

DOMESTIC WATER HEATING EQUIPMENT SCHEDULE													
TAG	LOCATION		HEATER DATA					STORAGE		ASME RATED	PHYSICAL CHARACTERISTICS		NOTES
	ROOM	DESCRIPTION	ENERGY TYPE	INPUT (kW)	TEMP. (°C)	RISE (°F)	VOLUME (Litres)	(U.S. Gal.)	WEIGHT (kg)		(lbs.)		
DHW-1	2670	BOILER ROOM	NATURAL GAS	117	399,000.0	77.8	140	492	130	YES	400	880	1, 2, 3, 4
DHW-2	2670	BOILER ROOM	NATURAL GAS	117	399,000.0	77.8	140	492	130	YES	400	880	1, 2, 3, 4

NOTES:

1. COMPLETE WITH CSA RATED T&P RELIEF VALVE.

2. WITH 120V/1PHASE/60Hz, LESS THAN 11 AMPS.

3. HIGH OR LOW WATER PRESSURE CONTROL.

4. CONDENSATE LINE WITH NEUTRALIZER.

GAS TO STEAM HUMIDIFIER SCHEDULE										
TAG	SERVES	LOCATION		HUMIDIFIER DATA	MAXIMUM INPUT	STEAM OUTPUT	ASME RATED	PHYSICAL CHARACTERISTICS		NOTES
		ROOM	DESCRIPTION		(kW)	(BTU/h)		(kg/h)	(lb./h)	
H-1	SUPPLY FAN #5	3000	FAN ROOM	163.5	558,000.0	204.1	450	1.2	3	
H-2	SUPPLY FAN #5	3000	FAN ROOM	163.5	558,000.0	204.1	450	1.2	3	
H-3	SUPPLY FAN #1	3000	FAN ROOM	163.5	558,000.0	204.1	450	1.2	3	
H-4	SUPPLY FAN #1	3000	FAN ROOM	109.0	372,000.0	136.1	300	1.2	3	
H-5	SUPPLY FAN #3	3000	FAN ROOM	109.0	372,000.0	136.1	300	1.2	3	
H-6	SUPPLY FAN #26	3000	FAN ROOM	18.2	62,000.0	22.7	50	1.2	3	
H-7	SUPPLY FAN #12 & #17	2640A	NEW MECHANICAL ROOM	36.3	124,000.0	45.4	100	1.2	3	

NOTES:

- PROVIDE SHORT ABSORPTION MANIFOLD AS PER MANUFACTURER'S RECOMMENDATION
- 120V/1 Phase
- NATURAL GAS

EXPANSION TANK SCHEDULE														
TAG	LOCATION		TANK VOLUME		ACCEPTANCE VOLUME		PRE-CHARGE PRESSURE		MAXIMUM RATED CHARACTERISTICS		ASME RATED	NOTES		
	ROOM	DESCRIPTION	(Litres)	(U.S. Gal.)	(Litres)	(U.S. Gal.)	(kPa)	(PSIG)	TEMPERATURE (C)	(F)			PRESSURE (kPa)	(PSIG)
ET-1	2670	BOILER ROOM	1999	528.0	1999	528.0	83	12	115.6	240.0	862	125	YES	1

NOTES:

1. APPROVED MANUFACTURERS: BELL & GOSSETT, TACO, AMTROL

PUMP SCHEDULE												
TAG	MODEL	SIZE	MANUFACTURER	LOCATION		FLOW RATE		HEAD		MOTOR		NOTES
				ROOM	DESCRIPTION	(L/s)	(gpm)	(kPa)	(ft.WC)	(KW)	(H.P.)	
P-1	Series e-1510 4BD	215 T	BELL & GOSSETT	2670	BOILER ROOM	31.55	500	149	50	7.46	10.00	1, 2, 5
P-2	Series e-1510 4BD	215 T	BELL & GOSSETT	2670	BOILER ROOM	31.55	500	149	50	7.46	10.00	1, 2, 5
P-13	Magna 3	32-60	GRUNDFOS	2670	BOILER ROOM	0.82	13	45	15	0.11	0.15	3, 4, 5
P-23	Series e-1510 2BD	182 T	BELL & GOSSETT	2670	BOILER ROOM	7.89	125	149	50	2.24	3.00	1, 2, 5
P-24	Series e-1510 2BD	182 T	BELL & GOSSETT	2670	BOILER ROOM	7.89	125	149	50	2.24	3.00	1, 2, 5
NOTES:												
1. WITH 600V/3PHASE.												
2. WITH U.S. MOTORS ODP NEMA PREMIUM EFFICIENT INVERTER DUTY AND VFD												
3. WITH 230V/1PHASE.												
4. WITH PERMANENT MAGNET MOTOR AND INTEGRATED FREQUENCY CONVERTER												
5. APPROVED MANUFACTURERS: BELL & GOSSETT, GRUNDFOS, TACO												

