

GENERAL NOTES

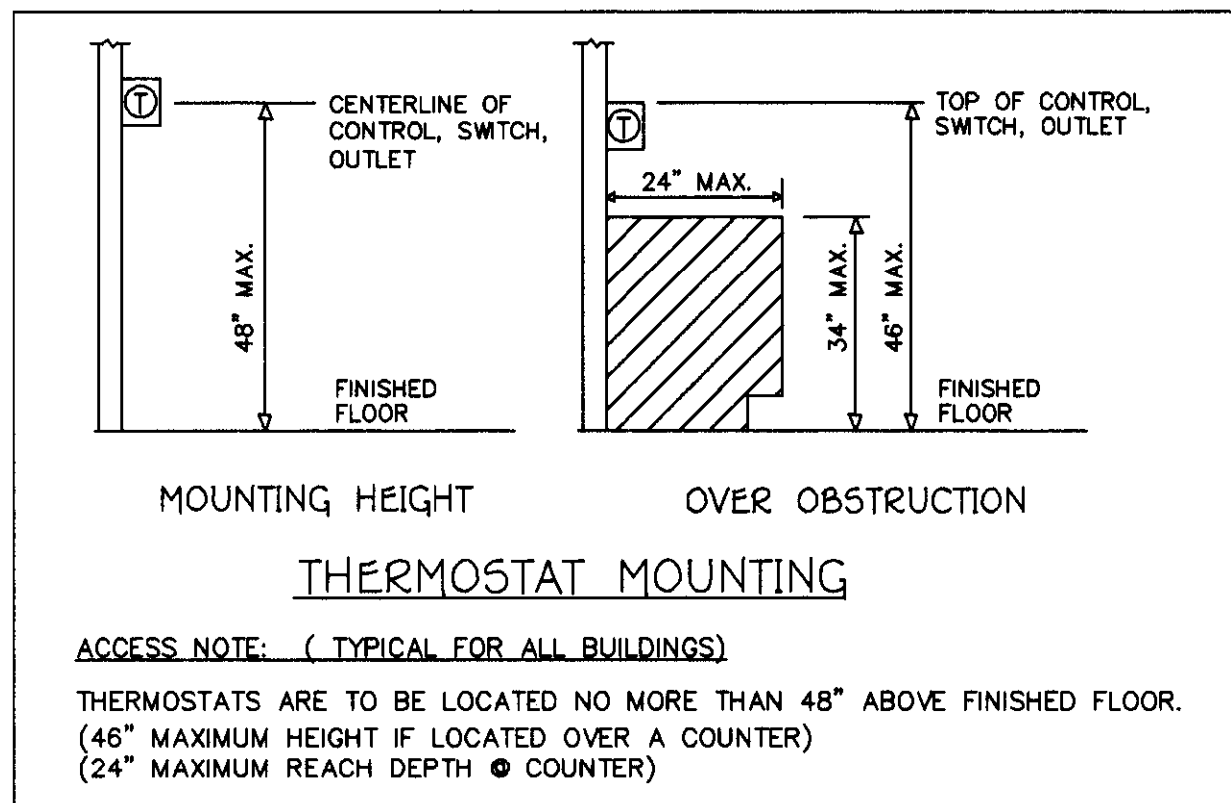
- ENTIRE INSTALLATION SHALL CONFORM TO THE REQUIREMENTS OF THE 1998 CALIFORNIA MECHANICAL CODE, 1998 CALIFORNIA BUILDING CODE, AND ALL OTHER APPLICABLE CODES AND REGULATIONS.
- COORDINATE ENTIRE INSTALLATION OF THE HVAC SYSTEM WITH THE WORK OF ALL OTHER TRADES PRIOR TO ANY FABRICATION OR INSTALLATION. PROVIDE ALL FITTINGS, OFFSETS, AND TRANSITIONS AS REQUIRED FOR A COMPLETE WORKABLE INSTALLATION.
- COORDINATE THE LOCATIONS OF ALL CEILING DIFFUSERS, REGISTERS AND GRILLES WITH THE ARCHITECTURAL REFLECTIVE CEILING PLAN. ELECTRICAL LIGHTING LAYOUT AND ARCHITECTURAL ROOM ELEVATIONS.
- COORDINATE THE LOCATION OF ALL ROOF OPENINGS AND THE LOCATION OF ALL ROOF MOUNTED EQUIPMENT WITH THE STRUCTURAL AND ARCHITECTURAL PLANS PRIOR TO ANY INSTALLATION. PROVIDE THE EQUIPMENT WEIGHTS, AND PLATFORM AND CURB SIZES.
- PLATFORMS, CURBS, AND FLASHINGS FOR MECHANICAL EQUIPMENT SHALL BE AS INDICATED ON THE STRUCTURAL AND ARCHITECTURAL PLANS, UNLESS NOTED OTHERWISE.
- ALL EQUIPMENT SHALL BE INSTALLED IN STRICT ACCORDANCE WITH THE EQUIPMENT MANUFACTURER'S RECOMMENDATIONS. PROVIDE ALL FITTINGS, TRANSITIONS, DAMPERS, VALVES, AND OTHER DEVICES REQUIRED FOR A COMPLETE WORKABLE INSTALLATION.
- MAINTENANCE LABELS SHALL BE AFFIXED TO ALL MECHANICAL EQUIPMENT AND A MAINTENANCE MANUAL SHALL BE PROVIDED FOR THE OWNER'S USE.
- CONTROL SCHEMATICS ARE FOR SEQUENCE ONLY. REFER TO ELECTRICAL DRAWINGS AND SPECIFICATIONS FOR ALL ELECTRICAL DEVICES REQUIRED.
- ALL LINE AND LOW VOLTAGE WIRING SHALL BE INSTALLED IN CONDUIT. ALL CONDUIT AND LOW VOLTAGE WIRING, INCLUDING FINAL CONNECTIONS, SHALL BE FURNISHED AND INSTALLED BY THE ELECTRICAL CONTRACTOR AS SPECIFIED ON THE ELECTRICAL DRAWINGS OR SPECIFIED IN THE ELECTRICAL SECTION OF THE SPECIFICATIONS. ALL ELECTRICAL WORK SHALL BE INSTALLED IN ACCORDANCE WITH ALL APPLICABLE CODES AND REGULATIONS OF ALL GOVERNING BODIES HAVING JURISDICTION THEREOF.
- E. INDICATES ITEMS FURNISHED AND INSTALLED BY THE ELECTRICAL CONTRACTOR AS SHOWN ON THE ELECTRICAL DRAWINGS OR SPECIFIED IN THE ELECTRICAL SECTIONS OF THE SPECIFICATIONS.
- M. INDICATES ITEMS FURNISHED AND INSTALLED BY THE MECHANICAL CONTRACTOR AS SHOWN ON THE MECHANICAL DRAWINGS OR SPECIFIED IN THE MECHANICAL SECTIONS OF THE SPECIFICATIONS.
- ALL THERMOSTATS SHALL HAVE LOOKABLE COVERS AND SHALL BE OF THE ELECTRONIC PROGRAMMABLE, AUTOMATIC CHANGEOVER TYPE TO SEQUENCE HEATING OR COOLING. SET POINT RANGE SHALL BE 10 DEGREES F. BETWEEN FULL HEATING AND COOLING. THEY SHALL HAVE CAPABILITY OF TERMINATING ALL HEATING AT A TEMPERATURE NO MORE THAN 10 DEGREES F. AND COOLING AT A TEMPERATURE NOT LESS THAN 70 DEGREES F. ADJUSTABLE TEMPERATURE DIFFERENTIAL SHALL BE 1-1/2 DEGREES F. CONTROL LIMITS SHALL BE FROM 55 DEGREES F. TO 85 DEGREES F. MOUNT AT 48 INCHES ABOVE FLOOR OR AS REQUIRED BY LOCAL AUTHORITIES OR HANDICAP CODES.
- ALL DUCTWORK SHALL BE SHEET METAL CONSTRUCTED OR SPIRAL, EXCEPT UNLESS NOTED OTHERWISE, AND TESTED IN ACCORDANCE WITH THE MOST RESTRICTIVE OF LOCAL REGULATIONS, PROCEDURES DETAILED IN THE ASHRAE HANDBOOK OF FUNDAMENTALS, CHAPTER 8 OF UNIFORM MECHANICAL CODE OR THE APPLICABLE STANDARDS ADOPTED BY THE SHEET METAL AND AIR CONDITIONING CONTRACTORS NATIONAL ASSOCIATION. ALL VISIBLE EXHAUST DUCTS FOR KITCHEN HOOD AND DISHWASHER SHALL BE STAINLESS STEEL.
- DUCTWORK HANDLING CONDITIONED AIR SHALL BE INSULATED. SUPPLY DUCT INSULATION SHALL BE 2" THICK 1/4 LB./CU. FT. DENSITY. RETURN DUCT INSULATION SHALL BE 1" THICK 3/4 LB./CU. FT. DENSITY.
- ALL DUCT SIZES ARE SHEET METAL SIZES. ALL DUCT JOINTS SHALL BE SEALED PER U.M.C. CHAPTER 6 REQUIREMENTS.
- MANUAL VOLUME DAMPERS SHALL BE PROVIDED IN ALL DUCT BRANCHES TO INDIVIDUAL DIFFUSERS, GRILLES AND REGISTERS.
- PROVIDE TWO INCH (2") THICK FARR 30/20 ZIRCONIUM PRE-FILTERS AND BAG FILTERS HAVING 85% EFF. SIZE AS RECOMMENDED BY THE MANUFACTURER, UNLESS OTHERWISE SPECIFIED, FOR THE AIRHANDLING UNITS.
- AUTOMATIC FIRE DAMPER REQUIREMENTS ARE AS FOLLOWS:
 - PROVIDE AUTOMATIC FIRE DAMPERS AT ALL PENETRATIONS OF FIRE-RATED CEILINGS AND WALLS THROUGHOUT. CONTRACTOR SHALL COORDINATE FIRE-RATED AREAS WITH THE ARCHITECTURAL DRAWINGS PRIOR TO BID. THIS NOTE SHALL TAKE PRECEDENCE OVER ANY OTHERS ON THE DRAWINGS. SEE SPECIFICATIONS.
 - LOCATION OF FIRE-RATED CEILINGS AND WALLS ARE AS INDICATED ON THE ARCHITECTURAL DRAWINGS.
- BEFORE BIDDING ON THIS WORK, THE CONTRACTOR SHALL MAKE A CAREFUL EXAMINATION OF THE PREMISES, EXISTING EQUIPMENT AND SERVICES. HE SHALL DEFINITELY DETERMINE IN ADVANCE THE METHODS OF INSTALLING AND CONNECTING THE NEW EQUIPMENT WITH ITS ASSOCIATED DUCTWORK. THE MEANS TO BE PROVIDED FOR GETTING THE EQUIPMENT AND MATERIALS INTO PLACE AND SHALL MAKE HIMSELF THOROUGHLY FAMILIAR WITH ALL OF THE REQUIREMENTS OF THE PROJECT.
- CONTRACTOR SHALL VERIFY THE CONDITION OF EXISTING EQUIPMENT DUCTWORK, VOLUME DAMPERS, AND T-SHIPS. SHOULD ANY OF THESE ITEMS NOT BE PERFORMING SATISFACTORILY OR MALFUNCTIONING, CONTRACTOR SHALL NOTIFY IMMEDIATELY AND/OR OWNER AND PROVIDE PRICE TO ENSURE PROPER OPERATION PRIOR TO COMPLETION OF WORK.
- BEFORE COMMENCEMENT OF WORK, THE MECHANICAL CONTRACTOR SHALL VERIFY THE EXACT LOCATIONS AND DIMENSIONS OF ALL EXISTING EQUIPMENT AND ELECTRICAL SERVICES IN THE AREA OF NEW CONSTRUCTION AND NOTIFY THE ARCHITECT OF ANY DISCREPANCIES.
- ALL CONNECTIONS AND DISCONNECTIONS TO EXISTING EQUIPMENT SHALL BE MADE IN SUCH A MANNER THAT INTERRUPTION TIME SHALL BE KEPT TO A MINIMUM. THE CONTRACTOR SHALL GIVE THE OWNER'S REPRESENTATIVE SUFFICIENT NOTICE OF SUCH INTERRUPTION AND THE ACTUAL SHUTDOWN TIME SHALL BE AT A TIME DESIGNATED BY THE OWNER'S REPRESENTATIVE.

AIR DISTRIBUTION SCHEDULE

MFR. MODEL	SIZE	C.F.M. CAPACITY	MAX. NECK VEL	MAX. N.C.	MAX. S.P. DROP	REMARKS
TITUS MODEL RMN SERIES	8 X 8	0 - 180	400	13	.06	PROVIDE OPPOSED BLADE VOLUME DAMPERS ON ALL DIFFUSERS.
	10 X 10	181 - 280		13	.06	
	12 X 12	281 - 400		16	.06	
	14 X 14	401 - 550		17	.06	
	16 X 16	551 - 720		18	.06	RMN-FP FOR LAY-IN T-BAR CEILINGS.
	18 X 18	721 - 910		19	.06	
	20 X 20	911 - 1120		20	.06	
	22 X 22	1121 - 1370		21	.06	RMN-S FOR GYPBOARD CEILINGS.
	24 X 24	1371 - 1800		22	.06	
TITUS MODEL GC50L	8 X 8	0 - 180	400	15	.03	PROVIDE OPPOSED BLADE DAMPERS.
	10 X 10	181 - 280		15	.03	
	12 X 12	281 - 400		15	.03	
	14 X 14	401 - 550		15	.03	
	16 X 16	551 - 720		15	.03	
	18 X 18	721 - 910		15	.03	
	20 X 20	911 - 1120		15	.03	
	22 X 22	1121 - 1370		15	.03	
	24 X 24	1371 - 1800		15	.03	
	24 X 48	1801 - 3000		15	.03	

SEISMIC NOTES

- ALL MECHANICAL EQUIPMENT SHALL BE BRACED OR ANCHORED TO RESIST A HORIZONTAL FORCE ACTING IN ANY DIRECTION. REFER TO TITLE NO. 24, PART 2, SECTION 1632A FOR EXACT REQUIREMENTS.
- ALL BRACING OF DUCTS AND PIPING SHALL BE INSTALLED IN ACCORDANCE WITH THE REQUIREMENTS OF THE APPENDIX E SEISMIC RESTRAINT MANUAL GUIDELINES FOR MECHANICAL SYSTEMS PUBLISHED BY SMACNA AND APPROVED BY THE CALIFORNIA OFFICE OF STATEWIDE HEALTH PLANNING AND DEVELOPMENT (OSHPD) AND DIVISION OF THE STATE ARCHITECT (DSA). A COPY OF THE GUIDELINES PUBLISHED BY SMACNA AND APPROVED BY DSA AND OSHPD SHALL BE PROVIDED BY THE CONTRACTOR AND KEPT ON THE JOB AT ALL TIMES.
- THE SEISMIC ANCHORAGE OF MECHANICAL AND ELECTRICAL EQUIPMENT FURNISHED AS PART OF THE MECHANICAL WORK SHALL CONFORM TO C.C.R. TITLE 24, SECTION 1630-A AND TABLE 16A-0. ANCHORAGE DETAILS FOR ROOF/FLOOR MOUNTED EQUIPMENT WEIGHING LESS THAN 400 LBS. AND WALL MOUNTED EQUIPMENT WEIGHING LESS THAN 20 LBS MAY BE OMITTED FROM THE PLANS, WHERE ANCHORAGE DETAILS ARE NOT SHOWN ON THE DRAWINGS, THE FIELD INSTALLATION SHALL BE SUBJECT TO THE APPROVAL OF THE ARCHITECT, MECHANICAL ENGINEER AND THE DSA FIELD ENGINEER.
- ALL MECHANICAL AND ELECTRICAL EQUIPMENT FURNISHED AS PART OF THE MECHANICAL WORK SHALL BE BRACED OR ANCHORED TO RESIST A HORIZONTAL FORCE ACTING IN ANY DIRECTION USING THE FOLLOWING CRITERIA:
 - EQUIPMENT ON GRADE: 25% OF OPERATING WEIGHT
 - EQUIPMENT ON STRUCTURE: 35% OF OPERATING WEIGHT
 - FOR FLEXIBLE MOUNTED EQUIPMENT USE 4 X THE ABOVE VALUES, AND FOR SIMULTANEOUS VERTICAL FORCE USE 1/3 X THE HORIZONTAL FORCE.
 - THE ABOVE VALUES ARE FOR AN IMPORTANCE FACTOR, 1=1.15 AND SEISMIC ZONE, 2=0.4.
- SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS NOT ADDRESSED IN GUIDELINES.



VALVES

	GATE VALVE
	BUTTERFLY VALVE
	BALANCING VALVE (CIRCUIT SETTER)
	CHECK VALVE
	NEEDLE VALVE
	CONTROL VALVE, TWO-WAY
	CONTROL VALVE, THREE-WAY
	PRESSURE REDUCING VALVE
	PRESSURE RELIEF VALVE
	BALL VALVE
	PUMP SUCTION DIFFUSER

PIPING

	(E) PIPE TO BE DEMOLISHED
	NEW PIPE
	CHILLED WATER SUPPLY
	CHILLED WATER RETURN
	HEATING HOT WATER SUPPLY
	HEATING HOT WATER RETURN
	FLOW - IN DIRECTION OF ARROW

PIPE FITTINGS

	PIPE UP OR RISE ELBOW TURNED UP
	PIPE DOWN OR DROP ELBOW, TURNED DOWN
	RISER OR DROP CONNECTION
	TOP CONNECTION
	BOTTOM CONNECTION
	SIDE CONNECTION
	BRANCH CONNECTION (TOP, BOTTOM OR SIDE AS REQUIRED BY CODE)
	CAP
	UNION









PIPING SPECIALTIES

	MANUAL AIR VENT
	FLEXIBLE CONNECTOR
	PITCH OF PIPE, RISE (R) DROP (D)
	STRAINER
	STRAINER WITH HOSE END BLOW OFF VALVE
	THERMOMETER
	TEST PLUG (PRESSURE/TEMPERATURE)
	REDUCER
	FLOW MEASURING DEVICE
	PRESSURE GAUGE AND NEEDLE VALVE
	VALVE ASSEMBLY SEE DETAIL 4/M9.01



CONTROLS

	THERMOSTAT
	HUMIDISTAT
	FLOW SWITCH
	ANALOG INPUT
	ANALOG OUTPUT
	DIGITAL INPUT
	DIGITAL OUTPUT
	CURRENT TO PRESSURE TRANSDUCER
	VARIABLE FREQUENCY CONTROLLER
	AIR FLOW MEASURING DEVICE WITH ON SITE READ-OUT
	DUCT SMOKE DETECTOR
	TEMPERATURE SENSOR
	DAMPER MOTOR

MISCELLANEOUS

	EQUIPMENT TYPE	RPM	REVOLUTIONS PER MINUTE
	EQUIPMENT NUMBER	SA	SUPPLY AIR
	DETAIL NUMBER	SCR	STEAM CONDENSATE RETURN
	SHEET NUMBER	SM	SHEET METAL
		SP	STATIC PRESSURE
	SECTION NUMBER	SPECS	SPECIFICATIONS
	SHEET NUMBER WHERE DRAWN	SS	STAINLESS STEEL
		ST	SOUND TRAP
	POINT OF CONNECTION	STRUCT	STRUCTURAL
	POINT OF DEMOLITION	TH	THERMOMETER
	WATER FLOW REQUIREMENT (GPM)	TSP	TOTAL STATIC PRESSURE
		TY	TYPICAL
		W/	WITH
		WB	WET BULB TEMPERATURE
		WC	WATER COLUMN
		WG	WATER GAUGE
		WT	WEIGHT
		VAV	VARIABLE AIR VOLUME BOX
		VFC	VARIABLE FREQUENCY CONTROLLER

AIR HANDLING UNITS

UNIT NO.	MANUFACTURER & MODEL NO.	SUPPLY FAN		CHW COOLING COIL							HW HEATING COIL							ELECTRICAL				OSA CFM	BAG TYPE FILTER	MIN. EFF. %	OPER. WT. (LBS.)	REMARKS				
		C.F.M.	T.S.P. (IN.)	CAPACITY(MBH)		E.A.T. (°F)		L.A.T. (°F)		AREA (FT) ²	ROWS	FINS/IN.	CAP. (MBH)	E.A.T. (°F)	L.A.T. (°F)	AREA (FT) ²	FINS/IN.	G.P.M.	W.P.D. (FT/HD)	ROWS	E.W.T. (°F)						L.W.T. (°F)	VOLTAGE V/PH/Hz	H.P.	F.L.A.
 HV 1	YORK 39T-32	4,800	2.5	211.3	238.8	98.0	66.0	57.0	55.2	10.0	6	10	330.18	60.0	105.75	38.6	1/8	16.5	0.5	2	180	140	460-3-60	5.0	-	4,800	(10)16"x20" (10)16"x25"	85.0	2,095	UNITS SHALL BE FACTORY ASSEMBLED AND TESTED BEFORE BREAKING INTO SECTIONS FOR SHIPMENT AND THEN TO BE FIELD ASSEMBLED. PROVIDE UNIT #2 WITH V.F.D WITH BYPASS. CHW COOLING COIL TO BE FACE SPLIT INTERNERED FOR VAV APPLICATION. UNITS TO HAVE 2" INTERNAL SPRING ISOLATION. PROVIDE UNITS WITH UV LIGHTS. FAN TO BE PLENUM TYPE, WITH PREMIUM HIGH EFFICIENCY MOTOR. FACE VELOCITY TO COIL SHALL BE LESS THAN 515 FPM. PROVIDE SMOKE DETECTOR TO SHUT DOWN UNIT.
 HV 2	YORK 39T-49	21,200	3.89	506.91	553.96	81.9	65.26	57.0	55.47	39.90	6	10	-	-	-	-	-	-	-	-	-	-	460-3-60	25.0	-	8,000	(18)16"x20" (12)16"x25"	85.0	5,372	

HOT WATER PUMPS

UNIT NO.	MANUFACTURER & MODEL NO.	LOCATION	SERVICE	TYPE	QTY	US GPM	T HEAD FT	MOTOR					IMPELLER DIAMETER INCHES	OPER. WT. LBS.	REMARKS
								HP	RPM	V	PH	HZ			
HWP 1	HWP 2	ARMSTRONG SERIES 4030 Size 3x1.5x8	MECHANICAL ROOM	HOT WATER RECIRCULATION	2	65.0	50.0	3.0	1,800	480	3	60	7.01	180	PUMP CONSTRUCTION SHALL BE "BF" (BRONZE FITTED) SUITABLE FOR A MAXIMUM WORKING PRESSURE OF 175 PSIG. RADIALLY SPLIT CASING WITH CENTRE LINE DISCHARGE WITH BACK PULL FEATURE PERMITTING REMOVAL OF COMPLETE ROTATING ASSEMBLY WITHOUT DISTURBING PIPE CONNECTIONS. UNIT EQUIPPED WITH WATER TIGHT, LONG LIFE, SELF LUBRICATING MECHANICAL SEAL. THE MOTOR SHALL BE SQUIRREL CAGE INDUCTION TYPE, NON OVERLOADING WITH TEFC ENCLOSURE. PUMP AND MOTOR TO BE MOUNTED ON A RIGIDLY CONSTRUCTED FABRICATED STEEL BASEPLATE AND DIRECTLY CONNECTED THROUGH A FLEXIBLE COUPLING WITH A GUARD COVER.
CWP 1	CWP 2	ARMSTRONG SERIES 4030 Size 3x1.5x8	MECHANICAL ROOM	CHILLED WATER RECIRCULATION	2	215.0	50.0	5.0	1,800	480	3	60	7.66	220	

AIR COOLED WATER CHILLER UNIT

UNIT NO.	MANUFACTURER & MODEL NO.	LOCATION	AMB. TF	NOM. CAP. (TONS)	CHW			SYSTEM #1						SYSTEM #2						CONDENSER			ELECTRICAL			OPER. WT. (LBS.)	REMARKS			
					TF ENT.	TF LVG.	GPM	COMPRESSOR (S)		CONDENSER FAN (S)						COMPRESSOR (S)		CONDENSER FAN (S)						C.F.M.	ROWS			FINS/IN.	AREA (SQFT)	VOLTAGE V/PH/Hz
CH 1	YORK YCAL-0080	GRADE	95	79.3	54.0	44.0	215	3	25.8	175.0	2	3.8	2.0	1,140	3	25.8	175.0	2	3.8	2.0	1,140	53,760	3	14	149.3	460-3-60	177	200	2,780	UNIT TO BE PROVIDED WITH SINGLE POINT POWER CONNECTION. CONDENSER COILS SHALL HAVE COPPER TUBES AND ALUMINUM FINS, TWO INDEPENDENT REFRIGERANT CIRCUITS WITH HEAD PRESSURE CONTROL.

SHELL IN TUBE HEAT EXCHANGER

UNIT NO.	MANUFACTURER & MODEL NO.	NO. OF	SATURATED STEAM PRESS. @ PSI G	TUBE SIDE					OPER. WT. (LBS.)	REMARKS
				NO. OF PASSES	GPM	WATER IN °F	WATER OUT °F	PD FT-H2O		
HE 1	ARMSTRONG WS-63-3	1	30.0	2	58.0	140.0	180.0	15.0	175	HEAT EXCHANGER TO HAVE STEEL SHELL & HEAVY DUTY COPPER TUBES OF 4 PASS CONSTRUCTION.

EXHAUST FAN SCHEDULE

UNIT NO.	MANUFACTURER & MODEL NO.	TYPE	LOCATION	CFM	S.P.	FRPM	VOLTAGE	MOTOR HP	MOTOR RPM	OPER. WT. (LBS.)	REMARKS
RV 1	GREENHECK GB-200HP-30	CENTRIFUGAL UP BLAST EXHAUSTER	ROOF	5,000	2.0	1,202	460/60/3	3.0	1,750	150	PROVIDE UNIT WITH FACTORY ROOF CURB, BUILT IN DISCONNECT SWITCH & BACKDRAFT DAMPERS. NON OVERLOADING TYPE ODP MOTORS. FANS ARE BELT DRIVEN, AND CONTROLLED BY EMS WITH A WALL MNTD SWITCH FOR OVER-RIDE.
RV 2	GREENHECK GB-200HP-30	CENTRIFUGAL UP BLAST EXHAUSTER	ROOF	5,000	2.0	1,202	460/60/3	3.0	1,750	150	
RV 3	GREENHECK GB-121-5	CENTRIFUGAL ROOF EXHAUSTER	ROOF	1,600	0.8	1,649	115/60/1	1/2	1,750	50	
RV 4	GREENHECK GB-121	CENTRIFUGAL ROOF EXHAUSTER	ROOF	1,200	0.8	1,411	115/60/1	1/4	1,750	50	PROVIDE UNIT WITH FACTORY ROOF CURB, BUILT IN DISCONNECT SWITCH & BACKDRAFT DAMPERS. NON OVERLOADING TYPE ODP MOTORS. FANS ARE BELT DRIVEN, AND CONTROLLED BY EMS.
RV 5	GREENHECK GB-161-5	CENTRIFUGAL ROOF EXHAUSTER	ROOF	2,000	0.8	1,084	115/60/1	1/2	1,750	90	
RV 6	GREENHECK GB-090-4	CENTRIFUGAL ROOF EXHAUSTER	ROOF	900	0.8	1,702	115/60/1	1/4	1,750	30	
RV 7	GREENHECK GB-090-4	CENTRIFUGAL ROOF EXHAUSTER	ROOF	800	0.8	1,609	115/60/1	1/4	1,750	30	
RV 8	GREENHECK GB-131-5	CENTRIFUGAL ROOF EXHAUSTER	ROOF	1,775	0.7	1,775	115/60/1	1/2	1,750	60	
RV 9	GREENHECK GB-090-4	CENTRIFUGAL ROOF EXHAUSTER	ROOF	500	0.6	1,248	115/60/1	1/4	1,750	50	
RV 10	GREENHECK GB-070	CENTRIFUGAL ROOF EXHAUSTER	ROOF	100	0.6	1,389	115/60/1	1/6	1,750	30	
RV 11	GREENHECK GB-161-5	CENTRIFUGAL ROOF EXHAUSTER	ROOF	2,000	0.8	1,084	115/60/1	1/2	1,750	90	
RF 1	GREENHECK BSQ-300	CENTRIFUGAL IN-LINE FAN	RETURN AIR DUCT ON ROOF	12,640	1.0	807	480/60/3	7.5	1,750	420	PROVIDE WEATHER PROOF HOUSING FOR THE MOTOR. MOTOR TO BE VFD COMPATIBLE WITH BYPASS. MOTOR TO BE ODP NON OVERLOADING TYPE. FAN TO BE BELT DRIVEN.

CHEMICAL POT FEEDER

UNIT NO.	MANUFACTURER & MODEL NO.	DESCRIPTION	REMARKS
PF 1	CLA-VAL DC6L		
PF 2	CLA-VAL DC6L		

EXPANSION TANK

UNIT NO.	MANUFACTURER & MODEL NO.	VOLUME GALLONS		OPER. WT. (LBS.)	REMARKS
		TANK	ACCEPTANCE		
ET 1	ARMSTRONG 200-L	53	2.5	650	-
ET 2	ARMSTRONG 300-L	75	4.5	820	-

VAV BOXES SCHEDULE

ZONE NO.	MANUFACTURER & MODEL NO.	MAX. CFM	MIN. CFM	WDTH INCHES	HEIGHT INCHES	LENGTH INCHES	COIL ROWS	US GPM	CONN. SIZE IN.	OPER. WT. LBS.	REMARKS
VAV 1	CARRIER 35-E-12	1,170	360	16.0	15.0	22.75	2	2.5	7/8	-	UNIT TO BE PRESSURE INDEPENDENT. COMPLETE WITH HOT WATER HEATING COIL, DDC CONTROLS, AIRFLOW SENSOR, PRIMARY DAMPER AND DAMPER CONTROL. PROVIDE UNITS WITH 220 TO 24 VOLTS TRANSFORMER.
VAV 2	CARRIER 35-E-08	660	200	12.0	10.0	22.75	2	2.1	7/8	-	
VAV 3	CARRIER 35-E-10	720	220	14.0	12.0	22.75	2	1.2	7/8	-	
VAV 4	CARRIER 35-E-08	500	150	12.0	10.0	22.75	2	1.2	7/8	-	
VAV 5	CARRIER 35-E-10	800	240	14.0	12.0	22.75	2	0.9	7/8	-	
VAV 6	CARRIER 35-E-10	800	240	14.0	12.0	22.75	2	1.2	7/8	-	
VAV 7	CARRIER 35-E-12	2,000	600	16.0	15.0	22.75	2	2.7	7/8	-	
VAV 8	CARRIER 35-E-12	1,600	480	16.0	15.0	22.75	2	2.7	7/8	-	
VAV 9	CARRIER 35-E-10	800	240	14.0	12.0	22.75	2	1.2	7/8	-	
VAV 10	CARRIER 35-E-12	1,600	480	16.0	15.0	22.75	2	2.4	7/8	-	
VAV 11	CARRIER 35-E-10	1,000	300	14.0	12.0	22.75	2	1.5	7/8	-	
VAV 12	CARRIER 35-E-10	800	240	14.0	15.0	22.75	2	1.2	7/8	-	

ROOF MNTD MAKE UP AIR UNIT

UNIT NO.	MANUFACTURER & MODEL NO.	LOCATION	SERVICE	SUPPLY OPENING DIMENSIONS	C.F.M.	T.S.P. (IN.)	FAN R.P.M.	TYPE	ELECTRICAL		HEATING FURNACE CAP. MBH	GAS TYPE	ENT.F AIR	LVG.F AIR	OPER. WT. (LBS.)	REMARKS
									HP	V./PH./HZ.						
MAU 1	GREENHECK KSU-118-H30	ROOF	KITCHEN HOOD MAKE-UP AIR	22"x16"	8,000	2.12	1,255	CENTRIFUGAL DOWN BLAST	7.5	460/3/60	453.0	NATURAL	30.0	80.0	860	PROVIDE UNIT WITH STANDARD WEATHERHOOD W/1" ALUMINUM MESH FILTERS OUTLET DAMPER. INTERLOCKED WITH RV1&2.3. PROVIDE BACK DRAFT DAMPER FOR EF-3.PROVIDE FACTORY ROOF CURB.

