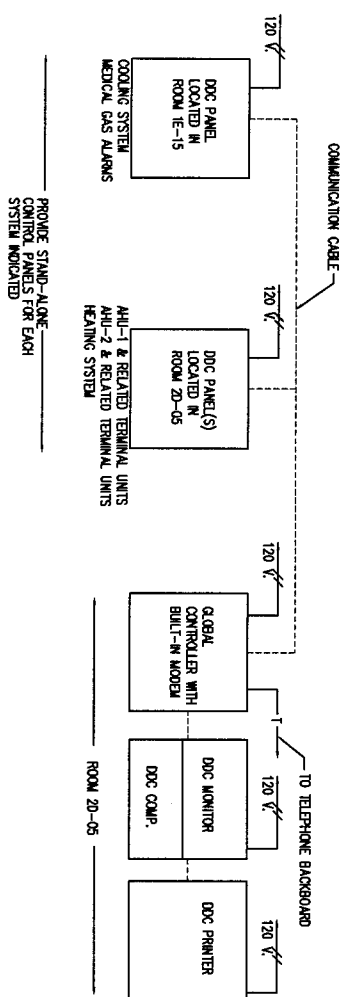
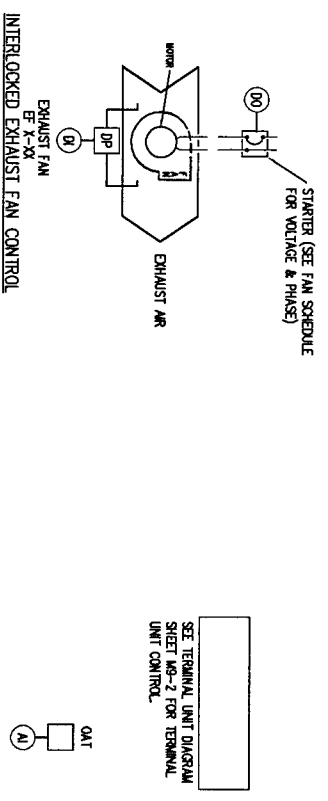
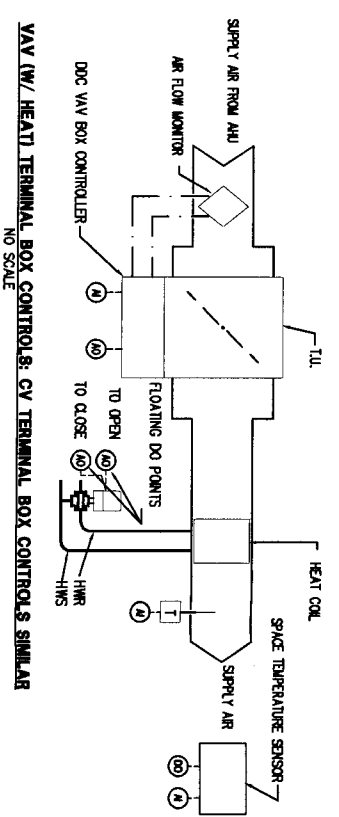


