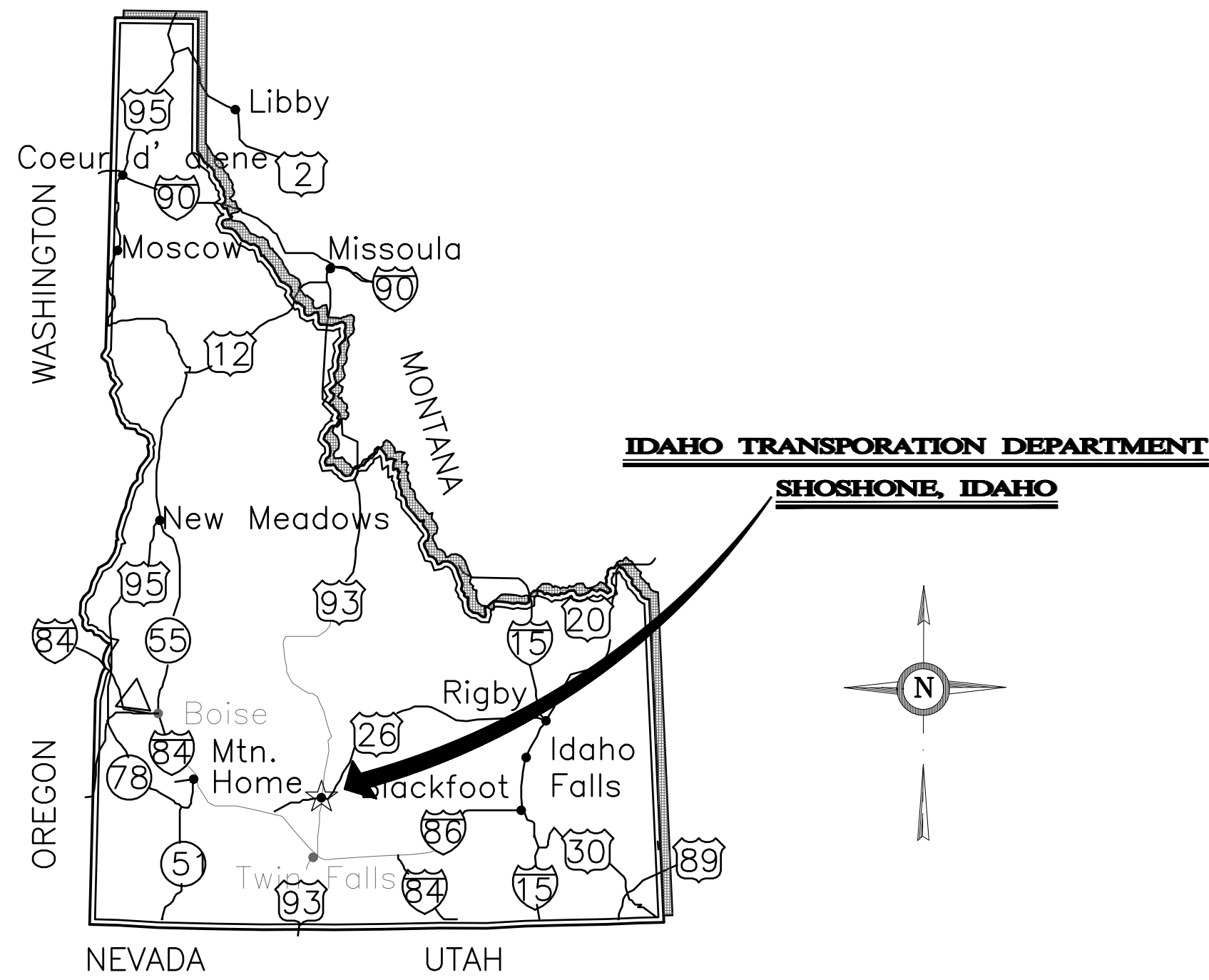


IDAHO TRANSPORTATION DEPARTMENT

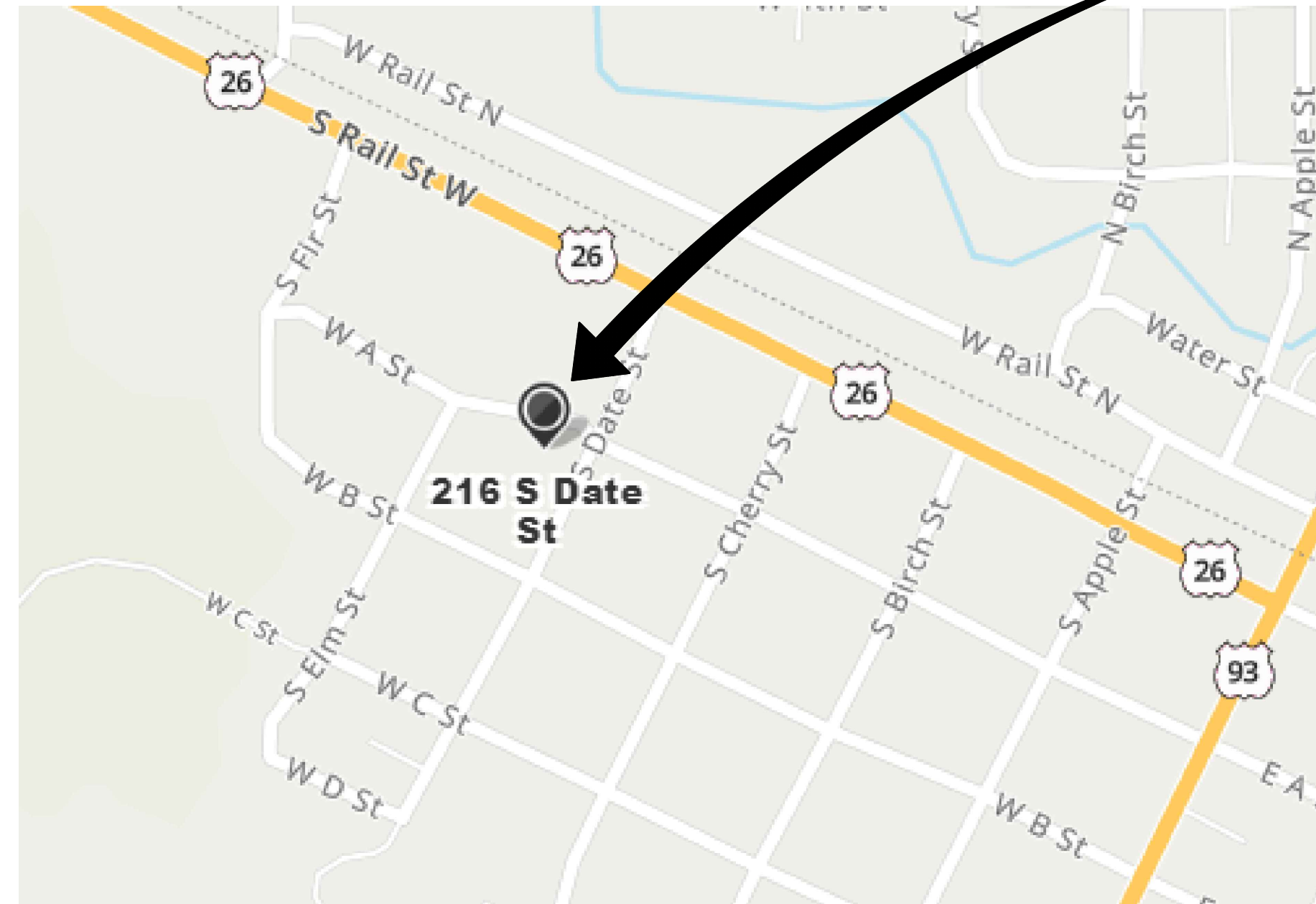
HEAT PUMP REPLACEMENT

DISTRICT 4

216 S. Date St.
Shoshone, Idaho 83352



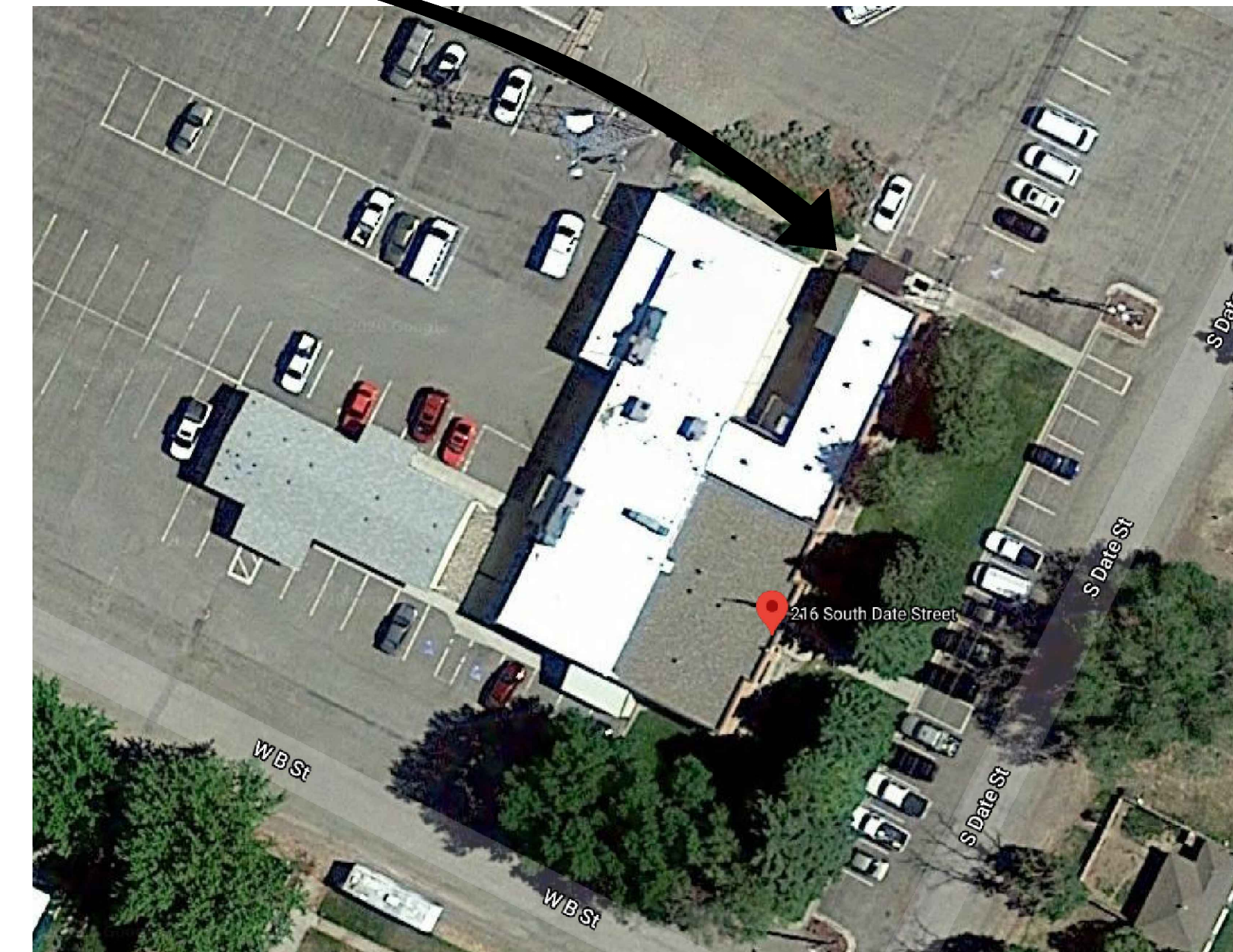
PROJECT LOCATION OF THE
IDAHO TRANSPORTATION DEPARTMENT
SHOSHONE, IDAHO



Shoshone, Idaho

Partial Vicinity Map

no scale



Shoshone, Idaho

ITD Campus Map

no scale

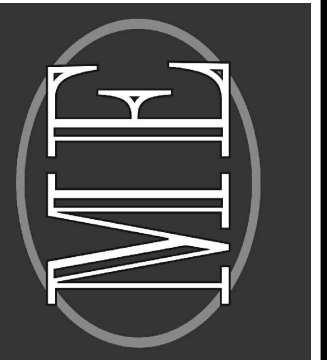
INDEX OF DRAWINGS

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G0.0	Project Title Sheet
E0.0	Electrical Legend and General Notes
E1.0	Basement Floor Mech Electrical Demo and Installation Plans
E1.1	Main Floor Mech Electrical Demo and Installation Plans
M0.0	Mechanical Cover Sheet & Specifications
M1.0	Basement Mechanical Demo and New Work Floor Plan
M1.1	Main Floor Mechanical Demo and New Work Floor Plan
M2.0	Mechanical Details, Schedules and Energy Compliance

