

SEQUENCE OF OPERATION

CHILLER PLANT

CHILLERS:
 THE DDC SYSTEM SHALL ENABLE THE CHILLERS FOR OPERATION WHEN THE OUTDOOR AIR TEMPERATURE IS ABOVE 55 DEG F. (ADJUSTABLE) CHILLERS SHALL BE CONTROLLED IN A LEAD/LAG SEQUENCE AS FOLLOWS: THE FIRST CHILLER SHALL RUN AND SHALL MODULATE ITS COMPRESSOR TO FOLLOW THE COOLING LOAD UNTIL THE LOAD REACHES 95% OF THE CHILLER CAPACITY (ADJUSTABLE) AT WHICH POINT THE SECOND CHILLER SHALL START. AS THE COOLING LOAD INCREASES BEYOND THE FIRST CHILLER'S 100% CAPACITY POINT, THE FIRST CHILLER SHALL RUN AT CONSTANT SPEED AND THE SECOND CHILLER SHALL MODULATE TO CARRY THE BALANCE OF THE LOAD.
 THE CHILLERS SHALL BE ARRANGED SO IF THE FIRST CHILLER FAILS TO START, THE SECOND CHILLER SHALL START AND RUN AND THE DDC SYSTEM SHALL SEND AN ALARM TO THE DESIGNATED MAINTENANCE REPRESENTATIVE.

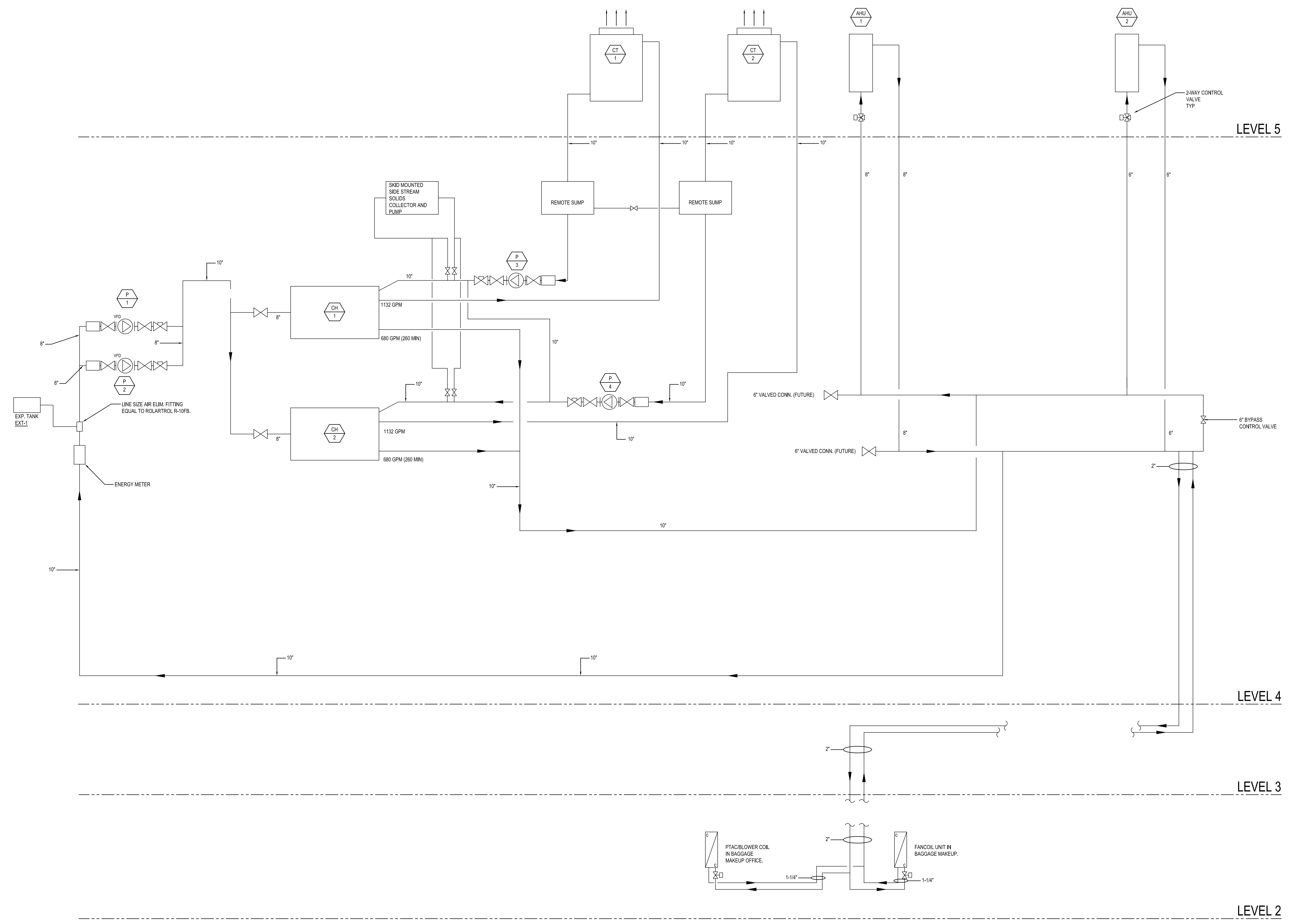
COOLING TOWERS:
 ONE COOLING TOWER SHALL BE ASSOCIATED WITH EACH CHILLER. THE TOWER FAN AND PUMP SHALL BE ENABLED WHENEVER THE ASSOCIATED CHILLER IS ENABLED AND THE TOWER SHALL RUN TO REJECT THE CONDENSER WATER HEAT TO ATMOSPHERE. EACH TOWER FAN SHALL BE EQUIPPED WITH A VFD WHICH SHALL MODULATE THE FAN TO MATCH THE LOAD AS REQUIRED. THE TOWER FANS SHALL BE MODULATED BY THE DDC SYSTEM TO MAINTAIN A LEAVING TOWER WATER TEMPERATURE SET POINT EQUAL TO THE AMBIENT WET BULB TEMPERATURE PLUS 5 DEG F. (ADJUSTABLE) WHEN THE OUTDOOR TEMPERATURE DROPS BELOW 40 DEG F, THE COOLING TOWERS SHALL BE LOCKED OUT. THE COOLING TOWER SUMPS SHALL BE LOCATED INSIDE THE CHILLER PLANT.

