

PROJECT 2007-0731
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INTERFACE
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ENGINEER: FRANCIS L. JAMES, P.E.

NO. C018895
Ren: 09/30/11

EST. 12-31-2010
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STATE OF CALIFORNIA

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REVISION	REMARKS	DATE
1	ADDENDUM NO. 1	09/18/09

DRAWING STATUS	DATE
● DSA PLAN CHECK	08/29/08
● DSA BACK CHECK	01/22/09
● BIDDING (BID #88993)	09/18/09
○ CONSTRUCTION	

FILE NO. 41-C1

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT

01-110074

AC FLS SS
DATE

**BUILDINGS 5 & 6
RENOVATIONS**

San Mateo County Community
College District

BID ADDENDA

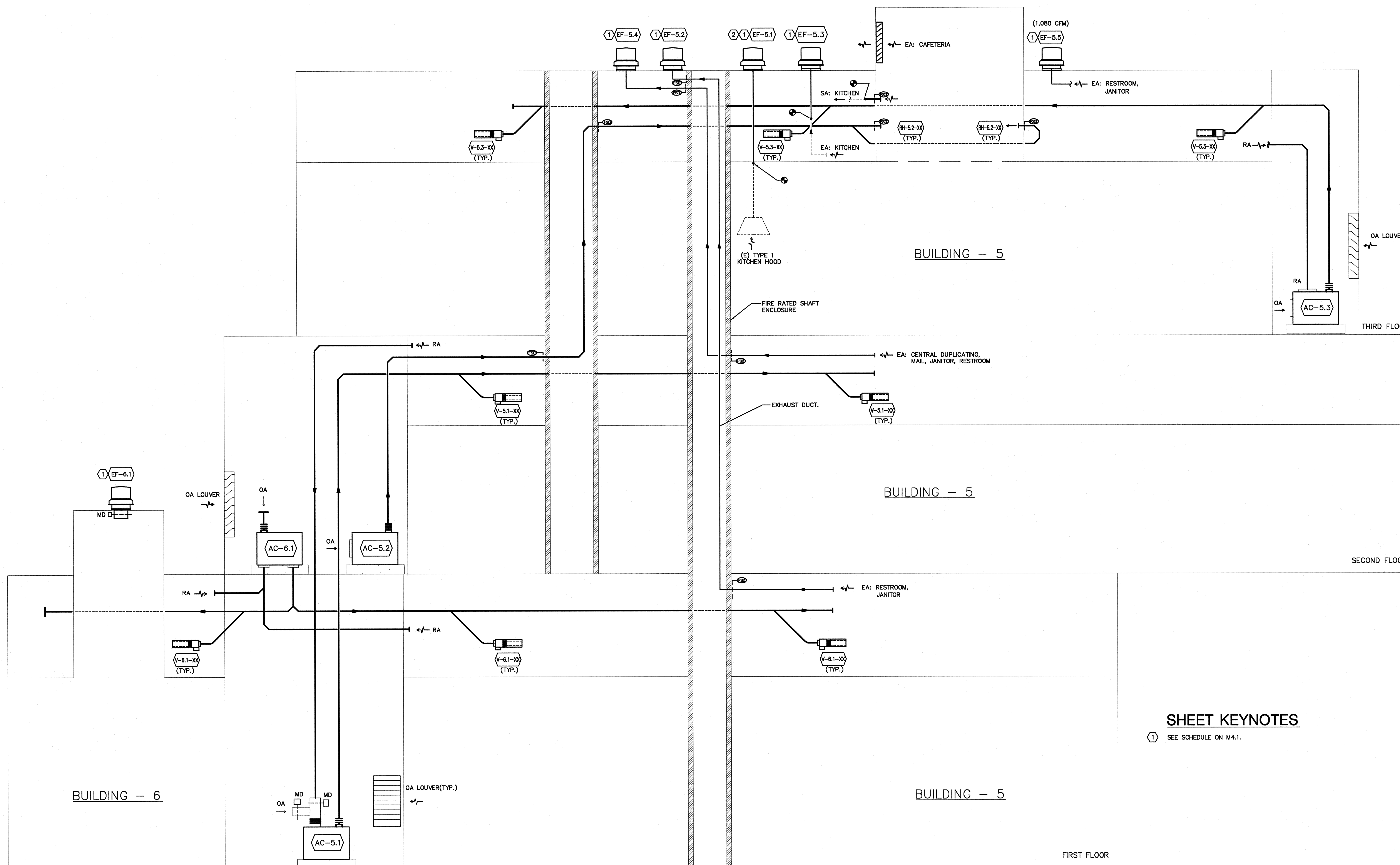
CAÑADA COLLEGE
4200 Farm Hill Boulevard
Redwood City, CA 94061

MECHANICAL DUCTWORK
DIAGRAMS

Date
08/29/08
Scale
AS NOTED
Project Number
07013

Drawing Number

M3.1



SHEET KEYNOTES
① SEE SCHEDULE ON M4.1.

1 AIR RISER DIAGRAM
NO SCALE

PROJECT CONTACT **2007-0731**
Omar Hawit

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ARCHITECT	ENGINEER

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REVISIONS	DATE

REVISION HISTORY	DATE

FILE NO. 41-C1

IDENTIFICATION STAMP
DATE: **MAR 19 2008**

BUILDINGS 5 & 6 RENOVATIONS

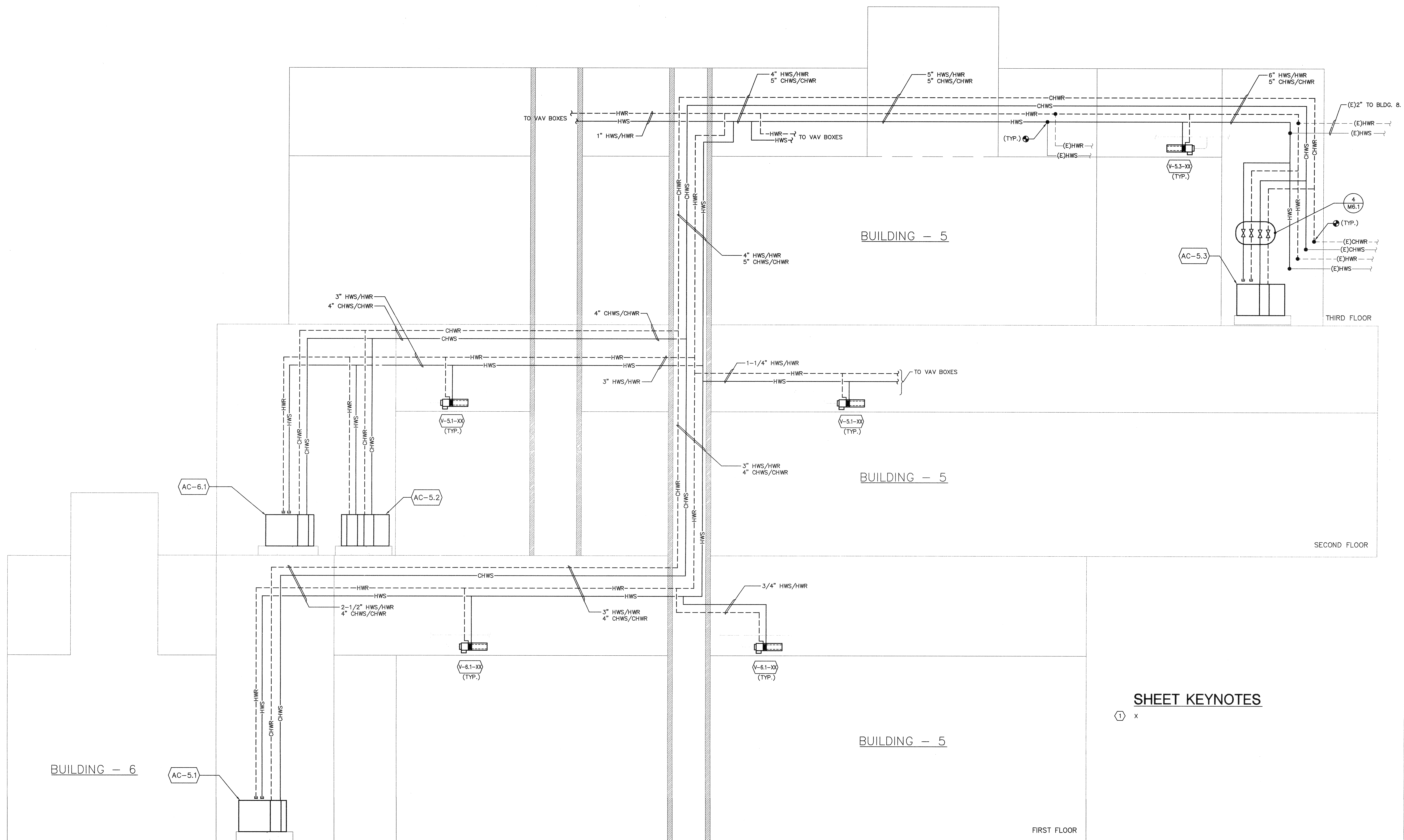
San Mateo County Community College District

DSA BACK-CHECK

CAÑADA COLLEGE
4200 Farm Hill Boulevard
Redwood City, CA 94061

MECHANICAL PIPING
DIAGRAMS

Date	01/22/09	Drawing Number	M3.2
Scale	AS NOTED	Project Number	07013



SHEET KEYNOTES
① x

1 PIPING RISER DIAGRAM
NO SCALE

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REMARKS	DATE

DATE

FILE NO. 41-C1
IDENTIFICATION STAMP
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01- 110074
AC [Signature] FLS [Signature] [Signature]
DATE MAR 19 2009

BUILDINGS 5 & 6 RENOVATIONS

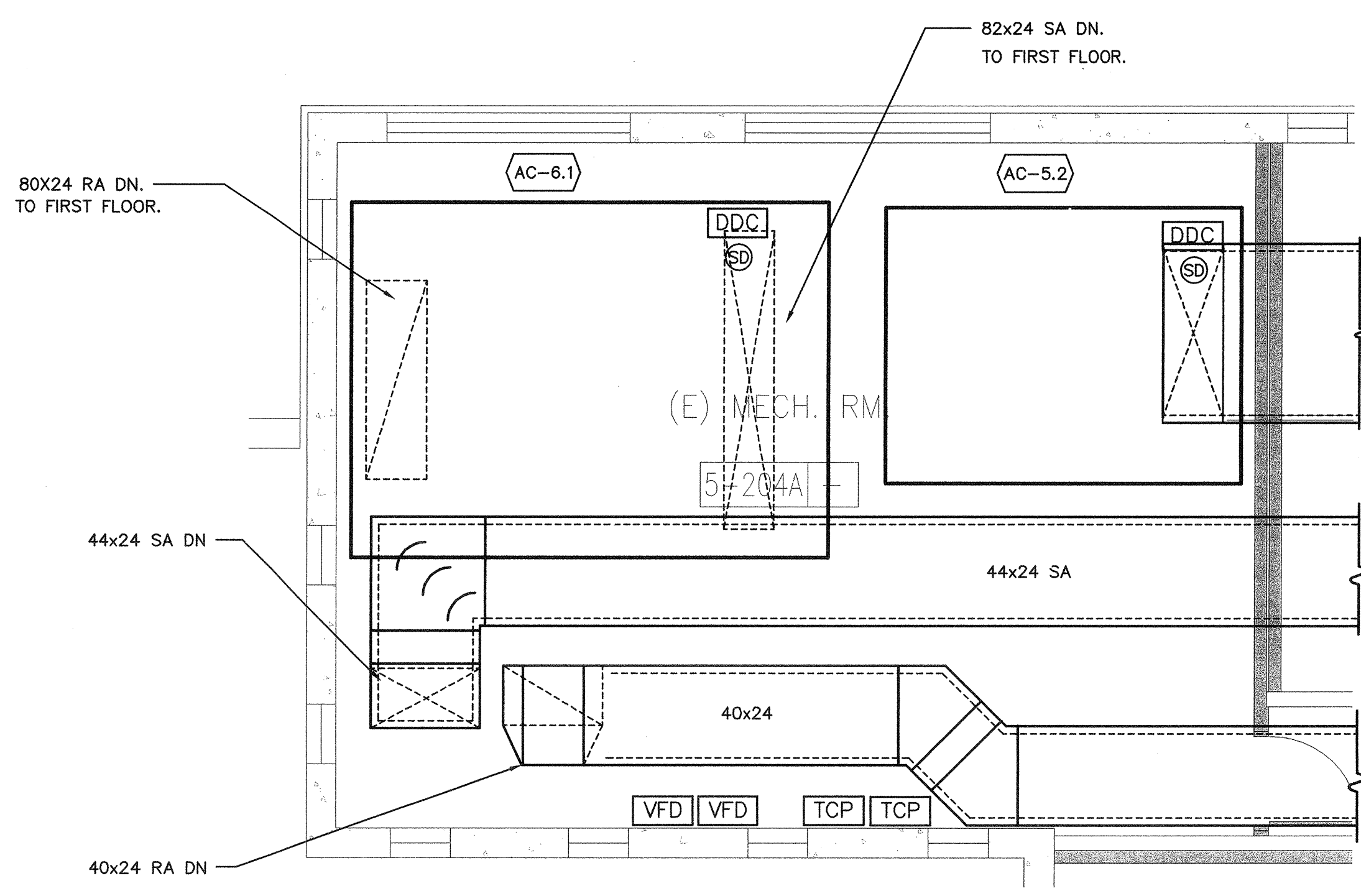
San Mateo County Community
College District

DSA BACK-CHECK

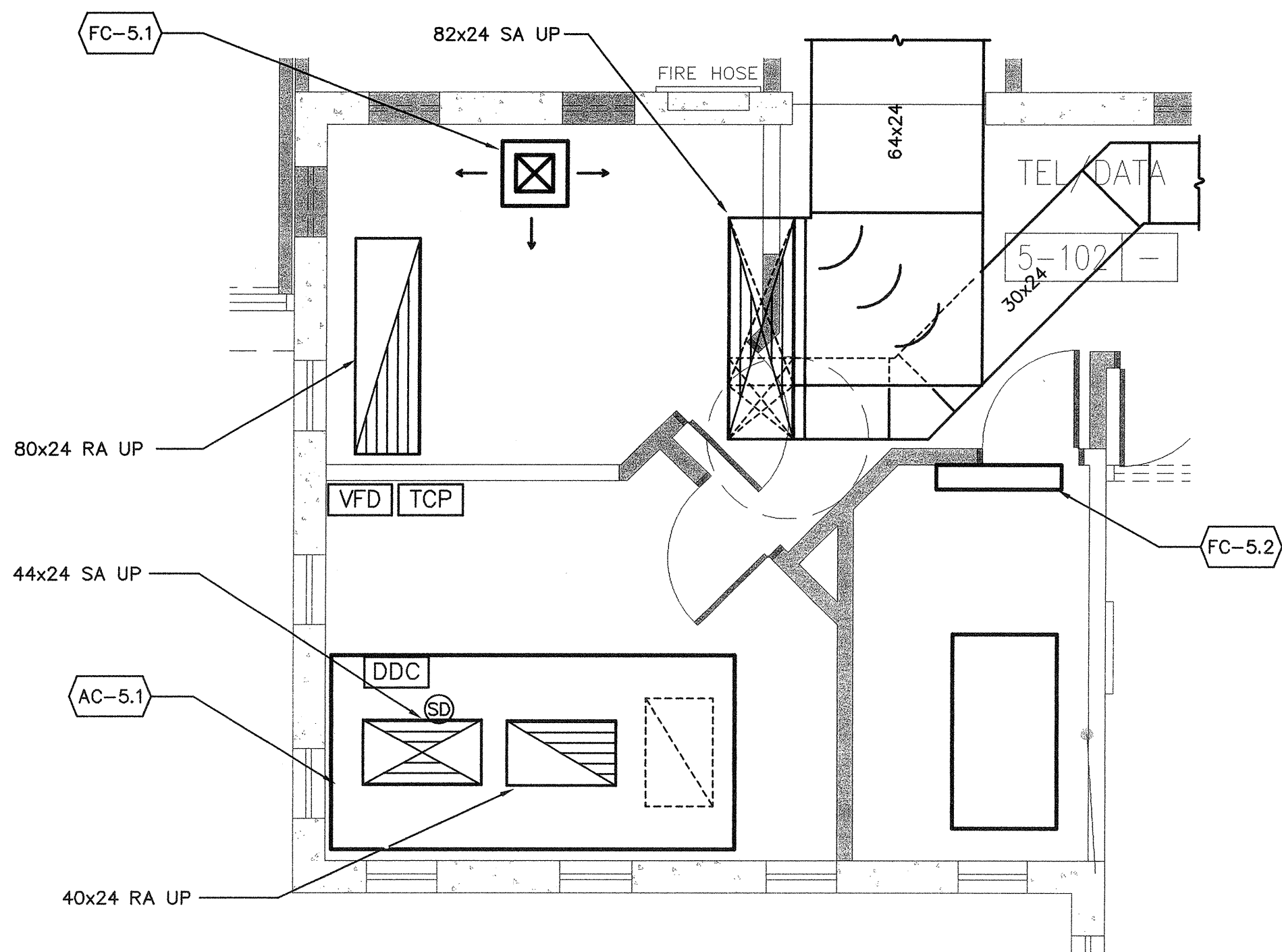
CAÑADA COLLEGE
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ENLARGED MECHANICAL
DUCTWORK PLAN

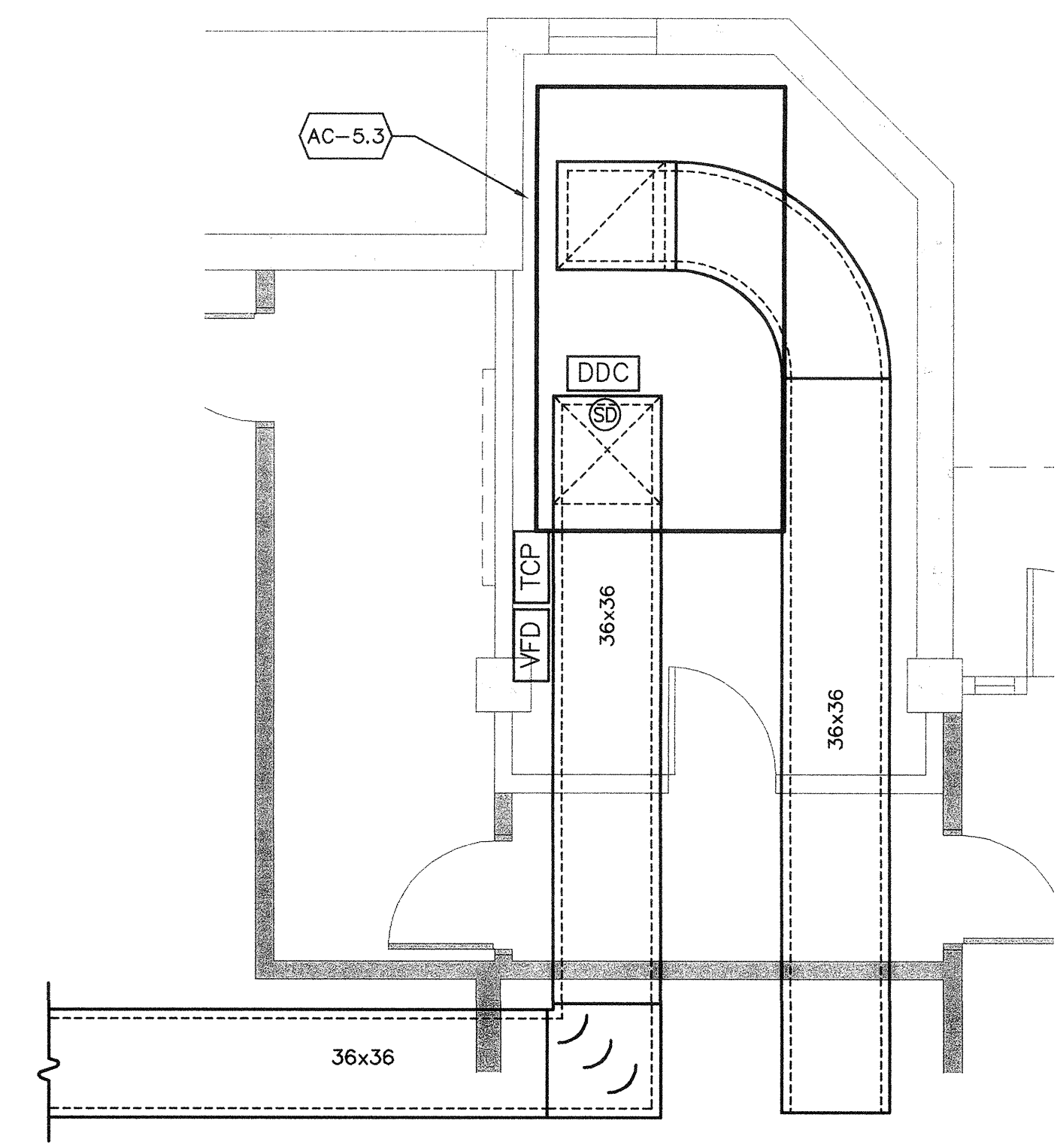
Date 01/22/09 Drawing Number
Scale AS NOTED M3.3
Project Number 07013