NO.	REVISIONS	DATE



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DISTRICT 4 OFFICE BUILDING
HEAT PUMP REPLACEMENT
216 S DATE STREET
SHOSHONE, IDAHO

PROJECT	23-255
DRAWN	JPM
CHECKED	CD
DATE	08/25/2023
SCALE	SEE PLANS
SHEET	

G0.0

ELECTRICAL LEGEND - LIGHTING

REFERENCE FIXTURE SCHEDULE FOR MOUNTING TYPE, MOUNTING HEIGHT, AND FIXTURE TYPE	
	DOUBLE FACE EXIT SIGN, CEILING MOUNTED, PROVIDE UNSWITCHED CONDUCTOR.
	WALL MOUNTED DOUBLE FACE EXIT SIGN PROVIDE UNSWITCHED CONDUCTOR. MOUNT AT +8'-0" UNO.
	SINGLE FACE EXIT SIGN, CEILING MOUNTED PROVIDE UNSWITCHED CONDUCTOR.
	WALL MOUNTED SINGLE FACE EXIT SIGN PROVIDE UNSWITCHED CONDUCTOR. MOUNT AT +8'-0" UNO.
	ARROW INDICATES DIRECTION TO BE SHOWN ON SIGN.
	1'X1' LIGHT FIXTURE.
	1'X1' LIGHT FIXTURE, PROVIDE EMERGENCY BATTERY BACKUP CONNECTED TO AN UNSWITCHED CONDUCTOR.
	TRACK LIGHT
	1'X4' LIGHT FIXTURE.
	1'X4' LIGHT FIXTURE, PROVIDE EMERGENCY BATTERY BACKUP CONNECTED TO AN UNSWITCHED CONDUCTOR.
	2'X4' LIGHT FIXTURE.
	2'X4' LIGHT FIXTURE, PROVIDE EMERGENCY BATTERY BACKUP CONNECTED TO AN UNSWITCHED CONDUCTOR.
	2'X2' LIGHT FIXTURE.
	2'X2' LIGHT FIXTURE, PROVIDE EMERGENCY BATTERY BACKUP CONNECTED TO AN UNSWITCHED CONDUCTOR.
	DIRECT/INDIRECT LIGHT FIXTURE. SEE SCHEDULE FOR LENGTH.
	STRIP LIGHT FIXTURE. SEE SCHEDULE FOR LENGTH.
	STRIP LIGHT FIXTURE. SEE SCHEDULE FOR LENGTH. PROVIDE EMERGENCY BATTERY BACKUP CONNECTED TO AN UNSWITCHED CONDUCTOR.
	WALL MOUNTED LIGHT FIXTURE.
	WALL MOUNTED LIGHT FIXTURE, PROVIDE EMERGENCY BATTERY BACKUP CONNECTED TO AN UNSWITCHED CONDUCTOR.
	RECESSED LIGHT FIXTURE
	RECESSED LIGHT FIXTURE, PROVIDE EMERGENCY BATTERY BACKUP CONNECTED TO AN UNSWITCHED CONDUCTOR.
	ROUND LIGHT FIXTURE
	ROUND EMERGENCY LIGHT FIXTURE, PROVIDE EMERGENCY BATTERY BACKUP CONNECTED TO AN UNSWITCHED CONDUCTOR.
	WALL MOUNTED LIGHT FIXTURE.
	WALL MOUNTED EMERGENCY LIGHT FIXTURE, PROVIDE EMERGENCY BATTERY BACKUP CONNECTED TO AN UNSWITCHED CONDUCTOR.
	POLE LIGHT 1 HEAD WITH POLE
	TIME CLOCK
	PHOTO CONTROL CELL LOCATED 12" ABOVE ROOF FACING NORTH.
	OCCUPANCY SENSOR, PROVIDE RELAYS AND POWER PACKS AS REQUIRED.
	LED DRIVER
	EMERGENCY EGRESS LIGHTING WITH OUT FIXTURE HEADS. CONNECT TO AN UNSWITCHED CONDUCTOR.
	EMERGENCY EGRESS LIGHTING, CONNECT TO AN UNSWITCHED CONDUCTOR.
	WALL MOUNTED SINGLE FACE EXIT SIGN WITH EMERGENCY EGRESS LIGHTING, PROVIDE UNSWITCHED CONDUCTOR. MOUNT AT +8'-0" UNO.
	CEILING MOUNTED, SINGLE FACE EXIT SIGN WITH EMERGENCY EGRESS LIGHTING, PROVIDE UNSWITCHED CONDUCTOR.
	CEILING MOUNTED, DOUBLE FACE EXIT SIGN WITH EMERGENCY EGRESS LIGHTING, PROVIDE UNSWITCHED CONDUCTOR.
	INDICATES FIXTURE TYPE. REFER TO FIXTURE SCHEDULE.
	EXTERIOR WALL PACK
	EMERGENCY EXTERIOR WALL PACK, PROVIDE EMERGENCY BATTERY BACKUP CONNECTED TO AN UNSWITCHED CONDUCTOR.

DEVICES

	SWITCH, TYPE AS INDICATED, +48" AFF
	DOUBLE POLE
	3-WAY
	4-WAY
	KEYED
	PILOT LIGHT
	DIMMER
	HORSEPOWER RATED
	THERMAL OVERLOAD
	LOW VOLTAGE
	OCCUPANCY SENSOR
	LOW VOLTAGE, MOMENTARY OVERRIDE
	VACANCY SENSOR
	SUPERSCRIPT INDICATES LIGHTS TO BE SWITCHED TOGETHER
	DUAL LEVEL SWITCHING, INSIDE AND OUTSIDE LAMPS OF FIXTURE TO BE SWITCHED SEPARATELY.
	DUAL LEVEL SWITCHING WITH OCCUPANCY SENSOR, INSIDE AND OUTSIDE LAMPS OF FIXTURE TO BE SWITCHED SEPARATELY.
	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
	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
	FUSED DISCONNECT SWITCH, SIZE/POLES, FUSE SIZES AS INDICATED, NEMA 1 UNO
	NON-FUSED DISCONNECT SIZE/ POLES AS INDICATED, NEMA 1 UNO
	THERMOSTAT, +48" AFF PROVIDE CONDUIT, J-BOX, CONDUCTORS AS REQUIRED TO CONTROL ASSOCIATED UNITS. UNO COORDINATE WITH DIVISION 15.
	HUMIDISTAT, +48" AFF PROVIDE CONDUIT, J-BOX, CONDUCTORS AS REQUIRED TO CONTROL ASSOCIATED UNITS.
	POWER POLE - DUAL CHANNEL
	RECESSED ENTERTAINMENT BOX
	TRANSFORMER
	PANELBOARD, SEE SCHEDULE FOR TYPE.
	EQUIPMENT CABINET, SURFACE MOUNTED
	EQUIPMENT CABINET FLUSH MOUNTED
	SURFACE MULTI-OUTLET RACEWAY
	MECHANICAL EQUIPMENT CALL OUT
	KITCHEN EQUIPMENT CALL OUT

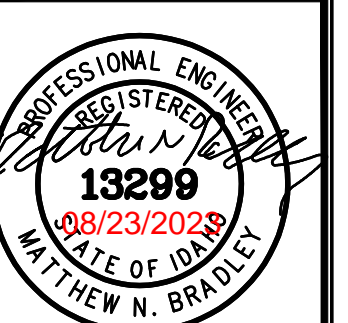
ELECTRICAL ABBREVIATIONS

A	AMPERES
AC	6" ABOVE BACKSPASH
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
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
GF	GROUND FAULT INTERRUPTER
GH	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
MCP	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 AND INSTALL / PROVIDED AND
PROVIDE BY	INSTALLED BY / PROVIDED AND INSTALL
INSTALLED/	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.

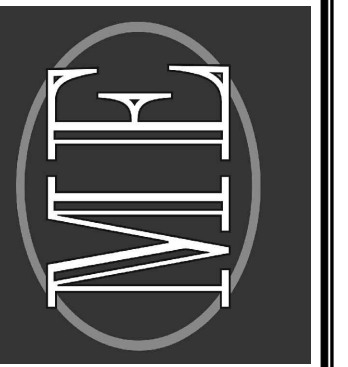
ELECTRICAL GENERAL NOTES

- 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.
 - 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.
 - 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.
 - PROVIDE PULL-LINE IN ALL EMPTY CONDUITS.
 - TERMINATE ALL LOW-VOLTAGE CONDUITS WITH INSULATED THROAT BUSHING.
 - MECHANICAL EQUIPMENT INDICATED IS SHOWN IN AN APPROXIMATE LOCATION. COORDINATE EXACT LOCATION WITH MECHANICAL CONTRACTOR PRIOR TO ROUGH-IN.
- DEMO:
- 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.
 - ALL ELECTRICAL DEVICES AND WALLS INDICATED ON THE ELECTRICAL DEMOLITION DRAWING(S) ARE TO REMAIN UNLESS OTHERWISE NOTED.

NO.	REVISIONS	DATE



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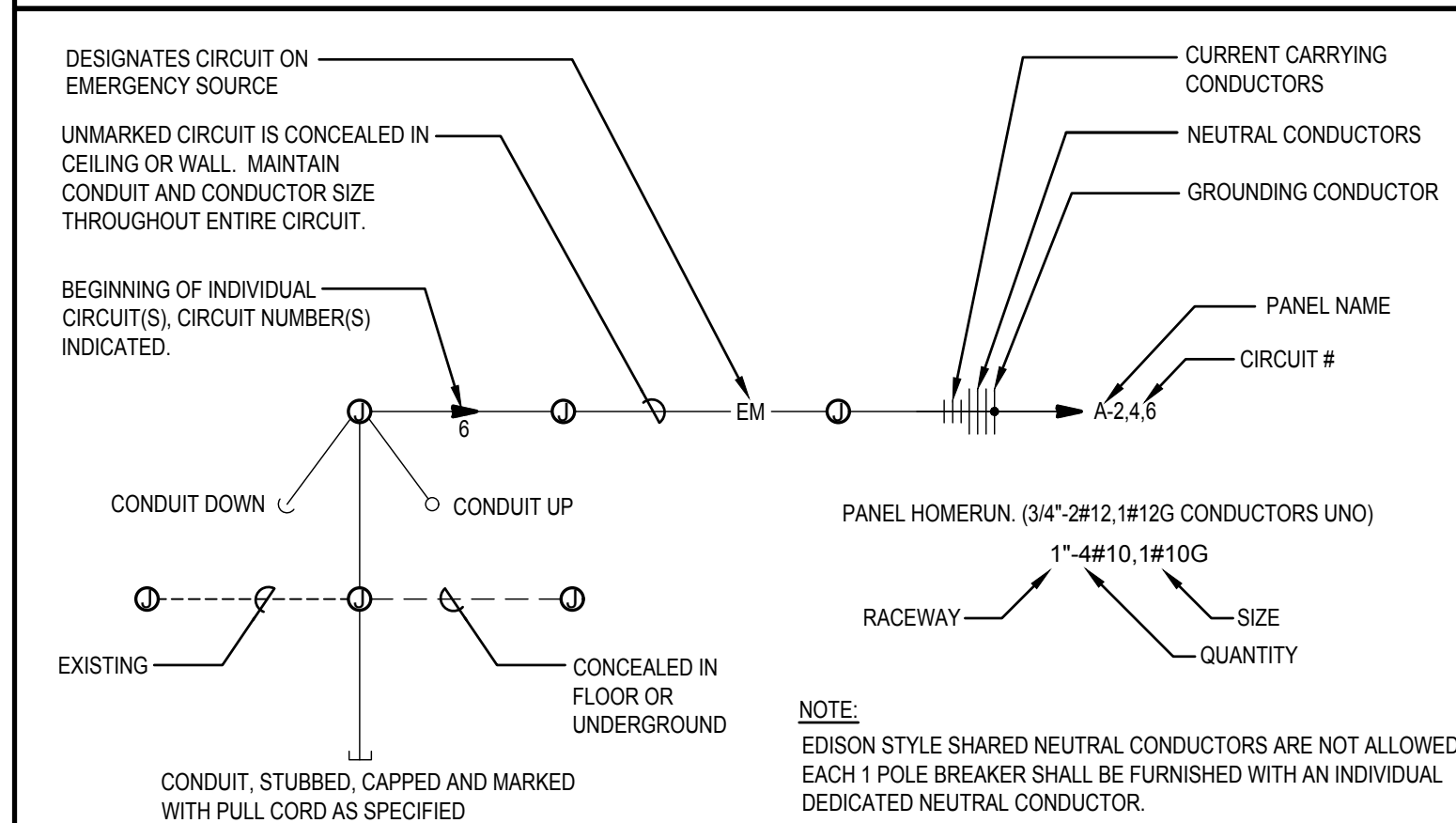


