PLUMBING LEGEND

SYMBOL	ABBREV.	DESCRIPTION
	S OR W	SOIL OR WASTE
	S OR W	SOIL OR WASTE–BF OR BG
	V	VENT
	L	RAINWATER LEADER
	L	RAINWATER LEADER–BF OR BG
	OV	OVERFLOW
	CW	COLD WATER
	HW	HOT WATER
	TW	TEMPERED WATER
G	G	GAS
	FD/AD	FLOOR DRAIN/AREA DRAIN
	FS	FLOOR SINK
	RD/OD	ROOF DRAIN/OVER FLOW DRAIN
	COTG	CLEANOUT TO GRADE
	FCO	FLOOR CLEANOUT
	WCO	WALL CLEANOUT
	CO	CLEANOUT
	HB	HOSE BIBB
	SOV	SHUT–OFF VALVE
	BV	BALL VALVE
	GC	GAS COCK
		UNION
	RV	PRESSURE RELIEF VALVE
	PRV	PRESSURE REDUCING VALVE
	RPBFP	REDUCED PRESSURE BACK FLOW PREVENTER
		VALVE IN CONC. VALVE BOX
	AP	ACCESS PANEL
	BG	BELOW GRADE
	BF	BELOW FLOOR
	FF	FINISHED FLOOR ELEVATION
	INV	INVERT ELEVATION
	VB	VALVE BOX
	NIPD	NOT IN PLUMBING DIVISION
	VTR	VENT THRU ROOF
	WC	WATER CLOSET
	LV	LAVATORY
	SS	SERVICE SINK
	SK	SINK
	DF	DRINKING FOUNTAIN
	SH	SHOWER
	UR	URINAL

NIS

~~LOCAL PLUMBING CONNECTION SCHEDULE~~

MARK	DESCRIPTION	S/W/L	V	CW	HW	TW
WC–1	WATER CLOSET	4"	2"	1–1/4"	–	–
WC–2	WATER CLOSET	4"	2"	1–1/4"	–	–
UR–1	URINAL	2"	1–1/2"	1"	–	–
LV–1	LAVATORY	1–1/2"	1–1/4"	1/2"	1/2"	–
LV–2	LAVATORY	1–1/2"	1–1/4"	1/2"	–	–
SK–1	SINK	2"	1–1/2"	1/2"	1/2"	–
SK–2	SINK	2"	1–1/2"	1/2"	1/2"	–
DF–1	DRINKING FOUNTAIN	1–1/2"	1–1/4"	1/2"	–	–
DF–2	DRINKING FOUNTAIN	1–1/2"	1–1/4"	1/2"	–	–
SS–1	SERVICE SINK	3"	1–1/2"	3/4"	3/4"	–
SH–1	SHOWER	2"	1–1/2"	–	–	1/2"
SH–2	SHOWER	2"	1–1/2"	–	–	1/2"
SH–3	SHOWER	2"	1–1/2"	1/2"	1/2"	–
HB–1	HOSE BIBB	–	–	1/2"	–	–
HB–2	HOSE BIBB	–	–	3/4"	–	–
FD–1	FLOOR DRAIN	2"	1–1/2"	1/2"	–	–
FS–1	FLOOR SINK	2"	1–1/2"	1/2"	–	–
RD–1	ROOF DRAIN	3"	–	–	–	–
OD–1	OVERFLOW ROOF DRAIN	3"	–	–	–	–
PD–1	PROMENADE DRAIN	2"	–	–	–	–
SD–1	SCUPPER DRAIN	2"	–	–	–	–
	ICE MAKER	3/4"IW	–	1/2"	–	–

NIS

~~WATER HEATER SCHEDULE~~

MARK	MFGR.	MODEL	INPUT	VOLT	WEIGHT
WH–1	A.O.SMITH	BTC–120	120,000 BTUH	120	1100#

GENERAL LEGEND

ABBREVIATION	DESCRIPTION
IFC	IN FURRED SPACE
IJS	IN JOIST SPACE
NC	NEAR CEILING
NF	NEAR FLOOR
SAD	SEE ARCHITECTURAL DRAWING
(N)	NEW
(E)	EXISTING
(RE)	REMOVE EXISTING
(REL)	RELOCATE EXISTING
(CTE)	CONNECT TO EXISTING
NIMD	WORK NOT IN MECHANICAL DIVISION
UON	UNLESS OTHERWISE NOTED
1 / P–1	DETAIL 1, SHEET P–1
NIC	NIC SCOPE OF WORK

SCHOOLS EQUIPMENT ANCHORAGE

ALL MECHANICAL EQUIPMENT SHALL BE BRACED OR ANCHORED TO RESIST A HORIZONTAL FORCE ACTING IN ANY DIRECTION USING THE FOLLOWING CRITERIA:

FIXED EQUIPMENT ON GRADE 23% OF OPERATING WEIGHT
FIXED EQUIPMENT ON STRUCTURE 34% OF OPERATING WEIGHT

SIMULTANEOUS VERTICAL FORCE – USE 1/3 X HORIZONTAL FORCE.

FOR FLEXIBLY MOUNTED EQUIPMENT USE 2 X THE ABOVE VALUES.

NOTICE
THIS TABLE HAS BEEN PREPARED FOR IMPORTANCE FACTOR: I=1.15 AND ZONE=4.0

MECHANICAL SYSTEM COMPONENTS SHALL BE BRACED TO RESIST SEISMIC FORCES ACCORDING TO THE UNIFORM MECHANICAL CODE, ANCHORAGE AND BRACING DETAILS SHALL BE IN ACCORDANCE WITH SMACNA MANUAL "GUIDELINES FOR SEISMIC RESTRAINTS OF MECHANICAL SYSTEMS AND PLUMBING PIPING SYSTEMS".

WHERE ANCHORAGE DETAILS ARE NOT SHOWN ON THE DRAWINGS, THE FIELD INSTALLATION SHALL BE SUBJECT TO THE APPROVAL OF THE ARCHITECT AND THE FIELD REPRESENTATIVE OF THE OFFICE OF THE STATE ARCHITECT.

SOUND TRAP SCHEDULE

MARK	MFGR	MODEL	CFM	SP LOSS	ATTENUATION @ 250 Hz	WEIGHT	REMARKS
ST–1,2,3,4	IAC	24x42x60 LFM	5000	.11"	25 dB	146#	–①

① RE–USE EXISTING SOUNDTRAP ST–1 THRU ST–4

FAN SCHEDULE

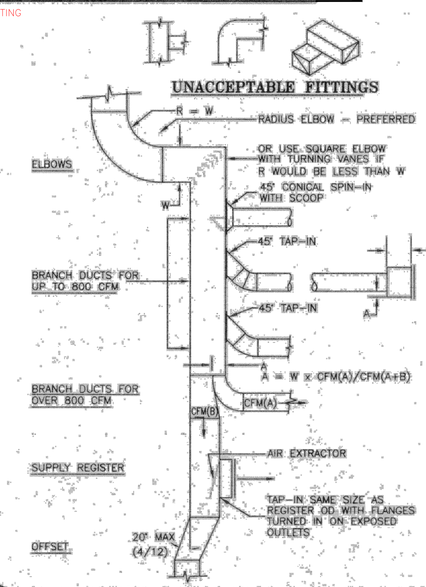
MARK	MFGR	MODEL	CFM	SP	WHEEL	WEIGHT	ELECTRICAL HP	ELECTRICAL VOLTAGE	TYPE	REMARKS
EF–1	PACE	SCF–124A–M1	2090	.8"	12"	250#	3/4	208–3	CABINET	①
EF–2 & 3	GREENHECK	CUBE–200	2850	.8"	20"	110#	1	208–3	ROOF	①
EF–4 & 5	CANFAB	PWRHEC	4100	.25"	(2)10.6"	300#	1.5	208–3	CABINET	②

① NOT IN SCOPE ② DEMO

ELECTRIC DUCT HEATER SCHEDULE

MARK	MFGR	DUCT SIZE	CFM	KW	VOLTAGE
EDH–1	–	26x20	4000	20 KW	208–3 ①
EDH–2 & 3	–	20x15	1400	8 KW	208–3 ①
EDH–4	–	20x20	2010	8 KW	208–3 ①

① RE–USE EXISTING



1 ALLOWABLE RECTANGULAR DUCT FITTINGS
NO SCALE

FITTING NOTES:
1. FITTINGS SHOWN ARE TYPICAL FOR ALL SUPPLY, RETURN, AND EXHAUST DUCTS IN LOW VELOCITY SYSTEMS WHERE APPLICABLE.
2. THE ABOVE FITTINGS ARE NOT REQUIRED IN PLENUMS WHERE THE VELOCITY IS LESS THAN 400 FPM.
3. ACCEPTABLE ROUND DUCT FITTINGS ARE ELBOWS AND 45° LATERALS.

