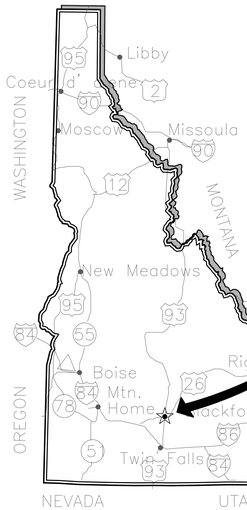
IDAHO TRANSPORTATION DEPARTMENT

HVAC MODIFICATION

DISTRICT 4

216 S. Date St.
Shoshone, Idaho 83352



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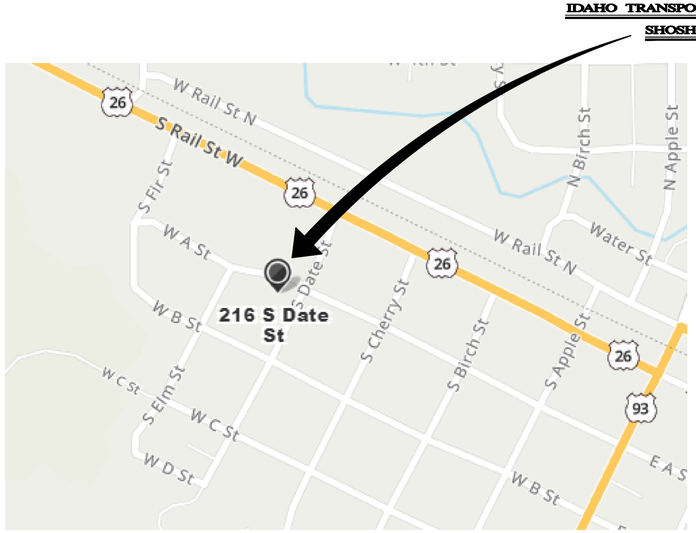
PROJECT LOCATION OF THE
IDAHO TRANSPORATION DEPARTMENT
SHOSHONE, IDAHO



Shoshone, Idaho
Partial Vicinity Map
no scale

Shoshone, Idaho
ITD Campus Map
no scale

NO.	REVISIONS	DATE

PRELIMINARY
NOT FOR CONSTRUCTION
7/10/2020

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IDAHO TRANS. DEPT.
D4 HVAC MODIFICATION
216 S DATE ST
SHOSHONE, IDAHO

PROJECT	20-247
DRAWN	CD
CHECKED	TN
DATE	07/01/2020
SCALE	SEE PLANS
SHEET	MG0.0

MECHANICAL ABBREVIATIONS

A/C or AC	AIR CONDITIONING	KW	KILOWATT
AFF	ABOVE FINISHED FLOOR	KWH	KILOWATT HOUR
AHU	AIR HANDLING UNIT		
ASHRAE	AMERICAN SOCIETY OF HEATING, REFRIGERATION, AND AIR CONDITIONING ENGINEERS	LAT	LEAVING AIR TEMPERATURE
		LAV	LAVATORY
BTU	BRITISH THERMAL UNITS	LEED	LEADERSHIP IN ENERGY AND ENVIRONMENTAL DESIGN
BTUH	BTUS PER HOUR	LWT	LEAVING WATER TEMPERATURE
CA	COMBUSTION AIR	MAX	MAXIMUM
CC	COOLING COIL	MCA	MINIMUM CIRCUIT AMPS
CFM	AIR FLOW RATE (CUBIC FEET PER MINUTE)	MOCP	MAXIMUM OVERCURRENT PROTECTION
CHWR	CHILLED WATER RETURN	MIN	MINIMUM
CHWS	CHILLED WATER SUPPLY		
CLG	CEILING	NC	NOISE CRITERIA
CW	COLD WATER	NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
		NTS	NOT TO SCALE
DEG or °	DEGREE		
DIA or Ø	DIAMETER	OSA	OUTSIDE AIR
DB	DRY BULB		
		PD	PRESSURE DROP
EA	EXHAUST AIR	PH or Ø	PHASE
EAT	ENTERING AIR TEMPERATURE	PRV	PRESSURE REDUCING VALVE
EER	ENERGY EFFICIENCY RATIO		
ESP	EXTERNAL STATIC PRESSURE	RA	RETURN AIR
EWT	ENTERING WATER TEMPERATURE	RPM	REVOLUTIONS PER MINUTE
		RTU	ROOFTOP UNIT
FCO	FLOOR CLEANOUT		
FD	FIRE DAMPER	SA	SUPPLY AIR
FLA	FULL LOAD AMPS	SEER	SEASONAL ENERGY EFFICIENCY RATIO
FLR	FLOOR	SFD	COMBINATION SMOKE/FIRE DAMPER
FPM	FEET PER MINUTE	SP	STATIC PRESSURE
FT	FEET	SYM	SYMBOL
GA	GAUGE	T & P	TEMPERATURE AND PRESSURE
GCO	GRADE CLEANOUT	TEMP	TEMPERATURE
GPM	WATER FLOW RATE (GALLONS PER MINUTE)	TYP	TYPICAL
HC	HEATING COIL	UMC	UNIFORM MECHANICAL CODE
HP	HORSE POWER	UPC	UNIFORM PLUMBING CODE
HVAC	HEATING, VENTILATING, AIR CONDITIONING	URL	URINAL
HW	HOT WATER		
HWR	HOT WATER RETURN	VTR	VENT THROUGH ROOF
HWS	HOT WATER SUPPLY	V	VOLTS
IBC	INTERNATIONAL BUILDING CODE	W/	WITH
IEEC	INTERNATIONAL ENERGY CONSERVATION CODE	WB	WET-BULB
IFC	INTERNATIONAL FIRE CODE	WC	WATER CLOSET
IFGC	INTERNATIONAL FUEL GAS CODE	WCO	WALL CLEANOUT
IMC	INTERNATIONAL MECHANICAL CODE	WH	WATER HEATER
IPC	INTERNATIONAL PLUMBING CODE		

NOTE: THIS IS A STANDARD LIST OF COMMONLY USED MECHANICAL ABBREVIATIONS. SOME OF THE ABBREVIATIONS SHOWN ABOVE MAY NOT BE USED IN THIS DRAWING PACKAGE.

MECHANICAL GENERAL NOTES

1. ALL MECHANICAL EQUIPMENT AND SYSTEMS SHALL BE INSTALLED IN ACCORDANCE WITH THE INTERNATIONAL MECHANICAL CODE (IMC) LATEST EDITION, AND ALL LOCAL & STATE CODES.
2. ALL MECHANICAL EQUIPMENT SHALL BE INSTALLED PER THE MANUFACTURER'S RECOMMENDATIONS.
3. MECHANICAL CONTRACTORS SHALL RECEIVE PRIOR APPROVAL FROM THE STRUCTURAL ENGINEER BEFORE MAKING CUTS THROUGH ANY STRUCTURAL MEMBER.
4. MECHANICAL CONTRACTORS SHALL COORDINATE INSTALLATION WITH CONSTRUCTION SUPERVISOR AND WITH ALL OTHER TRADES TO AVOID CONFLICTS.
5. THE MECHANICAL CONTRACTORS SHALL VERIFY MOTOR VOLTAGES WITH THE ELECTRICAL DRAWINGS BEFORE ORDERING MOTORIZED EQUIPMENT AND CONTROLS.
6. SEE MECHANICAL SCHEDULE SHEET FOR SCHEDULED CAPACITIES OF ALL MECHANICAL EQUIPMENT AND MATERIALS SPECIFIED.
7. ALL MECHANICAL EQUIPMENT TO BE PROPOSED MUST BE ON THE APPROVED LIST PRIOR TO SUBMITTALS. ALL APPROVED MANUFACTURERS MUST BE CAPABLE OF MEETING THE REQUIREMENTS OF THE SPECIFIED EQUIPMENT.
8. PROVIDE REMOTE CEILING ACCESS BALANCE DAMPERS WITH CONCEALED CHROME PLATE COVERS FOR BALANCE DAMPERS LOCATED ABOVE HARD CEILINGS.
9. PAINT ALL FLUES AND OTHER MECHANICAL ITEMS ON THE ROOF TO MATCH THE ROOF COLOR.
10. MAINTAIN MINIMUM OF 10'-0" DISTANCE BETWEEN ALL FRESH AIR INTAKES AND EXHAUST OR GAS FLUE DISCHARGES.
11. THE CONTRACTOR SHALL BE HELD RESPONSIBLE FOR VERIFICATION OF EXISTING JOB CONDITIONS PRIOR TO BID. NO ADDITIONAL COST SHALL BE AWARDED TO THE SUCCESSFUL CONTRACTOR (OR THEIR SUBCONTRACTORS) AFTER BIDS HAVE BEEN SUBMITTED AND CONTRACTS AWARDED FOR FAILURE TO VERIFY EXISTING FIELD CONDITIONS. DISCREPANCIES BETWEEN ACTUAL FIELD CONDITIONS AND CONTRACT DOCUMENTS SHALL BE BROUGHT TO THE ENGINEERS ATTENTION FOR ALTERNATIVE METHODS OF INSTALLATION PRIOR TO THE BIDDING OF THIS PROJECT.
12. UNLESS OTHERWISE NOTED ALL EXISTING MECHANICAL EQUIPMENT, PIPING, ETC, TO BE REMOVED SHALL BE DISPOSED OF BY THE CONTRACTOR UNDER THIS CONTRACT. THE OWNER SHALL RETAIN THE RIGHT TO KEEP ANY REMOVED ITEMS.
13. HOLES IN EXISTING WALL OR FLOORS SHALL BE PATCHED TO MATCH EXISTING WHERE PIPING, DUCTWORK, ETC. WERE REMOVED OR ADDED DURING THIS PROJECT.
14. DAMAGE TO THE EXISTING FACILITY DURING THE CONSTRUCTION SHALL BE REPAIRED OR REPLACED BY THE CONTRACTOR AT NO COST TO THE OWNER.

MECHANICAL AND PLUMBING DRAWINGS LEGEND

	DUCTWORK		DOUBLE CHECK BACKFLOW PREVENTER
	DUCTWORK BREAK		UNION
	DUCTWORK OR PIPING RISE		AIR VENT
	CONCENTRIC SQUARE TO ROUND TRANSITION		TRIPLE DUTY VALVE
M	MOTORIZED DAMPER		THREE WAY CONTROL VALVE
	MANUAL VOLUME DAMPER		TWO WAY CONTROL VALVE
AIRFLOW	SPIN-IN FITTING W/ AIR EXTRACTOR AND HAND DAMPER		PRESSURE REDUCING VALVE
AIRFLOW	HIGH EFFICIENCY FITTING W/ HAND DAMPER		GATE VALVE
$	SWITCH		REDUCER
T	THERMOSTAT		GLOBE VALVE
S	TEMPERATURE SENSOR		BALL VALVE
#	EQUIPMENT CALLOUT		BUTTERFLY VALVE
	TURNING VANES		BALANCE VALVE
	INTAKE OR EXHAUST		CHECK VALVE
	DIRECTION OF AIRFLOW		GAS PRESSURE REGULATOR W/ GAS COCK
	CEILING EXHAUST FAN		PRESSURE RELIEF VALVE
	TEMPERATURE GAUGE	CD	CONDENSATE DRAIN LINE
P	PRESSURE GAUGE (LIQUID FILLED W/ ISOLATION VALVE)		DOMESTIC COLD WATER (CW)
TS	TEMPERATURE SENSOR (DUCT OR PIPING)		DOMESTIC HOT WATER (HW)
FS	FLOW SWITCH	MPG	MEDIUM PRESSURE NATURAL GAS
	STAINLESS STEEL BRAIDED FLEX CONNECTION	G	LOW PRESSURE NATURAL GAS
	ELASTOMETRIC FLEX CONNECTOR	CS	CONDENSER WATER SUPPLY
	SUCTION DIFFUSER	CR	CONDENSER WATER RETURN
	Y TYPE STRAINER (1 1/2" OR LARGER PROVIDED W/ BLOW DOWN VALVE)	HWS	HEATING WATER SUPPLY
	FLOW DIRECTION	HWR	HEATING WATER RETURN
	DEMOLITION / EQUIPMENT TO BE REMOVED		SLOPE PIPE IN DIRECTION OF ARROW
	NEW TO EXISTING CONNECTION POINT		PIPE ANCHOR
(E)	EXISTING		PIPE GUIDE
(N)	NEW		CAP
	REDUCED PRESSURE BACKFLOW PREVENTER		

NOTE: THIS IS A LIST OF COMMONLY USED MECHANICAL AND PLUMBING SYMBOLS. SOME OF THE SYMBOLS SHOWN ABOVE MAY NOT BE USED IN THIS DRAWING PACKAGE.

ENERGY CODE COMPLIANCE

A. COMPLIANCE WITH THE LATEST ADOPTED EDITION OF THE INTERNATIONAL ENERGY CONSERVATION CODE IS REQUIRED FOR THIS PROJECT. THESE NOTES COVER MANDATORY REQUIREMENTS OF THE CODE. ADDITIONAL REQUIREMENTS ARE NOTED ON THE DRAWINGS AND IN THE SPECIFICATIONS.

B. CONTRACTOR SHALL VERIFY WITH THE MANUFACTURER, THE R-VALUES OF THE ACTUAL INSULATION USED. R-VALUES SHALL BE INSTALLED VALUES.

C. AN OPERATING AND MAINTENANCE MANUAL SHALL BE PROVIDED PRIOR TO ISSUANCE OF A CERTIFICATE OF OCCUPANCY. THE O&M MANUAL SHALL CONTAIN THE FOLLOWING INFORMATION AS A MINIMUM:

1. EQUIPMENT CAPACITY (INPUT & OUTPUT).
2. EQUIPMENT OPERATING AND MAINTENANCE INSTRUCTIONS.
3. CONTROL SYSTEM MAINTENANCE AND CALIBRATION INFORMATION, INCLUDING WIRING DIAGRAMS, SCHEMATICS, AND CONTROL SEQUENCES.
4. CONTROL SYSTEM SETPOINTS SHALL BE SHOWN ON CONTROL DRAWINGS, OR AT CONTROL DEVICES.
5. A COMPLETE WRITTEN NARRATIVE ON HOW EACH MECHANICAL SYSTEM IS INTENDED TO OPERATE.

NO.	REVISIONS	DATE

PRELIMINARY

NOT FOR CONSTRUCTION
7/10/2020

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IDAHO TRANS. DEPT.
D4 HVAC MODIFICATION
216 S DATE ST
SHOSHONE, IDAHO

PROJECT	20-247
DRAWN	CD
CHECKED	TN
DATE	07/01/2020
SCALE	SEE PLANS
SHEET	M0.0

COMcheck Software Version 4.1.1.0

Mechanical Compliance Certificate

Project Information

Energy Code:	2015 IECC
Project Title:	District 4 ITD HVAC Upgrade
Location:	Boise, Idaho
Climate Zone:	5b
Project Type:	Alteration

Construction Site:	Owner/Agent:	Designer/Contractor:
Shoshone, ID		Musgrove Engineering 234 S Whisperwood Way Boise, ID 83709 208-384-0585

Mechanical Systems List

Quantity	System Type & Description
2	HP-1/HP-2 (Single Zone): Heating: 1 each - Hydronic or Steam Coil, Hot Water, Capacity = 17 kBtu/h No minimum efficiency requirement applies Cooling: 1 each - Hydronic Coil, Capacity = 13 kBtu/h, No Economizer, Economizer exception: None No minimum efficiency requirement applies Fan System: FAN SYSTEM 1 -- Compliance (Brake HP method) : Passes Fans: FAN 1 Supply, Constant Volume, 350 CFM, 0.1 motor nameplate hp, 0.1 design brake hp (0.1 max. BHP), 0.9 fan efficiency grade
1	HP-3 (Single Zone): Heating: 1 each - Hydronic or Steam Coil, Hot Water, Capacity = 20 kBtu/h No minimum efficiency requirement applies Cooling: 1 each - Hydronic Coil, Capacity = 17 kBtu/h, No Economizer, Economizer exception: None No minimum efficiency requirement applies Fan System: FAN SYSTEM 2 -- Compliance (Brake HP method) : Passes Fans: FAN 2 Supply, Constant Volume, 485 CFM, 0.1 motor nameplate hp, 0.1 design brake hp (0.1 max. BHP), 0.9 fan efficiency grade
1	B-1: Heating: Hot Water Boiler, Capacity 285 kBtu/h, Gas, with Waterloop Heat Pump No minimum efficiency requirement applies

Mechanical Compliance Statement

Compliance Statement: The proposed mechanical alteration project represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed mechanical systems have been designed to meet the 2015 IECC requirements in COM*check* Version 4.1.1.0 and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

Christopher Dyke	Christopher Dyke	07/09/2020
Name - Title	Signature	Date

COMcheck Software Version 4.1.1.0

Inspection Checklist

Energy Code: 2015 IECC

Requirements: 100.0% were addressed directly in the COM*check* software

Text in the "Comments/Assumptions" column is provided by the user in the COMcheck Requirements screen. For each requirement, the user certifies that a code requirement will be met and how that is documented, or that an exception is being claimed. Where compliance is itemized in a separate table, a reference to that table is provided.

