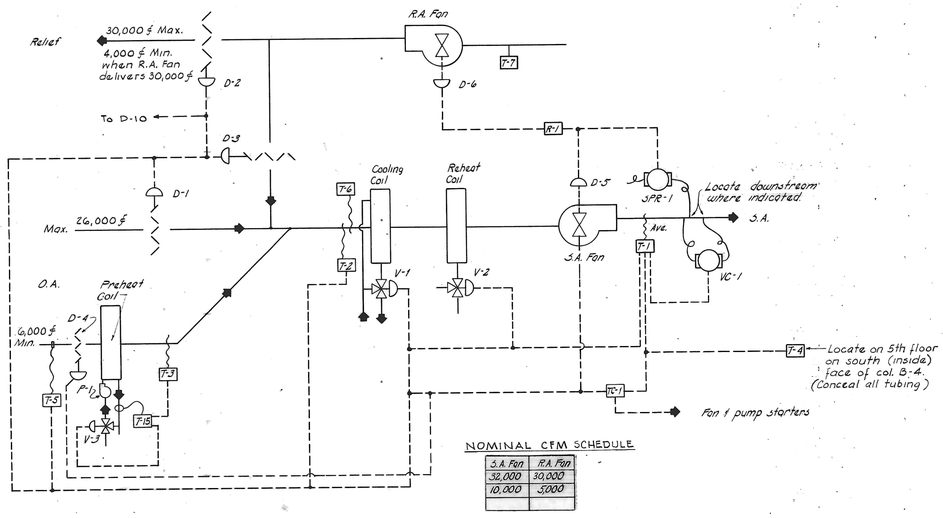
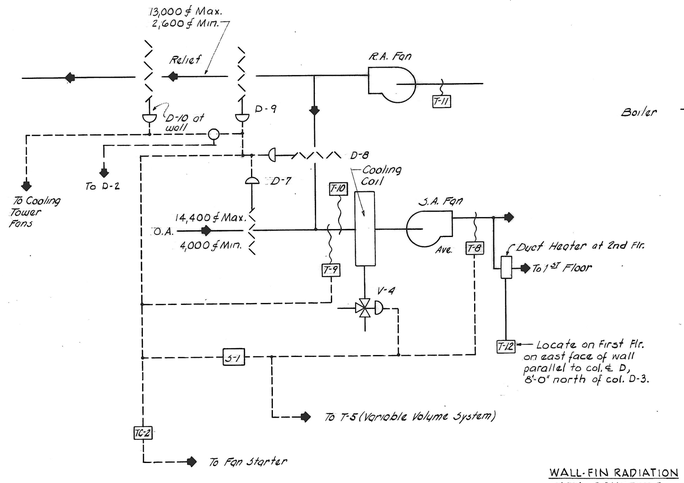


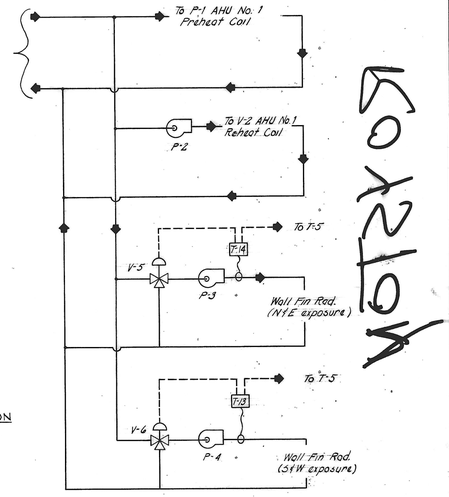
NOMINAL CFM SCHEDULE

S.A. Fan	R.A. Fan
32,000	30,000
10,000	5,000



WALL-FIN RADIATION H.W. SCHEDULE

T-5	T-13 or T-14
5°	175°
65°	100°



VARIABLE VOLUME SYSTEM

AIR HANDLING UNIT NO.1

1. D-4 opens when S.A. fan starts. D-1,2, and 4 close when S.A. fan stops. R.A. fan runs when S.A. fan runs.
2. When O.A. temperature is above 60° (T-5) and the chilled water pump is on, T-1 modulates V-1 to maintain 52°.
3. When O.A. temperature is below 60°, T-1 modulates V-1, D-1,2,3, and V-2 in sequence to maintain 52°.
4. As supply air flow falls from 20,000 to 10,000 cfm, VC-1 (static pressure regulator with Pitot tube) resets T-1 from 52° to 65°.
5. T-2 (pneumatic freezestat with 20' element sensitive to coldest 1') overrides T-1 to gradually close D-1 on temperature fall below 40°.
6. T-3 (pneumatic freezestat) controls V-3 to maintain 40°. T-15 overrides T-3 and opens V-3 to HWS to maintain 40° minimum. P-1 runs whenever O.A. temperature is below 40°.
7. Static pressure regulator SPR-1 controls D-5 and 6 (variable inlet vanes, furnished with fans) to hold constant static pressure. Adjustable ratio relay R-1 permits adjustment of CFM schedule.
8. Roomstat T-4 (North perimeter space) resets T-1 to 90° if room temperature is below 70° during "Warmup" cycle.
9. TC-1 (7-day timer) determines "Occupied" (0830 to 1800), "Unoccupied" (1800 to 0700 and weekends) and "Warmup" (0700 - 0830) cycles. Provide override to permit manual switching to "Occupied."