DOOR CURTAIN

UNIT NO.	MANUFACTURER & MODEL NO.	RPM	HP	CFM	ELECTRICAL	WT(LBS)	REMARKS
DC 1	MARS 60CH-2	1,725	(2) 1/2	5,100	115/1/60	100	FAN WHEEL SHALL BE FORWARD CURVED "DWDI" TWIN HOUSING DIRECT DRIVEN AIR CURTAIN.THE FAN SHALL BE BOLTED & RIVETED CONSTRUCTION. HOUSING SHALL BE MIN. 18 GAUGE ALUMINUM. AN ADJUSTABLE INTAKE LOUVER SHALL BE PROVIDE TO CONTROL AIRFLOW. FOUR ADJUSTABLE NOZZLE DEFLECTOR BLADES SHALL PROVIDE A BALANCED DIRECTION OF FLOW. MOTOR SHALL BE HEAVY DUTY RESILIENT MOUNT ODP TYPE WITH PERMANENTLY SEALED BALL BEARINGS AND THERMAL OVERLOAD PROTECTION.
DC 2							

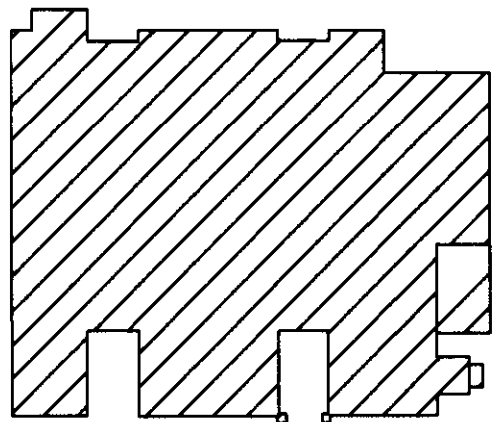
AIR SEPERATOR

UNIT NO.	MANUFACTURER & MODEL NO.	CAP. GPM	CONN. TYPE	CONN. SIZE (inches)	P.D. (inches) WATER	OPER. WT. (LBS.)	REMARKS
AS 1	ARMSTRONG VA-3	80.0	FLANGED	3	2	120	FURNISH WITH AUTO AIR VENT.

CV BOXES SCHEDULE

ZONE NO.	MANUFACTURER & MODEL NO.	CFM	WDTH INCHES	HEIGHT INCHES	LENGTH INCHES	COIL ROWS	US GPM	CONN. SIZE IN.	OPER. WT. LBS.	REMARKS
CV 1	CARRIER 35-E-06	300	12.0	8.0	22.75	2	1.1	7/8	-	UNITS TO BE PRESSURE INDEPENDENT. COMPLETE WITH HOT WATER HEATING COIL, DDC CONTROLS, AIRFLOW SENSOR & PRIMARY DAMPER. UNITS TO OPERATE AS CONSTANT VOLUME BOXES. UNITS TO BE PROVIDED WITH 220 TO 24 VOLTS TRANSFORMERS.
CV 2	CARRIER 35-E-08	600	12.0	10.0	22.75	2	2.0	7/8	-	
CV 3	CARRIER 35-E-06	450	12.0	8.0	22.75	2	1.5	7/8	-	
CV 4	CARRIER 35-E-08	800	12.0	10.0	22.75	2	1.7	7/8	-	
CV 5	CARRIER 35-E-12	1,215	16.0	15.0	22.75	2	3.5	7/8	-	
CV 6	CARRIER 35-E-06	500	12.0	8.0	22.75	2	2.2	7/8	-	
CV 7	CARRIER 35-E-10	800	14.0	12.0	22.75	2	2.5	7/8	-	
CV 8	CARRIER 35-E-12	1,500	16.0	15.0	22.75	2	2.7	7/8	-	
CV 9	CARRIER 35-E-08	600	12.0	10.0	22.75	2	2.0	7/8	-	

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KEY PLAN

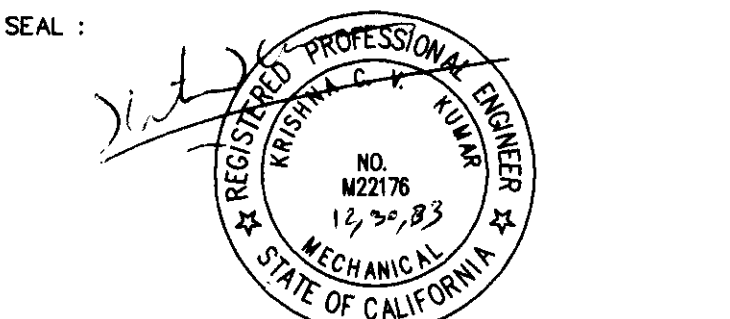
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KEY PLAN



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E-MAIL: GEYORK@AOL.COM

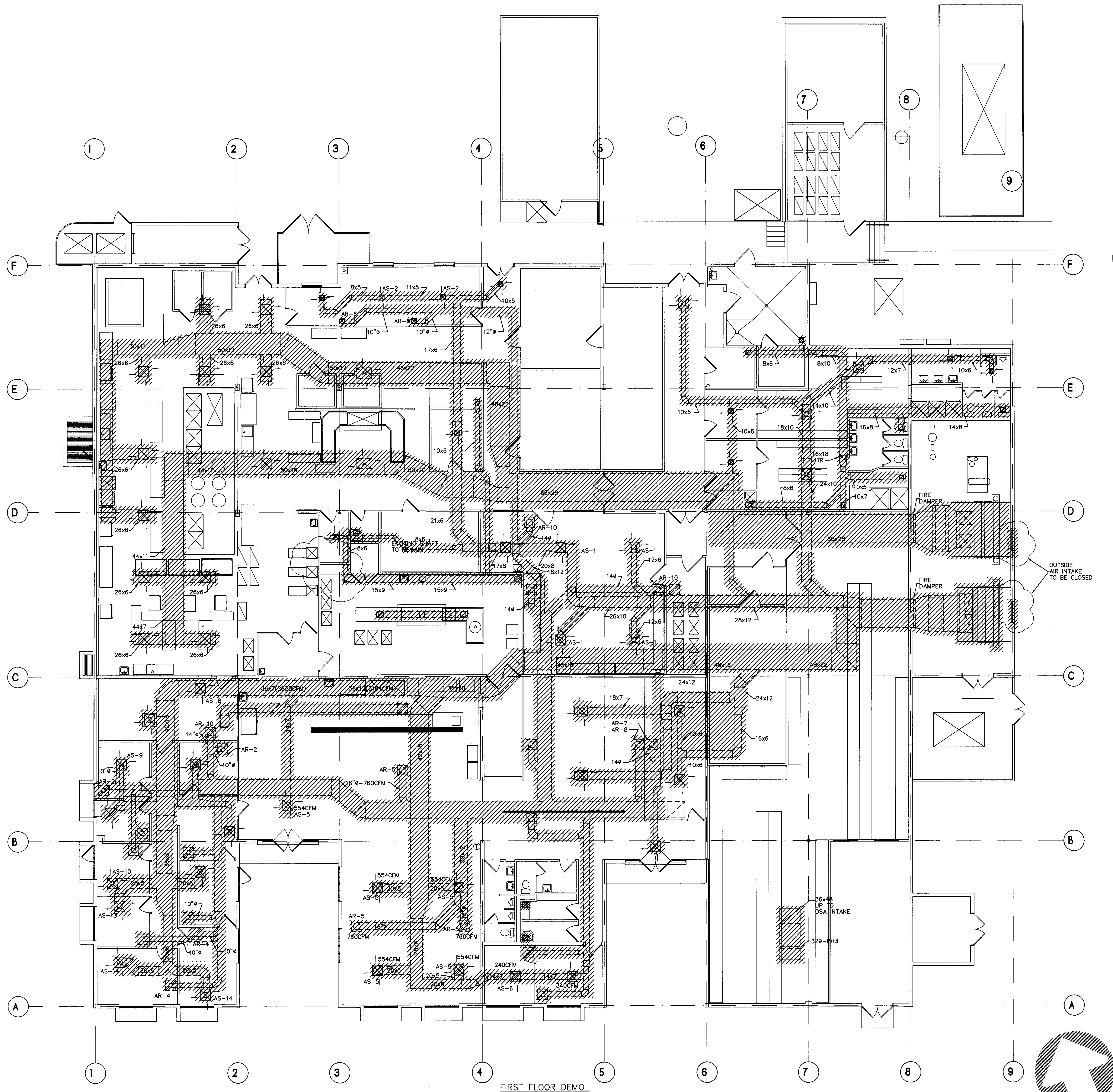


Job Title: RENOVATE NUTRITION & FOOD SERVICE AREA BUILDING 329 MENLO PARK DIVISION

Sheet Title: MECHANICAL SCHEDULE

VETERANS AFFAIRS PALO ALTO HEALTHCARE SYSTEM
MENLO PARK, CA 94025

Drawn By: 6.20.2003 Checked By: M.I.
Submitted By: Date: Approved By: Date:
Scale: Using Service Approval: Date:
Reviewed For Fire & Safety Compliance: Date:
Reviewed For Maintenance & Repair Compliance: Date:
Reviewed For Security Compliance: Date:
Date: X Drawing No.: 329-H02
100% CD (LOCKER RM REVISED) 5.23.2003
100% CD (LOCKER RM REVISED) 5.30.2003
100% CD (LOCKER RM REVISED) 12.30.2003
SYMBOL DESCRIPTION INITIAL DATE
REVISION
Proj. No: 640-340 Sheet 63 of 104



DEMOLITION NOTES:

DEMO & REMOVE EXISTING AIR HANDLING UNITS HV-1 & 2, COMPLETE WITH EXISTING STEEL STANDS.

DISCONNECT THE EXISTING STEAM PIPE DROPS TO THE STEAM COILS OF THE AHU's, COMPLETE WITH ALL VALVES AND FITTINGS AND REMOVE FROM SITE. CAP OPEN ENDS OF THE STEAM PIPES.

DEMO AND REMOVE FROM SITE EXISTING AIRCOOLED CONDENSERS.

DEMO AND REMOVE ALL REFRIGERANT PIPES FROM THE CONDENSING UNIT TO AHU HV-2, COMPLETE WITH ALL SUPPORTS, BRACKETS FITTINGS, ETC.

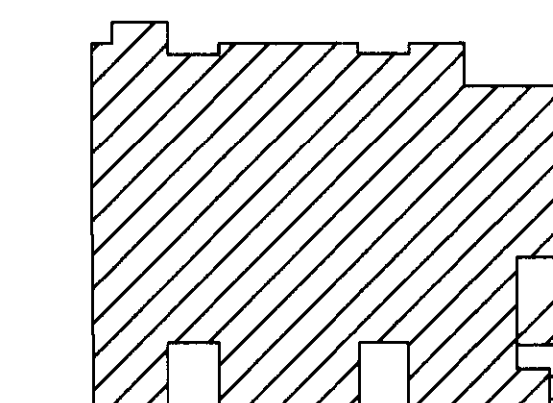
DEMO AND REMOVE IN ITS ENTIRETY THE EXISTING PNEUMATIC CONTROL SYSTEM, COMPLETE WITH AIR COMPRESSOR, CONTROLLERS, THERMOSTATS, ACTUATORS AND TUBING.

REMOVE ALL EXISTING SUPPLY, RETURN AND EXHAUST DUCTING COMPLETE WITH ALL HANGERS AND SUPPORTS.

DEMO AND REMOVE ALL EXISTING STEAM REHEAT COILS FROM THE EXISTING SUPPLY DUCTS. DEMO AND REMOVE STEAM PIPES SHOWN HATCHED, CAP OPEN END OF PIPES.

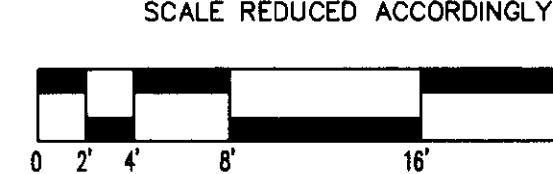
DEMO AND REMOVE ALL EXISTING DIFFUSERS, GRILLS FOR SUPPLY, RETURN AND EXHAUST AIR.

DEMO AND REMOVE WALL MOUNTED OSA INTAKE GRILLES LOCATED IN THE MECHANICAL ROOM. CLOSE AND SEAL OPENINGS. MATCH THE FINISH TO EXISTING AS PER ARCHITECT'S NOTES.



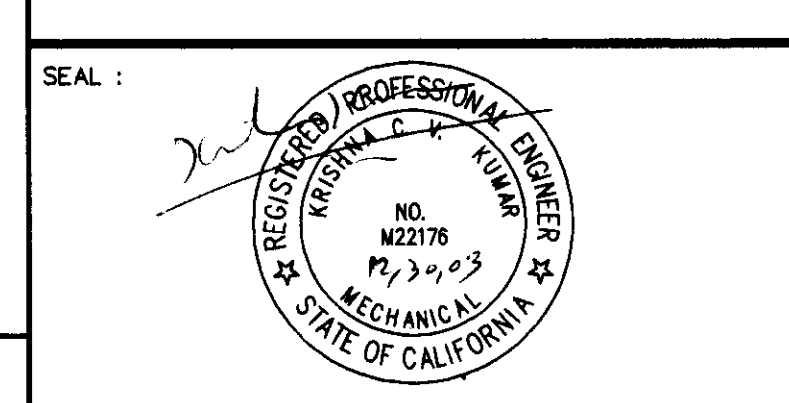
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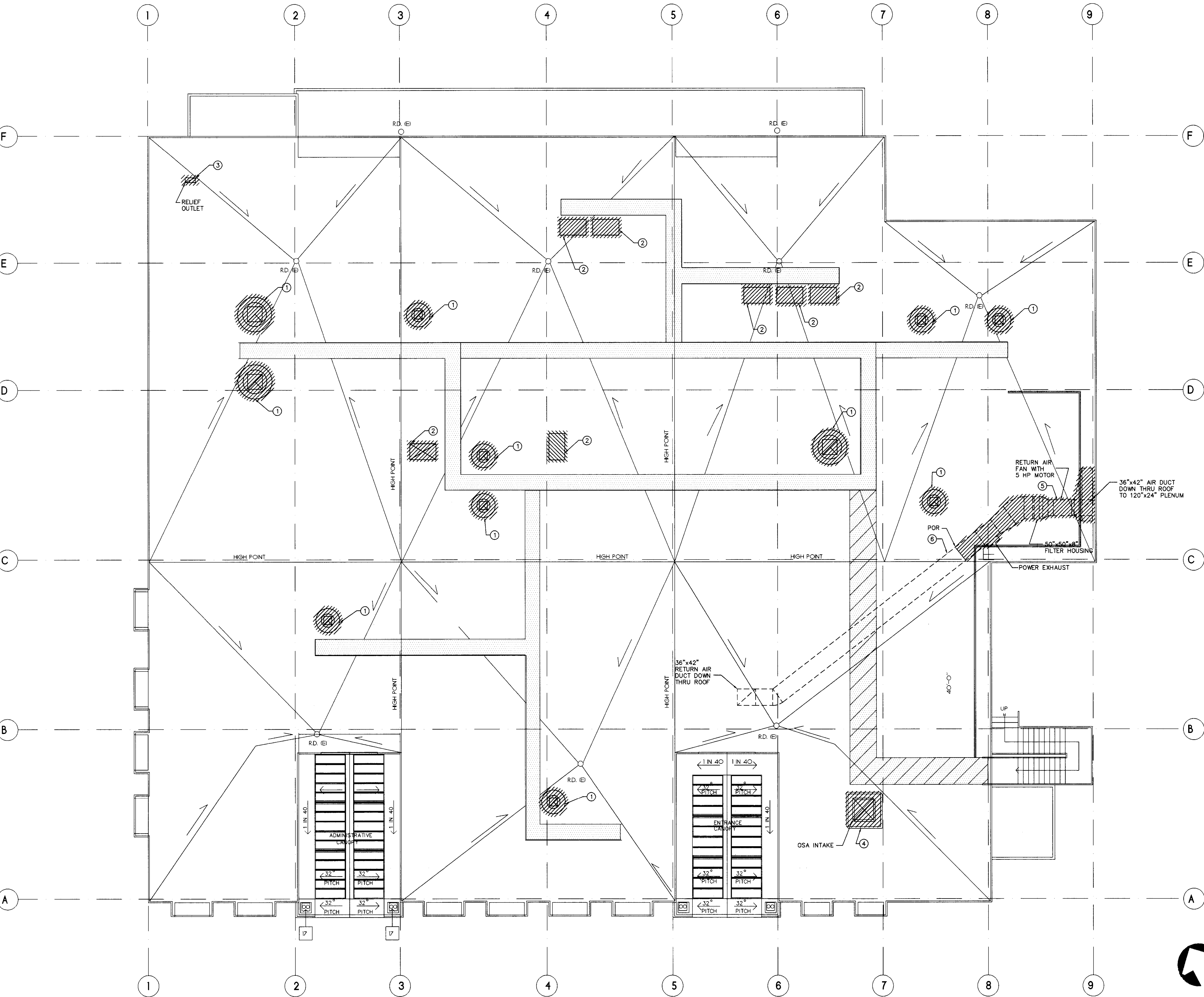
Job Title: RENOVATE NUTRITION & FOOD SERVICE AREA BUILDING 329 MENLO PARK DIVISION

Sheet Title: MECHANICAL FLOOR PLAN DEMOLITION

VETERANS AFFAIRS PALO ALTO HEALTHCARE SYSTEM MENLO PARK, CA 94025

Drawn By: M.I.	Date: 6.20.2003	Checked By: M.I.	Date:
Submitted By:	Date:	Approved By:	Date:
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Reviewed For Maintenance & Repair Compliance:	Date:		
Reviewed For Security Compliance:	Date:		
Date: X	Drawing No.: 329-H03		
Proj. No: 640-340	Sheet 64 of 104		

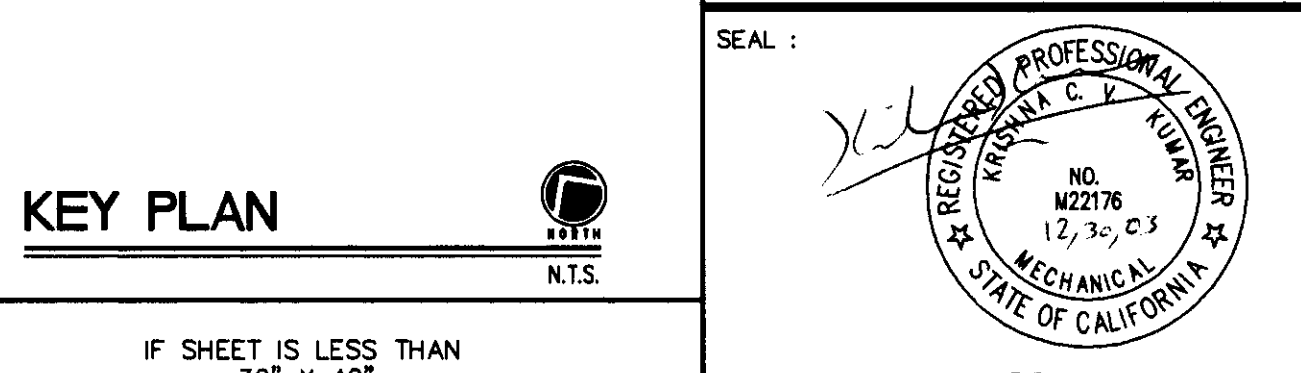
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DEMOLITION NOTES:

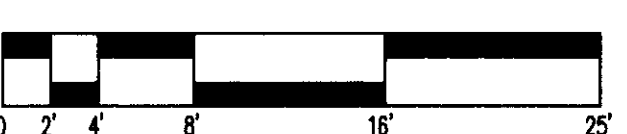
- 1 DEMO AND REMOVE EXISTING ROOF MOUNTED EXHAUST FAN. ROOF OPENING TO REMAIN.
- 2 DEMO AND REMOVE EXISTING CONDENSING UNIT. ALONGWITH THE REFRIGERATION PIPES GOING DOWN THROUGH ROOF. CLOSE AND SEAL ALL ROOF OPENINGS TO MATCH EXISTING ROOF AS PER ARCHITECT'S NOTES.
- 3 DEMO AND REMOVE THE RELIEF OUTLET. CLOSE AND SEAL ROOF OPENING TO MATCH EXISTING ROOF AS PER ARCHITECT'S NOTES.
- 4 DEMO AND REMOVE OSA INTAKE. CLOSE AND SEAL THE OPENING TO MATCH EXISTING ROOF AS PER ARCHITECT'S NOTES.
- 5 DEMO AND REMOVE INLINE RETURN FAN, POWER EXHAUST FAN, RETURN AIR DUCT UP TO (POR) POINT OF REMOVAL AND & DUCT DOWN THRU THE ROOF AND FILTER HOUSING. CLOSE AND SEAL ROOF OPENING TO MATCH EXISTING ROOF AS PER ARCHITECT'S NOTES.
- 6 REMOVE ALL INTERNAL LINING FROM THE EXISTING RETURN DUCT WHICH IS REMAINING.

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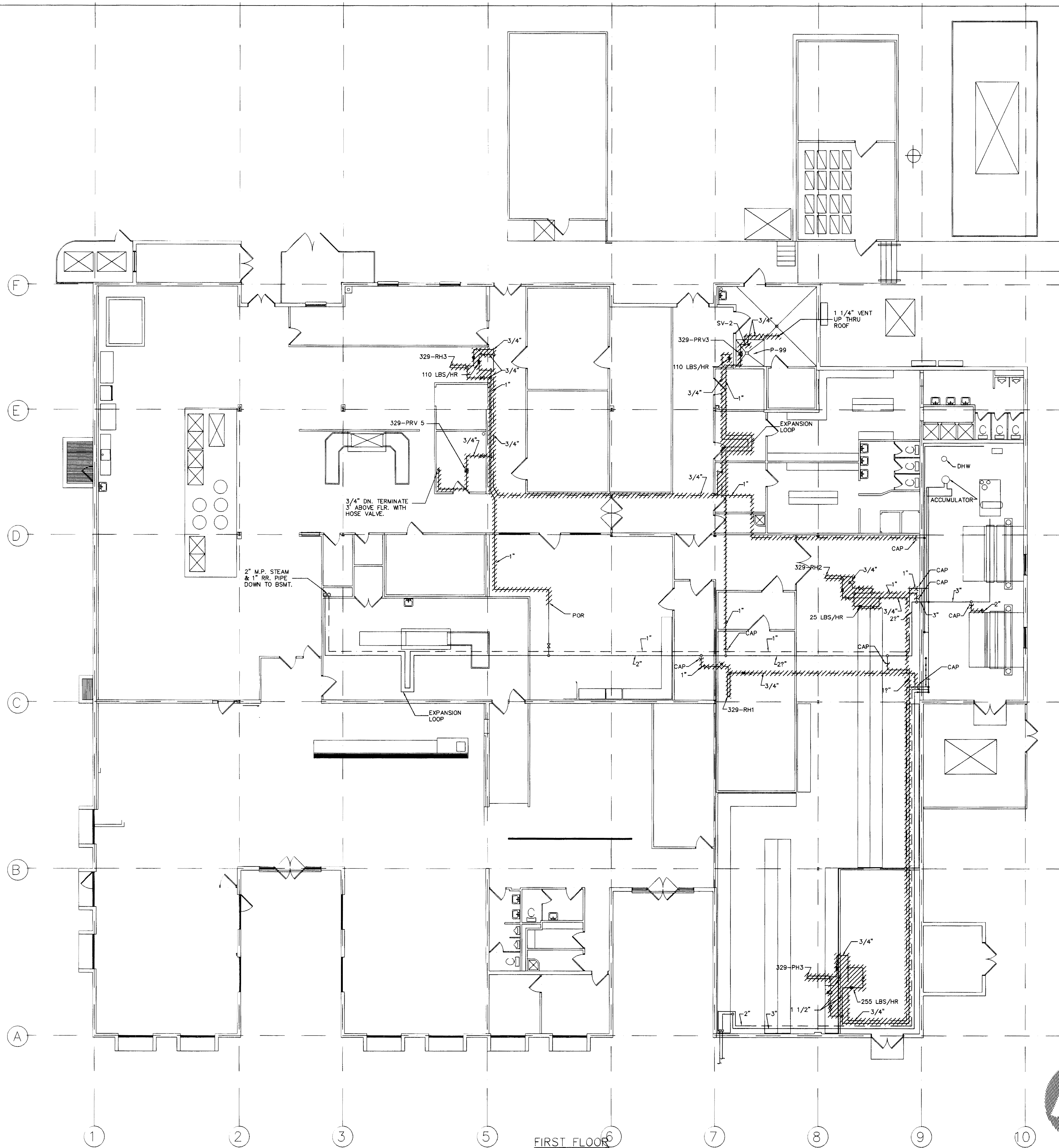
AREAS SHOWN ARE REPRESENTATIVE OF
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Job Title: **RENOVATE NUTRITION & FOOD
 SERVICE AREA BUILDING 329
 MENLO PARK DIVISION**

Sheet Title: **MECHANICAL-ROOF PLAN
 DEMOLITION**

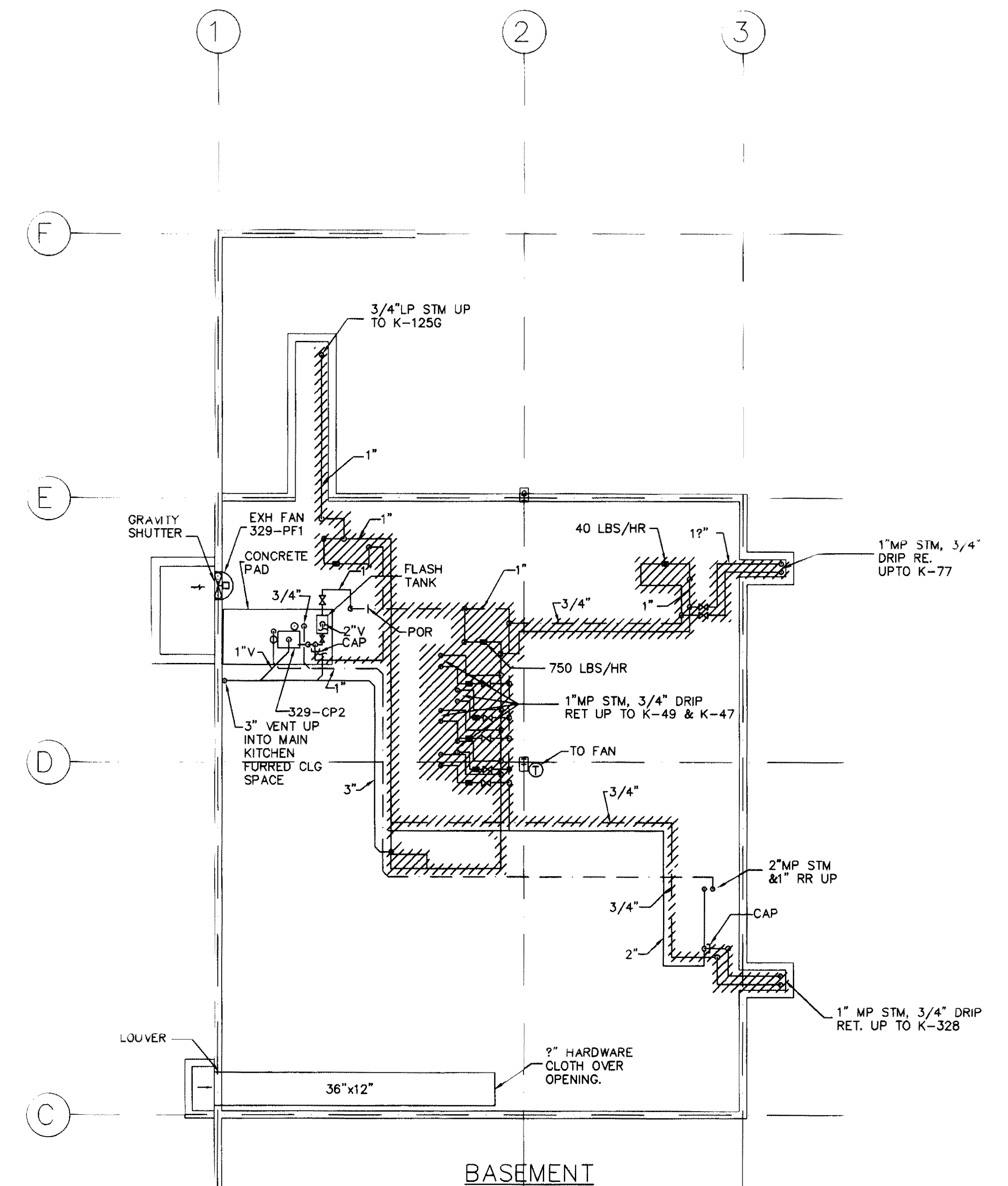
VETERANS AFFAIRS PALO ALTO
 HEALTHCARE SYSTEM
 MENLO PARK, CA 94025

Drawn By: M.L.	Date: 6.20.2003	Checked By: M.L.	Date:
Submitted By:	Date:	Approved By:	Date:
Scale: 1/8"=1'-0"	Using Service Approval:	Date:	
Reviewed For Fire & Safety Compliance:	Date:		
Reviewed For Maintenance & Repair Compliance:	Date:		
Reviewed For Security Compliance:	Date:		
Date: X	Drawing No.:	329-H04	
Proj. No:	640-340	Sheet	65 of 104



DEMOLITION NOTES:

- DEMO AND REMOVE ALL (E) STEAM PIPES AND FITTINGS SHOWN HATCHED.
- CAP AND SEAL ALL OPEN PIPES ENDS AS PER CODES.
- DEMO AND REMOVE (E) STEAM REHEAT AND HEATING COILS FROM THE EXISTING DUCTS.
- DEMO AND REMOVE (E) SUPPLY STEAM PIPE AND DRIP RETURN FROM THE HEATING COILS OF AIRHANDLING UNIT HV-1&2.
- (E) STEAM PIPE CONNECTIONS TO ACCUMULATOR IN THE MECHANICAL ROOM TO REMAIN.
- (E) CONDENSATE PUMP, FLASH TANK, ACCUMULATOR AND PRESSURE REDUCING STATIONS IN THE MECHANICAL ROOM TO REMAIN ALONG WITH THE STEAM PIPING TO THESE EQUIPMENTS.



