

POINTS LIST	TYPE	POINT	DESCRIPTION	UNITS	TREND	ALARM	TOTALIZE
	AI	DA-T	DISCHARGE AIR TEMPERATURE	DEG F	X	X	
	AI	ZN-T	ZONE TEMPERATURE	DEG F	X	X	
	BO	CLC-C	COOLING COMMAND	ON/OFF	X		
	BO	HTC-C	HEATING COMMAND	ON/OFF	X		
	BO	SF-C	SUPPLY FAN COMMAND	ON/OFF	X		

SEQUENCE OF OPERATION

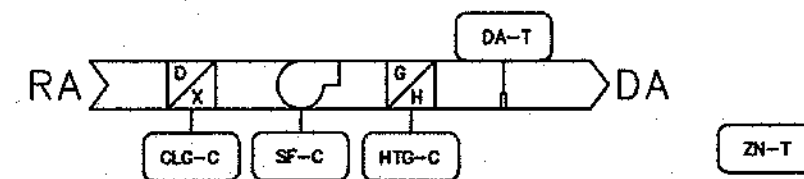
GENERAL: UNIT SHALL BE IN OCCUPIED/UNOCCUPIED MODE BASED ON AN ADJUSTABLE TIME SCHEDULE AS SELECTED BY THE OWNER'S REPRESENTATIVES.

UNOCCUPIED MODE: THE SUPPLY FAN SHALL CYCLE ON/OFF IN CONJUNCTION WITH A CALL FOR HEATING OR COOLING.

OCCUPIED MODE: THE SUPPLY FAN SHALL CYCLE ON/OFF IN CONJUNCTION WITH A CALL FOR HEATING OR COOLING, AS REQUIRED TO MAINTAIN SPACE SETPOINT TEMPERATURE. HEATING AND COOLING SHALL NOT OCCUR SIMULTANEOUSLY.

HEATING MODE: THE SUPPLY FAN AND HEATING SHALL CYCLE AS REQUIRED TO MAINTAIN HEATING SETPOINT TEMPERATURE OF 70°F(ADJ.). HEATING AND COOLING SHALL NOT OCCUR SIMULTANEOUSLY.

COOLING MODE: THE SUPPLY FAN AND COOLING SHALL CYCLE AS REQUIRED TO MAINTAIN HEATING SETPOINT TEMPERATURE OF 74°F(ADJ.). HEATING AND COOLING SHALL NOT OCCUR SIMULTANEOUSLY.



SPLIT SYSTEM FURNACE 'F1' CONTROL DIAGRAM

7
M-604
NO SCALE

MECHANICAL HOT WATER SYSTEM - POINTS LIST	TYPE	POINT	DESCRIPTION	UNITS	TREND	ALARM	TOTALIZE
	AI	OA-T	OUTSIDE AIR TEMPERATURE	DEG F	X	X	
	AI	HW51-T	HOT WATER SUPPLY TEMP.	DEG F	X	X	
	AI	HW52-T	HOT WATER SUPPLY TEMP.	DEG F	X	X	
	AI	HW1-R	HOT WATER RETURN TEMP.	DEG F	X	X	
	AI	HW2-R	HOT WATER RETURN TEMP.	DEG F	X	X	
	AI	HW-DP	HOT WATER PRESSURE DIFF.	PSI	X	X	
	BI	BLR1-A	BOILER 1 ALARM	NORMAL/ALARM	X	X	
	BI	BLR2-A	BOILER 2 ALARM	NORMAL/ALARM	X	X	
	BI	BLR3-A	BOILER 3 ALARM	NORMAL/ALARM	X	X	
	BI	BLR4-A	BOILER 4 ALARM	NORMAL/ALARM	X	X	
	BI	HWP1-S	HOT WATER PUMP 1 STATUS	OFF ON	X	X	X
	BI	HWP2-S	HOT WATER PUMP 2 STATUS	OFF ON	X	X	X
	BI	BP1-S	BOILER PUMP 1 STATUS	OFF ON	X	X	X
	BI	BP2-S	BOILER PUMP 2 STATUS	OFF ON	X	X	X
	BI	BP3-S	BOILER PUMP 3 STATUS	OFF ON	X	X	X
	BI	BP4-S	BOILER PUMP 4 STATUS	OFF ON	X	X	X
	BO	BLR-EN	BOILER MASTER ENABLE	OFF ON	X	X	X
	BO	HWP1-C	HOT WATER PUMP 1 COMMAND	OFF ON	X		
	BO	HWP2-C	HOT WATER PUMP 2 COMMAND	OFF ON	X		
	BO	BP1-C	BOILER PUMP 1 COMMAND	OFF ON	X		
	BO	BP2-C	BOILER PUMP 2 COMMAND	OFF ON	X		
	BO	BP3-C	BOILER PUMP 3 COMMAND	OFF ON	X		
	BO	BP4-C	BOILER PUMP 4 COMMAND	OFF ON	X		
	AO	HWP1-O	HOT WATER PUMP 1 OUTPUT	%	X		
	AO	HWP2-O	HOT WATER PUMP 2 OUTPUT	%	X		
	AO	QAN-SP	OUTSIDE AIR ENABLE SETPOINT	DEG F	X		
	AO	HWST-SP	HW SUPPLY TEMP. SETPOINT	DEG F	X		

