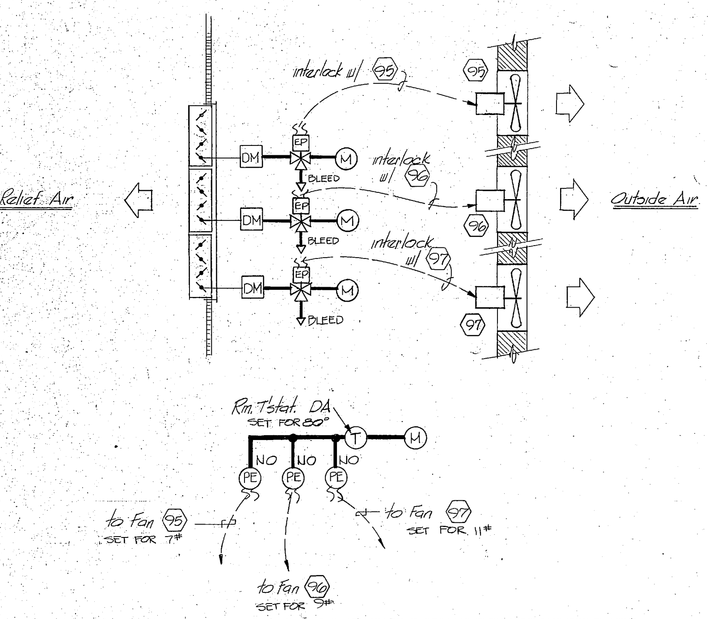
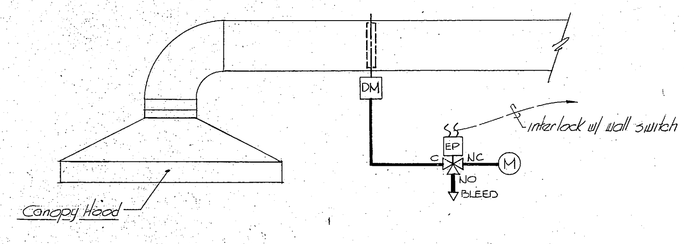


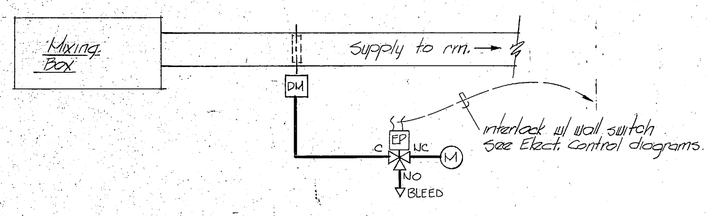
CONTROL FOR VENT FANS 95, 96, & 97

SCALE: NONE



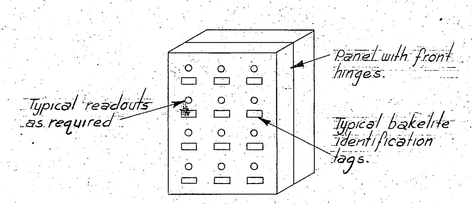
CANOPY HOOD CONTROL FOR ROOMS 101, 103, 105, & 312

SCALE: NONE



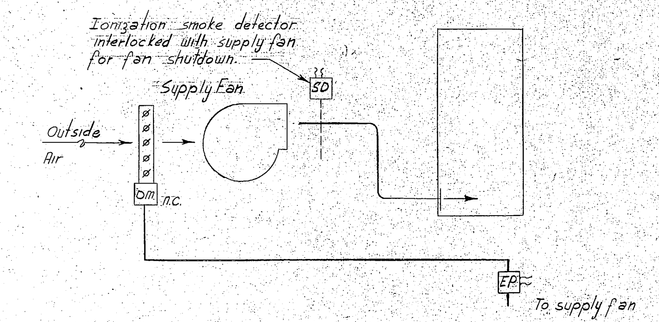
DESIGN LAB AIR FLOW CONTROL FOR ROOMS 320, 322, &324

