GENERAL NOTES - HVAC

1. INSTALL ALL MECHANICAL WORK TO AVOID ARCHITECTURAL FRAMING, STRUCTURAL MEMBERS, AND OTHER OBSTRUCTIONS. COORDINATE EQUIPMENT LOCATION WITH ALL APPLICABLE CONTRACT DRAWINGS PRIOR TO INSTALLATION.
2. INSTALL ALL DUCTWORK TO BEST SUIT FIELD CONDITIONS AND COORDINATE WITH THE INSTALLATION WORK OF OTHER TRADES. DRAWINGS ARE DIAGRAMMATIC AND SHALL NOT BE SCALED TO DETERMINE EXACT LOCATION OF MECHANICAL WORK.
3. INSTALL ALL DUCTS CONCEALED IN THE FURRED CEILING UNLESS OTHERWISE INDICATED.
4. PROVIDE ACCESS PANELS AT ALL CONCEALED VOLUME DAMPERS AND CONTROLS. REFER TO ARCHITECTURAL DRAWINGS FOR ALL LOUVERS AND DOOR GRILLES. MECHANICAL CONTRACTOR TO FURNISH ACCESS PANELS AND DOORS AND COORDINATE WITH OTHER TRADES.
5. ALL CEILING DIFFUSERS, REGISTERS AND OUTLETS SHALL BE COORDINATED WITH THE ARCHITECTURAL REFLECTED CEILING PLAN.
6. ALL DIFFUSER SIZES AND DUCT SIZES SHOWN ARE NET DIMENSIONS UNLESS OTHERWISE INDICATED.
7. CONTRACTOR SHALL REFER TO THE ELECTRICAL CONTRACT DOCUMENTS TO OBTAIN THE INFORMATION OF STARTERS, VOLTAGE PHASE, INTERLOCKING CONTROLS, AND MISCELLANEOUS EQUIPMENT SUCH AS RELAYS, STARTERS, ETC. SO THAT ALL ELECTRICAL APPARATUS SERVING MECHANICAL EQUIPMENT SHALL FULLY COMPLY WITH ELECTRICAL AND CONTROL REQUIREMENTS.
8. ALL SQUARE ELBOW TURNS IN LOW PRESSURE DUCTWORK SHALL HAVE TURNING VALVES.
9. ALL SUPPLY DUCTS SHALL BE TAPED WITH CANVAS AND ARABOL OR DUCT MASTIC.
10. ALL INTERNAL LININGS, FLEX DUCTS AND ADHESIVES SHALL BE LABELED IN ACCORDANCE WITH U.L. 181 STANDARD FOR SAFETY.
11. ALL DUCTWORK SHALL BE SUPPORTED AND BRACED IN ACCORDANCE WITH THE GUIDELINES FOR SEISMIC RESTRAINTS OF MECHANICAL, PLUMBING AND PIPING SYSTEMS AS PUBLISHED BY SMACNA.
12. ALL MECHANICAL EQUIPMENT SHALL BE SECURELY FASTENED IN PLACE PER UMC SECTION 504. FOLLOW MANUFACTURER'S INSTRUCTIONS FOR EQUIPMENT INSTALLATION.
13. ALL HVAC EQUIPMENT SHALL BE CERTIFIED BY ITS MANUFACTURER TO COMPLY WITH THE APPLICABLE ENERGY EFFICIENCY STANDARDS.
14. THERMOSTATS SHALL BE ABLE TO:
    a. MAINTAIN SPACE TEMPERATURE SET POINT FROM 55°F TO 85°F.
    b. SEQUENCE HEATING AND COOLING TO ASSURE THAT HEATING AND COOLING ARE NOT PROVIDED TO THE SPACE SIMULTANEOUSLY.
15. LOCATIONS FOR NEW DUCTWORK AND PIPING WERE ESTABLISHED FROM BEST AVAILABLE INFORMATION. ASSUME THAT THIS INFORMATION IS APPROXIMATE. CONTRACTOR SHOULD VERIFY EXACT LOCATION BEFORE STARTING WORK. SHOULD, DURING THE COURSE OF CONSTRUCTION CONDITIONS ARISE THAT INDICATE LOCATIONS OTHER THAN SHOWN, NOTIFY ARCHITECT IMMEDIATELY.
16. PRIOR TO SUBMISSION OF BID, VISIT THE SITE AND BECOME FAMILIAR WITH ALL CONDITIONS WITH RESPECT TO EXISTING CONDITIONS, CONNECTIION POINTS, ELEVATIONS, CLEARANCES, ETC. NO EXTRA PAYMENT WILL BE ALLOWED FOR WORK RESULTING FROM LACK OF PROPER APPRAISAL OF EXISTING CONDITIONS. AS IN ALL CONSTRUCTION, SOME EXPLORATION WILL BE REQUIRED TO LOCATE EXACT CONNECTION POINTS AND OPTIMUM ROUTES FOR DUCTWORK AND PIPING. THIS IS THE CONTRACTOR'S RESPONSIBILITY.

ENERGY EFFICIENCY STANDARDS MANDATORY MEASURES - MECHANICAL

- ☒ THERMOSTAT SHALL BE CAPABLE OF BEING SET TO MAINTAIN SPACE TEMPERATURE SET POINTS FROM 55°F TO 85°F. THERMOSTAT SHALL BE ADJUSTABLE TO PROVIDE A TEMPERATURE RANGE OF UP TO 10°F BETWEEN FULL HEATING AND FULL COOLING BEING SUPPLIED. THERMOSTAT SHALL HAVE THE CAPABILITY OF TERMINATING ALL HEATING AT A TEMPERATURE NOT MORE THAN 70°F AND OF TERMINATING COOLING AT A TEMPERATURE NOT LESS THAN 78°F.
- ☒ ALL TRANSVERSE JOINTS SHALL BE SEALED WITH HARDCAST INC. P-301 PEEL-N-SEAL INSTANT TAPE SEALANT FOR ROUND DUCTS, AND HARDCAST AM-401 FOR RECTANGULAR DUCTWORK.
- ☒ ALL FLEXIBLE DUCTS SHALL BE U.L.-181 LISTED AND LABELED.
- ☒ A MAINTENANCE LABEL SHALL BE ATTACHED TO ALL MECHANICAL EQUIPMENT AND A MAINTENANCE MANUAL SHALL BE FURNISHED TO THE OWNER FOR EACH PIECE OF EQUIPMENT.
- ☒ ALL DUCTWORK SHALL BE CONSTRUCTED, ERECTED AND TESTED IN ACCORDANCE WITH ASHRAE AND SMACNA STANDARDS. DUCTWORK SHALL BE GALVANIZED SHEET METAL AND CONSTRUCTED IN ACCORDANCE WITH ASHRAE AND SMACNA STANDARDS.
- ☒ ALL DUCTWORK SHALL BE INSULATED WITH 1-1/2" THICK, 3/4# DENSITY (R=4), EXCEPT THOSE INDICATED TO BE INTERNALLY LINED. ALL DUCTWORK SHOWN TO BE INTERNALLY LINED, SHALL BE LINED WITH 1" THICK, 1-1/2# DENSITY DUCTLINER.
- ☒ DUCT LINING, DUCT INSULATION AND PLENUM WALLS SHALL CONFORM TO U.L. 723.
- ☒ DUCT DIMENSIONS INDICATED ARE INSIDE CLEAR DIMENSIONS.
- ☒ ALL HVAC EQUIPMENT AND INSULATION SHALL BE CERTIFIED TO THE CALIFORNIA ENERGY COMMISSION AS MEETING THE LATEST TITLE 24 REQUIREMENTS.
- ☒ AIR HANDLING DUCT SYSTEMS SHALL BE CONSTRUCTED, INSTALLED, SEALED, AND INSULATED AS PROVIDED IN CHAPTER 10 OF THE 1991 UNIFORM MECHANICAL CODE
- ☒ EACH HVAC SYSTEM SHALL BE STARTED AND STOPPED THROUGH A TIME CLOCK OR PROGRAMMABLE TIME CLOCK/THERMOSTAT.
- ☒ EACH HVAC SYSTEM SHALL BE ABLE TO OPERATE ZONE HEATING AND COOLING IN SEQUENCE IF BOTH ARE PROVIDED.
- ☒ VENTILATION SHALL BE PROVIDED PER SECTION 2-5316 AND 2-5343.

AIR CONDITIONING UNIT SCHEDULE

MARK	LOCATION	MFR	MODEL	AREA SERVED	SUPPLY FAN DATA: CFM TOTAL	CFM O.A. (MIN.)	E.S.P. IN W.G.	RPM	HP	HEATING DATA: TYPE	MBH INPUT	MBH OUTPUT	AIR COOLED REFRIGERATION DATA: ENTERING AIR TEMP. DB°F	ENTERING AIR TEMP. WB°F	LEAVING AIR TEMP. DB°F	LEAVING AIR TEMP. WB°F	TOTAL MBH	NOMINAL CAPACITY TONS	CONDENSER FAN QUANTITY	CONDENSER FAN HP EACH	COMPRESSOR No.	COMPRESSOR LRA	COMPRESSOR RLA	AMBIENT TEMP.	ELECTRICAL DATA VOLT/ø	MCA	MFS	OPER. WEIGHT LBS	REMARKS
AC-1 AC-2 AC-3	ROOF	CARRIER	48HJD017	GYMNASIUM	6,000	1,100	1.2	1180	5.0	GAS	270	216	80.8	64.7	55.0	53.3	180	15	3	0.8 FLA	2	2x80	2x14.1	94	460/3	44	50	2,500	FURNISH W/ ECONOMIZER, POWER EXHAUSTER (FIELD INSTALLED), PROGRAMMABLE ELECTRONIC T'STAT, SIDE RETURN/SUPPLY CURB
AC-4	ROOF	CARRIER	48HJE008	LOCKER ROOMS, OFFICES	4,025	1,650	1.0	1220	2.0	GAS	120	98	80.8	64.7	55.0	53.3	90	7.5	2	0.7 FLA	2	2x44	2x6.4	94	460/3	21.9	25	1,200	FURNISH W/ ECONOMIZER, POWER EXHAUSTER, OVERSIZED MOTOR, ROOF CURB, PROGRAMMABLE ELECTRONIC T'STAT
AC-5	ROOF	CARRIER	48HJE004	CITY OFFICE, LOBBY	1,475	200	0.8	1180	1.0	GAS	50	40	80.8	64.7	55.0	53.3	36	3	1	0.4 FLA	1	39.0	5.1	94	460/3	11.7	15	700	FURNISH W/ ECONOMIZER, ROOF CURB, PROGRAMMABLE ELECTRONIC T'STAT

NOTE: PROVIDE AUTOMATIC SHUT-DOWN OF AC-1, AC-2, AC-3 & AC-4 UNITS UPON ACTIVATION OF DUCT SMOKE DETECTOR. REFER TO DETAIL 3/MP3.1.

GENERAL NOTES - PLUMBING

1. REFER TO THE SPECIFICATIONS AND PROJECT MANUAL FOR STANDARD DETAILS AND ALL INFORMATION NOT SHOWN ON THE DRAWINGS. SPECIFICATIONS GOVERN WHERE THEY EXCEED CODE REQUIREMENTS.
2. CONTRACTOR SHALL CONFORM TO THE REQUIREMENTS OF ALL APPLICABLE CODES.
3. INSTALL BACKFLOW PROTECTION DEVICES AS REQUIRED BY LOCAL CODE.
4. COORDINATE ALL WORK WITH ALL OTHER TRADES AND CONTRACTORS.
5. VERIFY SIZE, DEPTH, LOCATION AND ADEQUACY OF ALL UTILITIES, INCLUDING METER LOCATIONS AND SEWER INVERTS, BEFORE START OF WORK.
6. LINES BEYOND THE EXTERIOR OF BUILDING TO BE BURIED 24" MIN. TO CROWN UNLESS OTHERWISE NOTED.
7. SEWER AND STORM DRAIN LINES TO BE LAID WITH A SLOPE REQUIRED TO MAKE CONNECTION TO EXISTING SEWER AND STORM DRAIN LINES. COORDINATE WITH CIVIL DRAWINGS. MIN. SLOPE FOR NEW LINES IS 1/4" PER FOOT, WHERE POSSIBLE.
8. SEWER AND STORMWATER LINES ARE SEPARATE.
9. PROVIDE A CLEANOUT EVERY 50'-0" ON ALL SEWER LINES.
10. SET FLOOR DRAINS TO ELEVATIONS AND LOCATIONS SHOWN ON ARCHITECTURAL DRAWINGS.
11. PROVIDE AND INSTALL ACCESSIBLE TRAP PRIMERS WITH PIPING TO FLOOR DRAIN TRAPS. PROVIDE SHUTOFF VALVE UP STREAM OF TRAP PRIMER UNIT.
12. ALL PLUMBING VENTS THROUGH ROOF SHALL TERMINATE NOT LESS THAN 10 FEET FROM ANY FRESH AIR INTAKE.
13. ALL PIPING IN FINISHED AREAS SHALL BE CONCEALED UNLESS SPECIFICALLY SHOWN OTHERWISE.
14. REFER TO MECHANICAL PLANS FOR DRAINS, COLD WATER SUPPLY, ETC., TO/FROM EQUIPMENT. COORDINATE AND INSTALL TRAPPED CONDENSATE DRAIN PIPING TO THE AIR CONDITIONING UNITS PER LOCAL CODE REQUIREMENTS.
15. INSTALL GATE VALVE ON WATER LINES TO EACH GROUP OF FIXTURES. ENDS OF COLD WATER LINES SHALL HAVE SHOCK ABSORBERS INSTALLED IN AN INCONSPICUOUS LOCATION. PROVIDE ACCESS PANEL FOR SERVICING.
16. REFER TO MECHANICAL DRAWINGS FOR REQUIRED SUPPLEMENTAL INFORMATION AND CLARIFICATION.
17. COORDINATE ALL PLUMBING WORK WITH ALL OTHER WORK TO AVOID CONF-LICTS. PIPING SHALL BE ROUTED TO AVOID ARCHITECTURAL OPENINGS, STRUCTURAL MEMBERS, FIXTURES AND/OR ANY OTHER OBSTRUCTIONS. DRAWINGS ARE SCHEMATIC IN NATURE AND MAY NOT SHOW THE ACTUAL ROUTING. OFFSET PIPING WHERE REQUIRED.
18. REFER TO MECHANICAL, ELECTRICAL, AND SITE WORK PLANS FOR COORDI-NATION OF PLUMBING UTILITIES WITH OTHER TRADES.
19. UNDERGROUND PIPES SHALL BE LOCATED MIN. 1'-6" AWAY FROM LOAD BEARING FOOTING, OR AS DIRECTED BY STRUCTURAL ENGINEER.
20. CONNECTIONS BETWEEN DISSIMILAR PIPES SUCH AS COPPER AND IRON OR STEEL SHALL BE MADE WITH DIELECTRIC ISOLATING UNIONS.
21. RUN NEW COLD & HOT WATER AND VENT LINES ABOVE CEILING.
22. ALL HOT WATER SUPPLY AND RETURN PIPING SHALL BE INSULATED. INSULATION SHALL COMPLY WITH TITLE 24 OF THE CALIFORNIA ADMINISTRATION CODE (MINIMUM R=4).
23. ALL PLUMBING FIXTURES AND WATER HEATERS SHALL BE CERTIFIED TO COMPLY WITH CAC TITLE 24 STANDARDS.
24. PLUMBING CONTRACTOR IS RESPONSIBLE FOR ALL TRENCHING, BACKFILLING, REPAVING, AND RESTORATION OF EXISTING SURFACES DUE TO THE PLUMBING WORK SPECIFIED.
25. PLUMBING CONTRACTOR IS RESPONSIBLE FOR CONDENSATE PIPING CONNECTIONS TO MECHANICAL EQUIPMENT.
26. LAY OUT CORE DRILLING ON THE STRUCTURAL SURFACES AND OBTAIN APPROVAL OF STRUCTURAL ENGINEER PRIOR TO ACTUAL CORE DRILLING.
27. SAW CUTTING, BREAKOUT AND DEBRIS DISPOSAL OF EXISTING FLOOR SLABS ARE BY PLUMBING CONTRACTOR.
28. PROVIDE SEISMIC RESTRAINT BRACING FOR PIPE SUPPORTS AS REQUIRED BY STATE AND LOCAL CODES.
29. THE LOCATION OF EXISTING UTILITIES WAS ESTABLISHED FROM BEST AVAILABLE INFORMATION. ASSUME THAT THIS INFORMATION IS APPROXIMATE. CONTRACTOR SHOULD VERIFY EXACT LOCATION BEFORE STARTING WORK. SHOULD, DURING THE COURSE OF CONSTRUCTION CONDITIONS ARISE THAT INDICATE LOCATIONS OTHER THAN SHOWN, NOTIFY ARCHITECT IMMEDIATELY.
30. PRIOR TO SUBMISSION OF BID, VISIT THE SITE AND BECOME FAMILIAR WITH ALL CONDITIONS IN RESPECT TO EXISTING UTILITIES, CONNECTION POINTS, ELEVATIONS, CLEARANCES, ETC. NO EXTRA PAYMENT WILL BE ALLOWED FOR WORK RESULTING FROM LACK OF PROPER APPRAISAL OF EXISTING CONDITIONS. AS IN ALL CONSTRUCTION, SOME EXPLORATION WILL BE REQUIRED TO LOCATE EXACT CONNECTION POINTS AND OPTIMUM ROUTES FOR PIPING. THIS IS CONT-RACTOR'S RESPONSIBILITY.
31. NON-METALLIC DWV AND WATER PIPES ARE NOT PERMITTED INSIDE THE BUILDING.

