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HAINES SCHOOL DISTRICT
MOSQUITO LAKE SCHOOL
HEATING SYSTEM RENOVATION
HAINES, ALASKA

SHEET TITLE:
SYMBOLS & SCHEDULES

SCALE: AS NOTED
DATE: FEBRUARY, 2009
DRAWN: KB, CN
DESIGNED: DM
CHECKED: DM

SHEET NO.
M-1
JOB NO. M-415

SYMBOLS

	CW	COLD WATER
	HW	HOT WATER
	HWR	HOT WATER RECIRCULATING
	V	VENT
	W	WASTE, SOIL, DRAINAGE
	HS	HEATING SUPPLY
	HR	HEATING RETURN
	OS	OIL SUCTION
	OR	OIL RETURN
		CHECK VALVE
		UNION
	AV	AUTOMATIC VALVE
		FLOWSETTER W/NO
		GLOBE VALVE OR ISOLATING BALL VALVE
	DV	DRAIN VALVE
		PITCHED DOWN
		REDUCER
		CAPPED OR PLUGGED
		STRAINER
		TEST PORT/PLUG
		WATER FEEDER
		SIDEWALL SPRINKLER HEAD
	P-1	PUMP
		SAFETY OR RELIEF VALVE
		POINT OF CONNECTION OR REMOVAL
		CONSTRUCTION NOTE
		THERMOSTAT - IMMERSION, ROOM
		THERMOMETER
		VACUUM GAGE
		PRESSURE GAGE
		PRESSURE SWITCH
		DIFFERENTIAL PRESSURE SWITCH
		CONTROL SWITCH
		DIAMETER
		CENTER LINE
		ACCESS DOOR
		TO BE ABANDONED
		BELOW GRADE
		CONNECT TO EXISTING
		EXISTING
		BELOW FLOOR
		IN JOIST SPACE
		TO BE RELOCATED
		TO BE REMOVED

AAV	AUTOMATIC AIR VENT
AFF	ABOVE FINISHED FLOOR
AHU	AIR HANDLING UNIT
AV	AUTOMATIC VALVE
BD	BUTTERFLY DAMPER
BAS	BUILDING AUTOMATION SYSTEM
BC	BOOSTER COIL
BDD	BACK DRAFT DAMPER
BFP	BACK FLOW PREVENTER
C	COMMON
CFM	CUBIC FEET PER MINUTE
CO	CLEANOUT
CV	CONVECTOR
DDC	DIRECT DIGITAL CONTROL
DU	DIELECTRIC UNION
DV	DRAIN VALVE
EA	EXHAUST AIR
EAD	EXHAUST AIR DAMPER
EAT	ENTERING AIR TEMPERATURE
EF	EXHAUST FAN
EG	EXHAUST GRILLE
ESP	EXTERNAL STATIC PRESSURE
ET	EXPANSION TANK
EWT	ENTERING WATER TEMPERATURE
FD	FLOOR DRAIN
FS	FLOOR SINK
HB	HOSE BIBB
HC	HEATING COIL
HWH	HOT WATER HEATER
HWM	HOT WATER MAKER
HWRP	HOT WATER RECIRCULATING PUMP
IEW	IN ELECTRICAL WORK
LAT	LEAVING AIR TEMPERATURE
LL	LOW LIMIT
LWCO	LOW WATER CUTOFF
LWT	LEAVING WATER TEMPERATURE
MA	MIXED AIR
MAT	MIXED AIR TEMPERATURE
MAV	MANUAL AIR VENT
MBH	1,000 BTU PER HOUR
NC	NORMALLY CLOSED
NIC	NOT IN CONTRACT
NIM	NOT IN MECHANICAL
NF	NON FREEZE
NO	NORMALLY OPEN
OAD	OUTSIDE AIR DAMPER
OSA	OUTSIDE AIR
OSV	OIL SAFETY VALVE PUMP
PSI	POUNDS PER SQUARE INCH
RA	RETURN AIR
RAD	RECIRCULATING AIR DAMPER
RAT	RETURN AIR THERMOSTAT
RG	RETURN GRILLE
RPBP	REDUCED PRESSURE BACKFLOW PREVENTER
SA	SUPPLY AIR
SAT	SUPPLY AIR THERMOSTAT
SG	SUPPLY GRILLE
T&P	TEMPERATURE AND PRESSURE RELIEF VALVE
TEF	TOILET EXHAUST FAN
TSP	TOTAL STATIC PRESSURE
TV	TEMPERING VALVE
TYP	TYPICAL
UH	UNIT HEATER
VI	VIBRATION ISOLATORS

MECHANICAL CODE NOTES:

1. CODES & REGULATIONS: ALL WORK HEREUNDER SHALL BE STRICTLY IN CONFORMANCE WITH APPLICABLE CODES AND REGULATIONS. ALL WORK SHALL BE IN ACCORDANCE WITH THE 2006 INTERNATIONAL FUEL & GAS CODE, 2006 INTERNATIONAL FIRE CODE, 2006 INTERNATIONAL MECHANICAL CODE, 2006 UNIFORM PLUMBING CODE, 2006 INTERNATIONAL BUILDING CODE, NFPA, AND STATE OF ALASKA MODIFICATIONS. ALL ELECTRICAL EQUIPMENT SHALL BEAR THE UL LABEL. ALL SHEET METAL WORK TO BE DONE IN ACCORDANCE WITH SMACNA REQUIREMENTS. PROVIDE ALL TESTING REQUIREMENTS FOR MECHANICAL SYSTEMS AS REQUIRED AND WITNESSED BY ADMINISTRATIVE AUTHORITY.

MECHANICAL DRAWING INDEX

M-1	SYMBOLS & SCHEDULES
M-2	FLOOR PLAN - DEMO & NEW
M-3	FLOOR PLAN & SECTION
M-4	BOILER PIPING SCHEMATIC
M-5	CONTROLS & OIL PIPING DIAGRAM
M-6	CONTROLS

EQUIPMENT SCHEDULE

EQUIPMENT	DESIGN MANUFACTURER	MODEL	FEATURES/CONTROLS/OPTIONS
HOT WATER MAKER	TRIANGLE TUBE	SMART 40	COMMERCIAL TYPE 35 GALLON WATER HEATER. 1-1/2" LOW DENSITY POLYURETHANE INSULATION. DOUBLE WALL HEAT EXCHANGER. MINIMUM CAPACITY TO BE 2.5 GPM RECOVERY @ 112 MBH BOILER OUTPUT, WITH 40°F EWT AND 140°F LWT. IMMERSION TYPE AQUASTAT TO CONTROL PUMP THROUGH INTEGRAL CONTROL. SEE PIPING DIAGRAM FOR CONFIGURATION. WITH ASME RATED RELIEF VALVE. MAXIMUM OF 2' HEAD PRESSURE DROP THROUGH COIL AT 8 GPM FLOW RATE. DATA REQUIRED.
TEMPERING VALVE	POWERS 430 SERIES LEONARD	M430	ROUGH CHROME TEMPERATURE MIXING VALVES. TEMPERATURE LIMITING AND PRESSURE BALANCING WITH COMBINATION STRAINER CHECK STOPS. 3/4" INLET AND OUTLET SIZE. SET AT DISCHARGE TEMPERATURE OF 115°F AND RECORDED FOR O&M. DATA REQUIRED.
WATER FEEDER	WATTS, BELL & GOSSETT	USLP, B-38	3/4 INCH WITH SELF CLEANING STRAINER, ADJUSTABLE PRESSURE REDUCING VALVE SET AT 12 PSI. INSTALLED WITH PRESSURE GAGES EACH SIDE AND BYPASS AS SHOWN.
TEST PLUGS	PETE'S PLUG	-	BRASS, 1/2-INCH NPT PLUG WITH SELF-SEALING PORT. SUITABLE FOR 250F AND 150 PSI. WITH SCREW TYPE SEALING CAP. IN PIPING TEE WHERE SHOWN. INSTALLED ACCESSIBLE.
BACKFLOW PREVENTER	WATTS	909	REDUCED PRESSURE DOUBLE CHECK ASSEMBLY WITH SHUT OFF VALVES EACH SIDE AND FUNNEL DRAIN UNDER. VENT PIPED TO FLOOR DRAIN.
AIR SEPARATOR	TACO	AC2F	WITH REMOVABLE STRAINER. AIR VENT ON TOP. CONNECTION TO EXPANSION TANK AND COLD WATER SUPPLY ON TOP. WITH 1" VALVED BLOWDOWN.
AUTOMATIC AIR VENT, AAV	HONEYWELL HOFFMAN	NO. EA79 79	INSTALLED AT ALL HIGH POINTS IN HEATING SYSTEM WITH 3/4" SHUT OFF VALVE. PROVIDE FITTINGS FOR DRAIN CONNECTIONS.

