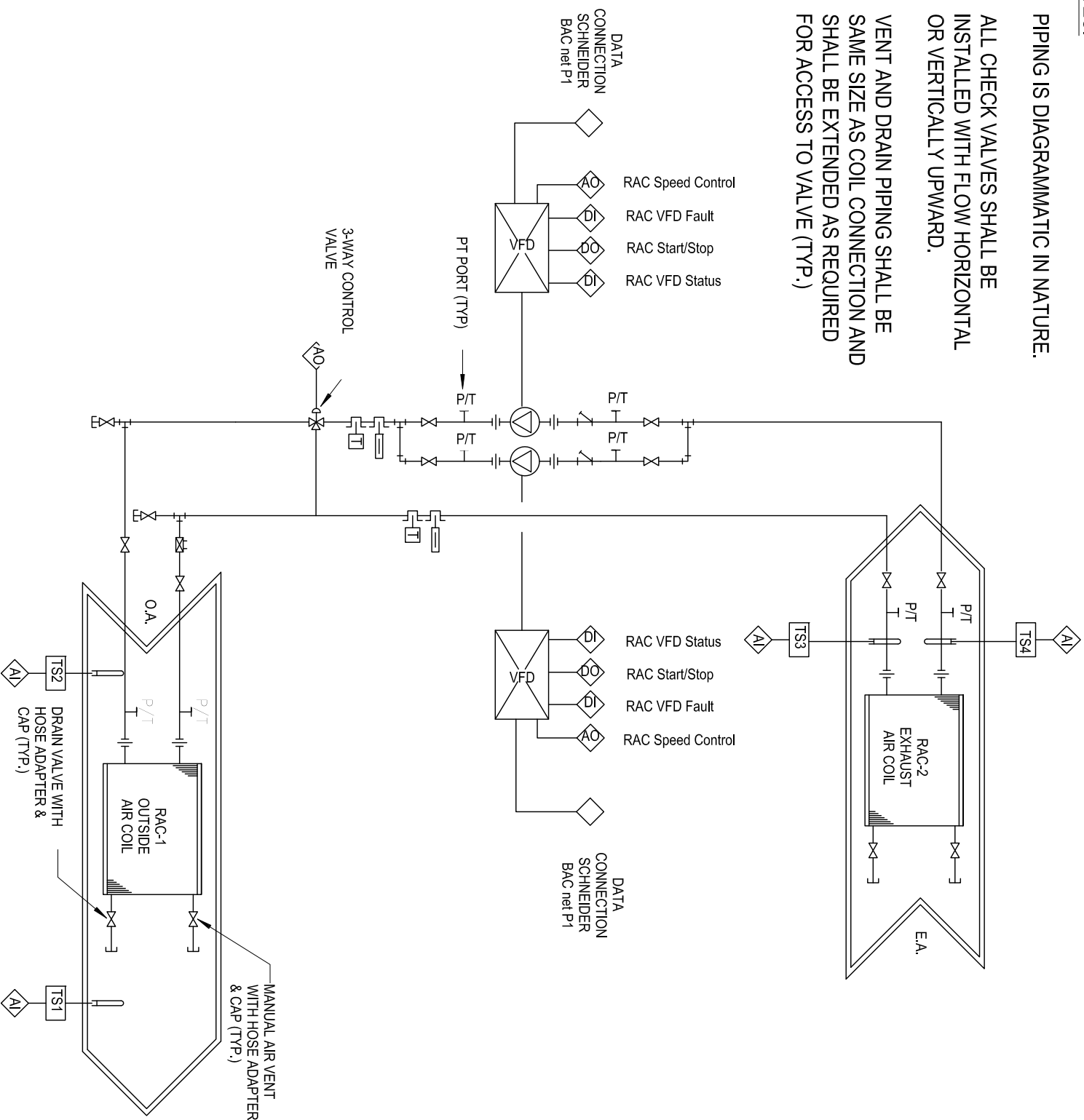


NOTES:

1. PIPING IS DIAGRAMMATIC IN NATURE.
2. ALL CHECK VALVES SHALL BE INSTALLED WITH FLOW HORIZONTAL OR VERTICALLY UPWARD.
3. VENT AND DRAIN PIPING SHALL BE SAME SIZE AS COIL CONNECTION AND SHALL BE EXTENDED AS REQUIRED FOR ACCESS TO VALVE (TYP.)



