

PLATE HEAT EXCHANGER SCHEDULE																
EQUIPMENT TAG	MANUFACTURER	MODEL	HOT SIDE (BUILDING LOOP)					COLD SIDE (COOLING TOWER)					HEAT TRANSFERRED (BTU/HR)	HEAT TRANSFER COEFFICIENT CLEAN (BTU/H-SF-F)	# OF PLATES/MAX # OF PLATES	NOTES & ACCESSORIES
			FLOW (GPM)	E.W.T. °F	L.W.T. °F	PRESSURE DROP (FT.)	PASSES	FLOW (GPM)	E.W.T. °F	L.W.T. °F	PRESSURE DROP (FT.)	PASSES				
B-1	BELL & GOSSETT	AP41	400	59.0	49.0	10	1	600	47.0	53.7	15	1	2,007,211	588.9	209 / 225	1 THRU 4
NOTES & ACCESSORIES:																
1. FLANGED CONNECTIONS, 6" SIZE. 2. PLATE MATERIAL: 304 STAINLESS STEEL. 3. PLATE THICKNESS: 0.40 MM 4. GASKET MATERIAL: NITRILE HT 5. ALUMINUM SPLASH GUARD. 6. FACTORY INSULATION AND JACKET.																

PUMP SCHEDULE												
EQUIPMENT TAG	MANUFACTURER	MODEL	TYPE	FLUID TEMP (°F)	FLOW (GPM)	TOTAL HEAD (FT H2O)	NOMINAL MOTOR RPM	RPM AT RATED CONDITIONS	EFF./BHP	MOTOR HP	ELECTRICAL (V/PH/Hz)	NOTES & ACCESSORIES
P-1	BELL & GOSSETT	e-HSC	HORIZONTAL SPLIT CASE	44	575	120	1800	1634	80.8 / 22.5	40	480/3/60	1,2,3,4,7
P-2	BELL & GOSSETT	e-HSC	HORIZONTAL SPLIT CASE	44	575	120	1800	1634	80.8 / 22.5	40	480/3/60	1,2,3,4,7
P-9	BELL & GOSSETT	1510-4BC	END SUCTION	59	600	50	1750	1750	82.5 / 9.2	10	480/3/60	5
P-10	BELL & GOSSETT	1510-4AC	END SUCTION	47	400	40	1750	1750	81.0 / 5.0	7.5	480/3/60	6,7
ACCESSORIES:												
1. NON-OVERLOADING THROUGHOUT OPERATING RANGE. 2. INVERTER DUTY MOTOR. 3. TAPS FOR PRESSURE GAUGES. 4. PARALLEL OPERATION. 5. EXISTING PUMP. REPLACE IMPELLER TO ACHIEVE RATED FLOW. EXISTING 10 HP MOTOR TO REMAIN. 6. EXISTING PUMP. REPLACE IMPELLER TO ACHIEVE RATED FLOW. INSTALL NEW 7.5 HP INVERTER DUTY MOTOR. 7. NEW VARIABLE FREQUENCY DRIVE.												

- VARIABLE FREQUENCY DRIVES:**
- VARIABLE FREQUENCY DRIVES SHALL BE TRANE TR200. NO SUBSTITUTIONS.
 - DRIVE SHALL INCLUDE:
 - NEMA 1 COMPACT VERTICAL ENCLOSURE.
 - MAIN DISCONNECT AND DRIVE FUSE, 5KA SCCR.
 - 3 CONTACTOR BYPASS.
 - EMB2 CONTROL.
 - THREE YEAR PARTS WARRANTY.



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130 HERITAGE LANE
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(864) 414-1965

