HVAC IMPROVEMENTS

BARAGA COUNTY DHHS BUILDING

108 MAIN ST., BARAGA, MI 49908

U.P. ENGINEERS & ARCHITECTS, INC.

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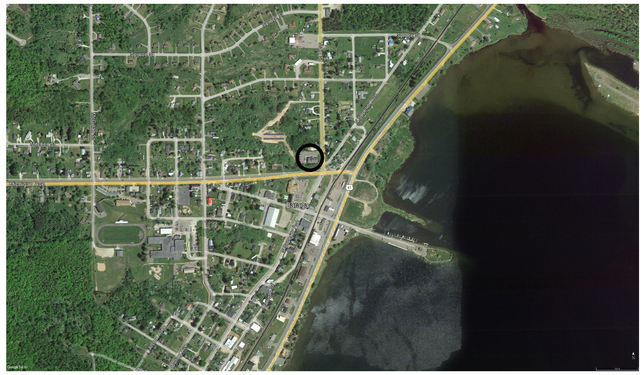

PROJECT VICINITY MAP

PROJECT VICINITY MAP

811 Know what's **below.** **Call** before you dig.

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HVAC IMPROVEMENTS
BARAGA COUNTY DHHS BUILDING
108 MAIN ST., BARAGA, MI 49908

ISSUED FOR:
BID SET — DATE: 7/18/2022

PROJECT NO: K33-00155

DESIGNED BY: SP
DRAWN BY: SP
CHECKED: DL
APPROVED: KD

TITLE SHEET

G001

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P:\K33-00155 Kinnunen, Steve-Baraga DHS Remodel\Dwgs\Boiler Replacement\Mechanical\K33-00155 Steve Kinnunen Baraga MDH#3_Mechanical.rvt

ABBREVIATIONS

ACCU	AIR COOLED CONDENSING UNIT
AFF	ABOVE FINISHED FLOOR
AHU	AIR HANDLING UNIT
AI	ANALOG INPUT
AO	ANALOG OUTPUT
APD	AIR PRESSURE DROP
AS	AIR SEPERATOR
B	BOILER
BB	BASEBOARD
BC	BOOSTER COIL
BDD	BACKDRAFT DAMPER
BFG	BELOW FINISHED GRADE
BFP	BACKFLOW PREVENTER
BHP	BRAKE HORSE POWER
BOD	BOTTOM OF DUCT
BOP	BOTTOM OF PIPE
BT	BATH TUB
BTU	BRITISH THERMAL UNITS
BTUH	BRITISH THERMAL UNITS PER HOUR
C	CONVECTOR
CA	COMPRESSED AIR
CB	CATCH BASIN
CC	COOLING COIL
CCF	100 CUBIC FEET
CD	CEILING DIFFUSER
CF	CUBIC FEET
CFH	CUBIC FEET PER HOUR
CFM	CUBIC FEET PER MINUTE
CFP	CLEAN OUT FERRULE AND PLUG
CH	CHILLER
CI	CAST IRON
CHWR	CHILLED WATER RETURN
CHWS	CHILLED WATER SUPPLY
CO	CLEAN OUT
CO	CARBON MONOXIDE
COND	CONDENSATE
CO2	CARBON DIOXIDE
CT	COOLING TOWER
CU	CONDENSING UNIT
CU FT	CUBIC FOOT
CUH	CABINET UNIT HEATER
CW	COLD WATER
CWR	CONDENSER WATER RETURN
CWS	CONDENSER WATER SUPPLY
D	DIFFUSER
DB	DRY BULB
DEG F	DEGREE FAHRENHEIT
DF	DRINKING FOUNTAIN
DI	DIGITAL INPUT
DIA	DIAMETER
DN	DOWN
DO	DIGITAL OUTPUT
DWV	DRAIN, WASTE AND VENT
EA	EACH
EAT	ENTERING AIR TEMPERATURE
EC	ELECTRICAL CONTRACTOR
EF	EXHAUST FAN
EG	EXHAUST AIR GRILLE
ELEV	ELEVATION
ER	EXHAUST AIR REGISTER
EUH	ELECTRIC UNIT HEATER
EWC	ELECTRIC WATER COOLER
EWH	ELECTRIC WATER HEATER
EWT	ENTERING WATER TEMPERATURE
EX	EXISTING
EXH	EXHAUST
F	FURNACE
FAI	FRESH AIR INTAKE
FBO	FURNISHED BY OTHERS
FC	FAN COIL
FD	FLOOR DRAIN
FD	FIRE DAMPER
FIN	FIN TUBE RADIATION
FLG	FLANGE
FP	FIRE PROTECTION
FPM	FEET PER MINUTE
FT	FOOT OR FEET
F&T	FLOAT AND THERMOSTATIC TRAP
G	GAS (NATURAL)
GAL	GALLON
GC	GENERAL CONTRACTOR
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
GT	GREASE TRAP
H	HYDROGEN
HB	HOSE BIBB
HC	HEATING COIL
HCO	HORIZONTAL CLEANOUT
HP	HORSE POWER
HTR	HEATER
HVAC	HEATING, VENTILATING & AIR COND
HW	HOT WATER
HWC	HOT WATER RECIRCULATING
HWR	HOT WATER RETURN
HWS	HOT WATER SUPPLY
HX	HEAT EXCHANGER
IE	INVERT ELEVATION
IF	INLINE FAN
IN	INCH OR INCHES
IP	IRON PIPE
INV	INVERT
IWH	INSTANTANEOUS WATER HEATER
JAN	JANITOR
JC	JANITOR'S CLOSET
JS	JANITOR'S SINK
KW	KILOWATT
LAT	LEAVING AIR TEMPERATURE
LAV	LAVATORY
LBS	POUNDS
LHWR	LOW TEMPERATURE HOT WATER RETURN
LHWS	LOW TEMPERATURE HOT WATER SUPPLY
LIQ	LIQUID (REFRIGERATION)
LV	LOUVER
LP	PROPANE GAS (LIQUID)
LWT	LEAVING WATER TEMPERATURE
M	METER
MAU	MAKE-UP AIR HANDLING UNIT
MAX	MAXIMUM
MB	MOP BASIN
MBH	BRITISH THERMAL UNITS (1000)
MBTUH	BRITISH THERMAL UNITS (1000)
MC	MECHANICAL CONTRACTOR
MCA	MINIMUM CIRCUIT AMPACITY
MD	MOTORIZED DAMPER
MECH	MECHANICAL
MIN	MINIMUM
MOCP	MAXIMUM OVER CURRENT PROTECTION
N2O	NITROUS OXIDE
NC	NORMALLY CLOSED
NIC	NOT INCLUDED OR NOT IN CONTRACT
NIT	NITROGEN
NO	NORMALLY OPEN
OA	OUTDOOR AIR
OAI	OUTDOOR AIR INTAKE
OC	ON CENTER
OD	OVERFLOW DRAIN
ODP	OPEN DRIP PROOF
OXY	OXYGEN
P	PUMP
PC	PLUMBING CONTRACTOR
PD	PNEUMATIC OPERATED DAMPER
PIV	POST INDICATING VALVE
PRV	PRESSURE REDUCING VALVE
PT	PRESSURE TEMPERATURE PLUG
PTAC	PACKAGED TERMINAL AIR COND. UNIT
PVAC	PROCESS VACUUM
R	REGISTER
RA	RETURN AIR
RD	ROOF DRAIN
RET	RETURN
RF	RETURN FAN
RG	RETURN AIR GRILLE
RPZ	REDUCED PRESSURE ZONE BACKFLOW PREVENTER
RR	RETURN REGISTER
RTU	ROOF TOP UNIT
S	SINK
SA	SUPPLY AIR
SAD	SUPPLY AIR DIFFUSER
SAF	SUPPLY AIR FAN
SAN	SANITARY SEWER
SD	SMOKE DETECTOR
SG	SUPPLY AIR GRILLE
SH	SHOWER HEAD
SHC	STEAM HEATING COIL
SR	SUPPLY REGISTER
SS	STAINLESS STEEL
ST	STORM
STM	STEAM
SUCT	SUCTION (REFRIGERATION)
TCC	TEMPERATURE CONTROL CONTRACTOR
TCD	TEMPERATURE CONTROL DAMPER
TCP	TEMPERATURE CONTROL PANEL
TD	TRANSFER DUCT
TG	TRANSFER AIR GRILLE
TT	THERMOSTATIC TRAP
TYP	TYPICAL
UG	UNDERGROUND
UH	UNIT HEATER
UV	UNIT VENTILATOR
V	VENT
VAC	VACUUM
VAV	VARIABLE AIR VOLUME BOX
VD	VOLUME DAMPER
VFD	VARIABLE FREQUENCY DRIVE
VS	VENT STACK (SANITARY)
VTR	VENT THRU ROOF (SANITARY)
VUV	VERTICAL UNIT VENTILATOR
W	WASTE
WB	WET BULB
WC	WATER CLOSET
W/O	WITHOUT
WH	WATER HEATER
WSHP	WATER SOURCE HEAT PUMP

NOTE:
NOT ALL ABBREVIATIONS AND/OR SYMBOLS ARE USED IN THIS SET OF DOCUMENTS.

