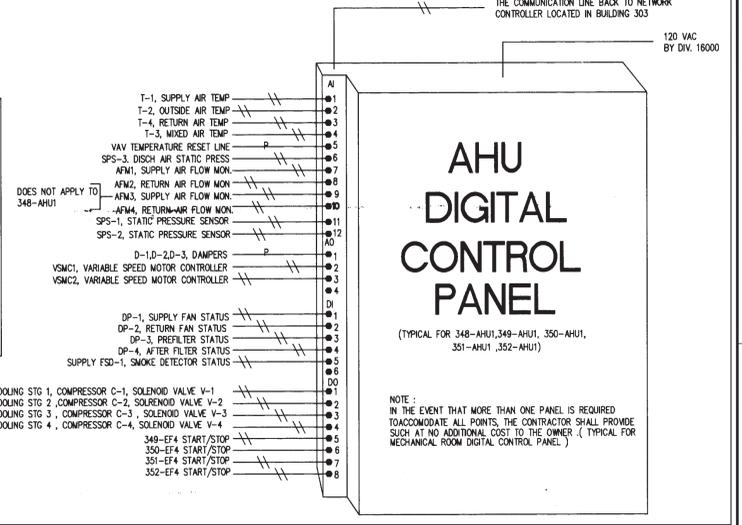
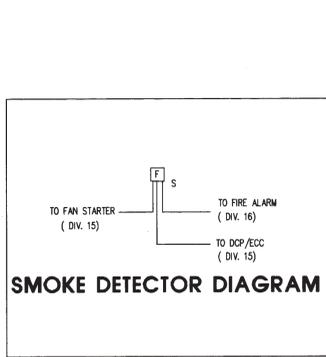


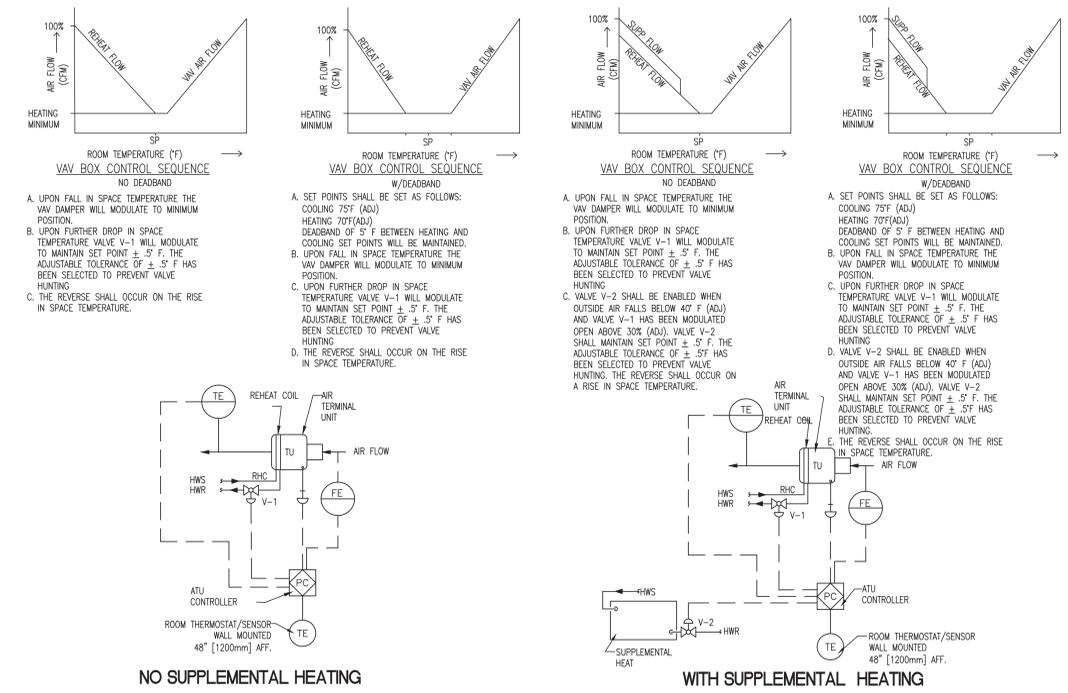
1 EXISTING AHU-1 CONTROL DIAGRAM  
NO SCALE