Section # & Req.ID	Plan Review	Complies?	Comments/Assumptions
C103.2 [PR2][1]	Plans, specifications, and/or calculations provide all information with which compliance can be determined for the mechanical systems and equipment and document where exceptions to the standard are claimed. Load calculations per acceptable engineering standards and handbooks.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met. **Location on plans/spec:** See plans and specifications.

Additional Comments/Assumptions:

1	High Impact (Tier 1)	2	Medium Impact (Tier 2)	3	Low Impact (Tier 3)

Section # & Req.ID	Footing / Foundation Inspection	Complies?	Comments/Assumptions
C403.2.4.5, C403.2.4.6 [FO9][3]	Snow/ice melting system sensors for future connection to controls. Freeze protection systems have automatic controls installed.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.

Additional Comments/Assumptions:

1	High Impact (Tier 1)	2	Medium Impact (Tier 2)	3	Low Impact (Tier 3)

Section # & Req.ID	Plumbing Rough-In Inspection	Complies?	Comments/Assumptions
C404.5, C404.5.1, C404.5.2 [PL6][3]	Heated water supply piping conforms to pipe length and volume requirements. Refer to section details.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met. **Location on plans/spec:** See plans and specifications.
C404.5, C404.5.1, C404.5.2 [PL6][3]	Heated water supply piping conforms to pipe length and volume requirements. Refer to section details.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C404.5, C404.5.1, C404.5.2 [PL6][3]	Heated water supply piping conforms to pipe length and volume requirements. Refer to section details.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met. **Location on plans/spec:** See plans and specifications.
C404.6.3 [PL7][3]	Pumps that circulate water between a heater and storage tank have controls that limit operation from startup to <= 5 minutes after end of heating cycle.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.
C404.6.3 [PL7][3]	Pumps that circulate water between a heater and storage tank have controls that limit operation from startup to <= 5 minutes after end of heating cycle.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.
C404.6.3 [PL7][3]	Pumps that circulate water between a heater and storage tank have controls that limit operation from startup to <= 5 minutes after end of heating cycle.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.
C404.7 [PL8][3]	Water distribution system that pumps water from a heated-water supply pipe back to the heated-water source through a cold-water supply pipe is a demand recirculation water system. Pumps within this system have controls that start the pump upon receiving a signal from the action of a user of a fixture or appliance and limits the temperature of the water entering the cold-water piping to 104°F.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.
C404.7 [PL8][3]	Water distribution system that pumps water from a heated-water supply pipe back to the heated-water source through a cold-water supply pipe is a demand recirculation water system. Pumps within this system have controls that start the pump upon receiving a signal from the action of a user of a fixture or appliance and limits the temperature of the water entering the cold-water piping to 104°F.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.

1	High Impact (Tier 1)	2	Medium Impact (Tier 2)	3	Low Impact (Tier 3)

Section # & Req.ID	Plumbing Rough-In Inspection	Complies?	Comments/Assumptions
C404.7 [PL8][3]	Water distribution system that pumps water from a heated-water supply pipe back to the heated-water source through a cold-water supply pipe is a demand recirculation water system. Pumps within this system have controls that start the pump upon receiving a signal from the action of a user of a fixture or appliance and limits the temperature of the water entering the cold-water piping to 104°F.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.

Additional Comments/Assumptions:

1	High Impact (Tier 1)	2	Medium Impact (Tier 2)	3	Low Impact (Tier 3)

Section # & Req.ID	Mechanical Rough-In Inspection	Complies?	Comments/Assumptions
C402.2.6 [ME41][3]	Thermally ineffective panel surfaces of sensible heating panels have insulation >= R-3.5.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.
C403.2.13 [ME71][2]	Unenclosed spaces that are heated use only radiant heat.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.
C403.2.3 [ME55][2]	HVAC equipment efficiency verified.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	*See the Mechanical Systems list for values.*
C403.2.6.1 [ME59][1]	Demand control ventilation provided for spaces >500 ft2 and >25 people/1000 ft2 occupant density and served by systems with air side economizer, auto modulating outside air damper control, or design airflow >3,000 cfm.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.
C403.2.6.2 [ME115][3]	Enclosed parking garage ventilation has automatic contaminant detection and capacity to stage or modulate fans to 50% or less of design capacity.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.
C403.2.7 [ME57][1]	Exhaust air energy recovery on systems meeting Table C403.2.7(1) and C403.2.7(2).	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.
C403.2.8 [ME116][3]	Kitchen exhaust systems comply with replacement air and conditioned supply air limitations, and satisfy hood rating requirements and maximum exhaust rate criteria.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.
C403.2.9 [ME60][2]	HVAC ducts and plenums insulated. Where ducts or plenums are installed in or under a slab, verification may need to occur during Foundation Inspection.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.
C403.2.9 [ME10][2]	Ducts and plenums sealed based on static pressure and location.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.2.9.1.3 [ME11][3]	Ductwork operating >3 in. water column requires air leakage testing.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.
C403.2.9.1.3 [ME11][3]	Ductwork operating >3 in. water column requires air leakage testing.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.
C403.4.2.1 [ME50][2]	Three-pipe hydronic systems using a common return for hot and chilled water are not used.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.

1	High Impact (Tier 1)	2	Medium Impact (Tier 2)	3	Low Impact (Tier 3)

Section # & Req.ID	Mechanical Rough-In Inspection	Complies?	Comments/Assumptions
C403.4.2.1 [ME50][2]	Three-pipe hydronic systems using a common return for hot and chilled water are not used.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.4.2.3.2.2 [ME122][3]	Open- or closed circuit cooling towers have a separate heat exchanger to isolate the cooling tower from the heat pump loop, and heat loss is controlled by shutting down the circulation pump on the cooling tower loop.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.
C403.4.2.3.3 [ME28][3]	Two-position automatic valve interlocked to shut off water flow when hydronic heat pump with pumping system >10 hp is off.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met. **Location on plans/spec:** See plans and specifications.
C403.4.2.6 [ME26][3]	Chilled water plants with multiple chillers have capability to reduce flow automatically through the chiller plant when a chiller is shut down. Boiler plants with multiple boilers have the capability to reduce flow automatically through the boiler plant when a boiler is shut down.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.4.2.6 [ME26][3]	Chilled water plants with multiple chillers have capability to reduce flow automatically through the chiller plant when a chiller is shut down. Boiler plants with multiple boilers have the capability to reduce flow automatically through the boiler plant when a boiler is shut down.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.4.4.6 [ME110][3]	Multiple zone VAV systems with DDC of individual zone boxes have static pressure setpoint reset controls.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply. *See the Mechanical Systems list for values.*
C403.4.4.6 [ME110][3]	Multiple zone VAV systems with DDC of individual zone boxes have static pressure setpoint reset controls.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply. *See the Mechanical Systems list for values.*
C403.4.5 [ME31][3]	Condenser heat recovery system that can heat water to 85 ºF or provide 60% of peak heat rejection is installed for preheating of service hot water.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Total installed heat capacity of water cooled systems = 6 MMBtu/h of heat rejection.
C403.4.5 [ME31][3]	Condenser heat recovery system that can heat water to 85 ºF or provide 60% of peak heat rejection is installed for preheating of service hot water.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Total installed heat capacity of water cooled systems = 6 MMBtu/h of heat rejection.
C408.2.2.1 [ME53][3]	Air outlets and zone terminal devices have means for air balancing.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.
C408.2.2.2 [ME54][3]	HVAC hydronic heating and cooling coils have means to balance and have pressure test connections.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met. **Location on plans/spec:** See plans and specifications.

1	High Impact (Tier 1)	2	Medium Impact (Tier 2)	3	Low Impact (Tier 3)

Section # & Req.ID	Mechanical Rough-In Inspection	Complies?	Comments/Assumptions
C408.2.2.2 [ME54][3]	HVAC hydronic heating and cooling coils have means to balance and have pressure test connections.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met. **Location on plans/spec:** See plans and specifications.
C403.5, C403.5.1, C403.5.2 [ME123][3]	Refrigerated display cases, walk-in coolers or walk-in freezers served by remote compressors and remote condensers not located in a condensing unit, have fan-powered condensers that comply with Sections C403.5.1 and refrigeration compressor systems that comply with C403.5.2..	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.

Additional Comments/Assumptions:

1	High Impact (Tier 1)	2	Medium Impact (Tier 2)	3	Low Impact (Tier 3)

Section # & Req.ID	Final Inspection	Complies?	Comments/Assumptions
C303.3, C408.2.5.3 [FI8][3]	Furnished O&M manuals for HVAC systems within 90 days of system acceptance.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.2.2 [FI27][3]	HVAC systems and equipment capacity does not exceed calculated loads.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met. **Location on plans/spec:** See plans and specifications.
C403.2.4.1 [FI47][3]	Heating and cooling to each zone is controlled by a thermostat control. Minimum one humidity control device per installed humidification/dehumidification system.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met. **Location on plans/spec:** See plans and specifications.
C403.2.4.1 [FI47][3]	Heating and cooling to each zone is controlled by a thermostat control. Minimum one humidity control device per installed humidification/dehumidification system.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met. **Location on plans/spec:** See plans and specifications.
C403.2.4.1.2 [FI38][3]	Thermostatic controls have a 5 °F deadband.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met. **Location on plans/spec:** See plans and specifications.
C403.2.4.1.3 [FI20][3]	Temperature controls have setpoint overlap restrictions.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met. **Location on plans/spec:** See plans and specifications.
C403.2.4.2 [FI39][3]	Each zone equipped with setback controls using automatic time clock or programmable control system.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met. **Location on plans/spec:** See plans and specifications.
C403.2.4.2.1, C403.2.4.2.2 [FI40][3]	Automatic Controls: Setback to 55°F (heat) and 85°F (cool); 7-day clock, 2-hour occupant override, 10-hour backup	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met. **Location on plans/spec:** See plans and specifications.
C403.2.4.2.3 [FI41][3]	Systems include optimum start controls.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met. **Location on plans/spec:** See plans and specifications.
C403.2.4.2.3 [FI41][3]	Systems include optimum start controls.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met. **Location on plans/spec:** See plans and specifications.
C408.2.1 [FI28][1]	Commissioning plan developed by registered design professional or approved agency.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met. **Location on plans/spec:** See plans and specifications.
C408.2.3.1 [FI31][1]	HVAC equipment has been tested to ensure proper operation.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Unitary or packaged HVAC eqiupment without supply air economizers.

1	High Impact (Tier 1)	2	Medium Impact (Tier 2)	3	Low Impact (Tier 3)

Section # & Req.ID	Final Inspection	Complies?	Comments/Assumptions
C408.2.3.2 [FI10][1]	HVAC control systems have been tested to ensure proper operation, calibration and adjustment of controls.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met. **Location on plans/spec:** See plans and specifications.
C408.2.4 [FI29][1]	Preliminary commissioning report completed and certified by registered design professional or approved agency.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met. **Location on plans/spec:** See plans and specifications.
C408.2.5.1 [FI7][3]	Furnished HVAC as-built drawings submitted within 90 days of system acceptance.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C408.2.5.3 [FI43][1]	An air and/or hydronic system balancing report is provided for HVAC systems.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met. **Location on plans/spec:** See plans and specifications.
C408.2.5.4 [FI30][1]	Final commissioning report due to building owner within 90 days of receipt of certificate of occupancy.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.

Additional Comments/Assumptions:

1	High Impact (Tier 1)	2	Medium Impact (Tier 2)	3	Low Impact (Tier 3)

NO.	REVISIONS	DATE

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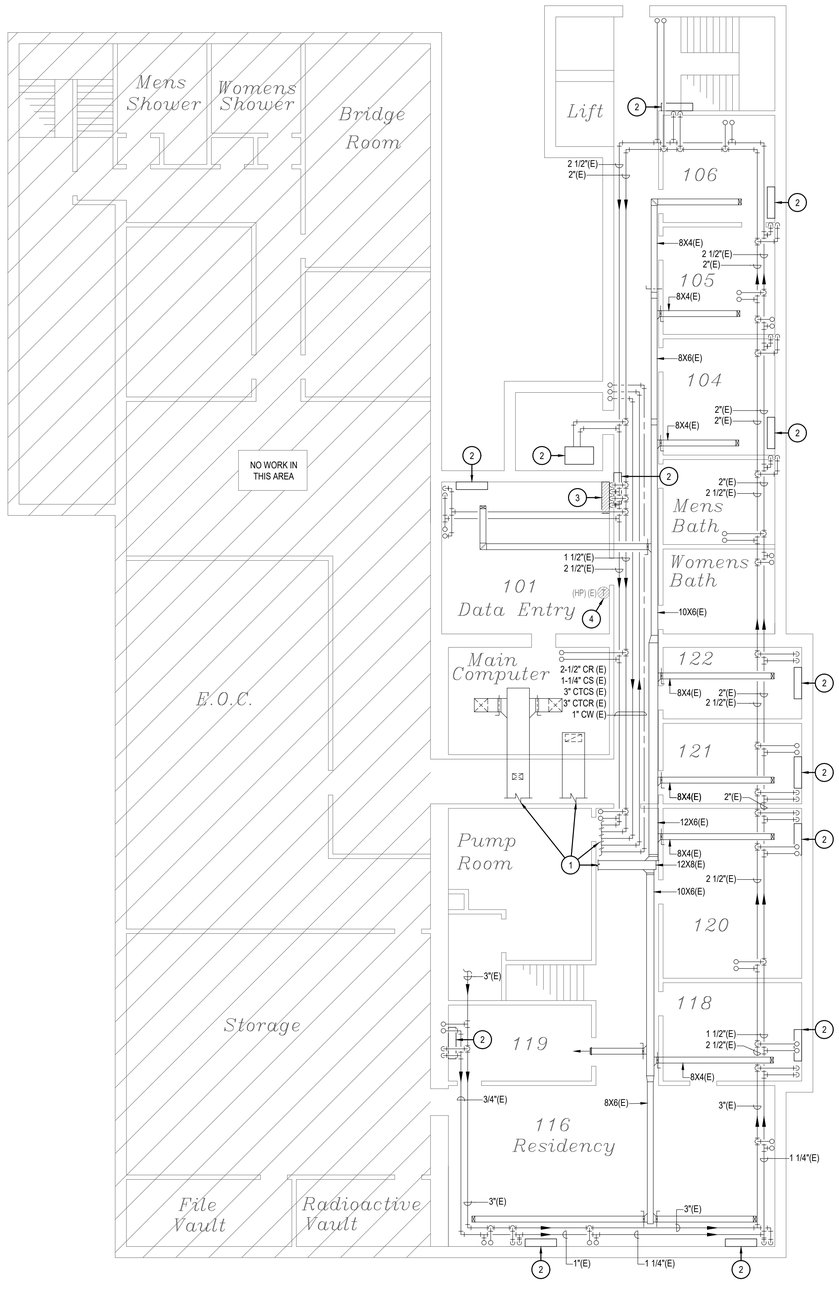
IDAHO TRANS. DEPT.
D4 HVAC MODIFICATION
216 S DATE ST
SHOSHONE, IDAHO

PROJECT	20-247
DRAWN	CD
CHECKED	TN
DATE	07/01/2020
SCALE	SEE PLANS
SHEET	M0.1

KEYED NOTES:

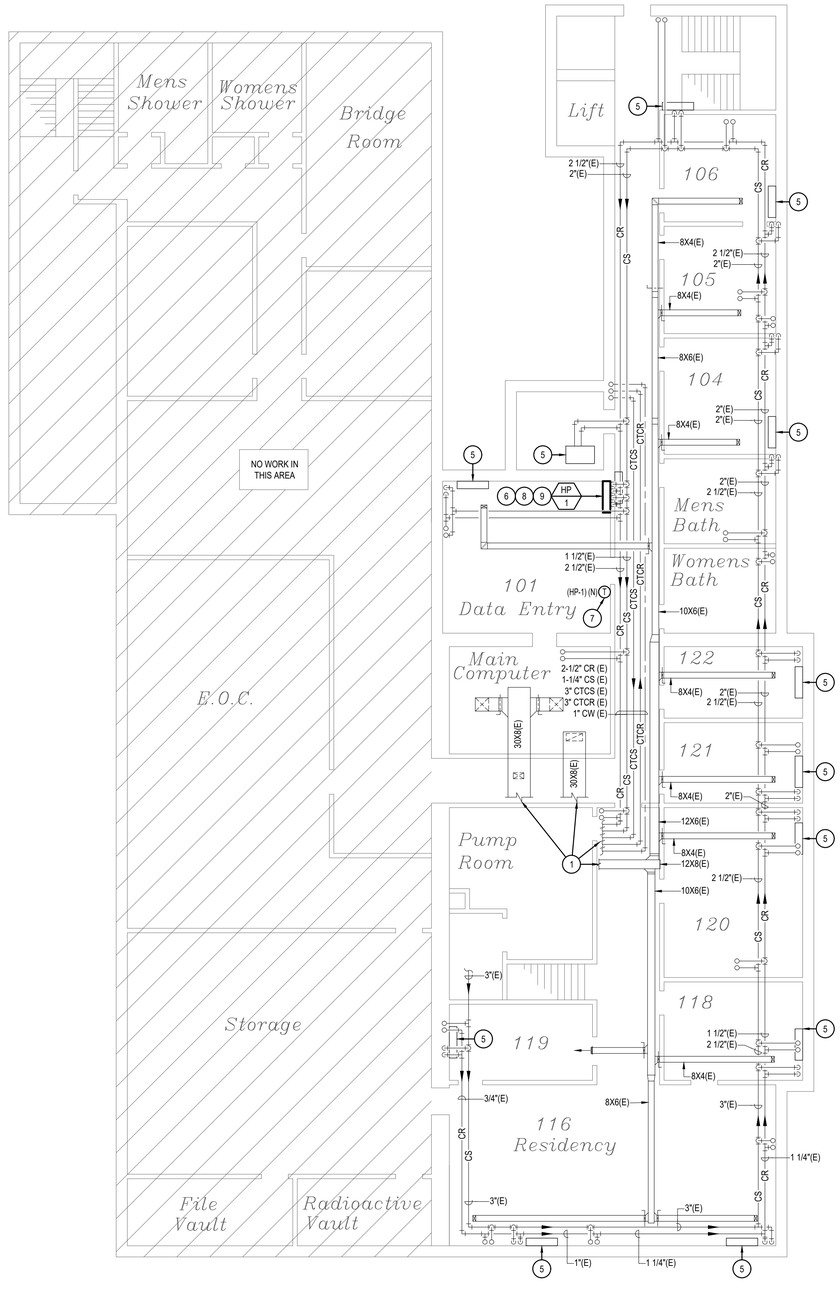
(#) SYMBOL USED FOR NOTE CALLOUT.

1. SEE SHEET M2.0 FOR CONTINUATION AND ENLARGED MECHANICAL ROOM FLOOR PLAN.
2. EXISTING HEAT PUMP TO REMAIN.
3. DISCONNECT AND REMOVE HEAT PUMP. SEE NEW WORK CONTINUATION.
4. REMOVE EXISTING THERMOSTAT.
5. CLEAN HEAT PUMP STRAINER.
6. PROVIDE AND INSTALL NEW FLOOR MOUNTED HEAT PUMP. CONNECT CONDENSATE DRAIN TO EXISTING DRAIN.
7. PROVIDE NEW THERMOSTAT. USE EXISTING WIRING ROUTE.
8. CONTRACTOR SHALL PAINT ANY PREVIOUSLY COVERED SPOTS NOW VISIBLE TO MATCH EXISTING WALL COLOR.
9. CONTRACTOR SHALL REPAIR/REPLACE CARPET AS REQUIRED TO MATCH EXISTING CONDITIONS.



1 BASEMENT DEMOLITION MECHANICAL FLOOR PLAN
SCALE: 1/8" = 1' - 0"

NORTH



2 BASEMENT NEW WORK MECHANICAL FLOOR PLAN
SCALE: 1/8" = 1' - 0"

NORTH

NO.	REVISIONS	DATE

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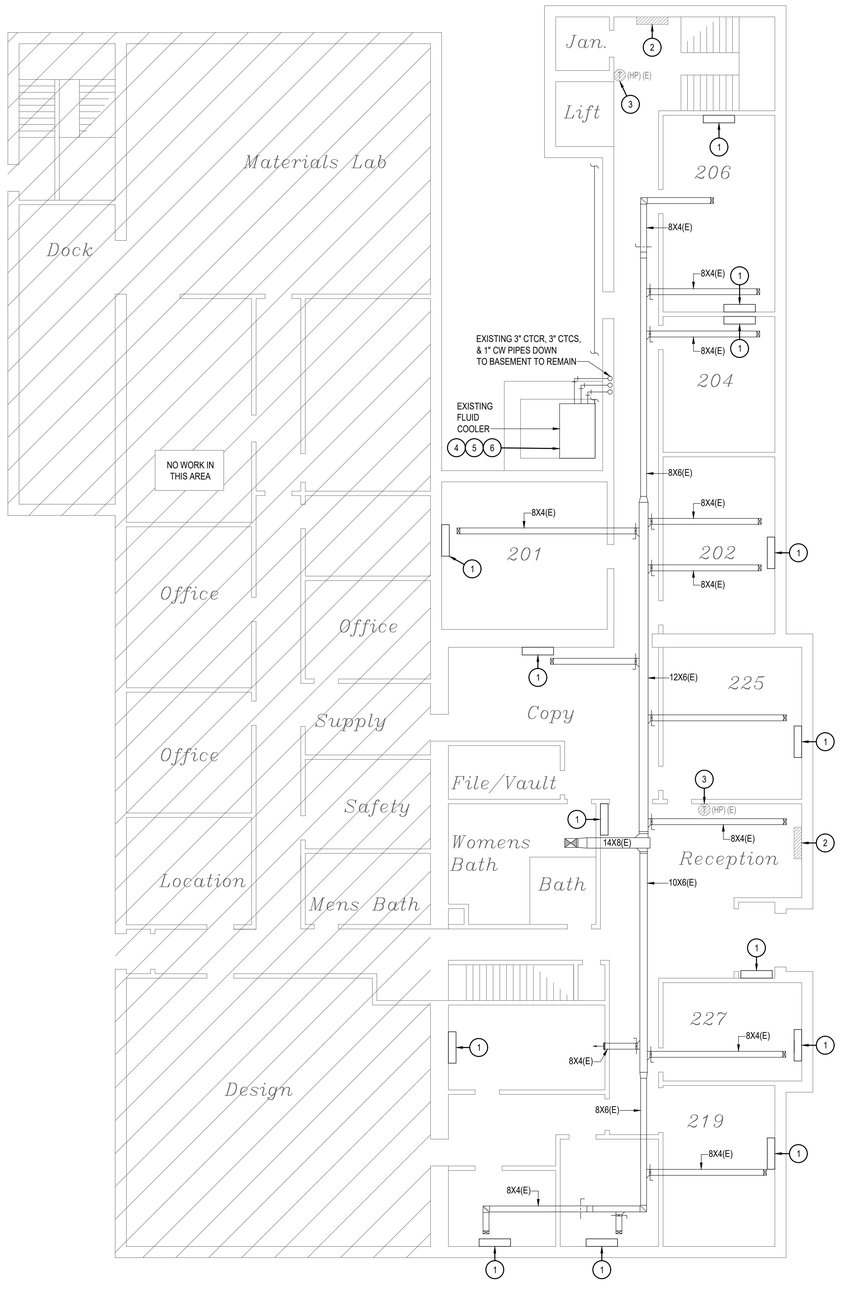
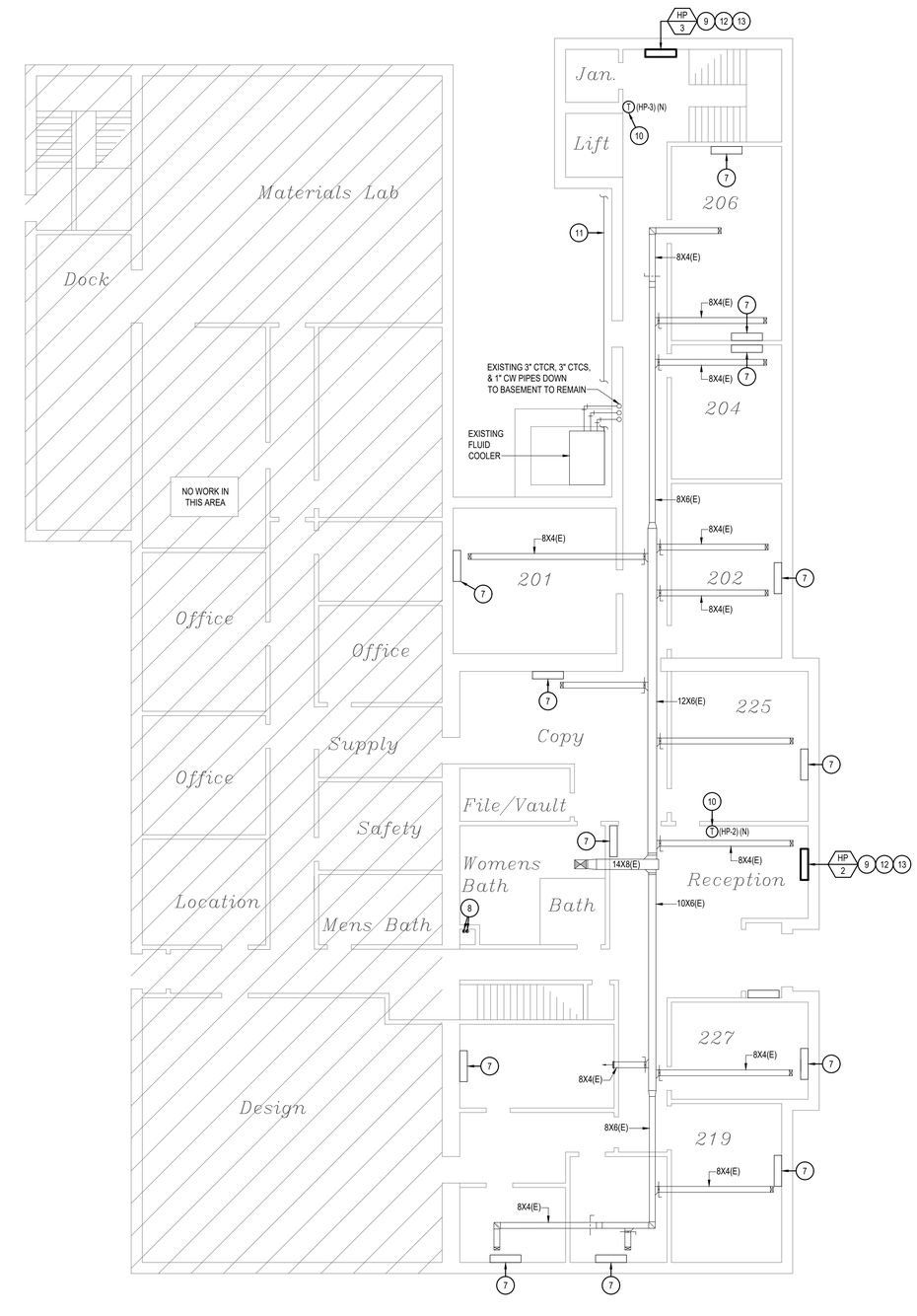
SCALE	SEE PLANS
SHEET	M1.0



1 MAIN FLOOR DEMOLITION MECHANICAL FLOOR PLAN

SCALE: 1/8" = 1' - 0"

NORTH



2 MAIN FLOOR NEW WORK MECHANICAL FLOOR PLAN

SCALE: 1/8" = 1' - 0"

NORTH

KEYED NOTES:

(#) SYMBOL USED FOR NOTE CALLOUT.

1. EXISTING HEAT PUMP TO REMAIN.
2. DISCONNECT AND REMOVE HEAT PUMP. SEE NEW WORK CONTINUATION.
3. REMOVE EXISTING THERMOSTAT.
4. CLEAN FLUID COOLER MEDIA.
5. CLEAN DRAIN PAN AND SEAL ALL LEAKS.
6. REPLACE DAMPER ACTUATORS.
7. CLEAN OUT HEAT PUMP STRAINER.
8. ROUTE 3"Ø EXHAUST VENT & 3"Ø INTAKE VENT FROM FLOOR BELOW TO ROOF. PROVIDE CONCENTRIC VENT KIT. TERMINATE VENT KIT AT ROOF. PROVIDE ROOF CAP. SEE SHEET M2.0 FOR CONTINUATION BELOW.
9. PROVIDE AND INSTALL NEW FLOOR MOUNTED HEAT PUMP. CONNECT CONDENSATE DRAIN TO EXISTING DRAIN
10. PROVIDE NEW THERMOSTAT. USE EXISTING WIRING ROUTE.
11. RECONNECT EXISTING DRAIN PIPE.
12. CONTRACTOR SHALL PAINT ANY PREVIOUSLY COVERED SPOTS NOW VISIBLE TO MATCH EXISTING WALL COLOR.
13. CONTRACTOR SHALL REPAIR/REPLACE CARPET AS REQUIRED TO MATCH EXISTING CONDITIONS

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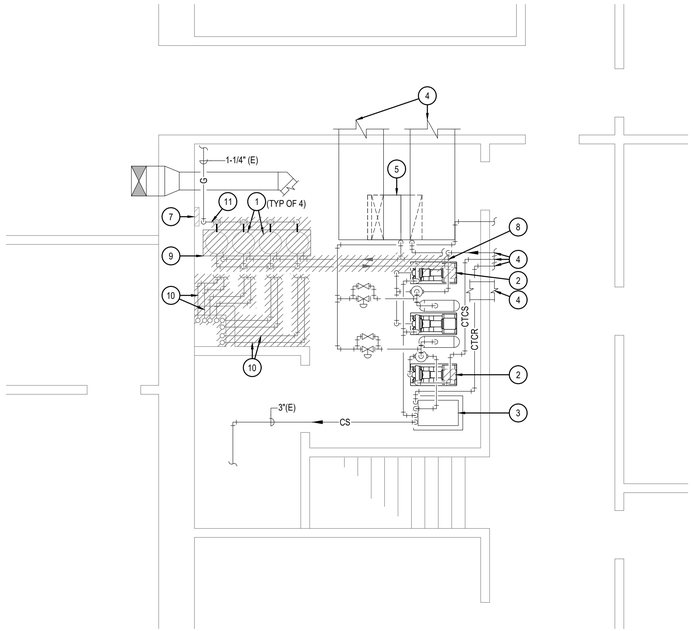
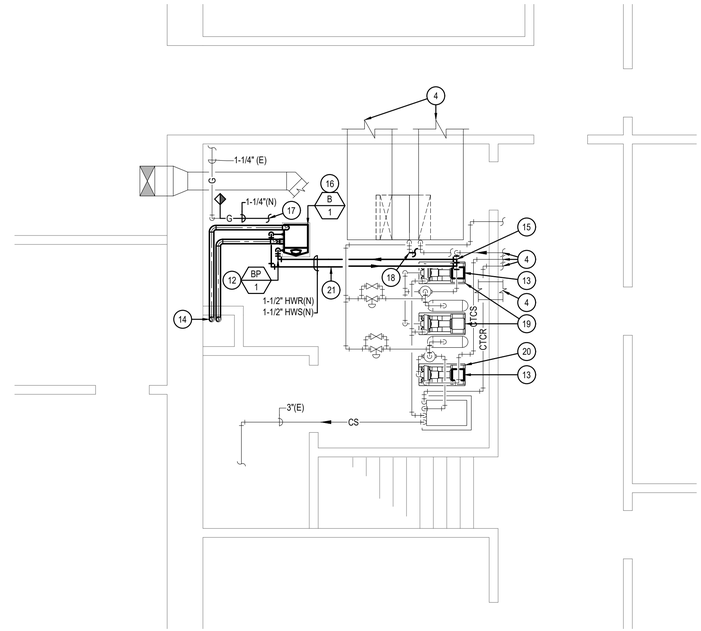
SCALE	SEE PLANS
SHEET	M1.1



1 ENLARGED MECHANICAL ROOM DEMOLITION FLOOR PLAN
SCALE: 1/4" = 1' - 0"

NORTH



2 ENLARGED MECHANICAL ROOM NEW WORK FLOOR PLAN
SCALE: 1/4" = 1' - 0"

NORTH

KEYED NOTES:

(#) SYMBOL USED FOR NOTE CALLOUT.

