GENERAL NOTES - ELECTRICAL DEMOLITION:

1. THE CONTRACTOR SHALL INCLUDE IN HIS BID ALL COSTS ASSOCIATED WITH RELOCATION AND REMOVAL OF ELECTRICAL WORK AS DESCRIBED IN THE DRAWINGS AND SPECIFICATIONS WITH ALLOWANCES FOR EXPECTED OR UNFORESEEN ISSUES WHEN CONCEALED WORK HAS BEEN EXPOSED. NO ADDITIONAL CLAIMS FOR WORK ASSOCIATED WITH DEMOLITION WILL BE ACCEPTED, UNLESS, IN CERTAIN CASES, CONSIDERED JUSTIFIABLE BY THE ENGINEER.
2. NOTE THAT THE FACILITY WILL BE FULLY OPERATIONAL DURING THE COURSE OF THIS PROJECT.
    - 2.1. THE CONTRACTOR IS TO COORDINATE ALL OF THE DEMOLITION WORK WITH THE FACILITY PERSONNEL TO MINIMIZE DISTURBING THE OPERATING EQUIPMENT, WIRING AND SYSTEMS.
    - 2.2. THE CONTRACTOR SHALL PERFORM REMOVAL AND DEMOLITION WORK WITH MINIMAL INTERFERENCE WITH EXISTING SYSTEMS.
3. DEMOLITION AND REMOVAL OF WORK SHALL BE PERFORMED IN A NEAT AND PROFESSIONAL MANNER. THE CONTRACTOR SHALL RESTORE, PATCH, PAINT, ETC., ANY INTERIOR/EXTERIOR BUILDING SURFACE TO ITS ORIGINAL CONDITION.
4. REFER TO ELECTRICAL DEMOLITION AND RENOVATION PLANS FOR NEW EQUIPMENT LAYOUT AND EXTENT OF EQUIPMENT BEING REPLACED, RELOCATED, OR REMOVED. COORDINATE WITH ALL TRADES AS TO EXTENT OF EQUIPMENT BEING REMOVED OR RELOCATED. CLOSELY COORDINATE THE EXTENT OF DEMOLITION SCOPE OF WORK WITH ENGINEER AND/OR MECHANICAL PLANS. PATCH AND PAINT (TO MATCH SURROUNDING CONDITIONS) ALL OPENINGS CREATED BY THIS DEMOLITION.
5. EXISTING CONDITIONS, EQUIPMENT, MATERIALS & SIZES ARE SHOWN FOR REFERENCE ONLY. VERIFY EXISTING CONDITIONS AND BRING ANY DISCREPANCIES TO THE ENGINEER'S ATTENTION IN WRITING PRIOR TO BID SUBMISSION.
6. ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR ALL ELECTRICAL DEMOLITION WORK FOR THIS PROJECT WHETHER OR NOT SPECIFICALLY INDICATED ON THIS OR OTHER DEMOLITION PLANS. THIS WORK SHALL INCLUDE BUT IS NOT LIMITED TO THE DISCONNECTION, REMOVAL AND DISPOSAL OF; LIGHTING FIXTURES, PANELBOARDS, DISCONNECT SWITCHES, RECEPTACLES, JUNCTION BOXES, WIRE, CABLE, CONDUIT, MOUNTING HARDWARE STRAPS OR CABLES, ELECTRICAL SERVICES ETC. PER THE SCOPE OF WORK FOR THIS PROJECT.
7. THE ELECTRICAL CONTRACTOR SHALL REMOVE ALL ELECTRICAL OUTLETS, SWITCHES, ETC., INCLUDING ASSOCIATED WIRING, CONDUITS, COVERS, BOXES, ETC., WHERE SHOWN ON THE DEMOLITION DRAWING. WHERE THE REMOVAL OF THESE ITEMS DISRUPTS EXISTING WIRING THAT IS TO REMAIN, THE CONTRACTOR SHALL INSTALL IN THE CEILING SPACE; JUNCTION BOXES AND OTHER DEVICES AND PROVIDE BYPASS CONNECTIONS NECESSARY TO MAKE CIRCUITS AFFECTED CONTINUOUS AND READY FOR OPERATION. OTHERWISE, WIRING SHALL BE REMOVED BACK TO THE NEAREST ELECTRICAL JUNCTION BOX THAT IS TO REMAIN OR TO THE SOURCE PANELBOARD.
8. ALL WORK MUST BE SCHEDULED AND PERFORMED AS NOT TO INTERRUPT NORMAL OPERATIONS. REMOVAL OF ITEMS THAT WILL CAUSE ANY TYPE OF TEMPORARY SHUTDOWN SHALL BE PERFORMED DURING OFF-PEAK HOURS. ALL SUCH OUTAGES SHALL BE SCHEDULED AND COORDINATED WITH OWNER FIELD REPRESENTATIVE TO ENSURE ESSENTIAL SERVICES OR AREAS CAN BE MAINTAINED.
9. THE CONTRACTOR SHALL NOTIFY THE OWNER AT THE APPROPRIATE TIME OF THE PROJECTED DEMOLITION AND PHASING SCHEDULE SO THAT REMOVAL OR RELOCATION OF AFFECTED UTILITIES MAY BE CARRIED OUT IN COORDINATION WITH THE PROJECT REQUIREMENTS. THE CONTRACTOR SHALL CLOSELY FOLLOW THE DEMOLITION AND PHASING SCHEDULE AND PROCEED IN THE SPECIFIED SEQUENCE.
10. THE SHUTDOWN OF EXISTING BUILDING ELECTRICAL SERVICES SHALL BE COORDINATED WITH THE OWNER. MAKE APPROPRIATE ARRANGEMENTS AT LEAST 5 BUSINESS DAYS PRIOR TO A SHUTDOWN.
11. THE CONTRACTOR SHALL REMOVE AND/OR RELOCATE ALL EXISTING ELECTRICAL WORK WHICH INTERFERES WITH THE NEW ELECTRICAL AND ARCHITECTURAL LAYOUTS IN FULL COORDINATION WITH THE ENGINEER'S DEMOLITION PLANS. ALL SYSTEMS WHICH ARE NO LONGER REQUIRED TO FUNCTION SHALL BE DE-ENERGIZED AND DISCONNECTED AT THE POWER SUPPLY SOURCE.
12. ELECTRICAL CONTRACTOR SHALL PROVIDE AND MAINTAIN ANY CONNECTIONS / DISCONNECTIONS AS NEEDED TO ENSURE ADEQUATE SAFETY AND PROTECTION OF ALL PERSONNEL AND EQUIPMENT.
13. ALL ELECTRICAL PANELS SHALL BE MAINTAINED AS WORKING PANELS THROUGHOUT CONSTRUCTION AND WILL CONTINUE TO MAINTAIN CIRCUITS FOR EXISTING LIGHTING OR EQUIPMENT TO REMAIN. PROVIDE AS NECESSARY TEMPORARY LIGHTING AND ELECTRICAL FEEDS TO ANY DEVICES THAT MAY BE REQUIRED FOR UNINTERRUPTED USE. PROVIDE TEMPORARY CONNECTIONS FOR RELOCATED EQUIPMENT DURING CONSTRUCTION.
14. ELECTRICAL CONTRACTOR SHALL ENSURE THAT ANY DEVICES AND/OR FIXTURES LOCATED OUTSIDE OF DEMOLITION WORK AREA ARE NOT AFFECTED BY REMOVAL OF WIRING AND/OR CIRCUITING. WIRING/CONDUIT SHALL BE LEFT IN A SAFE CONDITION, LABELED FOR ITS USE, AND EXTENDED AS REQUIRED TO MAINTAIN CIRCUIT CONTINUITY, INCLUDING ALL APPLICABLE CONTROLS.
15. PORTIONS OF FEEDER RUNS THAT SHALL BE REMOVED OR ABANDONED AS A RESULT OF DEMOLITION WORK, BUT WHICH ARE REQUIRED TO REMAIN ENERGIZED, SHALL BE CUT AT CONVENIENT LOCATIONS, REROUTED AND RECONNECTED. NEW FEEDER EXTENSIONS SHALL MATCH EXISTING FEEDER EXTENSIONS IN ALL ASPECTS INCLUDING BUT NOT LIMITED TO CABLE TYPE, CONDUIT SIZES, CONDUCTOR AMPACITY, ETC..

GENERAL NOTES - ELECTRICAL DEMOLITION (cont.):

16. ALL EXISTING LOW VOLTAGE WIRING FOR FIRE ALARM/SECURITY, SOUND, AND/OR TELECOMMUNICATIONS THAT IS NOT REUSED SHALL BE REMOVED IN ITS ENTIRETY BY THE CORRESPONDING CONTRACTOR. ALL EXISTING LOW VOLTAGE WIRING FOR MECHANICAL SYSTEMS THAT ARE NOT USED SHALL BE REMOVED IN ITS ENTIRETY BY THE CONTRACTOR.
17. CONTRACTOR IS TO EXERCISE EXTREME CAUTION WHEN CUTTING SLAB TO AVOID DAMAGE TO ANY EXISTING CONDUITS, PIPING, ETC. THAT MAY BE CONCEALED IN OR BENEATH THE SLAB. ANY FLOOR SLAB AFFECTED BY THE REMOVAL OF DEVICES FED VIA UNDERGROUND CONDUIT OR WIRING, SHALL BE FIRESTOPPED AND PATCHED BY THE CONTRACTOR AND TO MATCH SURROUNDING FLOOR.
18. ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR DISCONNECTING, RELOCATING, AND/OR RECONNECTING ALL EXISTING EQUIPMENT THAT IS TO REMAIN, EVEN IF THIS EQUIPMENT IS NOT SHOWN ON PLANS OR PANEL SCHEDULES. ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR EXTENDING EXISTING CIRCUITS FROM EXISTING EQUIPMENT THAT IS REMAINING TO NEW LOCATION. E.C. SHALL MATCH EXISTING GAUGE WIRE FROM EXISTING BREAKER TO RELOCATED EQUIPMENT.
19. IN THE EVENT THAT ELECTRICAL PLANS CALL FOR EXISTING WIRING TO BE REUSED, THE ELECTRICAL CONTRACTOR SHALL SURVEY EXISTING WIRING, BOXES, ETC. TO DETERMINE IF THE EXISTING BRANCH CIRCUIT MAY BE REUSED FOR NEW EQUIPMENT (IF WIRING REMAINS IN IT'S ORIGINAL CONDUIT). ELECTRICAL CONTRACTOR SHALL DETERMINE THAT THE ENTIRE RUN OF EXISTING POWER CONDUIT AND WIRING, FROM SOURCE PANEL TO LOAD FOR WIRING TO BE REUSED, IS FEASIBLE FOR REUSE AND MEETS THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE, STATE AND LOCAL CODES HAVING JURISDICTION.