HOT WATER BOILER SCHEDULE (Based on Cleaver Brooks)												
TAG	MODEL	LOCATION		ENERGY TYPE	HEATING PERFORMANCE			BURNER TURNDOWN	PHYSICAL CHARACTERISTICS		NOTES	
		ROOM	DESCRIPTION		INPUT (kW)	(MBH)	MAX. OUTPUT (kW)		(MBH)	WEIGHT (kg)		(lbs.)
B-1	CFLC 4000	2670	BOILER ROOM	NAT. GAS	1,172.3	4,000.0	1,102.0	3,760.0	5:1	4,883	10,743	1, 2, 3, 4
B-2	CFLC 4000	2670	BOILER ROOM	NAT. GAS	1,172.3	4,000.0	1,102.0	3,760.0	5:1	4,883	10,743	1, 2, 3, 4
B-3	CFLC 4000	2670	BOILER ROOM	NAT. GAS	1,172.3	4,000.0	1,102.0	3,760.0	5:1	4,883	10,743	1, 2, 3, 4

NOTES:

1. COMPLETE WITH 1-1/4" NPT. PVC PIPE CONNECTED TO CONDENSATE NEUTRALIZATION TANK

2. WITH 600V/3 PHASE

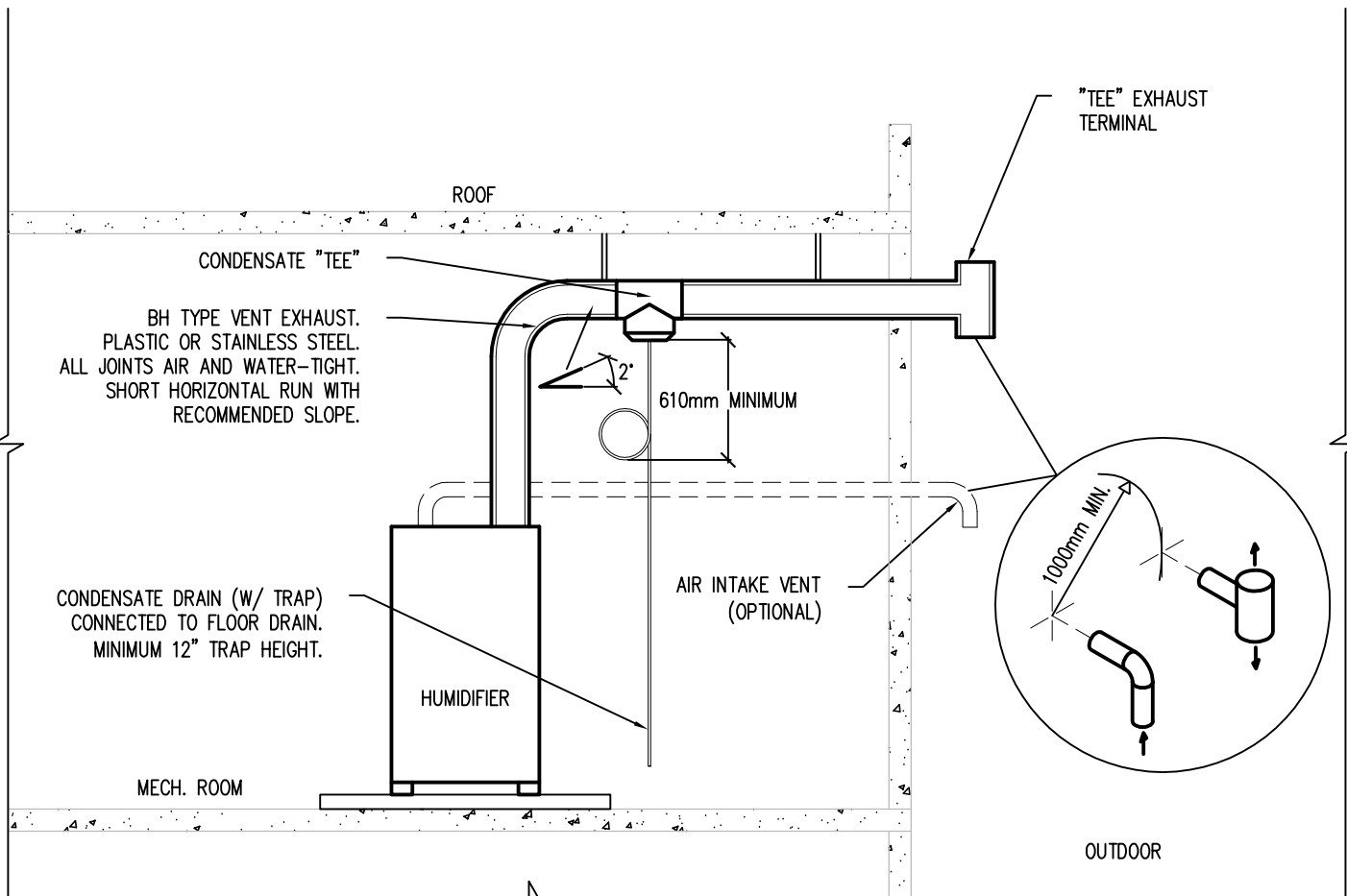
3. APPROVED MANUFACTURERS: CLEAVER BROOKS, VISSMAN, BOSCH

4. MAXIMUM HEIGHT = 2450 mm. COORDINATE EQUIPMENT HEIGHT AND PIPING POSITION.

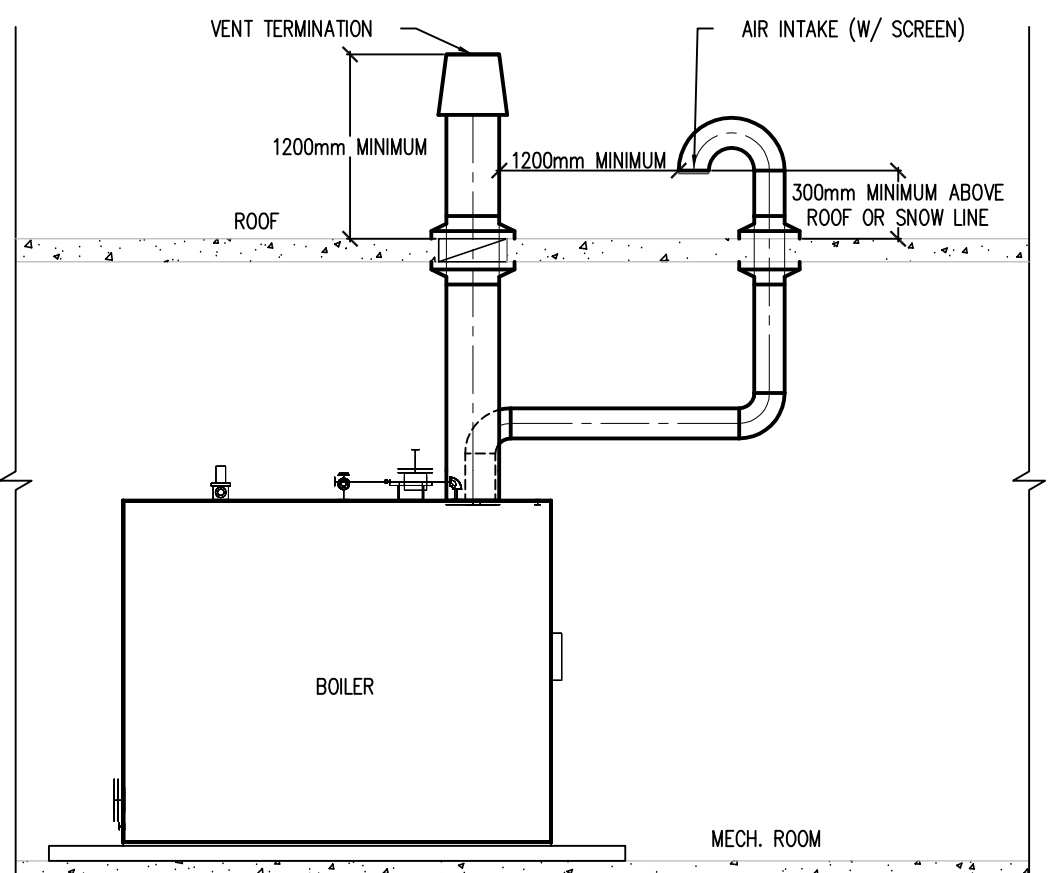
AIR SEPARATOR SCHEDULE												
TAG	LOCATION		MAXIMUM CAPACITY	MAXIMUM RATED CHARACTERISTICS				ASME RATED	APPROX. VOLUME		NOTES	
	ROOM	DESCRIPTION		(L/s)	(gpm)	TEMPERATURE ( C )	TEMPERATURE ( F )		PRESSURE (kPa)	PRESSURE (PSIG)		(L)
AS-1	2670	BOILER ROOM	54	850	176.7	350.0	862	125	YES	129	34	1