   "Occupied" - S.A., R.A., and Exh. Fan No.3 run; chilled water pump runs (Summer only).
   "Unoccupied" - Fans and chilled water pump are off.
   "Warmup" - S.A. and R.A. fans run; D-1, 2,4 are closed; chilled water pump runs (Summer only); T-1 subject to T-4.

   (Note: Chilled water pump is manually energized at start of cooling season, and operates under timer control thereafter.)
10. Freezestat (T-6) and firestat (T-7) stop fans at 35° and 125° respectively. Both require manual reset.

NOTES:

1. Provide 2-1/2" dial thermometers or receiver gauges, panel-mounted, to indicate temperatures at T-1,2,3,5,7,8,9, 11,13, 14,15.
2. Provide similar gauges to indicate static pressure at SPR-1 high pressure tap, and velocity pressure sensed by VC-1.
3. Provide positioners on V-1,2,4 and D-1,2,3,5,6,7,8,9,10.
4. Provide interlock wiring between S.A., R.A., and Exh. Fan No.3 starters, and between chilled water pump, condenser pump, tower fan and chiller.

CONSTANT VOLUME SYSTEM

AIR HANDLING UNIT NO.2

1. S.A. & R.A. fans interlocked to run simultaneously. When fans stop, D-7, D-9 close.
2. T-8 modulates D-7,8,9 and V-4 in sequence to maintain 52°. T-8 is equipped with automatic reset feature.
3. S-1 sets minimum O.A. position of dampers during "Occupied" cycle.
4. T-9 (pneumatic freezestat) overrides T-8 and S-1 to close D-7,9 on fall below 40°.
5. D-7,8,9 go to S-1 setting when O.A. temperature is above 60°, if chilled water pump is on.
6. TC-2 (7-day timer) determines "Occupied", "Unoccupied" and "Warmup" cycles.

   Occupied - S.A. and R.A. fans run.
   Unoccupied - Fans are off.
   Warmup - Fans run; D-7, D-9 are closed.

7. Freezestat (T-10) and firestat (T-11) stop fans at 35° and 125° respectively. Both require manual reset.
8. Roomstat T-12 (electric, 2-position) cycles electric duct heater in zone supply duct.

9. D-10 is modulated by T-8 & T-1 through averaging relay to operate in concert with D-2 and D-9. D-10 shall close when both S.A. fans are off unless a cooling tower fan is running.

HOT WATER CONTROL

1. When O.A. temperature is above 65°, boiler and pumps are off.
2. When O.A. temperature is below 65°, T-5 energizes P-2, P-3, P-4 and boiler. Provide interlock to deenergize boiler whenever P-2 stops.
3. T-5 resets T-14 which modulates V-5 to maintain schedule.
4. T-5 resets T-13 which modulates V-6 to maintain schedule.

5. See item no. 3 under Refrig. Control.

REFRIGERATION CONTROL

1. When chilled water pump is energized, condenser water pump shall start and cooling tower fans shall operate in sequence under control of condenser water supply thermostat to maintain water temperature above 60°F. Dampers on discharge of cooling tower fans close when respective fan stops. Damper in penthouse wall (D-10) opens full when either cooling tower fan starts.

2. Leaving chilled water thermostat, equipped with automatic reset, shall operate compressor capacity control to maintain 42°F.

3. Provide interlock wiring for boiler heating control with Compressor Starter to de-activate 50% of heating elements whenever Comp. is on.

MICROFILMED

NOTE 20

REVISIONS

NO.	DATE	ITEM	REF.

FIRM	H. ADAMS
DESIGNED BY	AEW
DRAWN BY	DLG
CHECKED BY	AEW
APPROVED BY	KVB

SEAL: STATE OF MARYLAND · KENNETH V. BELLIS · REGISTERED PROFESSIONAL ENGINEER

H.A. JOB NO. N-16

CHRISTIE, NILES & ANDR
22 A. [illegible] Towson, Md.
1047 31st St. Washington, D.C.

CONTROL DIAGRAMS

JOB NO.	6522
SCALE	
DATE	SEPT. 27, 1966
LAST REV.	

M-9