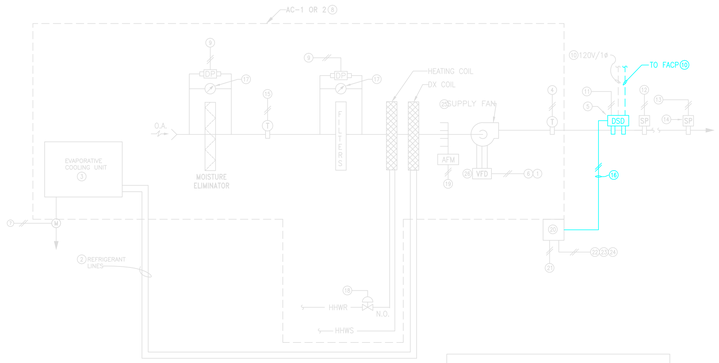


NOTES:

1. FAN STATUS SIGNAL TO DDC PANEL. (VIA CURRENT SENSING SWITCH). PROVIDE ONE SWITCH FOR EACH FAN.
2. INTEGRAL TO AC UNIT.
3. PART OF AC UNIT. UNIT HAS A NON-CHEMICAL WATER TREATMENT SYSTEM WHICH SHALL BE MONITORED AND ALARMED VIA THE AC UNIT DDC CONTROL SYSTEM. PROVIDE SPARE MONITORING AND ALARM POINTS FOR FUTURE WATER CHEMICAL TREATMENT SYSTEM.
4. SUPPLY AIR TEMPERATURE MONITOR TO DDC PANEL.
5. DUCT SMOKE DETECTOR. SEE ELECTRICAL DRAWINGS. HARDWIRED TO VFD FOR FAN SHUTDOWN.
6. VFD INTERFACE. SEE 8/M5.2.
7. CONDENSER WATER BLOW DOWN WATER METER SIGNAL TO FMCS.
8. ALL CONTROL DEVICES AND COMPONENTS WITHIN THE UNITS SHALL BE FACTORY WIRED AND PROGRAMMED TO MEET THE SEQUENCE OF OPERATION.
9. FILTER RESISTANCE SIGNAL TO DDC PANEL.
10. SEE ELECT.(FIRE ALARM) DWGS. FOR CONTINUATION.
11. DUCT SMOKE DETECTOR SIGNAL TO DDC PANEL.
12. HIGH LIMIT DUCT STATIC PRESSURE MONITOR TO AC UNIT DDC PANEL. REFERENCE O.A. TYP.
13. DUCT STATIC PRESSURE MONITOR TO AC UNIT DDC PANEL. REFERENCE O.A. TYP.
14. DUCT STATIC PRESSURE SENSOR. LOCATE SENSOR DOWNSTREAM OF THE SUPPLY FAN, AT 2/3 POINT OF THE MAIN DUCT RUN.
15. O.A. TEMPERATURE SENSOR SIGNAL TO DDC PANEL.
16. DUCT SMOKE DETECTOR UNIT SHUTDOWN. PROVIDE ADDITIONAL RELAYS AS REQUIRED.
17. FILTER GAUGE BY OTHERS.
18. HEATING COIL CONTROL SIGNAL FROM AC UNIT DDC PANEL.
19. FAN INLET AIRFLOW MONITOR TO AC UNIT DDC PANEL.
20. AC UNIT CONTROL PANEL.
21. AC UNIT CONTROLLER BACNET INTERFACE TO BUILDING FMCS. (BUILDING FMCS IS AUTOMATED LOGIC.)
22. AC UNIT START/STOP SIGNAL FROM FMCS.
23. AC UNIT SUPPLY AIR TEMPERATURE RESET SIGNAL FROM FMCS.
24. AC UNIT GENERAL ALARM SIGNAL TO FMCS.
25. FAN ASSEMBLY CONSIST OF MULTIPLE SMALL FANS SERVED BY ONE VFD. SEE SCHEDULE.
26. SYSTEM CONSISTS OF 2-100% VFD (FULL REDUNDANT).