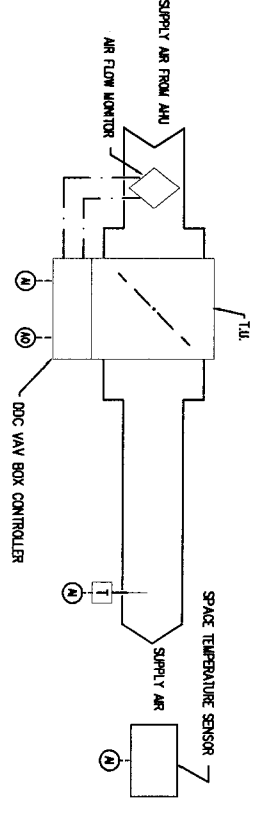
NO SCALE
AHU 1 & 2 CONTROL DIAGRAM



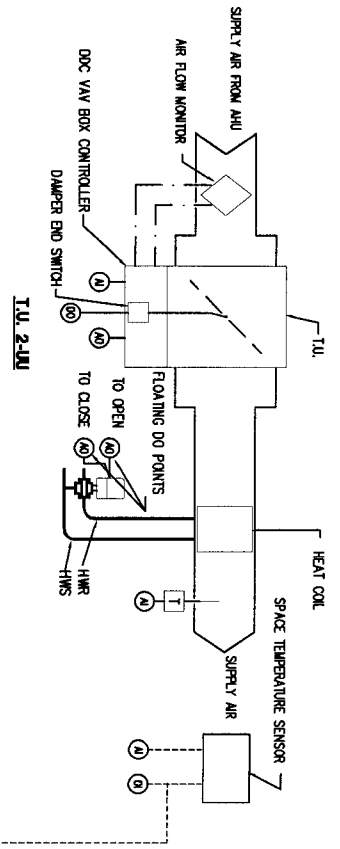
DDC SYSTEM ARCHITECTURE



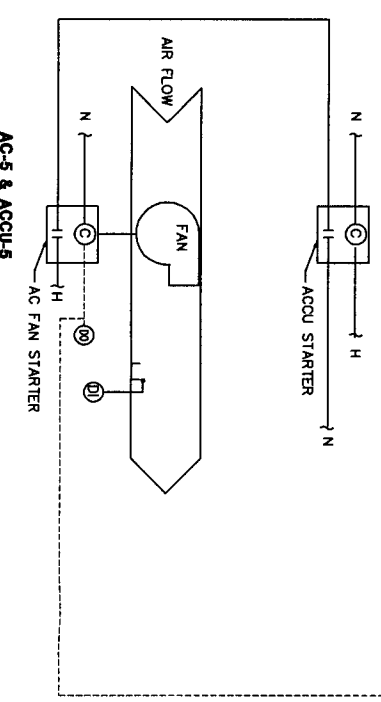
NO SCALE
YAW (W/ HEAT) TERMINAL BOX CONTROLS. CV TERMINAL BOX CONTROLS SIMILAR



NO SCALE
YAW (COOL) ONLY TERMINAL BOX CONTROLS



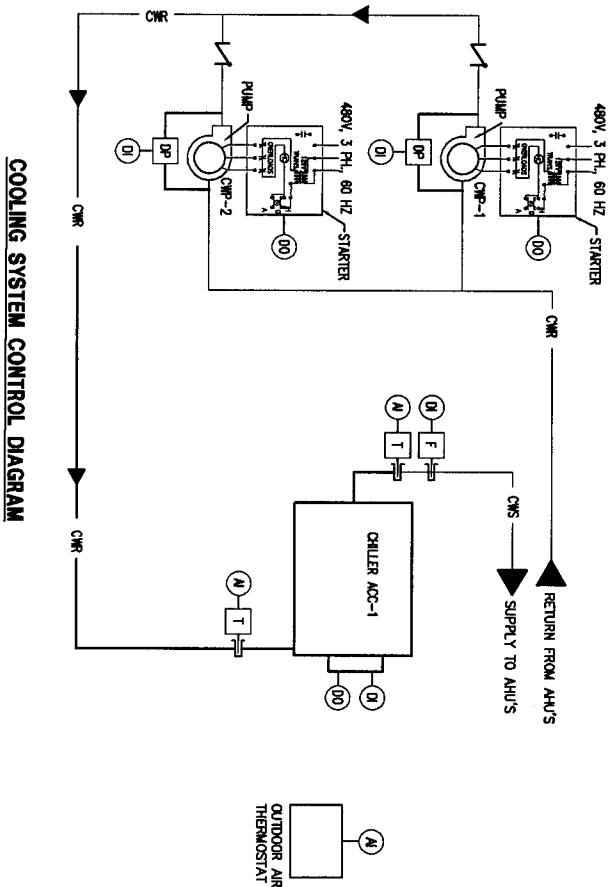
T.U. 2-10



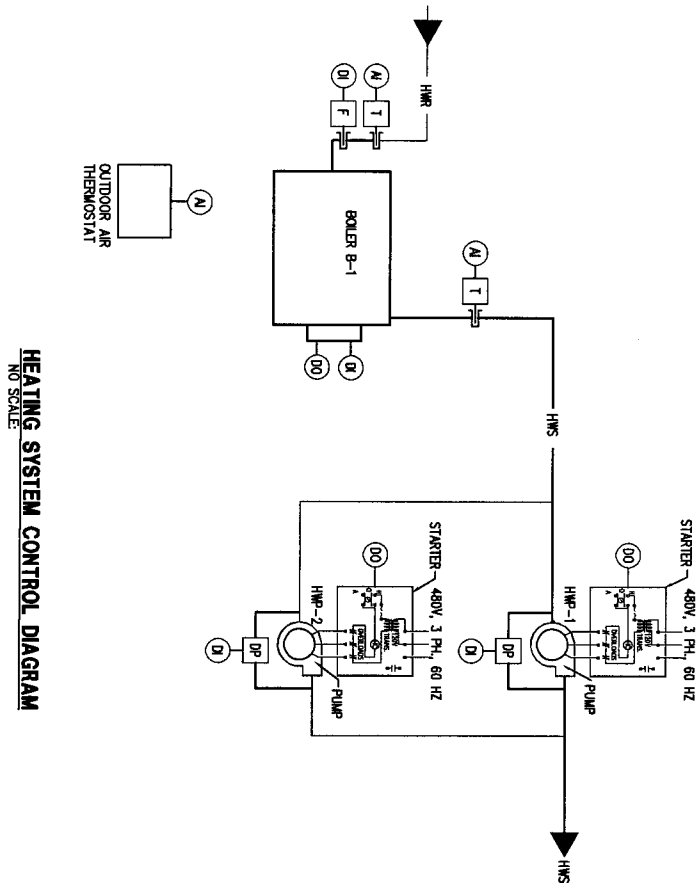
AC-5 & ACCIL-5

NO SCALE
COMPUTER ROOM (2D-04) T.U. 2-10 & AC-5

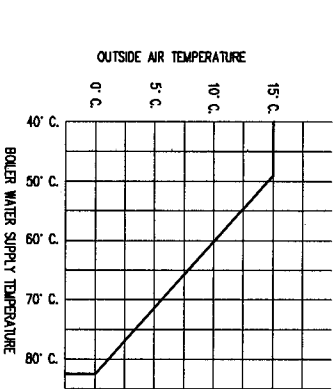
- ### CONTROL LEGEND
- AN ANALOG INPUT
 - AO ANALOG OUTPUT
 - DI DIGITAL INPUT
 - DO DIGITAL OUTPUT
 - DP DIFFERENTIAL PRESSURE
 - AFS AIR FLOW MEASURING STATION
 - SP STATIC PRESSURE
 - T TEMPERATURE
 - CONTROL DAMPER
 - THREE WAY CONTROL VALVE