AIR OUTLETS SCHEDULE

MARK	MFR	TYPE	FACE SIZE	FRAME TYPE	MATERIAL	REMARKS
CD-1	TITUS	TMR	AS NOTED	SURFACE	STEEL	ROUND DIFFUSER
CD-2	TITUS	PSS	24x24	LAY-IN OR SURFACE	STEEL	
ER-1	TITUS	350ZFL	12x12	SURFACE	STEEL	
RR-1	TITUS	TMR	24x24	SURFACE	STEEL	ROUND REGISTER
RR-2	TITUS	PAR	24x24	LAY-IN	STEEL	
SR-1	TITUS	300FL	AS NOTED	SURFACE	STEEL	

NOTE: 1. ALL NECK SIZES & CFM'S ARE SHOWN ON PLANS

EXHAUST FAN SCHEDULE

MARK	LOCATION SERVED	MFR	MODEL	CFM	S.P. IN.W.G.	RPM	SONES	MOTOR HP	MOTOR VOLT	MOTOR PHASE	WEGHT LB'S	REMARKS
EF-1	TOILET EXHAUST	GREENHECK	GB-120-4	1,100	0.25	1110	7.5	1/4	120	1	50	ROOF MOUNT EXHAUST BLOWER. FURNISH W/ BDD, DISCONNECT SWITCH & ROOF CURB
EF-2	LOCKER ROOMS EXHAUST	GREENHECK	GB-120-4	1,400	0.25	1390	10.2	1/4	120	1	80	ROOF MOUNT EXHAUST BLOWER. FURNISH W/ BDD, DISCONNECT SWITCH & ROOF CURB
EF-3	JANITOR CLOSET EXHAUST	NUTON	MODEL 672	110	-	-	4.0	0.7 AMPS	120	1	5	CEILING-SUSPENDED EXHAUST FAN, INTERLOCK WITH LIGHT SWITCH

NOTES: 1. CONNECT FAN EF-1 & EF-3 TO TIME CLOCK. SEE DIAGRAM 2/MP2.1.
2. INTERLOCK OPERATION OF FAN EF-2 WITH UNIT AC-4.

PLUMBING FIXTURE CONNECTION SCHEDULE

SYM.	FIXTURE	CW	HW	W	V
WC-1	WATER CLOSET, WALL MOUNT, FLUSH VALVE	1¼"	—	4"	2"
UR-1	URINAL	3/4"	—	2"	1½"
L-1	LAVATORY, WALL HUNG (CW/HW)	1/2"	1/2"	2"	1½"
EWC-1	ELECTRIC WATER COOLER, DOUBLE	1/2"	—	2"	1½"
EWC-2	ELECTRIC WATER COOLER, SINGLE	1/2"	—	2"	1½"
DF-1	DRINKING FOUNTAIN, OUTDOOR	1/2"	—	2"	1½"
C-1	CUSPIDOR	1/2"(3)	—	2"(3)	—
KS-1	KITCHEN SINK	1/2"	1/2"	2"	1½"
MS-1	MOP SINK	3/4"	3/4"	3"	2"
FD	FLOOR DRAIN, FINISHED FLOOR	1/2" (1)	—	2"	1½"
WH-1	WATER HEATER	3/4" IN	3/4" OUT	3" (2)	

(1) TRAP PRIMER CONNECTION
(2) OVERFLOW DRAIN TO SPILL OVER MOP SINK
(3) COLD WATER LINE AND DRAIN CONNECTED TO ADJACENT WATER COOLER EWC-2

EQUIPMENT SCHEDULE

MARK	DESCRIPTION
WH 1	ELECTRIC HOT WATER HEATER CAPACITY: 30-GALLONS STORAGE TANK, 46 GPH RECOVERY RATE AT 80-DEGREES RISE. ELECTRICAL: TWO (2)x4,500 WATTS ELEMENTS @ 460 VOLT, 3ø. WEIGHT: 350 LBS (WITH WATER). SIZE: 30-5/8" HIGH, 20" DIAMETER. "BRADFORD WHITE" MODEL LD-30L3-3G090.
WH 2	INSTANT HOT WATER HEATER INSTANT HOT WATER HEATER, 4-GALLONS TANK, FLOW ACTIVATED WITH IN-LINE FLOW CONTROL. 1,500 WATTS CAPACITY, AT 120 V, 1 PHASE. MODEL ELC-4 BY "A.O. SMITH". INSTALL T&P VALVE. MOUNT ON WALL BELOW SINK.

LEGEND - PLUMBING

(line)	W	WASTE ABOVE FLOOR OR GRADE
(line)	W	WASTE BELOW FLOOR OR GRADE
(line)	V	VENT
(line)	CW	COLD WATER
(line)	HW	HOT WATER
—CD—	CD	CONDENSATE DRAIN
—G—	G	NATURAL GAS
—SD—	SD	STORM (ROOF) DRAIN
(symbol)	FCO	FLOOR CLEANOUT
(symbol)	GCO	GRADE CLEANOUT
(symbol)	WCO	WALL CLEANOUT
(symbol)	CO	CLEANOUT
(symbol)	FD	FLOOR DRAIN
(symbol)	HB	HOSE BIBB
(symbol)	WH	WALL HYDRANT
(symbol)	GV	GATE OR GLOBE (SHUT-OFF) VALVE
(symbol)	CK	CHECK VALVE
	ABV.	ABOVE
	B/F	BELOW FLOOR
	BOP	BOTTOM OF PIPE OR PIPE INSULATION
	CFH	CUBIC FOOT PER HOUR (GAS)
	COND.	CONDENSATE
	LF	LINEAR FOOT
	OD	OVERFLOW ROOF DRAIN
	RWL	RAIN WATER LEADER
	RD	ROOF DRAIN
	SA	SHOCK ABSORBER
	SOV	SHUT-OFF VALVE
	TD	TRENCH DRAIN
	U/G	UNDER GROUND
	VR	VENT RISER
	VTR	VENT THRU ROOF
	WH	WATER HEATER

NOT ALL ABBREVIATIONS SHOWN ABOVE MAY BE APPLICABLE TO THE DESIGN DOCUMENTS OF THIS PROJECT

ABBREVIATIONS

AC	AIR CONDITIONING	LRA	LOCKED ROTOR AMPS
AP	ACCESS PANEL	MBH	THOUSAND BRITISH UNITS
BDD	BACK DRAFT DAMPER	MFR	MANUFACTURER
BOR	BOTTOM OF REGISTER	MFS	MAXIMUM FUSE SIZE
BTUH	BRITISH THERMAL UNITS PER HOUR	MCA	MINIMUM CIRCUIT AMPACITY
CD	CEILING DIFFUSER	MIN.	MINIMUM
C.F.D.	CEILING FIRE DAMPER	N/A	NOT APPLICABLE
CFM	CUBIC FEET PER MINUTE	NIC	NOT IN CONTRACT
CLG.	CEILING	NO.	NUMBER
CONN.	CONNECTION (CONNECT)	NOM.	NOMINAL
CONT.	CONTINUATION	(N)	NEW
DFPT	DOUGLAS FIR PRESSURE TREATED (BLOCKS)	O.A.	OUTSIDE AIR
DL	DOOR LOUVER	O.A.I.	OUTSIDE AIR INTAKE
DB	DRY BULB	O.C.	ON CENTERS
DN	DOWN	OPER.	OPERATING
DWG.	DRAWING	R.A.	RETURN AIR
EF	EXHAUST FAN	RPM	REVOLUTIONS PER MINUTE
EA.	EACH	RLA	RATED LOAD AMPS
(E)	EXISTING	RR	RETURN REGISTER
ER	EXHAUST REGISTER	RTU	ROOF TOP UNIT
EXH.	EXHAUST	S.A.	SUPPLY AIR
E.S.P.	EXTERNAL STATIC PRESSURE	S.M.	SHEET METAL
F.D.	FIRE DAMPER	S.P.	STATIC PRESSURE
F.S.D.	FIRE/SMOKE DAMPER	SR	SUPPLY REGISTER
FLA	FULL LOAD AMPS	TEMP.	TEMPERATURE
FLR.	FLOOR	T'STAT	THERMOSTAT
FLEX.	FLEXIBLE	T.S.P.	TOTAL STATIC PRESSURE
FT.	FOOT	TS	TUBE STEEL
GA.	GAUGE	TYP.	TYPICAL
G.C.	GENERAL CONTRACTOR	V.D.	VOLUME DAMPER
GF	GAS FURNACE	W/	WITH
HP	HORSE POWER	WB	WET BULB
HZ	HERTZ	W.G.	WATER GAUGE
IN.	INCH		
KW	THOUSAND WATTS		
LB.	POUND		

NOT ALL ABBREVIATIONS SHOWN ABOVE MAY BE APPLICABLE TO THE DESIGN DOCUMENTS OF THIS PROJECT

LEGEND - HVAC

(symbol)		NEW DUCTWORK
(symbol)		SUPPLY DUCT - SECTION
(symbol)		RETURN DUCT - SECTION
(symbol)		EXHAUST DUCT - SECTION
(symbol)		DUCT TURNING VANES
(symbol)	FC	DUCT FLEXIBLE CONNECTION
(symbol)	VD	MANUAL VOLUME DAMPER
(symbol)		ROUND TO RECTANGULAR TRANSITION
(symbol)	CD	CEILING SUPPLY DIFFUSER
(symbol)	RR	RETURN REGISTER
(symbol)		DUCT SIZE CHANGE
(symbol)		FLEXIBLE DUCT
11		ROOM NUMBER
AC 1		EQUIPMENT MARK
(symbol)	POC	POINT OF CONNECTION
(T)	T'STAT	ROOM THERMOSTAT

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REGISTERED PROFESSIONAL ENGINEER PETER L. KOGAN No. M024758 Exp. 06.30.03 MECHANICAL STATE OF CALIFORNIA

NO.	ISSUES/REVISONS	DATE
1.	50% CONSTRUCTION DOCUMENTS	10/21/99
2.	80% CONSTRUCTION DOCUMENTS	11/08/99
3.	DSA PERMIT SUBMITTAL	11/23/99
4.	DSA BACKCHECK	3/31/00