2 ENLARGED MECHANICAL DUCTWORK PLAN - SECOND FLOOR
0 2' 4' 8'
SCALE: 1/4"=1'-0"



1 ENLARGED MECHANICAL DUCTWORK PLAN - FIRST FLOOR
0 2' 4' 8'
SCALE: 1/4"=1'-0"

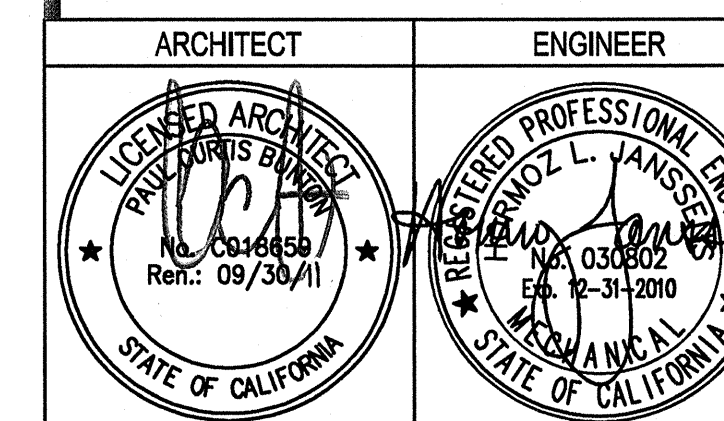


3 ENLARGED MECHANICAL DUCTWORK PLAN - THIRD FLOOR
0 2' 4' 8'
SCALE: 1/4"=1'-0"

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REMARKS	DATE
▲ ADDENDUM NO. 1	09/18/09
▲	
▲	
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DRAWING STATUS	DATE
● DSA PLAN CHECK	08/28/08
● DSA BACK CHECK	01/22/09
● BIDDING (BID #68559)	09/18/09
○ CONSTRUCTION	

FILE NO. 41-C1

REGISTRATION STAMP
DIV. OF THE STATE ARCHITECT

O1 - 110074

AC FLS SS

DATE

BUILDINGS 5 & 6 RENOVATIONS

San Mateo County Community
College District

BID ADDENDA

CAÑADA COLLEGE
4200 Farm Hill Boulevard
Redwood City, CA 94061

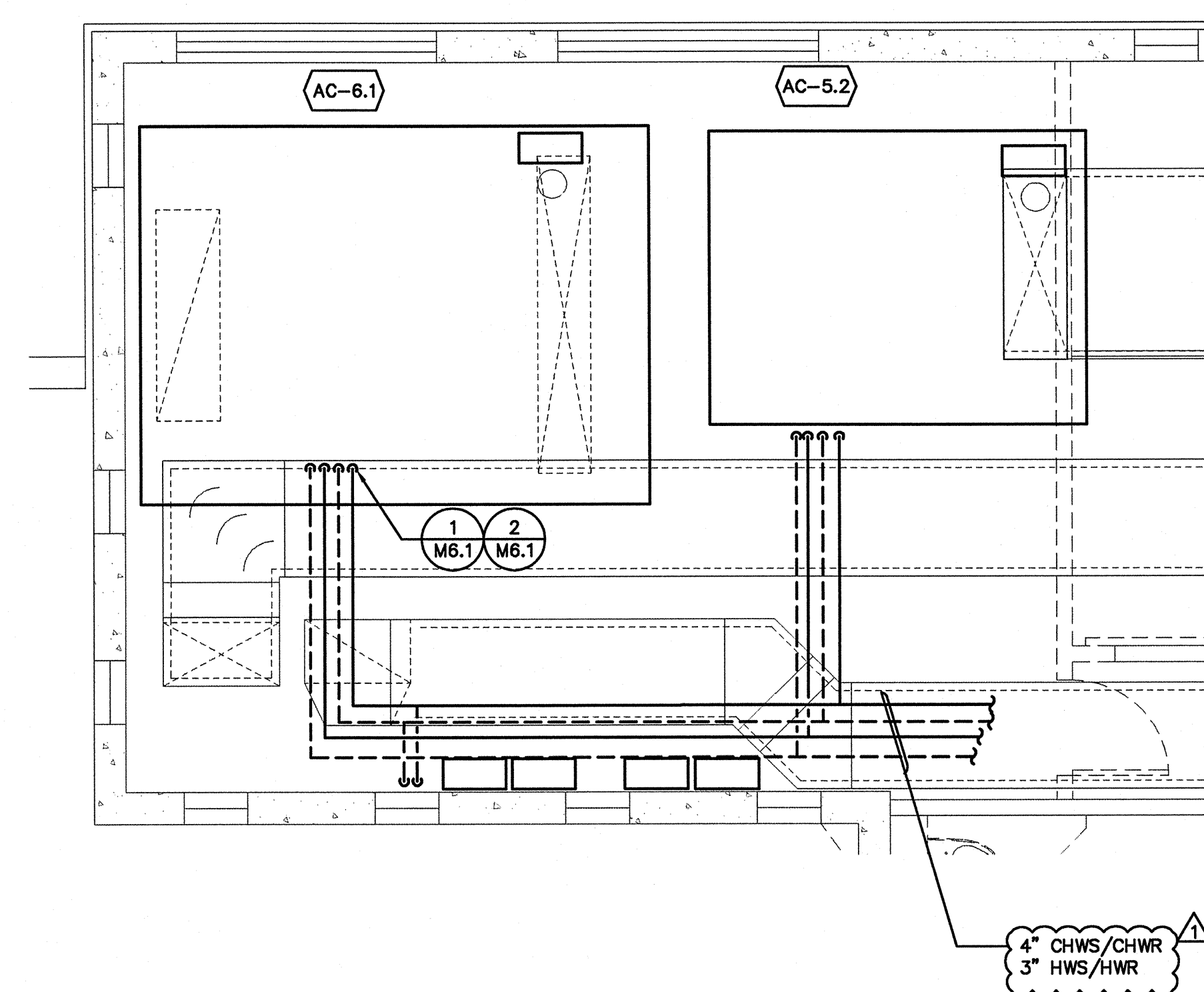
ENLARGED MECHANICAL
HYDRONIC PLAN

Date
08/28/08

Scale
AS NOTED

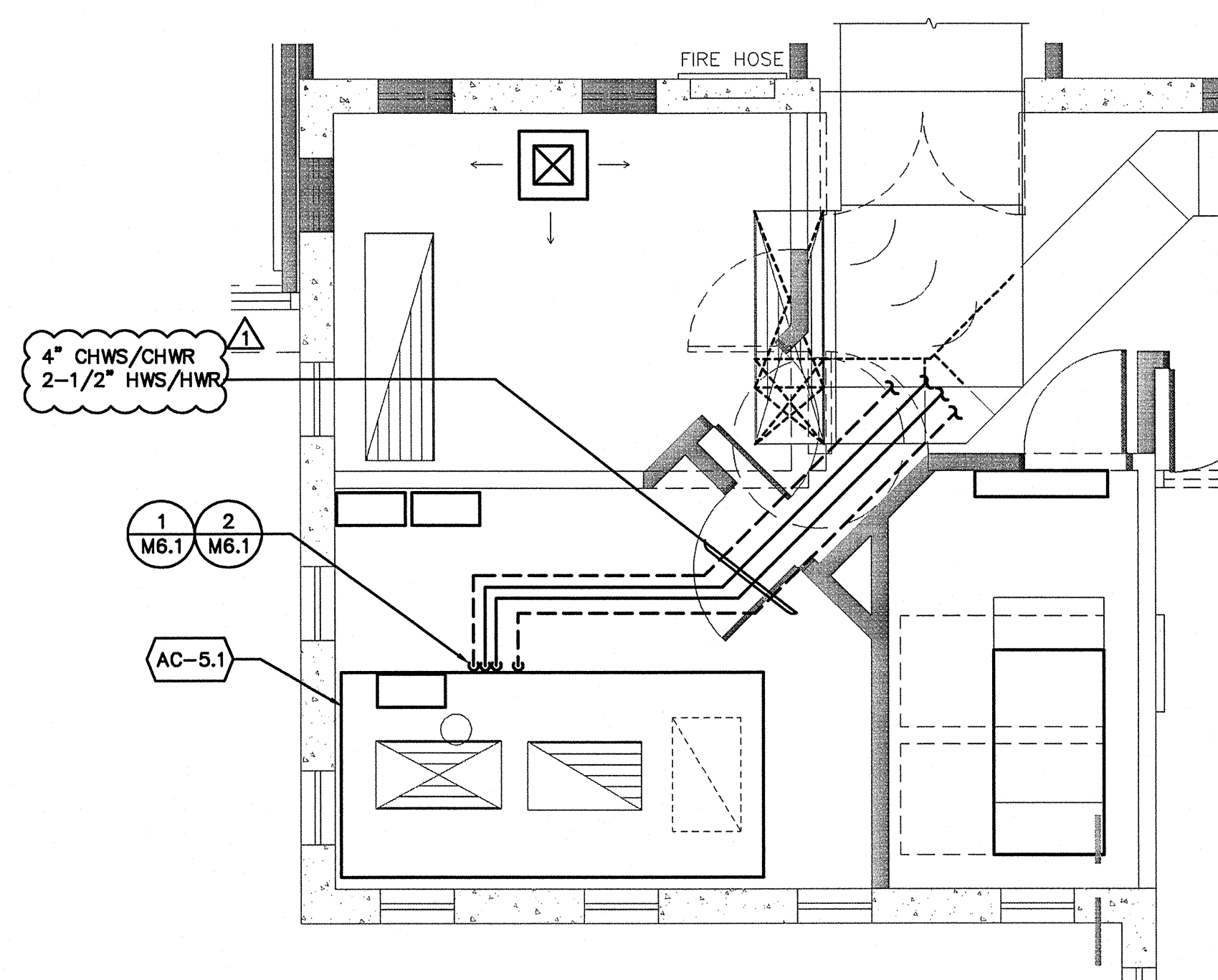
Project Number
07013

Drawing Number
M3.4



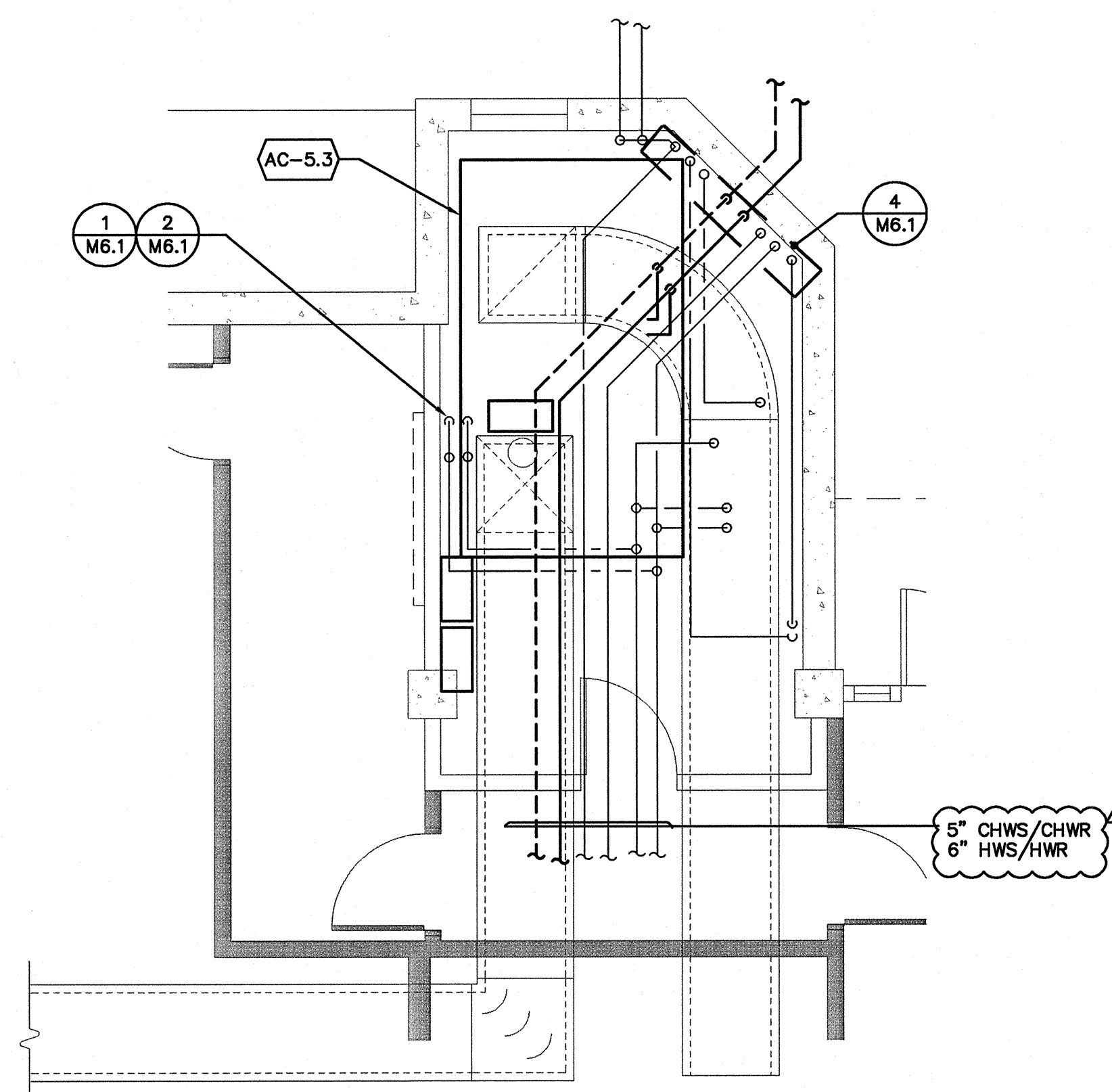
2 ENLARGED MECHANICAL HYDRONIC PLAN - SECOND FLOOR

SCALE: 1/4"=1'-0"



1 ENLARGED MECHANICAL HYDRONIC PLAN - FIRST FLOOR

SCALE: 1/4"=1'-0"



3 ENLARGED MECHANICAL HYDRONIC PLAN - THIRD FLOOR

SCALE: 1/4"=1'-0"

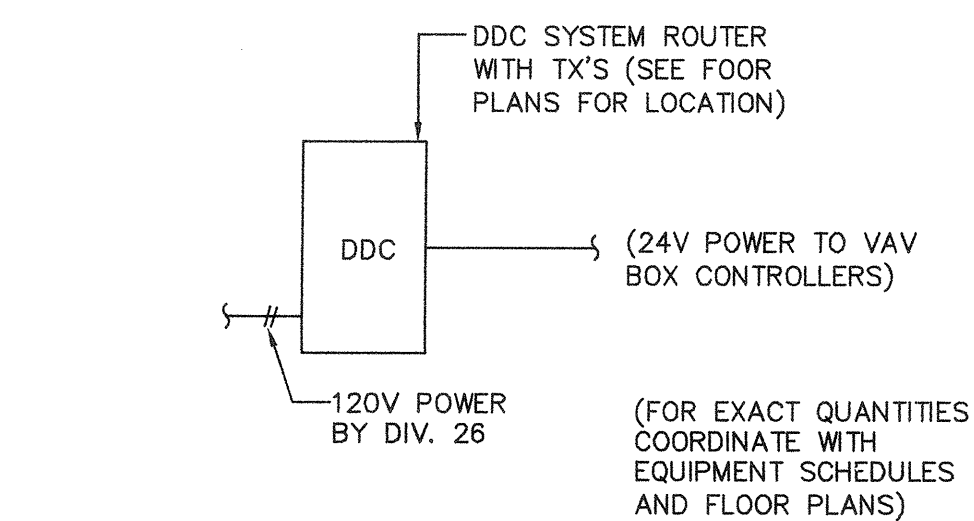
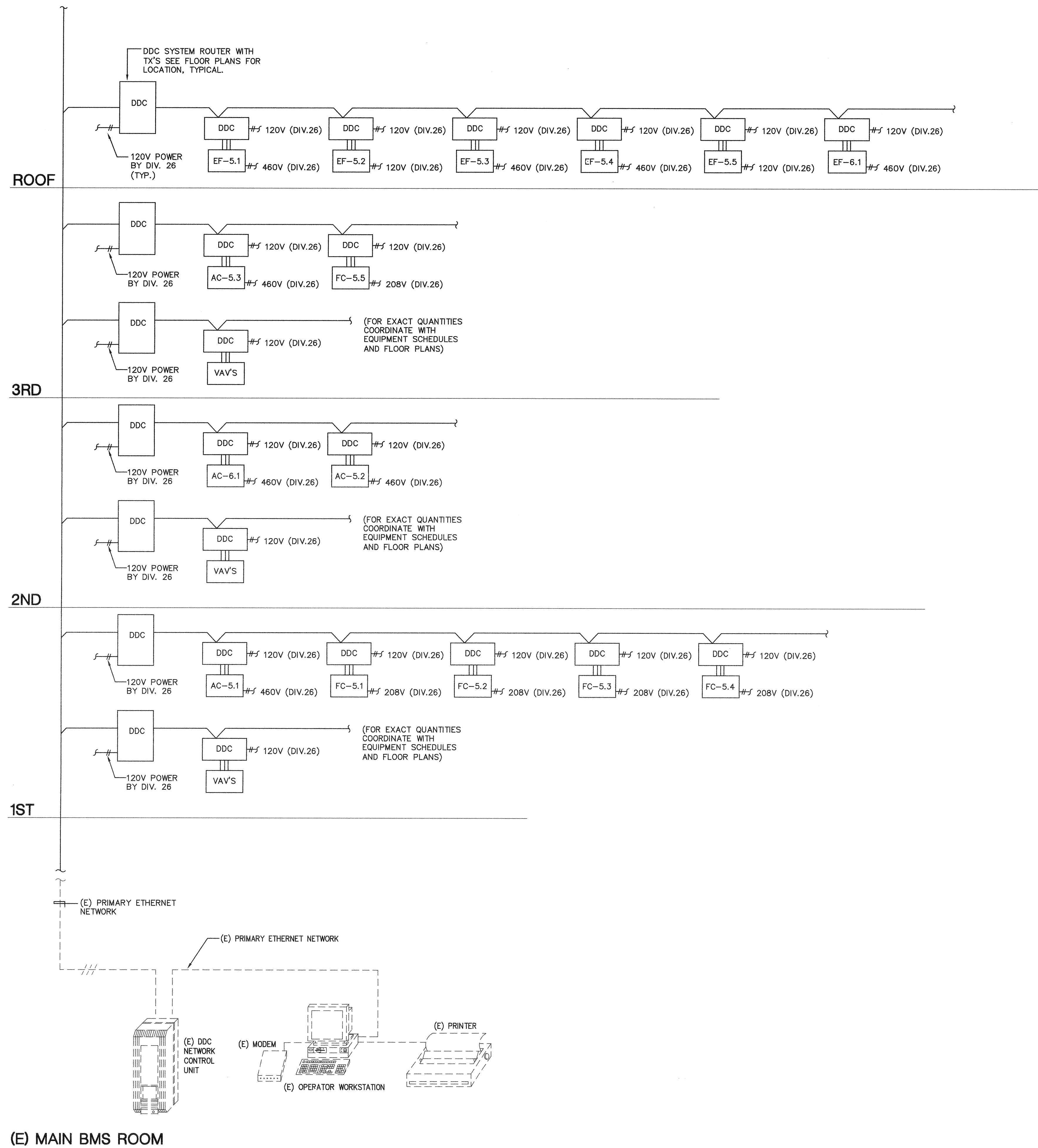
CONTROL DIAGRAM SYMBOLS LIST
SHEET M5.1 AND M5.2

