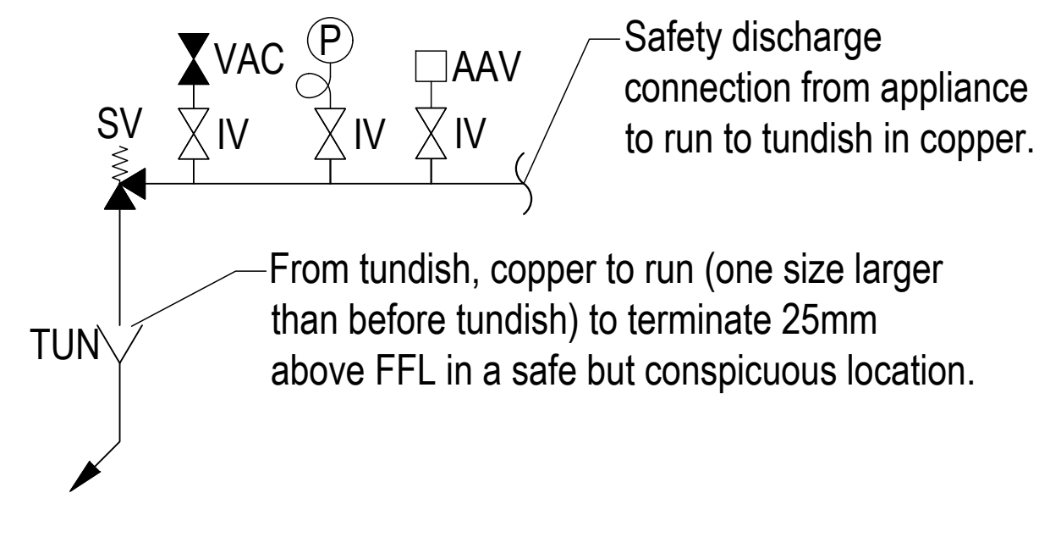
Hotel Heating Substation Plant Schedule

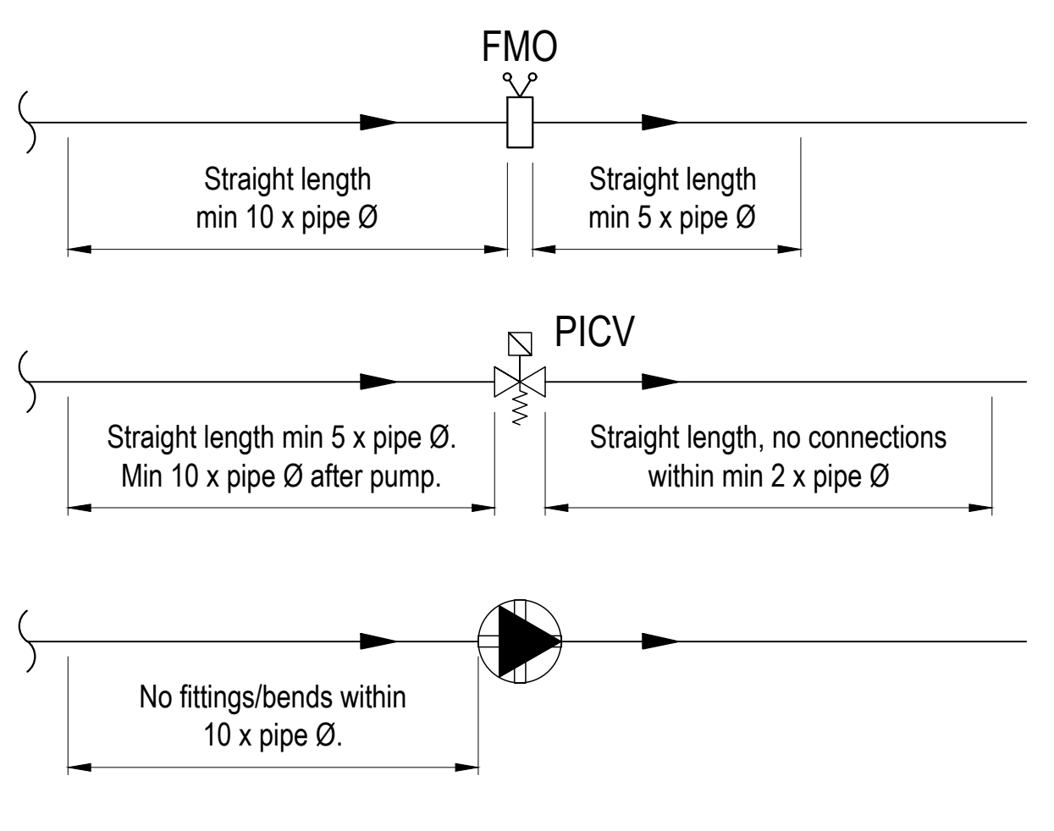
Plant Ref.	Duty	Description	Manufacturer / Supplier	Product Range	Product Ref
AS H1	Full In-Line Flow	Smart Microbubble Air Seperator with Compressed Particle Extractor and automatic air vent.	Flamco	Flamcovent Smart F	
BMS H1	As per detailed quotation.	Management system with both local and remote maintenance access to ensure all plant can operate as intended and raise a fault alarm, including an automatic email message, should an item of plant become faulty. Incorporated safety system as noted.	Safe & sound	Distech	
CDP H1	25 Litre	Wall Mounted chemical dosing pot with funnel, non-return valve on fill line and air release valve.	ESG Waterwise	DP	DP25
DS H1	Full In-Line Flow	Smart Dirt Separator with Compressed Particle Extractor, supermagnets, dirt collector, double scraper and drain off.	Flamco	Clean Smart F	
EPF H1	2,050 litres system volume 1.9 bar cold fill, 1.6 bar minimum pressure, 2.1 bar final pressure, 6 bar safety valve	Pressure maintenance, pump driven expansion provision, vacuum degassing and water make up.	IMI Hydronic	Pleno water make-up, Compresso Pressurisation/Expansion unit, Vento Vacuum Degasser, Braincube controller	
PMP H1	1.63 l/s @ 37kPa	Twin head variable speed pumpset, including built-in frequency converter. Operating as Duty/Standby. Installed on Inertia bases.	Grundfos	Magna 3D	50 - 60
PMP H2	1.9 l/s @ 30kPa	Hot water secondary return pump	Grundfos	CME	10 -1
SSF H1	1.025m^3/hr filtration	Skid mounted sidestream filtration package with closed recovery system, bag filtration, and insulation kit. Bag filter to be reduced to 5 micron bags before system is handed over.	Socotec	CSF filter with CRS dirt recovery system	CSF 0505 & CRS 8-16
HWC 01 & 02	3000L total	Indirect hot water cylinder	Hoval	CombiVal CR	1500