NEW GYMNASIUM AT IRON HORSE MIDDLE SCHOOL

FOR THE

SAN RAMON VALLEY UNIFIED SCHOOL DISTRICT AND CITY OF SAN RAMON

KEY PLAN

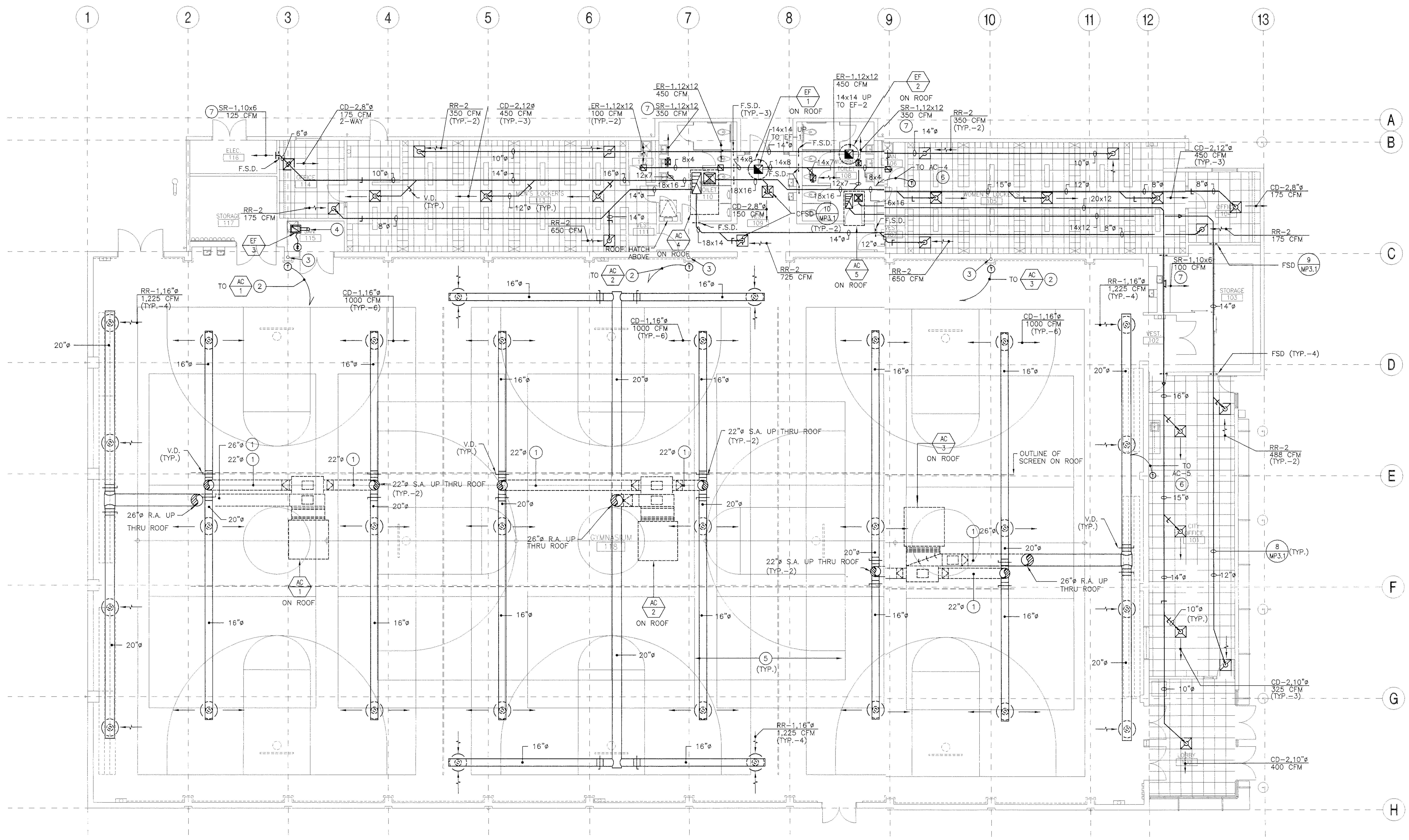
PROJECT NO.: 98305.00 DRAWN BY: BZ
DATE: 3/31/00 CHECKED BY: PK
SCALE: NONE

SHEET TITLE:
NOTES, SCHEDULES, LEGEND, ABBREVIATIONS

DSA BACKCHECK

SHEET NO:
MP1.1

If this drawing is not 30"x42", then the drawing has been revised from its original size. Noted scales must be adjusted. This line should be equal to one inch



NOTE:

1. DO NOT INSULATE EXPOSED DUCTWORK IN GYMNASIUM.

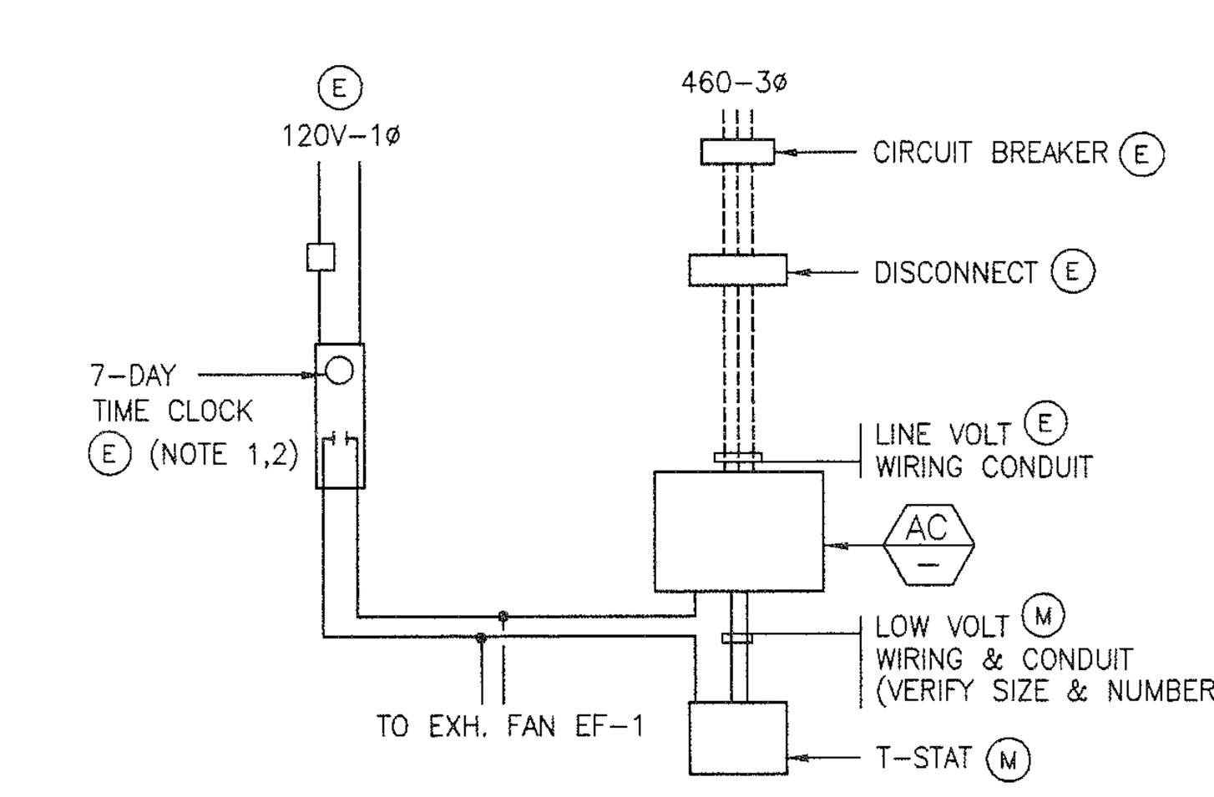
FLOOR PLAN

SCALE: 1/8"=1'-0"

1 / MP2.1

KEYED NOTES

1	DUCTWORK ON ROOF. REFER TO DETAIL 2/MP3.1.
2	WALL-MOUNTED THERMOSTAT AT 48" AFF, UNDER LOCKABLE, HEAVY-DUTY STEEL COVER.
3	PROVIDE 1/2"ø CONDUIT FOR THERMOSTAT CONTROL WIRING, EMBEDDED IN CMU WALL, FROM 48" AFF TO THE ROOF. FURNISH PULL CABLES, ETC.
4	6"ø DUCT UP THRU ROOF TERMINATE WITH ROOF RAIN CAP.
5	BOTTOM OF DIFFUSER TO BE APPROXIMATELY AT THE LEVEL OF BOTTOM OF ROOF JOISTS.
6	WALL MOUNTED THERMOSTAT AT 48" AFF. MOUNT UNDER LOCKABLE CLEAR COVER.
7	PROVIDE VOLUME DAMPER IN DIFFUSER'S THROAT, CONTROLLED FROM THE FACE OF DIFFUSER.



M PROVIDED & INSTALLED BY MECH. CONTR.

E PROVIDED & INSTALLED BY ELECT. CONTR.

NOTES:

1. SET TIME CLOCK TO OPERATE ALL (5) AC UNITS AND EXHAUST FAN EF-1 DURING NORMAL BUSINESS HOURS.
2. TIME CLOCK TO BE WIRED BY ELECTRICAL CONTRACTOR.

AC UNIT SCHEMATIC CONTROL DIAGRAM

NOT TO SCALE

2 / MP2.1

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3.	DSA PERMIT SUBMITTAL	11/23/99
4.	DSA BACKCHECK	3/31/00

NEW GYMNASIUM AT IRON HORSE MIDDLE SCHOOL

FOR THE

SAN RAMON VALLEY UNIFIED SCHOOL DISTRICT AND CITY OF SAN RAMON

KEY PLAN

IDENTIFICATION STAMP
DIVISION OF THE STATE ARCHITECT
APPL 01 102923
AC DB FLS ... SS AB
DATE 3/31/00

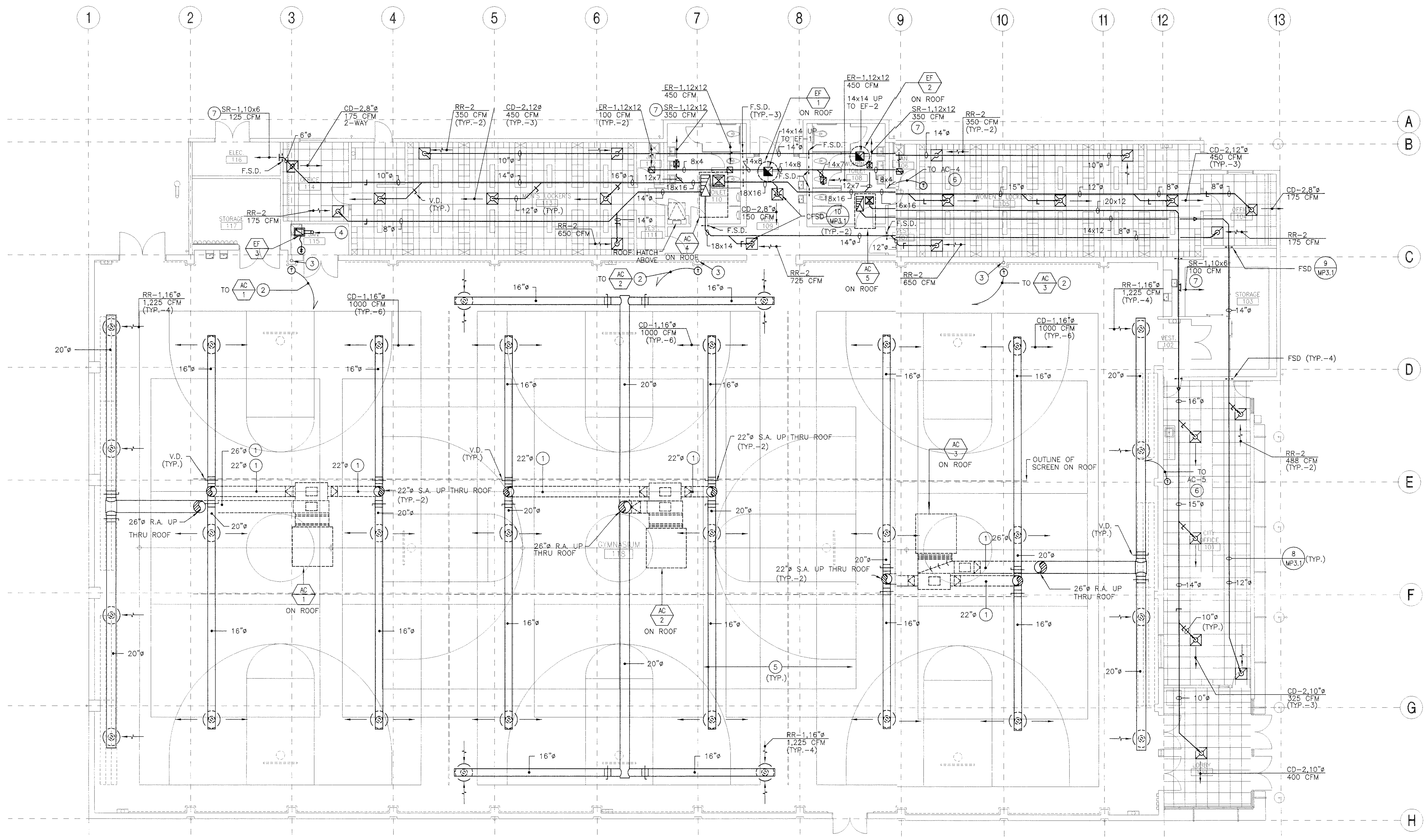
PROJECT NO.: 98305.00 DRAWN BY: BZ
DATE: 3/31/00 CHECKED BY: PK
SCALE: AS NOTED

SHEET TITLE:
MECHANICAL FLOOR PLAN

DSA BACKCHECK

SHEET NO:
MP2.1

If this drawing is not 30"x42", then the drawing has been revised from its original size. Noted scales must be adjusted. This line should be equal to one inch



NOTE:

1. DO NOT INSULATE EXPOSED DUCTWORK IN GYMNASIUM.

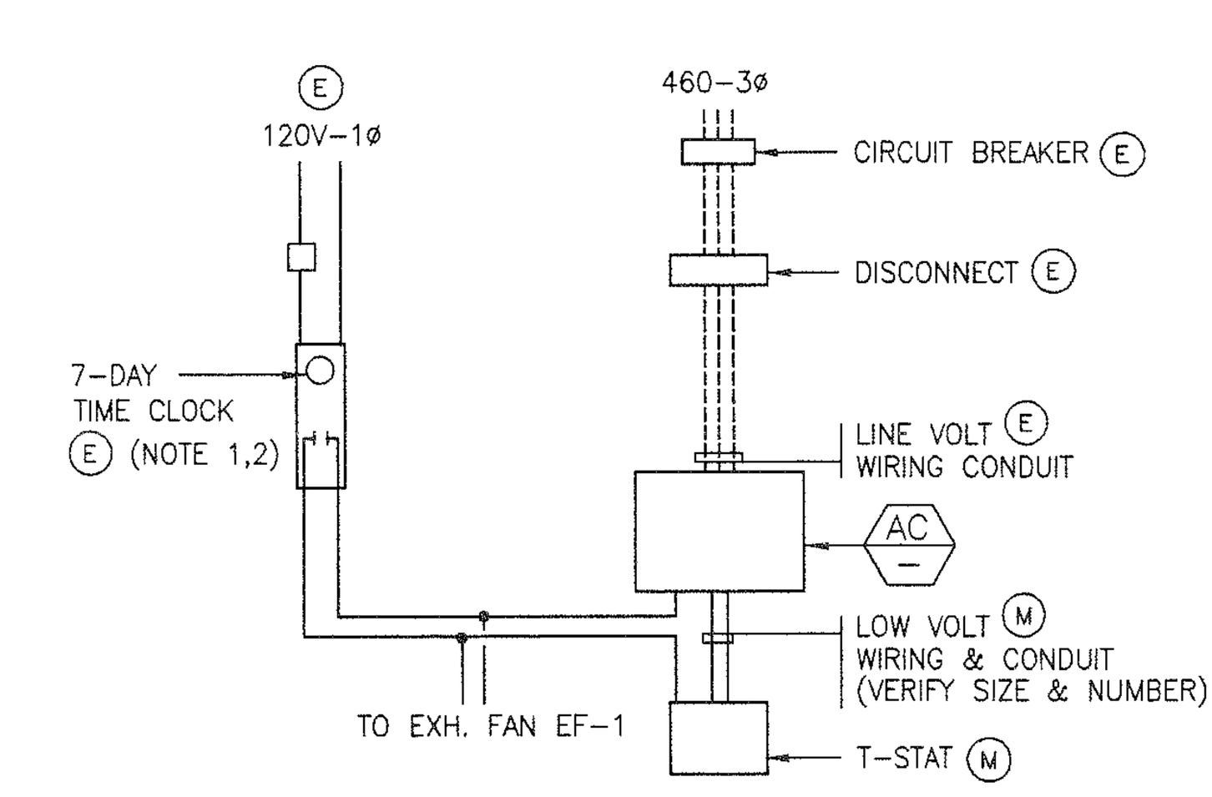
FLOOR PLAN

SCALE: 1/8"=1'-0"

1 / MP2.1

KEYED NOTES

1	DUCTWORK ON ROOF. REFER TO DETAIL 2/MP3.1.
2	WALL-MOUNTED THERMOSTAT AT 48" AFF, UNDER LOCKABLE, HEAVY-DUTY STEEL COVER.
3	PROVIDE 1/2"ø CONDUIT FOR THERMOSTAT CONTROL WIRING, EMBEDDED IN CMU WALL, FROM 48" AFF TO THE ROOF. FURNISH PULL CABLES, ETC.
4	6"ø DUCT UP THRU ROOF TERMINATE WITH ROOF RAIN CAP.
5	BOTTOM OF DIFFUSER TO BE APPROXIMATELY AT THE LEVEL OF BOTTOM OF ROOF JOISTS.
6	WALL MOUNTED THERMOSTAT AT 48" AFF. MOUNT UNDER LOCKABLE CLEAR COVER.
7	PROVIDE VOLUME DAMPER IN DIFFUSER'S THROAT, CONTROLLED FROM THE FACE OF DIFFUSER.



