NEWTON CORRECTIONAL FACILITY
9404.00 DOC NCF CRC BOILER REPLACEMENT

PROJECT LOCATION

DRAWING INDEX		
SHEET	REV	TITLE
		GENERAL
G00	0	COVER SHEET AND DRAWING INDEX
G01	0	BOILER REPLACEMENT SITE PLAN
		MECHANICAL
M01	0	MECHANICAL DEMOLITION PLAN
M02	0	MECHANICAL PLAN
M03	0	MECHANICAL DETAILS
M04	0	MECHANICAL SCHEDULES
		ELECTRICAL
E01	0	ELECTRICAL PLAN
E02	0	ENLARGED ELECTRICAL PLAN
E03	0	ELECTRICAL NOTES & PROJECT PHOTOS

COORDINATE PHASING/SEQUENCING WITH REPRESENTATIVE TO MINIMIZE SHUTDOWN TIME. REMOVE AND INSTALL ONE BOILER AT THE TIME.

A G00 NEWTON CORRECTIONAL FACILITY

NO SCALE

N

PROFESSIONAL ENGINEER MOHAMMED N. ABU-HASAN NO. 20081 IOWA
EXPIRES DEC. 31, 2025

I HEREBY CERTIFY THAT THE PORTION OF THIS TECHNICAL SUBMISSION DESCRIBED BELOW WAS PREPARED BY ME OR UNDER MY DIRECT PERSONAL SUPERVISION. I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF IOWA.

SIGNATURE:
NAME: MOHAMMED N. ABU-HASAN
DATE:
LICENSE RENEWAL DATE: DEC. 31, 2025
PAGES OR DIVISIONS COVERED BY THIS CERTIFICATION:

MEP ENGINEER:
INNOVATIVE ENGINEERS, INC.
2871 Heinz Rd. Suite B, Iowa City, IA 52240
T 319.855.4115 I F 319.351.0070
www.innovativeengineersinc.com

Iowa Department of Administrative Services
DAS
IOWA DEPART. OF ADMINISTRATIVE SERVICES
CENTRAL PROCUREMENT ENTERPRISES (CPE)
HOOVER STATE OFFICE BUILDING, LEVEL 3
1305 EAST WALNUT
DES MOINES, IA 50319-0105

NEWTON CORRECTIONAL FACILITY
9404.00 DOC NCF CRC BOILER REPLACEMENT

307 S 60TH AVE W
NEWTON, IA 50208

MARK	DATE	DESCRIPTION
1		
	11/16/2024	OUT FOR BID

PROJECT NO: 101323
DATE: 11/16/2024
DRAWN BY: MAH
COPYRIGHT

SHEET TITLE

COVER SHEET & DRAWING INDEX

G00

A G01 CRC BOILER REPLACEMENT SITE PLAN

SCALE 3/32" =1'

N

GENERAL ELECTRICAL NOTES:

1. ALL BRANCH CIRCUITS SHALL HAVE GROUND CONDUCTORS.
2. PROVIDE SEPARATE NEUTRAL FOR EACH BRANCH CIRCUIT PHASE CONDUCTOR.
3. HOMERUN CIRCUITS SHALL CONTAIN NO MORE THAN THREE (3) HOT CONDUCTORS PER CONDUIT.
4. CONTRACTOR SHALL APPLY FOR THE STATE OF IOWA FOR ELECTRICAL PERMIT.

SPECIFIC ELECTRICAL KEYED NOTES:

1. THIS AREA IS A CLASS 1, DIVISION 2, GROUP D AREA. PROVIDE ALL DEVICES IN THIS AREA WITH EXPLOSION PROOF SEAL-OFFS AT THE DEVICE AND AT AN APPROPRIATE LOCATION NEAR ELECTRICAL PANEL SERVING THE DEVICES. ALL CONDUITS ENTERING THIS AREA SHALL BE GROUTED INSIDE AND OUTSIDE WITH NON-SHRINK GROUT.
2. AN IDENTIFIED AND ACCESSIBLE SWITCH OR CIRCUIT BREAKER SHALL BE INSTALLED AT A LOCATION NOT LESS THAN 20 FEET OR MORE THAN 100 FEET FROM THE DISPENSING DEVICE(S) TO SHUT OFF THE POWER IN THE EVENT OF A FIRE, AN ACCIDENT, OR OTHER EMERGENCY. PROVIDE E-STOP.
3. PROVIDE A NEW 60A DISC, 208V, 3PH, 4W. COORDINATE INSTALLATION OF NEW DISC. WITH EQUIPMENT VENDOR. VERIFY POWER REQUIREMENTS WITH MANUFACTURER.
4. EXACT LOCATION OF THE TANK SHALL BE COORDINATED IN THE FILED. MAINTAIN CLEARANCES PER NFPA 58 &59.

MEP ENGINEER:
INNOVATIVE ENGINEERS, INC.
2871 Heinz Rd. Suite B, Iowa City, IA 52240
T 319.855.4115 I F 319.351.0070
www.innovativeengineersinc.com

Iowa Department of Administrative Services
DAS

IOWA DEPART. OF ADMINISTRATIVE SERVICES
CENTRAL PROCUREMENT ENTERPRISES (CPE)
HOOVER STATE OFFICE BUILDING, LEVEL 3
1305 EAST WALNUT
DES MOINES, IA 50319-0105

NEWTON CORRECTIONAL FACILITY
9404.00 DOC NCF CRC BOILER REPLACEMENT

307 S 60TH AVE W
NEWTON, IA 50208

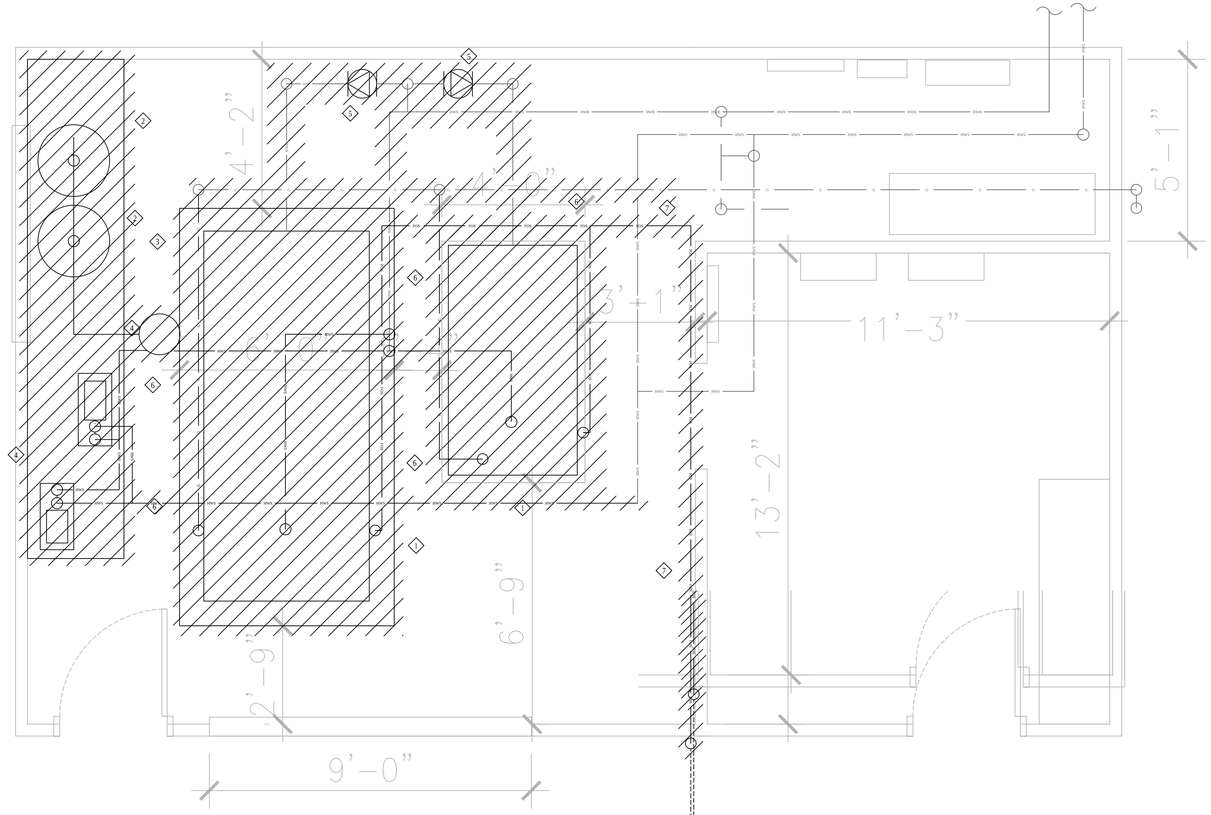
MARK	DATE	DESCRIPTION
1	11/16/2024	OUT FOR BID

PROJECT NO: 101323
DATE: 11/16/2024
DRAWN BY: MAH
COPYRIGHT

SHEET TITLE

CRC BOILER REPLACEMENT SITE PLAN

G01

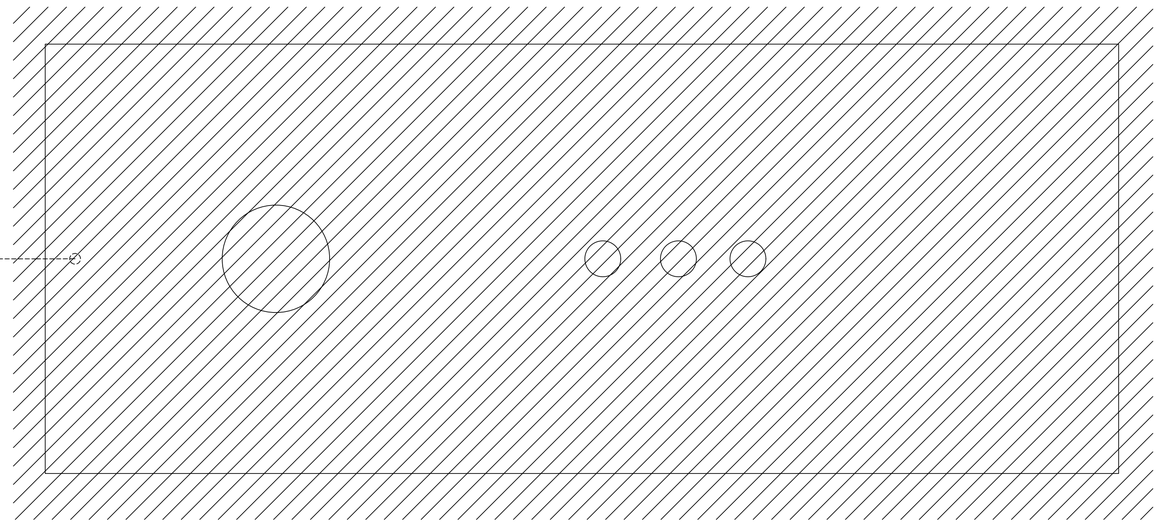


A/M01 MECHANICAL PLAN

SCALE 1/2" = 1' - 0"

N

NOTE:
FUEL OIL TANK SHOWN FOR CLARITY ONLY. CONTRACTOR TO VERIFY ACTUAL LOCATION AND SIZE OF THE EXISTING TANK IN THE FIELD.



