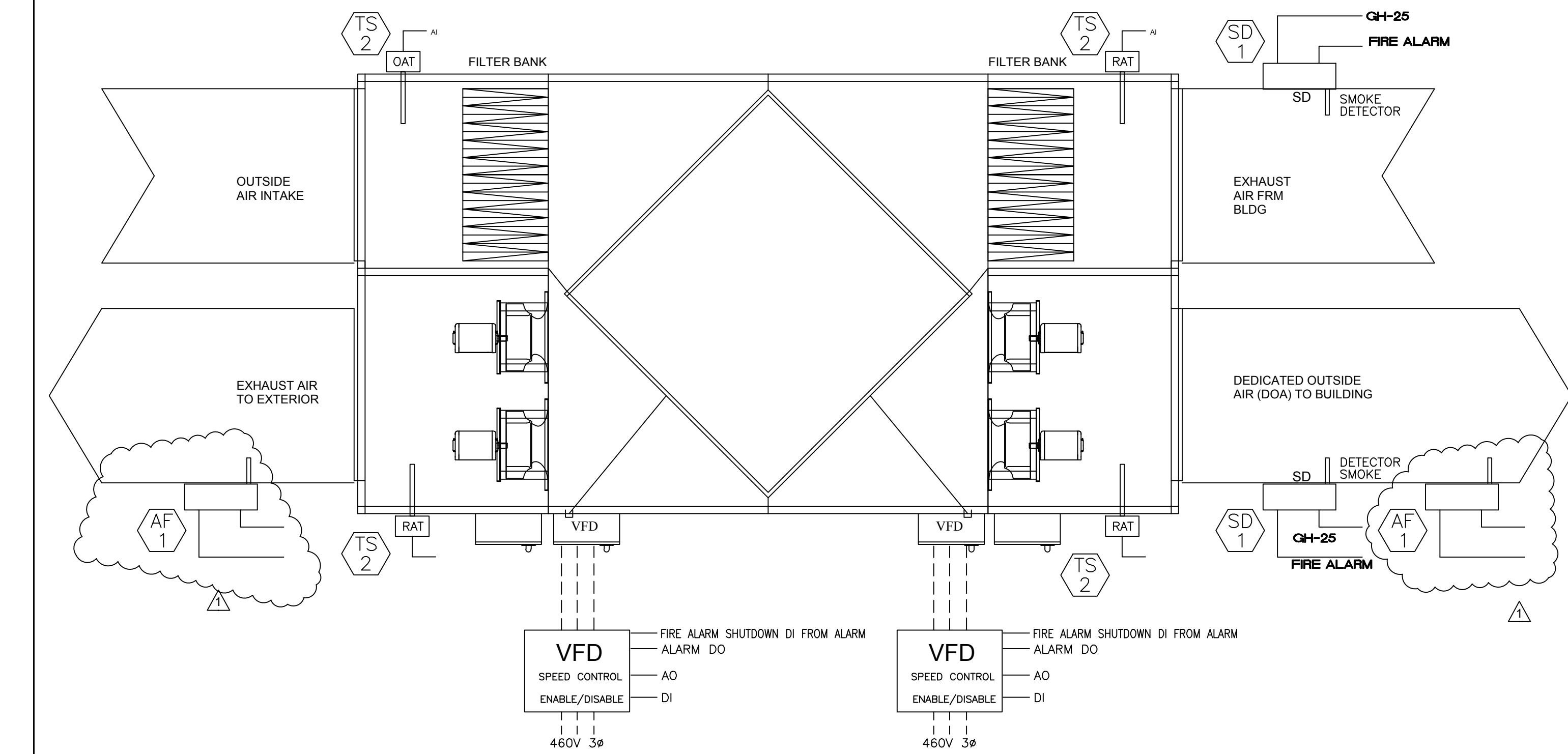
