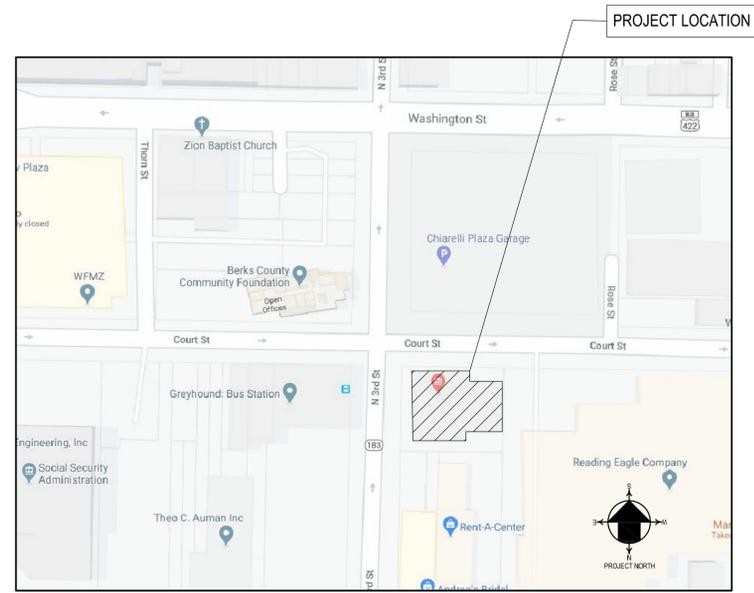


READING FIRE DEPARTMENT ENGINE 3 READING PENNSYLVANIA ELECTRICAL SERVICE, GENERATOR, & BOILER REPLACEMENT PROJECT NO. 81083-01 JUNE 2020



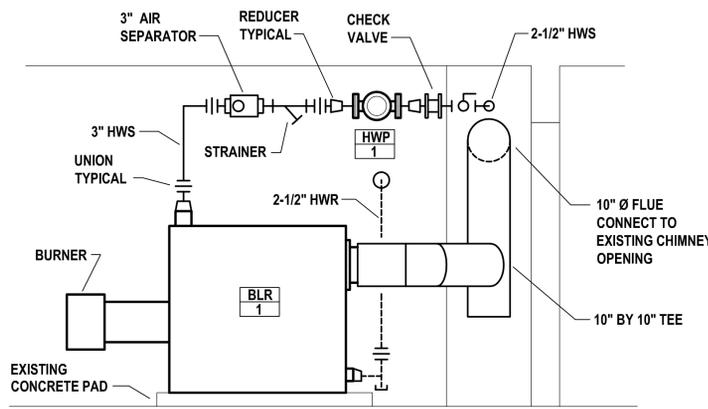
DRAWING INDEX	
SHEET NO.	SHEET TITLE
GENERAL	
G-1	COVER SHEET
MECHANICAL	
M-101	BOILER ROOM FLOOR PLAN
M-102	CONTROL DIAGRAMS
M-103	SPECIFICATIONS
ELECTRICAL	
E-001	ELECTRICAL SYMBOLS LEGEND
E-002	ELECTRICAL ABBREVIATIONS AND GENERAL INFORMATION
E-003	ELECTRICAL SITE PLAN
E-011	FLOOR PLANS - ELECTRICAL DEMOLITION
E-101	FLOOR PLANS - POWER
E-501	ELECTRICAL DETAILS
E-601	ONE LINE DIAGRAM
E-602	PANEL SCHEDULES
E-603	PANEL SCHEDULES

REVISIONS	MARK	ISSUED DATE	DESCRIPTION

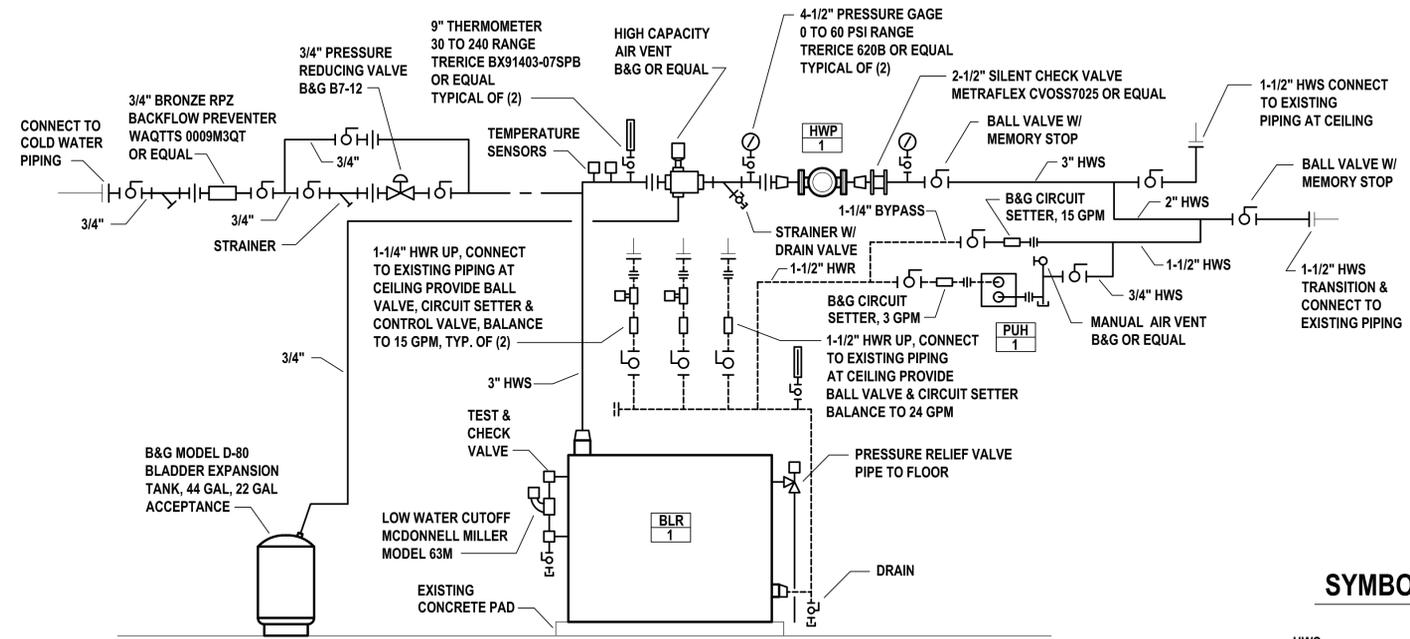
PROJECT NO: 81083-01
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SHEET TITLE:

COVER SHEET



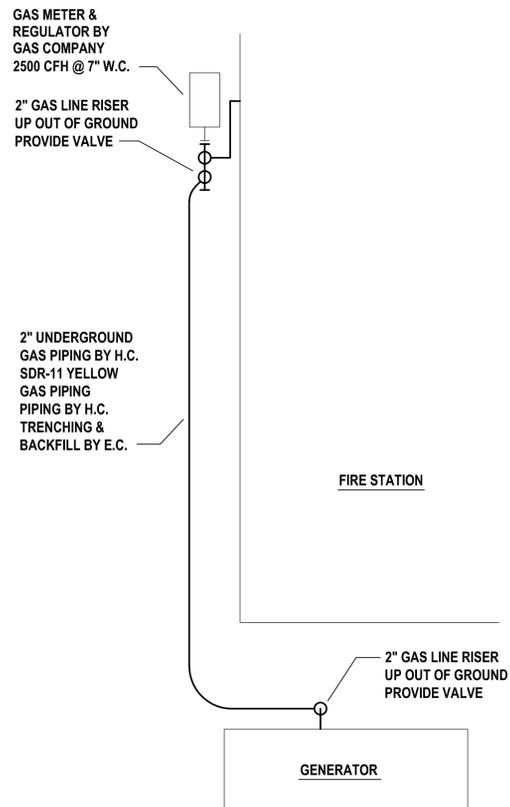
SECTION "A" BOILER ELEVATION
SCALE : 1/2" = 1' - 0"



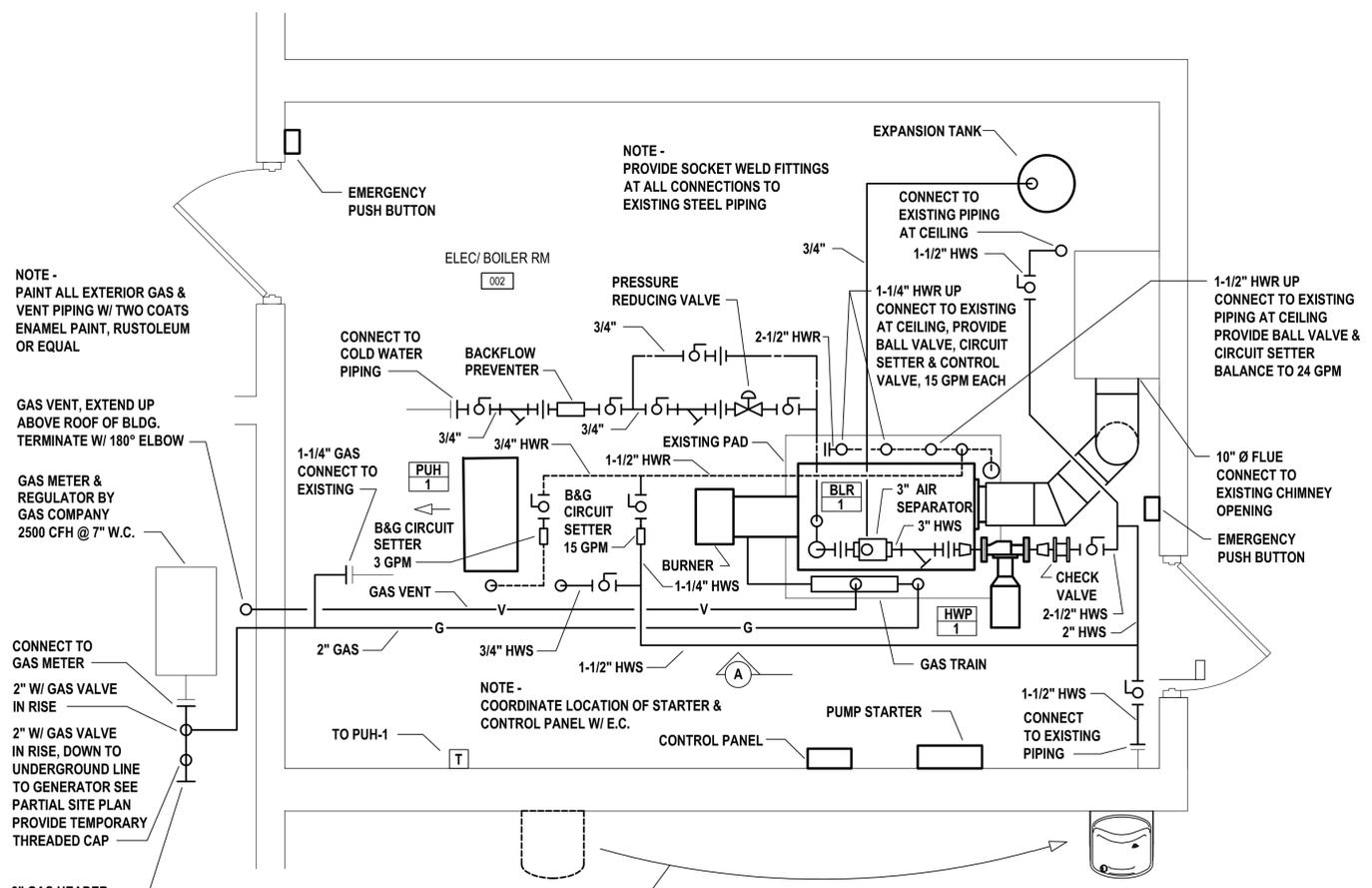
SCHEMATIC HOT WATER PIPING DIAGRAMS
NO SCALE