PUMP SCHEDULE

EQUIPMENT	FUNCTION	GPM	HEAD, FT.	DESIGN MANUFACTURER AND MODEL	MINIMUM HORSEPOWER ELECTRICAL CHARACTERISTICS	FEATURES
P-1	BOILER CIRCULATION	7	7	TACO 0010	1/8 HP, 115V, SINGLE PHASE	STOCK, PIPE MOUNTED, UNITIZED PUMP
P-2	BOILER CIRCULATION	7	7	TACO 0010	1/8 HP, 115V, SINGLE PHASE	STOCK, PIPE MOUNTED, UNITIZED PUMP
P-3 & P-4	HEATING	27	12	TACO 0013	1/8 HP, 115V, SINGLE PHASE	STOCK, PIPE MOUNTED, UNITIZED PUMP. PROVIDE ONE SPARE PUMP.
P-5	DOMESTIC HWR	3	7	TACO 006	1/40 HP, 115V, SINGLE PHASE	STOCK, PIPE MOUNTED, BRONZE, UNITIZED PUMP PROVIDED WITH TIME CLOCK AND IMMERSION THERMOSTAT.

FLOWSETTER AND AUTOMATIC VALVE SCHEDULE

NUMBER	UNIT SERVED	LOCATION	DESIGN GPM	FLOW SETTER SIZE (INCHES)	AUTOMATIC VALVE PRESSURE DROP (PSI)	AUTOMATIC VALVE TYPE	AUTOMATIC VALVE OPERATION	CONTROL TYPE	NORMAL POSITION
1	BOILER 1	MECH RM	7	1"	-	-	-	-	-
2	BOILER 2	MECH RM	7	1"	-	-	-	-	-
3	PUMP P-3	MECH RM	27	2"	-	-	-	-	-
4	PUMP P-4	MECH RM	27	2"	-	-	-	-	-
5	BC-1	CRAWLSPACE	9	1-1/4"	1-2	3-WAY	MODULATING	24 VOLT DDC	NO
6	BC-2	CRAWLSPACE	9	1-1/4"	1-2	3-WAY	MODULATING	24 VOLT DDC	NO
7	BC-3	MECH RM	9	1-1/4"	1-2	3-WAY	MODULATING	24 VOLT DDC	NO
8	GREENHOUSE CV	MECH RM	1.2	3/4"	1-2	2-WAY	ON-OFF	24 VOLT DDC	NO
9	CONVECTOR	SCHOOL	1.0	3/4"	1-2	2-WAY	ON-OFF	24 VOLT DDC	NO

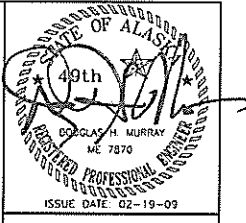
AUTOMATIC VALVES SHALL RETURN TO FULL OPEN POSITION ON LOSS OF CONTROL POWER.

HEATING EQUIPMENT SCHEDULE

EQUIPMENT	DESIGN MANUFACTURER	MODEL	FEATURES/CONTROLS/OPTIONS
BOILER (2) B-1, B-2	WEIL-McLAIN	WTGO-5	CAST-IRON SECTIONAL, WITH IMMERSION HW COIL NET I=B=R 152 MBH. COMPLETE PACKAGE INCLUDING TANKLESS HEATER FOR DOMESTIC WATER, LOW WATER CUTOFF, OPERATING THERMOSTAT CONTROL SET AT 200°F WITH 10°F DIFFERENTIAL, HIGH LIMIT WITH AUTO RESET THERMOSTAT, PRESSURE RELIEF VALVE, FLUE COLLAR WITH BREECING DAMPER, AND BAROMETRIC DAMPER. SPARE PRESSURE RELIEF VALVE AND THERMOSTATS STORED IN MECHANICAL ROOM IN ORIGINAL PACKAGING. DATA REQUIRED.
BURNER (2)	BECKETT AFC	1.45 GPH	115V, SINGLE-PHASE, NATURAL DRAFT. COMPLETE SET OF SPARE PARTS STORED IN MECHANICAL ROOM IN ORIGINAL PACKAGING CONSISTING OF FAN MOTOR, OIL PUMP, COUPLING, HONEYWELL B184 PROGRAMMER, TRANSFORMER, FLAME DETECTOR, SOLENOID VALVE, COMPLETE SET OF ELECTRODES, AND LIST OF SPARE PARTS. DATA REQUIRED.
CHIMNEY	METALBESTOS SCHEBLER	SS	DOUBLE WALL CHIMNEY RATED FOR NEGATIVE PRESSURE. STAINLESS STEEL CONSTRUCTION. CLEANOUT INSTALLED AT BOTTOM OF STACK WITH SUPPORT FLANGES AT PENETRATIONS. STAINLESS STEEL RAIN CAP ON TOP. DATA REQUIRED.
EXPANSION TANK, ET-1	AMTROL	AX-40	5 GALLON MINIMUM ACCEPTANCE VOLUME. 21 GALLON MINIMUM TOTAL TANK VOLUME. CHARGE TO 15 PSI. ASME LABELED. DATA REQUIRED.
EXPANSION TANK, ET-2	AMTROL	ST-12	4.4 GALLON TOTAL VOLUME, DIAPHRAGM TYPE. SUITABLE FOR POTABLE WATER.
OIL DAY TANK	SIMPLEX	NOMINAL 25 GALLONS	DAY TANK WITH SUPPLY PUMP, RETURN PUMP, CONTROL PANEL, SECONDARY CONTAINMENT.

HEATING COIL SCHEDULE

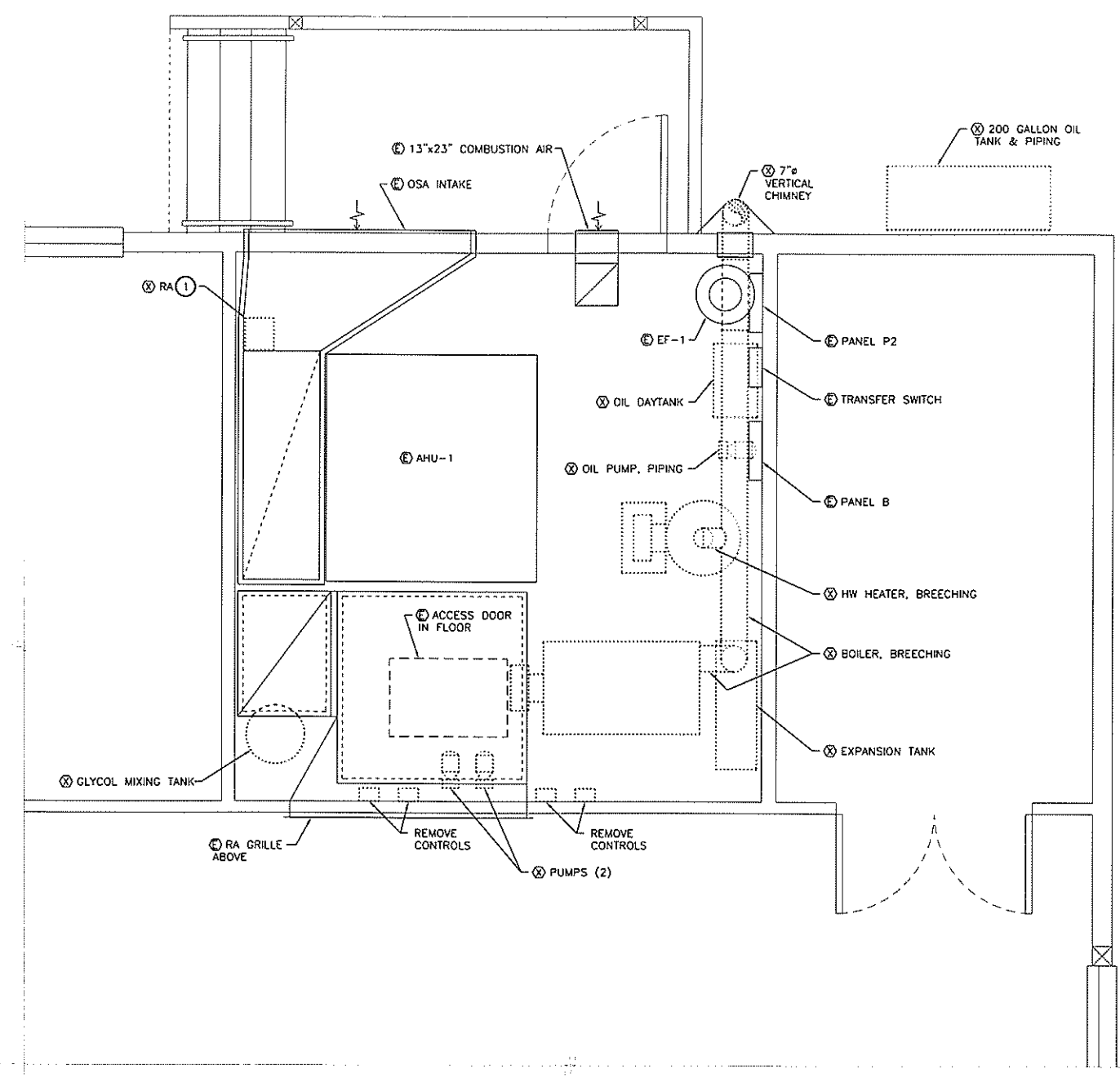
COIL	UNIT SERVED	SIZE (HxW)	CFM	CAPACITY (MBH)	WATER TEMPERATURES		AIR TEMPERATURES		FEATURES & ACCESSORIES
					ENTERING	LEAVING	ENTERING	LEAVING	
BC-1	SOUTHWEST ZONE	30"x20"	2200	120	180°F	150°F	55°F	110°F	TWO ROW, 8 FINS PER INCH. MAXIMUM FACE VELOCITY 550 FPM. MAXIMUM WATER PRESSURE DROP 1.5 FT.
BC-2	SOUTHEAST ZONE	36"x24"	2650	150	180°F	150°F	55°F	110°F	TWO ROW, 8 FINS PER INCH. MAXIMUM FACE VELOCITY 550 FPM. MAXIMUM WATER PRESSURE DROP 1.5 FT.
BC-3	NORTH ZONE	30"x28"	3110	150	180°F	150°F	55°F	110°F	TWO ROW, 8 FINS PER INCH. MAXIMUM FACE VELOCITY 550 FPM. MAXIMUM WATER PRESSURE DROP 1.5 FT.