1. REMOVE EXISTING BOILER, PIPING CONNECTIONS, AND ALL RELATED ACCESSORIES.
2. REMOVE EXISTING PUMP MOTOR.
3. EXISTING HEAT EXCHANGER TO BE TAKEN APART AND CLEANED THOROUGHLY. REINSTALL WITH NEW GASKETS ON ALL PIPING CONNECTIONS.
4. SEE SHEET M1.0 FOR CONTINUATION.
5. EXISTING HEAT PUMP TO REMAIN.
6. CLEAN HEAT PUMP STRAINER.
7. REMOVE BOILER CONTROL PANEL.
8. REMOVE HOT WATER PIPING BACK TO CONDENSER WATER MAINS.
9. REMOVE 2" CONCRETE PAD.
10. REMOVE ALL BOILER FLUE AND INTAKE PVC PIPING, FITTINGS, AND ROOF CAPS.
11. REMOVE GAS PIPING BACK TO INDICATED POINT..
12. PROVIDE AND INSTALL NEW INLINE BOILER PUMP.
13. REPLACE EXISTING PUMP MOTOR. SEE PUMP SCHEDULE ON SHEET M4.0 FOR HP AND POWER REQUIREMENTS.
14. ROUTE 3"Ø EXHAUST VENT & 3"Ø INTAKE VENT TO ROOF. SEE SHEET M1.1 FOR CONTINUATION.
15. CONNECT NEW 1-1/2" HWS & HWR TO EXISTING 3" CR LINE.
16. PROVIDE AND INSTALL NEW BOILER. MOUNT ON NEW 2" CONCRETE PAD.
17. EXTEND EXISTING 1-1/4" GAS LINE TO NEW BOILER. PROVIDE 1/2" CONNECTION.
18. EXTEND AND CONNECT EXISTING 1-1/4" CR LINE TO EXISTING MAIN 3" CR RETURN LINE.
19. CONTRACTOR SHALL PROVIDE A BALANCE REPORT OF THE EXISTING CONDENSER LOOP AND PROVIDE TO THE OWNER/ENGINEER FOR REVIEW. SEE SPECIFICATION SECTION 230593 FOR MORE REQUIREMENTS.
20. CONTRACTOR SHALL PROVIDE A BALANCE REPORT OF THE EXISTING COOLING TOWER CONDENSER LOOP AND PROVIDE TO THE OWNER/ENGINEER FOR REVIEW. SEE SPECIFICATION SECTION 230593 FOR MORE REQUIREMENTS.
21. CONTRACTOR SHALL BALANCE THE HOT WATER LOOP AND PROVIDE REPORT TO OWNER/ENGINEER FOR REVIEW. SEE SPECIFICATION SECTION 230593 FOR MORE REQUIREMENTS.

NO.	REVISIONS	DATE

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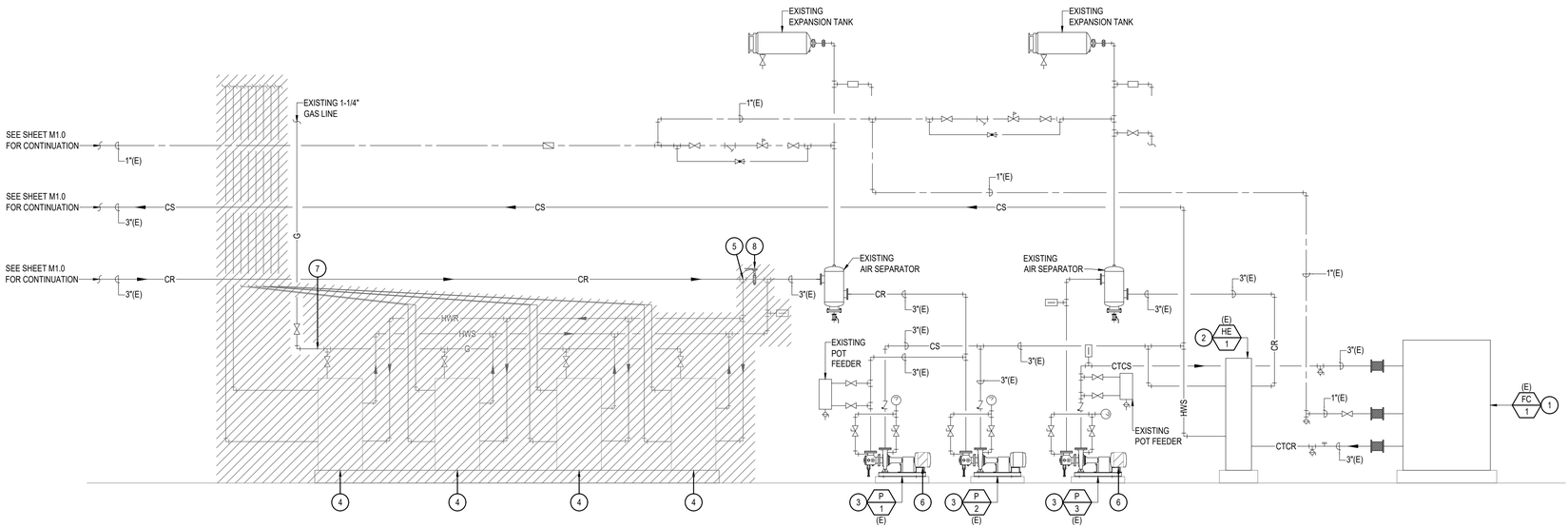
CHECKED	TN
DATE	07/01/2020
SCALE	SEE PLANS
SHEET	M2.0

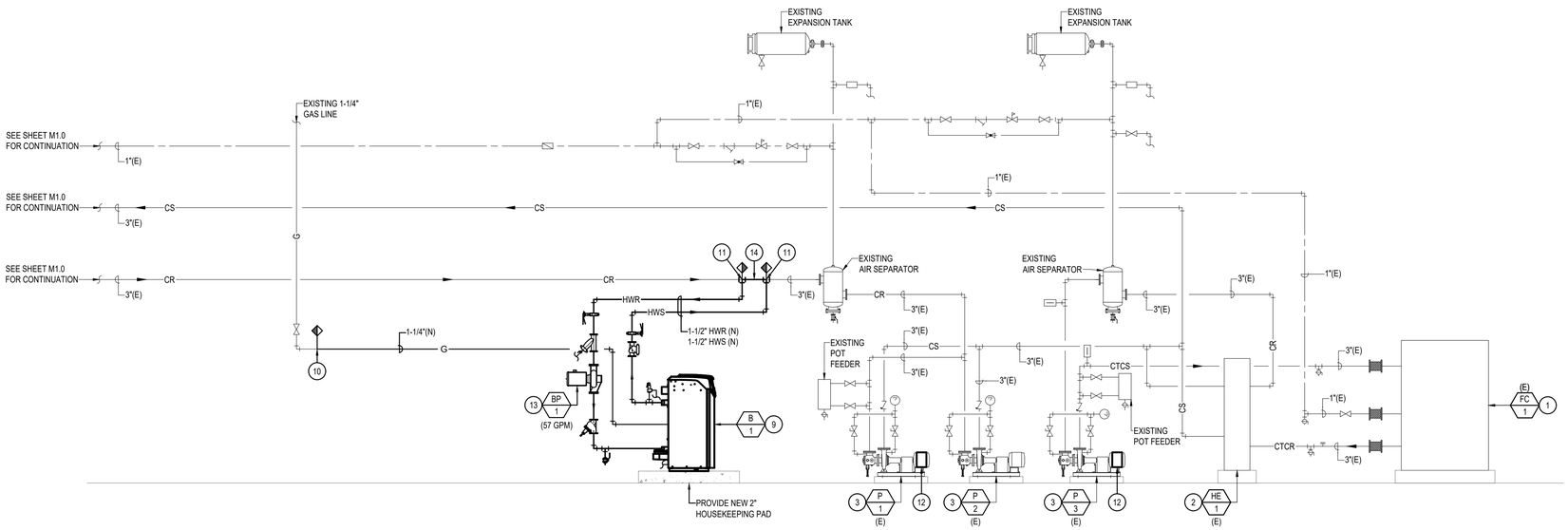
KEYED NOTES:

(#) SYMBOL USED FOR NOTE CALLOUT.

1. EXISTING FLUID COOLER TO REMAIN. SEE SHEET M1.1 FOR REQUIREMENTS.
2. EXISTING HEAT EXCHANGER TO REMAIN. SEE SHEET M1.0 FOR REQUIREMENTS.
3. EXISTING PUMP TO REMAIN. SEE SHEET M1.0 FOR REQUIREMENTS.
4. REMOVE BOILER, PIPING CONNECTIONS, FLUE, INTAKE, AND ALL RELATED ACCESSORIES.
5. REMOVE 3" HYDRONIC PIPING BACK TO CONDENSER WATER 3" MAINS.
6. REMOVE PUMP MOTOR.
7. DISCONNECT AND REMOVE EXISTING 1-1/4" GAS LINE BACK TO INDICATED POINT.
8. REMOVE EXISTING BUTTERFLY VALVE.
9. PROVIDE AND INSTALL NEW BOILER. SEE DETAIL #1 ON SHEET M4.0.
10. EXTEND EXISTING 1-/4" GAS LINE TO NEW BOILER.
11. CONNECT NEW 1-1/2" HWR & HWS LINES TO EXISTING 3" CONDENSER WATER RETURN LINE. MAINTAIN A MAXIMUM OF 12" APART TO MAINTAIN BRIDGE LOOP.
12. REPLACE PUMP MOTOR. SEE SCHEDULE ON SHEET M4.0.
13. PROVIDE AND INSTALL BOILER PUMP. SEE DETAIL #1 ON SHEET M4.0.
14. EXTEND AND CONNECT EXISTING 3" CONDENSER WATER LOOP MAINS TO COMPLETE LOOP.



1 MECHANICAL ROOM DEMOLITION PIPING SCHEMATIC
NOT TO SCALE



2 MECHANICAL ROOM NEW WORK PIPING SCHEMATIC
NOT TO SCALE

NO.	REVISIONS	DATE

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SCALE	SEE PLANS
SHEET	M3.0

NEW CONDENSING HOT WATER BOILER SCHEDULE

SYMBOL	AREA SERVED	THERMAL EFFICIENCY	FUEL	EWT (°F)	LWT (°F)	ELECTRICAL (V/Ø)	BOILER FLOW (GPM)	MAX P.D. (FT H_2O)	CAPACITY		MANUFACTURER AND MODEL	REMARKS
									INPUT MBH	OUTPUT MBH		
B-1	HOT WATER SYSTEM	95.0%	NATURAL GAS	60.0	90.0	120/1	19.0	1.1	285	270	LOCHINVAR KHB-285	1 , 2 , 3 , 4

REMARKS:

1. APPROVED ALTERNATE MANUFACTURERS: FULTON, KN, CLEAVER BROOKS CLEARFIRE, BUDERUS LOGANO, RAYPAK, LAARS, & AERCO.
2. PROVIDE BOILER CONCENTRIC VENTING KIT, NEUTRALIZING KIT, SEISMIC VIBRATION ISOLATORS, LOW WATER CUT-OFF, FLOW SWITCH, CONDENSATE TRAP, BOILER CONTROL PANEL, CSD-1 AND OSA RESET, AND BOILER PUMP (SEE PUMP SCHEDULE).
3. BOILER SHALL BE PROVIDED W/FACTORY START-UP, START-UP IS NOT COMPLETE UNTIL ALL BURNERS AND BLOWER ARE CALIBRATED FOR PEAK PERFORMANCE AND AT COMPLETION OF PROJECT ALL BURNERS, BLOWERS, HEAT EXCHANGERS, AND OTHER INTERNAL PARTS SHALL BE THOROUGHLY CLEANED OF CONSTRUCTION DEBRIS.
4. SEE CONTROLS SCHEMATIC.

NEW & EXISTING PUMP SCHEDULE

SYMBOL	AREA SERVED	TYPE	CAPACITY			MOTOR			SUCTION DIFFUSER	TRIPLE DUTY VALVE	OPERATING WEIGHT (LBS)	MANUFACTURER AND MODEL	REMARKS
			FLOW (GPM)	HEAD (FT)	MIN EFF	WATTS/HP	RPM	V/Ø					
BP-1 (N)	BOILER PUMP #1	INLINE	19.0	15.0	-	120 W	1,750	115/1	N/A	N/A	30	GRUNDFOS UPMXL 25-124	1 , 2 , 5
P-1 (E)	EXISTING CONDENSER LOOP PUMP	BASE MOUNTED	60.0	60.0	(E)	2.0 HP	1,750	208/3	(E)	(E)	(E)	EXISTING PUMP	3
P-2 (E)	EXISTING CONDENSER LOOP PUMP	BASE MOUNTED	60.0	60.0	(E)	2.0 HP	1,750	208/3	(E)	(E)	(E)	EXISTING PUMP	4
P-3 (E)	EXISTING COOLING TOWER CONDENSER LOOP PUMP	BASE MOUNTED	60.0	30.0	(E)	1.0 HP	1,750	208/3	(E)	(E)	(E)	EXISTING PUMP	3

REMARKS:

1. APPROVED ALTERNATE MANUFACTURERS: ARMSTRONG, GRUNDFOS, TACO, WILO, PACO, PEERLESS, PATTERSON.
2. PROVIDE UNIT WITH PREMIUM EFFICIENCY MOTOR. PUMP PROVIDED BY BOILER MANUFACTURER.
3. REPLACE EXISTING MOTOR WITH PREMIUM EFFICIENCY MOTOR. EXISTING PUMP TO REMAIN.
4. EXISTING PUMP AND MOTOR TO REMAIN.
5. SEE CONTROLS SCHEMATIC.

