PLATE HEAT EXCHANGER SCHEDULE

EQUIPMENT TAG	MANUFACTURER	MODEL	HOT SIDE (BUILDING LOOP)					COLD SIDE (COOLING TOWER)					HEAT TRANSFERRED (BTU/HR)	HEAT TRANSFER COEFFICIENT CLEAN (BTUH/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 H20)	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:

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

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GREENVILLE COUNTY SCHOOLS

TRAVELERS REST HIGH SCHOOL HVAC SYSTEM MODIFICATIONS

301 N. Main Street
Travelers Rest, SC 29690

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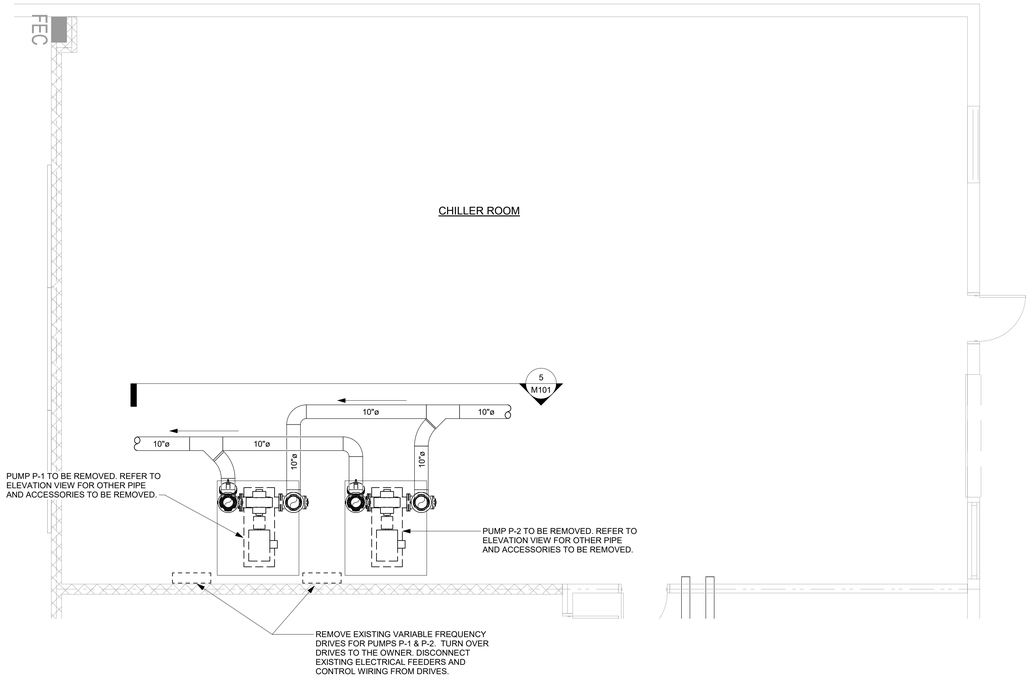
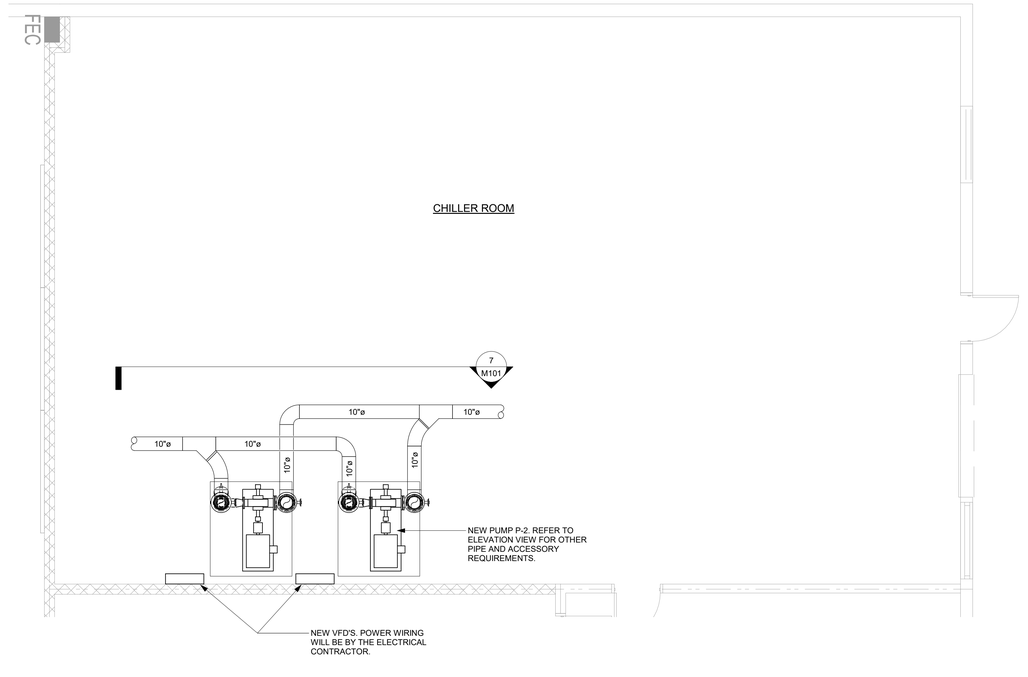
Checked By	SCS