DUCTWORK LEGEND

TWO LINE	ONE LINE	ABBREV	DESCRIPTION
		CD	CEILING DIFFUSER–ARROWS INDICATE THROW
		CER, CRR	CEILING EXHAUST OR RETURN REGISTER
		12X12 WSR 150 NC NF 8'–0"	SIZE–WALL SUPPLY REGISTER CFM–NEAR CEILING NEAR FLOOR ELEVATION TO BOTTOM OF OUTLET
		WR	WALL EXHAUST OR RETURN REGISTER
		WG	WALL EXHAUST OR RETURN GRILLE
		SA	SUPPLY AIR DUCT SECTION
		EA/RA	EXHAUST OR RETURN AIR DUCT SECTION
		OA	OUTSIDE AIR DUCT SECTION
			SQUARE ELBOW WITH DUCT TURNS
W W			RADIUS ELBOW W=DUCT WIDTH W=MIN.THROAT RADIUS
T=			PROPORTIONAL TAKEOFF T= SPECIFIES SIZE OF TAKEOFF
		AE	AIR EXTRACTOR
		FLEX	FLEXIBLE DUCT CONNECTION
		VD	MANUAL VOLUME DAMPER
		FD	FIRE DAMPER
		FSD	FIRE/SMOKE DAMPER
		SL	SOUND LINED DUCT
		AD	ACCESS DOOR
		AP	ACCESS PANEL
		BDD	BACKDRAFT DAMPER
		RAD	RETURN AIR DAMPER
		EAD	EXHAUST AIR DAMPER
		OAD	OUTSIDE AIR DAMPER
		T	THERMOSTAT

NIS

~~AIR OUTLET SCHEDULE~~

MARK	MFGR	MODEL	DESCRIPTION
CD–1	TITUS	PAS	PERFORATED CEILING DIFFUSER WITH REMOVABLE FACE, FLANGED TYPE 1 BORDER FOR FLUSH MOUNTING ON A GYP BOARD CEILING, FIELD ADJUSTABLE PATTERN CONTROLLERS, AND OPPOSED BLADE DAMPER
CD–2	TITUS	TMRA	ADJUSTABLE CONCENTRIC RING ROUND CEILING DIFFUSER WITH OPPOSED BLADE DAMPER AND EQUALIZING DEFLECTOR
CD–3	TITUS	PAS	PERFORATED CEILING DIFFUSER SAME AS CD–1 BUT WITH 24x24 OR 24x12 FACE AS NOTED FOR T BAR CEILING
CR–1	TITUS	PAR	PERFORATED CEILING EXHAUST REGISTER SAME AS CD–1 BUT WITHOUT PATTERN CONTROLLERS
CR–3	TITUS	PAR	PERFORATED CEILING EXHAUST REGISTER SAME AS CD–3 BUT WITHOUT PATTERN CONTROLLERS
WSR	TITUS	300RS5	DOUBLE DEFLECTION WALL SUPPLY REGISTER WITH VERTICAL FACE BLADES.
WR	TITUS	30RL5	HEAVY DUTY WALL EXHAUST REGISTER WITH HORIZONTAL FACE BLADES

IF OUTLETS ARE WITHOUT DAMPERS, THEY ARE MARKED AS FOLLOWS: WG = WALL GRILLE

MAKE-UP AIR UNIT SCHEDULE

Equipment ID	Manufacturer	Model	CFM	ESP	Heating Capacity	Power Supply	Motor HP	Motor FLA	Motor/Control of Circuit MCA	Motor/Control of Circuit MOP	Coil Circuit MCA	Coil Circuit MOP	Dimensions (W x H x D)	Weight (lbs.)
MU-1 & MU-2	CaptiveAire	CASRTU1-E.402-18	2000	0.8	40kW	208V / 3ph / 60Hz	1.5	4.4	25.1A	30A	120.3A	125A	37-13/32" x 54-11/32" x 13"	260

NOTE: Pearl Economizer controller for on/off control

ROOFTOP AC UNIT SCHEDULE

Equipment ID	Manufacturer	Model	Outside Air CFM	Supply Air CFM	Supply ESP (in. wg)	Refrigerant Type	Cooling Capacity (TONS)	Heating Capacity (kW)	Supply Fan HP	Power Supply	Amperage FLA	Amperage Min. Circuit	Amperage Max. Over-Current	Weight (lbs.)
AC-7	AAON	RQ-002	240	800	1.00	R-410A	7	7.5	1	208V / 3 / 60 Hz	28	35	95	915
AC-11, 12	AAON	RQ-005	600	2000	1.25	R-410A	5	7.5	2	208V / 3 / 60 Hz	31	35	50	1018
AC-9	AAON	RN-007	660	2200	1.50	R-410A	7	7.5	2	208V / 3 / 60 Hz	9	36	50	1363
AC-8, 10	AAON	RN-013	3500	5000	1.50	R-410A	13	22.5	5	208V / 3 / 60 Hz	78	97	100	1794

1. REPLACE GAS FIRED UNITS WITH HEAT PUMP UNITS AC-7 THRU AC-12. PROVIDE NEW CURB ADAPTORS AS NEEDED. (NO NEW ROOF CURBS REQUIRED)
2. IT WILL BE THE REASONABILITY OF THE CONTRACTOR TO OBTAIN APPROVAL OF THE OFFICE OF THE STATE ARCHITECT IF MODIFICATIONS TO THE ROOF FRAMING NOTED IN DETAIL 10/A9.1 ARE NECESSARY BECAUSE OF ALTERNATE UNITS. ALL UNITS HAVE MANUAL OUTSIDE AIR DAMPERS AND HOODS FOR 20% TO 30% O.A. EXCEPT 7-1/2 TON AND OVER UNITS WHICH HAVE 100% O.A. ECONOMIZER DAMPERS.

SPLIT SYSTEM HEAT PUMP SCHEDULE

OUTDOOR HEAT PUMPS

Equipment ID	Manufacturer	Model Number	Capacity Cooling (kBtu/h)	Capacity Heating (kBtu/h)	Power Supply	Amperage MCA	Amperage MOP	Dimensions (W x H x D)	Weight (lbs.)	Efficiency Heating (Btu/h/W)	Efficiency Cooling (Btu/h/W)
HP-2	LG	ARUN060GSS4	60	64	208-230V / 1ph / 60hz	25.4A	40A	37-13/32" x 54-11/32" x 13"	260 lbs	12.6	10.6
HP-3	LG	ARUN048GSS4	48	54	208-230V / 1ph / 60hz	30A	50A	37-13/32" x 54-11/32" x 13"	207 lbs	13.3	9.7
HP-4	LG	ARUN048GSS4	48	54	208-230V / 1ph / 60hz	30A	50A	37-13/32" x 54-11/32" x 13"	207 lbs	13.3	9.7

INDOOR FAN COILS

Equipment ID	Manufacturer	Model Number	ESP	CFM	Power Supply	Amperage MCA	Amperage RLA	Refrigerant Type	Dimensions (W x H x D)	Weight (lbs.)
FCU-2	LG	ARNU763B8A4	0.87	2260	208-230V / 1ph / 60hz	6.50A	5.2A	410A	61 ½" x 18 ¼" x 27⅞"	192 lbs
FCU-3	LG	ARNU483B8A4	0.7	2019	208-230V / 1ph / 60hz	6.50A	5.2A	410A	61 ½" x 18 ¼" x 27⅞"	192 lbs
FCU-4	LG	ARNU483B8A4	0.7	2019	208-230V / 1ph / 60hz	6.50A	5.2A	410A	61 ½" x 18 ¼" x 27⅞"	192 lbs

EMERGENCY ELECTRIC HEATERS IN HEAT PUMPS ARE SEPARATE DUCT HEATERS EDH-1, 2, 3 & 4

REVISIONS	BY

MONTGOMERY & ROBERTS
CONSULTING ENGINEERS
11690 SAN PABLO AVENUE • EL CERRITO, CA 94530
TELEPHONE: (510) 232–1541 • FAX: (510) 232–0855

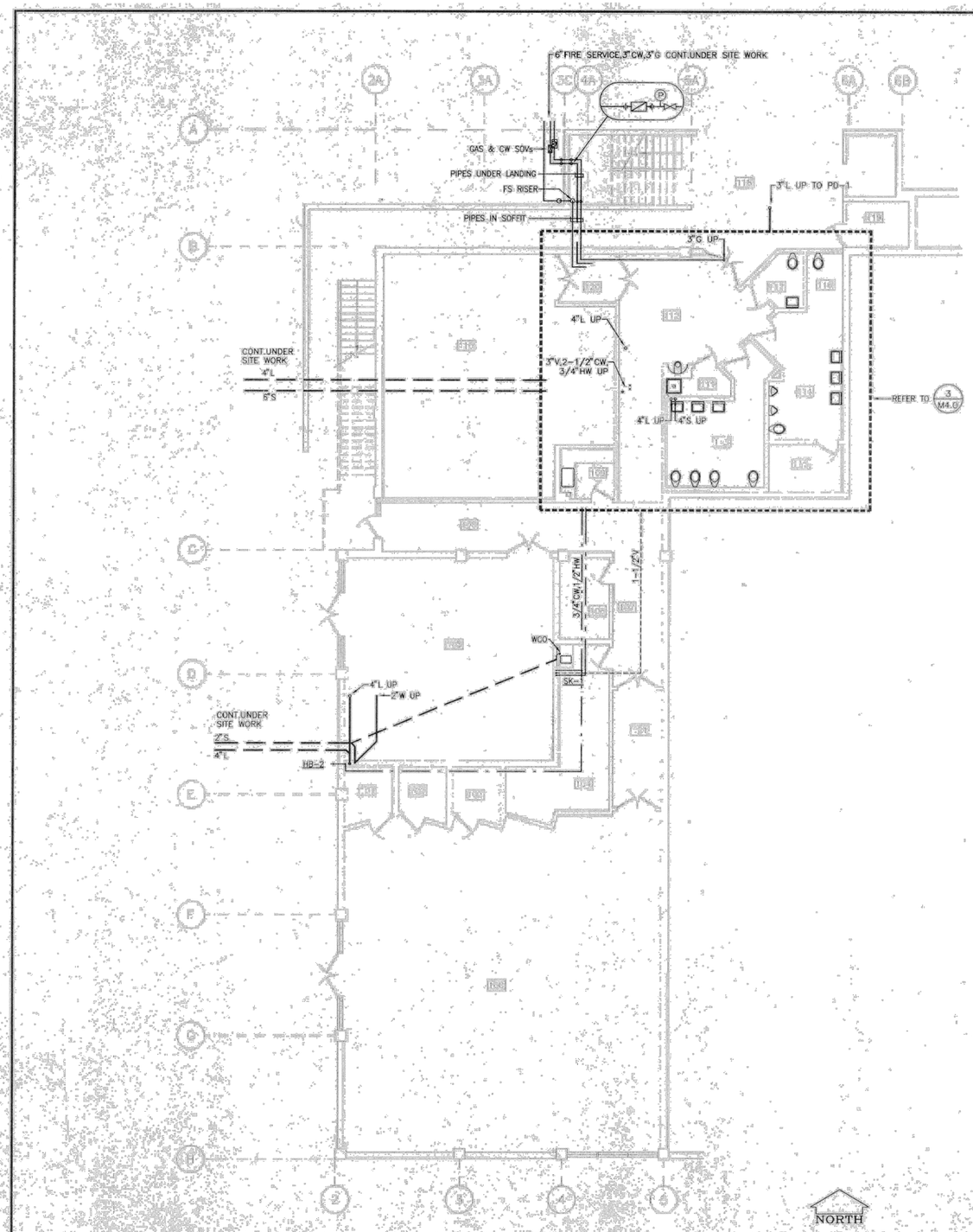
DAVID WADE BYRENS • AIA
ARCHITECTURE • PLANNING
361 17TH STREET OAKLAND CA 94612 510 452 3224

