

A
three inches = one foot
B
one and one-half inches = one foot
C
one inch = one foot
D
three-quarters inch = one foot
E
one-half inch = one foot
F
three-eighths inch = one foot
G
one-quarter inch = one foot
H
one-eighth inch = one foot

A
B
C
D
E
F

BUILDING 90 VARIABLE AIR VOLUME REHEAT BOXES

MARK NO.	DESIGN COOLING AIRFLOW CFM	MINIMUM COOLING AIRFLOW CFM	AIR PRESSURE DROP IN H2O	DESIGN HEATING AIRFLOW CFM	VALVE HEATING AIRFLOW CFM	PRIMARY EDB °F	PLENUM EAT °F	ROOM HEATING SETPOINT °F	COIL HEATING CAPACITY MBH	GPM	COIL EWT °F	HEATING DELTA T	COIL FLUID PD FT H2O	MOTOR VOLTAGE	MOTOR HP	FAN AIRFLOW	ESP IN H2O	MOTOR MCA	MOTOR MDP	INLET SIZE	MANUFACTURER (OR APPROVED EQUAL)	MODEL NO.	NOTES
90-B-1	1930	1200	0.168	1930	1200	55	72	75	68.5	5.0	140	27.45	13.2	277-1-60	1/2	1930	0.3	4.8	15	14	TRANE	VSWF14-06SQ	1 2 3 4 5 6 7 8 9 12
90-B-2	1120	900	0.165	1120	900	55	72	75	53.8	6.4	140	16.83	12.04	115-1-60	1/2	1120	0.3	8.4	15	12	TRANE	VSWF12-05SQ	1 2 3 4 5 6 7 8 9 12
90-B-3	690	400	0.164	690	400	55	72	75	30.7	2.5	140	24.62	2.11	115-1-60	1/3	690	0.3	5.6	15	10	TRANE	VSWF10-03SQ	1 2 3 4 5 6 7 8 9 11 12
90-B-4	550	300	0.111	550	300	55	72	75	24.1	1.6	140	30.19	0.93	115-1-60	1/3	550	0.3	5.6	15	10	TRANE	VSWF10-03SQ	1 2 3 4 5 6 7 8 9 11 12
90-B-5	930	500	0.191	930	500	55	72	75	36.1	2.8	140	25.83	2.61	115-1-60	1/3	930	0.3	5.6	15	12	TRANE	VSWF12-03SQ	1 2 3 4 5 6 7 8 9 11 12
90-B-6	1825	1400	0.139	1825	1400	55	72	75	70.4	5.5	140	15.63	15.63	277-1-60	1/2	1825	0.3	4.8	15	14	TRANE	VSWF14-06SQ	1 2 3 4 5 6 7 8 9 12
90-B-7	520	300	0.101	520	300	55	72	75	21.3	1.2	140	35.51	0.55	115-1-60	1/3	520	0.3	5.6	15	10	TRANE	VSWF10-03SQ	1 2 3 4 5 6 7 8 9 11 12

- NOTES:
- | | | | |
|------------------------------------|----------------------------|---|--|
| 1 PRESSURE INDEPENDENT. | 4 DAMPER OPERATOR. | 7 SERIES FAN POWERED. | 10 DAMPER VOLTAGE 120-1-60. |
| 2 UNIT TO INCLUDE SUPER QUIET FAN. | 5 FUSED DISCONNECT SWITCH. | 8 UNIT TO INCLUDE SOUND ATTENUATOR. | 11 UNIT TO INCLUDE ECM FAN MOTOR. |
| 3 CONTROL TYPE: DDC. | 6 RETURN AIR FILTER. | 9 DOUBLE WALL WITH 1" MATTE INSULATION. | 12 SYSTEM SHALL INCLUDE FAN PRESSURE OPTIMIZATION. |