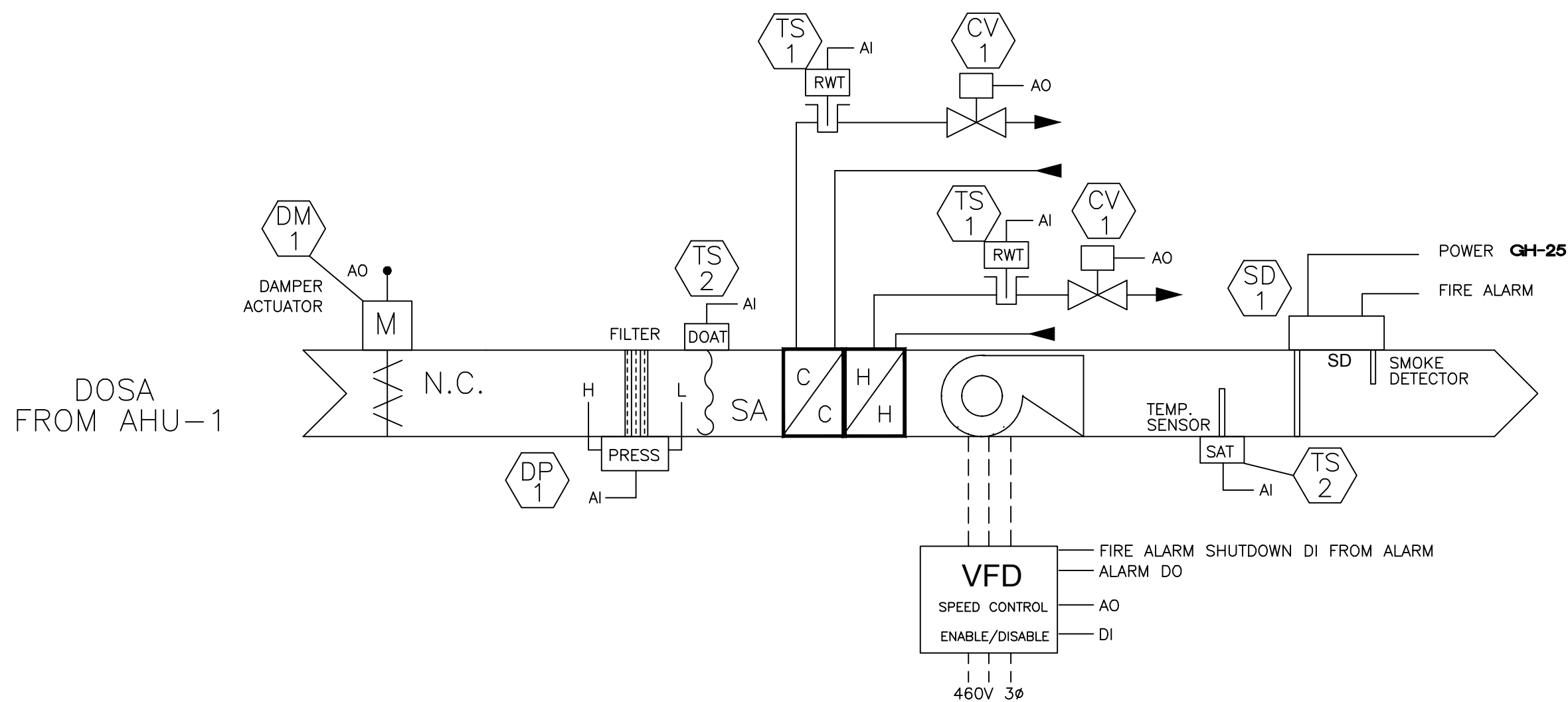