 - TEMPERATURE SENSOR
 - FREEZE/STAT
 - DIFFERENTIAL PRESSURE SENSOR
 - FLOW SWITCH
 - STATIC PRESSURE SENSOR
 - SMK DPL SMOKE DETECTOR
 - SMOKE DAMPER
 - AC-X AIR CONDITIONING UNIT (PACKAGE TYPE DO)
 - ACD-X AIR COOLED CONDENSING UNIT
 - ELC COIL ELECTRIC COIL
 - C.V. CONSTANT VALVE
 - CNR CHILLED WATER RETURN
 - CNS CHILLED WATER SUPPLY
 - DDC DIRECT DIGITAL CONTROL
 - EA EXHAUST AIR
 - HMR HOT WATER RETURN
 - HMS HOT WATER SUPPLY
 - LIT LOW LIMIT HEATING THERMOSTAT
 - LTH LOW LIMIT HEATING THERMOSTAT
 - M M
 - N NORMALLY CLOSED
 - NO NORMALLY OPEN
 - OA OUTDOOR AIR
 - OAT OUTDOOR AIR THERMOSTAT
 - RA RETURN AIR
 - TDS THERMISTOR
 - TU THERMISTOR
 - TU STAT THERMISTOR
 - VAR VARIABLE AIR VALVE
 - VFD VARIABLE FREQUENCY DRIVE
 - TELEPHONE CABLE
 - 120 VOLT POWER