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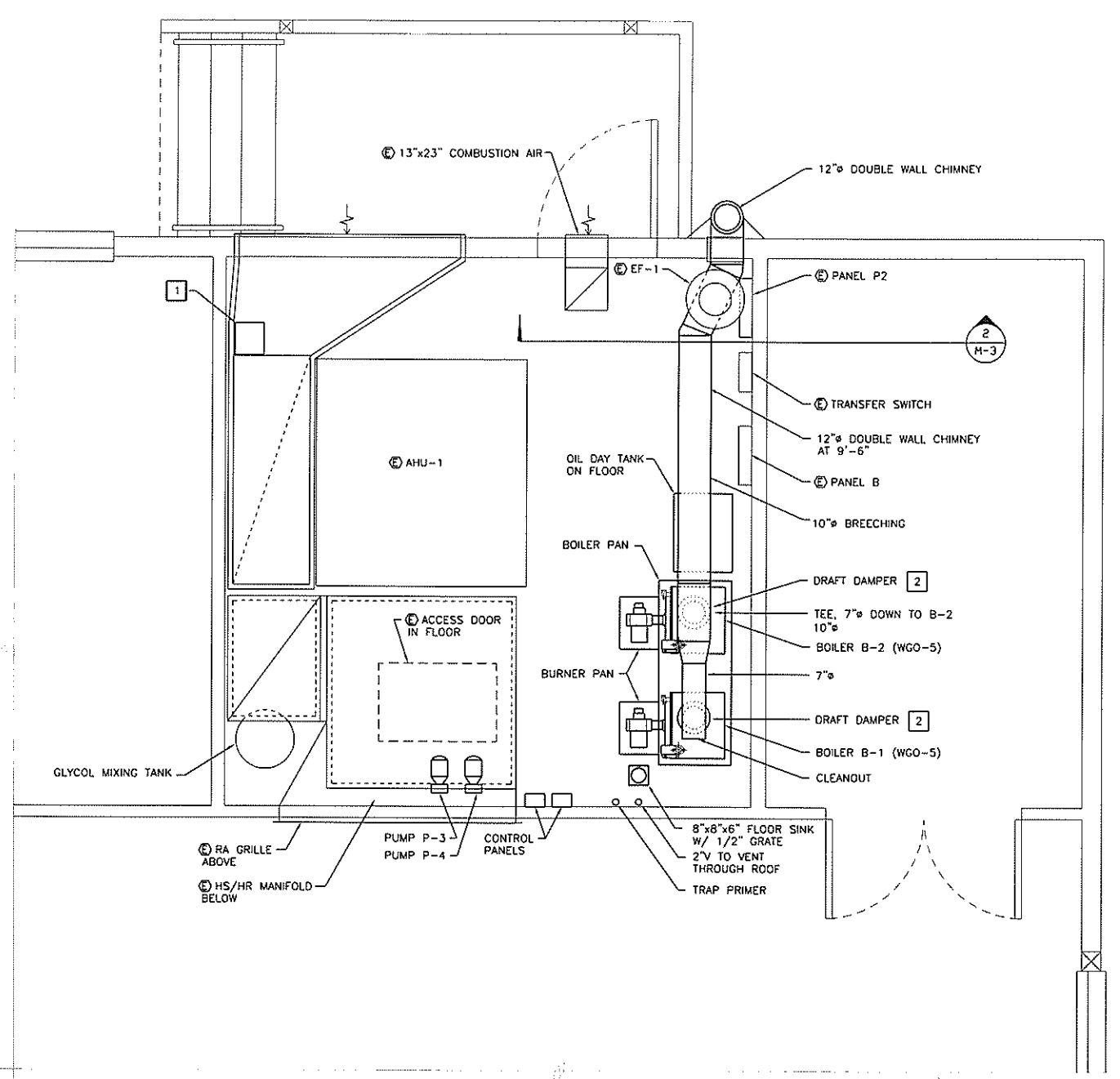
HAINES SCHOOL DISTRICT
MOSQUITO LAKE SCHOOL
HEATING SYSTEM RENOVATION
 HAINES, ALASKA

SHEET TITLE:
FLOOR PLAN DEMO & NEW
 SCALE: AS NOTED
 DATE: FEBRUARY, 2009
 DRAWN: KB, CN
 DESIGNED: DM
 CHECKED: DM
 SHEET NO.
M-2
 JOB NO. M-415



1 BOILER ROOM FLOOR PLAN - DEMOLITION
 SCALE: 0 1' 2' 4'
 PROJECT NORTH

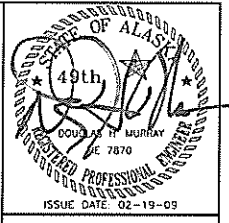
DEMOLITION NOTES:
 ① REMOVE DAMPER/ VALVE ACTUATOR AND REPLACE.



2 BOILER ROOM FLOOR PLAN - RENOVATION
 SCALE: 0 1' 2' 4'
 PROJECT NORTH

SHEET NOTES:
 1. SEE DIAGRAM ON SHEET M-4 FOR PIPING INFORMATION AND CONFIGURATION
 2. SEE SHEETS M5 & M6 FOR CONTROLS INFORMATION