SYMBOLS LIST

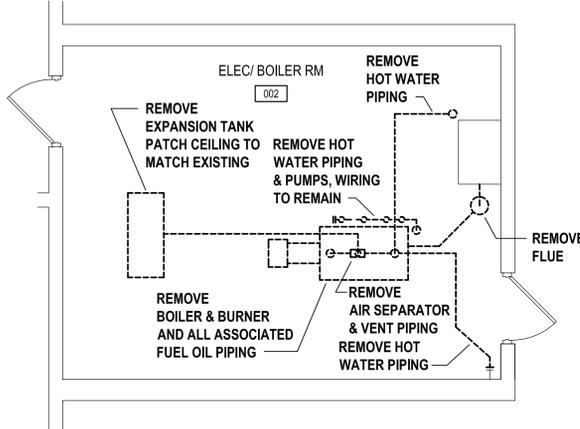
- HWS — HOT WATER SUPPLY PIPING
- HWR --- HOT WATER RETURN PIPING
- CW --- DOMESTIC COLD WATER PIPING
- G — GAS PIPING
- V — VENT PIPING
- O — BALL VALVE
- S — STRAINER
- U — UNION
- P — PIPE TURNED UP
- D — PIPE TURNED DOWN
- H.C. HEATING CONTRACTOR
- E.C. ELECTRICAL CONTRACTOR



PARTIAL SITE PLAN
SCALE : 1/4" = 1' - 0"



BOILER ROOM FLOOR PLAN
SCALE : 1/2" = 1' - 0"



BOILER ROOM DEMOLITION PLAN
SCALE : 1/4" = 1' - 0"



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READING FIRE DEPARTMENT ENGINE 3, 3rd & COURT
ELECTRICAL SERVICE, GENERATOR, & BOILER REPLACEMENT
15 N 3rd STREET, READING, PA
DEPARTMENT OF PUBLIC WORKS, CITY OF READING, PENNSYLVANIA
815 WASHINGTON ST., READING, PA

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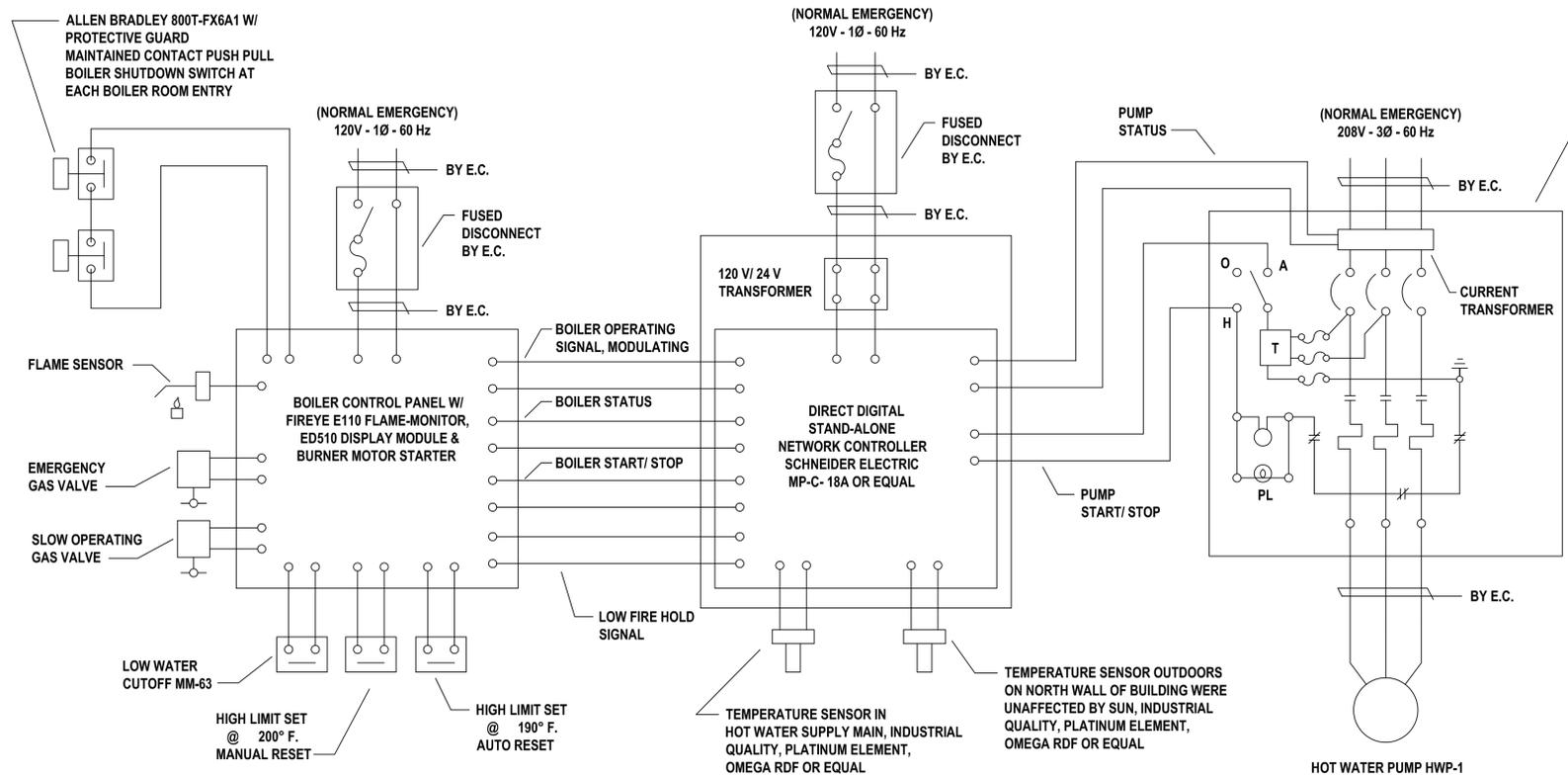
BOILER ROOM FLOOR PLAN

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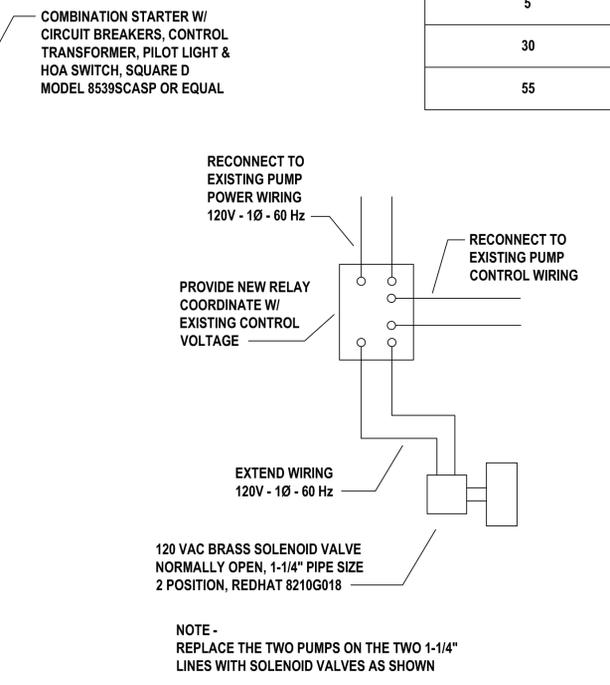
CONTROL DIAGRAMS

HOT WATER RESET SCHEDULE	
OUTDOOR AIR TEMPERATURE	HOT WATER SUPPLY TEMPERATURE
5	180
30	160
55	140



SCHEMATIC BOILER CONTROL WIRING DIAGRAMS

NO SCALE



SCHEMATIC ZONE VALVE CONTROL WIRING DIAGRAMS

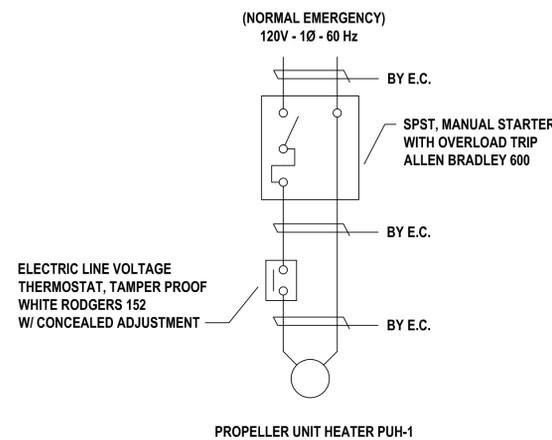
NO SCALE

BOILER SCHEDULE							
MARK	MBH INPUT	MBH OUTPUT	GAS PRESSURE	BURNER HP	POWER	BASIS OF DESIGN	MODEL
BLR-1	935	753	10" W.C. TO 14"W.C.	1/2	120 V - 1 Ø - 60 Hz	WEIL MCLAIN	780

HOT WATER PUMP SCHEDULE							
MARK	GPM	OPERATING HEAD (FT.)	SHUTOFF HEAD (FT.)	MOTOR HP	POWER	BASIS OF DESIGN	MODEL
HWP-1	72	44	46	2	208 V - 3 Ø - 60 Hz	BELL & GOSSETT	60 - 2 x 2 x 7
HWP-2	72	44	46	2	208 V - 3 Ø - 60 Hz	BELL & GOSSETT	60 - 2 x 2 x 7

PROVIDE HWP-2 LOOSE IN A BOX TO OWNER FOR A SPARE

PROPELLER UNIT HEATER SCHEDULE									
MARK	MBH CAPACITY	CFM	GPM	MOTOR HP	MOTOR RPM	POWER	HEIGHT	BASIS OF DESIGN	MODEL
PUH-1	34	400	3	1/20	1050	120 V - 1 Ø - 60 Hz	11-1/2"	MODINE	HHD30



SCHEMATIC UNIT HEATER CONTROL WIRING DIAGRAMS

NO SCALE

SEQUENCE OF CONTROL

UPON ANY BOILER EMERGENCY PUSHBUTTON SWITCH BEING ACTIVATED BOILER SHALL SHUT DOWN. BOILERS SHALL NOT RESTART UNTIL SWITCH IS MANUALLY RESET.

CONTROL PANEL SHALL MONITOR OUTDOOR AIR TEMPERATURE. UPON A DROP IN OUTDOOR AIR TEMPERATURE TO 55 DEGREES BOILER SYSTEM SHALL INITIATE. HOT WATER PUMP SHALL BE INDEXED TO START. CONTROL PANEL SHALL MONITOR STATUS OF PUMP. BOILER OPERATION SHALL NOT BE INITIATED UNTIL PUMP OPERATION IS CONFIRMED.

ONCE PUMP OPERATION IS CONFIRMED CONTROL PANEL SHALL SIGNAL BOILER TO START. IF HOT WATER SUPPLY TEMPERATURE IS BELOW 140 DEGREES BOILER SHALL START ON LOW FIRE AND HOLD LOW FIRE UNTIL THE HOT WATER SUPPLY TEMPERATURE REACHES 140 DEGREES.

ONCE THE BOILER SUPPLY WATER TEMPERATURE REACHES 140 DEGREES CONTROL PANEL SHALL SEND A MODULATION SIGNAL TO BOILER BOILER CONTROL PANEL TO ACHIEVE THE HOT WATER SUPPLY TEMPERATURE SHOWN IN THE HOT WATER RESET SCHEDULE.