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Travelers Rest, SC 29690

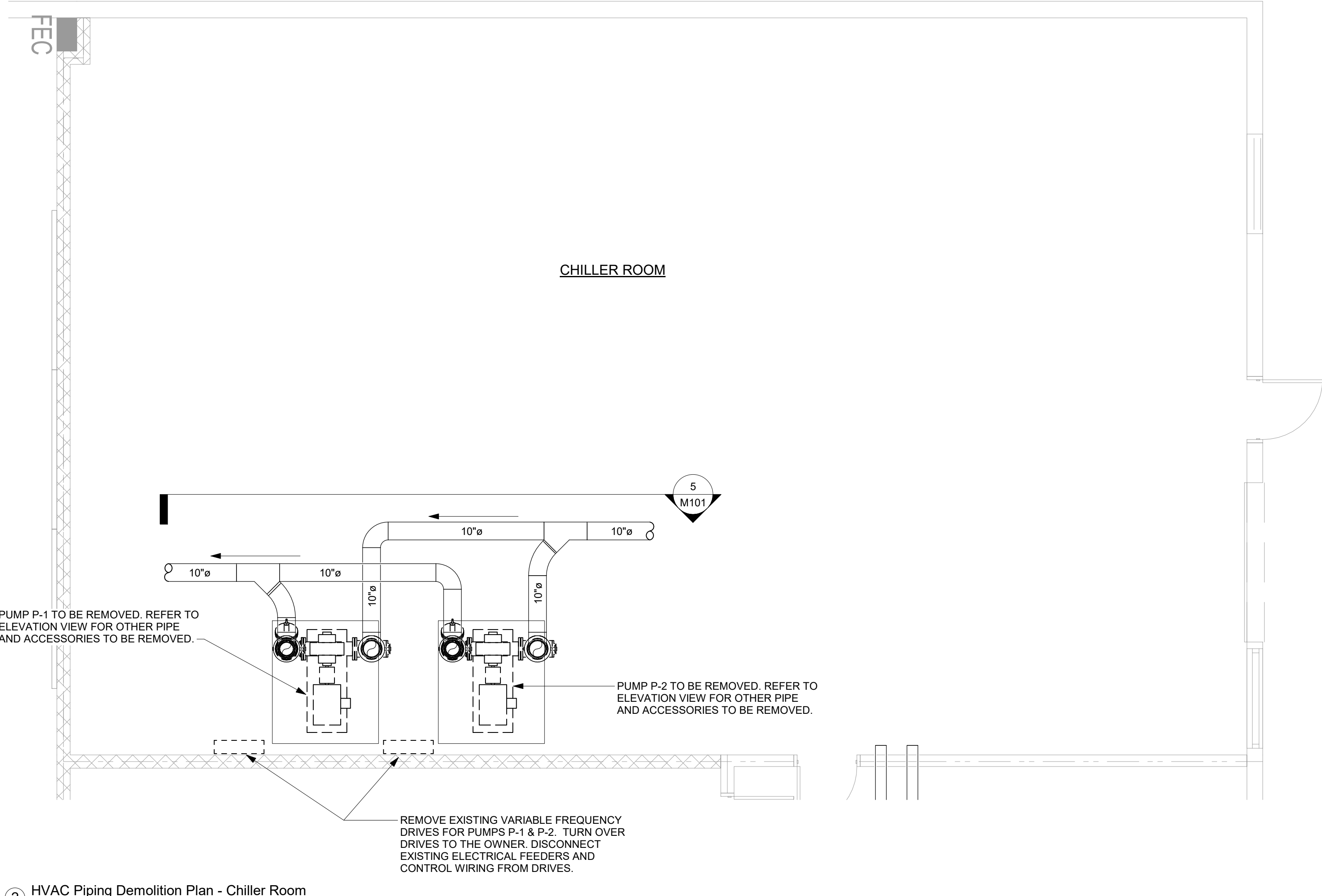
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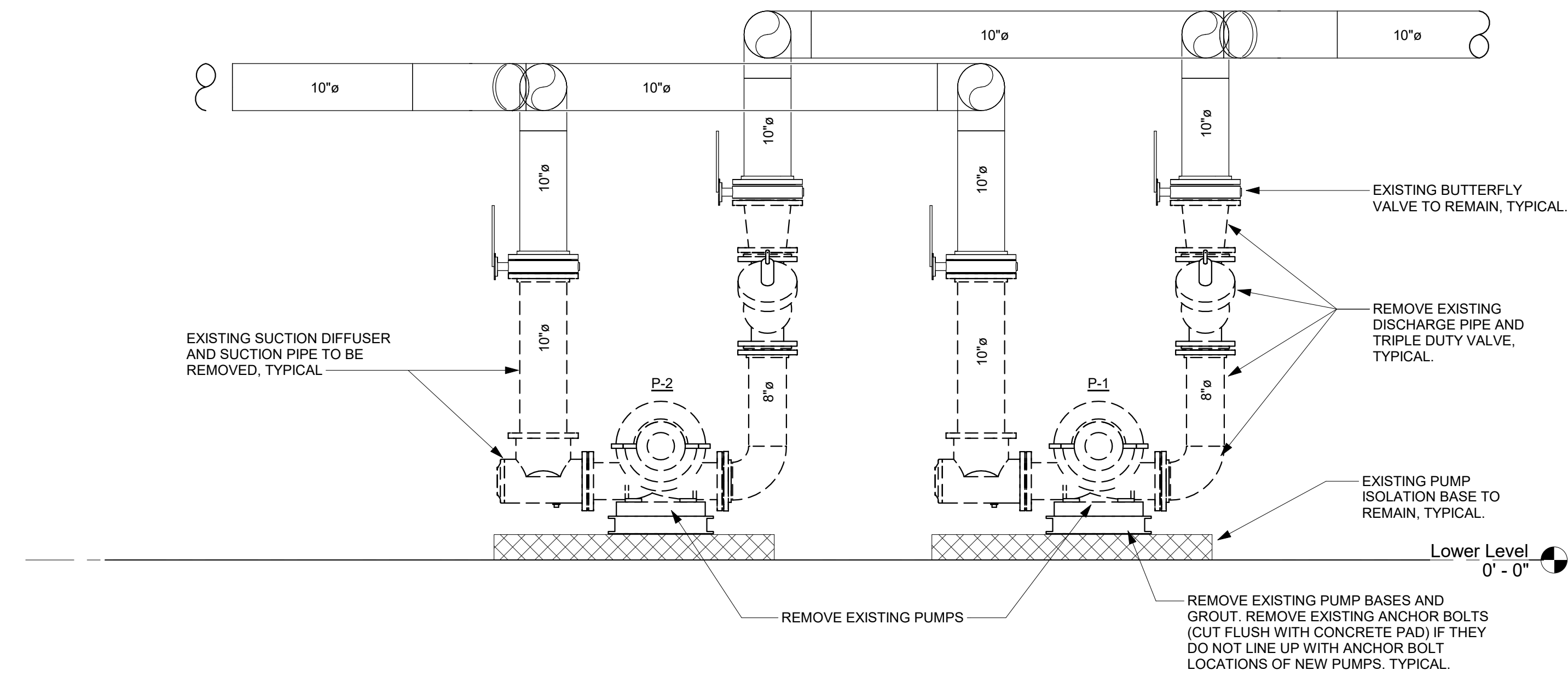
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HVAC SCHEDULES
AND DETAILS