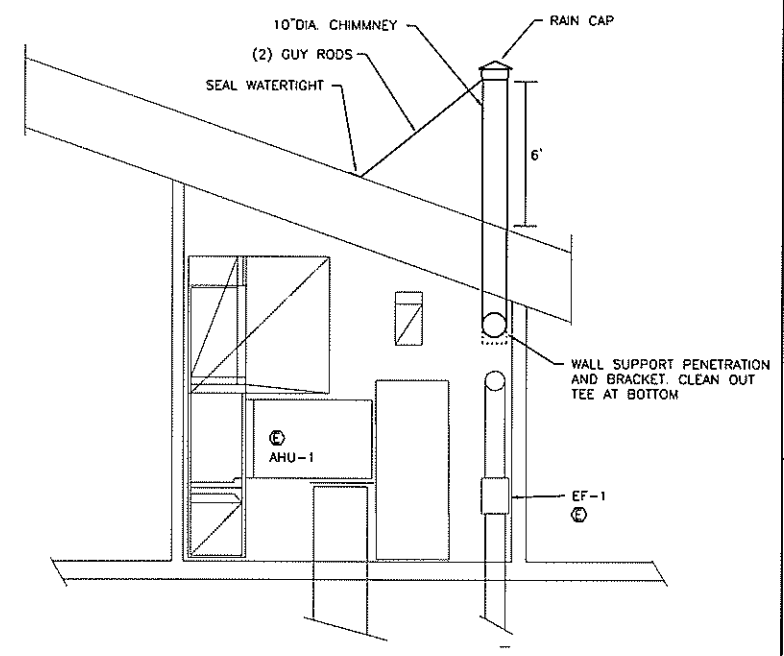
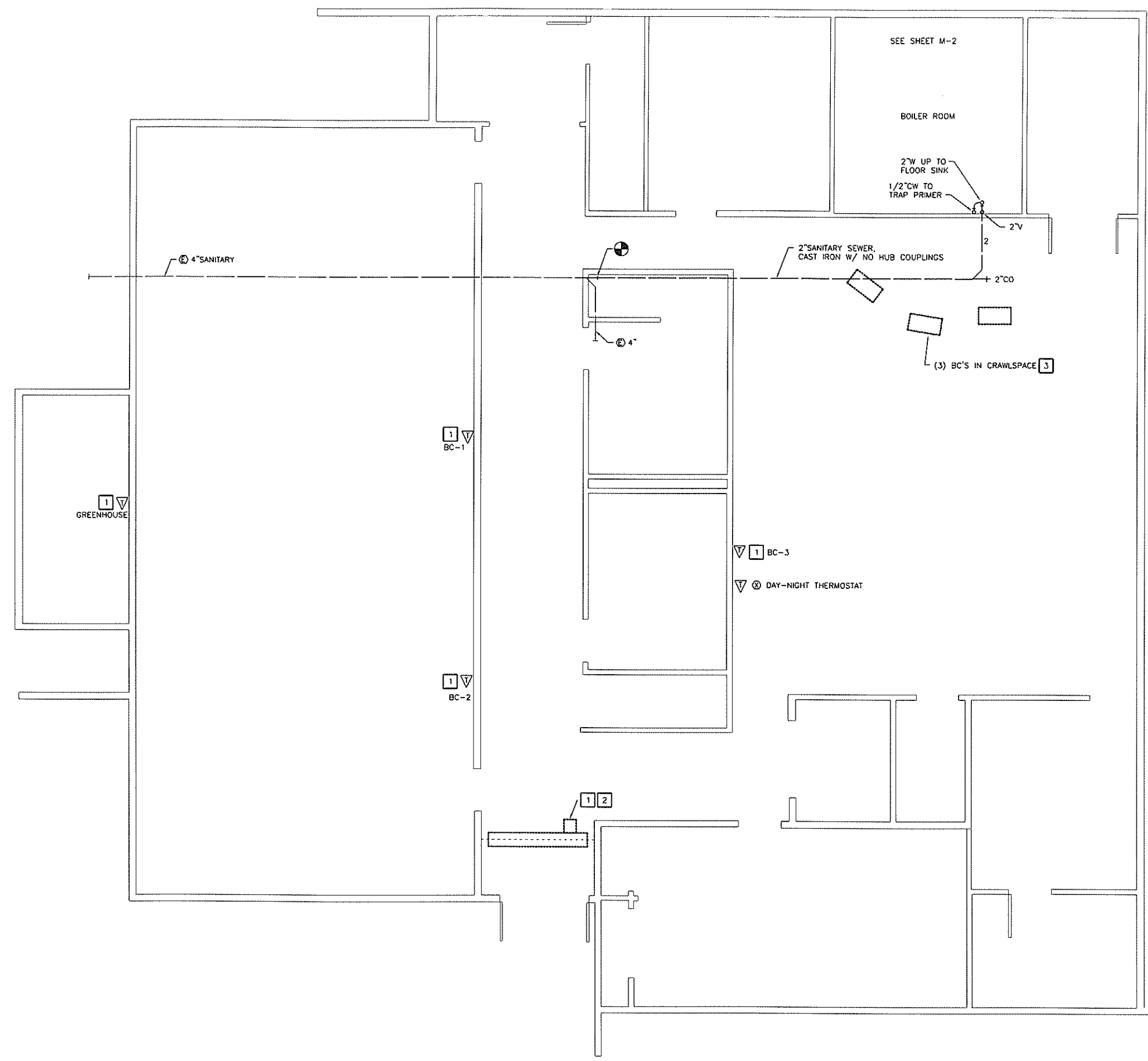
CONSTRUCTION NOTES:
 ① REPLACE ACTUATOR.
 ② INSTALL NATURAL DRAFT DAMPER IN 7" DIAMETER TEE ABOVE EACH BOILER DIRECT DRAFT OUTLET AWAY FROM BURNER



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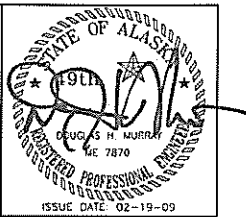
SHEET TITLE:
FLOOR PLAN & SECTION
 SCALE: AS NOTED
 DATE: FEBRUARY, 2009
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 DESIGNED: DM
 CHECKED: DM
 SHEET NO.
M-3
 JOB NO. M-415



2 SECTION
 SCALE: 0 2' 4' 8'

- CONSTRUCTION NOTES**
- 1** REPLACE WITH DDC DEVICE.
 - 2** REPLACE RELIEF AIR ACTUATOR ON 90X56 RELIEF AIR DAMPER. CLEAN AND LUBRICATE DAMPER.
 - 3** REPLACE HEATING COIL, DUCT TRANSITION, PIPING AND TRIM AND AUTOMATIC VALVE. SEE DETAIL ON M-5.

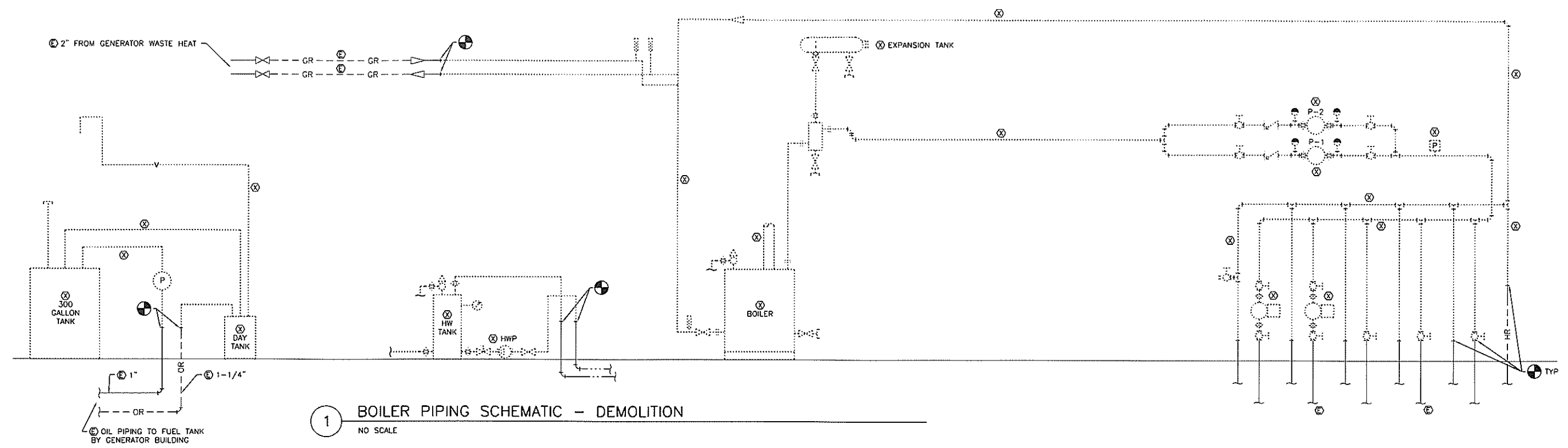
1 FLOOR PLAN
 SCALE: 0 2' 4' 8'
 PROJECT NORTH



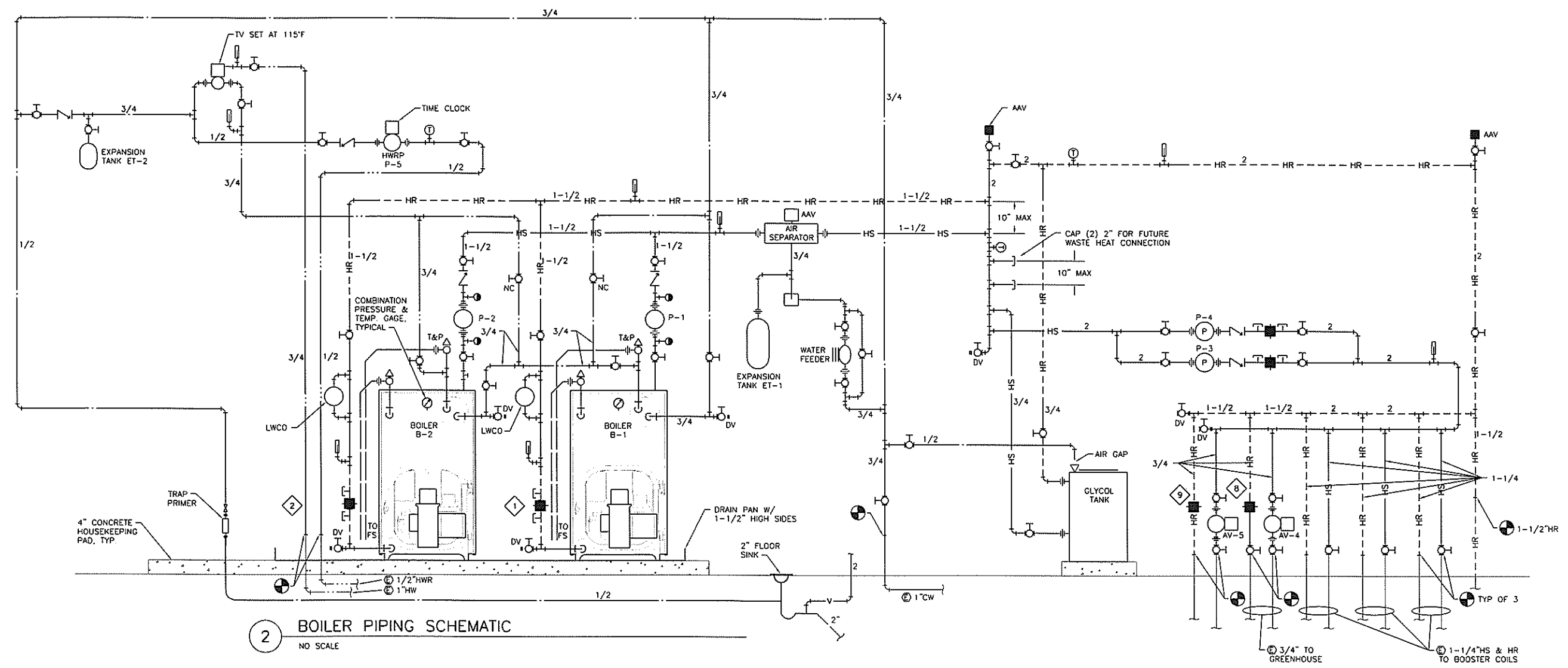
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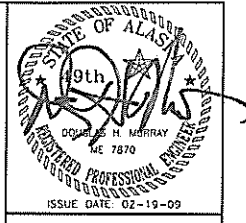
SHEET TITLE:
BOILER PIPING SCHEMATIC
 SCALE: AS NOTED
 DATE: FEBRUARY, 2009
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 SHEET NO.
M-4
 JOB NO. M-415