SCALE: NONE



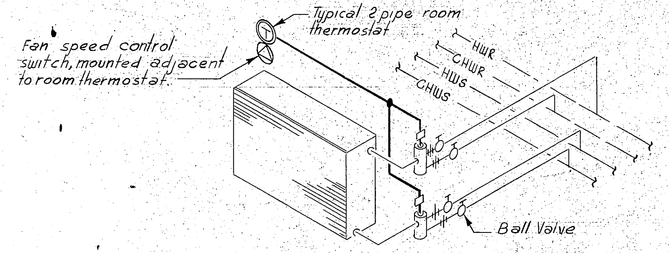
CONTROL PANEL

SCALE: NONE



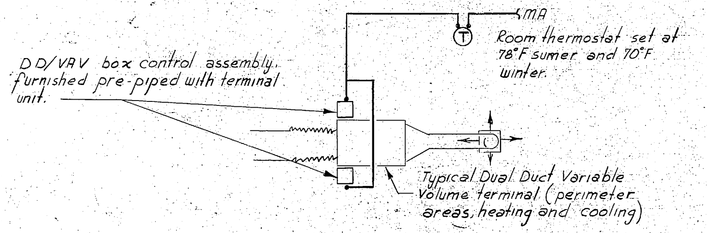
TYPICAL STAIRWELL PRESSURIZATION SYSTEM

SCALE: NONE



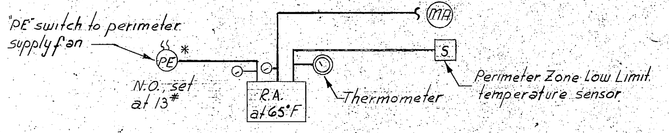
TYPICAL FAN COIL UNIT CONTROL

SCALE: NONE



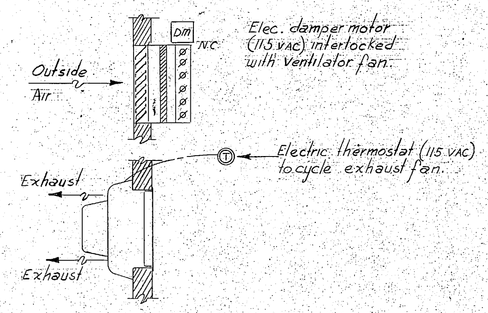
TYPICAL VARIABLE VOLUME TERMINAL

SCALE: NONE



PERIMETER HEATING SYSTEM - Unoccupied cycle

(Note: interior system "off") SCALE: NONE



TYPICAL ELEVATOR EQUIPMENT

ROOM VENTILATION CONTROL

SCALE: NONE

CONTROL VALVE SCHEDULE: See Specifications for Valve Requirements.

Symbol	Flow Rate	Size	Service	Type	Spring Range	Design P. D. (Max.)
CV-1	149 gpm	4"	Tank Heating Supply	1	3 - 15#	5
CV-2	149 gpm	4"	Tank Heating Return	1	3 - 15#	5
CV-3	198 gpm	6"	Tank Cooling Return	1	3 - 15#	5
CV-4	184 gpm	6"	Tank Cooling Supply	1	3 - 15#	5
CV-5	125 gpm	4"	Solar Hot Water Supply	1	3 - 15#	5
CV-6	183 gpm	4"	Solar Hot Water Return	1	3 - 15#	5
CV-7	235 gpm	5"	Hot Water Supply	1	3 - 15#	5
CV-8	192 gpm	6"	Hot Water Return	1	3 - 15#	5
CV-9	235 gpm		Hot Water Supply	8	9 - 13#	10
CV-10	192 gpm		Chilled Water Supply	8	9 - 13#	10
CV-11	192 gpm		Chilled Water Return	3	3 - 7#	10
CV-12	192 gpm	4"	Chilled Water Supply	1	3 - 15#	5
CV-13	235 gpm	5"	Hot Water Supply	1	3 - 15#	5
CV-14	235 gpm	6"	Hot Water Return	1	3 - 15#	5
CV-15	192 gpm	6"	Chilled Water Return	1	3 - 15#	5
CV-16	192 gpm	4"	Chilled Water Supply	1	3 - 15#	5
CV-17	675 lbs./hr.		Steam Convertor	4	3 - 7#	5 psig
CV-18	1350 lbs./hr.		Steam Convertor	4	9 - 13#	5 psig
CV-19	149 gpm	4"	Solar Hot Water	1	3 - 15#	5
CV-20	123 gpm		Solar Hot Water	8	9 - 13#	10
CV-21	60 gpm		Solar Hot Water	3	3 - 7#	10
CV-22	3 gpm		Chilled Water Dump Valve	4	9 - 13#	5
CV-23	3 gpm		Hot Water Dump Valve	4	9 - 13#	5
CV-24	21 gpm		Hot Water Supply - A/C #1	5	3 - 7#	10
CV-25	71 gpm		Chilled Water Supply - A/C #1	4	9 - 13#	10
CV-26	26 gpm		Hot Water Supply - A/C #3	5	3 - 7#	10
CV-27	94 gpm		Chilled Water Supply - A/C #2	4	9 - 13#	10
CV-28	6 gpm		Hot Water Supply - A/C #4	5	3 - 7#	10
CV-29	4 gpm		Chilled Water Supply - A/C #4	4	9 - 13#	10
CV-30	116.6 Lbs./Hr.		Steam 15# - A/C #5	4	9 - 13#	5
CV-31	10 gpm		Hot Water Supply - A/C #5	5	3 - 7#	10
CV-32	12 gpm		Chilled Water Supply - A/C #5	4	9 - 13#	10
CV-33	9 gpm		Hot Water Supply - A/C #6	5	3 - 7#	10
CV-34	53 gpm		Hot Water Supply 68	5	3 - 7#	10
CV-35	27 gpm		Hot Water Supply - A/C #7	5	3 - 7#	10
CV-36	50 gpm		Hot Water/Glycol - A/C #7	3	3 - 7#	10