IDAHO TRANSPORTATION DEPARTMENT
DISTRICT 4 OFFICE BUILDING
HEAT PUMP REPLACEMENT
216 S DATE STREET
SHOSHONE, IDAHO

PROJECT	23-255
DRAWN	DH
CHECKED	MB
DATE	07/21/2023
SCALE	SEE PLANS
SHEET	

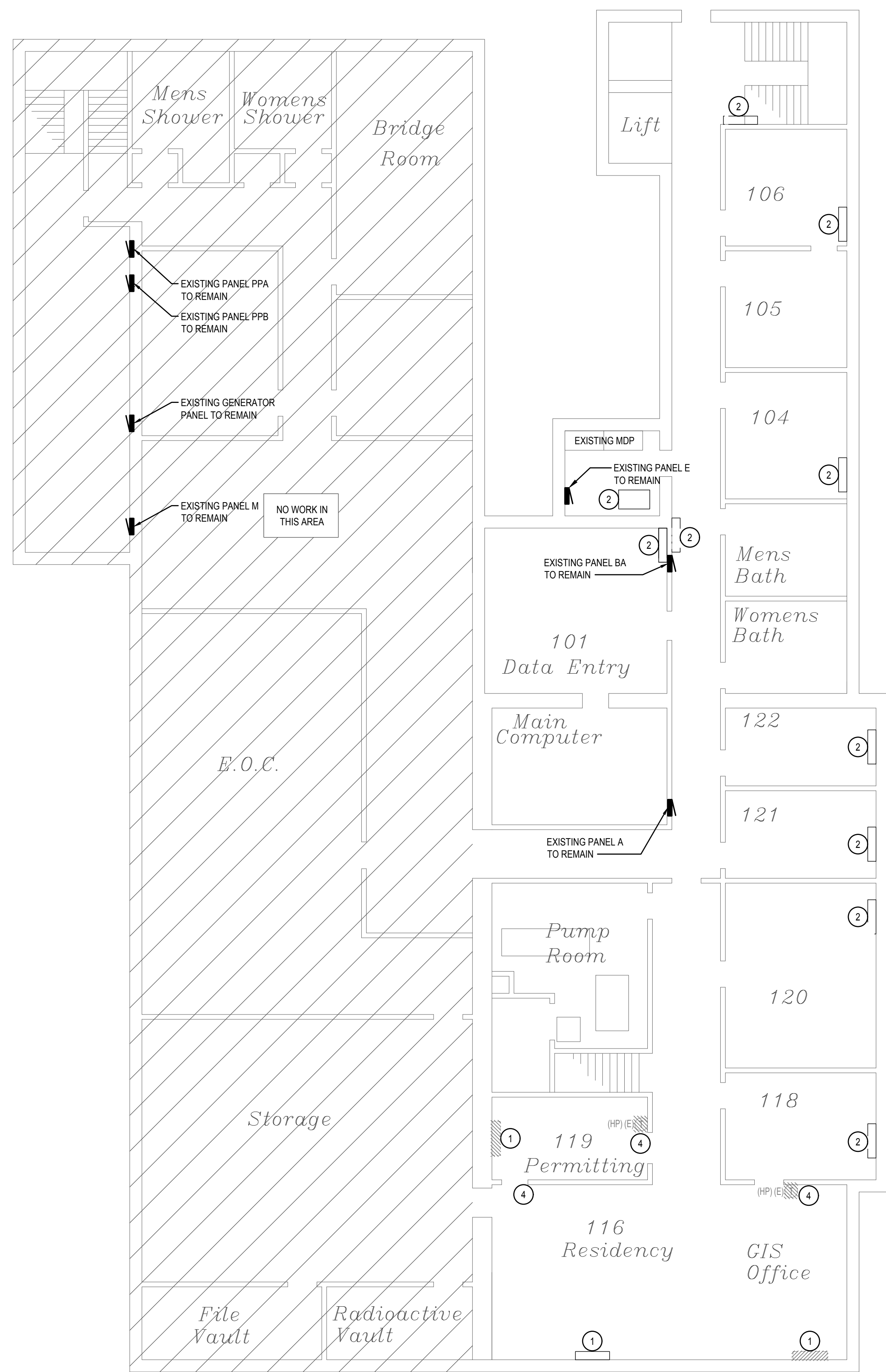
E.O.O

CIRCUITING SYMBOLS

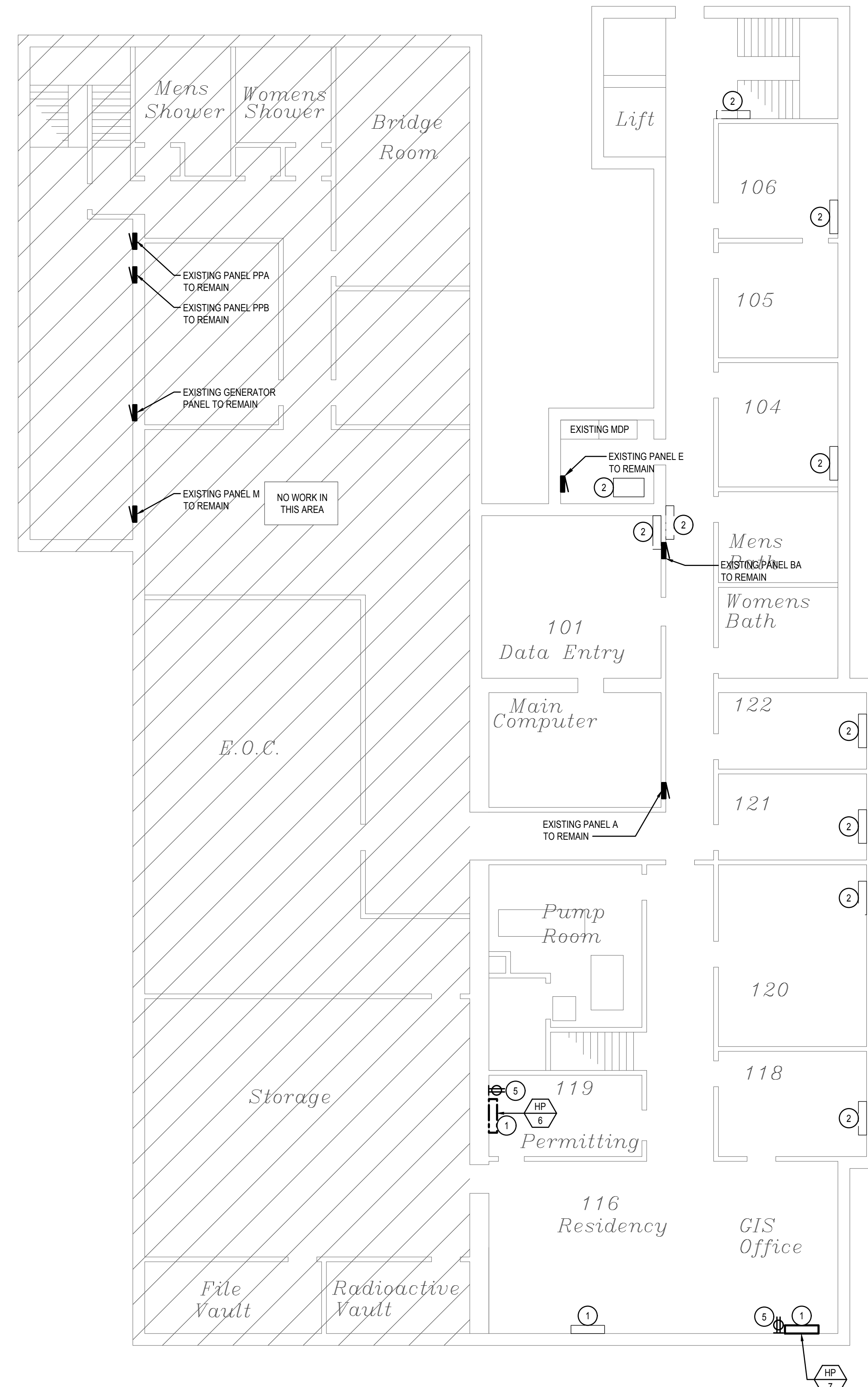


KEYED NOTES:

- # 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. PROVIDE BLANK WALL PLATE TO COVER REMOVED THERMOSTAT.
- 5. INSTALL RECEPTACLE IN SURFACE MOUNTED JUNCTION BOX FOR POWER TO CONDENSATE PUMP. EXTEND SURFACE RACEWAY AND CONDUCTOR TO NEAREST RECEPTACLE. COORDINATE INSTALLATION WITH MECHANICAL CONTRACTOR PRIOR TO INSTALLATION.