HYDRONIC HOT WATER BOILER SCHEDULE

MARK NO.	TYPE	Wt/H2O (N)	VOLTAGE	NATURAL GAS INPUT MBH	NATURAL GAS OUTPUT MBH	FLUE DIA.	WATER CONNECTION	GAS CONNECTION	DESIGN MFG. (OR APPROVED EQUAL)
90-B-1	HYDRONIC WATER	31.125"x67.125"x50.0"	120-1-60	1500	1440	8"	2-1/2"	1-1/4"	RAYPAK XTHERM-TYPE H MODEL H7-1505
90-B-2	HYDRONIC WATER	31.125"x67.125"x50.0"	120-1-60	1500	1440	8"	2-1/2"	1-1/4"	RAYPAK XTHERM-TYPE H MODEL H7-1505
90-B-3	HYDRONIC WATER	31.125"x67.125"x50.0"	120-1-60	1500	1440	8"	2-1/2"	1-1/4"	RAYPAK XTHERM-TYPE H MODEL H7-1505

- NOTES:
- | | |
|---|---|
| 1 ELECTRONIC IGNITION, 3-TRY | 7 PVC VENT ADAPTER (INCLUDES 200°F MANUAL HIGH LIMIT) MAXIMUM RETURN WATER TEMPERATURE ALLOWED 170°F. |
| 2 ASME RELIEF VALVE, 60psig | 8 LOW WATER CUT-OFF, REMOTE PROBE. |
| 3 BOILER TO INCLUDE MOTORIZED MODULATION CONTROL. | 9 HIGH LIMIT, AUTO RESET, ADJ., 100-240°F |
| 4 BOILER TO INCLUDE CONDENSATE DRAIN TRAP AND CONDENSATE NEUTRALIZER KIT. | 10 LOW GAS PRESSURE SWITCH, MANUAL RESET. |
| 5 BRONZE BOILER PUMP | 11 HIGH GAS PRESSURE SWITCH, MANUAL RESET. |
| 6 INDOOR, HORIZONTAL VENTING; OPTION D-15 | |

EXPANSION TANK SCHEDULE

MARK NO.	SYSTEM	TANK VOLUME	SHIPPING WEIGHT (LBS)	CHARGE PRESSURE (PSI)	MFG.	MODEL NO.	NOTES
90-E-1	HVAC WATER	23 GAL	120	15	TACO	CA90	20" DIA. X 28-1/2" HIGH

AIR/DIRT SEPARATOR SCHEDULE

MARK NO.	SYSTEM	SIZE	GPM	MAX. P.D. (FT)	MFG. (OR APPROVED EQUAL)	MODEL
90-F-1	HVAC WATER	3"	120	0.50	SPIROTERM	SPIROVENT DIRT

BUILDING 90 REHEAT COIL SCHEDULE

MARK NO.	TOTAL AIR CFM	CAPACITY BTU/HR	ENT. AIR °F	LVG. AIR °F	GPM	ENT. WATER TEMP	LVG. WATER TEMP	MAX. P.D. (FT)	DUCT SIZE
90-H-1	800	24,560	54.8	87.9	2.5	140	120	13 FT.	26"x8"
90-H-2	5,150	168,000	54.8	81.4	16.8	140	120	13 FT.	34"x24"
90-H-3	5,150	148,000	54.8	81.4	14.8	140	120	13 FT.	34"x24"
90-H-4	2,080	100,550	55.0	99.8	10.1	140	120	13 FT.	32"x10"
90-H-5	1,810	57,690	55.0	83.9	5.8	140	120	13 FT.	29"x10"
90-H-6	6,590	214,450	55.0	85.2	21.4	140	120	13 FT.	FIELD VERIFY
90-H-7	3,685	96,280	55.0	79.1	9.6	140	120	13 FT.	28"x20"
90-H-8	1,400	35,300	55.0	78.3	3.5	140	120	13 FT.	14"x16"
90-H-9	6,540	163,500	56.2	80.0	16.4	140	120	13 FT.	51"x20"

* FIELD VERIFY ALL EXISTING DUCT SIZES.