MECHANICAL – LEGENDS & SCHEDULES

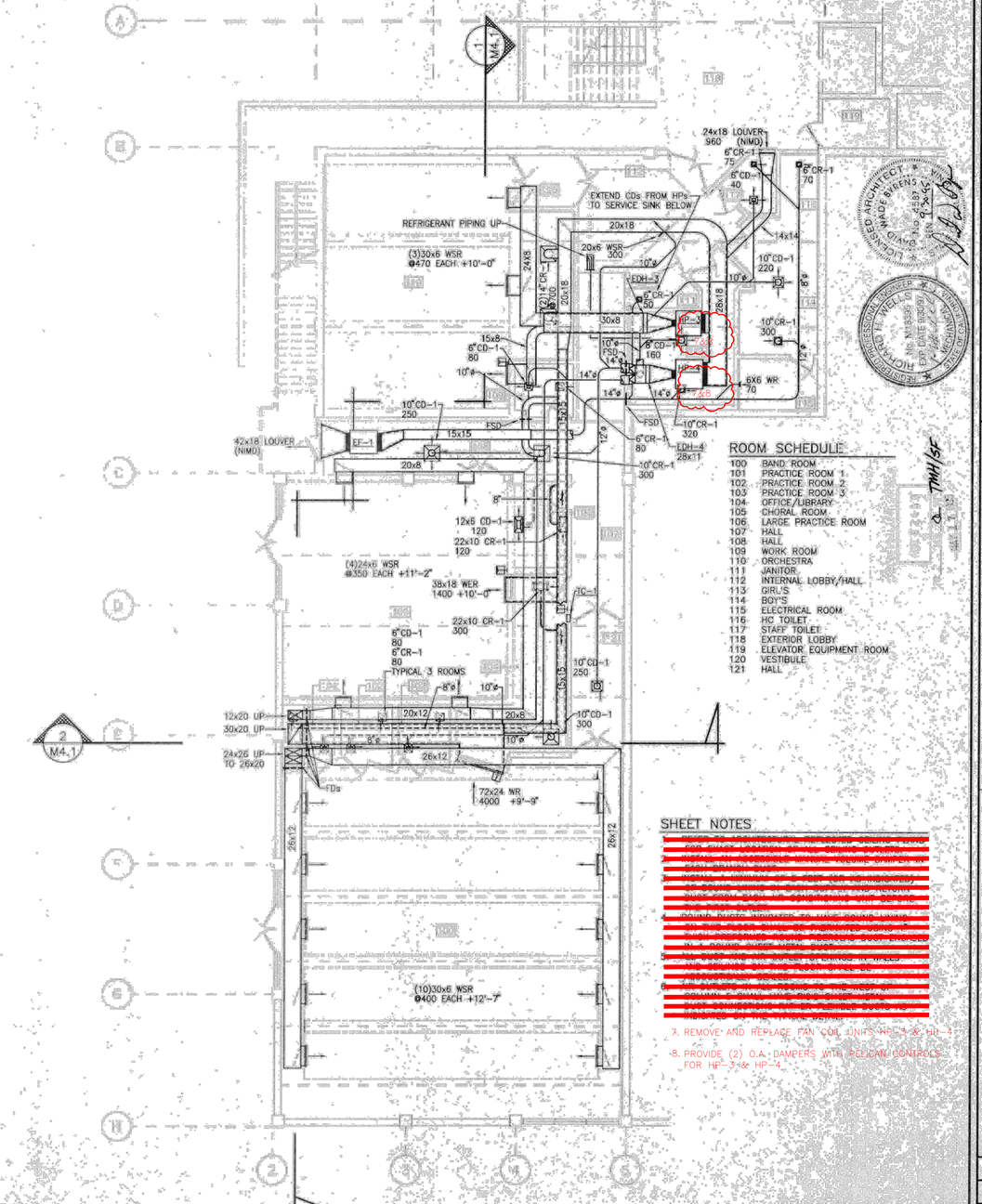
PIEDMONT MIDDLE SCHOOL GYMNASIUM/
MUSIC DEPARTMENT

PIEDMONT UNIFIED SCHOOL DISTRICT
PIEDMONT, ALAMEDA COUNTY, CALIFORNIA

Date: 8/4/15
Scale: NONE
Drawn: RHJ
Job: A93
Sheet
M1.1



2 LOWER LEVEL FLOOR PLAN – PLUMBING
SCALE: 1/8"=1'-0"



1 LOWER LEVEL FLOOR PLAN – HVAC
SCALE: 1/8"=1'-0"

ROOM SCHEDULE

100	BAND ROOM
101	PRACTICE ROOM 1
102	PRACTICE ROOM 2
103	PRACTICE ROOM 3
104	OFFICE/LIBRARY
105	CHORAL ROOM
106	LARGE PRACTICE ROOM
107	HALL
108	HALL
109	WORK ROOM
110	ORCHESTRA
111	JANITOR
112	INTERNAL LOBBY/HALL
113	GIRL'S
114	BOY'S
115	ELECTRICAL ROOM
116	HC TOILET
117	STAFF TOILET
118	EXTERIOR LOBBY
119	ELEVATOR EQUIPMENT ROOM
120	VESTIBULE
121	HALL

SHEET NOTES

[redacted]

7. REMOVE AND REPLACE FAN COIL UNITS HP-3 & HP-4
8. PROVIDE (2) O.A. DAMPERS WITH PELICAN CONTROLS FOR HP-3 & HP-4

REVISIONS	BY

MONTGOMERY & ROBERTS
CONSULTING ENGINEERS
11096 SAN PABLO AVENUE, EL CERRITO, CA 94530
TELEPHONE: (510) 232-1541 FAX: (510) 232-2666