ABBREVIATIONS

AFMS	AIR FLOW MEASURING STATION
AI	ANALOG SIGNAL IN
AO	ANALOG SIGNAL OUT
BMS	BUILDING MANAGEMENT SYSTEM
CT	ELECTRIC CURRENT TRANSMITTER
DDC	DIRECT DIGITAL CONTROL
DI	DIGITAL SIGNAL IN
DO	DIGITAL SIGNAL OUT
DP	DIFFERENTIAL PRESSURE SENSOR
EA	EXHAUST AIR
EF	EXHAUST FAN
HS	HIGH STATIC
HWR	HEATING HOT WATER RETURN
HWS	HEATING HOT WATER SUPPLY
M	MOTORIZED
MAU	MAKE UP AIR UNIT
M/S	MOTORIZED STARTER
MD	MOTORIZED DAMPER
OA	OUTSIDE AIR
P	PRESSURE SENSOR
RA	RETURN AIR
RF	RETURN FAN
SA	SUPPLY AIR
SF	SUPPLY FAN
SD	SMOKE DETECTOR
T	TEMPERATURE SENSOR
TPI	THIRD PARTY INTERFACE
VFD	VARIABLE FREQUENCY DRIVE

SYMBOLS

(AI)	ANALOG SIGNAL IN
(AO)	ANALOG SIGNAL OUT
(CT)	ELECTRIC CURRENT TRANSMITTER
DDC #f	DIRECT DIGITAL CONTROL
(DI)	DIGITAL SIGNAL IN
(DO)	DIGITAL SIGNAL OUT
(DP)	DIFFERENTIAL PRESSURE SENSOR
(HS)	HIGH STATIC
(M/S)	MOTORIZED STARTER
MD	MOTORIZED DAMPER
(P)	PRESSURE SENSOR
(SD)	SMOKE DETECTOR
(T)	TEMPERATURE SENSOR
(TPI)	THIRD PARTY INTERFACE
(VFD)	VARIABLE FREQUENCY DRIVE



NOTES:

- 1) ALL NEW CONTROLS SHALL TIE INTO THE EXISTING CAMPUS BUILDING MANAGEMENT SYSTEM (BMS). ANY THIRD PARTY INTERFACES REQUIRED TO TIE INTO THE EXISTING BMS SYSTEM SHALL BE FURNISHED AND INSTALLED AT NO ADDITIONAL COST.
- 2) ALL CONTROL WIRING SHALL BE FURNISHED AND INSTALLED PER DIV. 23 SPECIFICATIONS. PLENUM RATED CABLE ABOVE REMOVABLE TILE CEILING, RACEWAY ABOVE HARD LID CEILINGS.
- 3) PROVIDE 24V POWER TO ALL THEIR CONTROL DEVICES.
- 4) PROVIDE DEVICES/PROGRAMMING OF EXISTING BMS SYSTEM FOR OCCUPANT OVERRIDE OF HVAC SYSTEM.
- 5) CAMPUS BUILDING CONTROLS IS YAMAS/TAC.
- 6) PROVIDE ALL POWER REQUIREMENT FOR AIRFLOW MEASURING STATIONS AND BUILDING MANAGEMENT CONTROL SYSTEMS.
- 7) MISCELLANEOUS POINTS: CONTROL POINTS FOR BUILDING LIGHTING CONTROLS, TEMPERATURE (CHILLED WATER SUPPLY AND RETURN MAIN, HEATING HOT WATER SUPPLY AND RETURN MAIN, SEE 4/M6.1), DIFFERENTIAL PRESSURE (CHILLED WATER MAIN AND HEATING HOT WATER MAIN, SEE 4/M6.1)
- 8) SEE CONTROLS SPECIFICATIONS FOR BTU METER, THERMOWELLS, AND UTILITY VISION MONITORING SYSTEM DETAILS.

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ARCHITECT **PROFESSIONAL ARCHITECT**

ENGINEER **REGISTERED PROFESSIONAL ENGINEER**

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DRAWING STATUS

DSA PLAN CHECK

DSA BACK CHECK

BIDDING (BID #8655)

CONSTRUCTION

FILE NO. 41-C1

IDENTIFICATION STAMP

DIV. OF THE STATE ARCHITECT

01-110074

AC W PL S SS

DATE **MAR 19 2009**

BUILDINGS 5 & 6 RENOVATIONS

San Mateo County Community College District

DSA BACK-CHECK

CAÑADA COLLEGE

4200 Farm Hill Boulevard
Redwood City, CA 94061

MECHANICAL CONTROL DIAGRAMS

Date	01/22/09	Drawing Number	M5.1
Scale	AS NOTED		
Project Number	07013		

1 CONTROL ARCHITECTURE DIAGRAM

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REVISION HISTORY	DATE
ADDENDUM NO. 1	09/18/09

DRAWING STATUS	DATE
DSA PLAN CHECK	08/28/08
DSA BACK CHECK	01/22/09
BIDDING (BID #06859)	09/18/09
CONSTRUCTION	

FILE NO. 41-C1
 DIV. OF THE STATE ARCHITECT
 01-110074
 AC FLS. SS
 DATE

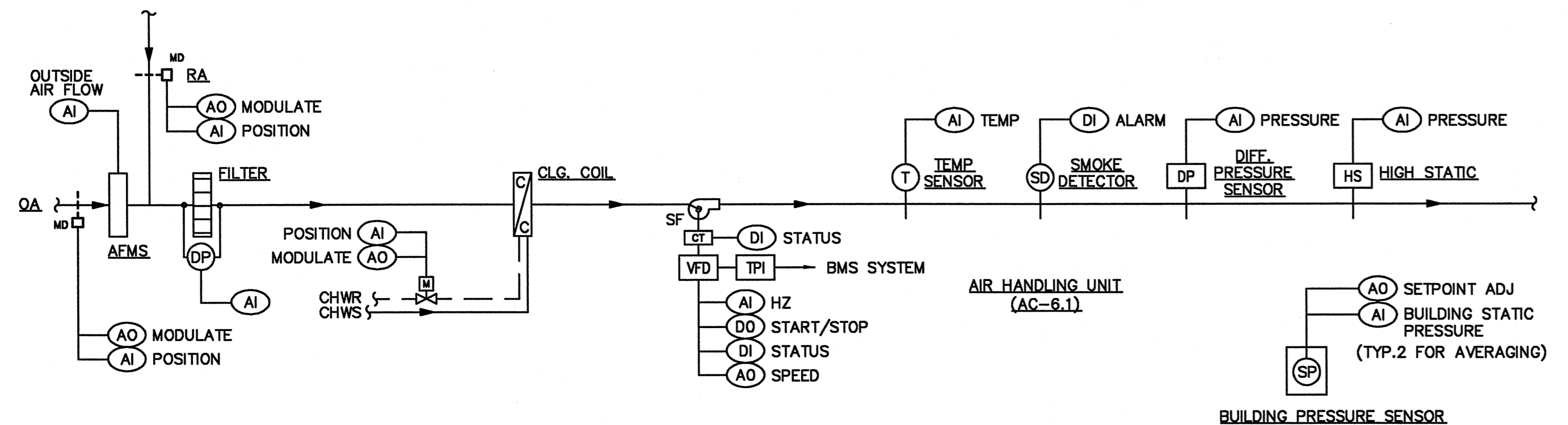
BUILDINGS 5 & 6 RENOVATIONS
 San Mateo County Community College District

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MECHANICAL CONTROL DIAGRAMS

Date 08/28/08
 Drawing Number
 Scale AS NOTED
 Project Number 07013



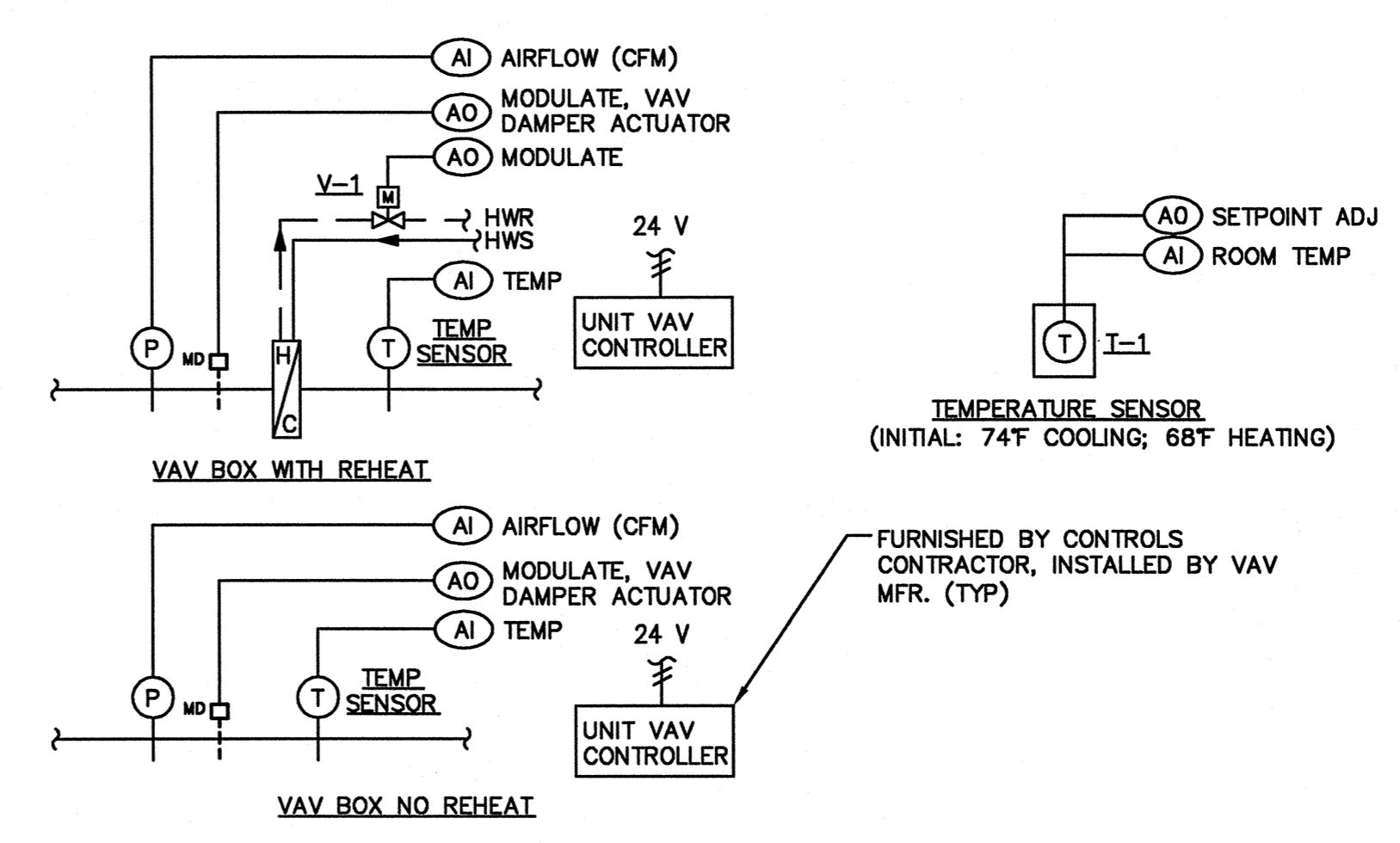
SEQUENCE OF OPERATION:

THE OPERATOR WORKSTATION / NETWORK CONTROLLER, THROUGH A USER PROGRAMMABLE SCHEDULE, SHALL ENABLE THE OPERATION OF AHU & ASSOCIATED EXHAUST FAN.
 WHEN IN OPERATION THE SUPPLY AND EXHAUST FAN SHALL BE START/STOPPED BY THE AHU CONTROLLER. FAN STATUS ON THE SUPPLY AND EXHAUST FAN SHALL BE MONITORED. AN ALARM MESSAGE SHALL BE INDICATED WHEN THE FAN IS NOT CORRECTLY OPERATING AT THE OPERATOR WORKSTATION. A HIGH LIMIT DUCT PRESSURE SWITCH SHALL DISABLE THE VFD'S THROUGH THE AHU CONTROLLER WHEN THE HIGH LIMIT IN THE SUPPLY AIR DUCT IS REACHED. AN ALARM MESSAGE SHALL BE INDICATED AT THE OPERATOR WORKSTATION WHEN THIS OCCURS.
 THE VFD ON THE SUPPLY FAN SHALL BE USED TO MODULATE THE FAN TO MAINTAIN SPACE TEMPERATURE AND ON THE EXHAUST FAN (EF-6.1) TO MAINTAIN SPACE PRESSURE (0.05 IN H2O ADJUSTABLE). EF-5.2 RUNS CONTINUOUSLY DURING AC-6.1 OPERATION.
 FILTER STATUS SHALL BE MONITORED. AN ALARM MESSAGE SHALL BE INDICATED AT THE OPERATOR WORKSTATION WHEN THE ADJUSTABLE ACCEPTABLE PRESSURE DROP HAS BEEN SURPASSED. (0.75 IN H2O)
 THE AIRFLOW MEASURING STATION SHALL ASSURE THAT THE MINIMUM CFM IS PROVIDED BY THE AIRFLOW MEASURING STATION OUTSIDE AIR DAMPER.

THE DISCHARGE TEMPERATURE SHALL BE MAINTAINED AT AN ADJUSTABLE SETPOINT THROUGH THE MODULATION OF THE RETURN AIR (RA), HOT WATER VALVE, OUTSIDE AIR (OA) DAMPERS, EXHAUST FAN AND CHILLED WATER VALVE IN SEQUENCE.
 THE OUTSIDE, DISCHARGE, RETURN, AND MIXED AIR TEMPERATURES SHALL ALL BE MONITORED THROUGH THE AHU FOR USE IN THE FOLLOWING ENERGY MANAGEMENT SEQUENCES:
ECONOMIZER.
 WHEN THE OUTSIDE AIR TEMPERATURE (OAT) < FREE COOLING ADJUSTABLE SETPOINT:
 THE OUTSIDE(OA), RETURN(RA) DAMPERS, AND EXHAUST FAN SHALL MODULATE TO MAINTAIN THE DESIRED DISCHARGE TEMPERATURE. IF ADDITIONAL COOLING IS REQUIRED, THE COOLING COIL SHALL BE USED TO MAINTAIN THE DESIRED DISCHARGE TEMPERATURE.
 WHEN THE OAT > FREE COOLING ADJUSTABLE SETPOINT, OA, RA DAMPERS, EXHAUST FAN AND COOLING COIL SHALL MODULATE IN SEQUENCE TO MAINTAIN THE DESIRED DISCHARGE TEMPERATURE.

UNOCCUPIED OVERRIDE
 AREA WARM-UP OR COOL-DOWN ONE HOUR PRIOR TO OCCUPANCY.
 DURING WARM-UP, THE EXHAUST FAN SHALL BE OFF. THE OA DAMPER SHALL BE DRIVEN CLOSED POSITION AND THE RA DAMPER SHALL BE DRIVEN OPENED. THIS WILL CONTINUE UNTIL THE SPACE TEMPERATURE IS AT THE ADJUSTABLE SETPOINT. THE SYSTEM AT THIS POINT SHALL RETURN TO NORMAL OPERATION.
 DURING COOL-DOWN, IF OAT < RAT, THE OA DAMPER AND EA FAN SHALL BE FULLY OPENED AND THE RA DAMPER SHALL BE CLOSED. THE SUPPLY FAN AND EXHAUST FAN SHALL BE STARTED. WHEN THE SPACE TEMPERATURE < ADJUSTABLE SETPOINT, THE SYSTEM SHALL RETURN TO NORMAL OPERATION.
 UPON SMOKE INDICATION IN THE SUPPLY AIR DUCT, THE SUPPLY AND EXHAUST FAN SHALL BE STOPPED THROUGH THE DDC CONTROLLERS. SYSTEM WILL OPERATE IN SHUT DOWN MODE.

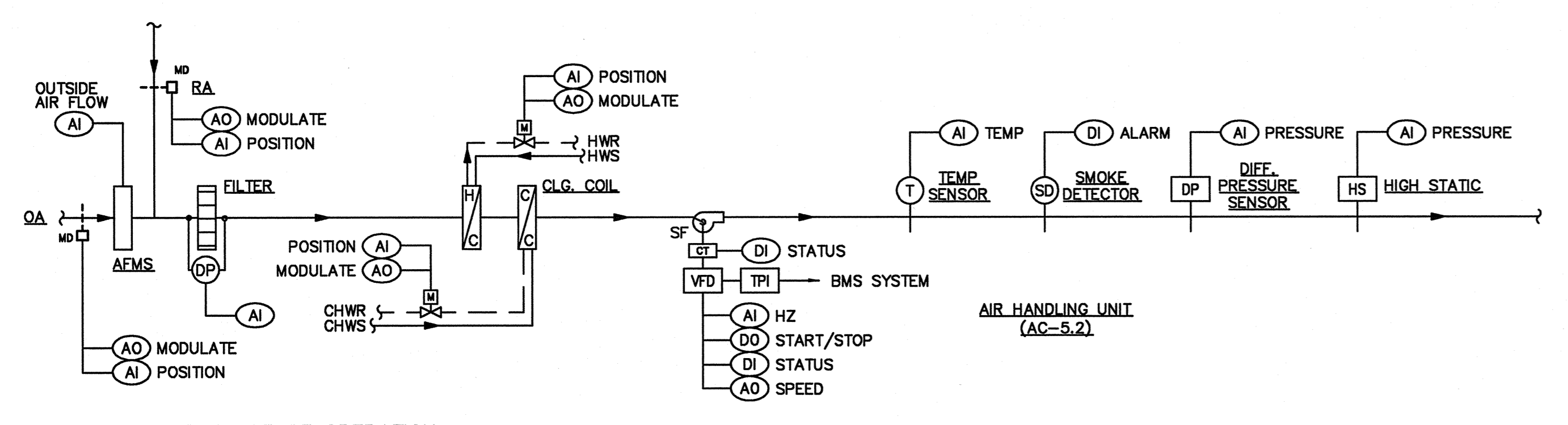
1 AC-6.1 WITH EF-6.1 AND EF-5.2 CONTROL
 NO SCALE



SEQUENCE OF OPERATION:

OCCUPIED COOLING:
 THE TERMINAL UNIT CONTROLLER SHALL TAKE AN INPUT FROM THE ROOM TEMPERATURE SENSOR TO MODULATE THE VAV DAMPER ACTUATOR TO MAINTAIN THE SPACE ROOM TEMPERATURE.
OCCUPIED HEATING:
 ONCE THE ZONE TEMPERATURE DROPS BELOW THE HEATING SETPOINT THE TERMINAL UNIT WILL GO INTO THE HEATING MODE. PRIMARY CFM SETPOINT WILL CHANGE TO THE HEATING FLOW INDICATED IN THE VAV TERMINAL UNIT SCHEDULE. THE HEATING HOT WATER VALVE (V-1) WILL MODULATE TO MAINTAIN SPACE SETPOINT TEMPERATURE (OPERATOR DEFINABLE). A TWO (2) DEGREE ABOVE SETPOINT DEADBAND WILL BE UTILIZED TO MINIMIZE CYCLING (OPERATOR DEFINABLE).
UNOCCUPIED MODE: T-1 SET TO TITLE 24 SET-BACK TEMPERATURE; V-1 CLOSED.
ALARMS: SEND AN ALARM IF VALVES ARE COMMANDED OPEN/CLOSE BUT DISCHARGE TEMPERATURE DOES NOT INDICATE CHANGE IN TEMPERATURE.