SYMBOL LEGEND

- SUPPLY AIR DIFFUSER
- LINEAR DIFFUSER
- RETURN OR EXHAUST AIR GRILLE
- EXHAUST FAN - ROOF
- FRESH AIR INTAKE HOOD - ROOF
- RELIEF AIR HOOD - ROOF
- SUPPLY REGISTER
- RETURN OR EXHAUST REGISTER
- SQUARE TO ROUND TRANSITION
- VOLUME CONTROL DAMPER
- FIRE / SMOKE DAMPER (RATING DETERMINED BY WALL TYPE)
- MOTORIZED DAMPER
- DUCT SMOKE DETECTOR
- THERMOSTAT - 60" A.F.F.
- HUMIDISTAT - 60" A.F.F.
- AIR FLOW
- SUPPLY AIR DUCT UP
- SUPPLY AIR DUCT DOWN
- RETURN AIR DUCT UP
- RETURN AIR DUCT DOWN
- EXHAUST AIR DUCT UP
- EXHAUST AIR DUCT DOWN
- BALL VALVE
- BUTTERFLY VALVE
- CIRCUIT SETTER
- CHECK VALVE
- GATE VALVE
- GLOBE VALVE
- 2-WAY CONTROL VALVE
- 3-WAY CONTROL VALVE
- PRESSURE RELIEF VALVE
- BALANCE VALVE
- INLINE PUMP
- STRAINER
- CAP
- PIPING 90
- PIPING "T"
- METER
- CONNECTION TO EXISTING

- PIPE BREAK
- PIPE DOWN
- PIPE UP
- CLEAN OUT
- GAS METER
- UNION
- HOSE BIBB
- ELECTRIC BELL
- SIAMESE CONNECTION
- BARE FIN TUBE ELEMENT
- FIN TUBE ELEMENT WITH COVER
- EXTERNALLY INSULATED DUCTWORK
- INTERNALLY LINED DUCTWORK

PLUMBING PIPING

- CW — DOMESTIC COLD WATER - EXISTING
- CW - - DOMESTIC COLD WATER - DEMO
- CW — DOMESTIC COLD WATER - NEW
- HW — DOMESTIC HOT WATER - EXISTING
- HW - - DOMESTIC HOT WATER - DEMO
- HW — DOMESTIC HOT WATER - NEW
- HWC — DOMESTIC HOT WATER RECIRC - EXISTING
- HWC - - DOMESTIC HOT WATER RECIRC DEMO
- HWC — DOMESTIC HOT WATER RECIRC - NEW
- SAN — SANITARY - EXISTING
- SAN - - SANITARY - DEMO
- SAN — SANITARY - NEW
- V — VENT - EXISTING
- V - - VENT - DEMO
- V — VENT - NEW
- ST — STORM - EXISTING
- ST - - STORM - DEMO
- ST — STORM - NEW
- OD — OVERFLOW STORM - EXISTING
- OD - - OVERFLOW STORM - DEMO
- OD — OVERFLOW STORM - NEW
- G — GAS - EXISTING
- G - - GAS - DEMO
- G — GAS - NEW

DUCTWORK

- 24x14 SA — SUPPLY AIR DUCT - EXISTING
- 24x14 SA — SUPPLY AIR DUCT - DEMO
- 24x14 SA — SUPPLY AIR DUCT - NEW
- 24x14 RA — RETURN AIR DUCT - EXISTING
- 24x14 RA — RETURN AIR DUCT - DEMO
- 24x14 RA — RETURN AIR DUCT - NEW
- 24x14 OA — OUTSIDE AIR DUCT - EXISTING
- 24x14 OA — OUTSIDE AIR DUCT - DEMO
- 24x14 OA — OUTSIDE AIR DUCT - NEW
- 24x14 EA — EXHAUST AIR DUCT - EXISTING
- 24x14 EA — EXHAUST AIR DUCT - DEMO
- 24x14 EA — EXHAUST AIR DUCT - NEW

MECHANICAL PIPING

- HWS — HYDRONIC HOT WATER SUPPLY - EXISTING
- HWS - - HYDRONIC HOT WATER SUPPLY - DEMO
- HWS — HYDRONIC HOT WATER SUPPLY - NEW
- HWR — HYDRONIC HOT WATER RETURN - EXISTING
- HWR - - HYDRONIC HOT WATER RETURN - DEMO
- HWR — HYDRONIC HOT WATER RETURN - NEW
- FP — FIRE PROTECTION - EXISTING
- FP - - FIRE PROTECTION - DEMO
- FP — FIRE PROTECTION - NEW
- CDS — CONDENSOR WATER SUPPLY
- CDS - - CONDENSOR WATER SUPPLY - DEMO
- CDS — CONDENSOR WATER SUPPLY - EXIST
- CDR — CONDENSOR WATER RETURN
- CDR - - CONDENSOR WATER RETURN - DEMO
- CDR — CONDENSOR WATER RETURN - EXIST
- CHWS — CHILLED WATER SUPPLY
- CHWS - - CHILLED WATER SUPPLY - DEMO
- CHWS — CHILLED WATER SUPPLY - EXIST
- CHWR — CHILLED WATER RETURN
- CHWR - - CHILLED WATER RETURN - DEMO
- CHWR — CHILLED WATER RETURN - EXIST
- AIR — COMPRESSED AIR - EXISTING
- AIR - - COMPRESSED AIR - DEMO
- AIR — COMPRESSED AIR - NEW
- STM — STEAM - EXISTING
- STM - - STEAM - DEMO
- STM — STEAM - NEW
- C — CONDENSATE - EXISTING
- C - - CONDENSATE - DEMO
- C — CONDENSATE - NEW

NOTES

MECHANICAL/PLUMBING AND FIRE PROTECTION GENERAL NOTES

1. THE CONTRACTOR SHALL PROVIDE ALL EQUIPMENT, MATERIALS AND OPERATIONS AND PERFORM ALL LABOR REQUIRED FOR INSTALLATIONS AS INDICATED THE DRAWINGS, IN THE SPECIFICATIONS AND AS REQUIRED BY LOCAL, STATE AND FEDERAL CODES, AND AS MAY BE REASONABLY IMPLIED TO ACCOMPLISH COMPLETE MECHANICAL SYSTEMS.

2. ALL CLOSE ELECTRICAL DISCONNECTS REQUIRED PER NEC CODE SHALL BE FURNISHED AND INSTALLED BY THE ELECTRICAL CONTRACTOR UNLESS NOTED OTHERWISE.

3. CONTRACTOR SHALL PROVIDE PRODUCTS AS SPECIFIED ON THE DRAWINGS AND SPECIFICATIONS, HOWEVER, WHERE THE WORDS "EQUAL TO" ARE USED, ADDITIONAL PRODUCTS MAY BE SUBMITTED AS PROPOSED SUBSTITUTIONS, BUT REQUIRE APPROVAL FROM ARCHITECT/ENGINEER.

4. DESIGN DRAWINGS SHOW GENERAL ARRANGEMENT AND EXTENT OF WORK. THE DRAWINGS ARE DIAGRAMMATIC AND MAY NOT NECESSARILY BE DRAWN TO SCALE FOR PURPOSE OF CLARITY AND LEGIBILITY. IT IS INTENDED THAT ALL ITEMS BE LOCATED SYMMETRICALLY WITH ARCHITECTURAL ELEMENTS WHERE FEASIBLE AND BE INSTALLED TO AVOID OBSTRUCTIONS AND PRESERVE HEADROOM. CONTRACTOR SHALL REVIEW PLANS OF OTHER TRADES WITH HIS OWN WORK TO AVOID CONFLICTS AND INTERFERENCES. CONTRACTOR MUST MAKE USE OF ALL SOURCES OF INFORMATION INCLUDING DRAWINGS OF EQUIPMENT FURNISHED BY OTHERS. FAILURE TO REVIEW WORKING SPACES OR CHECK DIMENSIONS IN QUESTION SHALL NOT WARRANT CONFLICTS. DRAWINGS AND SPECIFICATIONS ARE INTENDED TO BE COMPLIMENTARY.

5. MOTORS SHALL BE PROVIDED BY MECHANICAL CONTRACTOR AS REQUIRED BY THE EQUIPMENT FURNISHED BY THE MECHANICAL CONTRACTOR. MOTORS TO BE SUITABLE FOR LOAD, DUTY, VOLTAGE, FREQUENCY, HAZARD, SERVICE AND LOCATION INTENDED. SINGLE PHASE MOTORS MUST HAVE INTEGRAL THERMAL OVERLOAD PROTECTION IN ADDITION TO THAT PROVIDED IN MOTOR CONTROLLERS. MOTORS TO CONFORM IN DESIGN AND PERFORMANCE TO THE MOTOR STANDARDS OF NEMA. MOTORS RATED FOR CONTINUOUS DUTY UNDER FULL LOAD WITH A MAXIMUM TEMPERATURE RISE OF 105 DEG F FOR OPEN, 125 DEG F FOR DRIP PROOF AND 130 DEG F FOR EXPLOSION PROOF AND TOTALLY ENCLOSED TYPES. SUPPLY MOTORS WITH BELT DRIVES WITH ADJUSTABLE BASES, REMOVABLE BELT GUARDS AND VARIABLE PITCH DRIVE PULLEY SELECTED SO THAT MIDPOINT OF VARIABLE RANGE OF PULLEY WILL DRIVE EQUIPMENT AT RATED SPEED. MOTORS 1 HP AND LARGER SHALL BE THREE PHASE (UNLESS OTHERWISE LISTED).

6. MOTOR CONTROLLERS SHALL BE PROVIDED BY THE MECHANICAL CONTRACTOR FOR MOTORS FURNISHED BY THE MECHANICAL CONTRACTOR. MOTOR CONTROLLERS SHALL BE OF SIZES AND TYPES AS NEEDED TO MEET THE OPERATIONAL CONDITIONS AS REQUIRED BY THE SEQUENCE OF OPERATION. ELECTRICAL CONTRACTOR TO FURNISH AND INSTALL THE POWER CIRCUIT, LOCAL DISCONNECT AND CONNECTION TO MOTOR TERMINALS. MECHANICAL CONTRACTOR TO MOUNT MOTOR CONTROLLERS AND CONTROL COMPONENTS AND WIRE AND MAKE ALL FINAL CONTROL CONNECTIONS BETWEEN DEVICES.