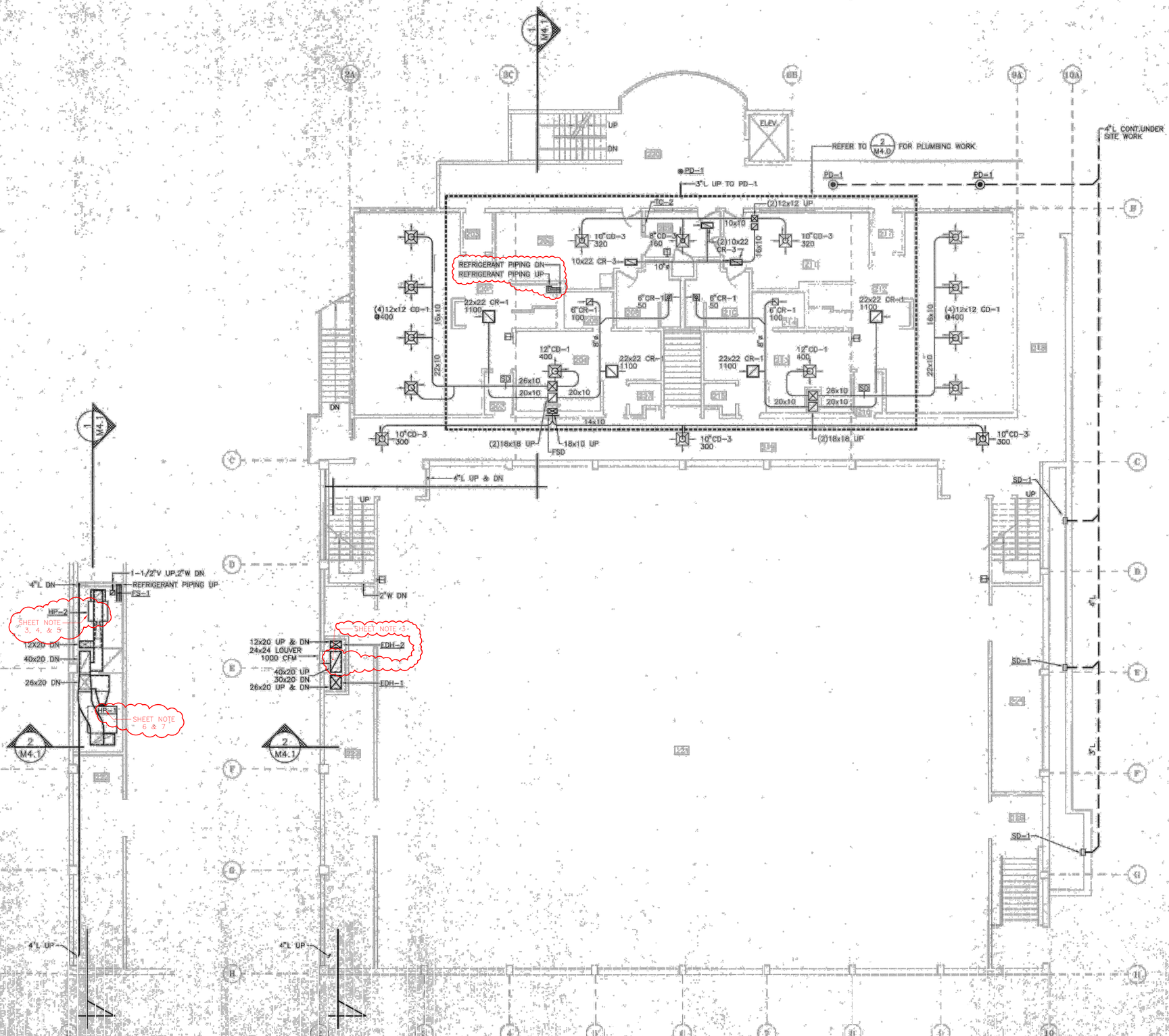
DAVID WADE BYRENS • AIA
ARCHITECTURE • PLANNING
361 17TH STREET OAKLAND CA 94612 510 452 3224

MECHANICAL – LOWER LEVEL FLOOR PLAN

PIEDMONT MIDDLE SCHOOL GYMNASIUM/ MUSIC DEPARTMENT

PIEDMONT UNIFIED SCHOOL DISTRICT
PIEDMONT, ALAMEDA COUNTY, CALIFORNIA

Date: 5-9-95
Scale: 1/8"=1'-0"
Drawn: RHJ
Job: A93
Sheet
M2.0



ROOM SCHEDULE

201	GIRL'S LOCKER ROOM
202	VESTIBULE
203	VESTIBULE
204	GIRL'S TOILET
205	HC TOILET
206	OFFICE
207	STORAGE
208	TOILET
209	OFFICE
210	TOILET
211	OFFICE
212	BOY'S LOCKER ROOM
213	BOY'S TOILET
214	HC TOILET
215	JANITOR
216	VESTIBULE
217	VESTIBULE
218	HALL
219	HALL
220	LANDING
221	GYMNASIUM
222	STORAGE
223	STAIR
224	STAIR
225	STORAGE
226	STAIR

SHEET NOTES

1. ~~REFER TO ARCHITECTURAL REFLECTED CEILING PLAN FOR EXACT LOCATION OF ALL CEILING DIFFUSERS, LIGHTS, SPRINKLERS, ETC. THROUGHOUT THE PLENUM SPACE. COORDINATE WITH ARCHITECT.~~
2. ~~REFER TO ARCHITECTURAL PLAN FOR EXACT LOCATION OF ALL DIFFUSERS, GRILLES, AND RETURN GRILLES. COORDINATE WITH ARCHITECT.~~
3. ADD (1) O.A. DAMPERS TO HP-2 AIR HANDLER USING THE PEARL ECONOMIZER CONTROLLER.
4. REMOVE AND REPLACE FAN COIL UNIT HP-2
5. RE-USE EXISTING PELICAN CONTROLS FOR HP-2
6. ADD (1) O.A. DAMPER TO HP-1 AIR HANDLER USING THE PEARL ECONOMIZER CONTROLLER.
7. RE-USE EXISTING PELICAN CONTROLS FOR HP-1

2 PLATFORM LEVEL PLAN
SCALE: 1/8"=1'-0"

1 MIDDLE FLOOR PLAN
SCALE: 1/8"=1'-0"

REVISIONS	BY

MONTGOMERY & ROBERTS
CONSULTING ENGINEERS
1999 SAN PABLO AVENUE / EL CERRITO, CA. 94530
TELEPHONE: (510) 232-5541 / FAX: (510) 232-0666

DAVID WADE BYRENS • AIA
ARCHITECTURE • PLANNING
361 17TH STREET OAKLAND CA 94612 510 452 3224

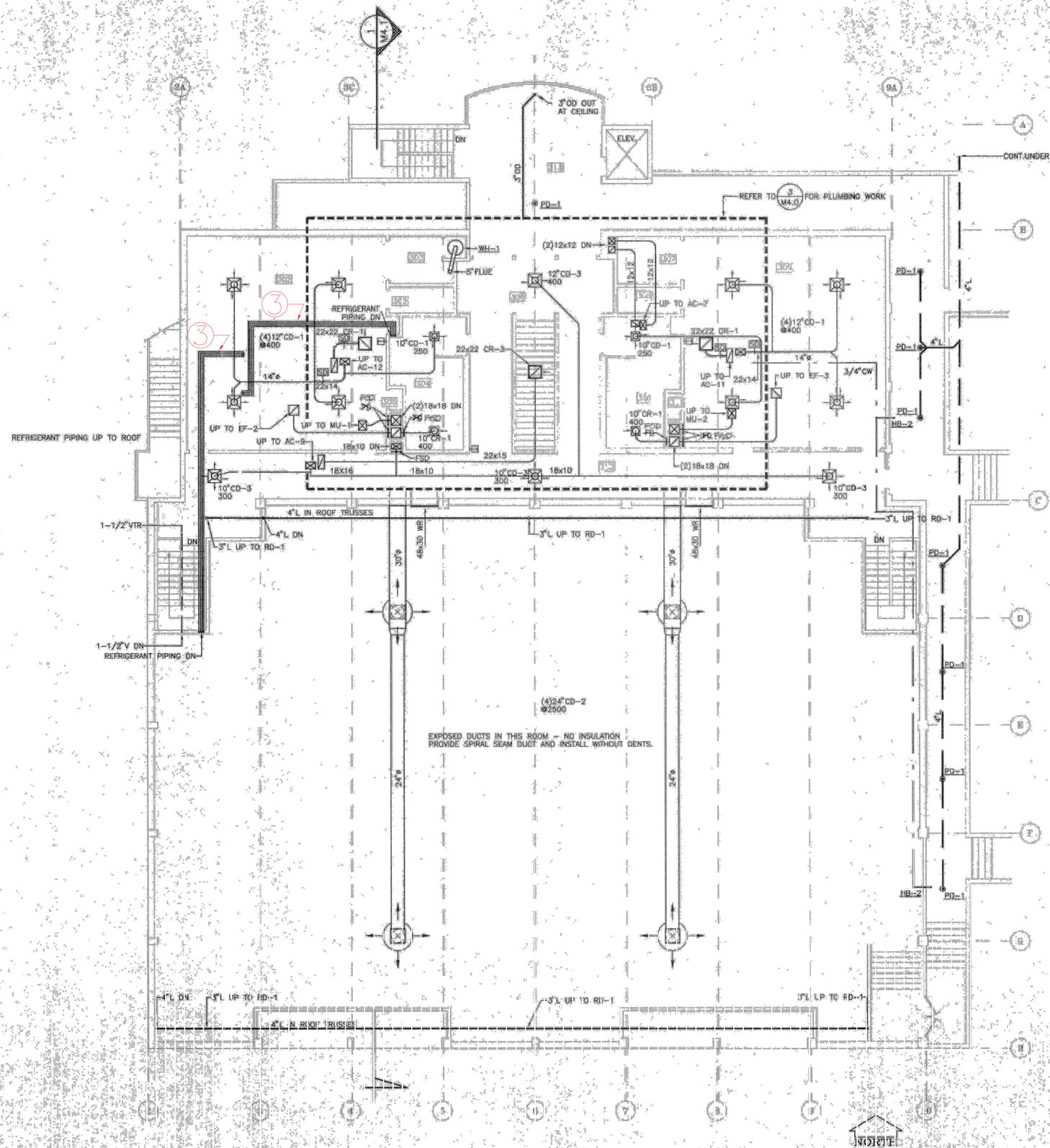
MECHANICAL – MIDDLE LEVEL FLOOR PLAN

FIEDMONT MIDDLE SCHOOL GYMNASIUM/
MUSIC DEPARTMENT

PIEDMONT UNIFIED SCHOOL DISTRICT
PIEDMONT, ALAMEDA COUNTY, CALIFORNIA

Date: 11-12-15
Scale: 1/8" = 1'-0"
Drawn: RHJ
Job: A53
Sheet

M2.1



ROOM SCHEDULE

301	MIDDLE SCHOOL WEIGHT ROOM
302	STORAGE
303	STORAGE
304	GIRL'S
305	STORAGE
306	LOBBY
307	STORAGE
308	STORAGE
309	HIGH SCHOOL WEIGHT ROOM
310	BOY'S
311	STORAGE
312	HALL
313	LANDING

SHEET NOTES

1. REFER TO ARCHITECTURAL REFLECTED CEILING PLANS FOR EXACT LOCATION OF ALL CEILING OUTLETS.
2. INSTALL AN ACCESSIBLE MANUAL VOLUME DAMPER IN EACH BRANCH DUCT.