1 BOILER PIPING SCHEMATIC - DEMOLITION
 NO SCALE



2 BOILER PIPING SCHEMATIC
 NO SCALE



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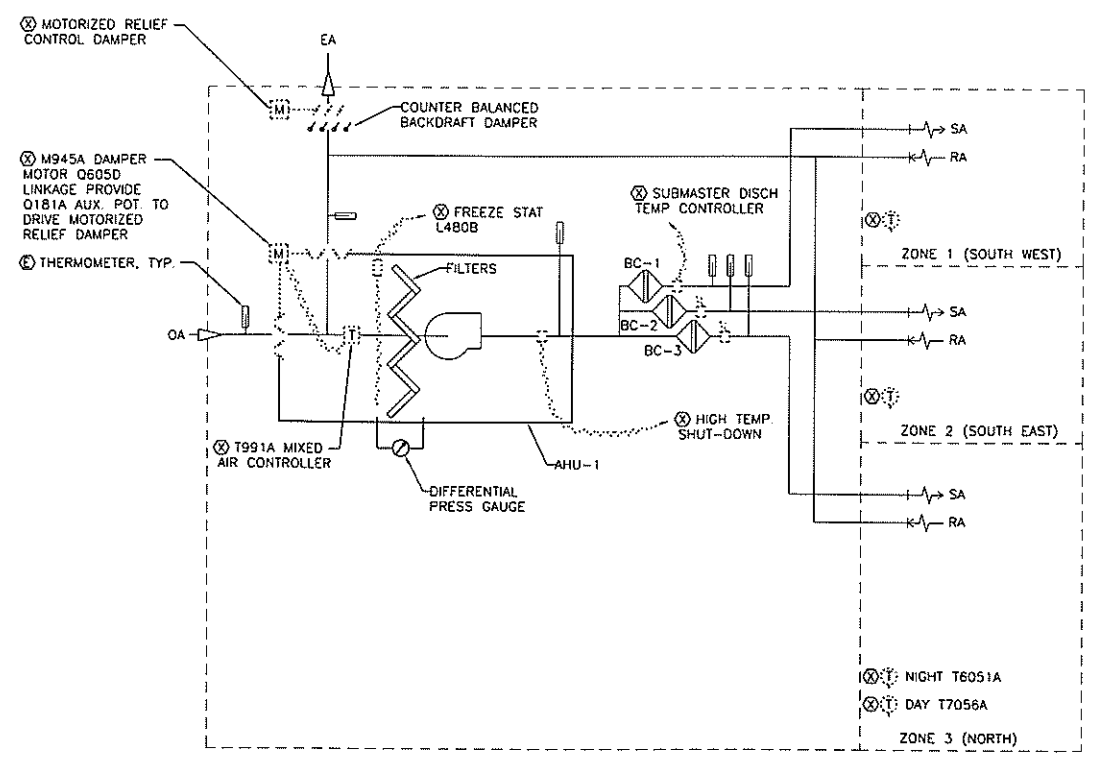
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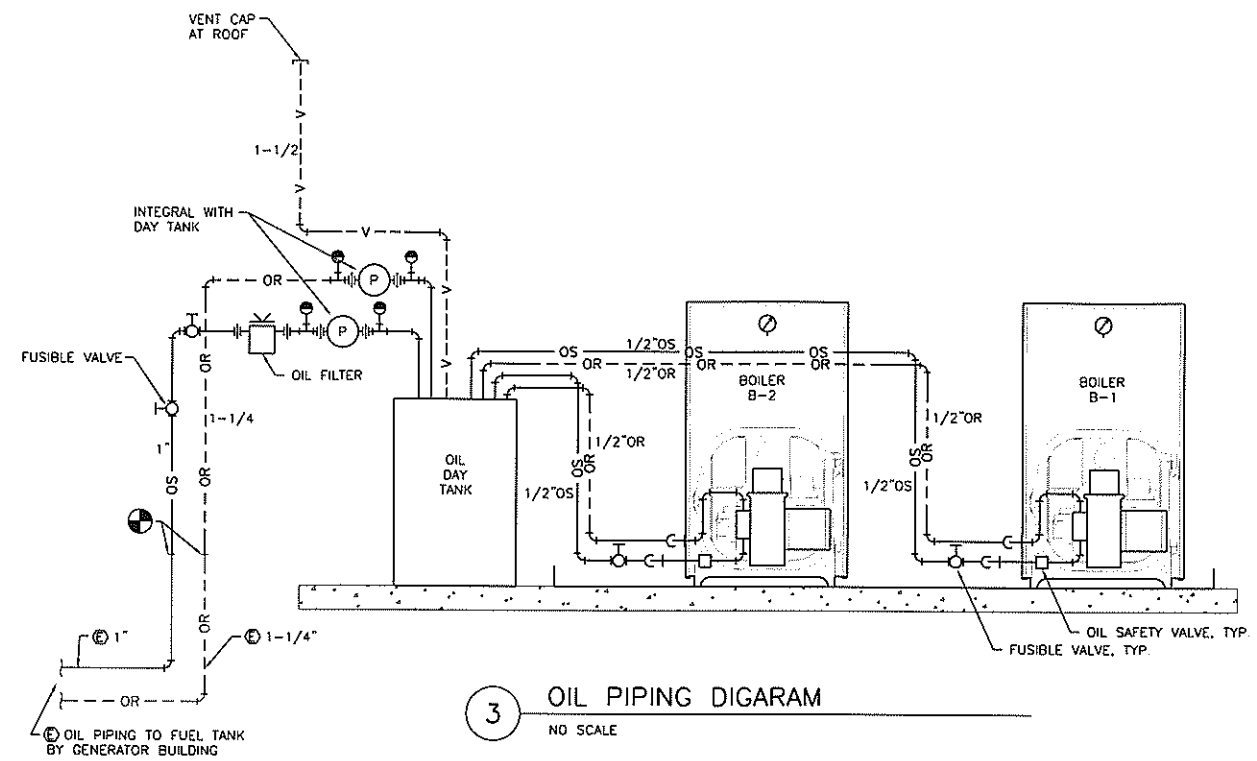
SHEET TITLE:
CONTROLS & OIL PIPING DIAGRAM

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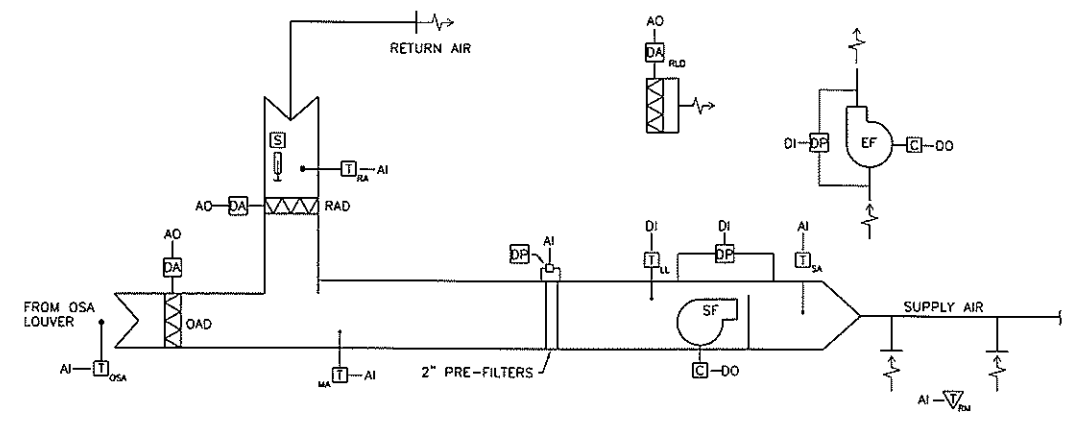
SHEET NO.
M-5
JOB NO. M-415