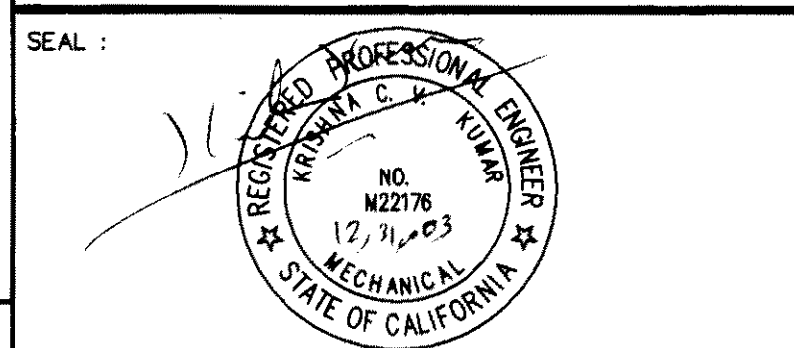
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Job Title: RENOVATE NUTRITION & FOOD SERVICE AREA BUILDING 329 MENLO PARK DIVISION

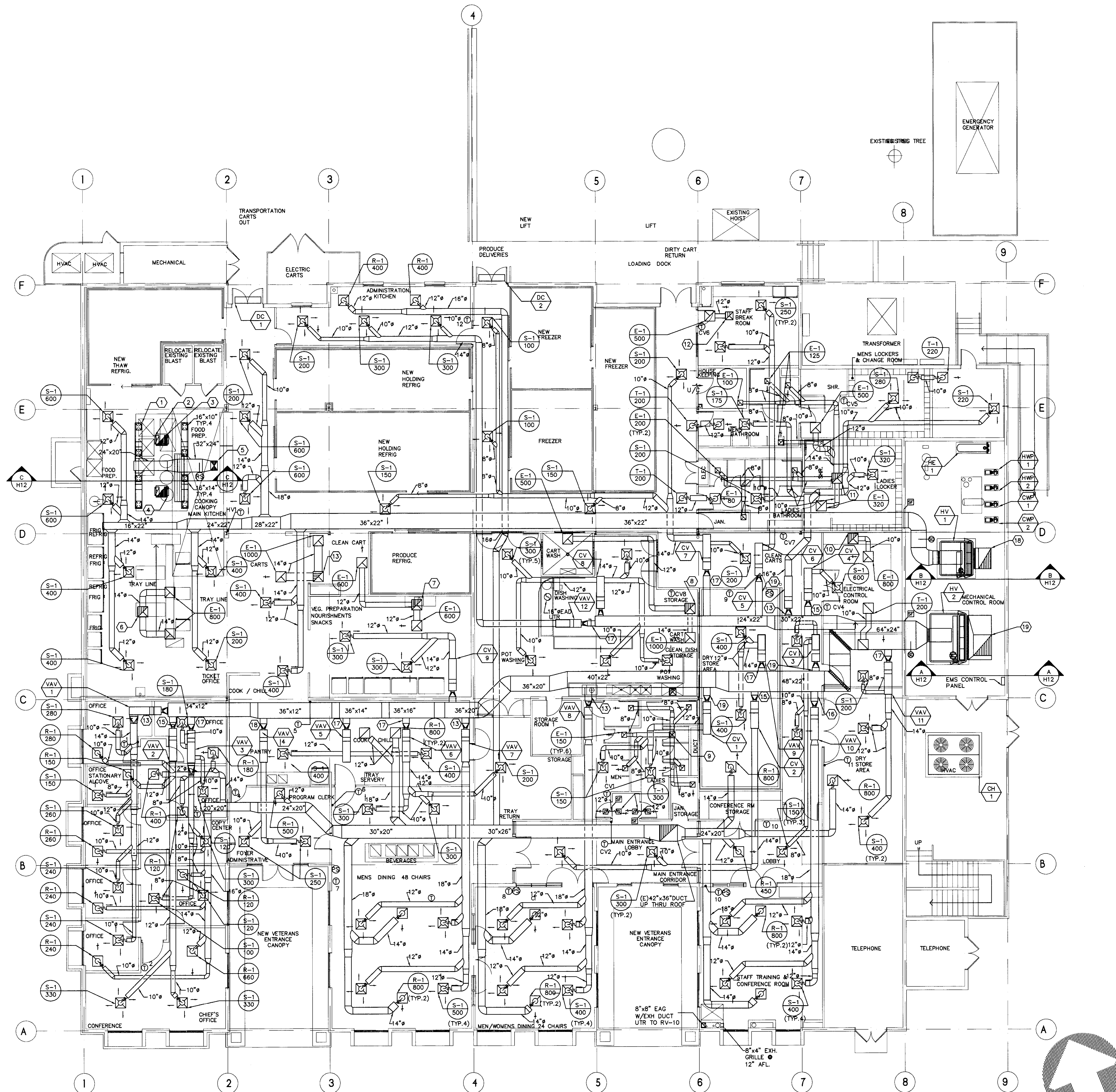
Sheet Title: MECHANICAL STEAM PIPING PLAN-DEMOLITION

VETERANS AFFAIRS PALO ALTO HEALTHCARE SYSTEM MENLO PARK, CA 94025

Drawn By: M.L.	Date: 6.20.2003	Checked By: M.L.	Date:
Submitted By:	Date:	Approved By:	Date:
Scale: 1/8"=1'-0"	Using Service Approval:	Date:	
Reviewed For Fire & Safety Compliance:	Date:		
Reviewed For Maintenance & Repair Compliance:	Date:		
Reviewed For Security Compliance:	Date:		
Final Submission	6.23.2003		
100% CD (LOCKER RM REVISED)	5.30.2003		
100% CD	12.30.2002		

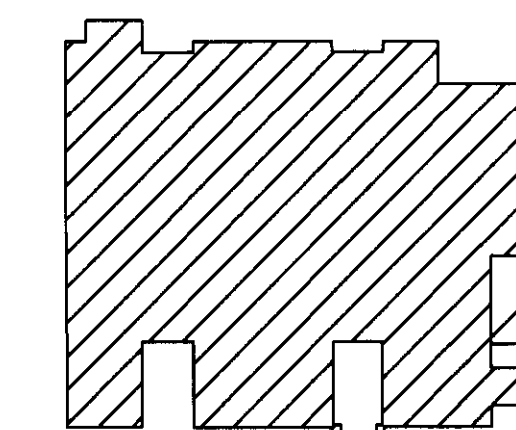
Proj. No: 640-340 Sheet 66 of 109

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CONSTRUCTION KEYNOTES:

- ① 12"x15" SUPPLY AIR DUCTS CONNECTED TO THE INLET OPENINGS OF THE KITCHEN HOOD (TYP.8).
- ② 10"x20" EXHAUST AIR DUCTS CONNECTED TO THE EXHAUST OPENINGS OF THE KITCHEN HOOD (TYP.4).
- ③ 26"x26" EXHAUST DUCT CONNECTED TO TWO (2) 10"x20" KITCHEN HOOD'S EXHAUST OUTLETS AND UP THRU (E) ROOF OPENING TO RV-1.
- ④ 26"x26" EXHAUST DUCT CONNECTED TO TWO (2) 10"x20" KITCHEN HOOD'S EXHAUST OUTLETS AND UP THRU (E) ROOF OPENING TO RV-2.
- ⑤ 22"x16" SUPPLY AIR DUCT GOING UP THRU (N) ROOF OPENING TO MAU-1.
- ⑥ 20"x20" EXHAUST AIR DUCT UP THRU (N) ROOF OPENING TO RV-3.
- ⑦ 20"x20" EXHAUST AIR DUCT UP THRU (N) ROOF OPENING TO RV-4.
- ⑧ 20"x20" EXHAUST AIR DUCT UP THRU (N) ROOF OPENING TO RV-5.
- ⑨ 20"x20" EXHAUST AIR DUCT UP THRU (N) ROOF OPENING TO RV-6.
- ⑩ 20"x20" EXHAUST AIR DUCT UP THRU (N) ROOF OPENING TO RV-7.
- ⑪ 20"x20" EXHAUST AIR DUCT UP THRU (N) ROOF OPENING TO RV-8.
- ⑫ 20"x20" EXHAUST AIR DUCT UP THRU (N) ROOF OPENING TO RV-9.
- ⑬ 22"x22" EXHAUST AIR DUCT UP THRU (N) ROOF OPENING TO RV-11.
- ⑭ 16" DUCT CONNECTION.
- ⑮ 14" DUCT CONNECTION.
- ⑯ 12" DUCT CONNECTION.
- ⑰ 10" DUCT CONNECTION.
- ⑱ 30"x48" OSA DUCT DOWN THRU NEW ROOF OPENING TO HV-1.
- ⑲ 42"x48" RETURN AIR DUCT DOWN NEW ROOF OPENING TO HV-2.



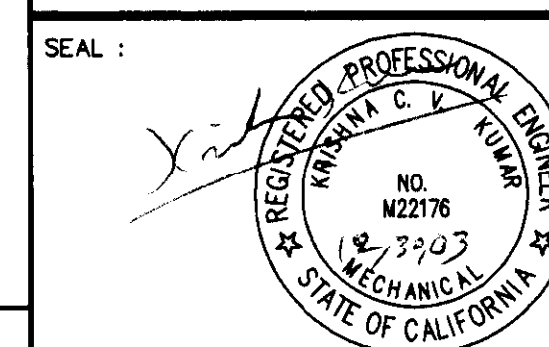
KEY PLAN

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Job Title: RENOVATE NUTRITION & FOOD SERVICE AREA BUILDING 329 MENLO PARK DIVISION

Sheet Title: MECHANICAL FLOOR PLAN NEW

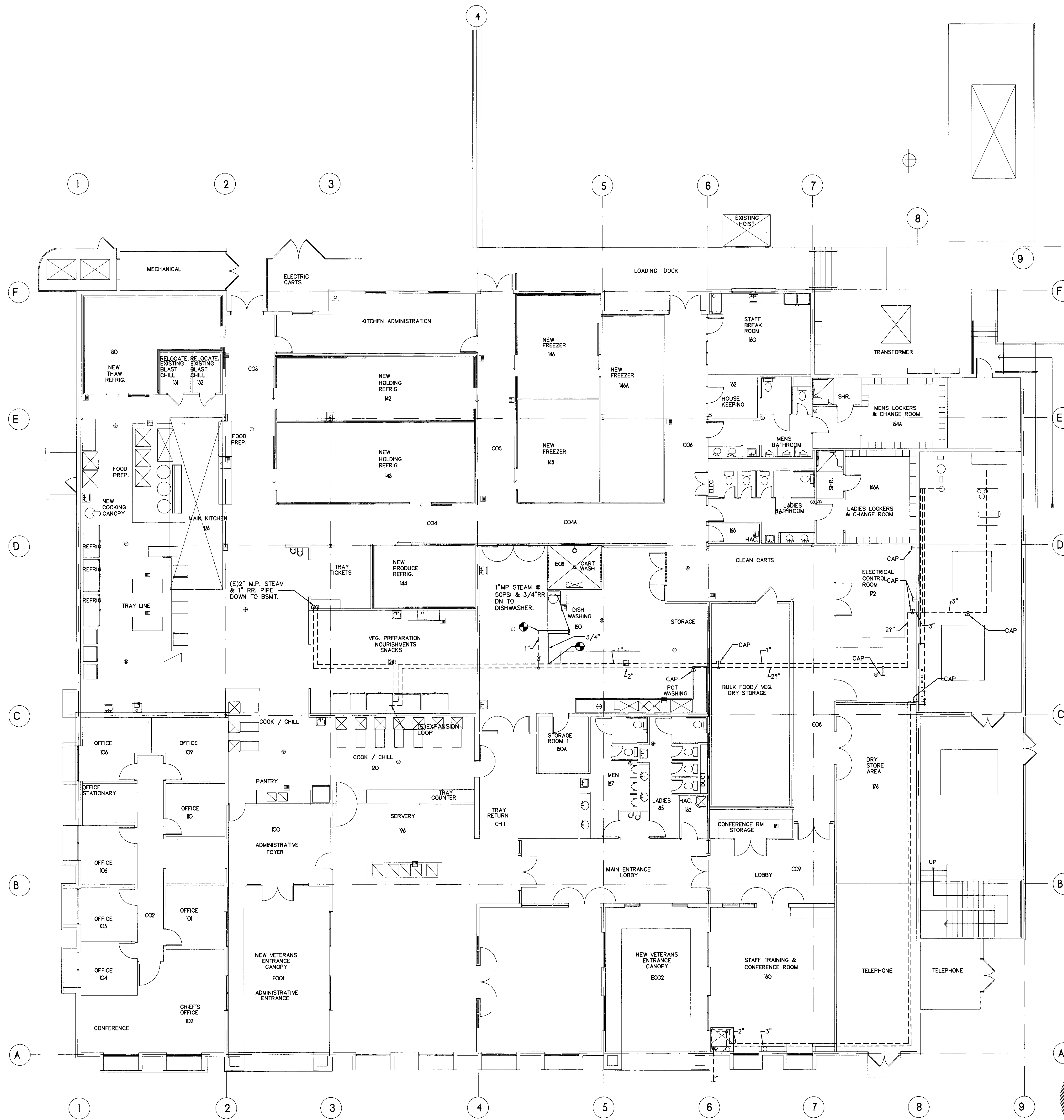
VETERANS AFFAIRS PALO ALTO HEALTHCARE SYSTEM MENLO PARK, CA 94025

Drawn By: M.I.	6.20.2003	Checked By: M.I.	
Submitted By:		Approved By:	
Scale: 1/8"=1'-0"	Using Service Approval:	Date:	
Reviewed For Fire & Safety Compliance:		Date:	
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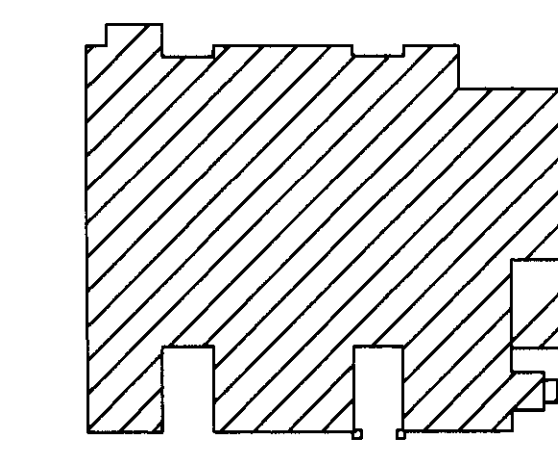
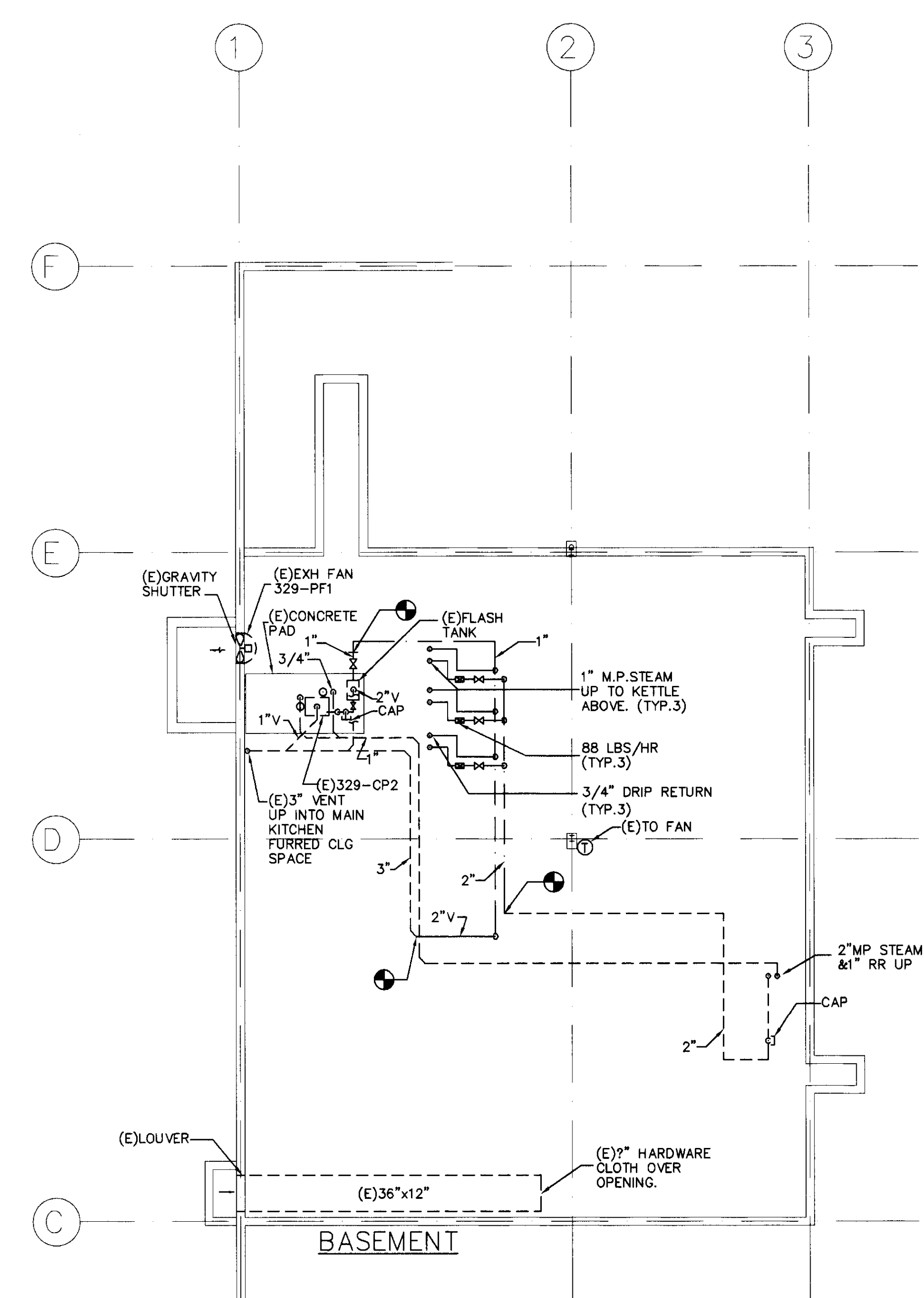
Drawing No.: 329-H06

Proj. No: 640-340 Sheet 67 of 104

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FIRST FLOOR

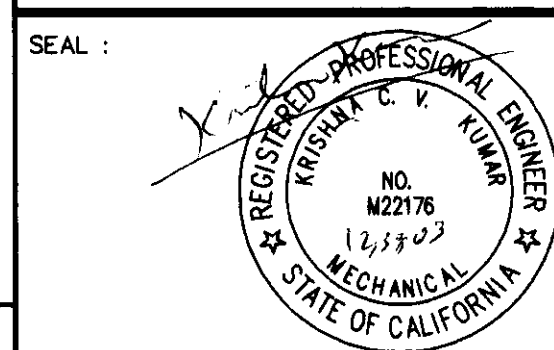


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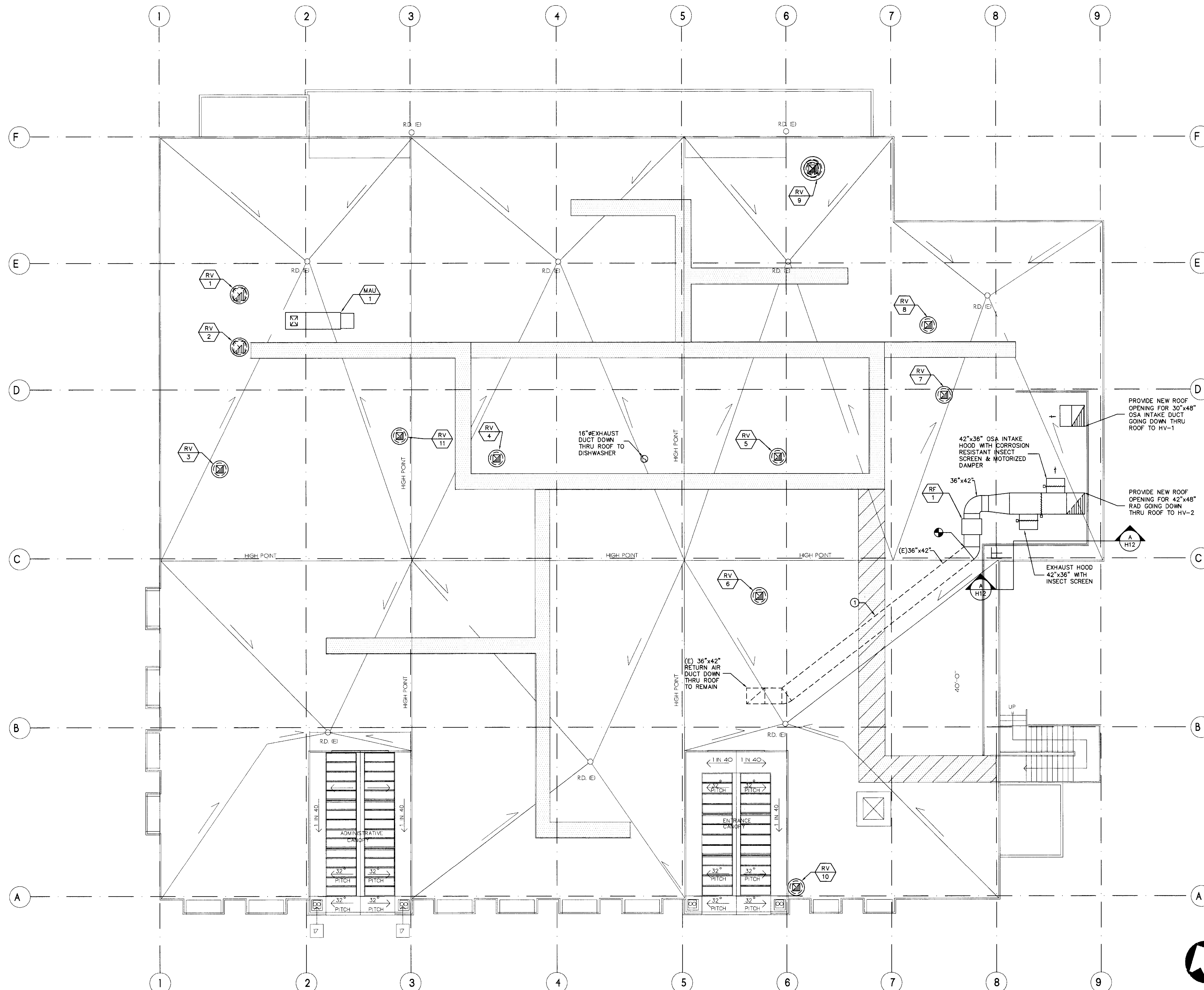
Job Title: **RENOVATE NUTRITION & FOOD SERVICE AREA BUILDING 329 MENLO PARK DIVISION**

Sheet Title: **MECHANICAL STEAM PIPING FLOOR PLAN NEW**

VETERANS AFFAIRS PALO ALTO HEALTHCARE SYSTEM MENLO PARK, CA 94025

Drawn By: M.I.	Date: 6.20.2003	Checked By: M.I.	Date:
Submitted By:	Date:	Approved By:	Date:
Scale: 1/8"=1'-0"	Using Service Approval:		Date:
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Date: 12.30.2002	Drawing No.: 329-H08		
Proj. No: 640-340	Sheet 69 of 109		

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SPECIAL NOTES:

- 1 REMOVE INTERNAL LINING FROM THE EXISTING ROOF MNTD RETURN DUCT. PROVIDE NEW EXTERNAL INSULATION W/JACKET FOR WEATHER PROTECTION.

PROVIDE NEW ROOF OPENING FOR 30"x48" OSA INTAKE DUCT GOING DOWN THRU ROOF TO HV-1

PROVIDE NEW ROOF OPENING FOR 42"x48" RAD GOING DOWN THRU ROOF TO HV-2

42"x36" OSA INTAKE HOOD WITH CORROSION RESISTANT INSECT SCREEN & MOTORIZED DAMPER

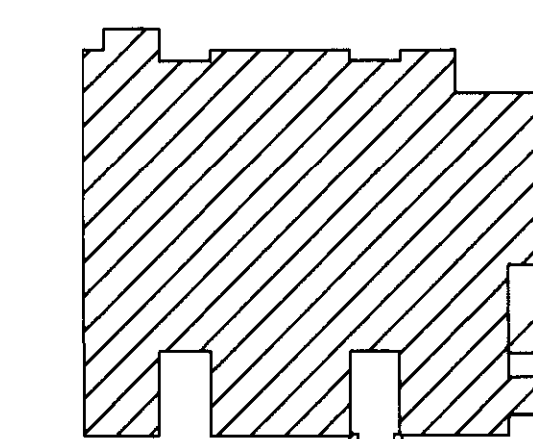
36"x42" EXH

(E) 36"x42" RETURN AIR DUCT DOWN THRU ROOF TO REMAIN

EXHAUST HOOD 42"x36" WITH INSECT SCREEN

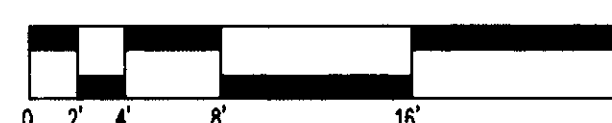
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UP



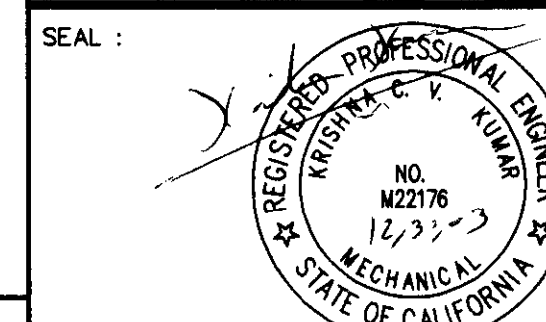
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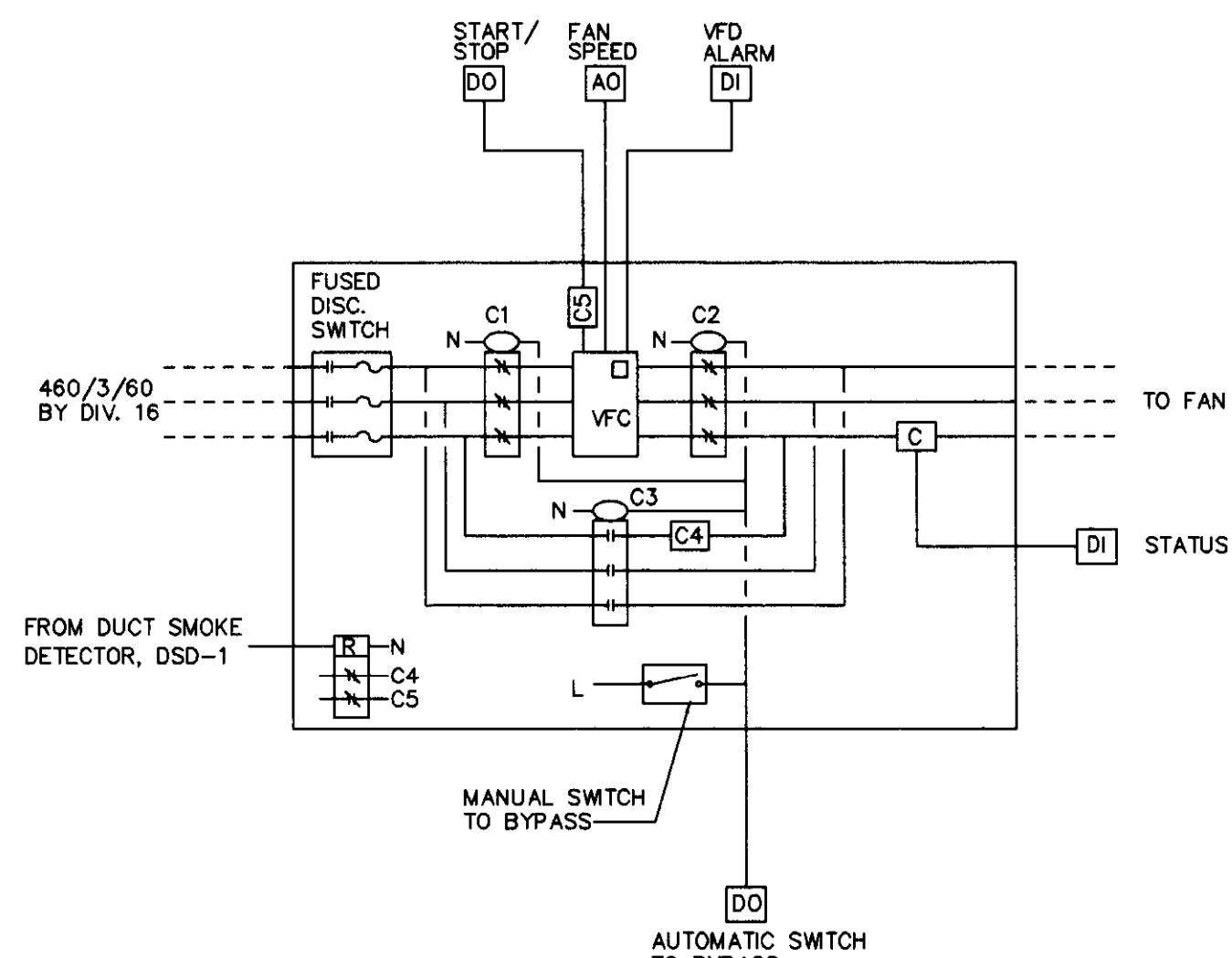


Job Title: RENOVATE NUTRITION & FOOD SERVICE AREA BUILDING 329 MENLO PARK DIVISION
Sheet Title: MECHANICAL-ROOF PLAN NEW
VETERANS AFFAIRS PALO ALTO HEALTHCARE SYSTEM
MENLO PARK, CA 94025

Drawn By: M.I.	Date: 6.20.2003	Checked By: M.I.	Date:
Submitted By:	Date:	Approved By:	Date:
Scale: 1/8"=1'-0"	Using Service Approval:		Date:
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Date: X	Drawing No.: 329-H09		
Proj. No: 640-340	Sheet 70 of 104		