7. THE DRAWINGS INDICATE KNOWN UTILITY AND DRAINAGE LINES IN ACCORDANCE WITH THE INFORMATION FURNISHED TO THE ENGINEER. RESPONSIBILITY FOR LOCATING, UNCOVERING, DISPOSING OR MAINTAINING ALL EXISTING UTILITY LINES TO REST SOLELY WITH THE CONTRACTOR. VERIFY LOCATIONS AND DEPTHS OF SERVICE CONNECTION POINTS BEFORE PROCEEDING WITH CONSTRUCTION.

8. CONTRACTOR SHALL CHECK EXISTING PREMISES BEFORE SUBMISSION OF BIDS TO CHECK ALL CONDITIONS WHICH MAY EFFECT THE PERFORMANCE OF THE WORK INVOLVED. NO ALLOWANCES OR EXTRA PAYMENT WILL BE MADE DUE TO CONTRACTOR'S FAILURE TO EXAMINE SITE AND FULLY DISCERN WORKING CONDITIONS.

9. MECHANICAL CONTRACTOR SHALL RECEIVE, PROPERLY HOUSE, HANDLE, HOIST, AND DELIVER TO PROPER LOCATION EQUIPMENT AND OTHER MATERIALS REQUIRED FOR THIS CONTRACT.

10. THE CONTRACTOR SHALL OBTAIN PERMITS, ARRANGE FOR INSPECTIONS, AND PAY FEES AND EXPENSES IN CONNECTION THEREWITH, AS A PART OF THE WORK REQUIRING SUCH PERMITS. EVERY EFFORT IS MADE TO DESCRIBE THE WORK REQUIREMENTS IN CONFORMITY WITH APPLICABLE CODES.

11. THE CONTRACTOR SHALL REVIEW ANY ALTERNATES OF OTHER TRADES, AND PRICE THEIR BID TO ACCOUNT FOR ITEMS AFFECTING HIS WORK.

12. PIPING PASSING THROUGH CORRIDORS, TUNNELS, CHASES, ETC. SHALL BE CONSIDERED FOR PROPER DRAINAGE. CONSULT WITH THE OTHER CONTRACTORS AND AVOID CONFLICT WITH LOCATION OF PIPING. ORDER OF PRIORITY FOR ALL PIPING AND CONDUITS TO BE INSTALLED SHALL BE AS FOLLOWS WITH THE HIGHEST PRIORITY LISTED FIRST.

A. PLUMBING DRAIN LINES
B. CONDENSATE LINES
C. DUCTWORK
D. FIRE PROTECTION
E. HOT AND COLD WATER PIPING
F. ELECTRICAL CONDUIT

13. WORK ASSIGNMENTS INFERRED BY THE DRAWINGS AND NOTES INCLUDED IN THESE PROJECT DOCUMENTS ARE INFORMATIONAL ONLY AND ARE NOT INTENDED TO RELIEVE THE BIDDING CONTRACTOR OF HIS OBLIGATION TO THE OWNER TO PROVIDE A COMPLETE AND COORDINATED PROJECT. COMPREHENSIVE SUBCONTRACTOR COORDINATION AND FINAL WORK ASSIGNMENTS TO SUBCONTRACTORS ARE THE SOLE RESPONSIBILITY OF THE BIDDING CONTRACTOR.

14. ALL DUCTS SERVING SUPPLY, RETURN AND EXHAUST TERMINALS SHALL BE PROVIDED WITH BALANCE DAMPERS. FOR CLARITY, ALL DAMPERS MAY NOT BE SHOWN ON PLANS.

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PROJECT NO: K33-00155

DESIGNED BY:	SP
DRAWN BY:	SP
CHECKED:	DL
APPROVED:	KD

MECHANICAL AND PLUMBING ABBREVIATIONS AND SYMBOLS

M001

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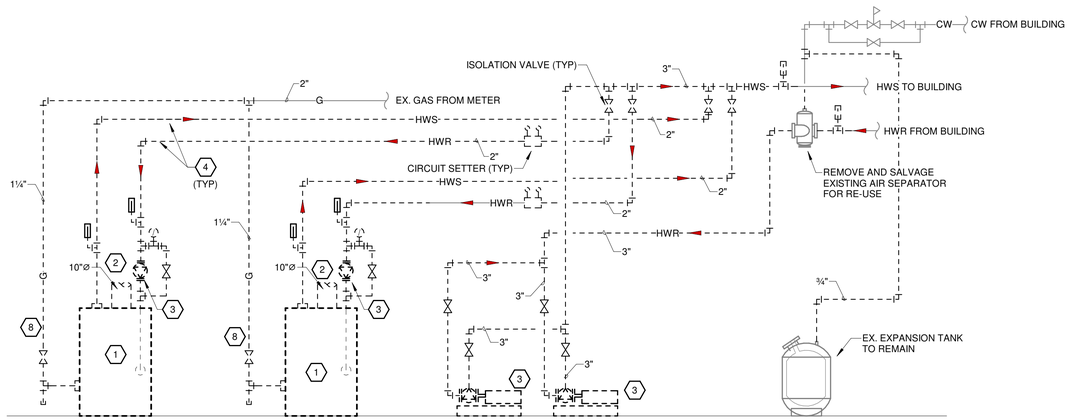


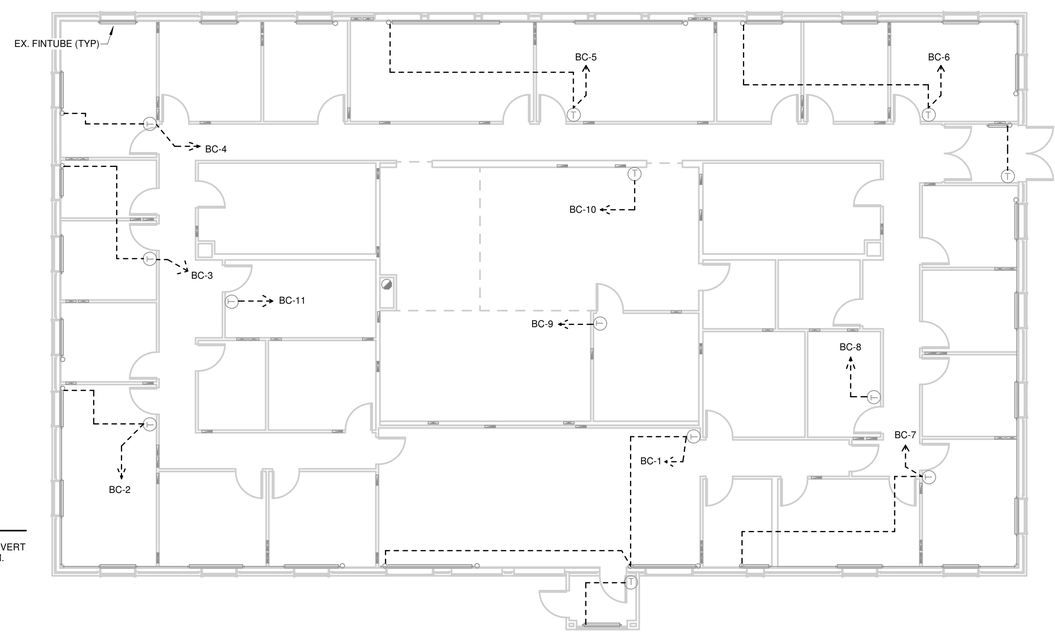
C1 EXISTING BOILER PIPING DETAIL
NOT TO SCALE

KEYNOTES

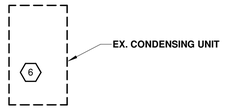
1. REMOVE EXISTING BOILER AND ASSOCIATED CONTROLS, PUMP, BREECHING, GAS PIPING, GAS REGULATOR, ELECTRICAL, AND BOILER PIPING AS INDICATED. SALVAGE ELECTRICAL FOR RE-USE.
2. REMOVE EXISTING BOILER BREECHING AND ASSOCIATED SUPPORTS.
3. REMOVE EXISTING PUMP AND ASSOCIATED PIPING, ELECTRICAL AND SUPPORTS. SALVAGE ELECTRICAL FOR RE-USE.
4. REMOVE EXISTING HWS AND HWR PIPING AND ASSOCIATED INSUALTION AND SUPPORTS AS INDICATED.
5. REMOVE AND REPLACE EXISTING CONTROL VALVE WITH NEW CONTROL VALVE SUPPLIED BY CONTROL CONTRACTOR. EXISTING BOOSTER COIL TO REMAIN.
6. REMOVE EXISTING CONDENSING UNIT AND ASSOCIATED REFRIGERANT PIPING, VALVES, SUPPORTS AND ELECTRICAL. EVACUATE/RECLAIM REFRIGERANT AND DISPOSE/RECYCLE IN ACCORDANCE WITH EPA GUIDELINES.
7. REMOVE EXISTING COOLING COIL AND ASSOCIATED PIPING, SUPPORTS AND VALVES.
8. REMOVE EXISTING GAS PIPING AND ASSOCIATED VALVES AND SUPPORTS.

