set- 15 March 2023**

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	△	10/8/22	<b>SCHEMATIC DESIGN ISSUE</b>
	△		
	△		
	△		
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All drawings, specifications, and related documents returned upon request; reproduction of drawings, specifications, and related documents without approval while is forbidden without the architects written permission. Drawings shall remain the property of the architect's firm.	△	--	REV #      REV Date      REV Notes



LUMINAIRE SCHEDULE

LISTED, APPROVED EQUALS: IT IS NOT UNDERSTOOD THAT THIS IMPLIES THAT A STANDARD LUMINAIRE IS ACCEPTABLE. THE LUMINAIRE MUST MEET ALL TECHNICAL REQUIREMENTS AS WELL AS BEING NAMED. ALTERNATE MANUFACTURERS ARE NOT ACCEPTABLE UNLESS APPROVED BY OWNER PRIOR TO THE G.M.P. ISSUE. REFER TO SPECIFICATION SECTION 26 50 00 FOR ADDITIONAL INFORMATION. THE CONTRACTOR IS RESPONSIBLE FOR SELECTING MOUNTING TYPE (SURFACE, RECESSED, LAY-IN, FLANGED, WALL, PENDANT, ETC). UNLESS OTHERWISE NOTED, ALL CCT AND CRI RATINGS ARE TO BE CONSISTENT THROUGH OUT THE LUMINAIRE PACKAGE. ALL DRIVERS ARE TO BE ELECTRONIC WITH 0-10V DIMMING CAPABILITY. ALL LENSES ARE TO BE SHIPPED WITHIN A PROTECTIVE COVERING. EMERGENCY FIXTURES ARE INDICATED AS PARTIALLY SHADED AND/ OR WITH AN "E" SUFFIX, FOR EXAMPLE, "A4E".

TAG	DESCRIPTION MANUFACTURER: MODEL NUMBER	LAMP WATTAGE	CCT/ CRI	VOLTAGE	EQUIVALENT MANUFACTURERS
COMMON AREA LUMINAIRES					
A	2'x2' EDGE-LIT LED FLAT PANEL COLUMBIA LIGHTING: CFP22-40/33/2835	40	3500K/ 80	120V	EQUIVALENT MANUFACTURERS
AE	2'x2' EDGE-LIT LED FLAT PANEL WITH EMERGENCY BATTERY PACK COLUMBIA LIGHTING: CFP22-40/33/2835-PLD10M	40	3500K/ 80	120V	EQUIVALENT MANUFACTURERS
B	1'x4' EDGE-LIT LED FLAT PANEL COLUMBIA LIGHTING: CFP14-55/41/3440	50	4000K/ 80	120V	EQUIVALENT MANUFACTURERS
BE	1'x4' EDGE-LIT LED FLAT PANEL WITH EMERGENCY BATTERY PACK COLUMBIA LIGHTING: CFP14-55/41/3440-PLD10M	40	3500K/ 80	120V	EQUIVALENT MANUFACTURERS
C	6"Ø SURFACE MOUNTED LED DOWNLIGHT PRESCOLITE: LBSD-6RD-CS9-WH	11.5	3500K/ 90	120V	EQUIVALENT MANUFACTURERS
DE	4'-0"LED STARWELL LUMINAIRE WITH INTEGRAL OCCUPANCY SENSOR COLUMBIA LIGHTING: ESL-4-35-MW-FP-W-ED-U-ELL14	30.4	3500K/ 80+	120V	EQUIVALENT MANUFACTURERS
F	4'-0"LED STRIP COLUMBIA LIGHTING: CSL4-LSCS	45	3500K/ 80+	120V	EQUIVALENT MANUFACTURERS
H	LED HIGH BAY COLUMBIA LIGHTING: CRB-40MX-EDU	243	4000K/ 80+	120V	EQUIVALENT MANUFACTURERS
P	LED PENDANT/ DIRECT LITE CONTROL: 4L-P-D-16"-08-SOF-C1-35K-D125-D01-1C-UNV- FA1	10/FT	3500K/ 80+	120V	EQUIVALENT MANUFACTURERS
PE	LED PENDANT/ DIRECT LITE CONTROL: 4L-P-D-16"-08-SOF-C1-35K-D125-D01-1C-UNV- FA1-2EF	10/FT	3500K/ 80+	120V	EQUIVALENT MANUFACTURERS
EBW	EMERGENCY BATTERY UNIT (WHITE) PROVIDE WIRE GUARD WHERE INDICATED COMPASS: CU2	.56	---/---	120V	EQUIVALENT MANUFACTURERS
EBB	EMERGENCY BATTERY UNIT (BLACK) COMPASS: CU2B	.56	---/---	120V	EQUIVALENT MANUFACTURERS
ER	LED REMOTE EMERGENCY HEADS COMPASS: CORD	1	---/---	120V	EQUIVALENT MANUFACTURERS
X1	LED EXIT SIGN (FACES AND ARROWS AS INDICATED ON PLANS) PROVIDE WIRE GUARD WHERE INDICATED COMPASS: CER	1.8	---/---	120V	EQUIVALENT MANUFACTURERS
X2	LED EXIT SIGN WITH REMOTE CAPABILITY (FACES AND ARROWS AS INDICATED ON PLANS) PROVIDE WIRE GUARD WHERE INDICATED COMPASS: CERRC	3.6	---/---	120V	EQUIVALENT MANUFACTURERS