GAS PACKAGED UNIT EQUIPMENT SCHEDULE

MARK NO.	NOMINAL FAN CFM	EXT. STATIC IN. WG	OSA CFM	COOLING CAPACITY					HEATING CAPACITY		MODEL NO. DATA		NOTES
				TOTAL CAPACITY MBH	SENS. CAPACITY MBH	CONDENSER E.A.T.	EVAPORATOR E.W.B. TEMP	MIN. EER	TWO STAGE NAT. GAS INPUT MBH	TWO STAGE NAT. GAS OUTPUT MBH	MANUFACTURER (OR APPROVED EQUAL)	UNIT MODEL NO.	
RTU 1	2400	0.8	300	75.0	53.2	95	80/67	11.2	150/105	122/85	TRANE	YSC072	SEE BELOW
RTU 2	3000	0.8	300	94.0	69.1	95	80/67	11.2	200/140	162/113	TRANE	YSC092	SEE BELOW

- 1 UNIT TO INCLUDE WALL MOUNT SENSOR (TEMP/HUMIDITY) WITH OVERRIDE INTERFACED TO BUILDING AUTOMATION SYSTEM
- 2 UNIT TO INCLUDE FACTORY ROOF CURB.
- 3 UNIT TO INCLUDE BAROMETRIC RELIEF AND LOW AMBIENT CONTROLS TO 0°F.
- 4 UNIT TO INCLUDE MOTORIZED OUTSIDE AIR DAMPER INTERLOCKED WITH ROOM LIGHTS
- 5 UNIT TO INCLUDE CONDENSER HAIL GUARD.
- 6 UNIT SHALL INCLUDE FACTORY HOT GAS REHEAT FOR DEHUMIDIFICATION CONTROL
- 7 REFRIGERANT R-410A.

APPROVED EQUALS: CARRIER, LENNOX

GAS PACKAGED UNIT ELECTRICAL SCHEDULE

MARK NO.	VOLTAGE	COMP QTY	COMP RLA EA	OUTDOOR FAN QTY	OUTDOOR FAN FLA EA	INDOOR FAN MOTOR H.P.	MINIMUM CIRCUIT AMPS	MAXIMUM OVERCURRENT PROTECTION	SINGLE POINT CONNECTION	UNIT WEIGHT LBS	NOTES
90-J-1	460-3-60	1	10.6	1	2.4	1.0	18.2	25	YES	1000	--
90-J-2	460-3-60	2	7.1,7.1	1	2.4	2.0	21.5	25	YES	1150	--