③ RUN NEW LINE SETS TO HP-2, HP-3 & HP-4.

REVISIONS	BY

MONTGOMERY & ROBERTS
CONSULTING ENGINEERS
31099 SAN PABLO AVENUE · EL CERRITO, CA 94530
TELEPHONE (510) 232-1641 · FAX (510) 232-0665

DAVID WADE BYRENS
ARCHITECTURE • PLANNING
361 17TH STREET OAKLAND CA 94612 510 452 3224

MECHANICAL – UPPER LEVEL FLOOR PLAN

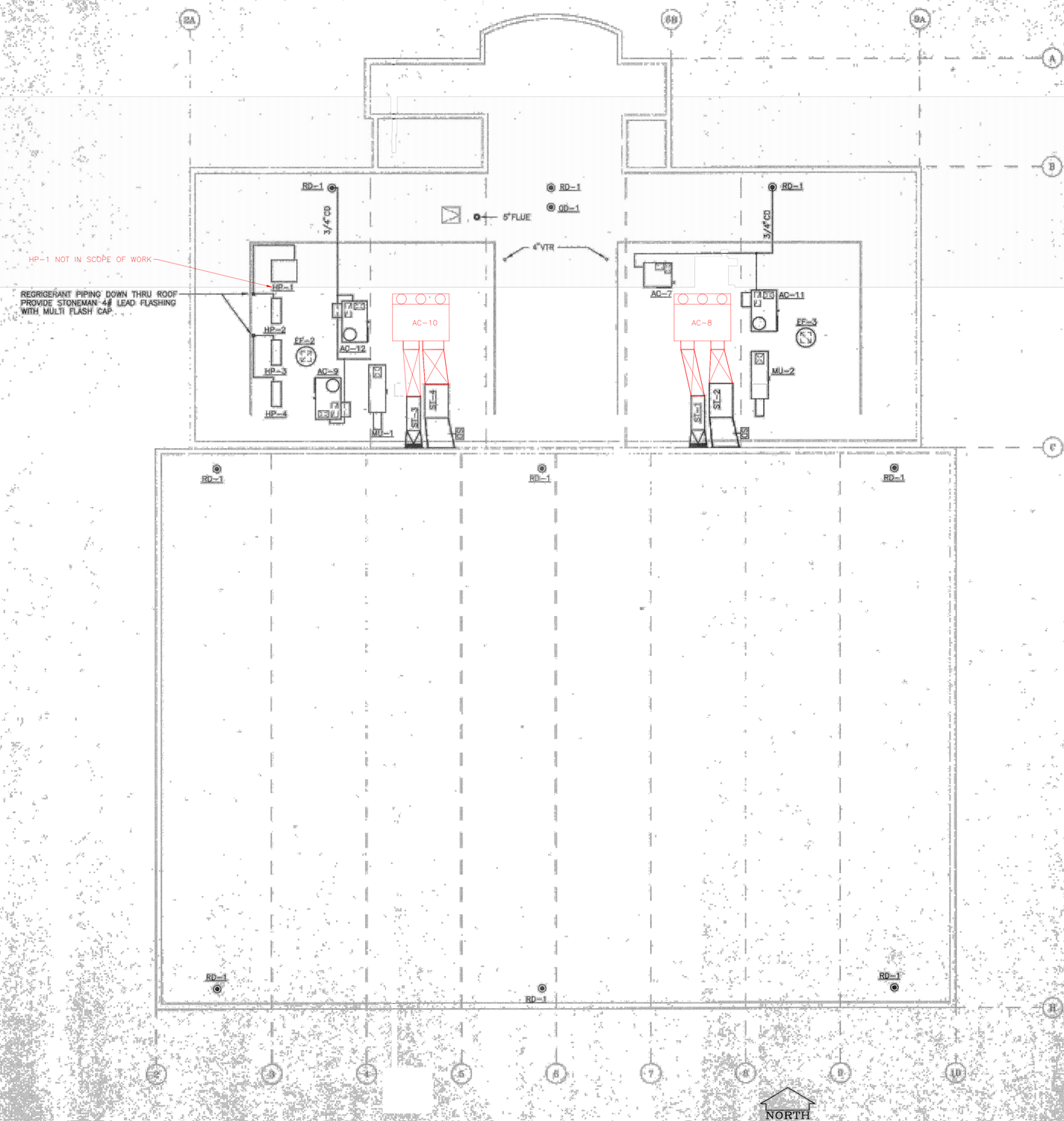
PIEDMONT MIDDLE SCHOOL GYMNASIUM/ MUSIC DEPARTMENT
PIEDMONT UNIFIED SCHOOL DISTRICT
PIEDMONT, ALAMEDA COUNTY, CALIFORNIA

Date: 9-4-15
Scale: 1/8"=1'-0"
Drawn: RHJ
Job: A13
Sheet

M2.2

SHEET NOTES

- REMOVE AND CAP OFF ALL GAS ON ROOF.
- REMOVE AND REPLACE AC-7 THRU AC-12 WITH HEAT PUMP PACKAGE, PEARL ECONOMIZER CONTROLLER, / PELICAN T-STAT CONTROLLER.
- REMOVE AND REPLACE MAKE-UP AIR UNITS MU-1 & MU-2 WITH PELICAN ECONOMIZER CONTROLLERS NEW ROOF CURBS AS NEEDED.
- RE-USE (E) SOUND TRAPS ST-1 THRU ST-4
- RE-CONNECT ALL EXISTING CONDENSATE DARNS TO NEW UNITS.
- UNIT HP-1 NOT IN SCOPE



REVISIONS	BY

MONTGOMERY & ROBERTS
CONSULTING ENGINEERS
11006 SAN PABLO AVENUE 1B, EMERYVILLE, CA 94530
TELEPHONE (510) 232-5841 • FAX (510) 232-5865