HVAC SCHEDULES AND DETAILS

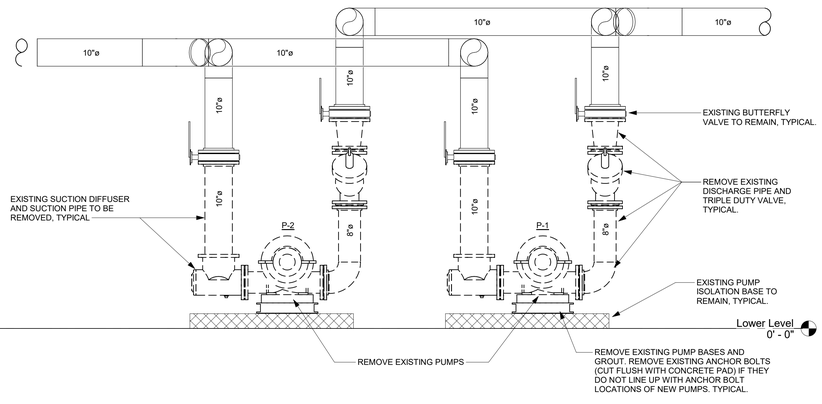
M001



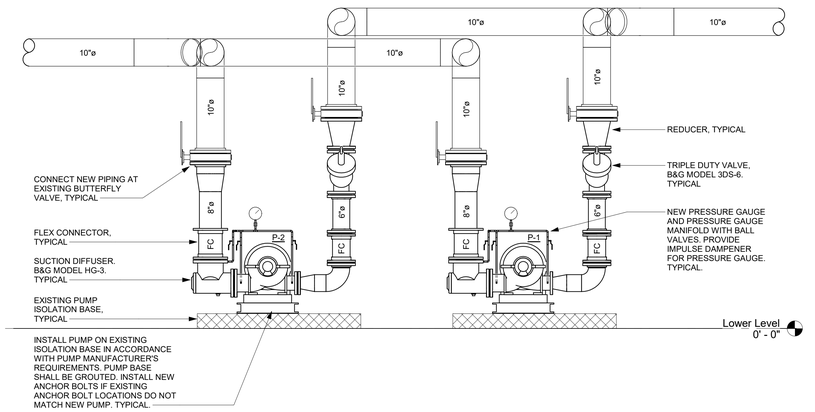
2 HVAC Piping Demolition Plan - Chiller Room
1/4" = 1'-0"