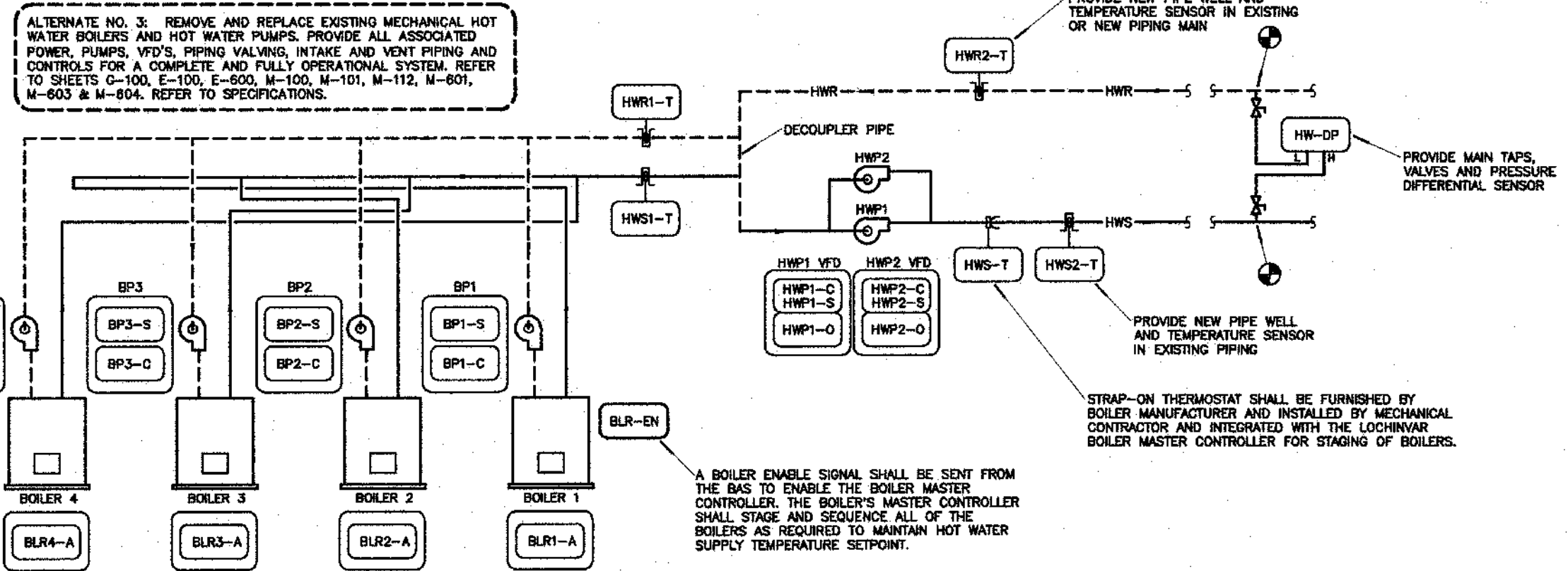
SEQUENCE OF OPERATION

SECONDARY HOT WATER PUMP CONTROL (PUMPS HWP1 & HWP2):
THE LEAD SECONDARY HOT WATER PUMP SHALL AUTOMATICALLY START WHEN THE OUTSIDE AIR TEMPERATURE FALLS BELOW THE SYSTEM ENABLE SETPOINT 55°F (ADJ.) OR WHEN THERE IS A CALL FOR HEATING FROM ANY SYSTEM. WHEN THE OUTSIDE AIR TEMPERATURE RISES ABOVE THIS SETPOINT, PLUS A DEADBAND OF 5°F (ADJ.), AND THERE HAS BEEN NO CALL FOR HEATING FOR ONE (1) HOUR (ADJ.), THE LEAD HOT WATER SECONDARY PUMP SHALL TURN OFF. WHEN ENABLED, THE LEAD SECONDARY PUMP SHALL START AND THE VFD SHALL MODULATE AS REQUIRED TO MAINTAIN WATER PRESSURE DIFFERENTIAL SETPOINT. WHEN THE PRESSURE DROPS BELOW SETPOINT THE SECOND SECONDARY HOT WATER PUMP SHALL BE ENABLED. BOTH PUMPS SHALL MODULATE TOGETHER AT THE SAME SPEED AS REQUIRED TO MAINTAIN PRESSURE DIFFERENTIAL SETPOINT. IF FOR ANY REASON ANY PUMPS STATUS DOES NOT MATCH ITS COMMANDED VALUE AN ALARM SHALL BE GENERATED. THE LAG PUMP SHALL START IF THE LEAD PUMP IS IN ALARM. LEAD PUMP SHALL ROTATE BETWEEN THE SECONDARY PUMPS ON A WEEKLY BASIS. THE PUMP VFD'S BACKET COMMUNICATION CARD SHALL SEND INFORMATION TO THE BAS SYSTEM ON THE HOT WATER PUMP OPERATING VALUES.