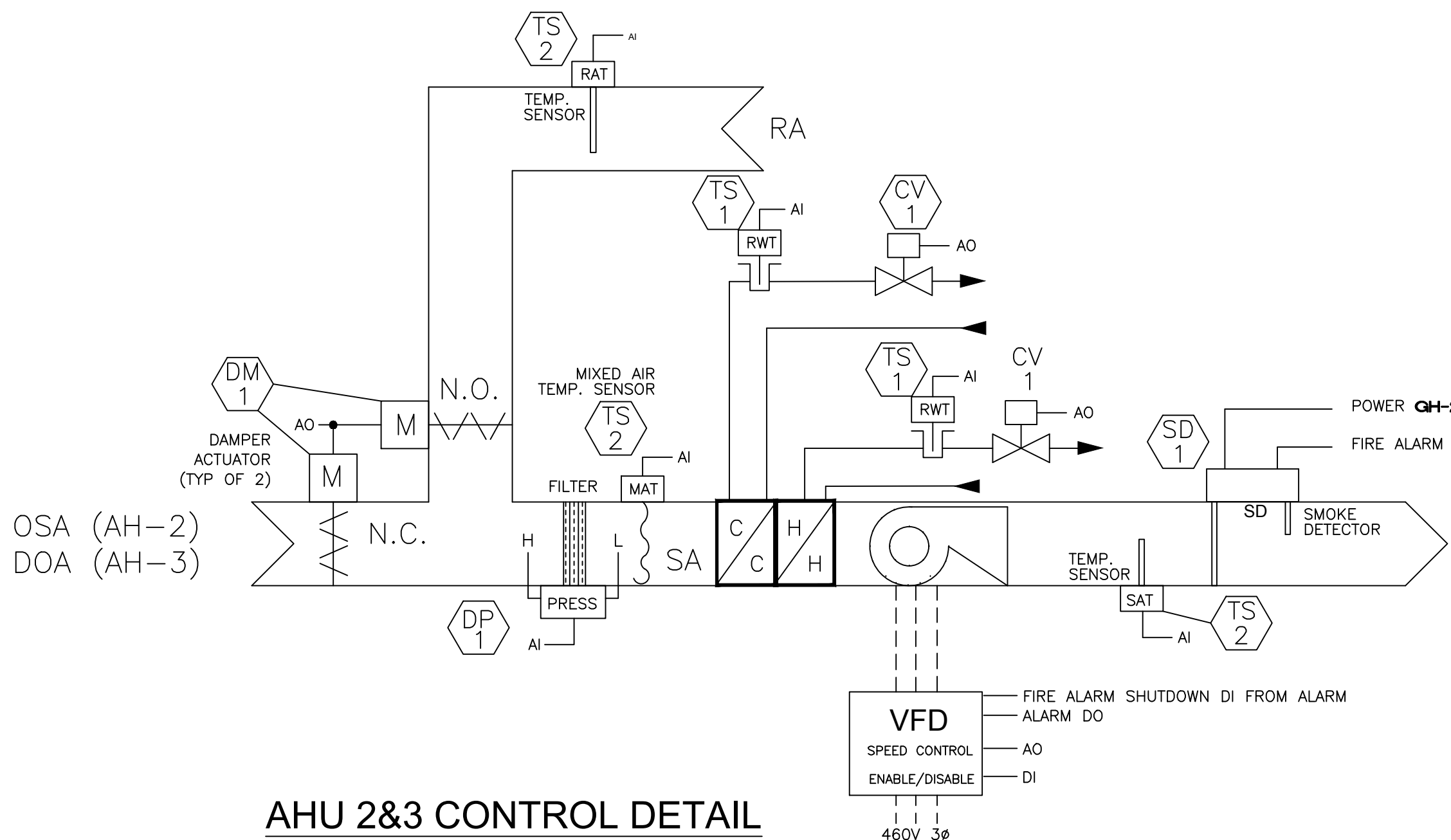