    IN INSTANCES WHERE EXISTING CIRCUITS ARE TO BE EXTENDED OR REUSED, ELECTRICAL CONTRACTOR SHALL DISCONNECT EXISTING BRANCH CIRCUIT AND LEAVE IN A SAFE CONDITION (TAG AND LABEL ITS USE) FOR FUTURE RECONNECTION DURING RENOVATION PHASE.
20. IF SURVEY BY ELECTRICAL CONTRACTOR DEEMS THAT WIRING IS NOT FEASIBLE FOR REUSE, THEN THE ELECTRICAL CONTRACTOR SHALL DISCONNECT AND REMOVE ANY AND ALL WIRING DEEMED UNUSABLE, FROM LOAD TO SOURCE (INCLUDING DATA, COMMUNICATION, OR TELEPHONE WIRING). ANY CONDUITS STUBBED OUT OF MASONRY SURFACE SHALL BE CUT INTO SURFACE AND PATCHED TO MATCH SURROUNDING CONDITIONS.
21. PANELBOARD CABINETS SHALL NOT BE USED FOR OTHER PURPOSES THAN CIRCUIT BREAKER INSTALLATIONS AND DISTRIBUTION POINTS, AND SHALL NOT BE USED AS A JUNCTION OR PULLBOX.
22. ALL UNUSED OUTLET BOXES THAT ARE TO REMAIN SHALL BE PROVIDED WITH MATCHING BLANK COVERS.
23. ALL RACEWAYS WHICH ARE EXPOSED AS A RESULT OF NEW WORK SHALL BE REMOVED AND REROUTED CONCEALED BEHIND FINISHED SURFACES.
24. EXISTING RACEWAYS THAT ARE NOT BEING REUSED SHALL BE REMOVED BACK TO THE NEAREST JUNCTION OR PULLBOX, AND THE OPENINGS BLANKED. ANY CONDUITS PENETRATING MASONRY SURFACES SHALL BE CUT INTO SURFACE, PATCHED, AND PAINTED TO MATCH SURROUNDINGS.
25. DISCONNECT, RELOCATE OR REMOVE ELECTRICAL INSTALLATIONS AND EQUIPMENT AS INDICATED BY PLANS AND AS REQUIRED BY CHANGES IN CONSTRUCTION. WHERE EXISTING ELECTRICAL INSTALLATIONS INTERFERE WITH NEW WORK AND WHERE SUCH INSTALLATIONS ARE TO REMAIN IN USE, THE NEW INSTALLATIONS SHALL BE RELOCATED AND/OR RECONNECTED TO COORDINATE WITH THE WORK INDICATED ON THE CONTRACT DRAWINGS. DETERMINE AND COORDINATE ALL EQUIPMENT LOCATIONS PRIOR TO INITIAL ROUGH-IN.
26. DISCONNECT AND RELOCATE/RECONNECT ANY ELECTRICAL LINES, BRANCH CIRCUITS, DEVICES (INCLUDING FIRE ALARM DEVICES), ETC. AND REPAIR PULL BOXES THAT MAY BE DISTURBED DURING THIS RENOVATION. UNLESS NOTED OTHERWISE, ALL EXISTING ELECTRICAL WORK WHICH WILL NOT BE RENDERED OBSOLETE AND WHICH MAY BE DISTURBED DUE TO ANY CHANGES REQUIRED UNDER THE CONTRACT, SHALL BE RESTORED TO ITS ORIGINAL OPERATING CONDITION AT NO COST TO OWNER. IF ANY EQUIPMENT TO REMAIN IS DAMAGED DURING CONSTRUCTION, IT SHALL BE REPLACED WITH NEW (WITH NO COST APPLIED TO OWNER).
27. FOR EXISTING PANELS MODIFIED AS PART OF THIS PROJECT, E.C. SHALL TEST AND KEEP ALL EXISTING WORKING CIRCUIT BREAKERS AND SHALL USE THEM FOR NEW EQUIPMENT, DEVICES, LIGHTING, AND/OR SPARES. E.C. SHALL REPLACE NON-WORKING BREAKERS WITH NEW "IN KIND" BREAKERS. PROVIDE BLANK COVERS/COVERPLATES FOR ALL EXPOSED CIRCUIT BREAKER SPACES (THOSE WITHOUT INSTALLED CIRCUIT BREAKERS; EXPOSED BUS BARS) FOR PERSONNEL PROTECTION.
28. AS DIRECTED BY THE OWNER, ALL EXISTING EQUIPMENT AND MATERIAL IN USABLE CONDITION THAT IS REMOVED SHALL REMAIN THE PROPERTY OF THE OWNER, OR HANDLED AS INSTRUCTED BY THE OWNER, BE DISPOSED OF BY THE ELECTRICAL CONTRACTOR. ALL MATERIALS DEEMED FOR REMOVAL SHALL BE RECYCLED WHENEVER POSSIBLE, IN ACCORDANCE WITH THE REQUIREMENTS SET FORTH WITHIN SPECIFICATION SECTION 017419 (CONSTRUCTION WASTE MANAGEMENT).
29. REMOVAL OF BRANCH CIRCUITS IN ASSOCIATED PANELS SHALL BE COORDINATED WITH THE REMOVAL OF EQUIPMENT IN SPECIFIED AREA. REFER TO RENOVATION PLANS AND ELECTRICAL PANEL SCHEDULES FOR NEW CIRCUITING ARRANGEMENT. ANY WIRING OR CIRCUITS BEING REVISED SHALL MEET MINIMUM WIRE SIZES AS INDICATED IN PANEL SCHEDULES. ELECTRICAL CONTRACTOR SHALL REMOVE WIRING/CONDUIT BACK TO SOURCE FROM UNUSED OR ABANDONED CIRCUITS, LABEL CIRCUIT BREAKER AS "SPARE", AND LEAVE IN THE "OFF" POSITION.
30. EXISTING PANELBOARD DIRECTORIES AFFECTED BY THE ALTERATION WORK SHALL BE REPLACED WITH NEW "TYPED" DIRECTORIES, TO ACCURATELY REFLECT THE BRANCH CIRCUIT WIRING MODIFICATIONS AND EXISTING CONDITIONS.

ELECTRICAL SYMBOLS

LP/# ↷	BRANCH CIRCUIT HOMERUN. ONE SEPARATE GREEN GROUNDING CONDUCTOR SHALL BE PROVIDED FOR EACH HOMERUN. (PNL. AND CIRCUIT# INDICATED)
▨ DP#__	DISTRIBUTION PANEL
◩ LP	LIGHTING PANEL
▨	PANELBOARD CABINET, FLUSH MOUNTED
▨	PANELBOARD CABINET, SURFACE MOUNTED
⊖	RECEPTACLE, DUPLEX
⊕	RECEPTACLE, DUPLEX WITH GROUND FAULT CIRCUIT INTERRUPTER
⊕	RECEPTACLE, QUADRAPLEX
∿ VFD	VARIABLE FREQUENCY DRIVE
$\$^{a}_{3}$	SWITCH a = (LOWER CASE LETTER) LIGHT CONTROLLED BY TAGGED SWITCH F = FUSED SWITCH K = KEY OPERATED L = LOCK LM= LOW VOLTAGE MASTER M = MANUAL MOTOR STARTER MC= MOMENTARY CONTACT MP= MOTOR SNAP W/PILOT LIGHT (THERMAL TYPE) OS= OCCUPANCY SENSOR (W/ MANUAL OVERRIDE) P = WITH PILOT LIGHT PB= PUSH BUTTON STATION RC= REMOTE CONTROL WP= WEATHER PROOF X = EXPLOSION PROOF 2 = 2 POLE 3 = 3 WAY 4 = 4 WAY
$\$_D$	DIMMER
⌀	MOTOR, SINGLE-PHASE
⌀	MOTOR, THREE-PHASE
∿∿	TRANSFORMER
Ⓙ	JUNCTION BOX
PB	PULL BOX
☐	DISCONNECT SWITCH, UNFUSED
⊠	STARTER, COMBINATION W/DISC. SW.
⊠	STARTER OR MOTOR CONTROLLER
○—	CONDUIT TERMINATED 6" AFF IN STANDARD BOX FOR EXTENSION TO EQUIPMENT AS DIRECTED
⊗—	CONDUIT TERMINATED W/COUPLING (FLUSH W/FINISHED FLOOR) FOR EXTENSION TO EQUIPMENT AS DIRECTED
⊗ →	EXIT SIGN: ARROW DIRECTION INDICATED ON PLANS SINGLE SHADING INDICATES SINGLE FACE OR 2 SHADED AREAS INDICATES DOUBLE FACED UNIT
☐ A	LED HIGH BAY LIGHTING FIXTURE: UPPER CASE LETTER BELOW FIXTURE DENOTES FIXTURE TYPE
├──┤ A	1'X4' INDUSTRIAL STRIP CEILING MOUNTED
○┤ A	WALL MOUNTED LIGHTING FIXTURE
DH	DAY LIGHT HARVESTING SENSOR
◁	TELEPHONE/VOICE PORT
◀	DATA PORT
F Ⓗ	DETECTOR, HEAT; LETTER INDICATES AS FOLLOWS: R/T = COMBINATION F = FIXED TEMP. RISE (135°) R/C = RATE COMPENSATION R = RATE OF RISE XP = EXPLOSION PROOF
⬡ 2	KEY NOTE SYMBOL
⬡ 2 ⬡ 3	MULTIPLE KEY NOTES APPLYING TO THE SAME ITEM
1 / E2	DETAIL IDENTIFIER DETAIL # DRAWING # (WHERE DETAIL IS FOUND)

GENERAL NOTES - ELECTRICAL:

1. ALL ELECTRICAL WORK SHALL BE COORDINATED WITH THE CONSTRUCTION MANAGER AND ALL OTHER DISCIPLINES INVOLVED IN THIS PROJECT.
    - 1.1. CONTRACTOR SHALL REVIEW ALL TRADES' CONTRACT DOCUMENTS AND APPLICABLE SHOP DRAWINGS TO DETERMINE SPECIFIC MOUNTING LOCATIONS FOR ELECTRICAL EQUIPMENT.
    - 1.2. VERIFY EXACT LOCATIONS AND MOUNTING OF ALL LIGHT FIXTURES, SWITCHES, RECEPTACLES, OUTLETS, FIRE ALARM DEVICES, VOICE/DATA DEVICES AND OTHER EQUIPMENT WITH ARCHITECTURAL DRAWINGS AND IN THE FIELD PRIOR TO ROUGH-IN. IN CENTERING OUTLETS AND LOCATION BOXES, ALLOW FOR OVERHEAD PIPES, DUCTS AND MECHANICAL EQUIPMENT VARIATIONS IN FIREPROOFING AND PLASTERING, WINDOW AND DOOR TRIM, PANELING, HUNG CEILINGS AND THE LIKE, AND CORRECT ANY INACCURACY RESULTING FROM FAILURE TO DO SO WITHOUT EXPENSE TO OWNER.
    - 1.3. LOCATIONS INDICATED FOR LOCAL WALL SWITCHES ARE SUBJECT TO MODIFICATIONS AT OR NEAR DOORS. COORDINATE WITH ARCHITECT AND INSTALL SWITCH ON SIDE OPPOSITE HINGE. VERIFY FINAL HINGE LOCATIONS IN FIELD PRIOR TO SWITCH OUTLET INSTALLATION.
2. THE CONDUITS SHOWN ON THESE DRAWINGS ARE DIAGRAMMATIC IN NATURE, THEY SHOW THE GENERAL ARRANGEMENT AND SIZE OF THE CONDUITS. THEY ARE NOT INTENDED TO SHOW EVERY OFFSET OR INTERFERENCE THAT MAY BE ENCOUNTERED. CONTRACTOR IS RESPONSIBLE FOR ROUTING ALL CONDUIT IN THE MOST EFFICIENT MANNER IN ACCORDANCE WITH PROJECT SPECIFICATIONS.
3. ALL CONTRACTOR SUPPLIED MATERIALS SHALL BE NEW AND UL APPROVED (OR APPROVED BY ANOTHER NATIONALLY RECOGNIZED ORGANIZATION).
4. ALL EQUIPMENT SHALL BE INSTALLED IN A NEAT AND WORKMANLIKE MANNER, RECTILINEAR TO BUILDING STRUCTURE. HORIZONTAL OR CROSS RUNS IN PARTITIONS AND WALLS NOT PERMITTED.
5. UNLESS OTHERWISE STATED, ALL ABOVE GROUND CONDUIT SHALL BE IN CONDUIT, 3/4 INCH MINIMUM SIZE FOR ELECTRIC SERVICES. ALL CONDUIT BENDS SHALL BE OF THE LONG RADIUS TYPE. ALL OUTDOOR WIRING SHALL BE IN CONDUIT, 3/4 INCH MINIMUM SIZE. ALL MOTORS AND TRANSFORMERS SHALL HAVE FLEXIBLE CONNECTIONS TO MINIMIZE VIBRATION. REFER TO ELECTRICAL SPECIFICATIONS FOR ADDITIONAL INFORMATION.
6. ALL WIRING SHALL BE RUN CONCEALED IN CONDUIT UNLESS SPECIFIED OTHERWISE.
7. CONTRACTOR SHALL USE TRAPEZE TO SUPPORT MULTIPLE CONDUITS FROM BUILDING STEEL
8. SECURE ALL SUPPORTS TO BUILDING STRUCTURE BY STEEL FOR VERTICAL SUPPORT AND BY MEANS OF TOGGLE BOLTS ON HOLLOW MASONRY UNITS, EXPANSION SHIELDS IN CONCRETE OR BRICK. MACHINE SCREWS ON METAL SURFACE, AND WOOD SCREWS ON WOOD CONSTRUCTION. NAILS, RAWL OR WOOD PLUGS NOT PERMITTED. SUPPORT HORIZONTAL RUNS OF METALLIC CONDUITS NOT MORE THAN 10 FT. APART. SUPPORT RACEWAY RISERS AT EACH FLOOR LEVEL. RUN EXPOSED RACEWAYS PARALLEL WITH OR AT RIGHT ANGLES TO WALLS.
9. ALL CONDUIT INSTALLATIONS CROSSING EXPANSION JOINTS SHALL HAVE EXPANSION OR EXPANSION/DEFLECTION TYPE FITTINGS AS REQUIRED. NOTE: FOR THE EXACT LOCATIONS OF EXPANSION JOINTS, SEE OWNER FOR EXISTING STRUCTURAL DRAWINGS.
10. ALL UNDERGROUND CONDUITS SHALL BE SEALED TO PREVENT THE ENTRY OF WATER OR GASES.
11. PASS RACEWAYS OVER WATER, STEAM, OR OTHER PIPING WHEN PULL BOXES ARE NOT REQUIRED. NO RACEWAY WITHIN 3 IN. OF STEAM OR HOT WATER PIPES, OR APPLIANCES, EXCEPT CROSSINGS WHERE RACEWAY SHALL BE AT LEAST 1 IN. FROM PIPE COVER.
12. FURNISH PULL STRING IN EACH RACEWAY RUN OVER 10 FT IN WHICH WIRING IS NOT INSTALLED.
13. CUT STEEL CONDUIT ENDS SQUARE, REAM SMOOTH, PAINT MALE THREADS OF FIELD THREADED CONDUIT WITH GRAPHITE BASE PIPE COMPOUND. DRAW UP TIGHT WITH CONDUIT COUPLINGS.
14. ALL WIRING SHALL BE COPPER CONDUCTOR. MINIMUM SIZE #12 AWG (POWER) & 14 AWG (CONTROL), 600 VOLT INSULATION THW/THWN. REFERENCE SPECIFICATIONS FOR MORE INFORMATION.
15. GROUNDING SHALL BE INSTALLED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE REGARDING ELECTRODE, GROUNDING AND BONDING REQUIREMENTS FOR SERVICE, EQUIPMENT AND ENCLOSURES. ALL EQUIPMENT SHALL BE PROVIDED WITH A SEPARATE GROUNDING CONDUCTOR.
16. CONNECT CONDUIT TO MOTOR CONDUIT TERMINAL BOXES WITH FLEXIBLE CONDUIT (MINIMUM 18 IN. LENGTH AND 50% SLACK). DO NOT TERMINATE IN OR FASTEN RACEWAYS TO MOTOR FOUNDATION.
17. PROVIDE SEPARATE RACEWAYS FOR CONDUCTORS OF NORMAL AND EMERGENCY CIRCUITS. IN COMMON BOXES, PROVIDE BARRIERS BETWEEN EMERGENCY AND NORMAL WIRING.
18. LEAVE WIRE SUFFICIENTLY LONG TO PERMIT MAKING FINAL CONNECTIONS.
19. WIRE COLOR CODING: PER CODE. WHERE COLOR-CODED CABLE IS NOT AVAILABLE, CERTIFY IN WRITING AND REQUEST PERMISSION FOR OVERLAP COLOR TAPING OF CONDUCTORS (MINIMUM LENGTH 6") IN ACCESSIBLE LOCATIONS. COLOR CODING, ONCE SELECTED, MUST BE USED CONSISTENTLY FOR THE ENTIRE PROJECT.
20. PULL NO THERMOPLASTIC WIRES AT TEMPERATURES LOWER THAN 32°F. PROVIDE CABLE SUPPORTS FOR WIRE IN RISER CONDUITS AS REQUIRED BY CODE.
21. ALL SWITCHES SHALL BE MOUNTED AT 4'-6" ABOVE THE TOP OF FINISHED FLOOR, UNLESS OTHERWISE NOTED. ALL RECEPTACLES SHALL BE MOUNTED AT 18" ABOVE THE TOP OF FINISHED FLOOR, UNLESS OTHERWISE NOTED.
22. PROVIDE PULL BOXES AS INDICATED AND WHEREVER NECESSARY TO FACILITATE PULLING OF WIRE AND COORDINATE LOCATIONS WITH OTHER TRADES.
23. FOR EMPTY RACEWAY RUNS, PROVIDE PULL BOXES EVERY 100FT AND AS INDICATED. COORDINATE LOCATIONS WITH OTHER TRADES.
24. JUNCTION AND PULL BOXES: LOCATE GENERALLY NOT EXPOSED IN FINISHED SPACES. WHERE NECESSARY, REROUTE CONDUITS OR MAKE OTHER ARRANGEMENTS FOR CONCEALMENT. COVERS OF JUNCTION AND PULL BOXES SHALL BE ACCESSIBLE.
25. SUPPORT JUNCTION AND PULL BOXES INDEPENDENTLY TO BUILDING STRUCTURE WITH NO WEIGHT BEARING ON CONDUITS.
26. ELECTRICAL CONTRACTOR SHALL COORDINATE ADDITIONAL CONTROL CIRCUITING REQUIREMENTS WITH MECHANICAL CONTRACTOR PRIOR TO ROUGH-IN. PROVIDE ADDITIONAL 120V/1ø CONTROL CIRCUITS (VIA 2#12+1#12G. IN 3/4"C.) FROM NEAREST, SPARE 20A/1P CIRCUIT BREAKER(S) IN 208V ELECTRICAL PANEL HAVING SUFFICIENT SPARE AMPERAGE CAPACITY. PROVIDE NEW CIRCUIT BREAKER(S) AS REQUIRED. PROVIDE ADDITIONAL CONTROL RELAYS AND CONNECTIONS TO MOTORIZED DAMPERS AS REQUIRED.
27. ALL ACCESS DOOR LOCATIONS SHALL BE REVIEWED BY THE ENGINEER PRIOR TO INSTALLATION.
28. FIRESTOP SHALL BE INSTALLED WHENEVER WIRING OR RACEWAYS CROSS FIRE RATED CALL PANELBOARDS, DISCONNECTS, AUTOMATIC TRANSFER SWITCHES, ETC., SHALL BE MOUNTED SO THAT THE DISTANCE FROM THE TOP CIRCUIT BREAKER OPERATING HANDLE, TO THE TOP OF THE FINISHED FLOOR SHALL NOT EXCEED 6'-6" (MAX.).
29. ALL PANELS SHALL BE BALANCED AS EVENLY AS POSSIBLE ACROSS PHASES. ALL PANELS SHALL HAVE PERMANENT DIRECTORIES. CIRCUIT CHANGES SHALL BE REFLECTED ON "AS BUILT" DRAWINGS.
30. ALL SURFACE MOUNTED PANELS AND PANELBOARDS INSTALLED ON THE INSIDE FACE OF EXTERIOR WALLS, ABOVE GRADE OR IN OTHER LOCATIONS CONSIDERED AS DAMP, SHALL BE MOUNTED SO AS TO MAINTAIN A 1/4" AIR SPACE BETWEEN THE ENCLOSURE AND THE FACE OF THE WALL.
31. ALL NEW ELECTRICAL PANELS SHALL BE LOCKABLE. PROVIDE OWNER WITH TWO (2) KEYS PER PANEL.
32. MCC OR PANEL COMPARTMENT DESIGNATIONS ARE AS INDICATED BELOW:
    - 32.1. BLANK- NOT INTENDED FOR USE, COVERPLATE ONLY.
    - 32.2. SPACE- CONTAINS NECESSARY BUS AND HARDWARE FOR FUTURE ADDITION OF BREAKERS OR STARTERS WITHIN RANGE SHOWN.
    - 32.3. SPARE- CONTAINS A COMPLETE BREAKER OR STARTER INSTALLED, SIZE AS INDICATED, AVAILABLE FOR FUTURE USE.
33. EXACT LOCATION OF MECHANICAL EQUIPMENT THAT REQUIRE ELECTRICAL CONNECTIONS ARE SHOWN ON THE MECHANICAL DRAWINGS.
34. ALL DEVICES SHALL BE ADEQUATELY IDENTIFIED WITH PERMANENT LABELS OR TAGS. WIRING SHALL BE IDENTIFIED AS TO PHASING AND CONDUCTOR IDENTIFICATION.