PUMP SCHEDULE

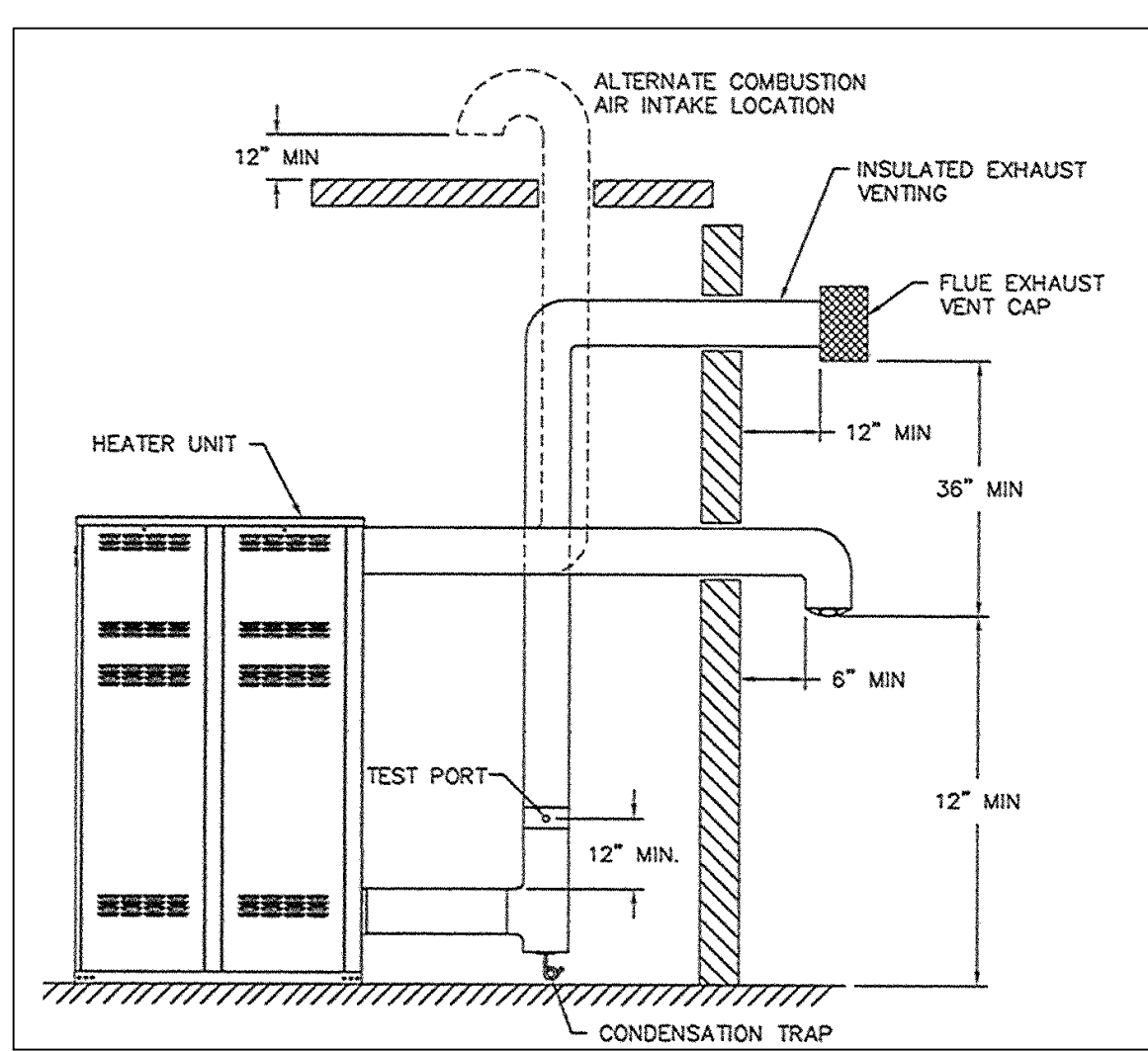
MARK NO.	SERVICE	TYPE	GPM	TOTAL HEAD FT. W.G.	MAXIMUM H.P.	MINIMUM EFFICIENCY	ELECTRICAL	DESIGN MFG.	DESIGN MFG. MODEL NO.	NOTES
90-K-1	HYDRONIC LOOP	FRAME MOUNTED	286	75	10.0	71%	460-3-60	TACO	F13011	1 2
90-K-2	HYDRONIC LOOP	FRAME MOUNTED	286	75	10.0	71%	460-3-60	TACO	F13011	1 2

- 1 FACTORY MOUNTING FRAME TO BE PROVIDED, SUCTION DIFFUSER
- 2 EACH PUMP SYSTEM SHALL INCLUDE VARIABLE SPEED PUMPING COMPLETE WITH ALL CONTROLS AND INTERFACE TO BUILDING AUTOMATION SYSTEM. ELECTRONIC VARIABLE SPEED CONTROLS SHALL BE BY BELL AND GOSSETT, ABB, OR AN APPROVED EQUAL. SYSTEM SHALL BE FURNISHED AND INSTALLED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS AND RECOMMENDATIONS FOR A VARIABLE SPEED WATER SOURCE HEAT PUMP INSTALLATION. FULL COORDINATION WITH THE HEAT PUMP SUPPLIER IS REQUIRED. THE VARIABLE SPEED DRIVE SYSTEM SHALL REQUIRE ONLY SINGLE POINT ELECTRICAL SERVICE AND SHALL INCLUDE A FACTORY DISCONNECT.