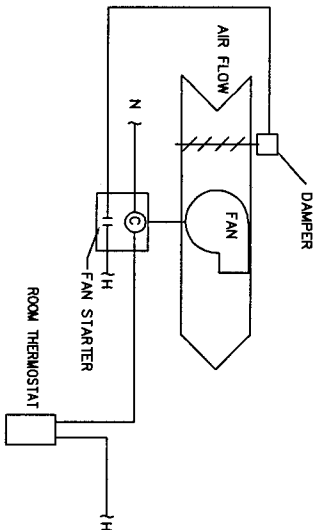
COOLING SYSTEM CONTROL DIAGRAM



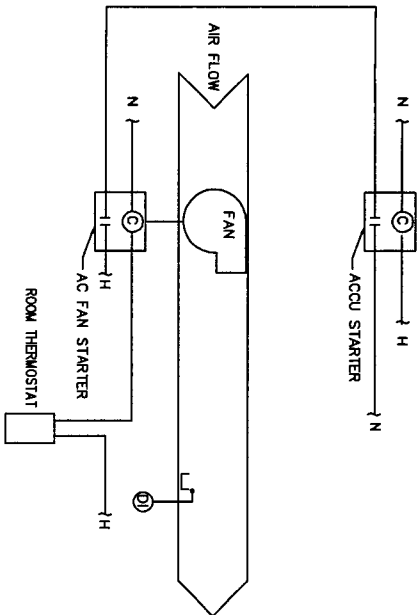
HEATING SYSTEM CONTROL DIAGRAM
NO SCALE



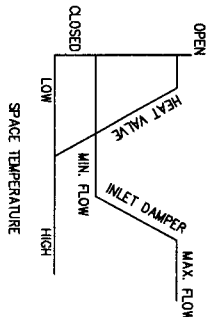
BOILER WATER TEMPERATURE RESET SCHEDULE



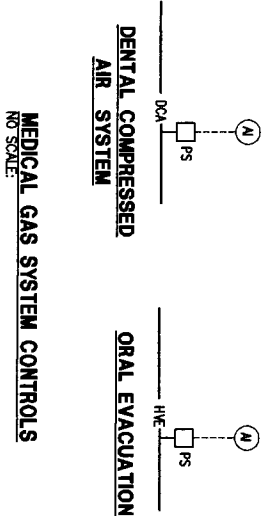
SUPPLY FAN-1 CONTROL
NO SCALE
EXHAUST FANS EF-3 THROUGH EF-7 SIMILAR



AC-1 THROUGH AC-4 CONTROL
NO SCALE



VAV TERMINAL UNIT AIR AND WATER FLOW SEQUENCE
NO SCALE



DENTAL COMPRESSED AIR SYSTEM
MEDICAL GAS SYSTEM CONTROLS
NO SCALE

GENERAL CONTROL NOTES

- (1) ALL VALVE, DAMPER AND SMOKE DAMPER ACTUATORS SHALL BE ELECTRIC/ELECTRONIC.
- (2) DUCT SMOKE DETECTORS SHALL BE FURNISHED UNDER THE ELECTRICAL SECTION OF THE SPECIFICATIONS AND INSTALLED IN THE DUCT UNDER THIS SECTION OF THE SPECIFICATIONS. CONTROL AND POWER WIRING TO AND FROM THE FIRE ALARM CONTROL PANEL SHALL BE FURNISHED AND INSTALLED UNDER THE ELECTRICAL DRAWINGS AND REQUIRED FOR THE CONTROL OF THE OPERATING SEQUENCES AS HEREIN-AFTER INDICATED ON THE ELECTRICAL DRAWINGS AND REQUIRED FOR THE CONTROL OF THE SPECIFICATIONS IN COMPLIANCE WITH ALL DIVISION 1600 SPECIFICATIONS AND GENERAL NOTE 6 ON SHEET MD-1.
- (4) WHEN A POWER FAILURE OCCURS, ALL MECHANICAL HVAC MOTORS SHALL BE RESTARTED AT VARIABLE TIME INTERVALS TO PREVENT SHORTED WINDING CURRENT. SEE ELECTRICAL DRAWINGS FOR STARTING REQUIREMENTS.
- (5) ALL HAND-OFF-AUTO SWITCHES SHALL BE MOUNTED ON OR NEAR THE DDC CONTROL PANEL.
- (6) ALL CONTROL VALVES SHALL BE THREE (3) WAY UNLESS OTHERWISE INDICATED.

SEQUENCE OF CONTROL:

- 1. GENERAL:
 - (A) THE DDC SYSTEM SHALL PLACE THE SYSTEMS IN OPERATION, WHEN PLACED IN OPERATION THE CONTROL SYSTEM/S SHALL BE ENERGIZED THRU HAND-OFF AUTO SWITCHES (WHEN IN AUTO POSITION), DAMPERS SHALL OPEN TO THEIR RESPECTIVE POSITIONS (SEE WARM-UP CYCLE AND COOL DOWN CYCLE INDICATED ON SHEET MD-3) AND AFTER A VARIABLE TIME DELAY AIR HANDLING UNIT FAN/S AND THEIR INTERLOCKED CONTROL SYSTEM SHALL BE DE-ENERGIZED, ALL DAMPERS SHALL CLOSE.
 - (B) WHEN EVER AIR HANDLING UNIT/S ARE STOPPED CONTROL SYSTEM SHALL BE DE-ENERGIZED, ALL DAMPERS SHALL CLOSE.
 - (C) ANY SPACE/DUCT SMOKE DETECTOR SENSING SMOKE SHALL SIGNAL THE FIRE ALARM CONTROL PANEL. THE FIRE ALARM CONTROL PANEL SHALL SIGNAL ALL AIR HANDLING UNITS WITH-IN THE AFFECTED ZONE (SMOKE COMPARTMENT) THAT AN ALARM EXIST. THE ABOVE CONTROL IS FURNISHED UNDER THIS SECTION OF THE SPECIFICATIONS. WHEN AN ALARM IS RECEIVED THE AIR HANDLING UNIT/S SHALL BE DE-ENERGIZED AND THE SYSTEM SHALL STOP. INTERLOCKED FANS SHALL STOP. UNLESS OTHERWISE INDICATED AND ALL DAMPERS SHALL CLOSE. THE SYSTEM SHALL BE RESTARTED AFTER THE FIRE ALARM SIGNAL IS RECEIVED ALL SMOKE DETECTORS, ETC. SHALL BE AUTOMATICALLY RESET. DAMPERS SHALL OPEN TO THEIR RESPECTIVE POSITIONS. AFTER A VARIABLE TIME DELAY AIR HANDLING UNIT FAN/S AND INTERLOCKED FANS SHALL START. SEE (D) BELOW FOR VFD DRIVE CONTACTORS BYPASS DRIVE OPERATION.
 - (D) THE AIR HANDLING UNIT FAN SHALL OPERATE SUBJECT TO THE FIRE ALARM SYSTEM CONTROL. ANY TIME THAT THE VFD DRIVE STARTS OR RETURN AIR FAN IS PLACED IN THE BYPASS POSITION ALL TERMINAL UNITS ASSOCIATED WITH THAT AND SUPPLY OR RETURN AIR FAN SHALL OPEN TO 100% AIR FLOW.
 - (E) EXHAUST FANS EF-1 THROUGH EF-4 AND EF-2-1 THROUGH EF-2-3 OPERATION SHALL BE MONITORED THROUGH THE DDC SYSTEM.