EXISTING HEAT EXCHANGER SCHEDULE

SYMBOL	SYSTEM	TYPE	HOT SIDE (°F)		COLD SIDE (°F)		HX FLOW (GPM)		MAX PRESSURE LOSS (PSI)		MANUFACTURER AND MODEL	REMARKS
			ENT	LVG	ENT	LVG	HOT SIDE	COLD SIDE	HOT SIDE	COLD SIDE		
HE-1 (E)	HEAT PUMP LOOP	EXISTING PLATE AND FRAME	95.0	85.0	82.0	92.0	60.0	60.0	(E)	(E)	EXISTING B&G GPX MODEL # GPX-258-097 (BUILT IN 1987)	1 , 2

REMARKS:

1. EXISTING HEAT EXCHANGER TO REMAIN.
2. EXISTING HEAT EXCHANGER TO BE THOROUGHLY CLEANED AND INSPECTED.

NEW WATER SOURCE HEAT PUMP SCHEDULE

SYMBOL	AREA SERVED	UNIT TYPE	SUPPLY FAN			COOLING REQUIRED AT 95° OSA, 80° EDB, 62° EWB				HEATING REQUIRED AT 70° EAT		CONDENSER WATER		ELECTRICAL			COOLING EFF.	OPERATING WEIGHT (LBS)	MANUFACTURER AND MODEL	REMARKS
			CFM	ESP	HP	TOTAL MBH	SENS. MBH	EWT (°F)	LWT (°F)	TOTAL MBH	EWT (°F)	GPM	MAX PD (PSI)	MCA	MOCP	V/Ø				
HP-1	101 DATA ENTRY	CONSOLE	350	---	0.056	13.3	6.4	85.0	101.1	17.3	70.0	2.0	0.9	6.7	15.0	208/1	15.1 EER	170.0	DAIKIN MODEL WMHC2015	1 , 2 , 3
HP-2	RECEPTION	CONSOLE	350	---	0.056	13.3	6.4	85.0	101.1	17.3	70.0	2.0	0.9	6.7	15.0	208/1	15.1 EER	170.0	DAIKIN MODEL WMHC2015	1 , 2 , 3
HP-3	HALLWAY	CONSOLE	485	---	0.056	16.6	10.1	85.0	101.8	20.3	70.0	2.4	1.2	8.2	15.0	208/1	13.4 EER	175.0	DAIKIN MODEL WMHC2018	1 , 2 , 3

REMARKS:

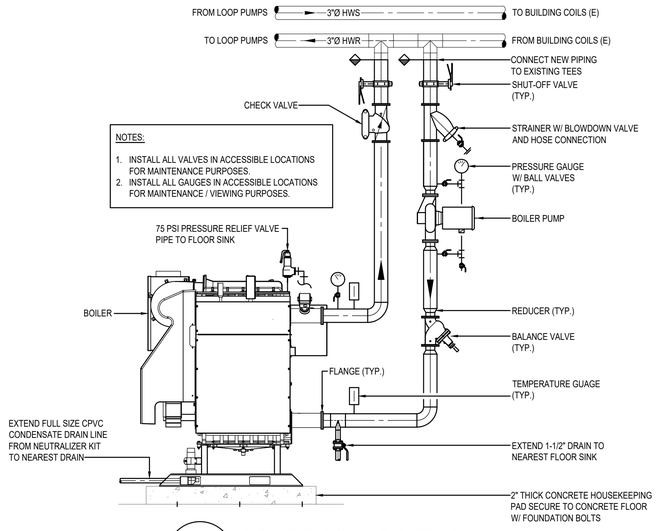
1. APPROVED ALTERNATE MANUFACTURERS: CLIMATE MASTER, CARRIER, FLORIDA HEAT PUMP, WATER FURNACE, AND TRANE.
2. PROVIDE UNIT WITH SEVEN-DAY PROGRAMMABLE AUTO-CHANGEOVER WITH 5 DEGREE DEADBAND, ADAPTIVE INTELLIGENT AUTOMATIC START CONTROL, 3 STAGE HEAT, 2 STAGE COOLING THERMOSTAT HONEYWELL VISIONPRO MODEL TH8321R1001. THERMOSTAT SHALL BE POWERED BY A 24VAC WIRE CONNECTION. THERMOSTAT SHALL INCLUDE OPTIMUM START PROGRAMMING.
3. PROVIDE W/EXTRA-QUIET CONSTRUCTION, 2" PLEATED FILTER RACK (SEE HEAT PUMP DETAIL), RUN-OUT SIZED GRISWOLD 24" (STAINLESS STEEL) AUTOMATIC BALANCING HOSE KIT (W/AUTOMATIC FLOW CONTROL VALVE, TEST PLUGS, BALL VALVES AND STRAINER), DRAIN PAN OVERFLOW SENSOR, AND FIELD INSTALLED LITTLE GIANT CONDENSATE PUMP.
4. PROGRAMMABLE THERMOSTAT SHALL BE PROGRAMMED WITH A 70°F OCCUPIED HEATING SETPOINT, A 75°F OCCUPIED COOLING SETPOINT, 55°F UNOCCUPIED HEATING SETPOINT, A 85°F UNOCCUPIED COOLING SETPOINT. ALL SETPOINTS SHALL BE ADJUSTABLE.

EXISTING FLUID COOLER SCHEDULE

SYMBOL	AREA SERVED	UNIT TYPE	PERFORMANCE					FAN				OPERATING WEIGHT (LBS)	MANUFACTURER AND MODEL	REMARKS
			GPM	EWT (°F)	LWT (°F)	AMBIENT WET BULB	NOZZLE P.D.	CFM	# OF MOTORS	HP	V/Ø			
FC-1	EXISTING HEAT PUMP LOOP	EXISTING OPEN COOLER	60.0	92.0	82.0	67.0	(E)	10,500	1(E)	5.0	208/3	(E)	EXISTING IMECO MODEL # EFC-C112-3, SERIAL # 2255-1	1 , 2

REMARKS:

1. EXISTING FLUID COOLER TO REMAIN.
2. EXISTING FLUID COOLER TO BE THOROUGHLY CLEANED AND INSPECTED.



1 BOILER PIPING DETAIL
NOT TO SCALE

A QUALIFIED WATER TREATMENT CONTRACTOR SHALL BE UTILIZED TO FURNISH THE CLEANING MATERIAL AND SUPERVISE THE FLUSHING AND TREATMENT OF THE SYSTEM. APPROVED WATER TREATMENT CONTRACTORS MUST SHOW PROOF OF SIMILAR SERVICE FOR NO LESS THAN 3 YEARS, AND SHALL HAVE FULL-TIME SERVICE PERSONNEL LOCATED WITHIN ONE-HOUR FROM THE JOB SITE. MONITORING AND TREATMENT OF THE SYSTEM SHALL BE PROVIDED FOR A PERIOD OF ONE YEAR FOLLOWING FINAL ACCEPTANCE OF BUILDING AND SYSTEM.

DESCRIPTION OF WORK

1. LEAK CHECK AND INITIAL SYSTEM CLEANING:

-ONCE THE ENTIRE SYSTEM HAS BEEN COMPLETELY INSTALLED, THE CONDENSER WATER DISTRIBUTION SYSTEM SHALL BE COMPLETELY CLEANED AND CHECKED FOR LEAKS. THE WATER TREATMENT CONTRACTOR SHALL ADD INITIAL CHEMICAL CLEANING AGENT TO FACILITATE FLUSHING AND TO PREVENT CORROSION DURING THE LEAK CHECK PROCESS. THE SYSTEM SHALL BE FREE OF ALL CUTTING OILS AND OTHER DEBRIS. THE WATER TREATMENT CONTRACTOR SHALL FILL THE CONDENSER SYSTEM WITH CLEAN, FRESH WATER AND THOROUGHLY CHECK SYSTEM PIPING FOR LEAKS. FOLLOWING THE LEAK CHECK, THE CLOSED SYSTEM SHALL BE FLUSHED UNTIL THE LEAVING WATER RUNS CLEAR. DURING THIS PROCESS, ONE OF THE HOSES AT EACH HEAT PUMP WILL BE CONNECTED TO BYPASS THE HEAT PUMP, FLOW STRAINER, AND FLOW CONTROL DEVICE. THE WATER TREATMENT CONTRACTOR SHALL ENSURE THAT SYSTEMS NOT BE LEFT DRY DURING SYSTEM DRAIN-DOWN.

2. CONDENSER WATER SYSTEM CHEMICAL TREATMENT:

-FILL SYSTEM WITH A SOLUTION OF 10% BY WEIGHT OF A HEAVY DUTY ALKALINE LIQUID CLEANER. THE CLEANER SHALL BE CAPABLE OF WETTING AND PENETRATING HEAVY SOIL DEPOSITS OF OIL OR GREASE, AND OF KEEPING THESE PRODUCTS IN SUSPENSION.

-CIRCULATE SOLUTION FOR A MINIMUM OF 8 HOURS, THEN FLUSH SYSTEM WITH CLEAN FRESH WATER UNTIL ALL SOLIDS HAVE BEEN CLEANED FROM THE SYSTEM. CLEAN ALL STRAINERS IN SYSTEM.

-FOLLOWING CLEAN AND FLUSH PROCESS, RE-CONNECT HEAT PUMP HOSE KITS FOR NORMAL OPERATION AND INSPECT ALL FLOW CONTROL DEVICES AND STRAINERS. WHEN NECESSARY, THESE COMPONENTS SHALL BE FLUSHED TO ENSURE UNOBSTRUCTED FLOW TO EACH HEAT PUMP.

-THE WATER TREATMENT CONTRACTOR SHALL REFILL SYSTEM WITH A MIXTURE OF CLEAN WATER AND CHEMICAL INHIBITOR. ADD NITRITE TO SYSTEM TO MAINTAIN A NITRITE LEVEL OF 800-1000 PPM. TEST FOR NITRITE USING A "DROP TEST" KIT.

3. AT THE CONCLUSION OF CLEANING AND TREATING, THE WATER TREATMENT CONTRACTOR SHALL CERTIFY IN WRITING THAT THE SYSTEM HAS BEEN CLEANED AND TREATED AS SPECIFIED.

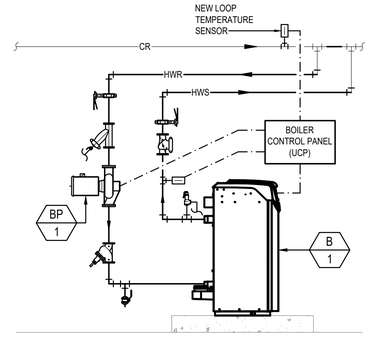
4. AT THE END OF ONE YEAR, THE SYSTEM SHALL AGAIN BE CHECKED AND REFILLED AS REQUIRED TO MEET THE ABOVE SPECIFICATIONS. SERVICE DURING THE ONE-YEAR WARRANTY PERIOD SHALL BE AS REQUIRED TO MAINTAIN ABOVE SPECIFICATIONS.

2 CONDENSER WATER SYSTEM FLUSHING AND TREATMENT
NOT TO SCALE

GENERAL:
THE NEW BOILER LOOP SHALL INCLUDE A STANDALONE CONDENSING BOILER, A BOILER PUMP, AND LOOP TEMPERATURE SENSORS.

THE BOILER SHALL OPERATE TO MAINTAIN A CONDENSER RETURN WATER TEMPERATURE OF 70°F. IF THE RETURN WATER TEMPERATURE DROPS BELOW 70°F THE BOILER CONTROL PANEL SHALL ENGAGE THE BOILER PUMP AND MODULATE THE INTERNAL BURNERS TO MAINTAIN A HOT WATER SUPPLY LOOP TEMPERATURE OF 90°F.

BOILER LOOP SEQUENCE OF OPERATION
NTS



BOILER LOOP CONTROL SCHEMATIC
NTS

NO.	REVISIONS	DATE

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IDAHO TRANS. DEPT.
D4 HVAC MODIFICATION
216 S DATE ST
SHOSHONE, IDAHO

PROJECT	20-247
DRAWN	CD
CHECKED	TN
DATE	07/01/2020
SCALE	SEE PLANS
SHEET	M4.0

ELECTRICAL GENERAL NOTES

A. THESE ELECTRICAL DRAWINGS ARE DIAGRAMMATIC IN NATURE; THEREFORE, THE ELECTRICAL CONTRACTOR SHALL COORDINATE ALL ELECTRICAL EQUIPMENT AND DEVICE LOCATIONS WITH ARCHITECTURAL, MECHANICAL, AND PLUMBING DIVISIONS PRIOR TO ROUGH-IN. REFER TO AND COORDINATE WITH ARCHITECTURAL, MECHANICAL, AND PLUMBING DRAWINGS FOR ADDITIONAL WORK THAT IS REQUIRED BY THE ELECTRICAL CONTRACTOR.

B. ALL CONDUIT AND JUNCTION BOXES ARE TO BE CONCEALED UNLESS LOCATED WITHIN DEDICATED ELECTRICAL OR MECHANICAL ROOMS. USE OF SURFACE MOUNTED RACEWAYS IN ALL OTHER SPACES MUST BE APPROVED BY THE ARCHITECT FOR EACH LOCATION. WHERE SURFACE RACEWAYS ARE APPROVED, UTILIZE WIREMOLD, OR APPROVED EQUAL, SURFACE MOUNTED RACEWAYS PAINTED TO MATCH SURROUNDING WALLS.

C. REFER TO ARCHITECTURAL ELEVATIONS FOR OUTLET HEIGHTS WHERE THE SPECIFIC OUTLET HEIGHT IS NOT INDICATED. REFER TO THE ELECTRICAL LEGEND FOR THE DEFAULT OUTLET HEIGHT WHEN NOT INDICATED ON ELEVATIONS OR ON AT THE DEVICES.

D. PROVIDE PULL-LINE IN ALL EMPTY CONDUITS.

E. TERMINATE ALL LOW-VOLTAGE CONDUITS WITH INSULATED THROAT BUSHING.

F. MECHANICAL EQUIPMENT INDICATED IS SHOWN IN AN APPROXIMATE LOCATION. COORDINATE EXACT LOCATION WITH MECHANICAL CONTRACTOR PRIOR TO ROUGH-IN.

G. ALL NON-LOCKING, 120-V, 15 AND 20-AMP RECEPTACLES SHALL BE LISTED TAMPER-RESISTENT RECEPTACLES PER NEC 406.12

FIRE ALARM:

H. INSTALL PLENUM RATED FIRE ALARM CONDUCTORS FROM ALL FIRE ALARM DEVICES INDICATED TO THE FIRE ALARM CONTROL PANEL OR NAC EXTENDER PANEL(S) AS REQUIRED. STUB 3/4" CONDUIT FROM DEVICE TO VOID ABOVE CEILING. PROVIDE NAC EXTENDER PANELS (QUANTITY AS REQUIRED) IN LOCATIONS INDICATED AND CIRCUITING AS REQUIRED FOR A COMPLETE INSTALLATION. CIRCUIT THE FIRE ALARM NOTIFICATION AND INITIATION DEVICES PER THE ELECTRICAL SPECIFICATIONS. FURNISH AND INSTALL ALL APPURTENANCES AND PROGRAMMING REQUIRED FOR A COMPLETE AND OPERATIONAL SYSTEM. REFER TO ELECTRICAL FIRE ALARM SPECIFICATIONS FOR SYSTEM REQUIREMENTS AND SUBMITTAL PROCEDURES.

SITE:

I. CONTRACTOR SHALL COORDINATE WITH AN UNDERGROUND LOCATING SERVICE PRIOR TO COMMENCING WORK. SEE CIVIL DRAWINGS FOR ADDITIONAL SITE INFORMATION. COORDINATE WITH OTHER SITE DISCIPLINES.

J. SITE LIGHTING AND UTILITY EQUIPMENT SHOWN IN APPROXIMATE LOCATION. COORDINATE EXACT LOCATION WITH CIVIL DRAWINGS, PROPERTY LINES, AND UTILITY COMPANIES PRIOR TO ROUGH-IN.

K. REFER TO POLE BASE DETAIL FOR SITE LIGHTING POLE BASE REQUIREMENTS.

L. ROUTE CONDUITS IN COMMON TRENCH WHERE POSSIBLE REFER TO TRENCHING DETAIL.

DEMO:

M. THE ELECTRICAL DEMOLITION DRAWING(S) PROVIDED ARE INTENDED TO ASSIST THE ELECTRICAL CONTRACTOR IN ESTABLISHING AREAS REQUIRING DISCONNECTION, REMOVAL, OR RELOCATION OF ELECTRICAL EQUIPMENT, OUTLETS, WIRING, DEVICES, FIXTURES, ETC. AND MAY NOT INDICATE ALL DEVICES OR THE FULL EXTENT OF DEMOLITION AND RECONNECTION WHICH MAY BE REQUIRED. THE ELECTRICAL CONTRACTOR SHALL VISIT THE JOB SITE AND THOROUGHLY EXAMINE ALL REQUIRED DEMOLITION WORK AND INCLUDE ALL LABOR AND INCIDENTALS THAT WILL BE NECESSARY TO PERFORM DEMOLITION RECONNECTION AND TEMPORARY POWER CONNECTIONS IN THE BID.

N. ALL ELECTRICAL DEVICES AND WALLS INDICATED ON THE ELECTRICAL DEMOLITION DRAWING(S) ARE TO REMAIN UNLESS OTHERWISE NOTED.

DEVICES

S — SWITCH, TYPE AS INDICATED. +46"AFF
- 2 DOUBLE POLE
- 3 3-WAY
- 4 4-WAY
- K KEYED
- P PILOT LIGHT
- D DIMMER
- HP HORSEPOWER RATED
- TO THERMAL OVERLOAD
- LV LOW VOLTAGE
- OS OCCUPANCY SENSOR
- OR LOW VOLTAGE, MOMENTARY OVERRIDE
- VS VACANCY SENSOR
- a SUPERSCRIPT INDICATES LIGHTS TO BE SWITCHED TOGETHER

S^{S} — DUAL LEVEL SWITCHING, INSIDE AND OUTSIDE LAMPS OF FIXTURE TO BE SWITCHED SEPARATELY.

S^{L}_{OS} — DUAL LEVEL SWITCHING WITH OCCUPANCY SENSOR, INSIDE AND OUTSIDE LAMPS OF FIXTURE TO BE SWITCHED SEPARATELY.