MECHANICAL KEYED NOTES :

1. REMOVE EXISTING HOT WATER BOILER AND HOUSEKEEPING PAD. PREPARE SPACE FOR INSTALLATION OF NEW CONCRETE PAD AND BOILER (2 TYP.) SEE GENERAL NOTE 5 BELOW.
2. REMOVE EXISTING EXPANSION TANKS AND PIPING.
3. REMOVE EXISTING AIR SEPARATOR.
4. REMOVE EXISTING SYSTEM CIRCULATOR PUMPS.
5. REMOVE EXISTING BOILER PUMPS AND PIPING DOWNSTREAM OF PUMPS.
6. REMOVE PIPING IN AREAS OF DEMOLITION. PREPARE REMAINING PIPING FOR RECONNECTION TO NEW EQUIPMENT. (TYP.)
7. REMOVE EXISTING FUEL OIL PIPE. RESTORE GRADE PER SUDAS RECOMMENDATIONS TO MATCH EXISTING.
8. EXISTING FUEL TANK HAS APPROXIMATELY 8,600 GALLONS OF DYED MIXED #1/#2 FUEL OIL. PUMP OUT UNUSABLE FUEL OIL AND COORDINATE METHOD OF DISPOSAL PER EPA APPROVED METHOD. COORDINATE ALL FUEL TANK DISPOSAL ACTIVITES WITH OWNER PER IOWA DNR REQUIREMENTS. CONTRACTOR RESPONSIBLE FOR SECURING ALL REQUIRED PERMITS. REMOVE CONCRETE TANK CAP SLAB AND EXISTING 10,000 GAL BURIED OIL TANK. ARRANGE FOR ANY REQUIRED SOIL CONTAMINATION TESTS. REMOVE EMPTY TANK FOR SALVAGE. GEOTECHNICAL ENGINEER TO BE CONSULTED TO DETERMINE EXISTING SOIL CHARACTERISTICS AND BACKFILL AS DIRECTED TO RESTORE GRADE TO MATCH EXISTING. FOLLOW GUIDELINES IN CURRENT SUDAS DOCUMENT.
9. REMOVE 18" AND 12" EXISTING BOILER FLUES. PREPARE EXISTING ROOF OPENINGS FOR RE-USE. EXISTING BOILER FLUES NOT SHOWN FOR CLARITY.

GENERAL MECHANICAL DEMOLITION NOTES:

1. M.C. SHALL VERIFY THE EXISTING CONDITIONS AT THE PROJECT SITE BEFORE SUBMITTING BID.
2. THE M.C. SHALL VISIT THE SITE TO VERIFY DEVICES AND EQUIPMENT NOT SHOWN.
3. MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR HIS OWN DEMOLITION REMOVAL, CAPPING, ABANDONING, DISCONNECTING OF EXISTING MECHANICAL EQUIPMENT AND MATERIAL. ALL CUTTING, PATCHING, REPAIRING, REPLACEMENT AND REFINISHING, SHALL MATCH THE EXISTING CONSTRUCTION AS NEARLY AS POSSIBLE.
4. THE OWNER SHALL HAVE THE FIRST CHOICE TO ACCEPT EXISTING DEVICES AND EQUIPMENT BEING REMOVED AND NOT REUSED.
5. BOILER REPLACEMENT IS TO BE PHASED. CURRENTLY INOPERABLE BOILER 1 (BURNHAM) IS TO BE REPLACED FIRST WHILE BOILER 2 (KEWANEE) REMAINS IN OPERATION. BOILER 2 IS THEN TO BE REPLACED AFTER BOILER 1 IS BROUGHT ON LINE. COORDINATE THE PHASED REPLACEMNET WITH OWNER.

MEP ENGINEER:
INNOVATIVE ENGINEERS, INC.
2871 Heinz Rd. Suite B, Iowa City, IA 52240
T 319.855.4115 I F 319.351.0070
www.innovativeengineersinc.com

Iowa Department of Administrative Services
DAS
IOWA DEPART. OF ADMINISTRATIVE SERVICES
CENTRAL PROCUREMENT ENTERPRISES (CPE)
HOOVER STATE OFFICE BUILDING, LEVEL 3
1305 EAST WALNUT
DES MOINES, IA 50319-0105

NEWTON CORRECTIONAL FACILITY
9404.00 DOC NCF CRC BOILER REPLACEMENT
307 S 60TH AVE W
NEWTON, IA 50208

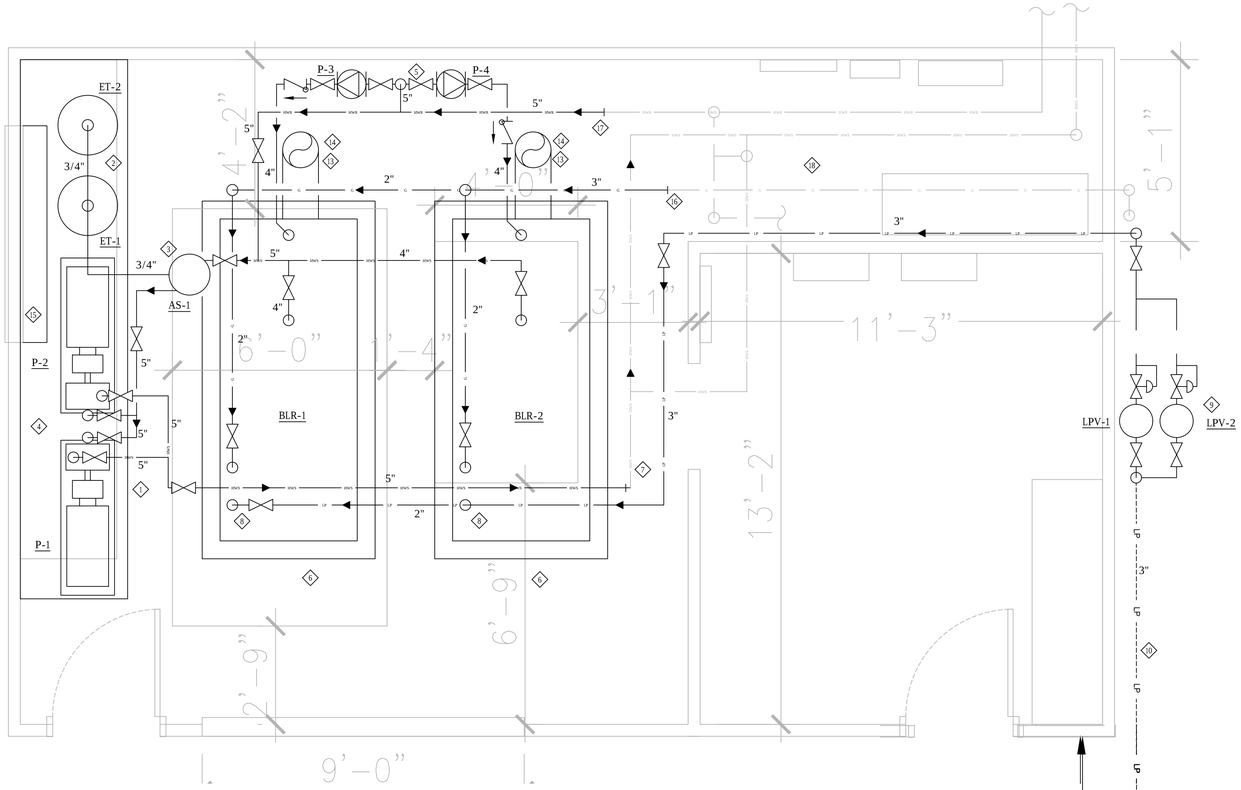
MARK	DATE	DESCRIPTION
1	11/16/2024	OUT FOR BID

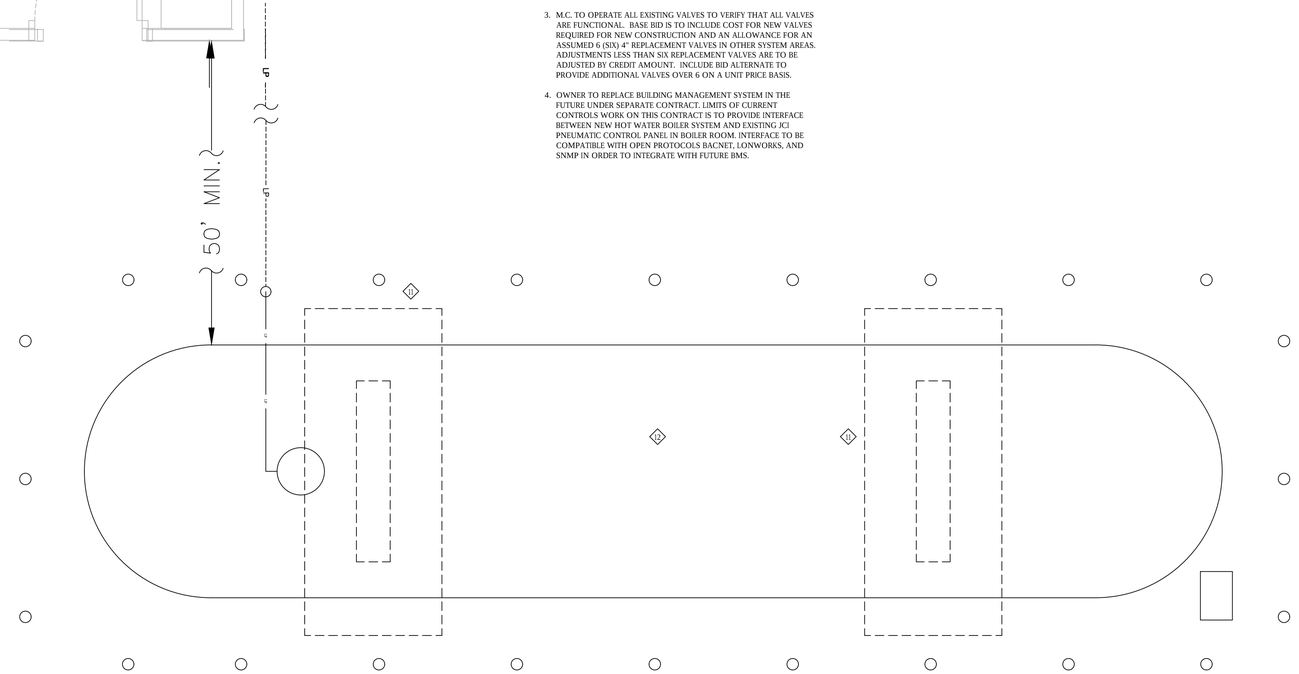
PROJECT NO: 101323
DATE: 11/16/2024
DRAWN BY: MAH
COPYRIGHT

SHEET TITLE

MECHANICAL DEMOLITION PLAN

M01





A M02 MECHANICAL PLAN

SCALE : 1/2" = 1'- 0"

N

NOTE:
TANK SHOWN FOR CLARITY ONLY. CONTRACTOR TO LOCATE ACTUAL POSITION OF THE LP TANK AND FILL STATION IN THE FIELD.