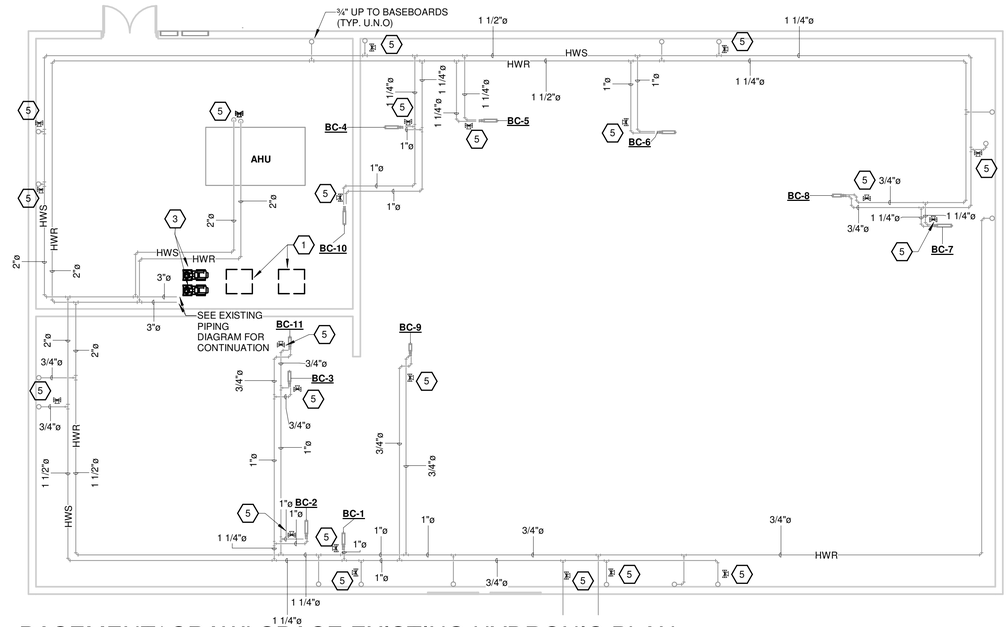
GENERAL NOTES:

1. BAY ELECTRIC INC. SHALL PROVIDE CONTROL PRICING TO THE PRIME CONTRACTOR TO CONVERT ALL EXISTING CONTROLS TO DDC AND PROVIDE ANY NEW CONTROLS FOR THE NEW SYSTEM.
2. MECHANICAL CONTRACTOR SHALL COORDINATE ALL CONTROL WORK WITH BAY ELECTRIC.
3. BAY ELECTRIC SHALL PROVIDE ALL CONTROL VALVES UNLESS NOTED OTHERWISE.

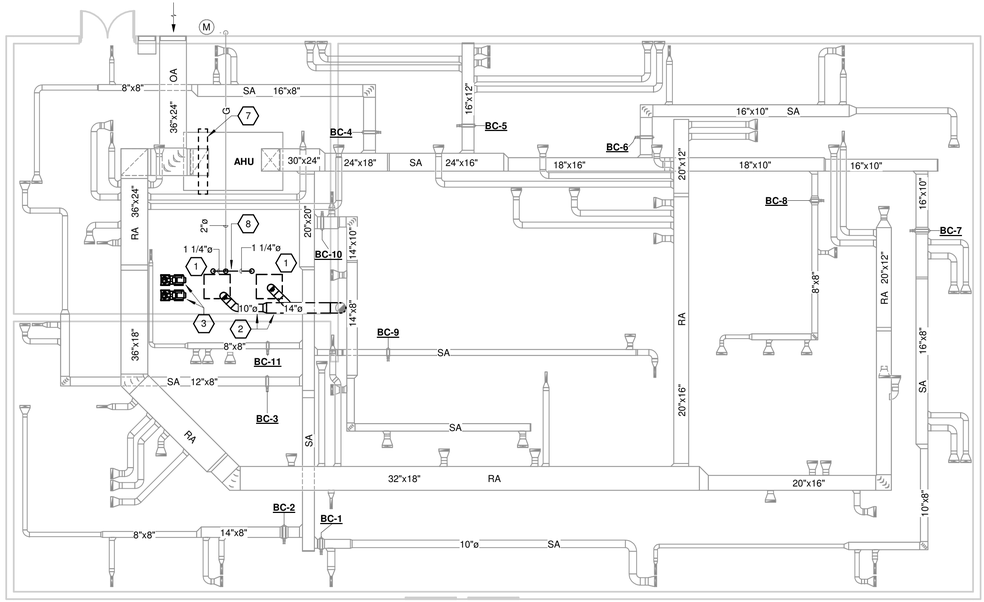


C3 FIRST FLOOR EXISTING MECHANICAL PLAN
1/8" = 1'-0"





A1 BASEMENT/ CRAWLSPACE EXISTING HYDRONIC PLAN
1/8" = 1'-0"



A3 BASEMENT/ CRAWLSPACE EXISTING MECHANICAL PLAN
1/8" = 1'-0"

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EXISTING/DEMO MECHANICAL PLAN

MD101

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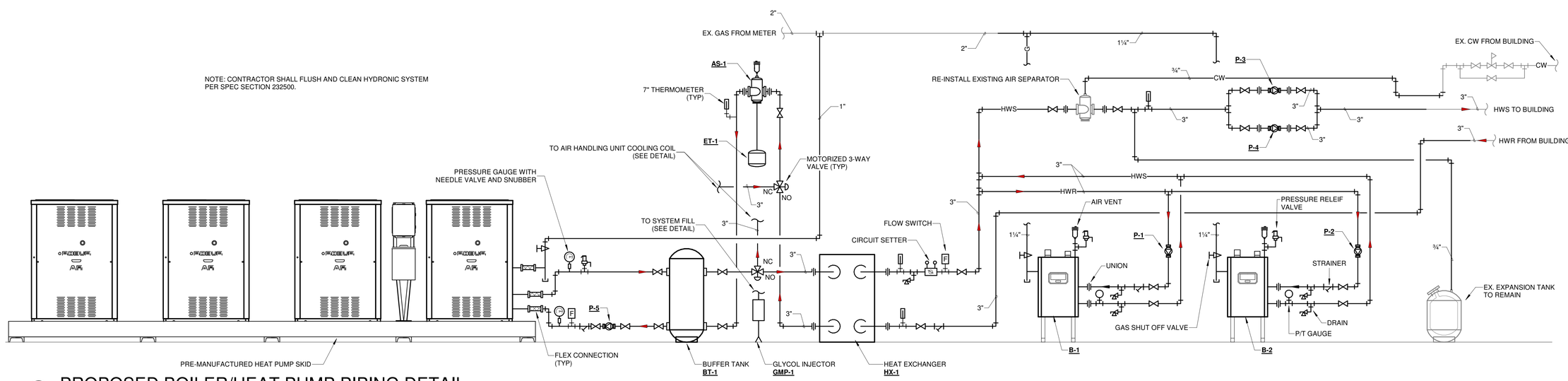
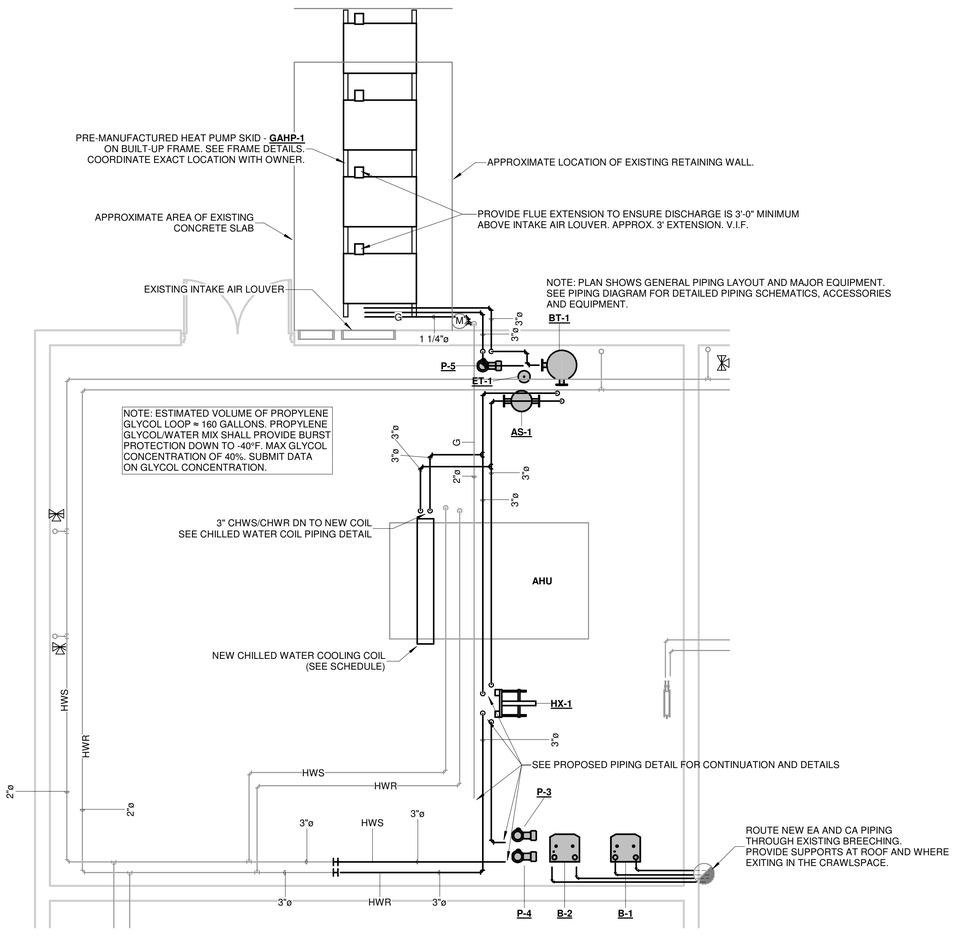