APPROVED EQUALS BY BELL AND GOSSETT, ARMSTRONG, AURORA WILL BE ACCEPTED

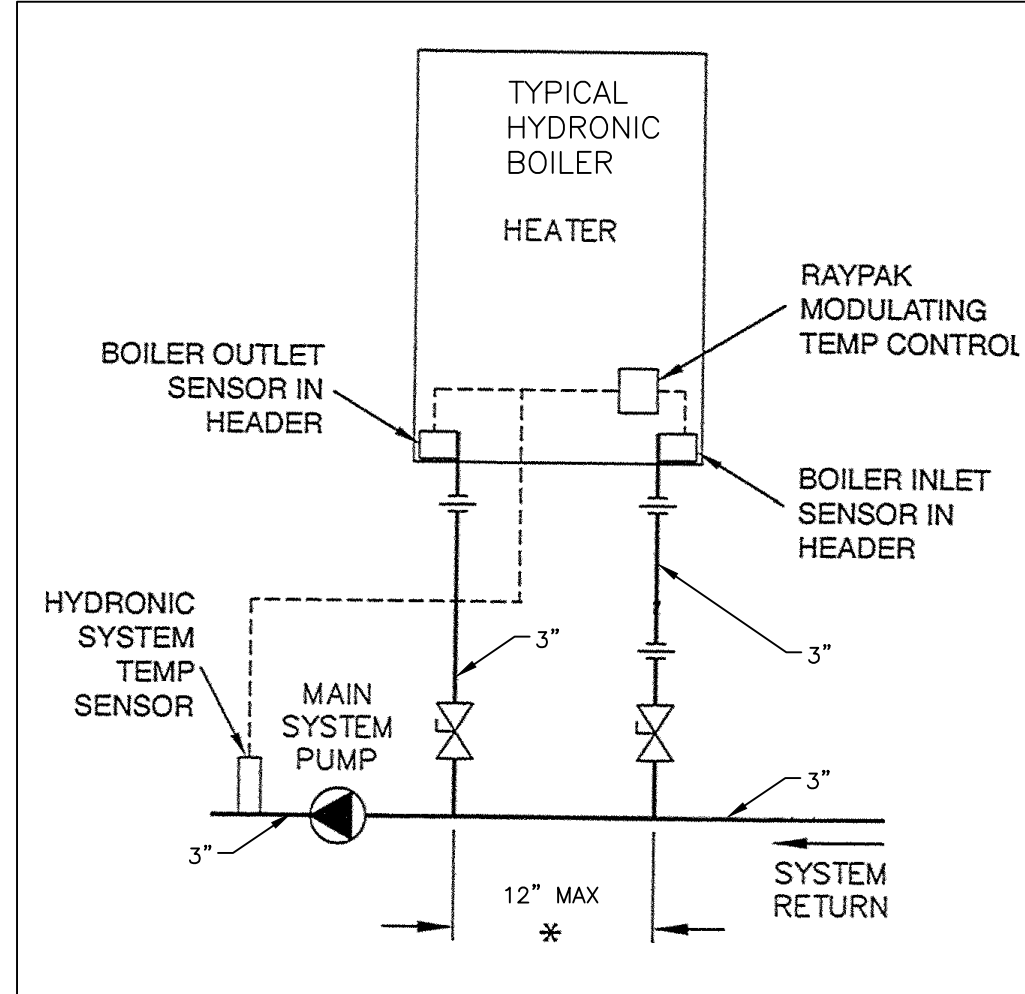
HVAC SCHEDULES, DETAILS AND PIPING SCHEMATIC - BUILDING 90

N.T.S.