AHU-1 & 2

WHEN THE SYSTEM IS IN OPERATION AS HEREIN-BEFORE INDICATED THE FOLLOWING SEQUENCE SHALL OCCUR. THE MINIMUM OUTSIDE AIR FLOW SHALL BE MEASURED THROUGH A DUCT MOUNTED AIR FLOW MEASURING STATION LOCATED IN THE OUTSIDE AIR DUCT. WHEN THE OUTSIDE AIR TEMPERATURE IS AT OR ABOVE 21° C, THE MIN. OUTSIDE AIR DAMPER (O-1) SHALL OPEN, THE RETURN AIR AND RELIEF AIR DAMPERS (O-2 & O-3) SHALL MODULATE TO MAINTAIN THE MINIMUM OUTSIDE AIR FLOW, THE ECONOMIZER AND RELIEF AIR DAMPERS (O-4 & O-5) SHALL BE CLOSED AND COOLING COIL CONTROL VALVE (V-1) SHALL MODULATE TO MAINTAIN A DISCHARGE AIR TEMPERATURE OF 11.4° C. SET POINT TEMPERATURE. WHEN THE OUTSIDE AIR TEMPERATURE IS BELOW 21° C, THE MIN. O.A. DAMPER (O-1) SHALL BE OPEN, RETURN AIR, ECONOMIZER AND RELIEF AIR DAMPERS (O-3, O-4 & O-5) SHALL MODULATE IN SEQUENCE WITH THE COOLING COIL CONTROL VALVE (V-1) TO MAINTAIN DAMPERS AIR TEMPERATURE SETPOINT OF 11.4° C. TEMPERATURE AND THE MINIMUM OUTSIDE AIR FLOW SHALL BE MAINTAINED. WHEN THE OUTSIDE AIR TEMPERATURE DROPS BELOW 11.4° C. COOLING COIL CONTROL VALVE (V-1) SHALL BE CLOSED TO THE COOLING COIL AND ECONOMIZER, RELIEF AND RETURN AIR DAMPERS (O-3, O-4 & O-5) SHALL MODULATE IN SEQUENCE TO MAINTAIN THE DISCHARGE AIR TEMPERATURE OF 11.4° C.. TWO DUCT MOUNTED STATIC PRESSURE SENSORS/CONTROLLERS SHALL MODULATE THE VARIABLE FREQUENCY DRIVES MOUNTED NEAR THE AHU, THROUGH A DISCRIMINATOR SELECTOR, TO MAINTAIN A MINIMUM STATIC PRESSURE OF 250 Pa SET POINT. THE RETURN AIR FAN SHALL TRACK THE OPERATION OF THE SUPPLY FAN BY MAINTAINING A CONSTANT DIFFERENTIAL AIR FLOW EQUAL TO THAT OF THE MINIMUM OUTSIDE AIR SUPPLY AND RETURN AIR FLOWS SHALL BE MEASURED BY AIR FLOW MEASURING STATIONS MOUNTED IN DUCT PRESSURE RISES ABOVE 1250 Pa. THIS CONTROLLER SHALL BE DIRECTLY CONNECTED TO THE VFD DRIVES AND SHALL ALARM THE DDC SYSTEM ON HIGH STATIC PRESSURE SHUT DOWN.

DDC POINTS LIST

	HARDWARE		OUTPUT	
	INPUT	ANALOG	DIGITAL	ANALOG
AHU 1 & 2				
OUTSIDE AIR				
RETURN AIR				
MIXED AIR				
DISCHARGE AIR				
SMOKE DETECTOR (SUPPLY)				
SMOKE DETECTOR (RETURN)				
RETURN FAN				
RETURN AIR FLOW				
MIN. O.A. DAMPER (O-1)				
MIN. O.A. FLOW				
ECONOMIZER DAMPER (O-4)				
RELIEF AIR DAMPER (O-5)				
RETURN AIR DAMPER (O-3)				
O.A. DAMPER (O-2)				
PREFILTER				
AFTER FILTER				
CHILL WITH CONTROL VALVE (V-1)				
SUPPLY FAN				
SUPPLY AIR FLOW				
STATIC PRESSURE SENSOR				
INTERLOCKED EXH. FANS (NOTE 1)				
FAN HIGH STATIC PRESSURE				
SMOKE DAMPERS *				

NOTE
1. SEE FAN SCHEDULE FOR QUANTITY OF INTERLOCKED FANS.
* SEE PLANS FOR QUANTITY

CONTINUATION OF CONTROL SEQUENCE:

GENERAL CONTROL NOTES

- (1) SEE SHEET MD-1 FOR ALL GENERAL CONTROL NOTES.
- (2) SEE SHEET MD-1 FOR CONTROL LEGEND.

TERMINAL UNIT CONTROL:

GENERAL

THE TERMINAL UNIT CONTROLS SHALL BE FACTORY INSTALLED AND SHALL BE COMPATIBLE WITH THE DDC SYSTEM FURNISHED. ALL TERMINAL UNITS SERVED BY ONE AIR HANDLING UNIT SHALL BE CONNECTED BACK TO THAT AIR HANDLING UNIT DDC PANEL. THE UNIT SHALL BE CAPABLE OF MAINTAINING THE AIR FLOWS AS INDICATED ON THE TERMINAL UNIT SCHEDULE FROM MINIMUM TO MAXIMUM AIR FLOWS. ALL TERMINAL UNITS SHALL BE INTERFACED WITH THE DDC SYSTEM CENTRAL PROCESSOR SO THAT SPACE TEMPERATURES AND AIR FLOWS MAY BE READ AND RESET FROM THE CENTRAL PROCESSOR. EACH TERMINAL UNIT SHALL BE CAPABLE OF MORNING WARM-UP AND COOL-DOWN OPERATION, NIGHT TEMPERATURE SETBACK OPERATION AND TIED OVERDRIVE OPERATION DURING UNOCCUPIED PERIODS OF OPERATION. SEE TIED OVERDRIVE CONTROLS ON SHEET MD-3. THE TERMINAL UNITS SHALL OPEN TO 100% AIR FLOW ANY TIME THAT THE SUPPLY FAN VFD IS PLACED IN THE MANUAL BY-PASS POSITION.