NOTES:

1. SET TIME CLOCK TO OPERATE ALL (5) AC UNITS AND EXHAUST FAN EF-1 DURING NORMAL BUSINESS HOURS.
2. TIME CLOCK TO BE WIRED BY ELECTRICAL CONTRACTOR.

AC UNIT SCHEMATIC CONTROL DIAGRAM

NOT TO SCALE

2 / MP2.1

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LICENSED ARCHITECT CHARLES A. HIGUERAS C 17067 REN. 5/31/01 STATE OF CALIFORNIA

PETER KOGAN ASSOCIATES
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Fax: 415-512-7456

REGISTERED PROFESSIONAL ENGINEER PETER L. KOGAN No. M024758 Exp. 06.30.03 MECHANICAL STATE OF CALIFORNIA

NO.	ISSUES/REVISONS	DATE
1.	50% CONSTRUCTION DOCUMENTS	10/21/99
2.	80% CONSTRUCTION DOCUMENTS	11/08/99
3.	DSA PERMIT SUBMITTAL	11/23/99
4.	DSA BACKCHECK	3/31/00

NEW GYMNASIUM AT IRON HORSE MIDDLE SCHOOL

FOR THE

SAN RAMON VALLEY UNIFIED SCHOOL DISTRICT AND CITY OF SAN RAMON

KEY PLAN

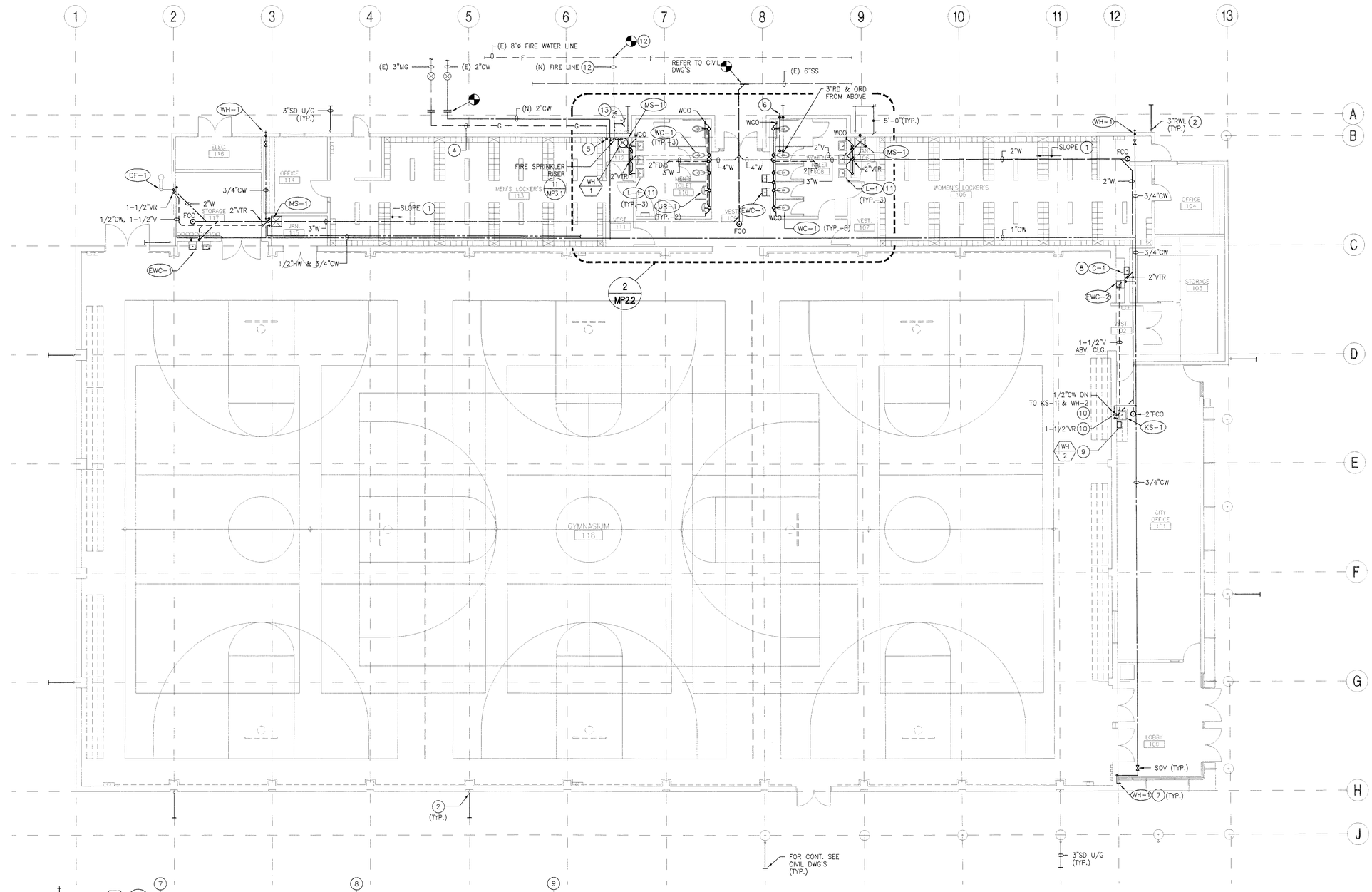
IDENTIFICATION STAMP
DIVISION OF THE STATE ARCHITECT
APPL 01 102923
AC DS FLS SS
DATE 3/31/00

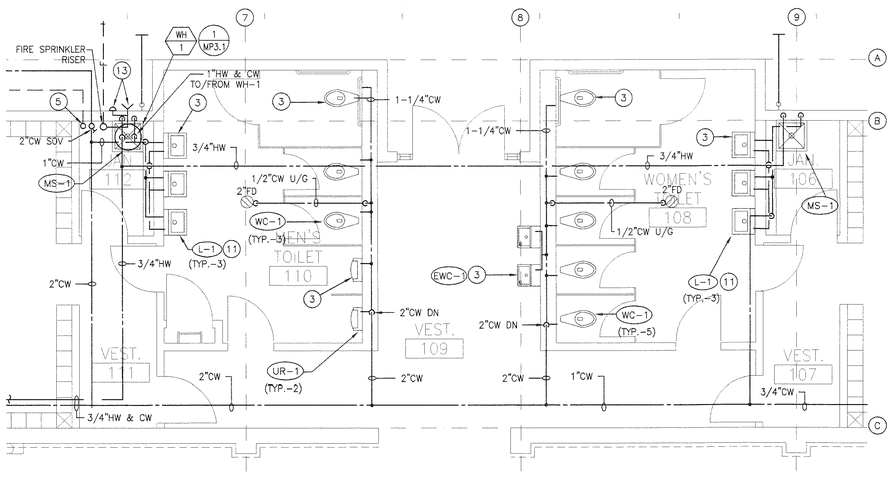
PROJECT NO.: 98305.00 DRAWN BY: BZ
DATE: 3/31/00 CHECKED BY: PK
SCALE: AS NOTED

SHEET TITLE:
MECHANICAL FLOOR PLAN

DSA BACKCHECK

SHEET NO:
MP2.1





WATER

FLOOR PLAN

SCALE: 1/8"=1'-0"

1 / MP2.2

FLOOR PLAN - TOILET ROOMS

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

2 / MP2.2

KEYED NOTES

1. RUN NEW WASTE LINES WITH MINIMUM SLOPE OF 1/4"/LF.
2. 3"ø RAIN WATER LEADER EXPOSED. PROVIDE WALL CLAMPS AS REQUIRED (MAX. 8-FT. ON CENTERS). SEE ARCHITECTURAL PLANS, DETAILS 3/A8.01 AND 4/A8.01.
3. MOUNT FOR HANDICAPPED ACCESS. REFER TO ARCHITECTURAL DRAWINGS.
4. DETERMINE SIZE OF REQUIRED GAS LINE, FROM POINT OF CONNECTION AND TO INSIDE JAN. CLOSET #113, BASED ON AVAILABLE GAS PRESSURE - COORDINATE AND VERIFY WITH PG&E. TOTAL REQUIRED GAS LOAD ~1,000 CFH.
5. PRESSURE REDUCING VALVE AS REQUIRED TO LOWER GAS PRESSURE TO 11 INCHES OF WATER COLUMN. 3" GAS RISER UP THRU ROOF, WITH SHUT-OFF VALVE.
6. OVERFLOW STORM DRAIN LINE TO TERMINATE WITH A NOZZLE AT 6" AFF. DOWNSPOUT NOZZLE SHALL BE ZURN MODEL Z-199 OR EQUAL. REFER TO DETAIL 5/A8.01.
7. WALL HYDRANT MOUNTED AT 18" ABOVE GRADE.
8. CONNECT WASTE AND COLD WATER LINES FROM CUSPIDOR TO ADJACENT WATER COOLER.
9. INSTANT WATER HEATER MOUNTED ON WALL, BELOW COUNTER.
10. 1-1/2" VENT AND 1/2"CW INSIDE CMU BLOCKS. INSTALL PRIOR TO FILLING CMU WITH CONCRETE. COAT AND WRAP PIPES INSIDE CMU WALL TO PREVENT RUSTING.
11. HANG LAVATORIES ON CMU WALL. SLEEVE PIPES THROUGH CMU TO STUD WALL BEHIND.
12. CONNECT NEW FIRE WATER LINE TO EXISTING 8"ø FIRE LINE ON NORTH SIDE OF THE BUILDING. SIZE OF LINE TO BE DETERMINED BY DESIGN-BUILD CONTRACTOR.
13. PROPOSED LOCATION FOR FIRE DEPARTMENT CONNECTION AND ~~WATER GONG~~. P.I.V. THIS U.G. FIRE SERVICE IS DEFFERED APPROVAL & SHOWN FOR INFORMATION ONLY. SUBMIT PLANS & SPECS. TO ARCHITECT & DSA FOR REVIEW AND APPROVAL.

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REGISTERED PROFESSIONAL ENGINEER
PETER L. KOGAN
No. M024758
Exp. 06.30.03
MECHANICAL
STATE OF CALIFORNIA

NO.	ISSUES/REVISIONS	DATE
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NEW GYMNASIUM AT IRON HORSE MIDDLE SCHOOL

FOR THE

SAN RAMON VALLEY UNIFIED SCHOOL DISTRICT AND CITY OF SAN RAMON

KEY PLAN

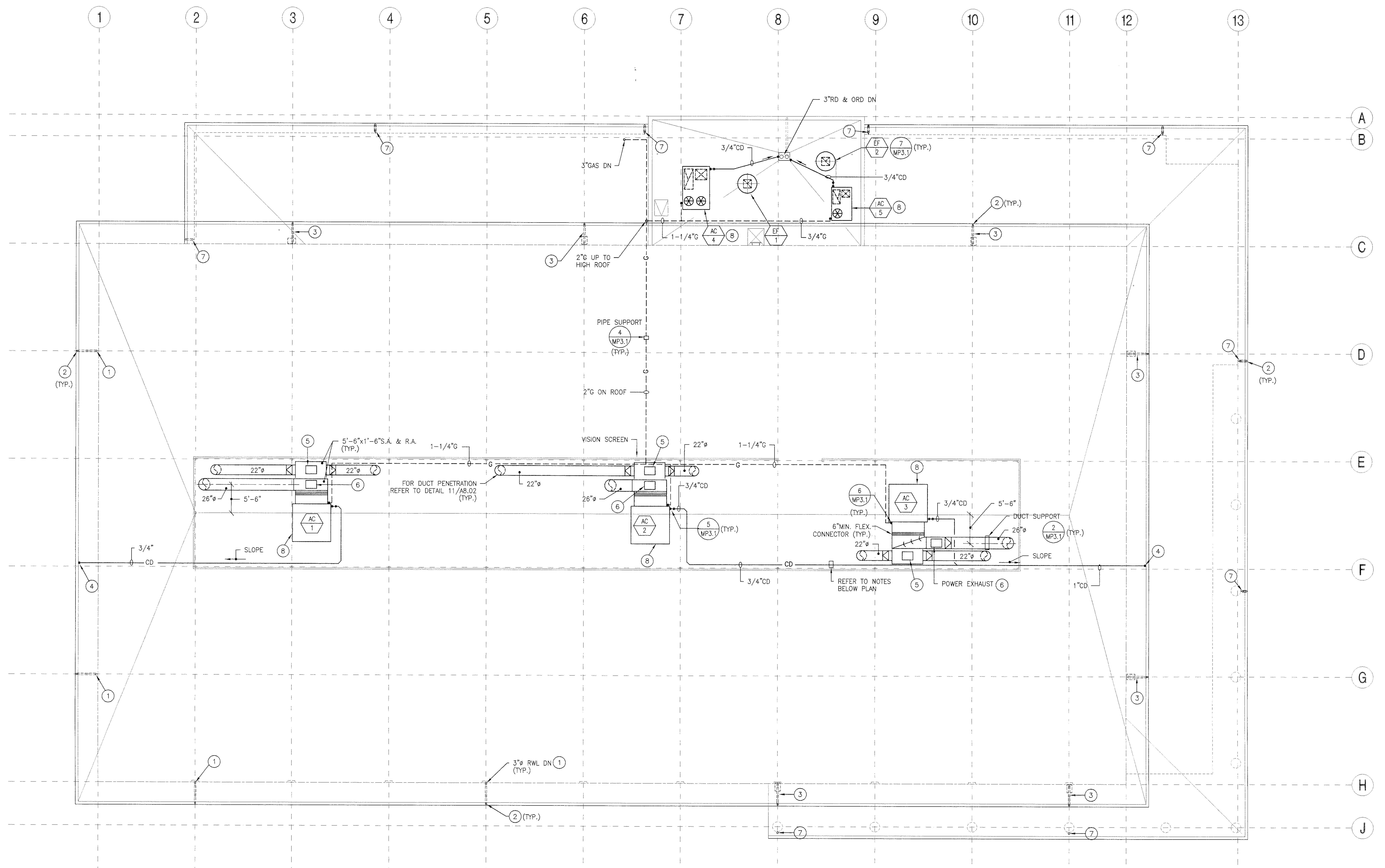
IDENTIFICATION STAMP
DIVISION OF THE STATE ARCHITECT
APP.01 102825
AC FLS SS
DATE 3/31/00

