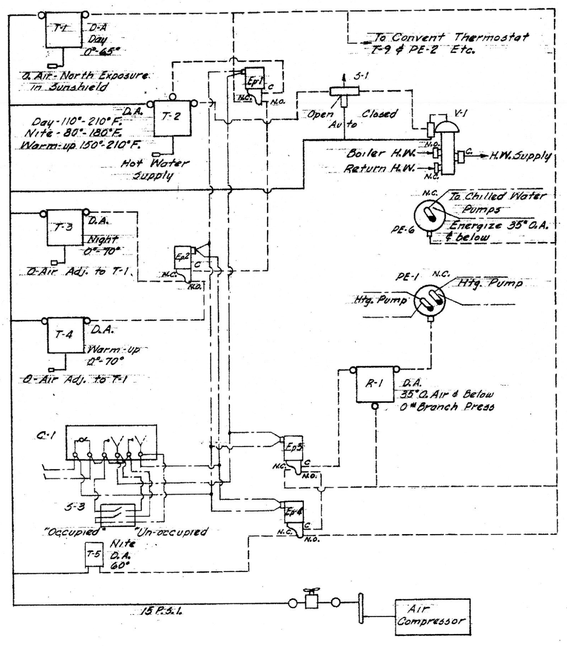
CENTRAL HOT WATER CONTROL



DESCRIPTION

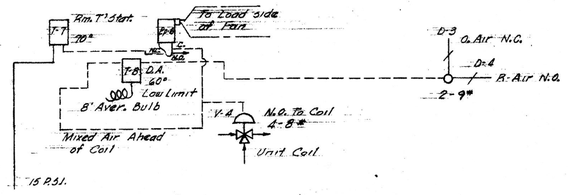
Hot water thermostat T-2, on a rise in temperature, gradually closes V-1 to the boiler, opening it to the return. On a fall in temperature the cycle is reversed. The temperature at which T-2 controls, is remotely readjusted by thermostats T-1, T-3 or T-4 depending upon whether the system is on (Day) (Night) or (Warm-up).

Switch S-1 allows the above action to take place when manually indexed to the "Automatic" position. S-1 in either the "Open" or "Closed" position moves V-1 to either the full "Heating" or full "Return" water position.

Clock C-1, during day periods, energizes EP-1 which allows outside thermostat T-1 to readjust T-2. C-1, during "Night" periods, energizes EP-2 and de-energizes EP-1 which allows T-3 to remotely readjust T-2 according to a depressed night water temperature schedule. C-1, during warm-up periods, de-energizes EP-2 and EP-1 which allows T-4 to remotely readjust T-2 according to an accellerated hot water temperature for fast warm-up. C-1, at the same time during "Day" periods, energizes EP-3 which allows T-1 thru R-1 to de-energize the heating pumps thru PE-1 whenever the outside temperature rises above a predetermined point. When C-1 shifts building to "Night", EP-3 is de-energized and EP-4 is energized which allows T-5 to operate the heating pump thru PE-1 such that on a fall in temperature below 60°, T-5 energizes the main heating pump and on a rise in temperature the cycle is reversed. C-1, during warm-up periods, de-energizes EP-3 and EP-4 which allows T-1 to operate the heating pump thru PE-1 whenever the outdoor temperature is below 65°. During "Night" periods, even though T-5 has de-energized the heating pump, T-1 will operate the heating pump continuously thru R-1 whenever the outdoor temperature falls below 35°. T-1 also energizes chilled water pump thru PE-6 whenever outside air temperature is below 35° day or night. Above action takes place with S-1 in "Occupied" position. S-1 in "Un-occupied" position over-rides C-1 to index system to night.

Weekend operation shall be same as night.

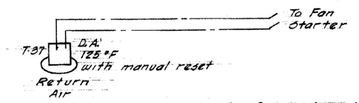
GYMNASIUM HEATING AND VENTILATING UNIT



DESCRIPTION

When fan is manually started, EP-6 is energized which allows the system to operate as follows: room thermostat T-7, on a rise in temperature, allows T-8 to operate as follows: T-8, on a rise in temperature, gradually opens D-3 closing D-4 proportionately to maintain a fixed temperature entering the coil. As the room temperature continues to rise, T-7 gradually closes V-4 to the coil. On a fall in temperature the cycle is reversed. When the fan stops EP-6 is de-energized which closes D-3 and opens V-4 to the coil.