VAV (VARIABLE AIR VOLUME) W/ HEAT

A SPACE TEMPERATURE SENSOR SHALL MODULATE THE AIR FLOW FROM THE MAXIMUM TO THE MINIMUM AIR FLOW TO MAINTAIN SET POINT OF 21° C. WHEN THE MINIMUM AIR FLOW SET POINT IS RELEASED AND ON A FURTHER FALL IN SPACE TEMPERATURE THE TERMINAL UNIT HOT WATER CONTROL VALVE SHALL MODULATE TO MAINTAIN SPACE TEMPERATURE.

CV (CONSTANT AIR VOLUME) W/ HEAT

THE UNIT SHALL BE SAME AS VAV W/ HEAT ABOVE EXCEPT CONTROLS SHALL BE SET FOR CONSTANT VOLUME AIR FLOW.

VAV (VARIABLE AIR VOLUME) COOL ONLY

A SPACE TEMPERATURE SENSOR SHALL MODULATE THE AIR FLOW FROM THE MAXIMUM TO THE MINIMUM AIR FLOW TO MAINTAIN SET POINT OF 21° C.

COMPUTER ROOM (2D-04) CONTROL, TERMINAL UNIT 2DU & AC-5

AC-5 SHALL BE PROVIDED WITH A MICROPROCESSOR CONTROL SYSTEM. IN ADDITION TO CONTROLLING ROOM TEMPERATURE IT SHALL ALSO CONTROL ROOM HUMIDIFICATION AND DEHUMIDIFICATION. AC-5 AND ACU-5 SYSTEM SHALL PROVIDE SUPPLEMENTAL COOLING AND COOLING WHEN AHU-2 SYSTEM IS OFF. TERMINAL UNIT 2-UU SHALL BE CONTROLLED SAME AS VAV WITH HEAT ABOVE EXCEPT AS HEREIN MODIFIED. WHEN AHU-2 IS IN OPERATION, AC-5 & ACU-5 SHALL CYCLE ONLY WHEN TLU 2-UU AIR FLOW IS AT 100% OF ITS MAXIMUM DESIGN AIR FLOW CAPACITY AND TLU 2-UU SPACE TEMPERATURE RISES ABOVE THE THERMOSTAT SET POINT TEMPERATURE OF 23° C. WHEN THE SPACE TEMPERATURE DROPS BELOW THE THERMOSTAT SET POINT AC-5 AND ACU-5 SHALL BE DEENERGIZED. WHEN AHU-2 IS OFF AC-5 AND ACU-5 SHALL OPERATE THROUGH TLU 2-UU THERMOSTAT CONTROL AS FOLLOWS: WHEN SPACE TEMPERATURE RISES ABOVE 23° C. AC-5 AND ACU-5 SHALL CYCLE TO MAINTAIN SPACE TEMPERATURE. WHEN ROOM TEMPERATURE IS SATISFIED THEN AC-5 AND ACU-5 SHALL STOP. A CONDENSATE SENSOR/SWITCH SHALL BE MOUNTED IN THE UNIT DRAIN PAN SO THAT IT WILL ALARM THE DDC SYSTEM IF A CONDENSATE OVERFLOWS THE DRAIN PAN.

AC-1 THROUGH AC-4 CONTROL:

AC-1 THROUGH AC-5 SHALL BE CAPABLE OF CONTINUOUS OPERATION AND ARE NOT CONTROLLED THROUGH THE DDC SYSTEM. A CONDENSATE SENSOR/SWITCH SHALL BE MOUNTED IN THE UNIT DRAIN PAN SO THAT IT WILL ALARM THE DDC SYSTEM IF A CONDENSATE OVERFLOWS THE DRAIN PAN.

THE FOLLOWING CONTROLS ARE NOT THROUGH THE DDC SYSTEM:

AC-1 THROUGH AC-4 CONTROL:

AC-1 THROUGH AC-5 SHALL BE CAPABLE OF CONTINUOUS OPERATION AND ARE NOT CONTROLLED THROUGH THE DDC SYSTEM. A SPACE TEMPERATURE SENSOR SHALL CYCLE AC UNIT AND ITS RESPECTIVE ACU TO MAINTAIN SPACE TEMPERATURE.

SUPPLY FAN SE-1 CONTROL:

FAN CONTROLLED BY SPACE THERMOSTATS SHALL START WHEN SPACE TEMPERATURE RISES ABOVE 27° C. SET POINT AND STOP WHEN TEMPERATURE FALLS BELOW 27° C. SET POINT. DAMPER SHALL OPEN WHEN FAN STARTS AND CLOSE WHEN FAN STOPS.