PROJECT NO.: 98305.00 DRAWN BY: BZ
DATE: 3/31/00 CHECKED BY: PK
SCALE: AS NOTED

SHEET TITLE:
PLUMBING
FLOOR PLAN

DSA BACKCHECK

SHEET NO:
MP2.2



NOTES:
1. CONDENSATE DRAIN PIPING SHALL BE COPPER TYPE "M" DWV PIPE, PER SECTION 15400.
2. PROVIDE SUPPORTS FOR HORIZONTAL GAS AND CONDENSATE PIPING PER UPC 1994, TABLE 3-1.

CONDENSATE (COPPER):	1-1/2"ø & SMALLER – 6 FEET ON CENTERS
GAS (STEEL):	1/2"ø – 6 FEET ON CENTERS
	3/4"ø & 1"ø – 8 FEET ON CENTERS
	1-1/4"ø & LARGER – 10 FEET ON CENTERS

ROOF PLAN

SCALE: 1/8"=1'-0"

1
MP2.3

KEYED NOTES

1. RAIN WATER LEADER FROM HIGH ROOF DOWN TO UNDERGROUND. FOR CONTINUATION SEE MP2.2.
2. PROVIDE WIRE STRAINER (GUARD) OR CAST IRON DOME FOR ALL RAIN WATER LEADERS AT GUTTERS – TYPICAL FOR ALL.
3. RAIN WATER LEADER TO SPILL ON LOW ROOF – SEE ARCHITECTURAL DRAWINGS.
4. CONDENSATE DRAIN LINE TO TERMINATE INTO ROOF DRAIN GUTTER WITH DOWNTURN ELBOW AND SPILL.
5. DUCT SMOKE DETECTOR ON SUPPLY DUCT PLENUM, IN WEATHERPROOF COVER. REFER TO DETAIL 3/MP3.1.
6. FIELD-INSTALLED POWER EXHAUSTER. PROVIDE ALL REQUIRED FIELD ASSEMBLING, WIRING AND INTERCONNECTIONS.
7. RAIN WATER LEADER FROM LOW ROOF TO UNDERGROUND. FOR CONTINUATION SEE MP2.2. REFER TO ARCHITECTURAL DETAILS ON A8.01 FOR RAIN WATER LEADERS INSTALLATION.
8. REFER TO ARCHITECTURAL DETAIL 15/A8.02 FOR CURB AT ROOFTOP UNITS.

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NEW GYMNASIUM AT IRON HORSE MIDDLE SCHOOL

FOR THE

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KEY PLAN

IDENTIFICATION STAMP
DIVISION OF THE STATE ARCHITECT
APPL 01 102328
AC BS FLS SS AB
DATE 3/31/00

PROJECT NO.: 98305.00 DRAWN BY: BZ
DATE: 3/31/00 CHECKED BY: PK
SCALE: 1/8"=1'-0"

SHEET TITLE:
MECHANICAL/PLUMBING ROOF PLAN

DSA BACKCHECK

SHEET NO:
MP2.3

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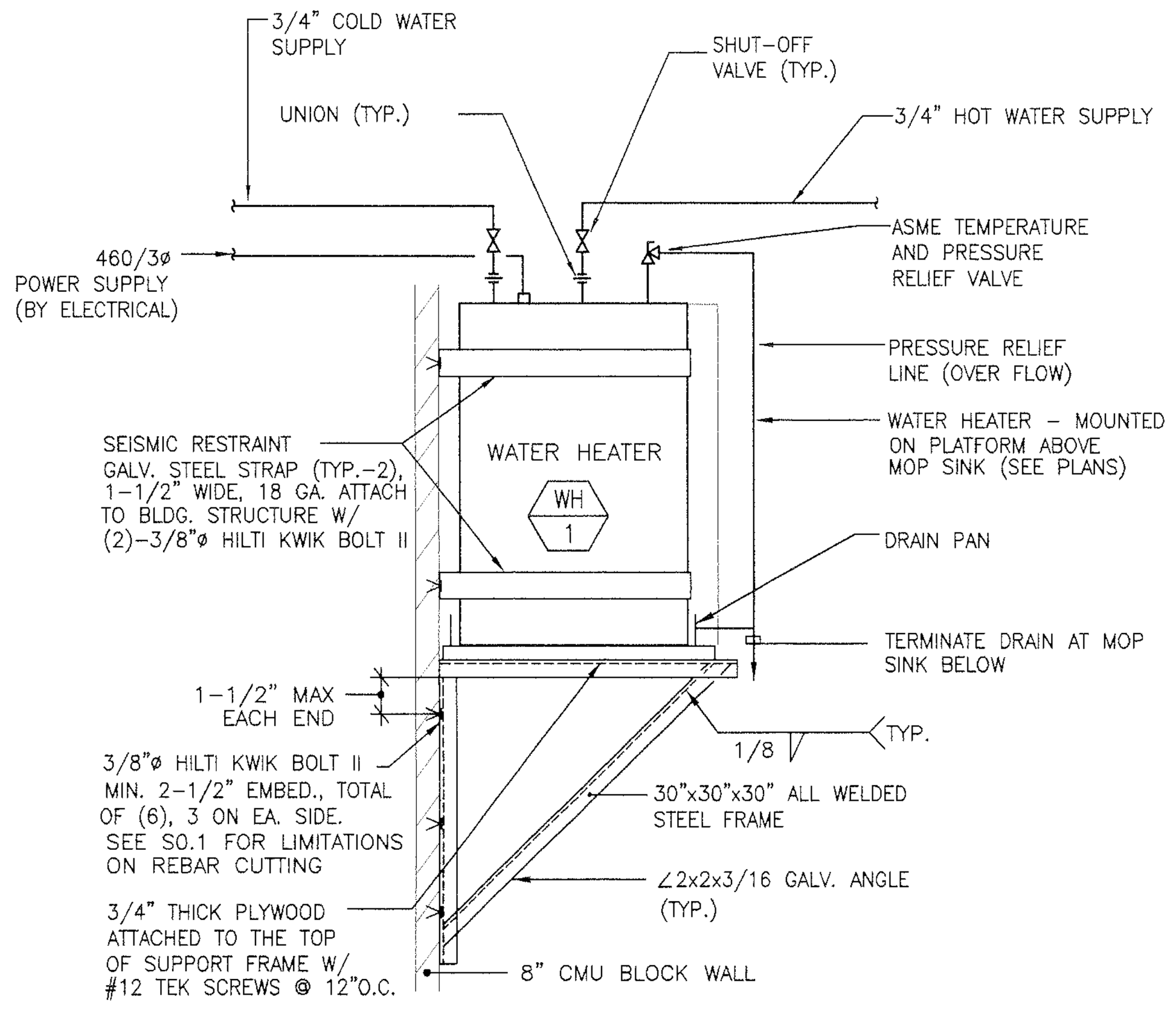
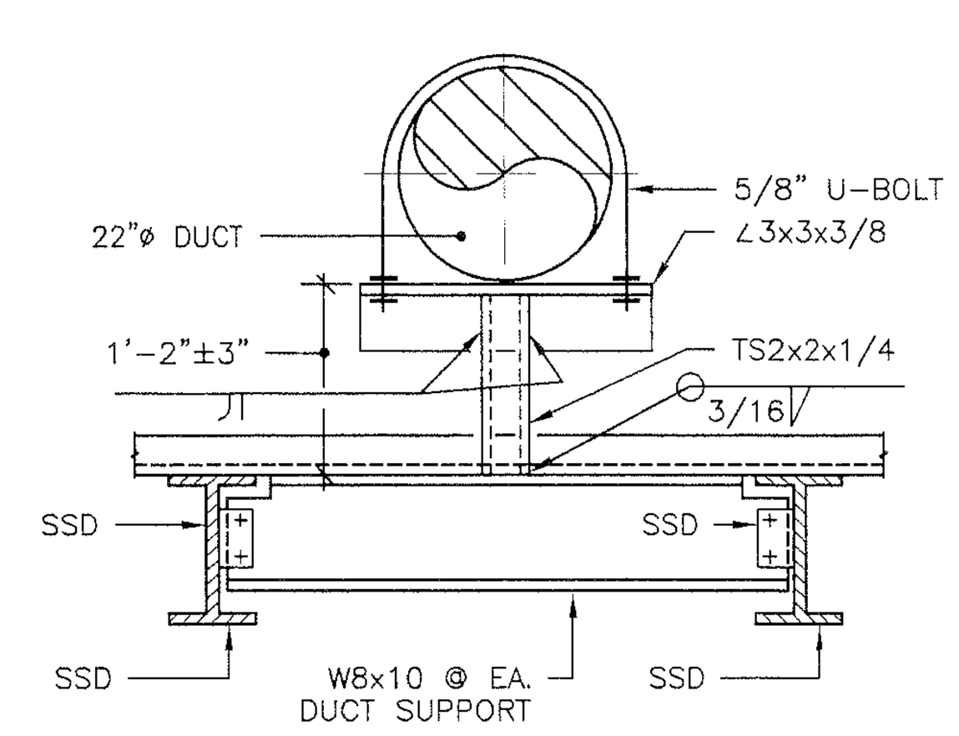
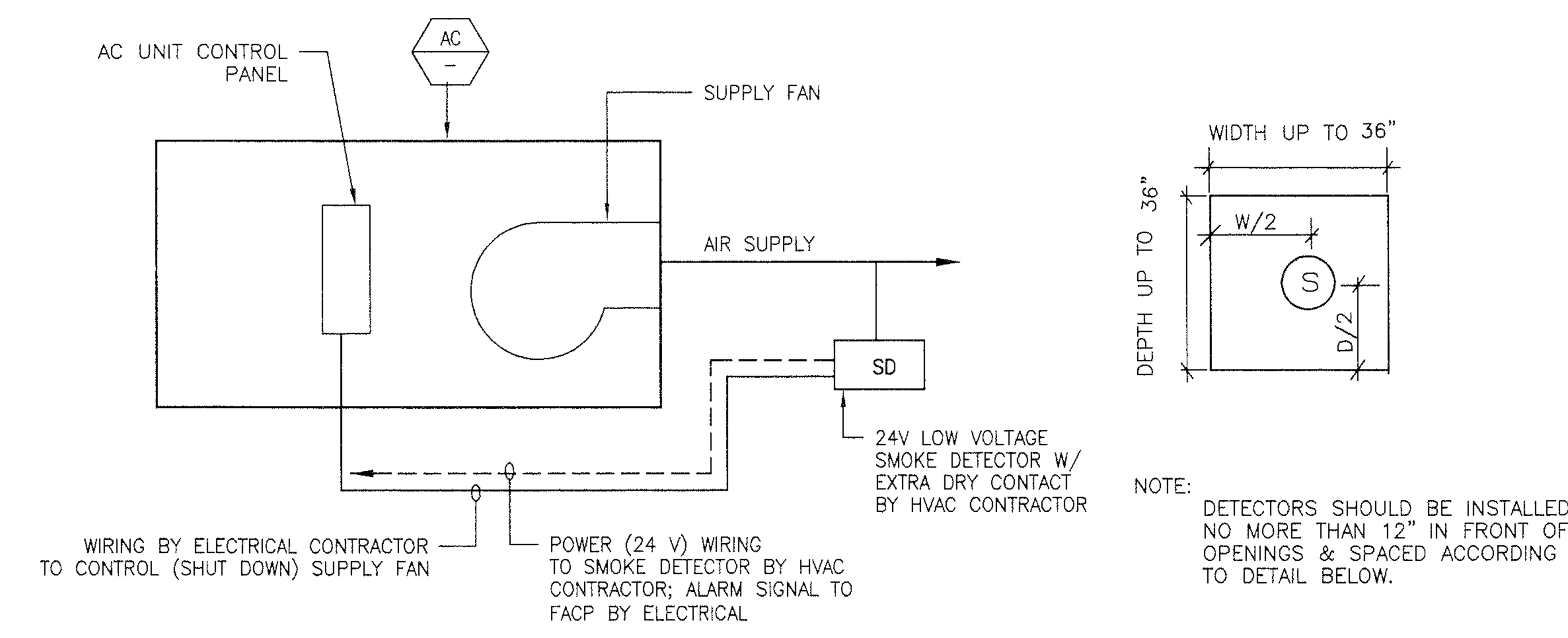