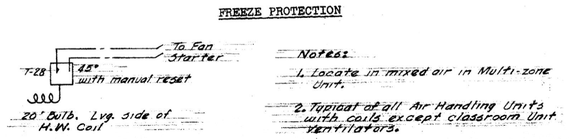
FIRE PROTECTION



DESCRIPTION

T-37 on a rise in temperature de-energizes the fan. T-37 must be manually reset to start fan after a high temperature failure.

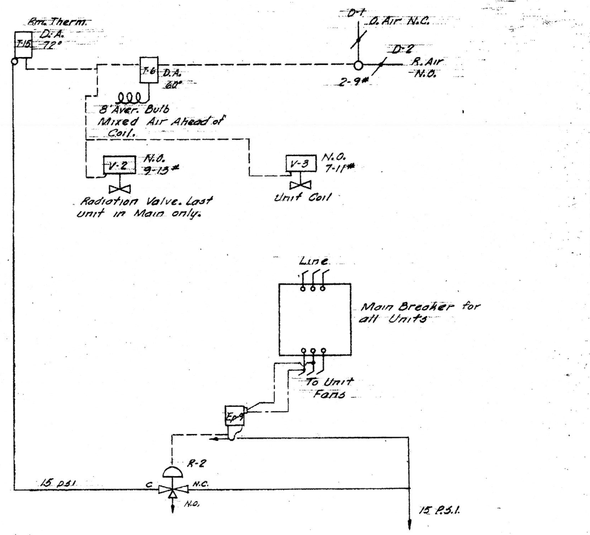
FREEZE PROTECTION



DESCRIPTION

T-28 on a fall in temperature at any point along capillary de-energizes the unit fan. T-28 must be manually reset to start the fan after a low temperature failure.

CLASSROOM UNIT VENTILATOR CONTROL



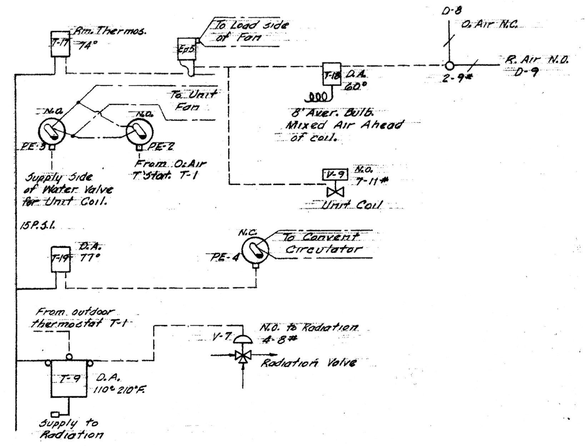
DESCRIPTION

Whenever main breaker for all unit ventilators is manually energized, unit fans start and EP-9 is energized, which, thru R-2, energizes the control system for each classroom unit ventilator.

Room thermostat R-15, on a rise in temperature, allows mixed air thermostat T-6 to operate as follows: T-6, on a rise in temperature, gradually opens D-1 closing D-2 proportionately, to maintain a fixed temperature entering the heating coil. As room temperature continues to rise, T-15 gradually closes V-3. On a further rise in temperature T-15 in last room on main gradually closes the radiation valve V-2 where indicated. On a fall in temperature the cycle is reversed.

When main breaker is de-energized, EP-9 in turn is de-energized, which, thru R-2, bleeds the air from the classroom unit main which closes D-1 and opens V-2 and V-3.

TEMPORARY CONVENT HEATING CONTROL



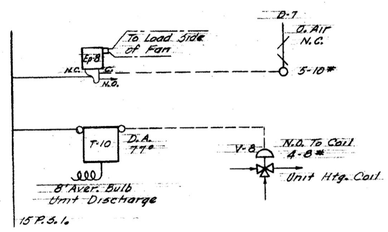
DESCRIPTION

Hot water thermostat T-9, on a rise in temperature, gradually closes V-7 to the boiler, opening it to the return. On a fall in temperature the cycle is reversed. The temperature at which T-9 controls, is remotely readjusted by outside thermostat T-1 according to the schedule shown.

When unit ventilator fan is manually started, EP-5 is energized which allows room thermostat T-17 to operate as follows: T-17, on a rise in temperature, allows mixed air thermostat T-16 to operate as follows: T-16, on a rise in temperature, gradually opens D-8 closing D-9 proportionately. On a fall in temperature the cycle is reversed. T-17, on a further rise in temperature, after energizing T-16, gradually closes V-9. On a fall in temperature the cycle is reversed. Water pressure switch PE-3, on a fall in pressure when the pump is de-energized, in turn de-energizes the unit fan. When the fan stops, EP-5 is de-energized which opens V-9 and closes D-8. When the circulator is energized, PE-1 in turn energizes the unit fan. Whenever the circulator is de-energized, T-1, on a rise in temperature, thru PE-2, allows the unit fan to operate even though the circulator is de-energized, This allows "Summer" operation of the unit.