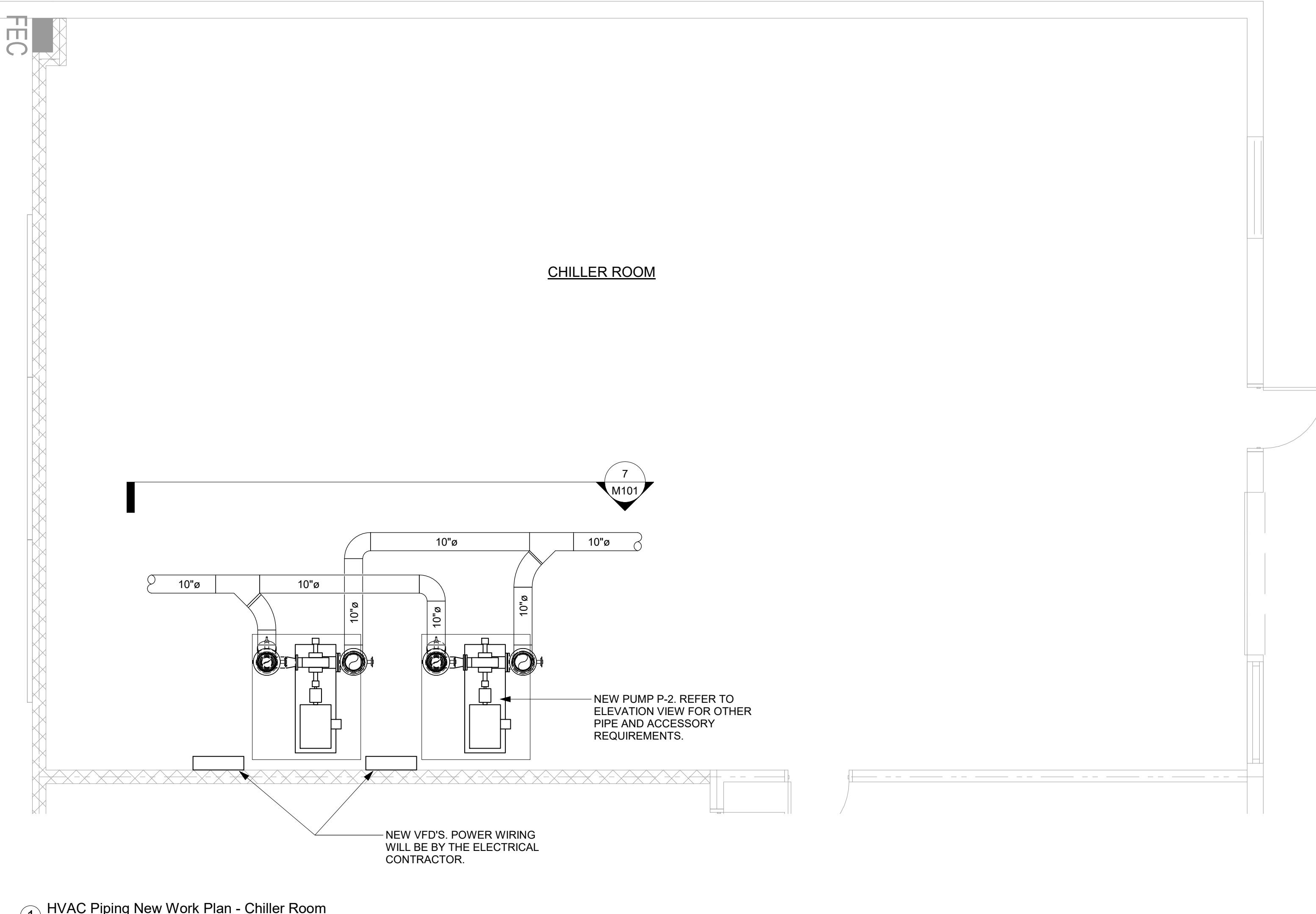
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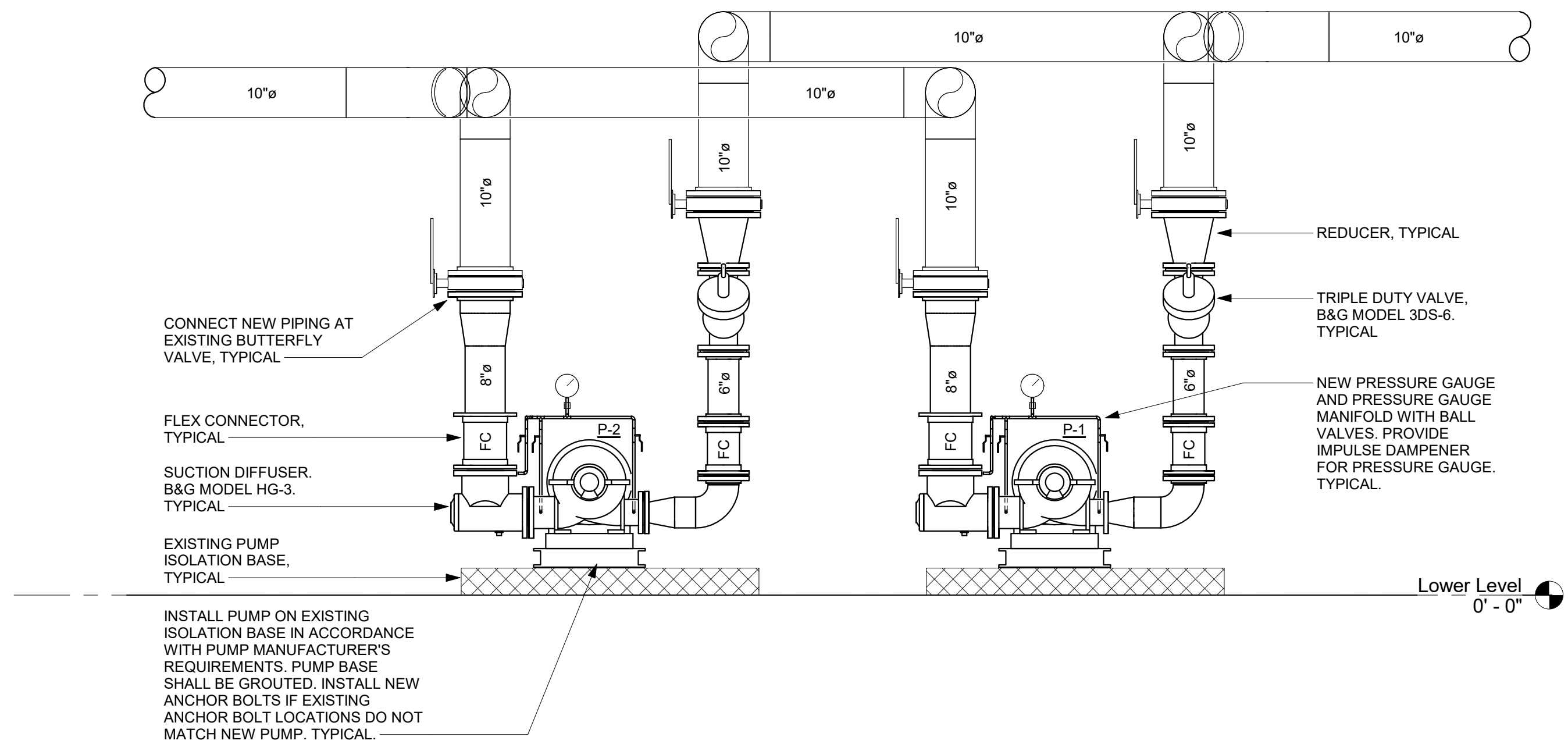
② HVAC Piping Demolition Plan - Chiller Room
1/4" = 1'-0"



⑤ Pump Demolition - Elevation View
1/2" = 1'-0"

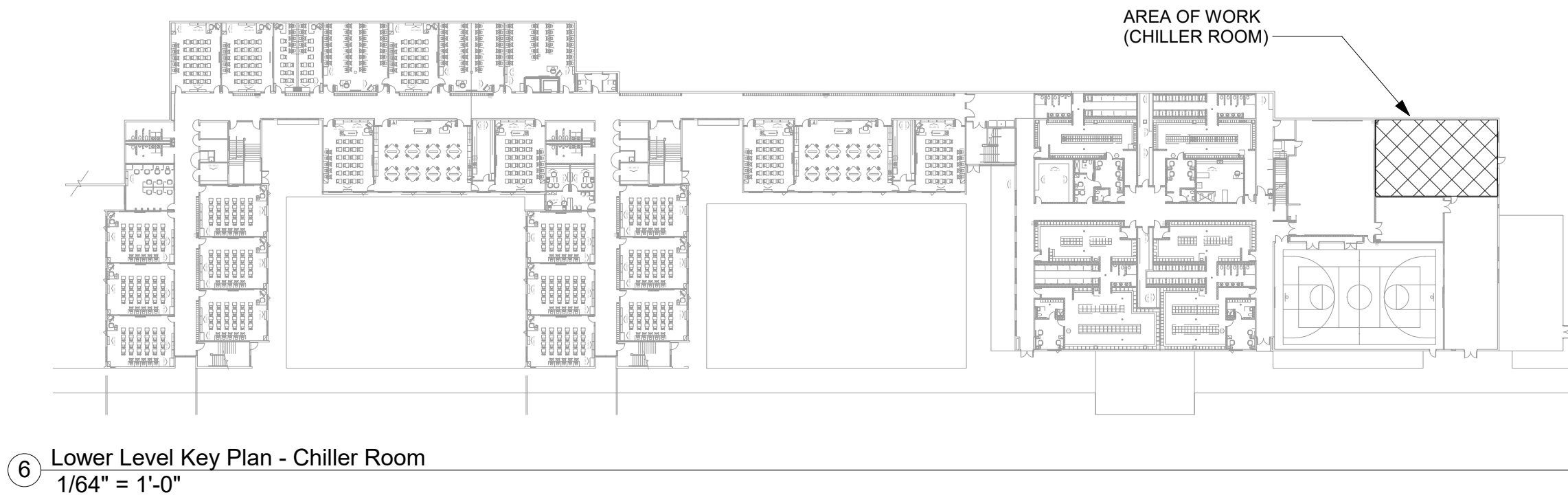


① HVAC Piping New Work Plan - Chiller Room
1/4" = 1'-0"



⑦ New Pump Installation - Elevation View
1/2" = 1'-0"

INSULATION REQUIREMENTS:
1. INSULATE NEW CHILLED WATER PIPING, SUCTION DIFFUSERS, MULTI-PURPOSE VALVES, FLEX CONNECTORS AND PUMPS. INSULATE ANY EXISTING PIPING WHERE INSULATION WAS REMOVED TO ACCOMMODATE NEW WORK.
2. INSULATION TYPE AND THICKNESS SHALL MATCH EXISTING. FIELD VERIFY.