1 AHU-1 CONTROL SCHEMATIC - DEMOLITION
NO SCALE



3 OIL PIPING DIGARAM
NO SCALE

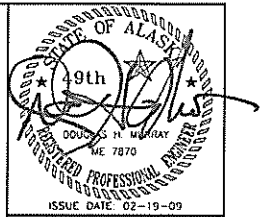


2 AHU-1 CONTROL SCHEMATIC - RENOVATION
NO SCALE

CONTROLS LEGEND

□	CONTROLLER	AHU	AIR HANDLING UNIT
□	SMOKE SENSOR	AI	ANALOG INPUT
□	IMMERSION THERMOSTAT OR THERMOSTATIC SENSOR	AO	ANALOG OUTPUT
□	VALVE ACTUATOR	B-1	BOILER
□	DAMPER ACTUATOR	BC	BOOSTER COIL
□	FLOW SWITCH	CD	CARBON DIOXIDE SENSOR
□	CARBON DIOXIDE SENSOR	COM	COMMON
□	DIFFERENTIAL PRESSURE GAGE	CUH	CABINET UNIT HEATER
□	CURRENT SENSOR	CV	CONVECTOR
□	FLOW METER	DI	DIGITAL INPUT
□	PUMP	DO	DIGITAL OUTPUT
□	ROOM THERMOSTAT	EAD	EXHAUST AIR DAMPER
□	AIR DIRECTION	EF	EXHAUST FAN
□	THERMOMETER	FP	FINNED PIPE
□	MOTOR	HR	HEATING RETURN
□	CONTROL SWITCH	HS	HEATING SUPPLY
□		HWG	HOT WATER GENERATOR
□		HWR	HOT WATER RECIRCULATING
□		LL	LOW LIMIT CONTROL
□		MA	MIXED AIR
□		NO	NORMALLY OPEN
□		NC	NORMALLY CLOSED
□		OAD	OUTSIDE AIR DAMPER
□		OSA	OUTSIDE AIR
□		P-1	PUMP
□		RA	RETURN AIR
□		RAD	RETURN AIR DAMPER
□		RF	RETURN FAN
□		SA	SUPPLY AIR
□		SF	SUPPLY FAN
□		UH	UNIT HEATER
□		VU	VENTILATING UNIT
□		VFD	VARIABLE FREQUENCY DRIVE

- GENERAL NOTES:**
- THE DIAGRAMS AND POINTS SHOWN HERE ARE SCHEMATIC ONLY. REFER TO SEQUENCE OF OPERATIONS AND SECTION 17000 OF THE SPECIFICATIONS FOR COMPLETE CONFIGURATION OF THE SYSTEMS. COORDINATE WITH ALL OTHER DISCIPLINES TO ACHIEVE RESULTS AS SHOWN AND INTENDED HEREUNDER IN THE DOCUMENTS. GENERAL NOTES APPLY TO ALL CONTROLS DRAWINGS HEREUNDER.
 - SEE FLOOR PLANS AND PIPING DIAGRAMS FOR RESPECTIVE ROOM THERMOSTAT, IMMERSION THERMOSTAT, AND PRESSURE SWITCH LOCATIONS. SEE PLANS FOR OTHER CONTROL EQUIPMENT LOCATIONS. COORDINATE WITH DIVISION 15 AND 16 FOR EQUIPMENT INTERFACE REQUIREMENTS, INCLUDING PIPING TEES AND WELLS, SENSOR LOCATIONS, AND INTERCONNECTIONS.
 - ALL SYSTEMS ABBREVIATIONS, FUNCTIONS, AND EQUIPMENT NAMES SHALL BE LISTED IN ALL SUBMITTAL DATA, O&M DATA, AND AS-BUILTS, AS SHOWN HEREUNDER.
 - ALL THERMOSTATS LOCATED IN ALL ROOMS SHALL HAVE DIGITAL THERMOMETER AND MANUAL ADJUSTMENT ON COVER, AND SHALL BE MONITORED AND CONTROLLED BY THE BAS SYSTEM. THIS CONTROL IS REQUIRED FOR FINNED PIPE CONVECTORS, CONVECTORS, AND REHEAT (BOOSTER) COILS.