GENERAL NOTES - ELECTRICAL (cont.):

35. CONDUIT HOMERUNS SHOWN ON THE DRAWING WITH MORE THAN 3 CURRENT CARRYING CONDUCTORS ARE SHOWN DIAGRAMMATICALLY. THIS CONTRACTOR SHALL NOT INSTALL MORE THAN 3 CURRENT CARRYING CONDUCTORS IN A RACEWAY UNLESS DONE SO STRICTLY BY THE NATIONAL ELECTRIC CODE.
36. EACH BRANCH CIRCUIT HOMERUN SHALL HAVE NO MORE THAN THREE CIRCUITS. EACH BRANCH CIRCUIT HOMERUN SHALL HAVE A SEPARATE GREEN INSULATED EQUIPMENT GROUNDING CONDUCTOR.
37. MULTI-GANG BACKBOXES FOR DIFFERENT VOLTAGES AND TYPES OF EMERGENCY AND NORMAL BRANCH WIRING DEVICES SHALL HAVE DIVIDERS BETWEEN DEVICES.
38. ALL TEMPORARY WIRING, LIGHTING AND POWER CIRCUITS AND DEVICES SHALL BE INSTALLED TO MEET THE LATEST REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE, LOCAL, STATE AND FEDERAL REQUIREMENTS FOR SUCH TEMPORARY INSTALLATION.
39. THE ELECTRICAL CONTRACTOR SHALL ENSURE THAT RECEPTACLES USED FOR HAND TOOLS AND OTHER MISCELLANEOUS EQUIPMENT SHALL BE INSTALLED WITH GROUND FAULT INTERRUPTER OR OTHER APPROVED AND RECOGNIZED INTERRUPTING SENSORS.
40. ALL OPENINGS SHALL BE SEALED UPON COMPLETION OF INSTALLATION TO PREVENT THE SPREAD OF SMOKE AND FIRE THROUGH OPENINGS. OPENINGS SHALL ALSO BE SEALED TO PREVENT WATER SEEPAGE WHERE APPLICABLE. ALL OPENINGS SHALL BE COORDINATED WITH OTHER CRAFTS TO PREVENT INTERFERENCE AND OBSTRUCTION. PENETRATIONS THROUGH FIRE WALLS MUST BE MADE BY AN APPROVED THROUGH PENETRATION FIRESTOP SYSTEM.
41. THE COMPLETE INSTALLATION SHALL BE TESTED AT COMPLETION OF WORK, TO BE FREE OF GROUNDS AND SHORT CIRCUITS CONDITIONS. ALL INTERLOCK CIRCUITS SHALL BE TESTED TO VERIFY CORRECT OPERATION OF EACH DEVICE. ALL ROTATING EQUIPMENT SHALL BE JOGGED TO VERIFY CORRECT ROTATION BEFORE PERMANENTLY ENERGIZING.
42. CONTRACTOR SHALL COORDINATE AND SCHEDULE ALL WORK AND SHUTDOWNS OF EQUIPMENT WITH FACILITY.
43. EXCAVATION FOR UNDERSLAB OR UNDERGROUND INSTALLATION OF CONDUITS SHALL BE APPROACHED WITH EXTREME CAUTION SO AS NOT TO DAMAGE EXISTING UNDERGROUND PIPING, WIRING AND CONDUITS.
44. ELECTRICAL CONTRACTOR SHALL PROVIDE CONSTRUCTION MANAGER/GENERAL CONTRACTOR A SURFACE PENETRATING RADAR SURVEY FOR THE PURPOSE OF LOCATING ALL UNDERGROUND (OR IN-SLAB) CONDUITS, PIPING, UTILITIES, STRUCTURAL MEMBERS, ETC. IN ALL AREAS WHERE SLAB CUTTING SHALL OCCUR (FOR THE PURPOSES OF ELECTRICAL WORK REQUIRED). SURVEY MUST BE COMPLETED TWO WEEKS PRIOR TO CUTTING OF ANY SLAB. THE CONTRACTOR SHALL ASSUME THE RESPONSIBILITY (AND ALL ASSOCIATED COSTS) OF REPAIRING AND/OR REPLACING ANY SYSTEMS DAMAGED BY THE SLAB CUTTING PROCEDURES, WHEN PREVENTATIVE MEASURES WERE NOT CONSIDERED OR UTILIZED. COST FOR SURVEY(S) SHALL BE SUBMITTED AS A SEPARATE LINE ITEM PRICE (WHEN APPLICABLE).
45. THE ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR VERIFYING VOLTAGE, PHASE, MCA, MOCP, REQUIRED FOR ALL EQUIPMENT PROVIDED BY OTHER CONTRACTORS PRIOR TO PURCHASING AND INSTALLING CONDUCTORS, BREAKERS, DISCONNECTS, CONDUIT, ETC. VERIFY RATINGS WITH FINAL, APPROVED CONTRACTOR EQUIPMENT SUBMITTALS AND EQUIPMENT NAMEPLATES DIRECTLY WITH THE PROVIDING CONTRACTOR.
46. UNLESS NOTED OTHERWISE WITHIN THE PROJECT CONSTRUCTION DOCUMENTS AND SPECIFICATIONS, ALL NEW ELECTRICAL DEVICES INDICATED ON THE ELECTRICAL PLANS SHALL BE PROVIDED BY THE ELECTRICAL CONTRACTOR (EXAMPLE: DISCONNECT SWITCHES, CIRCUIT BREAKERS, WIRING, CONDUIT, ETC.). VARIABLE FREQUENCY DRIVES, VFD CONTROL PANELS, DISCONNECT SWITCHES, COMBINATION MOTOR STARTER/DISCONNECTS AND ASSOCIATED COMPONENTS FOR NEW EQUIPMENT PROVIDED BY OTHERS SHALL BE PROVIDED BY THE CORRESPONDING CONTRACTOR AND INSTALLED BY THE ELECTRICAL CONTRACTOR (WHEN NOT FACTORY INSTALLED).
47. IT IS THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR TO REVIEW THE ELECTRICAL PLANS AND SPECIFICATIONS, AS WELL AS ALL RELATED PROJECT PLANS AND SPECIFICATIONS FROM OTHER DISCIPLINES, TO BECOME FAMILIAR WITH THE FULL PROJECT SCOPE AND COORDINATED RESPONSIBILITIES.
48. DURING THE COURSE OF CONSTRUCTION, COORDINATION AND FINAL TURNOVER, IT IS THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR TO WORK CLOSELY WITH ALL CONTRACTORS AND TRADESMEN IN ORDER TO ENSURE A SMOOTH RUNNING AND CAREFULLY COORDINATED INSTALLATION.
49. ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE TO COORDINATE WITH OTHER TRADES FOR ITEMS IN THEIR SCOPE OF WORK WHICH COULD REQUIRE ADDITIONAL ELECTRICAL WORK, (DISCONNECTION, RECONNECTION, ETC.) AND ARE NOT INDICATED ON THE ELECTRICAL DRAWINGS.

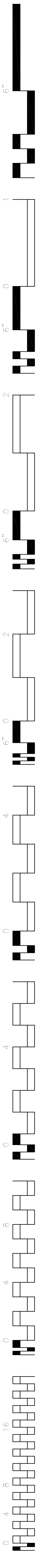
ELECTRICAL ABBREVIATIONS

1PH	SINGLE-PHASE
1P	SINGLE POLE
3PH	THREE-PHASE
4W	FOUR-WIRE
AC	ALTERNATING CURRENT OR ARMORED CABLE
AF	AMPERE FRAME OR AMP FUSE
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AIC	AMPERE INTERRUPTING CAPACITY
ALT	ALTERNATE
AMP	AMPERE
AT	AMPERE TRIP
AV	AUDIO VISUAL
BLDG	BUILDING
BRKR	BREAKER
C	CONDUIT
CD	CONSTRUCTION DOCUMENTS
CHW	CHILLED WATER
CHWP	CHILLED WATER PUMP
CKT	CIRCUIT
CKT BRKR	CIRCUIT BREAKER
CLG	CEILING
DEMO	DEMOLITION
DISC	DISCONNECT
DRSW	DOOR SWITCH
DS	DISCONNECT SWITCH
DWG	DRAWING
EC	ELECTRICAL CONTRACTOR
ELEC	ELECTRIC OR ELECTRICAL
EMER	EMERGENCY
EMT	ELECTRICAL METALLIC TUBING
ENCL	ENCLOSURE
EX	EXISTING
FA	FIRE ALARM
FACP	FIRE ALARM CONTROL PANEL
FLA	FULL LOAD AMPS
FLEX	FLEXIBLE METALLIC CONDUIT
FU SW	FUSED SWITCH
G	GROUND
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
HOA	HAND-OFF-AUTOMATIC
HP	HORSEPOWER
IMC	INTERMEDIATE METAL CONDUIT
J-BOX	JUNCTION BOX
kV	KILOVOLT
kVA	KILOVOLT AMPERE
kW	KILOWATT
LRA	LOCKED ROTOR AMPS
LV	LOW VOLTAGE
MC	METAL-CLAD
MCA	MINIMUM CIRCUIT AMPS
MCB	MAIN CIRCUIT BREAKER
MCC	MOTOR CONTROL CENTER
MDP	MAIN DISTRIBUTION PANEL
MECH	MECHANICAL
MIN	MINIMUM
MOCP	MAXIMUM OVERCURRENT PROTECTION
MLO	MAIN LUGS ONLY
MTD	MOUNTED
MTG	MOUNTING
NA	NOT APPLICABLE
NC	NORMALLY CLOSED
NEC	NATIONAL ELECTRICAL CODE
NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
N	NEUTRAL
NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
NIC	NOT IN CONTRACT
NO	NORMALLY OPEN
NS	NO SCALE
NTS	NOT TO SCALE
OC	ON CENTER
PF	POWER FACTOR
PH	PHASE
PNL	PANEL
PVC	POLYVINYL CHLORIDE (PLASTIC)
PWR	POWER
RCP	REFLECTED CEILING PLAN
RECPT	RECEPTACLE
RGS	RIGID GALVANIZED STEEL
SW	SWITCH
TYP	TYPICAL
UL	UNDERWRITERS LABORATORY
UON	UNLESS OTHERWISE NOTED
V	VOLT
VA	VOLT AMPERE
VFD	VARIABLE FREQUENCY DRIVE
W	WATT
WP	WEATHERPROOF
W/	WITH
XFMR	TRANSFORMER

GENERAL NOTES AND CONDITIONS:

1. THESE DRAWINGS WERE PREPARED FROM INFORMATION TAKEN FROM THE AVAILABLE BUILDING DRAWINGS, ARCHITECTURAL BACKGROUNDS PROVIDED BY THE OWNER AND FIELD SURVEY INFORMATION COMPILED BY THE ENGINEERING DESIGN TEAM FOR THE PURPOSE OF ENGINEERING DESIGN. EXISTING CONDITIONS ARE SHOWN AS ACCURATELY AS POSSIBLE. THERE IS THE POSSIBILITY THAT CONDITIONS SHOWN ARE NOT EXACTLY AS EXISTING. CONTRACTOR SHALL VERIFY ALL DIMENSIONS, ELEVATIONS, LOCATIONS, SIZES AND CONDITIONS AT THE SITE AND REPORT ANY DISCREPANCIES TO THE ARCHITECT PRIOR TO BEGINNING INSTALLATION OR FABRICATION WORK.
    - 1.1. DO NOT SCALE DRAWINGS.
    - 1.2. SHOULD IT APPEAR THAT THE WORK INTENDED TO BE DESCRIBED OR RELATED WORK ARE NOT SUFFICIENTLY DETAILED OR EXPLAINED ON THE DRAWINGS, OR IN THE SPECIFICATIONS, CONSULT THE ENGINEER FOR NECESSARY CLARIFICATIONS, AND CONFORM TO THOSE CLARIFICATIONS INSOFAR AS THEY ARE CONSISTENT WITH THE ORIGINAL DRAWINGS AND SPECIFICATIONS. IN NO CASE SHALL WORK PROCEED IN UNCERTAINTY.
    - 1.3. EQUIPMENT ARRANGEMENTS ARE DESIGNED TO SHOW PREFERRED CONFIGURATIONS TO SUIT KNOWN CONDITIONS. ACTUAL INSTALLATION BY CONTRACTOR MAY BE ALTERED AS REQUIRED TO SUIT FIELD CONDITIONS ENCOUNTERED DURING CONSTRUCTION WITHOUT COMPROMISING THE INTENT OF THE ORIGINAL DESIGN.
    - 1.4. THE CONTRACTOR SHALL CHECK AND VERIFY ALL DIMENSIONS AND CONDITIONS AT SITE PRIOR TO STARTING WORK.
2. THE CONTRACTOR WILL BE RESPONSIBLE FOR ENSURING THAT ALL RULES AND REGULATIONS, INCLUDING THOSE WHICH MAY BE ISSUED BY THE OWNER, ARE BEING OBSERVED, PARTICULARLY WORKPLACE SAFETY AND THE CONDUCT OF ALL THOSE EMPLOYED DIRECTLY AND INDIRECTLY BY HIM ON THE PREMISES, AND THE OWNER'S EMPLOYEES WHO MAY BE IMPACTED OR AFFECTED BY CONSTRUCTION ACTIVITIES. THE CONTRACTOR WILL INSTALL SIGNAGE, BARRIERS, AND OTHER MEANS TO PROVIDE WARNING AND PERSONNEL SAFETY. PLACEMENT OF THESE ITEMS WILL BE COORDINATED WITH THE OWNER AND HIS ONGOING OPERATIONS AND WILL PROMPTLY BE REVISED WHEN WORK IN A PARTICULAR AREA HAS BEEN COMPLETED.
    - 2.1. DURING PERFORMANCE OF WORK, THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVISION AND MAINTENANCE OF WARNING SIGNS, LIGHT SIGNAL DEVICES, GUARD LIGHTS, BARRICADES, GUARD RAILS, FENCES AND OTHER DEVICES, APPROPRIATELY LOCATED ON AND AROUND THE JOB SITE WHICH GIVE PROPER AND UNDERSTANDABLE WARNING TO PERSONS WITH REGARD TO HAZARDOUS CONDITIONS, EQUIPMENT AND OPERATIONS BEING PERFORMED IN CONJUNCTION WITH THE WORK.
3. THIS INSTALLATION WILL CONFORM TO ALL CODES AND THE REQUIREMENTS OF FEDERAL, STATE, AND LOCAL REGULATORY AGENCIES HAVING JURISDICTION. IN PARTICULAR, THE WORK WILL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE PENNSYLVANIA UNIFORM CONSTRUCTION CODE (UCC), INCLUDING ALL OF ITS APPLICABLE SUBCODES AND AMENDMENTS, INCLUDING, BUT NOT LIMITED TO THE FOLLOWING:

BUILDING:	INTERNATIONAL BUILDING CODE - 2015 INTERNATIONAL EXISTING BUILDING CODE - 2012
ELECTRICAL:	NATIONAL ELECTRIC CODE - NFPA 70-2014
FIRE:	NATIONAL FIRE CODE (NFC) - CURRENT EDITIONS (NFPA)
4. ALL WORK WILL BE LAWFULLY EXECUTED IN A NEAT AND WORKMANLIKE MANNER AND WILL BE COMPLETED IN ACCORDANCE WITH THE GOVERNING CODES (ABOVE), INDUSTRY STANDARDS, AND IN CONFORMANCE WITH THE MANUFACTURERS RECOMMENDATIONS AND REQUIREMENTS.
5. WORK UNDER THIS CONTRACT SHALL CONSIST OF THE CONTRACTOR PROVIDING ALL LABOR, MATERIALS, AND SERVICES, INCLUDING WORK NOT SPECIFICALLY SHOWN BUT REASONABLY IMPLIED. THIS SHALL INCLUDE CUTTING, PATCHING AND RESTORATION OF EXISTING SURFACES DAMAGED DURING THE CONSTRUCTION. CONTRACTOR SHALL ALSO PROVIDE ALL EQUIPMENT SHOWN OR SPECIFIED OR AN APPROVED EQUIVALENT. SUBSTITUTED EQUIPMENT OR MATERIALS SHALL NOT BE INSTALLED UNTIL GIVEN WRITTEN APPROVAL BY THE OWNER.
6. ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING, INSTALLING, AND MAINTAINING TEMPORARY POWER SOURCES/UTILITIES FOR ANY TEMPORARY MECHANICAL, PLUMBING, AND/OR ELECTRICAL EQUIPMENT OR SYSTEMS REQUIRED DURING THE COURSE OF CONSTRUCTION AND PHASING/SEQUENCING OF WORK. THIS SHALL INCLUDE BUT NOT BE LIMITED TO THE INSTALLATION AND ROUTING OF: TEMPORARY FEEDERS, CONDUIT, OVERCURRENT PROTECTION DEVICES, DISCONNECTS, CONNECTIONS AND DISCONNECTION OF EQUIPMENT, LIGHTING, ETC. COORDINATE TEMPORARY PROVISIONS WITH OTHER CONTRACTORS PRIOR TO SUBMISSION OF BID.
7. CONTRACTOR SHALL BE RESPONSIBLE FOR COSTS INCURRED FOR NONCOMPLIANCE WITH THESE CONTRACT DOCUMENTS. CONTRACTOR WILL NOT BE ALLOWED CHANGE ORDERS FOR PROBLEMS ARISING FROM NEGLECT OF PROVISIONS INCLUDED IN THESE CONDITIONS.
8. MAINTAIN ORDERLY HOUSEKEEPING DURING CONSTRUCTION, AND UPON SUBSTANTIAL COMPLETION PERFORM FINAL CLEANUP. REMOVE CONSTRUCTION RUBBISH, SCAFFOLDING, EQUIPMENT, TEMPORARY PROTECTION, TEMPORARY FIELD STRUCTURES, AND OTHER MATERIALS OR EQUIPMENT THAT WAS REQUIRED IN CONNECTION WITH THE CONSTRUCTION, BUT NOT A PERMANENT PART THEREOF.
9. THOSE PERFORMING WORK AS A CONTRACTOR MUST EXAMINE SUBSTRATES AND CONDITIONS UNDER WHICH THE WORK IS TO BE PERFORMED AND NOTIFY THE CONTRACTOR IN WRITING, OF CONDITIONS DETRIMENTAL TO THE PROPER AND TIMELY COMPLETION OF THE WORK. COMMENCEMENT OF WORK BY A TRADE ON A SURFACE OR CONSTRUCTION SHALL IMPLY ACCEPTANCE OF SUCH SURFACE OR CONSTRUCTION. DO NOT PROCEED WITH INSTALLATION UNTIL UNSATISFACTORY CONDITIONS HAVE BEEN CORRECTED.
10. THE CONTRACTOR SHALL SECURE ALL PERMITS AND APPLICATIONS AND PAY ANY AND ALL FEES AS REQUIRED. THE CONTRACTOR SHALL GIVE ALL NECESSARY NOTICES AND CERTIFICATES OF INSPECTION REQUIRED BY THE AUTHORITIES HAVING JURISDICTION. DELIVER ALL PERMITS, CERTIFICATES AND APPROVALS TO THE OWNER AGENT PRIOR TO FINAL ACCEPTANCE OF THE WORK. THE CONTRACTOR MUST FILE NECESSARY DRAWINGS, PREPARE DOCUMENTS AND MAKE APPLICATIONS FOR EACH REQUIRE PERMIT AND INSPECTION, PRIOR TO COMMENCING WORK TO AVOID DELAYS DURING CONSTRUCTION.
11. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS AND MANUFACTURERS DATA SHEETS ON ALL EQUIPMENT AND MATERIALS SPECIFIED ON DRAWINGS FOR APPROVAL BY OWNER OR AGENT FOR THE OWNER. THESE DRAWINGS OR SHEETS SHALL CONTAIN ALL NECESSARY DATA, I.E., MANUFACTURER, CATALOG NUMBER, SIZE, DIMENSIONS, CAPACITY, WIRING DETAILS AND ALL OTHER ENGINEERING DATA AND DETAILS NECESSARY FOR COMPLETE CLARITY AND INSTALLATION.
12. THE CONTRACTOR SHALL KEEP ONE SET OF THE LATEST ISSUE OF DRAWINGS WHICH SHALL REFLECT THE ACTUAL INSTALLED CONDITIONS AND CONNECTIONS OF ALL EQUIPMENT AND DEVICES. THE CONTRACTOR SHALL PROVIDE COPIES OF ALL MAINTENANCE INFORMATION AND INSTRUCTIONS RECEIVED WITH EQUIPMENT AND SYSTEMS. ALL "AS-BUILT" DRAWINGS AND MISCELLANEOUS INFORMATION SHALL BE GIVEN TO THE OWNER AND ENGINEER AT COMPLETION OF WORK. THE CONTRACTOR SHALL GUARANTEE ALL MATERIAL AND LABOR TO BE FREE FROM DEFECTS FOR A ONE YEAR PERIOD FROM THE TIME OF OWNER ACCEPTANCE. ANY DEFECTS OCCURRING DURING THIS PERIOD SHALL BE CORRECTED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
13. CONTRACTOR IS TO PROVIDE ALL REQUIRED SCAFFOLDING, LADDERS, RIGGING, HOISTING AND ALL OTHER EQUIPMENT REQUIRED FOR THE INSTALLATION OF THEIR WORK.
14. ESTABLISH PASSAGE CLEARANCES REQUIRED TO DELIVER, INSTALL AND ERECT ALL REQUIRE EQUIPMENT. IF STRUCTURES, EQUIPMENT AND SYSTEMS MUST BE ALTERED TO PROVIDE PASSAGE OF EQUIPMENT, THE CONTRACTOR SHALL RESTORE STRUCTURES, EQUIPMENT AND SYSTEMS TO THEIR ORIGINAL CONDITION AT THE CONTRACTOR'S EXPENSE; INCLUDING REMOVING AND REPLACEMENT OF ALL CEILING AS REQUIRED TO COMPLETE THE WORK.