⑥ Lower Level Key Plan - Chiller Room
1/64" = 1'-0"



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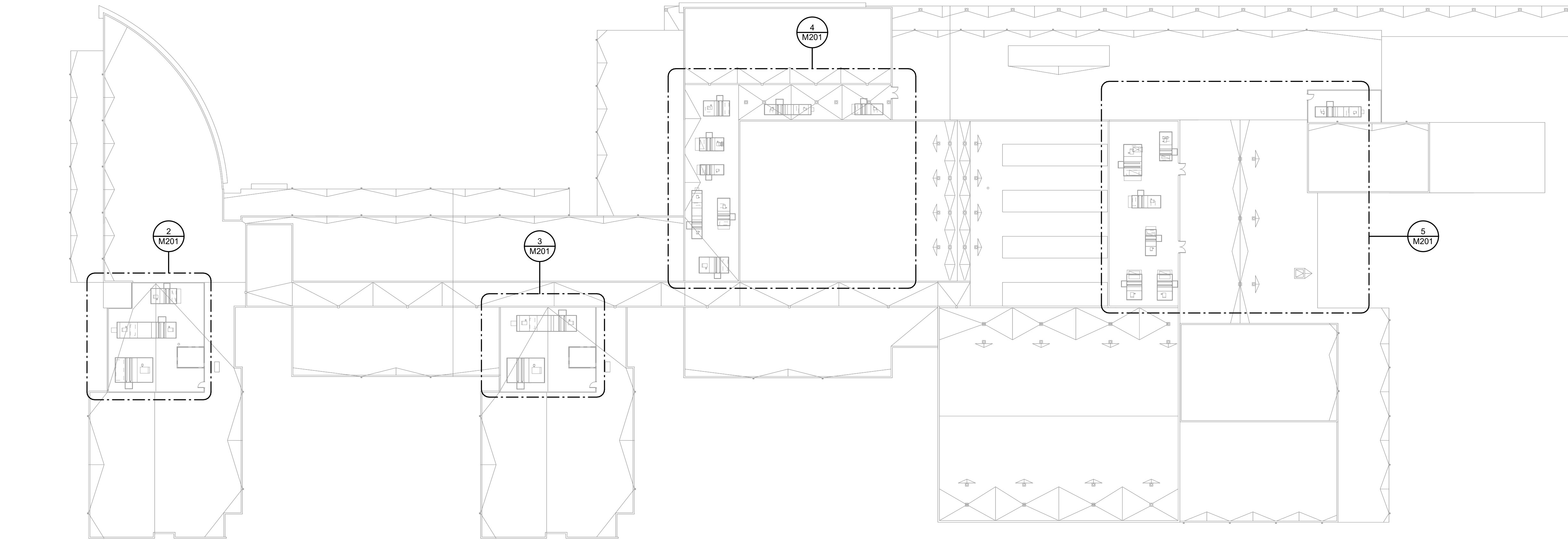
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HVAC PLAN -
CHILLER ROOM

M101



1 HVAC Overall Roof Plan
1/32" = 1'-0"

CHILLED WATER VALVE REPLACEMENT

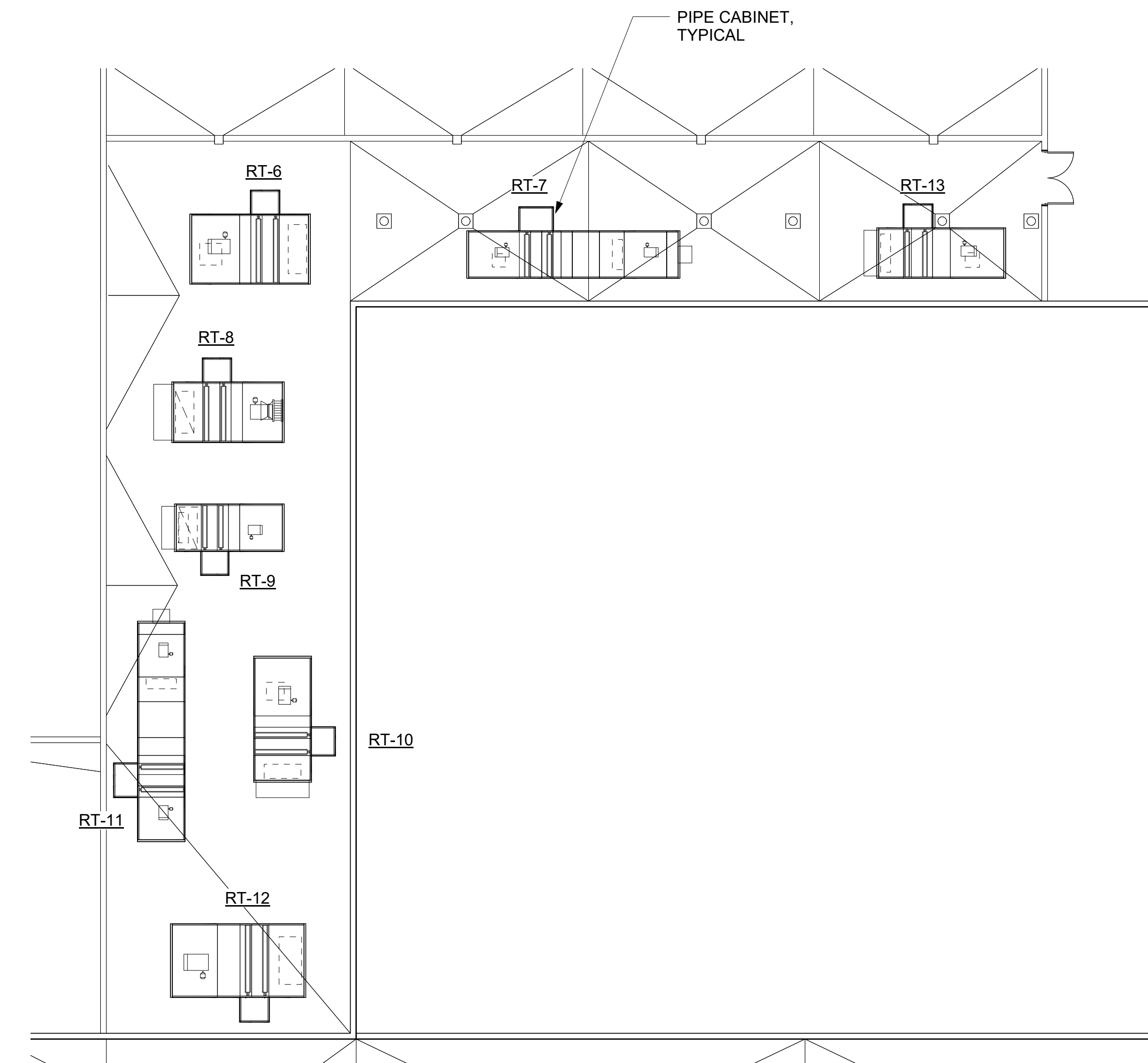
- FOR RT-2, 3, 4 & 5:
1. REMOVE THE EXISTING 3-WAY MODULATING CHILLED WATER VALVE AND REPLACE WITH A NEW 2-WAY MODULATING CHILLED WATER VALVE. CAP THE EXISTING BYPASS PIPE.
 2. RE-INSULATE VALVE AND PIPING TO MATCH EXISTING.
 3. EXISTING PIPE CABINETS AND AND/OR PIPE CABINET DOORS MAY HAVE TO BE REMOVED TO FACILITATE THE CHANGEOUT OF THE CHILLED WATER VALVES. CONTRACTOR SHALL FIELD VERIFY. ANY CABINETS OR DOORS THAT ARE REMOVED SHALL BE PROTECTED FOR REUSE. REMOVAL AND RE-INSTALLATION SHALL BE PER THE MANUFACTURER'S REQUIREMENTS.
 4. NEW VALVES AND VALVE ACTUATORS SHALL BE PROVIDED AND WIRED BY TRANE CONTROLS. NO SUBSTITUTIONS WILL BE ALLOWED.
 5. NEW VALVES/VALVE ACTUATORS SHALL HAVE A CLOSE-OFF DIFFERENTIAL PRESSURE RATING OF 100 PSI MINIMUM.