2 VAV CONTROL
 NO SCALE



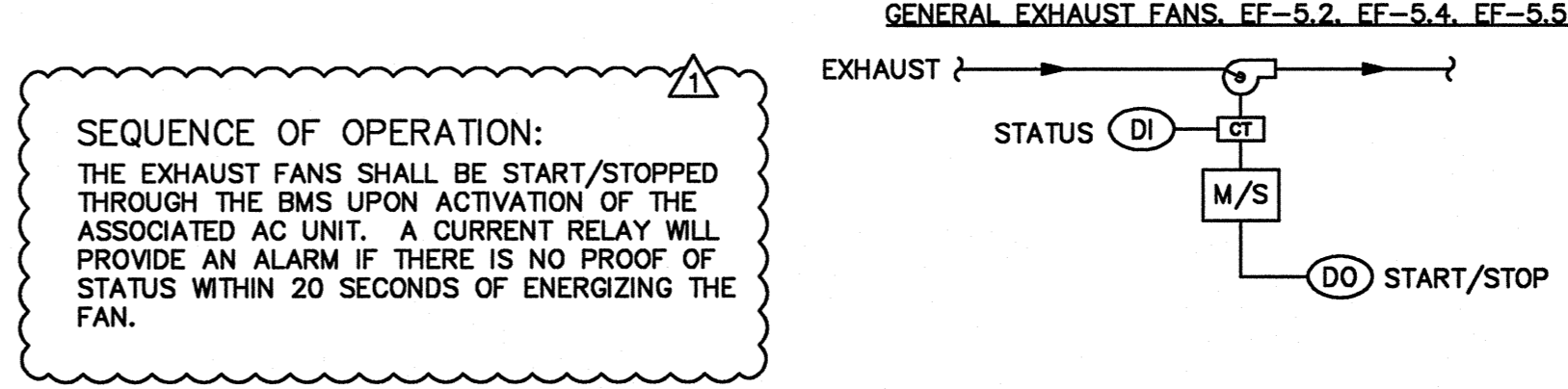
SEQUENCE OF OPERATION:

THE OPERATOR WORKSTATION / NETWORK CONTROLLER, THROUGH A USER PROGRAMMABLE SCHEDULE, SHALL ENABLE THE OPERATION OF AHU & ASSOCIATED EXHAUST FAN.
 FAN STATUS ON THE SUPPLY AND EXHAUST FAN SHALL BE MONITORED. AN ALARM MESSAGE SHALL BE INDICATED WHEN THE FAN IS NOT CORRECTLY OPERATING AT THE OPERATOR WORKSTATION. A HIGH LIMIT DUCT PRESSURE SWITCH SHALL DISABLE THE VFD'S THROUGH THE AHU CONTROLLER WHEN THE HIGH LIMIT IN THE SUPPLY AIR DUCT IS REACHED. AN ALARM MESSAGE SHALL BE INDICATED AT THE OPERATOR WORKSTATION WHEN THIS OCCURS.
 THE VFD ON THE SUPPLY FAN SHALL BE USED TO MODULATE THE FAN TO MAINTAIN SPACE TEMPERATURE AND PROVIDE THE REQUIRED MAKE-UP AIR TO THE KITCHEN. IF EF-5.1 OR EF-5.3 IS COMMANDED ON, THEN AC-5.2 SUPPLY FAN MUST SUPPLY A MINIMUM VALUE OF EXHAUSTED AIR.

THE DISCHARGE TEMPERATURE SHALL BE MAINTAINED AT AN ADJUSTABLE SETPOINT THROUGH THE MODULATION OF THE RETURN AIR (RA), HOT WATER VALVE, OUTSIDE AIR (OA) DAMPERS, EXHAUST FAN AND CHILLED WATER VALVE IN SEQUENCE.
 THE OUTSIDE, DISCHARGE, RETURN, AND MIXED AIR TEMPERATURES SHALL ALL BE MONITORED THROUGH THE AHU FOR USE IN THE ENERGY MANAGEMENT.

UNOCCUPIED OVERRIDE
 AREA WARM-UP OR COOL-DOWN ONE HOUR PRIOR TO OCCUPANCY.
 DURING WARM-UP, THE EXHAUST FAN SHALL BE OFF. THE OA DAMPER SHALL BE DRIVEN CLOSED POSITION AND THE RA DAMPER SHALL BE DRIVEN OPENED. THIS WILL CONTINUE UNTIL THE SPACE TEMPERATURE IS AT THE ADJUSTABLE SETPOINT. THE SYSTEM AT THIS POINT SHALL RETURN TO NORMAL OPERATION.
 DURING COOL-DOWN, IF OAT < RAT, THE OA DAMPER AND EA FAN SHALL BE FULLY OPENED AND THE RA DAMPER SHALL BE CLOSED. THE SUPPLY FAN AND EXHAUST FAN SHALL BE STARTED. WHEN THE SPACE TEMPERATURE < ADJUSTABLE SETPOINT, THE SYSTEM SHALL RETURN TO NORMAL OPERATION.
 UPON SMOKE INDICATION IN THE SUPPLY AIR DUCT, THE SUPPLY AND EXHAUST FAN SHALL BE STOPPED THROUGH THE DDC CONTROLLERS. SYSTEM WILL OPERATE IN SHUT DOWN MODE.

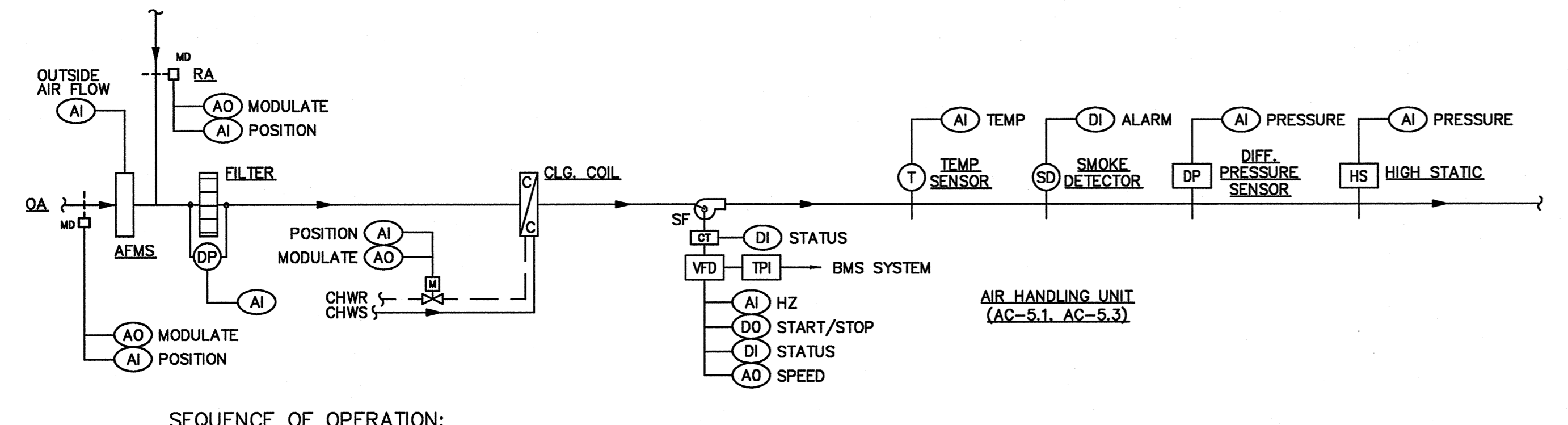
3 AC-5.2 WITH EF-5.1, AND EF-5.3 CONTROL
 NO SCALE



SEQUENCE OF OPERATION:

THE EXHAUST FANS SHALL BE START/STOPPED THROUGH THE BMS UPON ACTIVATION OF THE ASSOCIATED AC UNIT. A CURRENT RELAY WILL PROVIDE AN ALARM IF THERE IS NO PROOF OF STATUS WITHIN 20 SECONDS OF ENERGIZING THE FAN.
 THE EXHAUST FANS SHALL BE START/STOPPED THROUGH BY A HOOD SWITCH. A CURRENT RELAY WILL PROVIDE AN ALARM IF THERE IS NO PROOF OF STATUS WITHIN 20 SECONDS OF ENERGIZING THE FAN, OR IF THE SUPPLY FAN FOR IS NOT ENERGIZED AC-5.2.

4 EF-5.2, EF-5.3, EF-5.4, AND EF-5.5 CONTROL
 NO SCALE



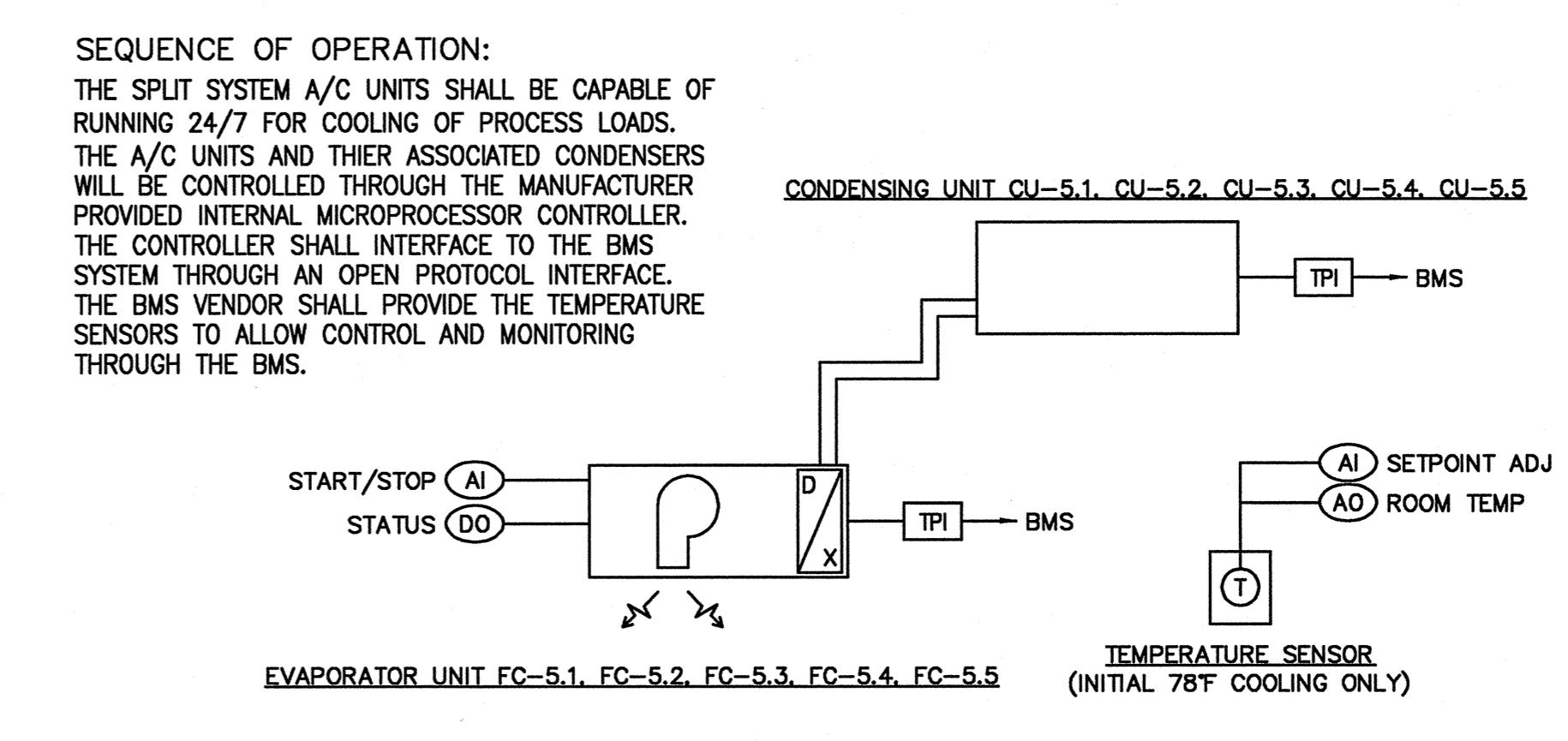
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 THE VFD ON THE SUPPLY FAN SHALL BE USED TO MODULATE THE FAN TO MAINTAIN SPACE TEMPERATURE AND TO MAINTAIN SPACE PRESSURE (0.05 IN H2O).
 FILTER STATUS SHALL BE MONITORED. AN ALARM MESSAGE SHALL BE INDICATED AT THE OPERATOR WORKSTATION WHEN THE ADJUSTABLE ACCEPTABLE PRESSURE DROP HAS BEEN SURPASSED. (0.75 IN H2O)
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 DURING WARM-UP, THE EXHAUST FAN SHALL BE OFF. THE OA DAMPER SHALL BE DRIVEN CLOSED POSITION AND THE RA DAMPER SHALL BE DRIVEN OPENED. THIS WILL CONTINUE UNTIL THE SPACE TEMPERATURE IS AT THE ADJUSTABLE SETPOINT. THE SYSTEM AT THIS POINT SHALL RETURN TO NORMAL OPERATION.
 DURING COOL-DOWN, IF OAT < RAT, THE OA DAMPER AND EA FAN SHALL BE FULLY OPENED AND THE RA DAMPER SHALL BE CLOSED. THE SUPPLY FAN AND EXHAUST FAN SHALL BE STARTED. WHEN THE SPACE TEMPERATURE < ADJUSTABLE SETPOINT, THE SYSTEM SHALL RETURN TO NORMAL OPERATION.
 UPON SMOKE INDICATION IN THE SUPPLY AIR DUCT, THE SUPPLY AND EXHAUST FAN SHALL BE STOPPED THROUGH THE DDC CONTROLLERS. SYSTEM WILL OPERATE IN SHUT DOWN MODE.

6 AC-5.1 WITH EF-5.4 AND AC-5.3 WITH EF-5.5 CONTROL
 NO SCALE



SEQUENCE OF OPERATION:

THE SPLIT SYSTEM A/C UNITS SHALL BE CAPABLE OF RUNNING 24/7 FOR COOLING OF PROCESS LOADS. THE A/C UNITS AND THEIR ASSOCIATED CONDENSERS WILL BE CONTROLLED THROUGH THE MANUFACTURER PROVIDED INTERNAL MICROPROCESSOR CONTROLLER. THE CONTROLLER SHALL INTERFACE TO THE BMS SYSTEM THROUGH AN OPEN PROTOCOL INTERFACE. THE BMS VENDOR SHALL PROVIDE THE TEMPERATURE SENSORS TO ALLOW CONTROL AND MONITORING THROUGH THE BMS.

7 FC AND CU CONTROL
 NO SCALE

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REVISION HISTORY	REMARKS	DATE

DRAWING STATUS	DATE

FILE NO. 41-C1
IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
01 - 110074
AC WJ FS SS
DATE: MAR 19 2008