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

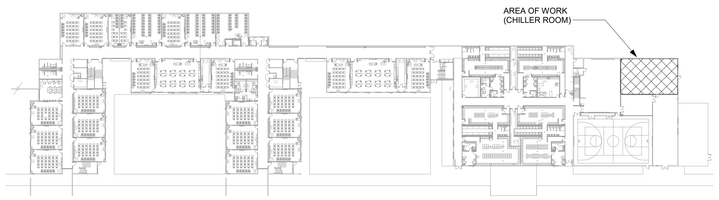


5 Pump Demolition - Elevation View
1/2" = 1'-0"



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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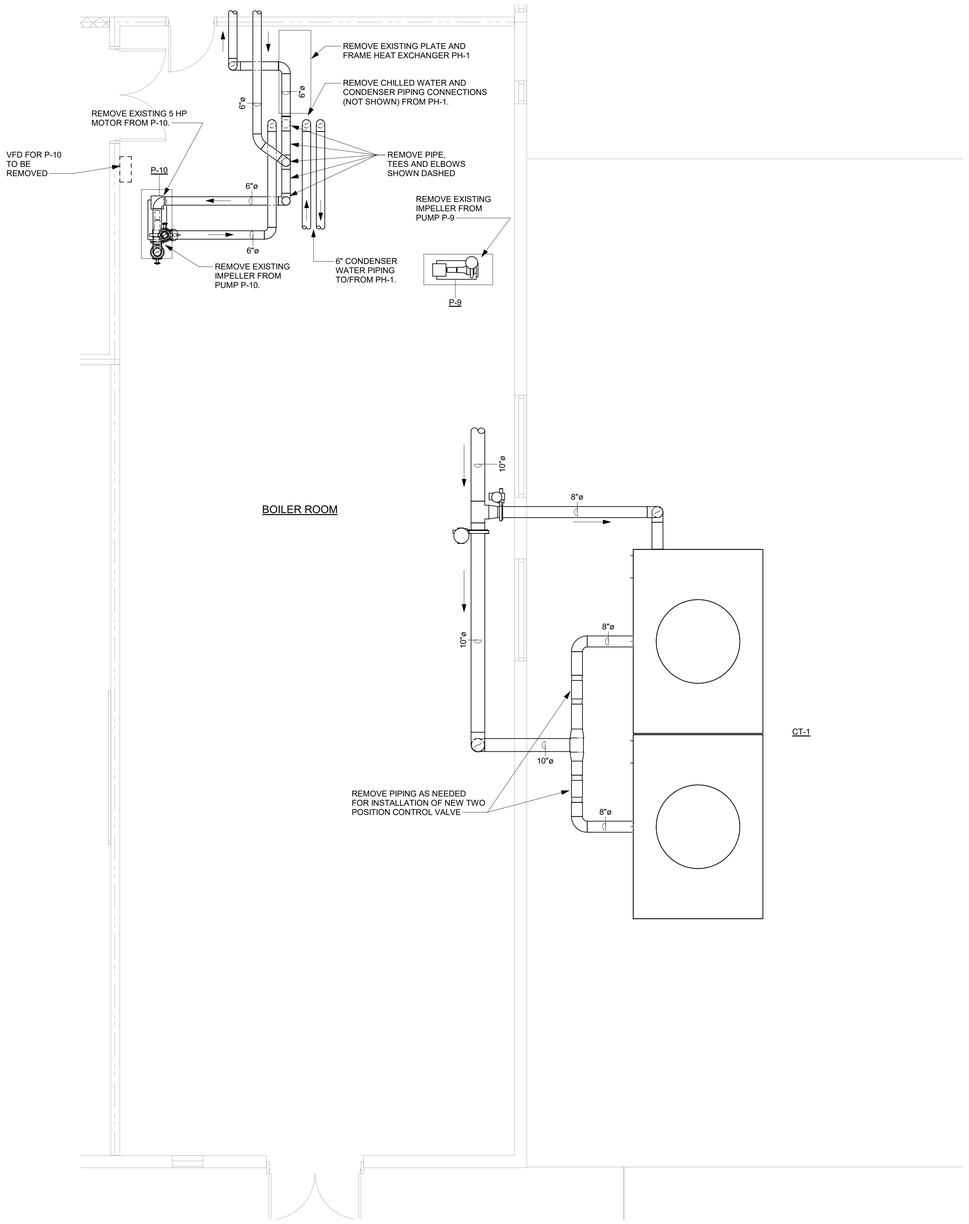
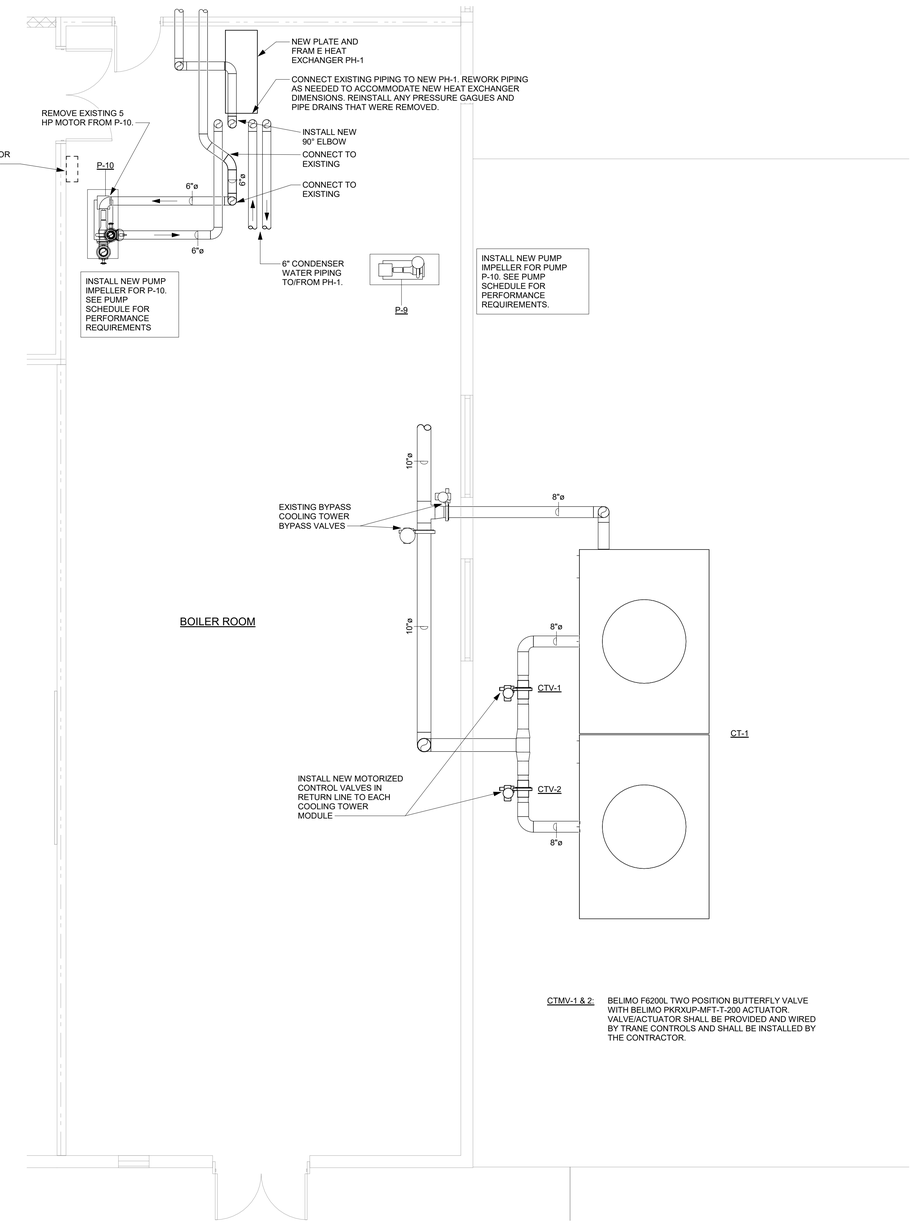
HVAC PLAN - CHILLER ROOM