AIRSIDE ECONOMIZERS

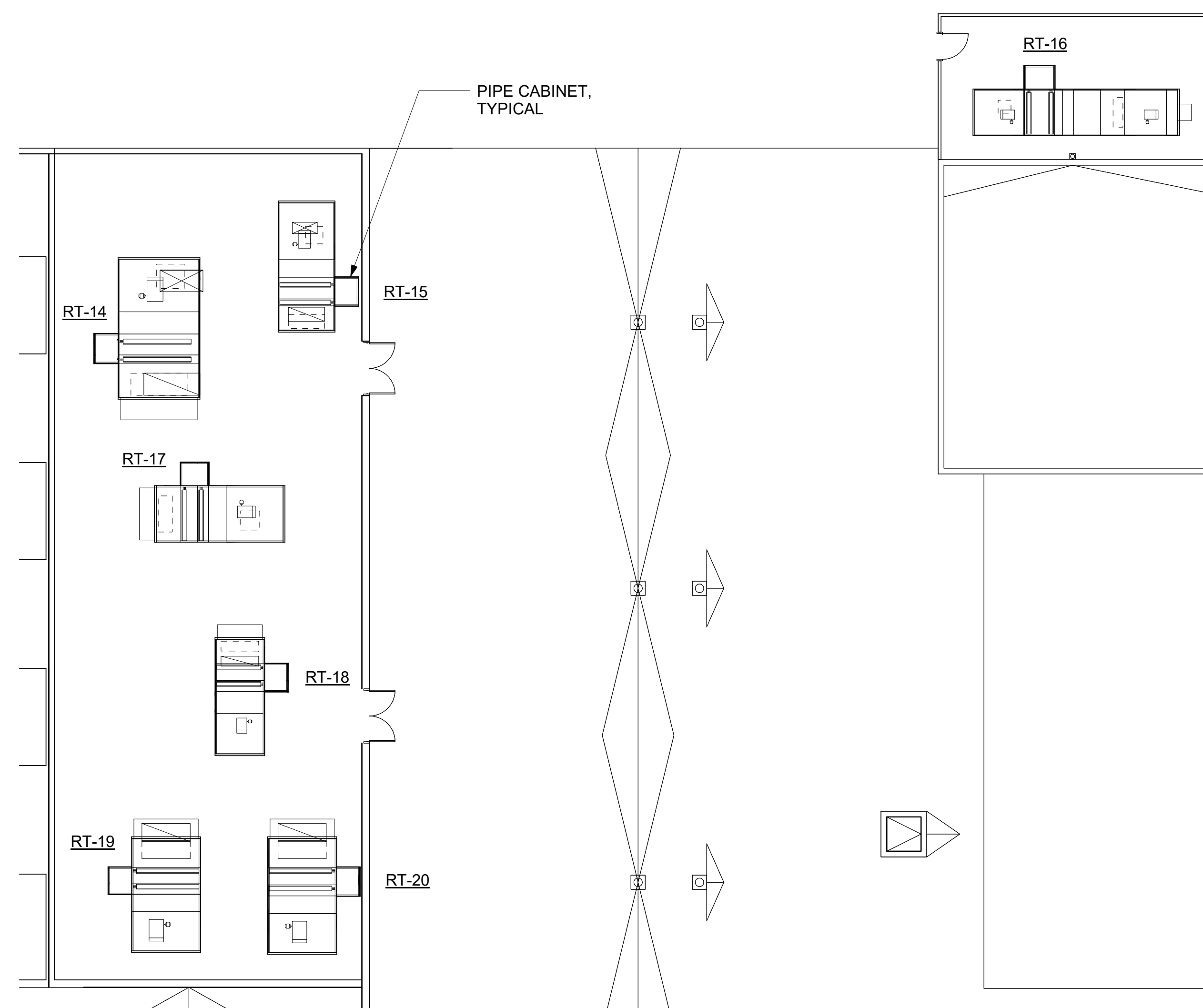
THE FOLLOWING ROOF MOUNTED AIR HANDLERS SHALL HAVE THEIR SEQUENCE OF OPERATION REVISED TO PROVIDE FOR AIR SIDE ECONOMIZERS:

- RT-2, RT-4, RT-7, RT-11, RT-16

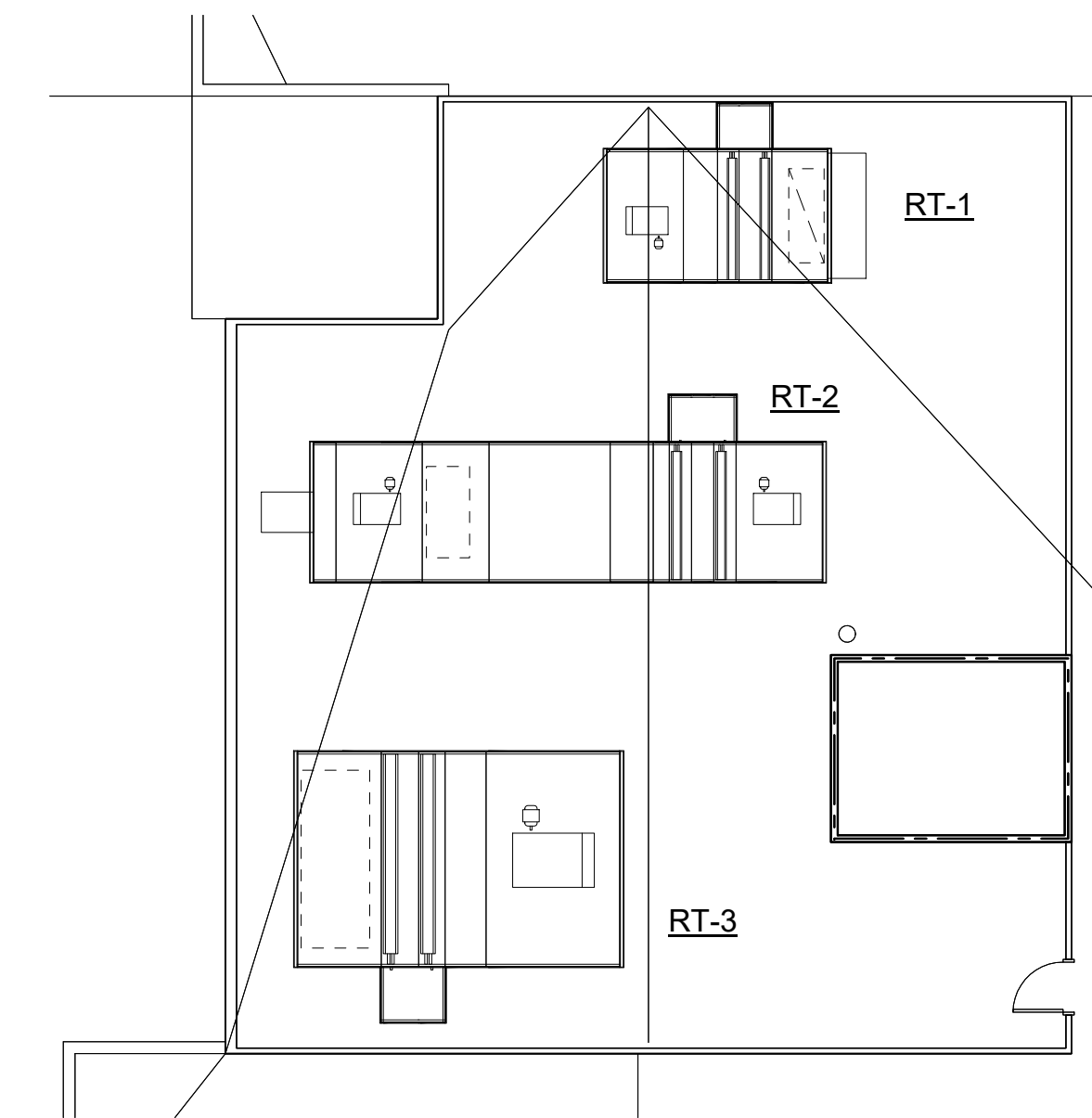
REFER TO THE CONTROLS DRAWINGS FOR SEQUENCE OF OPERATION INFORMATION.