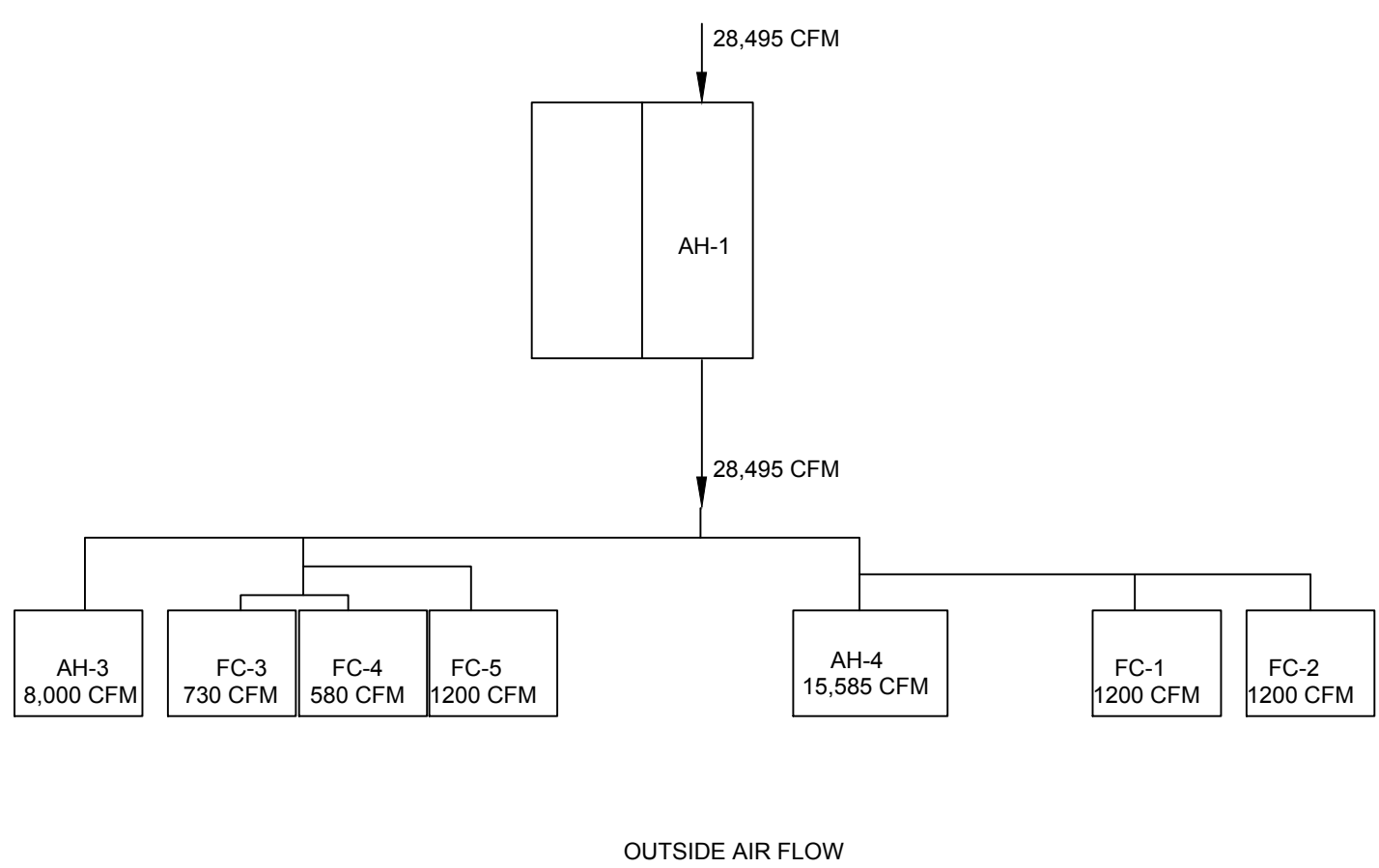
AHU 1 CONTROL DETAIL



AHU 4 CONTROL DETAIL



AHU 2&3 CONTROL DETAIL



CONTROL POINTS (show on graphics)

AH-1
INPUTS
DEDICATED OUTSIDE AIR TEMP AFTER HEAT EXCHANGER
DEDICATED OUTSIDE AIR TEMP BEFORE HEAT EXCHANGER
EXHAUST AIR TEMP FROM BUILDING
EXHAUST AIR TEMP TO EXTERIOR
VFD ALARM (EXHAUST)
VFD ALARM (OUTSIDE AIR)
FIRE ALARM SHUTDOWN (EMERGENCY STOP CONTACTS AT VFD 1)
FIRE ALARM SHUTDOWN (EMERGENCY STOP CONTACTS AT VFD 2)
PRESSURE SENSOR # 1 LOCATE AT AH-3
AIR FLOW MONITORING STATION - EXHAUST AIR
AIR FLOW MONITORING STATION - OUTSIDE AIR
OUTPUTS
VFD 1 ENABLE
VFD 1 SPEED
VFD 2 ENABLE
VFD 2 SPEED

CHILLER

INPUTS
BACNET MODULE FROM CHILLER
KILOWATTS
HEAD PRESSURE
PERCENTAGE OF FULL LOAD
CHILLER ALARM

SUPPLY H2O TEMP
RETURN H2O TEMP
PUMP 1A ALARM
PUMP 1B ALARM
DIFF. PRESSURE AT FC-7
FLOW METER

OUTPUTS
CHILLER ONE ENABLE
CHILLER TEMP RESET
PUMP 1A ENABLE
PUMP 1A SPEED
PUMP 1B ENABLE
PUMP 1B SPEED
CHILLER TEMP RESET THROUGH BACNET