NOTES:

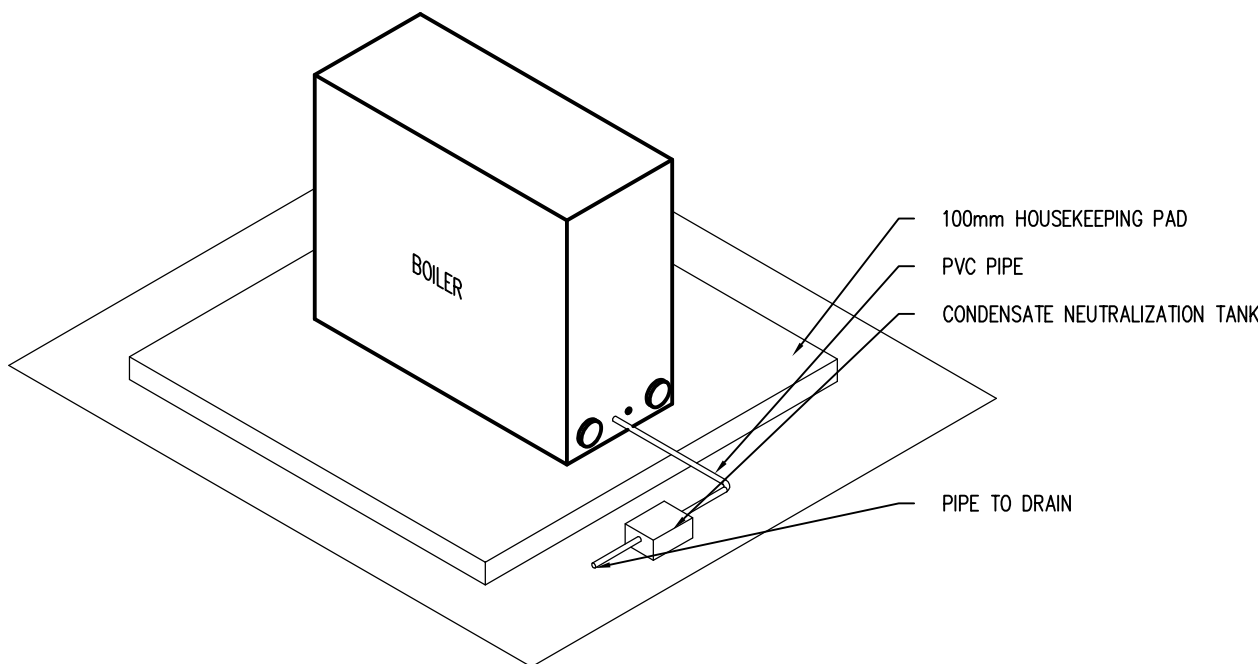
1. APPROVED MANUFACTURERS: BELL & GOSSETT, TACO, AMTROL



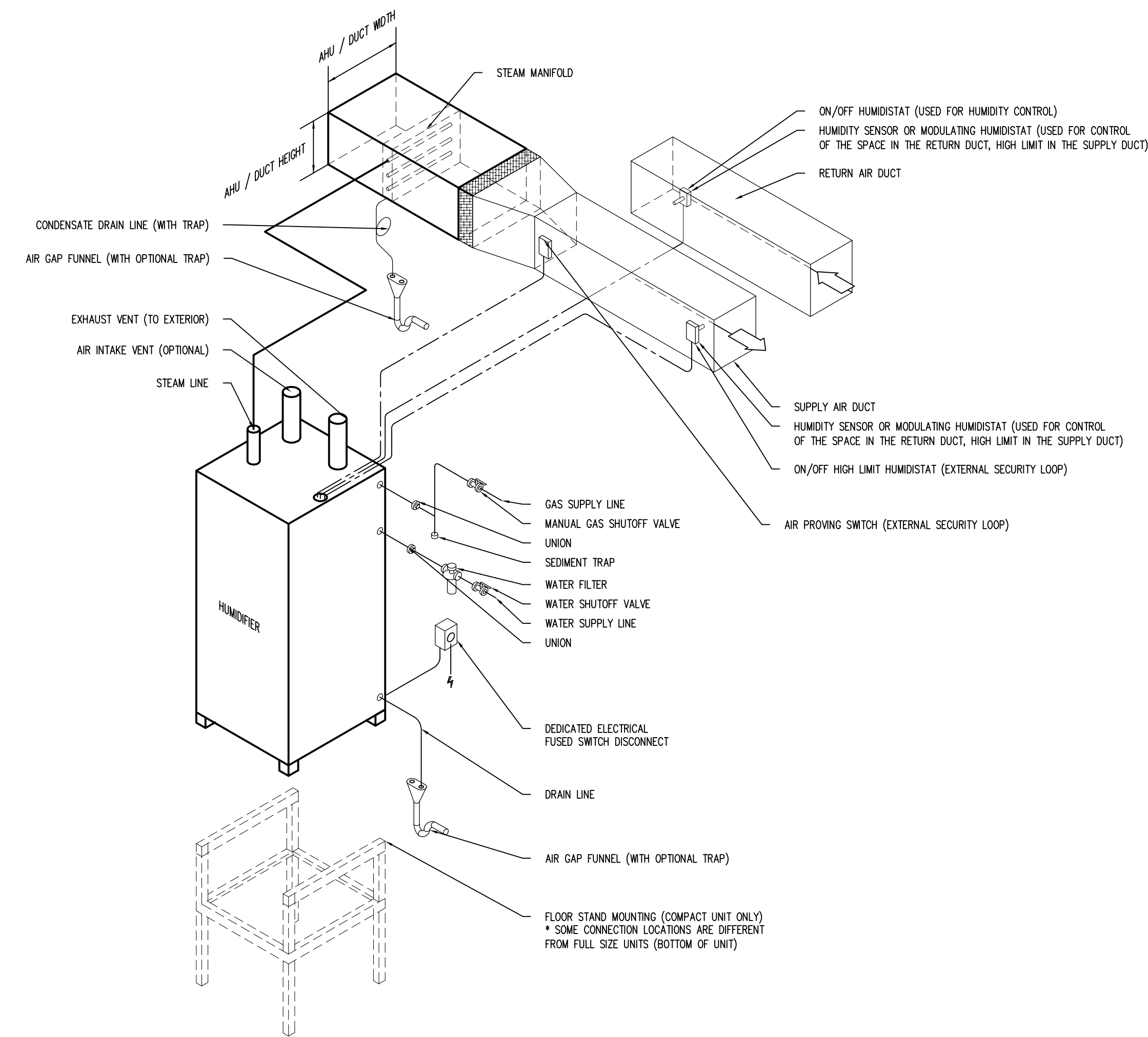
1 EXHAUST VENT DETAIL - HUMIDIFIER