BOILER CONTROL:
THE BAS CONTROLLER SHALL ENABLE/DISABLE THE LEAD BOILER'S MASTER CONTROLLER WHENEVER ANY OF THE SECONDARY PUMPS ARE COMMANDED ON. THE BOILER'S INTERNAL MASTER CONTROLLER SHALL SEQUENCE, STAGE AND CASCADE THE BOILERS AS REQUIRED TO MAINTAIN THE SUPPLY WATER TEMPERATURE SETPOINT. WHEN A BOILER IS ENABLED THE BOILER MANUFACTURER'S CONTROLS SHALL ENABLE THE BOILER'S PRIMARY PUMP AND AFTER PROOF OF FLOW INITIATE THE BOILER SEQUENCE.

OUTSIDE AIR RESET:
THE BAS CONTROLLER SHALL RESET THE SECONDARY LOOP HOT WATER SUPPLY TEMPERATURE SETPOINT BASED UPON THE OUTSIDE AIR DRY BULB TEMPERATURE. A LINEAR SLIDING SCALE SHALL RESET THE HOT WATER SUPPLY TEMPERATURE FROM 180°F (ADJ.) AT 0°F (ADJ.) AMBIENT DOWN TO 120°F (ADJ.) AT 60°F (ADJ.) AMBIENT.

BOILER SAFETIES:
THE BOILER SAFETY CIRCUITS SHALL BE MONITORED AND THE SYSTEM SHALL REPORT A GENERAL ALARM CONDITION IF A SAFETY IS TRIPPED. A MANUAL RESET OF THE BOILER SAFETY SHALL BE REQUIRED BEFORE THE BOILER CAN BE RESTARTED.



MECHANICAL HOT WATER CONTROL DIAGRAM

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M-604
NO SCALE

POINTS LIST	TYPE	POINT	DESCRIPTION	UNITS	TREND	ALARM	TOTALIZE
	AI	DA-T	DISCHARGE AIR TEMPERATURE	DEG F	X	X	
	AI	ZN-T	ZONE TEMPERATURE	DEG F	X	X	
	BI	SF-S	SUPPLY FAN STATUS	ON/OFF	X		
	BI	FLT-S	FILTER STATUS	PSI	X	X	
	BO	SF-C	SUPPLY FAN COMMAND	ON/OFF	X		
	BO	HWP-C	HOT WATER PUMP COMMAND	ON/OFF	X		
	BI	HWP-S	HOT WATER PUMP STATUS	ON/OFF	X	X	
	BO	HWV-C	HEATING VALVE COMMAND	OPEN/CLOSE	X		
	AO	BPD-O	FACE & BYPASS DAMPER OUTPUT	%	X		
	AO	FRZ	FREEZE STAT	DEG F	X	X	
	AO	OAD-C	OUTSIDE AIR DAMPER COMMAND	OPEN/CLOSE	X		

SEQUENCE OF OPERATION

EXHAUST FAN 'EFF' CONTROL: EXHAUST FAN 'EFF' SHALL BE INTERLOCKED WITH THE DRYER CONTROLS.