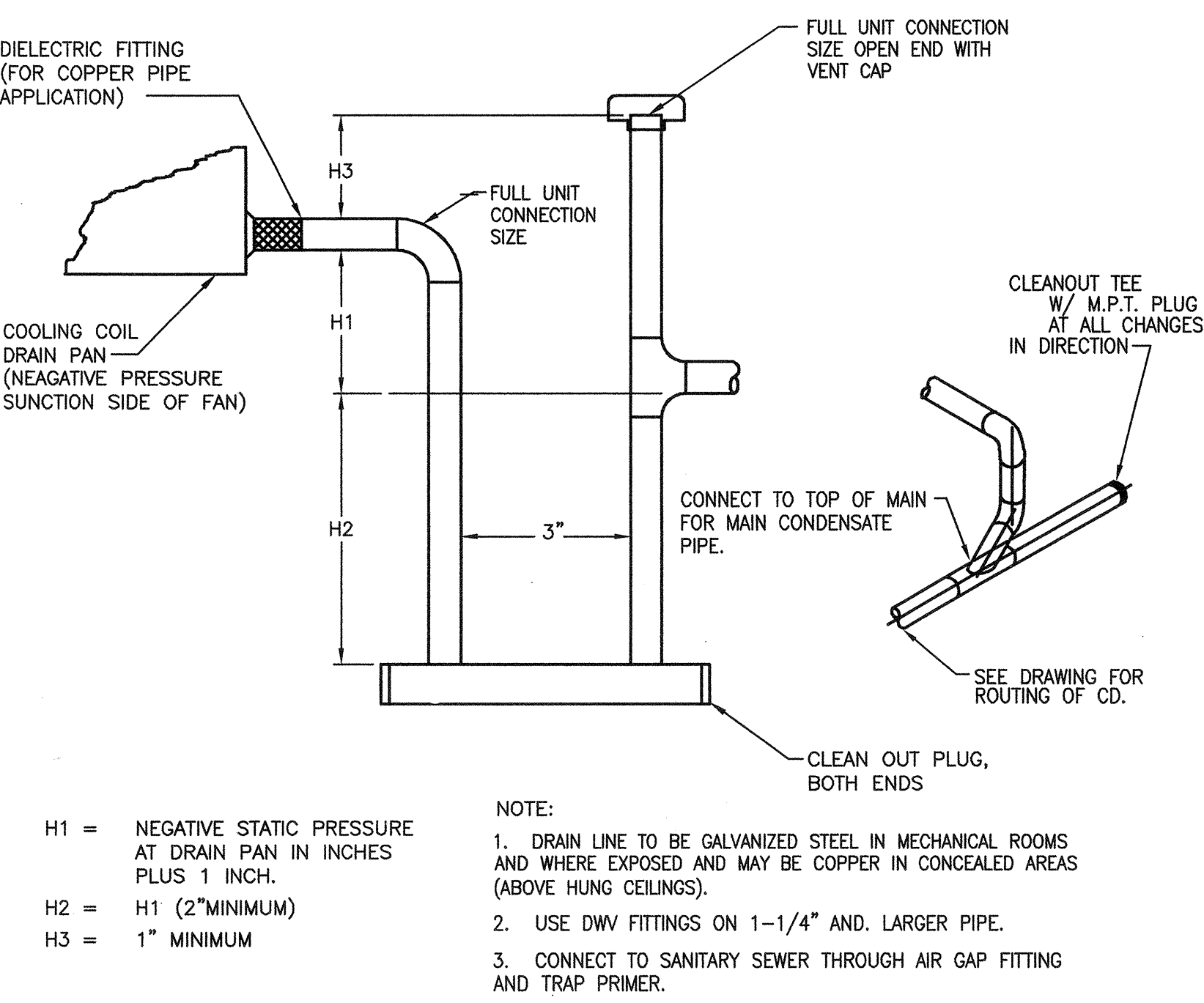
**BUILDINGS 5 & 6
RENOVATIONS**

San Mateo County Community
College District

DSA BACK-CHECK

CAÑADA COLLEGE
4200 Farm Hill Boulevard
Redwood City, CA 94061

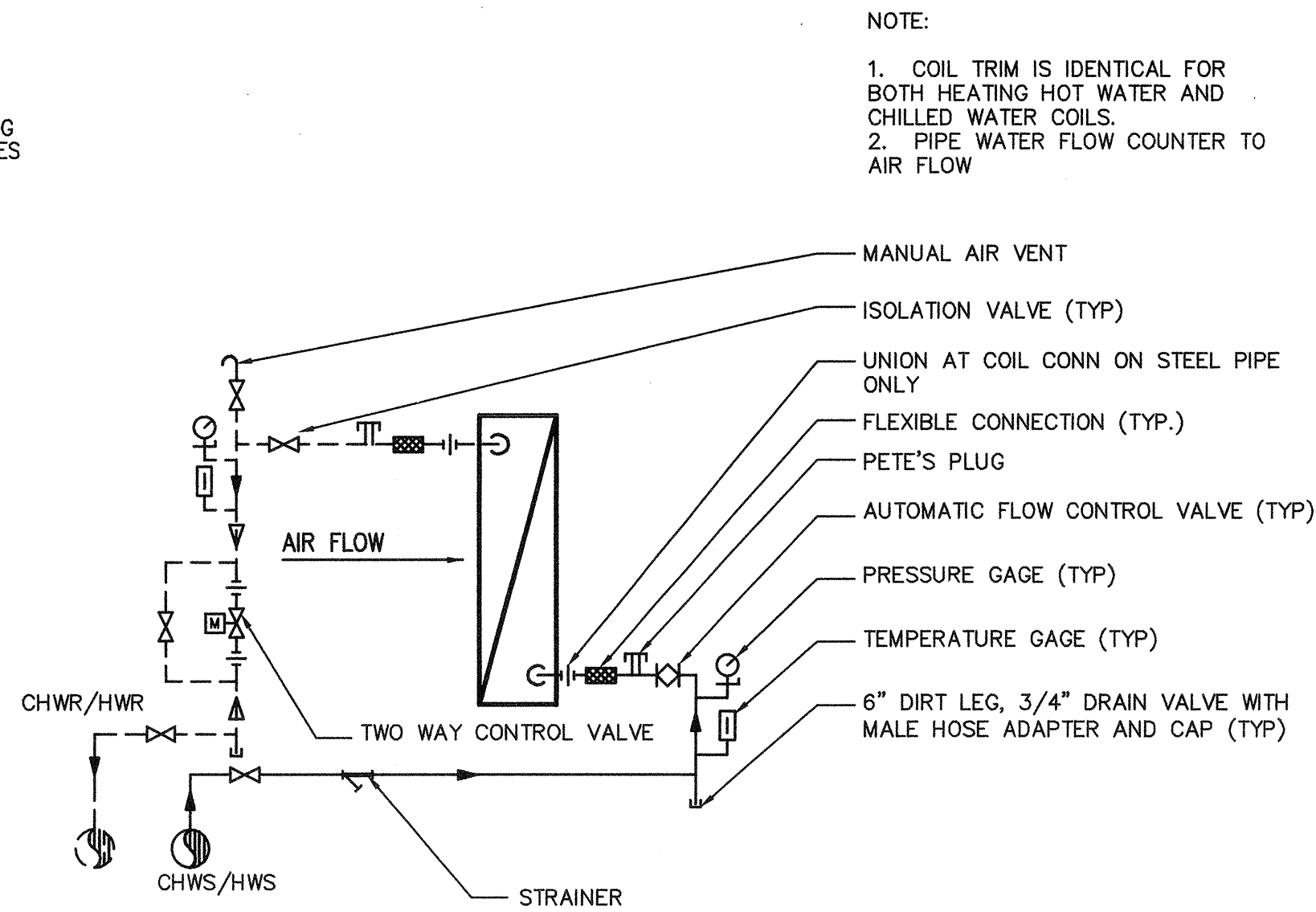
MECHANICAL DETAILS



1 CONDENSATE DRAIN DETAIL
NO SCALE

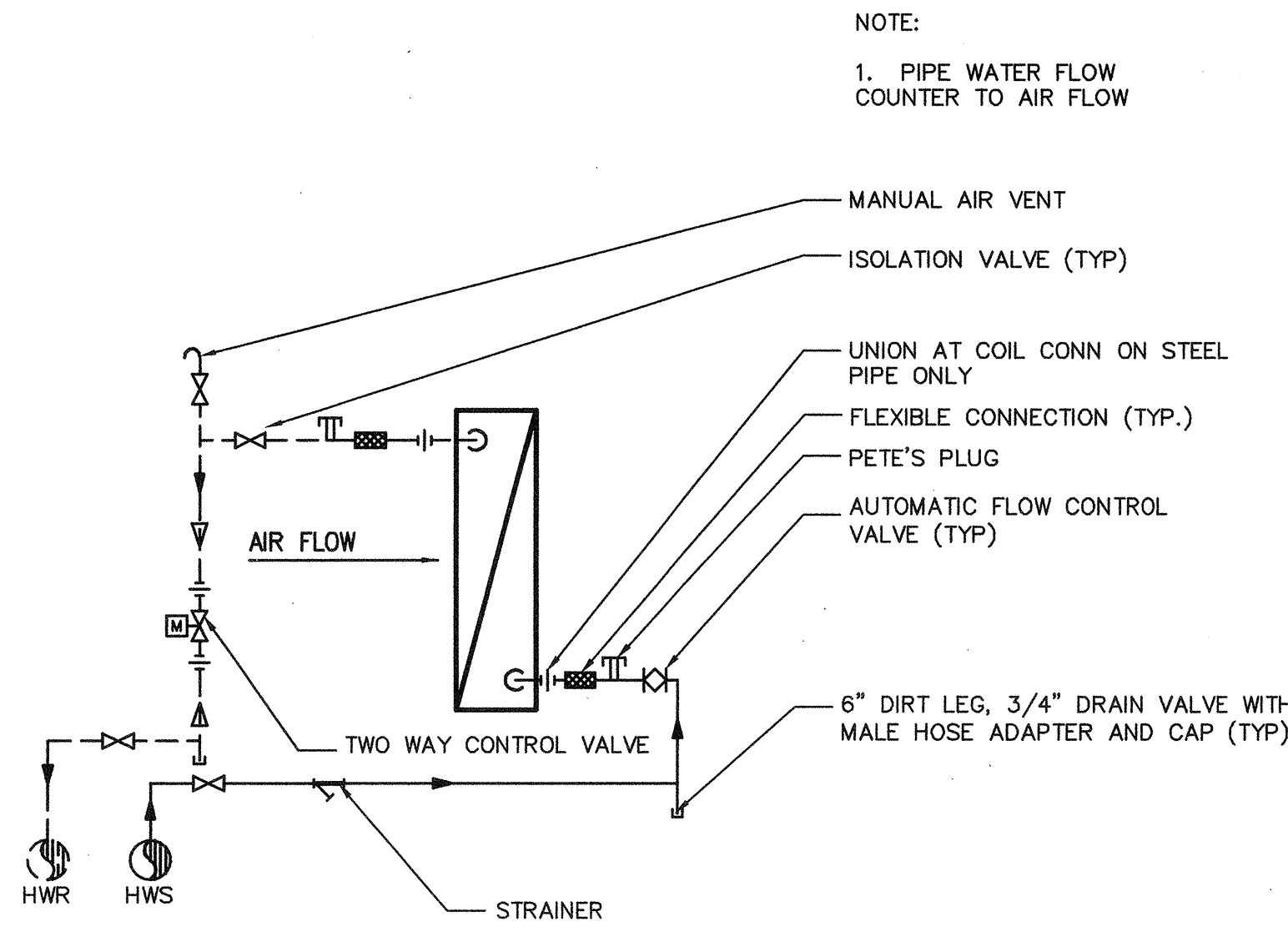
H1 = NEGATIVE STATIC PRESSURE AT DRAIN PAN IN INCHES PLUS 1 INCH.
H2 = H1 (2" MINIMUM)
H3 = 1" MINIMUM

NOTE:
1. DRAIN LINE TO BE GALVANIZED STEEL IN MECHANICAL ROOMS AND WHERE EXPOSED AND MAY BE COPPER IN CONCEALED AREAS (ABOVE HUNG CEILING).
2. USE DW FITTINGS ON 1-1/4" AND LARGER PIPE.
3. CONNECT TO SANITARY SEWER THROUGH AIR GAP FITTING AND TRAP PRIMER.



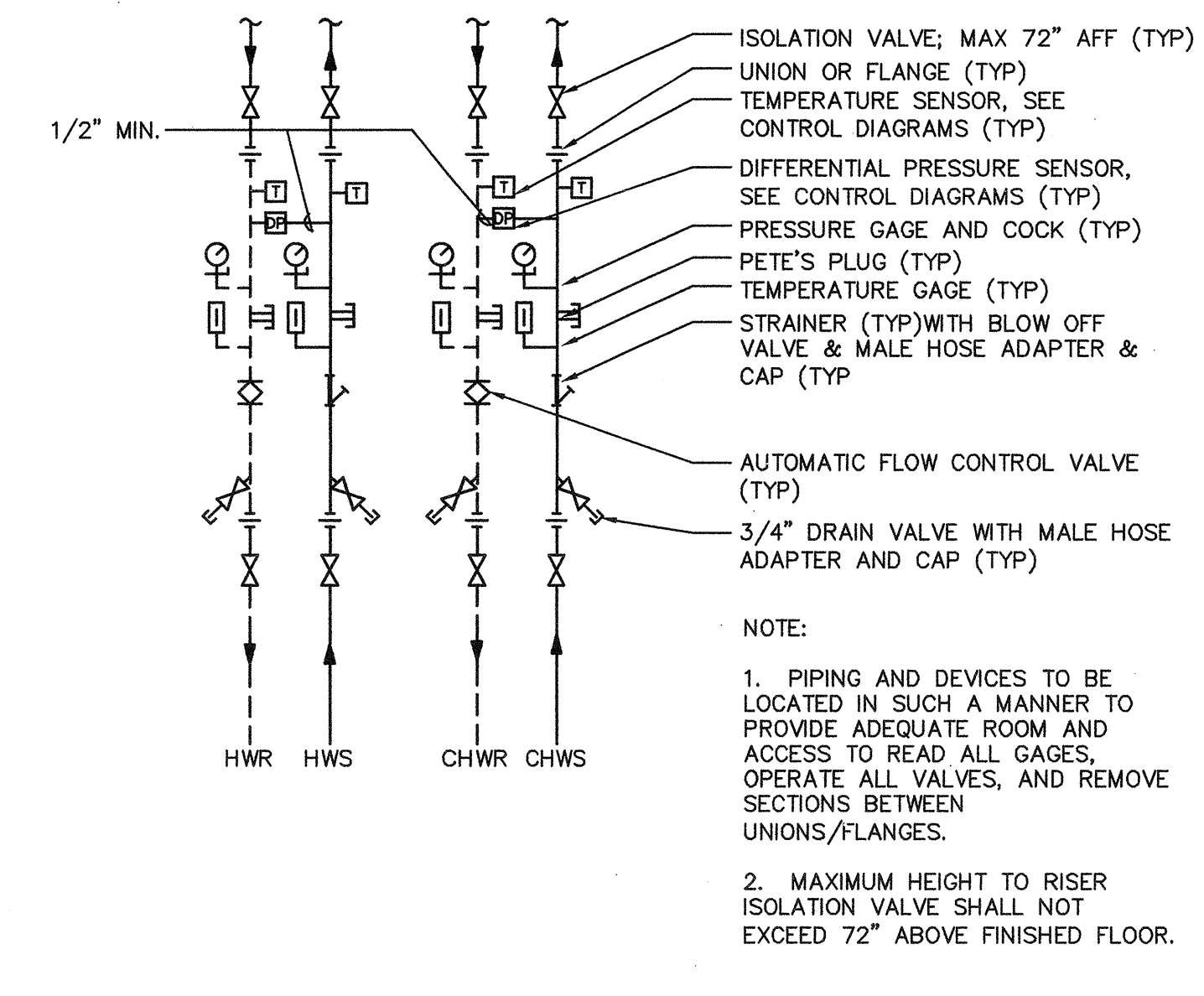
2 AIR HANDLING UNIT COIL DETAIL
NO SCALE

NOTE:
1. COIL TRIM IS IDENTICAL FOR BOTH HEATING HOT WATER AND CHILLED WATER COILS.
2. PIPE WATER FLOW COUNTER TO AIR FLOW