ELECTRIC WATER HEATER WH-1
1 / MP3.1
NOT TO SCALE



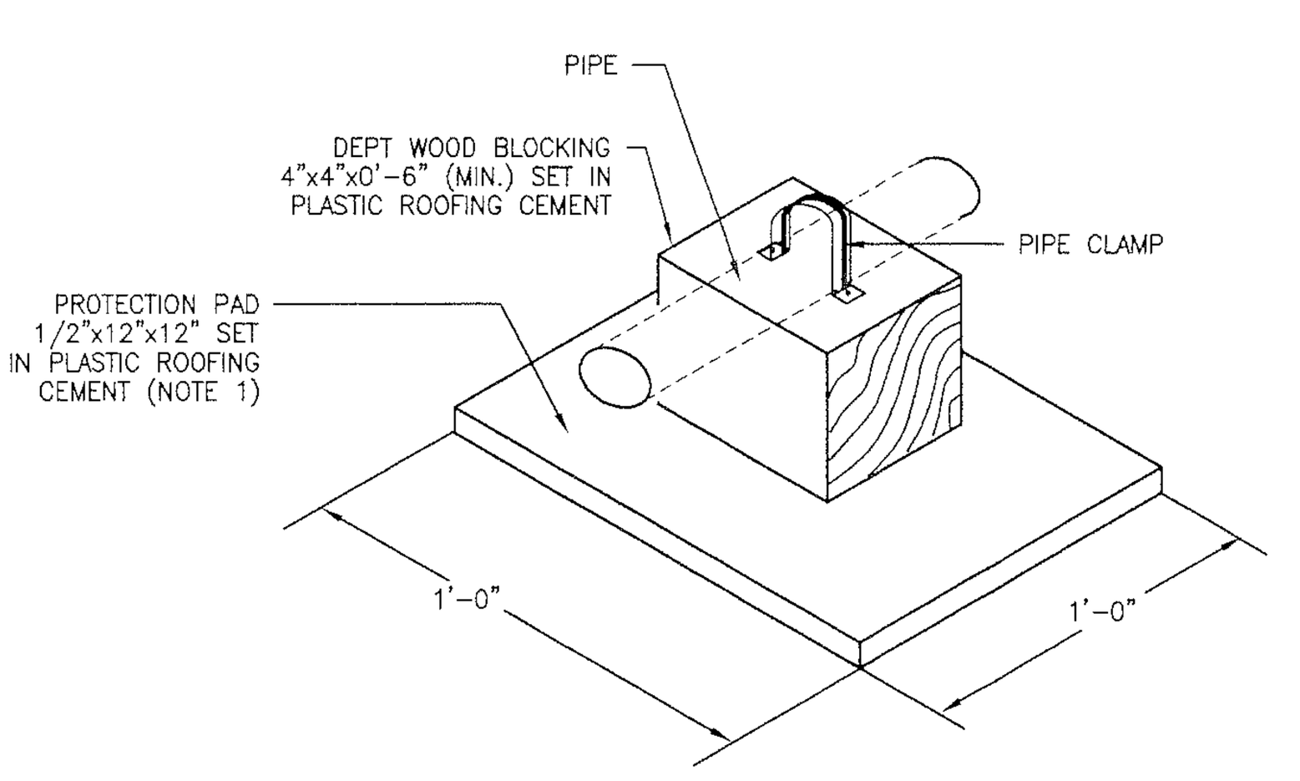
NOTES: PROVIDE DUCTS SUPPORTS FOR ALL ROOF MOUNTED DUCTS AS SHOWN ON THIS DETAIL. SPACE SUPPORTS AT 8'-0" O.C. MAX.

TYPICAL ROOF MOUNTED DUCT SUPPORT
2 / MP3.1
NOT TO SCALE



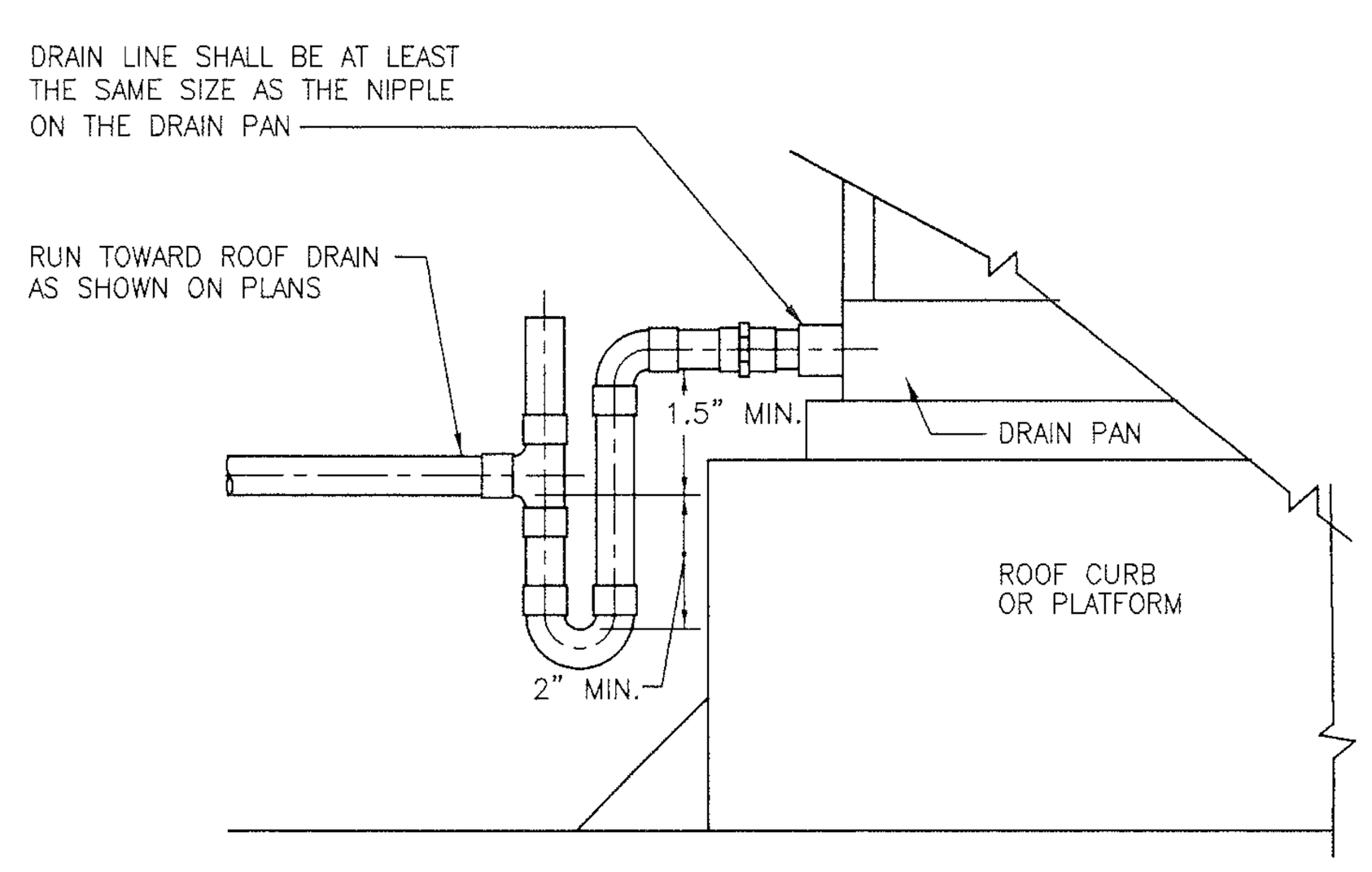
NOTE: DETECTORS SHOULD BE INSTALLED NO MORE THAN 12" IN FRONT OF OPENINGS & SPACED ACCORDING TO DETAIL BELOW.

AC UNIT SMOKE DETECTOR SCHEMATIC
3 / MP3.1
NOT TO SCALE

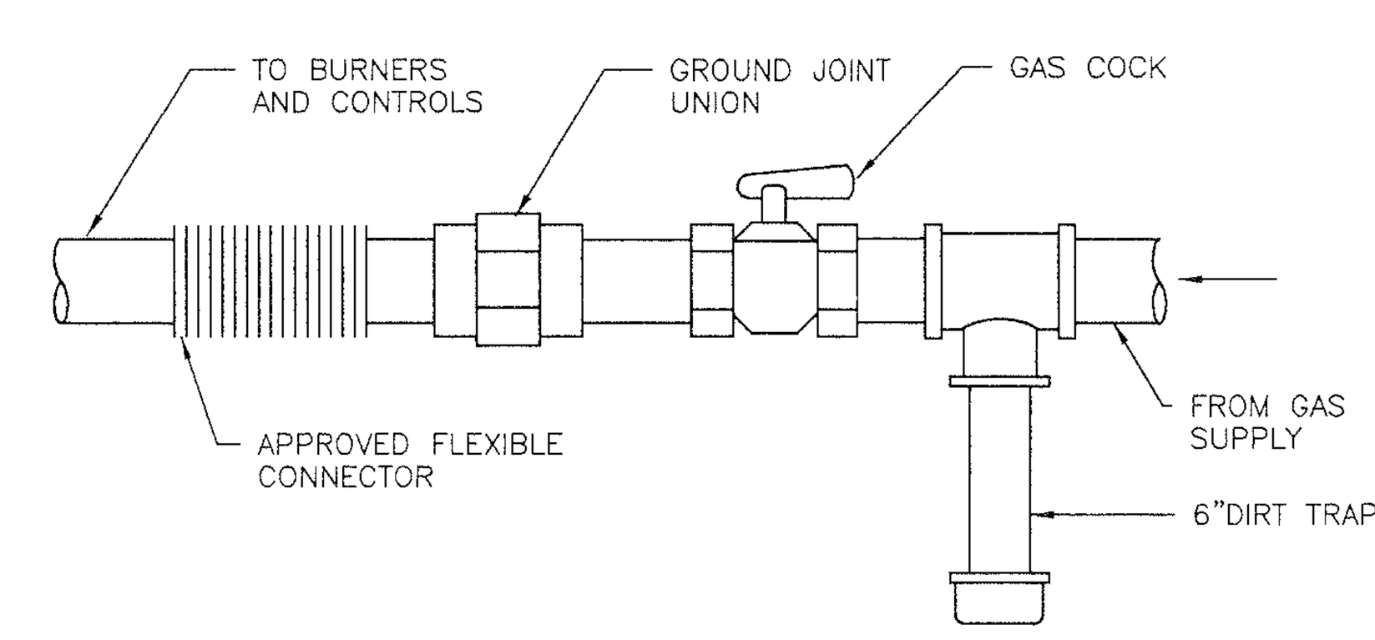


NOTE 1: COORDINATE WITH ROOFING CONTRACTOR

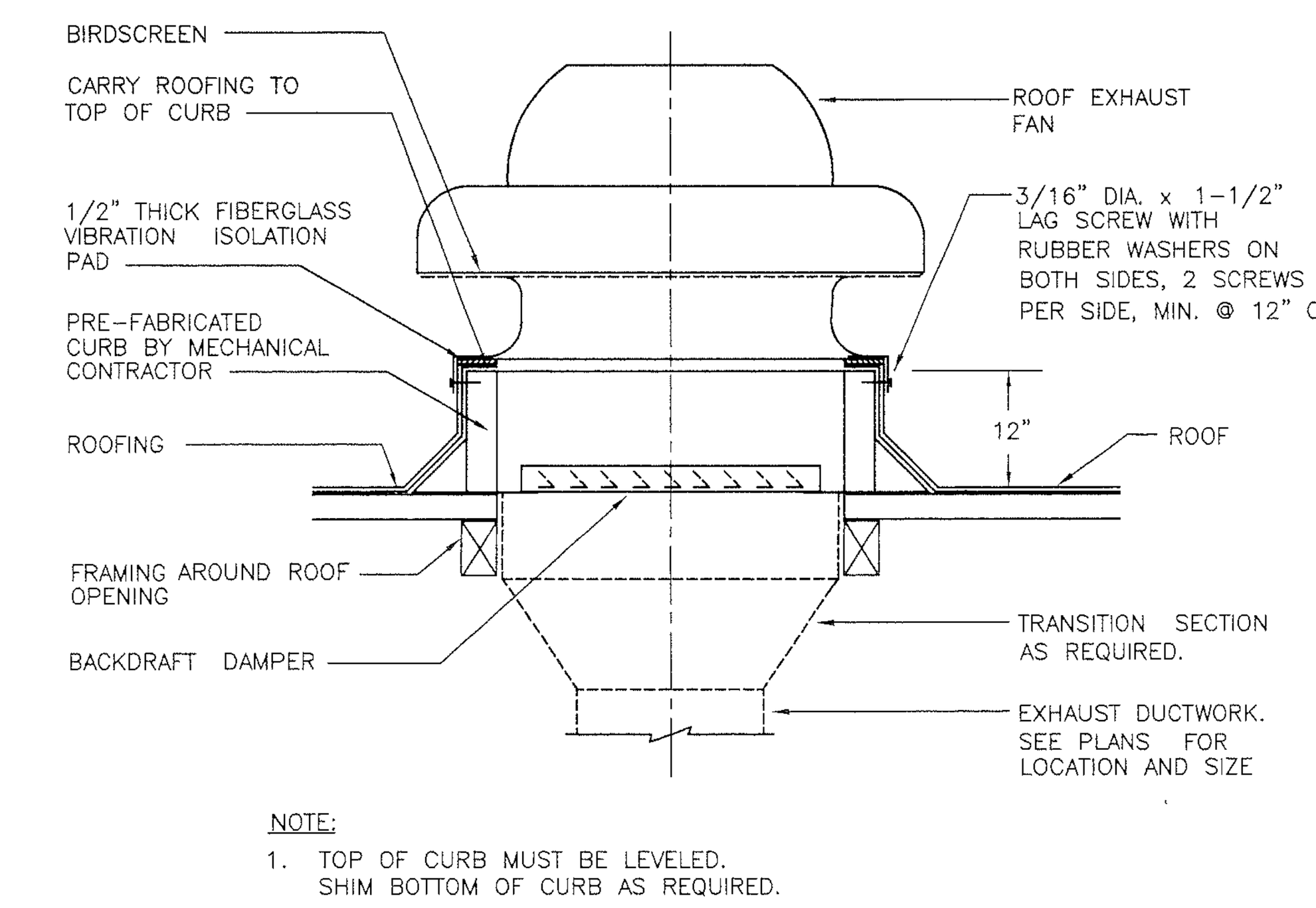
PIPE SUPPORT BLOCK
4 / MP3.1
NOT TO SCALE