M101



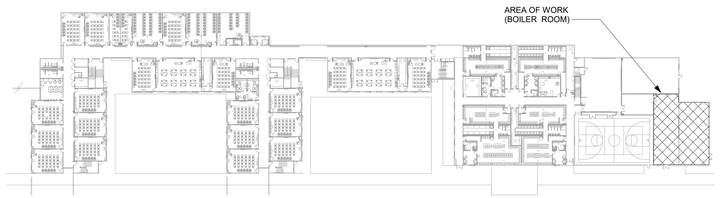
2 HVAC Piping Demolition Plan - Boiler Room
1/4" = 1'-0"



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

CTMV-1 & 2: BELIMO F6200L TWO POSITION BUTTERFLY VALVE WITH BELIMO PKRXUP-MFT-T-200 ACTUATOR. VALVE/ACTUATOR SHALL BE PROVIDED AND WIRED BY TRANE CONTROLS AND SHALL BE INSTALLED BY THE CONTRACTOR.

INSULATION REQUIREMENTS:
1. RE-INSULATE CHILLED WATER PIPING AT PH-1. INSULATION TYPE AND THICKNESS SHALL MATCH EXISTING. FIELD VERIFY.
2. RE-INSULATED CHILLED WATER PUMP P-1 AFTER NEW IMPELLER IS INSTALLED. INSULATION TYPE AND THICKNESS SHALL MATCH EXISTING.
3. PH-1 SHALL HAVE FACTORY INSULATION/JACKET.



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

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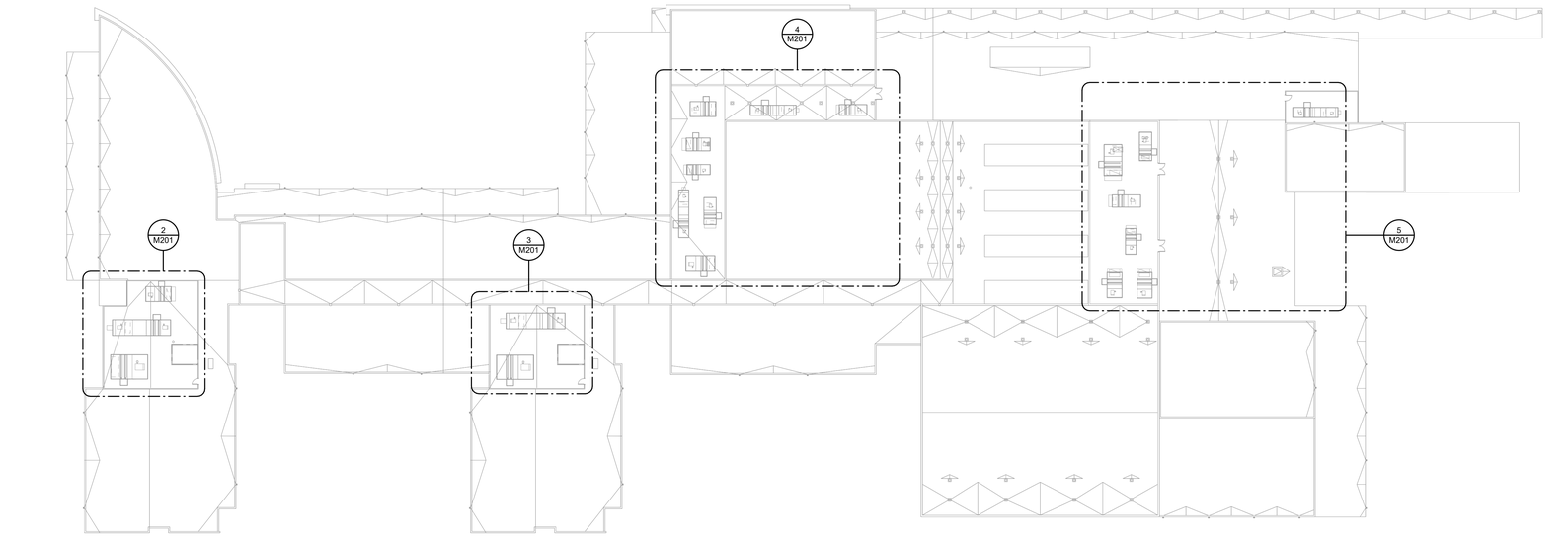
HVAC PLAN - BOILER ROOM

