

MERCED COLLEGE ADMIN MULTI ZONE HVAC REPLACEMENT

3600 M ST, MERCED CA, 95348



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GENERAL

PROJECT ADDRESS: 3600 M ST, MERCED CA, 95348

PROJECT DESCRIPTION

THIS PROJECT CONSISTS OF THE DEMOLITION AND REMOVAL OF ONE (1) EXISTING MULTI-ZONE AIR HANDLER & ONE (1) EXISTING CONDENSING UNIT AND THE INSTALLATION OF ONE (1) NEW HYDRONIC HEATING AND COOLING MULTI-ZONE AIR HANDLING UNIT LOCATED WITHIN THE ROOF PENTHOUSE OF THE ADMINISTRATION BUILDING. THE INSTALLATION CONTRACTOR TO CONNECT ALL NEW HVAC EQUIPMENT TO EXISTING CAMPUS EMS

GOVERNING CODES

2022 CALIFORNIA ADMINISTRATIVE CODE (CAC), PART 1, TITLE 24 CCR
2022 CALIFORNIA BUILDING CODE (CBC), PART 2, TITLE 24 CCR
2022 CALIFORNIA ELECTRICAL CODE (CEC), PART 3, TITLE 24 CCR
2022 CALIFORNIA MECHANICAL CODE (CMC), PART 4, TITLE 24 CCR
2022 CALIFORNIA PLUMBING CODE (CPC), PART 5, TITLE 24 CCR
2022 CALIFORNIA ENERGY CODE, PART 6, TITLE 24 CCR
2022 CALIFORNIA FIRE CODE (CFC), PART 7, TITLE 24 CCR
2022 CALIFORNIA EXISTING BUILDING CODE (CEBC), PART 10, TITLE 24 CCR
2022 CALIFORNIA GREEN BUILDING STANDARDS CODE (CALGREEN), PART 11, TITLE 24 CCR
2022 CALIFORNIA REFERENCE STANDARD FOR BUILDING MATERIALS, PART 12, TITLE 19 CCR
PUBLIC SAFETY, STATE FIRE MARSHAL REGULATIONS
NFA 13-22 STANDARD FOR THE INSTALLATION OF SPRINKLER SYSTEMS (AS AMENDED)
NFA 13-22 INSTALLATION OF PRIVATE FIRE SERVICE MAINS AND THEIR APPURTENANCES (AS AMENDED)
NFA 25-22CA (CALIFORNIA NFA 25 SECTION) INSPECTION, TESTING, AND MAINTENANCE OF
FIRE-BASED FIRE PROTECTION SYSTEMS (AS AMENDED)
NFA 27-22 NATIONAL FIRE ALARM AND SIGNALING CODE (AS AMENDED)

FOR A LIST OF APPLICABLE STANDARDS, INCLUDING CALIFORNIA AMENDMENTS TO THE NFPA STANDARDS, REFER TO CBC CHAPTER 35 AND CFC CHAPTER 80.

THE CALIFORNIA ENERGY CODE SECTION 10-103 REQUIRES ACCEPTANCE TESTING ON ALL NEWLY INSTALLED LIGHTING CONTROLS, MECHANICAL SYSTEMS, ENVELOPES, AND PROCESS EQUIPMENT AFTER INSTALLATION AND BEFORE PROJECT COMPLETION. AN ACCEPTANCE TEST IS A FUNCTIONAL PERFORMANCE TEST TO HELP ENSURE THAT NEWLY INSTALLED EQUIPMENT IS OPERATING AND IN COMPLIANCE WITH THE ENERGY CODE.

LIGHTING CONTROLS ACCEPTANCE TESTS MUST BE PERFORMED BY A CERTIFIED LIGHTING CONTROLS ACCEPTANCE TEST TECHNICIAN (ATT).

MECHANICAL SYSTEM ACCEPTANCE TESTS MUST BE PERFORMED BY A CERTIFIED MECHANICAL ATT FOR PROJECTS SUBMITTED ON OR AFTER OCTOBER 1, 2021.

ENVELOPE AND PROCESS EQUIPMENT ACCEPTANCE TESTS SHALL BE PERFORMED BY THE
INSTALLING CONTRACTOR, ENGINEER OF RECORD OR THE OWNER'S AGENT.

A LISTING OF CERTIFIED ATT CAN BE FOUND AT:
[HTTPS://WWW.ENERGY.CA.GOV/PROGRAMS-AND-TOPICS/PROGRAMS/ACCEPTANCE-TEST-TECHNICIAN-CERTIFICATION-PROVIDER-PROGRAM/ACCEPTANCE](https://www.energy.ca.gov/programs-and-topics/programs/acceptance-test-technician-certification-provider-program/acceptance).
 THE ACCEPTANCE TESTING PROCEDURES MUST BE REPEATED, AND DEFICIENCIES MUST BE CORRECTED BY THE BUILDER OR INSTALLING CONTRACTOR UNTIL THE CONSTRUCTION/INSTALLATION OF THE SPECIFIED SYSTEMS CONFORM AND PASS THE REQUIRED ACCEPTANCE CRITERIA.

PROJECT INSPECTORS WILL COLLECT THE FORMS TO CONFIRM THAT THE REQUIRED ACCEPTANCE TESTS HAVE BEEN COMPLETED.

GENERAL NOTES

1. CHANGES TO THE APPROVED DRAWINGS AND SPECIFICATIONS SHALL BE MADE BY AN ADDENDUM OR A CONSTRUCTION CHANGE DOCUMENT (CCD) APPROVED BY THE AUTHORITY HAVING JURISDICTION.
2. ALL TESTS TO CONFORM TO THE REQUIREMENTS OF THE APPROVED T & I SHEET.
3. ADDENDA MUST BE SIGNED BY ARCHITECT AND APPROVED BY AUTHORITY HAVING JURISDICTION.
4. NO CHANGES OR REVISIONS SHALL BE MADE FOLLOWING WRITTEN APPROVAL WHICH AFFECTS ACCESS COMPLIANCE ITEMS UNLESS SUCH CHANGES OR REVISIONS ARE SUBMITTED TO THE AUTHORITY HAVING JURISDICTION FOR APPROVAL.
5. SUBSTITUTIONS AFFECTING AUTHORITY HAVING JURISDICTION REGULATED ITEMS SHALL BE SUBMITTED AS A CONSTRUCTION CHANGE DOCUMENT OR ADDENDA, AND SHALL BE APPROVED BY AUTHORITY HAVING JURISDICTION PRIOR TO FABRICATION AND INSTALLATION.
6. CONSTRUCTION CHANGE DOCUMENTS MUST BE SIGNED BY THE FOLLOWING: • ENGINEER OF RECORD • DELEGATED PROFESSIONAL ENGINEER.
7. MATERIALS AND THEIR INSTALLATION SHALL COMPLY WITH APPLICABLE CODES, STANDARDS AND MANUFACTURER'S RECOMMENDATIONS.
8. THESE PLANS AND SPECIFICATIONS WILL COMPLY WITH CFC CHAPTER 33-FIRE SAFETY DURING CONSTRUCTION AND DEMOLITION.
9. AUTHORITY HAVING JURISDICTION IS NOT SUBJECT TO ARBITRATION.
10. AN "AUTHORITY HAVING JURISDICTION CERTIFIED" PROJECT INSPECTOR EMPLOYED BY THE OWNER AND APPROVED BY THE AUTHORITY HAVING JURISDICTION SHALL PROVIDE CONTINUOUS INSPECTION OF THE WORK. GRADING PLANS, DRAINAGE IMPROVEMENTS, ROAD AND ACCESS REQUIREMENTS AND ENVIRONMENTAL HEALTH CONSIDERATIONS SHALL COMPLY WITH ALL LOCAL ORDINANCES.
11. THE INTENT OF THESE DRAWINGS AND SPECIFICATIONS IS THAT THE WORK OF THE ALTERATION, REHABILITATION OR RECONSTRUCTION IS TO BE IN ACCORDANCE WITH THE REGULATIONS OF THE AUTHORITY HAVING JURISDICTION. SHOULD ANY EXISTING CONDITIONS SUCH AS DETERIORATION OR NON-COMPLYING CONSTRUCTION BE DISCOVERED WHICH IS NOT COVERED BY THE CONTRACT DOCUMENTS WHEREIN THE FINISHED WORK WILL BE CONFORM WITH THE REGULATIONS OF THE AUTHORITY HAVING JURISDICTION, A CONSTRUCTION CHANGE DOCUMENT (CCD), OR A SEPARATE SET OF PLANS AND SPECIFICATIONS, DETAILING AND SPECIFYING THE REQUIRED WORK SHALL BE SUBMITTED TO AND APPROVED BY AUTHORITY HAVING JURISDICTION BEFORE PROCEEDING WITH THE WORK.

DEFERRED SUBMITTALS

NONE

PROJECT DESCRIPTION

OWNER
MERCED COLLEGE

3600 M ST
MERCED, CA 95348
(209) 384-6301

CONTACT: MARCUS METCALF
EMAIL: MARCUS.METCALF@MCCD.EDU

MECHANICAL ENGINEER
NET POSITIVE CONSULTING ENGINEERS

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CONTACT: JONATHAN C. SCHLUNDT
EMAIL: JSCHLUNDT@NPCENG.COM
LICENSE #: M35955

PROJECT DIRECTORY

- A. CONTRACTOR SHALL PERFORM WORK AROUND OWNER & COLLEGE SCHEDULE, PROVIDING ALL TEMPORARY FACILITIES/CONTINUITY OF SERVICES TO MINIMIZE DISRUPTION TO CAMPUS.
- B. CONTRACTOR SHALL COORDINATE LOCATION OF ON-SITE TRAILER AND/OR OFFICE WITH THE COLLEGE PRIOR TO CONSTRUCTION FOR REGULARLY SCHEDULED CONSTRUCTION MEETINGS.
- C. CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING WORKING AREAS & SECURING MATERIALS DURING THE COURSE OF THE ENTIRE PROJECT.



GENERAL

G001	COVER SHEET
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MECHANICAL

M001	MECHANICAL LEGEND, SCHEDULES & NOTES
M100	MECHANICAL SITE PLAN - MERCED COLLEGE
M101	ENLARGED MECHANICAL SITE PLAN - ADMINISTRATION BUILDING
M200	ENLARGED MECHANICAL FLOOR PLAN - ADMINISTRATION BUILDING
M500	ENLARGED MECHANICAL ROOF PLAN - ADMINISTRATION BUILDING
M800	MECHANICAL DETAILS
M900	TITLE 24 DOCUMENTATION

SHEET INDEX

NUMBER OF SHEETS = 8

MERCED COLLEGE
ADMIN MULTI-ZONE REPLACEMENT

PROJECT NO: 1478

3600 M ST., MERCED, CA 95348

PROJECT NAME:

DATE: 03/26/2025

SHEET TITLE:

COVER SHEET

SHEET NO:

G001

DRAWN BY: REVIEW BY:

MECHANICAL SCHEDULES

AIR HANDLER SCHEDULE - ADMINISTRATION O.F.C.I.		
DESIGNATION		AHU-A1
BLOWER	AIR FLOW (CFM)	12595
	MIN. OSA (CFM)	1525
	FLA	24.9
	MCA / MOCp	30 / 35
	VOLTS / PHASE	460 / 3
COOLING	CAPACITY TOT. (MBH)	512.6
	CAPACITY SENS. (MBH)	352.6
	EADB/EAWB (°F)	80 / 67
	AMBIENT AIR (°F)	105
	GPM	65
HEATING	WATER PD (FT)	19.8
	CAPACITY	475.9
	EADB (°F)	57
	GPM	96.15
FILTERS	WATER PD (FT)	15.1
	QUANTITY/SIZE	2 / 24x24 1 / 12x24
	EFFICIENCY (MERV)	MERV 13
	FINAL PD MX (IN. WC)	5.19
MANUFACTURER		WILLIS-ENERGY
TYPE		MULTI-ZONE VAV
MODEL NUMBER		Q1660GA
LOCATION		PENTHOUSE
SERVICE		ADMINISTRATION
NO. OF ZONES		7
OPER WT (LBS)		4525
ACCESSORIES		1-3

- CONTRACTOR SHALL:
- SUPPLY DUCT SMOKE DETECTOR (SYSTEM SENSOR D4120). PROVIDE CONDUIT AND CONDUCTORS AS REQUIRED FOR UNIT SHUTDOWN UPON DETECTION OF SMOKE. FURNISH REMOTE TEST SWITCH (RTS454KEY) WITHIN HOT DECK AND COLD DECK OF (N) AHU-A1 TO ELECTRICAL FOR INSTALLATION.
 - CO2 SENSOR FOR DEMAND CONTROL VENTILATION.
 - CONTRACTOR TO PROVIDE (N) BELIMO ACTUATORS & DAMPERS THAT ARE TO BE INTEGRATED INTO THE (E) JOHNSON METASYS. ALL (E) ACTUATORS TO BE SALVAGED TO THE OWNER.

GENERAL NOTES

- COORDINATION OF WORK: LAYOUT OF MATERIALS, EQUIPMENT AND SYSTEMS IS GENERALLY DIAGRAMMATIC UNLESS SPECIFICALLY DIMENSIONED. SOME WORK MAY BE SHOWN OFFSET FOR CLARITY.
- THE ACTUAL LOCATION OF ALL MATERIALS, PIPING, DUCTWORK, FIXTURES, EQUIPMENT, SUPPORTS, ETC. SHALL BE CAREFULLY PLANNED, PRIOR TO INSTALLATION OF ANY WORK TO AVOID ALL INTERFERENCES WITH EACH OTHER, OR WITH STRUCTURAL, ELECTRICAL, ARCHITECTURAL OR OTHER ELEMENTS.
- VERIFY THE PROPER VOLTAGE AND PHASE OF ALL EQUIPMENT WITH THE ELECTRICAL PLANS. ALL CONFLICTS SHALL BE CALLED TO THE ATTENTION OF THE ARCHITECT AND THE ENGINEER PRIOR TO THE INSTALLATION OF ANY WORK OR THE ORDERING OF ANY EQUIPMENT.
- PROVIDE ALL DUCT TRANSITION PIECES AND FITTINGS REQUIRED TO ACCOMMODATE MECHANICAL EQUIPMENT CONNECTIONS, STRUCTURE, ARCHITECTURAL ELEMENTS, AND CHANGES IN DUCT SIZES.
- ALL DUCTWORK SHALL BE CONSTRUCTED, ERECTED AND TESTED IN ACCORDANCE WITH THE STANDARDS ADOPTED BY SMACNA AND CHAPTER 6 OF THE 2022 CMC.
- ALL DUCTWORK AND PIPING SHALL BE INSULATED CONSISTENT WITH THE REQUIREMENTS OF 2022 CMC. INSULATION MATERIALS SHALL MEET THE CALIFORNIA QUALITY STANDARD PER SECTION 110.8, 120.3, AND 120.4 OF THE 2022 CALIFORNIA ENERGY CODE.
- ALL DUCT SIZES SHOWN ARE NET INSIDE DIMENSIONS.
- DUCTWORK SHALL BE SHEET METAL CONSTRUCTED IN COMPLETE CONFORMANCE WITH CMC LATEST EDITION, CHAPTER 6 AND THE LATEST SMACNA HVAC DUCT CONSTRUCTION STANDARDS.
- ALL DRAWINGS AND SPECIFICATIONS ARE TO BE CONSIDERED PART OF THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REVIEW AND COORDINATION OF ALL DRAWINGS PRIOR TO ANY CONSTRUCTION, INCLUDING ARCHITECTURAL, STRUCTURAL, MECHANICAL, PLUMBING, AND ELECTRICAL. ANY WORK PERFORMED IN CONFLICT WITH THE CONTRACT DOCUMENTS OR ANY CODE REQUIREMENT SHALL BE CORRECTED BY THE CONTRACTOR AT HIS OWN EXPENSE AND AT NO EXPENSE TO THE OWNER OR THE OWNER REPRESENTATIVE.
- PROVIDE VOLUME DAMPERS IN ALL BRANCH DUCTS (SUPPLY, RETURN, OSA AND EXHAUST) FOR SYSTEM BALANCING.
- HANDLE, STORE AND INSTALL ALL EQUIPMENT PER MANUFACTURER'S INSTRUCTIONS AND AS DIRECTED IN THE PROJECT MANUAL.
- ALL AIR SYSTEMS SHALL BE TESTED, ADJUSTED AND BALANCED TO MEET THE REQUIRED FLOW. TAB METHODOLOGY SHALL BE SUBMITTED TO OWNER REPRESENTATIVE PRIOR TO IMPLEMENTATION AND IN ACCORDANCE WITH PROJECT SEQUENCING.
- ALL PLUMBING FIXTURES AND PIPING SHALL BE IN ACCORDANCE WITH THE STANDARDS ADOPTED BY THE 2022 CPC.