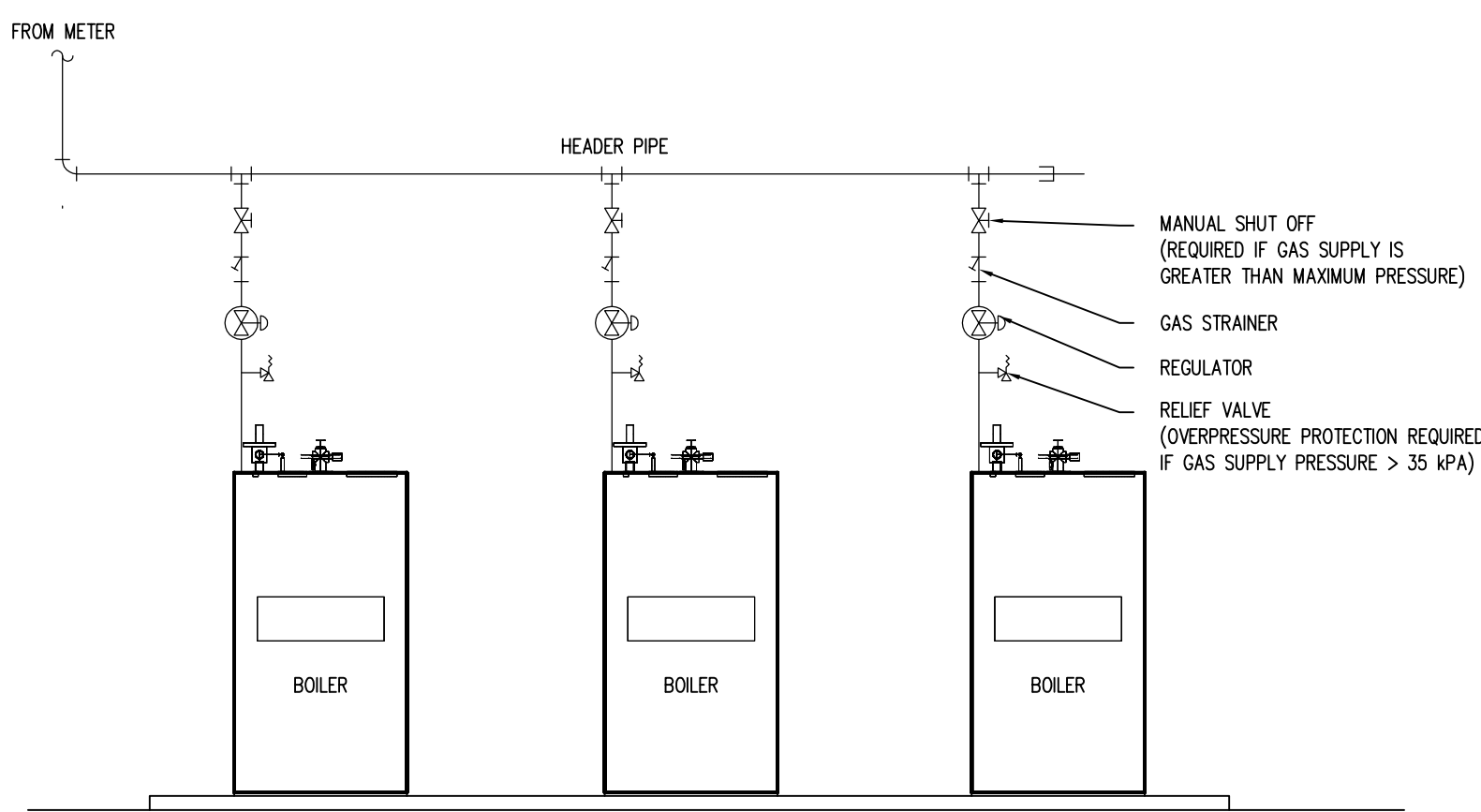
3 EXHAUST VENT AND AIR INTAKE DETAIL - BOILER