C1 PROPOSED BOILER/HEAT PUMP PIPING DETAIL
NOT TO SCALE



A2 ENLARGED BASEMENT PROPOSED HYDRONIC PLAN
1/4" = 1'-0"

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MECHANICAL PLAN

M101

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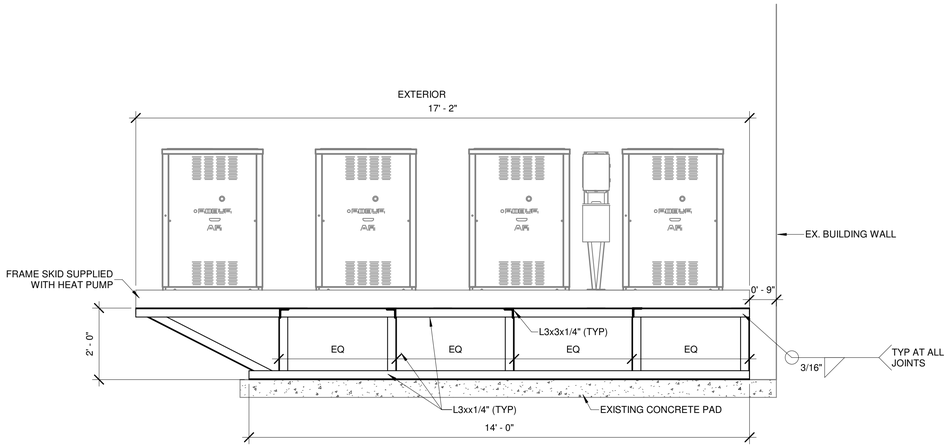
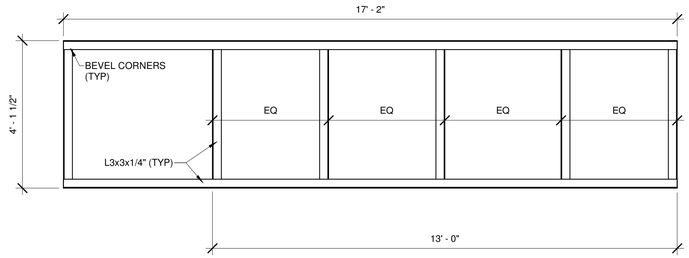
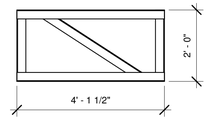


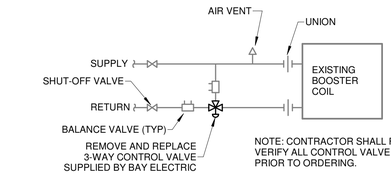
C1 HEAT PUMP SKID SUPPORT ELEVATION
1/2" = 1'-0"



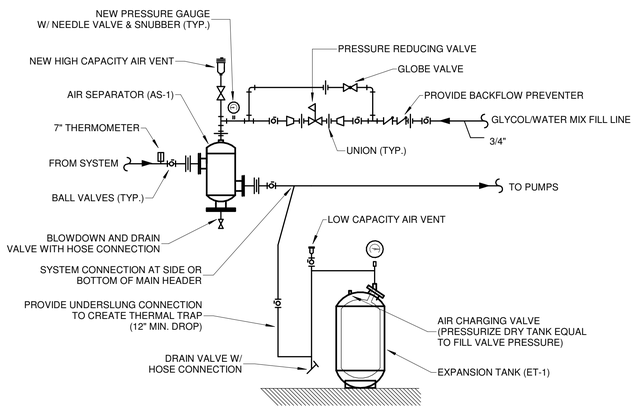
C3 HEAT PUMP SKID SUPPORT DETAIL PLAN VIEW
1/2" = 1'-0"



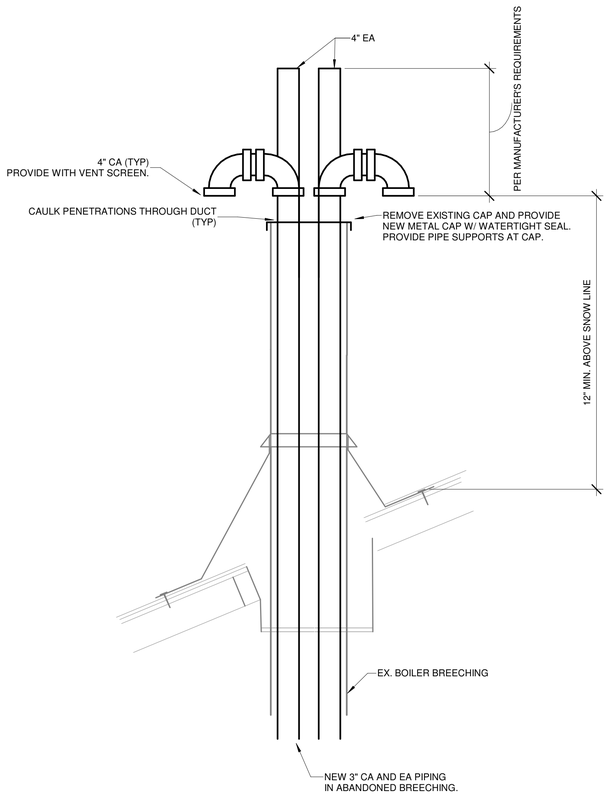
C5 HEAT PUMP SKID SUPPORT SIDE ELEVATION
1/2" = 1'-0"



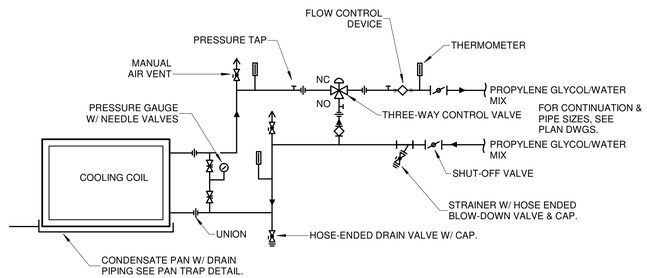
C2 EXISTING BOOSTER COIL DETAIL
NOT TO SCALE



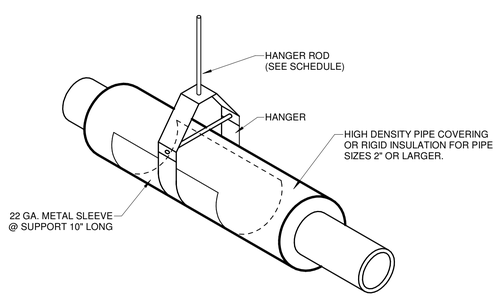
B4 AIR SEPARATOR AND EXPANSION TANK DETAIL
NOT TO SCALE



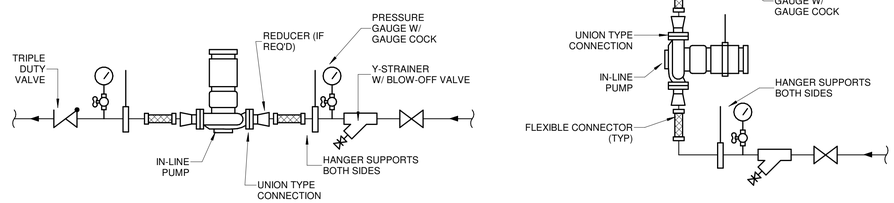
A1 EA AND CA THORUGH ROOF DETAIL
NOT TO SCALE



B2 CHILLED WATER COIL PIPING DETAIL
NOT TO SCALE



A2 PIPE HANGER DETAILS
NOT TO SCALE



NOTES:
1. PUMP SHALL BE SUPPORTED INDEPENDENTLY FROM PIPING.
2. PROVIDE FLEXIBLE PIPE CONNECTION FOR PUMPS WITH MOTORS 1/2 HP AND GREATER.
3. INSTALL MOTOR DEAD-LEVEL WITH LUBRICATION POINTS UP.

A3 INLINE PUMP DETAIL
NOT TO SCALE

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HVAC IMPROVEMENTS

BARAGA COUNTY DHHS BUILDING
108 MAIN ST., BARAGA, MI 49908

ISSUED FOR:	DATE:
BID SET	7/18/2022

HVAC IMPROVEMENTS
BARAGA COUNTY DHHS BUILDING
PROJECT NO: K33-00155

DESIGNED BY:	SP
DRAWN BY:	SP
CHECKED:	DL
APPROVED:	KD

MECHANICAL AND STRUCTURAL DETAILS

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BUFFER TANK SCHEDULE

MARK	MANUFACTURER	MODEL	HEIGHT (IN)	WIDTH (IN)	CAPACITY (GAL)	PIPE SIZE (IN)	WEIGHT (LBS)
BT-1	TACO	MPT0075F03-125G1BN	63	24	75	3	320

EXPANSION TANK SCHEDULE

ID	MANUFACTURER	MODEL NUMBER	GALLON CAPACITY (GAL)	ACCEPTANCE CAPACITY (GAL)	DIMENSIONS (IN)	SHIPPING WEIGHT (LBS)	NOTES
ET-1	TACO	PAX25-150	6.6	4	12"Wx20"H	52	1

1. PROVIDE WITH ISOLATION VALVE.

AIR SEPARATOR SCHEDULE

MARK	MANUFACTURER	MODEL	HEIGHT (IN)	WIDTH (IN)	GPM (OPTIMAL)	PIPE SIZE (IN)	DRY WEIGHT (LBS)	NOTES
AS-1	TACO	AC03-125	34	14	230	3	90	1

1. PROVIDE WITH BASE RING SUPPORT.

GLYCOL MAKEUP PACKAGE SCHEDULE

MARK	MANUFACTURER	MODEL	MAKE-UP CAPACITY (GAL)	HEIGHT (IN)	WIDTH (IN)	GPM	CONN. SIZE (IN)	WET WEIGHT (LBS)	ELEC.	NOTES
GMP-1	CALEFACTIO	GMP18	68.1	39.25	12	1.6	1/2	30	120V	1,2

1. PROVIDE WITH REMOTE ALARM KIT (#GMPAL)
2. SYSTEM TO BE FILLED WITH PROPYLENE GLYCOL/ WATER MIX FOR BURST PROTECTION DOWN TO -40°F. MAX 40% PROPYLENE GYLCOL CONCENTRATION.