MECHANICAL LEGEND

SYMBOL	ITEM	ABBR.
	ABOVE	ABV
	ABOVE CEILING	ABV CLG
	ABOVE FINISHED FLOOR	AFF
	ALTERNATE	ALT
	AIR CONDITIONING	AC
	AIR FLOW STATION	AFS
	AIR HANDLER UNIT	AHU
	ANALOG INPUT	AI
	ANALOG OUTPUT	AO
&	AND	
	ARCHITECT / ARCHITECTURAL	ARCH
⊗	AT	
	BACKDRAFT DAMPER	BDD
	BELOW FINISH CEILING	BFC
	BELOW FLOOR	BEL FLR
	BELOW GRADE	BEL GR
	BLIND FLANGE	BLF
	BRITISH THERMAL UNIT	BTU
	BRITISH THERMAL UNIT PER HOUR	BTUH
	CALIFORNIA MECHANICAL CODE	CMC
	CALIFORNIA PLUMBING CODE	CPC
	CEILING	CLG
℄	CENTER LINE	
	CONTINUATION	CONT
	CUBIC FEET OF AIR PER MINUTE	CFM
	CURRENT SENSOR	CS
∅	DIAMETER	DIA
	DIFFERENTIAL PRESSURE SWITCH	DPS
	DIGITAL INPUT	DI
	DIGITAL OUTPUT	DO
	DOWN	DN
	DRAWING	DWG
	ELECTRICAL	ELEC
	ELBOW	ELL
	EXHAUST	EXH
	EXHAUST AIR	EA
	EXHAUST FAN	EF
	EXISTING	(E)
	FEET	FT
	FLOOR	FLR
	FLOW LINE	FL
	FLOW SWITCH	FS
	GAUGE	GA
	GALLON	GAL
	GALLONS PER HOUR	GPH
	GALLONS PER MINUTE	GPM
	INSIDE DIAMETER	ID
	MAKE-UP AIR UNIT	MAU
	MAXIMUM	MAX
	MINIMUM	MIN
	NEW	(N)
	NOT IN CONTRACT	NIC
	NOT TO SCALE	NTS
#	NUMBER	NO.
	OUTSIDE AIR	OSA
	OUTSIDE DIAMETER	OD
	POUNDS	LBS
	POUNDS PER SQUARE INCH	PSI
	POUNDS PER SQUARE INCH ABSOLUTE	PSIA
	POUNDS PER SQUARE INCH GAUGE	PSIG
	POLYVINYL CHLORIDE	PVC
	PRESSURE STATION	PS
	RETURN AIR	RA
	ROOM	RM
	SUPPLY AIR	SA
	SPECIFICATION	SPEC
	SQUARE FEET	SQ FT
	STAINLESS STEEL	SS
	TEMPERATURE	TEMP
	TEMPERATURE SENSOR	TS
	THROUGH	THRU
	TYPICAL	(TYP)
	VARIABLE REFRIGERANT FLOW	VRF
	VARIABLE AIR VOLUME UNIT	VAV
	WITH	WI
	WITHOUT	W/O
— A —	COMPRESSED AIR	A
— CHWS —	CHILLED WATER SUPPLY	CHWS
— CHWR —	CHILLED WATER RETURN	CHWR
— CWS —	CONDENSER WATER SUPPLY	CWS
— CWR —	CONDENSER WATER RETURN	CWR
— CW —	DOMESTIC COLD WATER	
— HWS —	HOT WATER SUPPLY	HWS
— HWR —	HOT WATER RETURN	HWR
— RD —	REFRIGERANT DISCHARGE	RD
— RL —	REFRIGERANT LIQUID	RL
— RS —	REFRIGERANT SUCTION	RS
— S —	STEAM SUPPLY	S
— CR —	STEAM CONDENSATE RETURN	CR
— CD —	CONDENSATE DRAIN	CD