S^{OS} — OCCUPANCY SENSOR WITH MANUAL DIMMING, SET FOR 50% AUTOMATIC ON, AUTOMATIC OFF, WITH MANUAL DIMMING.

SINGLE CONVENIENCE OUTLET, +18" AFF UNO

FLOOR MOUNT SINGLE CONVENIENCE OUTLET

DUPLEX CONVENIENCE OUTLET, +18" AFF UNO

FLOOR MOUNT DUPLEX CONVENIENCE OUTLET

EMERGENCY DUPLEX CONVENIENCE OUTLET, +18" AFF UNO

SWITCHED DUPLEX CONVENIENCE OUTLET, +18" AFF UNO

FLOOR MOUNTED SWITCHED DUPLEX CONVENIENCE OUTLET

USB DUPLEX CONVENIENCE OUTLET, +18" AFF UNO

USB FOURPLEX CONVENIENCE OUTLET, +18" AFF UNO

FOURPLEX CONVENIENCE OUTLET. +18"AFF UNO

FLOOR MOUNT FOURPLEX CONVENIENCE OUTLET

CONNECTION POINT TO EQUIPMENT SPECIFIED, ELECTRICAL CONTRACTOR TO SUPPLY RACEWAY AND CONDUCTORS AND MAKE FINAL CONNECTION TO EQUIPMENT UNDER THIS SECTION. UNO

FLOOR MOUNTED CONNECTION POINT, SEE NOTE ABOVE FOR REQUIREMENTS

FLOOR MOUNTED JUNCTION BOX

JUNCTION BOX

WALL MOUNTED PUSH BUTTON, MOUNT AT SWITCH HEIGHT UNO

HC — WALL MOUNTED PUSH BUTTON, HANDICAPPED MOUNT AT SWITCH HEIGHT UNO

WALL MOUNTED PUSH BUTTON, MOUNT AT SWITCH HEIGHT UNO

MOTOR STARTER/CONTACTOR, SIZE/POLES NEMA 1 UNO AS INDICATED

COMBINATION STARTER AND DISCONNECT, SIZE/POLES, STARTER SIZE AS INDICATED, NEMA 1 UNO

F — FUSED DISCONNECT SWITCH, SIZE/POLES, FUSE SIZES AS INDICATED, NEMA 1 UNO

NON-FUSED DISCONNECT SIZE/ POLES AS INDICATED, NEMA 1 UNO

T / XX — THERMOSTAT, +46" AFF PROVIDE CONDUIT, J-BOX, CONDUCTORS AS REQUIRED TO CONTROL ASSOCIATED UNITS. UNO COORDINATE WITH DIVISION 15.

POWER POLE - DUAL CHANNEL

T — TRANSFORMER

PANELBOARD. SEE SCHEDULE FOR TYPE.

EQUIPMENT CABINET, SURFACE MOUNTED

EQUIPMENT CABINET FLUSH MOUNTED

SURFACE MULTI-OUTLET RACEWAY

/ # — MECHANICAL EQUIPMENT CALL OUT

— KITCHEN EQUIPMENT CALLOUT

ONE LINE

DELTA WYE TRANSFORMER UNO

PANEL NAME VOLTAGE PHASE — PANEL BOARD, SEE SCHEDULE FOR TYPE AND SIZE

##A / #P — CIRCUIT BREAKER, SIZE AND POLES INDICATED

##A — FUSE, SIZE AND TYPE INDICATED, PROVIDE FUSE FOR EACH POLE

##A / #P — INTERRUPTER SWITCH, SIZE AND POLES INDICATED

##A / #P — FUSED SWITCH, SIZE/POLES AND FUSE SIZE INDICATED

##A / #P — DRAW OUT CIRCUIT BREAKER, SIZE AND POLES INDICATED

###A #P — INDIVIDUAL BREAKER WITH SHUNT TRIP, SIZE AND POLES INDICATED. NEMA 1 UNO

###A #P — INDIVIDUAL BREAKER, SIZE AND POLES INDICATED. NEMA 1 UNO

GFP — GROUND FAULT PROTECTION

TVSS — TRANSIENT VOLTAGE SURGE SUPPRESSION

LSIGR — ADJUSTABLE BREAKER SETTINGS (PER SPECIFICATIONS):
'L'-LONG TIME
'S'-SHORT TIME
'I'-INSTANTANEOUS
'G'-GROUND FAULT
'R'-ENERGY REDUCING MAINTENANCE SWITCH W/STATUS INDICATOR

GROUND

ST — SHUNT TRIP COIL

M — MOTOR

100A 3P — DISCONNECT SWITCH, SIZE AND POLES INDICATED. NEMA 1 UNO

OVERHEAD SERVICE DROP

###A/3P — GENERATOR SET, MAIN BREAKER SIZE INDICATED

AUTOMATIC TRANSFER SWITCH (ATS)

M — METER AND BASE

N — NEUTRAL

T — DRY TYPE TRANSFORMER

PAD MOUNT TRANSFORMER

SECURITY

CCTV CAMERA POWER SUPPLY

CCTV SYSTEM POWER SUPPLY

ADJUSTABLE CAMERA (PAN/TILT/ZOOM)

FIXED CAMERA

CAMERA IN OUTDOOR HOUSING

ADJUSTABLE CAMERA (PAN/TILT/ZOOM) IN OUTDOOR HOUSING

C — CCTV OUTLET, +18" UNO

C — CEILING MOUNTED CCTV OUTLET

K — SECURITY SYSTEM KEYPAD CONTROLLER COORDINATE BOX SIZE AND MUDRING WITH VENDOR

CR — CARD READER

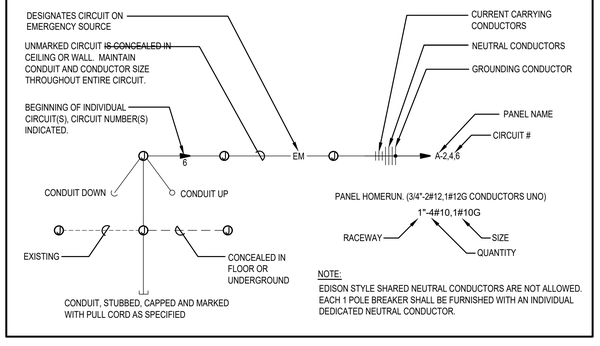
M — CEILING MOUNTED MOTION SENSOR

M +80" — WALL MOUNTED MOTION SENSOR, MOUNTING HEIGHT INDICATED

PANIC BUTTON - MOUNTED UNDER COUNTER

NOTE:	THIS IS A STANDARD LIST OF COMMONLY USED ELECTRICAL SYMBOLS. SOME OF THE SYMBOLS SHOWN MAY NOT HAVE BEEN USED IN THIS DRAWING PACKAGE.

CIRCUITING SYMBOLS



NOTE:
EDISON STYLE SHARED NEUTRAL CONDUCTORS ARE NOT ALLOWED. EACH 1 POLE BREAKER SHALL BE FURNISHED WITH AN INDIVIDUAL DEDICATED NEUTRAL CONDUCTOR.

ELECTRICAL ABBREVIATIONS

A	AMPERES
AC	6" ABOVE BACKSPLASH
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AF	AMP FRAME
AIC	AMPS INTERRUPTING CAPACITY
AT	AMP TRIP
ATS	AUTOMATIC TRANSFER SWITCH
AWG	AMERICAN WIRE GAUGE
BD	BOTTOM OF DECK
BS	BOTTOM OF STRUCTURE
C	CEILING MOUNTED
C	CONDUIT
CB	CIRCUIT BREAKER
CF	COMPACT FLUORESCENT
CKT	CIRCUIT
CO	CONDUIT ONLY, PROVIDE PULL-LINE
CT	CURRENT TRANSFORMER
CTL	CONTROL
DC	DIRECT CURRENT
(D)	DEMOLITION
DEMO	DEMOLITION
DET	DETAIL
DTT	DOUBLE TWIN TUBE
E	EMERGENCY
(E)	EXISTING
EC	ELECTRICAL CONTRACTOR
EL	EMERGENCY LIGHT
F	FUSE
(F)	FUTURE
FACP	FIRE ALARM CONTROL PANEL
G/GND	GROUND
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GFI	GROUND FAULT INTERRUPTER
HH	HAND HOLE
HID	HIGH INTENSITY DISCHARGE
HOA	HAND-OFF-AUTO
HPS	HIGH PRESSURE SODIUM
HVAC	HEATING, VENTILATION, & AIR CONDITIONING
IG	ISOLATED GROUND
IPCO	IDAHO POWER COMPANY
J-BOX	JUNCTION BOX
KA	KILOAMP
KVA	KILO VOLT-AMP
KW	KILOWATT
KWH	KILOWATT HOUR
LCP	LIGHTING CONTROL PANEL
MB	MAIN BREAKER
MBR	MAIN CIRCUIT BREAKER
MCC	MOTOR CONTROL CENTER
MDP	MAIN DISTRIBUTION PANEL
MLO	MAIN LUGS ONLY
MMC	MODULAR METERING CENTER
MH	METAL HALIDE
MSB	MAIN SWITCH BOARD
MTG	MOUNTING
N	NEUTRAL
(N)	NEW
NC	NORMALLY CLOSED
NEC	NATIONAL ELECTRICAL CODE
NIC	NOT IN CONTRACT
NL	NIGHT LIGHT
NO	NORMALLY OPEN
NTS	NOT TO SCALE
OH	OVERHEAD
OS	OCCUPANCY SENSOR
P	POLES
PC	PHOTO-CONTROL
PVC	POLYVINYL CHLORIDE
PWR	POWER
RE:	REFERENCE
REC	RECEPTACLE
(R)	RELOCATED
SF	SQUARE FEET
TBD	TO BE DETERMINED
TDR	TIME DELAY RELAY
TK	TOE KICK
TSP	TWISTED SHIELDED PAIR
TRT	TRIPLE TUBE
TTB	TELEPHONE TERMINAL BOARD
(TYP.)	TYPICAL
UC	UNDERCABINET
UG	UNDERGROUND
U.N.O.	UNLESS NOTED OTHERWISE
V	VOLT
VA	VOLT-AMPERE
W	WATT
WG	WIRE GUARD
WP	WEATHER PROOF/NEMA 3R

PROVIDED/ PROVIDE BY INSTALLED/ INSTALL	PROVIDE AND INSTALL / PROVIDED AND INSTALLED BY / PROVIDE AND INSTALL

NOTE:	THIS IS A STANDARD LIST OF COMMONLY USED ELECTRICAL ABBREVIATIONS. SOME OF THE ABBREVIATIONS SHOWN ABOVE MAY NOT BE USED IN THIS DRAWING PACKAGE.

ELECTRICAL SPECIFICATIONS

A. ALL WORK SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE LOCALLY ADOPTED ELECTRICAL CODE, ALL LOCAL CODES, AND TO THE FULL ACCEPTANCE OF THE AUTHORITY HAVING JURISDICTION.

B. OBTAIN ALL PERMITS, COORDINATE, FURNISH, INSTALL, CONNECT AND TEST ALL ELECTRICAL EQUIPMENT REQUIRED FOR ALL THE SYSTEMS INSTALLED UNDER THIS CONTRACT TO INSURE COMPLETE AND FULLY OPERATIONAL SYSTEMS.

C. CONTRACTOR SHALL MAINTAIN A COMPLETE SET OF AS-BUILT DRAWINGS. AS-BUILT SET OF DRAWINGS SHALL BE UPDATED DAILY AND SHALL DOCUMENT THE ACTUAL INSTALLED CONDITION OF THE ENTIRE ELECTRICAL INSTALLATION. AS-BUILT SET OF DRAWINGS SHALL BE AVAILABLE AT ALL TIMES ON THE SITE FOR INSPECTION BY CODE OFFICIALS, OWNER, ARCHITECT, AND ENGINEER.

D. PROTECT ALL EXISTING WORK FROM DAMAGE DURING CONSTRUCTION.

E. DESIGN IS BASED ON BEST AVAILABLE INFORMATION. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS TO DETERMINE STATUS OF ACTUAL CONDITIONS AS THEY RELATE TO THE SCOPE OF WORK AS SHOWN ON THESE PLANS.

F. COORDINATE ALL ELECTRICAL WORK WITH ALL OTHER TRADES.

G. COORDINATE EXACT LOCATION AND MOUNTING HEIGHTS OF ALL ELECTRICAL EQUIPMENT AND DEVICES WITH THE ARCHITECTURAL ELEVATIONS AND DETAILS PRIOR TO ROUGH-IN.

H. DEMOLITION WORK IS A PART OF THIS PROJECT. SEE DRAWINGS FOR EXISTING ELECTRICAL DEVICES TO BE REMOVED. REMOVE ASSOCIATED BOXES, RACEWAYS AND CONDUCTORS BACK TO SOURCE, AND MAKE SAFE.

I. ALL MATERIALS AND EQUIPMENT FURNISHED TO THE PROJECT SHALL BE NEW AND SHALL BEAR THE LISTING LABEL OF A NATIONALLY RECOGNIZED TESTING LAB AS DEFINED BY OSHA.

J. ALL ELECTRICAL DEVICES AND TERMINALS SHALL BE RATED 75°C MINIMUM.

K. ALL CONDUCTORS SHALL BE STRANDED COPPER, 600 VOLT RATED. INSULATION TYPE SHALL BE THHN/THWN, FULLY COLOR CODED WITH GAUGE, TYPE AND MANUFACTURER MARKED EVERY 24" ALONG. CONDUCTOR COLOR CODE SHALL BE AS FOLLOWS:

208Y/120 VOLT SYSTEM		480Y/277 VOLT SYSTEM	
PHASE A	- BLACK	PHASE A	- BROWN
PHASE B	- RED	PHASE B	- ORANGE
PHASE C	- BLUE	PHASE C	- YELLOW
NEUTRAL	- WHITE	NEUTRAL	- GRAY
GROUND	- GREEN	GROUND	- GREEN

L. MINIMUM SIZE WIRE FOR POWER AND LIGHTING CIRCUITS SHALL BE #12 AWG. ALL POWER AND LIGHTING CONDUCTORS SHALL BE ROUTED IN 3/4" CONDUIT MINIMUM.

M. EMT OR MC TYPE CABLE IS ALLOWED WHEN CONCEALED IN INTERIOR SPACES. MC TYPE CABLE IS NOT ALLOWED FOR HOMERUNS.

N. MAKE ALL CONNECTIONS TO EQUIPMENT PER MANUFACTURER'S REQUIREMENTS.

O. ALL EQUIPMENT, SWITCHING DEVICES AND PANELS SHALL BE MOUNTED SO AS TO BE ACCESSIBLE AND SHALL BE MOUNTED PLUMB AND SQUARE WITH WALLS.

P. DEVICES AND RACEWAYS PENETRATING FIRE RATED WALLS AND FLOORS SHALL BE SEALED WITH FIRE RESISTIVE MATERIAL, COMPATIBLE WITH CONSTRUCTION PENETRATED, TO MAINTAIN RATING OF THE WALL. SEALANT SYSTEM SHALL BE A U.L. APPROVED SYSTEM AND INSTALLED PER MANUFACTURER'S INSTRUCTIONS.

Q. FURNISH AND INSTALL PULL CORD IN ALL EMPTY CONDUITS.

R. ALL JUNCTION BOX COVERS WITH POWER WIRING SHALL HAVE THE PANEL AND CIRCUIT LABELED ON THE OUTSIDE SURFACE. ALL LABELS FOR EXPOSED JUNCTION BOXES IN "FINISHED AREAS" SHALL BE LABELED UTILIZING SELF ADHESIVE LABELS PRODUCED BY A MECHANICAL LABELING MACHINE. LABELS FOR JUNCTION BOX COVERS IN CONCEALED LOCATIONS SHALL CONSIST OF THE INFORMATION BEING NEATLY HANDWRITTEN ON THE OUTSIDE SURFACE OF THE COVER WITH A PERMANENT STYLE MARKER.

S. CLEARLY LABEL ALL ACCESSIBLE CONDUIT STUBS WITH SYSTEM NAME AND LOCATION (ROOM NUMBER) WHERE THE OTHER END OF THE CONDUIT TERMINATES. USE INDELIBLE INK. THE LABELS SHALL BE LOCATED ON THE CONDUIT IN A POSITION THAT CAN BE EASILY READ.