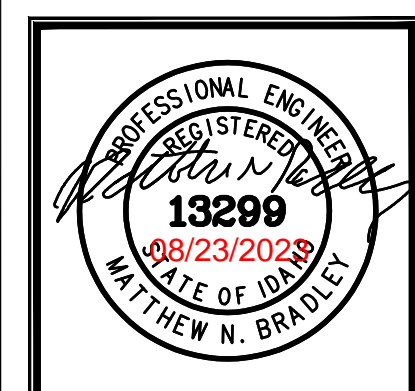


1 BASEMENT DEMOLITION MECHANICAL FLOOR PLAN
SCALE: 1/8" = 1'-0"



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

NO.	REVISIONS	DATE



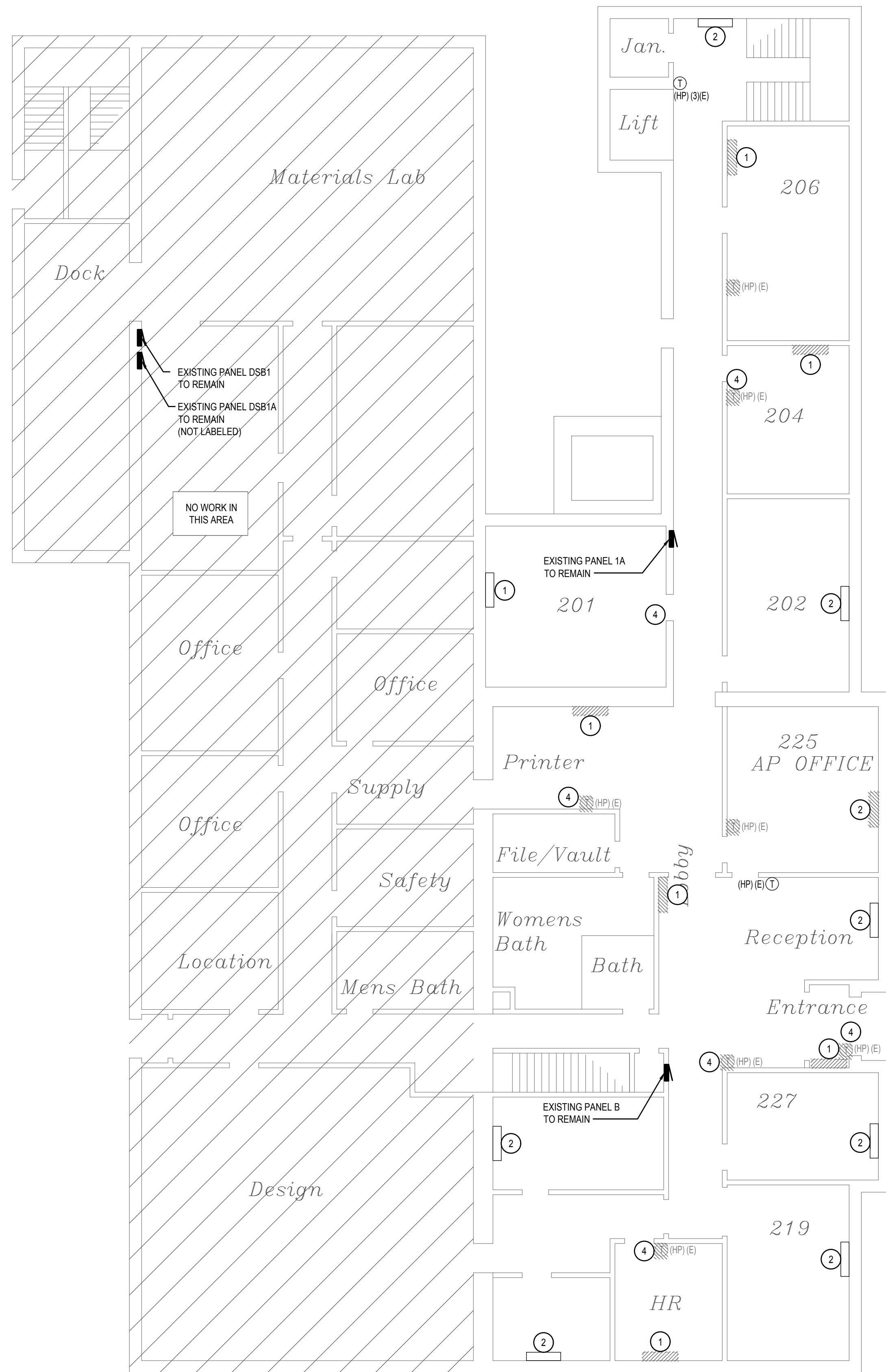
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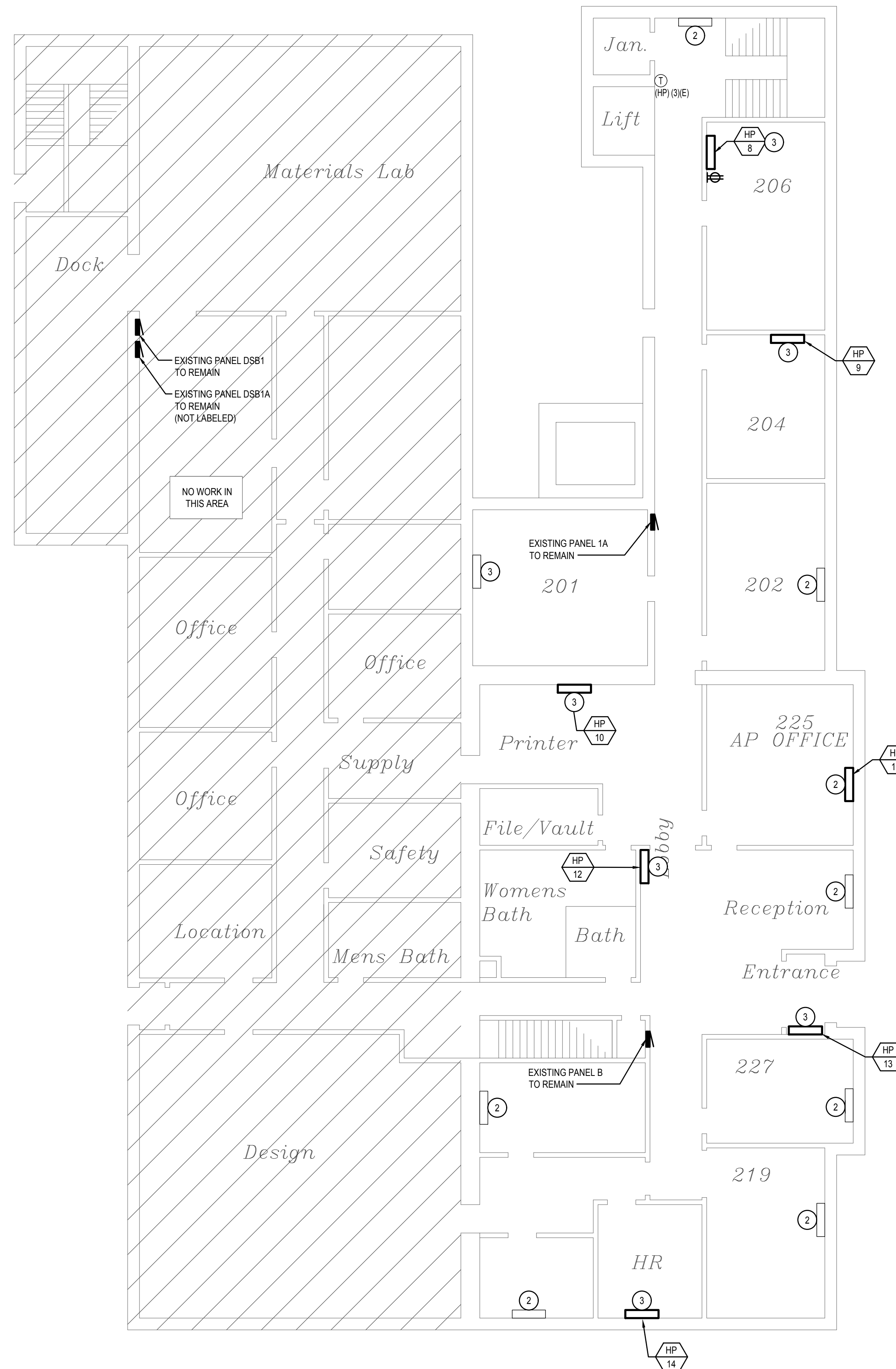
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DISTRICT 4 OFFICE BUILDING
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216 S DATE STREET
SHOSHONE, IDAHO

PROJECT	23-255
DRAWN	DH
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DATE	07/21/2023
SCALE	SEE PLANS
SHEET	

E1.0



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



2 MAIN FLOOR NEW WORK POWER FLOOR PLAN
SCALE: 1/8" = 1'-0"

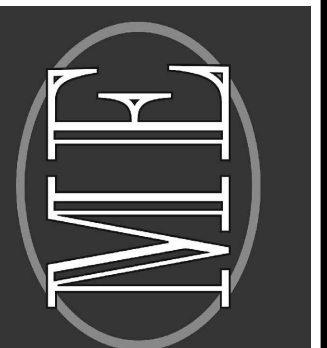
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- 4. PROVIDE BLANK WALL PLATE TO COVER REMOVED THERMOSTAT.

NO.	REVISIONS	DATE



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SCALE	SEE PLANS
SHEET	

E1.1

MECHANICAL ABBREVIATIONS			
AFF	ABOVE FINISHED FLOOR	KW	KILOWATT
ASHRAE	AMERICAN SOCIETY OF HEATING, REFRIGERATION, AND AIR CONDITIONING ENGINEERS	KWH	KILOWATT HOUR
BTU	BRITISH THERMAL UNITS	LAT	LEAVING AIR TEMPERATURE
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)	MOC	MAXIMUM OVERCURRENT PROTECTION
CTCS	COOLING TOWER CONDENSER WATER SUPPLY	MIN	MINIMUM
CTCR	COOLING TOWER CONDENSER WATER RETURN	NC	NOISE CRITERIA
CS	CONDENSER WATER SUPPLY	NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
CR	CONDENSER WATER RETURN	NTS	NOT TO SCALE
DEG or °	DEGREE	OSA	OUTSIDE AIR
DIA or Ø	DIAMETER	PD	PRESSURE DROP
DB	DRY BULB	PH Ø	PHASE
EA	EXHAUST AIR	PRV	PRESSURE REDUCING VALVE
EAT	ENTERING AIR TEMPERATURE	RA	RETURN AIR
EER	ENERGY EFFICIENCY RATIO	REV	REVOLUTIONS PER MINUTE
ESP	EXTERNAL STATIC PRESSURE	RTU	ROOFTOP UNIT
EW	ENTERING WATER TEMPERATURE	SA	SUPPLY AIR
FOO	FLOOR CLEANOUT	SP	STATIC PRESSURE
FLA	FULL LOAD AMPS	SYM	SYMBOL
FPM	FEET PER MINUTE	UMC	UNIFORM MECHANICAL CODE
FT	FEET	UPC	UNIFORM PLUMBING CODE
GA	GAUGE	T & P	TEMPERATURE AND PRESSURE
GCO	GRADE CLEANOUT	TEMP	TEMPERATURE
GPM	WATER FLOW RATE (GALLONS PER MINUTE)	TYP	TYPICAL
HC	HEATING COIL	W	WITH
HP	HORSE POWER	WB	WET-BULB
HVAC	HEATING, VENTILATING, AIR CONDITIONING	WC	WATER CLOSET
HW	HOT WATER	WCO	WALL CLEANOUT
HWR	HOT WATER RETURN	WH	WATER HEATER
HWS	HOT WATER SUPPLY		
IBC	INTERNATIONAL BUILDING CODE		
IECC	INTERNATIONAL ENERGY CONSERVATION CODE		
IFC	INTERNATIONAL FIRE CODE		
IFGC	INTERNATIONAL FUEL GAS CODE		
IMC	INTERNATIONAL MECHANICAL CODE		
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