SYMBOL	ITEM	ABBR.
—	PIPING CAP	
----	EXISTING (DESIGNATED)	(E)
////	REMOVE / DEMO EXISTING (DESIGNATED)	
→	DIRECTION OF FLOW	
→	SUPPLY AIR	SA
←	RETURN AIR	RA
→	EXHAUST AIR	EA
↘	PIPE/DUCT TURN DOWN	
↗	PIPE/DUCT TURN UP	
↻	ROUND DUCT (SMALLER THAN 10'Ø)	
~~~~~	ROUND FLEXIBLE DUCT	
=====	RECTANGULAR OR ROUND DUCT (SIZE PER PLAN)	
----	EXISTING DUCT (DESIGNATED)	
ZZZZ	REMOVE/ DEMO EXISTING DUCT (DESIGNATED)	
=====	DUCT WITH ACOUSTIC LINING	
→	SUPPLY AIR DUCT DROP	
→	SUPPLY AIR DUCT RISE	
←	RETURN AIR DUCT DROP	
←	RETURN AIR DUCT RISE	
←	EXHAUST AIR DUCT DROP	
←	EXHAUST AIR DUCT RISE	
←	OUTSIDE AIR DUCT DROP	
←	OUTSIDE AIR DUCT RISE	
↻	TURNING VANES	TV
⊞	EXTRACTOR	
GO	CO ₂ SENSOR	
ID	DUCT DETECTOR	DD
HD	HEAT DETECTOR	HD
SD	SMOKE DETECTOR	SD
M	MOTORIZED DAMPER	
◆	FIRE DAMPER W/MOTORIZED RESET AND ACCESS DOOR	
OR-■	FIRE/SMOKE DAMPER WITH ACCESS PANEL	FSD
—	VOLUME CONTROL DAMPER WITH LOCKING QUADRANT	VCD
△	REMOTE T'STAT WITH SENSOR IN DUCT	
T AC-1	THERMOSTAT; THERMOSTAT LABEL EXAMPLE : THERMOSTAT FOR AC-1	T'STAT
— X —	POINT OF CONNECTION TO EXISTING	POC
□	BYPASS TIMER	BPT
□	THERMOMETER	
○	PRESSURE GAGE	
●	SECURITY BARS	
—	PETE'S PLUG	
—	BALANCING COCK	
—	BALL VALVE	
—	BUTTERFLY VALVE	
—	CHECK VALVE	
—	CONCENTRIC REDUCER	
—	TWO-WAY CONTROL VALVE	
—	FLOW SWITCH	FS
—	FLEXIBLE CONNECTION	FLEX
—	GATE VALVE	
—	GLOBE VALVE	
—	INSTRUMENT WELL	
—	PLUG VALVE	
—	PRESSURE RELIEF VALVE	PRV
—	"Y" TYPE STRAINER	
—	UNION	
①	KEYNOTE	
A 8"x8" 100 CFM	NEW GRILLE TAG EXAMPLE: GRILLE MARK A NECK SIZE: 8"x8" / AIRFLOW: 100 CFM	
EF 8	NEW EQUIPMENT TAG EXAMPLE: DESCRIPTION EF, MARK NUMBER 8	
2 M202	DETAIL REFERENCE EXAMPLE: DETAIL 2, SHEET M202	
3 M400	SECTION REFERENCE EXAMPLE: SECTION 3, SHEET M400	

SHEET INDEX

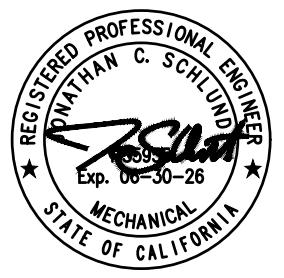
M001	MECHANICAL LEGEND, SCHEDULES AND NOTES
M100	MECHANICAL SITE PLAN - MERCED COLLEGE
M101	ENLARGED MECHANICAL SITE PLAN - ADMINISTRATION BUILDING
M200	ENLARGED MECHANICAL FLOOR PLAN - ADMINISTRATION BUILDING
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PROJECT NAME:

**MERCED COLLEGE  
ADMIN MULTI-ZONE REPLACEMENT**

3600 N ST., MERCED, CA 95348

PROJECT NO: 1478

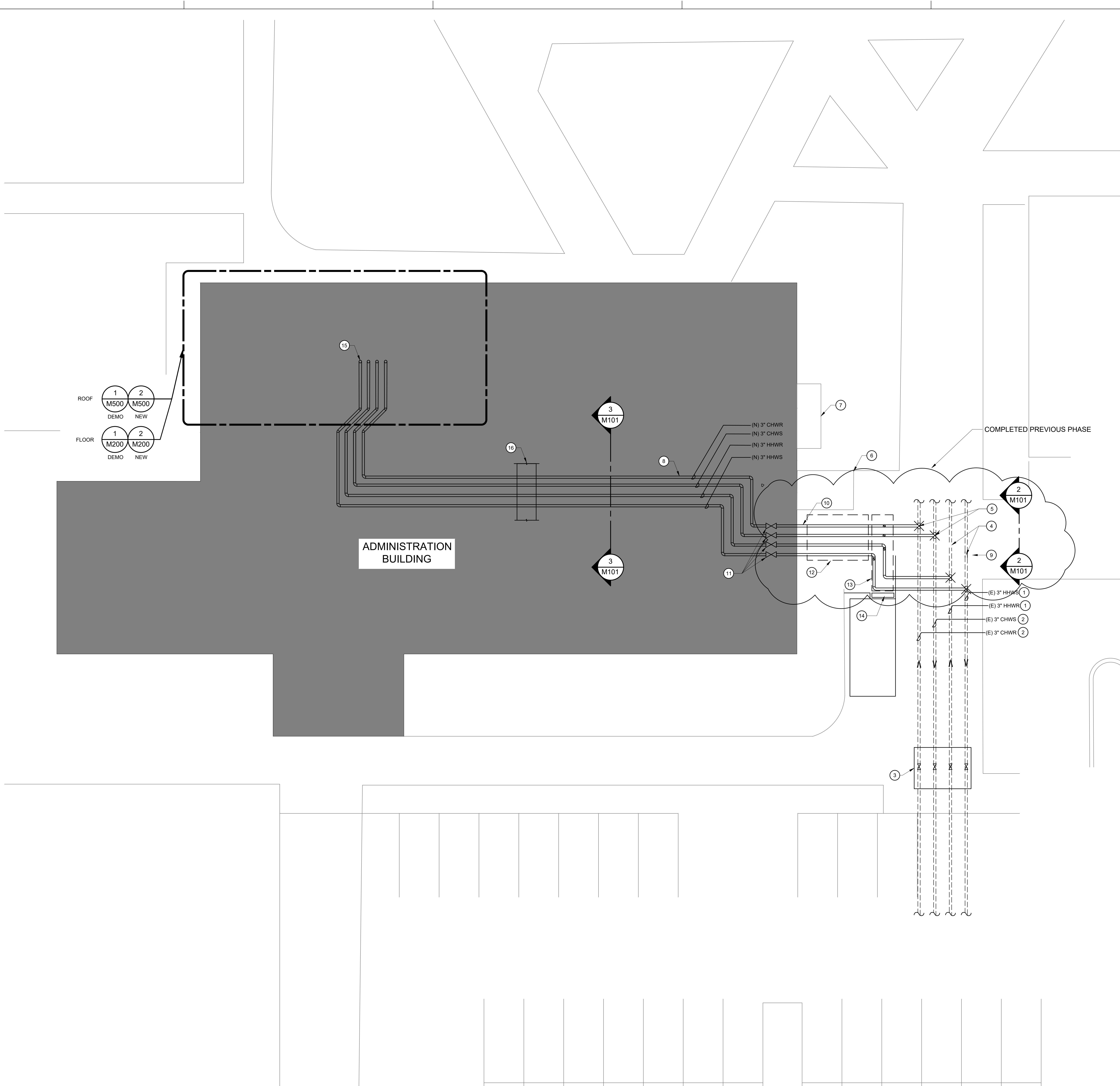
DATE: 03/26/2025

SHEET TITLE:  
**MECHANICAL  
LEGEND,  
SCHEDULES  
& NOTES**

SHEET NO:  
**M001**



DRAWN BY: REVIEW BY:



KEYNOTES #

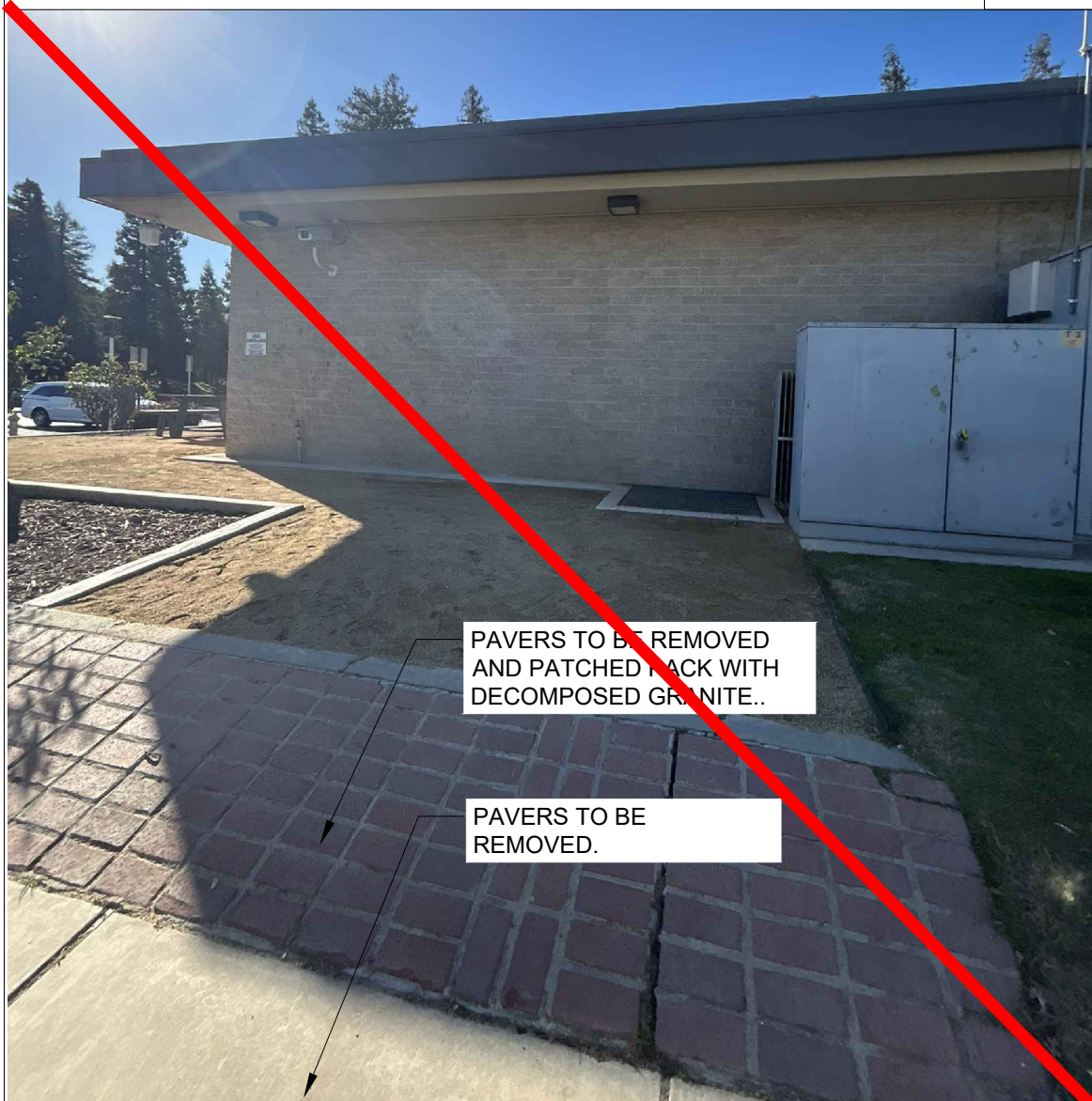
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GENERAL NOTES

- A. CONTRACTOR SHALL FIELD VERIFY LOCATIONS AND SIZES FOR ALL HYDRONIC PIPING. NOTIFY ENGINEER WITH ANY DISCREPANCIES.
- B. LEAN CONCRETE SHALL BE USED AS BACK FILL WHERE UTILITY TRENCHES EXTEND FROM THE EXTERIOR TO THE INTERIOR LIMITS OF THE BUILDING. LEAN CONCRETE SHALL EXTEND A MINIMUM OF SIX (6) INCHES ABOVE THE FOOTING PENETRATION.
- C. BELOW GRADE CHILLED AND HEATING WATER PIPE SYSTEM SHALL BE PRE-MANUFACTURED, PRE-ENGINEERED, AND PROVIDED WITH FIELD JOINTS ON STRAIGHT LENGTHS AS REQUIRED TO MINIMIZE FIELD JOINTS. PRE-INSULATED METAL PIPE SYSTEM ROUTING SHALL BE FIELD VERIFIED PRIOR TO SUBMITTING PRODUCT DESIGN AND LAYOUT FOR REVIEW. CONTRACTOR SHALL INCLUDE ALL PIPE OFFSETS AS REQUIRED PER THE GENERAL MECHANICAL PROVISIONS.



CRAWLSPACE PIPE ROUTING NTS 3



EXTERIOR PIPE ROUTING NTS 2



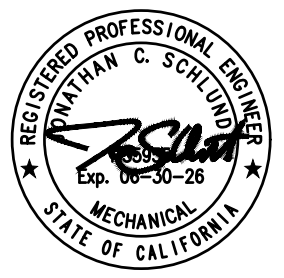
1"=10'-0"

1

ENLARGED MECHANICAL SITE PLAN - ADMINISTRATION BUILDING

  
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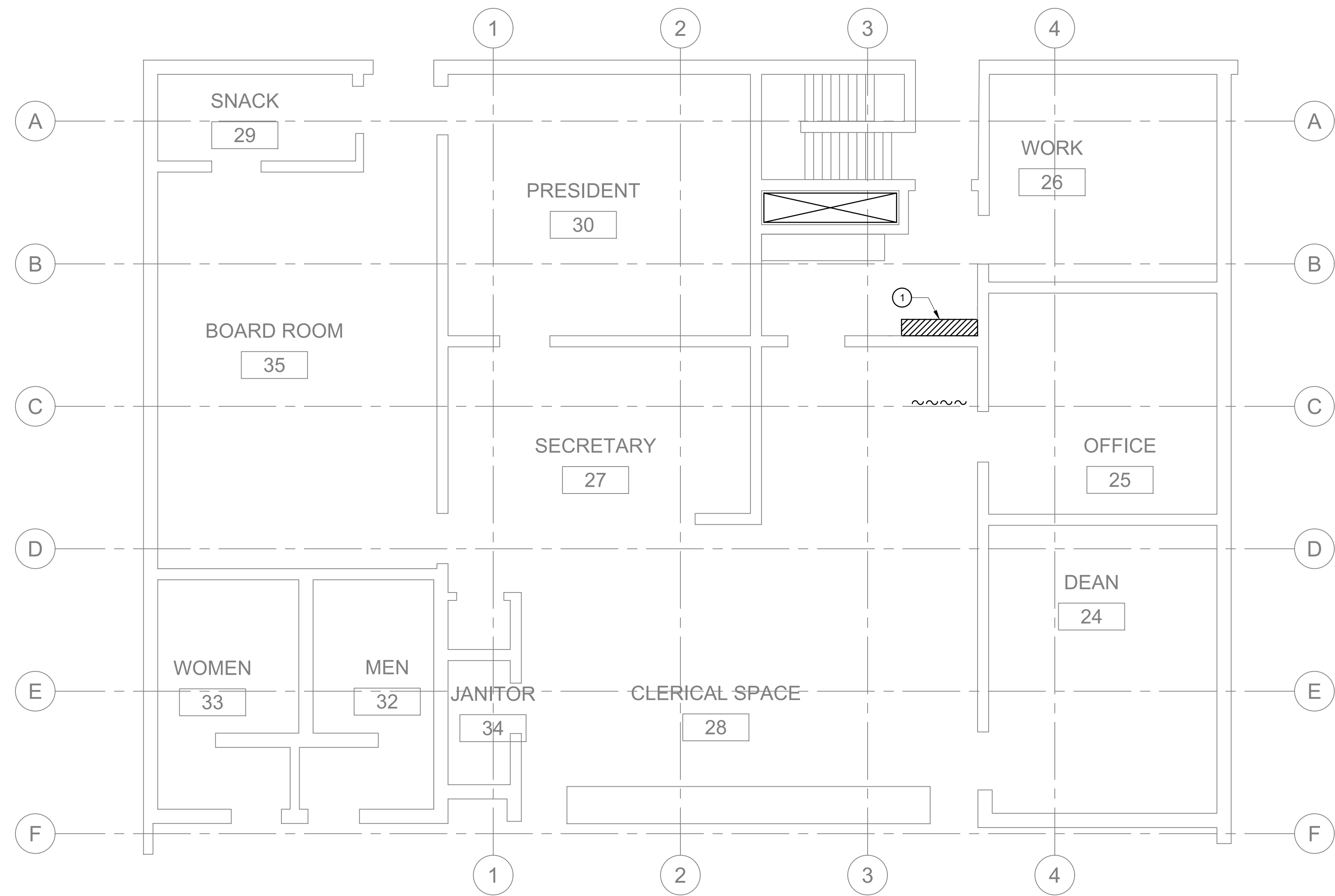
**MERCED COLLEGE**  
**ADMIN MULTI-ZONE REPLACEMENT**

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**ENLARGED MECHANICAL SITE PLAN - ADMINISTRATION BUILDING**  
SHEET NO:  
**M101**



KEYNOTES #

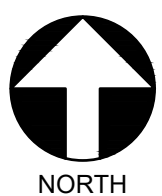
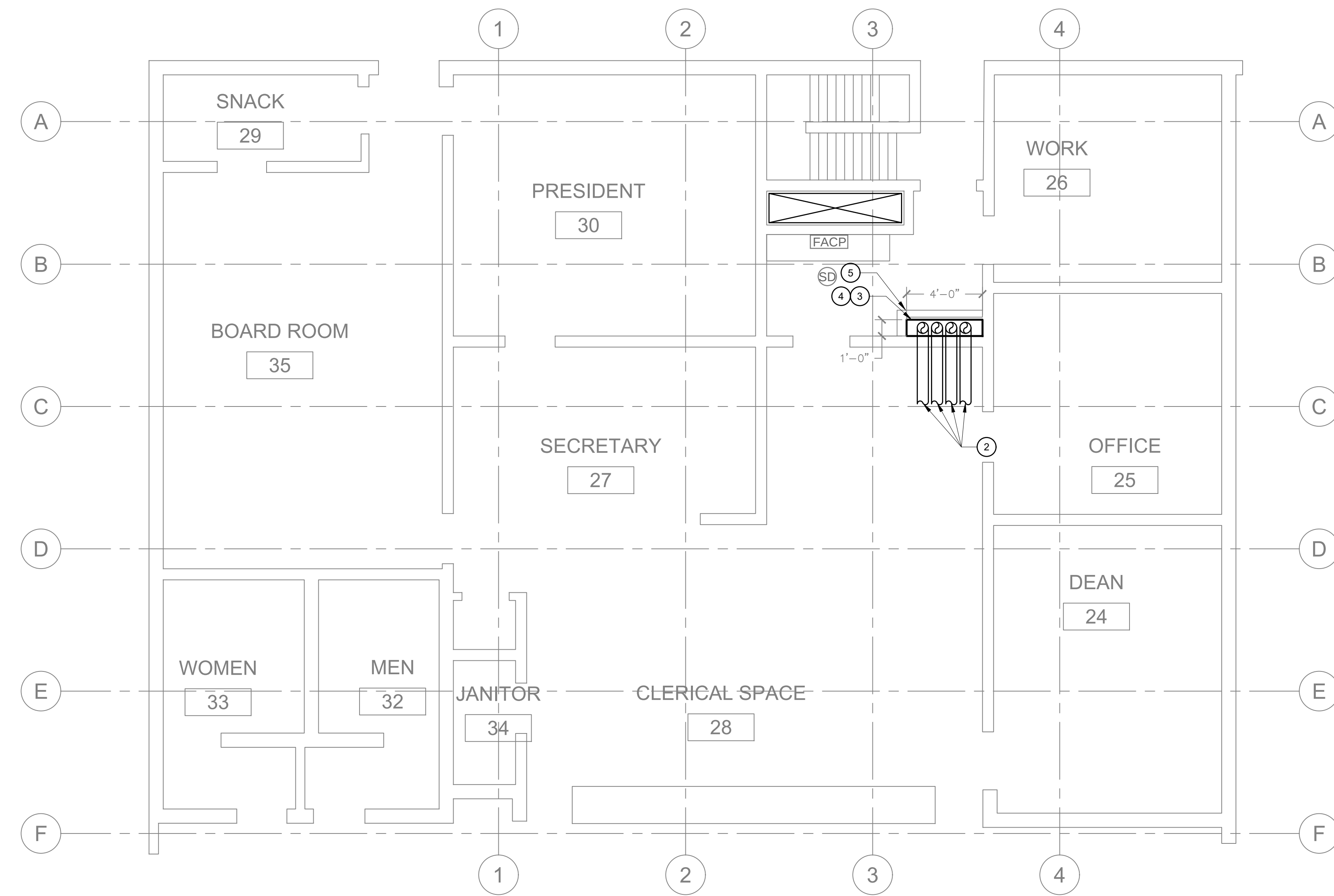
1. CONTRACTOR TO REMOVE (E) PORTION OF FLOOR, CEILING, & ROOF FOR (N) HYDRONIC PIPES. ALL CONCRETE CORES IN FLOOR AND ROOF STRUCTURE SHALL BE COORDINATED TO AVOID EXISTING REBAR. VERIFY VIA XRAY SCANNING. CONTRACTOR TO FIELD VERIFY DEMO EXTENT & ADJUST AS REQUIRED FOR THE INSTALLATION OF (N) 3" HWS/R & 3" CHWS/R PIPING
2. (N) 3" HWS/R & 3" CHWS/R PIPING FROM CRAWLSPACE UP THRU CEILING. SEE M100 SHEET FOR CONTINUATION.
3. CONTRACTOR SHALL MAINTAIN PIPE SPACING AT 1" MIN AND 3" MAX BETWEEN INSULATION, TO MINIMIZE CHASE DIMENSIONS.
4. CUT CEILING ACOUSTIC TILES AS REQUIRE FOR NEW PIPE RISERS. FIT TIGHT TO PIPE WITH 1/2" GAP MAX TO INSULATION. CONTRACTOR SHALL COORDINATE PIPE RISERS AS TO AVOID EXISTING T-BAR GRID.
5. (N) MECHANICAL CHASE FRAMING, GYP BOARD AND FINISHING BY DISTRICT, N.I.C.



ENLARGED MECHANICAL DEMOLITION FLOOR PLAN - ADMINISTRATION BUILDING

1/4" = 1'-0"

1



ENLARGED MECHANICAL PROPOSED FLOOR PLAN - ADMINISTRATION BUILDING

1/4" = 1'-0"

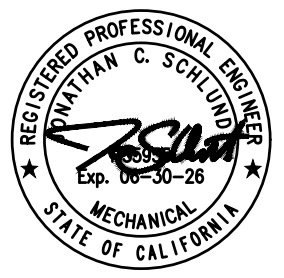
2



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**ENLARGED  
MECHANICAL  
FLOOR PLAN -  
ADMINISTRATION  
BUILDING**

SHEET NO:

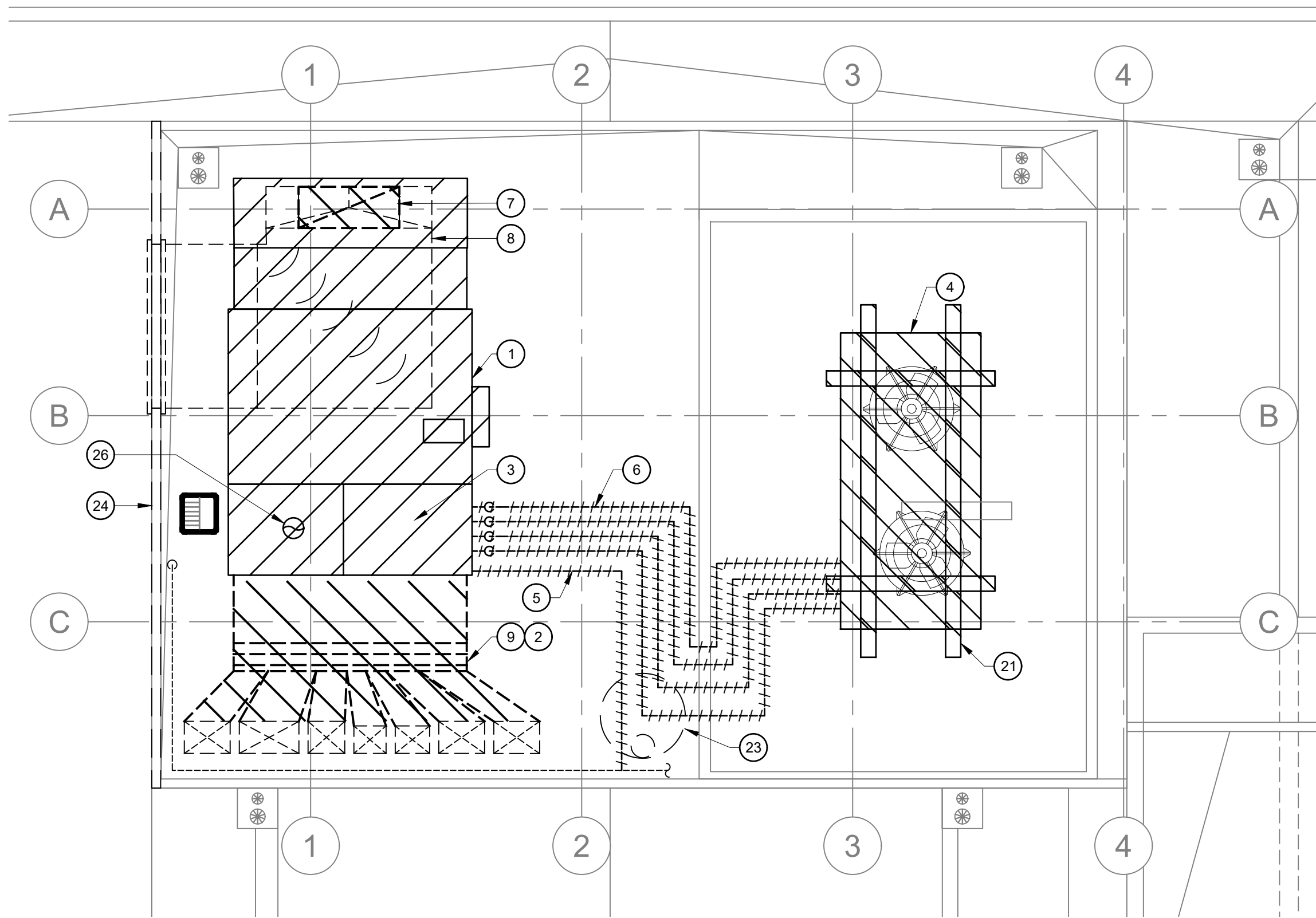
**M200**

DRAWN BY:  
REVIEW BY:

ENLARGED MECHANICAL DEMOLITION ROOF PLAN - ADMINISTRATION BUILDING

1/4" = 1'-0"

1



DEMOLITION ELECTRICAL NOTES

DISCONNECT AND REMOVE (E) ELECTRICAL CONNECTION TO (E) AIR HANDLING UNIT AND REMOVE (E) BRANCH CIRCUIT CONDUCTORS AND CONDUIT BACK TO (E) PANEL 'A'.