T. ALL 1 POLE BREAKER CIRCUITS SHALL HAVE AN INDEPENDENT NEUTRAL CONDUCTOR. NO EDISON STYLE SHARED NEUTRAL CONDUCTORS ARE ALLOWED.

U. ALL CONDUCTORS IN ELECTRICAL PANELS, CABINETS AND EQUIPMENT SHALL BE NEATLY TRAINED AND LACED.

V. THE CONTRACTOR SHALL PROVIDE UPDATED CIRCUIT PANEL DIRECTORIES FOR ALL PANELS. DIRECTORIES SHALL BE TYPED.

W. PROVIDE ELECTRICAL SUBMITTALS FOR EQUIPMENT SHOWN AS REQUIRED BY DIVISION 1 SPECIFICATIONS.

X. ELECTRICAL CONTRACTOR SHALL OBTAIN THE AVAILABLE FAULT CURRENT VALUE FROM THE LOCAL UTILITY OR THE ONE-LINE DIAGRAM AND LABEL THE MAIN BREAKER WITH THAT VALUE.

Y. SWITCH AND RECEPTACLE LABELING: IDENTIFY PANELBOARD AND CIRCUIT NUMBER FROM WHICH DEVICES ARE SERVED. USE MACHINE PRINTED LABEL AND 1/8" TEXT. INSTALL ON THE OUTSIDE OF THE FACEPLATE FOR RECEPTACLES AND INSIDE THE FACEPLATE FOR SWITCHES.

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7/10/20

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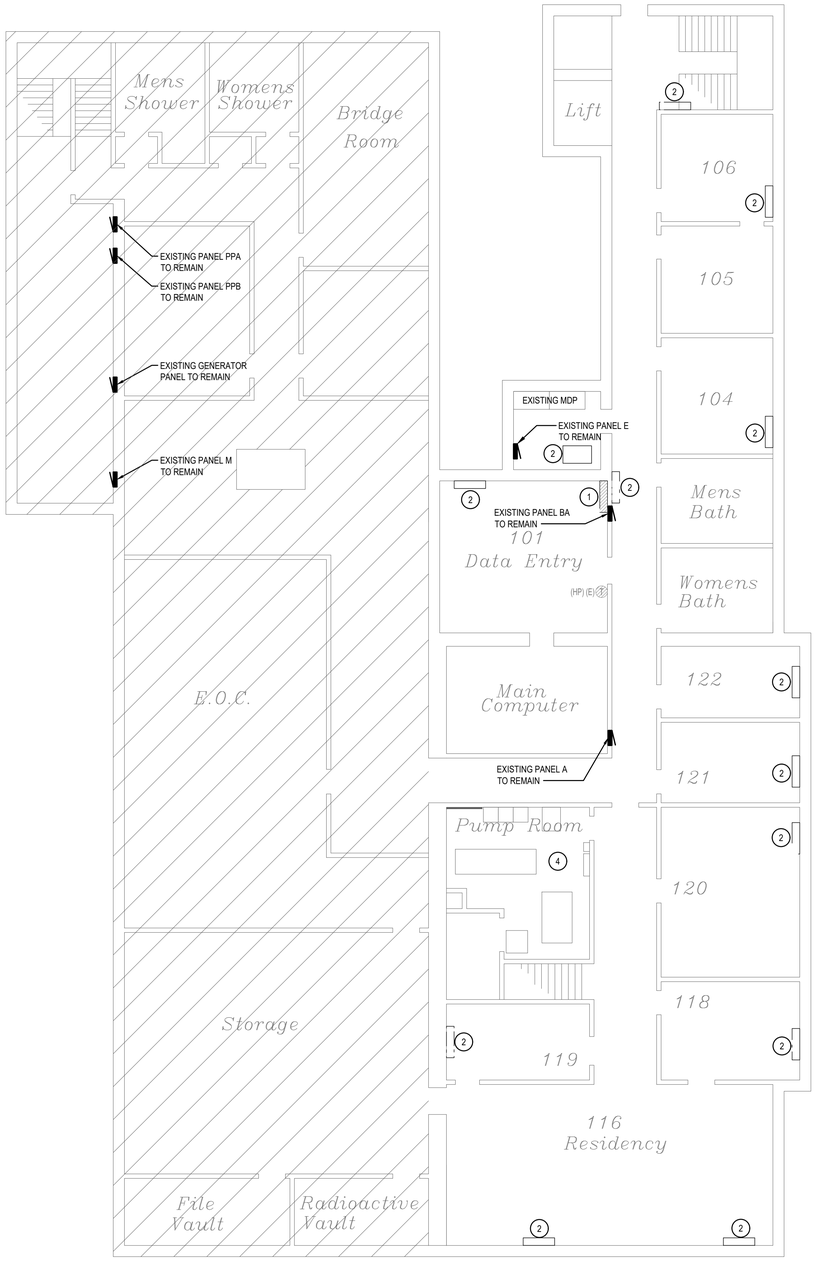
IDAHO TRANS. DEPT.
D4 HVAC MODIFICATION
216 S DATE ST
SHOSHONE, IDAHO

PROJECT	20-247
DRAWN	DBH
CHECKED	MNB
DATE	07/01/2020
SCALE	SEE PLANS
SHEET	E0.0

KEYED NOTES:

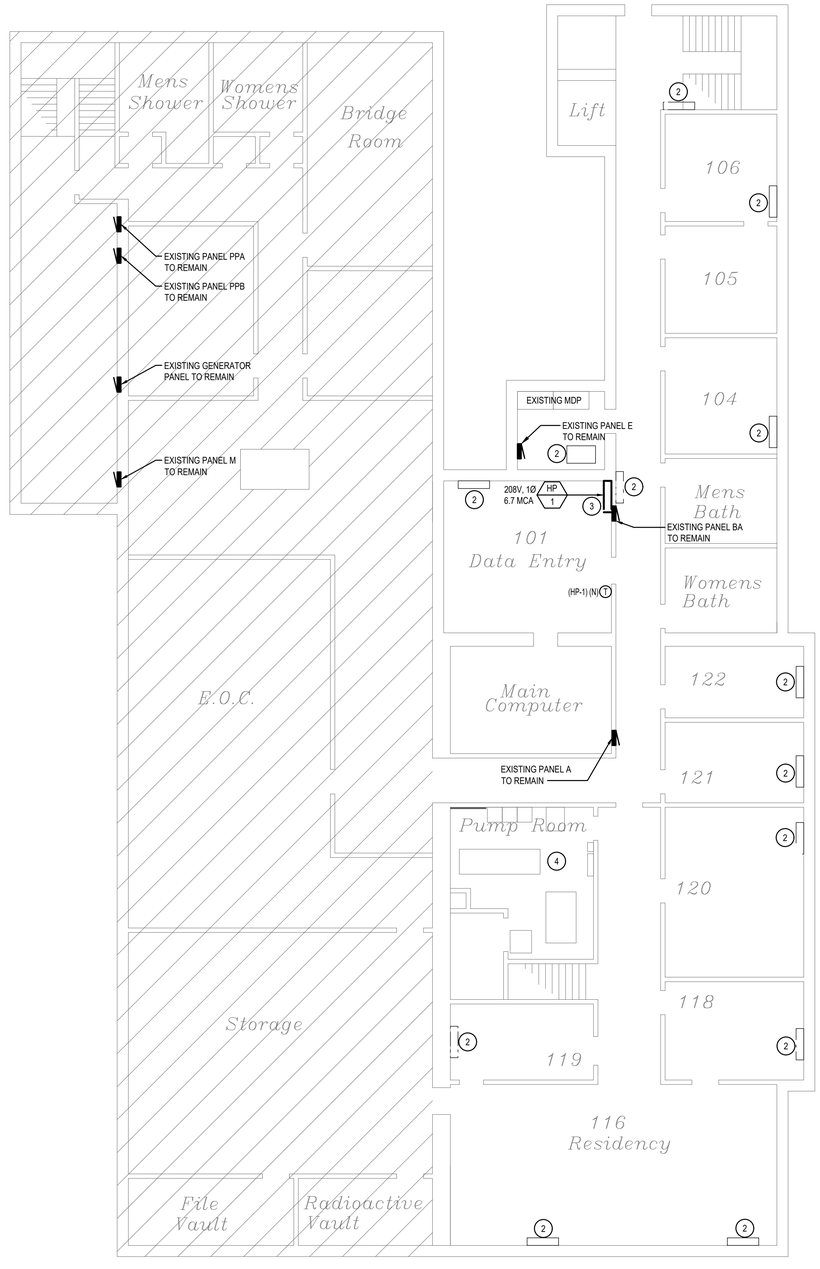
(#) SYMBOL USED FOR NOTE CALLOUT.

1. EXISTING HEAT PUMP TO BE REPLACED. DISCONNECT, PROTECT, AND PRESERVE CONDUCTORS. SEE BASEMENT FLOOR MECH POWER INSTALLATION PLAN.
2. EXISTING HEAT PUMP TO REMAIN, NO WORK TO BE DONE.
3. NEW HEAT PUMP TO BE INSTALLED. RECONNECT EXISTING CONDUCTORS.
4. SEE SHEET E2.0 FOR ENLARGED MECHANICAL ROOM FLOOR PLAN.



1 BASEMENT FLOOR MECH POWER DEMOLITION PLAN
SCALE: 1/8" = 1' - 0"

NORTH



2 BASEMENT FLOOR MECH POWER INSTALLATION PLAN
SCALE: 1/8" = 1' - 0"

NORTH

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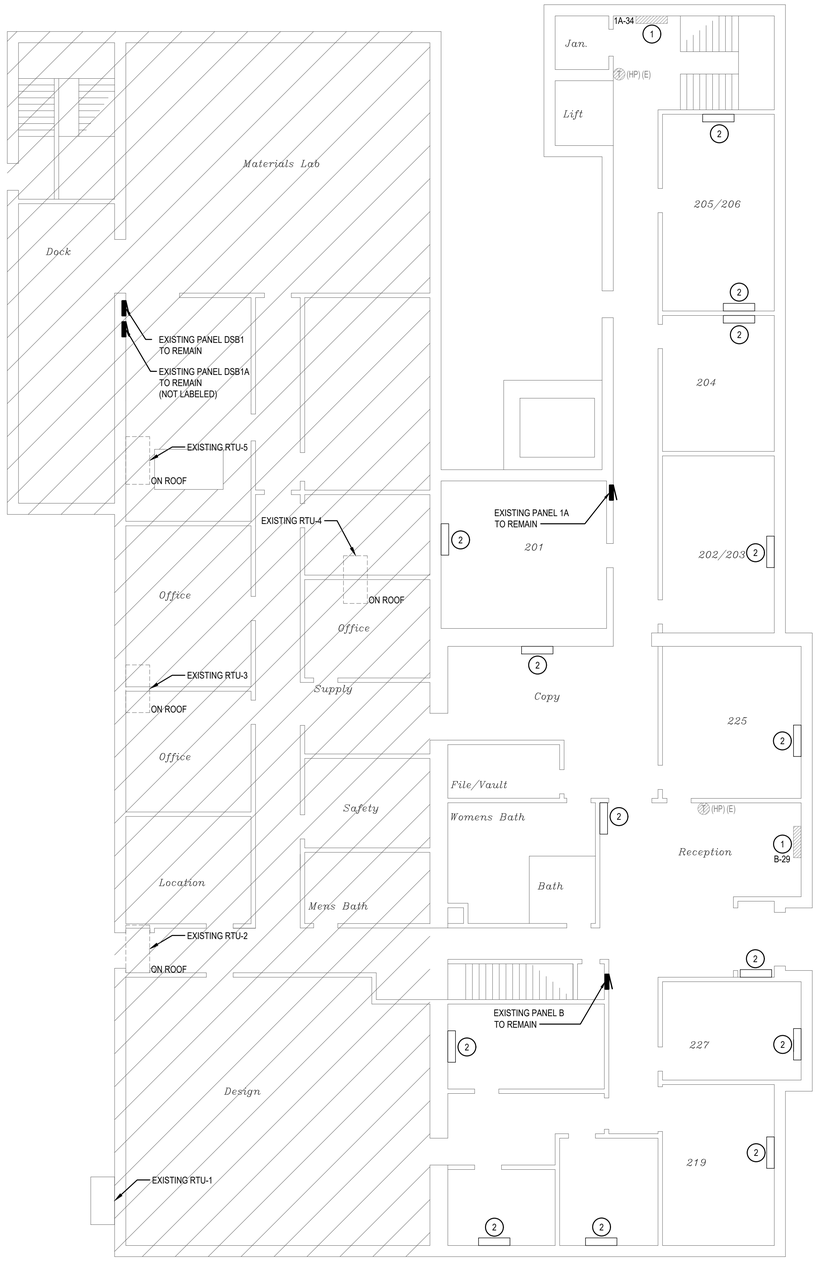
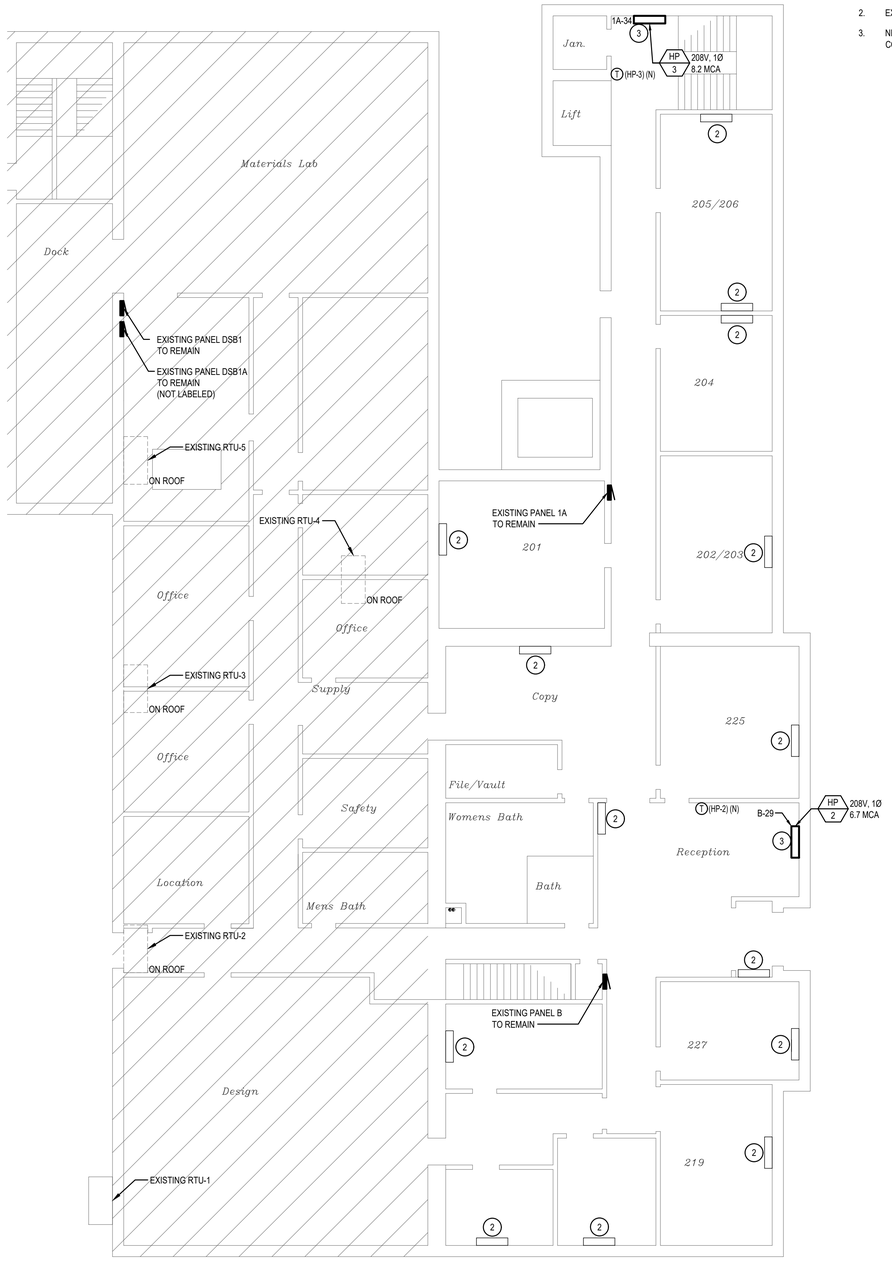
SHEET	E1.0



1 MAIN FLOOR MECH POWER DEMOLITION PLAN

SCALE: 1/8" = 1' - 0"

NORTH



2 MAIN FLOOR MECH POWER INSTALLATION PLAN

SCALE: 1/8" = 1' - 0"

NORTH

KEYED NOTES:

(#) SYMBOL USED FOR NOTE CALLOUT.