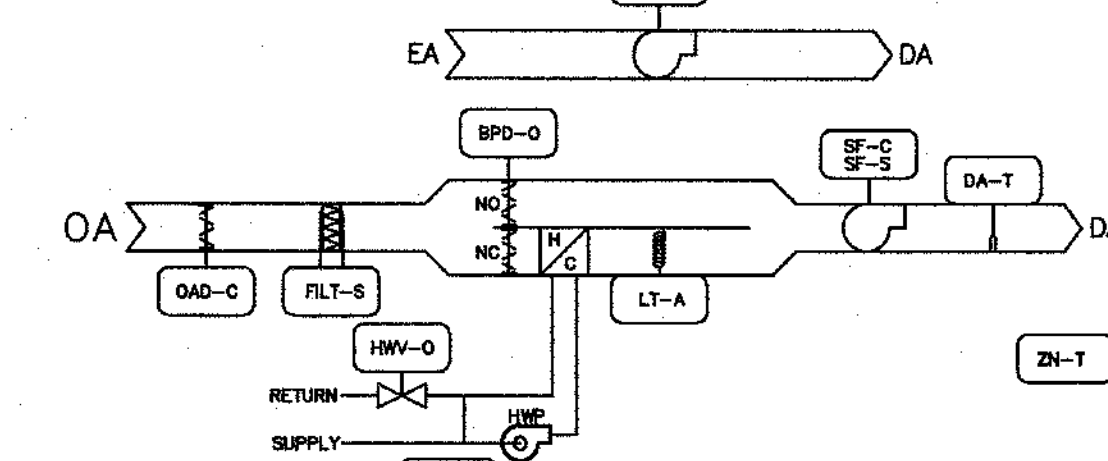
MAU2 ENABLE/DISABLE: MAU2 SHALL BE ENABLED WHENEVER EXHAUST FAN 'EFF' HAS A STATUS OF 'ON' AND DISABLED WHENEVER EXHAUST FAN 'EFF' HAS A STATUS OF 'OFF'.

MAU2 SUPPLY FAN CONTROL: WHEN THE UNIT IS ENABLED THE OUTSIDE AIR DAMPER SHALL MOVE TO FULL OPEN. ONCE THE DAMPER END SWITCH IS MADE THE FAN SHALL BE ENABLED.

DISCHARGE AIR TEMPERATURE CONTROL: WHEN THE OUTSIDE AIR IS LESS THAN 60°F (ADJ.), THE TWO-POSITION HOT WATER VALVE SHALL MOVE TO FULL OPEN POSITION AND THE FACE/BYPASS DAMPERS SHALL MODULATE TO MAINTAIN A DISCHARGE AIR TEMPERATURE SETPOINT OF 60°F(ADJ.). WHEN THE OUTSIDE AIR TEMPERATURE IS GREATER THAN 60°F (ADJ.) THE HOT WATER VALVE SHALL BE CLOSED AND THE FACE AND BYPASS DAMPER SHALL MOVE TO FULL BYPASS. THE HOT WATER COIL PUMP SHALL BE ENABLED WHEN EITHER THE HOT WATER VALVE IS COMMANDED UPON OR WHEN THE OUTSIDE AIR TEMPERATURE DROPS BELOW 40°F (ADJ.).

FREEZE PROTECTION: IF THE FREEZESTAT SENSES A TEMPERATURE BELOW 34°F, THE OUTSIDE AIR DAMPER SHALL FULLY CLOSE, THE RETURN AIR DAMPER SHALL FULLY OPEN, AND THE SUPPLY FAN SHALL STOP.

ZONE TEMPERATURE: ZONE TEMPERATURE SENSOR SHALL BE FURNISHED AND INSTALLED FOR MONITORING AND ALARM PURPOSES ONLY.



MAKE-UP AIR UNIT 'MAU2' CONTROL DIAGRAM

5
M-604
NO SCALE

POINTS LIST	TYPE	POINT	DESCRIPTION	UNITS	TREND	ALARM	TOTALIZE
	AI	DA-T	DISCHARGE AIR TEMPERATURE	DEG F	X	X	
	AI	MA-T	MIXED AIR TEMPERATURE	DEG F	X	X	
	AI	ZN-T	ZONE TEMPERATURE	DEG F	X	X	
	AO	CVW-O	COOLING VALVE OUTPUT	%	X		
	AO	HWV-O	HEATING VALVE OUTPUT	%	X		
	BO	SF-C	SUPPLY FAN COMMAND	ON/OFF	X		
	BO	OAD-C	OUTSIDE AIR DAMPER COMMAND	OPEN/CLOSED	X		

SEQUENCE OF OPERATION

GENERAL: UNIT SHALL BE IN OCCUPIED/UNOCCUPIED MODE BASED ON AN ADJUSTABLE TIME SCHEDULE.