PUMP SCHEDULE

ID	DESCRIPTION	MANUF.	MODEL NUMBER	FLOW (GPM)	HEAD (FT)	SUCTION SIZE (IN)	DISCHARGE SIZE (IN)	ELECTRICAL				NOTES
								VOLTS	PH	HP	AMPS	
P-1	BOILER CIRCULATOR	TACO	VR15M	20	15	1.5"	1.5"	120	1	0.6	4	1,3
P-2	BOILER CIRCULATOR	TACO	VR15M	20	15	1.5"	1.5"	120	1	0.6	4	1,3
P-3	SYSTEM CIRCULATOR	TACO	VR15M	37	30	1.5"	1.5"	120	1	0.6	4	2,3
P-4	SYSTEM CIRCULATOR	TACO	VR15M	37	30	1.5"	1.5"	120	1	0.6	4	2,3
P-5	HEAT PUMP CIRCULATOR	TACO	VR25H	59	40	2.5"	2.5"	120	1	2.1	13	2,3,4

1. PROVIDE CONTROL SYSTEM TO INTERLOCK WITH CORRESPONDING BOILER. COORDINATE WITH BAY ELECTRIC.
2. PROVIDE CONTROL SYSTEM TO INTERLOCK WITH BOILER AND HEAT PUMP SYSTEM. COORDINATE WITH BAY ELECTRIC.
3. COORDINATE ELECTRICAL REQUIREMENTS WITH ELECTRICAL CONTRACTOR.
4. PROVIDE CONTROL SYSTEM TO INTERLOCK WITH HEAT PUMP. COORDINATE WITH BAY ELECTRIC.

PLUMBING PIPE INSULATION SCHEDULE

SYSTEM TYPE	INSUL. TYPE	PIPE SIZES	INSULATION THICKNESS
DOMESTIC COLD WATER	P-1 P-2	1-1/4" AND SMALLER 1-1/2" AND LARGER	1" 1-1/2"

BOILER SCHEDULE

ID	MANUFACTURER	MODEL NUMBER	INPUT CAPACITY MAX/MIN (MBH)	OUTPUT CAPACITY (MBH)	WATER CONNECT (IN)	GAS CONNECT. (IN)	VENT (IN)	COMB. AIR (IN)	EWT/LWT (°F)	OPERATING WEIGHT	ELECTRICAL				NOTES
											VOLTS	PH	HP	AMPS	
B-1	NTI	TFT250	250/31	230	1¼"	1/2"	3"	3"	153/180	180	120	1	-	-	1,2,3

1. PROVIDE WITH CONDENSATE NUETRALIZER KIT, CONCENTRIC VENT KIT, AND LOW-WATER CUT-OFF W/ MANUAL RESET.
2. PROVIDE PRIMARY/SECONDARY PIPING PER DETAIL.
3. COORDINATE ELECTRICAL REQUIREMENTS WITH ELECTRICAL CONTRACTOR.

COOLING PIPE INSULATION SCHEDULE

SYSTEM TYPE	INSUL. TYPE	PIPE SIZES	INSULATION THICKNESS
CHILLED WATER SUPPLY AND RETURN (38 TO 60 DEGREES F)	P-1	1-1/4" AND SMALLER 1-1/2" AND LARGER	1/2" 1"

HEAT EXCHANGER SCHEDULE

ID	MANUFACTURER	MODEL NUMBER	CAPACITY BTU/HR	PHYSICAL					HOT SIDE (PROPYLENE GLYCOL 40%/WATER 60%)				COLD SIDE (WATER)			
				LENGTH (IN)	WIDTH (IN)	HEIGHT (IN)	NO. OF PLATES	PIPE CONN. (IN)	INLET TEMP. (°F)	OUTLET TEMP (°F)	WATER FLOW (GPM)	PRESS. DROP (FT)	INLET TEMP. (°F)	OUTLET TEMP (°F)	WATER FLOW (GPM)	PRESS. DROP (FT)
HX-1	TACO	PF 31-41-4-NH	494,000	27.3	18.5	53.2	41	3	140	119	52	3.759	108	135	37	1.69

EXISTING BOOSTER COIL SCHEDULE

ID	AIRFLOW (CFM)	TOTAL CAPACITY (MBH)	WATER ΔT (°F)	GPM
BC-1	580	21.0	27	1.55
BC-2	600	21.7	27	1.61
BC-3	520	18.8	27	1.39
BC-4	650	23.6	27	1.74
BC-5	1300	47.0	27	3.48
BC-6	675	24.4	27	1.81
BC-7	1055	38.1	27	2.82
BC-8	235	8.5	27	0.63
BC-9	275	10.0	27	0.74
BC-10	1000	36.1	27	2.68
BC-11	460	16.6	27	1.23

1. CFM'S ARE SHOWN AS REFERENCE AND ARE TO REMAIN.
2. REBALANCE ALL EXISTING BOOSTER COILS AS INDICATED ON THIS SCHEDULE

HEATING PIPE INSULATION SCHEDULE

SYSTEM TYPE	INSUL. TYPE	PIPE SIZES	INSULATION THICKNESS
MED TEMPERATURE HEATING WATER SUPPLY AND RETURN (105 TO 140 DEGREES F)	P-1	1-1/4" AND SMALLER 1-1/2" AND LARGER	1" 1-1/2"
HIGH TEMPERATURE HEATING WATER SUPPLY AND RETURN (141 TO 200 DEGREES F)	P-1	1-1/4" AND SMALLER 1-1/2" AND LARGER	1-1/2" 2"

GAS ABSORPTION HEAT PUMP SCHEDULE

ID	MANUFACTURER	MODEL NUMBER	GAS INPUT CAPACITY (MBH)	HEATING CAPACITY (MBH)	COOLING CAPACITY (MBH)	WATER CONNECT (IN)	GAS CONNECT. (IN)	EWT/LWT (HEATING) (°F)	EWT/LWT (COOLING) (°F)	TOTAL WEIGHT (LBS)	ELECTRICAL					NOTES
											VOLTS	PH	KW	MCA	MOP	
GAHP-1	ROBUR	RTAR 240-480	382	481.6	230.8	2"	1"	140/113	50/38	4027	208	1	3	32	45	1,2

1. PROVIDE AS PACKAGED UNIT WITH 3 CONNECTION POINTS AND SKID.
2. COORDINATE ELECTRICAL REQUIREMENTS WITH ELECTRICAL CONTRACTOR.

COOLING COIL SCHEDULE

ID	MANUFACTURER	MODEL NUMBER	FLUID	AIRFLOW (CFM)	TOTAL CAPACITY (MBH)	SENSIBLE CAPACITY (MBH)	EADB (°F)	EAWB (°F)	LADB (°F)	LAWB (°F)	FACE VELOCITY (FPM)	AIR PRESS. DROP (IN)	ENTER WATER TEMP (°F)	LEAVING WATER TEMP (°F)	FLUID FLOW (GPM)	FLUID PRESS. DROP (IN)	FIN HEIGHT (IN)	FIN LENGTH (IN)	FINS PER INCH SPACING	FIN MATERIAL	SUPPLY/RETURN CONNECTION SIZE (IN)	OPERATING WEIGHT (LBS)	NOTES
CC-1	GREENHECK	CW58S06S14-36x64-RH	40% PROPYLENE GLYCOL, 60% WATER	7900	254.3	113.1	70.0	67.0	57.1	57.0	494	1.04	38	48.7	52.0	19.2	36.0	64.0	14	Al	2	459	1,2

1. INSTALL PROPOSED COIL IN EXISTING AIR HANDLING UNIT. SEE DETAILS FOR PIPING REQUIREMENTS.
2. CONTRACTOR SHALL VERIFY EXISTING COIL DIMENSIONS WITH NEW COIL DIMENSIONS TO ENSURE COIL FITS IN EXISTING AIR HANDLER.