DISCONNECT AND REMOVE (E) ELECTRICAL CONNECTION TO (E) CONDENSING UNIT AND REMOVE (E) BRANCH CIRCUIT CONDUCTORS AND CONDUIT BACK TO (E) PANEL 'A' AND SWITCH (E) CIRCUIT BREAKER TO THE "OFF" POSITION.

KEYNOTES #

- (E) AIR HANDLING UNIT ASSEMBLY & (E) ISOLATORS TO BE REMOVED. (E) WIDE-FLANGE BEAM TO REMAIN FOR RE-USE. DISCONNECT (E) GAS AND PREPARE FOR RECONNECTION. REFER TO DETAIL 22/M800 FOR CLARITY & DETAIL 10/M800 FOR AIR HANDLER DIAGRAM. REMOVE EXISTING CONTROLS OF (E) AIR HANDLING UNIT.
- (E) CONTROL DAMPERS & ACTUATORS ASSOCIATED WITH (E) AIR HANDLING UNIT ASSEMBLY TO BE REMOVED.
- (E) 9"Ø FLUE DUCT TO BE DISCONNECTED & REMOVED.
- (E) CONDENSING UNIT TO BE REMOVED. (E) PLATFORM TO BE PRESERVED FOR RE-USE.
- (E) 1/2" GAS PIPING SHOWN HATCHED TO BE REMOVED. CAP (E) GAS LINE.
- (E) REFRIGERANT PIPING SHOWN HATCHED & (E) ASSOCIATED SUPPORTS TO BE REMOVED.
- (E) VERTICAL 44"x18" RA DUCT (E) AIR HANDLING UNIT ASSEMBLY TO BE REMOVED. PRESERVE (E) RA DUCT PENETRATION DN THRU ROOF FOR RECONNECTION.
- (E) 72"x18" OSA DUCT TO BE DISCONNECTED AND PRESERVED FROM (E) AIR HANDLING UNIT ASSEMBLY. PREPARE FOR RECONNECTION.
- (E) MULTIZONE DUCT SECTION SHOWN HATCHED TO BE REMOVED. PRESERVE SA PENETRATIONS THRU ROOF.
- (N) AIR HANDLER UNIT MOUNTED ON (N) ISOLATORS & (E) WIDE-FLANGE BEAM PER DETAIL 1/M800. CLEARANCE AROUND UNIT IS REPRESENTED BY FINE DASHED LINE. REFER TO DETAIL 24/M800 FOR CLARITY.
- (N) SUPPLY AIR DUCT DETECTORS MOUNTED WITHIN HOT AND COLD DUCT PLENUM SECTIONS PER DETAIL 7/M800.
- (N) 3"CHWSR THRU ROOF ROUTED TO (N) AIR HANDLING UNIT. SEE M200 FOR CONTINUATION. ROOF PATCH MUST BE TREMCO INSTALLED TO MAINTAIN WARRANTY. PROVIDE FLASHING PER 5/M800.
- (N) 3" CHWSR THRU ROOF ROUTED TO (N) AIR HANDLING UNIT. SEE M200 FOR CONTINUATION. ROOF PATCH MUST BE TREMCO INSTALLED TO MAINTAIN WARRANTY. PROVIDE FLASHING PER 5/M800.
- (N) POC OF MULTIZONE DUCT TO (E) FLOOR PENETRATIONS: 20"x14", 20"x14", 16"x14", 14"x12", 15"x12", 20"x14", 20"x14". CONTRACTOR TO FIELD VERIFY PENETRATION LOCATIONS & SIZES.
- (N) 1"Ø CONDENSATE DRAIN CONNECTION WITH (N) TRAP PER DETAIL 2/M800 TO DISCHARGE INTO (E) FLOOR SINK WITH 1" AIR GAP.
- (N) FANS FOR (N) AHU-1 TO BE SHIPPED LOOSE & FIELD INSTALLED.
- (N) 72"x18" OSA DUCT POC TO (E) 72"x18" OSA. PROVIDE TRANSITIONS AS REQUIRED.
- (N) 44"x18" RA DUCT POC TO (E) RA DUCT PENETRATION DN THRU ROOF. PROVIDE TRANSITIONS AS REQUIRED.
- (N) FLEX CONNECTION AT ALL DUCT CONNECTIONS TO (N) AIR HANDLING UNIT PER DETAIL 17/M800.
- (N) MULTIZONE DUCT SECTION. PROVIDE (N) BELIMO ACTUATORS & DAMPERS TO BE PROVIDED AND INTEGRATED INTO (E) JOHNSON METASYS.
- (E) EQUIPMENT STAND TO BE REMOVED.
- (N) 3" CHWSR PIPING ROUTED ON (N) GROUND MOUNTED SUPPORTS PER DETAIL 3/M800.
- (E) WATER HEATER & (E) FLUE TO REMAIN.
- (E) LOUVERED WALL TO BE REMOVED FOR (N) AIR HANDLING UNIT INSTALLATION. PRESERVE (E) OPENING & (E) LOUVER FOR REINSTALLATION.
- (N) PIPING OVERHEAD PER DETAIL 12/M800 THRU (E) OPENING. PROVIDE NEW BLOCKING, FLASHING AND STUCCO REPAIR. SEAL WATER TIGHT.
- (E) 9"Ø FLUE DUCT TO BE DISCONNECTED & REMOVED. PATCH (E) OPENING TO MATCH EXISTING AND TO BE WEATHER PROOF. CONTRACTOR TO FIELD VERIFY EXTENT OF PATCH PRIOR TO BIDDING.
- (N) PIPING OVER HEAD TO BE ROUTED OVER (E) WATER HEATER. CONTRACTOR TO MAINTAIN CLEARANCES AND PLAN ACCORDINGLY PRIOR TO CONSTRUCTION.



NORTH

PROPOSED WORK ELECTRICAL NOTES

PROVIDE (N) 60A-600V-3P-N3R FUSED DISCONNECT SWITCH WITH FLEX CONNECTION TO (N) AIR HANDLING UNIT 'AHU-1'. PROVIDE FUSES PER EQUIPMENT NAMEPLATE RATING. REPLACE EXISTING 30A, 3-POLE CIRCUIT BREAKER IN (E) PANEL 'A' WITH ONE (N) 35A, 480V, 3-POLE CIRCUIT BREAKER AND FEED (N) AIR HANDLING UNIT 'AHU-1' WITH 3#8 CU THWN AND 1#10 CU GND MINIMUM IN 1"Ø.

PROVIDE 120V CONNECTION TO (N) DUCT SMOKE DETECTOR. VERIFY (E) FIRE ALARM SYSTEM MANUFACTURER AND PROVIDE COMPATIBLE (N) ADDRESSABLE SUPERVISED INPUT MODULE AS NEEDED TO COMMUNICATE WITH (E) FIRE ALARM SYSTEM. PROVIDE CONDUIT AND CABLING PER NFPA 72 TO TIE INTO (E) FIRE ALARM SYSTEM SLC.

GENERAL NOTES

- PROVIDE FLEX CONNECTION BETWEEN DUCT AND UNIT.
- PROVIDE TURNING VANES AT ALL RECTANGULAR ELBOWS.
- CONTRACTOR SHALL FIELD VERIFY LOCATION AND SIZES FOR ALL DUCT DROPS AND DUCT RUNS.
- NOTIFY ENGINEER WITH ANY DISCREPANCIES.
- CONTRACTOR IS RESPONSIBLE FOR DISPOSAL OF ALL EQUIPMENT & MATERIALS NOTED TO BE REMOVED.
- ALL NEW DUCT TO BE GALVANIZED RIGID DUCT PER SMACNA STANDARDS.
- THE ACTUAL LOCATION OF ALL DUCTWORK, EQUIPMENT, SUPPORTS, ETC. SHALL BE CAREFULLY PLANNED PRIOR TO INSTALLATION OF ANY WORK TO AVOID ALL INTERFERENCE WITH EACH OTHER OR WITH EXISTING STRUCTURAL, ELECTRICAL, ARCHITECTURAL, OR OTHER ELEMENTS.
- ALL (E) ACTUATORS TO BE SALVAGED TO OWNER.
- ALL EXTERIOR PIPE SHALL BE INSULATED AND PROTECTED WITH ALUMINUM JACKETING.

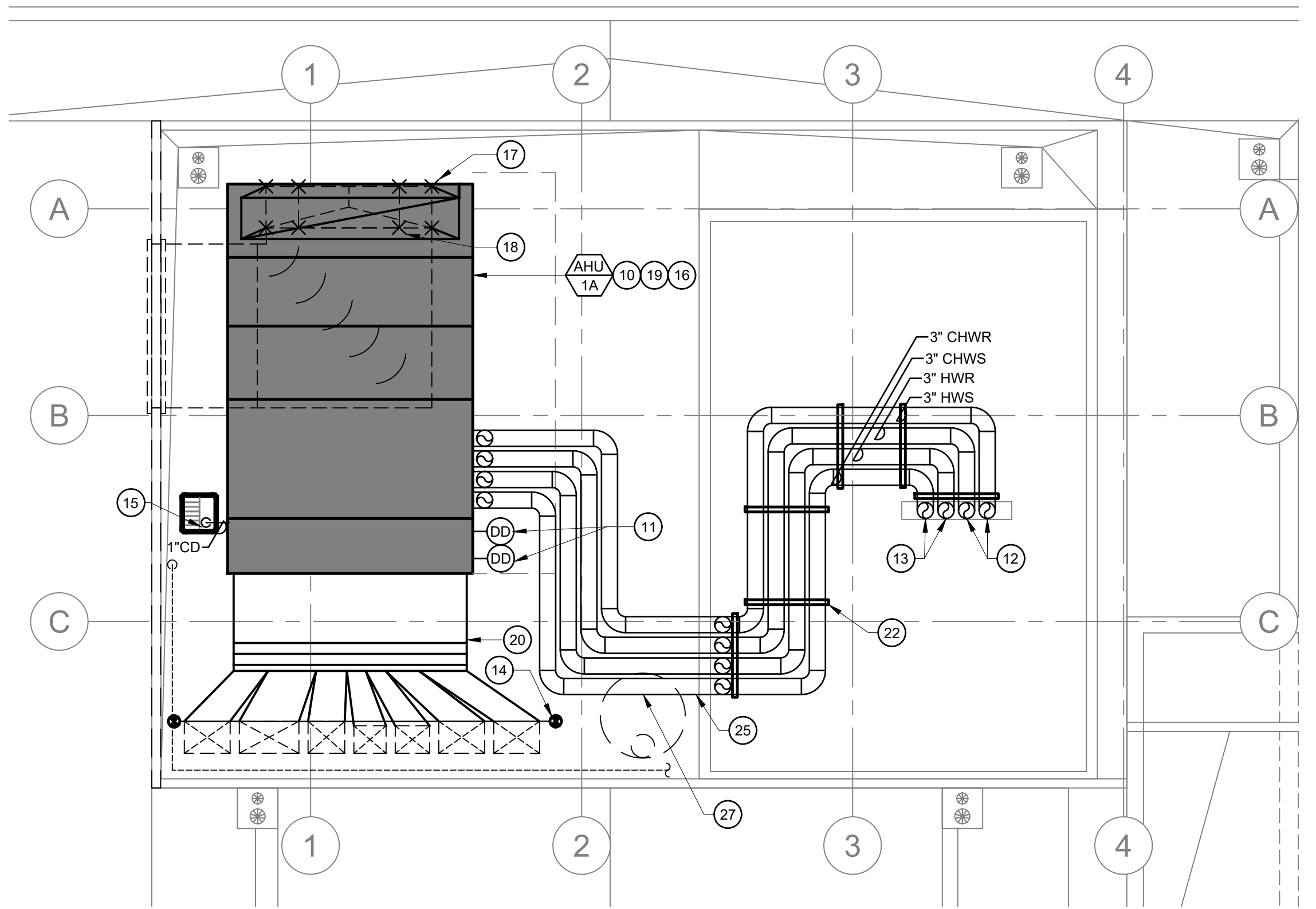


NORTH

ENLARGED MECHANICAL PROPOSED ROOF PLAN - ADMINISTRATION BUILDING

1/4" = 1'-0"

2



DATE: 03/26/2025  
SHEET TITLE:  
ENLARGED  
MECHANICAL  
ROOF PLAN -  
ADMINISTRATION  
BUILDING  
SHEET NO:  
M500

PROJECT NAME:

MERCED COLLEGE  
ADMIN MULTI-ZONE REPLACEMENT

3600 N ST., MERCED, CA 95348

PROJECT NO. 1478

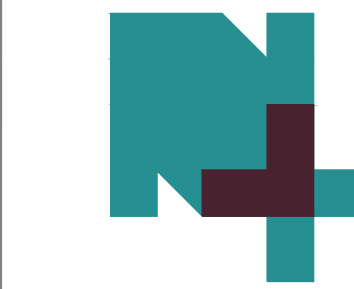
REVISIONS:	MARK	DATE	DESCRIPTION

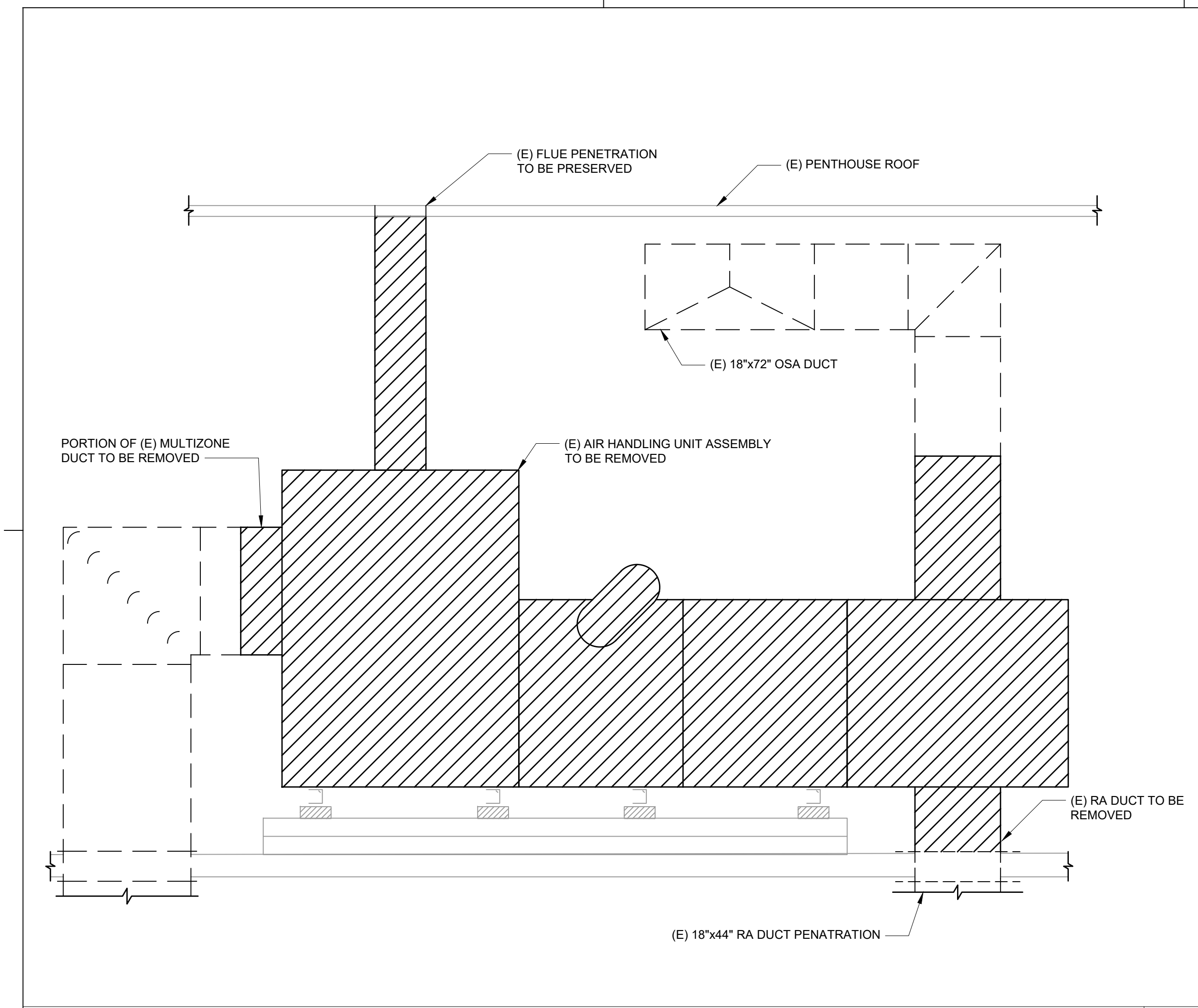