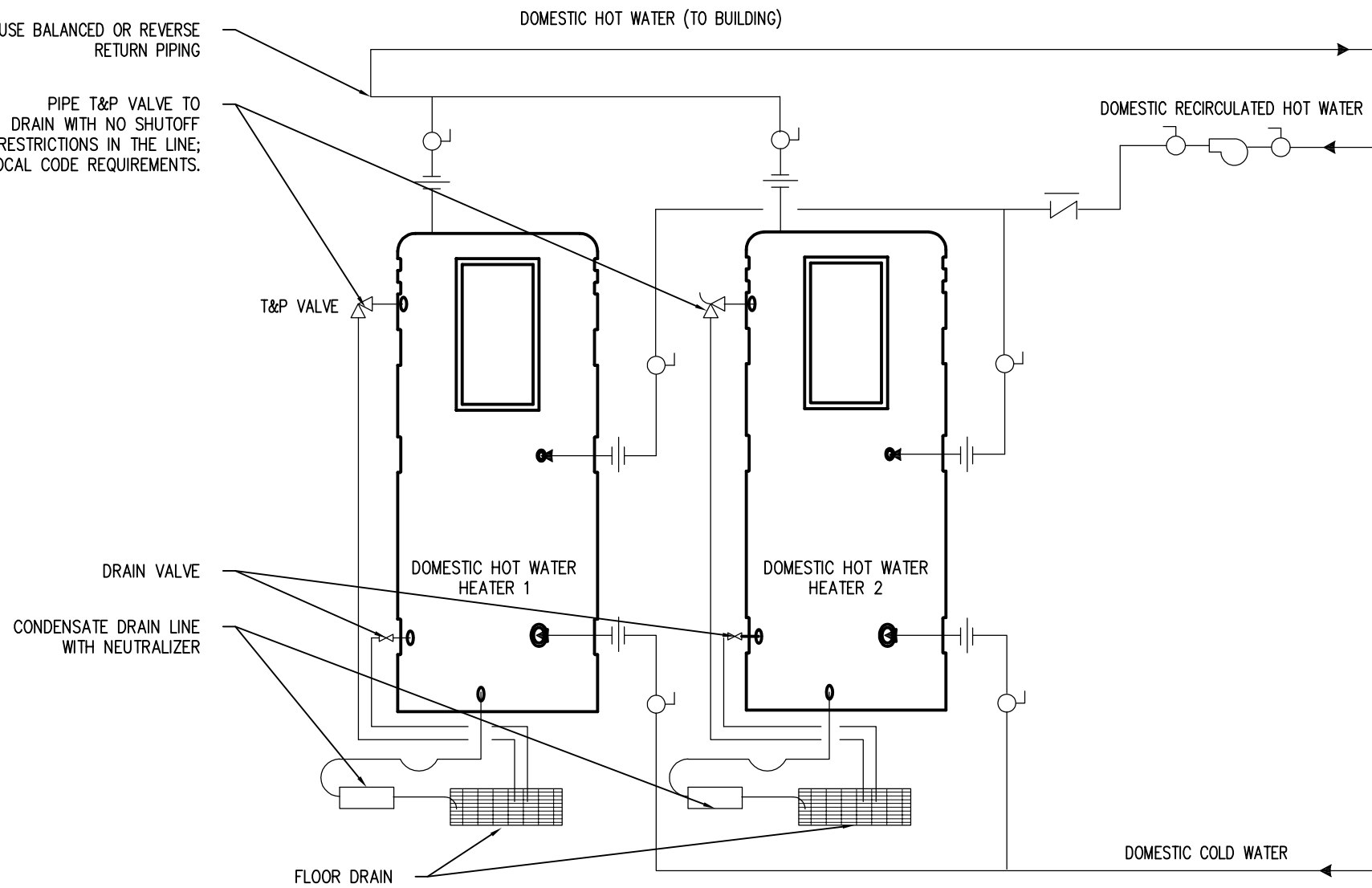
4 CONDENSATE NEUTRALIZATION TANK DETAIL - BOILER



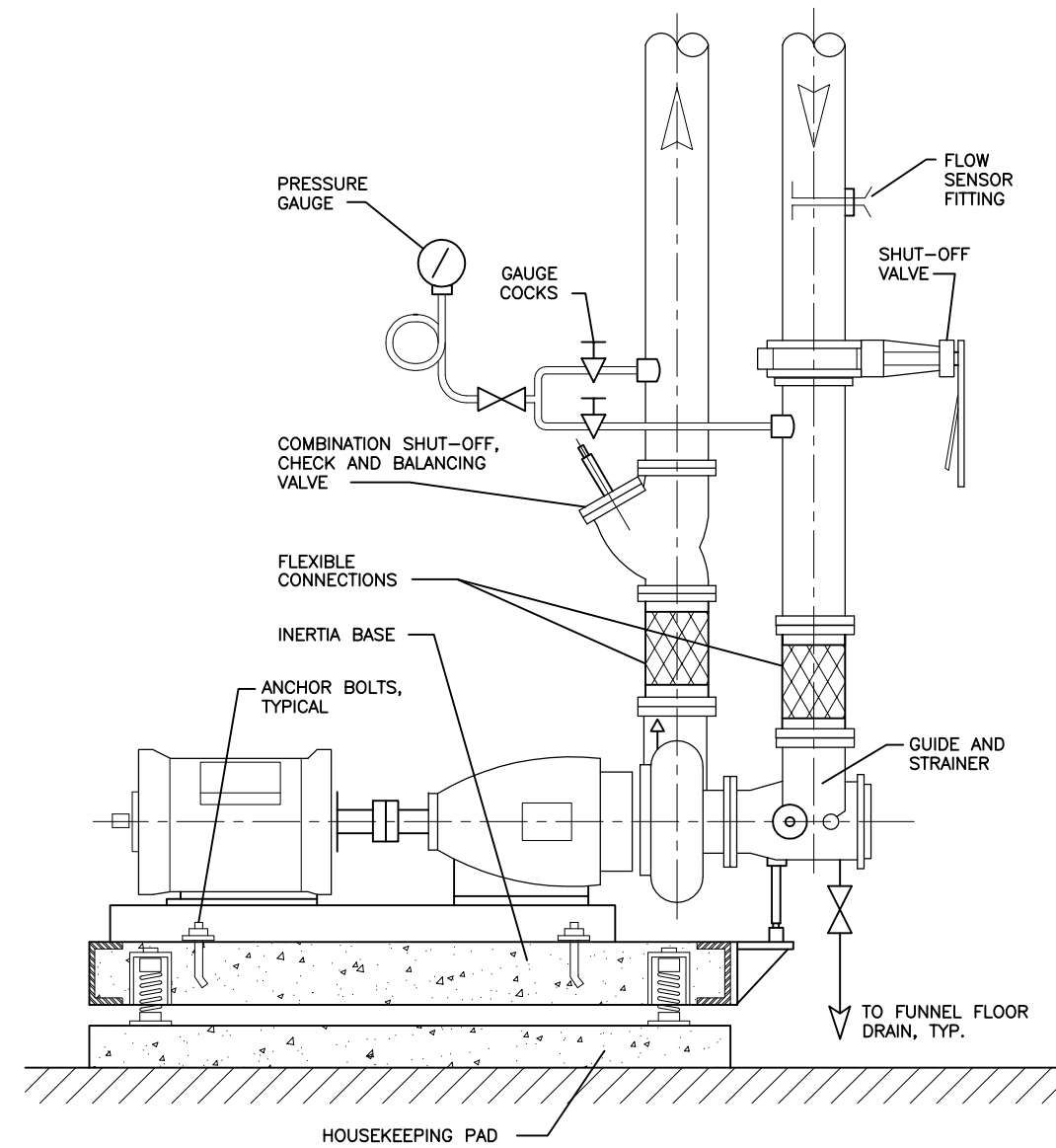
2 TYPICAL CONNECTIONS - HUMIDIFIER



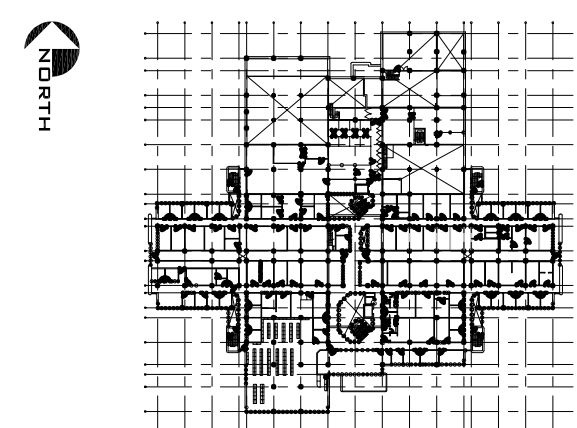
5 GAS CONNECTIONS DETAIL - BOILER



6 TYPICAL CONNECTIONS - DOMESTIC HOT WATER HEATER



7 BASE MOUNTED PUMP



BUILDING KEY PLAN

LEGEND



Association of Professional Engineers & Geoscientists  
of Saskatchewan  
CERTIFICATE OF AUTHORIZATION  
HDK Consulting Incorporated  
Number 30340  
Permission to Consult held by:  
Discipline: St. Reg. No. Signature  
MECHANICAL 30273

HDK  
HDK CONSULTING  
INCORPORATED  
Mechanical | Electrical | Communications | Security Engineering

1	ISSUED FOR CONSTRUCTION	30-JUN-2017
0	ISSUED FOR REVIEW	28-APR-2017
revisions	description	date

A	detail no.	A
C	location drawing no.	B
	our design no.	C
	drawing no.	
	design no.	

project project

NHRC  
MECHANICAL UPGRADES  
BOILERS REPLACEMENT  
NATIONAL HYDROLOGY RESEARCH CENTRE  
11 INNOVATION BOULEVARD  
SASKATOON, SASKATCHEWAN

MECHANICAL SCHEDULES  
AND DETAILS

Designed By M/G	Conçu par M/G
Date 2017/04/28	(yyyy/mm/dd)
Drawn By M/G	Dessiné par M/G
Date 2017/04/28	(yyyy/mm/dd)
Reviewed By D/H	Examiné par D/H
Date 2017/06/19	(yyyy/mm/dd)
Approved By D/H	Approuvé par D/H
Date 2017/06/23	(yyyy/mm/dd)
Tender	Soumission
Project Manager NIKOLAS FEHR	Administrateur de projets NIKOLAS FEHR
EC Proj no. NHRC-010	Consultant Proj no. 16131
Drawing no.	No. du dessin