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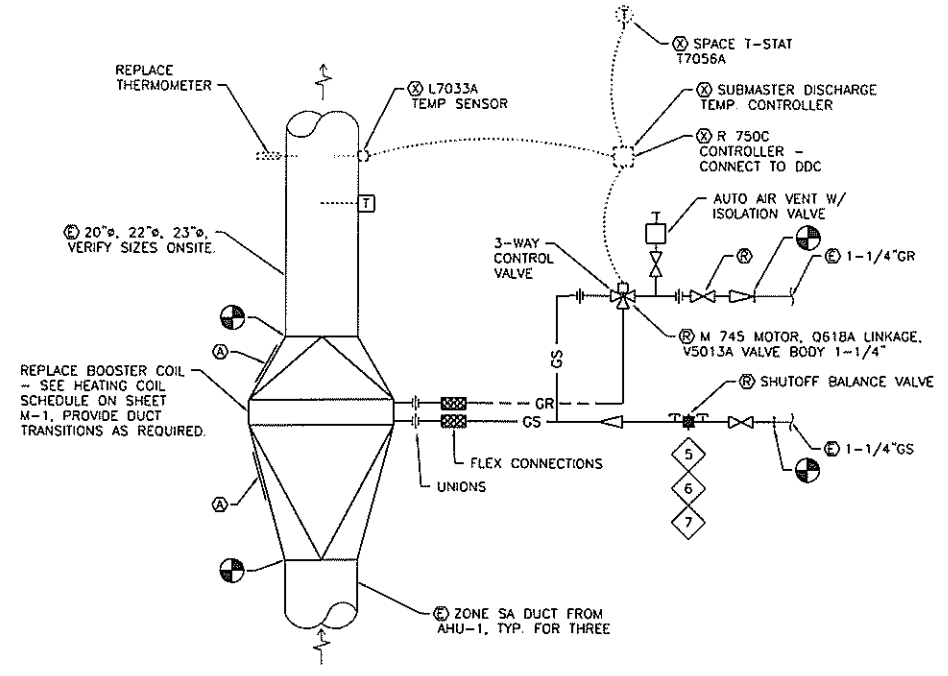
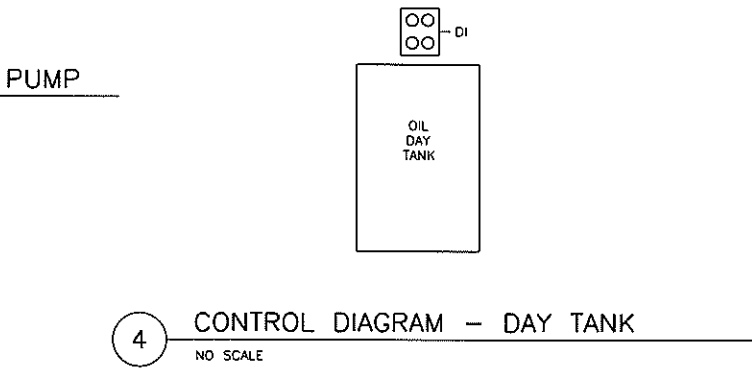
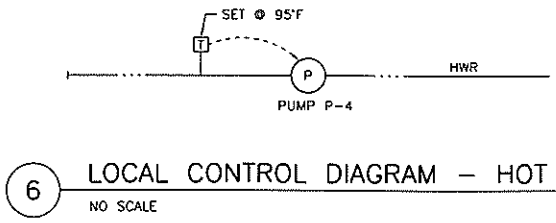
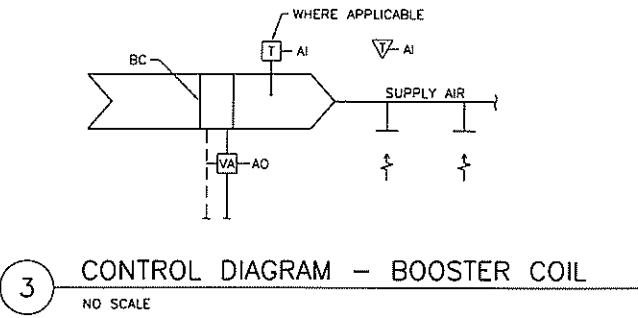
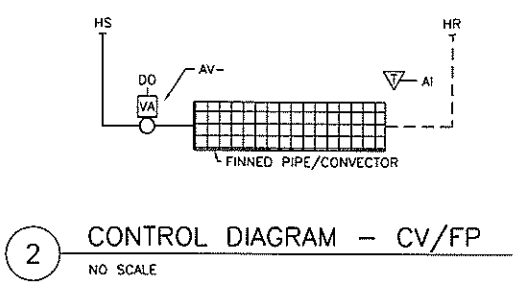
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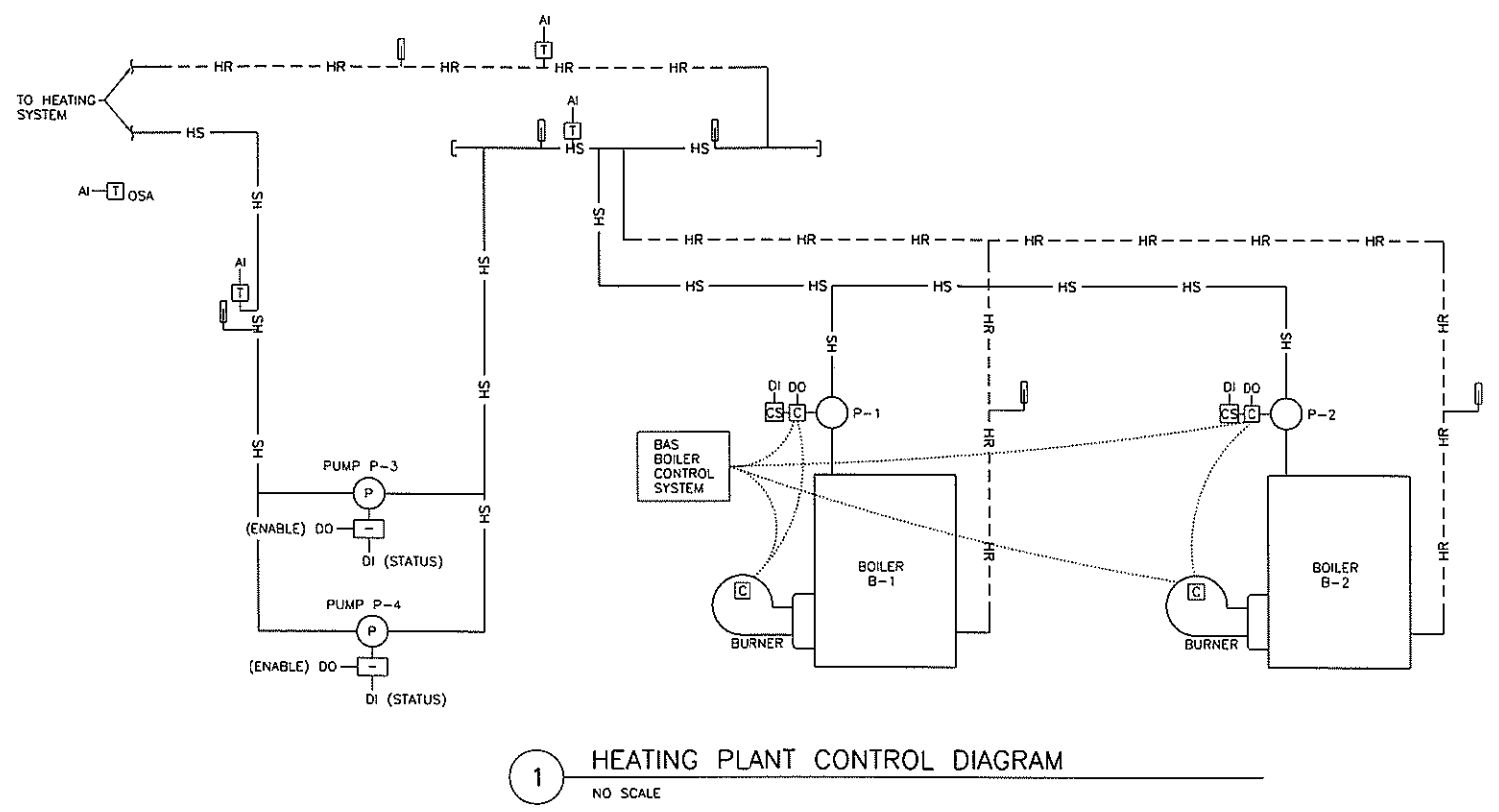
SHEET TITLE:
AHU-1 CONTROL SCHEMATIC - DEMOLITION & RENOVATION

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M-6
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NOTE DEMOLITION WORK NOT SHOWN REMOVE PIPING, VALVES, AND ALL TRIM AT THE THREE BOOSTER COILS.