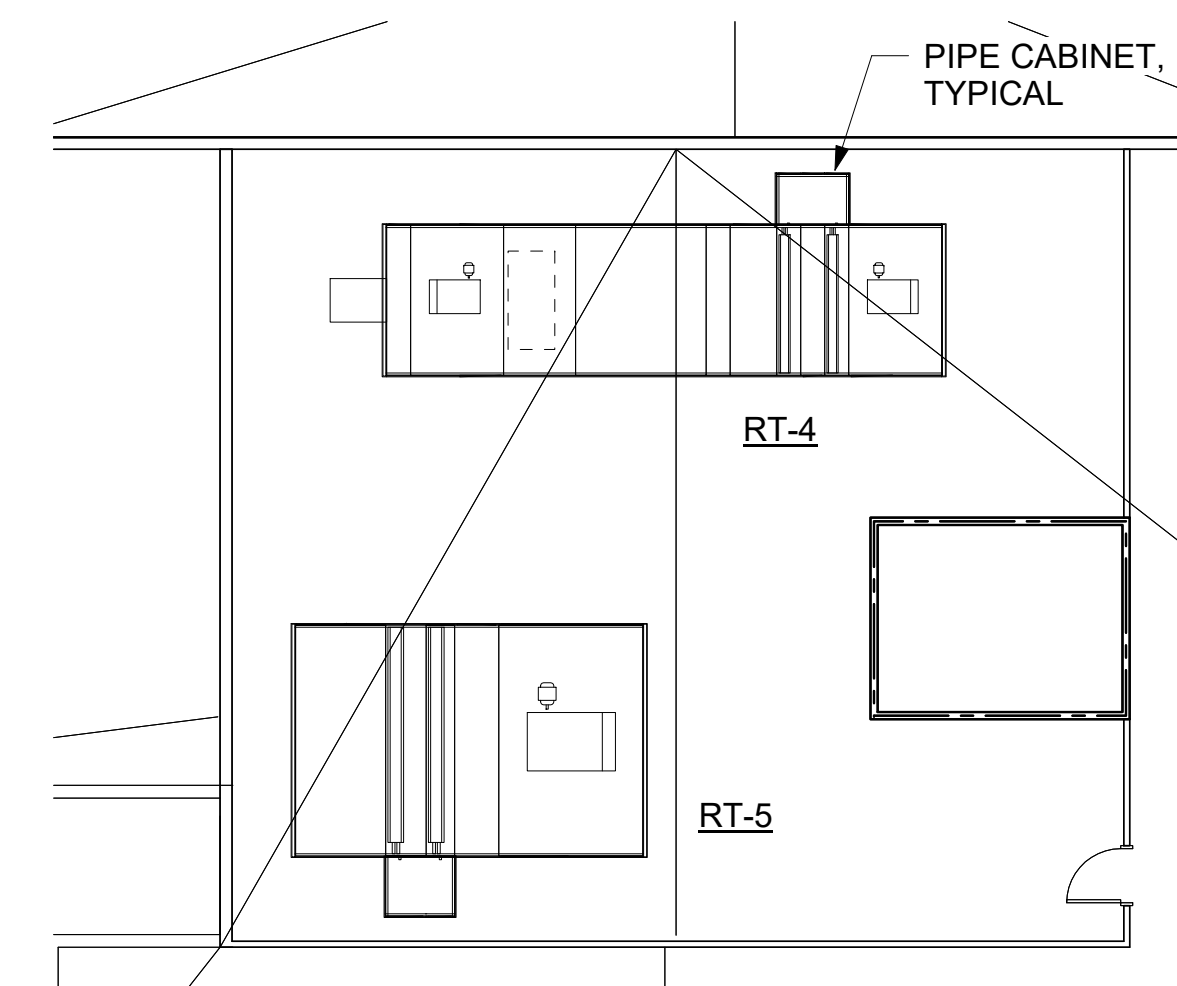
4 HVAC Roof Plan - RT-6 thru RT-13
3/32" = 1'-0"