EXHAUST FANS EF-3 THROUGH EF-7 CONTROL

FAN CONTROLLED BY SPACE THERMOSTATS SHALL START WHEN SPACE TEMPERATURE RISES ABOVE 27° C. SET POINT AND STOP WHEN TEMPERATURE FALLS BELOW 27° C. SET POINT. DAMPERS SHALL OPEN WHEN FAN STARTS AND CLOSE WHEN FAN STOPS.

DDC POINTS LIST

	HARDWARE		OUTPUT	
	INPUT	ANALOG	DIGITAL	ANALOG
VAV, CV BOXES, AC-1 THRU AC-4 AC-5 & ACU-5				
AIR FLOW				
DAMPER				
HOT WATER VALVE				
SUPPLY AIR TEMPERATURE				
SPACE TEMPERATURE				
TIED OVERDRIVE				
AC-1				
AC-2				
AC-3				
AC-4				
AC-5				

DDC POINTS LIST

	HARDWARE		OUTPUT	
	INPUT	ANALOG	DIGITAL	ANALOG
STATUS				
TEMPERATURE				
START-STOP				
OPEN-CLOSE				
CONTROL				
SOFTWARE ALARMS				
CHILLER ACU-1 SUPPLY TEMP.				
CHILLER ACU-1 RETURN TEMP.				
CHILLER ACU-1				
CHILLED WATER FLOW				
PUMP CM-1				
PUMP CM-2				
OUTDOOR AIR THERMOSTAT				

DDC POINTS LIST

	HARDWARE		OUTPUT	
	INPUT	ANALOG	DIGITAL	ANALOG
STATUS				
TEMPERATURE				
START-STOP				
OPEN-CLOSE				
CONTROL				
SOFTWARE ALARMS				
BOILER B-1 SUPPLY TEMP.				
BOILER B-1 RETURN TEMP.				
BOILER B-1				
BOILER B-1 FLOW				
PUMP HWP-1				
PUMP HWP-2				
OUTDOOR AIR THERMOSTAT				

CONTINUATION OF CONTROL SEQUENCE:

GENERAL

- (1) SEE SHEET MD-1 FOR GENERAL CONTROL NOTES AND GENERAL SEQUENCE OF CONTROL.
- (2) SEE SHEET MD-1 FOR CONTROL LEGEND.

BUILDING COOL-DOWN CYCLE (COOLING PERIOD ONLY)

APPROXIMATELY 1-1/2 HOURS BEFORE THE NORMAL OCCUPANCY OF THE BUILDING OCCURS, THE DDC SYSTEM SHALL START THE HVAC SYSTEM AS FOLLOWS: THE RETURN DAMPER SHALL OPEN, THE AHU SUPPLY FANS SHALL START, ALL INTERLOCKED EXHAUST FANS SHALL RETURN OFF, CM-1 AND CM-2 SHALL START, AND CHILLER B-1 SHALL BE ENERGIZED. THE CHILLER FLOW SWITCHES AT THE BOILER THEN THE CHILLER CONTROLS SHALL BE ENERGIZED AND THE CHILLER SHALL OPERATE THROUGH ITS OWN SAFETY AND OPERATING CONTROLS TO MAINTAIN 7° C. DISCHARGE WATER TEMPERATURE. TEMPERATURE SENSORS LOCATED IN THE CM'S AND CMR AT THE CHILLER SHALL INDICATE THE CHILLED WATER TEMPERATURES AT THE DDC SYSTEM. WHEN THE OUTSIDE AIR TEMPERATURE DROPS BELOW 13° C, THE CHILLER SYSTEM SHALL BE DEENERGIZED.

COOLING SYSTEM

THE COOLING CONTROL SEQUENCE SHALL BE INITIATED FROM THE DDC SYSTEM AS FOLLOWS: WHEN THE AIR TEMPERATURE IS ABOVE 13° C. AND WHEN THE CONTROL SYSTEM IS DEENERGIZED CM-1 AND CM-2 FANS SHALL START, THROUGH HAND-OFF-AUTO SWITCHES (WHEN IN AUTO POSITION), AND SHALL PROVIDE FLOW TO THE SYSTEM. WHEN CHILLED WATER FLOW IS BROKEN THROUGH FLOW SWITCHES AT THE CHILLER THEN THE CHILLER CONTROLS SHALL BE ENERGIZED AND THE CHILLER SHALL OPERATE THROUGH ITS OWN SAFETY AND OPERATING CONTROLS TO MAINTAIN 7° C. DISCHARGE WATER TEMPERATURE. TEMPERATURE SENSORS LOCATED IN THE CM'S AND CMR AT THE CHILLER SHALL INDICATE THE CHILLED WATER TEMPERATURES AT THE DDC SYSTEM. WHEN THE OUTSIDE AIR TEMPERATURE DROPS BELOW 13° C, THE CHILLER SYSTEM SHALL BE DEENERGIZED.