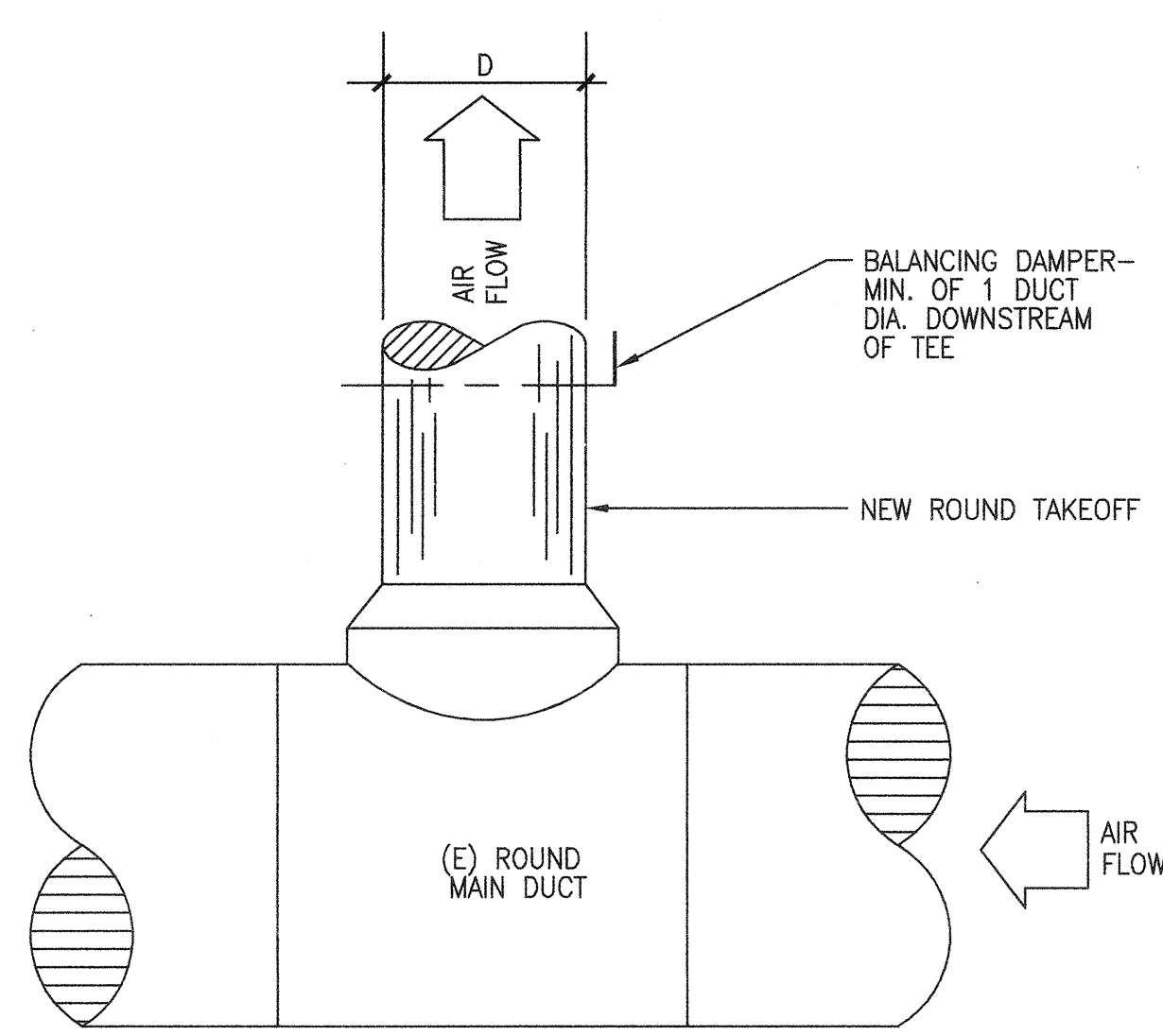


3 VAV COIL PIPING DETAIL
NO SCALE

NOTE:
1. PIPE WATER FLOW COUNTER TO AIR FLOW

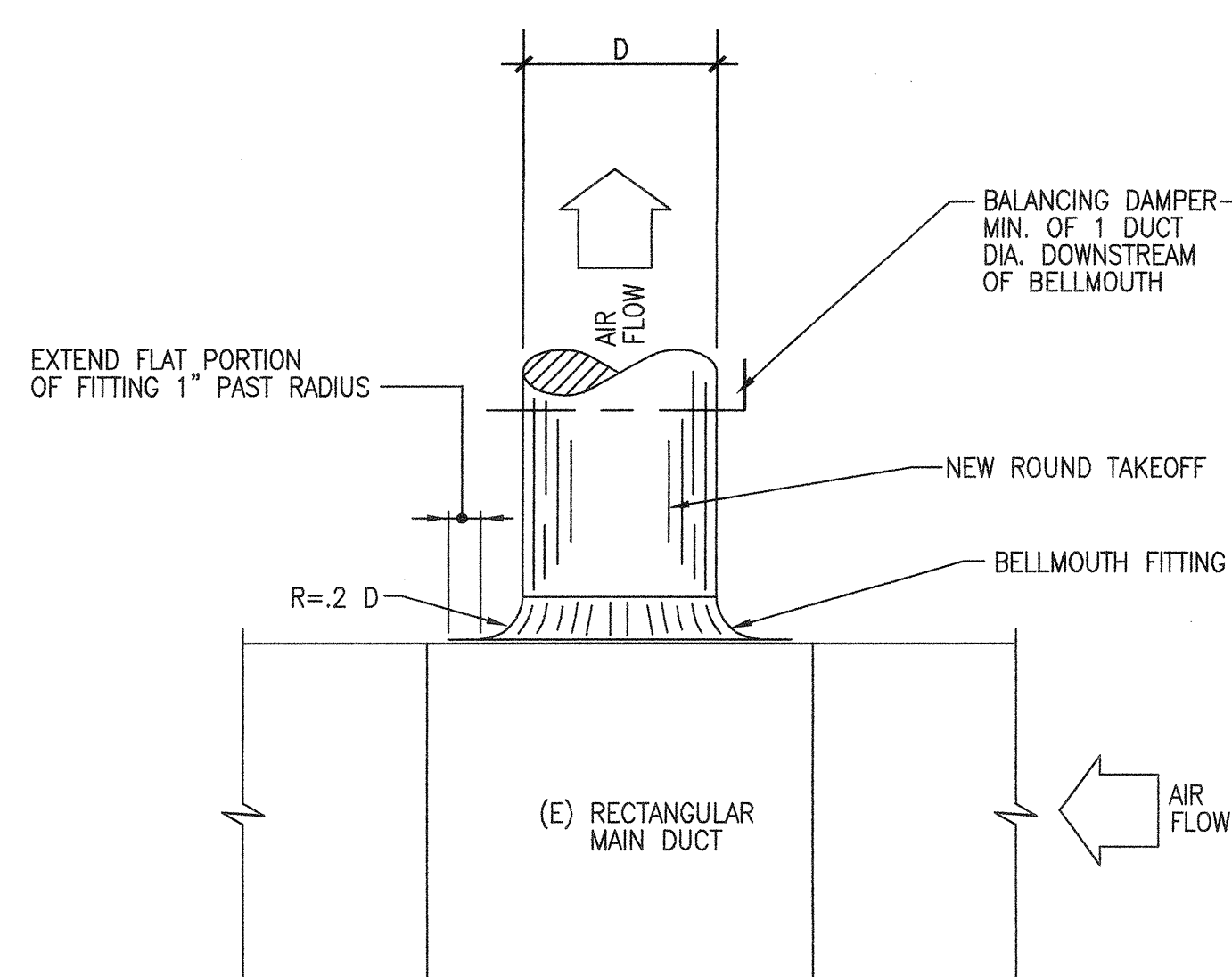


4 CHW AND HW WATER BLDG ENTRY DIAGRAM
NO SCALE

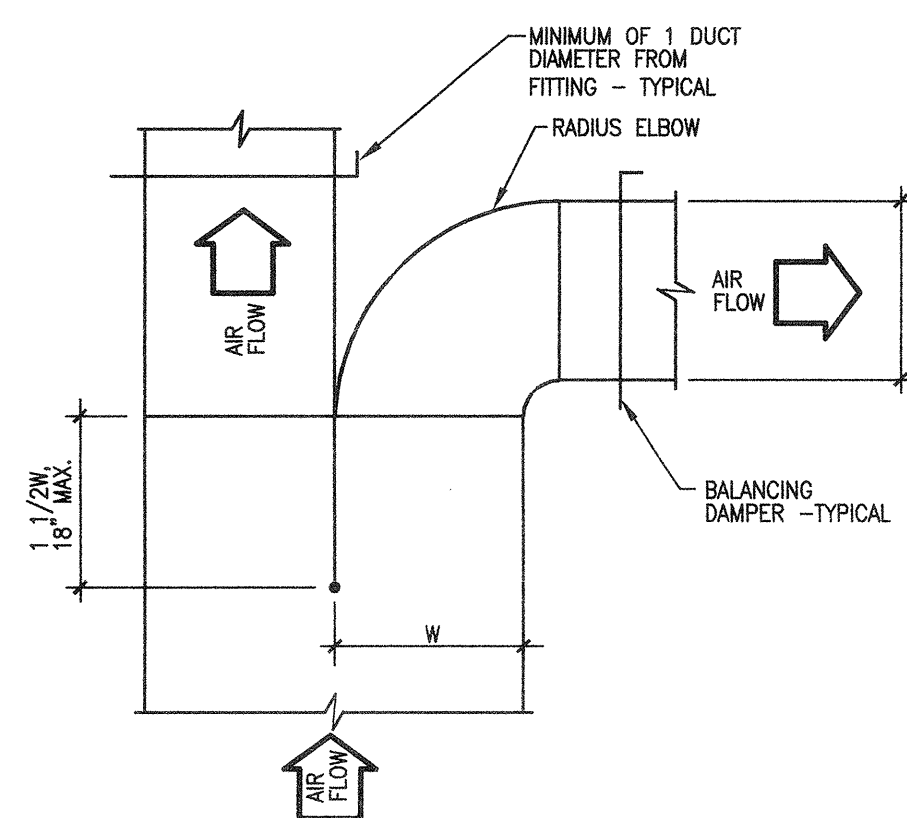


5 DUCT TAPPING DETAIL
NO SCALE

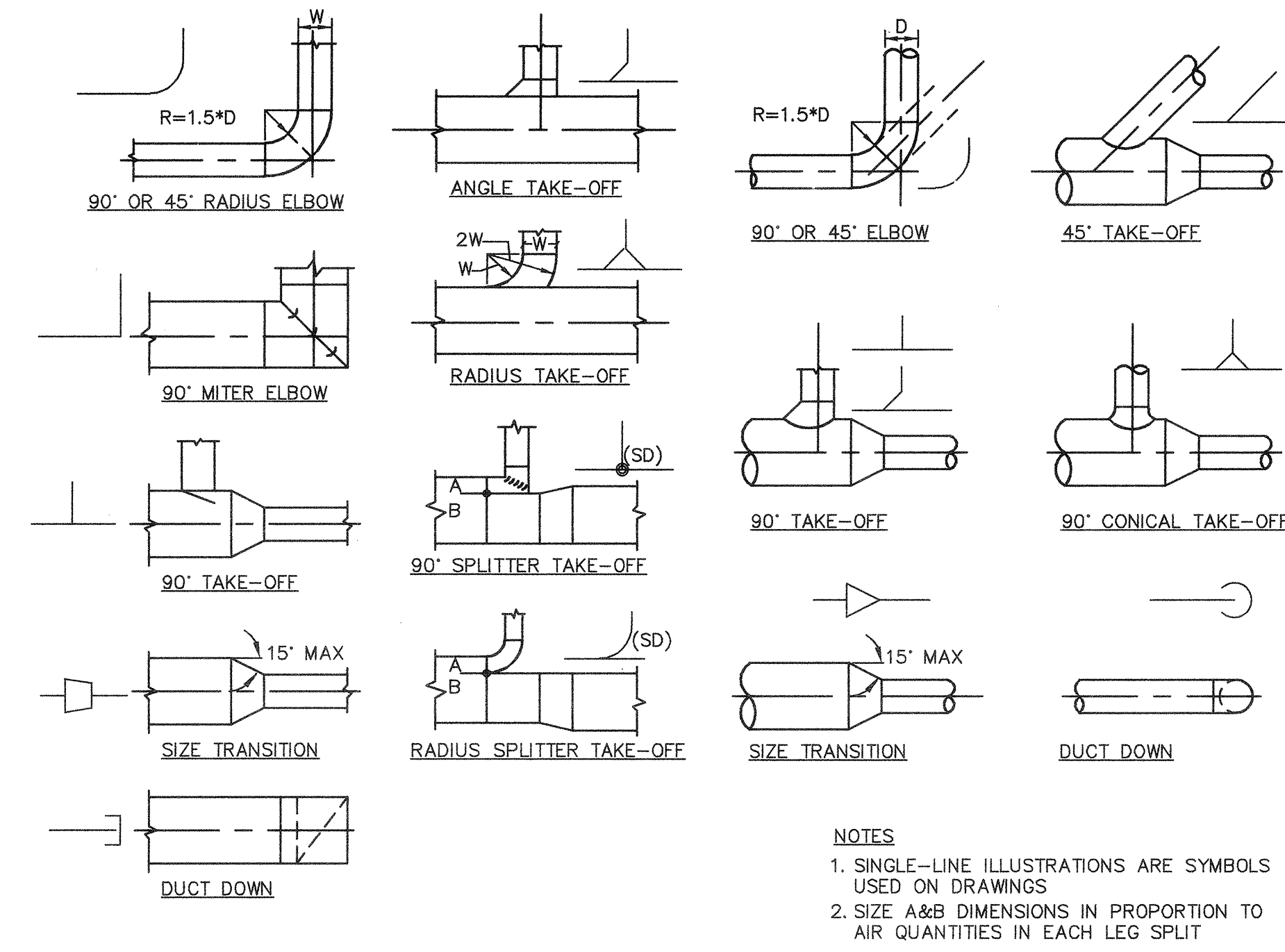
NOTE: SHALL BE USED ON ALL DUCTS UPSTREAM OF TERMINAL UNITS



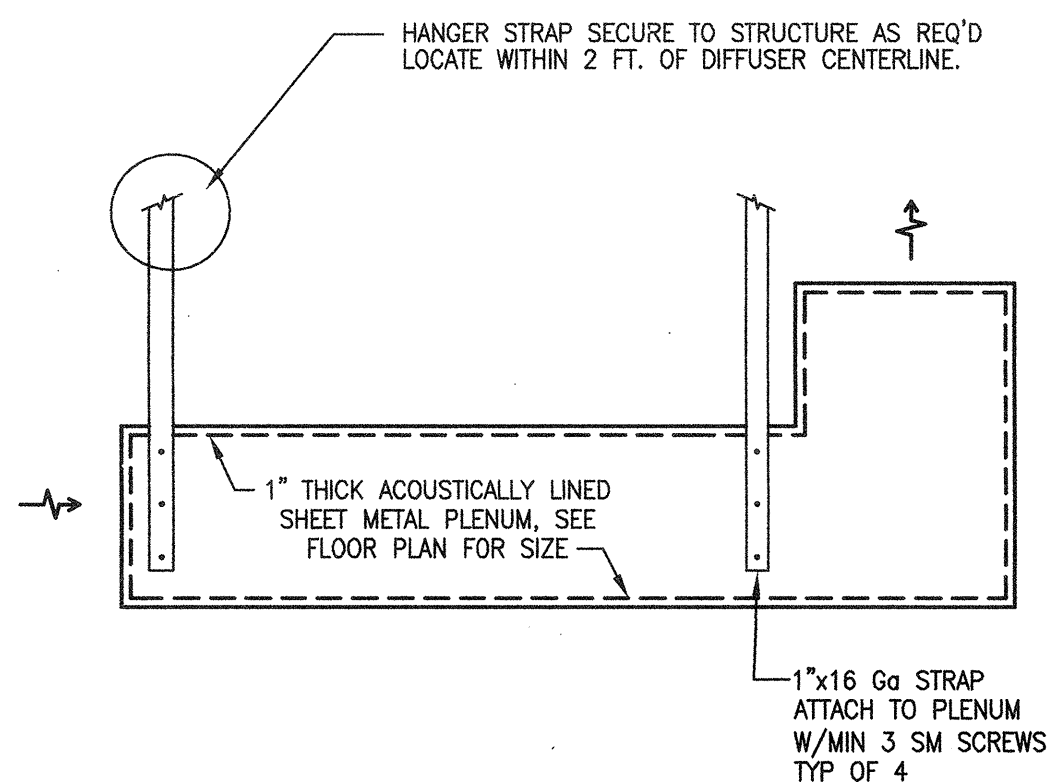
6 HORIZONTAL/VERTICAL DUCT SPLIT DETAIL
NO SCALE



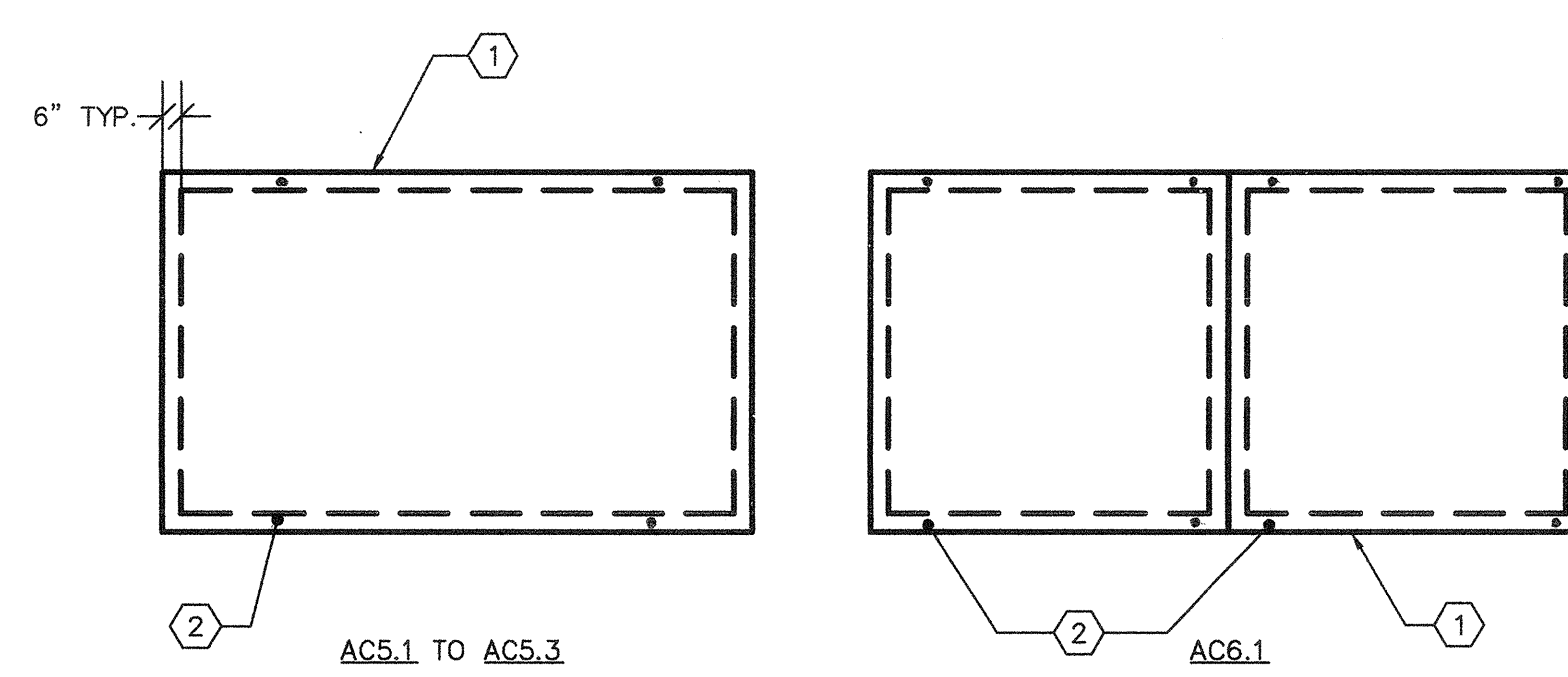
7 DUCT DETAIL
NO SCALE



8 ACOUSTIC TRANSFER AIR BOOT DETAIL
NO SCALE

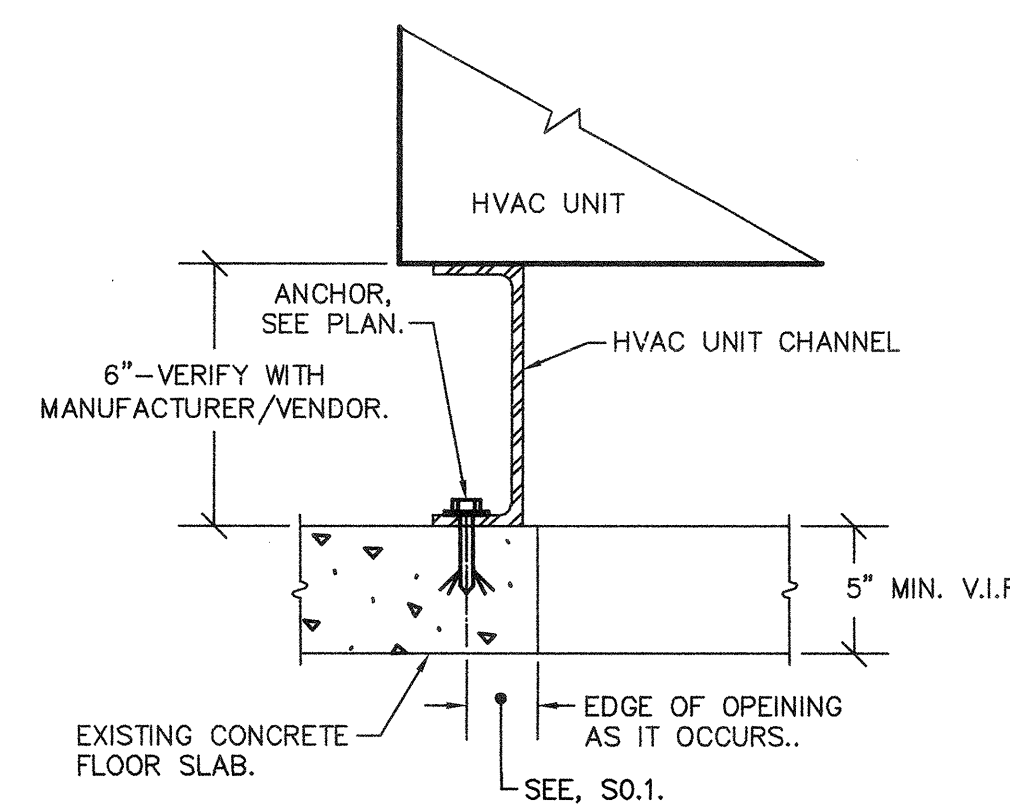


9 ANCHORAGE DETAIL
NO SCALE



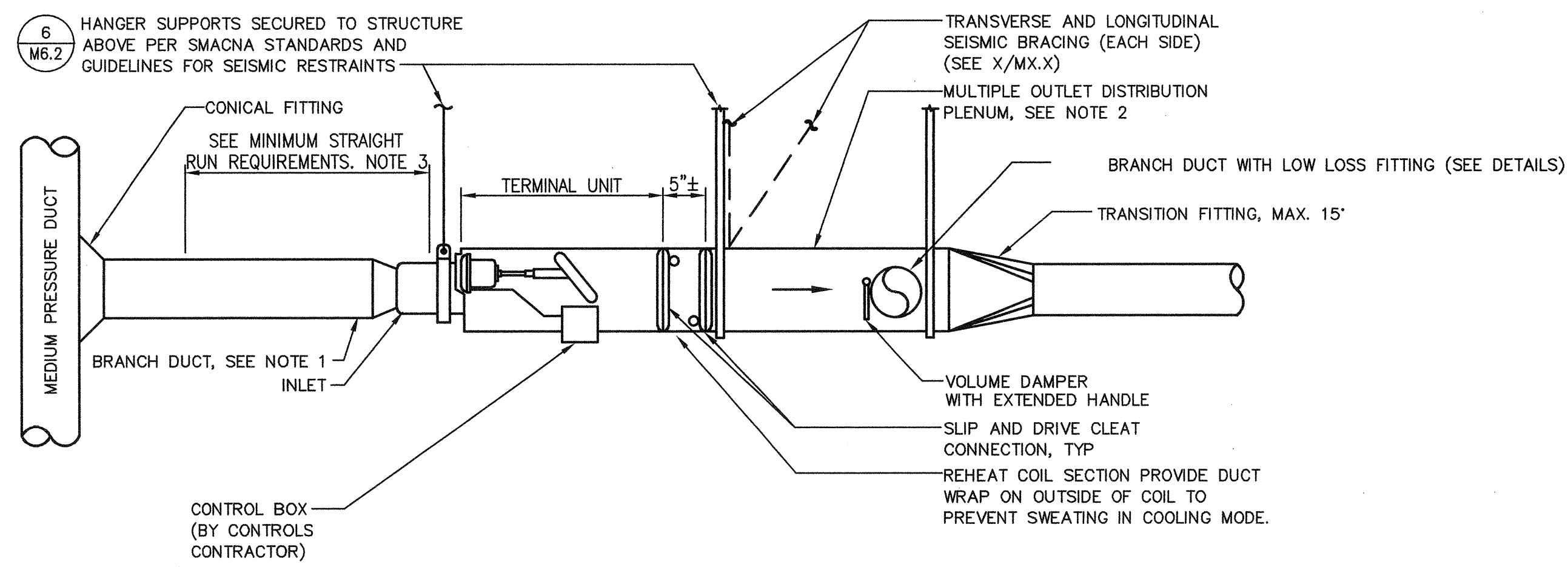
KEY NOTES: (1) HVAC UNIT CHANNEL.
(2) 1/2" x 2" EMBEDMENT KB-TZ PER ESR-1917. SEE S0.1.

PLANS



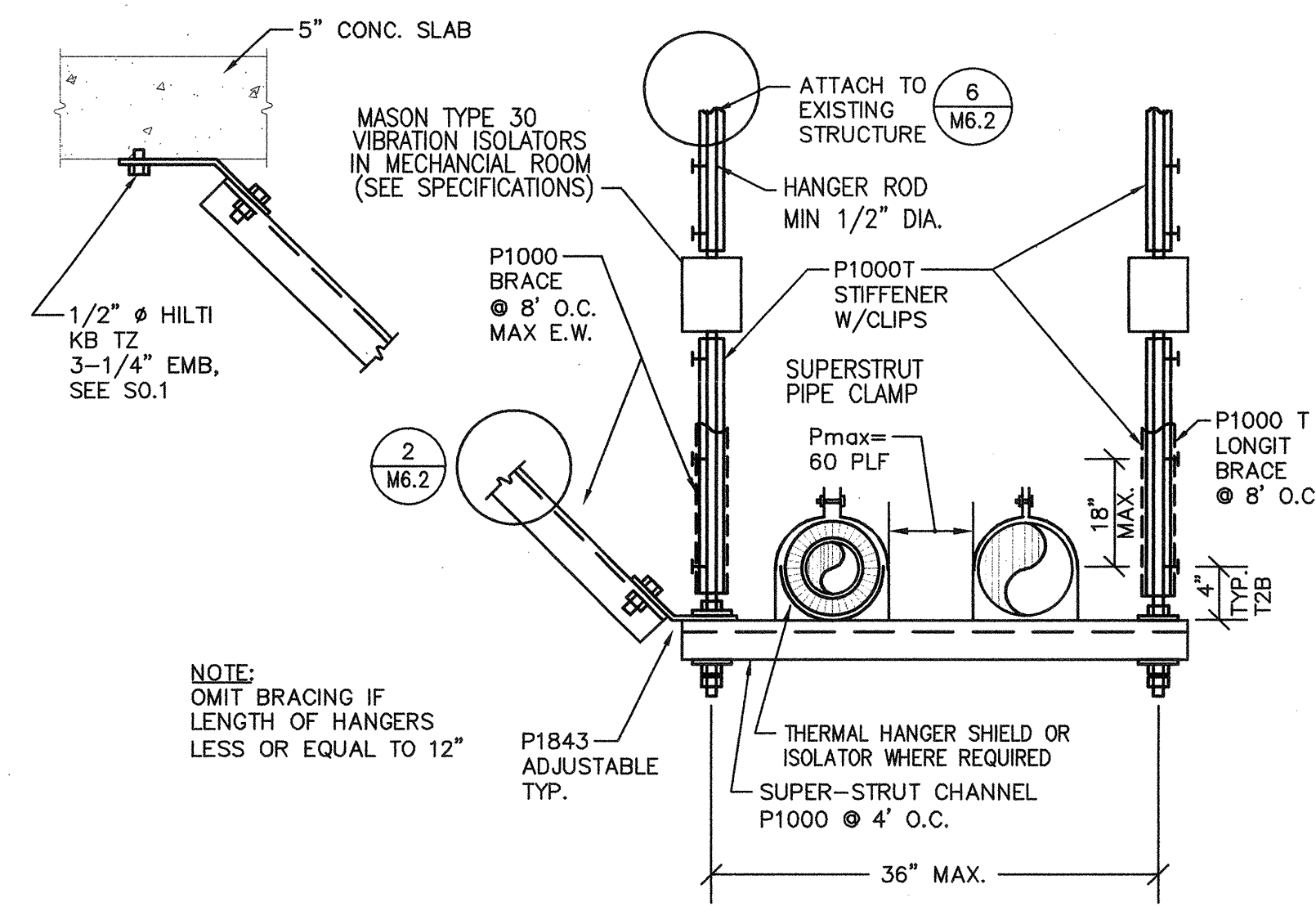
KEY NOTES: (1) SCAN FOR REBAR PRIOR TO DRILLING. DO NOT DAMAGE REBAR.