MECHANICAL KEYED NOTES :

1. INSTALL NEW 4" CONCRETE HOUSEKEEPING PAD FOR MOUNTING EXPANSION TANKS AND PUMP. USE 3500 PSI COMPRESSIVE STRENGTH CONCRETE WITH WELDED WIRE MESH REINFORCEMENT.
2. INSTALL NEW EXPANSION TANKS.
3. INSTALL NEW AIR SEPARATOR.
4. INSTALL NEW SYSTEM CIRCULATION PUMPS.
5. INSTALL NEW BOILER PUMPS. CONNECT TO BOILER RETURN WATER PORT.
6. INSTALL NEW 4" CONCRETE HOUSEKEEPING PAD AND BOILER. SEE GENERAL NOTE 5 ON SHEET M01.
7. RECONNECT HEATING SUPPLY WATER TO EXISTING SYSTEM HOT WATER SUPPLY PIPING.
8. ROUTE NEW LP PIPING AND CONNECT TO LP FUEL CONNECTION ON BOILERS.
9. MOUNT LP VAPORIZERS ON EXTERIOR WALL OF BUILDING IN PARALLEL.
10. ROUTE NEW BURIED LP LINE TO NEW LP TANK.
11. INSTALL USED RECONDITIONED 12,000 GAL LP TANK. COORDINATE EXACT SITE LOCATION OF LP TANK AND TANK FILL STATION WITH OWNER. RECONDITIONED USED LP TANKS MUST BE RECERTIFIED BY QUALIFIED FIRM IN STRICT ACCORDANCE WITH ALL PROCEDURES AND METHODS REQUIRED IN NFPA 58 AND NFPA 59 CODES. MAINTAIN MINIMUM 50 FOOT CODE REQUIRED DISTANCE FROM BUILDINGS. PROVIDE CONCRETE SADDLE PIERS PER NFPA 59 REQUIREMENTS AND DESIGNED FOR THIS LOCATION AND APPLICATION IN PARTICULAR. INSTALL CONCRETE BOLLARDS AROUND LP TANK ON 4 FOOT CENTERS. SEE DETAILS.
12. OWNER TO CONTRACT LP FILL QUANTITY WITH VENDOR ON SEPARATE CONTRACT. CONTRACTOR IS TO PROVIDE FIRST 5,000 GALLONS OF LIQUID PROPANE FOR START-UP AND TESTING AS PART OF BASE BID
13. CONNECT NEW 12 INCH BOILER FLUE TO NEW BOILER AND ROUTE NEW STACK THROUGH EXISTING ROOF OPENING.
14. REPAIR ROOF PENETRATION AROUND NEW BOILER FLUE STACK. REPAIR ROOF PER ROOFING MANUFACTURER'S REQUIREMENTS TO MAINTAIN ROOF WARRANTY. CONTACT INFORMATION FOR EXISTING ROOF SYSTEM:
    ANDREW PRITCHARD
    ACADEMY ROOFING AND SHEET METAL
    6361 NE 14TH ST.
    DES MOINES, IA 50313
    515-964-2345
15. REPAIR EXISTING OPERABLE OUTDOOR AIR LOUVER AND CONNECT NEW DUCTWORK TO SPLIT ROOM COMBUSTION AIR. SEE DETAIL E, SHEET M03.
16. RECONNECT NEW NATURAL GAS LINE TO EXISTING.
17. RECONNECT NEW HEATING HOT WATER RETURN LINE TO EXISTING LINE.
18. EXISTING PIPING IN TUNNEL AREA IS TO REMAIN EXCEPT AS NOTED.

GENERAL MECHANICAL NOTES:

1. M.C. SHALL VERIFY THE EXISTING PIPING SIZES AND EQUIPMENT LOCATION.
2. REFER TO PIPING DETAILS FOR LOCATION OF VALVES AND ADDITIONAL PIPING SPECIALTIES.
3. M.C. TO OPERATE ALL EXISTING VALVES TO VERIFY THAT ALL VALVES ARE FUNCTIONAL. BASE BID IS TO INCLUDE COST FOR NEW VALVES REQUIRED FOR NEW CONSTRUCTION AND AN ALLOWANCE FOR AN ASSUMED 6 (SIX) 4" REPLACEMENT VALVES IN OTHER SYSTEM AREAS. ADJUSTMENTS LESS THAN SIX REPLACEMENT VALVES ARE TO BE ADJUSTED BY CREDIT AMOUNT. INCLUDE BID ALTERNATE TO PROVIDE ADDITIONAL VALVES OVER 6 ON A UNIT PRICE BASIS.
4. OWNER TO REPLACE BUILDING MANAGEMENT SYSTEM IN THE FUTURE UNDER SEPARATE CONTRACT. LIMITS OF CURRENT CONTROLS WORK ON THIS CONTRACT IS TO PROVIDE INTERFACE BETWEEN NEW HOT WATER BOILER SYSTEM AND EXISTING ICI PNEUMATIC CONTROL PANEL IN BOILER ROOM. INTERFACE TO BE COMPATIBLE WITH OPEN PROTOCOLS BACNET, LONWORKS, AND SNMP IN ORDER TO INTEGRATE WITH FUTURE BMS.

Iowa Department of Administrative Services
DAS

IOWA DEPART. OF ADMINISTRATIVE SERVICES
CENTRAL PROCUREMENT ENTERPRISES (CPE)
HOOVER STATE OFFICE BUILDING, LEVEL 3
1305 EAST WALNUT
DES MOINES, IA 50319-0105

NEWTON CORRECTIONAL FACILITY
9404.00 DOC NCF CRC BOILER REPLACEMENT

307 S 60TH AVE W
NEWTON, IA 50208

MARK	DATE	DESCRIPTION
1	11/16/2024	OUT FOR BID

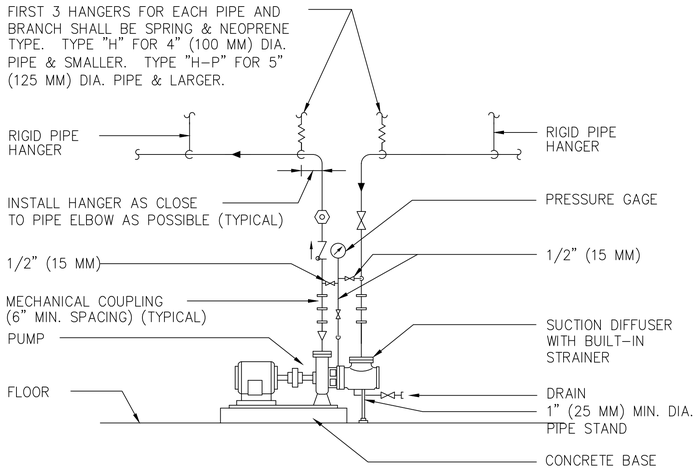
PROJECT NO: 101323
DATE: 11/16/2024
DRAWN BY: MAH
COPYRIGHT

SHEET TITLE

MECHANICAL PLAN

M02

MEP ENGINEER:
INNOVATIVE ENGINEERS, INC.
2871 Heinz Rd. Suite B, Iowa City, IA 52240
T 319.855.4115 I F 319.351.0070
www.innovativeengineersinc.com

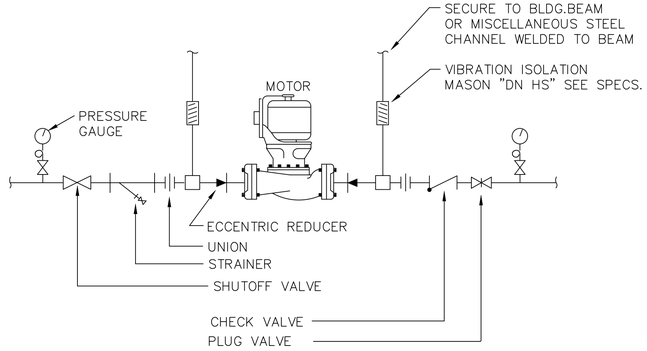


A M03 TYPICAL PIPING CONNECTIONS TO FLOOR MOUNTED PUMPS

NOT TO SCALE

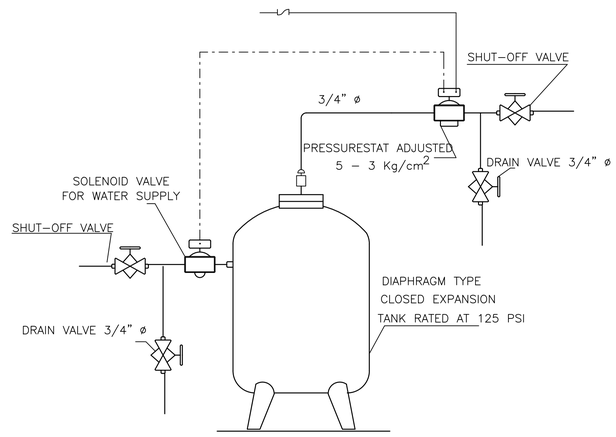
NOTES:

SEE SPECIFICATION SECTION "PUMPS" FOR Y STRAINER OPTION



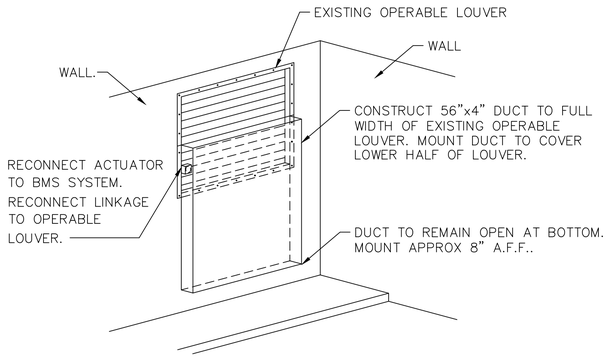
B M03 TYPICAL IN-LINE PUMP CONNECTION

NOT TO SCALE



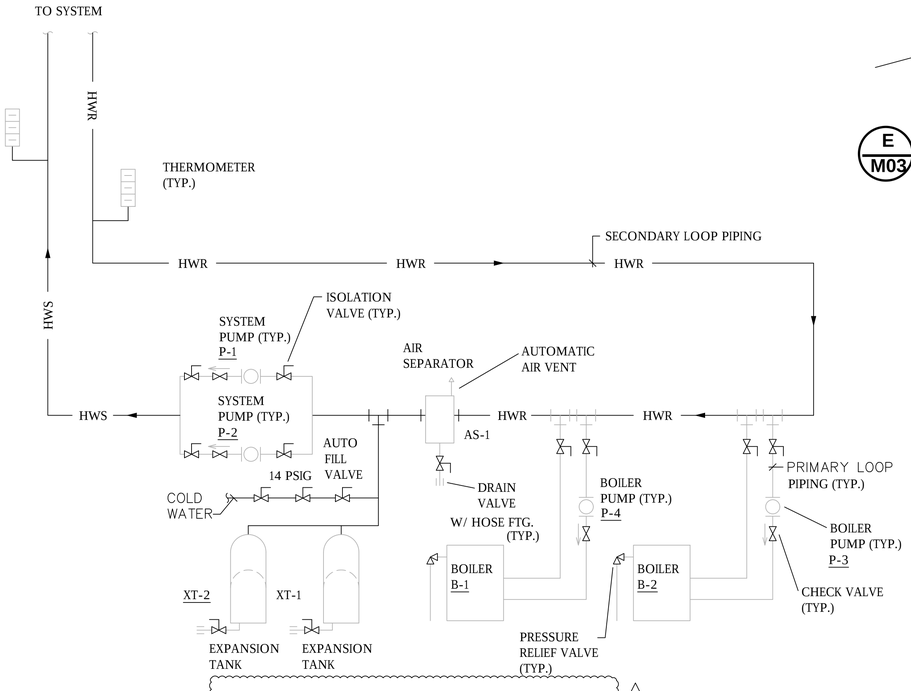
C M03 TYPICAL EXPANSION TANK CONNECTION

NOT TO SCALE



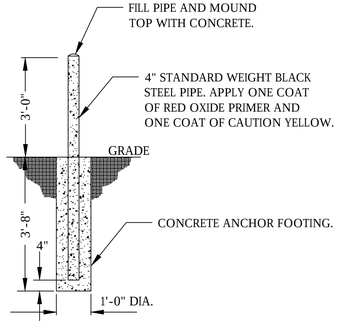
E M03 COMBUSTION AIR DUCTWORK

NOT TO SCALE



D M03 HEATING HOT WATER SCHEMATIC 2

NOT TO SCALE



F M03 SAFETY BOLLARD DETAIL

NOT TO SCALE

Heating Hot Water – Control Sequence

1. All heating hot water equipment shall function in both normal and emergency power mode.
2. Space heating shall be provided via circulation of hot water as provided by two hot water boilers. Hot water pumps are designed to operate as duty-standby units for circulation of heating hot water to all points of use.
3. Each hot water pump is to be controlled by the existing BAS controlling a motor VFD. VFD's are to have have hand-off auto (h-o-a) switches; units shall be in auto position when available for operation as controlled by the BAS.
4. Upon a call for heating, either by any air handler unit, cabinet unit heater, fan coil unit, terminal box or unit heater, the following shall occur.
   a. Pumps shall lead/lag on a weekly basis based upon runtime. (one pump is duty and one pump is stand-by)
   b. BAS shall alternate pumps weekly on Tuesday at 11:00 am based upon runtime, sequencing equipment in order of least to greatest accumulated yearly runtime, where the lowest runtime unit is indexed as lead/first, and highest runtime unit is indexed as lag/last.
   c. If unit selected as duty pump is unavailable for operation due to maintenance, failure, or selection of off position at unit (H-O-A) switch, the standby pump shall become the duty pump.
5. Upon failure of the duty hot water pump, the BAS shall automatically initiate the start-up of the standby pump, and signal an alarm to the BAS.
6. Hot water pump flow shall be maintained until there are no systems requesting heating. Each pump shall be provided with a current sensor to operate as a flow proof of that pumping unit. Any pump energized through the EMS system which does not give positive indication of flow shall signal an alarm after 90 seconds. Continued lack of flow proof for an energized pump to a period of 180 seconds shall de-energize that pump and initiate the startup of the standby unit.
7. Two differential pressure sensors will provide input to the BAS. Each sensor shall have an adjustable set point (provided by TAB contractor). The BAS shall modulate the VFD's of both duty pumps to maintain DP setpoint for both sensors by calculating the difference between each sensor and its set point. The maximum difference shall be input into the VFD control loop.
8. On the call for heating, the BAS is to signal the individual control panel on the selected duty boiler. Boilers will be scheduled for duty/standby by the BAS similar to the pump scheduling above.
9. The two boilers will be set to operate shall operate in a lead/lag configuration.. Upon initiation of heating system, the duty boiler shall slowly ramp up while the boiler circulation pump simultaneously energizes. System loop circulation pumps will simultaneously energize. The boiler shall modulate the boiler burner to maintain hot water supply temperature based on an outdoor air temperature reset schedule. The ratio shall be 180°F HW at 5° of outside air and 130°F HW at 60°F of outside air (field adjustable).
10. Should one boiler fail to maintain proper hot water supply temperature alone, BAS will signal the designated lag boiler to fire to maintain hot water supply temperature.
11. System is to shut down if discharge water temperature is +15°F (adj.) from setpoint, or on loss of water flow. Alarm BMS.
12. Upon a loss or inability to maintain hot water supply temperature, an alarm shall signal the BAS.
13. Incoming hot wter supply temperature and flow rate shall be monitored and totalized by the B.A.S. Provide vortex shedding type meter.

MEP ENGINEER:
INNOVATIVE ENGINEERS, INC.
2871 Heinz Rd. Suite B, Iowa City, IA 52240
T 319.855.4115 I F 319.351.0070
www.innovativeengineersinc.com

IOWA DEPART. OF ADMINISTRATIVE SERVICES
CENTRAL PROCUREMENT ENTERPRISES (CPE)
HOOVER STATE OFFICE BUILDING, LEVEL 3
1305 EAST WALNUT
DES MOINES, IA 50319-0105

NEWTON CORRECTIONAL FACILITY
9404.00 DOC NCF CRC BOILER REPLACEMENT
307 S 60TH AVE W
NEWTON, IA 50208

MARK	DATE	DESCRIPTION
1	11/16/2024	OUT FOR BID

PROJECT NO: 101323
DATE: 11/16/2024
DRAWN BY: MAH
COPYRIGHT

SHEET TITLE

MECHANICAL DETAILS

M03

SCHEDULE ABBREVIATIONS:			
BHP	BRAKE HORSE POWER	MAX.	MAXIMUM
BTUH	BRITISH THERMAL UNIT PER HOUR	MBH	THOUSANDS OF BTU/HOUR
CAP.	CAPACITY	MCA	MINIMUM CIRCUIT AMPACITY
CFM	CUBIC FEET PER MINUTE	MHP	MOTOR HORSEPOWER
DIM.	DIMENSION	MIN.	MINIMUM
EFF	EFFICIENCY	MOCP	MAXIMUM OVERCURRENT PROTECTION
EWT	ENTERING WATER TEMPERATURE	NO.	NUMBER
FLA	FULL LOAD AMPS	OA	OUTSIDE AIR
FPM	FEET PER MINUTE	OCP	OVER-CURRENT PROTECTION
FT.	FEET	PSI	POUNDS PER SQUARE INCH
GAL	U.S. GALLON	PSIG	POUNDS PER SQUARE INCH GAUGE
GPM	GALLON PER MINUTE	REQ'D	REQUIRED
H	HEIGHT	RLA	RATED LOAD AMPS
HP	HORSEPOWER	RPM	REVOLUTIONS PER MINUTE
HR	HOUR	SCFM	STANDARD CUBIC FEET PER MINUTE
IN.	INCH	SQ. FT.	SQUARE FEET
KW	KILOWATTS	TEMP	TEMPERATURE
L	LENGTH	VOLT	VOLTAGE
LB	POUNDS	W	WITH
LF	LINEAR FEET	WC	WATER COLUMN
LWT	LEAVING WATER TEMPERATURE		

APPLICABLE CODES

CONTRACTOR SHALL COMPLY WITH APPLICABLE CODES AND LOCAL AMENDMENTS

BUILDING CODE:	INTERNATIONAL BUILDING CODE 2015
MECHANICAL CODE:	INTERNATIONAL MECHANICAL CODE 2021
PLUMBING CODE:	UNIFORM PLUMBING CODE 2021-AMENDED
LIFE SAFETY CODE:	NFPA 101 2021
MODEL ENERGY CODE:	IECC 2012
ELECTRICAL CODE:	NEC 2020 EDITION

EXPANSION TANK SCHEDULE

TAG	MANUFACTURER	MODEL	SERVICE	TYPE	CAPACITY (GAL)	MAXIMUM ACCEPTANCE (GAL)	DIMENSION (INCHES)	COMMENTS
ET-1	TACO	PAX500-150	HEATING HOT WATER	VERTICAL BLADDER	132.0	61	85"H X 24"Φ	
ET-2	TACO	PAX500-150	HEATING HOT WATER	VERTICAL BLADDER	132.0	61	85"H X 24"Φ	

NOTES:
1.