SUPPLY AIR TEMP. RESET SCHEDULE

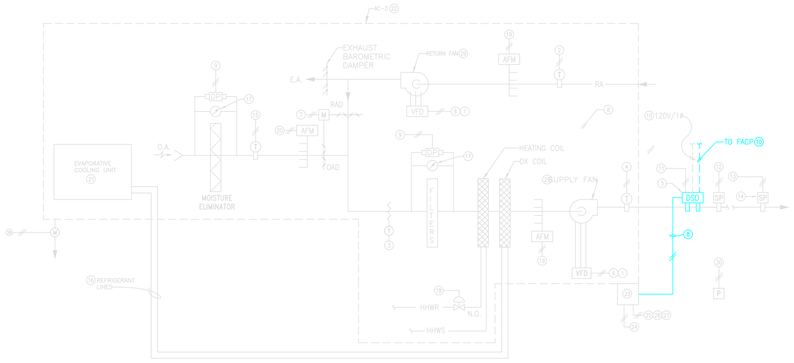
SEQUENCE OF OPERATION:

1. THE BUILDING FMCS SHALL START AND STOP THE AC UNIT WITH ITS INTERLOCKED EXHAUST FANS. CURRENTLY, SET THE AC UNIT TO RUN CONTINUOUSLY.
2. THE DDC SYSTEM SHALL SEQUENCE THE DX COOLING OR HEATING COIL CONTROL VALVE TO MAINTAIN THE SUPPLY AIR TEMPERATURE AT SETPOINT (ADJUSTABLE). RESET THE SUPPLY AIR BASED ON THE ZONE THAT REQUIRES THE MOST COOLING.
   BUILDING FMCS SHALL PROVIDE THE RESET SIGNAL TO THE DDC SYSTEM.
3. SUPPLY AIR DUCT STATIC CONTROL:
   THE SUPPLY AIR DUCT STATIC PRESSURE SENSOR SHALL SEND SIGNAL TO THE DDC SYSTEM TO MODULATE THE FAN SPEED VIA THE VFD IN ORDER TO MAINTAIN THE DUCT STATIC PRESSURE (INITIALLY) SET AT 1.0 INCH W.G.. FINAL STATIC PRESSURE SETPOINT SHALL BE SET AS RECOMMENDED BY THE BALANCER. RESET DUCT STATIC PRESSURE TO SATISFY THE SUPPLY AIR TERMINAL WITH THE HIGHEST DEMAND.
   IF ANY ONE TERMINAL IS MORE THAN 85% OPEN, INCREMENTALLY INCREASE THE DUCT STATIC PRESSURE SETPOINT AND INDICATE WHICH TERMINAL IS GOVERNING THIS SETPOINT. ALARM IF STATIC PRESSURE IS MORE THAN ±0.25 INCH W.G. OUT OF LIMITS. A DUCT STATIC PRESSURE SENSOR LOCATED NEAR THE SUPPLY FAN DISCHARGE SHALL PROVIDE AN ALARM SIGNAL TO THE DDC SYSTEM SYSTEM WHEN THE DUCT STATIC PRESSURE EXCEEDS 4.0 INCH W.G., AND POWER OFF THE SUPPLY FAN.
4. EMERGENCY POWER MODE:
   a. UPON ACTIVATION OF EMERGENCY POWER SYSTEM, SEE DIAGRAM 9/M5.2, THE BUILDING FMCS SHALL SEND A SIGNAL TO THE AC UNIT.
   b. AC-1: DURING EMERGENCY POWER CONDITION, THE DDC SYSTEM SHALL MAINTAIN THE OPERATION OF ONE HALF OF THE SUPPLY FANS (VIA VFD MODULATION) AND ONE CORRESPONDING GENERAL/FUME EXHAUST FAN. UNLESS OTHERWISE NOTED, ALL THE SUPPLY AND CORRESPONDING EXHAUST VAV TERMINALS SHALL OPERATE AT HALF CAPACITY MODE.
   c. AC-2: DURING EMERGENCY POWER CONDITION, THE DDC SYSTEM SHALL MAINTAIN ONE HALF OF THE SUPPLY FANS, (VIA VFD MODULATION), HALF OF THE DX COOLING CIRCUIT, (WITH ITS' CORRESPONDING, CLOSED CIRCUIT, FLUID COOLER, CIRCULATING PUMP), HEATING COIL CONTROLS, AND ONE CORRESPONDING GENERAL FUME EXHAUST FAN. ALL SUPPLY AND THE CORRESPONDING EXHAUST VAV TERMINALS SHALL OPERATE AT HALF CAPACITY, EXCEPT FOR 74-VAV-231, 74-VAV-233, 74-EVAV-233, 74-VAV-234 & 74-EVAV-234 SERVING THE ANIMAL HOLDING ROOMS. THEY SHALL REMAIN FULLY OPERATIONAL.
   d. WHEN NORMAL POWER IS RESTORED, THE BUILDING FMCS SHALL SEND A SIGNAL TO THE AC UNIT, AND THE AC UNITS SHALL RETURN TO NORMAL OPERATION.
5. SAFETY:
   a. UPON DETECTION OF SMOKE FROM THE SUPPLY DUCT SMOKE DETECTOR, THE AC UNIT SHALL BE DE-ENERGIZED. TO RESTART THE AC UNIT, THE SMOKE DETECTORS AND CONTROL PANEL MUST BE MANUALLY RESET. THE CORRESPONDING EXHAUST FANS SHALL CONTINUE TO OPERATE. SEE 2/M5.2.
   b. UPON DETECTION OF SMOKE FROM ANY MAIN SUPPLY DUCT SMOKE DETECTORS, THE AC UNIT SHALL BE DE-ENERGIZED. THE AC UNIT SHALL RESTART WHEN THE DUCT SMOKE DETECTOR ALARM IS CLEARED.
6. VFD BACK UP MODE:
   IF THE PRIMARY VFD FAILS TO OPERATE, THE DDC SYSTEM SHALL START THE BACK UP VFD AND SEND AN ALARM INDICATING VFD FAILURE.
7. MONITORING AND ALARM:

MONITOR THE FOLLOWING:
A. SUPPLY AND RETURN FANS STATUS, AND SPEED.
B. SUPPLY AIR TEMPERATURES.
C. HEATING HOT WATER CONTROL VALVE POSITION.
D. SUPPLY DUCT STATIC PRESSURE AT FAN DISCHARGE AND MAIN DUCT
E. DX COOLING STATUS, INCLUDING NUMBER OF OPERATING COMPRESSORS
F. CONDENSER FAN STATUS
G. CONDENSER WATER LEVEL
H. EVAPORATOR BLOWDOWN WATER AMOUNT

PROVIDE THE FOLLOWING ALARM:
A. FAN FAILURE
B. DIRTY FILTER (INITIALLY SET AT 1.0 INCH W.G. FOR PREFILTER/FINAL FILTER, 0.5 INCH W.G. FOR MOISTURE ELIMINATOR)
C. LOW SUPPLY AIR TEMPERATURE (INITIALLY SET AT 45°F)
D. LOW MAIN SUPPLY DUCT STATIC PRESSURE (INITIALLY SET AT 1.0 INCH W.G.)
E. HIGH SUPPLY DUCT STATIC PRESSURE AT FAN DISCHARGE (SET AT 4.0 INCH W.G.)
F. VFD'S SUMMARY.
G. CLOSED CIRCUIT FAN FAILURE
H. WATER TREATMENT SYSTEM FAILURE.

2 AC-1 AND AC-2 SYSTEMS



NOTES:

1. FAN STATUS SIGNAL TO DDC PANEL. (VIA CURRENT SENSING SWITCH). PROVIDE ONE SWITCH FOR EACH FAN.
2. RETURN AIR TEMPERATURE MONITOR TO DDC PANEL.
3. MIXED AIR TEMPERATURE MONITOR TO DDC PANEL.
4. SUPPLY AIR TEMPERATURE MONITOR TO DDC PANEL.
5. DUCT SMOKE DETECTOR. SEE ELECTRICAL DRAWINGS. HARD-WIRED TO VFD FOR FAN SHUTDOWN.
6. VFD INTERFACE. SEE 8/M5.2.
7. ECONOMIZER DAMPER POSITION FROM DDC PANEL.
8. DUCT SMOKE DETECTOR UNIT SHUTDOWN. PROVIDE ADDITIONAL RELAYS AS REQUIRED.
9. FILTER RESISTANCE SIGNAL TO DDC PANEL.
10. SEE ELECT. (FIRE ALARM) DWGS. FOR CONTINUATION.
11. DUCT SMOKE DETECTOR SIGNAL TO DDC PANEL.
12. HIGH LIMIT DUCT STATIC PRESSURE MONITOR TO AC-3 DDC PANEL. REFERENCE O.A. TYP.
13. DUCT STATIC PRESSURE MONITOR TO AC-3 DDC PANEL. REFERENCE O.A. TYP.
14. DUCT STATIC PRESSURE SENSOR. LOCATE SENSOR DOWNSTREAM OF THE SUPPLY FAN, AT 2/3 POINT OF THE MAIN DUCT RUN.
15. O.A. TEMPERATURE SENSOR SIGNAL TO DDC PANEL.
16. INTEGRAL TO AC UNIT.
17. FILTER GAUGE.
18. HEATING COIL CONTROL SIGNAL FROM AC-3 DDC PANEL.
19. FAN INLET AIRFLOW MONITOR TO DDC PANEL.
20. OUTSIDE AIRFLOW MONITOR TO DDC PANEL. AIR FLOW SENSOR SHALL BE FURNISHED AND INSTALLED AS PART OF THE AIR HANDLING UNIT.
21. PART OF AC UNIT. UNIT HAS NON-CHEMICAL WATER TREATMENT SYSTEM WHICH SHALL BE MONITORED AND ALARMED VIA THE AC UNIT DDC CONTROL SYSTEM. PROVIDE SPARE MONITORING AND ALARM POINTS FOR FUTURE CHEMICAL TREATMENT SYSTEM.
22. ALL CONTROL DEVICES AND COMPONENTS WITHIN THE UNITS SHALL BE FACTORY WIRED AND PROGRAMMED TO MEET THE SEQUENCE OF OPERATION.
23. AC UNIT CONTROL PANEL.
24. AC UNIT CONTROLLER BACNET INTERFACE TO BUILDING FMCS. (BUILDING FMCS IS AUTOMATED LOGIC.)
25. AC UNIT START/STOP SIGNAL FROM FMCS.
26. AC UNIT SUPPLY AIR TEMPERATURE RESET SIGNAL FROM FMCS.
27. AC UNIT GENERAL ALARM SIGNAL TO FMCS.
28. EVAPORATOR BLOW DOWN WATER METER SIGNAL TO FMCS.
29. FAN ASSEMBLY CONSISTS OF MULTIPLE SMALL FANS SERVED BY ONE VFD. SEE SCHEDULE.
30. ROOM SPACE PRESSURE MONITOR, ONE ON EACH FLOOR LOCATED IN OPEN OFFICE AREA. SEE MECHANICAL FLOOR PLAN.

SUPPLY AIR TEMP. RESET SCHEDULE

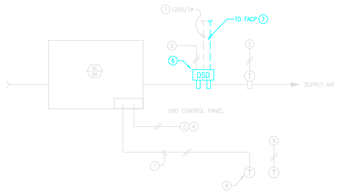
SEQUENCE OF OPERATION:

1. THE BUILDING FMCS SHALL START AND STOP AC-3 WITH ITS INTERLOCKED EXHAUST FAN(S). THE AC SYSTEM SHALL START AT 6:00 AM & STOP AT 6:00 PM (CONFIRM WITH OWNER, ADJUSTABLE). WHEN THE AIR HANDLER IS "OFF", THE OUTSIDE AIR & EXHAUST AIR DAMPERS SHALL BE IN FULLY CLOSED POSITION, AND THE RETURN AIR DAMPER SHALL BE IN A FULLY OPENED POSITION.
2. WHEN THE AIR HANDLING SYSTEM IS "ON", ONE OUTSIDE AIR DAMPER SHALL MAINTAIN THE MINIMUM OUTSIDE AIR POSITION AS MEASURED BY THE AIR FLOW SENSOR. THE OUTSIDE AIR DAMPER SHALL CLOSE ONLY WHEN THE FAN IS "OFF". THE OUTSIDE AIR, RETURN AIR AND EXHAUST AIR DAMPERS SHALL MODULATE TO MAINTAIN THE SUPPLY AIR TEMPERATURE AS SET. THE ECONOMIZER DAMPERS SHALL GO TO MINIMUM OUTSIDE AIR POSITION WHEN THE RETURN AIR TEMPERATURE IS LOWER THAN THE OUTSIDE AIR TEMPERATURE. THE SUPPLY AIR RESET SHALL BE BASED ON ROOM TEMPERATURE THAT REQUIRES THE MOST COOLING AS SENSED BY THE VAV BOXES' ROOM TEMPERATURE SENSORS. (RESET SIGNAL SHALL BE SENT BY THE BUILDING FMCS.)
3. THE DDC SYSTEM SHALL SEQUENCE THE DX COOLING OR HEATING COIL CONTROL VALVE AND THE ECONOMIZER DAMPERS TO MAINTAIN THE SUPPLY AIR TEMPERATURE AT SETPOINT (ADJUSTABLE).
4. SUPPLY AIR DUCT STATIC CONTROL:
   THE SUPPLY AIR DUCT STATIC PRESSURE SENSOR SHALL SEND SIGNAL TO THE DDC SYSTEM TO MODULATE THE FAN SPEED VIA THE VFD IN ORDER TO MAINTAIN THE DUCT STATIC PRESSURE (INITIALLY) SET AT 1.0 INCH W.G.. FINAL STATIC PRESSURE SETPOINT SHALL BE SET AS RECOMMENDED BY THE BALANCER. RESET DUCT STATIC PRESSURE TO SATISFY THE SUPPLY AIR TERMINAL WITH THE HIGHEST DEMAND. IF ANY CASES OF TERMINAL MORE THEN 85% OPEN, INCREMENTALLY INCREASE THE DUCT STATIC PRESSURE SETPOINT AND INDICATE WHICH TERMINAL IS GOVERNING THIS SETPOINT. ALARM IF STATIC PRESSURE IS MORE THAN ±0.25 INCH W.G. OUT OF LIMITS. A DUCT STATIC PRESSURE SENSOR LOCATED NEAR THE SUPPLY FAN DISCHARGE SHALL PROVIDE AN ALARM SIGNAL TO THE DDC SYSTEM SYSTEM WHEN THE DUCT STATIC PRESSURE EXCEEDS 4.0 INCH W.G. AND POWER OFF THE SUPPLY FAN.
5. RETURN FAN MODULATION:
   THE RETURN FAN SPEED SHALL MODULATE UP AND DOWN VIA THE VFD BASED ON THE SAME 4-20 MA SIGNAL FROM THE SUPPLY DUCT STATIC PRESSURE SENSOR AND A PRESET CFM DIFFERENTIAL AS DETERMINED BY THE BALANCER, AFTER FINAL BALANCING WORK IS COMPLETED. ADJUST FAN SPEED TO MAINTAIN A SLIGHT POSITIVE PRESSURE (0.02" W.C.) IN THE OFFICE SPACE.
6. BY-PASS TIMER CONTROL:
   UPON ACTIVATION OF THE BY-PASS TIMER AT THE ROOM THERMOSTAT, THE ENTIRE SYSTEM SHALL OPERATE AS NORMAL OPERATING MODE.
7. SAFETY:
   a. UPON DETECTION OF SMOKE FROM THE SUPPLY DUCT SMOKE DETECTOR, THE AC UNIT AND THE CORRESPONDING EXHAUST FANS SHALL POWER OFF. TO RESTART THE FANS, ALL TRIGGERED SMOKE DETECTOR(S) MUST BE MANUALLY RESET BY MEANS OF THE CONTROL PANEL.
   b. UPON DETECTION OF SMOKE FROM ANY MAIN SUPPLY DUCT SMOKE DETECTORS, THE AC UNIT SHALL BE DE-ENERGIZED. THE UNIT SHALL RESTART WHEN THE SMOKE DETECTOR ALARM IS CLEARED.
8. MONITORING AND ALARM:

MONITOR THE FOLLOWING:
A. SUPPLY AND RETURN FANS STATUS, AND SPEED.
B. ECONOMIZER DAMPER POSITIONS.
D. RETURN AIR, MIXED AIR AND SUPPLY AIR TEMPERATURES.
E. HEATING HOT WATER CONTROL VALVE POSITION.
F. SUPPLY DUCT STATIC PRESSURE AT FAN DISCHARGE AND MAIN DUCT
G. DX COOLING STATUS, INCLUDING NUMBER OF OPERATING COMPRESSORS
H. CONDENSER FAN STATUS
I. CONDENSER WATER LEVEL
J. EVAPORATOR BLOWDOWN WATER AMOUNT
K. ROOM PRESSURE.