AIR CONDITIONING UNIT DRAIN DETAIL
5 / MP3.1
NOT TO SCALE

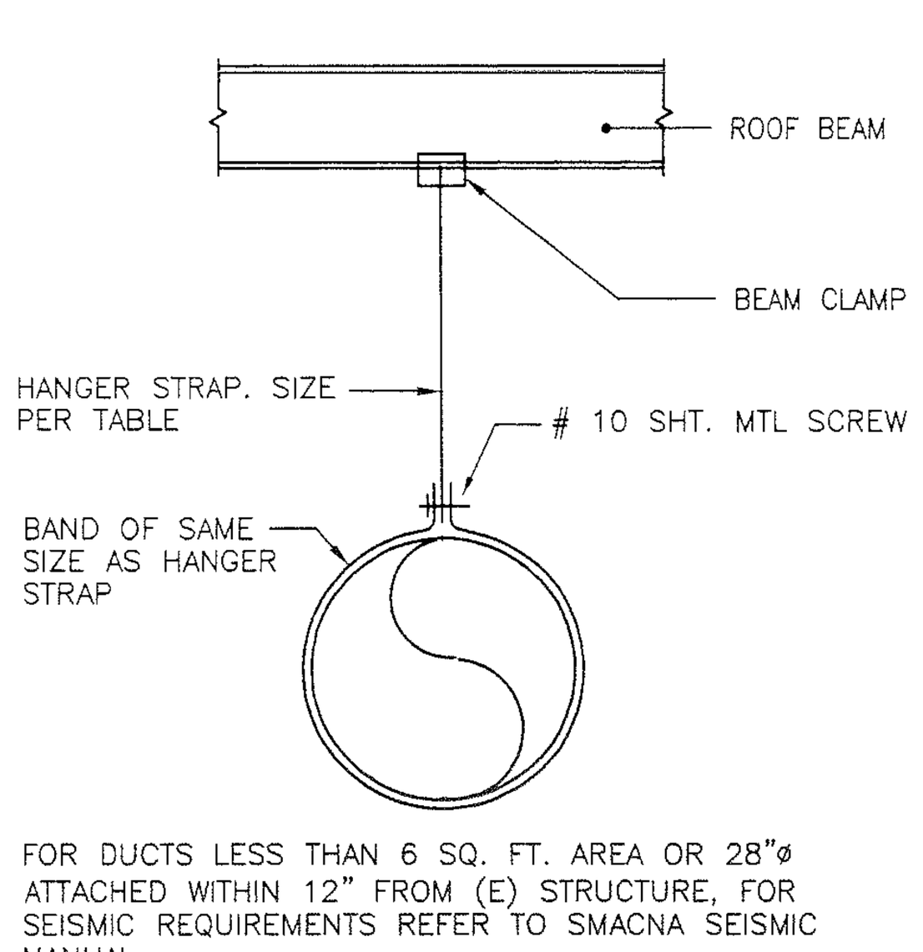


GAS CONNECTION DETAIL
6 / MP3.1
NOT TO SCALE



NOTE:
1. TOP OF CURB MUST BE LEVELED. SHIM BOTTOM OF CURB AS REQUIRED.

EXHAUST FAN DETAIL
7 / MP3.1
NOT TO SCALE

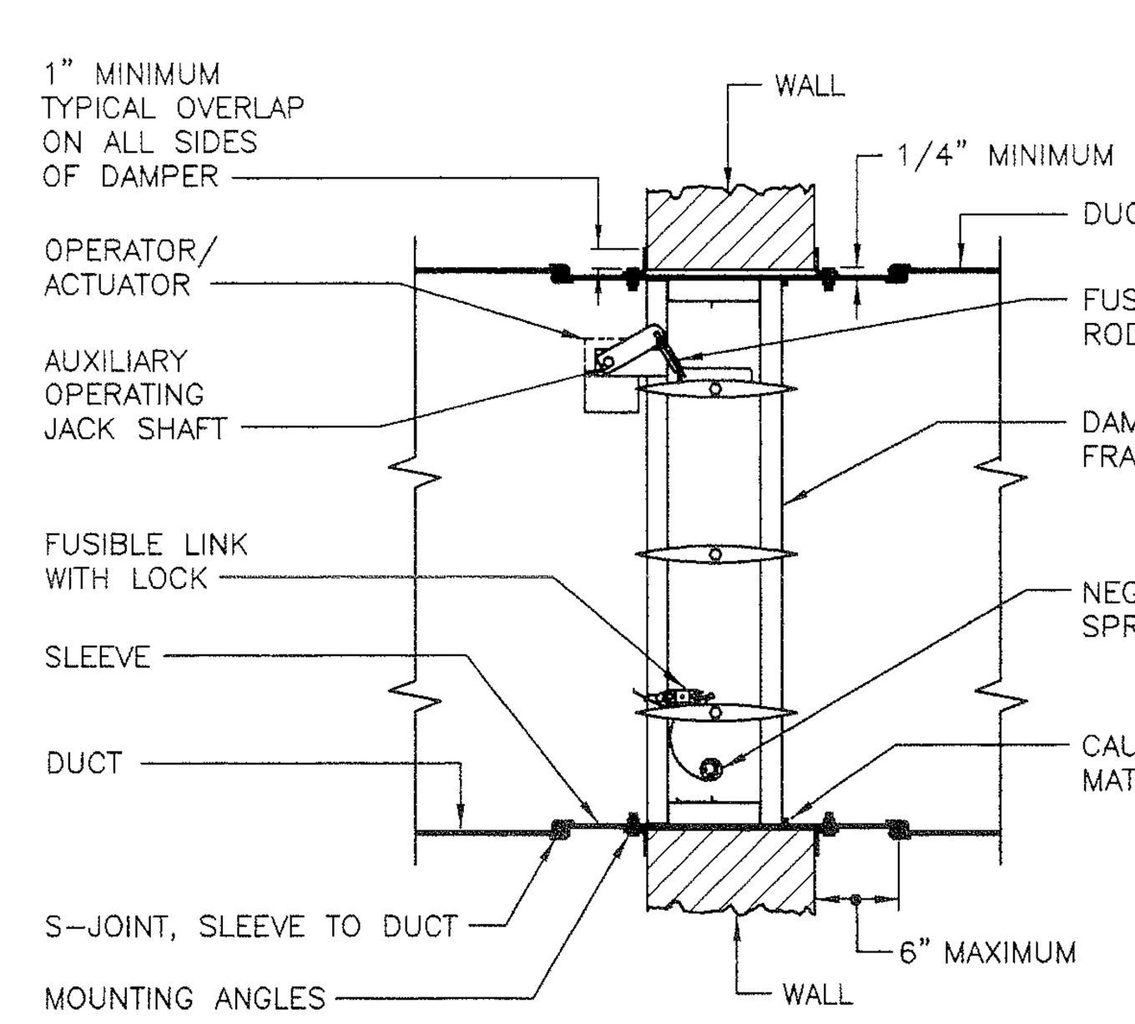


FOR DUCTS LESS THAN 6 SQ. FT. AREA OR 28"ø ATTACHED WITHIN 12" FROM (E) STRUCTURE, FOR SEISMIC REQUIREMENTS REFER TO SMACNA SEISMIC MANUAL

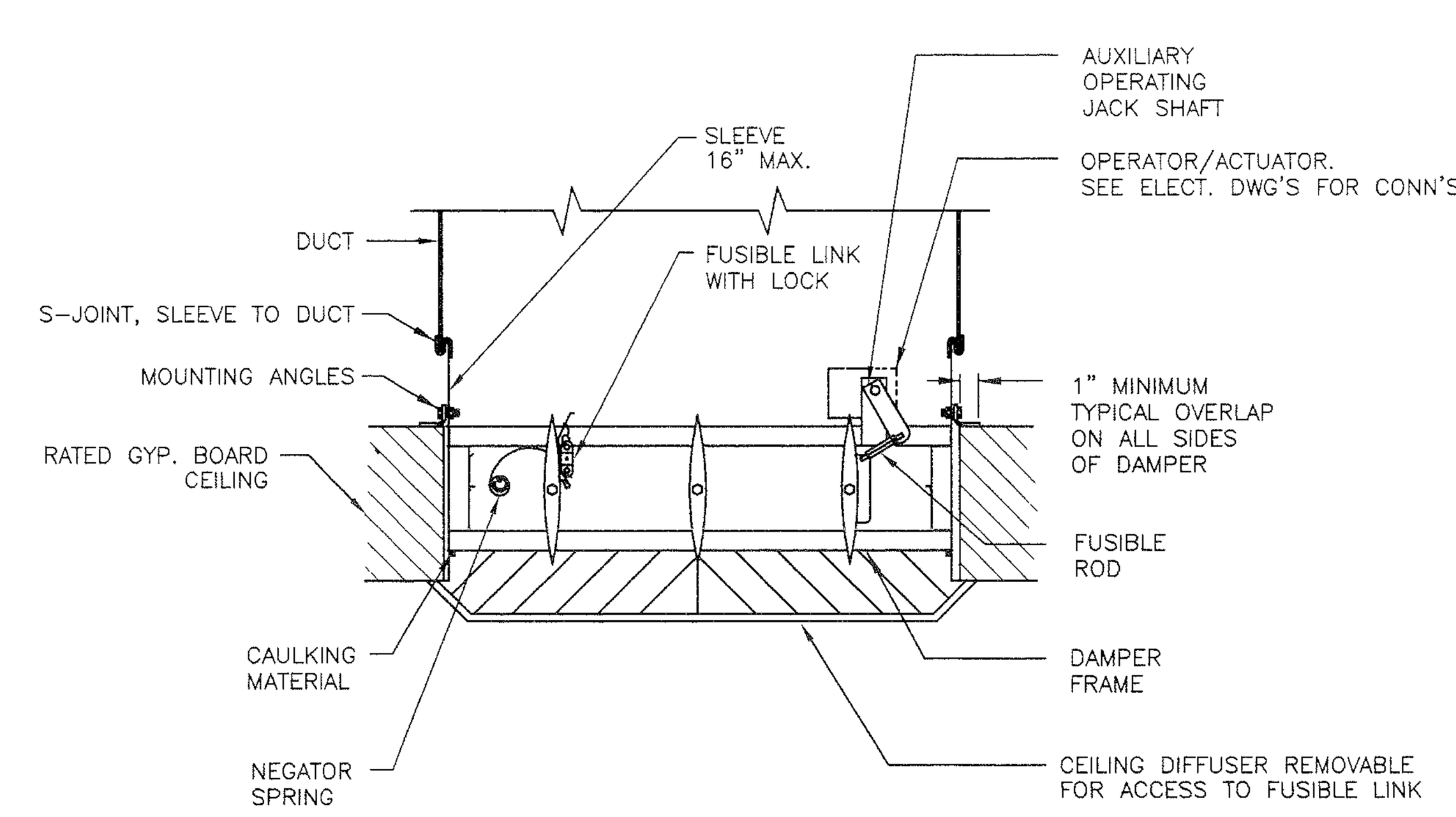
DUCT SIZE	STRAP SIZE	HANGER SPACING
4 S.F. OR LESS	1-1/2"x1/16"	8'-0"
4 S.F. TO 10 S.F.	1-1/2"x1/8"	6'-0"
OVER 10 S.F.	1-1/2"x1/8"	4'-0"

NOTE:
1. FOR HANGERS SUPPORTING EXPOSED DUCTS IN GYMNASIUM REFER TO ARCHITECTURAL DETAIL 15/A9.03.

DUCT HANGER DETAIL
8 / MP3.1
NOT TO SCALE

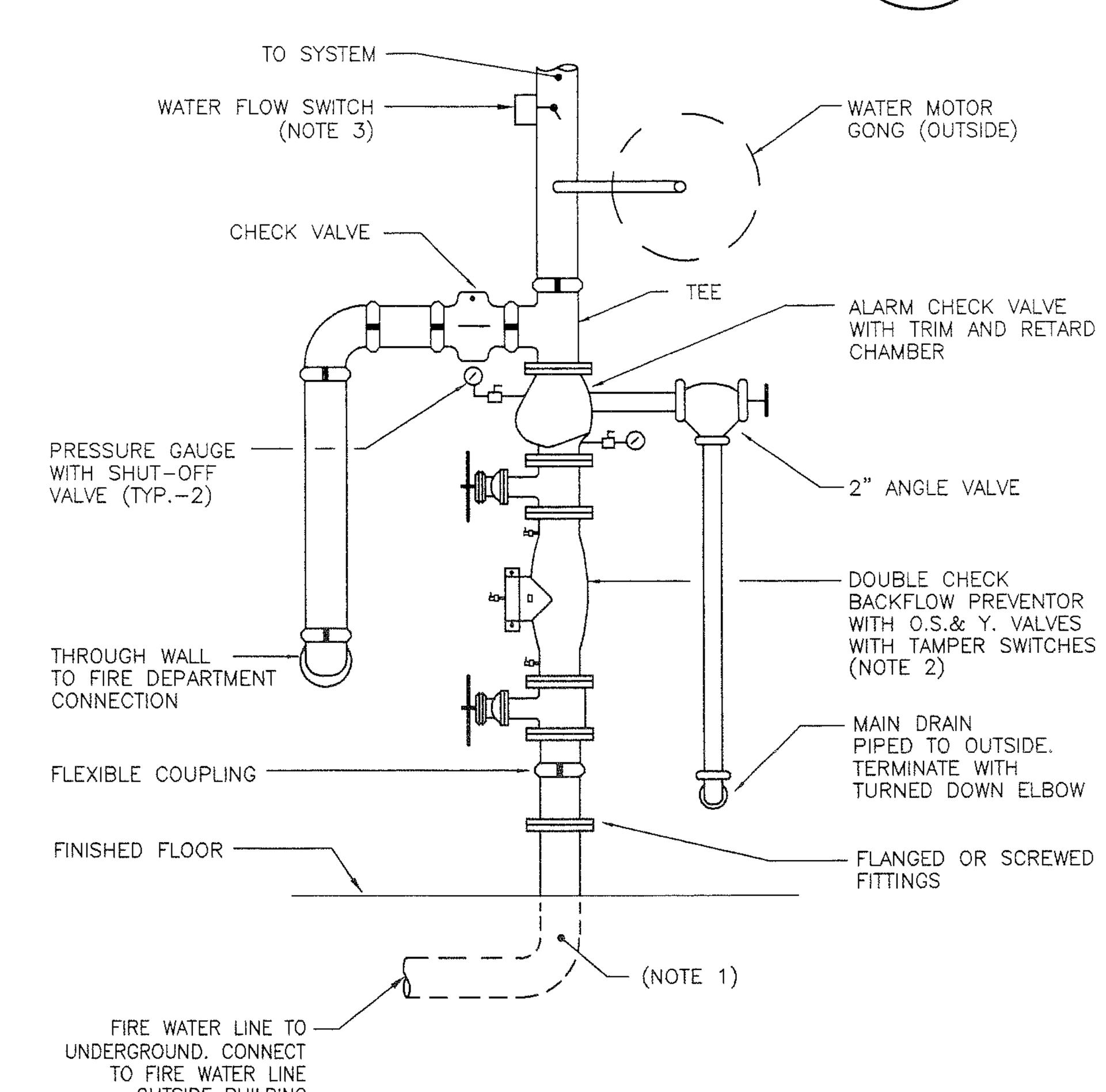


WALL FIRE SMOKE DAMPER DETAIL
9 / MP3.1
NOT TO SCALE



NOTE: SIMILAR TO "RUSKIN" FSD36-C OR EQUAL.