AIR SEPARATOR SCHEDULE

TAG	MANUFACTURER	MODEL	SERVICE	TYPE	CAPACITY (GPM)	DIMENSION (INCHES)	COMMENTS
AS-1	TACO	ACT05F	HEATING HOT WATER	CENTRIFUGAL	550	29"H x 14"Φ	1

NOTES:
1. PROVIDE WITH REMOVABLE STRAINER

HOT WATER BOILER SCHEDULE

SYMBOL	NOMINAL BHP	FUEL	INLET FUEL PRESSURE	TURNDOWN RATIO	INPUT MBTU/HR	OUTPUT MBTU/HR	EWT °F	LWT °F	MAXIMUM PRESSURE	ELECTRICAL					MANUFACTURER	MODEL	REMARKS
										AMP	VOLT-PHASE	DISCONNECT		CONTROLLER/STARTER			
												BY (NOTE A)	TYPE (NOTE B)	BY (NOTE A)			
BLR-1	116	NG/LP	14" WC	5:1	4,000	3,879	160°	180°	160 PSIG	12	208/3	EC	FUSED	MFR		THERMAL SOLUTIONS	4000	1
BLR-2	116	NG/LP	14" WC	5:1	4,000	3,879	160°	180°	160 PSIG	12	208/3	EC	FUSED	MFR		THERMAL SOLUTIONS	4000	1

NOTES:
1. DUAL FUEL BOILER. NATURAL GAS PRIMARY FUEL, LP BACKUP FUEL.

PUMP SCHEDULE

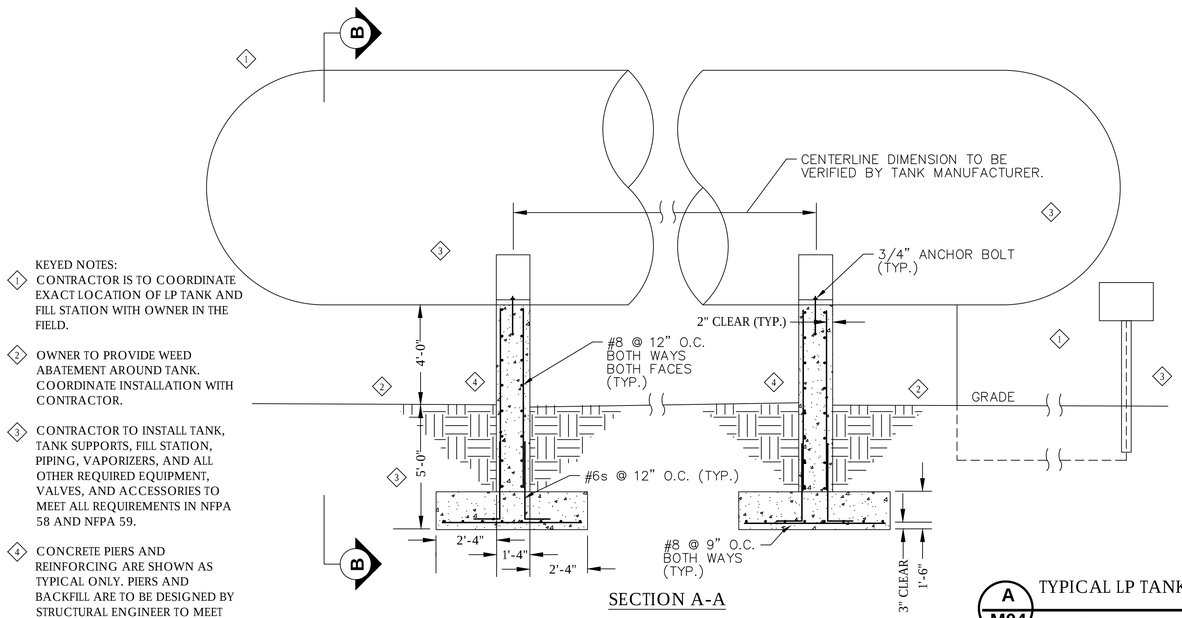
SYMBOL	SERVICE	TYPE	GPM	PUMP FT. HEAD AT DESIGN	MIMIMUM PUMP EFFICIENCY	INLET/IMPEL. SIZE IN.	VIBRATION ISOLATION		ELECTRICAL						MANUFACTURER	SERIES	MODEL	REMARKS
							TYPE	DEFL.	HP (NOTE E)	RPM	VOLT-PHASE	DISCONNECT		CONTROLLER/STARTER				
												BY (NOTE A)	TYPE (NOTE B)	BY (NOTE A)	TYPE (NOTE C)			
P-1	HEATING SYSTEM	BASE MOUNTED END SUCTION	400.0	16	77.0%	6 / 6.85	SPRING	0.75	3.0	1,160	208/3	EC	FUSED	EC	VFD/B	TACO	FI	5009D	1
P-2	HEATING SYSTEM	BASE MOUNTED END SUCTION	400.0	16	77.0%	6 / 6.85	SPRING	0.75	3.0	1,160	208/3	EC	FUSED	EC	VFD/B	TACO	FI	5009D	1
P-3	BOILER	IN-LINE	380.0	25	83.00%	5/ 8.15	SPRING	0.75	3.0	1,160	208/3	EC	FUSED	EC	VFD/B	TACO	CI	4009D	1
P-4	BOILER	IN-LINE	380.0	25	83.00%	5/ 8.15	SPRING	0.75	3.0	1,160	208/3	EC	FUSED	EC	VFD/B	TACO	CI	4009D	1

NOTES:
1. PROVIDE SHAFT GROUNDING AS REQUIRED IN THE MOTOR SPECIFICATION 23 05 13.

LP VAPORIZER SCHEDULE

TAG	SERVICE	TYPE	VAPORIZING CAPACITY		MAXIMUM PRESSURE	DIMENSIONS			ELECTRICAL					MANUFACTURER	MODEL	REMARKS
			GAL/HR	MBTU/HR	(PSIG)	L (IN)	H (IN)	W (IN)	VOLT-PHASE	MCA	MOP	DISCONNECT				
												BY	TYPE			
LPV-1	LP GAS SYSTEM	DRY ELECTRIC	50.0	4500	4	67.4	9.5	8.3	208/3	32.80	35	EC	FUSED	ALGAS SDI	TORREXX TX100	1
LPV-2	LP GAS SYSTEM	DRY ELECTRIC	50.0	4500	4	67.4	9.5	8.3	208/3	32.80	35	EC	FUSED	ALGAS SDI	TORREXX TX100	1

NOTES:
1. MOUNT IN PARALLEL CONFIGURATION.



SECTION A-A

KEYED NOTES:

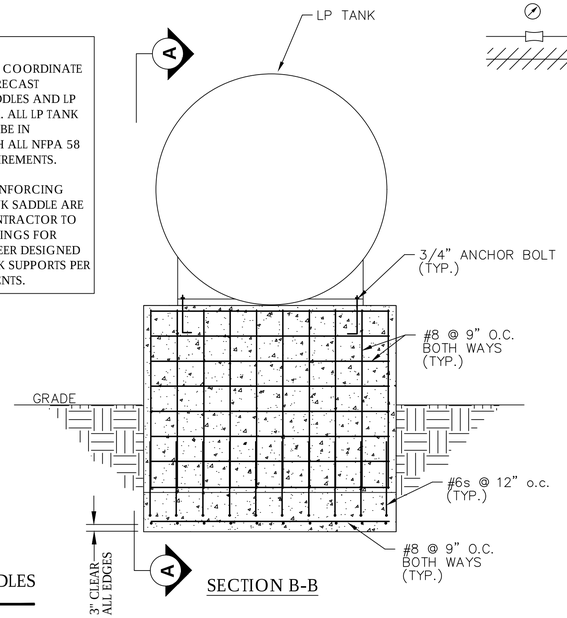
1. CONTRACTOR IS TO COORDINATE EXACT LOCATION OF LP TANK AND FILL STATION WITH OWNER IN THE FIELD.
2. OWNER TO PROVIDE WEED ABATEMENT AROUND TANK. COORDINATE INSTALLATION WITH CONTRACTOR.
3. CONTRACTOR TO INSTALL TANK, TANK SUPPORTS, FILL STATION, PIPING, VAPORIZERS, AND ALL OTHER REQUIRED EQUIPMENT, VALVES, AND ACCESSORIES TO MEET ALL REQUIREMENTS IN NFPA 58 AND NFPA 59.
4. CONCRETE PIERS AND REINFORCING ARE SHOWN AS TYPICAL ONLY. PIERS AND BACKFILL ARE TO BE DESIGNED BY STRUCTURAL ENGINEER TO MEET SPECIFIC APPLICATION.

NOTE:
CONTRACTOR IS TO COORDINATE INSTALLATION OF PRECAST CONCRETE PIPE SADDLES AND LP TANK WITH VENDOR. ALL LP TANK INSTALLATION IS TO BE IN ACCORDANCE WITH ALL NFPA 58 AND NFPA 59 REQUIREMENTS.

CONCRETE AND REINFORCING DETAILS ON THE TANK SADDLE ARE TYPICAL ONLY. CONTRACTOR TO SUBMIT SHOP DRAWINGS FOR STRUCTURAL ENGINEER DESIGNED AND CERTIFIED TANK SUPPORTS PER NFPA 59 REQUIREMENTS.

A / M04 TYPICAL LP TANK SUPPORT SADDLES

NOT TO SCALE



SECTION B-B

SYMBOLS

HWS	HOT WATER HEATING SUPPLY
HWR	HOT WATER HEATING RETURN
LP	LIQUIFIED PETROLEUM (LP) GAS VAPOR
LPL	LP LIQUID
G	NATURAL GAS
	DIRECTION OF FLOW
	TOP CONNECTION, 45° OR 90°
	BOTTOM CONNECTION, 45° OR 90°
	SIDE CONNECTION
	CAPPED OUTLET
	RISE OR DROP IN PIPE
	UNION
	POINT OF CONNECTION BETWEEN NEW AND EXISTING WORK
	STRAINER
	THERMOMETER
	PRESSURE GAGE
	WATER FLOW MEASURING DEVICE
	EXISTING EQUIPMENT TO DEMOLISH

MEP ENGINEER:
INNOVATIVE ENGINEERS, INC.
2871 Heinz Rd. Suite B, Iowa City, IA 52240
T 319.855.4115 I F 319.351.0070
www.innovativeengineersinc.com

IOWA DEPART. OF ADMINISTRATIVE SERVICES
CENTRAL PROCUREMENT ENTERPRISES (CPE)
HOOVER STATE OFFICE BUILDING, LEVEL 3
1305 EAST WALNUT
DES MOINES, IA 50319-0105