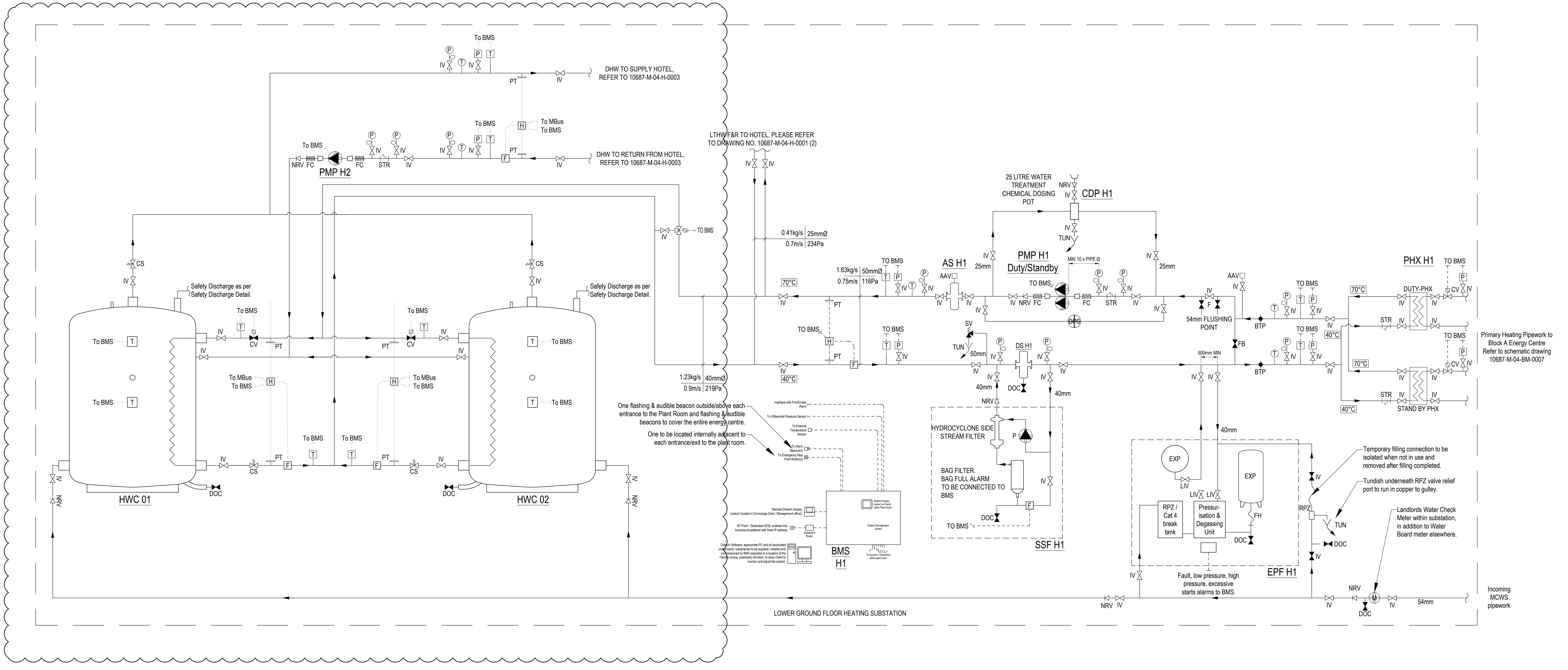
Safety discharge connection from appliance to run to tundish in copper.

From tundish, copper to run (one size larger than before tundish) to terminate 25mm above FFL in a safe but conspicuous location.

Safety Discharge Detail


FMO
Straight length min 10 x pipe Ø
Straight length min 5 x pipe Ø
PICV
Straight length min 5 x pipe Ø. Min 10 x pipe Ø after pump.
Straight length, no connections within min 2 x pipe Ø
No fittings/bends within 10 x pipe Ø.

Typical Installation Details


To BMS
DHW TO SUPPLY HOTEL, REFER TO 10687-M-04-H-0003
To MBus
To BMS
DHW TO RETURN FROM HOTEL, REFER TO 10687-M-04-H-0003
NRV
FC
PMP H2
STR
PT
LTHW F&R TO HOTEL, PLEASE REFER TO DRAWING NO. 10687-M-04-H-0001 (2)
0.41kg/s
25mmØ
0.7m/s
234Pa
CS
Safety Discharge as per Safety Discharge Detail.
CV
HWC 01
HWC 02
DOC
70°C
40°C
1.63kg/s
50mmØ
0.75m/s
116Pa
1.23kg/s
40mmØ
0.9m/s
219Pa
One flashing & audible beacon outside/above each entrance to the Plant Room and flashing & audible beacons to cover the entire energy centre.
One to be located internally adjacent to each entrance/exit to the plant room.
Interface with Fire/Smoke Alarm
To Differential Pressure Sensor
To External Temperature Sensor
To Alarm Beacon(s)
To Emergency Stop Push Button(s)
Distech Display (colour) on Panel within Plant Room.
Distech Management System
Remote Distech Display (colour) located in [Concierge Desk / Management office].
BT Point - Dedicated ADSL enabled line, business broadband with fixed IP address.
Broadband Router
Distech Software, appropriate PC and all associated components / peripherals to be supplied, installed and commissioned by BMS specialist at a location of the Clients choice, potentially off-sitem, to allow Client to monitor and adjust the system.
BMS H1
To Sensors / Equipment within plant room.
LOWER GROUND FLOOR HEATING SUBSTATION
25 LITRE WATER TREATMENT CHEMICAL DOSING POT
CDP H1
TUN
AS H1
AAV
PMP H1 Duty/Standby
MIN 10 x PIPE Ø
25mm
SV
DS H1
50mm
40mm
HYDROCYCLONE SIDE STREAM FILTER
BAG FILTER. BAG FULL ALARM TO BE CONNECTED TO BMS
SSF H1
54mm FLUSHING POINT
FB
500mm MIN
BTP
40mm
EXP
LIV
RPZ / Cat 4 break tank
Pressurisation & Degassing Unit
FH
EPF H1
Fault, low pressure, high pressure, excessive starts alarms to BMS.
Temporary filling connection to be isolated when not in use and removed after filling completed.
Tundish underneath RPZ valve relief port to run in copper to gully.
Landlords Water Check Meter within substation, in addition to Water Board meter elsewhere.
RPZ
NRV
54mm
Incoming MCWS pipework
PHX H1
DUTY-PHX
STAND BY PHX
Primary Heating Pipework to Block A Energy Centre Refer to schematic drawing 10687-M-04-BM-0007