**RESET SUPPLY TEMPERATURE SCHEDULE**  
BASED ON ZONE WITH HIGHEST COOLING DEMAND

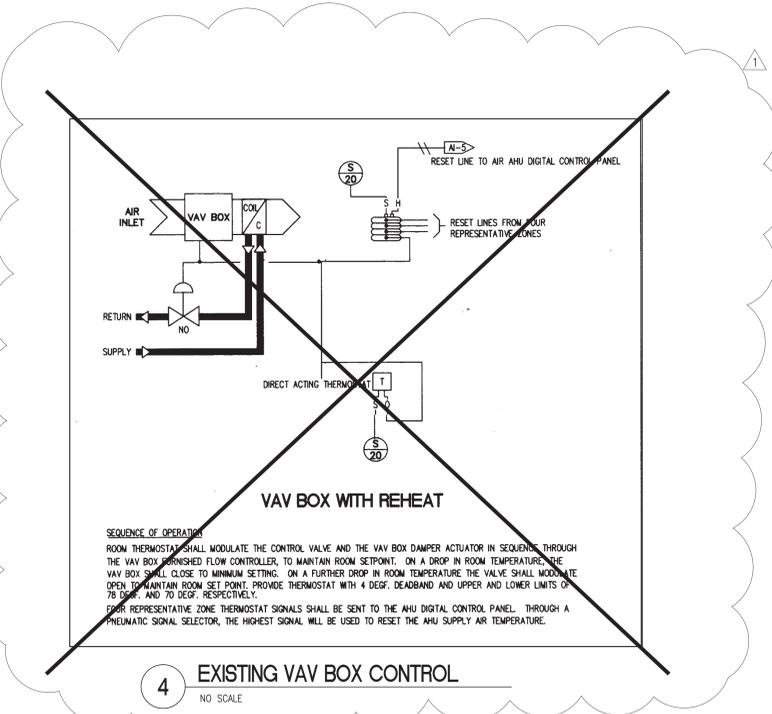
BLDG 348	BLDG 348, 350, 351, & 352
AHU-1	AHU-1
145	101
104	128
126	206
105	214