1. EXISTING HEAT PUMP TO BE REPLACED. DISCONNECT, PROTECT, AND PRESERVE CONDUCTORS. SEE MAIN FLOOR MECH POWER INSTALLATION PLAN.
2. EXISTING HEAT PUMP TO REMAIN, NO WORK TO BE DONE.
3. NEW HEAT PUMP TO BE INSTALLED. RECONNECT EXISTING CONDUCTORS.

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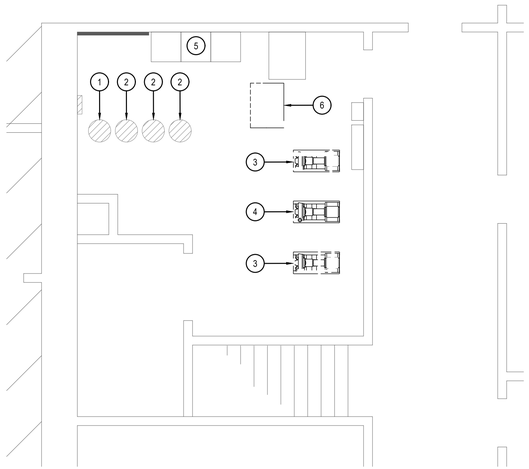
SCALE	SEE PLANS
SHEET	E1.1

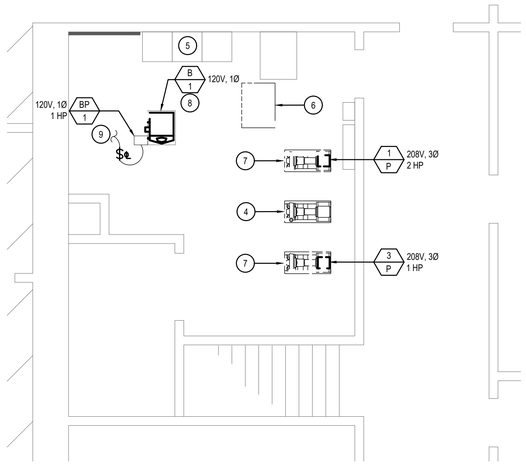
KEYED NOTES:

(#) SYMBOL USED FOR NOTE CALLOUT.

1. EXISTING BOILER TO BE REMOVED. DISCONNECT, PROTECT, AND PRESERVE CONDUCTORS.
2. EXISTING BOILER TO BE REMOVED. DISCONNECT AND REMOVE CONDUCTORS BACK TO NEAREST JUNCTION BOX.
3. EXISTING PUMP MOTOR TO BE REMOVED. DISCONNECT, PROTECT, AND PRESERVE CONDUCTORS.
4. EXISTING PUMP MOTOR TO REMAIN, NO WORK TO BE DONE.
5. EXISTING MCC TO REMAIN, NO WORK TO BE DONE.
6. EXISTING HEAT PUMP TO REMAIN, NO WORK TO BE DONE.
7. NEW PUMP MOTOR TO BE INSTALLED. RECONNECT EXISTING CONDUCTORS.
8. NEW BOILER TO BE INSTALLED. RECONNECT EXISTING CONDUCTORS.
9. NEW BOILER PUMP TO BE INSTALLED. ELECTRICAL CONTRACTOR TO PROVIDE AND INSTALL NEW CONDUIT, CONDUCTOR, AND OVERLOAD SWITCH TO EXISTING BOILER CIRCUIT.
10. ELECTRICAL CONTRACTOR TO VERIFY NOTED PANEL CIRCUITS ARE UNUSED BEFORE ADDING NEW BREAKERS AND LOADS. IF BOTH NOTED PANEL CIRCUITS ARE UNAVAILABLE FOR NEW CIRCUIT, ELECTRICAL CONTRACTOR TO USE BEST JUDGMENT AND FIND A SUITABLE PANEL LOCATION TO POWER IT.



1 ENLARGED BASEMENT MECH ROOM ELECTRICAL DEMOLITION
SCALE: 1/4" = 1' - 0"



2 ENLARGED BASEMENT MECH ROOM ELECTRICAL INSTALLATION
SCALE: 1/4" = 1' - 0"

NO.	REVISIONS	DATE

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D4 HVAC MODIFICATION
216 S DATE ST
SHOSHONE, IDAHO

PROJECT	20-247
DRAWN	DBH
CHECKED	MNB
DATE	07/01/2020
SCALE	SEE PLANS
SHEET	E2.0

PANEL: PANEL A (EXISTING) **PROJECT:** PROJECT NAME
VOLTAGE: 208Y/120 3 **PH** 4 **WIRE** **AMPERE RATING:** 250 MBR **SC RATING:** 65000 AIC
CKT NOTES: **REMARKS:** **MOUNTING:** SURFACE
1. RED HANDLE, LOCKABLE BREAKER 5. EXISTING BREAKER
2. GFCI FOR PERSONNEL PROTECTION (5mA)
3. GFEP FOR EQUIPMENT PROTECTION (30mA)
4. AFCI COMBINATION STYLE BREAKER

CKT	DESCRIPTION	CKT NOTE	LOAD AMPS	AMPS/ POLES	PHASE (AMPS) A	B	C	AMPS/ POLES	LOAD AMPS	CKT NOTE	DESCRIPTION	CKT
1	LIGHTS RM 112 AND EMERGENCY LIGHT	5		20 1	0			20 1		5	MAKE-UP AIR UNIT	2
3	BOILER LIGHTS	5		20 1		0		20 1		5	RM 116 CENTER WALL RECEPTS	4
5	ENER-CON POWER	5		20 1			0	20 1		5	RM 116 SW CENTER WALL RECEPTS	6
7	LIGHTS RM 119	5		20 1	0			20 1		5	HEATING SYSTEM CONTROL POWER	8
9	LIGHTS RM 116	5		20 1		0		20 1		5	POP MACHINE BACK ROOM SW CORNER	10
11	OUTLETS RM 115	5		20 1			0	20 1		5	POP MACHINE BACK ROOM SW CORNER	12
13	LIGHTS RM 121, 122	5		20 1	0			20 1		5	SPARE - POP MACHINE ROOM	14
15	LIGHTS RM 120	5		20 1		0		20 1		5	CIRC PUMP FOR HOT WATER (DOMESTIC)	16
17	LIGHTS RM 118	5		20 1			0	20 1		5	OUTLET TELEPHONE TERMINAL BOARD	18
19	LOCATION E. WALL	5		20 1	0			20 1		5	OUTLETS RM 118 AND 116 SOUTH END	20
21	NEW BOILER PUMP	6	2.5	20 3		2.5		20 1		5	OUTLETS RM 115 AND 116	22
23A		*	2.5	** *			2.5	30 2		5	???	24
23B		*	2.5	** *	2.5			** *		5	***	
25	HEAT PUMP RM 115	5		15 2		0		20 2		5	???	26
	***	5		** *			0	** *		5	***	
27	HEAT PUMP RM 116 WEST	5		15 2	0			15 2		5	HEAT PUMP RM 120	28
	***	5		** *		0		** *		5	***	
29	HEAT PUMP RM 116 EAST	5		15 2			0	15 2		5	HEAT PUMP RM 121	30
	***	5		** *	0			** *		5	***	
31	HEAT PUMP RM 118	5		15 2		0		15 2		5	HEAT PUMP RM 122/100	32
	***	5		** *			0	** *		5	***	
					2.5	2.5	2.5	AMPS				
					0.3	0.3	0.3	KW			0.9 TOTAL KW	

PANEL: PANEL 1A (EXISTING) **PROJECT:** PROJECT NAME
VOLTAGE: 208Y/120 3 **PH** 4 **WIRE** **AMPERE RATING:** 250 MBR **SC RATING:** 65000 AIC
CKT NOTES: **REMARKS:** **MOUNTING:** SURFACE
1. RED HANDLE, LOCKABLE BREAKER 5. EXISTING BREAKER
2. GFCI FOR PERSONNEL PROTECTION (5mA)
3. GFEP FOR EQUIPMENT PROTECTION (30mA)
4. AFCI COMBINATION STYLE BREAKER

CKT	DESCRIPTION	CKT NOTE	LOAD AMPS	AMPS/ POLES	PHASE (AMPS) A	B	C	AMPS/ POLES	LOAD AMPS	CKT NOTE	DESCRIPTION	CKT
1	LIGHTS RM 202	5		20 1	0			20 1		5	OUTLET RM 203, 204, AND HALL	2
3	LIGHTS RM 203 AND 204	5		20 1		0		20 1		5	OUTLETS RM 204 AND 205	4
5	LIGHTS RM 205 AND 206	5		20 1			0	20 1		5	OUTLETS 206 AND HALL	6
7	LTS HALL AND STAIR, EXIT AND EM LTS	5		20 1	0			20 1		5	OUTLETS 202 AND HALL	8
9	LIGHTS RM 201	5		20 1		0		20 1		5	OUTLETS RM 202 AND 203	10
11	NEW DTR CLOSET	5		20 1			0	20 1		5	OUTLETS RM 201	12
13	???	5		20 1	0			20 1		5	BOOK CASE RECEPT	14
15	???	5		20 1		0		20 1		5	EAST WALL STRIP RECEPT	16
17	???	5		20 1			0	20 1		5	???	18
19	???	5		20 1	0			20 1		5	???	20
21	???	5		20 1		0		20 1		5	???	22
23	???	5		20 1			0	20 1		5	???	24
25	???	5		20 1	0			20 1		5	???	26
27	HEAT PUMP RM 201 R/W	5		15 2		0		20 2		5	HEAT PUMP RM (SPARE)	28
	***	5		** *			0	** *		5	***	
29	HEAT PUMP RM 202	5		15 2	0			15 2		5	HEAT PUMP RM 205	30
	***	5		** *		0		** *		5	***	
31	HEAT PUMP RM 202	5		20 2			0	20 2		5	HEAT PUMP RM 206	32
	***	5		** *	0			** *		5	***	
33	HEAT PUMP RM 204	5		15 2		0		20 2		5	HEAT PUMP RM HALL (NORTH)	34
	***	5		** *			0	** *		5	***	
					0.0	0.0	0.0	AMPS				
					0.0	0.0	0.0	KW			0 TOTAL KW	

PANEL: PANEL B (EXISTING) **PROJECT:** PROJECT NAME
VOLTAGE: 208Y/120 3 **PH** 4 **WIRE** **AMPERE RATING:** 250 MBR **SC RATING:** 65000 AIC
CKT NOTES: **REMARKS:** **MOUNTING:** SURFACE
1. RED HANDLE, LOCKABLE BREAKER 5. EXISTING BREAKER
2. GFCI FOR PERSONNEL PROTECTION (5mA)
3. GFEP FOR EQUIPMENT PROTECTION (30mA)
4. AFCI COMBINATION STYLE BREAKER

CKT	DESCRIPTION	CKT NOTE	LOAD AMPS	AMPS/ POLES	PHASE (AMPS) A	B	C	AMPS/ POLES	LOAD AMPS	CKT NOTE	DESCRIPTION	CKT
1	??	5		20 1	0			20 1		5	WOMANS WATER HEATER	2
3	LIGHTS RM 218	5		20 1		0		20 1		5	WOMANS WATER HEATER	4
5	LIGHTS RM 219	5		20 1			0	20 1		5	LTS RM 227 DBM/FA CONTROLS	6
7	MENS BATH OUTLETS AND LIGHTS	5		20 1	0			20 1		5	OUTLETS RM 222 AND 219	8
9	LIGHTS RM 211	5		20 1		0		20 1		5	OUTLETS RM 225,LOBBY ,211,LOBBY LTS	10
11	UPSTAIRS MENS BATH LIGHTS	5		20 1			0	20 1		5	OUTLETS RM 218 AND 219	12
13	OUTLET TELEPHONE TERMINAL BOARD	5		20 1	0			20 1		5	OUTLET DRINKING FOUNTAIN	14
15	???	5		20 1		0		40 2		5	WOMENS HOT WATER HEATER	16
17	UPSTAIRS MENS HTR/BATH	5		20 1			0	** *		5	***	18
19	HEAT PUMP RM 218 WEST	5		15 2	0			40 2		5	WOMENS HOT WATER HEATER	20
	***	5		** *		0		** *		5	***	
21	HEAT PUMP RM 218 EAST	5		15 2			0	40 2		5	MENS HOT WATER HEATER	22
	***	5		** *	0			** *		5	***	
23	HEAT PUMP RM 219	5		20 2		0		15 2		5	MENS HOT WATER HEATER	24
	***	5		** *			0	** *		5	***	
25	HEAT PUMP RM 222 DBM	5		15 2	0			20 2		5	MENS HOT WATER HEATER	26
	***	5		** *		0		** *		5	***	
27	HEAT PUMP RM 217	5		15 2			0	15 2		5	HEAT PUMP RM 217	28
	***	5		** *	0			** *		5	***	
29	HEAT PUMP RM RECEPTIONIST	5		15 2		0		15 2		5	HEAT PUMP RM LOBBY HALL	30
	***	5		** *			0	** *		5	***	
					0.0	0.0	0.0	AMPS				
					0.0	0.0	0.0	KW			0 TOTAL KW	

PANEL: PANEL BA (EXISTING) **PROJECT:** PROJECT NAME
VOLTAGE: 208Y/120 3 **PH** 4 **WIRE** **AMPERE RATING:** 250 MBR **SC RATING:** 65000 AIC
CKT NOTES: **REMARKS:** **MOUNTING:** SURFACE
1. RED HANDLE, LOCKABLE BREAKER 5. EXISTING BREAKER
2. GFCI FOR PERSONNEL PROTECTION (5mA)
3. GFEP FOR EQUIPMENT PROTECTION (30mA)
4. AFCI COMBINATION STYLE BREAKER

CKT	DESCRIPTION	CKT NOTE	LOAD AMPS	AMPS/ POLES	PHASE (AMPS) A	B	C	AMPS/ POLES	LOAD AMPS	CKT NOTE	DESCRIPTION	CKT
1	LIGHTS RM 106	5		20 1	0			20 1		5	OUTLETS RM 104	2
3	OUTLET RM 108 EX FAN, ELEV LTS RECEPTS	5		20 1		0		20 1		5	OUTLETS RM 105	4
5	ELEVATOR LIGHTS	5		20 1			0	20 1		5	OUTLETS RM 106	6
7	LIGHTS BATHROOMS	5		20 1	0			20 1		5	.IGHTS UPS ROOM	8
9	LIGHTS RM 104 AND 105	5		20 1		0		20 1		5	LIGHTS RM 104 AND 105	10
11	OUTLETS RM 101	5		20 1			0	20 1		5	???	12
13	BATHROOM WATER HEATER	5		20 1	0			20 1		5	COOLING TOWER HT AND DAMPER MOTOR	14
15	LIGHTS HALL E.2 N.BM LIGHTS	5		20 1		0		20 1		5	???	16
17	???	5		20 1			0	20 1		5	???	18
19	???	5		20 1	0			20 1		5	ELEV RM HEAT	20
21	???	5		20 1		0		20 1		5	ELEV RM HEAT	22
23	HEAT PUMP RM 101 WEST	5		?? 2			0	?? 2		5	HEAT PUMP UPS RM	24
	***	5		** *	0			** *		5	***	
25	HEAT PUMP RM 101 EAST	5		?? 2		0		?? 2		5	HEAT PUMP RM 105	26
	***	5		** *			0	** *		5	***	
27	HEAT PUMP RM HALL (BY PANEL)	5		?? 2	0			?? 2		5	HEAT PUMP RM 106	28
	***	5		** *		0		** *		5	***	
29	HEAT PUMP RM 104	5		?? 2			0	?? 2		5	HEAT PUMP HALL NORTH	30
	***	5		** *	0			** *		5	***	
31	BATHROOM HEATER	5		?? 2		0		?? 2		5	BATHROOM HEATER	32
	***	5		** *			0	** *		5	***	
					0.0	0.0	0.0	AMPS				
					0.0	0.0	0.0	KW			0 TOTAL KW	

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