FINAL CONSTRUCTION

NO.	Revisions	Date

CONSULTANTS:

Project Manager:	Architect:	Structural Engineer:	MEP/FP Engineer:	Cost Estimator:	Certified Industrial Hygienist
BRAY MOONEY CONSULTING	WILLIAM COOK ARCHITECTURE & PLANNING	WZG, Inc.	MILLER-REMICK, LLC	BRAY MOONEY CONSULTING	MABBETT & ASSOCIATES, INC.
410 E. 21 STREET CHESTER, PA 19013 Tel (610) 872-3716	1251 ROMANSVILLE RD. COATESVILLE, PA 19320 Tel (610) 383-4660	180 WEST RIDGE PIKE LIMERICK, PA 19492 Tel (214) 329-5559	1010 KINGS HIGHWAY, S. CHERRY HILL, NJ 08034 Tel (856) 429-4000	410 E. 21 STREET CHESTER, PA 19013 Tel (610) 872-3716	5 ALFRED CIRCLE BEDFORD, MA 01730 Tel (800) 877-6050

PROJECT MANAGER:

THOMAS L. CHAPMAN
4/22/17

Project Number
13901

Scale
As Indicated

Drawing Title
ELECTRICAL -
SYMBOLS, NOTES AND
ABBREVIATION

Approved: Project Director

Project Title
RENOVATE
BUILDING 14
BOILER PLANT

Location
1400 Black Horse Hill, Coatesville, PA

Date
APR 22, 2017

Checked
GE

Drawn
RGB

VA Project Number
542-10-104

Building Number
14

Drawing Number
E-001

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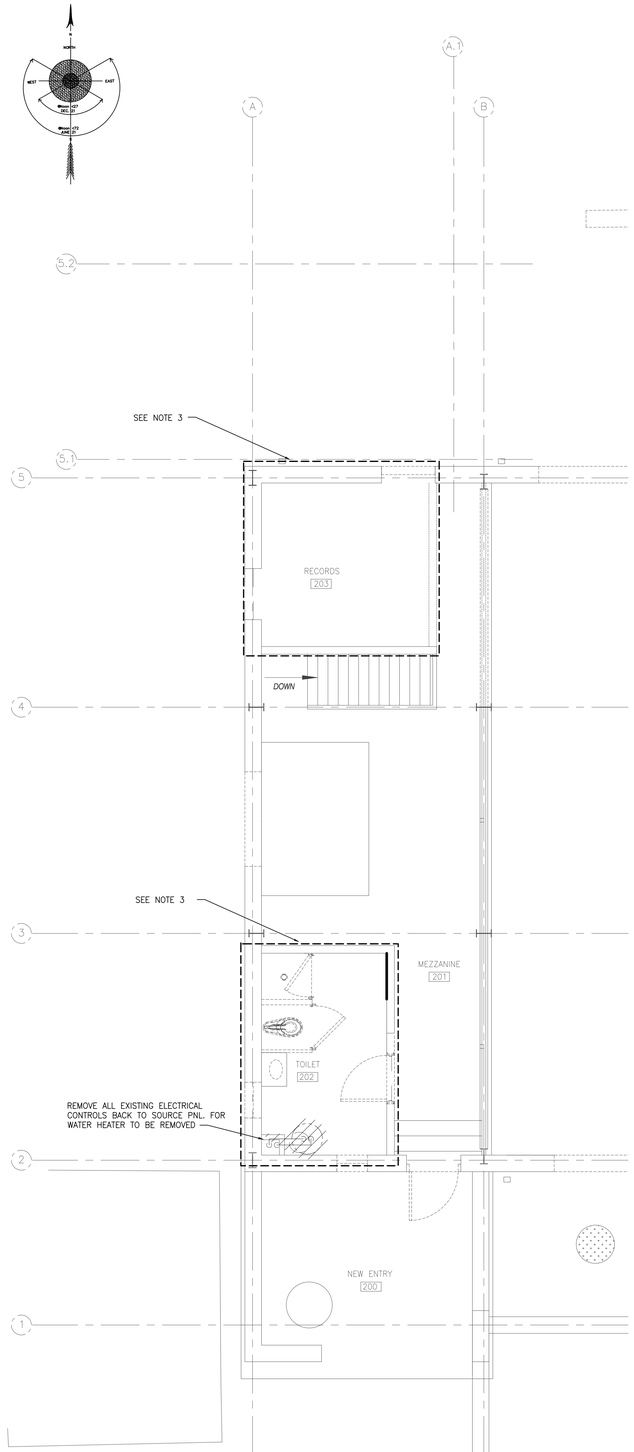
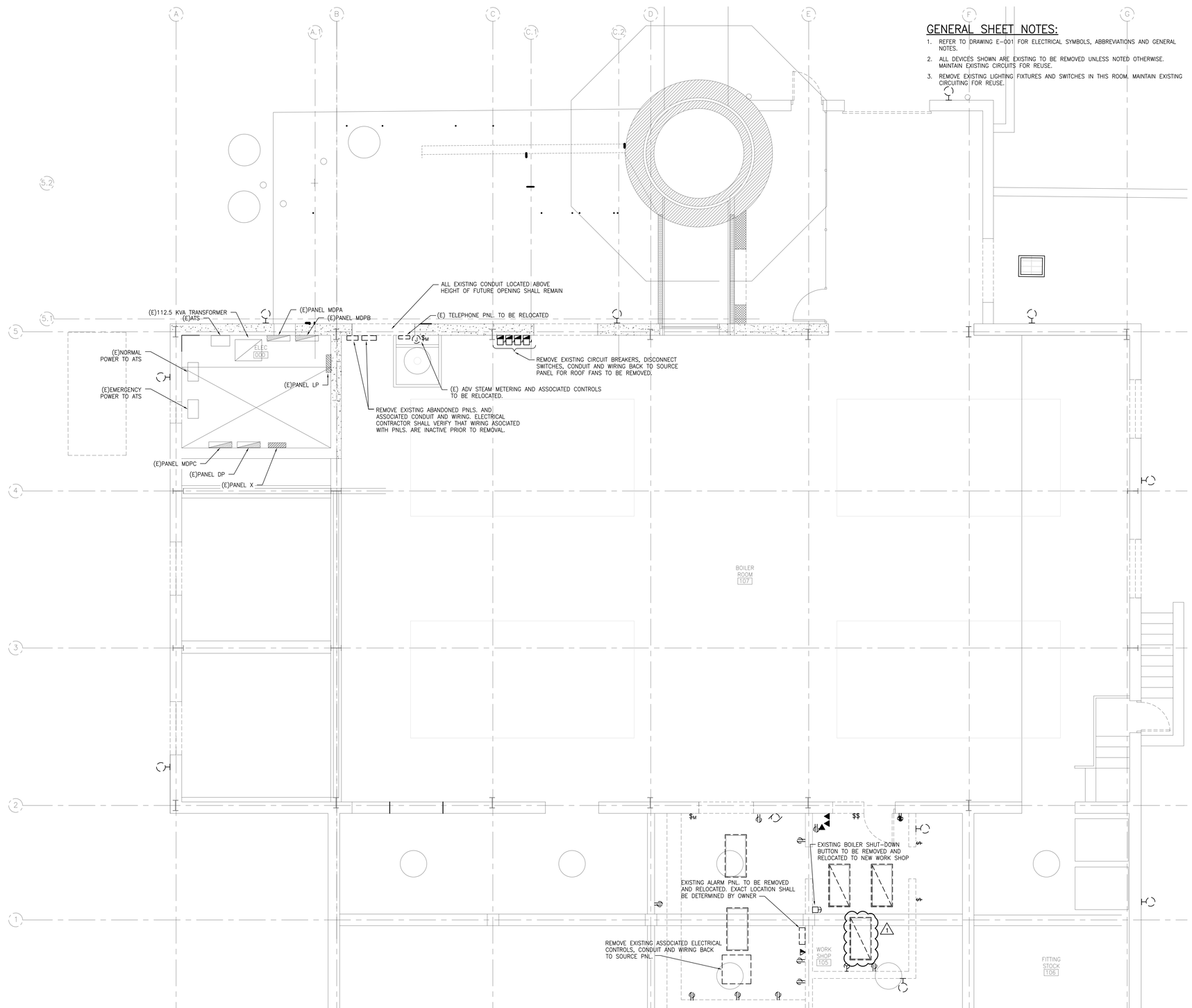
Office of
Facilities
Management

Department of
Veterans Affairs

VA FORM 08-6231, OCT 1978



2 MEZZANINE FLOOR PLAN
SCALE: 1/4" = 1'-0"



1 GROUND FLOOR PLAN
SCALE: 1/4" = 1'-0"

GENERAL SHEET NOTES:

1. REFER TO DRAWING E-001 FOR ELECTRICAL SYMBOLS, ABBREVIATIONS AND GENERAL NOTES.
2. ALL DEVICES SHOWN ARE EXISTING TO BE REMOVED UNLESS NOTED OTHERWISE. MAINTAIN EXISTING CIRCUITS FOR REUSE.
3. REMOVE EXISTING LIGHTING FIXTURES AND SWITCHES IN THIS ROOM. MAINTAIN EXISTING CIRCUITING FOR REUSE.