BOILER SHALL CONTINUE TO OPERATE UNTIL THE OUTDOOR AIR TEMPERATURE RISES TO 60 DEGREES. AT 60 DEGREES THE CONTROL PANEL SHALL INDEX THE BOILER OFF. THE HOT WATER PUMP SHALL CONTINUE TO RUN FOR THREE MINUTES AFTER THE BOILER IS INDEXED OFF.

MECHANICAL SPECIFICATIONS

1. VISIT THE SITE AND BECOME THOROUGHLY AQUAINTED WITH ALL EXISTING CONDITIONS.
2. THE DRAWINGS ARE DIAGRAMMATIC AND SHALL BE FOLLOWED AS CLOSE AS POSSIBLE. THE DRAWINGS ARE NOT INTENDED TO SHOW EVERY DETAIL. SYSTEMS SHALL BE ASSEMBLED COMPLETE TO PERFORM THE INTENT OF THE DRAWINGS IN COMPLIANCE WITH ALL CODES.
3. SUBMIT AND PAY ALL FEES FOR ALL BUILDING PERMITS REQUIRED BY THE CITY OF READING AND THE PENNSYLVANIA DEPARTMENT OF LABOR AND INDUSTRY BOILER DIVISION. COORDINATE FINAL BOILER INSPECTION AND PROVIDE ANY REQUIRED REVISIONS.
4. SUBMIT UGI GAS SERVICE UPGRADE REQUEST FORM. SCHEDULE AND COORDINATE GAS SERVICE UPGRADE WITH UGI.
5. GUARANTEE IN WRITING ALL MATERIALS, EQUIPMENT AND WORKMANSHIP FOR A PERIOD OF ONE YEAR FROM DATE OF FINAL ACCEPTANCE BY THE CITY OF READING.
6. TEST AND BALANCE BOILER, PIPING, EQUIPMENT AND CONTROLS. DRAIN AND FLUSH ALL EXISTING PIPING. TEST BOILER AND PIPING SYSTEM AT 40 PSI FOR A PERIOD OF ONE HOUR. REPAIR ANY LEAKS AND RETEST. BALANCE ALL CIRCUIT SETTERS WITH EXISTING BUILDING CONTROL VALVES INDEXED OPEN. BALANCE PUMP TO SCHEDULED GPM. SUBMIT WRITTEN BALANCE REPORT. BALANCING AGENT SHALL BE CERTIFIED BY EITHER AABC OR NEBB.
7. SUBMIT, FOR REVIEW BY THE ENGINEER, SHOP DRAWING DATA FOR EACH PIECE OF EQUIPMENT OR MATERIAL PROPOSED. SUBMIT CONTROL SHOP DRAWINGS.
8. AT THE COMPLETION OF THE PROJECT PROVIDE THE OWNER WITH AN 8 HOUR INSTRUCTIONAL SESSION FOR ALL EQUIPMENT AND CONTROLS. PROVIDE OPERATION AND MAINTENANCE MANUALS FOR ALL EQUIPMENT AND CONTROLS. SUBMIT "AS BUILT DRAWINGS".
9. PROVIDE ALL CUTTING AND PATCHING OF EXISTING BOILER ROOM CEILING AS REQUIRED FOR DEMOLITION AND NEW WORK INSTALLATION. PATCH ALL OPENINGS WITH 5/8" PURPLE MOISTURE RESISTANT DRYWALL WITH 1/8" SKIM COAT PLASTER. PROVIDE BACKING SUPPORT TO ATTACH DRYWALL PATCHES. SAND ALL AREAS SMOOTH AND PAINT ENTIRE CEILING WITH TWO COATS MOLD RESISTANT PAINT, BEHR ULTRA WHITE CEILING FLAT INTERIOR PAINT OR APPROVED EQUAL.
10. PRESSURE GAGES AND THERMOMETERS SHALL BE MANUFACTURED BY TRERICE, DRESSER OR WEISS. THERMOMETERS SHALL BE 9 INCH WITH CAST ALUMINUM CASING. PRESSURE GAGES SHALL BE 4-1/2" DIAMETER WITH ALUMINUM CASING. PROVIDE 1/4" NEEDLE VALVES FOR ALL THERMOMETERS AND PRESSURE GAGES.
11. BALL VALVES SHALL BE TWO PIECE, BRASS OR BRONZE BODY WITH FULL PORT CHROME PLATED BRONZE BALL, TFE SEAT, 600 PSIG, MANUFACTURED BY CONBRACO, WATTS OR MILWAUKEE.
12. PIPE HANGERS SHALL BE ADJUSTABLE STEEL CLEVIS HANGERS (MSS TYPE 1) MANUFACTURED BY PHD, ANVIL OR B-LINE. HANGERS SHALL BE GALVANIZED OR PAINTED. PROVIDE HANGERS AT ALL CHANGES IN DIRECTION AND ON BOTH SIDES OF ALL EQUIPMENT.
13. PROVIDE 1-1/4" LETTER HEIGHT STENCIL IDENTIFICATION FOR ALL PIPING. PROVIDE BRASS TAGS FOR ALL VALVES.
14. INSULATE ALL HOT WATER SUPPLY, HOT WATER RETURN AND DOMESTIC COLD WATER PIPING WITH PREFORMED, GLASS FIBER INSULATION WITH THERMOSETTING RESIN, ASTM C547, TYPE 1 WITH FACTORY APPLIED ALL PURPOSE VAPOR-RETARDER JACKET. INSULATION SHALL BE MANUFACTURED BY OWENS-CORNING, KNAUF OR CERTAIN TEED. PROVIDE INSULATION WRAP AND 20 MIL PVC COVERS FOR ALL ELBOWS AND FITTINGS. INSULATION SHALL BE 1" THICK FOR PIPING 1-1/4" AND SMALLER AND 1-1/2" FOR PIPING 1-1/2" AND LARGER.
15. PROVIDE A COMPLETE STAND ALONE DDC CONTROL SYSTEM AS SHOWN ON THE SCHEMATIC CONTROL WIRING DIAGRAMS. STAND ALONE NETWORK CONTROLLER SHALL BE MANUFACTURED BY SCHNEIDER ELECTRIC AND INSTALLED BY NRG CONTROLS INC., TRIM GROUP LLC OR CM3 BUILDING SOLUTIONS, INC. THE CONTROL SUB-CONTRACTOR SHALL FURNISH ALL EQUIPMENT, MATERIALS, LABOR AND SUPERVISION FOR A COMPLETE ELECTRONIC AUTOMATIC CONTROL SYSTEM. COORDINATE WITH BOILER EQUIPMENT AND ELECTRICAL CONTRACTOR. ALL WIRING SHALL BE IN ELECTRICAL METALLIC TUBING (EMT). SUBMIT CONTROL SHOP DRAWINGS. INSTALL CONTROLLER IN 12 GAGE CABINET WITH BAKED ENAMEL FINISH. ALL WIRING IN THE PANEL SHALL BE THHN/THWN INSULATED CONDUCTORS COLOR CODED. FOLLOW ELECTRICAL SPECIFICATION FOR ALL CONDUIT AND CONDUCTORS INSTALLED BY THE ATC SUB-CONTRACTOR. PROVIDE ALL SENSORS AND PIPE WELLS. COMMISSION SYSTEM AND PROVIDE OPERATING AND MAINTENANCE MANUALS.
16. ALL HOT WATER SUPPLY, HOT WATER RETURN, VENT AND ABOVE GROUND GAS PIPING SHALL BE ASTM A53 SCHEDULE 40 BLACK STEEL. PIPING 2" AND SMALLER SHALL HAVE MALLEABLE IRON THREADED FITTINGS. PIPING AND FITTINGS 2-1/2" AND LARGER SHALL BE BUTT WELDED WITH FLANGES AT CONNECTION TO EQUIPMENT. CONNECTION TO EXISTING PIPING SHALL BE MADE WITH SOCKET WELDED FITTINGS. DOMESTIC WATER PIPING SHALL BE TYPE "L" COPPER WITH WROUGHT COPPER SOLDER JOINT FITTINGS.
17. PUMPS SHALL BE BELL & GOSSETT SERIES 60 FLEXIBLE COUPLED IN-LINE CENTRIFUGAL, BRONZE FITTED.
18. FLUE PIPE SHALL BE DOUBLE WALL POSITIVE PRESSURE SYSTEM MODEL PS AS MANUFACTURED BY SELKIRK. INNER CASING SHALL BE 0.035 INCH THICK TYPE 304 STAINLESS STEEL AND OUTER CASING SHALL BE 0.025 INCH THICK ALUMINIZED STEEL WITH 1 INCH INSULATION BETWEEN CASINGS. PIPE JOINTS SHALL BE MADE USING FACTORY SUPPLIED "V" BANDS WITH SEALANT IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
19. UNIT HEATER SHALL BE LOW PROFILE HOT WATER TYPE MODEL HHD30 AS MANUFACTURED BY MODINE. UNIT HEATER SHALL HAVE 18 GAGE PAINTED STEEL CABINET WITH SIDE PIPING CONNECTIONS. INSTALL WITH BOTTOM 6'-8" ABOVE FINISHED FLOOR.
20. BOILER:
 - A. FURNISH AND FIELD ASSEMBLE IN PLACE LOW PRESSURE, WET BASE, CAST IRON SECTIONAL BOILER WITH GAS FIRED POWER BURNER THAT PRESSURIZES THE FIRE BOX AND OPERATES UNDER FORCED DRAFT.
 - B. BOILER SHALL BE WEIL MCLAIN SERIES 80 WITH NATURAL GAS BURNER CAPABLE OF BURNING GAS AT 4 IN. TO 14 IN. WATER COLUMN. BOILER SHALL BE RATED FOR 50 PSI WATER.
 - C. SUBMIT BOILER AND BURNER SHOP DRAWINGS FOR APPROVAL BY THE ENGINEER.
 - D. CAST IRON SECTIONS SHALL BE ASSEMBLED WITH INDIVIDUAL DRAW RODS AND SHALL HAVE SEALING GROOVES WITH HIGH TEMPERATURE SEALING ROPE.
 - E. BOILER TO HAVE REAR FLUE OUTLET, INSULATED BURNER MOUNTING PLATE, OBSERVATION PORTS, STEEL FLUE DAMPER, FLEXIBLE REFRACTORY BLANKETS AND INSULATED HEAVY GAGE STEEL JACKET WITH ENAMEL FINISH.
 - F. FURNISH BOILER WITH HIGH TEMPERATURE LIMIT, LOW TEMPERATURE LIMIT, COMBINATION PRESSURE-TEMPERATURE GAGE WITH DIAL, ASME CERTIFIED PRESSURE RELIEF VALVE SET AT 50 PSIG AND MCDONNELL MILLER 63M LOW WATER CUTOFF.
 - G. PROVIDE BOILER WITH GAS POWER BURNER WITH MODULATING CONTROL, POWER FLAME OR APPROVED EQUAL. BURNER SHALL BE 1/2 HORSE POWER, 120 VOLT, SINGLE PHASE. BOILER CONTROL PANEL SHALL BE PROVIDED WITH FIREYE E110 FLAME-MONITOR AND ED510 DISPLAY MODULE. CONTROL DEVICES AND MODULATING CONTROL SEQUENCE SHALL COMPLY WITH ALL REQUIREMENTS OF ASME, CSD-1 AND UL. SYSTEM SHALL BE IN ACCORDANCE WITH ALL REQUIREMENTS FOR AN IRI MODULATING SYSTEM. PROVIDE ALL VALVES AND VENT PIPING TO THE EXTERIOR IN STRICT ACCORDANCE WITH IRI. BOILER PANEL SHALL INCLUDE THE FOLLOWING INDICATOR DISPLAY: CALL FOR HEAT, IGNITION ON, PILOT FAILURE, LOW WATER, FLAME FAILURE, ALARM, SILENCING SWITCH, CONTROL FUSE AND POST PURGE TIMER. BURNER OPERATING CONTROLS SHALL BE FULLY MODULATING WITH A 6 TO 1 TURNDOWN, PRE-PURGE AND POST-PURGE PROGRAMMING.
 - H. THE CONTRACTOR SHALL OBTAIN THE SERVICES OF A FACTORY AUTHORIZED AGENT TO PROVIDE LIGHT OFF AND ADJUSTMENT. THE START-UP AGENT SHALL PROVIDE A BURNER LIGHT-OFF REPORT INDICATING THAT THE BURNER WAS ADJUSTED TO OPTIMUM PERFORMANCE. THE AUTHORIZED AGENT SHALL PROVIDE A ONE YEAR SERVICE WARRANTY AFTER START UP.