M102



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

CHILLED WATER VALVE REPLACEMENT

FOR RT-2, 3, 4 & 5:

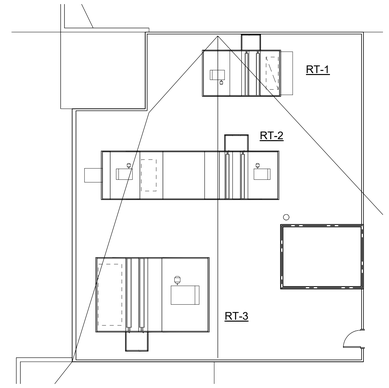
1. REMOVE THE EXISTING 3-WAY MODULATING CHILLED WATER VALVE AND REPLACE WITH A NEW 2-WAY MODULATING CHILLED WATER VALVE. CAP THE EXISTING BYPASS PIPE.
2. RE-INSULATE VALVE AND PIPING TO MATCH EXISTING.
3. EXISTING PIPE CABINETS AND AND/OR PIPE CABINET DOORS MAY HAVE TO BE REMOVED TO FACILITATE THE CHANGEOUT 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

AIRSIDE ECONOMIZERS

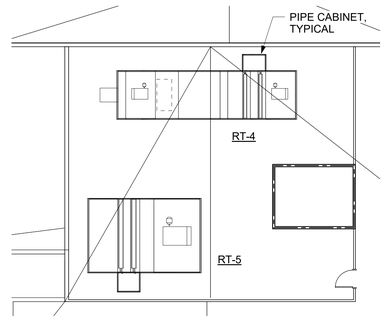
THE FOLLOWING ROOF MOUNTED AIR HANDLERS SHALL HAVE THEIR SEQUENCE OF OPERATION REVISED TO PROVIDE FOR AIR SIDE ECONOMIZERS:

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

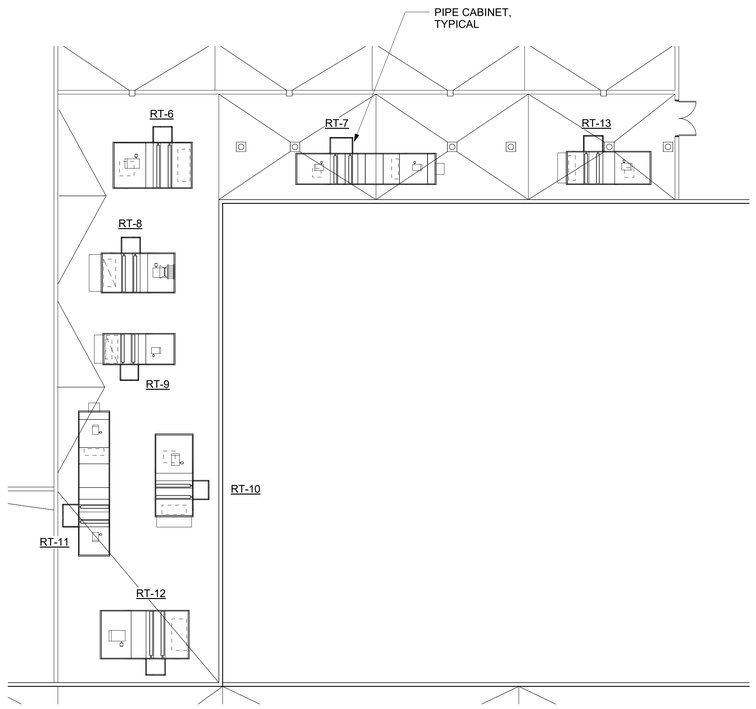
REFER TO THE CONTROLS DRAWINGS FOR SEQUENCE OF OPERATION INFORMATION.