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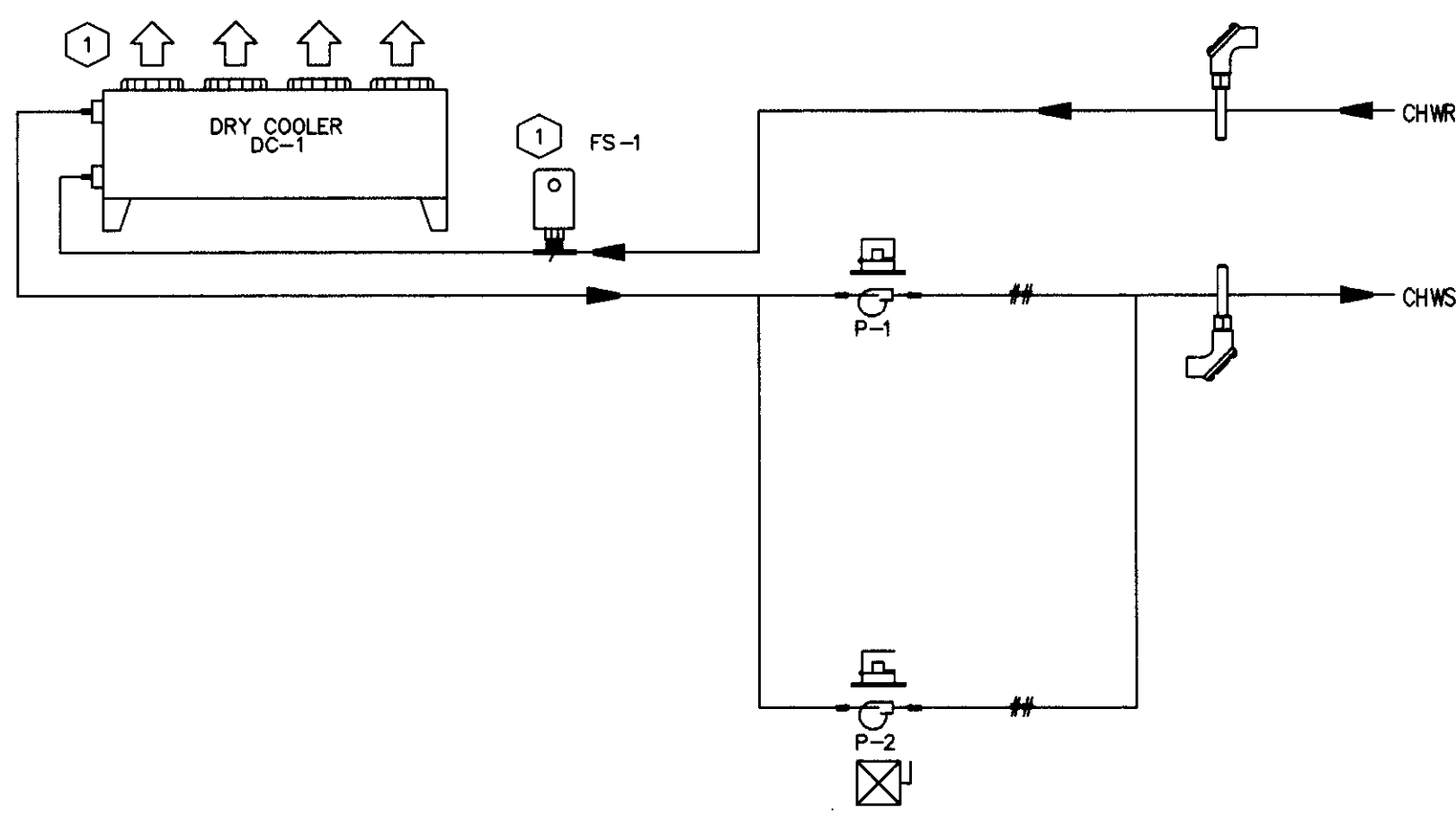
REVISION



1 TYPICAL VFC LAYOUT FOR AIR HANDLING UNITS
SIMILAR FOR RETURN FAN VFC EXCEPT C4 AND C5 CONTACTS ARE NOT REQUIRED.

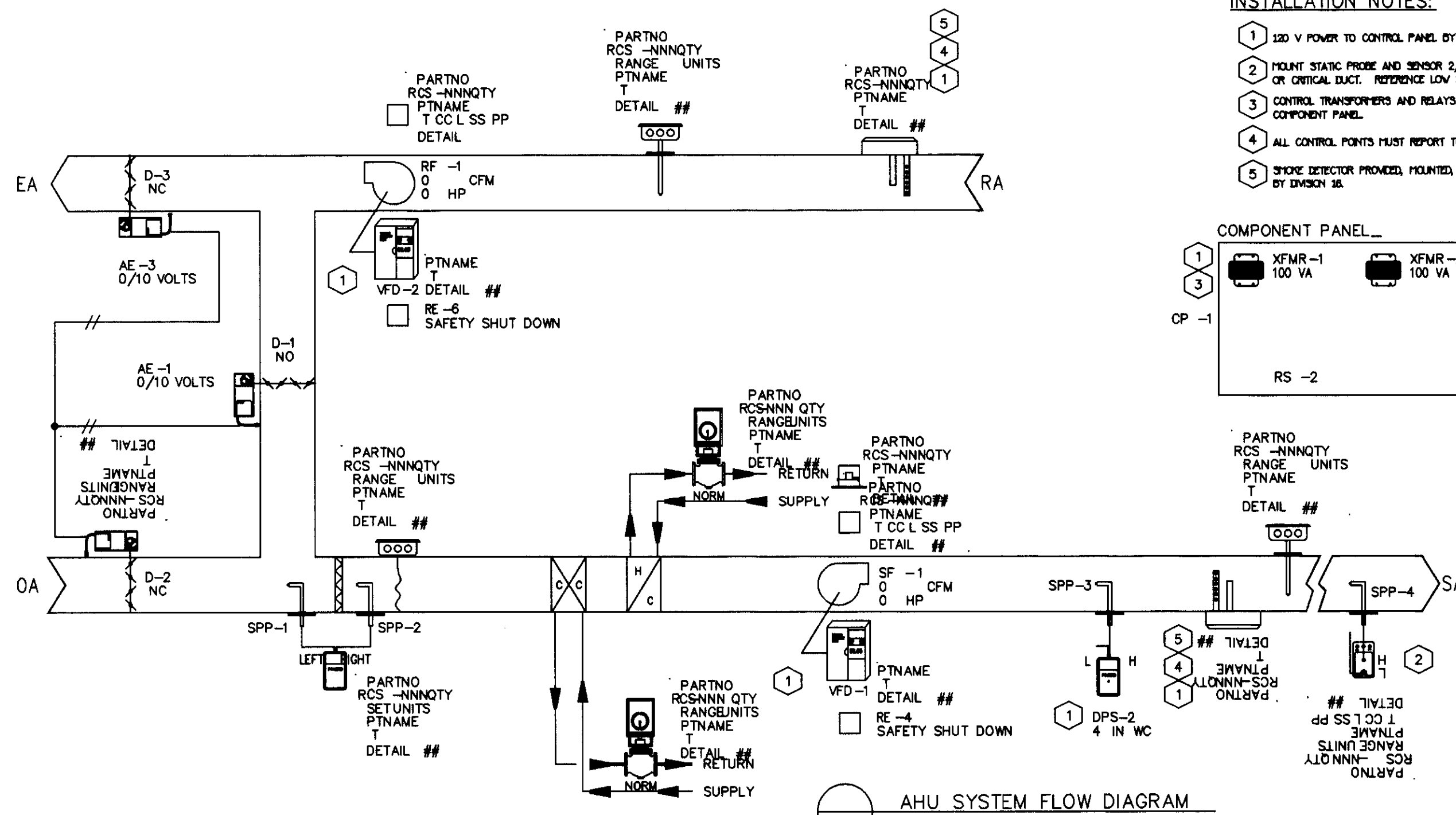
INSTALLATION NOTES:

- SEE CHILLER WIRING DETAIL ON DRAWING. RELAY MOUNTED AT CHILLER.
- SEE PUMP MOTOR STARTER WIRING DETAIL ON DRAWING. CSR AND RELAY MOUNTED AT STARTER.



CHILLED WATER PIPING SYSTEM

LOCATION: SERVICES
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AHU SYSTEM FLOW DIAGRAM

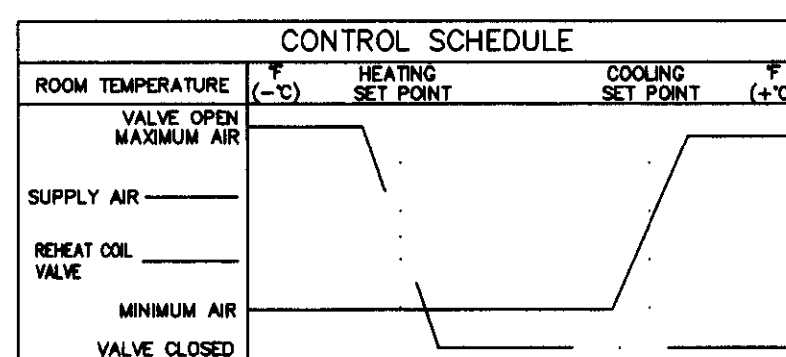
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SEQUENCE OF OPERATION.

- GENERAL.
 - REMOVE EXISTING PNEUMATIC CONTROLS AND REPLACE WITH NEW DDC CONTROLS INCLUDING ACTUATORS FOR VALVES AND DAMPERS, AND SEQUENCE OF OPERATION AS DESCRIBED BELOW.
 - FURNISH THE DIGITAL CONTROL PANELS, (DCP) MOUNTED ON OR NEXT TO THE AHU.
 - AHU IS AUTOMATICALLY STARTED/STOPPED BY THE START-STOP PROGRAM IN THE DCP AS DESCRIBED BELOW.
 - DURING NORMAL OPERATION THE H-O-A SWITCH(S) SHALL BE KEPT IN THE "AUTO POSITION".
 - THE SUPPLY FAN SHALL BE INTERLOCKED TO OPERATE ONLY WHEN THE RETURN FAN AND ASSOCIATED EXHAUST FAN(S) ARE IN OPERATION.
 - ANY TIME THE AHU IS TURNED OFF, OUTSIDE AIR DAMPERS D-1 AND D-2, RETURN AIR DAMPER D-3 AND EXHAUST AIR DAMPER D-4 SHALL CLOSE. THE DAMPERS SHALL BE PROVED OPEN BEFORE THE FANS START.
 - PRESSURE DIFFERENTIAL SWITCH PDS-1 SHALL INDICATE THE STATUS OF THE EXHAUST FANS AND ALARM IF NO AIR PRESSURE DIFFERENTIAL IS DETECTED ACROSS THE FANS WHEN THE FANS ARE IN OPERATION.
- AUTOMATIC SMOKE MODE OPERATION.
 - IF SMOKE IS DETECTED BY RETURN AIR DUCT SMOKE DETECTOR DSD-2, OR BY THE GENERAL ALARM (SPACE MOUNTED SMOKE DETECTORS AND SPRINKLER SYSTEM IN THIS BUILDING), A SIGNAL SHALL BE SENT BY THE FIRE ALARM TO THE DCP. THEN THE OUTSIDE AIR DAMPERS D-1 AND D-2, AND EXHAUST AIR DAMPER D-4 SHALL BE OPEN, AND THE RETURN AIR DAMPER D-3 SHALL BE CLOSED. THE SUPPLY AIR FAN AND RETURN AIR FAN SHALL OPERATE AT FULL AIR CAPACITY. ASSOCIATED EXHAUST FAN(S) SHALL OPERATE. THE VAV BOXES SHALL FULLY OPEN. SIGNALS SHALL BE SENT TO THE DCP TO INDICATE THIS CONDITION OF OPERATION OF ALL DAMPERS AND FANS.
 - IF SMOKE IS DETECTED BY THE SUPPLY AIR DUCT SMOKE DETECTOR DSD-1, A SIGNAL SHALL BE SENT BY THE FIRE ALARM SYSTEM TO THE DCP. THEN THE SUPPLY AIR FAN SHALL SHUT OFF, OUTSIDE AIR DAMPERS D-1 AND D-2, RETURN DAMPER D-3, AND EXHAUST DAMPER D-4 SHALL CLOSE. THE RETURN FAN AND ASSOCIATED GENERAL EXHAUST EXHAUST FAN(S) SHALL SHUT-OFF. SIGNAL SHALL BE SENT TO THE DCP TO INDICATE THIS CONDITION OF OPERATION OFF ALL DAMPERS AND FANS.
 - OTHER AHU SHALL CONTINUE TO OPERATE AS DESCRIBE IN PARAGRAPH 2.1.
- SUPPLY AIR TEMPERATURE CONTROLS - NORMAL OPERATION.
 - DISCHARGE TEMPERATURE SENSOR T-1 SHALL MODULATE THE ECONOMIZER DAMPERS (D-2, D-3 AND D-4) AND CONDENSING UNIT IN SEQUENCE THROUGH THE DCP TO MAINTAIN THE SUPPLY AIR TEMPERATURE SETPOINT (55F TO 55F) AS DESCRIBED BELOW.
 - WHEN THE TEMPERATURE OF THE OUTSIDE AIR SENSED BY T-2 IS ABOVE THE RETURN AIR TEMPERATURE SENSED BY T-3, THE DCP SHALL POSITION THE ECONOMIZER DAMPERS TO MINIMUM OUTSIDE AIR POSITION (DAMPER D-1 TO REMAIN OPEN, DAMPER D-2 SHALL CLOSE AND DAMPER D-3 AT FULL OPEN). THE DCP SHALL ALSO MODULATE COOLING COIL VALVE V-1 TO MAINTAIN THE SUPPLY AIR TEMPERATURE SETPOINT, SENSED BY T-1.
 - WHEN THE TEMPERATURE OF THE OUTSIDE AIR SENSED BY T-2 IS BELOW THE RETURN AIR TEMPERATURE SENSED BY T-3 AND ABOVE THE SUPPLY AIR TEMPERATURE SET POINT SENSED BY T-1, THE DCP SHALL POSITION THE ECONOMIZER DAMPERS TO MAXIMUM OUTSIDE AIR POSITION (DAMPER D-1 TO MAXIMUM OUTSIDE AIR VOLUME AND DAMPER D-3 AT MINIMUM RETURN AIR VOLUME). THE DCP SHALL ALSO MODULATE COOLING COIL VALVE V-1 TO MAINTAIN THE SUPPLY AIR TEMPERATURE SETPOINT, SENSED BY T-1.
 - WHEN THE TEMPERATURE OF THE OUTSIDE AIR SENSED BY T-2 IS BELOW THE SUPPLY AIR TEMPERATURE SET POINT SENSED BY T-1, THE DCP SHALL MODULATE THE ECONOMIZER DAMPERS D-2, D-3 AND D-4 TO MAINTAIN THE SUPPLY AIR TEMPERATURE SET POINT, SENSED BY T-1 BY MIXING OUTSIDE AIR AND RETURN AIR. CONDENSING UNIT SHALL UNLOAD.
 - SPACE TEMPERATURE SENSORS (ZONE THERMOSTATS AS INDICATED ON THE PLANS) SHALL THROUGH THE DCP RESET THE SUPPLY AIR TEMPERATURE TO SATISFY THE ZONE WITH THE MOST COOLING DEMAND BY THE HIGHEST SUPPLY AIR TEMPERATURE POSSIBLE.
 - FREEZE PROTECTION TEMPERATURE SENSOR FPS-1 ACROSS THE FACE OF THE COOLING COIL SHALL ALARM AT THE DCP IF ANY SECTION OF COIL SENSES DISCHARGE AIR TEMPERATURE BELOW 40F. BELOW 34F DISCHARGE AIR TEMPERATURE THE DCP SHALL CLOSE THE OUTSIDE AIR DAMPER, UNLOAD THE CONDENSING UNIT, DEDICATED EXHAUST FANS SHALL CONTINUE TO OPERATE. BELOW 30F DISCHARGE AIR TEMPERATURE THE DCP SHALL SHUT OFF THE SUPPLY, RETURN AND GENERAL EXHAUST FANS. CLOSE THE OUTSIDE AIR DAMPER AND ALARM AT THE DCP. DEDICATED EXHAUST FANS SHALL CONTINUE TO OPERATE. THE ALARMS SHALL ADVISE THE OPERATOR TO MANUALLY TURN OFF THE DEDICATED EXHAUST FANS IF POSSIBLE.
- BACK-UP CONSTANT SPEED OPERATION.
 - PROVIDE AUTO BYPASS SWITCH AT VFC FOR SUPPLY FAN MOTOR. UPON FAILURE OF THE VFC, THE FAN SHALL AUTOMATICALLY OPERATE AT CONSTANT DESIGN SPEED. AN ALARM SIGNAL SHALL BE SENT TO THE DCP TO INDICATE THIS CONDITION OF OPERATION.
- VARIABLE AIR VOLUME SYSTEM (HV-2)
 - SCALE: NONE

INSTALLATION NOTES:

- VAV BOX INSTALLED BY MECHANICAL CONTRACTOR WITH 3 TO 5 STRAIGHT DUCT DAMPERS UPSTREAM OF BOX TO PROVIDE PROPER FLOW SENSING.
- TEC-1 TO BE MOUNTED IN MANUFACTURER SUPPLIED CONTROLLER ENCLOSURE.
- REFER TO BUILDING POWER TRUNK DRAWING FOR 24 VAC POWER.
- PPOINT ACTUATOR WITH DAMPER IN FULL OPEN POSITION. VERIFY TEC-1 AND ACTUATOR REQUIREMENT WITH THE BOX MANUFACTURER.
- LOCATE AS SHOWN ON FLOOR PLANS/CONTRACT DOCUMENTS.



DEVICE	FILTER	MANUFACTURER	DIVISION 16	DIVISION 15
TEC-1	W	W	W	W
TEC-1	W	W	W	W
TEC-1	W	W	W	W
TEC-1	W	W	W	W
TEC-1	W	W	W	W
TEC-1	W	W	W	W
TEC-1	W	W	W	W
TEC-1	W	W	W	W
TEC-1	W	W	W	W
TEC-1	W	W	W	W

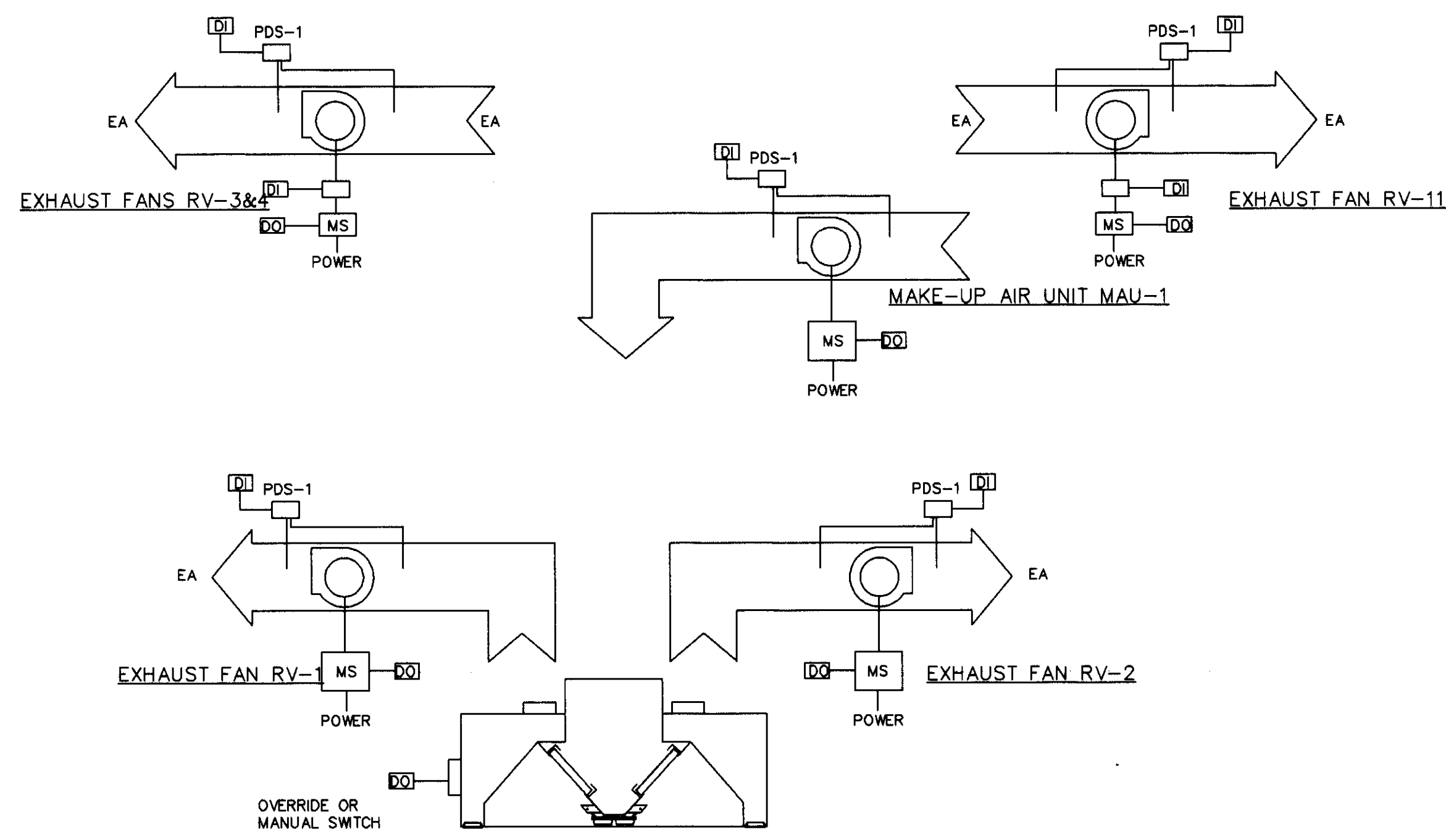
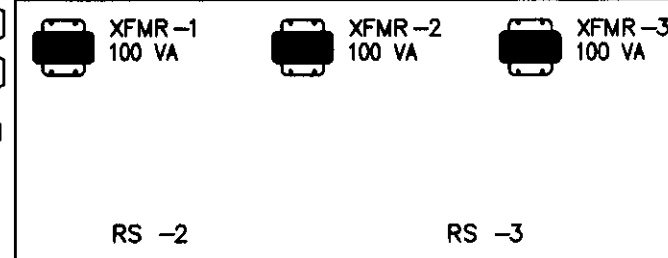
VAV WITH REHEAT COIL (#2023)

LOCATION: SERVICES
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ECLSHCN REV 15 01/08/03

INSTALLATION NOTES:

- 120 V POWER TO CONTROL PANEL BY DIV 18
- POINT STATIC PRESSURE AND SMOKE 2 1/2 DOWN LOWEST OR CRITICAL DUCT. RETROFIDE LOW SEE TO SPACE
- CONTROL TRANSFORMERS AND RELAYS MOUNTED IN COMPONENT PANEL.
- ALL CONTROL POINTS MUST REPORT TO DDC COMPUTER
- SMOKE DETECTOR PROVIDED, MOUNTED, AND WIRED BY DIVISION 18.

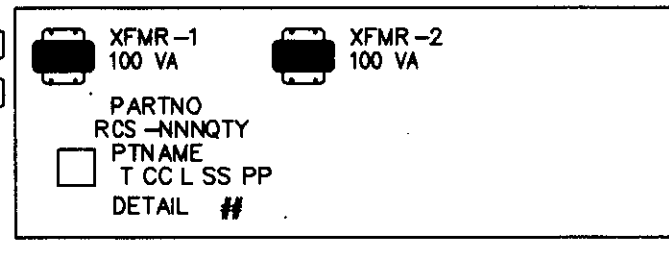
COMPONENT PANEL



INSTALLATION NOTES:

- 120 V POWER TO CONTROL PANELS BY DIV 18
- WIRE ACTUATOR AUXILIARY SWITCH & TO START FAN WHEN DAMPERS IS IN FULL OPEN
- CONTROL TRANSFORMERS AND RELAYS MOUNTED IN COMPONENT PANEL.
- ALL CONTROL POINTS MUST REPORT TO DDC COMPUTER
- SMOKE DETECTOR PROVIDED, MOUNTED, AND WIRED BY DIVISION 18.

COMPONENT PANEL



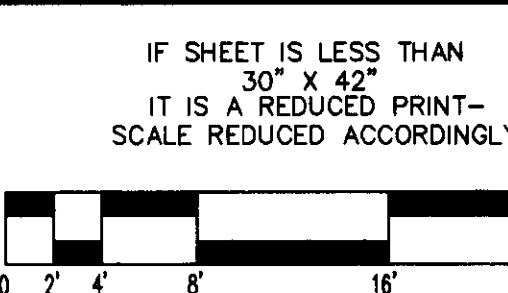
SEQUENCE OF OPERATION.

- GENERAL.
 - REMOVE EXISTING PNEUMATIC CONTROLS AND REPLACE WITH NEW DDC CONTROLS INCLUDING ACTUATORS FOR VALVES AND DAMPERS, AND SEQUENCE OF OPERATION AS DESCRIBED BELOW.
 - FURNISH THE DIGITAL CONTROL PANELS, (DCP) MOUNTED ON OR NEXT TO THE AHU.
 - AHU IS AUTOMATICALLY STARTED/STOPPED BY THE START-STOP PROGRAM IN THE DCP AS DESCRIBED BELOW.
 - DURING NORMAL OPERATION THE H-O-A SWITCH(S) SHALL BE KEPT IN THE "AUTO POSITION".
 - THE SUPPLY FAN SHALL BE INTERLOCKED TO OPERATE ONLY WHEN THE ASSOCIATED EXHAUST FAN(S) ARE IN OPERATION.
 - PRESSURE DIFFERENTIAL SWITCH PDS-1 SHALL INDICATE THE STATUS OF THE EXHAUST FANS AND ALARM IF NO AIR PRESSURE DIFFERENTIAL IS DETECTED ACROSS THE FANS WHEN THE FANS ARE IN OPERATION.
 - THE OUTSIDE AIR DAMPER D-1 IS OPEN WHEN FAN IS IN OPERATION. DAMPER IS CLOSE, WHEN FAN IS SHUT-OFF.
 - EXHAUST FANS SHALL BE INTERLOCKED WITH THE AHU.
 - WHEN THE H-O-A SWITCH IS IN THE AUTO OR MANUAL POSITION, THE SUPPLY FAN OF HV-1, EXHAUST FANS RV-1, RV-2, RV-3 & MAU-1 WILL OPERATE.
 - WHEN THE SWITCH IS PLACED IN THE OFF POSITION, THEN RV-1, RV-2 AND MAU-1 WILL STOP AND RV-10 WILL COME INTO OPERATION.
- AUTOMATIC SMOKE MODE OPERATION.
 - IF SMOKE IS DETECTED BY THE SUPPLY AIR DUCT SMOKE DETECTOR DSD-1, A SIGNAL SHALL BE SENT BY THE FIRE ALARM TO THE DCP. THEN THE SUPPLY AIR FAN SHALL SHUT OFF, OUTSIDE AIR DAMPER D-1, AND EXHAUST FAN(S) SHALL SHUT-OFF. SIGNALS SHALL BE SENT TO THE DCP TO INDICATE THIS CONDITION OF OPERATION OF ALL DAMPERS AND FANS.
- SUPPLY AIR TEMPERATURE CONTROLS - NORMAL OPERATION.
 - AVGAGING TEMPERATURE SENSOR T-1 SHALL MODULATE THE HEATING COIL VALVE (V-2) TO RAISE THE TEMP OF THE OSA TO 75F. SEQUENCE THROUGH THE DCP TO MAINTAIN THE SUPPLY AIR TEMPERATURE SETPOINT (75F) WHEN THE OSA TEMP DROPS BELOW 75F.
 - SPACE TEMPERATURE SENSORS (ZONE THERMOSTATS AS INDICATED ON THE PLANS) SHALL THROUGH THE DCP RESET THE SUPPLY AIR TEMPERATURE TO SATISFY THE ZONE COOLING DEMAND BY THE SUPPLY AIR TEMPERATURE.

5 CONSTANT AIR VOLUME SYSTEM (HV-1)

SCALE: NONE

KEY PLAN



IF SHEET IS LESS THAN 30" X 42" IT IS A REDUCED PRINT-SCALE REDUCED ACCORDINGLY

0 2 4 8 16 20

AS SHOWN ARE REPRESENTATIVE OF EXISTING CONDITIONS. SPECIFIC WORK WITHIN AREAS SHOWN SHOULD BE FIELD VERIFIED.