100% CONSTRUCTION DOCUMENTS

NO.	Revisions	Date
1	ADDENDUM #1	08/28/2017

CONSULTANTS:

Project Manager:	Architect:	Structural Engineer:	MEP/FP Engineer:	Cost Estimator:	Certified Industrial Hygienist
BRAY MOONEY CONSULTING	WILLIAM COOK ARCHITECTURE & PLANNING	WZG, Inc.	MILLER-REMICK, LLC	BRAY MOONEY CONSULTING	MABBETT & ASSOCIATES, INC.
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PROJECT MANAGER:

Project Number	Scale
13901	As Indicated

Drawing Title: GROUND FLOOR - BOILER PLANT DEMOLITION

Approved: Project Director

Project Title: **RENOVATE BUILDING 14 BOILER PLANT**

Location: 1400 Black Horse Hill, Coatesville, PA

Date: APR 22, 2017 | Checked: GE | Drawn: RGB

VA Project Number: 542-10-104

Building Number: 14

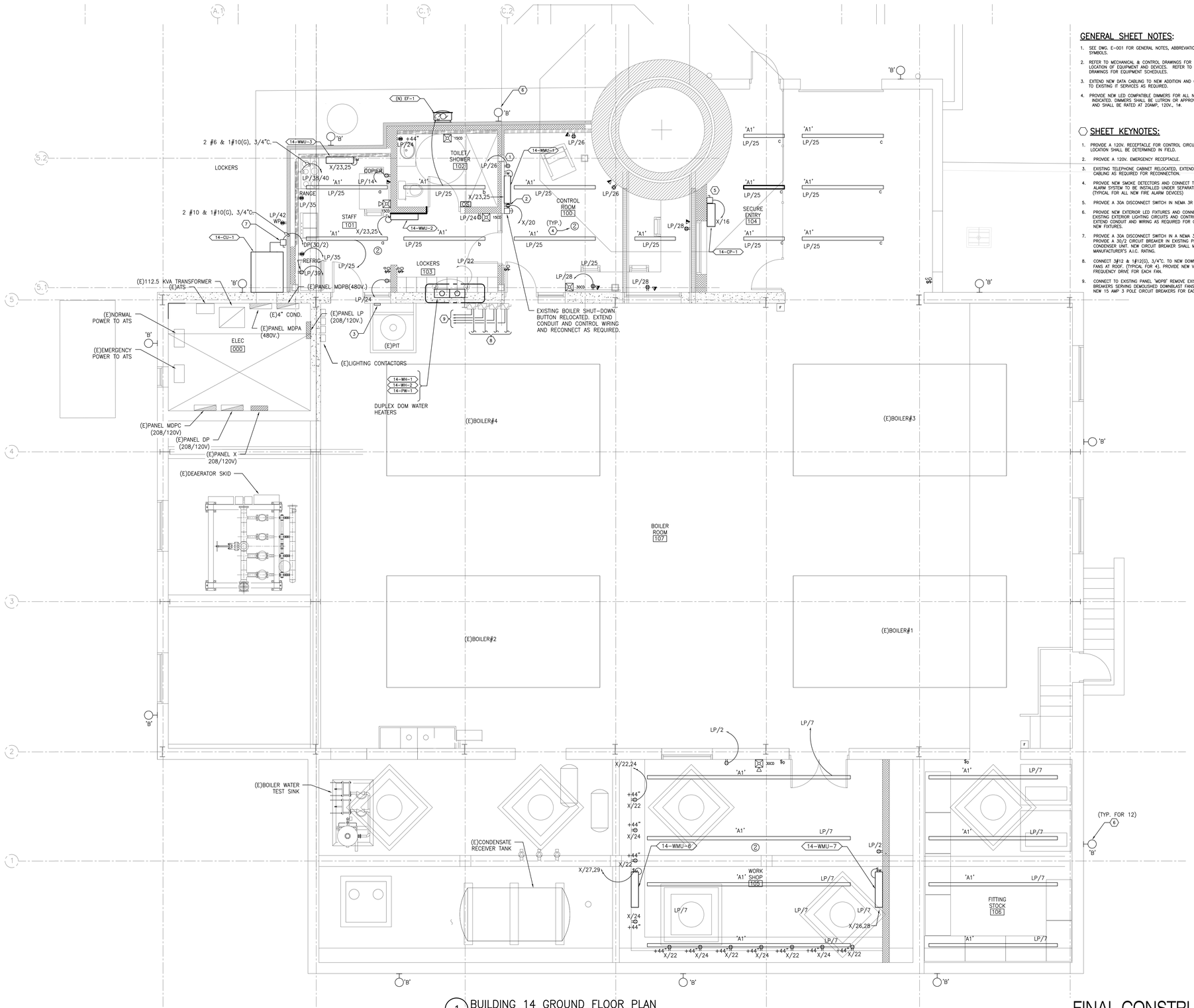
Drawing Number: ED-101

Dwg. X of

Office of Facilities Management

Department of Veterans Affairs

VA FORM 08-6231, OCT 1978



1 BUILDING 14 GROUND FLOOR PLAN
SCALE: 1/4" = 1'-0"

GENERAL SHEET NOTES:

1. SEE DWG. E-001 FOR GENERAL NOTES, ABBREVATIONS, SYMBOLS.
2. REFER TO MECHANICAL & CONTROL DRAWINGS FOR EXACT LOCATION OF EQUIPMENT AND DEVICES. REFER TO MECHANICAL DRAWINGS FOR EQUIPMENT SCHEDULES.
3. EXTEND NEW DATA CABLING TO NEW ADDITION AND CONNECT TO EXISTING IT SERVICES AS REQUIRED.
4. PROVIDE NEW LED COMPATIBLE DIMMERS FOR ALL NEW LIGHTING INDICATED. DIMMERS SHALL BE LUTRON OR APPROVED EQUAL AND SHALL BE RATED AT 20AMP, 120V., 1ø.

SHEET KEYNOTES:

1. PROVIDE A 120V. RECEPTACLE FOR CONTROL CIRCUIT. EXACT LOCATION SHALL BE DETERMINED IN FIELD.
2. PROVIDE A 120V. EMERGENCY RECEPTACLE.
3. EXISTING TELEPHONE CABINET RELOCATED, EXTEND EXISTING CABLING AS REQUIRED FOR RECONNECTION.
4. PROVIDE NEW SMOKE DETECTORS AND CONNECT TO NEW FIRE ALARM SYSTEM TO BE INSTALLED UNDER SEPARATE CONTRACT. (TYPICAL FOR ALL NEW FIRE ALARM DEVICES)
5. PROVIDE A 30A DISCONNECT SWITCH IN NEMA 3R ENCLOSURE.
6. PROVIDE NEW EXTERIOR LED FIXTURES AND CONNECT TO EXISTING EXTERIOR LIGHTING CIRCUITS AND CONTROLS. EXTEND CONDUIT AND WIRING AS REQUIRED FOR CONNECTION TO NEW FIXTURES.
7. PROVIDE A 30A DISCONNECT SWITCH IN A NEMA 3R ENCLOSURE. PROVIDE A 30/2 CIRCUIT BREAKER IN EXISTING PNL,"DP" FOR (N) CONDENSER UNIT. NEW CIRCUIT BREAKER SHALL MATCH EXISTING MANUFACTURER'S A.I.C. RATING.
8. CONNECT 3#12 & 1#12(G), 3/4"C. TO NEW DOWNBLAST FANS AT ROOF. (TYPICAL FOR 4). PROVIDE NEW VARIABLE FREQUENCY DRIVE FOR EACH FAN.
9. CONNECT TO EXISTING PANEL "MDPB" REMOVE EXISTING CIRCUIT BREAKERS SERVING DEMOLISHED DOWNBLAST FANS AND PROVIDE NEW 15 AMP 3 POLE CIRCUIT BREAKERS FOR EACH NEW FAN.

FINAL CONSTRUCTION

NO.	Revisions	Date

CONSULTANTS:

Project Manager:	Architect:	Structural Engineer:	MEP/FP Engineer:	Cost Estimator:	Certified Industrial Hygienist
BRAY MOONEY CONSULTING	WILLIAM COOK ARCHITECTURE & PLANNING	WZG, Inc.	MILLER-REMICK, LLC	BRAY MOONEY CONSULTING	MABBETT & ASSOCIATES, INC.
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PROJECT MANAGER:

THOMAS L. CHAPMAN
REGISTERED PROFESSIONAL ENGINEER
NO. 044021
COMMONWEALTH OF PENNSYLVANIA
4/22/17

Project Number	Scale
13901	As Indicated

Drawing Title: ELECTRICAL - GROUND FLOOR - BOILER PLANT

Approved: Project Director

Project Title: **RENOVATE BUILDING 14 BOILER PLANT**

Location: 1400 Black Horse Hill, Coatesville, PA

Date: APR 22, 2017 | Checked: GE | Drawn: RQB

VA Project Number: 542-10-104

Building Number: 14

Drawing Number: E-101

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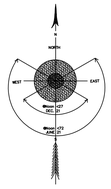
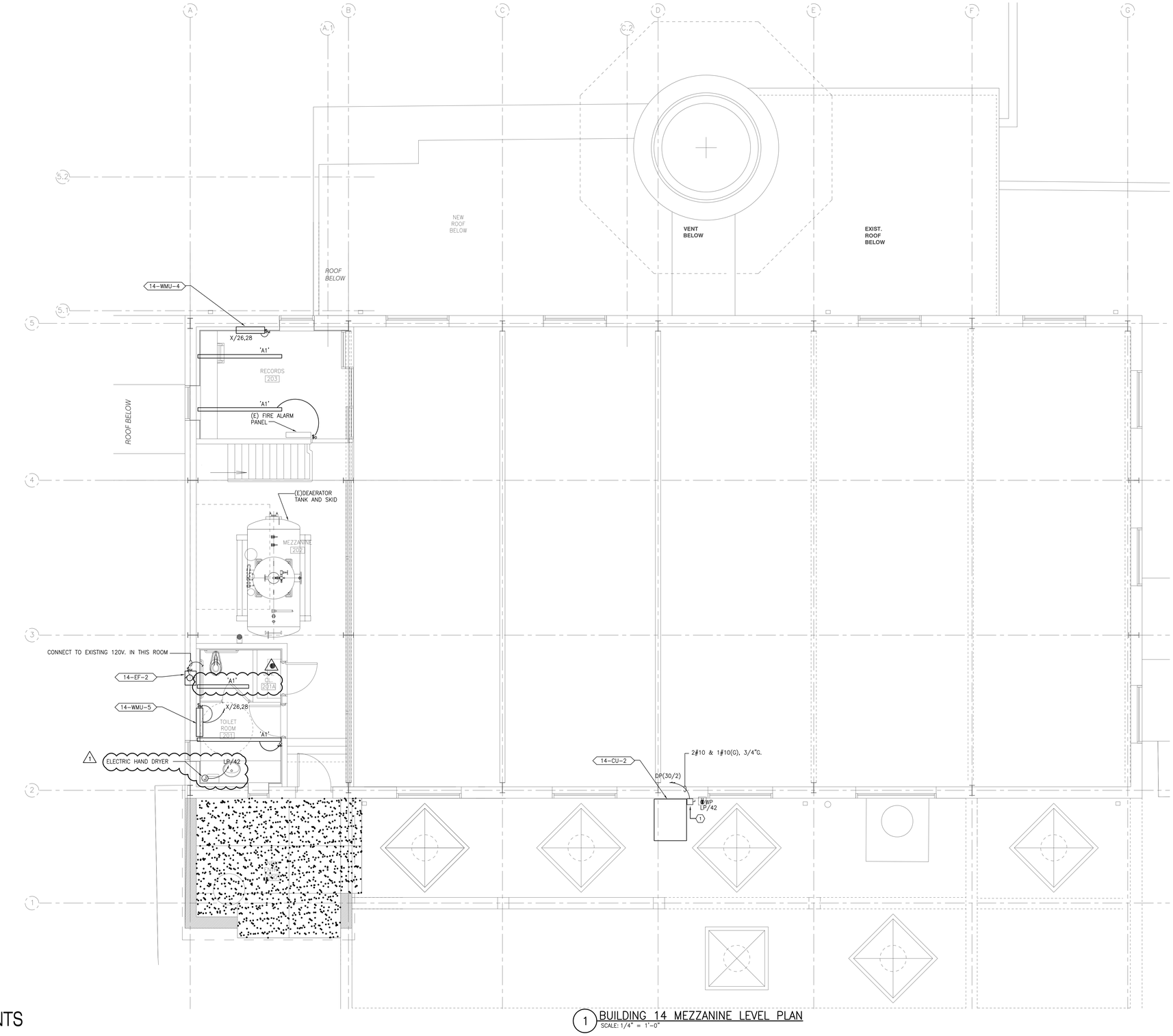
Office of Facilities Management

Department of Veterans Affairs

VA FORM 08-6231, OCT 1978





1 BUILDING 14 MEZZANINE LEVEL PLAN
SCALE: 1/4" = 1'-0"

GENERAL SHEET NOTES:

1. SEE DWG. E-001 FOR GENERAL NOTES, ABBREVATIONS, SYMBOLS.
2. REFER TO MECHANICAL & CONTROL DRAWINGS FOR EXACT LOCATION OF EQUIPMENT AND DEVICES. REFER TO MECHANICAL DRAWINGS FOR EQUIPMENT SCHEDULES.
3. CONNECT NEW LIGHT FIXTURES 'A1' TO EXISTING CIRCUITS SERVING ROOMS INDICATED. PROVIDE NEW DIMMERS AS INDICATED.