5 HVAC Roof Plan - RT-14 thru RT-20
3/32" = 1'-0"



2 HVAC Roof Plan - Callout 1
3/32" = 1'-0"



3 HVAC Roof Plan - Callout 2
3/32" = 1'-0"

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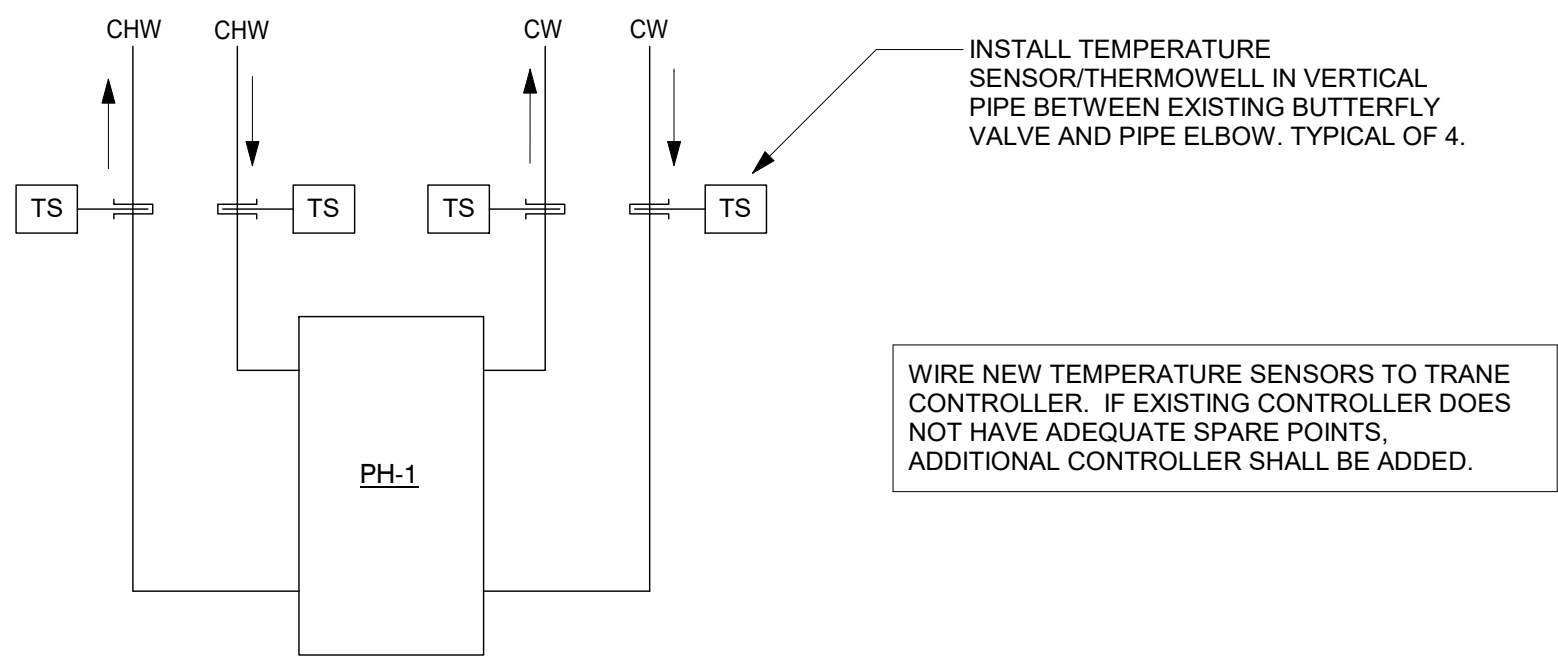
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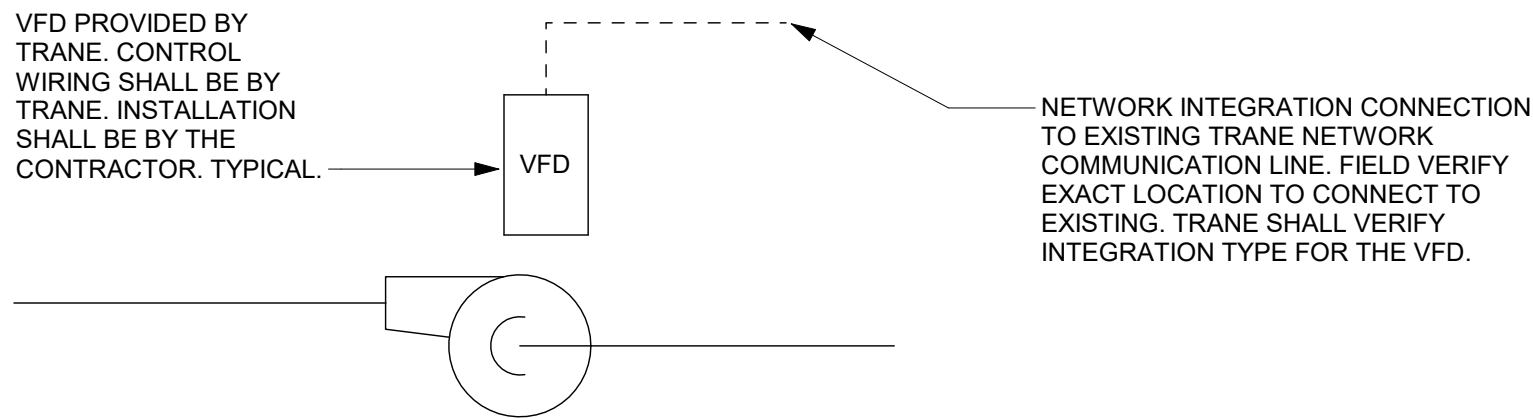
ROOF PLANS

M201



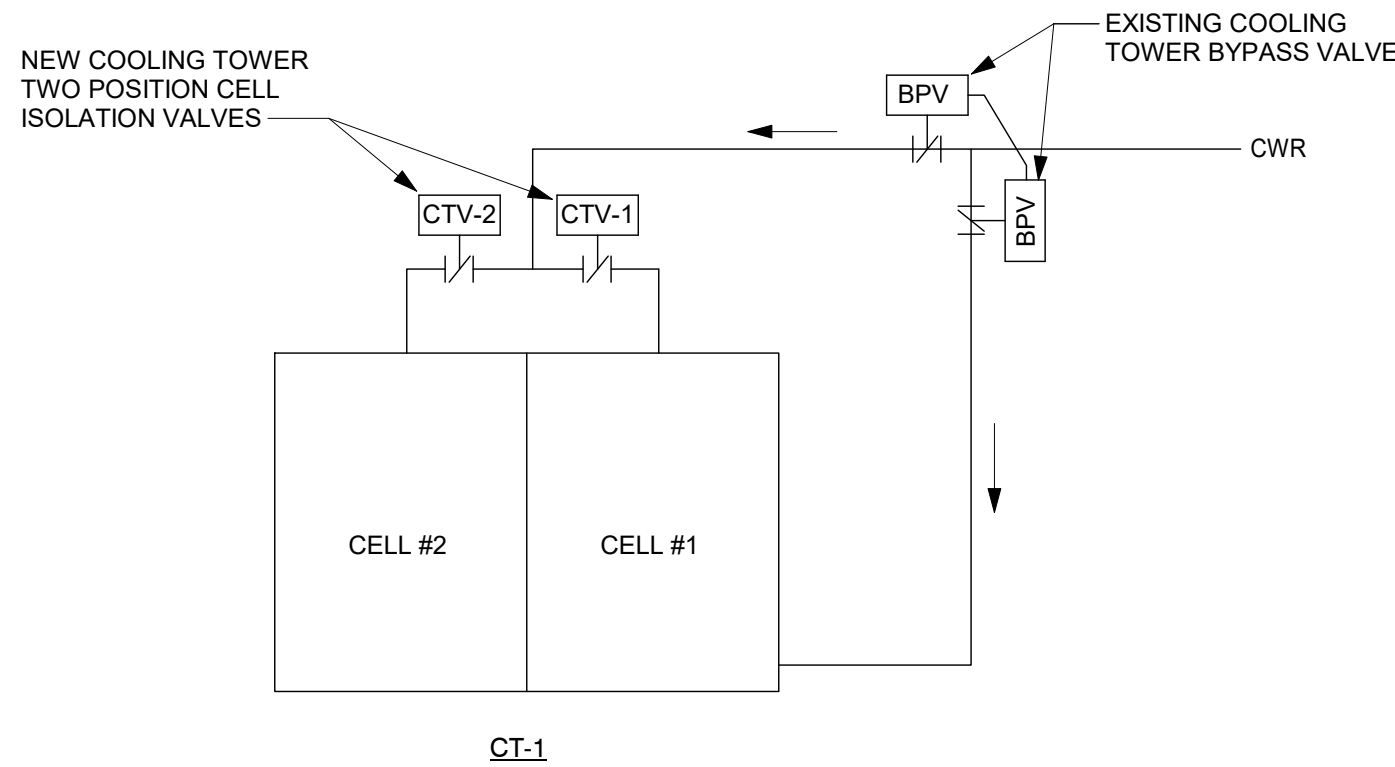
SEQUENCE OF OPERATION:
TEMPERATURE SENSORS SHALL BE USED FOR WATER SIDE ECONOMIZER SEQUENCE OF OPERATION AND MONITORING. CONFIRM SEQUENCE WITH THE OWNER.