DETAIL

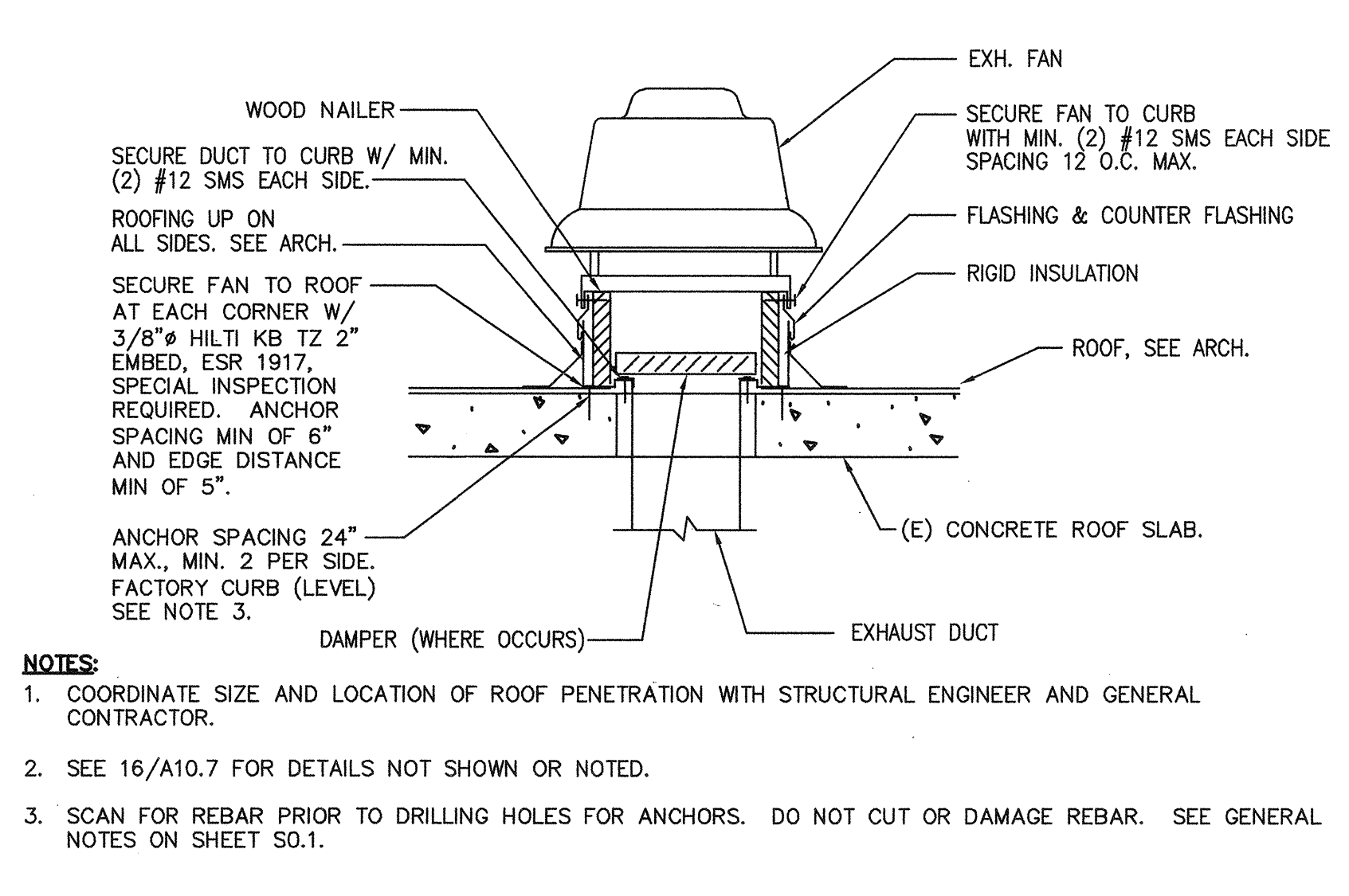


1 VAV TERMINAL UNIT DETAIL
NO SCALE

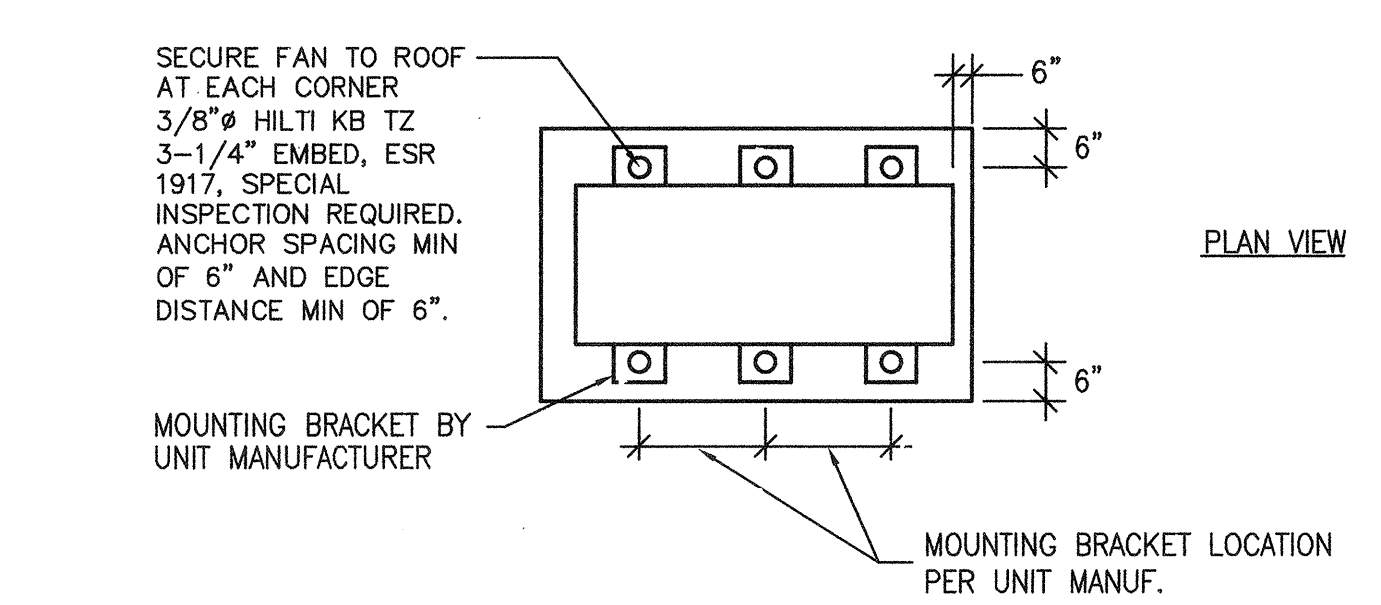
- NOTES:
- BRANCH DUCT SIZE TO MATCH UNIT INLET CONNECTION. FOR BRANCH DUCTS OVER SIX FEET IN LENGTH, INCREASE BRANCH DUCT ONE SIZE AND PROVIDE TRANSITION IMMEDIATELY UPSTREAM OF MINIMUM STRAIGHT DUCT RUN.
 - MINIMUM 5'-0" LONG LINED PLENUM EQUAL TO TERMINAL BOX OUTLET SIZE.
 - MINIMUM STRAIGHT DUCT RUN:
- | DUCT DIA (IN) | MIN STRAIGHT RUN (IN) |
|---------------|-----------------------|
| 6 | 24 |
| 8 | 32 |
| 10 | 40 |
| 12 | 48 |
| 14 | 60 |



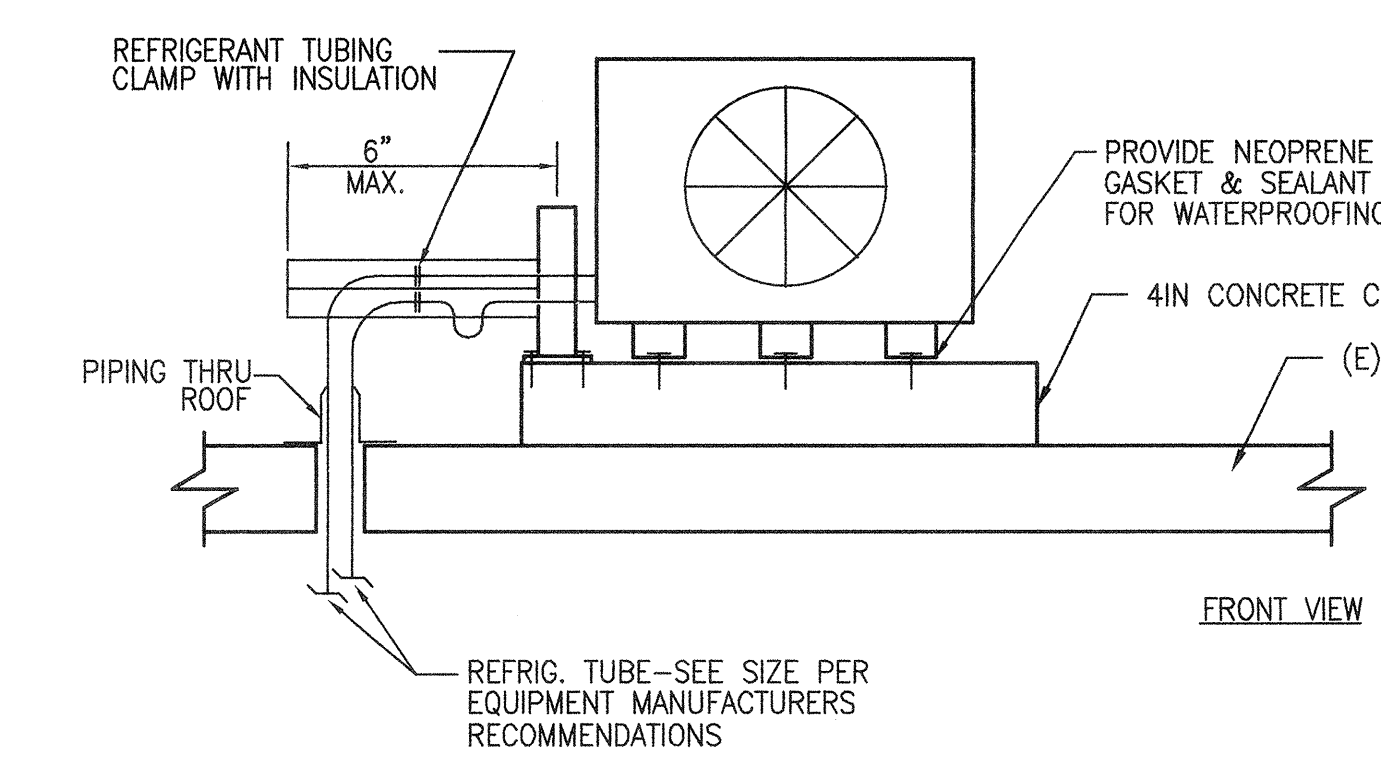
2 TRAPEZE PIPE HANGER DETAIL
NO SCALE



3 ROOF EXHAUST FAN
NO SCALE

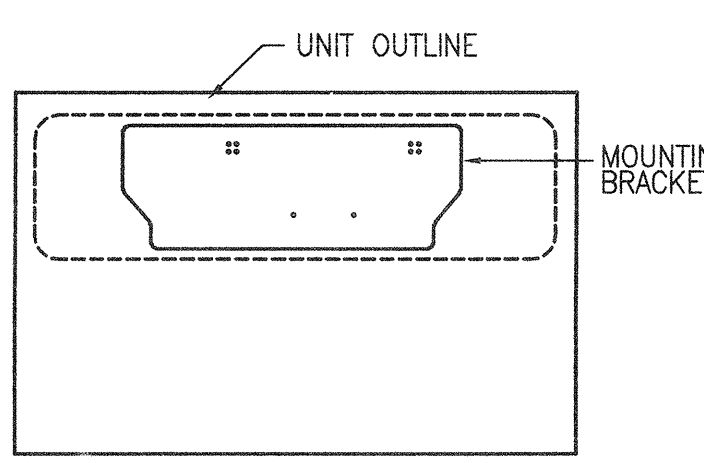


PLAN VIEW

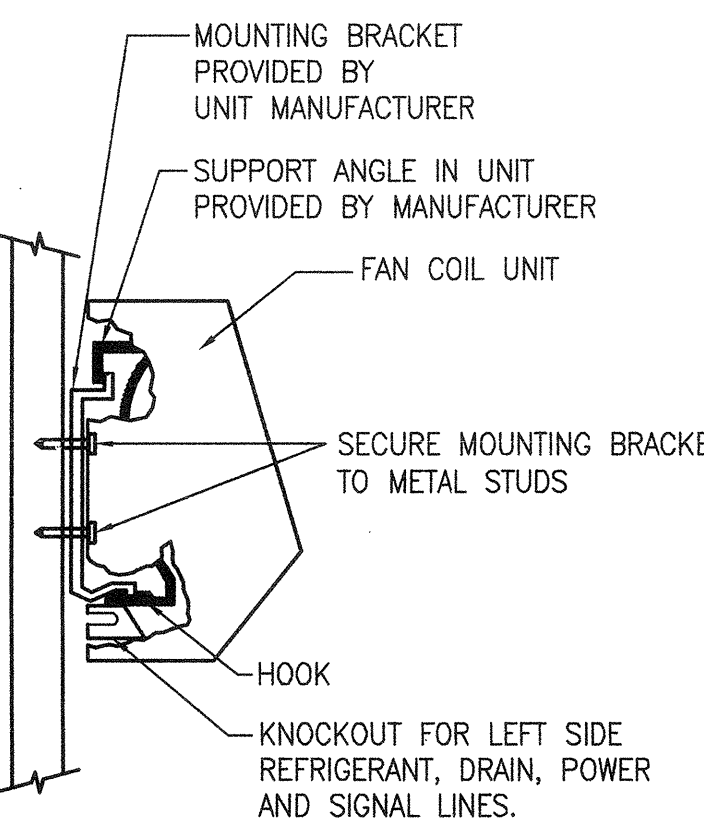


FRONT VIEW

CONDENSATE UNIT MOUNTING DETAIL ON ROOF



REAR VIEW

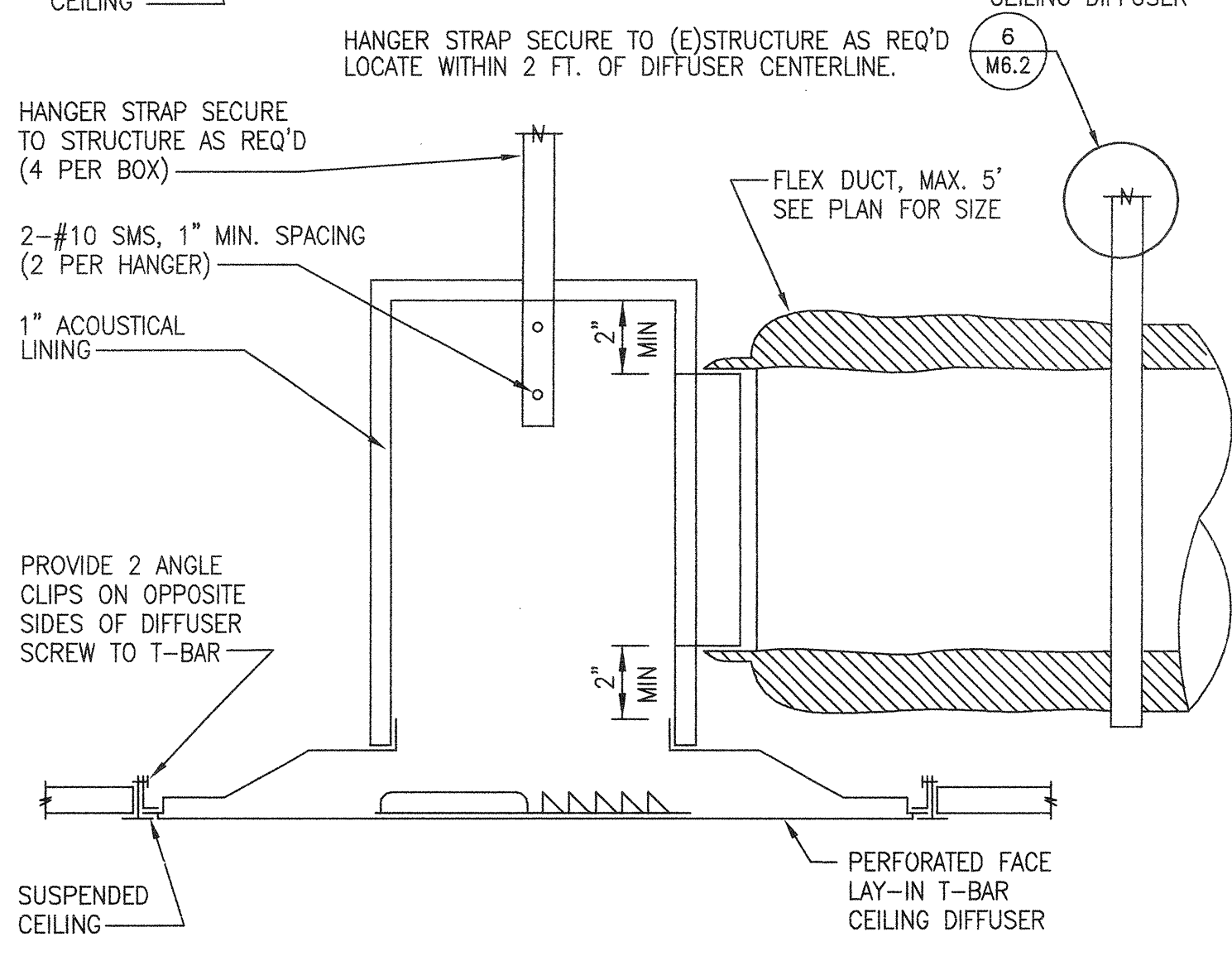
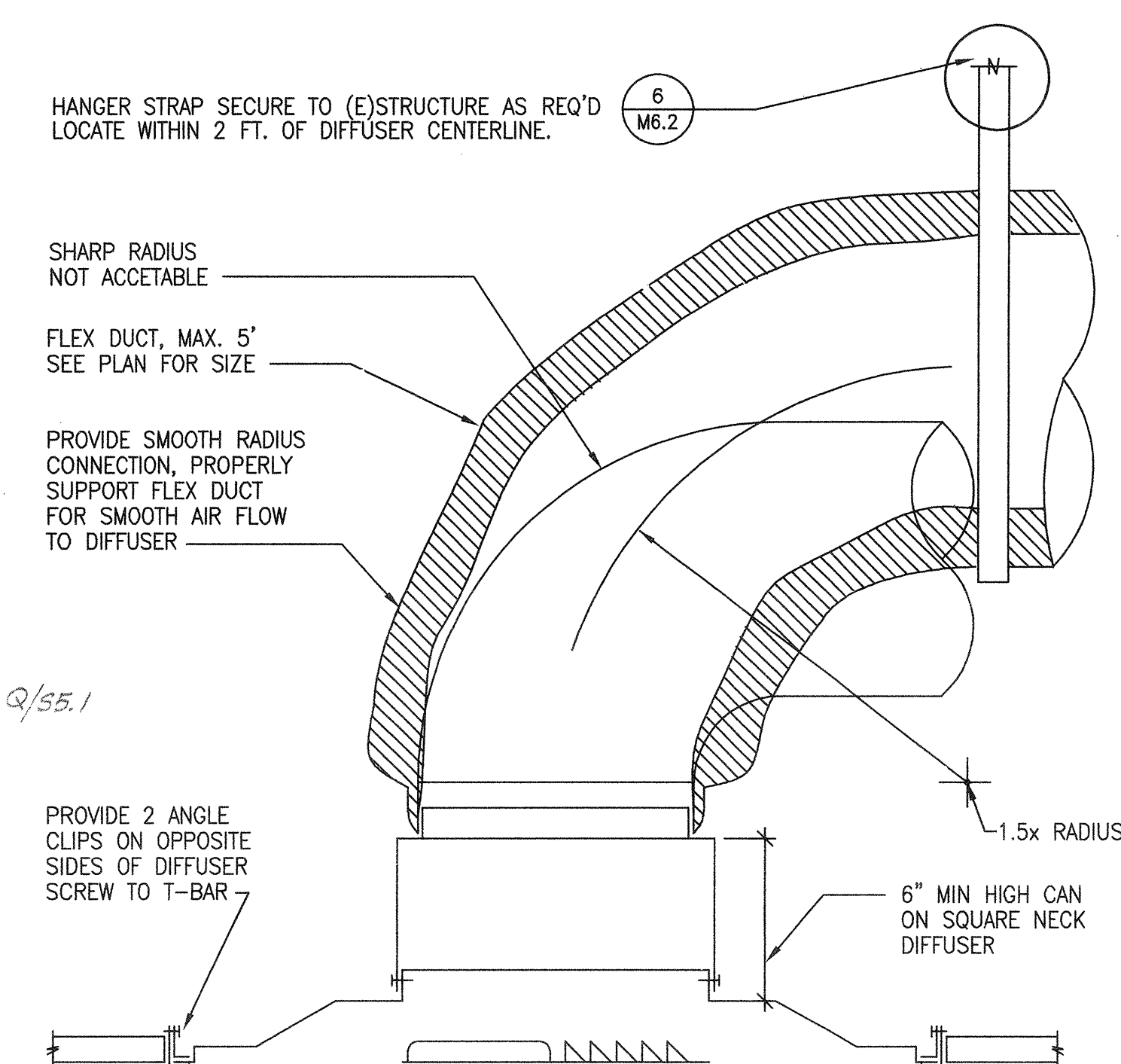