NEWTON CORRECTIONAL FACILITY
9404.00 DOC NCF CRC BOILER REPLACEMENT
307 S 60TH AVE W
NEWTON, IA 50208

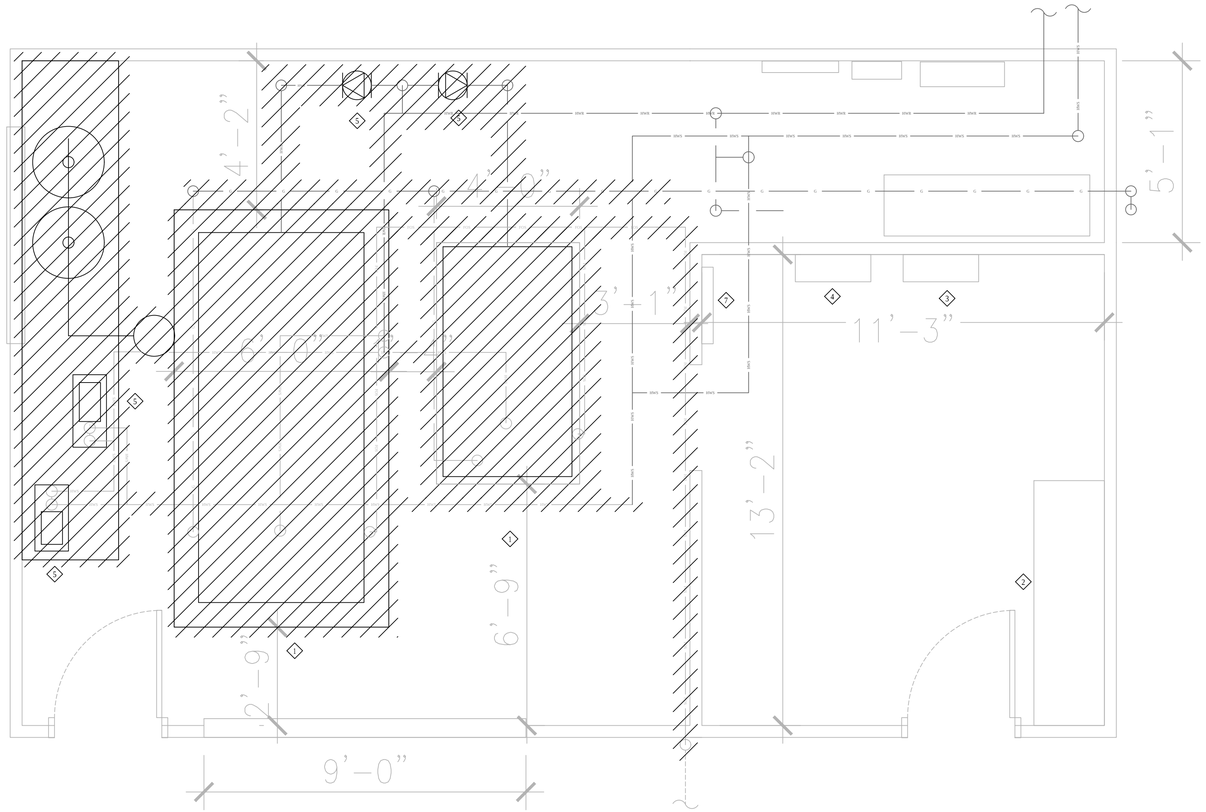
MARK	DATE	DESCRIPTION
1	11/16/2024	OUT FOR BID

PROJECT NO: 101323
DATE: 11/16/2024
DRAWN BY: MAH
COPYRIGHT

SHEET TITLE

MECHANICAL DETAILS

M04



A E01 ELECTRICAL DEMOLITION PLAN

SCALE 1/2" = 1' - 0"

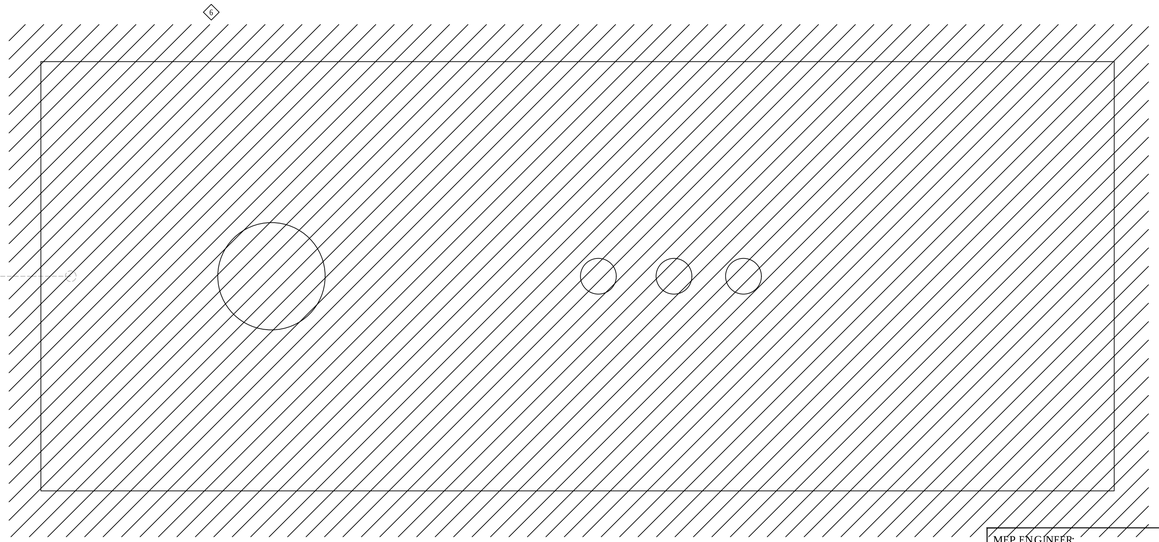
N

GENERAL ELECTRICAL DEMOLITION NOTES:

1. E.C. SHALL VERIFY THE EXISTING CONDITIONS AT THE PROJECT SITE BEFORE SUBMITTING BID.
2. THE E.C. SHALL VISIT THE SITE TO VERIFY DEVICES AND EQUIPMENT NOT SHOWN.
3. ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR HIS OWN DEMOLITION REMOVAL, CAPPING, ABANDONING, DISCONNECTING OF EXISTING ELECTRICAL EQUIPMENT AND MATERIAL. ALL CUTTING, PATCHING, REPAIRING, REPLACEMENT AND REFINISHING, SHALL MATCH THE EXISTING CONSTRUCTION AS NEARLY AS POSSIBLE.
4. THE OWNER SHALL HAVE THE FIRST CHOICE TO ACCEPT EXISTING DEVICES AND EQUIPMENT BEING REMOVED AND NOT REUSED.

DEMOLITION KEY NOTES

1. EXISTING BOILER TO BE REMOVED. REMOVE CIRCUITRY BACK TO THE SERVING PANEL.
2. DISTRIBUTION SWITCHBOARD MANUFACTURED BY WESTINGHOUSE TO REMAIN. 2500A, 3PH, 4W IS EXISTING TO REMAIN.
3. EXISTING 400A AUTOMATIC TRANSFER SWITCH TO REMAIN..
4. EXISTING 400A EMERGENCY PANEL LABELED "EM" IN THE FIELD IS TO REMAIN.
5. EXISTING PUMP TO BE REMOVED. REMOVE CONDUIT AND WIRING BACK TO THE SERVING PANEL.
6. TANK TO BE REMOVED. REMOVE CONTROLS WIRING BACK TO THE SERVING PANEL.
7. EXISTING ELECTRICAL EQUIPMENT TO REMAIN.



MEP ENGINEER:
INNOVATIVE ENGINEERS, INC.
2871 Heinz Rd. Suite B, Iowa City, IA 52240
T 319.855.4115 I F 319.351.0070
www.innovativeengineersinc.com

Iowa Department of Administrative Services
DAS

IOWA DEPART. OF ADMINISTRATIVE SERVICES
CENTRAL PROCUREMENT ENTERPRISES (CPE)
HOOVER STATE OFFICE BUILDING, LEVEL 3
1305 EAST WALNUT
DES MOINES, IA 50319-0105

NEWTON CORRECTIONAL FACILITY
9404.00 DOC NCF CRC BOILER REPLACEMENT

307 S 60TH AVE W
NEWTON, IA 50208

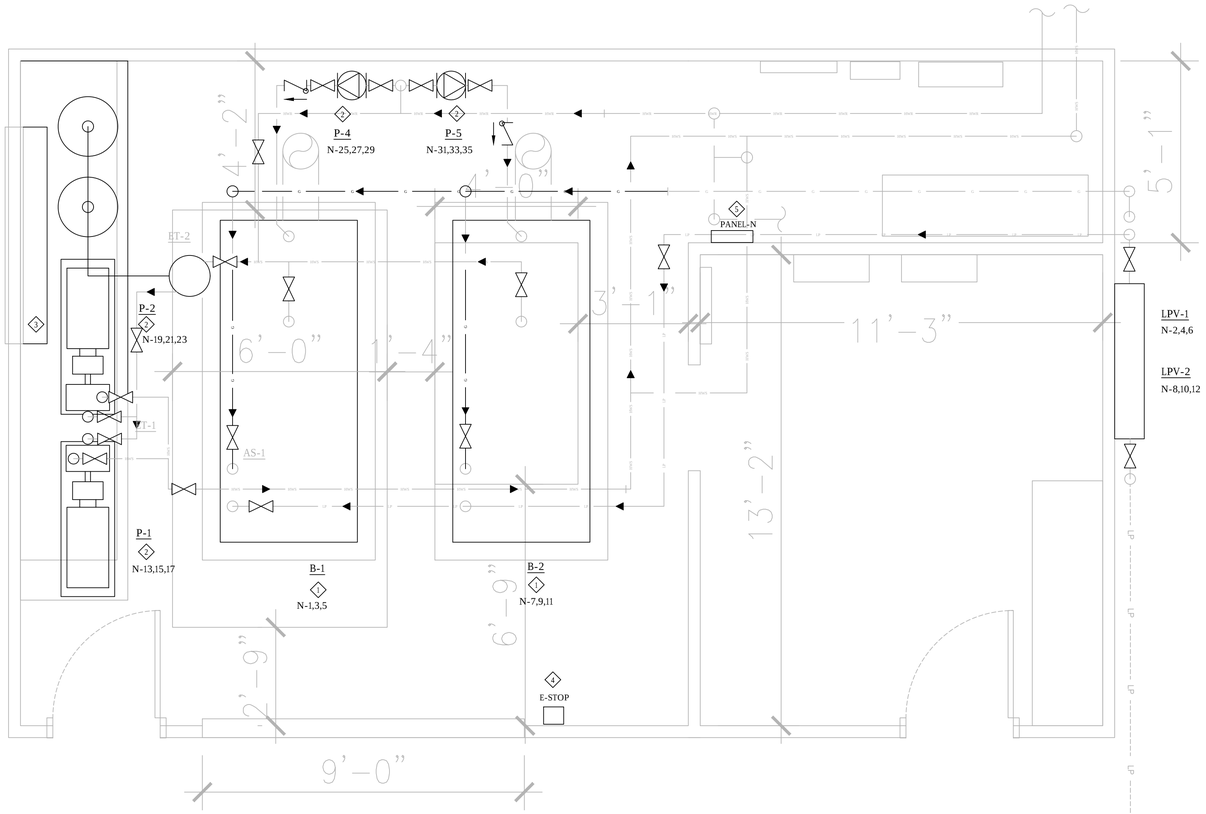
MARK	DATE	DESCRIPTION
1	11/16/2024	OUT FOR BID