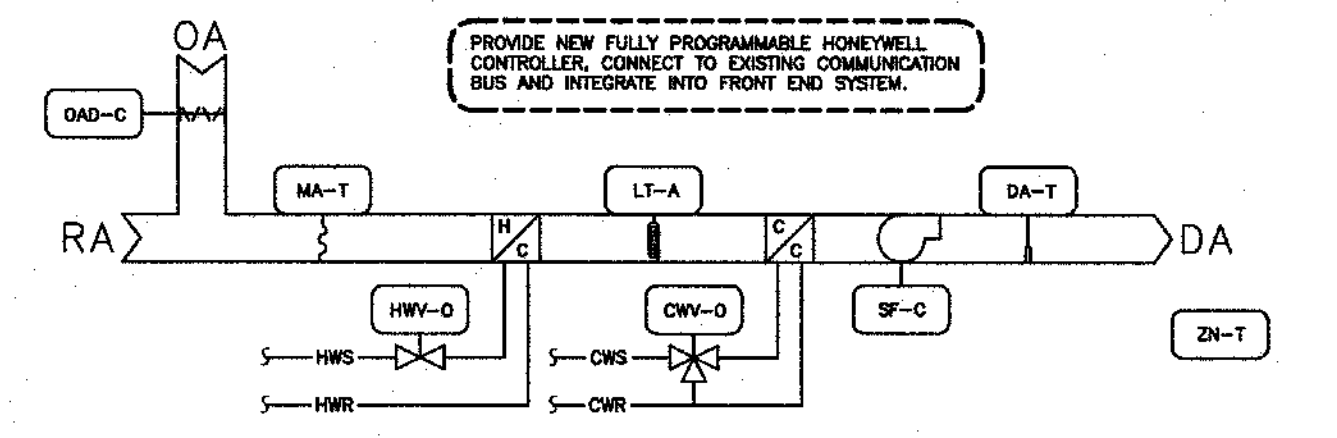
DISCHARGE AIR TEMP. SENSOR: DUCT MOUNTED DISCHARGE AIR TEMPERATURE SENSOR SHALL BE UTILIZED FOR MONITORING PURPOSES.

UNOCCUPIED MODE: THE OUTSIDE AIR DAMPER SHALL BE CLOSED. THE SUPPLY FAN SHALL CYCLE ON/OFF IN CONJUNCTION WITH A CALL FOR HEATING OR COOLING.

OCCUPIED MODE: THE OUTSIDE AIR DAMPER SHALL BE FULL OPEN. THE SUPPLY FAN SHALL RUN CONTINUOUSLY. THE HEATING AND COOLING VALVES SHALL MODULATE AS REQUIRED TO MAINTAIN SPACE SETPOINT TEMPERATURE. HEATING AND COOLING SHALL NOT OCCUR SIMULTANEOUSLY.

FREEZE PROTECTION: IF THE MIXED AIR TEMPERATURE DROPS BELOW 40°F (ADJ.), THE OUTSIDE AIR DAMPER SHALL FULLY CLOSE. IF THE MIXED AIR TEMPERATURE DROPS BELOW 38°F (ADJ.), THE OUTSIDE AIR DAMPER SHALL FULLY CLOSE, THE SUPPLY FAN SHALL STOP, AND BOTH THE HOT WATER AND CHILLED WATER VALVES SHALL MOVE TO FULL OPEN POSITIONS. AN ALARM SHALL BE GENERATED AT THE CENTRAL WORKSTATION UPON ACTIVATION OF ANY OF THE THREE SETPOINTS ABOVE.

FREEZESTAT CONTROL: IF THE FREEZESTAT SENSES A TEMPERATURE BELOW 32°F, THE OUTSIDE AIR DAMPER SHALL FULLY CLOSE, THE SUPPLY FAN SHALL STOP AND BOTH THE HOT WATER AND CHILLED WATER VALVES SHALL MOVE TO FULL OPEN. AN ALARM SHALL BE GENERATED AT THE CENTRAL WORKSTATION.



4-PIPE FAN COIL UNIT 'FCU-003' CONTROL DIAGRAM

4
M-604
NO SCALE

SEQUENCE OF OPERATION (ALTERNATE BID #1)

DOMESTIC HOT WATER CONTROL: THE BAS SHALL MONITOR THE HOT WATER SUPPLY TEMPERATURES FROM EACH OF THE THREE DOMESTIC HOT WATER HEATING SYSTEMS. REFER TO RISER DIAGRAM FOR LOCATIONS. BAS SHALL ALARM ON LOW AND HIGH SUPPLY TEMPERATURE (ADJ.) CONFIRM MINIMUM AND MAXIMUM ALARM TEMPERATURES WITH OWNER'S REPRESENTATIVES.