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READING FIRE DEPARTMENT ENGINE 3, 3rd & COURT
ELECTRICAL SERVICE, GENERATOR, & BOILER REPLACEMENT

15 N 3rd STREET
READING, PA
DEPARTMENT OF PUBLIC WORKS, CITY OF READING, PENNSYLVANIA
815 WASHINGTON ST.
READING, PA

REVISIONS	MARK	ISSUED DATE	DESCRIPTION

PROJECT NO: 81083-01
ISSUED DATE: 06/12/20
DRAWN BY: RCM
CHECKED BY: RCM
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SHEET TITLE:

SPECIFICATIONS

SHEET NO:
M-103

ELECTRICAL, COMMUNICATION, PROCESS CONTROL, AND ELECTRONIC SAFETY AND SECURITY SYMBOL LEGEND

LIGHTING	POWER DISTRIBUTION	WIRING DEVICES	WIRING DEVICES (CONTINUED)	TELECOMMUNICATION/NETWORK	SECURITY/ACCESS/SURVEILLANCE
<p>LIGHT FIXTURE : GENERAL</p> <p>CEILING SURFACE MOUNTED</p> <p>CEILING RECESSED</p> <p>CEILING PENDANT</p> <p>WALL MOUNTED</p> <p>NIGHT LIGHT : FIXTURE WITH "NIGHT LIGHT" CONNECTED TO NORMAL OR NORMAL/EMERGENCY CIRCUIT</p> <p>CEILING SURFACE MOUNTED</p> <p>CEILING RECESSED</p> <p>CEILING PENDANT</p> <p>WALL MOUNTED</p> <p>EMERGENCY : LIGHT FIXTURE CONNECTED TO NORMAL/EMERGENCY, EMERGENCY ONLY OR BATTERY INVERTER CIRCUIT</p> <p>CEILING SURFACE MOUNTED</p> <p>CEILING RECESSED</p> <p>CEILING PENDANT</p> <p>WALL MOUNTED</p> <p>EMERGENCY BALLAST : LIGHT FIXTURE WITH EMERGENCY BATTERY BALLAST</p> <p>CEILING SURFACE MOUNTED</p> <p>CEILING RECESSED</p> <p>CEILING PENDANT</p> <p>WALL MOUNTED</p> <p>EMERGENCY SOCKET : LIGHT FIXTURE WITH EMERGENCY ONLY SOCKET</p> <p>CEILING SURFACE MOUNTED</p> <p>CEILING RECESSED</p> <p>CEILING PENDANT</p> <p>WALL MOUNTED</p> <p>FLOOD OR SPOT LIGHT :</p> <p>CLG WALL</p> <p>EXIT SIGN : ILLUMINATED FACE</p> <p>WALL MOUNTED - DIRECTIONAL ARROW AS REQUIRED</p> <p>SINGLE FACE, CEILING MOUNTED - DIRECTIONAL ARROW AS REQUIRED</p> <p>DUAL FACE, CEILING MOUNTED - DIRECTIONAL ARROWS AS REQUIRED</p> <p>EMERGENCY LIGHTING UNIT :</p> <p>EMERGENCY LIGHTING UNIT - BATTERY TYPE WITH NUMBER OF HEADS AS INDICATED</p> <p>EMERGENCY LIGHTING UNIT - REMOTE HEAD WITH NUMBER OF HEADS AS INDICATED</p> <p>TRACK LIGHTING:</p> <p>TRACK MOUNTED LIGHT FIXTURES - WITH FLOOD AND/OR SPOT TYPES</p> <p>FLOOD</p> <p>M - MEDIUM</p> <p>N - NARROW</p> <p>W - WIDE SPOT</p> <p>S - NORMAL</p> <p>FEED END</p> <p>HORIZONTAL/VERTICAL RUN</p>	<p>SURFACE FLUSH</p> <p>PANELBOARD</p> <p>EQUIPMENT CABINET</p> <p>CLG FLOOR WALL</p> <p>JUNCTION BOX</p> <p>BLANK OUTLET</p> <p>JUNCTION BOX OR BLANK OUT - ABOVE FLOOR, IN CAST BOX ON RIGID CONDUIT</p> <p>JUNCTION BOX OR BLANK OUT - ABOVE COUNTER</p> <p>CONTACTOR</p> <p>RELAY</p> <p>METER</p> <p>SPD SURGE PROTECTION DEVICE</p> <p>ENCLOSED CIRCUIT BREAKER</p> <p>SAFETY SWITCH - NON-FUSED, 3-POLE, 30A, 600V UNO</p> <p>SAFETY SWITCH - FUSED, 3-POLE, 30A, 600V UNO</p> <p>COMBINATION STARTER / DISCONNECT - 3 PHASE</p> <p>MANUAL MOTOR STARTER (HP RATED) THE LETTERS ADJACENT TO THE SYMBOL INDICATE STARTER TYPE.</p> <p>M - TOGGLE</p> <p>MK - KEY OPERATED</p> <p>MB - PUSHBUTTON</p> <p>MT - TOGGLE WITH THERMAL OVERLOADS</p> <p>TRANSFORMER - 120V AND GREATER</p> <p>TRANSFORMER - LOW VOLTAGE</p> <p>MOTOR OR EQUIPMENT</p> <p>ELECTRIC SOLENOID VALVE - BY OTHERS (H-HOT WATER, C-COLD WATER, G-GAS)</p> <p>MAST HEAD</p> <p>CONDUIT SLEEVE - QUANTITY AND SIZE AS REQUIRED</p> <p>CABLE TRAY - WALL HUNG</p> <p>CABLE TRAY - CENTER HUNG</p> <p>EMPTY CONDUIT - SEALED & CAPPED</p> <p>CIRCUIT</p> <p>HOMERUN TO PANELBOARD; PROVIDE 3 #12, #12 GRD, 3/4" UNLESS NOTED OTHERWISE ON DRAWING, ON PANEL SCHEDULES, OR ONE LINE DIAGRAMS</p> <p>CIRCUIT - EQUIPMENT ON SAME CIRCUIT BUT SEPARATELY CONTROLLED</p> <p>GROUND BAR</p> <p style="text-align: center;">SITE</p> <p>POLE MOUNTED H.I.D. LIGHT FIXTURE - SINGLE HEAD WITH ARM BRACKET</p> <p>POLE MOUNTED H.I.D. LIGHT FIXTURE - DUAL HEAD WITH ARM BRACKET</p> <p>POLE MOUNTED H.I.D. LIGHT FIXTURE - SINGLE HEAD POST MOUNT</p> <p>BUILDING UPLIGHT FIXTURE</p> <p>BOLLARD LIGHT FIXTURE</p> <p>UNDERGROUND ELECTRICAL ENCLOSURE</p> <p>PAD MOUNT TRANSFORMER</p> <p>UTILITY POLE</p> <p>MANHOLE/VAULT</p> <p>UGE UNDERGROUND EMERGENCY/STANDBY GENERATOR SERVICE</p> <p>UPE UNDERGROUND ELECTRIC SERVICE (PRIMARY)</p> <p>USE UNDERGROUND ELECTRIC SERVICE (SECONDARY)</p> <p>UTC UNDERGROUND CATV & TELEPHONE SERVICE</p> <p>SL UNDERGROUND SITE LIGHTING CONDUIT</p> <p>EC UNDERGROUND EMPTY CONDUIT</p> <p>BC UNDERGROUND BRANCH CIRCUIT CONDUIT</p> <p>TC TELECOMMUNICATION CONDUIT</p>	<p>SWITCH:</p> <p>S SINGLE POLE</p> <p>S₃ THE LETTERS/NUMBERS ADJACENT TO THE SYMBOL INDICATE SWITCH TYPE. SWITCHES ARE SINGLE POLE UNLESS IDENTIFIED OTHERWISE.</p> <p>3 - THREE-WAY</p> <p>4 - FOUR-WAY</p> <p>B - TOUCHBOLT</p> <p>CK - CARD KEY</p> <p>D - DIMMER - INCANDESCENT</p> <p>DF - DIMMER - FLUORESCENT</p> <p>DL - DIMMER - LOW VOLTAGE</p> <p>ET - ELECTRONIC TAP</p> <p>K - KEY OPERATED</p> <p>MC - MAINTAINED CONTACT</p> <p>P - PILOT LIGHT</p> <p>R - LOCAL REMOTE CONTROL</p> <p>WP - WEATHERPROOF</p> <p>X - EXPLOSION PROOF</p> <p>OCCUPANCY SENSOR:</p> <p>Soc SWITCH - PIR WITH PUSHBUTTON</p> <p>Soc1 THE LETTERS/NUMBERS ADJACENT TO THE SYMBOL INDICATE SWITCH SENSOR TYPE. SWITCH SENSORS ARE PIR TYPE UNLESS IDENTIFIED OTHERWISE.</p> <p>OC1 - DUAL TECHNOLOGY WITH 1 PUSHBUTTON</p> <p>OC2 - DUAL TECHNOLOGY WITH 2 PUSHBUTTONS FOR DUAL CONTROL</p> <p>CLG WALL</p> <p>RADIAL - AUTO ON/OFF</p> <p>DIRECTIONAL - AUTO ON/OFF</p> <p>DT THE LETTERS ADJACENT TO THE SYMBOL INDICATES SENSOR TYPE. WHERE SENSOR SYMBOL IS SHOWN WITHOUT IDENTIFICATION, PROVIDE PIR FOR WALL TYPES AND DT FOR CEILING TYPES.</p> <p>DT - DUAL TECHNOLOGY (COMBINATION PIR & US)</p> <p>ER - EXTENDED RANGE</p> <p>HB - HIGH BAY</p> <p>HH - HIGH HUMIDITY / LOW TEMPERATURE</p> <p>HW - HALLWAY</p> <p>PIR - PASSIVE INFRARED</p> <p>R - RELAY</p> <p>US - ULTRASONIC OR MICROPHONIC</p> <p>WP - WEATHERPROOF</p> <p>WV - WIDE VIEW</p> <p>PI POWER PACT</p> <p>PHOTO/DAYLIGHT SENSOR:</p> <p>PHOTO SENSOR - WALL MTD (MOUNTED ON NORTH FACE OF BUILDING)</p> <p>PHOTO SENSOR - CEILING MTD</p> <p>RECEPTACLE:</p> <p>CLG FLOOR WALL</p> <p>SINGLE</p> <p>DUPLEX</p> <p>DOUBLE DUPLEX</p> <p>GFCI</p> <p>GFCI DOUBLE DUPLEX</p> <p>SPD (ISOLATED GROUND)</p> <p>SPD DOUBLE DUPLEX</p> <p>TAMPER RESISTANT</p> <p>SPLIT WIRED</p> <p>30A SINGLE PHASE, 480V RATED WITH AMPERAGE AS INDICATED</p> <p>40A THREE PHASE, 480V RATED WITH AMPERAGE AS INDICATED</p> <p>72" NUMBER ADJACENT TO SYMBOL INDICATES MOUNTING HEIGHT A.F.F.</p> <p>LETTER "C" ADJACENT TO SYMBOL INDICATES RECEPTACLE ABOVE COUNTER</p> <p>ABOVE FLOOR, IN CAST BOX ON RIGID CONDUIT - RECEPTACLE TYPE AS SHOWN</p>	<p>PUSHBUTTON:</p> <p>STANDARD</p> <p>THE LETTER ADJACENT TO THE SYMBOL INDICATES TYPE. PUSHBUTTONS ARE STANDARD UNLESS IDENTIFIED OTHERWISE.</p> <p>E - EMERGENCY</p> <p>K - EMERGENCY, KEY OPERATED</p> <p>P - PANIC/ENTRANCE</p> <p>MISCELLANEOUS:</p> <p>POWER POLE - WITH WIRING DEVICES AS INDICATED</p> <p>POWER/TELECOM POLE - WITH WIRING DEVICES AS INDICATED</p> <p>FURNITURE PEDESTAL - WITH WIRING DEVICES AS INDICATED</p> <p>FIRE RATED POKE-THROUGH - WIRING DEVICES AND TELECOM OUTLETS AS INDICATED</p> <p>FLUSH FLOOR BOX - WIRING DEVICES AND TELECOM OUTLETS AS INDICATED</p> <p>SURFACE RACEWAY WITH WIRING DEVICES AS INDICATED</p> <p>VERTICAL DROP</p> <p>HORIZONTAL RUN</p> <p>SURFACE MOUNTED RACEWAY MOUNTED - WIRING DEVICES AS INDICATED</p> <p>SURFACE RACEWAY</p> <p style="text-align: center;">FIRE ALARM</p> <p>CLG WALL</p> <p>SMOKE DETECTOR</p> <p>HEAT DETECTOR</p> <p>CARBON MONOXIDE DETECTOR</p> <p>NUMBER ADJACENT TO SYMBOL INDICATES ZONE, IF REQUIRED</p> <p>LETTER ADJACENT TO SYMBOL INDICATES PREFERRED DETECTOR TYPE:</p> <p>D - DOOR</p> <p>P - PREACTION</p> <p>R - ELEVATOR RECALL</p> <p>RE - SHAFT & EXHAUST ELEVATOR RECALL</p> <p>RS - ELEVATOR RECALL & SPRINKLER ACTIVATION</p> <p>DUCT DETECTOR - SMOKE (NUMBER INDICATES ZONE, IF REQUIRED)</p> <p>DUCT DETECTOR - HEAT (NUMBER INDICATES ZONE, IF REQUIRED)</p> <p>CLG WALL</p> <p>AUDIBLE WITH VISUAL UNIT</p> <p>AUDIBLE ONLY UNIT</p> <p>VISUAL ONLY UNIT</p> <p>MANUAL PULL STATION (NUMBER INDICATES ZONE IF REQUIRED)</p> <p>MANUAL PULL STATION - KEY OPERATED</p> <p>MANUAL PULL STATION WITH CLEAR PROTECTIVE COVER</p> <p>DOOR HOLDER (F-FLOOR, C-CEILING, W-WALL)</p> <p>CONTROL MODULE - ZONE</p> <p>CONTROL MODULE - ADDRESSABLE</p> <p>REMOTE TEST STATION - WALL MTD</p> <p>REMOTE TEST STATION - CEILING MTD</p> <p>LETTER L INDICATES TEST LIGHT</p> <p>FIRE SUPPRESSION FLOW SWITCH - BY OTHERS</p> <p>FIRE SUPPRESSION TAMPER SWITCH - BY OTHERS</p> <p>WIRING DIAGRAMS</p> <p>SURFACE FLUSH</p> <p>TRAP TRAP</p> <p>FIRE ALARM CONTROL PANEL</p> <p>WIRES NOT CONNECTED</p> <p>CONNECTING WIRES</p>	<p>CLG WALL</p> <p>VOICE/DATA OUTLET - BLANK</p> <p>DATA OUTLET - BLANK</p> <p>TELEPHONE (VOICE) OUTLET - BLANK</p> <p>TELEPHONE OUTLET - LETTER 'W' ADJACENT TO SYMBOL INDICATES OUTLET FOR WALL HUNG PHONE</p> <p>NUMBER ADJACENT TO SYMBOL INDICATES NUMBER OF ACTIVE PORTS: 2, 4, 6 OR 8</p> <p>LETTER "C" ADJACENT TO SYMBOL INDICATES OUTLET ABOVE COUNTER</p> <p>LETTER "F" ADJACENT TO SYMBOL INDICATES FIBER OPTIC OUTLET</p> <p>NUMBER ADJACENT TO SYMBOL INDICATES MOUNTING HEIGHT A.F.F.</p> <p>VOICE/DATA POLE - TELECOM OUTLETS AS INDICATED</p> <p>FURNITURE PEDESTAL - TELECOM OUTLETS AS INDICATED</p> <p>SURFACE MOUNTED RACEWAY MOUNTED - TELECOM OUTLETS AS INDICATED</p> <p>SURFACE RACEWAY</p> <p>SURFACE FLUSH</p> <p>TELECOMNETWORK EQUIPMENT CABINET</p> <p>TELECOMNETWORK EQUIPMENT RACK</p> <p>TELECOMNETWORK BACKBOARD</p> <p style="text-align: center;">PROCESS CONTROL DEVICES</p> <p>TYPE LETTER SHOWN IN LIST BELOW</p> <p>MCC-3 PHIL NUMBER OF #14 DIGITAL SIGNAL WIRES INCLUDING A #14 GRD IN 3/4" UNO (BLANK IF NONE). CONDUITS TO/FROM SAME AREA MAY BE COMBINED. EC TO CONFORM TO NEC FOR CONDUIT SIZES. 24V AND 120V SHALL BE SEPARATED INTO SEPARATE CONDUITS. WIRES NOT USED ARE SPARES</p> <p>ASSOCIATED POWER SOURCE (BLANK IF NONE)</p> <p>NUMBER OF 2/0 #16 TSP ANALOG SIGNAL CABLES IN 3/4" UNO (BLANK IF NONE). CONDUITS TO/FROM SAME AREA MAY BE COMBINED. EC TO CONFORM TO NEC FOR CONDUIT SIZES. CABLES NOT USED ARE SPARES</p> <p>* - SEE INSTRUMENTATION DEVICE LIST ON EACH SHEET FOR DIGITAL AND ANALOG SIGNAL DESTINATION</p> <p>LIST OF COMMON PROCESS DEVICES</p> <p>BTS - BOWL TEMPERATURE SWITCH</p> <p>CGS - COMBUSTIBLE GAS SENSOR/TRANSMITTER</p> <p>CTS - CABINET TEMPERATURE SWITCH</p> <p>DPS - DIFFERENTIAL PRESSURE SWITCH</p> <p>DSD - OVERHEAD DOOR SAFETY DEVICE</p> <p>EL - EMERGENCY STOP LANYARD</p> <p>ESP - EMERGENCY STOP PUSH BUTTON</p> <p>FLS - FLOODING LEVEL SENSOR</p> <p>FS - FLOW SWITCH</p> <p>GFM - GAS FLOW METER</p> <p>LS - LEVEL SWITCH (FLOAT)</p> <p>LTS - LIMIT SWITCH</p> <p>MM - MAGNETIC FLOW METER</p> <p>MOG - MOTOR OPERATED GATE COVER</p> <p>MOV - MOTOR OPERATED VALVE</p> <p>MT - MOTOR TEMPERATURE SWITCH</p> <p>OLS - OIL LEVEL SWITCH</p> <p>POS - POSITION SWITCH</p> <p>PS - PRESSURE SWITCH</p> <p>PT - PRESSURE TRANSMITTER</p> <p>RL - RADAR LEVEL PROBE</p> <p>S - SOLENOID VALVE</p> <p>SL - SUBMERSIBLE LEVEL PROBE</p> <p>SLP - SEAL LEAK PROBE</p> <p>SM - SUCTION MONITOR</p> <p>T - TRANSMITTER</p> <p>TP - TEMPERATURE PROBE</p> <p>UF - ULTRASONIC FLOW METER</p> <p>UL - ULTRASONIC LEVEL PROBE</p> <p>VFM - VENTURI FLOW METER</p> <p>ZS - ZERO SPEED SWITCH</p> <p>GENERAL</p> <p>RISER, OR ONE LINE NOTE NUMBER (E.G., SEE RISER NOTE NO. E1)</p> <p>SHEET KEYNOTE (NEW CONSTRUCTION)</p> <p>DEMOLITION KEYNOTE</p> <p>REVISION SEQUENCE NUMBER</p> <p>ROOM TAG (ROOM NO NOT ALWAYS SHOWN) ROOM NAME</p> <p>EQUIPMENT TAG</p> <p>SECTION/ELEVATION REFERENCE</p> <p>INTERIOR ELEVATION REFERENCE</p> <p>DETAIL / CALLOUT REFERENCE</p> <p>BOX TAG/NOTE REFERENCE</p> <p>BOXED TAG(S)/NOTE(S) BELOW THE ROOM NAME/NUMBER OR PLACED IN THE SPACE INDICATE THAT THE INFORMATION IN THE BOX APPLIES TO ALL FIXTURES AND/OR RECEPTACLES IN THE ROOM/SPACE UNLESS NOTED OTHERWISE.</p> <p>PANEL NAME</p> <p>KEYNOTE (TYP.)</p> <p>SYMBOLS LEGEND NOTES:</p> <p>A. NOT ALL SYMBOLS INDICATED MAY APPEAR ON THESE CONTRACT DRAWINGS.</p> <p>B. DASHED SYMBOLS REPRESENT EXISTING EQUIPMENT OR EQUIPMENT NOT IN CONTRACT.</p>	