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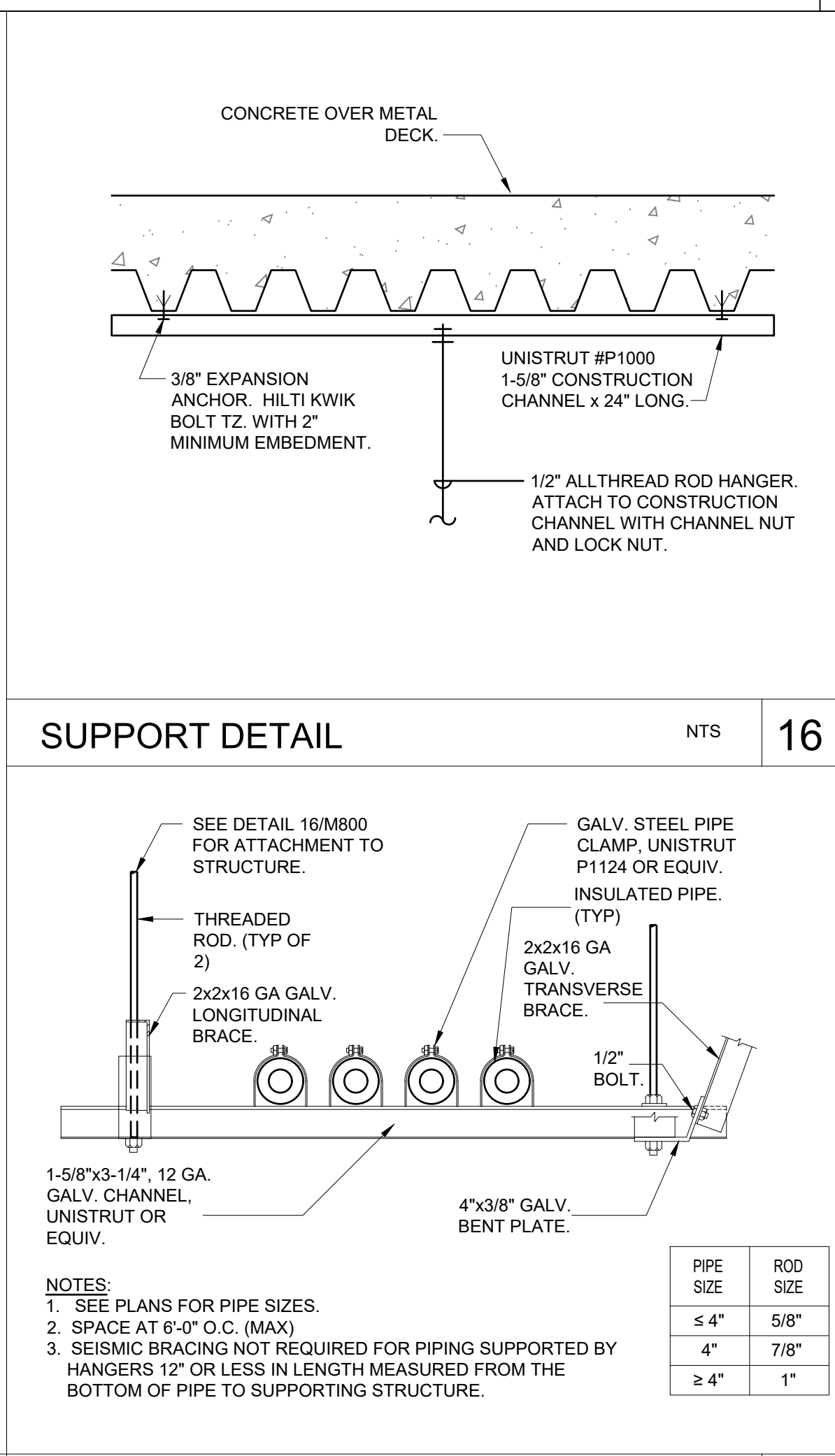
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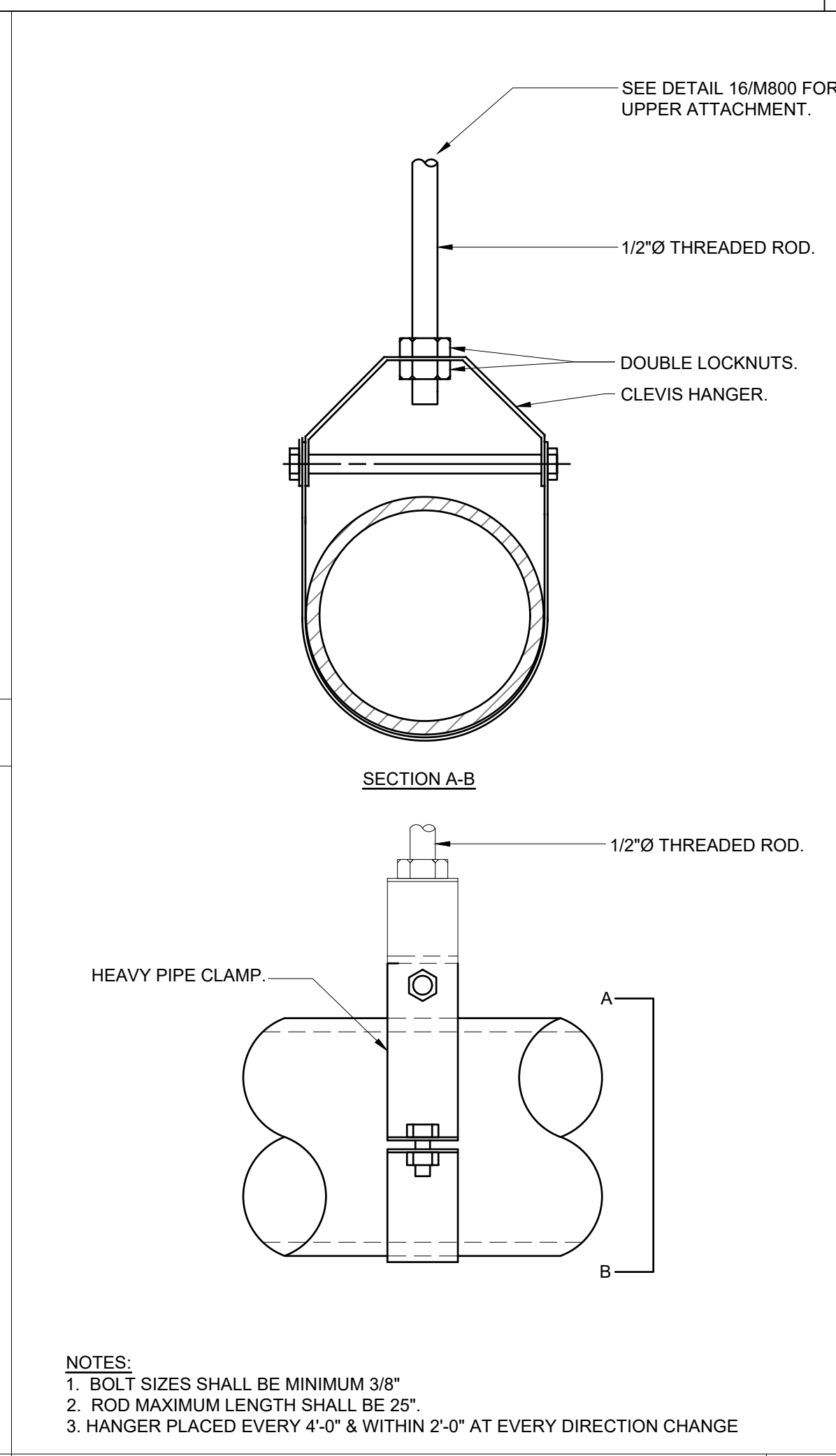
AIR HANDLING UNIT - DEMOLITION SECTION VIEW

NTS 22



SUPPORT DETAIL

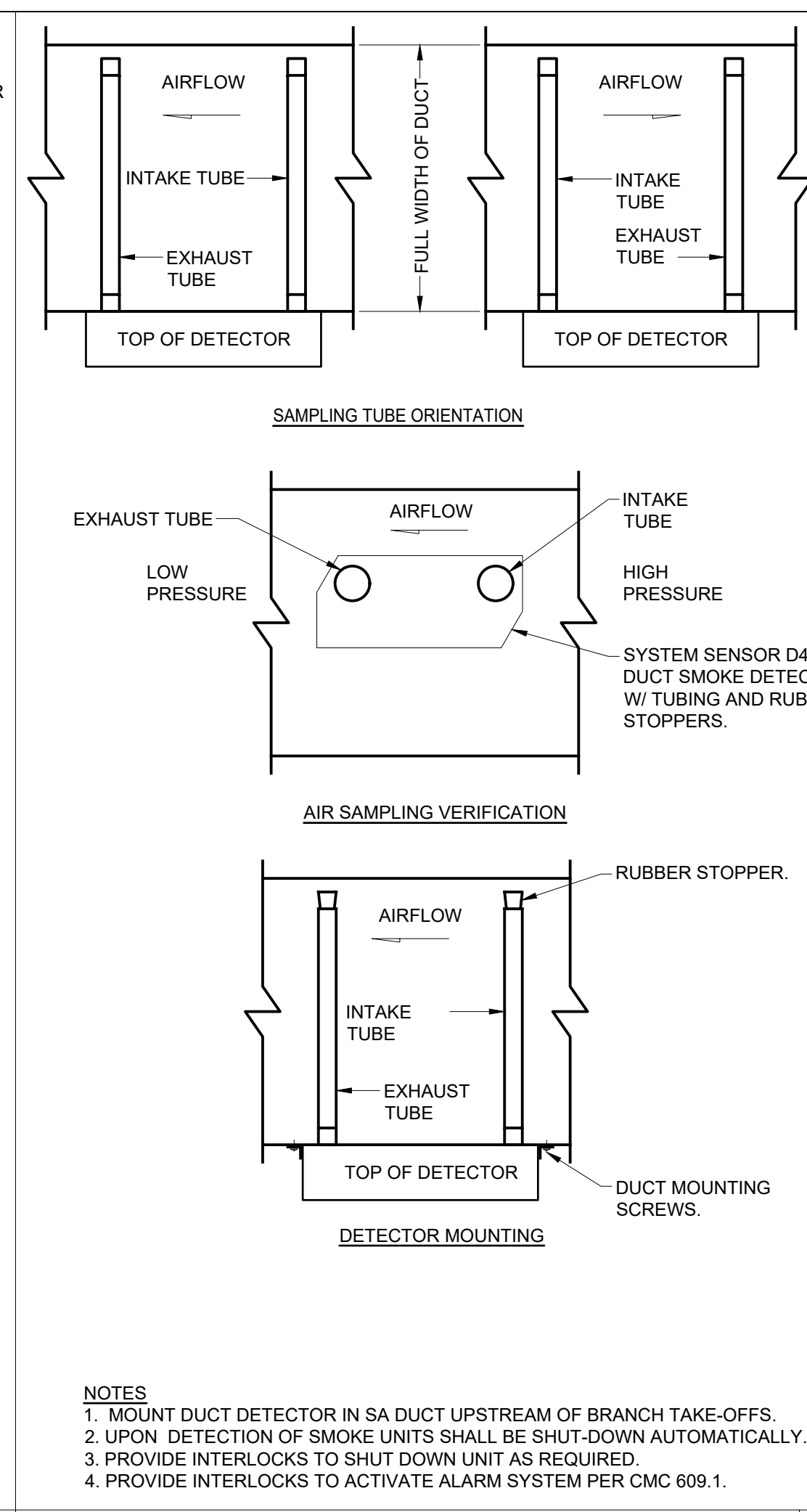
NTS 16



NOTES:  
1. BOLT SIZES SHALL BE MINIMUM 3/8".  
2. ROD MAXIMUM LENGTH SHALL BE 25".  
3. HANGER PLACED EVERY 4'-0" & WITHIN 2'-0" AT EVERY DIRECTION CHANGE

PIPE HANGER- UP TO 3" PIPING

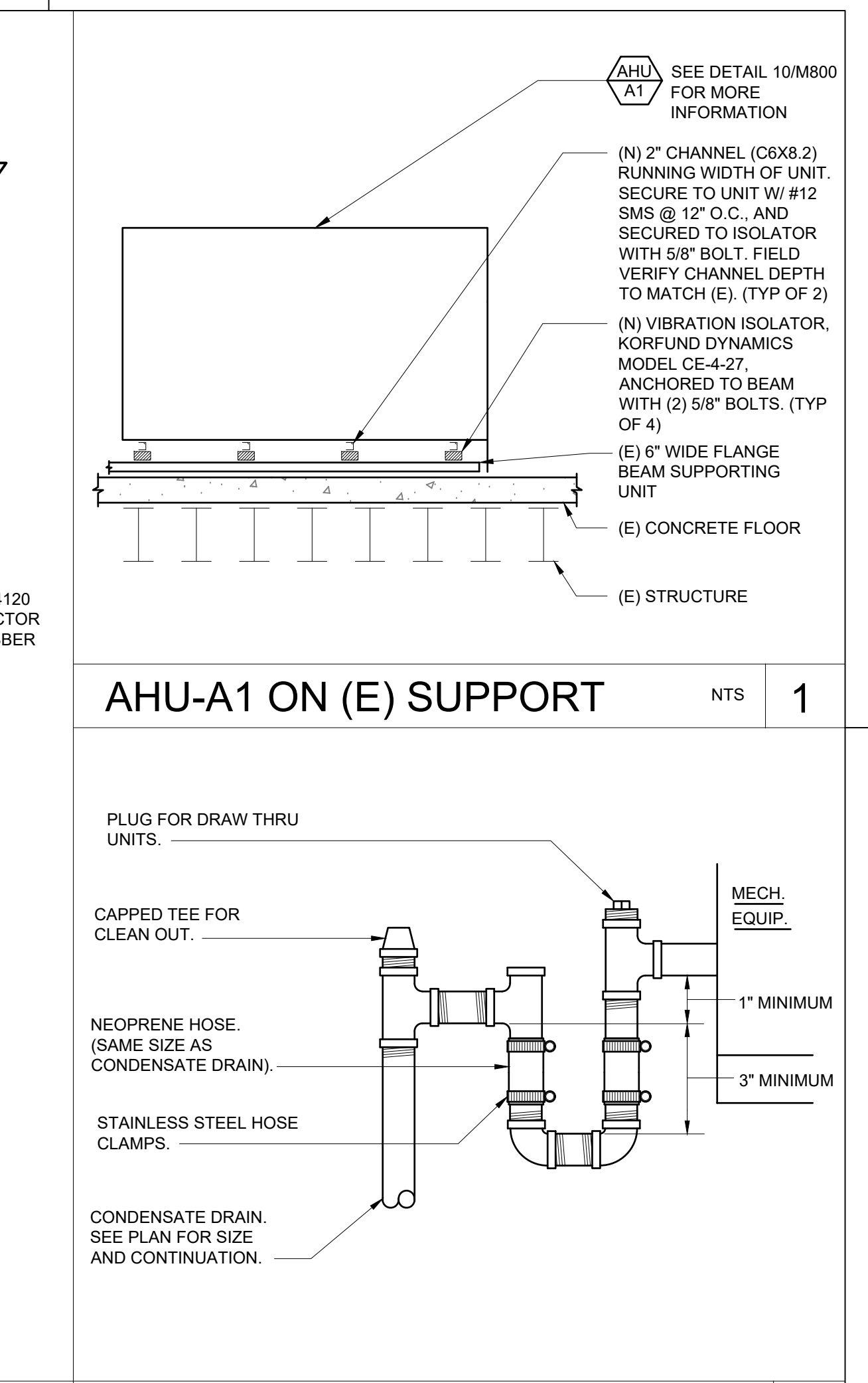
NTS 12



NOTES:  
1. MOUNT DUCT DETECTOR IN SA DUCT UPSTREAM OF BRANCH TAKE-OFFS.  
2. UPON DETECTION OF SMOKE UNITS SHALL BE SHUT-DOWN AUTOMATICALLY.  
3. PROVIDE INTERLOCKS TO SHUT DOWN UNIT AS REQUIRED.  
4. PROVIDE INTERLOCKS TO ACTIVATE ALARM SYSTEM PER CMC 609.1.

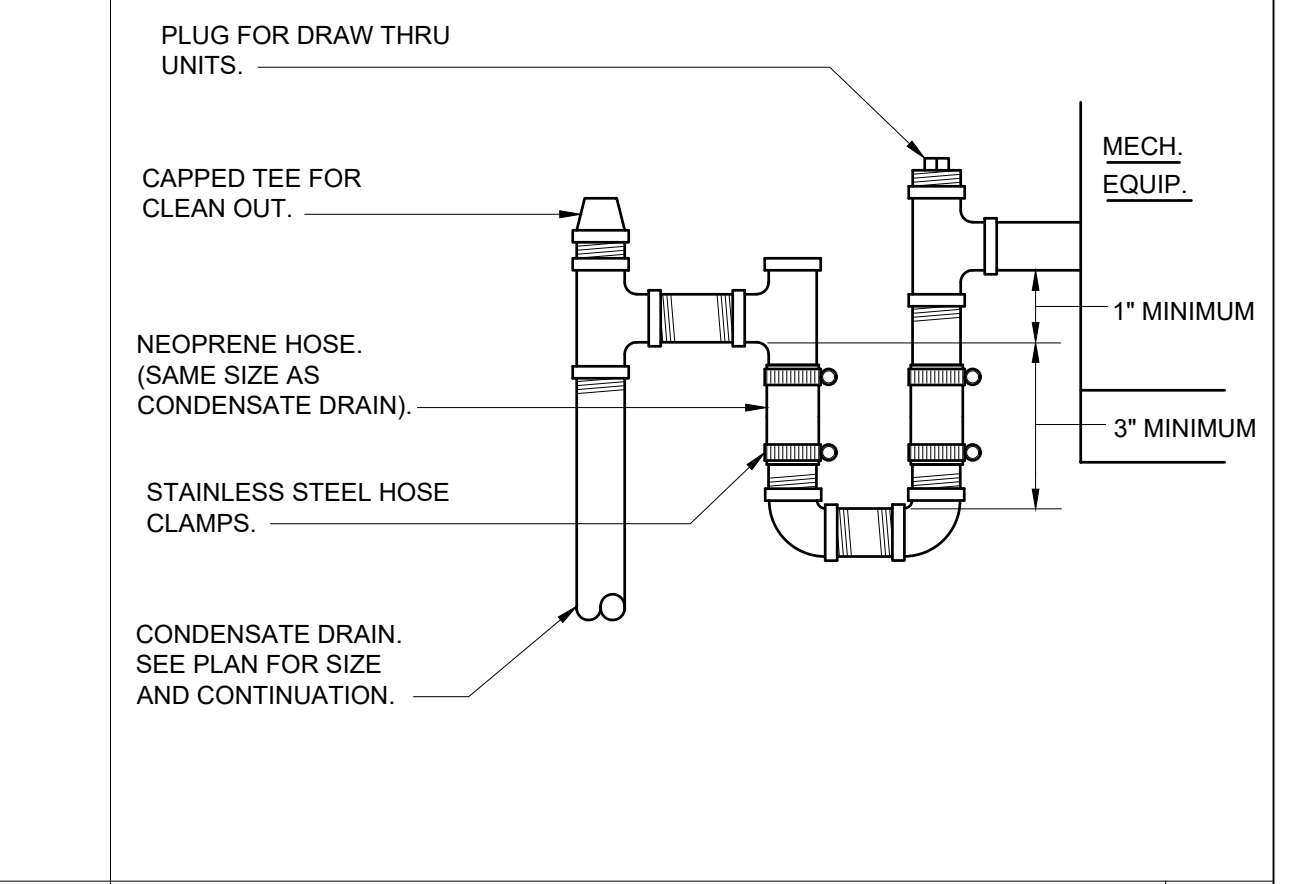
DUCT DETECTOR

NTS 7



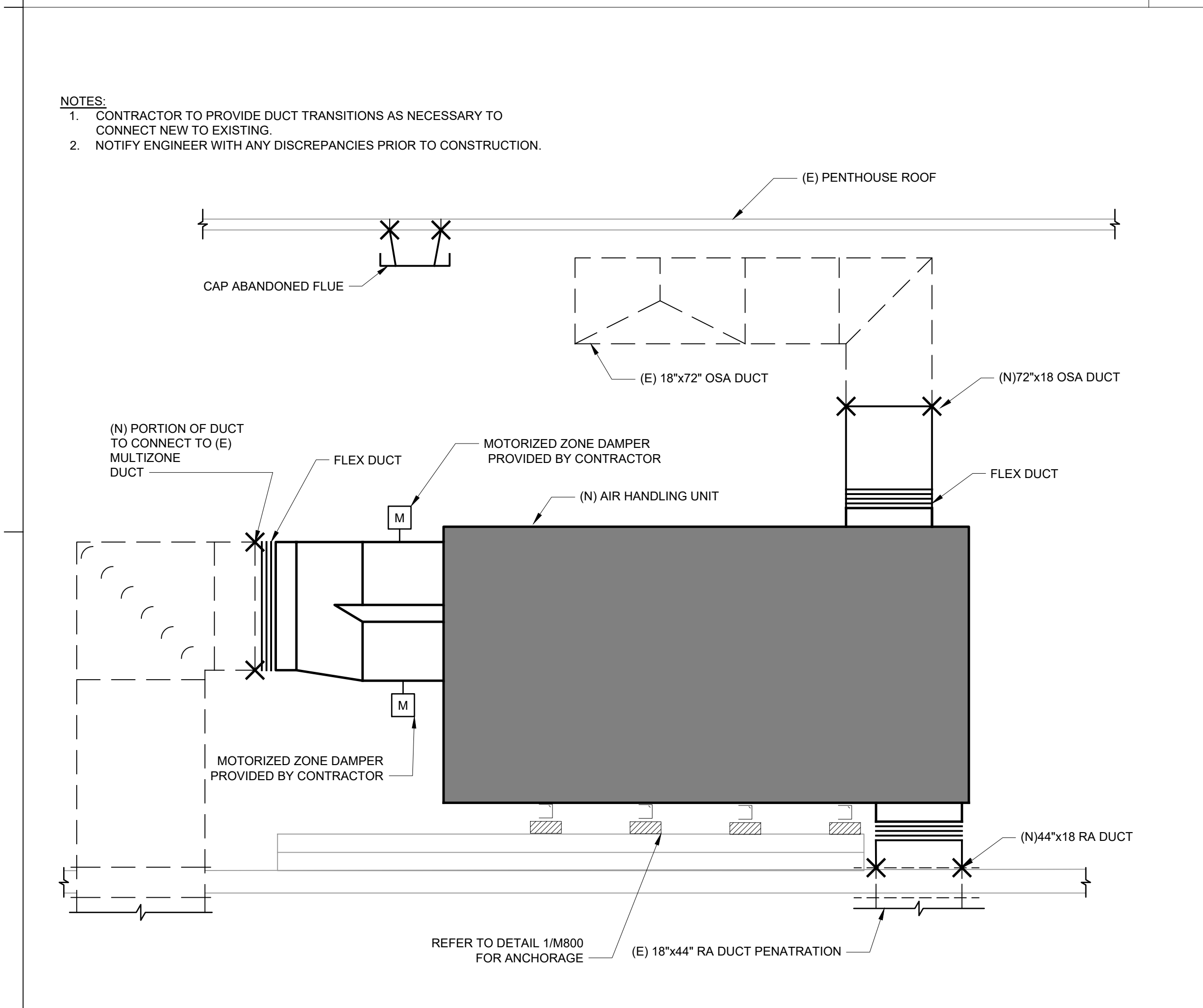
AHU-A1 ON (E) SUPPORT

NTS 1



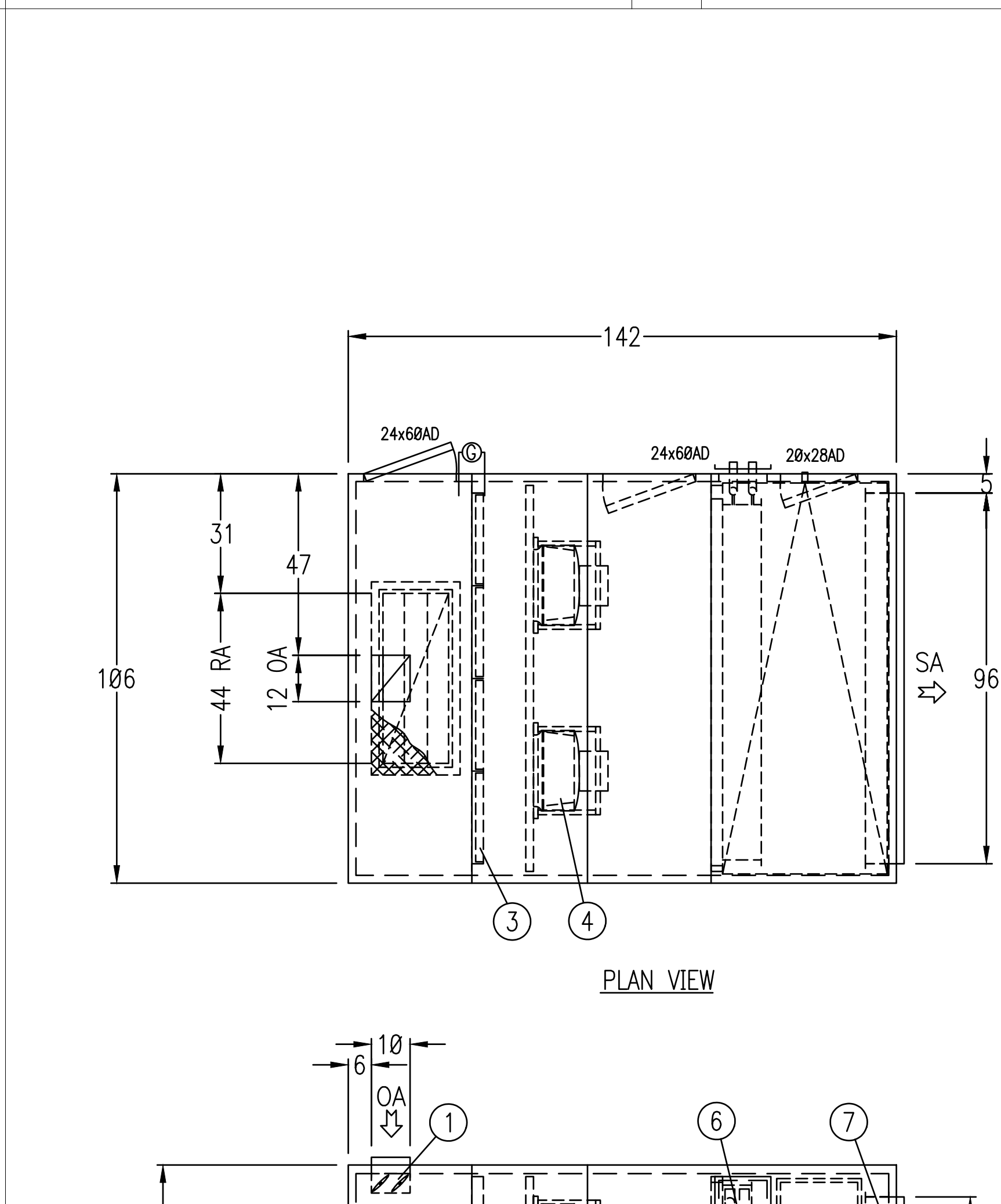
CONDENSATE DRAIN CONNECTION

NTS 2



AIR HANDLING UNIT - DEMOLITION SECTION VIEW

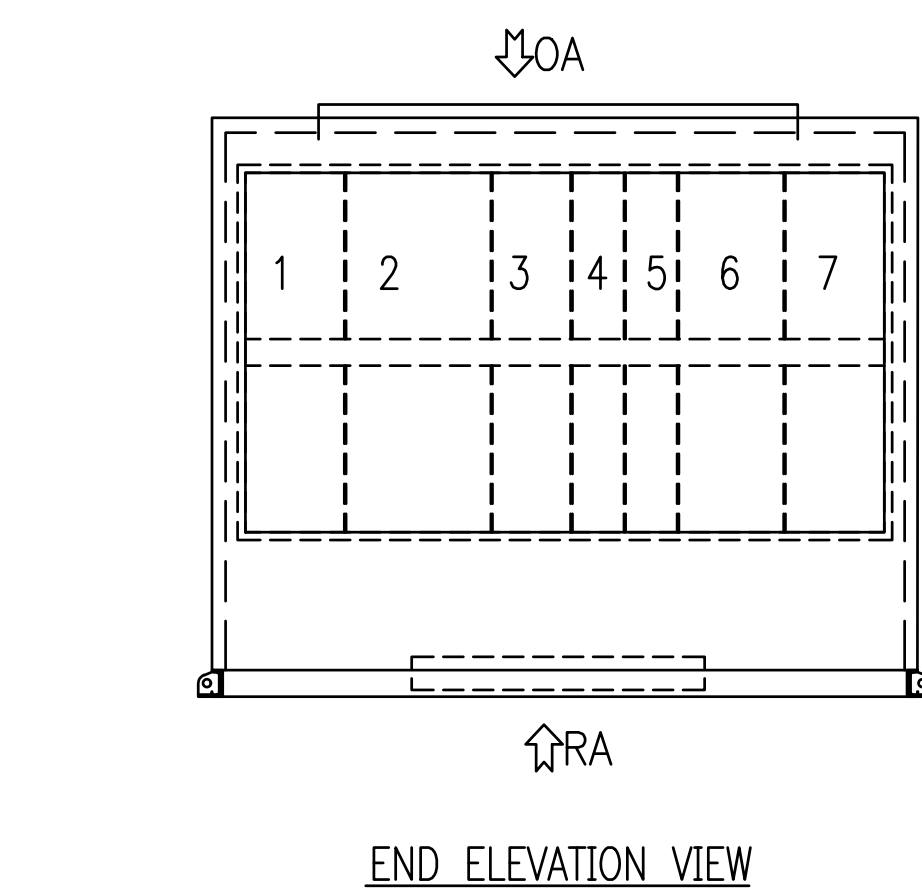
NTS 24



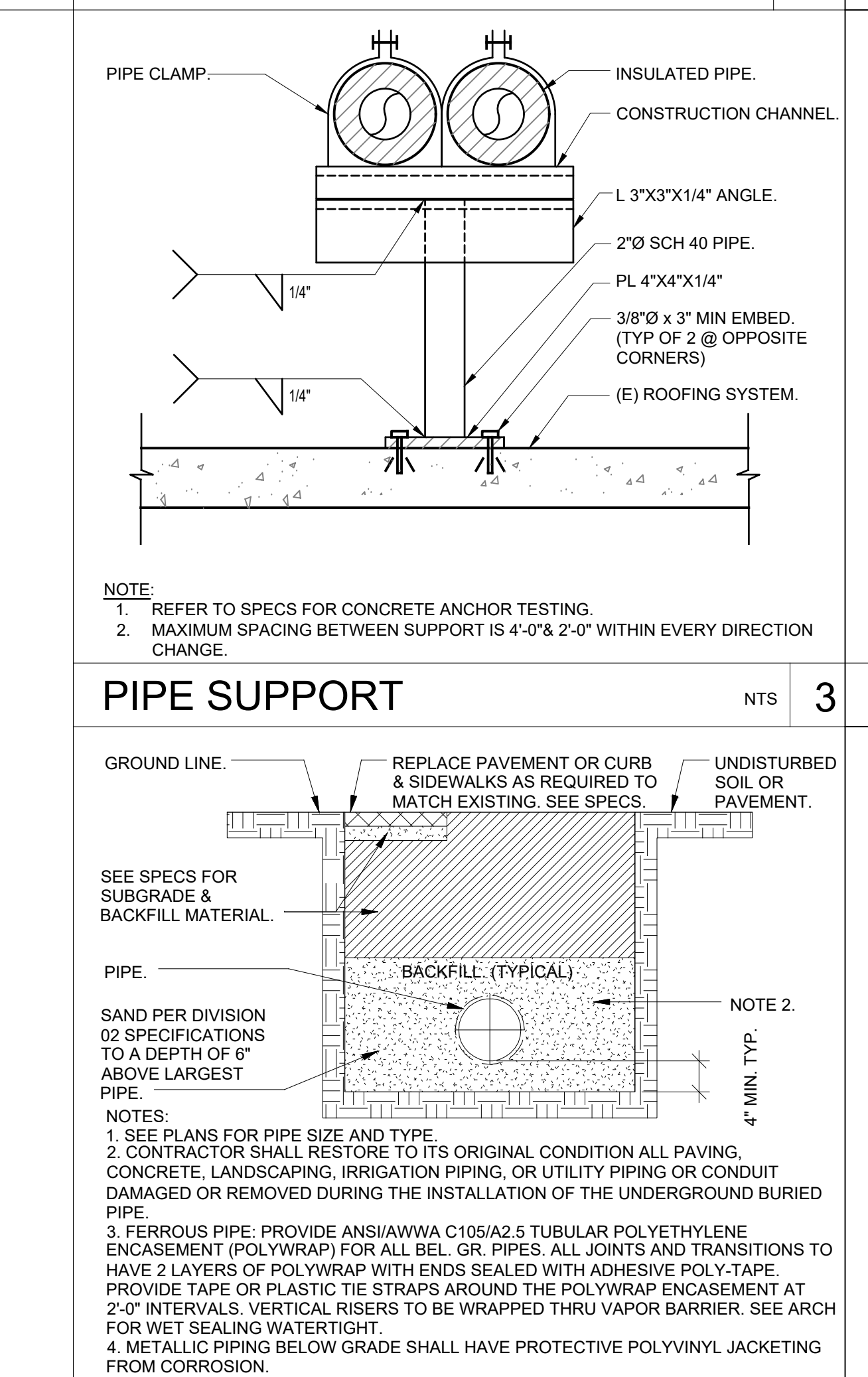
PLAN VIEW

ELEVATION VIEW

NO	QTY	DESCRIPTION	NOTES
1	1	OA DAMPER	•
2	1	RA DAMPER w/WALK-ON GRATE	•
3	1	FILTER BANK	•
4	4	SUPPLY FAN	•
5	1	CW COIL	•
6	1	GAS FIRED FURNACE w/FLUE EXTENSION	•
7	1	MULTI-ZONE DAMPER	•



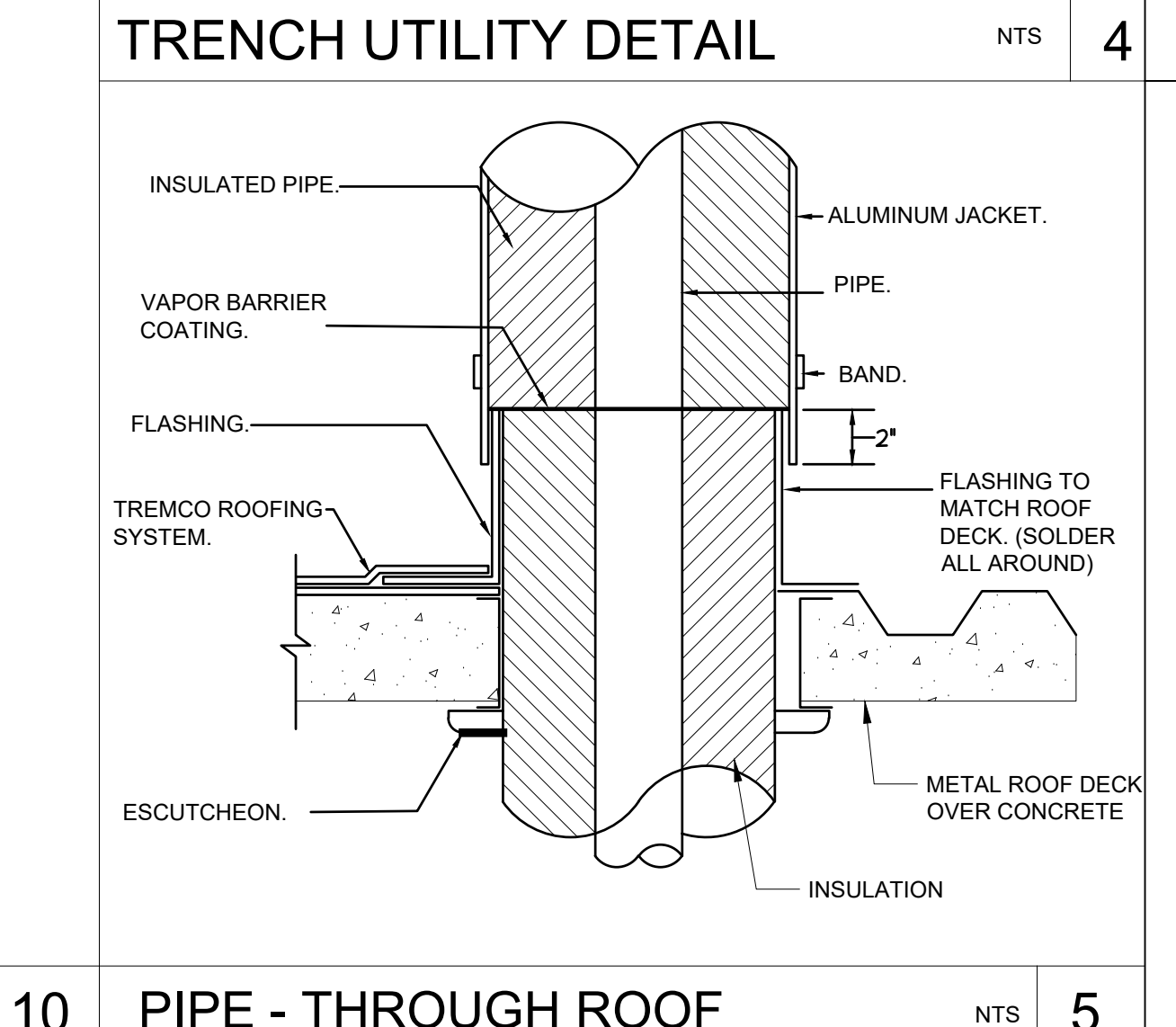
END ELEVATION VIEW



NOTE:  
1. REFER TO SPECS FOR CONCRETE ANCHOR TESTING.  
2. MAXIMUM SPACING BETWEEN SUPPORT IS 4'-0" & 2'-0" WITHIN EVERY DIRECTION CHANGE.

PIPE SUPPORT

NTS 3



TRENCH UTILITY DETAIL

NTS 4

30 3-WAY COIL CONNECTION

25 AIR HANDLER DIAGRAM - AHU - A1

10 PIPE - THROUGH ROOF

NTS 5

STATE OF CALIFORNIA		CALIFORNIA ENERGY COMMISSION	
<b>Mechanical Systems</b>			
CERTIFICATE OF COMPLIANCE			
This document is used to demonstrate compliance for mechanical systems that are within the scope of the permit application and are demonstrating compliance using the prescriptive path outlined in 140.4, or 141.0b(2) for alterations.			
Project Name: Merced College - Admin Multi-Zone Replacement		Report Page: (Page 3 of 10)	NRCC-MCH-4
Project Address:		Date Prepared: 2025-01-15T14:28:21-05:00	
<b>A. GENERAL INFORMATION</b>			
01 Project Location (city)		04 Total Conditioned Floor Area	4000
03 Climate Zone		05 Total Unconditioned Floor Area	0
02 Occupancy Types Within Project:		06 # of Stories (Habitable Above Grade)	1
■ Classroom ■ Office			

<b>B. PROJECT SCOPE</b>					
This table is used to demonstrate compliance with prescriptive requirements found in 140.4(c), 140.4(d), 140.4(m), 170.2(c)(3), and 170.2(c)(4) for fan systems. Fan systems serving only process loads are exempt from these requirements and do not need to be included in Table B.					
01 Air System(s)				02 Wet System Components	03 Dry System Components
<input checked="" type="checkbox"/> Heating Air System				<input type="checkbox"/> Water Economizer	<input type="checkbox"/> Air Economizer
<input type="checkbox"/> Cooling Air System				<input type="checkbox"/> Pumps	<input type="checkbox"/> Electric Resistance Heat
Mechanical Controls				<input type="checkbox"/> System Piping	<input checked="" type="checkbox"/> Fan Systems
<input type="checkbox"/> Mechanical Controls (existing to remain, altered or new)				<input type="checkbox"/> Cooling Towers	<input type="checkbox"/> Ductwork (existing to remain, altered or new)
<input checked="" type="checkbox"/> Chillers				<input checked="" type="checkbox"/> Ventilation	
<input type="checkbox"/> Boilers				<input type="checkbox"/> Zonal Systems/ Terminal Boxes	

Generated Date/Time:		Documentation Software: Energy Code Ace	
CA Building Energy Efficiency Standards - 2022 Nonresidential Compliance	Report Version: 2022.0.000 Schema Version: rev 20220301	Compliance ID: 247887-0125-0004 Report Generated: 2025-01-15 11:28:29	

STATE OF CALIFORNIA		CALIFORNIA ENERGY COMMISSION	
<b>Mechanical Systems</b>			
CERTIFICATE OF COMPLIANCE			
Project Name: Merced College - Admin Multi-Zone Replacement			
Report Page: (Page 3 of 10)			
Date Prepared: 2025-01-15T14:28:21-05:00			

<b>H. FAN SYSTEMS &amp; AIR ECONOMIZERS</b>																			
This table is used to demonstrate compliance with prescriptive requirements found in 140.4(c), 140.4(d), 140.4(m), 170.2(c)(3), and 170.2(c)(4) for fan systems. Fan systems serving only process loads are exempt from these requirements and do not need to be included in Table H.																			
System Name	AHU-1	Quantity	Y	1	Fan System Status	New	System Zoning	Multi-Zone VAV Systems	05	06	07	08	09	10	11				
Fan Name or Item Tag	Fan Type	Qty	Component	Airflow through Component (ft³)	Water Gauge (wg)	Component Allowance (watt/ft³)	Fan Allowance (watt/ft³)	Design	Design Electrical Input Power Method	Motor Nameplate Horsepower	Fan Electrical Input Power (kW)								
AHU-1	Supply	4	Hydronic/DX cooling coil or heat pump coil	100	0.105			Manufacturer provided			3.25								
			Gas heat	100	0.07														
			MERV 13-16 Filter downstream of thermal conditioning equipment	100	0.176	0.491													
			Economizer Return Damper	100	0.035														
			MERV 13-16 Filter upstream of thermal conditioning equipment	100	0.105														