FINAL SUBMISSION 8.23.2003

100% CD (LOOKER RM REVISED) 5.30.203

100% CD 12.30.202

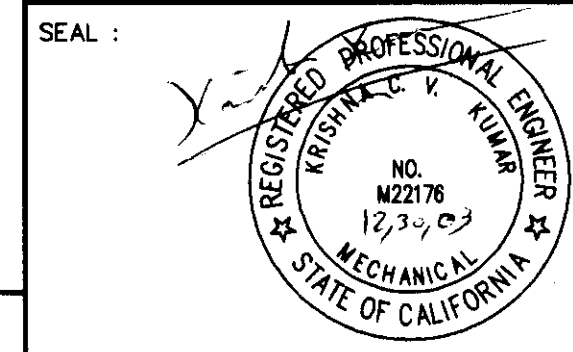
DATE: X Drawing No.: 329-H10

SYMBOL DESCRIPTION INITIAL DATE

REVISION

Proj. No: 640-340 Sheet 71 of 104

GEVORK CONSULTING ENGINEERING
285 E. IMPERIAL HWY SUITE 208
FULLERTON, CALIFORNIA 92635
TEL: (714)880-6182 FAX: (714)880-6183
E-MAIL: GEOR@AOL.COM



Job Title: RENOVATE NUTRITION & FOOD SERVICE AREA BUILDING 329 MENLO PARK DIVISION

Sheet Title: MECHANICAL EMS CONTROLS

VETERANS AFFAIRS PALO ALTO HEALTHCARE SYSTEM
MENLO PARK, CA 94025

Drawn By: 6.20.2003 Checked By: M.I. Date:

Submitted By: Date: Approved By: Date:

Scale: 1/8"=1'-0" Using Service Approval: Date:

Reviewed For Fire & Safety Compliance: Date:

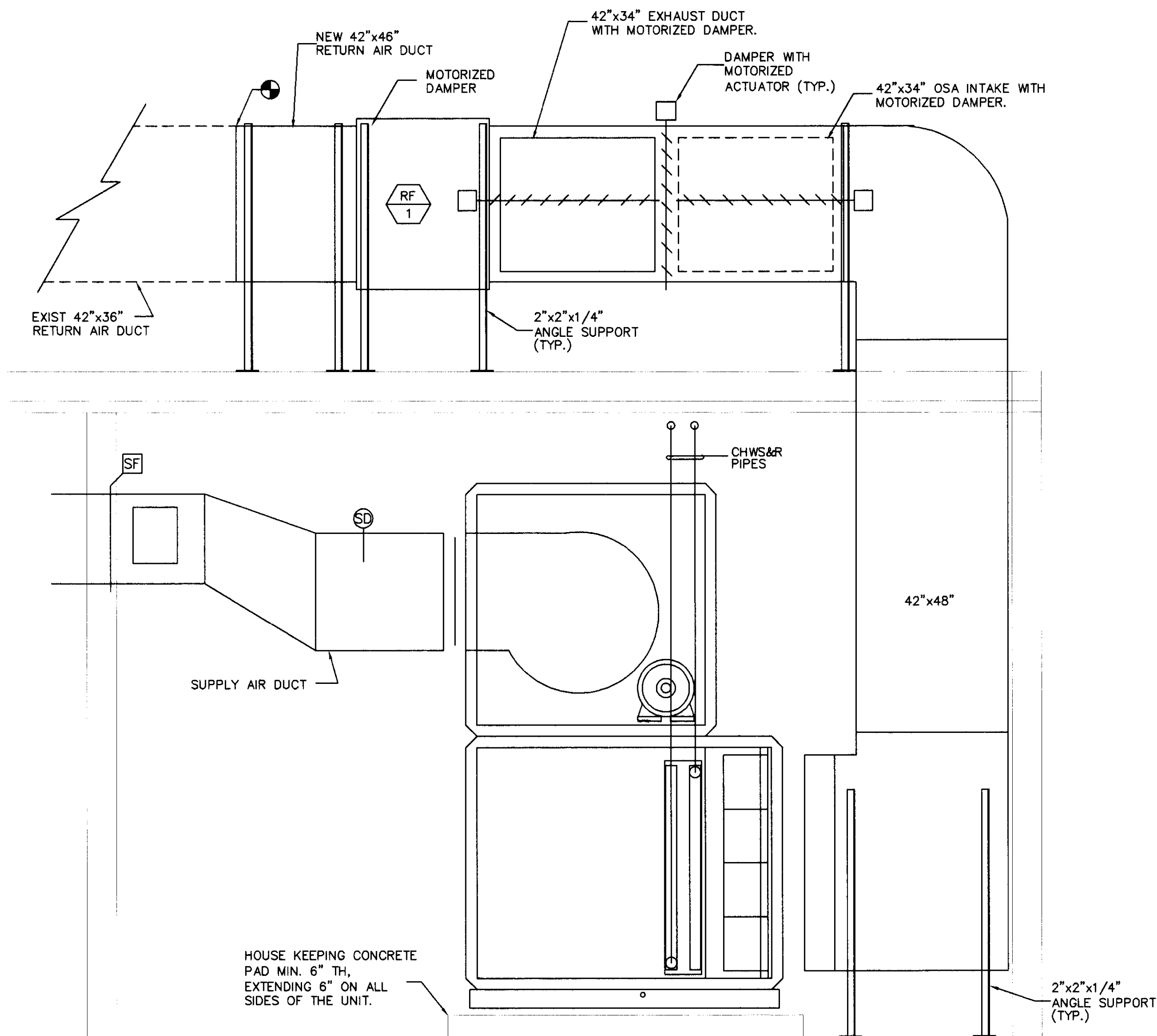
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Reviewed For Security Compliance: Date:

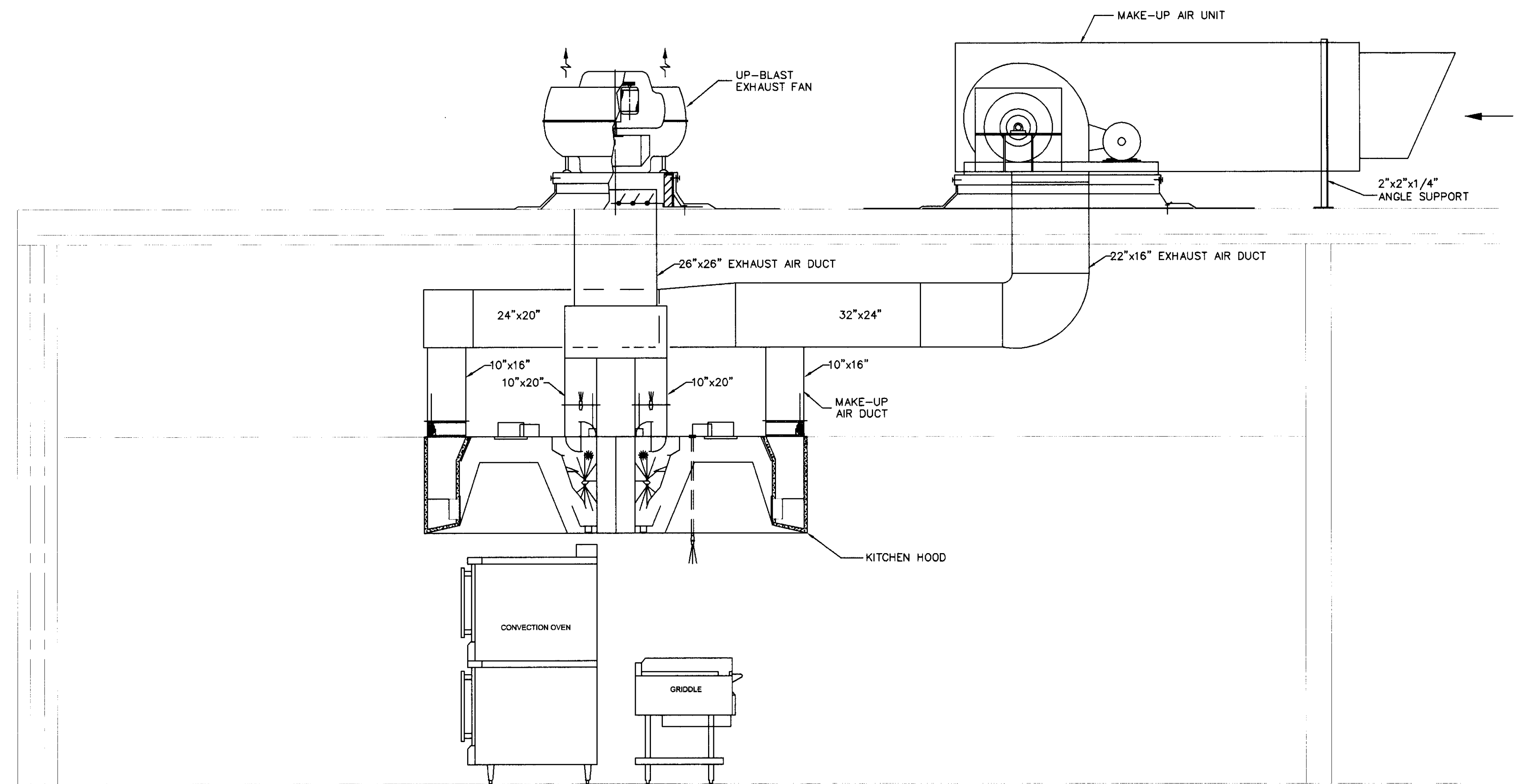
Date: X Drawing No.: 329-H10

Proj. No: 640-340 Sheet 71 of 104

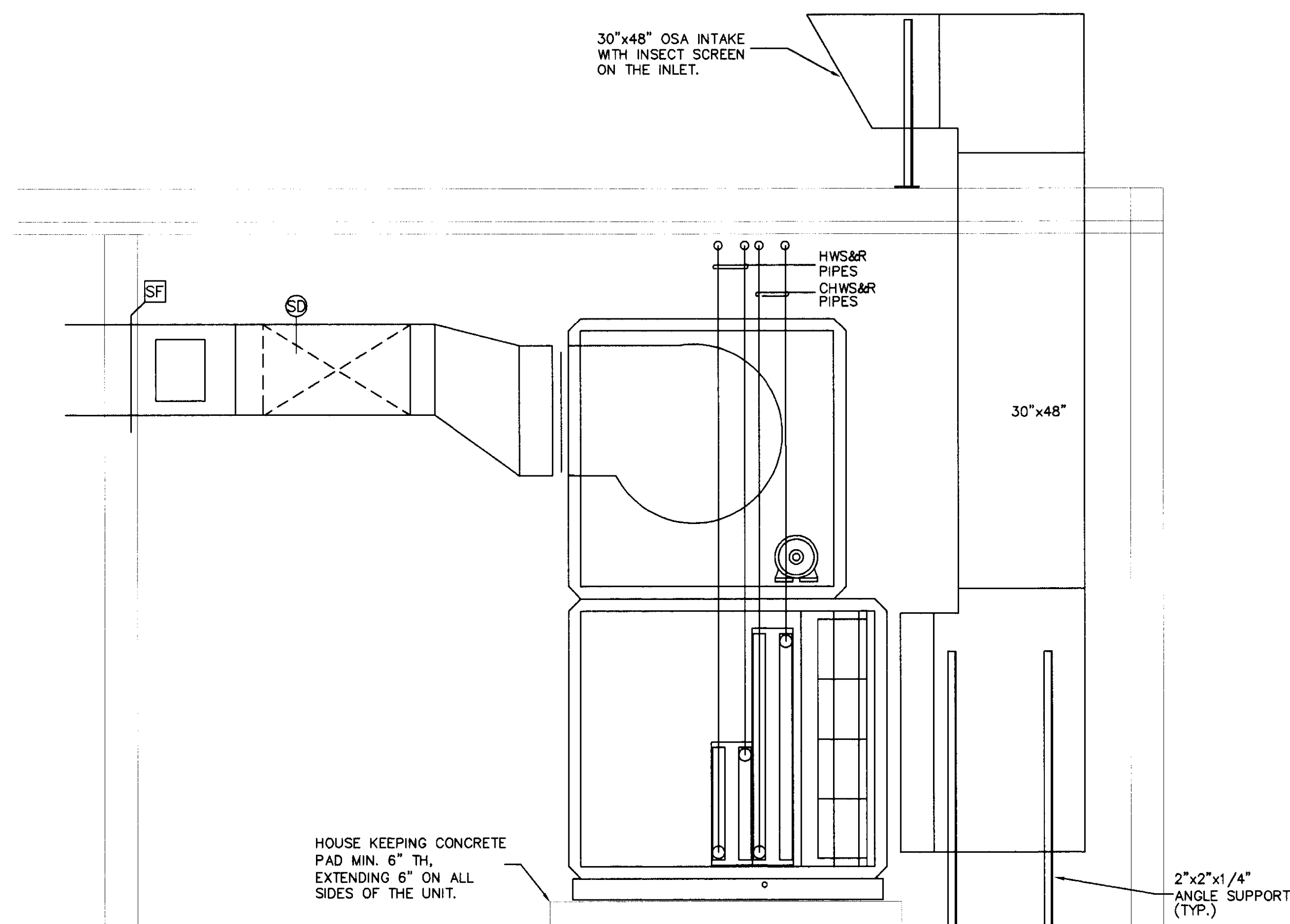
ANY CHANGES TO THE TECHNICAL CONTENTS OF THIS PLANS, EITHER BY THE CONTRACTOR, OR OWNER, WITHOUT THE EXPRESSED APPROVAL OR KNOWLEDGE OF THE ENGINEER OF RECORD, RELIEVES THE ENGINEER OF ANY AND ALL LEGAL AND MONETARY OBLIGATIONS ARISING FROM ANY CONTRACTUAL DISPUTES BETWEEN ANY PARTY TO THE CONTRACT.



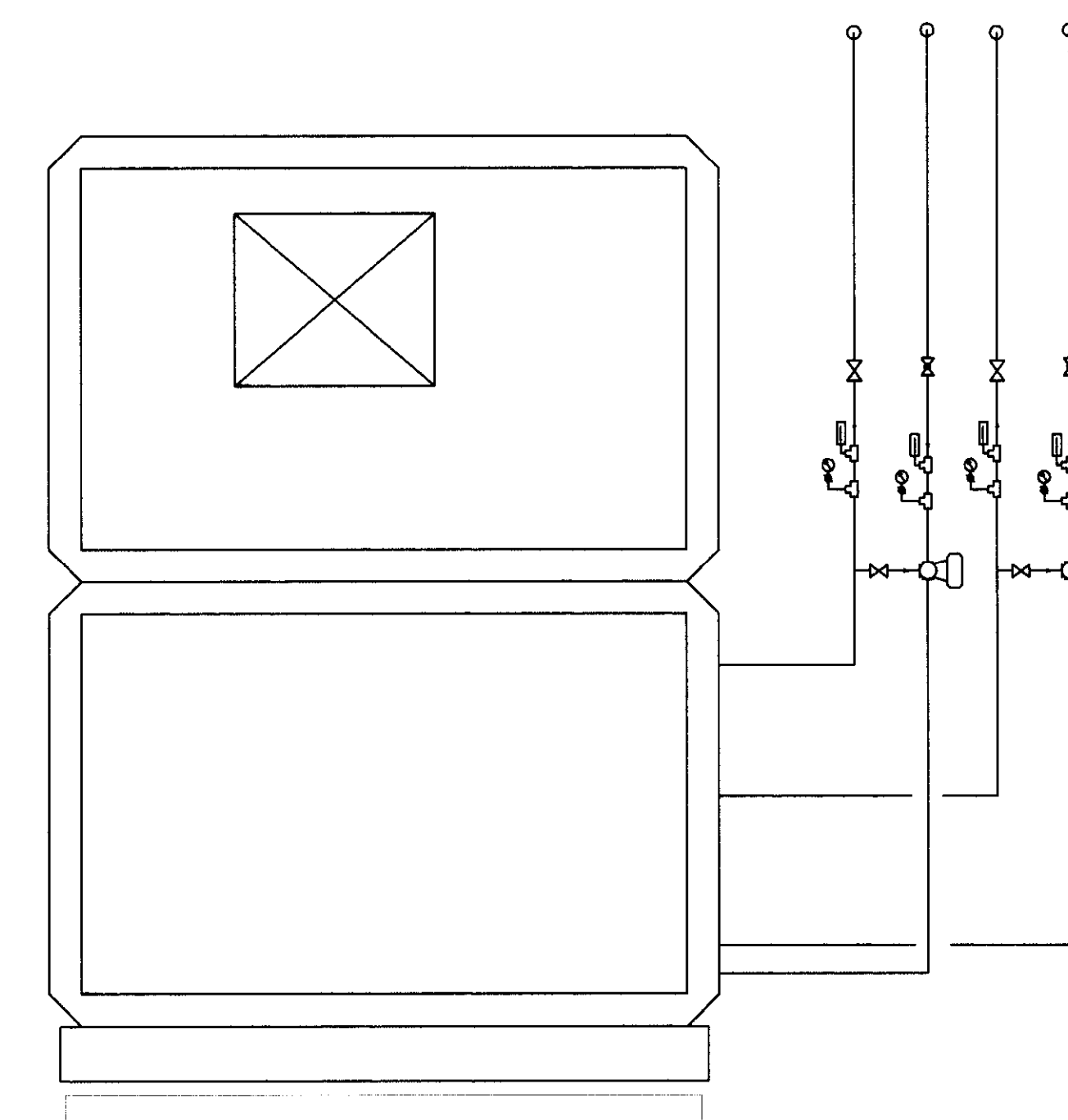
SECTION "AA"



SECTION "CC"

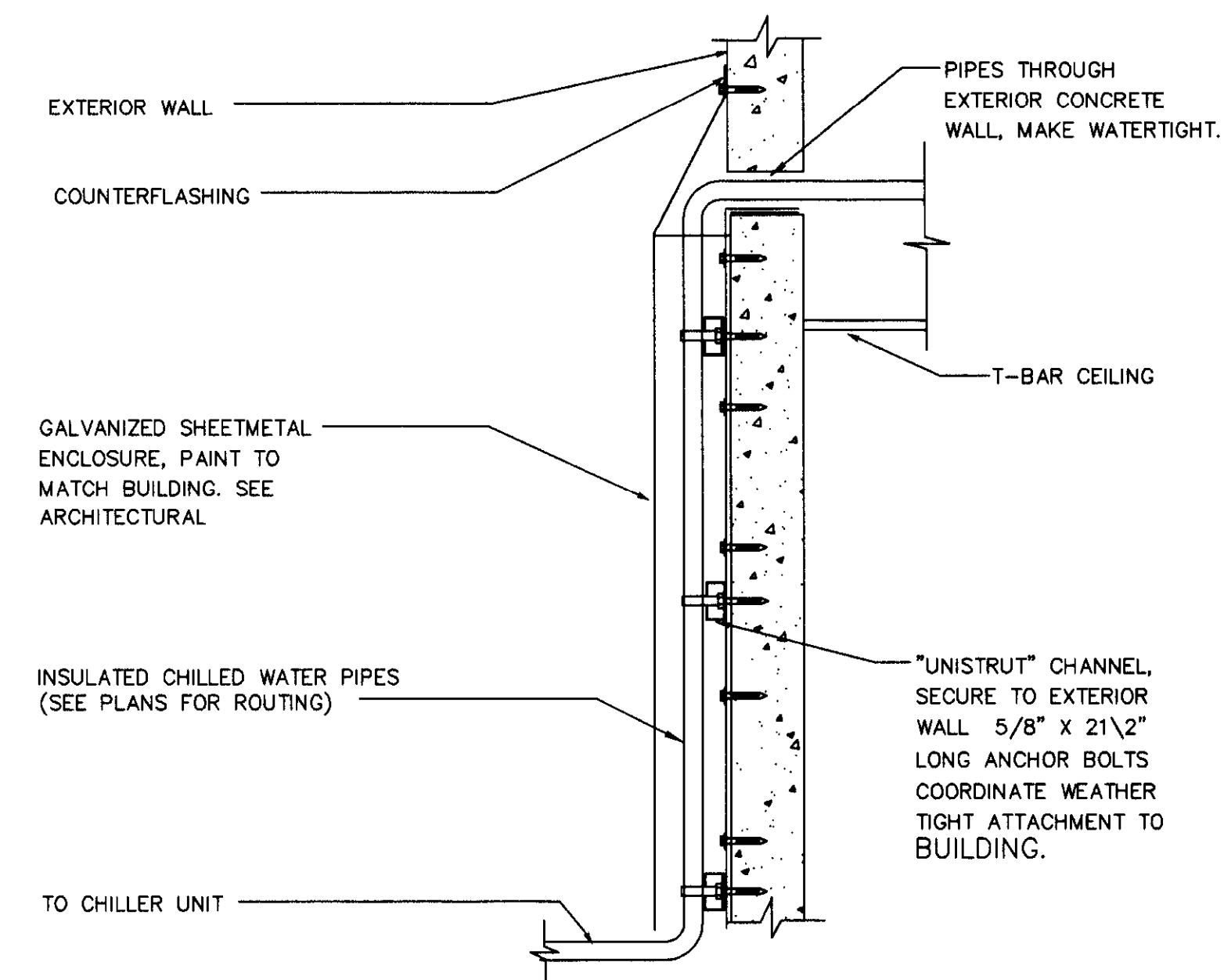
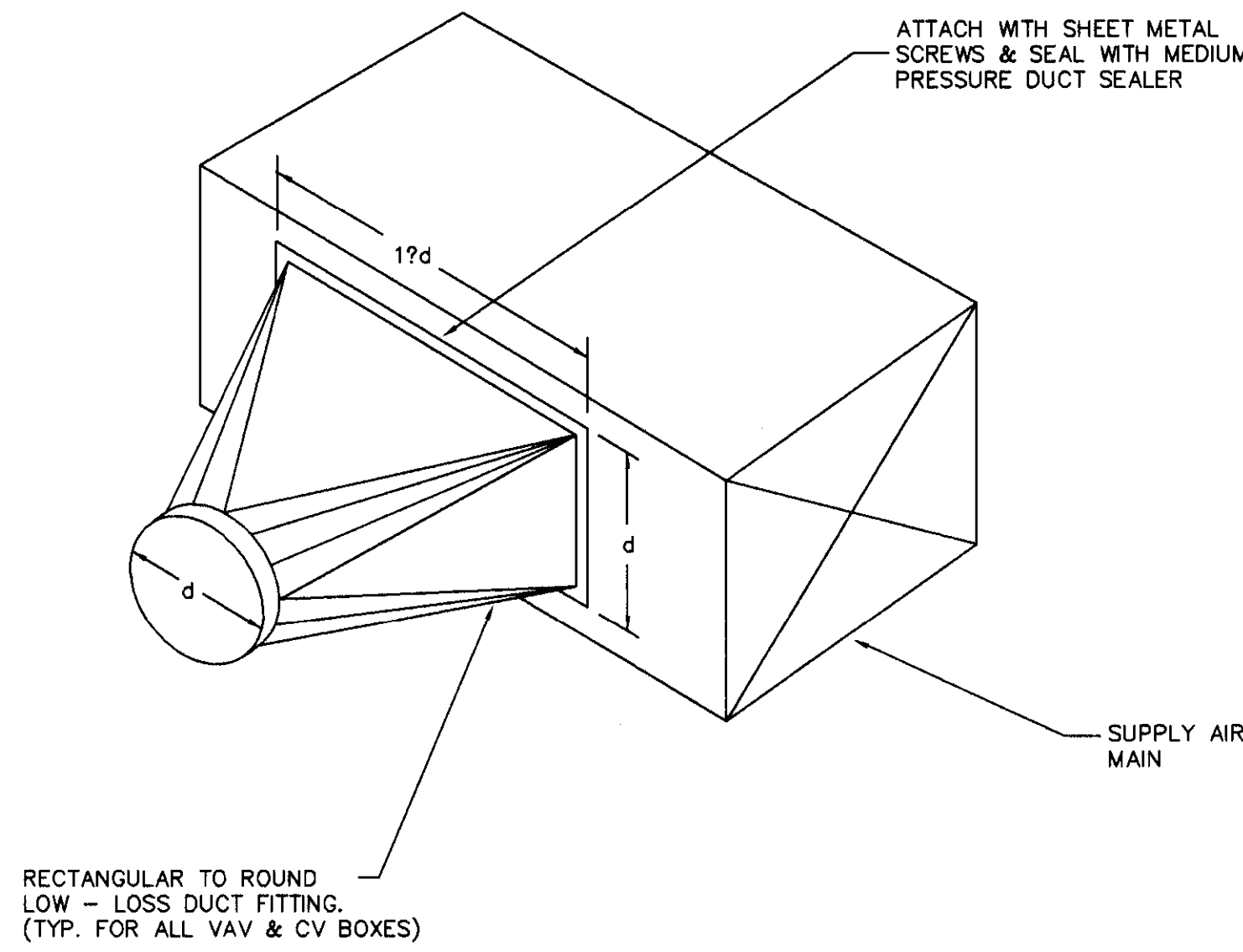


SECTION "BB"



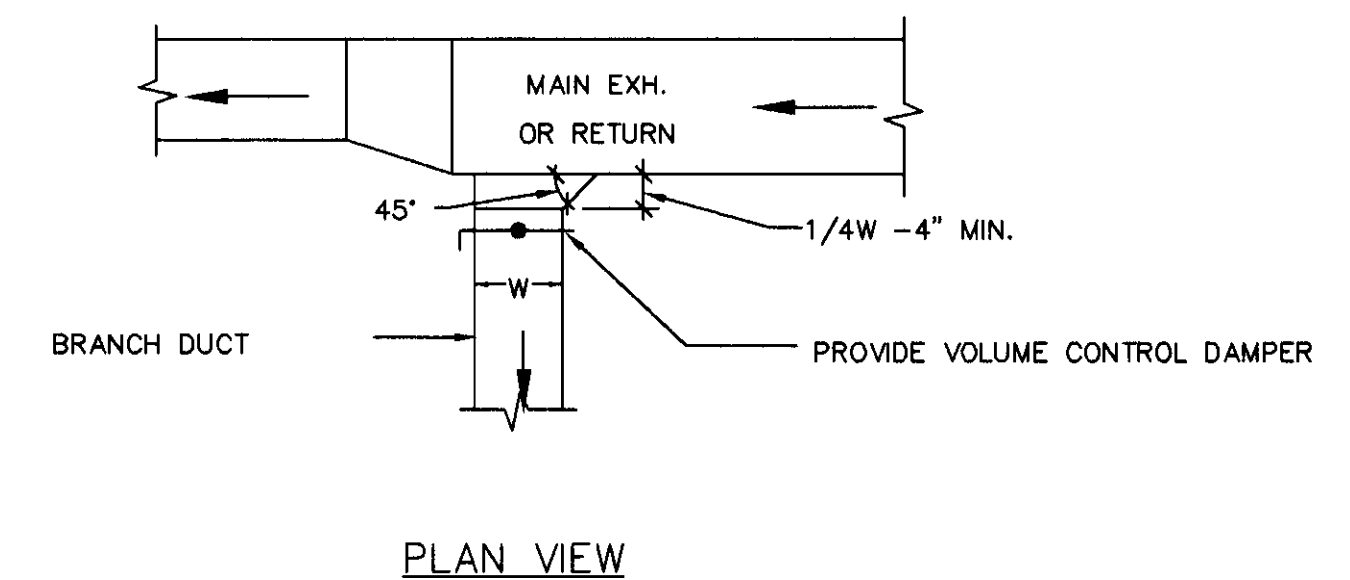
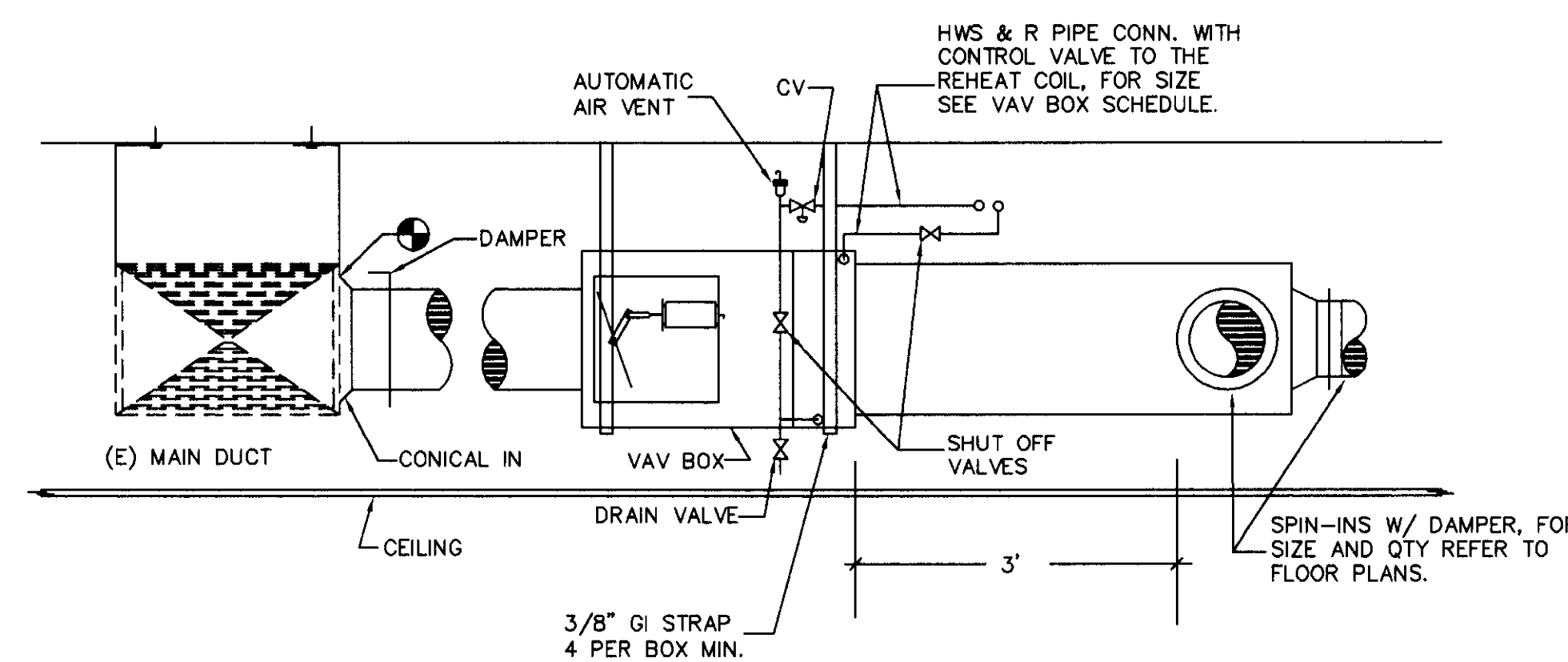
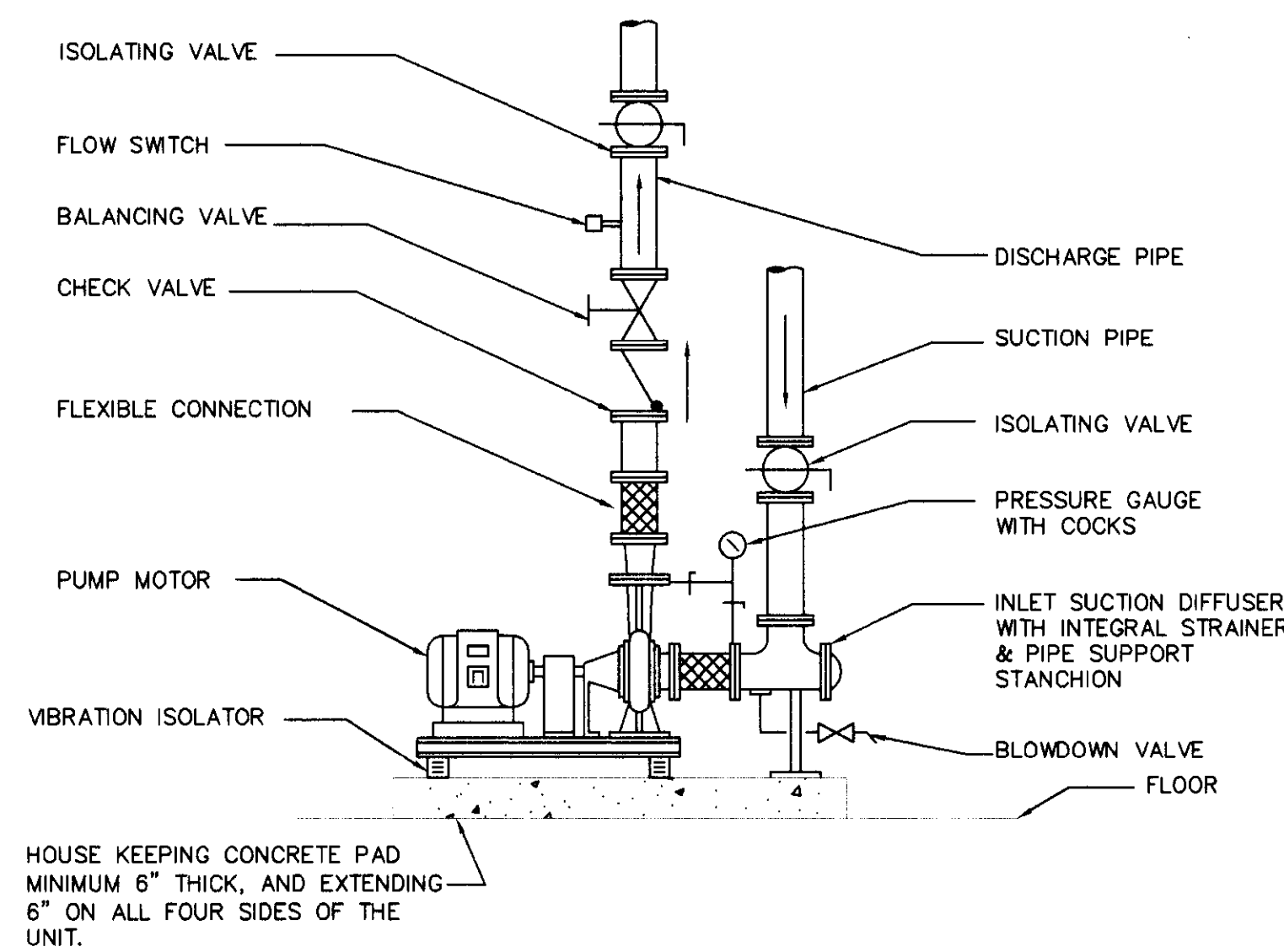
AH CONNECTION DETAILS