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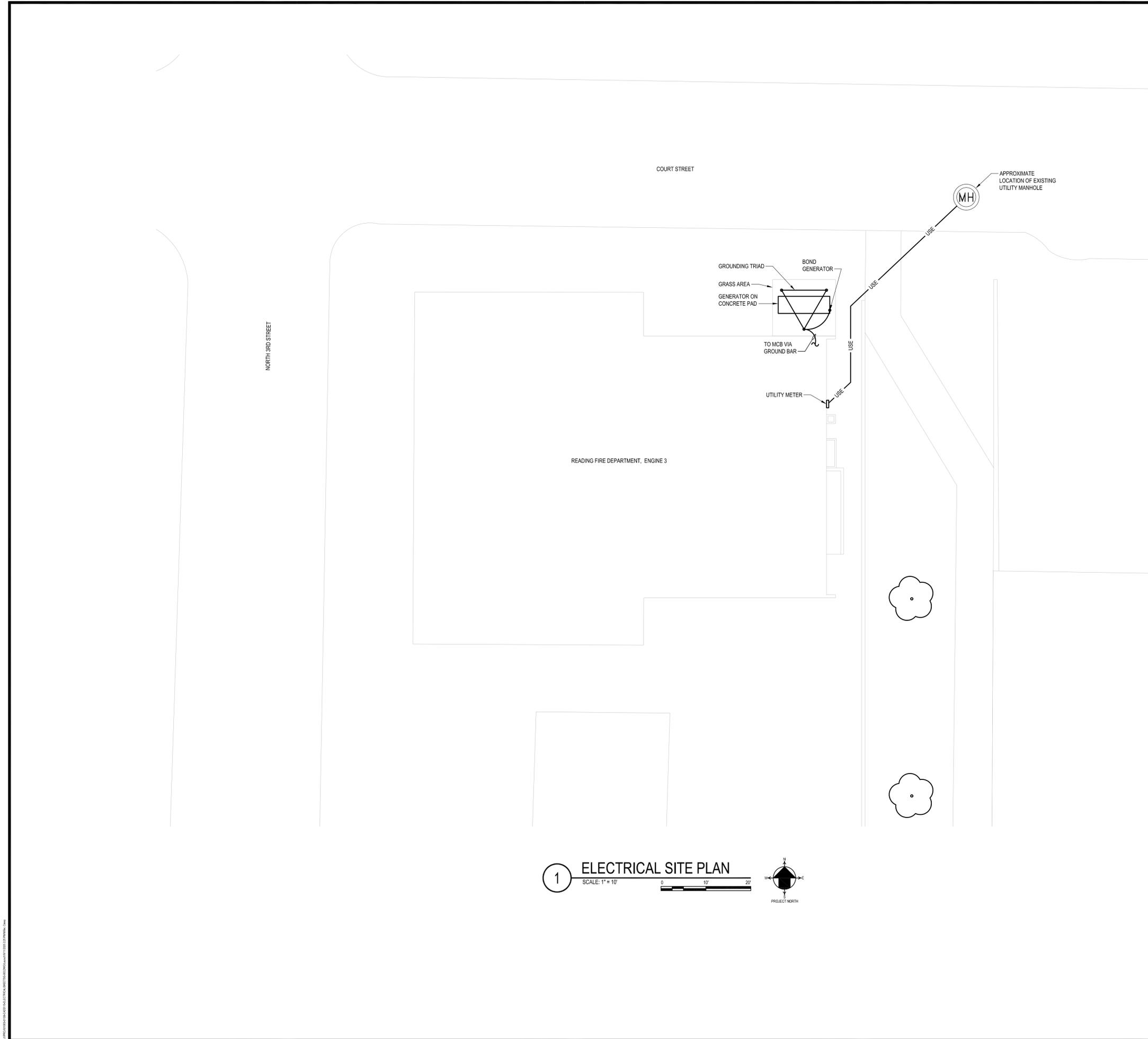
REVISIONS	MARK	ISSUED DATE	DESCRIPTION