Valve Type:

1. Two-Position Butterfly Valve - N.C.
2. Two-Position Butterfly Valve - N.O.
3. Three-Way Modulating Control Valve
4. Two-Way Modulating Control Valve - N.C.
5. Two-Way Modulating Control Valve
6. Sequencing - Diverting Control Valve
7. Sequencing - Proportioning Control Valve
8. Three-Way Diverting Control Valve

TYPICAL SEQUENCE OF CONTROL: VARIABLE VOLUME AIR HANDLING SYSTEM (AC #2 AND AC #3)

Interior Cooling System, AC #2, static pressure sensing station sends a static pressure signal to Control Center where it is indicated on a static pressure meter, and amplified into a 3 to 15 psig control pressure signal by the system static pressure transmitter. The required system static is set at 3/4" w.g. (adjustable) by the remote static setpoint switch. Upon receipt of the transmitter and setpoint signals, the system static pressure controller sends control air to eddy current clutch (motor speed controller) for supply fan to maintain the interior supply system at a constant static pressure.

Perimeter Heating System, AC #3, static pressure sensing station sends static pressure signals to Control Center where it is indicated on a static pressure meter, and amplified into a 3 to 15 psig control pressure signal by the system static pressure transmitter. The required system statis is set at 3/4" w.g. (adjustable) by the remote static setpoint switch. Upon receipt of the transmitter and setpoint signals, the system static pressure controller sends control air to position the fan inlet vane dampers to maintain the perimeter supply system at a constant static pressure.

Fan airflow measuring stations sense the airflow rates of the interior and perimeter supply fans and send total and static pressure signals to Control Center where they are indicated on CFM meters, and amplified into 3 to 15 psig control signals linear to velocity pressure by differential (velocity) pressure transmitters. The output signals of the transmitters are sent to square root extractors where the signals are made linear to air velocity and then sent to a multiplier where the station area factor is applied, to make the signals linear to the interior and perimeter supply air volumes. They are then sent to a summing relay where they are combined for a total supply signal.

Return Air Fan airflow measuring station senses the airflow rates of the return fan and sends total and static pressure signals to Control Center where they are indicated on a CFM meter, and amplified into 3 to 15 psig control signals linear to velocity pressure by a differential (velocity) pressure transmitter. The output signals of the transmitter are sent to square root extractor where the the signal is made linear to air velocity and then to a multiplier where the station area factor is applied, to make the signal linear to the return air volume.

The control signal representing the return air volume is sent to a remote CFM differential setpoint switch where the required CFM differential setpoint signal is added and then sent on to the flow synchronizing controller. The control signal representing the total supply air volume is sent directly to the flow synchronizing controller which compares the above two signals, and using the supply air volume signal as the master signal, issues control air to the eddy current clutch (motor speed controller) of the return fan to maintain a constant CFM differential between the supply and return fan air volumes equal to the required amount of minimum fresh air regardless of changes in the supply fan capacity.

U.N.M. MECHANICAL ENGINEERING BLDG.

CONTROL DIAGRAMS

BRIDGERS & PACHECO, P.A. CONSULTING ENGINEERS

JESSE A. PACHECO, JR. CHANNELL GRAHAM NO. 340 REGISTERED ARCHITECTS

pacheco and graham · architects

project	date	sheet
320/7627	11/20/78	M-14