NOTE: ALL PIPE WORK AND FITTINGS TO BE INSULATED AS PER THE SPECIFICATION. GENERALLY WITH THE FOLLOWING MINIMUM THICKNESS:

	MIN. INSULATION THICKNESS	
PIPE SIZE (mm)	MINERAL WOOL (mm)	PHENOLIC FOAM (mm)
15	30	15
20	30	15
25	35	20
32	35	20
40	35	20
50	40	25
65	40	25
80	40	25
100	45	25
125	45	30
150	45	30
200	50	30
250	50	30

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General Notes

- Before commencing work on site, please read Design Risk Management Information.
- All manufacturer's instructions to be reviewed prior to installation.
- This drawing is to be read in conjunction with all schematics, details and specification documents.
- Dimensioned setting out details to be confirmed by architect.
- All discrepancies are to be queried with WDA at Tender stage and before works commence.
- Any information believed to be missing is to be queried with WDA at Tender stage and before works commence.
- All items are to be installed in a way that they can be used and maintained correctly in line with manufacturer's instructions, including local mechanical and electrical isolation for removal of individual items without draining down other portions of the system.
- All items are to be installed in locations that can be safely accessed and maintained without the need for temporary scaffolding, steps or ladders.
- All controls (both as part of BMS and individual appliances) are to incorporate the appropriate time delays and/or proven signals to ensure safe and intended operation of the system and to avoid sporadic operation, "cycling" or "hunting".

Pipework / Valves Notes

- All dead legs (where flow does not occur under normal circumstances) must be no longer than 3x pipe diameter.
- Heating pipe work high points are to be vented with automatic air vents (AAV's), or shall be manually vented where not possible.
- Where pipes and ducts need to drop/rise, each individual high point must be fitted with an AAV.
- All moving items of equipment are to be installed on Anti-vibration mounts and have flexible connections.
- All sensors & gauges to be installed in steady flow conditions.
- Padlocks for lockable isolation valves to be provided by installing Contractor with suited keys and the padlock/valve labelled as "Do not isolate".

Insulation Notes

- All heating and water pipework as well as associated valves within then energy centre are to be fully insulated throughout.
- Pipe clips are to be installed around a section of load bearing insulation such as Rockwool Duraflex / ProRox, to prevent heat transmission through the pipe fixing.
- All heating and water valves within the energy centre are to be fully insulated throughout in a valve box, overlapping the pipe insulation either side of the valve. Extended valve handles are to be fitted to allow use of the valve without removal of the insulation box.
- All equipment that can be insulated in line with Manufacturer requirements is to be insulated.
- All drains and vent points (including those on pieces of equipment) are to be extended to be clear of insulation, to ensure correct operation without removal of insulation.
- All insulation within the energy centre is to be mineral wool and clad in dimpled aluminium.

Firestopping & Fire Safety Notes

- Where any items larger than 40mm penetrate a fire compartment element the item is to be fitted with a fire collar with a rating to match the compartment being penetrated. The fire collar must be installed in line with manufacturer's requirements.

Electrical Notes

- All wiring connections are to be completed in a manner that does not restrict the operation or maintenance of all components of all equipment.
- All individual items of equipment are to have individual electrical isolation.
- Any item that is required to be removed for maintenance or servicing shall be wired with a removable electrical connection in a readily accessible location.
- All electrical items within the plant room or gas meter room are to be suitable for Hazardous Zone 2.
- All electrical items within the plant room or gas meter room are to be at least IP54 rated.