PROJECT NO: 81083-01
ISSUED DATE: 06/12/20
DRAWN BY: WCA
CHECKED BY: JUG
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SHEET TITLE:

ELECTRICAL SYMBOLS LEGEND

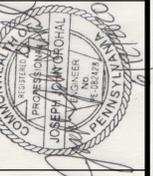
SHEET NO: E-001

BID DOCUMENTS



GENERAL NOTES

1. SEE ONE LINE DIAGRAM ON SHEET E-601 FOR SERVICE INFORMATION.
2. SEE DUCT BANK AND GROUNDING DETAILS ON SHEET E-501.
3. SEE GENERATOR CONCRETE PAD DETAIL ON SHEET E-50A.
4. EC SHALL REPLACE CONCRETE SIDEWALK REMOVED FOR DUCT BANK INSTALLATION AND GAS LINE INSTALLATION TO GENERATOR.



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PROJECT NO: 81083-01
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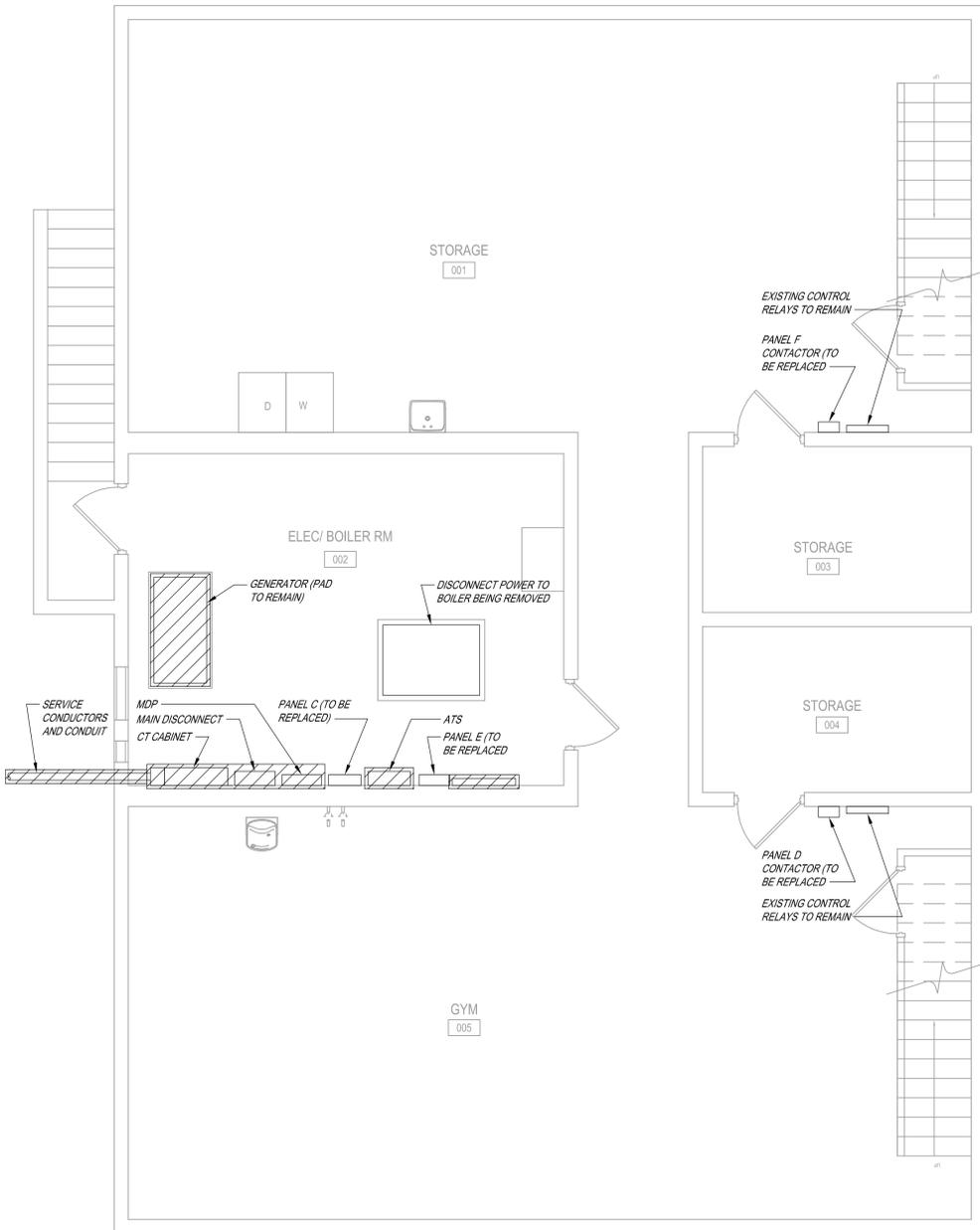
SHEET TITLE:
ELECTRICAL SITE PLAN

SHEET NO:
E-003

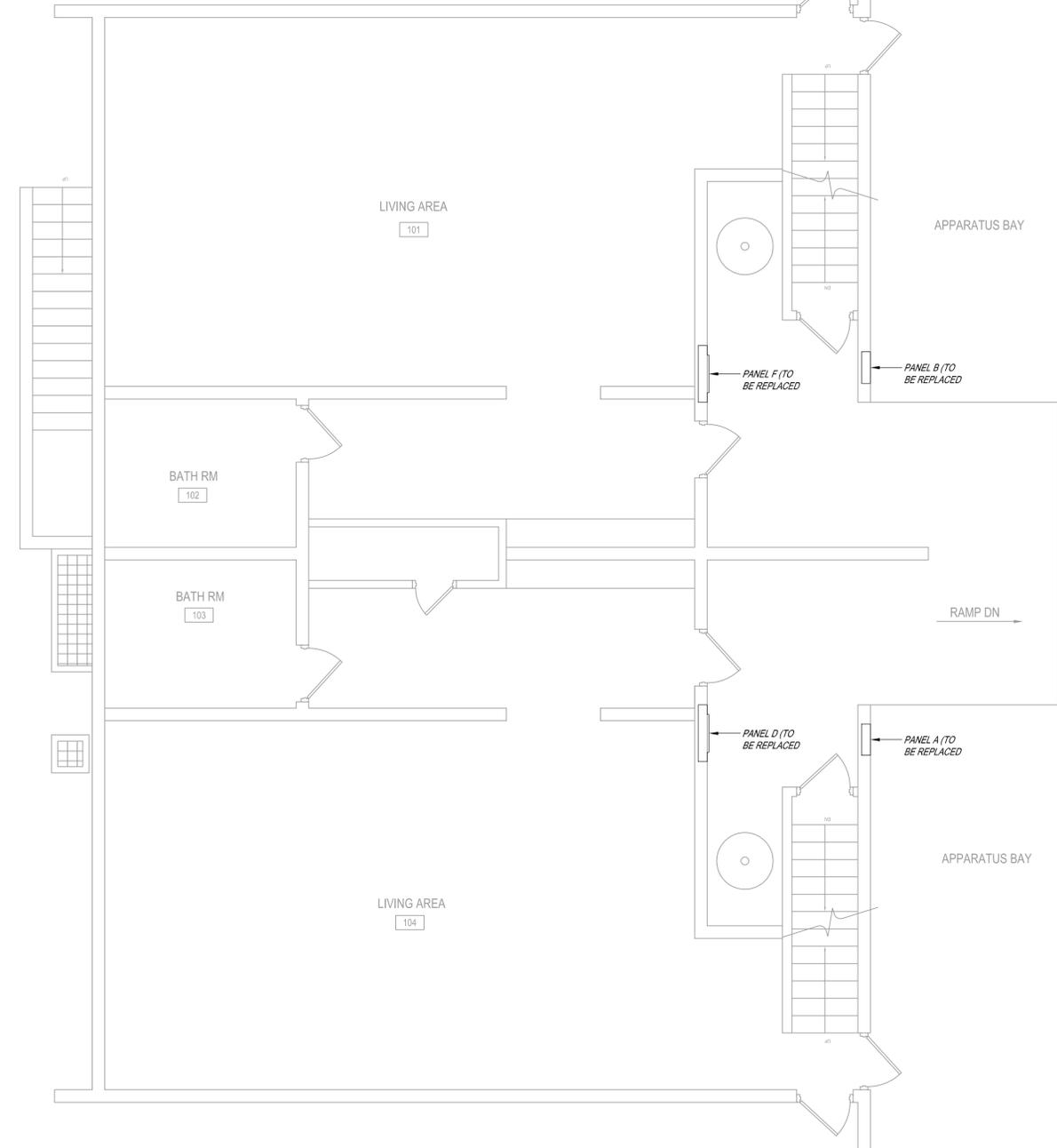
1 ELECTRICAL SITE PLAN
 SCALE: 1" = 10'
 0 10' 20'
 PROJECT NORTH

GENERAL NOTES

1. SEE ONE LINE DIAGRAM ON SHEET E-601 FOR DEMOLITION STAGING INFORMATION.
2. ALL BRANCH CIRCUITS FROM PANELS AND SUB PANELS NOT MARKED FOR DEMOLITION ON SHEET 601 SHALL BE MAINTAINED FOR RECONNECTION IN NEW PANELS.
3. CONTRACTOR SHALL UTILIZE EXISTING PANEL BOARD CANS WHEREVER POSSIBLE TO FACILITATE QUICKER INSTALLATION OF NEW PANELS IN EXISTING LOCATIONS.
4. CONTRACTOR SHALL VISIT THE SITE TO CONFIRM EXISTING FEEDER ROUTES AND LENGTHS PRIOR TO ASSEMBLING BID OR COMPLETING WORK.
5. CONTRACTOR SHALL SEAL EXISTING WALL PENETRATION ONCE NEW SERVICE IS CONNECTED AND EXISTING SERVICE CONDUCTORS AS WELL AS CONDUIT TO S BEYOND EXTERIOR OF WALL. UTILIZE WATER STOP OF ROUGH OPENING AND FILL WITH HYDRAULIC CEMENT OR OTHER APPROVED MEANS DISCUSSED WITH ENGINEER. SEAL EXISTING WALL PENETRATION ONCE EXISTING GENERATOR EXHAUST PIPE IS REMOVED.