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DATE: 7/18/2022

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BARAGA COUNTY DHHS BUILDING
PROJECT NO: K33-00155

DESIGNED BY: SP
DRAWN BY: SP
CHECKED: DL
APPROVED: KD

MECHANICAL SCHEDULES

M601

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ELECTRICAL ABBREVIATIONS, SYMBOLS AND NOTES

ABBREVIATIONS AND SYMBOLS LEGEND

ABBREVIATIONS

A	AMPERES
AV	PANELBOARD AV
AV	AUDIO/VIDEO
A/V	AUDIO/VIDEO
C	PANELBOARD KPP-C
C.B.	CIRCUIT BREAKER
GFCI	GROUND FAULT CIRCUIT INTERUPTING
GFI	GROUND FAULT CIRCUIT INTERUPTING
KVA	KILO-VOLT AMPS (ELECTRIC POWER)
QT	QUAD TUBE (FLUORESCENT LAMP)
TT	TWIN TUBE (FLUORESCENT LAMP)
TYP	TYPICAL
V	VOLT
4W	FOUR WIRE
3ø	THREE PHASE

LIGHTING SYMBOLS

- A — LIGHT FIXTURE - RECESSED FLUORESCENT OR LED
- LIGHT FIXTURE - EMERGENCY (WALL MOUNT)
- LIGHT FIXTURE - EXIT/EMERGENCY (DIRECTIONAL ARROWS WHERE INDICATED ON PLANS) (WALL OR CEILING MOUNT)
- B — LUMINARE - STANDARD FLUORESCENT STRIP LIGHT
- LUMINARE - RECESSED FLUORESCENT OR INCANDESCENT
- LUMINARE - SURFACE MOUNT FLUORESCENT OR INCANDESCENT
- C — LIGHT FIXTURE - SURFACE FLUORESCENT OR LED

SWITCHES AND RECEPTACLE SYMBOLS

- DUPLEX RECEPTACLE
- FLOOR RECEPTACLE (GFI PROTECTED WHERE REQUIRED)
- QUAD RECEPTACLE (GFI PROTECTED WHERE REQUIRED)
- G — GROUND FAULT INTERUPTING RECEPTACLE. PROVIDE WEATHER-PROOF WHILE IN USE COVER WHERE LOCATED OUTDOORS.
- CTR — COUNTERTOP RECEPTACLE (GFCI WHERE REQUIRED)
- TOP SWITCHED RECEPTACLE
- IG — ISOLATED GROUND RECEPTACLE
- POLE RECEPTACLE
- S — SWITCH - SINGLE POLE
- S_3 — SWITCH - THREE WAY
- S_4 — SWITCH - FOUR WAY
- SS — DUAL LEVEL SWITCHING - SWITCH OUTER (2) LAMPS SEPARATE FROM CENTER LAMP
- S_K — SWITCH - SINGLE POLE, KEYED
- S_T — SWITCH - SINGLE POLE, TIMED
- S_D — SWITCH - DIMMER
- S_P — SWITCH - PILOT
- TC — SWITCH - TIME CLOCK
- SWITCH - PUSH BUTTON
- M — OCCUPANCY SENSOR (CEILING MOUNTED)
- OSS — OCCUPANCY SENSOR (WALL MOUNTED)
- PC — PHOTO CELL

TELEPHONE, DATA AND COMMUNICATION SYMBOLS

- TELEPHONE/DATA OUTLET. PROVIDE 1"CONDUIT WITH PULL STRING PER LOCATION. DATA CABLES AND TERMINATIONS BY OTHERS.
- TELEPHONE/DATA OUTLET - FLOOR MOUNTED
- WIRELESS ACCESS POINT (WAP)
- SPEAKER - WALL MOUNTED
- S — SPEAKER - CEILING MOUNTED
- IC — INTERCOM
- A — AMPLIFIER
- C — CLOCK - WALL MOUNTED
- TV — TELEVISION CABLE OUTLET
- J — JUNCTION BOX
- J — JUNCTION BOX
- SECURITY CAMERA (OUTDOOR/INDOOR PER PLAN)
- DL — DOOR ALARM KEYPAD. PROVIDE 1"CONDUIT WITH PULL STRING PER LOCATION. DATA CABLES AND TERMINATIONS BY OTHERS.

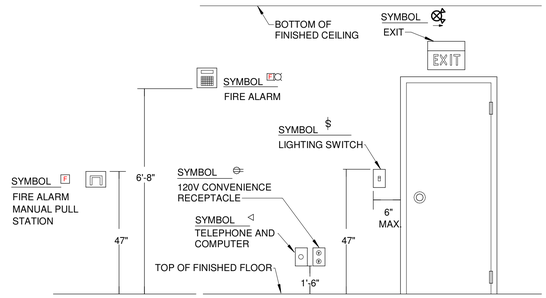
MISCELLANEOUS SYMBOLS

- DISCONNECT
- FUSED DISCONNECT
- STARTER DISCONNECT
- CONNECTION TO MOTOR
- T — THERMOSTAT
- TRANSFORMER
- IN-LINE FUSE
- GROUND
- M — ELECTRIC METER
- FUSED SWITCH
- NORMALLY CLOSED CONTACT
- NORMALLY OPEN CONTACT
- CIRCUIT BREAKER WITH SIZE AS NOTED
- NORMALLY CLOSED SWITCH
- NORMALLY OPEN SWITCH
- DISCONNECT
- N L E — AUTOMATIC TRANSFER SWITCH (ATS)
- PANEL - SURFACE MOUNT
- PANEL - RECESSED

FIRE SAFETY AND ALARM SYMBOLS

- FACP — FIRE ALARM CONTROL PANEL
- FAAP — FIRE ALARM ANNUNCIATOR PANEL
- FIRE ALARM BOOSTER PANEL
- S — SMOKE DETECTOR
- H — HEAT DETECTOR
- CO — CARBON MONOXIDE DETECTOR
- D — DUCT SMOKE DETECTOR
- F — MANUAL PULL STATION
- FIRE ALARM HORN/STROBE (WALL MOUNTED)
- FIRE ALARM HORN/STROBE (CEILING MOUNTED)
- FIRE ALARM HORN/STROBE (WALL MOUNTED)
- FS — FLOW SWITCH
- TS — TAMPER SWITCH
- S — FIRE ALARM SPEAKER
- EOL — END OF LINE RESISTOR
- MAGNETIC DOOR HOLD OPEN
- GONG

NOTES & DETAILS



NOTE:
VERIFY HEIGHTS SHOWN COMPLY WITH LOCAL BUILDING CODE.

TYPICAL DEVICE MOUNTING HEIGHT

GENERAL NOTES:

1. IT SHALL BE THE ELECTRICAL CONTRACTOR'S RESPONSIBILITY TO NOTIFY OTHER CONTRACTORS TO ARRANGE CLEARANCES AND ACCESS OPENINGS FOR ALL LARGE ELECTRICAL EQUIPMENT.

2. IT SHALL BE UNDERSTOOD THAT THE ACT OF SUBMITTING A BID BY THE CONTRACTOR CARRIES WITH IT THE AGREEMENT TO ALL ITEMS AND CONDITIONS REFERRED OR INDICATED OR IMPLIED ON THE DRAWINGS AND THE SPECIFICATIONS AND NO CONSIDERATION WILL BE GRANTED FOR ANY ALLEGED MISUNDERSTANDING OF MATERIALS TO BE FURNISHED FOR WORK TO BE DONE.

3. THE ELECTRICAL INSTALLATION SHALL COMPLY WITH RULES AND REGULATIONS OF THE LATEST EDITION OF THE OCCUPATIONAL SAFETY AND HEALTH ACT, NATIONAL ELECTRICAL CODE, STATE ELECTRICAL CODE, LOCAL MUNICIPAL CODE AND ANY OTHER BOARD HAVING JURISDICTION OVER THE ELECTRICAL INSTALLATION.

4. THE ELECTRICAL CONTRACTOR SHALL NOT ASSUME THAT ANY DRAWING OR SPECIFICATION FORMING A PART OF THE CONTRACT DOCUMENTS AUTHORIZES THE VIOLATION OF ANY CODE, REGULATION OR STANDARD. WHERE CONFLICTS ARISE, IT SHALL BE DEEMED THAT THE CONTRACTOR HAS ESTIMATED THE COST OF ALL WORK TO BE COMPLETED IN ACCORD WITH THE PREVAILING CODE.

5. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS FOR ELECTRICAL WORK AND SHALL PAY ALL REQUIRED FEES AND SALES OR USE TAX AND FINES AS APPLICABLE TO THIS BRANCH OF WORK.

6. UPON COMPLETION OF THE WORK, THE CONTRACTOR SHALL DELIVER TO THE OWNER WITHOUT COST ALL REQUIRED CERTIFICATES OF INSPECTION AND APPROVAL.

7. THE INTENT AND OBJECT OF THESE SPECIFICATIONS AND DRAWINGS IS TO INCLUDE A COMPLETE WIRING SYSTEM FROM SERVICE PANEL TO EACH AND EVERY OUTLET INDICATED OR SPECIFIED, INCLUDING CONNECTING ALL ELECTRICAL DEVICES AND/OR EQUIPMENT FURNISHED BY THE OWNER OR OTHER CONTRACTORS.

8. THE DRAWINGS, WHICH CONSTITUTE A PART OF THE CONTRACT, ARE DIAGRAMMATIC AND INDICATE THE GENERAL ARRANGEMENT OF CIRCUITS AND OUTLETS, LOCATION OF SWITCHES, PANELBOARD AND OTHER WORK, BUT EXTREME ACCURACY IS NOT GUARANTEED AND FIELD VERIFICATION OF ALL LOCATIONS AND DIMENSIONS IS DIRECTED.

9. GROUND ALL EQUIPMENT INCLUDING CONDUIT, RECEPTACLES, LIGHTING, MOTORS, PIPING AS PER ARTICLE 250 OF THE NATIONAL ELECTRICAL CODE, AND AS SHOWN ON THESE DRAWINGS.

10. PROVIDE ONLY MATERIALS THAT ARE NEW OF THE TYPE AND QUALITY SPECIFIED, WHERE UNDERWRITERS LABORATORIES HAVE ESTABLISHED STANDARDS FOR SUCH MATERIALS, PROVIDE ONLY MATERIALS BEARING THE U.L. LABEL.