<p>KEY PLAN</p> <p>IF SHEET IS LESS THAN 30" X 42" IT IS A REDUCED PRINT-- SCALE REDUCED ACCORDINGLY</p> <p>0 2 4 8 16 25'</p>		<p>GEVORK CONSULTING ENGINEERING</p> <p>285 E. IMPERIAL HWY SUITE 208 FULLERTON, CALIFORNIA 92835 TEL: (714)680-6182 FAX: (714)680-6183 E-MAIL: GEVORK@AOL.COM</p>	
		<p>SEAL:</p> <p>NO. M2276 12/3/03 REGISTERED PROFESSIONAL MECHANICAL ENGINEER STATE OF CALIFORNIA</p>	
<p>Job Title: RENOVATE NUTRITION & FOOD SERVICE AREA BUILDING 329 MENLO PARK DIVISION</p>		<p>Sheet Title: MECHANICAL-SECTIONS</p>	
<p>AREAS SHOWN ARE REPRESENTATIVE OF EXISTING CONDITIONS. SPECIFIC WORK WITHIN AREAS SHOWN SHOULD BE FIELD VERIFIED.</p>		<p>VETERANS AFFAIRS PALO ALTO HEALTHCARE SYSTEM MENLO PARK, CA 94025</p>	
<p>Drawn By: M.I.</p>	<p>Date: 6.20.2003</p>	<p>Checked By: M.I.</p>	<p>Date:</p>
<p>Submitted By:</p>	<p>Date:</p>	<p>Approved By:</p>	<p>Date:</p>
<p>Scale: NONE</p>	<p>Using Series Approval:</p>	<p>Date:</p>	<p>Date:</p>
<p>Reviewed For Fire & Safety Compliance:</p>		<p>Date:</p>	
<p>Reviewed For Maintenance & Repair Compliance:</p>		<p>Date:</p>	
<p>Reviewed For Security Compliance:</p>		<p>Date:</p>	
<p>FINAL SUBMISSION</p>	<p>6.23.2003</p>	<p>100% CD (LOCKER RM REVISED)</p>	<p>5.30.2K3</p>
<p>100% CD</p>	<p>12.30.2K2</p>	<p>Date: X</p>	<p>Drawing No.: 329-H12</p>
<p>SYMBOL</p>	<p>DESCRIPTION</p>	<p>INITIAL</p>	<p>DATE</p>
<p>REVISION</p>		<p>Proj. No: 640-340</p>	<p>Sheet 73 of 104</p>



LOW-LOSS FITTING

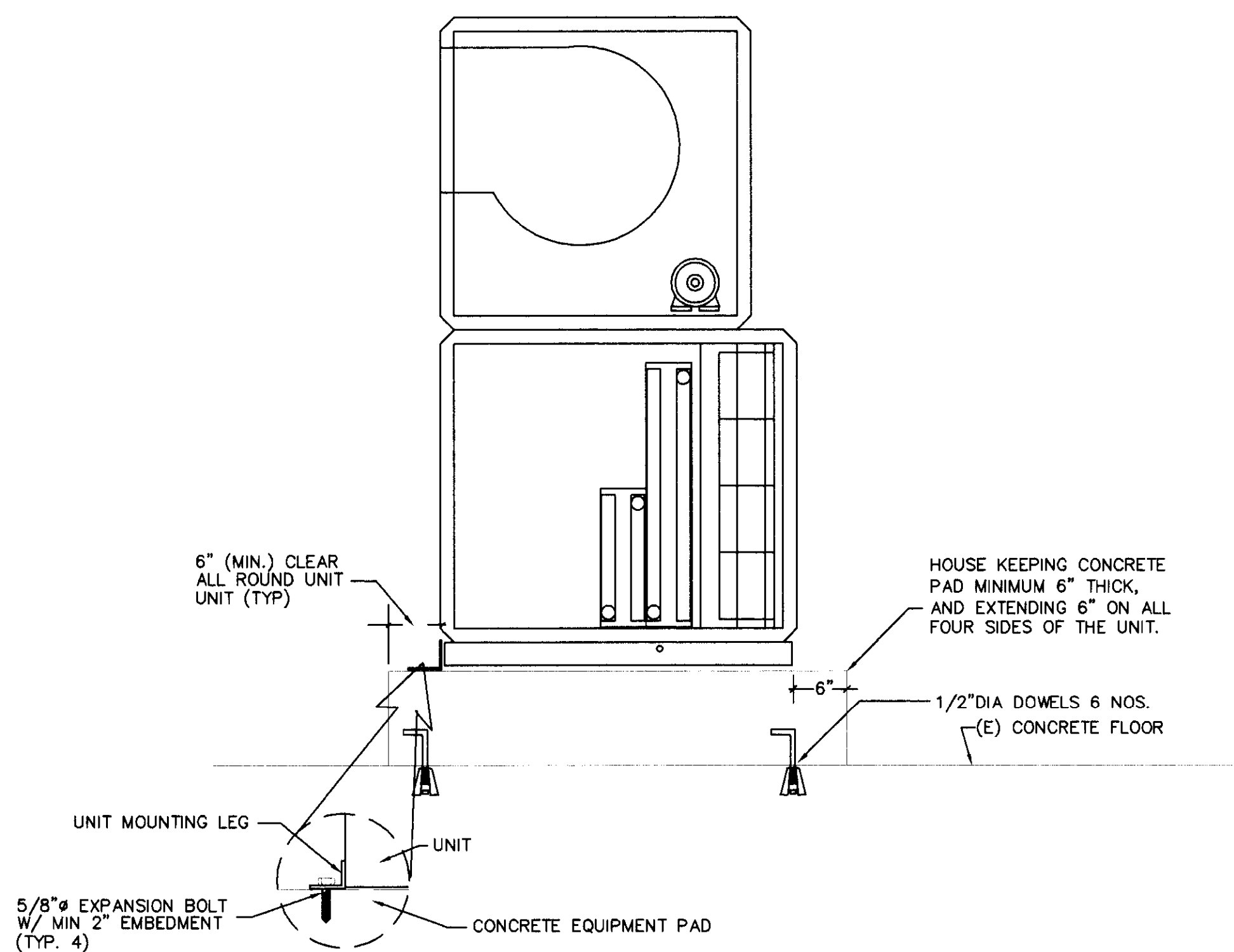
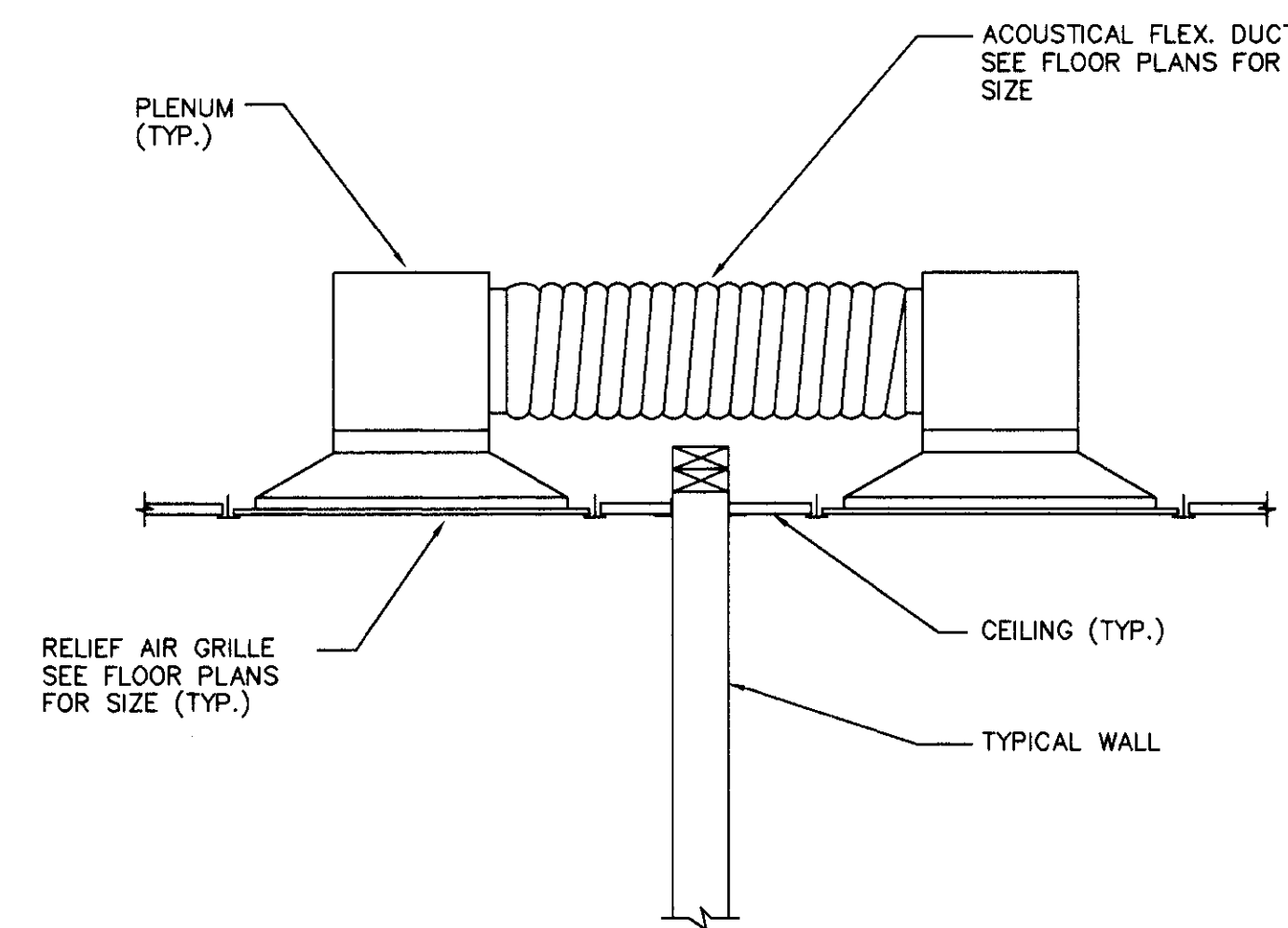
CHW PIPES THRU WALL DETAIL



PUMP PIPING DETAILS

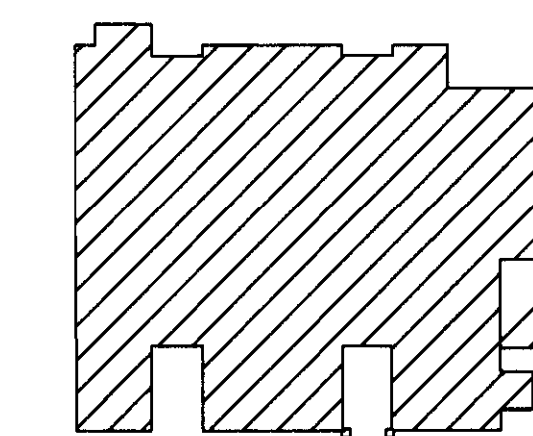
VAV / CV BOX DETAILS

BRANCH DUCT DETAIL

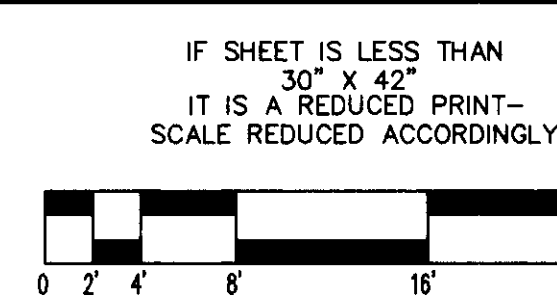


TRANSFER AIR GRILLE MNTG DETAILS

AIR HANDLING MNTG DETAILS

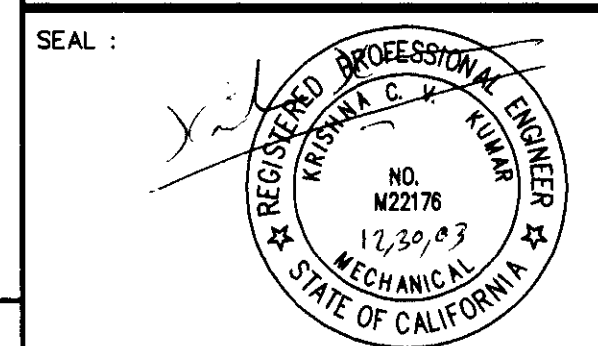


KEY PLAN



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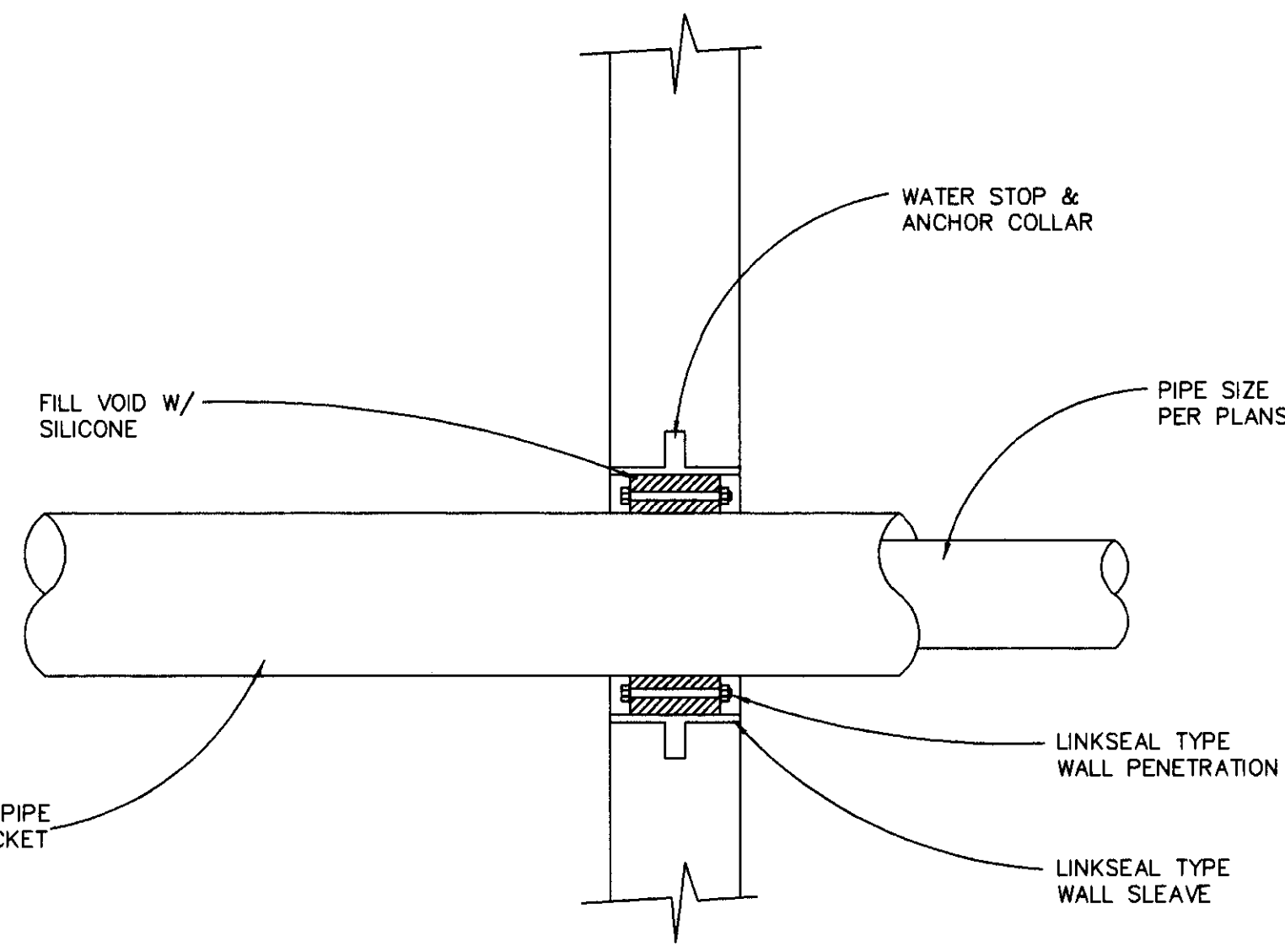


Job Title: **RENOVATE NUTRITION & FOOD SERVICE AREA BUILDING 329 MENLO PARK DIVISION**

Sheet Title: **MECHANICAL DETAILS**

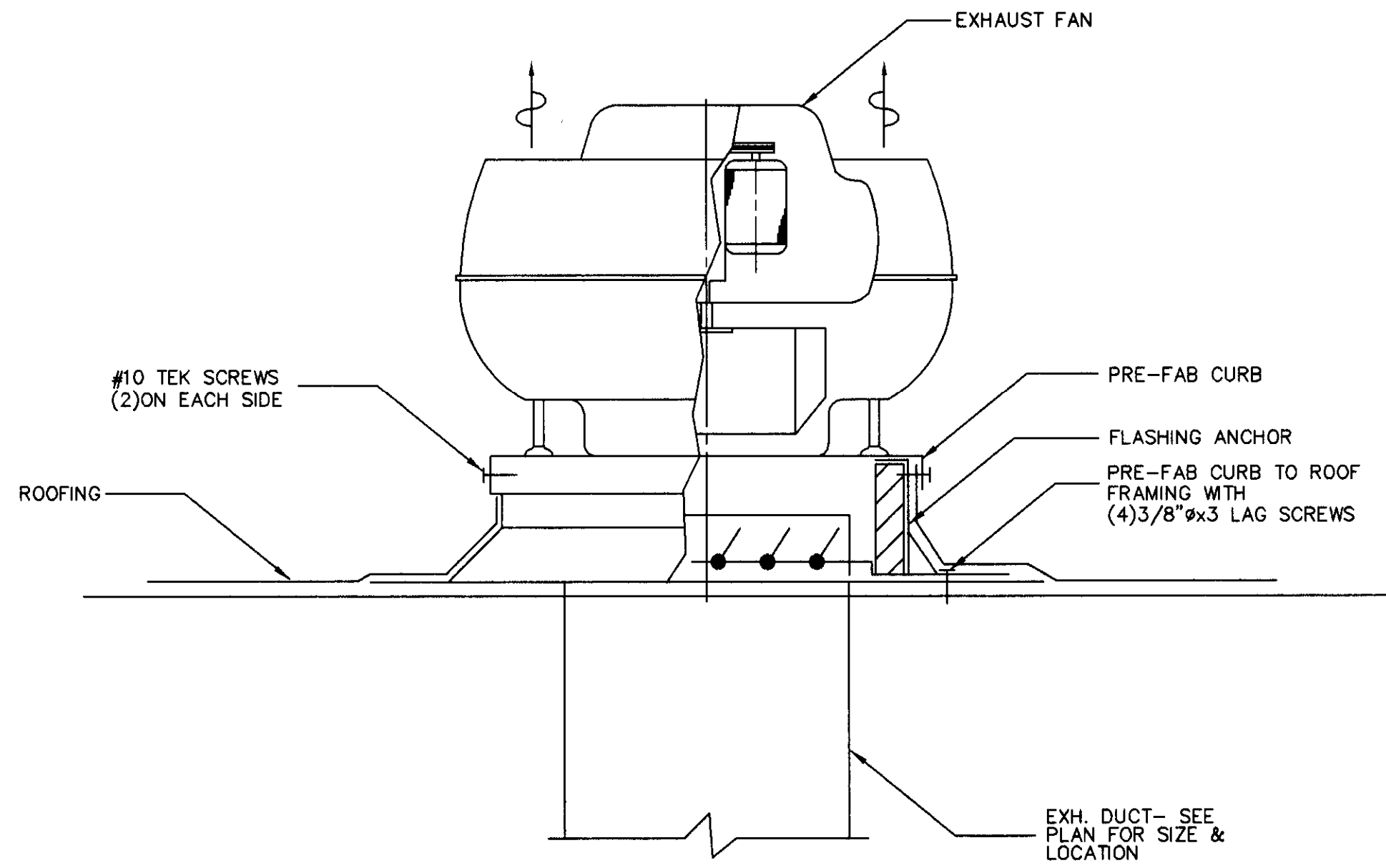
VETERANS AFFAIRS PALO ALTO HEALTHCARE SYSTEM MENLO PARK, CA 94025

Drawn By: M.L.	Date: 6.20.2003	Checked By: M.L.	Date:
Submitted By:	Date:	Approved By:	Date:
Scale: NONE	Using Service Approval:	Date:	Date:
Reviewed For Fire & Safety Compliance:	Date:	Reviewed For Maintenance & Repair Compliance:	Date:
Reviewed For Security Compliance:	Date:	Reviewed For Security Compliance:	Date:
FINAL SUBMISSION	6.23.2003	100% CD (LOCKER RM REVISED)	5.30.2K3
100% CD	12.30.2K2	Date:	Drawing No.: 329-HH3
SYMBOL	DESCRIPTION	INITIAL	DATE
R E V I S I O N			
Proj. No:	640-340	Sheet	79 of 104



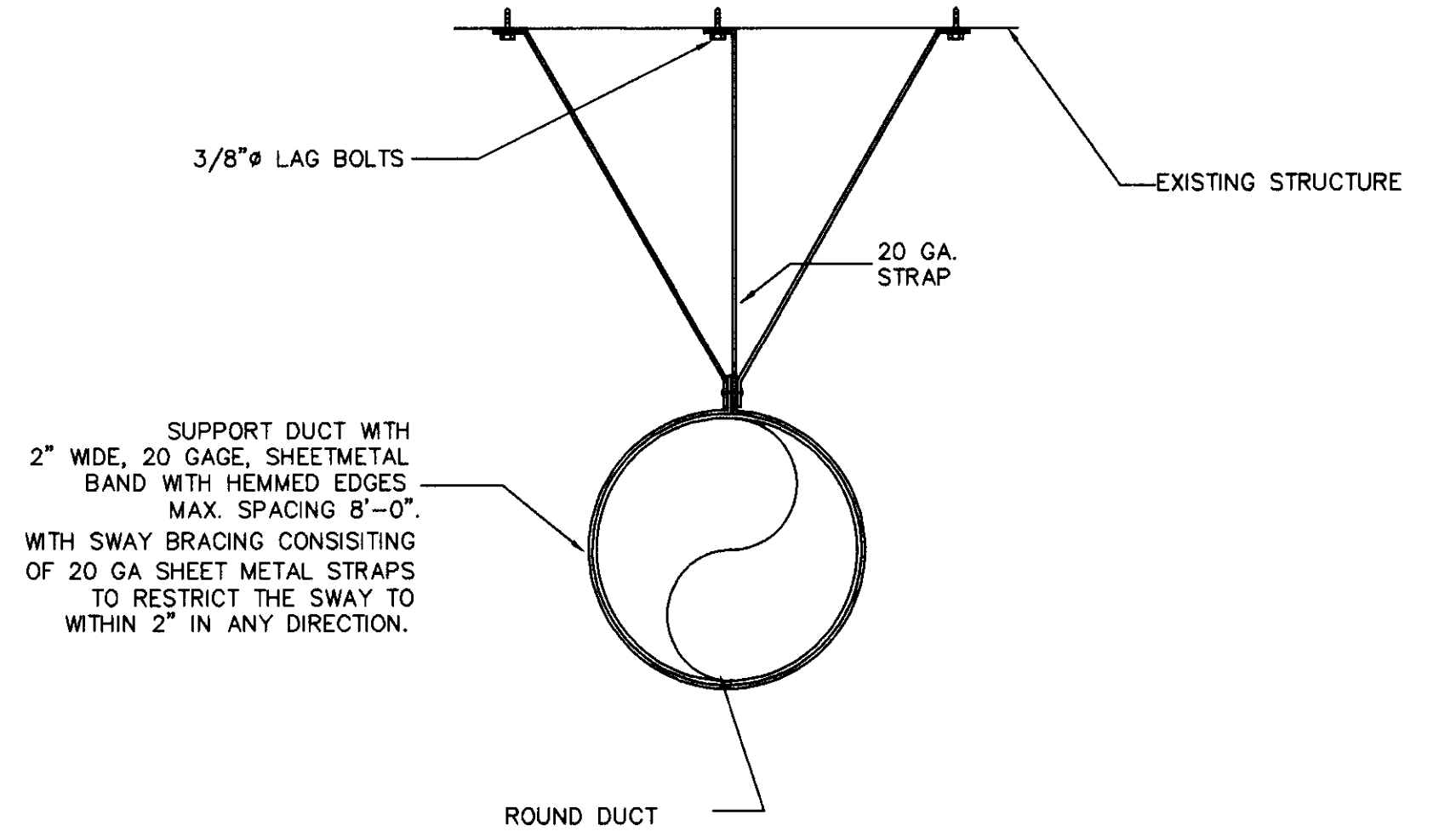
HW PIPE THRU WALL DETAILS

SCALE
NONE 7



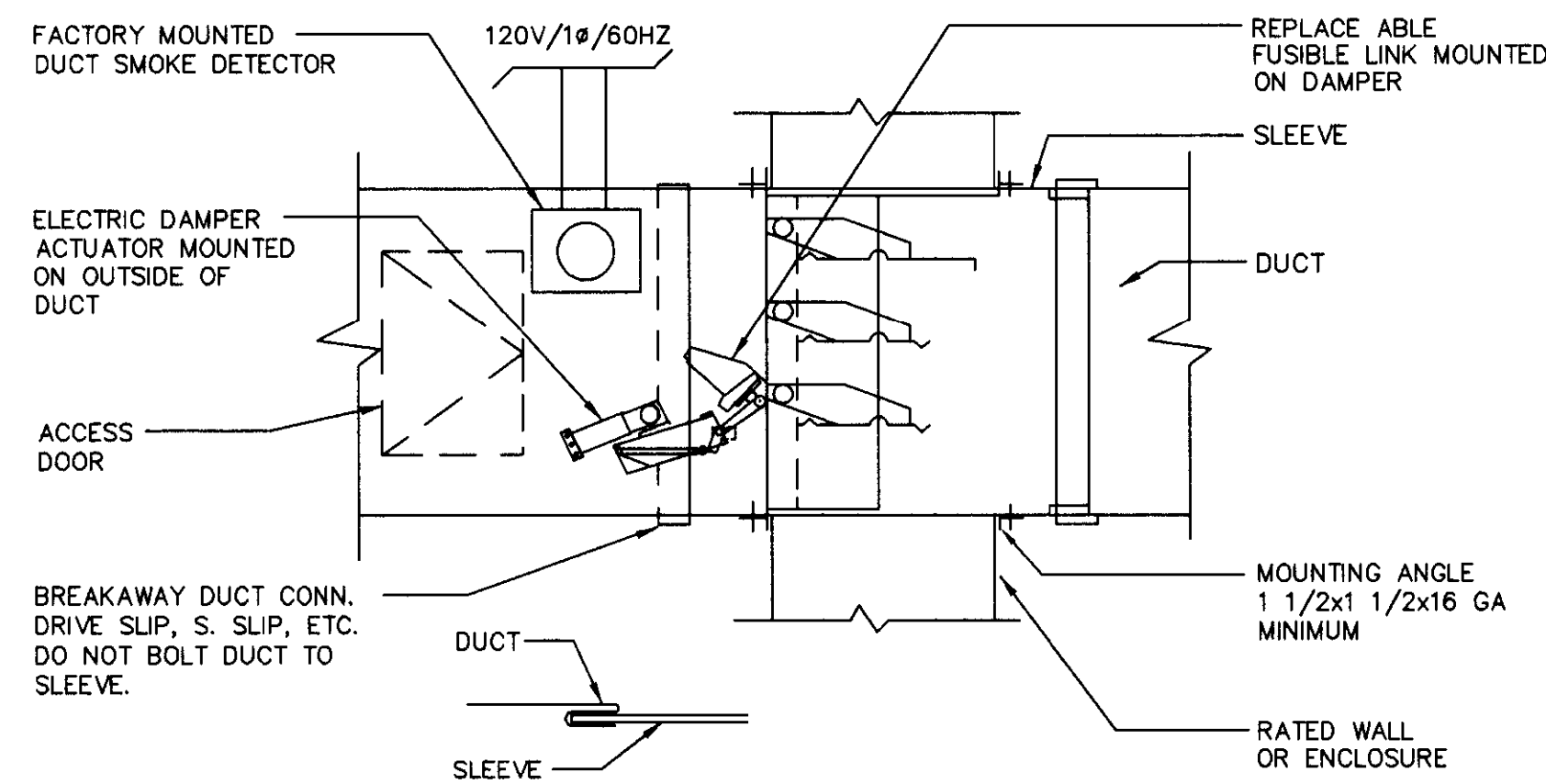
ROOF MNTD UP-BLAST EXH. FAN DETAILS

SCALE
NONE 3



ROUND DUCT SUPPORT DETAILS

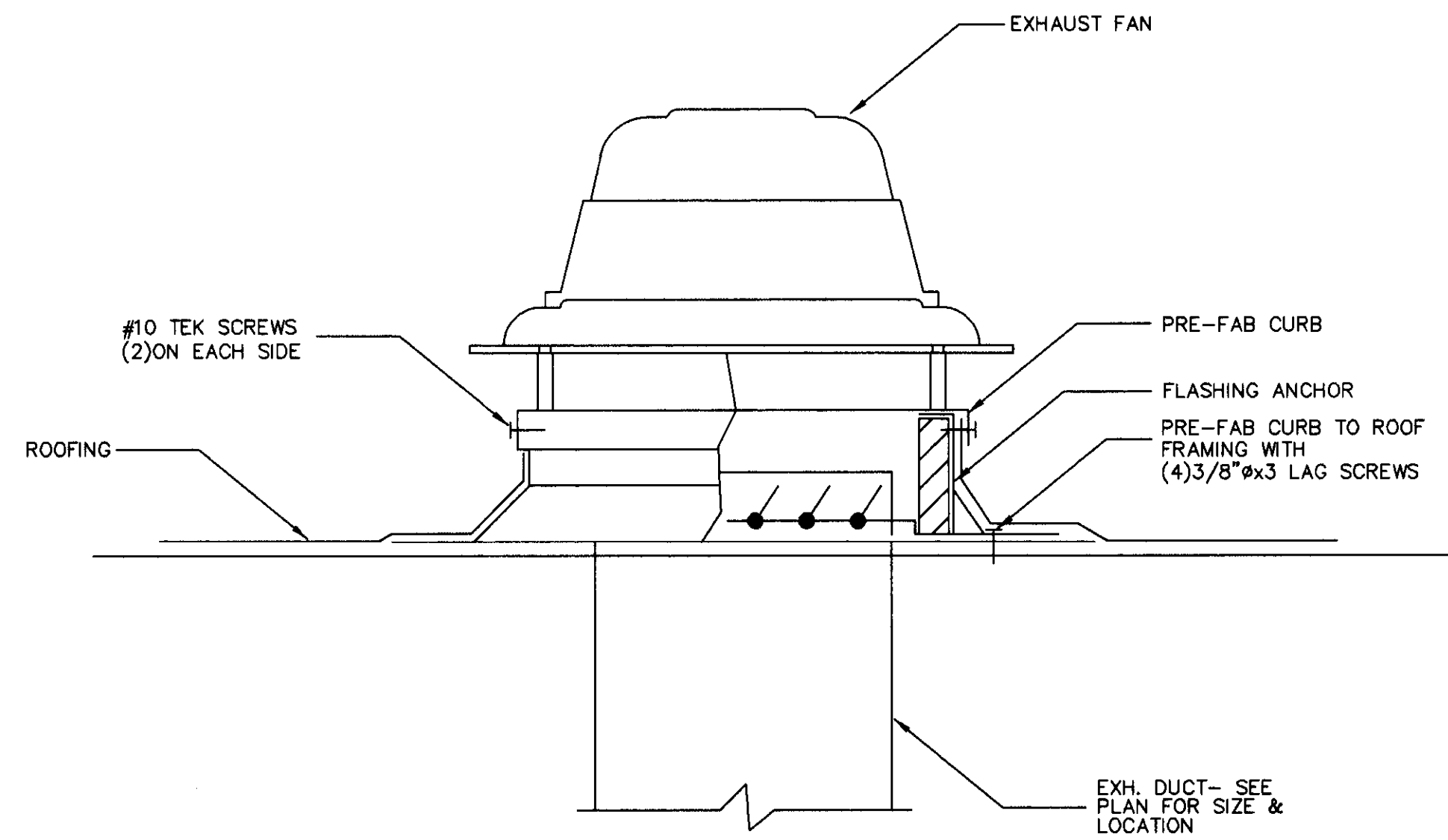
SCALE
NONE 2



- NOTES:
1. INSTALL THE DAMPER ACCORDING TO MANUFACTURERS INSTALLATION REQUIREMENTS, SMACNA, NFPA90A AND APPLICABLE LOCAL CODES.
 2. COMBINATION FIRE/SMOKE DAMPER: POTTORFF MODEL FSD-142. CSFM FILE # 3225-036B:110 & 3230-036B:111 UL 555-S LEAKAGE RATED CLASS II, UL FILE #R-11767.
 3. DAMPER DETAIL FOR REFERENCE ONLY. DAMPERS SHALL BE STATE FIRE MARSHAL APPROVED AND INSTALLED STRICTLY PER MANUFACTURER'S PRINTED INSTRUCTIONS. MANUFACTURER'S INSTALLATION INSTRUCTIONS SHALL BE MADE AVAILABLE TO THE INSPECTING AUTHORITIES.
 4. DAMPERS COMPLYING WITH APPROVED RECOGNIZED STANDARDS (1995 CBC CHAPTER 35, PART II) SHALL BE INSTALLED AND BE ACCESSIBLE FOR INSPECTION AND SERVICING PER 1995 CBC SECTION 713.10.