SHEET KEYNOTES:

1. PROVIDE A 30A DISCONNECT SWITCH IN NEMA 3R ENCLOSURE. PROVIDE (N) 30/2 CIRCUIT BREAKER IN EXISTING PNL'DP'. NEW CONDENSER UNIT. NEW CIRCUIT BREAKER SHALL MATCH EXISTING MANUFACTUREK'S A.I.C. RATING.

100% CONSTRUCTION DOCUMENTS

NO.	Revisions	Date
1	ADDENDUM #1	08/28/2017

CONSULTANTS:

Project Manager:	Architect:	Structural Engineer:	MEP/FP Engineer:	Cost Estimator:	Certified Industrial Hygienist
BRAY MOONEY CONSULTING	WILLIAM COOK ARCHITECTURE & PLANNING	WZG, Inc.	MILLER-REMICK, LLC	BRAY MOONEY CONSULTING	MABBETT & ASSOCIATES, INC.
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PROJECT MANAGER:

Project Number	Scale
13901	As Indicated

Drawing Title: ELECTRICAL - MEZZANINE - BOILER PLANT NEW WORK

Approved: Project Director

Project Title: **RENOVATE BUILDING 14 BOILER PLANT**

Location: 1400 Black Horse Hill, Coatesville, PA

Date: APR 22, 2017 | Checked: GE | Drawn: RQB

VA Project Number: 542-10-104

Building Number: 14

Drawing Number: E-102

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Panel X:

Panel Voltage: 208Y/120V, 3 Phase, 4 Wire

Existing Panel

☐ Main Lugs Only ☑ Main Breaker: 225

Panel A.I.C. Rating: ____

ID	Ckt #	Description	Breaker P	Breaker Trip	Load Code	Load VA	Phase A	Phase B	Phase C	Load VA	Load Code	Breaker Trip	Breaker P	Description	Ckt #	ID
	1	EXIST. LOADS	1	20								20	1	EXIST. LOADS	2	
	3	EXIST. LOADS	1	20								20	1	EXIST. LOADS	4	
	5	EXIST. LOADS	1	20								20	1	EXIST. LOADS	6	
	7	EXIST. LOADS	1	20								20	1	EXIST. LOADS	8	
	9	EXIST. LOADS	1	20								20	1	EXIST. LOADS	10	
	11	EXIST. LOADS	1	20								20	1	EXIST. LOADS	12	
	13	EXIST. LOADS	1	20								20	1	EXIST. LOADS	14	
	15	EXIST. LOADS	1	20				300		300		15	1	14-CP-1	16	
	17	EXIST. LOADS	1	20								20	1	EXIST. LOADS	18	
	19	EXIST. LOADS	1	20			180			180		20	1	EMERGENCY RECEPTACLE	20	N
	21	EXIST. LOADS	1	20				1080		1080		20	1	WORKSHOP RECEPTS.	22	N
N	23	14-WMU-1, 2 & 3	2	15	H	200			1100	900		20	1	WORKSHOP RECEPTS.	24	N
	25						200			200					26	
											H	15	2	14 - WMU-4 & 5		N
N	27	14-WMU-6 & 7	2	15	H	125		125							28	
	29								180	180	REC	20	1	EMERGENCY RECEPTACLE	30	N

Total Connected Load: 380 | 1505 | 1280 (VA/PHASE)

N.E.C. LOAD SUMMARY

Load Types and Codes	Total Load (VA)	Demand Factor	Demand Load (VA)
Air Conditioning (AC)		1.00	
Heating (H)		1.00	
Kitchen Equipment (K)		1.00	
Lighting (L)		1.25	
Receptacles (REC)		1.00	
Existing (E)		1.25	
Continuous (C)		1.25	
Non-Continuous (NC)		1.00	
Refrigeration (REF)		1.00	
Elec. Load Totals:			VA

ELECTRICAL DATA

Total Conn. Load: KVA
Total Conn. Load: Amps
Total Demand Load: KVA
Total Demand Load: Amps
Main Bus Size: 225 Amps

PANEL LEGEND (ID)

ST - Shunt-Trip C.B.; G - GFI C.B.
LB - "Lock-On" C.B.
"C1" - Contactor Designation
--Remodels--
N - New C.B.; EX - Existing C.B.

PANEL INFORMATION

Location:
Mounting: Flush Enclosure Type: Nema 1
Fed From:
Equipment Ground Bus: Yes Bus Material: Copper
Isolated Ground Bus: No Neutral Size: 100%

PANEL NOTES

NEW CIRCUIT BREAKERS SHALL MATCH EXISTING MANUFACTURER'S A.I.C. RATING

Panel LP

Panel Voltage: 208Y/120V, 3 Phase, 4 Wire

Existing Panel

☐ Main Lugs Only ☑ Main Breaker: 225

Panel A.I.C. Rating: ____

ID	Ckt #	Description	Breaker P	Breaker Trip	Load Code	Load VA	Phase A	Phase B	Phase C	Load VA	Load Code	Breaker Trip	Breaker P	Description	Ckt #	ID
	1	EXIST. LOADS	1	20			380			380	REC	20	1	RECEPTS.	2	
	3	EXIST. LOADS	1	20								20	1	EXIST. LOADS	4	
	5	EXIST. LOADS	1	20								20	1	EXIST. LOADS	6	
	7	(IN) LIGHTING	1	20	L	400	400					20	1	EXIST. LOADS	8	
	9	EXIST. LOADS	1	20								20	1	EXIST. LOADS	10	
	11	EXIST. LOADS	1	20								20	1	EXIST. LOADS	12	
	13	EXIST. LOADS	1	20			1100			1100	REC	20	1	(IN) COPER	14	
	15	EXIST. LOADS	1	20								20	1	EXIST. LOADS	16	
	17	EXIST. LOADS	1	20								20	1	EXIST. LOADS	18	
	19	EXIST. LOADS	1	20								20	1	EXIST. LOADS	20	
	21	EXIST. LOADS	1	20				600		600	H	20	1	(IN) DUPLEX DOMESTIC HTRS.	22	
	23	EXIST. LOADS	1	20					720	720	REC	20	1	(IN) CONV. RECEPTS.	24	
	25	(IN) LIGHTING	1	20	L	500	1400			900	REC	20	1	(IN) RECEPTS.	26	
	27	EXIST. LOADS	1	20				1080		1080	REC	20	1	(IN) RECEPTS.	28	
	29	EXIST. LOADS	1	20								20	1	EXIST. LOADS	30	
	31	EXIST. LOADS	1	20								20	1	EXIST. LOADS	32	
	33	(IN) QUAD RECEPTS.	1	20	REC	1080		1080				20	1	EXIST. LOADS	34	
	35	KITCHEN RECEPTS.	1	20	REC	400			400			20		EXIST. LOADS	36	
	37	EXIST. LOADS	1	20			2500			2500	REC	50	2	(IN) RANGE	38	
	39	(IN) RFERIG.	1	20	REC	800		2050		1250					40	
	41	EXIST. LOADS	1	20					1200	1200	REC	20	1	EXTERIOR RECEPTS. & ELECTRIC HAND DRYER	42	

Total Connected Load: 5780 | 4810 | 2320 (VA/PHASE)

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N.E.C. LOAD SUMMARY

Load Types and Codes	Total Load (VA)	Demand Factor	Demand Load (VA)
Air Conditioning (AC)		1.00	
Heating (H)	600	1.00	600
Kitchen Equipment (K)		1.00	
Lighting (L)	900	1.25	1125
Receptacles (REC)	8910	1.00	8910
Existing (E)		1.25	
Continuous (C)		1.25	
Non-Continuous (NC)		1.00	
Refrigeration (REF)		1.00	
Elec. Load Totals:	**10410**		**10635** VA

ELECTRICAL DATA

Total Conn. Load: 10 KVA
Total Conn. Load: 29 Amps
Total Demand Load: 11 KVA
Total Demand Load: 30 Amps
Main Bus Size: 225 Amps

PANEL LEGEND (ID)

ST - Shunt-Trip C.B.; G - GFI C.B.
LB - "Lock-On" C.B.
"C1" - Contactor Designation
--Remodels--
N - New C.B.; EX - Existing C.B.

PANEL INFORMATION

Location:
Mounting: Flush Enclosure Type: Nema 1
Fed From:
Equipment Ground Bus: Yes Bus Material: Copper
Isolated Ground Bus: No Neutral Size: 100%

PANEL NOTES

LIGHTING FIXTURE SCHEDULE

TYPE	DIMENSIONS	DESCRIPTION	LAMPS QTY	LAMPS TYPE	BALLAST QTY	VOLTS	MOUNTING	REMARKS
A1	3.23"W X LENGTH AS INDICATED	SUSPENDED DIRECT LED W/ALUMINUM EXTRUSION, PROVIDED WITH AIR CRAFT CABLE FOR MOUNTING		LED	DVR	120	SUSPENDED	SUSPEND TOP OF LT. MIN. 8" BELOW BOTTOM OF JOIST
B		RECTANGULAR LED WALL PACK	1	LED	DVR	120	WALL	UL LISTED WET LOCATION

100% CONSTRUCTION DOCUMENTS

NO.	Revisions	Date
1	ADDENDUM #1	08/28/2017

CONSULTANTS:

Project Manager:	Architect:	Structural Engineer:	MEP/FP Engineer:	Cost Estimator:	Certified Industrial Hygienist
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PROJECT MANAGER:

Project Number: 13901
Scale: As Indicated

Drawing Title: ELECTRICAL SCHEDULES

Approved: Project Director

Project Title: **RENOVATE BUILDING 14 BOILER PLANT**

Location: 1400 Black Horse Hill, Coatesville, PA

Date: APR 22, 2017 | Checked: GE | Drawn: RQB

VA Project Number: 542-10-104

Building Number: 14

Drawing Number: E-501

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Office of Facilities Management

Department of Veterans Affairs

VA FORM 08-6231, OCT 1978