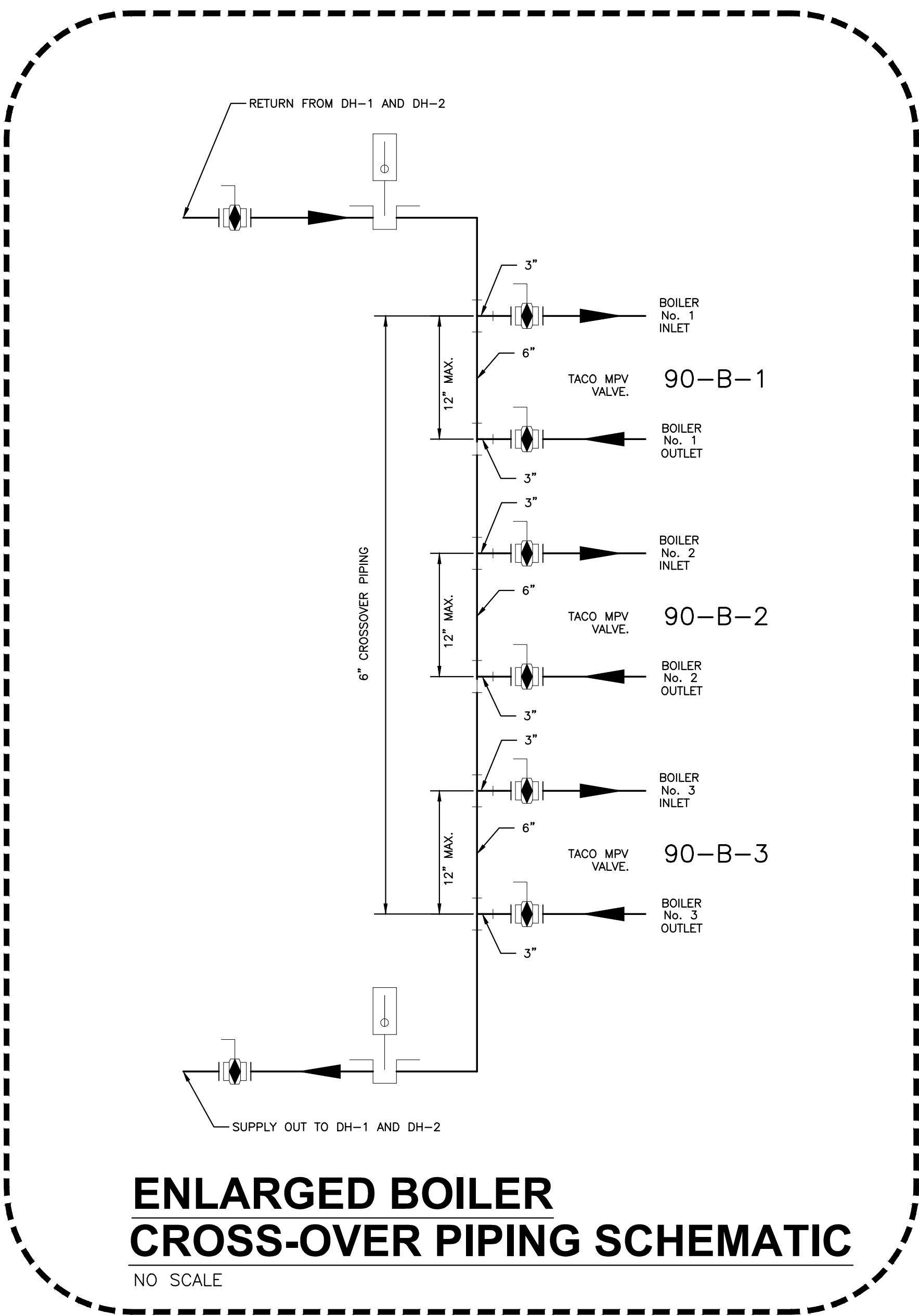
BOILER VENT DETAIL

NOT TO SCALE



TYPICAL PRIMARY/SECONDARY PIPING DETAIL

NOT TO SCALE



ENLARGED BOILER CROSS-OVER PIPING SCHEMATIC

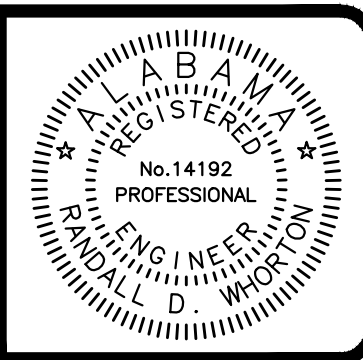
NO SCALE

WHORTON ENGINEERING, INC.

HVAC - PLUMBING - PROCESS CONTROL

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WHORTON ENGINEERING PROJECT NO. 10159



Revisions	Date



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Central Alabama Veterans Health Care System

Approved:	Approved:
Approved:	Approved:
Approved:	Approved:
Approved:	Approved:

Drawing Title	Safety Officer	Clinical Representative
HVAC SCHEDULES, DETAILS AND PIPING SCHEMATIC - BUILDING 90		

Project Title	Building Number	Checked	Drawn
HVAC MODIFICATIONS TO BUILDINGS 83, 90, & 93 TUSKEGEE, ALABAMA	90	RDW	JAD

Date	Project No.	Location
12/21/10	619-10-445	East Campus, Tuskegee, AL

DRAWING NO.	Dwg. 31 of 59
90M3.5	

Veterans Administration