- ALL MECHANICAL EQUIPMENT AND SYSTEMS SHALL BE INSTALLED IN ACCORDANCE WITH THE INTERNATIONAL MECHANICAL CODE (IMC) LATEST EDITION, AND ALL LOCAL & STATE CODES.
- ALL MECHANICAL EQUIPMENT SHALL BE INSTALLED PER THE MANUFACTURER'S RECOMMENDATIONS.
- MECHANICAL CONTRACTORS SHALL RECEIVE PRIOR APPROVAL FROM THE STRUCTURAL ENGINEER BEFORE MAKING CUTS THROUGH ANY STRUCTURAL MEMBER.
- MECHANICAL CONTRACTORS SHALL COORDINATE INSTALLATION WITH CONSTRUCTION SUPERVISOR AND WITH ALL OTHER TRADES TO AVOID CONFLICTS.
- THE MECHANICAL CONTRACTORS SHALL VERIFY MOTOR VOLTAGES WITH THE ELECTRICAL DRAWINGS BEFORE ORDERING MOTORIZED EQUIPMENT AND CONTROLS.
- SEE MECHANICAL SCHEDULE SHEET FOR SCHEDULED CAPACITIES OF ALL MECHANICAL EQUIPMENT AND MATERIALS SPECIFIED.
- 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.
- PROVIDE REMOVE CEILING ACCESS BALANCE DAMPERS WITH CONCEALED CHROME PLATE COVERS FOR BALANCE DAMPERS LOCATED ABOVE HARD CEILING.
- PAINT ALL FLUES AND OTHER MECHANICAL ITEMS ON THE ROOF TO MATCH THE ROOF COLOR.
- MAINTAIN MINIMUM OF 10'-0" DISTANCE BETWEEN ALL FRESH AIR INTAKES AND EXHAUST OR GAS FLUE DISCHARGES.
- 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.
- 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.
- HOLES IN EXISTING WALL OR FLOORS SHALL BE PATCHED TO MATCH EXISTING WHERE PIPING, DUCTWORK, ETC. WERE REMOVED OR ADDED DURING THIS PROJECT.
- 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
	MOTORIZED DAMPER		THREE WAY CONTROL VALVE
	MANUAL VOLUME DAMPER		TWO WAY CONTROL VALVE
	SPIN-IN FITTING W/ AIR EXTRACTOR AND HAND DAMPER		PRESSURE REDUCING VALVE
	HIGH EFFICIENCY FITTING W/ HAND DAMPER		GATE VALVE
	SWITCH		REDUCER
	THERMOSTAT		GLOBE VALVE
	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		CONDENSATE DRAIN LINE
	PRESSURE GAUGE (LIQUID FILLED W/ ISOLATION VALVE)		DOMESTIC COLD WATER (CW)
	TEMPERATURE SENSOR (DUCT OR PIPING)		DOMESTIC HOT WATER (HW)
	FLOW SWITCH		MEDIUM PRESSURE NATURAL GAS
	STAINLESS STEEL BRAIDED FLEX CONNECTION		LOW PRESSURE NATURAL GAS
	ELASTOMETRIC FLEX CONNECTOR		CONDENSER WATER SUPPLY
	SUCCION DIFFUSER		CONDENSER WATER RETURN
	Y TYPE STRAINER (1 1/2" OR LARGER PROVIDED W/ BLOW DOWN VALVE)		HEATING WATER SUPPLY
	FLOW DIRECTION		HEATING WATER RETURN
	DEMOLITION / EQUIPMENT TO BE REMOVED		SLOPE PIPE IN DIRECTION OF ARROW
	NEW TO EXISTING CONNECTION POINT		PIPE ANCHOR
	EXISTING		PIPE GUIDE
	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. MINIMUM REQUIREMENTS (THICKNESS) FOR PIPING INSULATION SHALL BE AS FOLLOWS:
- | FLUID | NOMINAL PIPE DIAMETER | | | |
|------------------|-----------------------|----------------|--------------|--|
| | 1/2" TO < 1 1/2" | 1 1/2" TO < 4" | 4" AND ABOVE | |
| 1. HEATING WATER | 1 1/2" | 2" | 2" | |
- D. THE ABOVE INSULATION IS BASED ON HAVING A CONDUCTIVITY NOT EXCEEDING 0.27 BTU-INCH/HOUR-FT²-F.
- E. 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:
- EQUIPMENT CAPACITY (INPUT & OUTPUT).
 - EQUIPMENT OPERATING AND MAINTENANCE INSTRUCTIONS.
 - CONTROL SYSTEM MAINTENANCE AND CALIBRATION INFORMATION, INCLUDING WIRING DIAGRAMS, SCHEMATICS, AND CONTROL SEQUENCES.
 - CONTROL SYSTEM SETPOINTS SHALL BE SHOWN ON CONTROL DRAWINGS, OR AT CONTROL DEVICES.
 - A COMPLETE WRITTEN NARRATIVE ON HOW EACH MECHANICAL SYSTEM IS INTENDED TO OPERATE.

SECTION 15100 - MECHANICAL GENERAL PROVISIONS

- PART 1 - GENERAL**
- 1.1 SCOPE:**
A. General:
1. The Bidding Requirements, Contract Requirements, and the General Requirements of these specifications shall govern all parts of the work.
B. Work Included:
1. Install work in accordance with these specifications and the accompanying plans. Furnish all labor, material, and equipment together with all incidental items not specifically shown or specified which are required by good practice to provide the complete mechanical systems as described.
2. The HVAC Contractor(s) and all sub-contractors shall provide installed equipment cut sheets and purchase orders required for utility rebates.
C. Coordination and Site Visits:
1. This section of the work requires examination of and reference to all architectural, structural, and electrical drawings for construction conditions that may affect the work. Inspect the building site and existing facilities for verification of existing conditions. Base all measurements from established benchmarks. Any discrepancy between actual measurements and those indicated, which prevents following good practices or the intent of the drawings and specifications, shall be reported to the Architect/Engineer, and work halted until instructions are received from the Architect/Engineer.
- 1.2 CODES, PERMITS, FEES:**
Obtain all required permits, pay all required fees including utility connections or extensions, in connection with this portion of the construction. Obtain all required certificates of inspections for the work.
- PART 2 - PRODUCTS**
- 2.1 MATERIALS AND WORKMANSHIP:**
A. Materials:
1. All materials and equipment shall be of first quality, new, full size and weight, standard in every respect, and suitable for the space required. Use the same manufacturer for products of similar class or service, such as valves, pumps, controls, and air handlers. Protect all materials against loss, theft, or damage before and after installation.
2. Furnish equipment that will operate under all conditions of load without any sound or vibration that is objectionable in the opinion of the Architect/Engineer. Vibration or noise considered objectionable will be corrected by the Subcontractor at his expense.
3. Furnish and install all necessary foundations, supports, pads, bases, and piers required for all materials and equipment furnished under this contract.
4. Provide all required fire stopping at piping and duct penetrations of fire rated walls, floors, ceilings, and roofs. Fire stopping shall be Dow Corning Fire Stop Sealant 2000 or Fire Stop Foam 2001, or approved equal.
B. Workmanship:
1. All materials and equipment shall be installed in a neat and workmanlike manner by competent specialists for each sub trade. Work shall be installed to the satisfaction of the Architect/Engineer with unsatisfactory work removed and replaced to his satisfaction at no extra cost to the Owner.
2. Provide all cutting and patching necessary to install the work specified in this section. Patching shall match adjacent surfaces. No structural members shall be cut without the approval of the Architect/Engineer. Provide all sleeves and inserts required before the floors and walls are built.
3. Locate all equipment that must be serviced in fully accessible positions. Provide clearance for removal of replacement parts and components, and with necessary couplings or flanges to move the component for maintenance.
- 2.2 SUBMITTALS AND SUBSTITUTIONS:**
A. Prebid Approval:
1. Manufacturer's trade names and catalog numbers stated herein are intended to indicate the quality of equipment or materials desired. All manufacturers not specifically listed require prior approval. Submit catalog data, including specifications, of the proposed equipment to the Architect/Engineer for his approval at least 10 calendar days prior to bid opening. Notice of such approvals will be published in an addendum. Approval of listed alternate equipment manufacturers is for bidding only. Final approval is to be based on requirements of the plans and specifications.
B. Submittals:
1. Within thirty days after award of this contract, provide six copies of a complete list of all materials and equipment proposed for this project. List shall contain make, type, manufacturer's name, and trade designation of all materials and equipment. Submittal shall also include manufacturer's complete specification for each item, including capacities, ratings, etc., and dimensions as required to check space requirements. Provide six copies of all submittals. The scheduled equipment is the basis of design for capacity, weights, physical size, etc. Alternate manufacturers shall not exceed the weight or physical size. Any changes to the Architectural, Structural, Mechanical, Electrical, and Control systems due to alternate manufacturers shall be the responsibility of the Contractor and Supplier.
2. Approval of submittals shall not relieve the contractor from responsibility for deviations from the plans or specifications, unless he has, in writing, called the Architect/Engineer's attention to deviations at the time of submission, and obtained his written approval. Approval of listed alternate equipment manufacturers is for bidding only. Final approval is to be based on requirements of the plans and specifications.
C. Equipment Requiring Submittals:
1. Console Heat Pumps
2. Controls
3. Valving
4. Condensate pumps
- PART 3 EXECUTION**
- 3.1 ACCESSIBILITY & SAFETY**
A. Accessibility:
1. All equipment which must be serviced or operated shall be located in fully accessible position. Minor changes from the drawings may be made to allow for better accessibility. All changes shall be approved prior to actual installation.
2. Access panels shall be provided if required for accessibility. Subcontractor shall furnish the required panels to the General Contractor and the required location for all access panels. Panels shall be installed by the General Contractor.
B. Safety:
1. Subcontractor shall provide guards for all belt drives and rotating machinery. No water piping shall run immediately over or within a 3-foot plan view clearance of any electrical panel or motor starter. Where piping must be located within these zones, install piping inside a conduit to prevent water access to electrical equipment.
- 3.2 COORDINATION:**
A. Coordinate all work with the various trades involved to provide a complete and satisfactory installation. The exact details of piping, ductwork, and equipment are not shown. No additional composition will be made for offsets or relocation required in coordination with other trades.
B. Alterations required due to improper supervision by the subcontractor shall be made at no extra cost, to the satisfaction of the Architect/Engineer.
- 3.3 ELECTRICAL:**
A. Electric motors required for equipment specified in this section shall be provided and installed by this subcontractor. Motor starters, disconnects, relays, pilot lights, etc., are in general, to be furnished and installed by the Electrical Contractor.
B. Starters, relays, controls, etc., which are factory assembled into packaged equipment shall be furnished by the Mechanical Contractor under this section of the specifications.
C. All motors shall be provided with adequate starting and protective equipment as specified or required. Motor capacity shall be sufficient to operate driven device under all conditions of operation and load without overload. Minimum horsepower shall be as specified.
- 3.4 IDENTIFICATION AND CODING:**
A. Painting:
1. All painting of mechanical equipment, accessories, ductwork, and piping shall be furnished and applied under the Architectural section of these specifications. All painting shall be completed before any identification markings are applied.
B. Equipment:
1. Identify all equipment with a black Formica label, with white reveal when engraved. Lettering to be 3/16 inch high minimum. In general, identify equipment as to area served in addition to title and code number of the equipment as taken from the plans.
C. Piping:
1. Identify all piping as to the service of the pipe and the direction of flow. The letters shall be 1/2 inch high on piping 1-1/4 inches or smaller, 3/4 inch high on piping 1-1/2 to two inches, 1-1/4 inches high on piping up to six inches, and 2-1/2 inches high on 6 inch piping or larger. Flow arrows shall be at least six inches long. The letters and flow arrows shall be made by precast stencils or oil base paint not one inch high and black, or factory fabricated plastic pipe markers. Piping shall be identified at 25 foot maximum intervals, on long continuous lines, adjacent to each item of equipment on each riser and junction, and on both sides of all wall and floor penetrations. Underground piping shall be identified with bright colored continuously printed plastic tape of not less than 6" wide by 4 mil thick, manufactured per direct burial service. Install directly above all buried pipe, 6 to 8 inches below finished grade. All piping shall be labeled per the Uniform Plumbing Code, latest edition.
D. Valves:
1. Regardless of size, all valves shall be tagged with a numbered brass tag, 1-1/2 inches by 3 inches minimum in size and 0.051 inch thick. A valve chart indicating valve tag number, location, service, and normal position shall be mounted in a suitable framed and glassed cover in the main mechanical room or as directed. Valve chart shall be duplicated in the Maintenance and Operations Manual.
- 3.5 TESTING:**
A. Piping:
1. All plumbing piping (drainage) shall be tested in accordance with the requirements of the Idaho State Plumbing Code, latest edition. Other piping systems shall be tested hydrostatically, to 1.5 times the operating pressure, but not less than 100 psi, for a minimum period of two hours. If the test pressure falls more than 5 percent during the test period, the leak shall be located, repaired, and the test repeated.
B. Systems:
1. All systems, including heating, ventilating, air conditioning, and plumbing systems, shall be tested at the completion of the building to establish that the systems operate as specified and required. Testing shall be performed after air and water balancing is completed.
2. All controls shall be calibrated accurately and all equipment shall be adjusted for satisfactory operation. Excessive vibration or noise from any system shall be corrected.
3. The air conditioning system shall be tested for satisfactory operation when the outdoor air temperature reaches 60°F or warmer. All other systems shall be tested at building completion. All tests shall be performed in the presence of the Architect/Engineer or his representative.
C. BALANCING:
1. Prior to final acceptance by the Owners, condensate water systems shall be balanced to deliver the quantities as specified or directed. The air balance shall be performed by an independent agency specializing in testing, adjusting, and balancing, and is certified by the Testing, Adjusting, and Balancing Bureau (TAB), and the National Environmental Balancing Bureau (NEBB). Total system balance shall be in accordance with TABS.
2. Balance contractor's main office shall be located within 150 miles from the project site. Approved balance contractors are Evolve Engineering, NVESI Building Systems Technologies, and Blue-Sky Commissioning. All other contractors must receive prior approval from the Engineer, in writing, before bidding the project.
3.7. CLEANING AND ADJUSTING:
A. Thoroughly clean all parts of the system at the completion of the work.
B. Flush all water circulating systems with fresh water and then drain. Clean all strainers and refill systems. Install new, clean air filters in all systems. Adjust devices for proper operation and lubricate all equipment as required. Repaint any painted surface that has been damaged.
- 3.8 PROJECT CLOSEOUT:**
A. Operations & Maintenance Manual:
1. The Contractor shall provide an operations and maintenance manual at least thirty days prior to completion of work. The manual shall be of the three ring binder type, entitled "Operations and Maintenance Manual", with the job name and year of completion also included. The manual shall include, as a minimum:
1. Maintenance instructions for all equipment, including lubrication requirements.
2. Equipment suppliers names, addresses, and telephone numbers.
3. Equipment catalog cuts, ratings tables, model numbers, serial numbers, and accessories.
4. Parts numbers for all replaceable parts.
5. Air system balance ratings as hereinbefore specified.
6. Control diagram or drawing and operation sequence.
7. Valve tagging chart as hereinbefore specified.
8. Filter chart listing unit, cabinet, size of filters, and quantity of filters.
9. Guarantee letter as specified below.
10. Any additional information required to enable the Owner to properly maintain the building mechanical system.
11. After approval of the Operations and Maintenance Manual by the Architect/Engineer, the Contractor shall furnish two copies of the manual to the Owner.
B. Mechanical System Training Period:
1. After the mechanical system is completely installed and operational, the mechanical contractor shall provide a minimum of 2 hours training and instruction time for the building Owner or his representative. During this period, the contractor shall instruct the Owner in the operation and maintenance of all parts of the mechanical system, using the O & M manual where applicable.
C. As-Built Drawings:
1. Provide two sets of blue-line mechanical drawings showing the work as it was actually installed. The drawings shall indicate all departures from the contract drawings, shall locate all underground utility lines with dimensions from established building lines. Make all notations neat and legible, with red indelible pencil. At the completion of the work, these as-built drawings shall be signed and dated by the Mechanical Contractor, and returned to the Architect/Engineer.
D. Guarantee:
1. All work furnished under this section shall be guaranteed in writing to be free from defective work or materials for a period of one year after acceptance of the contract. All repairs or replacement of defective materials or workmanship or noncompliance with code shall be provided without additional cost to the Owner. Contractor shall furnish a letter indicating approval guarantee and expiration of guarantee. Letter shall be included in O & M Manual.
- END OF SECTION 15100