PROVIDE THE FOLLOWING ALARM:
A. FAN FAILURE.
B. DIRTY FILTER (INITIALLY SET AT 1.0 INCH W.G. FOR FINAL FILTER, 0.5 INCH W.G. FOR MOISTURE ELIMINATOR)
C. LOW SUPPLY AIR TEMPERATURE (INITIALLY SET AT 45°F)
D. LOW MAIN SUPPLY DUCT STATIC PRESSURE (INITIALLY SET AT 1.0 INCH W.G.)
E. HIGH SUPPLY DUCT STATIC PRESSURE AT FAN DISCHARGE (SET AT 4.0 INCH W.G.)
F. VFD'S SUMMARY.
G. CLOSED CIRCUIT COOLER FAN FAILURE.
H. WATER TREATMENT SYSTEM FAILURE.
I. ROOM PRESSURE DROPS TO NEGATIVE. (PROVIDE 1 MINUTE DELAY TO CORRESPONDING NUISANCE ALARM).

1 AC-3 SYSTEM



NOTES:

1. FIELD CONTROL WIRING PER THE AC UNIT MANUFACTURER'S RECOMMENDATIONS.
2. SUPPLY AIR TEMPERATURE MONITOR TO FMCS.
3. START/STOP SIGNAL FROM FMCS.
4. STATUS ALARM TO FMCS.
5. DUCT SMOKE DETECTOR SIGNAL TO FMCS.
6. DUCT SMOKE DETECTOR. SEE ELECTRICAL DRAWINGS. HARD-WIRED TO AC UNIT CONTROL PANEL FOR FAN SHUT DOWN.
7. SEE ELECTRICAL (FIRE ALARM) DRAWINGS.
8. ROOM THERMOSTAT FURNISHED BY THE AC UNIT MANUFACTURER.
9. ROOM TEMPERATURE MONITOR TO FMCS.

SEQUENCE OF OPERATION:

1. AC-4 SHALL BE INITIALLY PROGRAMMED TO RUN CONTINUOUSLY.
2. ONCE ENERGIZED, THE AC UNIT CONTROL PANEL SHALL SEQUENCE THE ECONOMIZER DAMPERS AND THE DX COOLING TO MAINTAIN THE ROOM TEMPERATURE SETPOINT (INITIALLY SET AT 75°F).
3. SAFETY:
   A. UPON DETECTION OF SMOKE FROM THE SUPPLY AIR DUCT SMOKE DETECTOR, THE AC UNIT SHALL SHUT DOWN.
4. MONITOR AND ALARM:
   A. MONITOR THE FOLLOWING:
      - AC UNIT STATUS
      - SUPPLY AIR TEMPERATURE
      - ROOM TEMPERATURE
      - DUCT SMOKE DETECTOR
   B. ALARM THE FOLLOWING:
      - HIGH ROOM TEMPERATURE (INITIALLY SET AT 89°F)
      - HIGH SUPPLY AIR TEMPERATURE (INITIALLY SET AT 65°F)
      - DUCT SMOKE DETECTOR SHUT DOWN
      - AC UNIT FAILURE

4 AC-4 SYSTEM

CONTROL LEGEND

HWRS	HEATING HOT WATER SUPPLY
HWRR	HEATING HOT WATER RETURN
	GATE VALVE OR GAUGE COCK
	CHECK VALVE
2W	TWO WAY MODULATING CONTROL VALVE
3W	THREE WAY MODULATING CONTROL VALVE
M	MOTOR OPERATED BUTTERFLY VALVE
F	FLOW SWITCH
DP	DIFFERENTIAL PRESSURE SENSOR/TRANSMITTER
F	FLOW METER
MS	MOTOR STARTER
VFD	VARIABLE FREQUENCY DRIVE
	PRESSURE REGULATOR
BD	BAROMETRIC BACKDRAFT DAMPER
	AIR PRESSURE GAUGE OR MAGNAHELIC GAUGE
B	ROOM BYPASS CONTROL
T	ROOM THERMOSTAT OR ROOM TEMPERATURE SENSOR
H	RELATIVE HUMIDITY SENSOR
T	TEMPERATURE SENSOR - AVERAGING WHERE REQUIRED
T	TEMPERATURE SENSOR - AVERAGING WHERE REQUIRED
DP	STATIC PRESSURE SENSOR
P	PRESSURE SENSOR
DP	DEW POINT SENSOR
R	RESISTIVITY SENSOR
CO_2	CO_2 SENSOR
P	ROOM PRESSURE MONITOR
SD	DUCT SMOKE DETECTOR
	PUMP
	FAN
A	ACTUATED DAMPER
	HUMIDIFIER
	PILOT LIGHT
	STROBE LIGHT
X	RELAY
	WIRING: NUMBER AS REQUIRED
E	END SWITCH
ASC	APPLICATION SPECIFIC CONTROLLER
CSR	CURRENT SENSING RELAY
EAD	EXHAUST AIR DAMPER
FMCS	FACILITIES MONITORING AND CONTROL SYSTEM
FPU	FIELD PROCESSING UNIT
FSD	FIRE SMOKE DAMPER
RAD	RETURN AIR DAMPER
OAD	OUTSIDE AIR DAMPER
NC	NORMALLY CLOSED
NO	NORMALLY OPEN
OWS	OPERATOR WORKSTATION
XFMR	TRANSFORMER