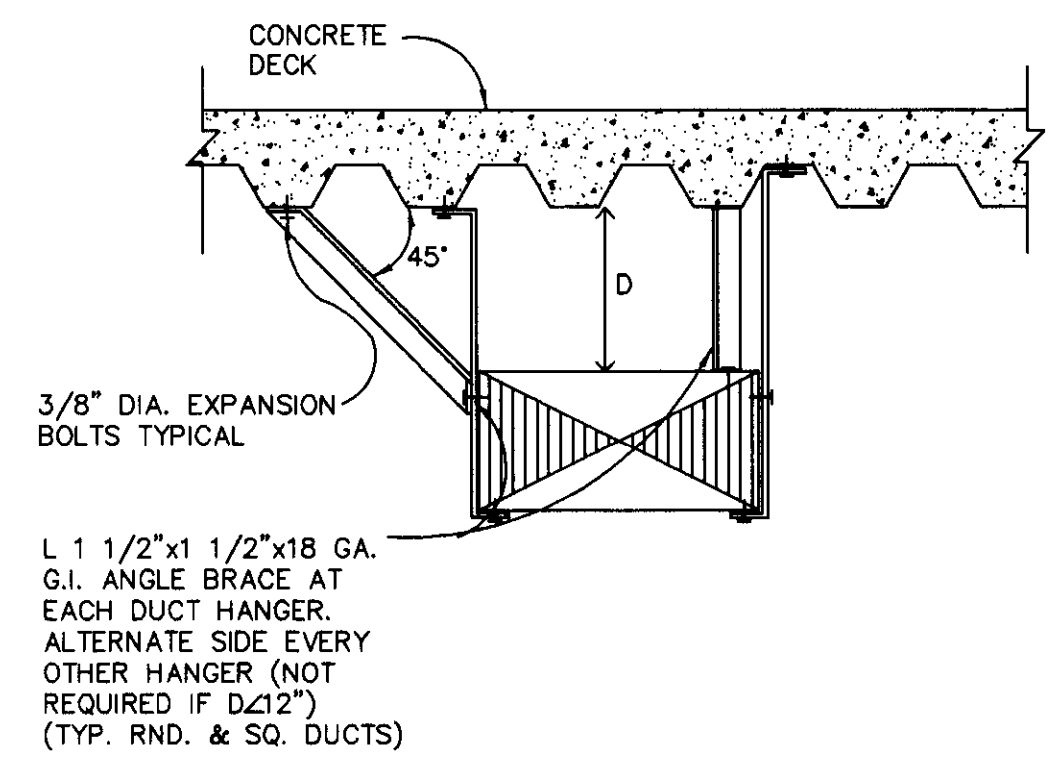
SMOKE/FIRE DAMPER DETAILS

SCALE
NONE 6



ROOF MNTD EXHAUST FAN DETAILS

SCALE
NONE 4

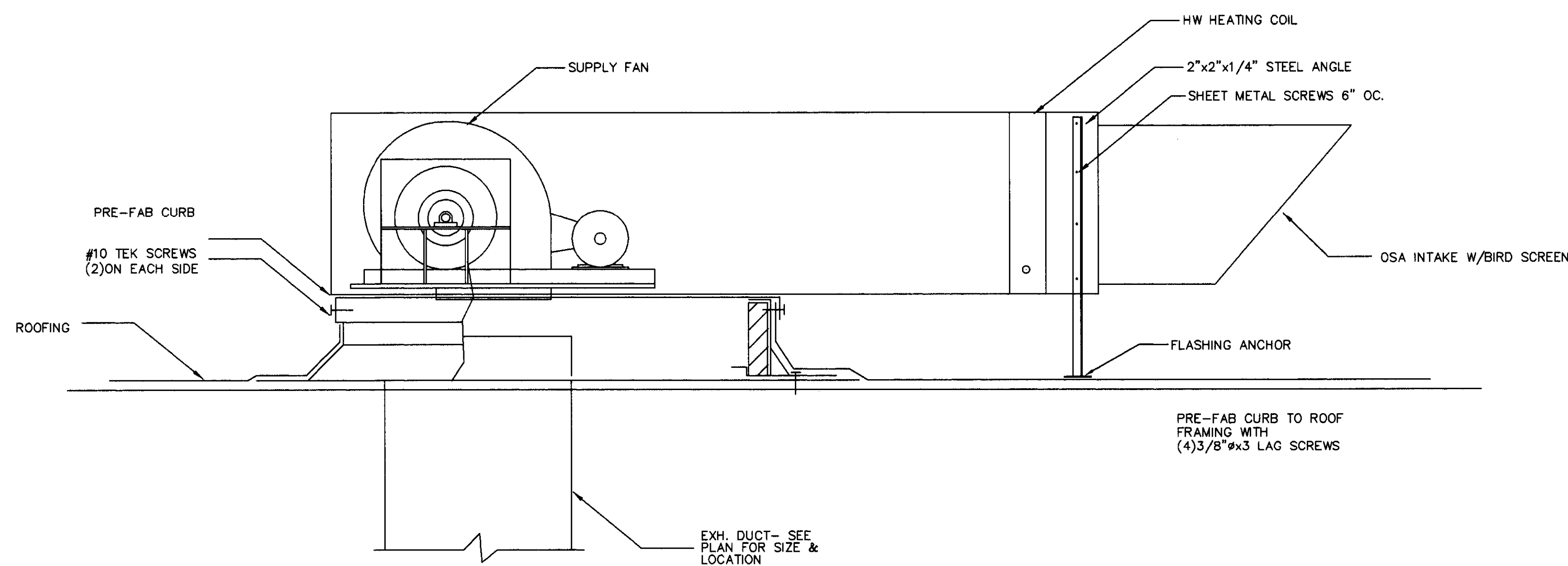


MAX. RECT. DUCT DIM.	MAX. LOAD EA. HANGER	MAX. HANGER SPACING	HANGER SIZE
UP TO 16"ø	#72	6'-0"	1 1/2"x 18 GA.
16" TO 36"ø	#100	6'-0"	1 1/2"x 1/8"

NOTES:
SPACING OF SEISMIC BRACING TO BE PER SMACNA GUIDE.

RECTANGULAR DUCT HANGER DETAILS

SCALE
NONE 1

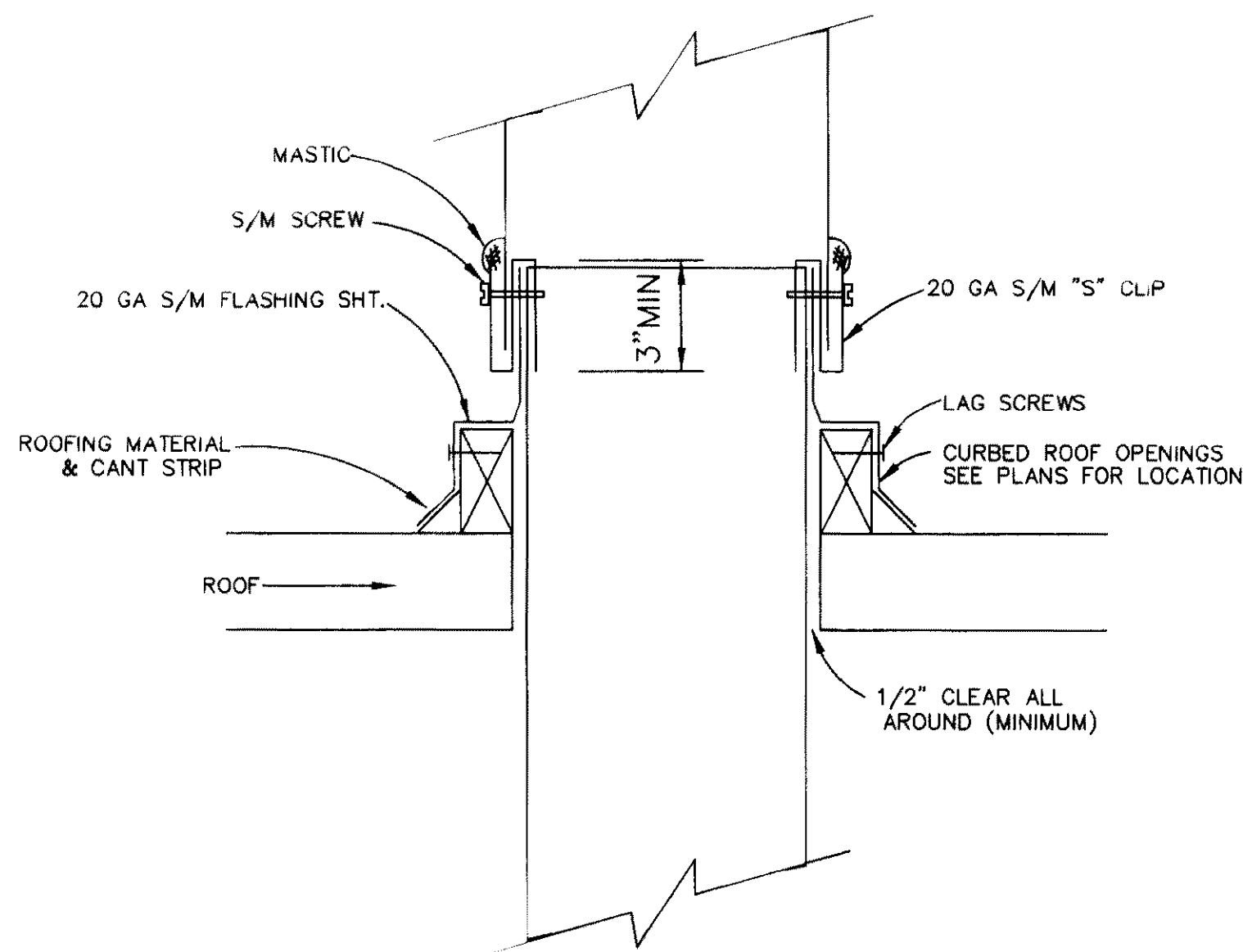


ROOF MNTD MAKE-UP AIR UNIT DETAILS

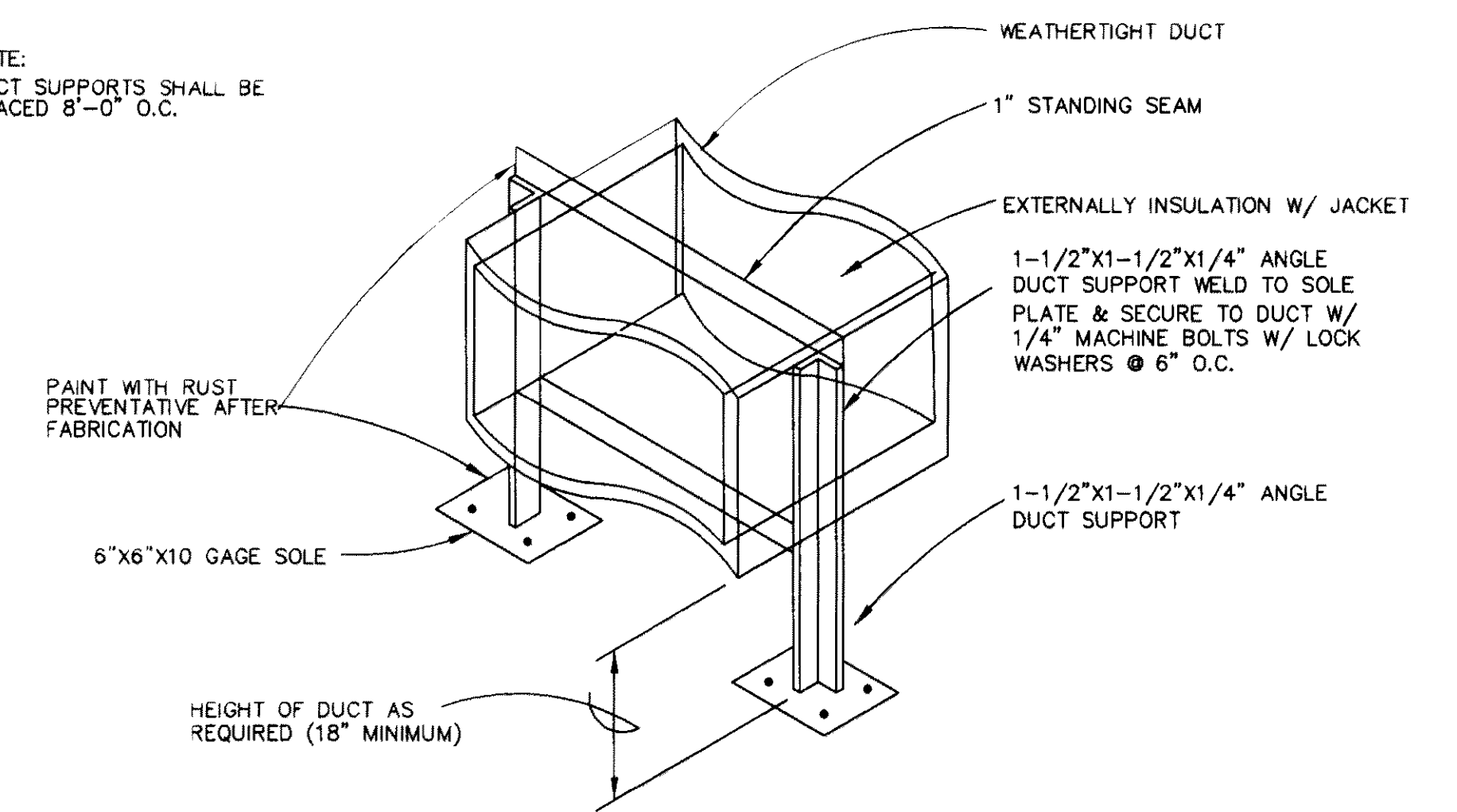
SCALE
NONE 5

ANY CHANGES TO THE TECHNICAL CONTENTS OF THIS PLANS, EITHER BY THE CONTRACTOR, OR OWNER, WITHOUT THE EXPRESSED APPROVAL OR KNOWLEDGE OF THE ENGINEER OF RECORD, RELIEVES THE ENGINEER OF ANY AND ALL LEGAL AND MONETARY OBLIGATIONS ARISING FROM ANY CONTRACTUAL DISPUTES BETWEEN ANY PARTY TO THE CONTRACT.

<p>KEY PLAN</p> <p>IF SHEET IS LESS THAN 30" X 42" IT IS A REDUCED PRINT- SCALE REDUCED ACCORDINGLY</p> <p>0 2' 4' 8' 16' 25'</p>		<p>GEVORK CONSULTING ENGINEERING</p> <p>285 E. IMPERIAL HWY SUITE 208 FULLERTON, CALIFORNIA 92835 TEL: (714)880-6182 FAX (714)880-6183 E-MAIL: GEORK@AOL.COM</p>	
<p>SEAL:</p>		<p>Job Title: RENOVATE NUTRITION & FOOD SERVICE AREA BUILDING 329 MENLO PARK DIVISION</p>	
<p>Sheet Title: MECHANICAL DETAILS</p>		<p>VETERANS AFFAIRS PALO ALTO HEALTHCARE SYSTEM MENLO PARK, CA 94025</p>	
<p>Drawn By: M.I. Date: 6.20.2003</p> <p>Submitted By: Date:</p> <p>Scale: NONE Using Service Approval: Date:</p> <p>Reviewed For Fire & Safety Compliance: Date:</p> <p>Reviewed For Maintenance & Repair Compliance: Date:</p> <p>Reviewed For Security Compliance: Date:</p>	<p>Checked By: M.I. Date:</p> <p>Approved By: Date:</p> <p>Date: 12.30.2003</p> <p>Date: 5.30.2003</p> <p>Date: 12.30.2003</p>	<p>Date: X Drawing No.: 329-H14</p> <p>Proj. No: 640-340 Sheet 75 of 109</p>	
<p>SYMBOL DESCRIPTION INITIAL DATE</p>		<p>REVISION</p>	



NOTE:
DUCT SUPPORTS SHALL BE
SPACED 8'-0" O.C.



SCALE
NONE

8

DUCT THRU ROOF DETAILS

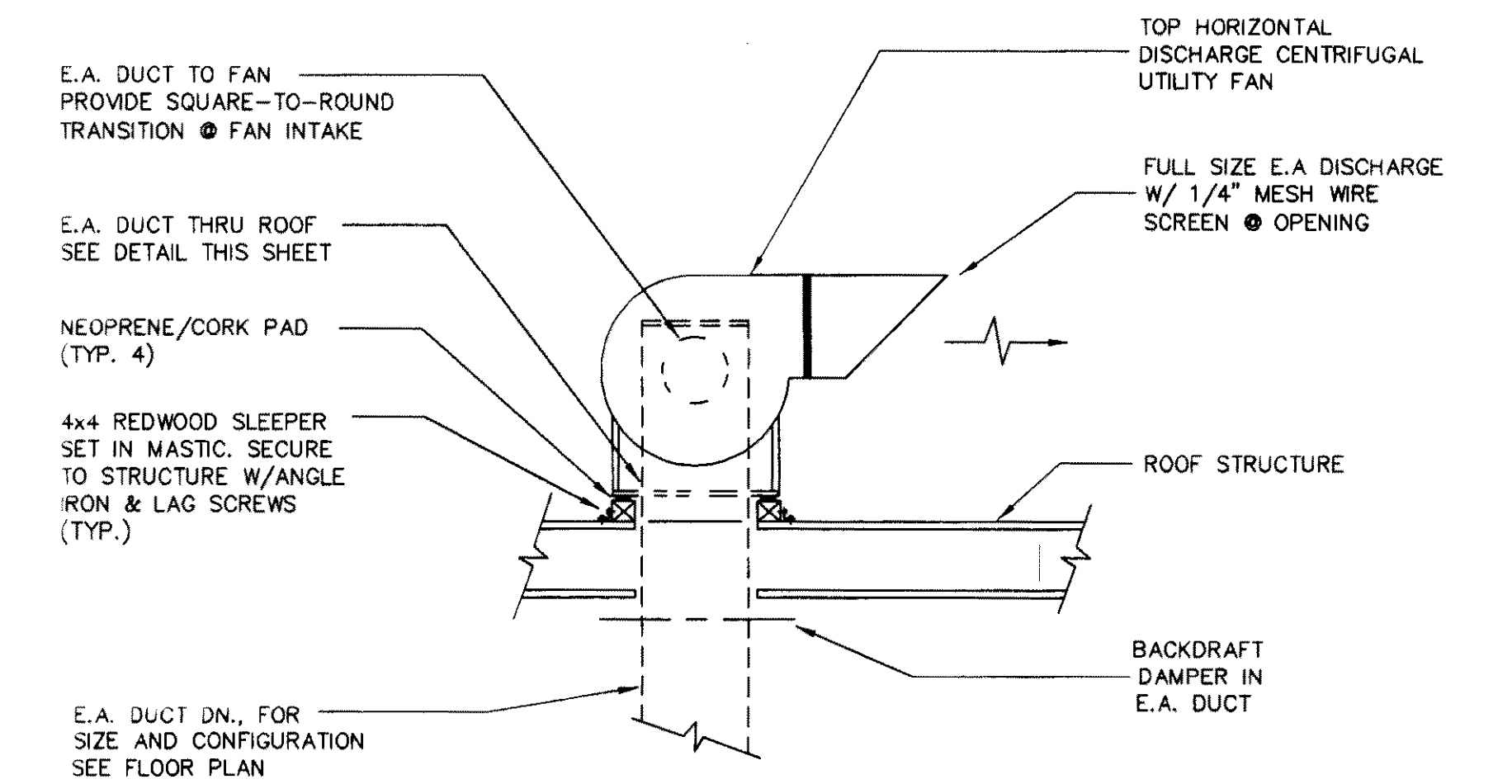
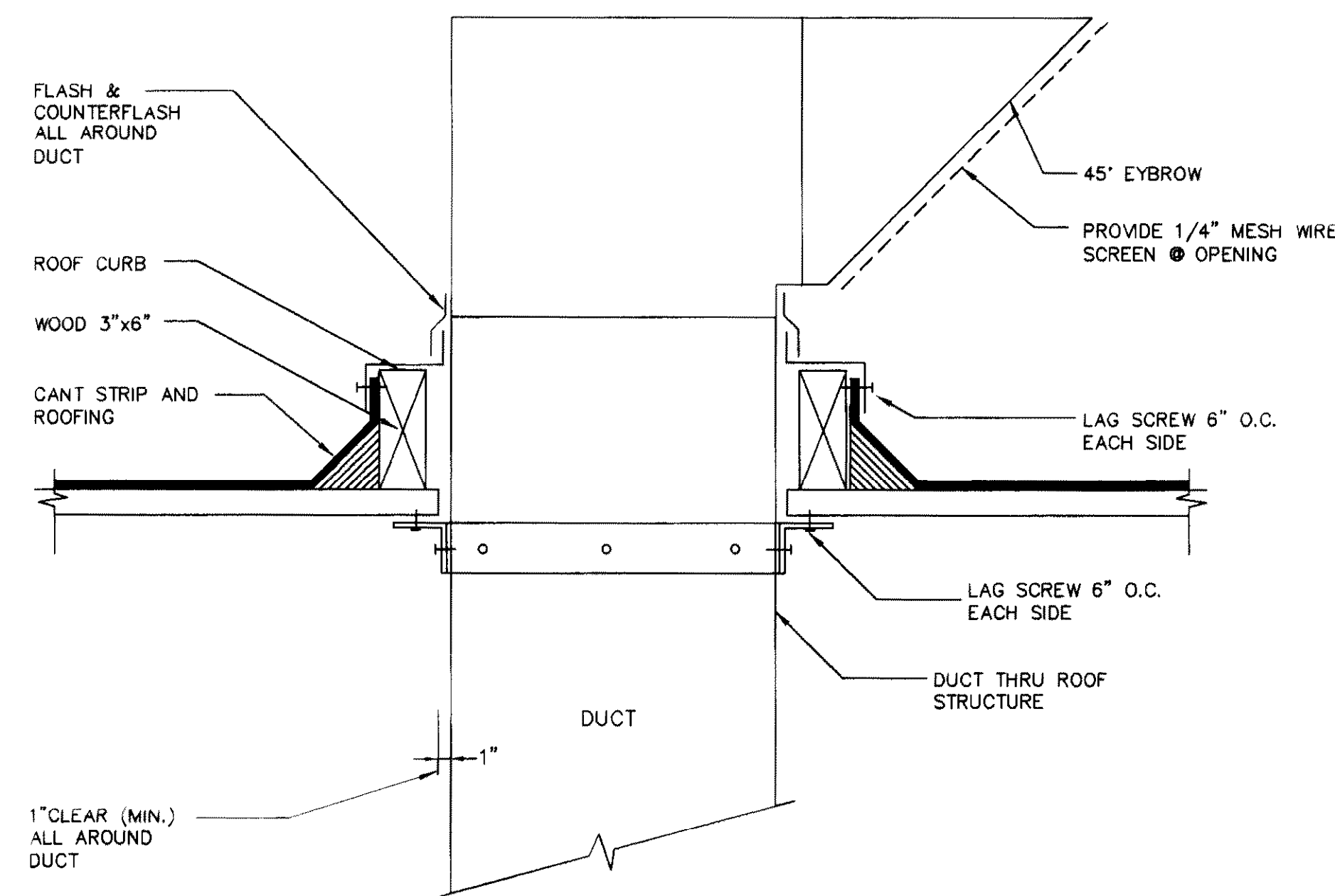
SCALE
NONE

3

DUCT ON ROOF DETAILS

SCALE
NONE

2



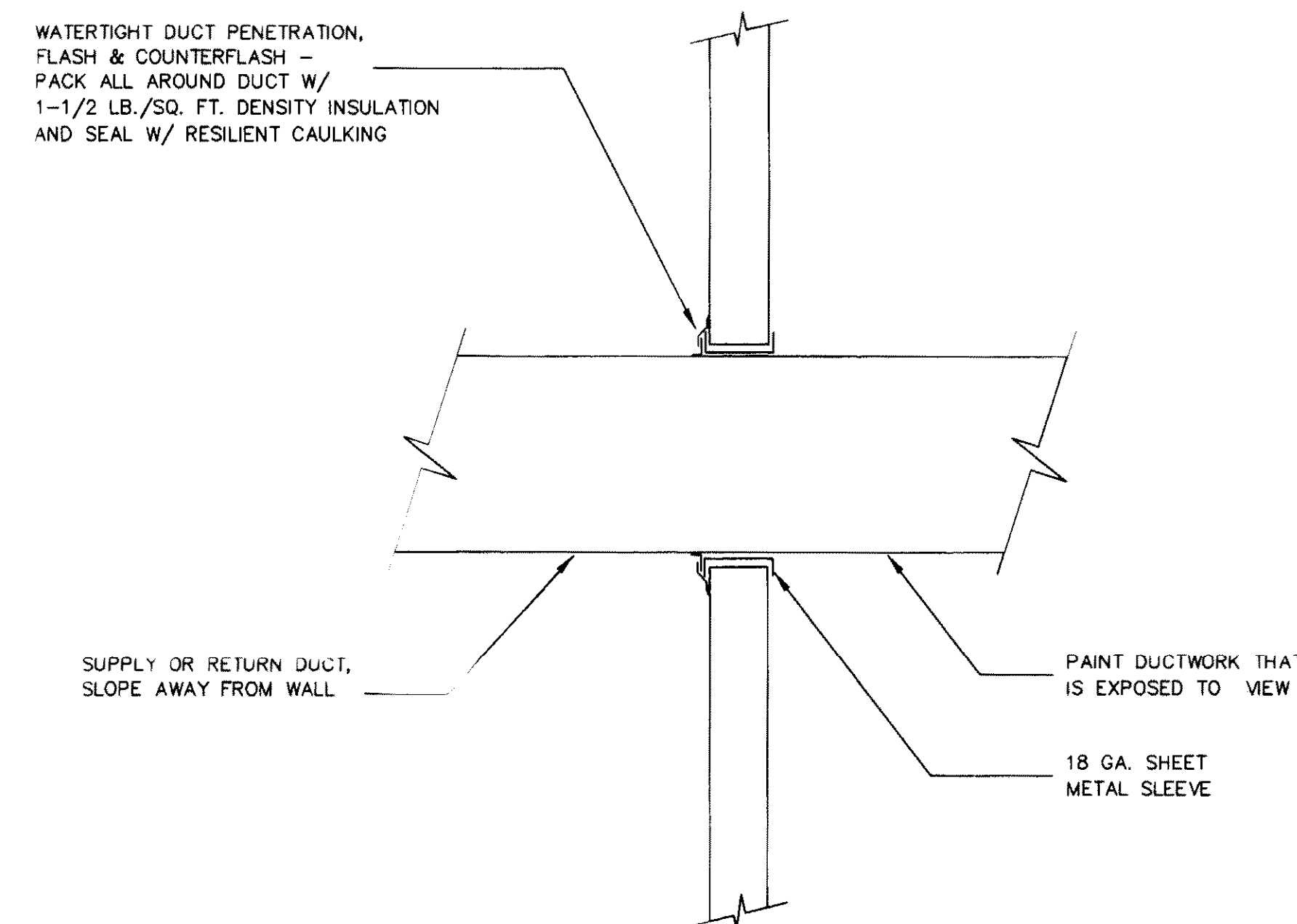
SCALE
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7

OSA INTAKE DUCT

SCALE
NONE

4



UTILITY FAN MNTG DETAILS

SCALE
NONE

1

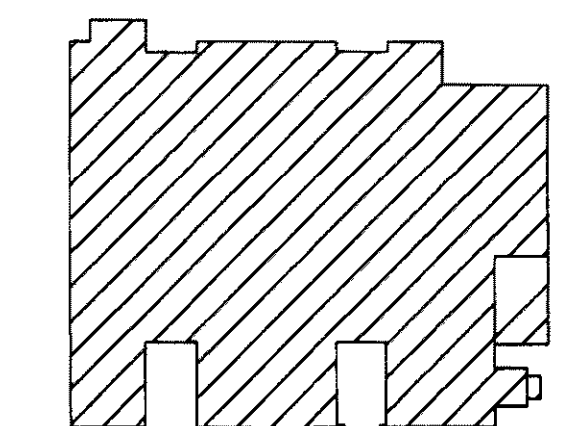
SCALE
NONE

6

DUCT THRU WALL DETAILS

SCALE
NONE

5



KEY PLAN

N.T.S.