DOMESTIC WATER HEATER CONTROL DIAGRAM

3
M-604
NO SCALE

BAS GENERAL REQUIREMENTS

GENERAL REQUIREMENTS:

- THE CONTROL SYSTEM SHALL BE AS INDICATED ON THE DRAWINGS AND DESCRIBED IN THE SPECIFICATIONS. THE BAS CONTRACTOR SHALL PROVIDE COMPLETE AND FULLY OPERATIONAL DDC SYSTEM.
- ALL EXISTING DDC CONTROLLERS SHALL BE RE-UTILIZED AND RE-PROGRAMMED TO MEET THE SEQUENCE OF OPERATION. CONTRACTOR SHALL PROVIDE ANY ADDITIONAL CONTROLLERS AS REQUIRED TO ACCOMMODATE ALL POINTS SHOWN AND AS REQUIRED TO MEET THE SEQUENCE OF OPERATION. WHERE MECHANICAL EQUIPMENT IS BEING REMOVED AND REPLACED, THE CONTROL CONTRACTOR SHALL REMOVE AND REPLACE ALL EXISTING ACTUATORS, CONTROL DEVICES AND SENSORS. EXISTING CONTROL WIRING, COMMUNICATION BUS, AND PIPES MAY BE REUTILIZED. CONTROL CONTRACTOR SHALL PROVIDE ALL ADDITIONAL SENSORS, ACTUATORS, DEVICES, COMMUNICATION BUS, PIPES, AND CONTROL WIRING AS REQUIRED TO MEET THE SEQUENCE OF OPERATION.
- THE NEW FAN COIL UNIT SHALL BE PROVIDED WITH A NEW FULLY PROGRAMMABLE HONEYWELL CONTROLLER, COMPATIBLE WITH THE EXISTING SYSTEM. THE NEW FAN COIL CONTROLLER SHALL BE INSTALLED INTO THE EXISTING COMMUNICATION BUS.
- ALL TEMPERATURE CONTROL INPUT/OUTPUT POINTS SHALL BE CAPABLE OF BEING MONITORED AND CONTROLLED THROUGH THE BUILDING AUTOMATION SYSTEM.
- RETURN AIR SMOKE DETECTORS:

 - ALL SMOKE DETECTORS WHERE SHOWN OR AS REQUIRED BY CODE SHALL BE FURNISHED AND WIRED INTO THE FIRE ALARM SYSTEM BY THE ELECTRICAL CONTRACTOR.
 - UPON DETECTION OF SMOKE AT THE UNIT, THE ASSOCIATED AIR HANDLER SHALL SHUT DOWN.

- ALARMS:

 - ALL HUMIDITY SENSORS SHALL HAVE HIGH LIMIT ALARMS, 60% (ADJUSTABLE).
 - ALL SPACE TEMPERATURE SENSORS SHALL HAVE HIGH LIMIT ALARMS, 80°F (ADJUSTABLE).
 - ALL SPACE TEMPERATURE SENSORS SHALL HAVE LOW LIMIT ALARMS, 60°F (ADJUSTABLE).
 - ALL MIXED AIR TEMPERATURE SENSORS SHALL HAVE LOW LIMIT ALARMS, 40°F (ADJUSTABLE).
 - ALL UNIT DISCHARGE AIR TEMPERATURE SENSORS SHALL HAVE LOW LIMIT ALARMS, 45°F (ADJUSTABLE).
 - ALL INITIAL FLOOR PRESSURE DIFFERENTIAL SENSORS SHALL HAVE HIGH LIMIT ALARMS, 0.5" SP. (ADJUSTABLE).
 - ALL FAN PROOF-OF-RUN SENSORS SHALL ALARM IF NOT ACKNOWLEDGED AFTER 30 SECONDS.

- GENERAL INSTALLATION REQUIREMENTS:

 - ALL LOW VOLTAGE TEMPERATURE CONTROL WIRING SHALL BE CONCEALED EITHER ABOVE CEILING, IN WALLS, IN CONDUIT OR IN WIREMOLD. ALL WIRING SHALL BE PLENUM RATED. ALL EXPOSED CONTROL WIRING LOCATED MORE THAN NINE (9) FEET ABOVE THE FINISHED FLOOR SHALL BE Routed IN CONDUIT AND SHALL BE PAINTED TO MATCH ADJACENT SURFACE. ALL EXPOSED CONTROL WIRING LOCATED BELOW NINE (9) FEET ABOVE FINISHED FLOOR SHALL BE Routed IN WIREMOLD. COLOR TO MATCH ADJACENT SURFACE. ALL CONTROL WIRING LOCATED IN THE BASEMENT MECHANICAL ROOM SHALL BE Routed IN UNIT CONDUIT.
 - THERMOSTATS SENSORS:

 - ALL THERMOSTATS SHALL BE PROVIDED WITH A WARMER/COOLER ADJUSTMENT SLIDE AND BE LABELED AS "WARMER/COOLER". ALL THERMOSTATS SHALL BE PROVIDED WITH AN OCCUPANCY OVERRIDE BUTTON. ALL TEMPERATURE SETPOINTS SHALL BE ADJUSTABLE THROUGH THE BAS. ALL WARMER/COOLER VALUE SLIDES SHALL BE ADJUSTABLE THROUGH THE BAS.