High limit room thermostat T-19, on a rise in temperature, thru PE-4, de-energizes the circulator for the area. On a fall in temperature this cycle is reversed.

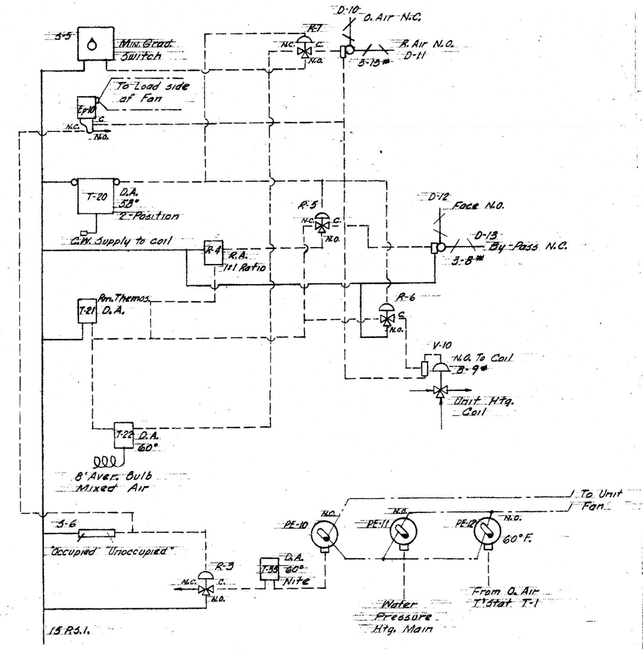
LOCKER ROOM HEATING AND VENTILATING UNIT



DESCRIPTION

When fan is manually started, EP-8 is energized which opens D-7. Discharge thermostat T-10, on a rise in temperature, gradually closes V-8. On a fall in temperature the cycle is reversed.

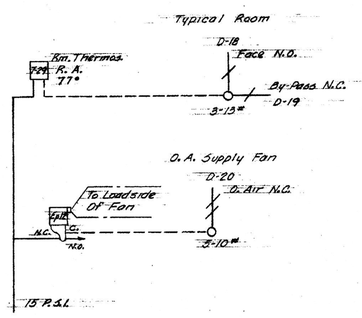
CHAPEL AIR CONDITIONING UNIT



DESCRIPTION

Switch S-6, when indexed to "Occupied", through PE-10, energizes the fan. When fan starts, EP-10 is energized which allows D-10 and V-10 to operate as follows: Room thermostat T-21, on a rise in temperature, allows T-22 to operate and simultaneously gradually closes D-12 and opens D-13 proportionately. On a further rise in temperature, T-21 gradually closes V-10 to the coil. On a fall in temperature this cycle is reversed. T-22, on a rise in temperature, gradually opens D-10, closing D-11 proportionately. On a fall in temperature the cycle is reversed. Chilled water supply thermostat T-20, on a fall in temperature, thru R-7, closes D-10 to the minimum set on S-5, opening D-11 proportionately. T-20 at the same time, thru R-5, allows T-21 to control D-12 and D-13 thru reverse acting relay R-4, and T-20 at the same time, thru R-6, closes V-10 to the coil. T-21, on a rise in temperature, gradually opens D-12, closing D-13 proportionately. On a fall in temperature this cycle is reversed. When the fan stops, EP-10 is de-energized which closes D-10 and opens V-10 to the coil. S-5, when indexed to "Unoccupied" allows T-35 to maintain depressed temperature by cycling fan thru PE-10. PE-11 prevents fan operation unless heating pump is operative. PE-12 allows fan operation with heating pump inoperative with outside air temperatures above 60° F. D-10 is closed.

ADMINISTRATIVE SUITE AIR CONDITIONING

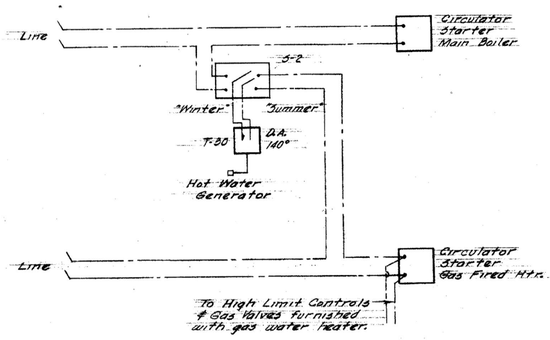


DESCRIPTION

T-29, on a rise in temperature, gradually opens D-18, closing D-19 proportionately. On a fall in temperature the cycle is reversed. On the start of outside air supply fan, EP-12 is energized which opens D-20. When the fan stops, D-20 closes.