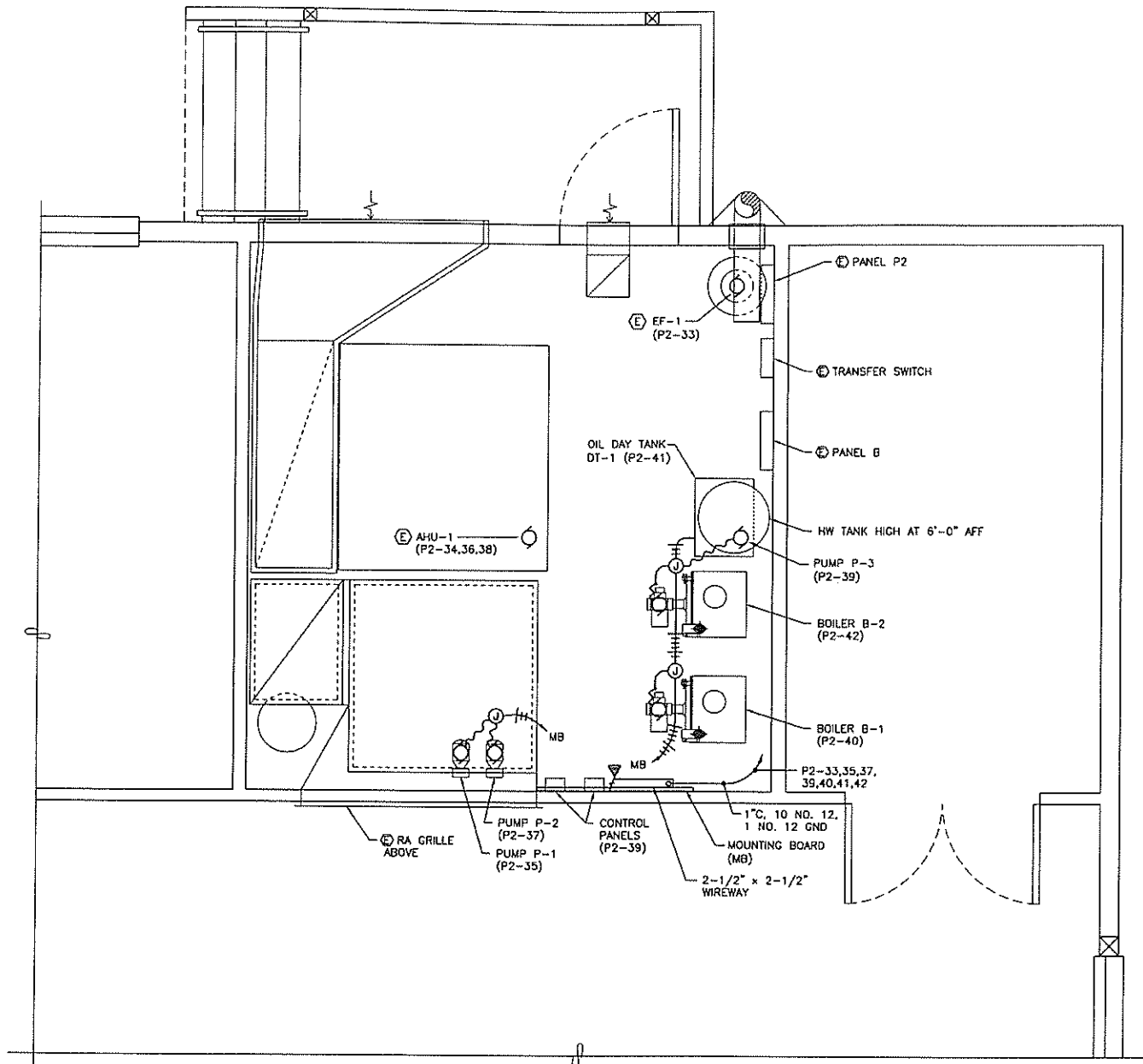
CONTROLS LEGEND

[C]	CONTROLLER	AHU	AIR HANDLING UNIT
[S]	SMOKE SENSOR	AI	ANALOG INPUT
[T]	IMMERSION THERMOSTAT OR THERMOSTATIC SENSOR	AO	ANALOG OUTPUT
[VA]	VALVE ACTUATOR	B-1	BOILER
[F]	DAMPER ACTUATOR	BC	BOOSTER COIL
[CS]	CARBON DIOXIDE SENSOR	CD	CARBON DIOXIDE SENSOR
[FM]	FLOW METER	COM	COMMON
[P]	PUMP	CUH	CABINET UNIT HEATER
[R]	ROOM THERMOSTAT	CV	CONVECTOR
[A]	AIR DIRECTION	DI	DIGITAL INPUT
[M]	MOTOR	DO	DIGITAL OUTPUT
[S]	CONTROL SWITCH	EAD	EXHAUST AIR DAMPER
		EF	EXHAUST FAN
		FP	FINNED PIPE
		HR	HEATING RETURN
		HS	HEATING SUPPLY
		HWG	HOT WATER GENERATOR
		HWR	HOT WATER RECIRCULATING
		LL	LOW LIMIT CONTROL
		MA	MIXED AIR
		NO	NORMALLY OPEN
		NC	NORMALLY CLOSED
		OAD	OUTSIDE AIR DAMPER
		OSA	OUTSIDE AIR
		P-1	PUMP
		RA	RETURN AIR
		RAD	RETURN AIR DAMPER
		RF	RETURN FAN
		SA	SUPPLY AIR
		SF	SUPPLY FAN
		UH	UNIT HEATER
		VU	VENTILATING UNIT
		VFD	VARIABLE FREQUENCY DRIVE

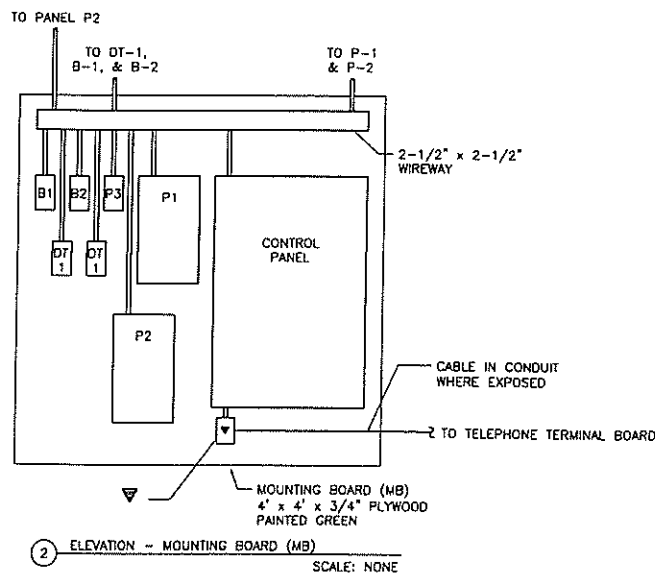
- GENERAL NOTES:**
- THE DIAGRAMS AND POINTS SHOWN HERE ARE SCHEMATIC ONLY REFER TO SEQUENCE OF OPERATIONS AND SECTION 17000 OF THE SPECIFICATIONS FOR COMPLETE CONFIGURATION OF THE SYSTEMS. COORDINATE WITH ALL OTHER DISCIPLINES TO ACHIEVE RESULTS AS SHOWN AND INTENDED HEREUNDER IN THE DOCUMENTS. GENERAL NOTES APPLY TO ALL CONTROLS DRAWINGS HEREUNDER.
 - SEE FLOOR PLANS AND PIPING DIAGRAMS FOR RESPECTIVE ROOM THERMOSTAT, IMMERSION THERMOSTAT, AND PRESSURE SWITCH LOCATIONS. SEE PLANS FOR OTHER CONTROL EQUIPMENT LOCATIONS. COORDINATE WITH DIVISION 15 AND 16 FOR EQUIPMENT INTERFACE REQUIREMENTS, INCLUDING PIPING TEES AND WELLS, SENSOR LOCATIONS, AND INTERCONNECTIONS.
 - ALL SYSTEMS ABBREVIATIONS, FUNCTIONS, AND EQUIPMENT NAMES SHALL BE LISTED IN ALL SUBMITTAL DATA, O&M DATA, AND AS-BUILTS, AS SHOWN HEREUNDER.
 - ALL THERMOSTATS LOCATED IN ALL ROOMS SHALL HAVE DIGITAL THERMOMETER AND MANUAL ADJUSTMENT ON COVER, AND SHALL BE MONITORED AND CONTROLLED BY THE BAS SYSTEM. THIS CONTROL IS REQUIRED FOR FINNED PIPE CONVECTORS, CONVECTORS, MULTI-ZONE DAMPERS, AND REHEAT (BOOSTER) COILS. THERMOSTATS FOR CUH AND UH SHALL HAVE THERMOMETER AND TEMPERATURE ADJUSTMENT ON COVER INSIDE LOCKABLE ENCLOSURE.

ELECTRICAL SPECIFICATION

- 16050 GENERAL
- A. The electrical drawings are diagrammatic in nature. The plans show the general locations of electrical devices, unless dimensioned thereon. Make minor relocations as required to provide a symmetrical appearance, or to avoid conflict with other structural, architectural, or mechanical features.
 - B. Comply with the latest editions of the NEC and NFPA codes and standards, as well as the applicable Federal, State, and local codes.
 - C. Unless otherwise noted, provide new, high quality equipment and materials standard and current within the industry, and approved by Underwriters' Laboratory.
 - E. All products shall be delivered and stored in original containers. Protect all items from dirt, water, chemical, and/or mechanical damage.
- 16055 SUPPORTING DEVICES
- A. Conduit: Utilize galvanized conduit straps where surface mounted and spring cups or hangers where suspended.
 - B. Boxes: Utilize purpose made hangers as required where flush mounted.
 - C. Allow for a minimum safety factor of five-to-one to support equipment loads. Plumbers tape and wire are not approved.
- 16060 GROUNDING
- A. Connect all non current carrying electrical equipment, raceways, and enclosures to the service entrance ground bar.
- 15120 WIRE AND CABLE
- A. Utilize 600 volt rated wire insulation.
 - B. Utilize minimum wire sizes as follows, unless otherwise noted:
 1. No. 12 AWG for branch circuit wiring.
 2. No. 16 AWG for control circuit wiring.
 - C. Size all conductors according to American Wire Gauge (AWG).
 - D. Provide conductors with THW, THWN, THHN, or XHHW insulation, unless otherwise noted.
 - E. Provide solderless type connectors for conductors. Utilize preinsulated 'twist on' type for conductors No. 10 AWG or less in size, or bolt or compression set type with a preformed cover, heat shrink tubing, or tape for insulation.
- 16130 RACEWAYS AND BOXES
- A. All rigid steel conduit, electrical metallic tubing, and fittings shall meet ANSI requirements.
 - B. Provide EMT and metallic flexible conduit for all circuiting.
 - C. Install conduit mechanically and electrically continuous from termination to termination. Connect securely to cabinets, junction boxes, and device boxes.
 - D. Provide zinc coated, pressed steel outlet and junction boxes as required.
 - E. Install junction boxes in permanently accessible locations only.



1 BOILER ROOM FLOOR PLAN
SCALE: 0 1' 2' 4'
PROJECT NORTH



2 ELEVATION - MOUNTING BOARD (MB)
SCALE: NONE

HEATING EQUIPMENT SCHEDULE

LOAD	RATING	VOLTAGE	CIRCUIT	CONDUCTORS	STARTER
B-1	1/3 HP	120	P2-40	2 NO. 12, 1 NO. 12 GND	NEMA 0 MANUAL
B-2	1/3 HP	120	P2-42	2 NO. 12, 1 NO. 12 GND	NEMA 0 MANUAL
DT-1	(2) 1/3 HP	120	P2-41	2 NO. 12, 1 NO. 12 GND	(2 EA) NEMA 0 MANUAL
P-1	1/3 HP	120	P2-35	2 NO. 12, 1 NO. 12 GND	NEMA 0 MAGNETIC *
P-2	1/3 HP	120	P2-37	2 NO. 12, 1 NO. 12 GND	NEMA 0 MAGNETIC *
P-3	1/10 HP	120	P2-39	2 NO. 12, 1 NO. 12 GND	NEMA 0 MANUAL
CONTROLS		120	P2-38	2 NO. 12, 1 NO. 12 GND	

* PROVIDE WITH HOA SWITCH

Feb 19, 2009

HAIGHT & ASSOCIATES
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MOSQUITO LAKE SCHOOL
HEATING SYSTEM RENOVATION
HAINES, ALASKA

BOILER ROOM PLAN

REVISION DESCRIPTION	DATE

SHEET NUMBER
E1

SCALE: AS NOTED
DATE: 3 NOV 2006

Feb 19, 2009 - 3:25pm
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