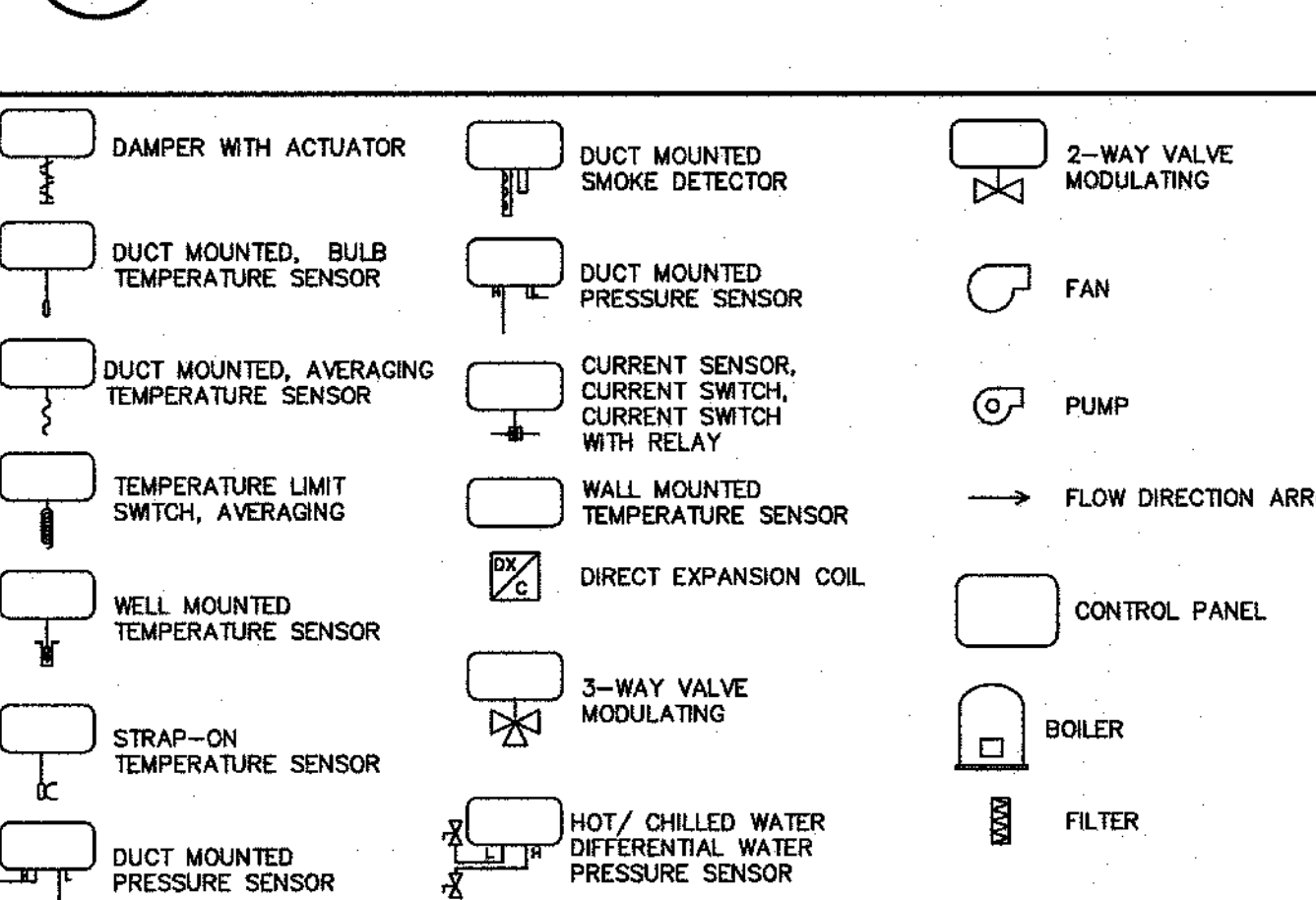
 - TEMPERATURE SETPOINTS:

 - EACH INDIVIDUAL THERMOSTAT SHALL BE CAPABLE OF HAVING A UNIQUE TEMPERATURE SETPOINTS PROVIDED THROUGH THE BAS. THE CONTROL CONTRACTOR SHALL CONFIRM THE SETPOINTS OF EACH TEMPERATURE SETPOINT WITH THE OWNER'S REPRESENTATIVES. UNLESS GIVEN DIRECTION OTHERWISE PROVIDE THE FOLLOWING SETPOINTS:
 - RESIDENT ROOMS - 74°F
 - A.A.B. OCCUPIED COOLING - 78°F
 - A.A.C. UNOCCUPIED HEATING - 60°F
 - A.A.D. UNOCCUPIED COOLING - 84°F
 - NON-RESIDENT ROOMS:
 - A.A.A. OCCUPIED HEATING - 72°F
 - A.A.B. OCCUPIED COOLING - 84°F
 - A.A.C. UNOCCUPIED HEATING - 80°F
 - A.A.D. UNOCCUPIED COOLING - 84°F

 - OCCUPANCY SCHEDULES:

 - ALL ROOMS OCCUPIED BY RESIDENTS SHALL BE SCHEDULED FOR CONTINUOUS OCCUPANCY. FOR ALL OTHER SPACES THE CONTROL CONTRACTOR SHALL SET THE OCCUPANCY SCHEDULE AS FOLLOWS:
 - KITCHEN: M-F 7AM-6PM
 - KITCHEN: S-S 4AM-7PM
 - ALL OTHER NON-RESIDENT ROOMS: M-F 7AM-6PM
 - CHILLED WATER AND CONDENSER WATER PUMPS:
 - UNDER ALTERNATE BID #2 CONTROL CONTRACTOR SHALL REPLACE ALL EXISTING CT SWITCHES, MAINTAIN EXISTING PUMP COMMAND AND STATUS WITH THE EXISTING CHILLED WATER/CONDENSER WATER CONTROL SYSTEM.

BAS GENERAL REQUIREMENTS

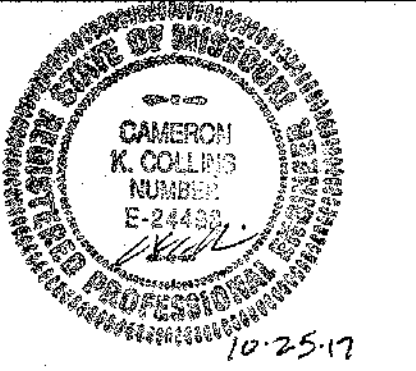


WC-ADJ	Warmer Cooler Adjustment	FAN-C	Fan Command
ZN-T	Zone Temperature	FAN-O	Fan Output
DA-T	Discharge Air Temperature	FBD-O	Face-Bypass Damper Output
DAT-SP	Discharge Air Temperature Setpoint	FLT-S	Filter Status
EAD-C	Exhaust Air Damper Command	HC-C	Heating/Cooling Command
EF-C	Exhaust Fan Command	HC-O	Heating/Cooling Output
EF-S	Exhaust Fan Status	HTG1-C	Heating Stage 1 Command
EF-O	Exhaust Fan Output	HTG1-S	Heating Stage 1 Status
EXH-O	Exhaust Air Output	HTG2-C	Heating Stage 2 Command
PH-T	Preheat Temperature	HTG2-S	Heating Stage 2 Status
PH-O	Preheat Output	HTG3-C	Heating Stage 3 Command
RA-T	Return Air Temperature	HTG3-S	Heating Stage 3 Status
RA-Q	Return Air Quality	HTG4-C	Heating Stage 4 Command
RA-T	Return Air Temperature	HTG4-S	Heating Stage 4 Status
SF-A	Supply Fan Alarm	HTG-A	Heating Alarm
SF-C	Supply Fan Command	HTG-C	Heating Command
SF-S	Supply Fan Status	HTG-O	Heating Output
BLR-A	Boiler Alarm	HW-DP	Hot Water Diff Pressure
BLR-EN	Boiler Enable	HWP-C	Hot Water Pump Command
MAD-O	Mixed Air Damper Output	HWP-O	Hot Water Pump Output
BP-C	Boiler Pump Command	HWP-S	Hot Water Pump Status
BP-S	Boiler Pump Status	HW-R	Hot Water Return Temp
DA-P	Discharge Static Pressure	HW-T	Hot Water Supply Temp
OCC-C	Duct Static Pressure Setpoint	HWV-O	Hot Water Valve Output

BAS SYMBOLS LIST

1
M-604
NO SCALE

STATE OF MISSOURI
ERIC R. GREITENS,
GOVERNOR



Missouri State Certificate of Authority #001075
PROFESSIONAL SEAL

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HVAC REPLACEMENT
PROJECT

MISSOURI VETERANS
HOME

620 N. JEFFERSON
ST. JAMES, MO 65559

PROJECT # U1503-03
FAI # 29-051
SITE # 4700
FACILITY # 55019

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DESIGNED BY: JMO

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SHEET NUMBER:

M-604

33 OF 41 SHEETS

10-27-17