CEILING FIRE-SMOKE DAMPER DETAIL
10 / MP3.1
NOT TO SCALE



NOTES:
1. PIPE SIZE TO BE VERIFIED BY HYDRAULIC CALCULATIONS PERFORMED BY FIRE SPRINKLER CONRTACTOR.
2. INTERCONNECT TAMPER SWITCHES WITH FIRE ALARM PANEL.
3. PROVIDE FLOW SWITCH ON MAIN RISER AND FURNISH INSPECTOR TEST DRAIN VALVE AT MOST REMOTE POINT OF THE SYSTEM.

FIRE SPRINKLER RISER DETAIL
11 / MP3.1
NOT TO SCALE

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4.	DSA BACKCHECK	3/31/00

NEW GYMNASIUM AT IRON HORSE MIDDLE SCHOOL

FOR THE

SAN RAMON VALLEY UNIFIED SCHOOL DISTRICT AND CITY OF SAN RAMON

KEY PLAN

IDENTIFICATION STAMP
DIVISION OF THE STATE ARCHITECT
APPL 01 102320
AC FLS SS
DATE 3/31/00

PROJECT NO.: 98305.00 DRAWN BY: BZ
DATE: 3/31/00 CHECKED BY: PK
SCALE: NONE

SHEET TITLE:

DETAILS

DSA BACKCHECK

SHEET NO:

MP3.1

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CERTIFICATE OF COMPLIANCE (Part 1 of 3) MECH-1

PROJECT NAME IRON HORSE GYMNASIUM	DATE 11/08/99
PROJECT ADDRESS SAN RAMON, CA	Building Permit #
PRINCIPAL DESIGNER - MECHANICAL PETER KOGAN ASSOCIATES TEL (415) 512-7434	
DOCUMENTATION AUTHOR PETER KOGAN ASSOCIATES TEL (415) 512-7434	Checked by/Date Enforcement Agency Use

GENERAL INFORMATION

DATE OF PLANS	BUILDING CONDITIONED FLOOR AREA	22,744 SQ.FT.	
BUILDING TYPE	☒ NONRESIDENTIAL	☐ HIGH RISE RESIDENTIAL	☐ HOTEL/MOTEL GUEST ROOM
PHASE OF CONSTRUCTION	☒ NEW CONSTRUCTION	☐ ADDITION	☐ ALTERATION
METHOD OF MECHANICAL COMPLIANCE	☒ PRESCRIPTIVE	☐ PERFORMANCE	
PROOF OF ENVELOPE COMPLIANCE		☐ PREVIOUS ENVELOPE PERMIT	☒ ENVELOPE COMPLIANCE ATTACHED

STATEMENT OF COMPLIANCE

This Certificate of Compliance list the building features and performance specifications needed to comply with Title 24, Parts 1 and 6 of the California Code of Regulations. This certificate applies only to building mechanical requirements.

The documentation preparer hereby certifies that the documentation is accurate and complete.

DOCUMENTATION AUTHOR	SIGNATURE	DATE
PETER KOGAN, P.E.	[signature]	11/08/99

The Principal Mechanical Designer hereby certifies that the proposed building design represented in this set of construction documents is consistent with the other compliance forms and worksheets, with the specifications, and with any other calculations submitted with this permit application. The proposed building has been designed to meet the mechanical requirements contained in sections 110 through 115, 120 through 124, 140 through 142, 144 and 145.

Please check one:

☒ I hereby affirm that I am eligible under the provisions of Division 3 of the Business and Professions Code to sign this document as the person responsible for its preparation; and that I am a civil engineer, mechanical engineer, or architect.

☐ I affirm that I am eligible under the exemption to Division 3 of the Business and Professions Code by Section 5537.2 of the Business and Professions Code to sign this document as the person responsible for its preparation; and that I am a licensed contractor preparing documents for work that I have contracted to perform.

☐ I affirm that I am eligible under the exemption to Division 3 of the Business and Professions Code by Section_______ of the ________________Code to sign this document as the person responsible for its preparation; and for the following reason: ________

PRINCIPAL MECHANICAL DESIGNER NAME	SIGNATURE	DATE	LIC. #
PETER KOGAN, P.E.	[signature]	11/08/99	M024758

MECHANICAL MANDATORY MEASURES

Indicate location on plans of Note Block for Mandatory Measures: MP1.1

INSTRUCTION TO APPLICANT

For detailed instructions on the use of this and all Energy Efficiency Standards compliance forms, please refer to the Nonresidential Manual published by the California Energy Commission.
MECH-1 : Required on plans for all submittals. Parts 2 & 3 may be incorporated in schedules on plans.
MECH-2 : Required for all submittals: choose appropriate version depending on method of mechanical compliance.
MECH-3 and MECH-4 : Required for all submittals.

Nonresidential Compliance Form — *January 1996*

CERTIFICATE OF COMPLIANCE Part 2 of 3 MECH-1

PROJECT NAME IRON HORSE GYMNASIUM — DATE 11/08/99

SYSTEM FEATURES

SYSTEM NAME	MECHANICAL SYSTEMS AC-1, 2, 3	AC-4	AC-5	NOTE TO FIELD
TIME CONTROL	S	S	S	
SETBACK CONTROL	B	B	B	
ISOLATION ZONES	N/A	N/A	N/A	
HEAT PUMP THERMOSTAT?	N	N	N	
ELECTRIC HEAT?	N	N	N	
FAN CONTROL?	O	O	O	
VAV MINIMUM POSTITION CONTROL?	N	N	N	
SIMULTANEOUS HEAT/COOL?	N	N	N	
HEAT AND COOL SUPPLY RESET?	Y	Y	Y	
VENTILATION	B	B	B	
OUTDOOR DAMPER CONTROL?	A	A	A	
ECONOMIZER TYPE	A	A	A	
OUTDOOR AIR CFM	1,100 (PER UNIT)	1,650	200	
HEATING EQUIP.TYPE / HIGH EFFIC.?	GAS / N	GAS / N	GAS / N	
MAKE AND MODEL NUMBER	CARRIER MODEL 48HJ017	CARRIER MODEL 48HJ008	CARRIER MODEL 48HJ004	
COOLING EQUIP.TYPE / HIGH EFFIC.?	DX / N	DX / N	DX / N	
MAKE AND MODEL NUMBER	CARRIER MODEL 48HJ017	CARRIER MODEL 48HJ008	CARRIER MODEL 48HJ004	

CODE TABLES: Enter code from table below into columns above.

HEAT PUMP THERMOSTAT?	Y: Yes N: No
ELECTRIC HEAT?	
VAV MINIMUM POSITION CONTROL?	
SIMULTANEOUS HEAT/COOL?	
HEAT AND COOL SUPPLY RESET?	
HIGH EFFICIENCY?	

TIME CONTROL	SETBACK CTRL	ISOLATION ZONES	FAN CONTROL
S: Prog.Switch O: Occupancy Sensor M: Manual Timer	H: Heating C: Cooling B: Both	Enter number of Isolation Zones.	I: Inlet Vanes P: Variable Pitch V: VFD O: Other
VENTILATION	**OUTDOOR DAMPER**	**ECONOMIZER**	**O.A. CFM**
B: Air Balance C: Outside Air Cart. M: Out. Air Measure D: Demand Control N: Natural	A: Auto G: Gravity	A: Air W: Water N: Not Required	Enter Outdoor Air CFM Note: This shall be no less than Column G on MECH-4.

NOTES TO FIELD-For Building Department Use Only

Nonresidential Compliance Form — *January 1996*

CERTIFICATE OF COMPLIANCE Part 3 of 3 MECH-1

PROJECT NAME IRON HORSE GYMNASIUM — DATE 11/08/99

DUCT INSULATION

SYSTEM NAME	DUCT TYPE (Supply Return, etc.)	DUCT LOCATION (Roof, Plenum, etc.)	DUCT TAPE ALLOWED? Y	N	DUCT INSULATION R-VALUE	NOTE TO FIELD
NEW DUCTS	SUPPLY	PLENUM	☐	☒	3.8	

PIPE INSULATION

SYSTEM NAME	PIPE TYPE (Supply Return, etc.)	INSULATION REQUIRED? Y	N	NOTE TO FIELD
N/A		☐	☐	

NOTES TO FIELD-For Building Department Use Only

Nonresidential Compliance Form — *January 1996*

MECHANICAL SIZING AND FAN POWER MECH-2

PROJECT NAME IRON HORSE GYMNASIUM	DATE 11/08/99
SYSTEM NAME BUILDING AC SYSTEM	FLOOR AREA 22,744 SQ.FT.

NOTE: Provide one copy of this form for each mechanical system when using the Presciptive Approach.

SIZING and EQUIPMENT SELECTION

1. DESIGN CONDITIONS:

	COOLING	HEATING
-OUTDOOR, DRY BULB TEMPERATURE	94	24
-OUTDOOR, WET BULB TEMPERATURE	68	
-INDOOR, DRY BULB TEMPERATURE	76	70

2. SIZING

			COOLING	HEATING
-VENTILATION LOAD	5,150	TOTAL CFM (From MECH-4)	100.1	255.9
-ENVELOPE LOAD			247.8	409.4
-LIGHTING	2	WATTS/SF	155.1	
-PEOPLE	186	#OF PEOPLE (From MECH-4)	94.9	
-MISC. EQUIPMENT		WATTS/SF		
-OTHER		(Describe)	–	–
-OTHER		(Describe)	–	–
TOTALS			597.9	665.3

3. SELECTION

	COOLING	HEATING
A. SAFETY/WARM UP FACTOR	1.21	1.43
B. MAXIMUM ADJUSTED LOAD (Totals from above X Safety/Warmup Factor)	723.5	951.4
C. INSTALLED EQUIPMENT CAPACITY	666.0 KBtu/Hr	783.0 KBtu/Hr

IF LINE 3-C IS GREATER THAN LINE 3-B, EXPLAIN STD. UNITS FURNACES

FAN POWER CONSUMPTION

A FAN DESCRIPTION	B DESIGN BRAKE HP	C EFFICIENCY MOTOR	D EFFICIENCY DRIVE	E NUMBER OF FANS	F PEAK WATTS BxEx746/(CxD)	G CFM (Supply Fans)
N/A	< 25HP					

NOTE: Include only fan systems exceeding 25HP (see s 144). Total Fan System Power Demand may not exceed 0.8 Watts/CFM for constant Volume system or 1.25 Watts/CFM for VAV systems.

TOTALS

TOTAL FAN SYSTEM POWER DEMAND WATTS/CFM

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MECHANICAL EQUIPMENT SUMMARY MECH-3

PROJECT NAME IRON HORSE GYMNASIUM — DATE 11/08/99

COOLING EQUIPMENT

SYSTEM NAME	MAKE AND MODEL NO.	DESIGN OUTPUT (BTU/HR)	DESIGN CFM	RATED EFFICIENCY UNITS	ALLOWED	PROPOSED	ECONOMIZER Y	N
AC-1 AC-2 AC-3	CARRIER 48HJ017	180,000	6,000	EER	8.2	10.3	☒	☐
AC-4	CARRIER 48HJ008	90,000	4,025	EER	8.2	11.0	☒	☐
AC-5	CARRIER 48HJ004	36,000	1,475	EER	8.2	11.2	☒	☐

HEATING EQUIPMENT

SYSTEM NAME	MAKE AND MODEL NO.	DESIGN OUTPUT (BTU/HR)	RATED EFFICIENCY UNITS	ALLOWED	PROPOSED
AC-1 AC-2 AC-3	CARRIER 48HJ017	215,000	AFUE	78%	80%
AC-4	CARRIER 48HJ008	98,000	AFUE	78%	82%
AC-5	CARRIER 48HJ004	40,000	AFUE	78%	82%

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MECHANICAL VENTILATION MECH-4

PROJECT NAME IRON HORSE GYMNASIUM	DATE 11/08/99
SYSTEM NAME BUILDING AC SYSTEMS	

NOTE: Provide one copy of this forn for each mechanical system.

MECHANICAL VENTILATION

A SPACE NO.	B AREA BASIS COND. AREA (SF)	C CFM PER SF	D MIN. CFM (BxC)	E OCCUPANCY BASIS NO. OF PEOPLE	F MIN. CFM (Ex15)	G REQ'D. O.A. (MAX. OF D OR F)	H DESIGN SUPPLY CFM	I VAV MINIMUM CFM LARGEST MIN. CFM	J DESIGN MIN. CFM	K TRANS-FER AIR
1	22,744	0.2	4,548	186	2,790	4,548	5,150	–	–	–
TOTALS (FOR MECH-2)				186		4,548	5,150			

C Minimum Ventilation Rate per Section 2-5321, Table 2-53F.
E Based on Expected Number of Occupants of at Least 50% of Chapter 333 UBC of Occupant Density.
H Must be greater than or equal to G, or use Transfer Air.
I If zone reheat or recoil is used, I must be less than or equal to H x 0.3, or less than or equal to B x 0.4, or less than or equal to 300 CFM, whichever is larger.
J Must be less than or equal to I (if applicable), but no less than G, unless Transfer Air (K) is used.
K Must be greater or equal to (G – H), an, for VAV, greater or equal to (G – J).

Nonresidential Compliance Form — *December 1991*

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REGISTERED PROFESSIONAL ENGINEER PETER L. KOGAN No. M024758 Exp. 06.30.03 MECHANICAL STATE OF CALIFORNIA

NO.	ISSUES/REVISONS	DATE
1.	50% CONSTRUCTION DOCUMENTS	10/21/99
2.	80% CONSTRUCTION DOCUMENTS	11/08/99
3.	DSA PERMIT SUBMITTAL	11/23/99
4.	DSA BACKCHECK	3/31/00

NEW GYMNASIUM
AT
IRON HORSE
MIDDLE SCHOOL

FOR THE

SAN RAMON VALLEY
UNIFIED SCHOOL
DISTRICT
AND
CITY OF SAN RAMON

KEY PLAN

IDENTIFICATION STAMP
DIVISION OF THE STATE ARCHITECT
APPL 01 102223
AC DS FLS SS AB
DATE 3/31/00

PROJECT NO.: 98305.00 DRAWN BY: BZ
DATE: 3/31/00 CHECKED BY: PK
SCALE: NONE

SHEET TITLE:

TITLE 24 MECHANICAL

DSA BACKCHECK

SHEET NO: **MP4.1**

If this drawing is not 30"x42", then the drawing has been revised from its original size. Noted scales must be adjusted. This line should be equal to one inch