SECTION 15200 - PLUMBING

- PART 1 - GENERAL**
- 1.1 SCOPE:**
A. This section covers the work necessary for the plumbing system, complete. The Mechanical General Provisions, Section 15100 are to be included as a part of this section of the specifications.
- 1.2 CODES:**
A. The plumbing system shall be installed in accordance with the Idaho State Plumbing Code, latest edition, International Fuel Gas Code, latest edition, and all local and State Codes.
B. Condensate Drain Piping:
1. Exterior to building, or located in plenum: Piping shall be Type L hard drawn copper, ASTM B88 with solder joints. Copper piping shall not be used on 90% condensing type equipment.
2. Interior: Piping shall be Type L hard drawn copper, ASTM B88, with solder joints, grade 90T, or 90L, or Schedule 40 DWV. Copper piping shall be used on 90% condensing type equipment. Provide a neoprene or rubber gasket at all copper piping support hangers to inhibit corrosion.
C. Hanger and Supports:
1. Pipe hangers shall be provided to adequately support all piping systems. Hangers shall be vertically adjustable to provide for proper pitch and drainage. Hangers shall allow for expansion and contraction of the piping system. Reference "General Regulations" of the latest edition of the Idaho State Plumbing Code.
2. Hangers for pipe sizes 1/2 to 6 inches shall be adjustable clevis type, or unistrut saddles with all-thread hanger rod.
3. Hangers for hot pipe, sizes 6 inches and over shall be adjustable steel yoke, cast iron roll, double hanger type.
4. Vertical pipes shall be supported with steel riser clamps. Spacing interval requirements per "General Regulations" of the latest edition of the Idaho State Plumbing Code.
- 1.3 VALVES AND STRAINERS:**
A. Ball Valves:
1. Valves 2-inches and smaller shall be cast brass body, chrome-plated brass ball, toffon seats, and lever handle, 600 psi CWP. Valves shall comply with MSS SP-110. Valves over 2-inches shall be ductile iron or cast steel body, chrome plated steel ball, toffon seats, and lever handle. Volute series 726, Anvil Grooved, Gemmet, or Shurpoint ball valves are acceptable if grooved piping is used.
B. Check Valves:
1. Valves 2-inches and smaller shall be bronze body Y-pattern, ASTM B-62, swing check, bronze disc, 200 psi WOG. Valves shall comply with MSS SP-80. Valves, over 2-inches shall be iron body, ASTM A-126, bronze trim, swing check, renewable disc and seat. Valves shall comply with MSS SP-71.
2. Swing check valves with outside lever and spring (not center guided) is to be used on sewage ejector or storm-water sump pumps.
C. Pressure Reducing Valves:
1. Valves 2-inches and smaller shall be bronze body, stainless steel and elastomeric internal parts, fabric reinforced diaphragm, strainer, and single union end.
D. Strainers:
1. Strainers shall be cast steel body, Y-pattern, 20-mesh stainless screen.
- PART 3 - EXECUTION**
- 2.1 WORKMANSHIP:**
A. General:
1. Install all piping, fixtures, equipment, and accessories as shown, and in strict accordance with the plumbing laws, rules, and regulations of the State and/or City. All work shall be done in a neat and orderly fashion, and left in a condition satisfactory to the Architect/Engineer.
B. Piping:
1. All piping shall be run parallel or perpendicular to established building lines. Install piping so as to allow for expansion. Waste and vent piping occurring above floor slab shall be installed true and plumb. Extend vents at least 1 foot above roof, or to the top of the closest adjacent parapet wall, whichever is greater, and provide watertight flashing sleeves. Excavation and backfill shall be in accordance with Section 15100 of these specifications.
C. Fixtures:
1. Install fixtures true and plumb with building walls. Caulk all plumbing fixtures at joints along walls, countertops, and other intersecting surfaces. Locate fixtures as shown and per manufacturer's instructions. Furnish all required trim for fixtures to provide a complete and workable installation.
- 2.2 TESTS:**
A. General:
1. All piping, fixtures, and equipment shall be inspected and approved before concealing or covering. All work shall be tested as required by Section 15100 of these specifications, and shall be leak proof before inspection is requested. All tests shall be repeated if required by those making the inspection.
B. Fixtures and Equipment:
1. Fill all plumbing fixtures with water and check for leaks or retarded flow. Repair as required. Adjust each piece of plumbing equipment as required to insure proper functioning. Leave all fixtures and equipment in first class operating condition.
- END OF SECTION 15200

DATE	REVISIONS	NO.



MUSGROVE ENGINEERING, P.A.
234 S. Whisperwood Way
Boise, Idaho 83709
208.384.0585
musgrovepa.com



IDAHO TRANSPORTATION DEPARTMENT
DISTRICT 4 OFFICE BUILDING
HEAT PUMP REPLACEMENT
216 S DATE STREET
SHOSHONE, IDAHO

PROJECT	23-255
DRAWN	JPM
CHECKED	CD
DATE	08/23/2023
SCALE	SEE PLANS
SHEET	

M.O.

OVER 40 YEARS OF EXCELLENCE

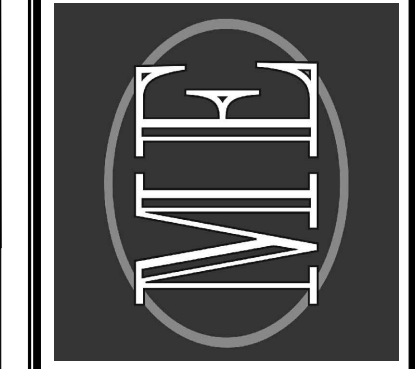
KEYED NOTES:

- 1. EXISTING HEAT PUMP TO REMAIN.
- 2. DISCONNECT AND REMOVE EXISTING HEAT PUMP AND EXISTING VALVING. SEE NEW WORK FOR CONTINUATION.
- 3. REMOVE EXISTING THERMOSTAT.
- 4. PROVIDE BLANK WALL PLATE TO COVER REMOVED THERMOSTAT. PAINT TO MATCH EXISTING.
- 5. PROVIDE AND INSTALL NEW FLOOR MOUNTED HEAT PUMP. CONNECT AND INSTALL CONDENSER LINES AND VALVING TO EXISTING CONDENSER LINES. NEW CONDENSATE DRAIN LINE WITH NEW PUMP TO EXISTING DRAIN LINE. PROVIDE UNIT MOUNTED THERMOSTAT.
- 6. CONTRACTOR SHALL PAINT ANY PREVIOUSLY COVERED SPOTS NOW VISIBLE TO MATCH EXISTING WALL COLOR DUE TO HEAT PUMP REPLACEMENT.
- 7. CONTRACTOR SHALL REPAIR/REPLACE CARPET AS REQUIRED TO MATCH EXISTING CONDITIONS.