Supply Fan Base Allowance (watt/ft³)	0.413		Exhaust/Return/Relief/Transfer Fan Base Allowance (watt/ft³)	0	Fan System Allowance (kW)	29.93	Fan System Electrical Input Power (kW)	13											

¹ FOOTNOTES: Fans serving spaces with design background noise goals below NC35  
² Low-rundown single-zone VAV fan system must be capable of and configured to reduce airflow to 50 percent of design airflow and use no more than 30 percent of the design wattage at that airflow. No more than 10 percent of the design load served by the equipment shall have fixed loads.  
³ Fan system allowance includes fan system base allowance.  
⁴ Filter pressure loss can only be counted once per fan system.

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CA Building Energy Efficiency Standards - 2022 Nonresidential Compliance	Report Version: 2022.0.000 Schema Version: rev 20220301	Compliance ID: 247887-0125-0004 Report Generated: 2025-01-15 11:28:29	

STATE OF CALIFORNIA		CALIFORNIA ENERGY COMMISSION	
<b>Mechanical Systems</b>			
CERTIFICATE OF COMPLIANCE			
Project Name: Merced College - Admin Multi-Zone Replacement			
Report Page: (Page 3 of 10)			
Date Prepared: 2025-01-15T14:28:21-05:00			

<b>O. DECLARATION OF REQUIRED CERTIFICATES OF ACCEPTANCE</b>	
Selections have been made based on information provided in previous tables of this document. If any selection needs to be changed, please explain why in Table E Additional Remarks. These documents must be provided to the building inspector during construction and can be found online at <a href="https://www.energy.ca.gov/programs-and-topics/programs/building-energy-efficiency-standards/2022-building-energy-efficiency-4">https://www.energy.ca.gov/programs-and-topics/programs/building-energy-efficiency-standards/2022-building-energy-efficiency-4</a>	
Form/Title	Systems/Spaces To Be Field Verified
NRCC-MCH-02-A - Outdoor Air must be submitted for all newly installed HVAC units. Note: MCH-02-A can be performed in conjunction with MCH-07-A Supply Fan VFD Acceptance (if applicable) since testing activities overlap.	AHU-1
NRCC-MCH-05-A - Air Economizer Controls	AHU-1
NRCC-MCH-06-A Demand Control Ventilation Systems must be submitted for all systems required to employ demand controlled ventilation (refer to 120.1(c)(3)) can vary outside ventilation flow rates based on maintaining interior carbon dioxide (CO2) concentration setpoints.	Admin Office
NRCC-MCH-07-A Supply Fan Variable Flow Controls	AHU-1
NRCC-MCH-08-A VAV Leakage Test	P-1
NRCC-MCH-09-A Supply Water Temperature Reset Controls	CSAM-1
NRCC-MCH-10-A Hydronic System Variable Flow Controls	P-1
NRCC-MCH-15-A Supply Air Temperature Reset Controls	AHU-1

<b>P. DECLARATION OF REQUIRED CERTIFICATES OF VERIFICATION</b>	
There are no NRCCV forms required for this project.	

<b>Q. MANDATORY MEASURES DOCUMENTATION LOCATION</b>	
This table is used to indicate where mandatory measures are documented in the plan set or construction documentation.	
01	02
Compliance with Mandatory Measures documented through MCH Mandatory Measures Note Block	Yes
	Plan sheet or construction document location
	MWD

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CA Building Energy Efficiency Standards - 2022 Nonresidential Compliance	Report Version: 2022.0.000 Schema Version: rev 20220301	Compliance ID: 247887-0125-0004 Report Generated: 2025-01-15 11:28:29	

STATE OF CALIFORNIA		CALIFORNIA ENERGY COMMISSION	
<b>Mechanical Systems</b>			
CERTIFICATE OF COMPLIANCE			
Project Name: Merced College - Admin Multi-Zone Replacement			
Report Page: (Page 2 of 10)			
Date Prepared: 2025-01-15T14:28:21-05:00			

<b>C. COMPLIANCE RESULTS</b>											
Table C will indicate if the project data input into the compliance document is compliant with mechanical requirements. This table is not editable by the user. If this table says "DOES NOT COMPLY" or "COMPLIES with Exceptional Conditions" refer to Table D, or the table indicated as not compliant for guidance.											
01	02	03	04	05	06	07	08	09	10	11	12
System	AND	Pumps	Fan/Economizers	System Controls	Terminal Box Controls	AND	Distribution	AND	Cooling Towers	AND	Compliance Results
110.1, 110.2, 140.4, 170.2(c)	AND	140.4(c), 170.2(c)(4)	AND	110.2, 120.2, 140.4(c), 170.2(c)	AND	120.2, 140.4(c), 160.2, 160.3	AND	110.2(c)(2)	AND		
(See Table F)	(See Table G)	(See Table H)	(See Table I)	(See Table J)	(See Table K)	(See Table L)	(See Table M)				
Yes	AND	Yes	AND	Yes	AND	Yes	AND	Yes	AND	Yes	COMPLIES with Exceptional Conditions
Mandatory Measures Compliance (See Table Q for Details)											
COMPLIES											

<b>D. EXCEPTIONAL CONDITIONS</b>	
This table is auto-filled with uneditable comments because of selections made or data entered in tables throughout the form.	
Transfer air is being used in at least one zone to meet minimum ventilation requirements. See Table J for details. Transfer air must be designed per §120.1(a) for air classification and recirculation limitations and be documented within construction documents.	

<b>E. ADDITIONAL REMARKS</b>	
This table includes remarks made by the permit applicant to the Authority Having Jurisdiction.	

<b>F. HVAC SYSTEM SUMMARY (DRY &amp; WET SYSTEMS)</b>					
Space Conditioning System Information					