SIDE VIEW

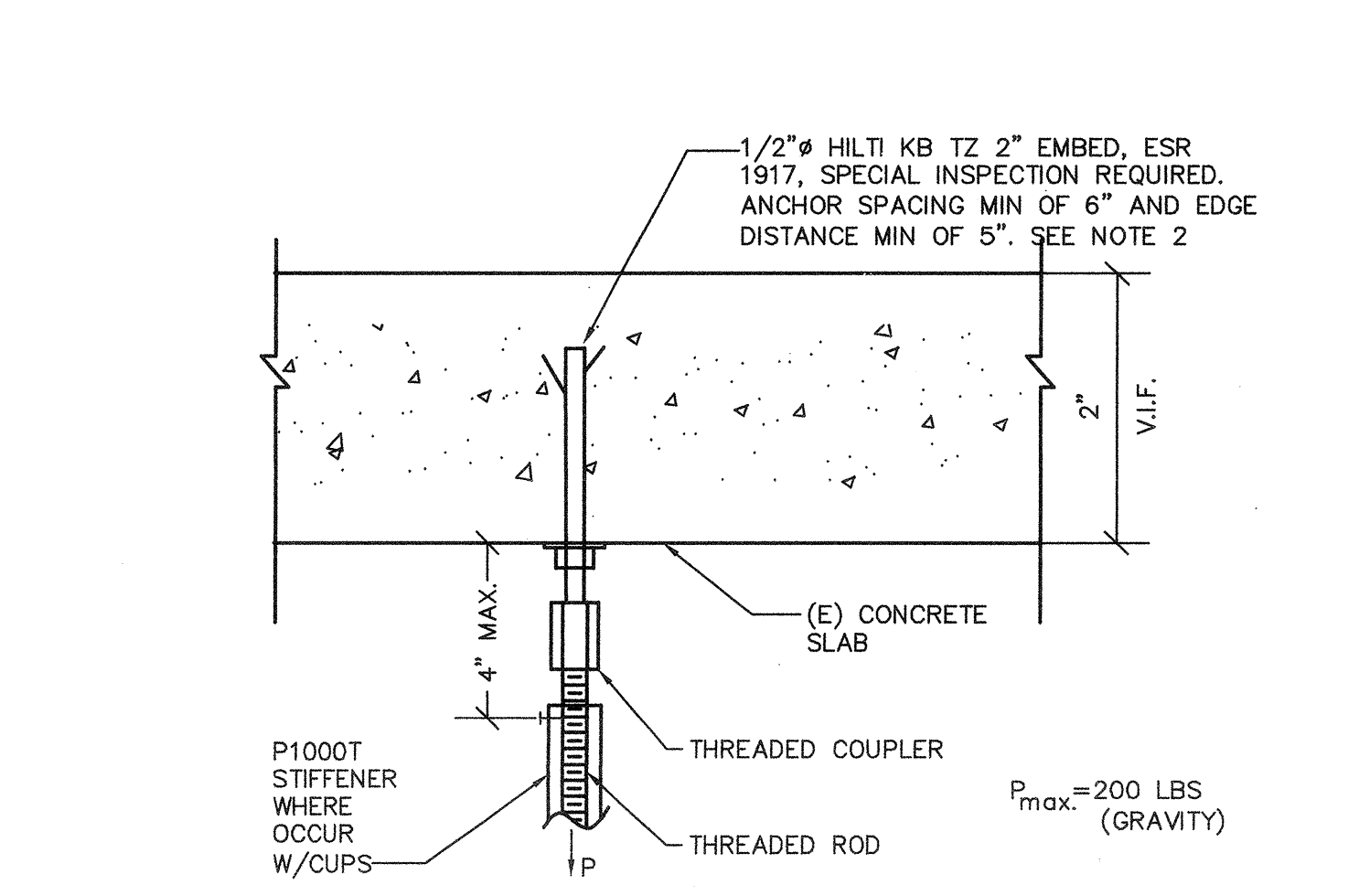
4 SPLIT SYSTEM MOUNTING DETAIL
NO SCALE

- NOTE:
- FOR DRAIN CONNECTION, REFER TO PLUMBING DRAWINGS.

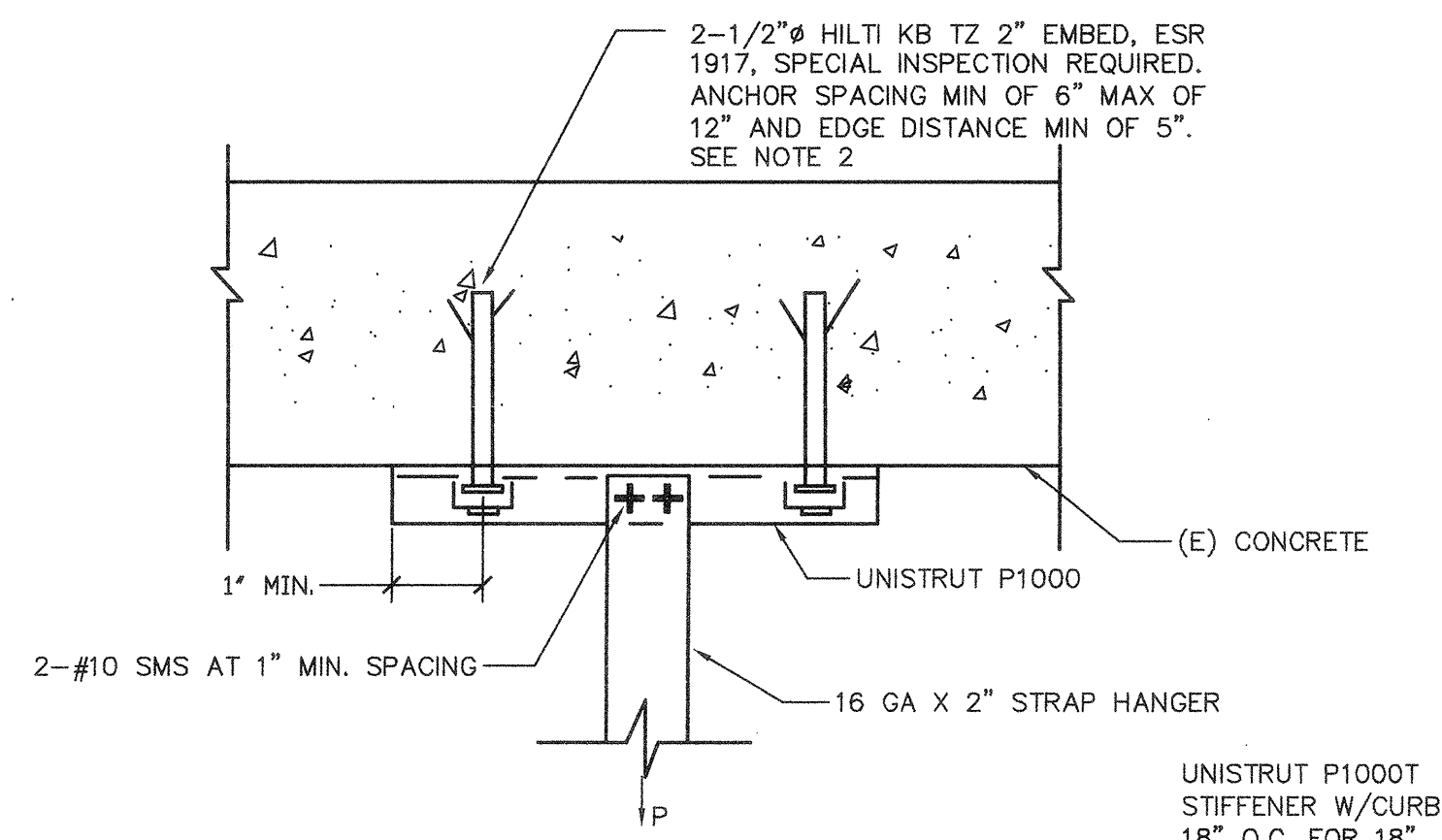
FAN COIL UNIT MOUNTING DETAIL ON WALL



5 CEILING DIFFUSER CONNECTION DETAIL
NO SCALE



ROD HANGER

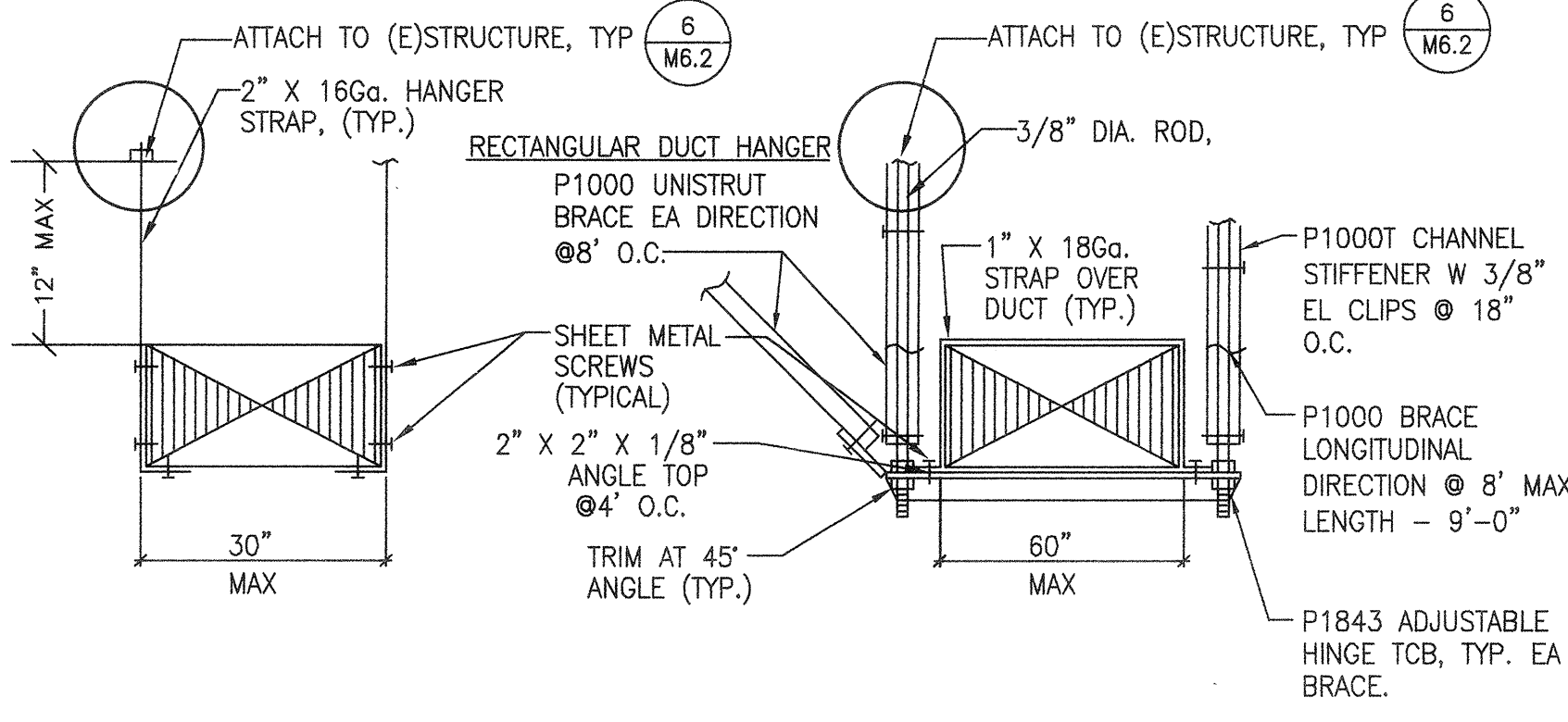


STRAP HANGER

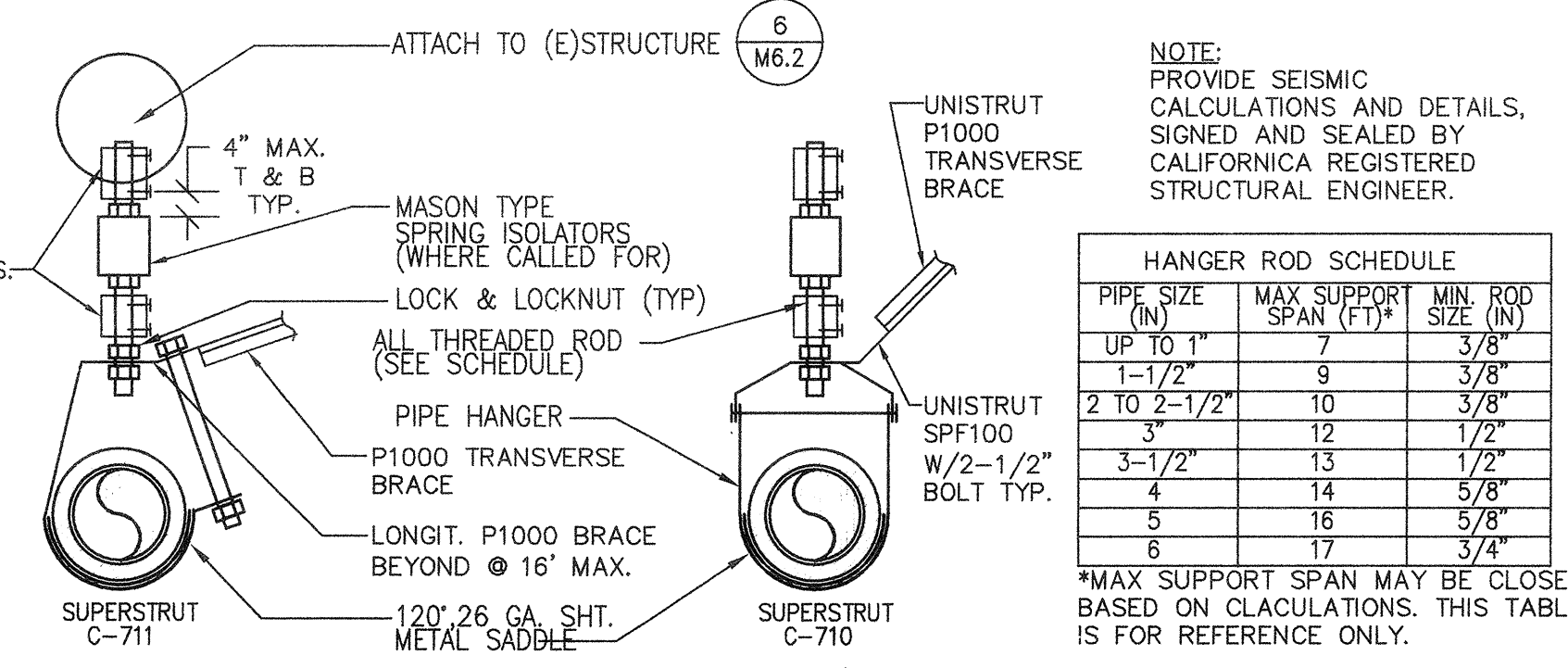
- NOTE:
- PROVIDE SEISMIC CALCULATIONS AND DETAILS, SIGNED AND SEALED BY CALIFORNIA REGISTERED STRUCTURAL ENGINEER. NO CUTTING OR DAMAGING OF REBAR.
 - SCAN REBAR PRIOR TO DRILLING FOR ANCHOR INSTALLATION. DO NOT CUT OR DAMAGE (E) REBAR.

6 CONNECTION TO EXISTING STRUCTURE
NO SCALE

- NOTES:
- REFER TO SPECIFICATIONS FOR HANGER SPACINGS.
 - ATTACHMENTS TO OVERHEAD STRUCTURE SHALL BE MADE IN ACCORDANCE WITH STRUCTURAL ENGINEERS REQUIREMENTS AND WEIGHT LIMITATIONS. ALL ATTACHMENT METHODS TO STRUCTURE SHALL BE SUBMITTED TO ARCHITECT AND STRUCTURAL ENGINEER FOR REVIEW.
 - PROVIDE SWAY & SEISMIC BRACING PER SMACNA SEISMIC GUIDELINES AND THE LATEST EDITION OF CALIFORNIA BUILDING CODE. CONTRACTOR SHALL INDICATE LOCATIONS OF SEISMIC BRACING ON THE SHOP DRAWING SUBMITTALS.
 - HANGER MATERIAL SUPPORTING FLEXIBLE DUCT SHALL IN NO CASE BE LESS THAN 1 1/2 INCHES WIDE. FLEXIBLE DUCT SHALL BE SUPPORTED PER MANUFACTURER'S RECOMMENDED MATERIALS, BUT AT NO GREATER DISTANCE THAN 4 FEET MAX. PERMISSIBLE SAG IS MAX. 1/2 INCHES PER FOOT OF SPACING BETWEEN SUPPORTS.
 - REFER TO STRUCTURAL DRAWINGS, S0.1.
 - SEE 2/-- FOR LOAD LIMITATIONS AND FOR BRACE TOP CONNECTION.
 - OMIT BRACING IF HANGER LENGTH LESS OR EQUAL 12"



7 DUCT HANGER DETAILS
NO SCALE



- NOTE: PROVIDE SEISMIC CALCULATIONS AND DETAILS, SIGNED AND SEALED BY CALIFORNIA REGISTERED STRUCTURAL ENGINEER.
- HANGER ROD SCHEDULE
- | PIPE SIZE (IN) | MAX SUPPORT SPAN (FT) | MIN ROD SIZE (IN) |
|----------------|-----------------------|-------------------|
| UP TO 1" | 7 | 3/8" |
| 1-1/2" | 9 | 3/8" |
| 2 TO 2-1/2" | 10 | 3/8" |
| 3" | 12 | 1/2" |
| 3-1/2" | 13 | 1/2" |
| 4" | 14 | 5/8" |
| 5" | 16 | 5/8" |
| 6" | 17 | 3/4" |
- *MAX SUPPORT SPAN MAY BE CLOSER BASED ON CALCULATIONS. THIS TABLE IS FOR REFERENCE ONLY.
- NOTES:
- ATTACHMENT TO OVERHEAD STRUCTURE SHALL BE MADE IN ACCORDANCE WITH STRUCTURAL ENGINEERS REQUIREMENTS AND WEIGHT LIMITATION PER T/SS.2
 - PROVIDE SWAY & SEISMIC BRACING PER MASON SEISMIC GUIDELINES, INCLUDING ALL ANGLE, LONGITUDINAL AND TRANSVERSE.
 - SEE 2/-- FOR BRACE TOP CONNECTION.
 - OMIT BRACING IF PIPE HANGER ROD LENGTH IS LESS OR EQUAL 12"

8 PIPE HANGER DETAILS
NO SCALE

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Exp. 12/31/09

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DATE: MAR 19 2009

BUILDINGS 5 & 6 RENOVATIONS

San Mateo County Community College District

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Redwood City, CA 94061

MECHANICAL DETAILS