2 EXISTING AHU-1 CONTROL PANEL  
NO SCALE



3 VARIABLE VOLUME AIR TERMINAL UNIT CONTROL DIAGRAM  
NTS



4 EXISTING VAV BOX CONTROL  
NO SCALE

- SEQUENCE OF OPERATIONS**
- GENERAL
    - UNIT IS NORMALLY STARTED AND STOPPED BY THE DCP OR REMOTELY AT THE ECC. If D-A SWITCH SHALL BE KEPT IN THE "AUTO" POSITION. "HARD" AND "OFF" SHALL BE USED ONLY FOR MAINTENANCE. WHEN UNIT IS OFF D-1, AND D-3 BE FULLY CLOSED.
  - TEMPERATURE CONTROL
    - THE SUPPLY AIR TEMPERATURE, SENSED BY T-1, SHALL BE MAINTAINED AT SETPOINT BY DCP MODULATING D-1, D-2, D-3 AND STAGING CONDENSING UNIT COMPRESSORS IN SEQUENCE.
    - WHEN THE TEMPERATURE OF THE OUTSIDE AIR, SENSED BY T-2, IS ABOVE 65 DEGREE F, THE DCP SHALL PREVENT THE MODULATION OF D-1, D-2 AND D-3. D-1 SHALL ASSUME THE MINIMUM OUTSIDE AIR POSITION (D-2 FULLY OPENED AND D-3 FULLY CLOSED). THE DCP SHALL STAGE THE COMPRESSORS TO MAINTAIN THE SUPPLY AIR TEMPERATURE, SENSED BY T-1.
    - WHEN THE TEMPERATURE OF THE OUTSIDE AIR, SENSED BY T-2, IS BETWEEN 65 DEGREE F, AND THE SUPPLY AIR TEMPERATURE T-1, DAMPER D-2 SHALL BE FULLY CLOSED AND D-1 AND D-3 SHALL BE FULLY OPENED (MAXIMUM OUTSIDE AIR POSITION). THE DCP SHALL STAGE THE COMPRESSORS TO MAINTAIN THE SUPPLY AIR TEMPERATURE, SENSED BY T-1.
    - WHEN THE TEMPERATURE OF THE OUTSIDE AIR, SENSED BY T-2, IS BELOW THE SUPPLY AIR TEMPERATURE, SENSED BY T-1, THEN DAMPERS D-1 AND D-2, AND D-3 SHALL MODULATE AS REQUIRED TO MAINTAIN THE SCHEDULED SUPPLY AIR TEMPERATURE. THE MODULATION OF DAMPER D-1 SHALL NOT FALL BELOW ITS MINIMUM OUTDOOR AIR SETTING.
    - SUPPLY TEMPERATURE SETPOINT SHALL BE RESET BY THE ROOM WITH THE HIGHEST HEATING OR COOLING DEMAND. SEE ACCOMPANYING SCHEDULE FOR THERMOSTAT/ROOM DESIGNATIONS. RESET SHALL NOT EXCEED 65 DEGREE (ADJUSTABLE).
  - AIR FLOW CONTROL
    - THE SUPPLY AIR FLOW SHALL BE CONTROLLED BY THE DCP MODULATING SUPPLY FAN VARIABLE SPEED MOTOR CONTROLLER (VSMC) TO MAINTAIN THE DUCT STATIC PRESSURE SETPOINT (ASU) AS SENSED BY SPS-1 & SPS-2. S.P. SETPOINT TO BE SET AT HIGHEST SETTING TO SATISFY ALL DOWNSTREAM AIR TERMINAL UNITS, WITH ALL AIR TERMINAL UNITS ON THE UPSTREAM SIDE OF THE SENSOR FULLY OPEN.
    - THE DCP USING TOTAL SUPPLY AIR AND RETURN AIR FLOW SIGNALS SHALL RESET THE RETURN FAN SPEED TO MAINTAIN A CONSTANT CFM DIFFERENCE BETWEEN THE CFM FOR THE SUPPLY FAN AND THE CFM FOR THE RETURN FAN (TOTAL AIR QUANTITIES SHALL BE SUMMATION OF RESPECTIVE AIR FLOW MEASURING DEVICES).
    - THE DCP USING HIGH PRESSURE SENSOR SPS-3 LOCATED AT THE SUPPLY FAN DISCHARGE SHALL PREVENT THE SUPPLY FAN FROM DEVELOPING OVER 3.00 INCHES WG. IF STATIC PRESSURE AT SPS-3 EXCEEDS 3.00 INCHES WG, THE SUPPLY FAN SHALL SHUT "OFF" AND A CRITICAL ALARM SHALL GO TO DCP AND ECC.
  - COOLING STAGING
    - REFRIGERATION COMPRESSORS SHALL BE LOADED/UNLOADED AS REQUIRED TO MAINTAIN SUPPLY AIR TEMPERATURE AS SENSED BY T-1
    - AUTOMATIC SHUTDOWN/RESTART
  - EMERGENCY CONSTANT SPEED OPERATION
    - ON ALL VSMC FANS IN VAV SYSTEMS UPON FAILURE OF THE VSMC THE FANS SHALL BE STARTED/STOPPED MANUALLY AT THE DCP OR THE ECC THROUGH THE BY-PASS STARTER. FANS SHALL THEN BE OPERATED AT CONSTANT DESIGN SPEED.
  - MORNING WARM-UP
    - DURING MORNING WARM-UP, DAMPERS D-1 AND D-3 SHALL CYCLE FULLY CLOSED. AIR TERMINAL UNITS SHALL BE UNDER CONTROL OF RESPECTIVE THERMOSTATS AND OUTSIDE AIR DAMPER D-1 SHALL COME UNDER CONTROL OF SUPPLY AIR TEMPERATURE SENSOR T-1 ONLY WHEN THE RETURN AIR TEMPERATURE HAS REACHED 70 DEGREE (ADJUSTABLE).

**CONSULTANTS:**

ARSENIO ORTEGA, P.E.  
CONSULTING ENGINEER  
5 Third Street, Suite 716  
San Francisco, CA 94103  
(415) 546-0490 tel -0491 fax

BRYAN BENNO BRAUER, P.E.  
CONSULTING ENGINEER  
PO BOX 2586, TRUCKEE, CA 96160 (530)682-8683  
BRYAN@BBBRAUER.COM

Stamp and Signature

Professional Engineer  
BRYAN BENNO BRAUER  
No. 18550  
Exp. 9-30-2018  
MECHANICAL  
STATE OF CALIFORNIA

**ARCHITECT/ENGINEERS:**

ENGINEERS ARCHITECTS  
6700 KOLL CENTER PARKWAY SUITE 125  
PLEASANTON, CALIFORNIA 94566  
Tel. 925.223.8217 www.thekpagroup.com

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Drawing Title  
HVAC  
CONTROLS DIAGRAMS

Approved Project Director  
-  
VAPAHCS PLANNING AND ENGINEERING

Project Title  
348 HOMELESS RESOURCE  
CENTER

Project Number  
640-14-124

Building Number  
348

Drawing Number  
MH605

Date  
04/03/2018

Checked  
PWP

Drawn  
KPA TEAM

Dwg. of

Office of  
Construction  
and Facilities  
Management

**VAPAHCS**  
Ventura Alliance for Public Health Care System

three inches = one foot  
one and one half inches = one foot  
one inch = one foot  
three quarters inch = one foot  
one half inch = one foot  
three eighths inch = one foot  
one quarter inch = one foot  
one eighth inch = one foot

VA Form 08-6231