DAVID WADE BYRENS • AIA
ARCHITECTURE • PLANNING
361 17TH STREET OAKLAND CA 94612 510 452 3224

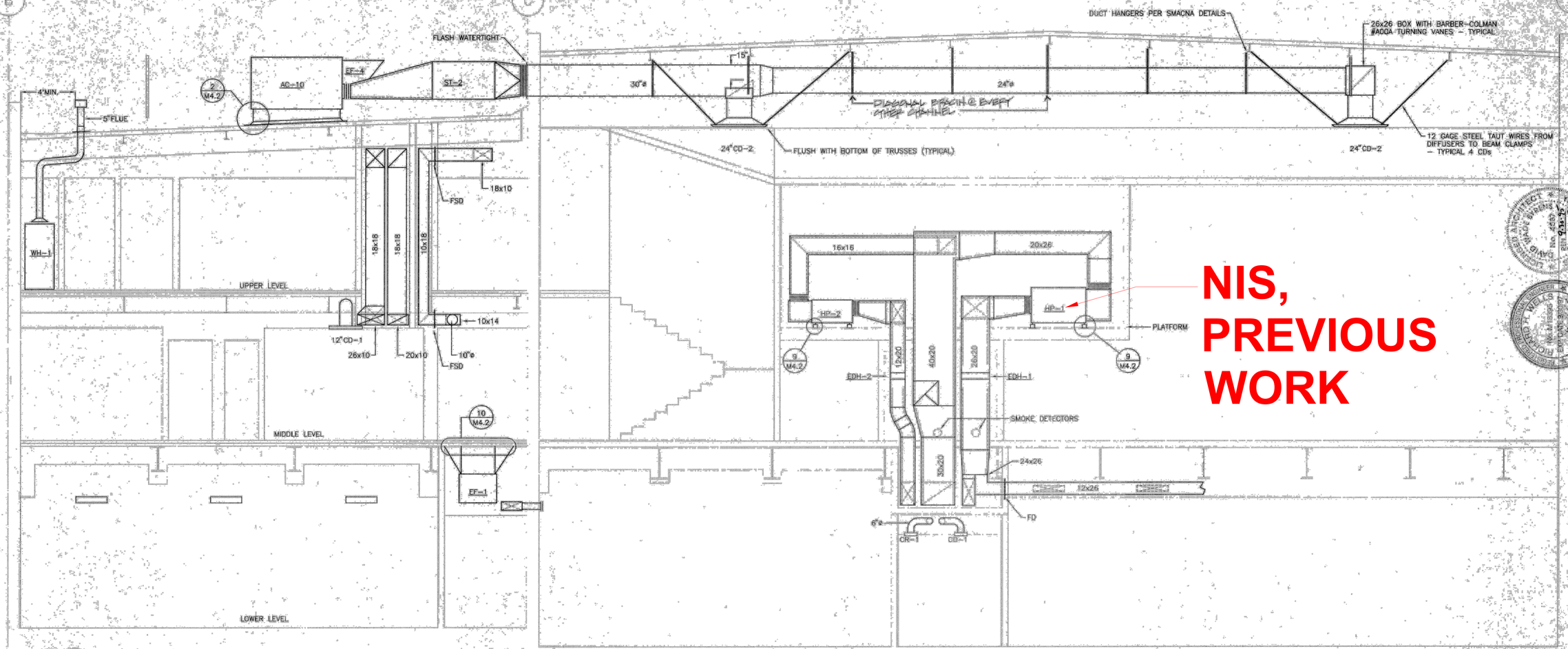
MECHANICAL ROOM PLAN

PIEDMONT MIDDLE SCHOOL GYMNASIUM/
MUSIC DEPARTMENT

PIEDMONT UNIFIED SCHOOL DISTRICT
PIEDMONT, ALAMEDA COUNTY, CALIFORNIA

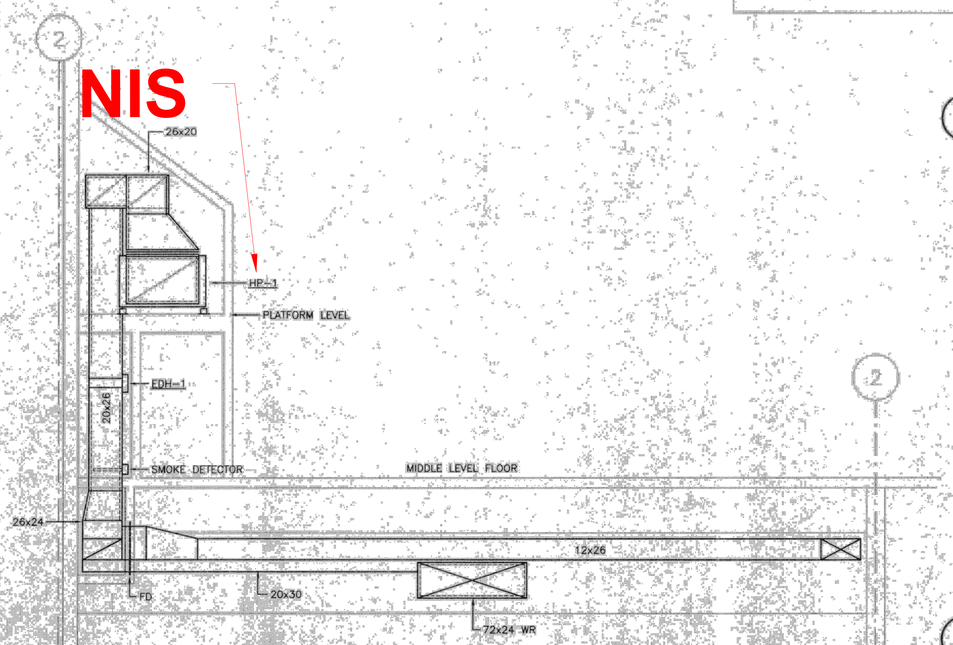
Date: 5-4-95
Scale: 1/8"=1'-0"
Drawn: RHJ
Job: A93
Sheet

M3.0



NIS, PREVIOUS WORK

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



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

REVISIONS	BY

MONTGOMERY & ROBERTS
CONSULTING ENGINEERS
11090 SAN PABLO AVENUE, EL CERRITO, CA 94530
TELEPHONE: (510) 232-1941 • FAX: (510) 232-0865

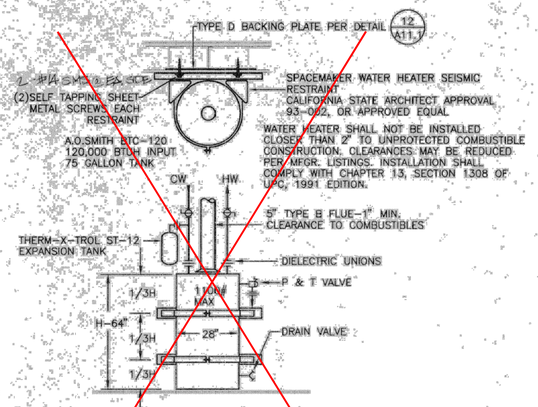
DAVID WADE BYRENS • AIA
ARCHITECTURE • PLANNING
361 17TH STREET OAKLAND CA 94612 510 452 3224

MECHANICAL – SECTIONS

PIEDMONT MIDDLE SCHOOL GYMNASIUM/
MUSIC DEPARTMENT

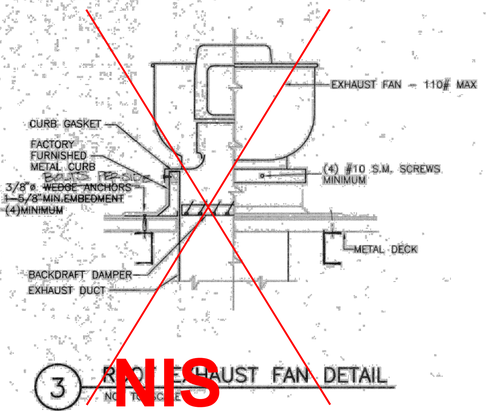
PIEDMONT UNIFIED SCHOOL DISTRICT
PIEDMONT, ALAMEDA COUNTY, CALIFORNIA

Date: 5-4-95
Scale: 1/4"=1'-0"
Drawn: RHJ
Job: A93
Sheet
M4.1

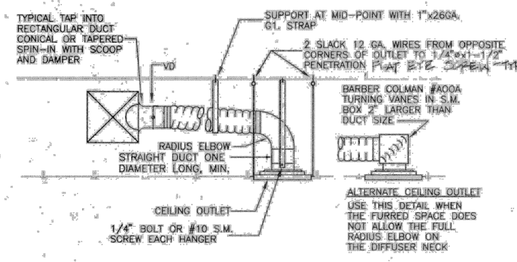


PROVIDE RAYCHEM HWAT-D (120DEG) 120 VOLT SELF REGULATING HEATING CABLE ON THE DOMESTIC HOT WATER PIPE FROM THE WATER HEATER TO WITHIN APPROX. 10 FEET ON SK-1 IN ROOM 104 ON THE LOWER LEVEL. INSTALL ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS BEFORE INSULATING.
THE CONTRACTOR MAY, AT HIS OPTION RATHER THAN THE HEATING CABLE, INSTALL AN INSULATED 1/2" HOT WATER RETURN PIPE FROM THE HOT WATER HEATER COLD WATER SUPPLY PIPE TO THE SAME LOWER LEVEL LOCATION ALONG WITH A HOT WATER RETURN PUMP WITH SHUTOFF AND CHECK VALVES AND A STRAP ON THERMOSTAT.

4 HOT WATER HEATER DETAIL
NO SCALE
NIS



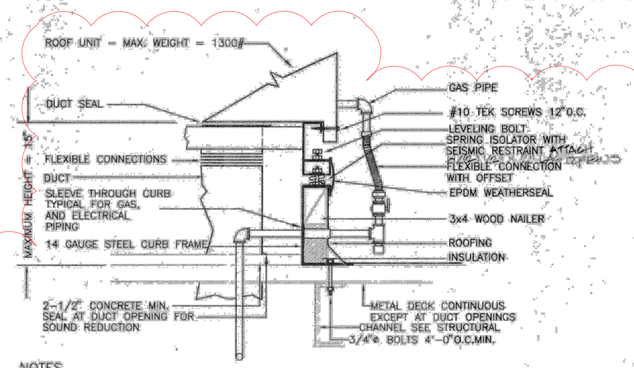
3 ROOF EXHAUST FAN DETAIL
NO SCALE
NIS



FLEXIBLE DUCT STRETCHED TO LIMIT FREE OF KINKS, SAGS AND SHARP OFFSETS-5FT. LONG MAX. SUPPORT FLEX. AS HIGH AS POSSIBLE ABOVE OUTLET WITH 1" WIDE 26 GA G. I. STRAP

MASTIC, TAPE, AND DRAW BAND PER MFGRS RECOMMENDATIONS AT CONNECTION

9 TYPICAL CEILING OUTLET
NO SCALE
NIS

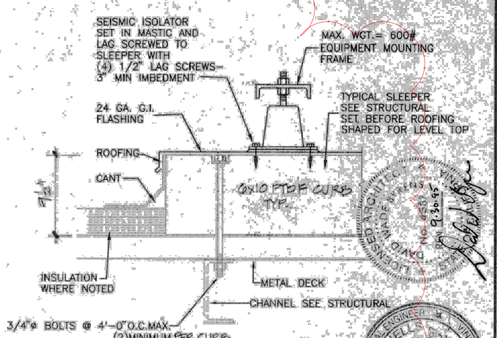


NOTES

1. BASE SHOWN IS A SAUSSE MODEL VIC-EQ PERIMETER ISOLATION BASE WITH SEISMIC RESTRAINTS BASE IS TO BE PROVIDED WITH SLEEVES FOR THE CONDENSATE DRAIN, GAS, AND ELECTRICAL.
2. PROVIDE AN APPROVED AND LISTED FLEXIBLE CONNECTION AND GAS COCK IN THE GAS PIPING. THE PIPING SHALL EXTEND THROUGH THE CURB AS INDICATED.
3. CONTROL WIRING SHALL BE INSTALLED THROUGH THE CURB WITH A FLEXIBLE CONNECTOR AS INDICATED FOR THE CONDENSATE DRAIN.
4. PROVIDE ACCESSIBLE CLEANOUTS IN ALL CONDENSATE PIPING AT A MAXIMUM SPACING OF 100 FEET AND AT EACH AGGREGATE CHANGE OF DIRECTION EXCEEDING 135 DEGREES. EXTEND PIPING TO ROOF DRAIN OR INDIRECT WASTE AS NOTED. INSTALL A TRAP WITH 2" MIN. SEAL AT EACH AC UNIT WHEN TRAP IS NOT PROVIDED WITH UNIT.