GENERAL NOTES

1. NUMBER OF WIRES TO EACH DEVICE AS REQ'D.
2. ALL SIGNALS BROUGHT TO IDU OR DPU.
3. SMOKE DETECTION FURNISHED AND WIRED BY FIRE ALARM, INSTALLED BY MECHANICAL.
4. OBTAIN 120V CONTROL POWER FROM THE CONTROL POWER JUNCTION BOXES THE MAIN TEMPERATURE CONTROL PANEL, AND WHERE INDICATED. SEE ELECTRICAL DRAWINGS. EXTEND POWER AND PROVIDE TRANSFORMER AS REQUIRED.
5. PROVIDE TRANSFORMER AS REQUIRED.
6. DUCT SMOKE DETECTOR SUPPLIED BY SIEMENS. ALL OTHER MATERIALS SHALL BE SUPPLIED BY OTHERS.

FAILURE DEFINITIONS:

FANS:
MISMATCH BETWEEN OUTPUT COMMAND TO FAN AND STATUS (FAN AIR FLOW MONITOR).
ANY VFD ALARM THROUGH THE FMCS INTERFACE.
DUCT DIFFERENTIAL PRESSURE IS +/-20% OUT OF LIMITS.
FAN AIR FLOW IS +/-20% OUT OF LIMITS WITH RESPECT TO DUCT AIR FLOW MONITORING STATION.

PUMP:
MISMATCH BETWEEN OUTPUT COMMAND TO PUMP AND STATUS (PUMP DIFFERENTIAL PRESSURE OR WATER FLOW METER).
ANY VFD ALARM THROUGH THE FMCS INTERFACE.
DIFFERENTIAL PRESSURE IS +/-20% OUT OF LIMITS.
PUMP WATER FLOW IS +/-20% OUT OF LIMITS WITH RESPECT TO WATER FLOW METER.

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REVISIONS

No.	Revision	By	Date	Appr.
1	RESPONSE TO HYT BULLETIN 5 REVIEW COMMENTS	JPM	10/19/10	KW
	AS-BUILT	JPM	9/20/12	KW

AS-BUILT

→TO APPROVAL STAMP

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PRODUCT MANUFACTURER:

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California State C10 License No. 758796
U.L. Certificate ID No. 324787-001

JOB NAME & LOCATION (STREET ADDRESS):

UNIVERSITY OF CALIFORNIA
LAWRENCE BERKELEY NATIONAL LABORATORY
FACILITIES DIVISION

BUILDING 74
FIRE ALARM

LBNL SEISMIC
PHASE 2

One Cyclotron Road,
Berkeley, California 94720

SHEET CONTENTS:

TYPICAL WIRING OF DUCT DETECTOR AT AC-UNIT

INSTALLATION TYPE:

- ☐ NEW INSTALLATION
- ☐ DESIGN/BUILD
- ☐ PER CONTRACT DOCUMENT
- ☐ EXISTING BASE JOB # N/A
- ☐ OTHERS

SYSTEM SALES REP.:	Kevin Waxman
PROJECT MANAGER:	Mark Millard
DRAWN BY:	JPM
CAD FILENAME:	FA-07
SCALE:	Not Applicable
DATE DRAWN:	March 15, 2010
PLOT DATE:	March 27, 2014

DRAWING NO.	SHEET	JOB NUMBER
6N74E329	FA-07	44OP-069681

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