LUMINAIRE SCHEDULE NOTE:

ALL LUMINAIRES EQUIPPED WITH EMERGENCY BACK-UP ARE TO BE PROVIDED WITH REMOTE TEST SWITCH(ES) COORDINATE ALL LOCATIONS WITH THE OWNER.

PANEL SCHEDULE														HA			
PANEL..... HA				MAINS: 225 A				ENCLOSURE									
A.I.C. 22,000				MCB: 225 A				NEMA: Type 1									
SERVED VIA MDPA				LUGS: SF				MOUNTIN... SURFACE									
208/120 Wye VOLT				TOP X				BOTTOM:									
3 Ø 4 WIRE																	
CK T	TRIP	POLE	LOAD TYPE	DESCRIPTION/ LOCATION	WATT	A	B	C	WATT	DESCRIPTION/ LOCATION	LOAD TYPE	POLE	TRIP	CK T			
1	15 A	2	EQUIPMENT Room	(1) IDU-0.8S / (1) HRB-3 / (2)	242				1912	(4) IDU-3	EQUIPMENT Room	2	15 A	2			
3			101, 133, 131, 12...	HRB-4 / (1) IDU-2.5 / (1) IDU-1.25							129, 128, 127, 126			4			
5	20 A	2	EQUIPMENT Room	(4) IDU-3	1912				3000	UH-1	HVAC SERVICE	2	20 A	6			
7			133, 130, 131, 132								STORAGE 122			8			
9	20 A	2	HVAC STAIR 1-A	CUH-1	3000				3000	UH-1	HVAC OUTDOOR	2	20 A	10			
11											STORAGE 118			12			
13	20 A	2	HVAC Boys 117	WH-2	3000				3000	WH-2	HVAC Girls 120	2	20 A	14			
15														16			
17	20 A	2	HVAC STAIR 2-A	CUH-1	3000				3000		HVAC Girls 207	2	20 A	18			
19														20			
21	20 A	2	HVAC Boys 206		3000				1800		HVAC Women 203	2	20 A	22			
23														24			
25	20 A	2	HVAC STORAGE		3000				3000		HVAC STORAGE	2	20 A	26			
27			201								210			28			
29	--	1	SPACE		--				--	SPACE		1	--	30			
31	--	1	SPACE		--				--	SPACE		1	--	32			
33	--	1	SPACE		--				--	SPACE		1	--	34			
35	--	1	SPACE		--				--	SPACE		1	--	36			
37	--	1	SPACE		--				--	SPACE		1	--	38			
39	--	1	SPACE		--				--	SPACE		1	--	40			
41	--	1	SPACE		--				--	SPACE		1	--	42			
TOTAL WATTS					35866 VA					TOTAL AMPS 100 A							