Interlock outside air supply fan with all room unit fans, so that when any room unit fan is manually started, outside air supply fan will run.

DOMESTIC WATER HEATER CONTROL

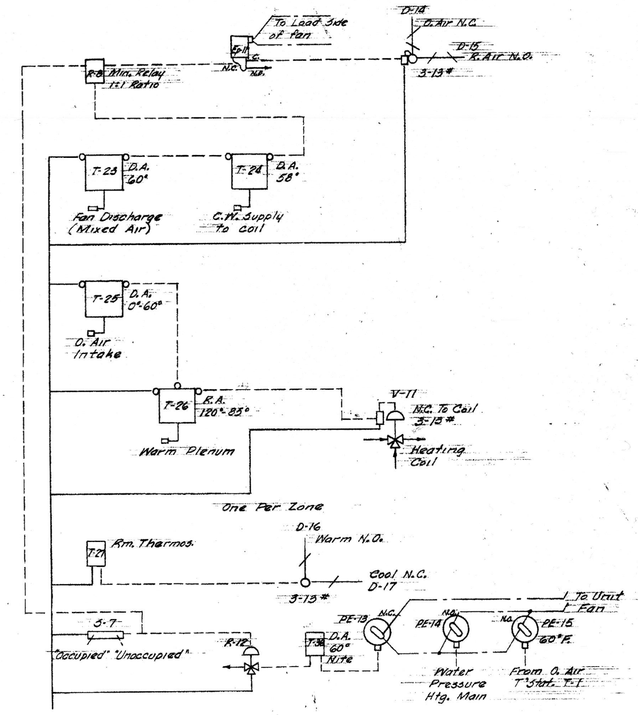


DESCRIPTION

Switch S-2, when manually indexed to "Winter" position, allows hot water generator thermostat T-30 to maintain temperature in the hot water generator as follows: T-30, on a rise in temperature, de-energizes the circulator to the hot water boiler. On a fall in temperature this cycle is reversed. S-2, when manually indexed to "Summer" position (which is used when the main boilers are de-activated), allows T-30 to control the circulator between the hot water generator and the gas fired heaters as follows: T-30, on a rise in temperature, de-energizes the circulator and on a fall in temperature, energizes the circulator.

S-2, when manually indexed to "Summer" position, also allows T-30 to operate gas solenoid valves and high limit controls furnished with gas water heaters.

DINING ROOM AIR CONDITIONING UNIT



DESCRIPTION

Switch S-7, when indexed to "Occupied", through PE-13, energizes the fan. When fan starts, EP-11 is energized which opens D-14 to the minimum set on R-8. Mixed air thermostat T-23, on a rise in temperature, gradually opens D-14 beyond the minimum set on R-8, closing D-15 proportionately. On a fall in temperature the cycle is reversed. Chilled water thermostat T-24, on a fall in water temperature, overrides T-23 to prevent D-14 from opening beyond the minimum. Warm plenum thermostat T-26, on a rise in temperature, gradually closes V-11 to the coil. On a fall in temperature the cycle is reversed. The temperature at which T-26 controls is remotely readjusted by outside thermostat T-25 according to the schedule shown. Room thermostat T-27, on a rise in temperature, gradually closes warm damper D-16 opening cool damper D-17 proportionately. On a fall in temperature the cycle is reversed. S-7, when manually indexed to "Unoccupied", allows T-36 to cycle unit fan thru PE-13 to maintain reduced temperature. PE-14 prevents fan operation unless the heating pump is operative. PE-15 allows fan operation with pump inoperative whenever outside air temperature is above 60° F. D-14 is closed.

CONTROL DIAGRAMS

NOTRE DAME PREPARATORY SCHOOL

BALTIMORE COUNTY, MARYLAND

UPPER SCHOOL

FOR THE

SCHOOL SISTERS OF NOTRE DAME

TAYLOR AND FISHER, ARCHITECTS

D. K. ESTE FISHER, JR., F.A.I.A. - WARREN A. BOWERSOCK, A.I.A.

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MARTIN FUNNELL - LANDSCAPE ARCHITECT

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