BOILER

INPUTS
BACNET INTERFACE WITH BOILER CONTROLLER
SUPPLY WATER TEMP
RETURN WATER TEMP
PUMP P2A STATUS
PUMP P2B STATUS

OUTPUTS
BACNET INTERFACE WITH BOILER CONTROLLER
SYSTEM ENABLE
SUPPLY WATER TEMP RESET
PUMP 2A SPEED
PUMP 2B SPEED
PUMP 2B SPEED

EXTERIOR LIGHTS

OUTPUTS
8 ZONES (DISCRETE OUTPUTS)
COORDINATE W/ ELECTRICAL

CONNECT TO HA PANEL POWER LINK SYSTEM

FAN COILS

INPUTS
THERMOSTAT
SUPPLY AIR TEMP
FIRE ALARM SHUTDOWN

OUTPUTS
FAN ENABLE
CHILLED WATER VALVE CONTROL
HOT WATER VALVE CONTROL

CEILING CASSETTE UNITS

INPUTS
THERMOSTAT

OUTPUTS
FAN ENABLE
CHILLED WATER VALVE CONTROL
HOT WATER VALVE CONTROL

DOMESTIC WATER BOILER

INPUTS
SUPPLY WATER TEMP.
TANK WATER TEMP
RECIRC RETURN TEMP
BACNET CONNECTION TO TEMPTRACKER

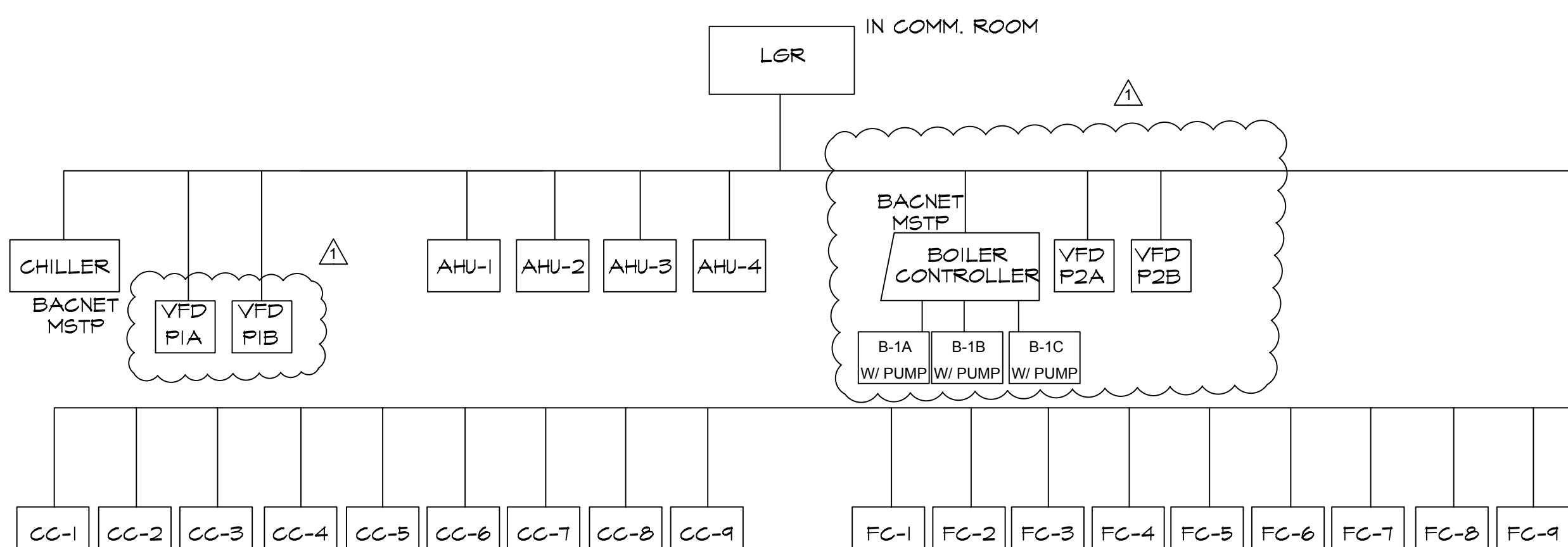
OUTPUTS
BOILER CONTROLLER ENABLE
RECIRCULATION PUMP

CONTROL POINTS (show on graphics)