IF SHEET IS LESS THAN
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**GEVORK CONSULTING
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285 E. IMPERIAL HWY SUITE 208
FULLERTON, CALIFORNIA 92635
TEL. (714) 680-6182 FAX (714) 680-6183
E-MAIL: GEORK@AOL.COM



Job Title: RENOVATE NUTRITION & FOOD
SERVICE AREA BUILDING 329
MENLO PARK DIVISION

Sheet Title: MECHANICAL DETAILS

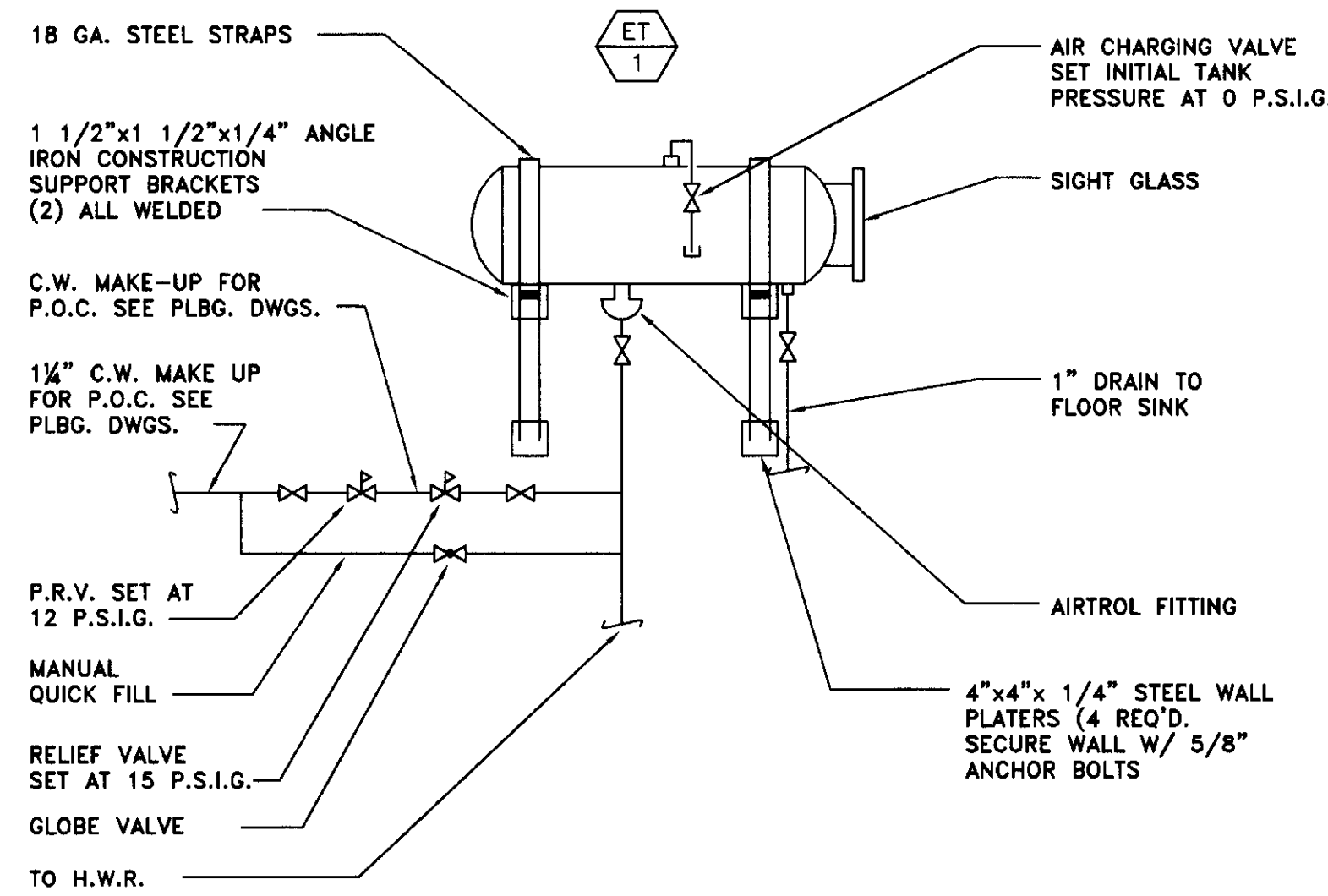
VETERANS AFFAIRS PALO ALTO
HEALTHCARE SYSTEM
MENLO PARK, CA 94025

Drawn By: M.J.	Date: 6.20.2003	Checked By: M.J.	Date:
Submitted By:	Date:	Approved By:	Date:
Scale: NONE	Using Service Approval:	Date:	
Reviewed For: Fire & Safety Compliance:	Date:	Reviewed For: Maintenance & Repair Compliance:	Date:
Reviewed For: Security Compliance:	Date:		

Date: 12.30.202 X Drawing No.: 329-H16

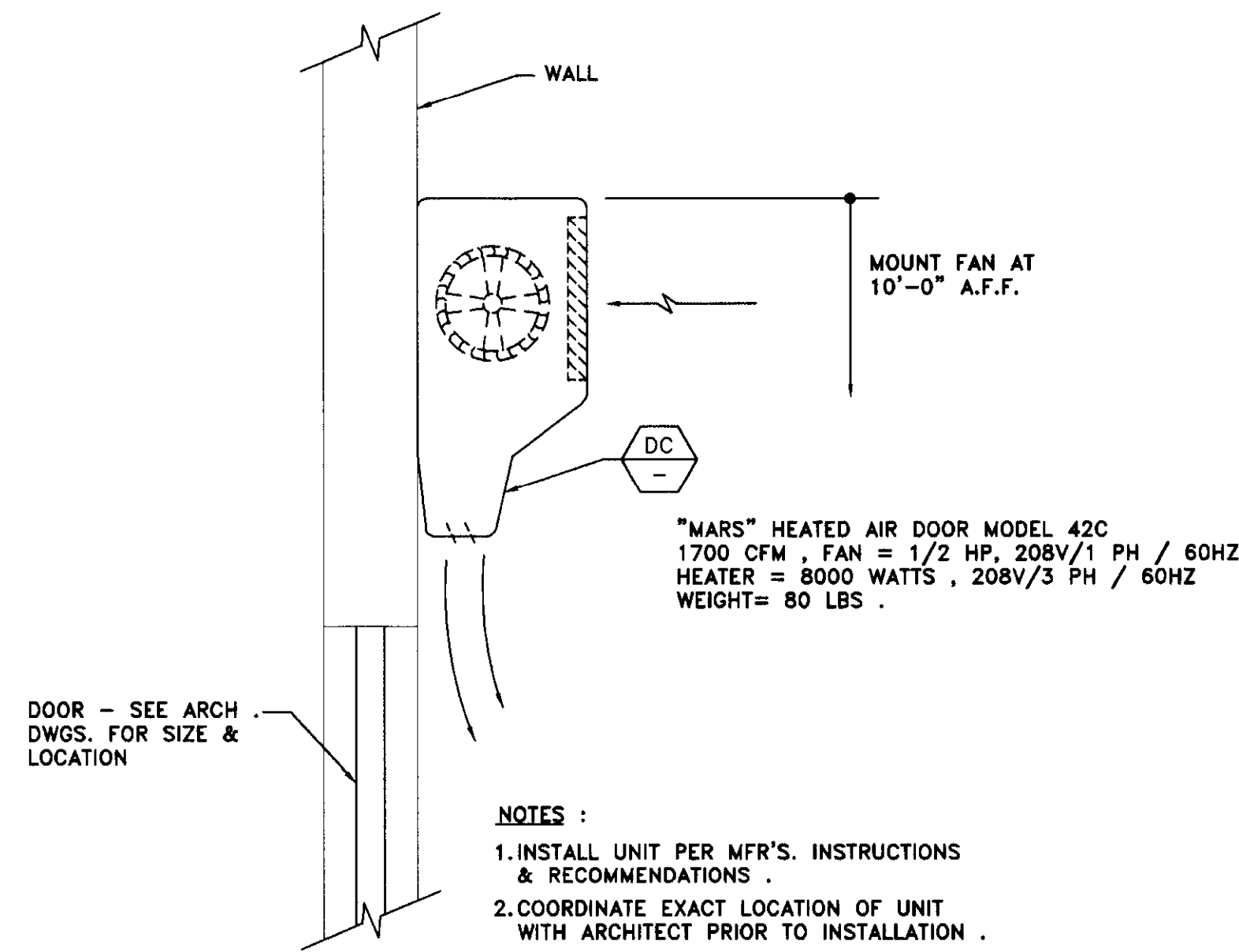
Proj. No: 640-340 Sheet 72 of 104

ANY CHANGES TO THE TECHNICAL CONTENTS OF THIS PLANS,
EITHER BY THE CONTRACTOR, OR OWNER, WITHOUT THE
EXPRESSED APPROVAL OR KNOWLEDGE OF THE ENGINEER OF
RECORD, RELIEVES THE ENGINEER OF ANY AND ALL LEGAL
AND MONETARY OBLIGATIONS ARISING FROM ANY
CONTRACTUAL DISPUTES BETWEEN ANY PARTY TO THE
CONTRACT.



EXPANSION TANK

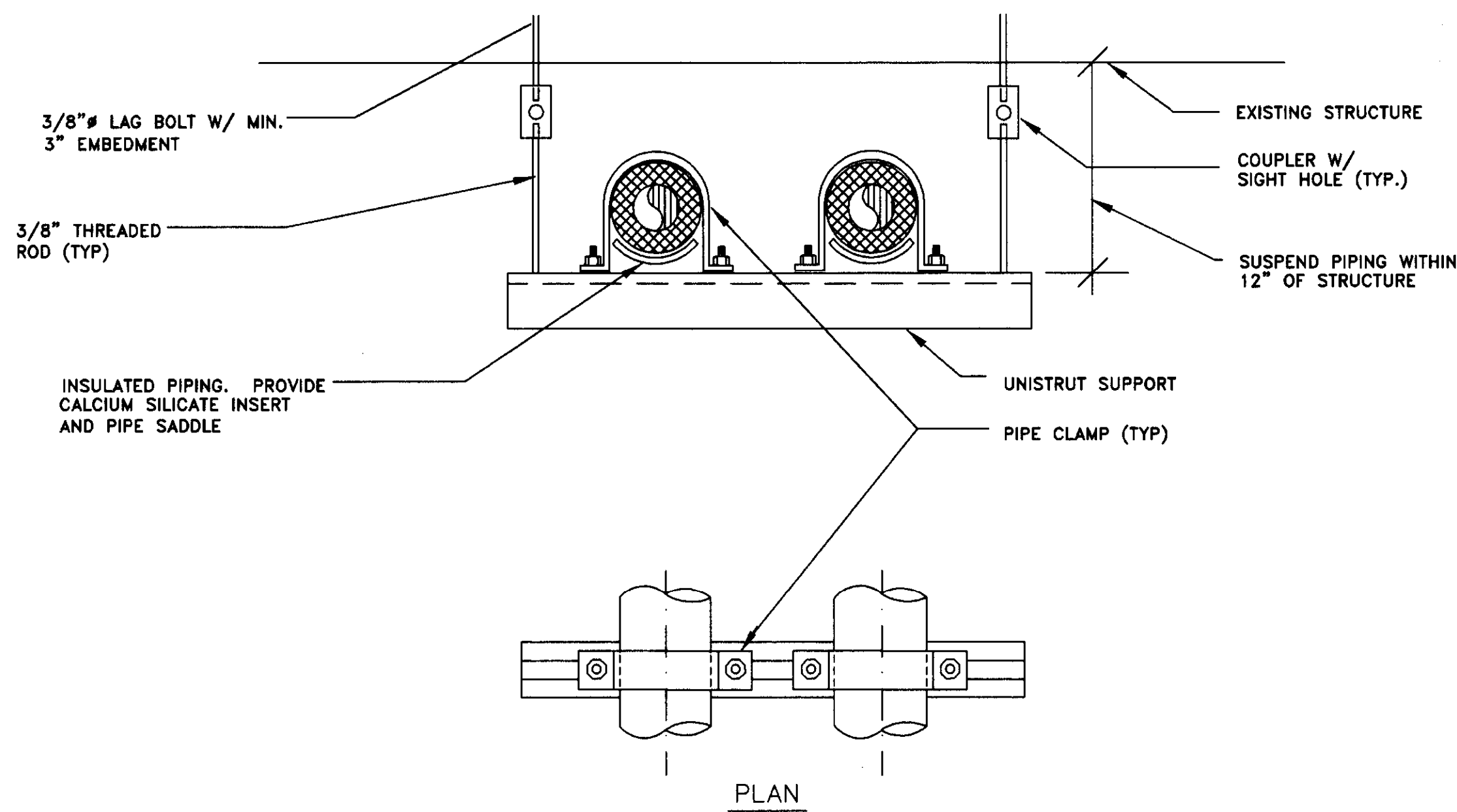
SCALE
NONE 7



NOTE: MOUNT UNIT PER MANUFACTURER'S INSTRUCTIONS

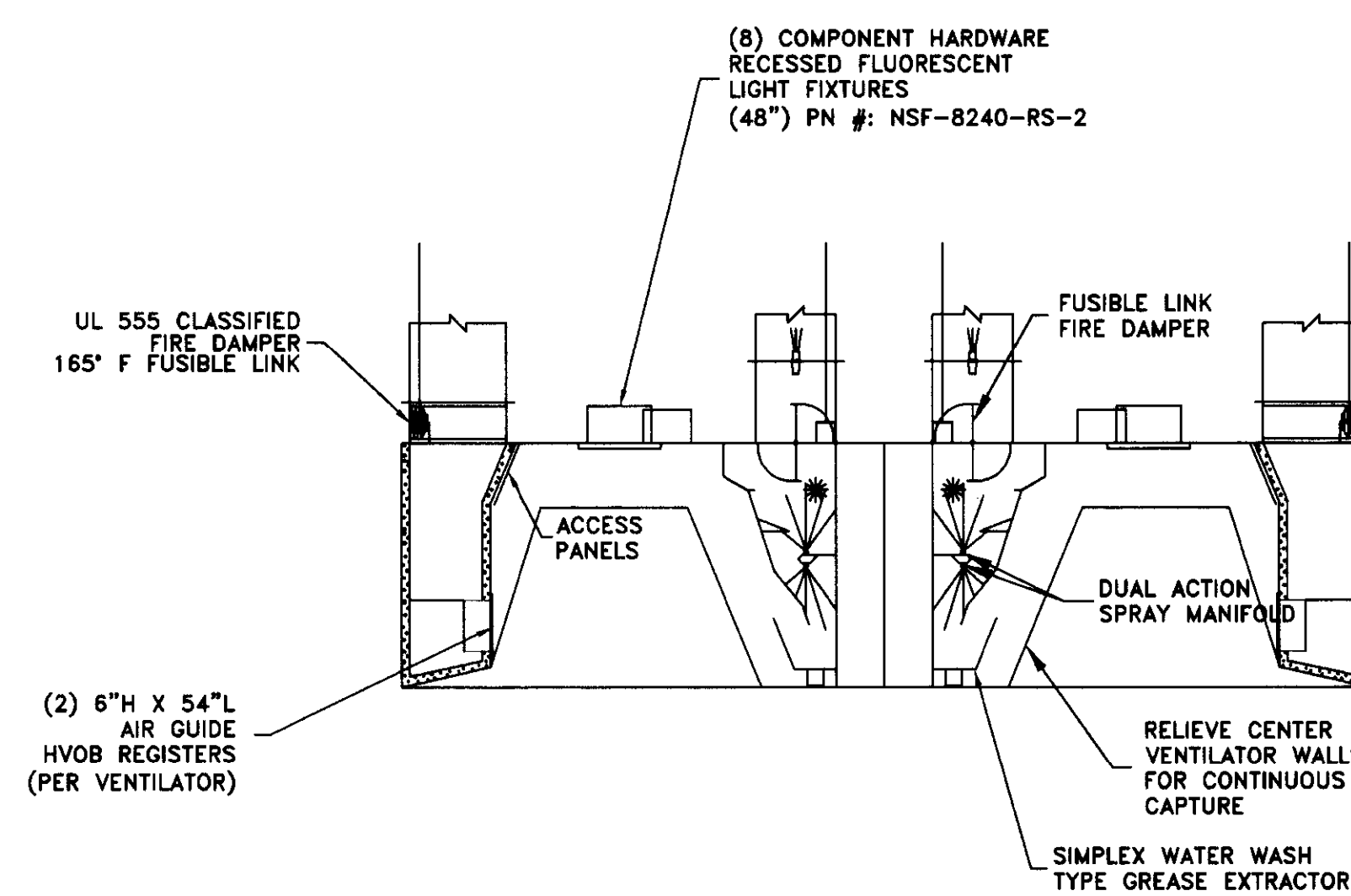
AIR CURTAIN MNTG DETAILS

SCALE
NONE 2



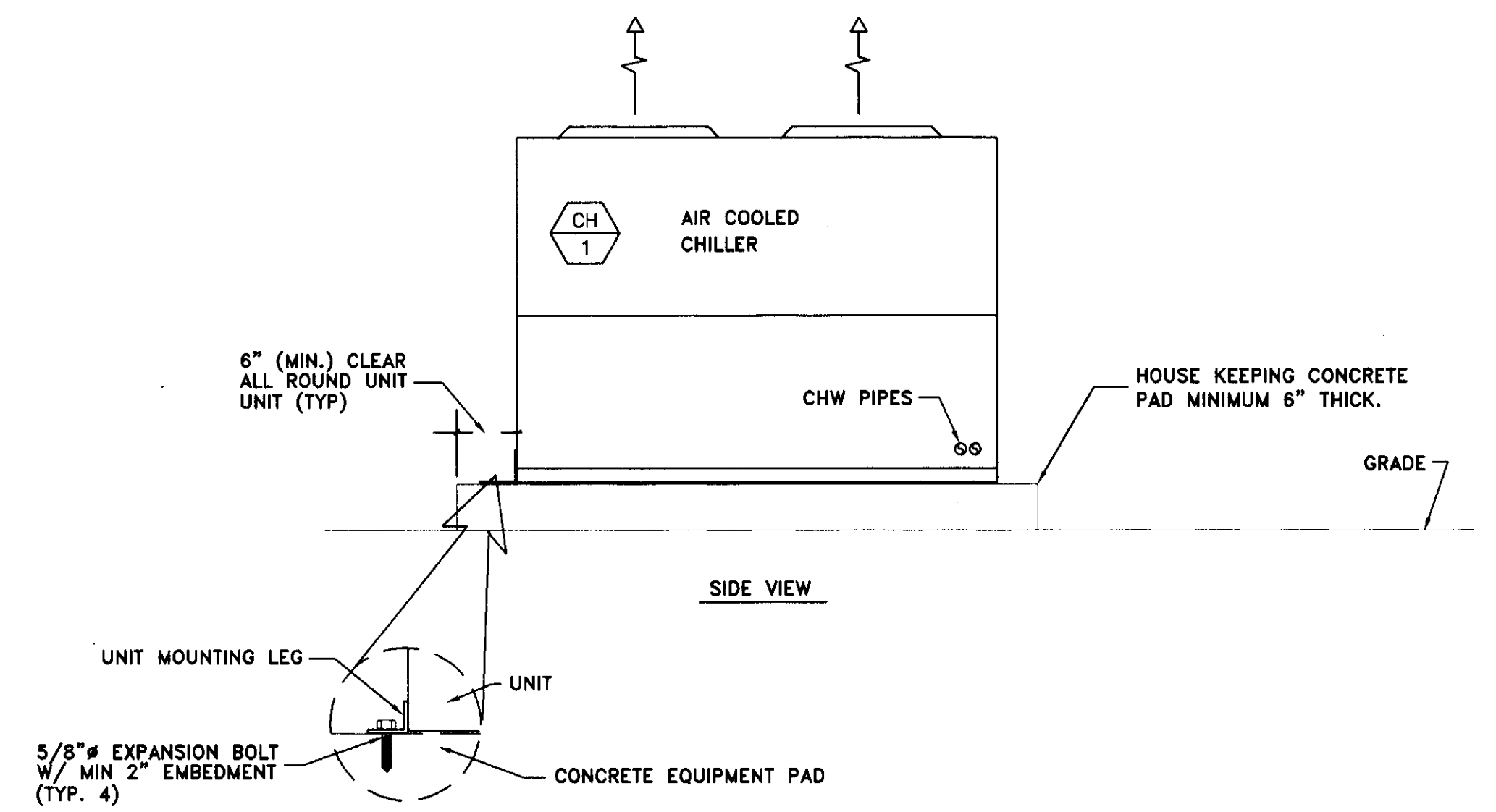
SUSPENDED PIPE SUPPORT

SCALE
NONE 6



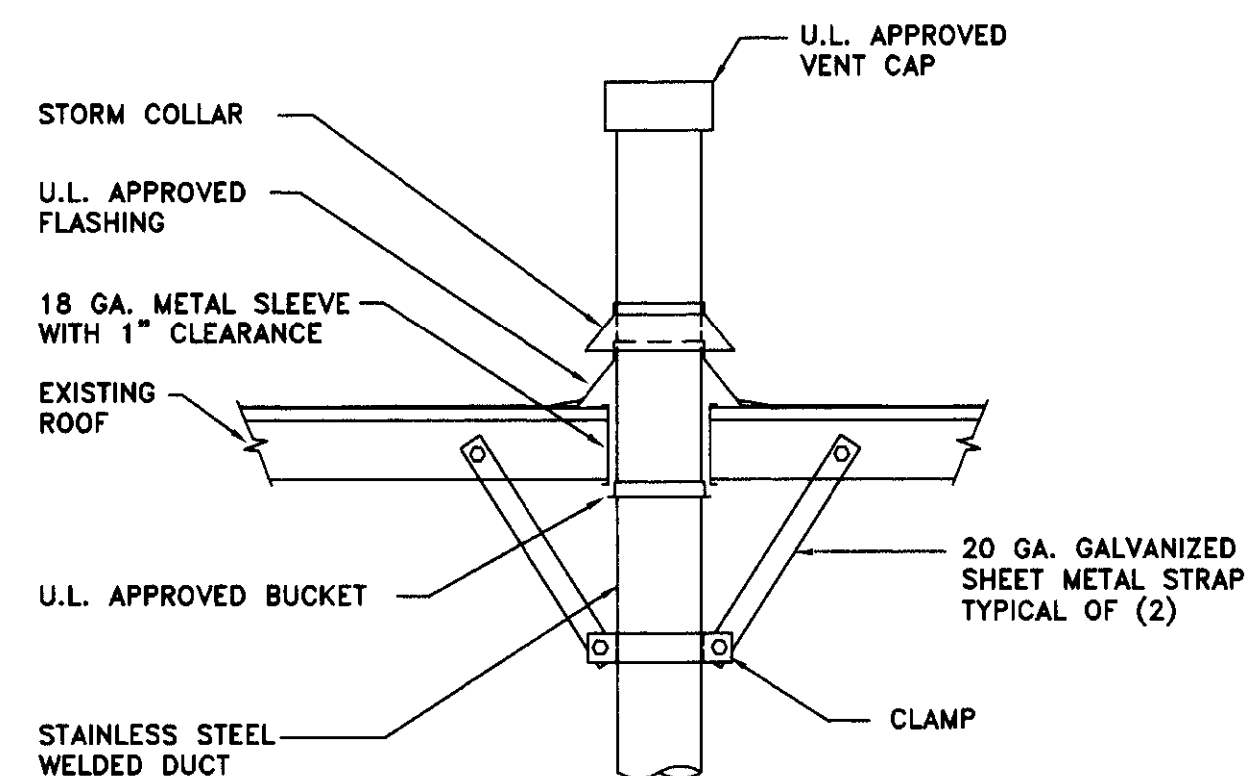
EXHAUST HOOD DETAIL

SCALE
NONE 3



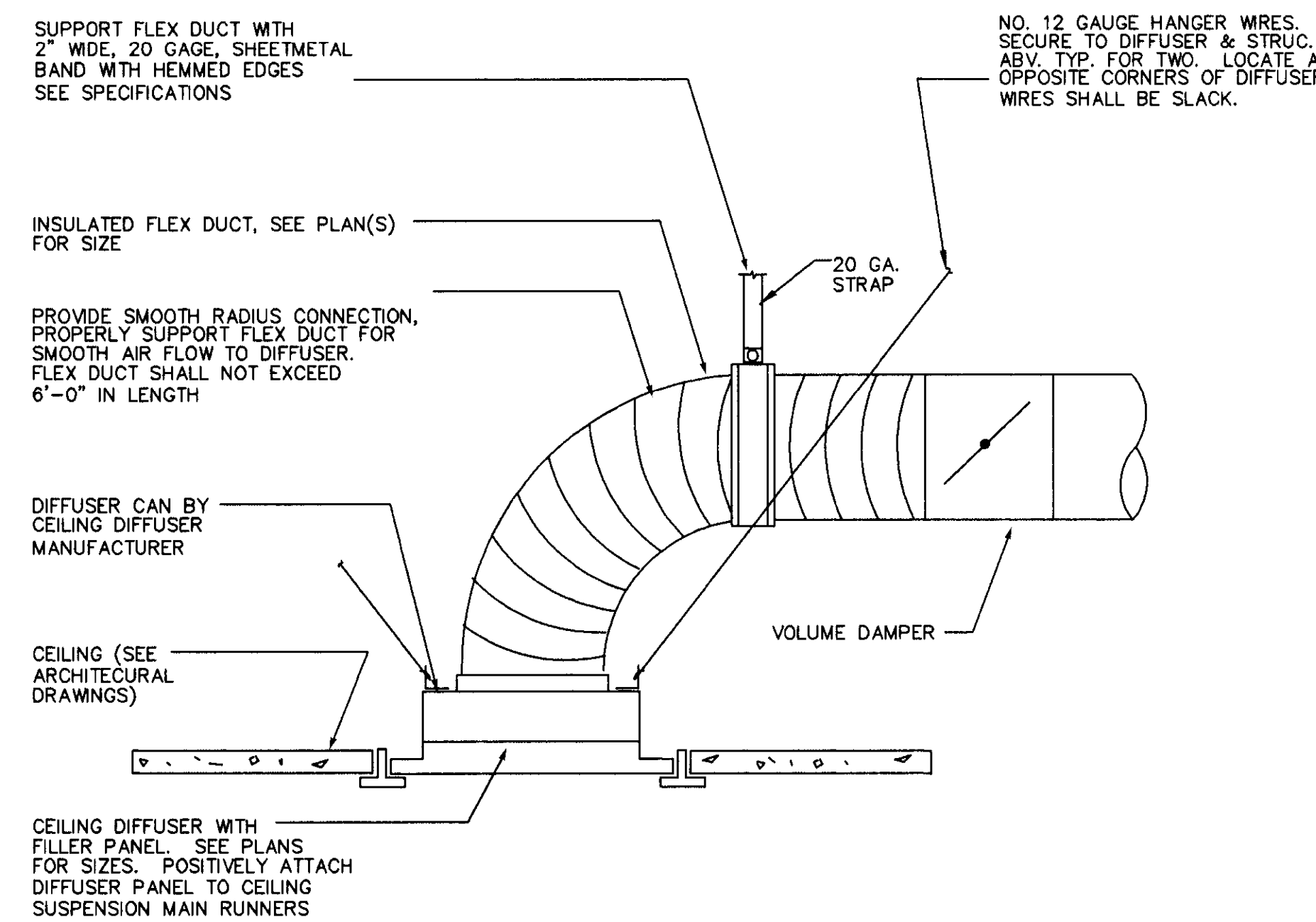
AIRCOOLED CHILLER MNTG DETAILS

SCALE
NONE 1



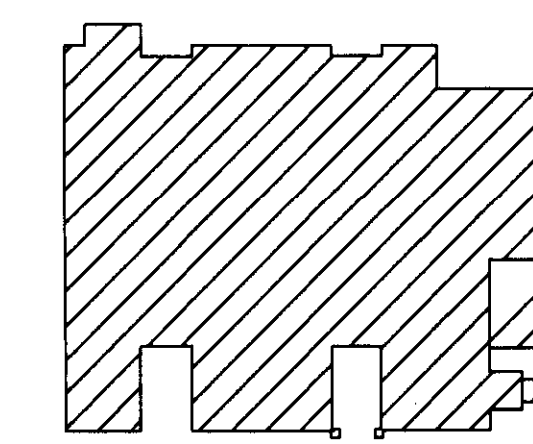
DISH WASHER DUCT THRU ROOF DETAIL

SCALE
NONE 5



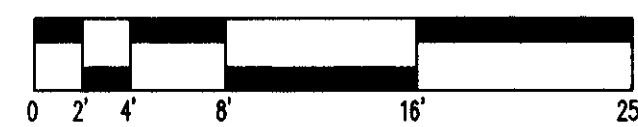
CEILING DIFFUSER MNTG DETAILS

SCALE
NONE 4



KEY PLAN

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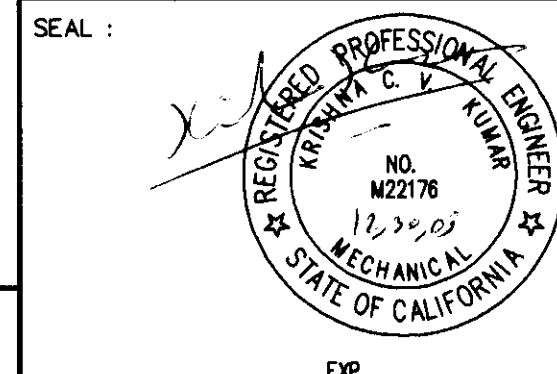


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SYMBOL	DESCRIPTION	INITIAL	DATE
	REVISION		

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Date: X	Drawing No.: 329-H16	Proj. No: 640-340	Sheet 77 Of 104

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