1 BASEMENT ELECTRICAL DEMOLITION PLAN
 SCALE: 1/4" = 1'-0"
 0 2' 4' 8'
 PROJECT NORTH



2 FIRST FLOOR ELECTRICAL DEMOLITION PLAN
 SCALE: 1/4" = 1'-0"
 0 2' 4' 8'
 PROJECT NORTH



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PROJECT NO: 81083-01
 ISSUED DATE: 06/12/20
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SHEET TITLE:
ELECTRICAL DEMOLITION PLANS

SHEET NO:
E-011

KEY NOTES

- SEE MECHANICAL SERIES SHEETS FOR MORE INFORMATION ON BOILER CONTROL PANEL CONNECTIONS AS WELL AS MORE INFORMATION FOR HWP-1 STARTER. EC SHALL FURNISH AND INSTALL LOCAL DISCONNECTING MEANS AND INSTALL AND CONNECT WIRE THROUGH DEVICES PROVIDED BY OTHERS. COORDINATE INSTALLATIONS WITH MC AND ATC.
- CONTRACTOR SHALL MARK NEC REQUIRED WORKING CLEARANCES ON THE FLOOR FOR THE PANELS/EQUIPMENT IN THIS AREA. SEE IDENTIFICATION SPECIFICATION SECTION FOR TAPE REQUIREMENTS.
- PROVIDE SURFACE MOUNTED GFCI RECEPTACLE TO BE USED FOR RELOCATED WATER COOLER. CONNECT RECEPTACLE TO EXISTING CIRCUIT THAT FEEDS THE EXISTING WATER COOLER RECEPTACLE. REMOVE EXISTING RECEPTACLE AND PROVIDE DEVICE BOX COVER.

GENERAL NOTES

- SEE ONE LINE DIAGRAM ON SHEET E-601.
- SEE PANEL SCHEDULES ON SHEET E-602 AND E-603.
- CONTRACTOR SHALL INSTALL NEW PANELS IN SAME LOCATION AS OLD WHEREVER POSSIBLE TO ENSURE THAT BRANCH CIRCUIT CONDUCTORS ARE OF ADEQUATE LENGTH TO RECONNECT TO BREAKERS IN NEW PANELS. EXTEND AS REQUIRED.
- FOR PANELS A AND B, CONTRACTOR SHALL INSTALL SURFACE MOUNTED PANEL BOARDS NEXT TO EXISTING FLUSH MOUNTED PANEL BOARDS. UTILIZE EXISTING PANEL BOARDS AS A PULL/JUNCTION BOX AND EXTEND BRANCH CONDUCTORS INTO NEW PANELS. PROVIDE SHEET METAL COVER PLATES TO COVER ANY OPEN SPACES LEFT PAINT TO MATCH EXISTING WALL COLOR.
- SEE EXISTING PANEL D/F DETAIL ON SHEET E-501 FOR MORE INFORMATION ON HOW PANELS D AND F ARE CURRENTLY WIRED. NORMAL/FIRE ALARM CIRCUITS SHALL BE SEPARATED INTO SEPARATE PANELS SHOWN: PANELS D-N AND D-F AS WELL AS F-N AND F-F. SEPARATE PANELS SHALL BE INSTALLED WITHIN OR NEXT TO BOX SPACE OF EXISTING PANELS D AND F. PROVIDE SHEET METAL COVER PLATES TO COVER ANY OPEN SPACES LEFT PAINT TO MATCH EXISTING WALL COLOR.



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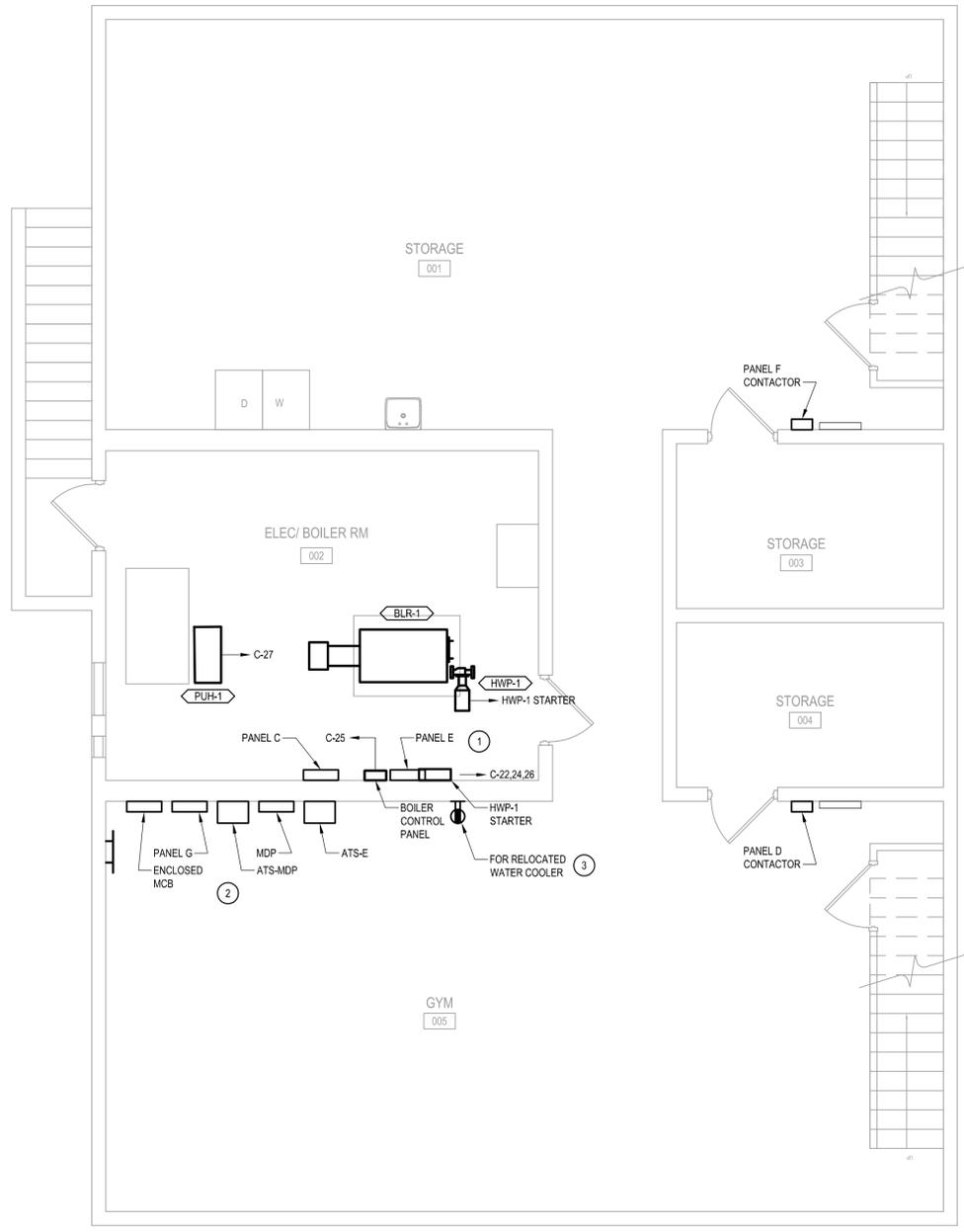
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REVISIONS	MARK	ISSUED DATE	DESCRIPTION

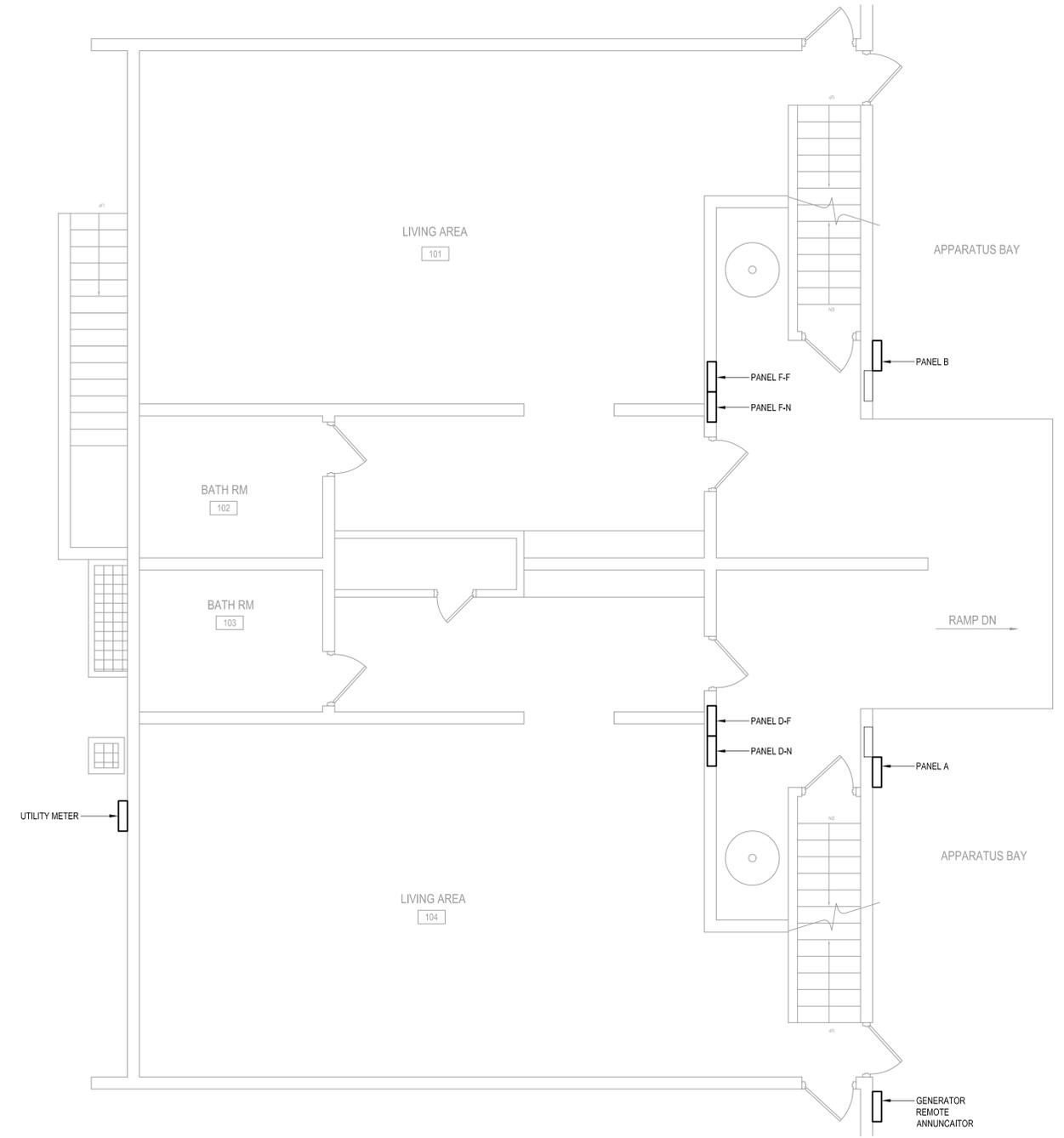
PROJECT NO: 81083-01
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SHEET TITLE:

FLOOR PLANS - POWER

SHEET NO: E-101



1 BASEMENT POWER PLAN
SCALE: 1/4" = 1'-0"
PROJECT NORTH



2 FIRST FLOOR POWER PLAN
SCALE: 1/4" = 1'-0"
PROJECT NORTH

BID DOCUMENTS

LIGHTING AND APPLIANCE PANEL SCHEDULE																											
PANEL DESIGNATION: PANEL C		BUS AMPS: 100		MIN. A.I.C.: 10 KA		MAIN BREAKER: 100A		NOTES:																			
LOCATION: BOILER ROOM		PHASE: 3		WIRE: 4		VOLTAGE: 208Y/120																					
MOUNTING: SURFACE		FED FROM: MDP		NEUTRAL SIZE: 100%		TOTAL POLES: 42																					
ENCLOSURE: NEMA 1		LOCATION: BASEMENT																									
CKT NO.	FEEDER BRANCH CIRCUIT DESCRIPTION	AREA	CIRC. NOTES	BREAKER AMP	POLES	LOAD (KVA)			WIRE			COND			BREAKER			CIRC. NOTES	FEEDER BRANCH CIRCUIT DESCRIPTION	AREA	CKT NO.						
1	HEAT			20	1	0.5			2	12	12	3/4	3/4	12	12	2	0.5		1	20	1	HEATING VALVES - NEVERSINK		2			
3	HEATING VALVES - KEYSTONE			20	1	0.5			2	12	12	3/4	3/4	12	12	2	0.5		1	20	1	UNIT HEATER CIRCULATING PUMP		4			
5	UNIT HEATER - NEVERSINK			20	1	0.5			2	12	12	3/4	3/4	12	12	2	0.5		1	20	1	UNIT HEATER - KEYSTONE		6			
7	BATTERY CHARGER			20	1	0.5			2	12	12	3/4	3/4	12	12	2	0.2		1	20	1	IN USE		8			
9	OIL BURNER			20	1	0.5			2	12	12	3/4	3/4	12	12	2	0.2		1	20	1	IN USE		10			
11	NEVES A/C			15	2	0.3			3	12	12	3/4	3/4	12	12	2	0.2		1	20	1	IN USE		12			
13	IN USE			20	1	0.2			2	12	12	3/4	3/4	12	12	2	0.1		1	20	1	IN USE		14			
17	IN USE			20	1	0.2			2	12	12	3/4	3/4	12	12	2	0.1		1	20	1	IN USE		16			
19	IN USE			20	1	0.2			2	12	12	3/4	3/4	12	12	2	0.5		1	20	1	BATTERY CHARGER		18			
21	RECT FOR BATTERY PAD HTS			20	1	0.5			2	12	12	3/4	3/4	12	12	4	0.9		3	15	1	HMP-1		22			
23	ENGINE BLOCK HTR JB			20	1	1.1			2	12	12	3/4	3/4	12	12	2	0.9		3	15	1	---		24			
25	BLR-1			20	1	0.5			2	12	12	3/4	3/4	12	12	2	0.2		1	20	1	ATC SYSTEM		26			
27	PUH-1			20	1	0.0			2	12	12	3/4	3/4	12	12	2	0.0		1	20	1	SPARE		28			
29	SPARE			20	1	0.0			2	12	12	3/4	3/4	12	12	2	0.0		1	20	1	SPARE		30			
31	SPARE			20	1	0.0			2	12	12	3/4	3/4	12	12	2	0.0		1	20	1	SPARE		32			
33	SPARE			20	1	0.0			2	12	12	3/4	3/4	12	12	2	0.0		1	20	1	SPARE		34			
35	SPARE			20	1	0.0			2	12	12	3/4	3/4	12	12	2	0.0		1	20	1	SPARE		36			
37	PROVISIONAL					0										0						PROVISIONAL		38			
39	PROVISIONAL					0										0						PROVISIONAL		40			
41	PROVISIONAL					0										0						PROVISIONAL		42			
SIDE CONNECTED KVA				3			2			2			SIDE CONNECTED KVA			13						DERATING FACTOR (80%)			DEMAND LOAD SIZE: 26 AMPS		
PANEL CONNECTED KVA				8																		PANEL DEMAND KVA			60%		
PANEL DEMAND FACTOR																											

LIGHTING AND APPLIANCE PANEL SCHEDULE																											
PANEL DESIGNATION: PANEL E		BUS AMPS: 225		MIN. A.I.C.: 10 KA		MAIN BREAKER: 150A		NOTES: MAIN BREAKER SHALL BE LSI																			
LOCATION: BOILER ROOM		PHASE: 3		WIRE: 4		VOLTAGE: 208Y/120		ELECTRONIC TRIP CIRCUIT																			
MOUNTING: SURFACE		FED FROM: MDP VIA A.T.S.		NEUTRAL SIZE: 100%		TOTAL POLES: 42		BREAKER																			
ENCLOSURE: NEMA 1		LOCATION: BASEMENT																									
CKT NO.	FEEDER BRANCH CIRCUIT DESCRIPTION	AREA	CIRC. NOTES	BREAKER AMP	POLES	LOAD (KVA)			WIRE			COND			BREAKER			CIRC. NOTES	FEEDER BRANCH CIRCUIT DESCRIPTION	AREA	CKT NO.						
1	PANEL D CONTACTOR			100	1	8.0			2	1	8	1-1/4	1-1/4	8	1	2	8.0		1	100	1	PANEL F CONTACTOR		2			
3	PROVISIONAL					0										0						PROVISIONAL		4			
5	RADIO RECEIPT			20	2	0.1			3	12	12	3/4	3/4	12	12	3	0.3		2	20	1	NEVERSINK CONTROL WIRE		6			
7	KEYSTONE 1ST FLOOR			20	2	0.1			3	12	12	3/4	3/4	12	12	3	0.3		2	20	1	NEVERSINK 2ND FLOOR		8			
11	KEYSTONE 2ND FLOOR			20	2	0.3			3	12	12	3/4	3/4	12	12	3	0.3		2	20	1	NEVERSINK 1ST FLOOR		10			
13	SPARE (ON)			20	2	0.3			3	12	12	3/4	3/4	12	12	3	0.3		2	20	1	SPARE (ON)		12			
15	NEVERSINK FEED TO PANEL - D			20	1	0.5			2	12	12	3/4	3/4	12	12	2	0.5		1	20	1	KEYSTONE FEED TO PANEL - F		14			
21	KEYSTONE CONTROL WIRE			20	1	0.5			2	12	12	3/4	3/4	12	12	2	0.5		1	20	1	BOILER ROOM LIGHT		16			
23	SPARE			20	2	0.0			2	12	12	3/4	3/4	12	12	2	0.0		2	20	1	SPARE		18			
25	SPARE			100	2	0.0			2	12	12	3/4	3/4	12	12	2	0.0		2	100	1	SPARE		20			
27	SPARE					0.0										0.0						SPARE		22			
29	SPARE					0.0										0.0						SPARE		24			
31	SPARE					0										0						SPARE		26			
33	SPARE					0										0						SPARE		28			
35	SPARE					0										0						SPARE		30			
37	SPARE					0										0						SPARE		32			
39	PROVISIONAL					0										0						PROVISIONAL		34			
41	PROVISIONAL					0										0						PROVISIONAL		36			
SIDE CONNECTED KVA				9			1			1			SIDE CONNECTED KVA			22						DERATING FACTOR (80%)			DEMAND LOAD SIZE: 30 AMPS		
PANEL CONNECTED KVA				9																		PANEL DEMAND KVA			39%		
PANEL DEMAND FACTOR																											

LIGHTING AND APPLIANCE PANEL SCHEDULE																											
PANEL DESIGNATION: PANEL D-F		BUS AMPS: 100		MIN. A.I.C.: 10 KA		MAIN BREAKER: 100A		NOTES:																			
LOCATION: N/RSNK APP BAY		PHASE: 1		WIRE: 3		VOLTAGE: 120/208																					
MOUNTING: FLUSH		FED FROM: PANEL E VIA CONTACTOR		NEUTRAL SIZE: 100%		TOTAL POLES: 18																					
ENCLOSURE: NEMA 1		LOCATION: BOILER ROOM																									
CKT NO.	FEEDER BRANCH CIRCUIT DESCRIPTION	AREA	CIRC. NOTES	BREAKER AMP	POLES	LOAD (KVA)			WIRE			COND			BREAKER			CIRC. NOTES	FEEDER BRANCH CIRCUIT DESCRIPTION	AREA	CKT NO.						
1	APPARATUS ROOM LIGHTS - FIRE ALARM			20	1	0.5			2	12	12	3/4	3/4	12	12	2	0.5		1	20	1	SPARE ON - FIRE ALARM		2			
3	SPARE (ON) - FIRE ALARM			20	1	0.5			2	12	12	3/4	3/4	12	12	2	0.5		1	20	1	LIGHTS 1ST FLOOR - FIRE ALARM		4			
5	BASMENT LIGHTS - FIRE ALARM			20	1	0.5			2	12	12	3/4	3/4	12	12	2	0.5		1	20	1	LIGHTS 2ND FLOOR - FIRE ALARM		6			
7	SIREN CONTROL WIRE - FIRE ALARM			20	1	0.5			2	12	12	3/4	3/4	12	12	2	0.0		1	20	1	SPARE - FIRE ALARM		8			
9	SIREN - FIRE ALARM			20	1	0.5			2	12	12	3/4	3/4	12	12	2	0.0		1	20	1	SPARE - FIRE ALARM		10			
11	SPARE - FIRE ALARM			20	1	0.0			2	12	12	3/4	3/4	12	12	2	0.0		1	20	1	SPARE - FIRE ALARM		12			
13	PROVISIONAL					0										0						PROVISIONAL		14			
15	PROVISIONAL					0										0						PROVISIONAL		16			
17	PROVISIONAL					0										0						PROVISIONAL		18			
SIDE CONNECTED KVA				2			1			SIDE CONNECTED KVA			4									DERATING FACTOR (80%)			DEMAND LOAD SIZE: 5 AMPS		
PANEL CONNECTED KVA				1																		PANEL DEMAND KVA			20%		
PANEL DEMAND FACTOR																											

LIGHTING AND APPLIANCE PANEL SCHEDULE																								
PANEL DESIGNATION: PANEL D-N		BUS AMPS: 100		MIN. A.I.C.: 10 KA		MAIN BREAKER: 100A		NOTES:																
LOCATION: N/RSNK APP BAY		PHASE: 1		WIRE: 3		VOLTAGE: 120/208																		
MOUNTING: FLUSH		FED FROM: PANEL E		NEUTRAL SIZE: 100%		TOTAL POLES: 18																		
ENCLOSURE: NEMA 1		LOCATION: BOILER ROOM																						
CKT NO.	FEEDER BRANCH CIRCUIT DESCRIPTION	AREA	CIRC. NOTES	BREAKER AMP	POLES	LOAD (KVA)			WIRE			COND			BREAKER			CIRC. NOTES	FEEDER BRANCH CIRCUIT DESCRIPTION	AREA	CKT NO.			
1	APPARATUS ROOM LIGHTS			20	1	0.5			2	12	12	3/4	3/4	12	12	2	0.5		1	20	1	SPARE (ON)		2
3	SPARE (ON)			20	1	0.5			2	12	12	3/4	3/4	12	12	2	0.5		1	20	1	LIGHTS 1ST FLOOR		4
5	BASMENT LIGHTS			20	1	0.5			2	12	12	3/4	3/4	12	12	2	0.5		1	20	1	LIGHTS 1ST FLOOR		6
7	SIREN CONTROL WIRE			20	1	0.5			2	12	12	3/4	3/4	12	12	2	0.0							