AH 4
INPUTS
SUPPLY AIR TEMP
OUTSIDE AIR TEMP FROM AH-1
CHILLED WATER RETURN TEMP
HOT WATER RETURN TEMP
VFD ALARM - FAN
SUPPLY DUCT PRESSURE SENSOR
SPACE PRESSURE SENSOR - LOCATE AT FC-6
SPACE PRESSURE SENSOR - LOCATE ON DUCT ABOVE ROOM 112
THERMOSTAT - MEN'S LOCKER RM
THERMOSTAT - WOMEN'S LOCKER RM
AVERAGE
OUTPUTS
VFD ENABLE
VFD SPEED
CHILLED WATER VALVE
HOT WATER VALVE

CONTROL POINTS (show on graphics)

AH 2&3 - CONSTANT VOLUME
INPUTS
SUPPLY AIR TEMP
RETURN AIR TEMP
MIXED AIR TEMP
CHILLED WATER RETURN TEMP
HOT WATER RETURN TEMP
VFD ALARM - FAN
SUPPLY DUCT PRESSURE SENSOR
SUPPLY DAMPER FEEDBACK
RETURN DAMPER FEEDBACK
FILTER DIFF. PRESSURE
CO2 SENSOR/TEMP IN GYM
CO2 SENSOR/TEMP IN GYM
OUTPUTS
VFD 1 ENABLE
VFD 1 SPEED
CHILLED WATER VALVE
HOT WATER VALVE
OUTSIDE AIR DAMPER (AH-3) DOA (AH-2)
RETURN AIR DAMPER
SUPPLY DAMPER

CONTROL TOPOGRAPHY
NO SCALE

CONTROL SCHEDULE	
CM 1	CONTROL MODULE, ALC S SERIES SEE EACH AIR HANDLER FOR INPUTS AND OUTPUTS
CM 2	CONTROL MODULE, ALC M SERIES W/ BACNET CONNECTION SEE BOILER AND CHILLER POINTS LIST FOR INPUTS AND OUTPUTS
CM 3	CONTROL MODULE, ALC Z SERIES SEE FAN COIL & CEILING CASSETTE POINTS LIST
CM 4	CONTROL MODULE, ALC Z SERIES FOR EXTERIOR LIGHTING CONTROL. HARDWIRED POINTS TO POWERLINK PANEL AT ELECTRICAL ROOM
CM 5	CONTROL MODULE, ALC Z SERIES SEE DOMESTIC BOILER INTERFACE TO CONTROLLER
R 1	ROUTER ALC LGR CONNECT TO (E) CAMPUS NETWORK PROVIDE PATCH CABLE
T 1	THERMOSTAT ZS PRO W/ SETPOINT ADJUSTMENT & TIMED LOCAL OVERRIDE
T 2	THERMOSTAT, ALC MODEL ZS PLUS, WALL SENSOR ONLY WITH CO2 W/ PROTECTIVE CAGE
T 3	THERMOSTAT, ALC MODEL ZS ALC, WALL SENSOR ONLY W/ PROTECTIVE CAGE
DT 1	DUCT TEMP SENSOR - 10K-2-D-XX", DUCT MOUNTED TEMPERATURE SENSOR WITH INTEGRATED HANDY BOX. USED FOR SUPPLY AND RETURN AIR TEMP. BAPI
OT 1	AVERAGING TEMP SENSOR - 10K-2-A-XX", OUTSIDE AIR AVERAGING TEMP SENSOR WITH INTEGRATED EXTERIOR BOX. BAPI.
AT 1	AVERAGING TEMP SENSOR - 10K-2-A-XX", MIXED AIR AVERAGING TEMP SENSOR WITH INTEGRATED HANDY BOX. BAPI.
PX 1	PRESSURE TRANSMITTER - 0-5VDC OUTPUT, TO BE USED ACROSS FILTER TO DETERMINE FILTER STATUS & SUPPLY DUCT PRESSURE. DWYER 604A OR VERIS IND.
CS 1	CURRENT SENSOR - 0-5VDC OR 4-20mA OUTPUT CURRENT SENSOR, TO DETERMINE MOTOR AMPERAGE AND STATUS. VERIS INDUSTRIES OR NIELSEN KULJIAN
CV 1	CONTROL VALVE - 2-WAY VALVE (SEE M1.1) WITH AN ELECTRONIC ACTUATOR WITH EITHER 0-5VDC OR 4-20mA COMMAND SIGNAL. VALVE AND ACTUATOR SHALL BE BELIMO.
DM 1	DAMPER ACTUATOR - SIZE 125% OF DAMPER AREA, WITH 0-10VDC OR 4-20mA CONTROL SIGNAL. ACTUATOR SHALL BE BELIMO.
LP 1	LIQUID PRESSURE SENSOR - DWYER SERIES 634A, 4-20mA SIGNAL 0-100 PSI RANGE. PROVIDED BY CONTROLS CONTRACTOR. WELD-O-LET INSTALLED BY PLUMBING CONTRACTOR.
LT 1	IMMERSION SENSOR - 10K-2-I-XX" WP IMMERSION TEMP SENSOR WITH STAINLESS STEEL THERMAL WELL AND WEATHER PROOF ENCLOSURE, PROVIDED BY CONTROLS CONTRACTOR. THERMAL WELL INSTALLED BY MECHANICAL PIPING CONTRACTOR.
PS 1	H2O DIFF. PRESSURE TRANSMITTER - 4-20mA OUTPUT, FOR SYSTEM PRESSURE CONTROL. PROVIDE ISOLATION VALVE AT CONNECTION TO PIPING. DWYER INSTRUMENTS 634-E-1
FM 1	FLOW METER, SIGNET MODEL 5924-551 FIELD MOUNT 4-20 MA OUTPUT TO EMS. CHILLED WATER INSERTION FITTING 6" PIPE W/ PADDLEWHEEL HOT WATER INSERTION FITTING 4" PIPE W/ METAL PADDLEWHEEL
FA 1	FIRE ALARM SHUTDOWN. COORDINATE WITH FIRE ALARM CONTRACTOR FOR UNIT SHUTDOWN UPON FIRE ALARM. PROVIDE ANY NEEDED INPUT POINTS OR DELAYS. USE EMERGENCY STOP CONTACTS AT VFD.
AF 1	AIR FLOW MONITORING STATION. EBTRON GTx116-p+ INSTALL AT AH-4 EXHAUST AIR AND INTAKE AIR AT LOCATION PER MANUFACTURER'S REQUIREMENTS.