NO.	REVISIONS	DATE



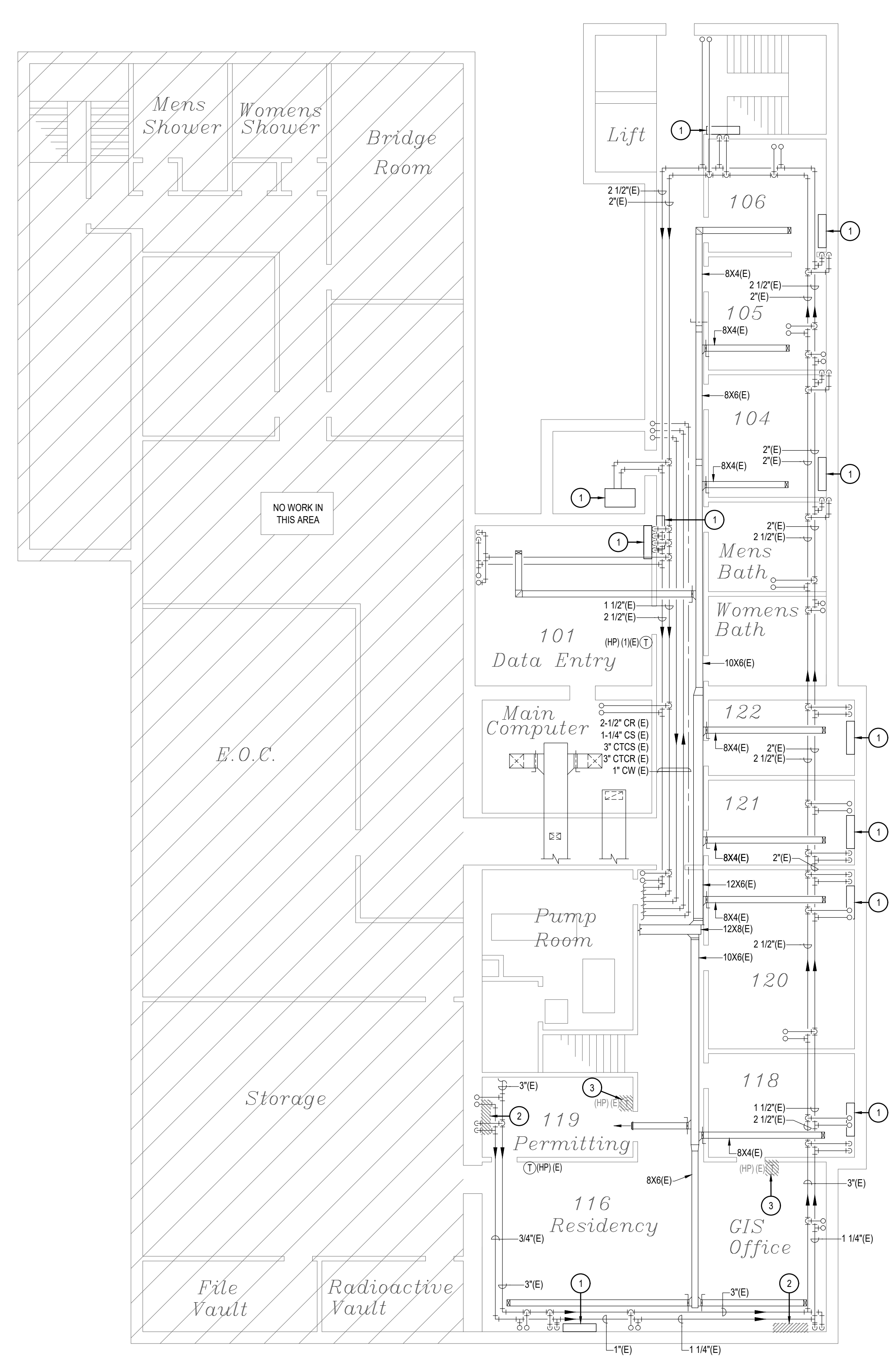
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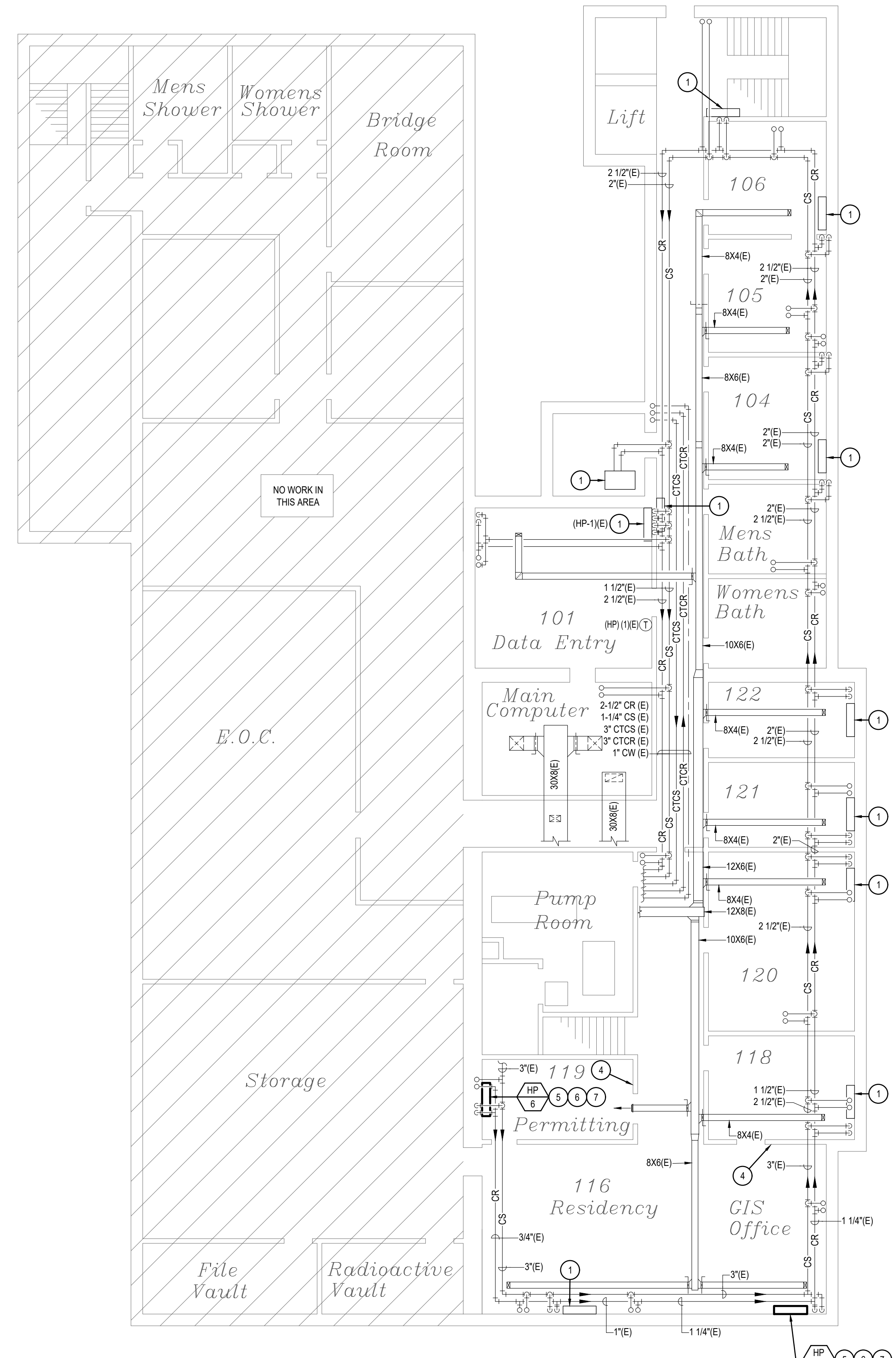
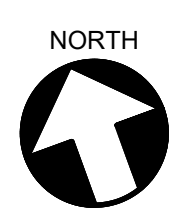
**IDAHO TRANSPORTATION DEPARTMENT
 DISTRICT 4 OFFICE BUILDING
 HEAT PUMP REPLACEMENT
 216 S DATE STREET
 SHOSHONE, IDAHO**

PROJECT	23-255
DRAWN	JPM
CHECKED	CD
DATE	08/25/2023
SCALE	SEE PLANS
SHEET	

M1.0

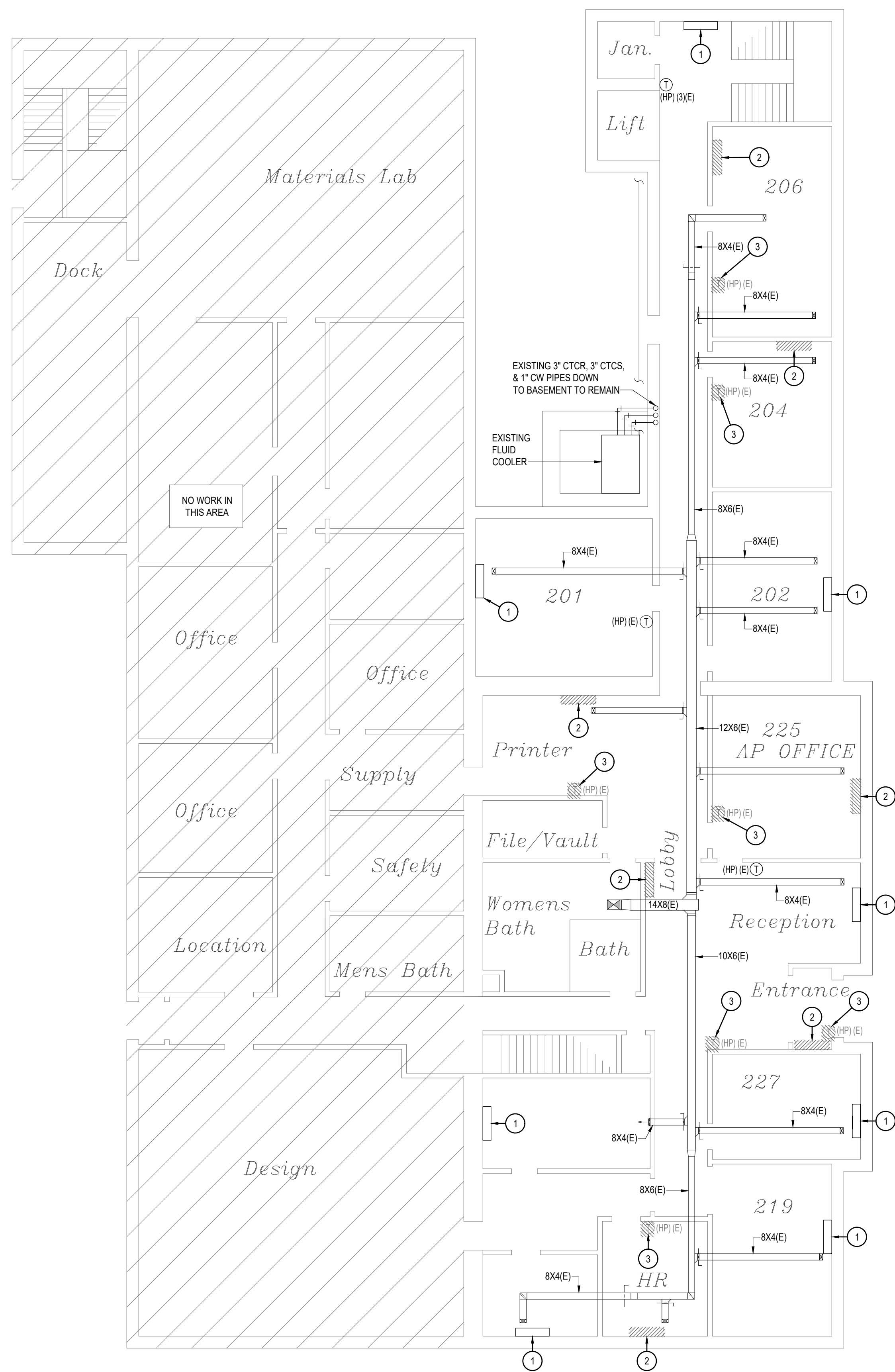


1 BASEMENT DEMOLITION MECHANICAL FLOOR PLAN
 SCALE: 1/8" = 1'-0"

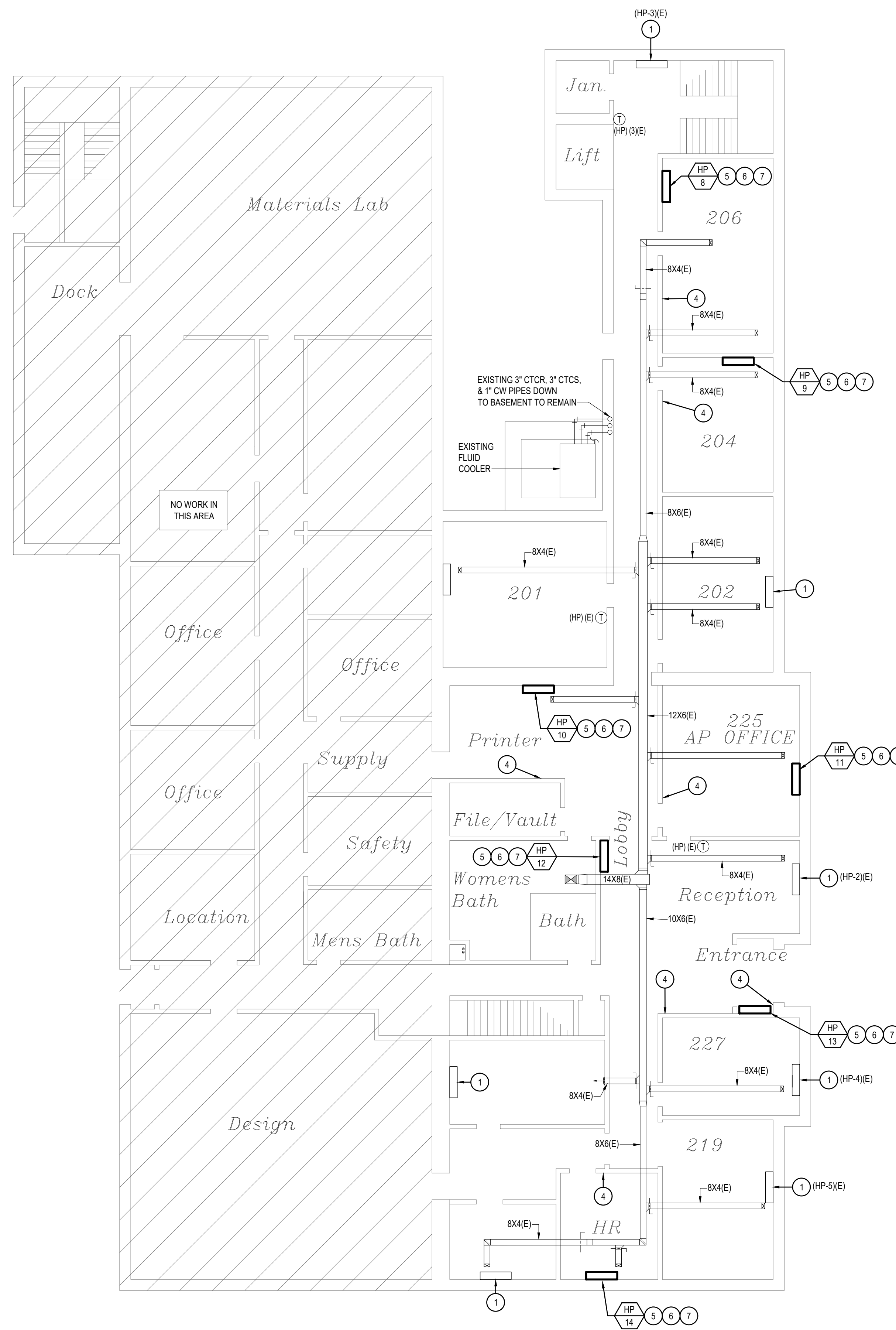


2 BASEMENT NEW WORK MECHANICAL FLOOR PLAN
 SCALE: 1/8" = 1'-0"

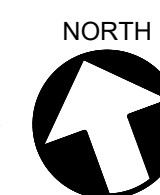




1 MAIN FLOOR DEMOLITION MECHANICAL FLOOR PLAN
SCALE: 1/8" = 1'-0"



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



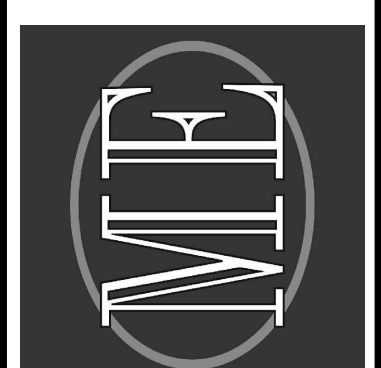
KEYED NOTES:

- ① SYMBOL USED FOR NOTE CALLOUT.
- 1. EXISTING HEAT PUMP TO REMAIN.
- 2. DISCONNECT AND REMOVE EXISTING HEAT PUMP AND EXISTING VALVING. SEE NEW WORK FOR CONTINUATION.
- 3. REMOVE EXISTING THERMOSTAT.
- 4. PROVIDE BLANK WALL PLATE TO COVER REMOVED THERMOSTAT. PAINT TO MATCH EXISTING.
- 5. PROVIDE AND INSTALL NEW FLOOR MOUNTED HEAT PUMP. CONNECT AND INSTALL NEW CONDENSER LINES AND VALVING TO EXISTING CONDENSER LINES. CONNECT NEW CONDENSATE DRAIN LINE TO EXISTING DRAIN LINE. PROVIDE UNIT MOUNTED THERMOSTAT.
- 6. CONTRACTOR SHALL PAINT ANY PREVIOUSLY COVERED SPOTS NOW VISIBLE TO MATCH EXISTING WALL COLOR DUE TO HEAT PUMP REPLACEMENT.
- 7. CONTRACTOR SHALL REPAIR/REPLACE CARPET AS REQUIRED TO MATCH EXISTING CONDITIONS.

NO.	REVISIONS	DATE



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Boise, Idaho 83709
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SHEET	

M1.1

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			EFFICIENCY EER/COP	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-6	BASEMENT ROOM 119 PERMITTING	CONSOLE	350	---	.125	8.5	7.0	85.0	--	11.4	70.0	1.6	1.9	5.13	15.0	208/1	12.5 / 4.36	180	CLIMATEMASTER MODEL TRC09	1, 2, 3, 4, 5
HP-7	BASEMENT GIS OFFICE	CONSOLE	520	---	.176	14.1	10.5	85.0	--	17.8	70.0	2.8	1.8	7.70	15.0	208/1	13.0 / 4.84	200	CLIMATEMASTER MODEL TRC15	1, 2, 3, 4, 5
HP-8	MAIN FLOOR ROOM 206	CONSOLE	620	---	.176	16.0	12.2	85.0	--	19.7	70.0	3.4	3.1	8.95	15.0	208/1	12.9 / 4.36	230	CLIMATEMASTER MODEL TRC18	1, 2, 3, 4
HP-9	MAIN FLOOR ROOM 204	CONSOLE	520	---	.176	14.1	10.5	85.0	--	17.8	70.0	2.8	1.8	7.70	15.0	208/1	13.0 / 4.84	200	CLIMATEMASTER MODEL TRC15	1, 2, 3, 4
HP-10	MAIN FLOOR PRINTER ROOM	CONSOLE	400	---	.151	11.1	9.2	85.0	--	14.3	70.0	2.3	3.1	6.48	15.0	208/1	12.7 / 4.69	190	CLIMATEMASTER MODEL TRC12	1, 2, 3, 4
HP-11	MAIN FLOOR AP OFFICE	CONSOLE	620	---	.176	16.0	12.2	85.0	--	19.7	70.0	3.4	3.1	8.95	15.0	208/1	12.9 / 4.36	230	CLIMATEMASTER MODEL TRC18	1, 2, 3, 4
HP-12	MAIN FLOOR LOBBY	CONSOLE	350	---	.125	8.5	7.0	85.0	--	11.4	70.0	1.6	1.9	5.13	15.0	208/1	12.5 / 4.36	180	CLIMATEMASTER MODEL TRC09	1, 2, 3, 4
HP-13	MAIN FLOOR ENTRANCE	CONSOLE	350	---	.125	8.5	7.0	85.0	--	11.4	70.0	1.6	1.9	5.13	15.0	208/1	12.5 / 4.36	180	CLIMATEMASTER MODEL TRC09	1, 2, 3, 4
HP-14	MAIN FLOOR HR ROOM	CONSOLE	520	---	.176	14.1	10.5	85.0	--	17.8	70.0	2.8	1.8	7.70	15.0	208/1	13.0 / 4.84	200	CLIMATEMASTER MODEL TRC15	1, 2, 3, 4

REMARKS:

- APPROVED ALTERNATE MANUFACTURERS: DAIKIN APPLIED, CARRIER, FLORIDA HEAT PUMP, WATER FURNACE, AND TRANE.
- PROVIDE UNIT WITH UNIT-MOUNTED SEVEN-DAY PROGRAMMABLE AUTO-CHANGE-OVER 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.
- PROVIDE W/EXTRA-QUIET CONSTRUCTION, 1" THROWAWAY FILTER RACK, RUN-OUT SIZED GRISWOLD 24" (STAINLESS STEEL) AUTOMATIC BALANCING HOSE KIT (W/AUTOMATIC FLOW CONTROL VALVE, TEST PLUGS, 5" HIGH SUBBASE, BALL VALVES AND STRAINER), DRAIN PAN OVERFLOW SENSOR, DISCONNECT BOX WITH SWITCH, CONTRACTOR SHALL FIELD VERIFY EACH EXISTING CONSOLE UNIT FOR RH OR LH PIPING CONFIGURATION PRIOR TO ORDERING NEW CONSOLE UNITS.
- 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.
- PROVIDE FIELD INSTALLED LITTLE GIANT CONDENSATE PUMP, PROVIDE 110V/1Ø PLUG AT UNIT.

A QUALIFIED WATER TREATMENT CONTRACTOR SHALL BE UTILIZED TO FURNISH THE CLEANING MATERIAL AND SUPERVISE THE FLUSHING AND TREATMENT OF THE NEW PIPING 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. THE CONTRACTOR SHALL PERFORM A WATER TEST AND PROVIDE OWNER/ENGINEER WITH RESULTS PRIOR TO NEW WORK.

4. 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.

5. 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.

1 CONDENSER WATER SYSTEM FLUSHING AND TREATMENT
NOT TO SCALE

COMcheck Software Version 4.1.5.5
Mechanical Compliance Certificate

Project Information

Energy Code: 2018 IECC
Project Title:
Location: Shoshone, Idaho
Climate Zone: 5b
Project Type: Alteration

Construction Site: District 4 ITD Heat Pump Replacement Shoshone, ID
Owner/Agent:
Designer/Contractor: Musgrove Engineering 234 S. Whisperwood Way Boise, ID 83709 208-384-0585

Mechanical Systems List

Quantity System Type & Description

- HVAC System 1 (Single Zone):
Water Source Heat Pump
Heating Mode: Capacity = 11 kBtu/h,
Proposed Efficiency = 4.36 COP, Required Efficiency = 4.30 COP
Cooling Mode: Capacity = 9 kBtu/h,
Proposed Efficiency = 12.50 EER, Required Efficiency: 12.20 EER
Fan System: FAN SYSTEM 1 size 9 -- Compliance (Motor nameplate HP method) : Passes
Fans:
FAN 1 Supply, Constant Volume, 350 CFM, 0.1 motor nameplate hp, 80.0 fan efficiency grade
- HVAC System 2 (Single Zone):
Water Source Heat Pump
Heating Mode: Capacity = 14 kBtu/h,
Proposed Efficiency = 4.69 COP, Required Efficiency = 4.30 COP
Cooling Mode: Capacity = 11 kBtu/h,
Proposed Efficiency = 12.70 EER, Required Efficiency: 12.20 EER
Fan System: FAN SYSTEM 2 size 12 -- Compliance (Motor nameplate HP method) : Passes
Fans:
FAN 2 Supply, Constant Volume, 400 CFM, 0.2 motor nameplate hp, 80.0 fan efficiency grade
- HVAC System 3 (Single Zone):
Water Source Heat Pump
Heating Mode: Capacity = 18 kBtu/h,
Proposed Efficiency = 4.84 COP, Required Efficiency = 4.30 COP
Cooling Mode: Capacity = 14 kBtu/h,
Proposed Efficiency = 13.00 EER, Required Efficiency: 12.20 EER
Fan System: FAN SYSTEM 3 size 15 -- Compliance (Motor nameplate HP method) : Passes
Fans:
FAN 3 Supply, Constant Volume, 520 CFM, 0.2 motor nameplate hp, 80.0 fan efficiency grade
- HVAC System 4 (Single Zone):
Water Source Heat Pump
Heating Mode: Capacity = 20 kBtu/h,
Proposed Efficiency = 4.36 COP, Required Efficiency = 4.30 COP
Cooling Mode: Capacity = 12 kBtu/h,
Proposed Efficiency = 12.90 EER, Required Efficiency: 12.20 EER

Project Title: Report date: 08/04/23
Data filename: P:\Files\2023\23124\CALC5\MECH\230804_comcheck.cck Page 1 of 14

Quantity System Type & Description

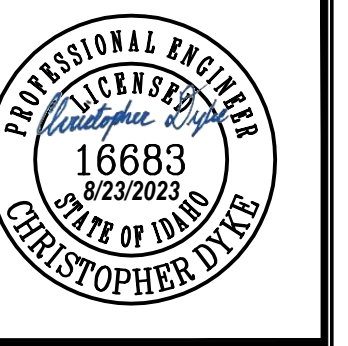
- Fan System: FAN SYSTEM 4 size 18 -- Compliance (Motor nameplate HP method) : Passes
Fans:
FAN 4 Supply, Constant Volume, 620 CFM, 0.2 motor nameplate hp, 80.0 fan efficiency grade

Mechanical Compliance Statement

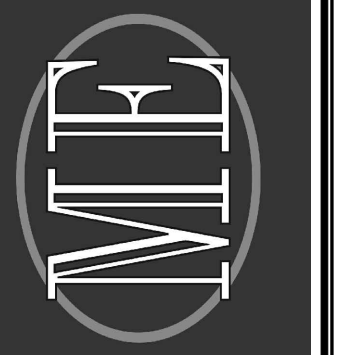
Compliance Statement: The proposed mechanical alteration project represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed mechanical systems have been designed to meet the 2018 IECC requirements in COMcheck Version 4.1.5.5 and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

Chris Dyke, PE
Name - Title Signature Date 8/23/2023

NO.	REVISIONS	DATE



MUSGROVE ENGINEERING, P.A.
234 S. Whisperwood Way
Boise, Idaho 83709
208-384-0585
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OVER 40 YEARS OF EXCELLENCE



IDAHO TRANSPORTATION DEPARTMENT
DISTRICT 4 OFFICE BUILDING
HEAT PUMP REPLACEMENT
216 S DATE STREET
SHOSHONE, IDAHO

PROJECT	23-255
DRAWN	JPM
CHECKED	CD
DATE	08/25/2023
SCALE	SEE PLANS
SHEET	

M2.0