HEATING SYSTEM

THE HEATING CONTROL SEQUENCE SHALL BE INITIATED FROM THE DDC SYSTEM AS FOLLOWS: WHEN THE CONTROL SYSTEM IS ENERGIZED HWP-1 AND HWP-2 PUMPS SHALL START, THROUGH HAND-OFF-AUTO SWITCHES (WHEN IN AUTO POSITION), AND SHALL PROVIDE FLOW TO THE SYSTEM. WHEN HOT WATER FLOW IS BROKEN THROUGH FLOW SWITCHES AT THE BOILER THEN THE BOILER CONTROLS SHALL BE ENERGIZED AND THE BOILER SHALL OPERATE THROUGH ITS OWN SAFETY AND OPERATING CONTROLS TO MAINTAIN 7° C. DISCHARGE WATER TEMPERATURE. TEMPERATURE SENSORS LOCATED IN THE CM'S AND CMR AT THE BOILER SHALL INDICATE HEATING WATER TEMPERATURES AT THE DDC SYSTEM. THE BOILER WATER TEMPERATURE SHALL BE RESET AS INDICATED ON THE BOILER WATER RESET SCHEDULE.

BUILDING WARM-UP CYCLE (HEATING PERIOD ONLY)

APPROXIMATELY 1-1/2 HOURS BEFORE THE NORMAL OCCUPANCY OF THE BUILDING OCCURS, THE DDC SYSTEM SHALL START THE HVAC SYSTEM AS FOLLOWS: THE RETURN DAMPER SHALL OPEN, THE AHU SUPPLY FANS SHALL START, ALL INTERLOCKED EXHAUST FANS SHALL RETURN OFF, CM-1 AND CM-2 SHALL START, AND CHILLER B-1 SHALL OPERATE. WHEN WATER FLOW IS BROKEN ALL HVAC CONTROL VALVES FOR TERMINAL UNITS SHALL MODULATE TO MAINTAIN THEIR OCCUPIED SET POINT TEMPERATURES. DURING THIS PERIOD OF OPERATION THE OUTSIDE AIR DAMPER SHALL BEAM CLOSED. APPROXIMATELY 1/2 HOUR BEFORE THE NORMAL OCCUPANCY PERIOD OCCURS THE DDC SYSTEM SHALL PLACE THE SYSTEM IN THE NORMAL OCCUPIED POSITION. THE OUTSIDE AIR DAMPER SHALL OPEN, INTERLOCKED EXHAUST FANS SHALL START AND THE AHU SYSTEMS AND HEATING SYSTEMS SHALL CONTINUE TO OPERATE IN THEIR NORMAL OCCUPIED SEQUENCE.

TIMED OVERDRIDE CYCLE

EACH TERMINAL UNIT THERMOSTAT (TU STAT) SHALL BE CAPABLE OF OVERRIDING THE SYSTEM "OFF" CYCLE TO PROVIDE PERIODS OF SYSTEM OVERDRIVE OPERATION. THE TU STAT SHALL OVERRIDE THE OPERATION OF THE DDC SYSTEM "OFF" PERIOD WHEN THE DDC SYSTEM HAS THE SYSTEM OFF FOR UNOCCUPIED PERIODS. THE TU STAT SHALL HAVE THE CAPABILITY TO OPERATE FOR A MAXIMUM PERIOD OF 4 HOURS (ADJUSTABLE FROM THE CENTRAL PROCESSOR). WHEN THE TU STAT IS MANUALLY SET THE ASSOCIATED AHU SHALL START IN ITS NORMAL START SEQUENCE, AND THE HEATING AND/OR COOLING SYSTEMS SHALL START AND OPERATE AND/OR COOLING SYSTEMS SHALL STOP AND RETURN TO THE NORMAL UNOCCUPIED SEQUENCE.

MEDICAL GAS ALARMS

THE MEDICAL GAS SYSTEMS SHALL CONSIST OF "GAS EVACUATION (GENTIL VACUUM)" AND "DENTAL COMPRESSED AIR". A PRESSURE SENSOR SHALL SIGNAL THE DDC SYSTEM TO THE OPERATING PRESSURES OF EACH MEDICAL GAS SYSTEMS. HIGH PRESSURE AND LOW PRESSURES SHALL INITIATE AN ALARM TO THE DDC SYSTEM.

DDC POINTS LIST

	HARDWARE		OUTPUT	
	INPUT	ANALOG	DIGITAL	ANALOG
STATUS				
PRESSURE				
START-STOP				
OPEN-CLOSE				
CONTROL				
SOFTWARE ALARMS				
MEDICAL GAS SYSTEMS				
DENTAL COMPRESSED AIR				
GAS EVACUATION				

NOTE:
PRESSURE SENSORS FOR EACH MEDICAL GAS SYSTEM INDICATED ABOVE SHALL BE PROVIDED UNDER THIS SECTION. THESE SENSORS SHOULD BE INSTALLED IN THE MEDICAL GAS SYSTEM INSTALLATION. THE CONTRACTOR SHALL PROVIDE AND INSTALL ALL OTHER CONTROL COMPONENTS FROM THIS PRESSURE SENSOR TO THE DDC SYSTEM.