① HVAC Controls - Plate & Frame Heat Exchanger
1/8" = 1'-0"



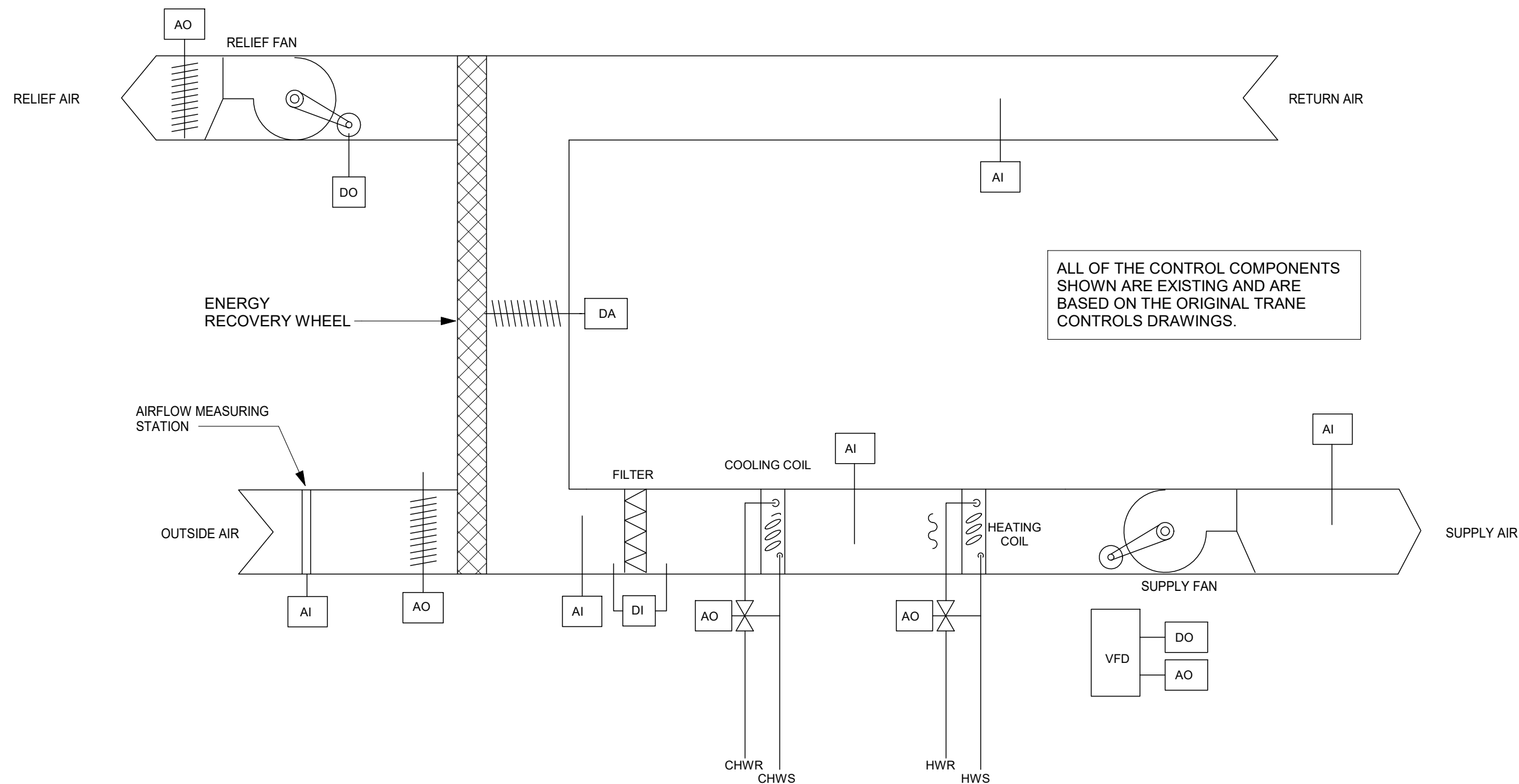
SEQUENCE OF OPERATION
P-1 & P-2 SHALL BE STAGED ON/OFF AND HAVE THEIR SPEED CONTROLLED BASED ON DIFFERENTIAL PRESSURE AS DETERMINED BY THE EXISTING TRANE BAS SYSTEM.
P-10 SHALL BE STARTED AND STOPPED AND HAVE ITS SPEED CONTROLLED BY THE EXISTING TRANE BAS BASED ON THE WATERSIDE ECONOMIZER SEQUENCE OF OPERATION. TRANE SHALL CONFIRM THE SEQUENCE WITH THE OWNER.

② HVAC Controls - Pumps P-1, P-2, P-10
1/8" = 1'-0"



SEQUENCE OF OPERATION
COOLING TOWER CELL ISOLATION VALVES CTV-1 AND CTV-2 SHALL BE TWO POSITION VALVES THAT SHALL BE INTEGRATED INTO THE WATERSIDE ECONOMIZER (WSE) SEQUENCE OF OPERATION. FUNCTION OF THE VALVES IS TO PREVENT UNDERFLOW OF A COOLING TOWER CELL WHEN ONLY THE COOLING TOWER AND PLATE AND FRAME HEAT EXCHANGER IS BEING USED DURING WSE OPERATION. WHEN ONLY THE COOLING TOWER AND PLATE AND FRAME HEAT EXCHANGER ARE BEING USED DURING WSE ONLY ONE CELL SHALL RECEIVE FLOW FROM PUMP P-9 AND THE OTHER CELL SHALL BE CLOSED TO FLOW. CELLS CAN BE ALTERNATED IF ACCEPTABLE TO THE OWNER. TRANE SHALL CONFIRM EXACT SEQUENCE OF OPERATION WITH THE OWNER.

③ HVAC Controls - Cooling Tower
1/8" = 1'-0"



SEQUENCE OF OPERATION
TRANE SHALL ADD THE TYPICAL AIRSIDE ECONOMIZER SEQUENCE OF OPERATIONS FOR AIR HANDLING UNITS THAT THE OWNER HAS APPROVED. TRANE SHALL ADD TO THE SEQUENCE OF OPERATION FOR THE ENERGY WHEEL TO SHUT DOWN AND STOP TURNING WHEN THE UNIT IS IN ECONOMIZER OPERATION.

④ HVAC Controls - Existing Rooftop Air Handlers RT-2, RT-4, RT-7, RT-11, RT-16
1/8" = 1'-0"



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HVAC CONTROLS

M301