Certification / Qualification Notes

- The BMS must be supplied, installed and commissioned by a Trend TTC Registered company such as Safe and Sound Control Systems Ltd.

LEGEND

VALVES

	Valve normally open / Valve normally closed respectively.
AAV	Air Admittance Valve, minimum 25mm within energy centre.
ABV	Automatic Bypass Valve, to open when pressure increases.
BV	Balancing Valve - with measuring points & hand wheel for positive shut off from IMI Hydronics STAF range.
BV	Balancing Valve, with self-sealing measuring points and positive shut-off, from IMI Hydronics STAF range.
CV	2-port butterfly-type control valve.
DOC	Drain Off Cock - Bronze Gland Pattern valve by Hattersley.
DV	3-Port Diverter Valve.
FMD	Flow Measuring Device, as per BV/IV but solely for the purpose of Flow measurement and isolation only. Valve to be left fully open.
F	Isolation Valve for Flushing Equipment Connection - as per IV, capped off. Line size or 54mm, whichever is smaller.
IV	Isolation Valve - Full bore ball valve with quarter turn lever (below 50mm) or Butterfly valve with lever operator (50mm and above) by Hattersley.
LIV	Lockable Isolation Valve - as per IV, with provision for padlock.
MCV	2-port seat-type modulating control valve.
MV	3-Port seat-type mixing valve.
NRV	Non-Return Valve.
PICV	Pressure Independent Control Valve - with measuring points and modulating control from IMI Hydronics FUSION range.
RPZ	Reduced Pressure Zone valve.
SV	Safety Valve, high lift type, fixed relief setting (not adjustable).
VAC	Automatic Anti-Vacuum Valve.

FITTINGS

	Change in Pipe Size.
EXP	Expansion Vessel.
FC	Flexible Connection, Untied rubber bellow from Page Pipeline Supplies UTB range.
FH	Flexible Hose, metal braided.
FMO	Flow Measuring Orifice from IMI Hydronics MDFO range.
	Single Head Pump.
STR	Strainer - Y-type strainer, stainless steel screen, ≤DN25 with ≤0.75mm mesh. ≥DN32 with ≤1.5mm mesh, from Hattersley.
TUN	Tundish.

SENSORS/GAUGES

DPS	Differential Pressure Sensor.
F	Flow Sensor, as supplied with heat meter.
H	Heat Meter, ultrasonic with communication options as labelled, from Danfoss Sonometer 1100 range.
P IV	Analogue Pressure Gauge, Boudon tube type, 150mm gauge diameter, 3/8" connection, with syphon loop and isolation valve.
P	Digitial Pressure Sensor.
PT	Temperature Probe Pocket.
T	Analogue Temperature Gauge, Bi-metal type, 100mm gauge diameter, either in pocket or with isolation valve from Brannon Thermometers.
T	Digital Temperature Sensor, in 1/2" pocket or with isolation valve, accurate to at least 0.25K.
FLOW RATE | PIPE SIZE / VELOCITY | PRESSURE DROP	Pipe Flow Characteristics
HIU	Heat Interface Unit
	Radiator
	AHU frost coil
	Air curtain

PLEASE NOTE THAT ALL PIPE WORK IS IN MEDIUM GRADE STEEL.
ALL HORIZONTAL PIPEWORK IS TO RISE TO VENT.

ALL PIPEWORK HIGH POINTS ARE TO BE VENTILATED AND LOW POINTS ARE TO BE FITTED WITH DRAIN OFF COCKS.

Rev	Date	Description	Drwn	Chkd
C1	16.07.2021	Updated hot water cylinder	DALS	EJ
P3	21.08.2020	Updated to show buffer vessel valve arrangement	SV	EJ
P2	25.03.2020	Updated to show LTHW to hotel. Updated Substation plant schedule	DALS	JC
P1	13.01.2020	Preliminary Issue	MJF/JW	JC

Current purpose: PRELIMINARY Scale: NTS Size: A0
Original Issue Date: 13.01.2020 Drwn: MJF Chkd: JC

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Title:
HEATING DISTRIBUTION SCHEMATIC
HOTEL
SHEET 1 OF 2

Project:
HORNSEY
TOWN HALL

Client: ARDMORE

Dwg Number: 10687-M-04-H-0001(1)

Rev: C1