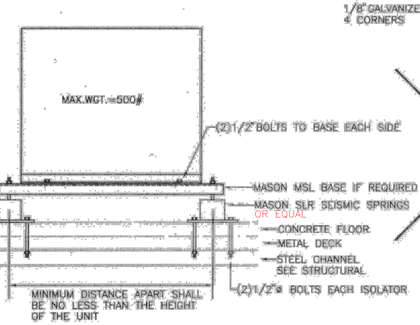
NOTE: NOT IN SCOPE
DEMO AND REMOVE EXISTING GAS LINE. CAP OFF MAIN SERVING ROOF EQUIPMENT

2 TYPICAL ROOFTOP UNIT DETAILS
NO SCALE (FOR AC UNITS ONLY)

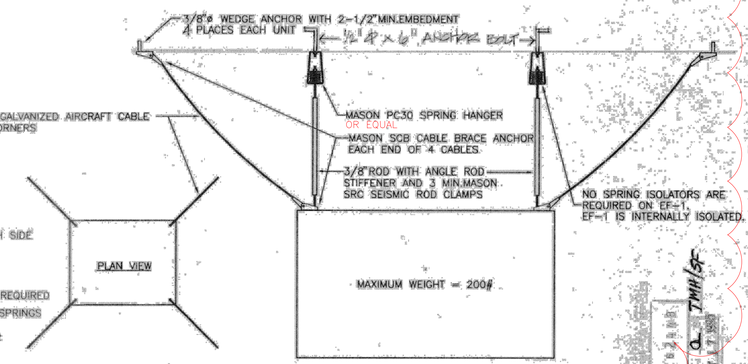


TYPICAL FOR MU-1 & 2

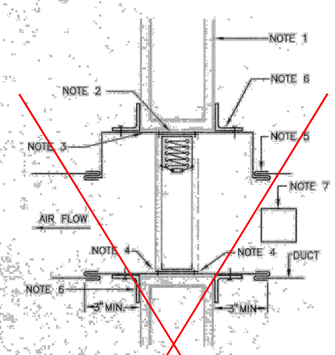
1 TYPICAL ROOF MOUNTED EQUIPMENT SUPPORT
NO SCALE (FOR ALL MAKE UP UNITS)



9 HP-1 & HP-2 SUPPORT
SCALE: NONE



10 HP-3, HP-4, EF-1 SUPPORT
SCALE: NONE

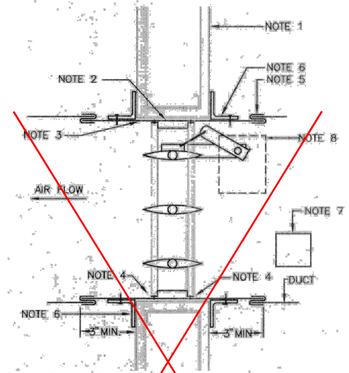


STANDARD FRAME INSTALLATION

NOTES:

1. STANDARD FRAME FIRE PARTITION.
2. OPENING TO BE 1/8" WIDER FOR EACH FOOT OF SLEEVE WIDTH AND 1/8" HIGHER FOR EACH FOOT OF SLEEVE HEIGHT.
3. SLEEVE TO EXTEND 3" BEYOND EACH SIDE OF PARTITION.
4. FIRE DAMPER FRAME ATTACHED TO THE SLEEVE AS RECOMMENDED BY THE DAMPER MANUFACTURER.
5. "S" DUCT CONNECTION – NOT SCREWED OR BOLTED TO SLEEVE.
6. ANGLES ALL AROUND SLEEVE ON BOTH SIDES OF PARTITION. WELDED OR BOLTED TO SLEEVE WITH 1" FILLETS AT 5" O.C. MAXIMUM OR 1/4" BOLTS AT 5" O.C.MAXIMUM. ANGLES ARE NOT ATTACHED TO WALL (EXCEPT AT SILL WHICH IS OPTIONAL) TO PROVIDE FOR EXPANSION. IN NO CASE SHALL ANGLE OVERLAP WALL FRAMING LESS THAN 1". SEE MANUFACTURER'S APPROVAL FOR SIZE AND GAUGE OF ANGLE.
7. SUITABLE ACCESS SERVICE OPENINGS MUST BE PROVIDED TO MAKE FIRE DAMPERS ACCESSIBLE FOR INSPECTION AND SERVICING.
8. TYPE B FIRE DAMPER SHOWN. TYPES A AND C SIMILAR.
9. WHERE THE ABOVE INSTRUCTIONS CONFLICT WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS, THE MANUFACTURER'S INSTRUCTIONS SHALL GOVERN.

5 FIRE DAMPER DETAIL
NIS

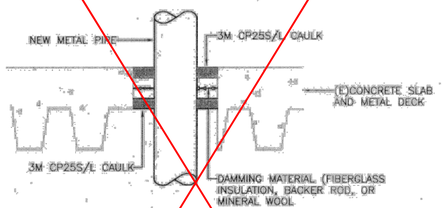


STANDARD FRAME INSTALLATION

NOTES:

1. STANDARD FRAME FIRE PARTITION.
2. OPENING TO BE 1/8" WIDER FOR EACH FOOT OF SLEEVE WIDTH AND 1/8" HIGHER FOR EACH FOOT OF SLEEVE HEIGHT.
3. SLEEVE TO EXTEND 3" BEYOND EACH SIDE OF PARTITION.
4. DAMPER FRAME ATTACHED TO THE SLEEVE BY THE MANUFACTURER. CAULK AIR TIGHT.
5. "S" DUCT CONNECTION – NOT SCREWED OR BOLTED TO SLEEVE.
6. ANGLES ALL AROUND SLEEVE ON BOTH SIDES OF PARTITION. WELDED OR BOLTED TO SLEEVE WITH 1" FILLETS AT 5" O.C. MAXIMUM OR 1/4" BOLTS AT 5" O.C. MAXIMUM. ANGLES ARE NOT ATTACHED TO WALL (EXCEPT AT SILL WHICH IS OPTIONAL) TO PROVIDE FOR EXPANSION. IN NO CASE SHALL ANGLE OVERLAP WALL FRAMING LESS THAN 1". SEE MANUFACTURER'S APPROVAL FOR SIZE AND GAUGE OF ANGLE.
7. SUITABLE ACCESS SERVICE OPENINGS MUST BE PROVIDED TO MAKE DAMPERS ACCESSIBLE FOR INSPECTION AND SERVICING.
8. MOUNT DAMPER MOTOR OUTSIDE DUCT.
9. WHERE THE ABOVE INSTRUCTIONS CONFLICT WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS, THE MANUFACTURER'S INSTRUCTIONS SHALL GOVERN.

6 FIRE/SMOKE DAMPER DETAIL
SCALE: NONE
NIS



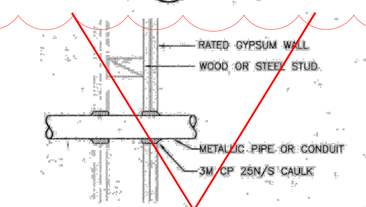
2 HOUR FIRE PROTECTION RATING

UL SYSTEM #49

NOTES

1. WHEN THE MAXIMUM ANNULAR SPACE IS 1" OR LESS, A 1/2" MINIMUM DEPTH OF 3M FIRE BARRIER CP25 CAULK IS REQUIRED. THE FIRESTOP MAY BE PLACED AT THE TOP OR BOTTOM OF THE FLOOR WHEN THE SPACE IS 1" OR LESS.
2. WHEN THE MAXIMUM ANNULAR SPACE IS GREATER THAN 1", A 1" MINIMUM DEPTH OF CAULK IS REQUIRED.
3. USE CP25S/L (SELF LEVELING) CAULK ON HORIZONTAL SURFACES WHEN FILLING GAPS FROM ABOVE THE PENETRATION. USE CP25N/S (NO SAG) CAULK ON VERTICAL SURFACES AND ON HORIZONTAL SURFACES WHEN FILLING GAPS FROM BELOW.
4. MAXIMUM ANNULAR SPACE TO BE FILLED WITHOUT A COVER PLATE IS 2-1/2".
5. POINT CONTACT OF THE PIPE WITH THE CONCRETE IS PERMISSIBLE.
6. INSTALLATION SHALL BE WATERPROOF.

7 FLOOR PENETRATION FIRE STOP
SCALE: NONE
NIS



NOTES

1. THE CAULK IS TO BE FORCED INTO THE ANNULAR SPACE TO THE MAXIMUM EXTENT POSSIBLE WITH THE EXTERIOR OF THE PENETRATION SURFACE.
2. FINISH CAULKING WITH A 1/4" MINIMUM BEAD OF CP 25N/S CAULK APPLIED TO THE PERIMETER OF THE CONDUIT/PIPE AT ITS EGRESS FROM THE WALL.
3. THE MAXIMUM ANNULAR SPACE IS NOT TO EXCEED 3/16".
4. INSTALL 3M FIRESTOP ON BOTH SIDES OF THE WALL.
5. THESE RECOMMENDATIONS ARE BASED ON PRODUCT PERFORMANCE PER ASTM E-814 (UL 1479) FIRE TEST AND UL THROUGH-PENETRATION FIRESTOP SYSTEM #147.