01	02	03	04	05	06
System Name	Quantity	System Serving	System Status	Space Type	Utilizing Recovered Heat
AHU-1	1	Single zone			<input type="checkbox"/>

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CA Building Energy Efficiency Standards - 2022 Nonresidential Compliance	Report Version: 2022.0.000 Schema Version: rev 20220301	Compliance ID: 247887-0125-0004 Report Generated: 2025-01-15 11:28:29	

STATE OF CALIFORNIA		CALIFORNIA ENERGY COMMISSION	
<b>Mechanical Systems</b>			
CERTIFICATE OF COMPLIANCE			
Project Name: Merced College - Admin Multi-Zone Replacement			
Report Page: (Page 3 of 10)			
Date Prepared: 2025-01-15T14:28:21-05:00			

<b>H. FAN SYSTEMS &amp; AIR ECONOMIZERS</b>																			
This table is used to demonstrate compliance with prescriptive requirements found in 140.4(c), 140.4(d), 140.4(m), 170.2(c)(3), and 170.2(c)(4) for fan systems. Fan systems serving only process loads are exempt from these requirements and do not need to be included in Table H.																			
System Name	AHU-1	Quantity	Y	1	Fan System Status	New	System Zoning	Multi-Zone VAV Systems	05	06	07	08	09	10	11				
Fan Name or Item Tag	Fan Type	Qty	Component	Airflow through Component (ft³)	Water Gauge (wg)	Component Allowance (watt/ft³)	Fan Allowance (watt/ft³)	Design	Design Electrical Input Power Method	Motor Nameplate Horsepower	Fan Electrical Input Power (kW)								
AHU-1	Supply	4	Hydronic/DX cooling coil or heat pump coil	100	0.105			Manufacturer provided			3.25								
			Gas heat	100	0.07														
			MERV 13-16 Filter downstream of thermal conditioning equipment	100	0.176	0.491													
			Economizer Return Damper	100	0.035														
			MERV 13-16 Filter upstream of thermal conditioning equipment	100	0.105														
Supply Fan Base Allowance (watt/ft³)	0.413		Exhaust/Return/Relief/Transfer Fan Base Allowance (watt/ft³)	0	Fan System Allowance (kW)	29.93	Fan System Electrical Input Power (kW)	13											

<b>I. SYSTEM CONTROLS</b>											
This table is used to demonstrate compliance with mandatory controls in 110.2 and 120.2 and prescriptive controls in 140.4(f) and (h), 170.2(c)(4D) 170.2(c)(4) or requirements in 141.0b(2), 180.2(b)(2) for altered space conditioning systems.											
01	02	03	04	05	06	07	08	09	10	11	12
System Name	System Zoning	Conditioned Floor Area (ft²)	Thermostats (110.2(b) & (c), 120.2(b) & (c), 141.0b(2) & 180.2(b)(2))	Shut-Off Controls (120.2(b) & (c), 120.2(b) & (c), 141.0b(2) & 180.2(b)(2))	Zone Controls (120.2(b) & (c), 120.2(b) & (c), 141.0b(2) & 180.2(b)(2))	Demand Response (120.2(b) & (c), 120.2(b) & (c), 141.0b(2) & 180.2(b)(2))	Supply Air Temp. Reset (140.4(f) & 170.2(c)(4D))	Window Interlocks per (140.4(f) & 170.2(c)(4D))	Direct Digital Control (DDC) per 120.2		
AHU-1	Multi-zone		Setback + DR Total per 110.12	Auto Time Switch	NA: Servos < 25% RT	DR Total per 110.12	Included	NA: No operable windows	Provided		

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STATE OF CALIFORNIA		CALIFORNIA ENERGY COMMISSION	
<b>Mechanical Systems</b>			
CERTIFICATE OF COMPLIANCE			
Project Name: Merced College - Admin Multi-Zone Replacement			
Report Page: (Page 10 of 10)			
Date Prepared: 2025-01-15T14:28:21-05:00			

<b>DOCUMENTATION AUTHOR'S DECLARATION STATEMENT</b>	
I certify that this Certificate of Compliance documentation is accurate and complete.	
Documentation Author Name: Emma Wilson	Documentation Author Signature:
Company: Net Positive Consulting Engineers	Version Date: 01/15/2025
Address: 5 River Park Pl East St. 303	(CIVIL) EES Certification Identification (if applicable):
City/State/Zip: Fresno/CA/93720	Phone: (559) 940-7299
<b>RESPONSIBLE PERSON'S DECLARATION STATEMENT</b>	
I certify the following under penalty of perjury, under the laws of the State of California:	
1. The information provided in this Certificate of Compliance is true and correct.	
2. I am eligible under Division 2 of the Business and Professions Code to accept responsibility for the building design or system design identified on this Certificate of Compliance (responsible designer).	
3. The energy features and performance specifications, materials, components, and manufactured devices for the building design or system design identified on this Certificate of Compliance conform to the requirements of Title 24, Part 1, and Part 6 of the California Code of Regulations.	
4. The building design features or system design features identified on this Certificate of Compliance are consistent with the information provided on other applicable compliance documents, worksheets, calculations, plans and specifications submitted to the enforcement agency for approval with this building permit application.	
5. I will ensure that a completed signed copy of this Certificate of Compliance will be made available with the building permit(s) issued for the building, and made available to the enforcement agency for all applicable inspections. I understand that a completed signed copy of this Certificate of Compliance is required to be included with the documentation the builder provides to the building owner at occupancy.	
Responsible Designer Name: Jonathan C. Schindler	Responsible Designer Signature:
Company: Net Positive Consulting Engineers	Date Signed: 01/15/2025
Address: 5 River Park Pl East St. 303	License: M08595
City/State/Zip: Fresno/CA/93720	Phone: (559) 940-7299

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STATE OF CALIFORNIA		CALIFORNIA ENERGY COMMISSION	
<b>Mechanical Systems</b>			
CERTIFICATE OF COMPLIANCE			
Project Name: Merced College - Admin Multi-Zone Replacement			
Report Page: (Page 3 of 10)			
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<b>F. HVAC SYSTEM SUMMARY (DRY &amp; WET SYSTEMS)</b>											
Dry System Equipment Sizing (includes air conditioners, condensers, heat pumps, VRF, furnaces and unit heaters and DOAS systems)											
01	02	03	04	05	06	07	08	09	10	11	12
Name or Item Tag	Equipment Category per Tables 110.2, 140.4(a)(2) and 170.2(c)(3)	Equipment Type per Tables 110.2 and Title 20	Smallest Size Available ¹ 140.4(a) and 170.2(c)(1)	Heating Output ^{2,3} (kBtu/h)	Cooling Output ^{2,3} (kBtu/h)	Load Calculations ^{4,5}	Total Heating Load (kBtu/h)	Total Sensible Cooling Load (kBtu/h)			
AHU-1	Furnace/Unit Heater	Warm-air duct furnace, gas-fired	Yes	486	486	0	486	486			

¹ FOOTNOTES: Equipment shall be the smallest size, within the available options of the desired equipment line, necessary to meet the design heating and cooling loads of the building per 140.4(a) and 170.2(c). Healthcare facilities are exempt.  
² It is common practice to show rated output capacity on the equipment schedule. Sensible cooling output comes from specification sheet tables.  
³ If equipment is heating only, leave cooling output and load blank. If equipment is cooling only, leave heating output and load blank.  
⁴ Authority having jurisdiction may ask for load calculations used for compliance per 140.4(b) and 170.2(c).

<b>Dry System Equipment Efficiency (other than Package Terminal Air Conditioners (PTAC) and Package Terminal Heat Pumps (PTHP), DX-DOAS and Dual Fuel Heat Pumps)</b>											
01	02	03	04	05	06	07	08	09			
Name or Item Tag	Size Category (kBtu/h)	Rating Condition (°F)	Efficiency Unit	Minimum Efficiency Required per Tables 110.2, Title 20	Design Efficiency	Efficiency Unit	Minimum Efficiency Required per Tables 110.2, Title 20	Design Efficiency			
AHU-1		Combustion Efficiency	0.8	0.81							

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<b>I. SYSTEM CONTROLS</b>											
This table is used to demonstrate compliance with mandatory controls in 110.2 and 120.2 and prescriptive controls in 140.4(f) and (h), 170.2(c)(4D) 170.2(c)(4) or requirements in 141.0b(2), 180.2(b)(2) for altered space conditioning systems.											
01	02	03	04	05	06	07	08	09	10	11	12
System Name	System Zoning	Conditioned Floor Area (ft²)	Thermostats (110.2(b) & (c), 120.2(b) & (c), 141.0b(2) & 180.2(b)(2))	Shut-Off Controls (120.2(b) & (c), 120.2(b) & (c), 141.0b(2) & 180.2(b)(2))	Zone Controls (120.2(b) & (c), 120.2(b) & (c), 141.0b(2) & 180.2(b)(2))	Demand Response (120.2(b) & (c), 120.2(b) & (c), 141.0b(2) & 180.2(b)(2))	Supply Air Temp. Reset (140.4(f) & 170.2(c)(4D))	Window Interlocks per (140.4(f) & 170.2(c)(4D))	Direct Digital Control (DDC) per 120.2		
AHU-1	Multi-zone		Setback + DR Total per 110.12	Auto Time Switch	NA: Servos < 25% RT	DR Total per 110.12	Included	NA: No operable windows	Provided		

<b>J. VENTILATION AND INDOOR AIR QUALITY</b>															
This table is used to demonstrate compliance with mandatory ventilation requirements in 120.1, 120.2(c)(3B), 140.4(a) and 140.4(c) for all nonresidential and hotel/motel and d124e4(m)140.2, 160.3(c)(3), 170.2(a)(4N), 170.2(a)(4D) for high-rise residential occupancies. For alterations, only ventilation systems being altered within the scope of the permit application need to be documented in this table. In lieu of this table, the required outdoor ventilation rates and airflow may be shown on the plans or the calculations can be presented in a spreadsheet.															
01	02	03	04	05	06	07	08	09	10	11	12				
Fan Name or Item Tag	Fan Type	Qty	Component	Airflow through Component (ft³)	Water Gauge (wg)	Component Allowance (watt/ft³)	Fan Allowance (watt/ft³)	Design	Design Electrical Input Power Method	Motor Nameplate Horsepower	Fan Electrical Input Power (kW)				
AHU-1	Supply	4	Hydronic/DX cooling coil or heat pump coil	100	0.105			Manufacturer provided			3.25				
			Gas heat	100	0.07										
			MERV 13-16 Filter downstream of thermal conditioning equipment	100	0.176	0.491									
			Economizer Return Damper	100	0.035										
			MERV 13-16 Filter upstream of thermal conditioning equipment	100	0.105										
Supply Fan Base Allowance (watt/ft³)	0.413		Exhaust/Return/Relief/Transfer Fan Base Allowance (watt/ft³)	0	Fan System Allowance (kW)	29.93	Fan System Electrical Input Power (kW)	13							

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<b>F. HVAC SYSTEM SUMMARY (DRY &amp; WET SYSTEMS)</b>											
Chiller Efficiency and Controls											
01	02	03	04	05	06	07	08	09	10	11	12
Name or Item Tag	Equipment Type	Qty	Size Category (tons)	Chiller Efficiency "Path B" Exception per 140.4(i) & 170.2(c)(3)	Rated Efficiencies	Efficiencies Required per 110.2 ²	Efficiency Unit	Isolation Valve	Temperature Reset		
CGAM-1	Air Cooled: Condenser elec. operated	1	<75	No Exception Taken	9.8						