CONDENSER PUMPS:
 THE CONDENSER WATER PUMPS SHALL BE ARRANGED IN A LEAD/LAG SEQUENCE. BEFORE EITHER CHILLER CAN START, CONDENSER BARREL FLOW MUST BE PROVIDED. IF THE LEAD CONDENSER WATER PUMP FAILS TO START, THE LAG PUMP WILL BE STARTED AND THE DDC SYSTEM SHALL SEND AN ALARM TO THE DESIGNATED MAINTENANCE REPRESENTATIVE. THE LEAD AND LAG PUMPS SHALL BE SWITCHED OVER ON A WEEKLY BASIS.

CHILLED WATER PUMPS:
 EACH CHILLER HAS AN ASSOCIATED CONSTANT RPM SUPPLY PUMP. BEFORE A CHILLER CAN START, EVAPORATOR BARREL FLOW MUST BE PROVIDED. IF THE SUPPLY PUMP FOR THE CHILLER FAILS TO START, THE OTHER CHILLER SUPPLY PUMP WILL BE STARTED AND THE ASSOCIATED CHILLER STARTUP SEQUENCE INITIATED. THE DDC SYSTEM SHALL SEND AN ALARM TO THE DESIGNATED MAINTENANCE REPRESENTATIVE.

THE CHILLED WATER SYSTEM SUPPLY PUMPS SHALL BE ARRANGED IN A LEAD/LAG SEQUENCE. IF THE LEAD CHILLED WATER SYSTEM SUPPLY WATER PUMP FAILS TO START, THE LAG PUMP WILL BE STARTED AND THE DDC SYSTEM SHALL SEND AN ALARM TO THE DESIGNATED MAINTENANCE REPRESENTATIVE. THE LEAD AND LAG PUMPS SHALL BE SWITCHED OVER ON A WEEKLY BASIS. EACH PUMP SHALL BE EQUIPPED WITH A VFD AND THE PUMP RPM SHALL BE MODULATED TO MAINTAIN A CHILLED WATER RETURN TEMPERATURE SET POINT OF 55 DEG F. (ADJUSTABLE)

CHILLED WATER SYSTEM (CHWS)
 THE CHILLED WATER SYSTEM SHALL SERVE TWO NEW AIR HANDLING UNIT (AHU) CHILLED WATER COILS AND SHALL BE PIPED FOR PROVISION TO SERVE ADDITIONAL AHU IN A FUTURE ADDITION. THE CHWS SHALL BE PIPED TO THE CHILLED WATER COILS WITH THREE-WAY CONTROL VALVES WHICH WILL SERVE AS BYPASSES WHEN NOT DIRECTING FLOW THROUGH THE COILS.



SHEET NOTES

GENERAL NOTES

A SEE SHEET M00.00 FOR LEGEND AND GENERAL NOTES.

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Issue	Date & Issue Description	By	Check
01	12/03/08	PWZ	RHB
02	01/23/09	PWZ	RHB
02	10/26/09	PWZ	RHB

Project Name: PWM Terminal Enhancement
 Project Number: 09-6395-000
 CAD File Name: T:\5330101\Sheets\M12.02.dwg
 Description: MECHANICAL PIPING SYSTEM SCHEMATIC

Scale: NOT TO SCALE

M12.02

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