UL SYSTEM #147

8 PENETRATION FIRESTOP
SCALE: NONE
NIS

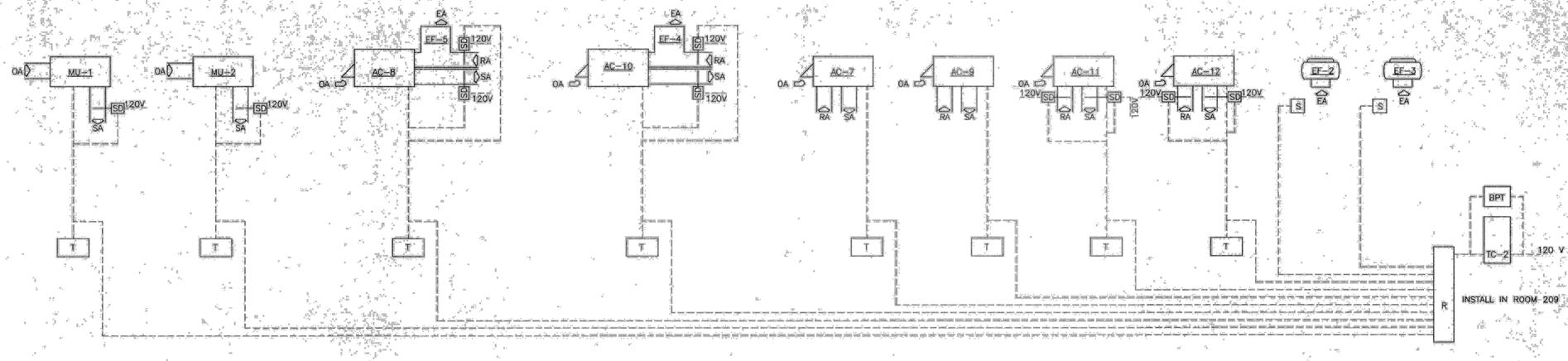
REVISIONS	BY

MONTGOMERY & ROBERTS
CONSULTING ENGINEERS
1109 SAN PABLO AVENUE · EL CERRITO, CA 94530
TELEPHONE: (510) 525-5541 · FAX: (510) 232-8865

DAVID WADE BYRENS • AIA
ARCHITECTURE • PLANNING
361 17TH STREET OAKLAND CA 94612 510 452 3224

MECHANICAL – DETAILS
PIEDMONT MIDDLE SCHOOL GYMNASIUM/ MUSIC DEPARTMENT
PIEDMONT UNIFIED SCHOOL DISTRICT
PIEDMONT, ALAMEDA COUNTY, CALIFORNIA

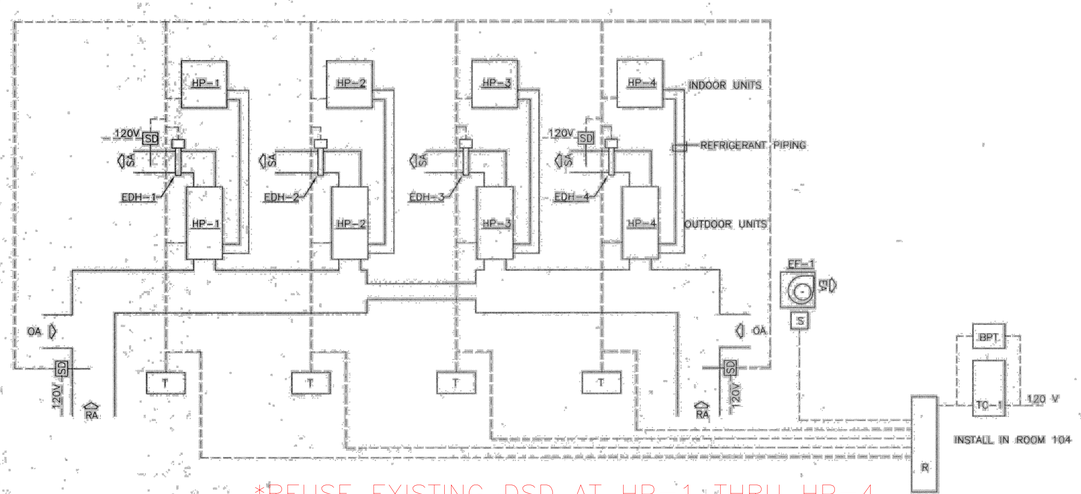
Date: 5-4-99
Scale: AS NOTED
Drawn: RHJ
Job: A93
Sheet
M4.2



*REUSE EXISTING DSD AT AC-7 THRU AC-12 & MCU1, MCU-2

1 SCHEMATIC HVAC SYSTEM DIAGRAM – UPPER LEVEL

SCALE: NONE



*REUSE EXISTING DSD AT HP-1 THRU HP-4

2 SCHEMATIC HVAC SYSTEM DIAGRAM – LOWER LEVEL

SCALE: NONE

3 TYPICAL FIRE/SMOKE DAMPER

SCALE: NONE

SEQUENCE OF OPERATIONS

TIME CLOCK OPERATION

1. A TIME CLOCK WILL START ALL UPPER LEVEL HVAC EQUIPMENT AS INDICATED. A SEPARATE TIME CLOCK WILL START THE LOWER LEVEL HVAC EQUIPMENT. EACH TIME CLOCK WILL HAVE A MANUAL BYPASS TIMER FOR OFF HOUR OPERATION.

TYPICAL AIR CONDITIONING AND HEAT PUMP UNITS

1. A WALL THERMOSTAT WILL CONTROL EACH UNIT.
2. DUCT SMOKE DETECTORS IN THE SUPPLY AND RETURN DUCTS OF UNITS INDICATED ON THE UPPER LEVEL SHALL STOP THE UNIT WHEN SMOKE IS DETECTED AND SIGNAL THE CENTRAL FIRE ALARM SYSTEM.
3. DUCT SMOKE DETECTORS IN THE SUPPLY DUCTS OF UNITS INDICATED ON THE LOWER LEVEL SHALL STOP THE UNIT WHEN SMOKE IS DETECTED AND SIGNAL THE CENTRAL FIRE ALARM SYSTEM. SMOKE DECTECTORS IN THE COMMON RETURN DUCTS SHALL STOP ALL LOWER LEVEL UNITS.
4. WIRING FROM THE DUCT SMOKE DETECTORS TO THE CENTRAL FIRE ALARM SYSTEM WILL BE PROVIDED UNDER THE ELECTRICAL SECTION.
5. AC-8 AND AC-10 EACH HAVE ECONOMIZER OA/RA MODULATING DAMPERS AND EXHAUST FANS FURNISHED WITH THE AC UNITS. EACH EXHAUST FAN IS TO BE INTERLOCKED TO OPERATE WHEN THE OUTSIDE AIR DAMPERS ARE FULL OPEN ON EACH AC UNIT.
6. CONNECT HEAT PUMP ELECTRIC DUCT HEATERS TO ENERGIZE ON THE SECOND STAGE OF HEATING OR WHEN THE HEAT PUMP IS ON DEFROST.
7. EACH FIRE/SMOKE DAMPER SHALL CLOSE ON DETECTION OF SMOKE BY IT'S ADJACENT DUCT SMOKE DETECTOR.

LEGEND

T	WALL THERMOSTAT WITH METAL LOCKING GUARD ON UPPER LEVEL EQUIPMENT AND CLEAR PLASTIC LOCKING COVER ON LOWER LEVEL EQUIPMENT.
TC	TIME CLOCK WITH WEEKEND SKIP AND BATTERY BACKUP
BPT	MANUAL SPRING WOUND TIME CLOCK BYPASS TIMER FOR 3 HOURS OF OPERATION
SD	DUCT SMOKE DETECTOR WITH TWO DRY CONTRACTS FOR EQUIPMENT OPERATION AND CENTRAL ALARM FUNCTION – STATE FIRE MARSHALL APPROVED
S	MAGNETIC STARTER
R	RELAY
EDH	ELECTRIC DUCT HEATER

GENERAL NOTES

1. PROVIDE ALL NECESSARY CONTROL AND INTERLOCK WIRING AND CONTROLS FOR THE ABOVE SEQUENCE OF OPERATIONS.
2. ALL POWER WIRING AND ALL FIRE ALARM WIRING WILL BE PROVIDED UNDER THE ELECTRICAL DIVISION.

ALL HVAC SUPPLY SYSTEMS MORE THAN 2000 CFM SHALL HAVE SMOKE DETECTOR SHUTDOWNS AS NOTED.

REVISIONS	BY

MONTGOMERY & ROBERTS
CONSULTING ENGINEERS
1090 SAN PABLO AVENUE • EL CERRITO, CA 94530
TELEPHONE: (510) 232-1541 • FAX: (510) 232-0865

DAVID WADE BYRENS • AIA
ARCHITECTURE • PLANNING
361 17TH STREET OAKLAND CA 94612 510 452 3224

MECHANICAL – TEMPERATURE CONTROLS

PIEDMONT MIDDLE SCHOOL GYMNASIUM/
MUSIC DEPARTMENT

PIEDMONT UNIFIED SCHOOL DISTRICT
PIEDMONT, ALAMEDA COUNTY, CALIFORNIA

Date: 2-9-15

Scale: NONE

Drawn: RHJ

Job: A93

Sheet

M4.3