PROJECT NO: 101323
DATE: 11/16/2024
DRAWN BY: MAH
COPYRIGHT

SHEET TITLE

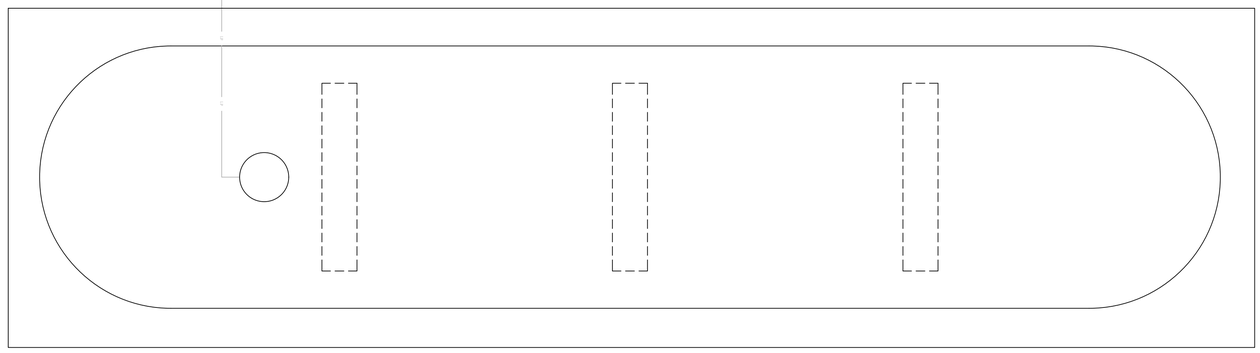
ELECTRICAL DEMOLITION PLAN

E01



A/E02 ELECTRICAL PLAN

SCALE 1/2" = 1' - 0"



GENERAL POWER NOTES:

1. TYPICAL LIGHTING HOMERUN CIRCUITS SHALL BE #12 PHASE WIRE, #12 NEUTRAL WIRE, #12 GND, 3/4"C. FOR 120V, 20A HOMERUN CIRCUITS THAT EXCEED 100 FOOT FEEDER LENGTH, OVERSIZE CONDUCTOR TO #10 DUE TO VOLTAGE DROP.
2. 120V HOMERUN CIRCUITS SHALL CONTAIN NO MORE THAN (3) HOT OR SWITCHED CONDUCTORS PER CONDUIT.
3. CONTRACTOR SHALL INSTALL DISCONNECT SWITCHES SUCH THAT NEC CLEARANCES ARE MET. LOCATIONS OF DISCONNECTS ARE DIAGRAMMATIC.
4. EXPOSED RIGID GALVANIZED STEEL CONDUIT IS ACCEPTABLE FOR DEVICE DROPS. PROVIDE FLEX SEAL-TIGHT FOR EQUIPMENT CONNECTIONS.

ELECTRICAL KEY NOTES

1. NEW BOILER. PROVIDE NEW CIRCUITRY. FEED FROM NEW PANEL-N.
2. NEW PUMP. PROVIDE NEW CIRCUITRY. FEED FROM NEW PANEL-N
3. LOUVER ACTUATOR .PROVIDE A NEW 120V CIRCUIT.
4. PROVIDE A NEW E-STOP TO SERVE NEW BOILERS.
5. PROVIDE A NEW 125A BRANCH PANEL-N, 3PH, 4W.
6. NEW LP VAPORIZERS. PROVIDE POWER PER MANUFACTURER RECOMMENDATIONS. REFERENCE ELECTRICAL SCHEDULES ON SHEET E03 FOR ADDITIONAL INFORMATION.

Iowa Department of Administrative Services
DAS
IOWA DEPART. OF ADMINISTRATIVE SERVICES
CENTRAL PROCUREMENT ENTERPRISES (CPE)
HOOVER STATE OFFICE BUILDING, LEVEL 3
1305 EAST WALNUT
DES MOINES, IA 50319-0105

NEWTON CORRECTIONAL FACILITY
9404.00 DOC NCF CRC BOILER REPLACEMENT
307 S 60TH AVE W
NEWTON, IA 50208

MARK	DATE	DESCRIPTION
1	11/16/2024	OUT FOR BID

PROJECT NO: 101323
DATE: 11/16/2024
DRAWN BY: MAH
COPYRIGHT

SHEET TITLE

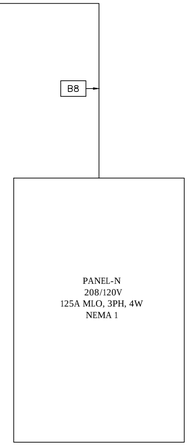
ELECTRICAL PLAN

E02

MEP ENGINEER:
INNOVATIVE ENGINEERS, INC.
2871 Heinz Rd. Suite B, Iowa City, IA 52240
T 319.855.4115 I F 319.351.0070
www.innovativeengineersinc.com

GENERAL ELECTRICAL NOTES

1. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE (N.E.C.) AND GOVERNING MUNICIPAL, STATE AND LOCAL CODES. ALL MATERIAL SHALL BE NEW AND SHALL BEAR THE U.L. LABEL WHERE APPLICABLE.
2. CONTRACTOR SHALL MAKE ALL NECESSARY, CUTTING AND DO ALL THE REPATCHING AS NECESSARY FOR THE PROPER EXECUTION OF THIS WORK.
3. AFTER COMPLETION OF THE INSTALLATION, THE SYSTEM SHALL TEST FREE FROM SHORT CIRCUITS AND GROUNDS.
4. WHERE ELECTRICAL CONDUCTORS ARE INSTALLED IN CONDUIT, THE CONDUIT SHALL COMPLY WITH THE N.E.C. REQUIREMENTS.
5. ALL CONDUCTOR SHALL BE COPPER. NO CONDUCTOR SHALL BE SMALLER THAN #12 AWG AND SHALL BE RATED FOR 600VOLTS THWN OR THHN INSULATION. INSTALL A GROUNDING CONDUCTOR WITH ALL CIRCUITS, UNLESS NOTED OTHERWISE, SIZED PER N.E.C.250–122.
6. VERIFY BREAKER AND CORRESPONDING WIRE SIZES FOR ALL ELECTRICAL EQUIPMENT. DONOT ORDER MATERIAL BEFORE VERIFYING BREAKER & WIRE SIZE. REPORT ANY DISCREPANCY IMMEDIATLY TO THE ENGINEER OF RECORD.
7. VERIFY AVAILABLE INTERRUPTING CURRENT(AIC) WITH POWER COMPANY. EQUIPMENT AIC RATING MUST BE LARGER THAN THE POWER COMPANY AIC OR MUST BE PROTECTED ON THE LINE SIDE WITH A CURRENT LIMITING DEVICE.
8. SAFETY SWITCHES SHALL BE SQUARE 'D', GENERAL ELECTRIC, OR WESTINGHOUSE, FUSED OR NON–FUSED AND SIZED AS INDICATED. NEMA 3R WHEN EXPOSED TO WEATHER
9. PANELS SHALL BE SQUARE 'D', GENERAL ELECTRIC OR EQUAL, TYPE AND NUMBER OF BREAKERS AS INDICATED ON PANEL SCHEDULE. STENCIL PANEL DESIGNATION ON INSIDE OF PANEL. ALL TWO–POLE BREAKERS SHALL BE COMMON TRIP. PROVIDE TYPE WRITTEN SCHEDULE IN EACH LOAD CENTERS. CONNECTION TO MAIN BUS SHALL BE WITH BURNDY ANNULAR COMPRESSION LUGS.
10. ALL EXTERIOR ELECTRICAL EQUIPMENT SHALL BE ANCHORED TO COMPLY WITH LOCAL CODE FOR WIND RESISTANCE.
11. IT IS NOT THE INTENT OF THESE PLANS TO SHOW EVERY MINOR DETAIL OF CONSTRUCTION. THE CONTRACTOR IS EXPECTED TO FURNISH AND INSTALL ALL ITEMS FOR A COMPLETE ELECTRICAL SYSTEM AND PROVIDE ALL REQUIREMENTS NECESSARY FOR EQUIPMENT TO BE PLACED IN PROPER WORKING ORDER.
12. ALL WORK SHALL BE PERFORMED BY A LICENSED ELECTRICAL CONTRACTOR IN A FIRST CLASS WORKMANLIKE MANNER. THE COMPLETED SYSTEM SHALL BE FULLY OPERATIVE AND ACCEPTED BY THE OWNER.
13. LOAD DATA IS BASED ON INFORMATION GIVEN ENGINEER AT TIME OF DESIGN. VERIFY ALL EQUIPMENT AND PANEL SIZES BEFORE ORDERING AND BEFORE INSTALLATION.
14. ALL BRANCH CIRCUITS SHALL HAVE GROUND CONDUCTORS.
15. THE ELECTRICAL CONTRACTOR SHALL PROVIDE, IF REQUIRED, ADJUSTMENTS (±) 6'–0" IN THE LOCATION OF ALL SYSTEM DEVICES, FIXTURES, OUTLETS, PANELS, ETC. IN ORDER TO EXPEDITE THE ELECTRICAL WORK. THE POSITION OF ALL WORK AS SHOWN IS INTENDED TO BE FIXED AND IN THE PROPER LOCATION. SUCH REQUIRED ADJUSTMENT SHALL BE DETERMINED BY THE A/E.
16. PROVIDE SEPARATE NEUTRAL FOR EACH BRANCH CIRCUIT PHASE CONDUCTOR.