ENERGY RECOVERY - RUN-AROUND LOOP COILS, PUMP AND MIXING VALVE

SEQUENCE OF OPERATION

THE CONTROLLER SHALL RUN THE RUN-AROUND LOOP PUMP AND MODULATE THE RUN-AROUND LOOP MIXING VALVE FOR ENERGY RECOVERY AS FOLLOWS.

COOLING RECOVERY MODE WHENEVER:

- THE SUPPLY FAN IS ON.
- RETURN AIR TEMPERATURE IS 5°F (ADJ.) OR MORE BELOW THE OUTSIDE AIR TEMPERATURE.
- AHU SYSTEM IS IN A COOLING MODE.

WHILE IN COOLING RECOVERY

- THE RUN-AROUND LOOP PUMP SHALL RUN CONTINUOUSLY
- CONTROLLER SHALL MEASURE THE RUN-AROUND LOOP COIL DISCHARGE AIR TEMPERATURE (DOWNSTREAM OF THE OUTSIDE AIR COIL) AND MODULATE THE RUN-AROUND LOOP MIXING VALVE TO MAINTAIN A SETPOINT 2°F (ADJ.) LESS THAN THE UNIT SUPPLY AIR TEMPERATURE SETPOINT.

HEAT RECOVERY MODE WHENEVER:

- THE SUPPLY FAN IS ON.
- RETURN AIR TEMPERATURE IS 5°F (ADJ.) OR MORE ABOVE THE OUTSIDE AIR TEMPERATURE.
- AHU SYSTEM IS IN HEATING MODE.

WHILE IN HEAT RECOVERY MODE

- THE RUN-AROUND LOOP PUMP SHALL RUN CONTINUOUSLY
- CONTROLLER SHALL MEASURE THE RUN-AROUND LOOP COIL DISCHARGE AIR TEMPERATURE (DOWNSTREAM OF THE OUTSIDE AIR COIL) AND MODULATE THE RUN-AROUND LOOP MIXING VALVE TO MAINTAIN A SETPOINT 2°F (ADJ.) LESS THAN THE UNIT SUPPLY AIR TEMPERATURE SETPOINT.

FROST PROTECTION MODE WHENEVER:

- RUN-AROUND LOOP TEMPERATURE DROPS BELOW 33°F (ADJ.) OR THE EXHAUST AIR TEMPERATURE DROPS BELOW 30°F (ADJ.).

WHILE IN FROST PROTECTION MODE

- THE RUN-AROUND LOOP PUMP SHALL RUN AND THE RUN-AROUND LOOP MIXING VALVE SHALL CLOSE TO 0% (ADJ.) IN ORDER TO CIRCULATE WATER THROUGH THE RUN-AROUND LOOP EXHAUST AIR COIL

ALARMS SHALL BE PROVIDED AS FOLLOWS:

- RUN-AROUND LOOP PUMP FAILURE: COMMANDED ON, BUT THE STATUS IS OFF.
- RUN-AROUND LOOP PUMP IN HAND: COMMANDED OFF, BUT THE STATUS IS ON.
- RUN-AROUND LOOP PUMP STATUS RUNTIME EXCEEDS A USER DEFINABLE LIMIT (ADJ.).

RUN-AROUND COIL POINTS LIST

EQUIP. TAG	EQUIPMENT TYPE	POINT DESCRIPTION	AI	AO	DI	DO	CNTR INTR. FACE	SFT. WR. PNT.	REMARKS
RACP-1	RUN AROUND COIL PUMP	VFD BACNET INTERFACE - STATUS		X					
		VFD BACNET INTERFACE - START/STOP			X				
		VFD BACNET INTERFACE - SPEED CONTROL			X				
		VFD BACNET INTERFACE - FAULT			X				
RACP-2	RUN AROUND COIL PUMP	VFD BACNET INTERFACE - STATUS		X					
		VFD BACNET INTERFACE - START/STOP			X				
		VFD BACNET INTERFACE - SPEED CONTROL			X				
		VFD BACNET INTERFACE - FAULT			X				
AHU-1,2		OUTSIDE AIR INLET COIL TEMPERATURE	X						
		OUTSIDE AIR OUTLET COIL TEMPERATURE	X						
		3-WAY CONTROL VALVE		X					
EF-2		RUN AROUND EXHAUST COIL INLET WATER TEMPERATURE	X						
		RUN AROUND EXHAUST COIL OUTLET WATER TEMPERATURE	X						