11. ARCHITECTURAL DRAWINGS SHOWING DIMENSIONS FOR ELECTRICAL DEVICES TAKE PRECEDENCE OVER THE ELECTRICAL DRAWINGS.

12. SYSTEMS SHALL BE FREE FROM SHORTS AND GROUNDS. TEST FOR MECHANICAL AND ELECTRICAL DEFECTS. VERIFY CORRECT CONNECTION OF HOT, NEUTRAL AND GROUND CONDUCTORS. ALL CONDUCTORS SHALL BE COLOR CODED AND LABELED WITH ZONE IDENTIFICATION FOR THE CASE OF LIGHTING.

13. WHEN MATERIAL AND/OR WORKMANSHIP IS FOUND NOT TO COMPLY WITH THE SPECIFIED REQUIREMENTS, WITHIN THREE DAYS AFTER RECEIPT OF NOTICE OF SUCH NON-COMPLIANCE, REMOVE THE NON-COMPLYING ITEMS FROM THE JOB AND REPLACE WITH NEW ITEMS MEETING THE REQUIREMENTS. COSTS FOR REPAIR OF NON-COMPLIANCE WORK SHALL BE BY THE CONTRACTOR WITH NO ADDITIONAL COST TO THE OWNER.

14. UPON COMPLETION OF THE WORK, THOROUGHLY CLEAN ALL DEVICES AND EQUIPMENT.

15. ALL TELECOM, TV CABLE AND DATA CABLE SHALL BE DEDICATED RUNS FROM THE OUTLET LOCATIONS TO THE BACKBOARD LOCATION.

16. WORK ASSIGNMENTS INFERRED BY THE DRAWINGS AND NOTES INCLUDED IN THESE PROJECT DOCUMENTS ARE INFORMATIONAL ONLY AND ARE NOT INTENDED TO RELIEVE THE BIDDING CONTRACTOR OF HIS OBLIGATION TO THE OWNER TO PROVIDE A COMPLETE AND COORDINATED PROJECT. COMPREHENSIVE SUBCONTRACTOR COORDINATION AND FINAL WORK ASSIGNMENTS TO SUBCONTRACTORS ARE THE SOLE RESPONSIBILITY OF THE BIDDING CONTRACTOR.

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108 MAIN ST., BARAGA, MI 49908

ISSUED FOR:	DATE:
BID SET	7/18/2022

HVAC IMPROVEMENTS
BARAGA COUNTY DHHS BUILDING
PROJECT NO: K33-00155

DESIGNED BY:	SP
DRAWN BY:	SP
CHECKED:	KD
APPROVED:	KD

ELECTRICAL ABBREVIATIONS

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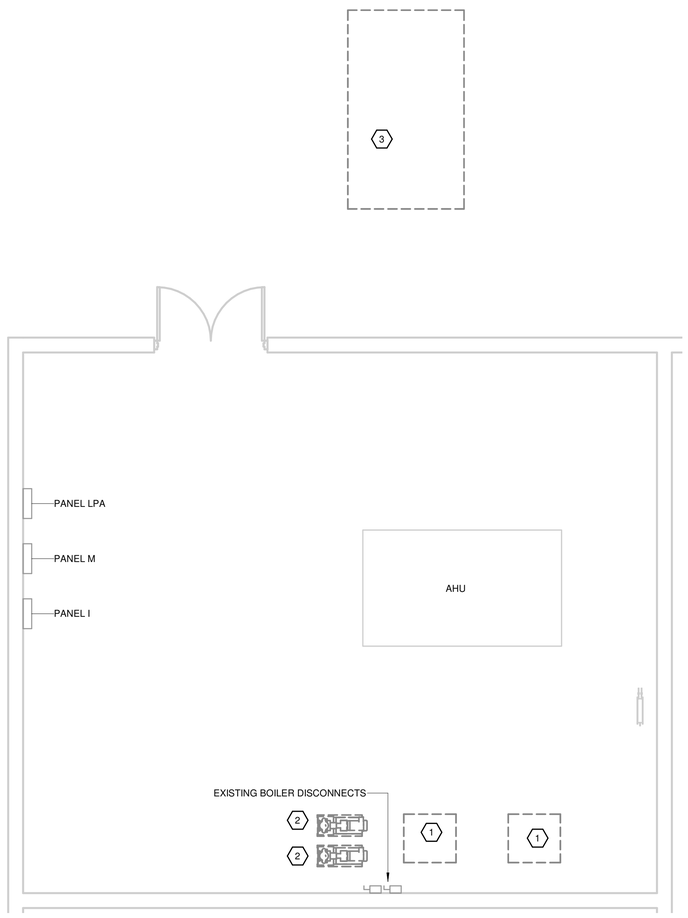
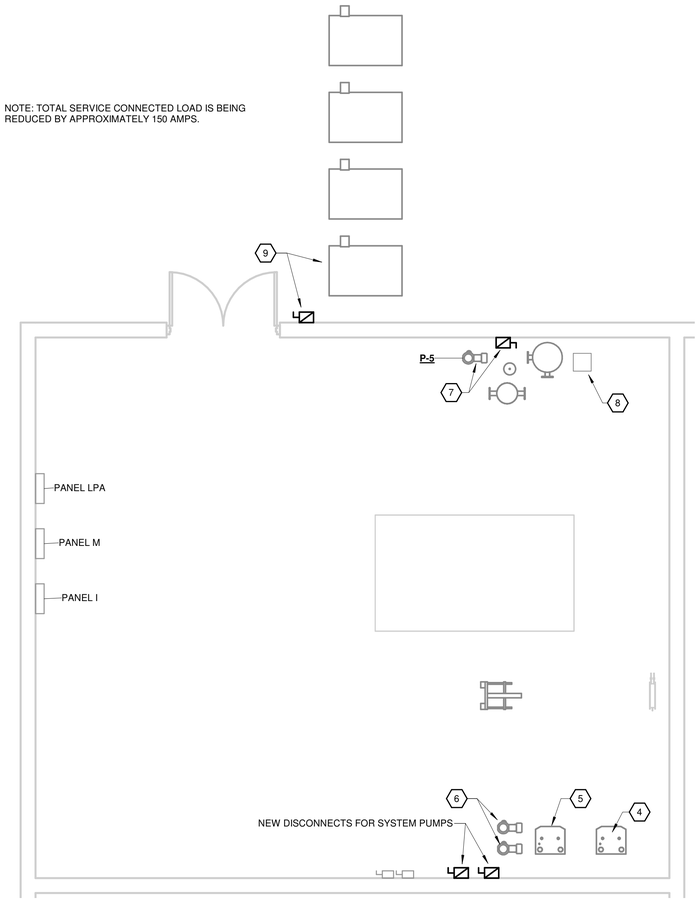
KEYNOTES

1. DISCONNECT EXISTING BOILER AND REMOVE ASSOCIATED CONDUIT, WIRING, AND BOXES BACK TO THE DISCONNECT. SALVAGE CIRCUIT FOR RE-USE
2. DISCONNECT EXISTING PUMP AND REMOVE ASSOCIATED CONDUIT AND WIRING BACK TO J-BOX ON WALL. SALVAGE WIRING FOR RE-USE. REMOVE 3-POLE BREAKER FROM PANEL "M" ASSOCIATED WITH THE 2 PUMPS.
3. DISCONNECT EXISTING 200A 3-PHASE CONDENSING UNIT AND REMOVE ASSOCIATED CONDUIT, WIRING AND BOXES BACK TO PANEL "M".
4. RE-USE EXISTING DISCONNECT AND CIRCUIT TO FEED NEW BOILER AND ASSOCIATED BOILER CIRCULATION PUMP.
5. PROVIDE NEW 20A SINGLE POLE BREAKER AND 120V CIRCUIT FROM PANEL "M" FOR NEW BOILER AND ASSOCIATED BOILER CIRCULATION PUMP. RE-USE EXISTING DISCONNECT.
6. RE-USE EXISTING WIRING FROM PUMPS TO FEED NEW SYSTEM PUMPS. PROVIDE NEW DISCONNECTS FOR EACH PUMP. PROVIDE NEW 20A 2-POLE BREAKER FOR PUMPS.
7. PROVIDE NEW 20A SINGLE POLE BREAKER AND 120V CIRCUIT FOR PUMP P-5. PROVIDE NEW DISCONNECT.
8. PROVIDE 120V CONNECTION FOR GLYCOL MAKE-UP PACKAGE FROM NEAREST UNSWITCHED 120V POWER. COORDINATE WITH MECHANICAL CONTRACTOR.
9. PROVIDE 2-POLE 45A BREAKER AND CIRCUIT FROM PANEL "M" TO GAS ABSORPTION HEAT PUMP. PROVIDE NEW DISCONNECT. USE #6 COPPER CONDUCTORS AND #8 COPPER GROUND FOR NEW FEED.



A1 BASEMENT EXISTING ELECTRICAL PLAN
1/4" = 1'-0"

NOTE: TOTAL SERVICE CONNECTED LOAD IS BEING REDUCED BY APPROXIMATELY 150 AMPS.



A4 BASEMENT PROPOSED ELECTRICAL PLAN
1/4" = 1'-0"

UPEA ENGINEERS & ARCHITECTS
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HVAC IMPROVEMENTS

BARAGA COUNTY DHHS BUILDING
108 MAIN ST., BARAGA, MI 49908

ISSUED FOR:	DATE:
BID SET	7/18/2022

HVAC IMPROVEMENTS
BARAGA COUNTY DHHS BUILDING
PROJECT NO: K33-00155

DESIGNED BY:	SP
DRAWN BY:	SP
CHECKED:	KD
APPROVED:	KD

ELECTRICAL PLAN

E101

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