B / E301 ELECTRICAL ONE-LINE

SCALE = NTS

ELECTRICAL ONE–LINE FEEDER SCHEDULE

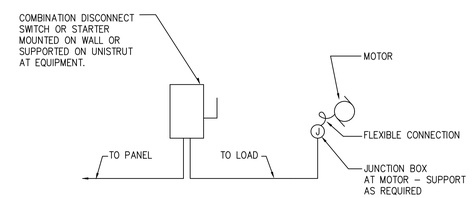
FEEDER AMPACITY	NO. OF SETS	FEEDER CONDUCTOR SIZE (75°C) COPPER CONDUCTORS (THWN) PHASE & NEUTRAL	COPPER GROUND	ALUMINUM CONDUCTORS (XHHW–2) PHASE & NEUTRAL	ALUMINUM GROUND	CONDUIT SIZE (EMT) 3 PHASE CONDUCTORS AND GROUND NO.	COPPER FEEDERS	ALUMINUM FEEDERS	3 PHASE CONDUCTORS, NEUTRAL, AND GROUND NO.	COPPER FEEDERS	ALUMINUM FEEDERS
30	1	10	10	–	–	A1	1/2"	–	B1	1/2"	–
50	1	8	10	6	6	A2	3/4"	3/4"	B2	3/4"	1"
60	1	6	10	4	6	A3	3/4"	1"	B3	1"	1"
65	1	6	8	4	6	A4	3/4"	1"	B4	1"	1"
85	1	4	8	2	6	A5	1"	1–1/4"	B5	1–1/4"	1–1/4"
100	1	3	8	1	6	A6	1"	1–1/4"	B6	1–1/4"	1–1/4"
115	1	2	6	1/0	4	A7	1–1/4"	1–1/4"	B7	1–1/4"	1–1/2"
130	1	1	6	2/0	4	A8	1–1/4"	1–1/2"	B8	1–1/2"	2"
150	1	1/0	6	3/0	4	A9	1–1/2"	1–1/2"	B9	1–1/2"	2"
175	1	2/0	6	4/0	4	A10	1–1/2"	2"	B10	2"	2"
200	1	3/0	6	250kcmil	4	A11	2"	2"	B11	2"	2–1/2"
230	1	4/0	4	300kcmil	2	A12	2"	2"	B12	2–1/2"	2–1/2"
250	1	250kcmil	4	350kcmil	2	A13	2"	2–1/2"	B13	2–1/2"	2–1/2"
300	2	1/0	4	3/0	2	A14	1–1/2"	1–1/2"	B14	2"	2"
350	2	2/0	3	4/0	1	A15	1–1/2"	2"	B15	2"	2"
380	1	500kcmil	3	750kcmil	1	A16	2–1/2"	3"	B16	3"	3–1/2"
400	2	3/0	3	250kcmil	1	A17	2"	2"	B17	2"	2–1/2"
460	2	4/0	2	300kcmil	1/0	A18	2"	2–1/2"	B18	2–1/2"	2–1/2"
500	2	250kcmil	2	350kcmil	1/0	A19	2"	2–1/2"	B19	2–1/2"	2–1/2"
600	2	350kcmil	1	500kcmil	2/0	A20	2–1/2"	2–1/2"	B20	2–1/2"	3"
760	2	500kcmil	1/0	750kcmil	3/0	A21	2–1/2"	3"	B21	3"	3–1/2"
800	3	300kcmil	1/0	400kcmil	3/0	A22	2–1/2"	2–1/2"	B22	2–1/2"	2–1/2"

NOTES: 1. CONDUIT SIZE BASED ON CONDUCTOR PROPERTIES LISTED IN THE CURRENT NEC EDITION, CHAPTER 9, TABLES 5 AND 5A, AND CONDUIT AREAS LISTED CHAPTER 9, TABLE 4 FOR EMT WITH 40% FILL. OTHER CONDITIONS MAY REQUIRE A LARGER CONDUIT, SIZED PER NEC.

2. COORDINATE SIZE, TYPE , AND QUANTITY OF LUGS WITH EQUIPMENT VENDOR

POWER SYSTEMS

SYMBOL	DESCRIPTION
SWBD 1	LARGE ELECTRICAL EQUIPMENT WITH DESIGNATION
	DISTRIBUTION PANEL WITH DESIGNATION
	BRANCH PANEL WITH DESIGNATION
EF 3	MECHANICAL EQUIPMENT CONNECTION WITH DESIGNATION
	MOTOR WITH DESIGNATION
	DISCONNECT SWITCH
	MOTOR STARTER
	COMBINATION MOTOR STARTER / DISCONNECT SWITCH
VFD	VARIABLE FREQUENCY DRIVE
J	JUNCTION BOX
F1 — FIXTURE TYPE 23-1 — CIRCUIT-RELAY a — CONTROL DEVICE	
	DUPLEX RECEPTACLE
G	GROUND FAULT CIRCUIT INTERRUPTER
	CEILING MOUNTED DUPLEX RECEPTACLE
	SIMPLEX SPECIAL RECEPTACLE
	DATA/TELEPHONE ROUGH-IN, WALL MOUNTED



B / E301 EQUIPMENT WIRING - TYPICAL

SCALE = NTS

DISCONNECT SWITCH AND STARTER SCHEDULE

MARK	LOAD	DISC SW	STAR-TER	VOLTS	PHASE	HP	VA	AMPS	SW	FUSE	NEMA SIZE	STR TYPE	NEMA ENCL.	CONTROL	CONDUIT & WIRE
BLR-1	BOILER-1	UNIT		208	3	-	4,318	12.0	30.0	20.0	--		1		4#10,1#10 GND, 3/4"C.
BLR-2	BOILER-2	UNIT		208	3	-	4,318	12.0	30.0	25.0	--		1		4#10,1#10 GND, 3/4"C.
P-1	SYSTEM PUMP	X	X	208	3	3.0	3,958	11.0	**	**	**	VFD	1	HOA	3#12,1#12 GND, 3/4"C.
P-2	SYSTEM PUMP	X	X	208	3	3.0	3,958	11.0	**	**	**	VFD	1	HOA	3#12,1#12 GND, 3/4"C.
P-3	BOILER PUMP	X	X	208	3	3.0	3,958	11.0	**	**	**	VFD	1	HOA	3#12,1#12 GND, 3/4"C.
P-4	BOILER PUMP	X	X	208	3	3.0	3,958	11.0	**	**	**	VFD	1	HOA	3#12,1#12 GND, 3/4"C.

16150

*ELECTRICAL CONTRACTOR IS RESPONSIBLE TO COORDINATE WITH CONTRACTOR SUPPLYING EQUIPMENT PRIOR TO ALL TRADES ORDERING EQUIPMENT TO ENSURE THE PROPER SELECTION AND COST IMPLICATIONS OF EQUIPMENT SELECTION. COSTS INCURRED DUE TO CHANGES SHALL BE DEFERRED TO THE TRADE SUPPLYING THE EQUIPMENT.
**CONSULT VFD SUPPLIER FOR PROPER SWITCH/FUSE SIZING.
FBO=FEEDER BREAKER ONLY, VFD=VARIABLE SPEED DRIVE BY EC, ALT=ALTERATION REQUIRED
UNIT=INTEGRAL WITH UNIT

VFD's SHALL BE EQUIPPED WITH BYPASS

BRANCH PANEL NAME	VOLTAGE	PHASE	WIRE	BUS SIZE	MAIN OCP	AIC RATING
PANEL N	120/208	3	4	125	M.O	22,000
100% NEUTRAL	CODE: L=LIGHTING, R=RECEPTACLES, M=MOTORS, K=KITCHEN					FLUSH MOUNTING
NEMA 1	COPPER GROUND BAR, ISOLATED GROUND BAR					DOUBLE MAIN LUGS

LOAD	CODE	POLE	BKR	CKT#	A	B	C	CKT#	BKR	POLE	CODE	LOAD
BOILER -1	M	3	20	1	1,440							
					2,800			2	30	3	R	LP VAPORIZER LPV-1
	M	3		3		1,440						
						2,800		4		3	R	
	M	3		5			1,440					
							2,800	6		3	R	
BOILER-2	M	3	20	7	1,440							
					2,800			8	30	3	R	LP VAPORIZERS LPV-2
	M	3		9		1,440						
						2,800		10		3	R	
	M	3		11			1,440					
							2,800	12		3	R	
SYSTEM PUMP P-1	M	3	20	13	1,320							
					500			14	20	1	R	LOUVER
	M	3		15		1,320						
								16	20	1	M	SPARE
	M	3		17			1,320					
								18	20	1	M	SPARE
SYSTEM PUMP P-2	M	3	20	19	1,320							
								20	20	1	M	SPARE
	M	3		21		1,320						
								22	20	1	M	SPARE
	M	3		23			1,320					
								24	20	1	M	SPARE
BOILER PUMP P-3	M	3	20	25	1,320							
								26	30	2	M	SPARE
	M	3		27		1,320						
								28		2	M	SPARE
	M	3		29			1,320					
								30	20	2	M	SPARE
BOILER PUMP P-4	M	3	20	31	132							
								32				SPARE
	M	3		33		1,320						
								34				SPARE
	M	3		35			1,320					
								36				
				37								
								38				
				39								
								40				
				41								
								42				
13,072	PHASE A		RECEPT-VA @		per NEC	13,650	TCL VA					40,592
13,760	PHASE B		LIGHTS-VA @		100%	-	DEMAND VA					35,777
13,760	PHASE C		MOTOR-VA @		95%	22,127	HI-PH CONN. A					114
40,592	TCL		KITCHEN-VA @		80%	-	DEMAND A					99

MEP ENGINEER:
INNOVATIVE ENGINEERS, INC.
2871 Heinz Rd. Suite B, Iowa City, IA 52240
T 319.855.4115 I F 319.351.0070
www.innovativeengineersinc.com

Iowa Department of Administrative Services
DAS
IOWA DEPART. OF ADMINISTRATIVE SERVICES
CENTRAL PROCUREMENT ENTERPRISES (CPE)
HOOVER STATE OFFICE BUILDING, LEVEL 3
1305 EAST WALNUT
DES MOINES, IA 50319-0105

NEWTON CORRECTIONAL FACILITY
9404.00 DOC NCF CRC BOILER REPLACEMENT
307 S 60TH AVE W
NEWTON, IA 50208

MARK	DATE	DESCRIPTION
1	11/16/2024	OUT FOR BID

PROJECT NO: 101323
DATE: 11/16/2024
DRAWN BY: MAH
COPYRIGHT

SHEET TITLE

ELECTRICAL ONE-LINE & DETAILS

E03