PANEL SCHEDULE														HB			
PANEL.... HB				MAINS: 400 A				ENCLOSURE									
A.I.C. 22,000				MCB: 400 A				NEMA: Type 1									
SERVED VIA MDPA				LUGS: SF				MOUNTIN... SURFACE									
208/120 Wye VOLT				3 Ø 4 WIRE				TOP X BOTTOM:									
CK T	TRIP	POLE	LOAD TYPE	DESCRIPTION/ LOCATION	WATT	A	B	C	WATT	DESCRIPTION/ LOCATION	LOAD TYPE	POLE	TRIP	CK T			
1	15 A	2	HVAC Room 214, 200, 221, 220	(1) IDU-2.5 / (1) HRB-6 / (1) IDU-1S	276				1931	(3) IDU-3 / (1) IDU-3.5	HVAC Room 219, 220, 221, 222	2	15 A	2			
3														4			
5	15 A	2	HVAC Room 215, 216, 217, 218	(4) IDU-3	1912				--		SPARE	2	15 A	6			
7														8			
9	125 A	3	HVAC	ERU-3	35300				35300	ERU-4	HVAC	3	125 A	10			
11														12			
13	40 A	3	HVAC	ODU-D-1 MODULE #1	10255				10255	ODU-D-2 MODULE #1	HVAC	3	40 A	14			
15														16			
17	40 A	3	HVAC	ODU-D-1 MODULE #2	20834				20834	ODU-D-2 MODULE #2	HVAC	3	40 A	18			
19														20			
21	80 A	3	HVAC											22			
23														24			
25	20 A	1	HVAC	EF-4	437				--		SPARE	1	20 A	26			
27	20 A	1	SPARE		--				--		SPARE	1	20 A	28			
29	--	1	SPACE		--				--		SPACE	1	--	30			
31	--	1	SPACE		--				--		SPACE	1	--	32			
33	--	1	SPACE		--				--		SPACE	1	--	34			
35	--	1	SPACE		--				--		SPACE	1	--	36			
37	--	1	SPACE		--				--		SPACE	1	--	38			
39	--	1	SPACE		--				--		SPACE	1	--	40			
41	--	1	SPACE		--				--		SPACE	1	--	42			
TOTAL WATTS					137334 VA					TOTAL AMPS 381 A							

PANEL SCHEDULE														HPB									
PANEL... HPB				MAINS: 225 A				ENCLOSURE															
A.I.C. 22,000				MCB: 225 A				NEMA: Type 1															
SERVED VIA MDPA				LUGS: SF				MOUNTIN... SURFACE															
208/120 Wye VOLT				TOP X				BOTTOM:				WIDTH: 20"											
3 Ø 4 WIRE																							
CK T	TRIP	POLE	LOAD TYPE	DESCRIPTION/ LOCATION	WATT	A	B	C	WATT	DESCRIPTION/ LOCATION	LOAD TYPE	POLE	TRIP	CK T									
1	15 A	2	HVAC Room 72, 68A, 62	(2) HRB-3 / (2) IDU-1.5S	235				271	(1) EF-1 / (1) EF-2 / (1) EF-3	HVAC	1	15 A	2									
3														4									
5	25 A	3	HVAC	RTU-1	7089				10255	ODU-B-2	HVAC	3	80 A	6									
7														8									
9														10									
11	15 A	2	HVAC	HP-1C	2558				21968	RTU-2	HVAC	3	90 A	12									
13	20 A	1	HVAC Boys 55	WH-1	1800				1800	WH-1	HVAC Girls 55	1	20 A	14									
15														16									
17	15 A	2	SPARE		--				--		SPARE	1	20 A	18									
19											SPARE	1	20 A	20									
21	--	1	SPACE		--				--					22									
23	--	1	SPACE		--				--		SPACE	1	--	24									
25	--	1	SPACE		--				--		SPACE	1	--	26									
27	--	1	SPACE		--				--		SPACE	1	--	28									
29	--	1	SPACE		--				--		SPACE	1	--	30									
31	--	1	SPACE		--				--		SPACE	1	--	32									
33	--	1	SPACE		--				--		SPACE	1	--	34									
35	--	1	SPACE		--				--		SPACE	1	--	36									
37	--	1	SPACE		--				--		SPACE	1	--	38									
39	--	1	SPACE		--				--		SPACE	1	--	40									
41	--	1	SPACE		--				--		SPACE	1	--	42									
					TOTAL WATTS 45976 VA					TOTAL AMPS 128 A													