CONSULTANT LUCCI & ASSOCIATES INC. CONSULTING ELECTRICAL ENGINEERS 3251 CORTE MALPASO, #511 CAMARILLO, CA 93012-8094 (805) 389-6520 FAX (805) 389-6519 Web Site http://www.lucciland.com	DIVISION OF THE STATE ARCHITECT IDENTIFICATION STAMP DIVISION OF THE STATE ARCHITECT FILE NO. 66-C1 APPL NO. 03-118379 AC _____ FLS _____ SS _____ DATE _____	ARCHITECT'S STAMP AMADOR WHITTLE ARCHITECTS, INC. 28328 AGOURA ROAD, SUITE 203 AGOURA HILLS, CA 91301 (805) 530-3038 (818) 874-0071	CONSULTANT STAMP AMADOR WHITTLE ARCHITECTS, INC. 28328 AGOURA ROAD, SUITE 203 AGOURA HILLS, CA 91301 (805) 530-3038 (818) 874-0071
MOORPARK COLLEGE GYMNASIUM RENOVATION			
7075 CAMPUS RD. BUILDING #3 MOORPARK, CA 93021 BACKCHECK SUBMITTAL			
NOTE: THIS SHEET IS ONE OF A SET OF DOCUMENTS WHICH INCLUDES, BUT IS NOT LIMITED TO, DRAWINGS AND SPECIFICATIONS ADDRESSING ALL TRADES. GENERAL CONTRACTOR IS RESPONSIBLE FOR FURNISHING ALL BIDDERS WITH A FULL SET OF CONSTRUCTION DOCUMENTS. ALL BIDDERS SHALL REVIEW THE ENTIRE SET OF DOCUMENTS. IF THERE IS A CONFLICT BETWEEN DISCIPLINES, THE MOST EXPENSIVE OPTION SHALL BE BID.			
REVISIONS 07-25-18 ADDENDUM #2	DATE: 03/26/2018 DRAWN: S.F. CHECK: K.L. JOB NO: 16-MPC-023		
POWER FOR MECHANICAL CONTROLS			E424