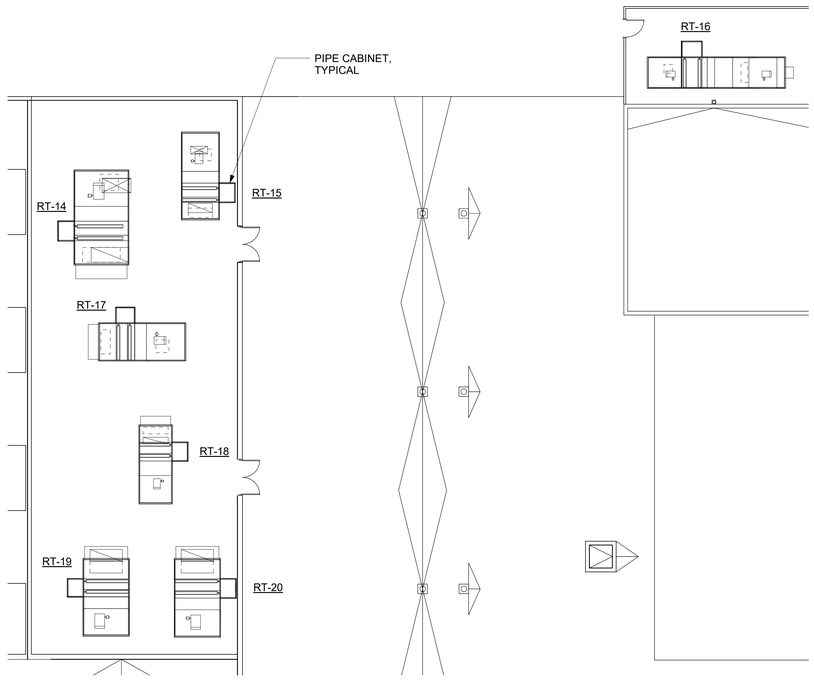
2 HVAC Roof Plan - Callout 1
3/32" = 1'-0"



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



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"

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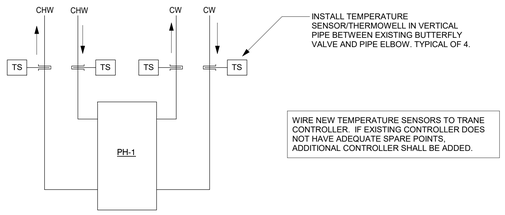
ROOF PLANS

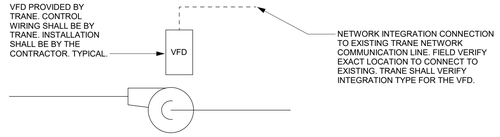
M201



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"

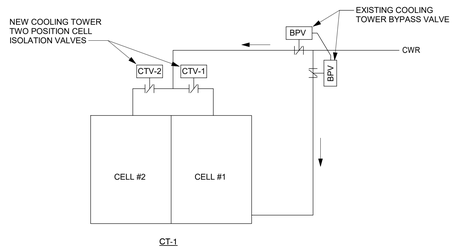


SEQUENCE OF OPERATION

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.

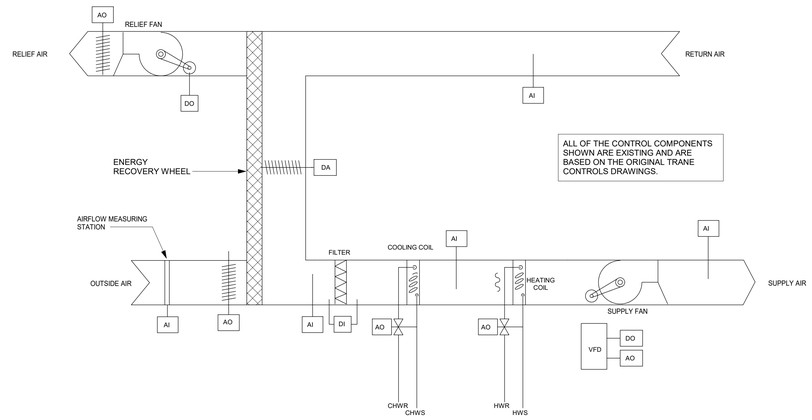
2 HVAC Controls - Pumps P-1, P-2, P-10
1/8" = 1'-0"



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. 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 OPERATONS 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